Innovation in Motion
TSUBAKI

# TSUBAKI
# DRIVE CHAINS & SPROCKETS

# POWER to the WORLD!

## Tsubaki's pursuit of outstanding quality drives the world.

**Since its founding, Tsubaki has pursued the world's most outstanding quality while contributing to a better society. And Tsubaki will continue providing the world with only the best.**

## Basic Environmental Policy of the Tsubaki Chain Group

### Philosophy

The Tsubaki Chain Group recognizes that the protection of the global environment is one of the chief responsibilities of all mankind. It is our goal to show consideration for the environment in all of our business activities in order to contribute to a better tomorrow.

### Policy

- Always be aware of the environmental effects of business activities, products and services, and strive to reduce the related environmental load from the perspective of global environmental protection.
- Streamline our organization for environmental protection and continually improve our environmental management systems.
- Comply with environmental laws, regulations and agreements.
- Help the entire workforce understand our basic environmental policy, and enhance their awareness of global environmental protection via environmental education, internal publication activities, etc.

## Kyotanabe Plant Concepts

- Kind consideration towards the global environment
- Harmony and coexistence with the global environment
- Pursuit of high efficiency and high quality
- Courage to look to the future

Tsubakimoto Chain's Kyotanabe Plant is a state-of-the-art facility outfitted with the latest environmental systems to produce environment-friendly products that meet the needs of the times and our customers.

JQA-0911
Chain Division
JQA-QM9640
Environmental Management Department

JQA-EM3392
Kyotanabe Plant

### Internationally Accredited Plant

Tsubakimoto Chain aims to make products that are people-friendly, environmentally friendly, and reliable. Tsubakimoto Chain acquired ISO9001 accreditation in 1995 and ISO14001 accreditation in 2003.

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# Trust Tsubaki's Robust Line-up to Increase Your Productivity

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Eco Link Mark
These products meet Tsubaki's voluntary eco assessment criteria.


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Reduce your maintenance times, improve your work environment, and increase your productivity.

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Provides higher kilowatt ratings, allowable loads, and greater tensile strength than RS Roller Chain, allowing users to go 1 – 2 sizes down.

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Provide resistance to a variety of operating environments.

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Chains designed for special applications.

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**Tsubaki, bringing you an expansive line-up of drive chains and sprockets that fit your exact needs and drastically improve your productivity.**

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Wide selection of standard sprockets for general use RS Roller Chain.


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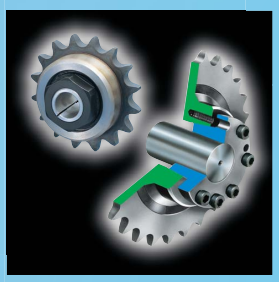
## Fit Bore Series Pg. 101

Each model is provided with a finished bore, keyway, and set screws.


Fit Bore® ·····Pg. 101


## Lock Series Pg. 108



RS standard sprockets can be mounted to shafts without using keys.


Lock Series S Type ·····Pg. 109
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## Corrosion Resistant Series Pg. 122

Sprockets made of excellent corrosion-resistant stainless steel, and sprockets made of engineering plastic that can be used without lubrication.


Corrosion Resistant Series ···Pg. 122
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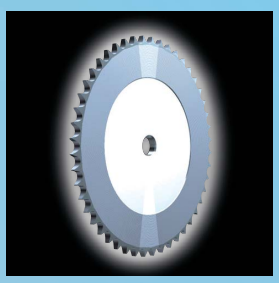
## Specialty Sprockets Pg. 133



Sprockets for special applications, such as torque limiter sprockets.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Pin gear drives use Tsubaki's long experience in creating drive units to provide increased performance, easier mounting, and a greater operating range. (Linear and rotating drive types available.)


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## Caution

The chains, sprockets, and other products appearing in this catalog are manufactured with care. However, if not properly selected, handled, or maintained, chains may break, resulting in serious accident. Use design materials, selection criteria, and instruction manuals as reference for selecting, handling, and maintaining chains and sprockets, and confirm any uncertainties with the manufacturer before proceeding.

# New Tsubaki Roller Chains and Sprockets

## RS Roller Chain G7-EX

We've expanded our innovative G7 line-up to bring you the maximum in quality.

### Lube Groove Solid Bush

(Pat. No. 3982706*1)

Uses lube grooves on the inside of our seamless cold forged solid bush. Solid bushes together with lube grooves give G7-EX chains twice the wear life.

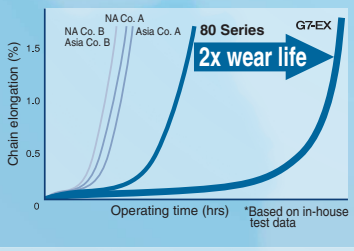
*Lube grooves (Pat.) available from RS80 – RS140 chains only.

*1 Tsubaki's unique lube groove processing (Pat.) creates grooves on the inside of the bush to help retain lubrication longer.

### Twice the Wear Life

Solid lube groove bushes retain lubrication longer

● Wear life comparison



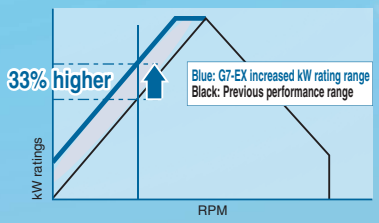

Tsubaki's unique processing expertise has given rise to our seamless solid bush. Special lube grooves in our high precision solid bush better retain lubrication, helping double the G7-EX chain wear life.

*Lube grooves (Pat.) available from RS80 – RS140 chains only.

### 33% Increase in kW Ratings

Realized through superior technology, equipment, and quality control at Kyotanabe Plant, the world's No. 1 chain manufacturing center.

● kW Ratings Table




Kyotanabe Plant – expertly combining traditional manufacturing know-how with cutting-edge technology. By decreasing deviations in quality, we have increased the kW ratings of the G7-EX chain by 33%.

## BS/DIN RS® Roller Chain GT4 Winner

We've made the most of our manufacturing advances with the G7-EX roller chain to bring twice the wear life to the BS/DIN Series Roller Chain.

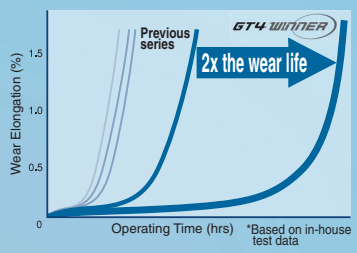
GT4 WINNER

4th Generation BS/DIN Series Roller Chain

GT4 WINNER

### ①Lube groove solid bush

We use innovative G7-EX technology to realize unparalleled wear resistance.




### ②Specially shaped pin and center sink riveting

Center sink rivets eliminate the need for pin grinding, greatly reducing chain cutting and connection time.

### ③Full kW ratings table

Tsubaki has provided the world's first full kW ratings table for BS/DIN chain, making chain selection easy and accurate.

# RS® Sprockets

RS Sprockets are perfect for G7-EX roller chain!

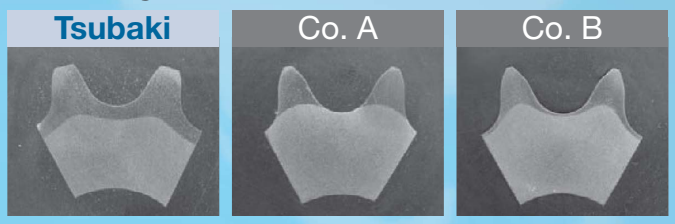
RS Sprockets are strong enough for G7-EX roller chain. While sprocket teeth are subject to wear, and require the same wear resistant qualities as roller chain, Tsubaki is proud to offer sprockets with hardened teeth for the most demanding applications.

**Tsubaki RS Sprockets are high quality sprockets that have been heat treated in accordance with appropriate quality standards.**

## ● Comparison of teeth hardening

Tsubaki RS Sprocket teeth have a hardened layer over the entire surface, right down to the teeth roots.

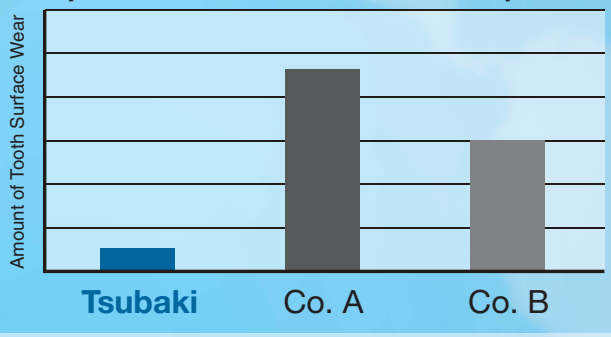
## Cross-sectional look at sprocket teeth hardening (darker color is the hardened layer)




## ● Comparison of tooth surface wear under loaded test conditions

Here we see the amount of wear on an RS40 chain sprocket after 500hrs operation. The Tsubaki sprocket exhibits overwhelmingly superior wear performance!

### Sprocket Tooth Surface Wear Comparison

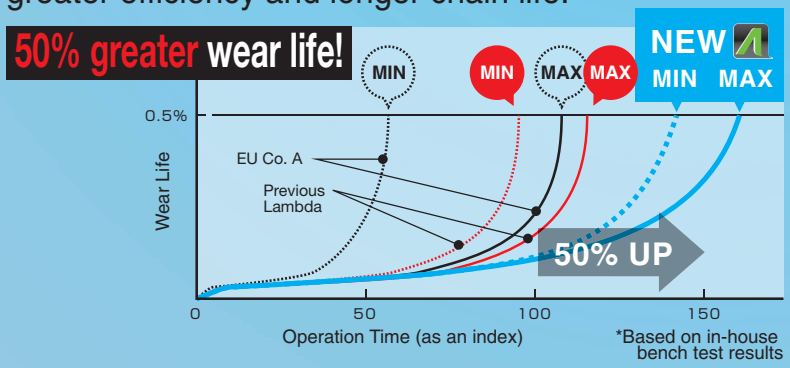



# BS/DIN Series Lambda Chain

## Our new BS/DIN Series Lambda Chain has even better performance

For RF06B-LM – RS16B-LM

Much of the equipment imported from Europe uses BS/DIN Series chain.
We thoroughly reviewed the bearing material, material properties, and lubrication for our Tsubaki BS/DIN Series Lambda Chain and improved its performance!
See for yourself how Tsubaki's proven performance and Made In Japan quality achieve greater efficiency and longer chain life.




Tsubaki's unique bearing material, material properties, and lubrication bring you a Lambda Chain with a 50% longer wear life.
We've further eliminated the extremes of quality variation to give our Lambda Chain more stable performance.

# Before Use

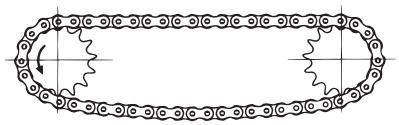
**NOTE**

With the exception of endless chains, the transmission power tables in this catalog are based on use with connecting parts (connecting links or offset links).

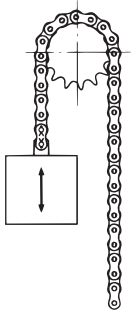
See page 12 for details on connecting parts.

This drive chain catalog explains how to select, install and maintain all listed Tsubaki Roller Chains. Numerical figures are indicated in both SI and gravimetric units.
Read through this catalog before use to ensure proper selection and usage. Also, carefully inform persons involved in installation and maintenance of all pertinent matters.

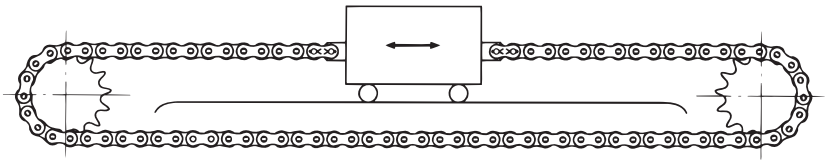
Ordinary Transmission



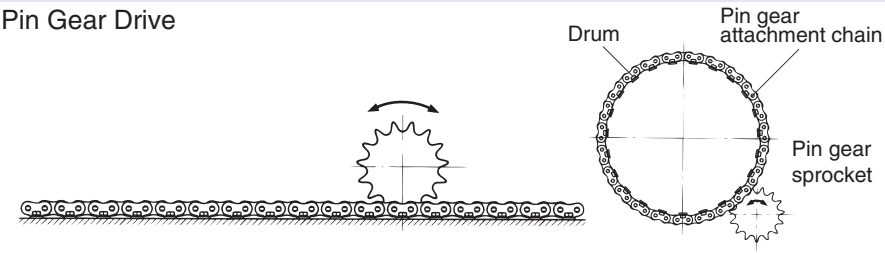
Lifting Applications



Shuttle Traction

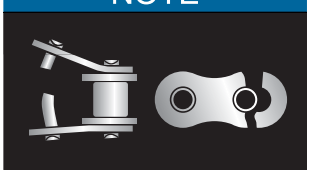


Pin Gear Drive




## ⚠ Notes on Using Roller Chains

**NOTE**



- When using a roller chain in lifting applications, keep clear from underneath the load.
- If there is the possibility of serious accident or death in the event of roller chain breakage during lifting or other applications, install reliable safety devices to prevent accidents.
- Inspect and replace worn roller chain periodically.
- Roller chains can break and climb up on the sprocket from wear elongation. (Lubrication can extend service life against wear elongation. Tsubaki also offers lube-free drive chains that deliver long-lasting service without lubrication.)
- Overload may cause roller chain to break. (Avoid breakage by properly selecting products with consideration of inertia, etc. Tsubaki offers heavy-duty drive chains in identical sizes that deliver the high strength of larger chains.)
- Roller chains can break due to corrosion and other environmental conditions. (Avoid breakage by preventing exposure to corrosive liquids, atmospheres, etc. Tsubaki offers excellent corrosion-resistant drive chains.)
- Correctly install roller chain to avoid misalignment or uneven wear and possible breakage.

## General Comparison of Transmission Elements

The following table compares roller chains to other power transmission mechanisms such as toothed belts, V-belts and gears. Generally speaking, roller chains are often used as economical power transmission suited to low speed and high loads. However, it is also possible to use chain in high-speed applications such as camshaft drives for automobiles.

| Transmission Mechanism | | Roller Chain | Toothed Belt | V-belt | Gear |
|---|---|---|---|---|---|
| Synchronicity | | ◎ | ◎ | × | ◎ |
| Transmission Efficiency | | ◎ | ◎ | △ | ◎ |
| Anti-shock | | △ | ○ | ◎ | × |
| Noise & Vibration | | △ | ◎ | ◎ | × |
| Ambient Conditions | | Avoid water and dust. (Corrosion-resistant drive chains available.) | Avoid heat, oil, water and dust. | Avoid heat, oil, water and dust. | Avoid water and dust. |
| Space, Weight | High speed, light load | × | ◎ | ○ | ○ |
| | Low speed, heavy load | ◎ Compact, lightweight | △ Slightly heavy pulleys | × Wide with heavy pulleys | ○ Needs high strength due to low number of engaging teeth. |
| Lubrication | | × Required | ◎ Not required | ◎ Not required | × Required |
| Layout Freedom | | ◎ | ○ | △ | × |
| Excess Load on Shaft | | ◎ | ○ | × | ◎ |

◎Excellent ○Good △Fair ×Poor

## Features and Precautions of Roller Chain Transmissions

### Features

1. Accommodate large speed reductions/increases (usually up to 1:7).
2. Chains can accommodate long shaft center distances (normally less than 4 m), and are more versatile.
3. It is possible to use chain with multiple shafts or drives with both sides of the chain.
4. Easy installation and replacement (easy to cut and connect chains).
5. Drive use is possible even when shafts are vertical, as long as the chain receives support in short distances between the shafts.
6. Standardization of chains under the American National Standards Institute (ANSI), the International Standardization Organization (ISO), and the Japanese Industrial Standards (JIS) allow ease of selection.
7. The sprocket diameter for a chain system may be smaller than a belt pulley while transmitting the same torque.
8. Sprockets are subject to less wear than gears because sprockets distribute the load over their many teeth.
9. High shock absorbency compared to gears.

### Precautions

1. Chains have speed variation, called chordal action, which is caused by the polygonal effect of the sprockets.
   (Shock can be reduced under the same speed ratio by either reducing the chain pitch or increasing the number of sprocket teeth.)
2. During transmission, a method of lubrication suitable to the chain's speed is necessary.
3. Chains wear and elongate. Measures for adjusting chain slack need to be considered.
4. Chains are weak when subjected to loads from the side. They need proper alignment.

# Glossary

## 1. ANSI Standard Minimum Tensile Strength (Tensile Breakage Strength)

This is the minimum tensile strength determined by ANSI Standard. If a roller chain breaks from a tensile load below this value, then it is non-compliant. With multi-strand roller chain, the single strand value is multiplied by the number of strands. (ANSI B 29.100)

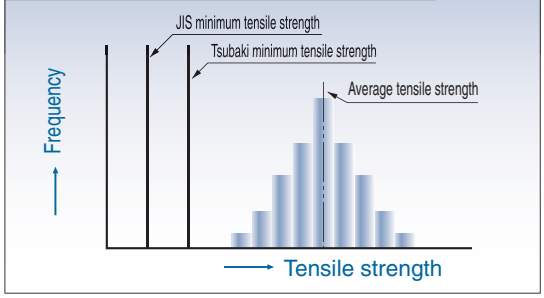
## 2. Tsubaki Average Tensile Strength

This is a fracture load reading obtained after a long period of actual tensile strength testing of a large number of chain strands. Naturally, a roller chain may actually break at a higher or lower value than this, so it does not represent a guaranteed value. This value varies depending on the manufacturer.

## 3. Tsubaki Minimum Tensile Strength

This is a minimum value determined by statistical processing at Tsubaki. If any roller chain fractures by a tensile load below this value, then it is non-compliant. This value varies depending on the manufacturer.

Fig. 1 Relationship between three tensile strengths




### Testing Method

As shown in Fig. 2, a roller chain with over five links is fixed at both ends by clevises and is stretched until breakage occurs (JIS B 1801-2009). The type of fracture is indicated by breakage of the roller chain or failure of its parts (Fig. 3.)

Fig. 2 Tensile strength test

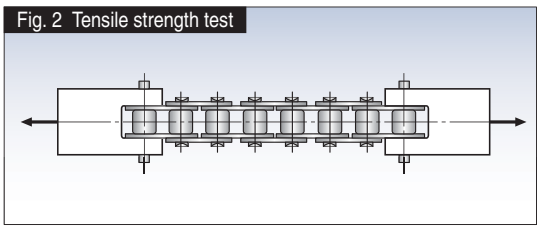
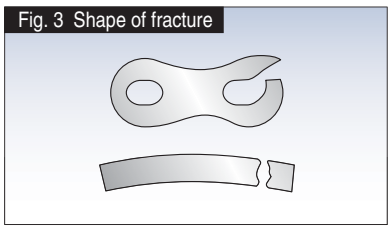


Fig. 3 Shape of fracture



## 4.Maximum Allowable Load

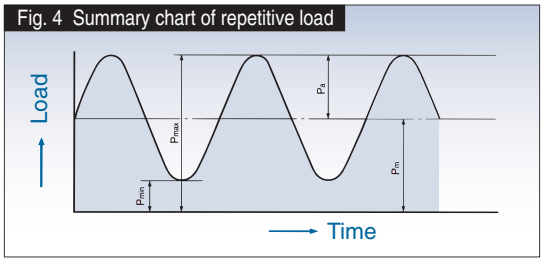
The maximum allowable load of roller chain (excluding Stainless Steel Chain and Engineering Plastic Chain*) is the value derived from the lowest fatigue limit. When a load lower than this value is repetitively applied to the roller chain, fatigue failure will never occur.

[ According to the former JIS B 1801-1997, the maximum allowable load indicates a breakage load of $P_{max} = (P_m + P_a) = 2.2Pa$ at a frequency of $5 \times 10^6$, when a new roller chain with over five links receives a repetitive load in linear operation. (Fig. 4) ]

Tsubaki standards and catalog values are for $10^7$ repetitions, or 2Pa. In other words, if Tsubaki's maximum allowable load is indicated as maximum load ($P_{max}$), then values in this catalog would increase 10%.

* Stainless steel and engineered plastic chains:
Maximum allowable load is determined from specifying the surface pressure between pins and bushes based on wear performance.

Fig. 4 Summary chart of repetitive load




Note that strength of offset links may be lower than the chain itself.
(Refer to each product page for details.)

## 5. Kilowatt Ratings Table

RS Roller Chain, SUPER Roller Chain, Heavy Duty Chain, and Low Noise Drive Chain kilowatt ratings tables show kW values for 15,000 hours of operation using a two-shaft drive and 100 pitches of roller chain under conditions 1 - 5 below.
The kW ratings table of Lambda Chain is based on conditions 1 - 4 and shows kW rating values when Lambda Chain is used with two shafts. Lambda Chain has more than seven times the wear elongation of Standard RS Roller Chain operated without lubrication (#120 and #140 are over 2.5 times). X-LAMBDA has more than five times the wear elongation life of Lambda Roller Chain.

1) The chains are operated under ordinary conditions where the ambient temperature is -10℃ – +60℃ (+14˚F to +140˚F) and there is no abrasive dust.
2) There are no negative effects from corrosive gasses or high humidity.
3) The two shafts are level and the chains are properly installed. (See item 4 on pg. 194.)
4) There is minimal fluctuation in load during transmission.
5) The recommended lubrication system and lubricant shown in the kW ratings tables is used for RS Roller Chain and Super Roller Chain. (See pgs. 192 - 193.)

## 6. Moment of Inertia (I / J / GD²)

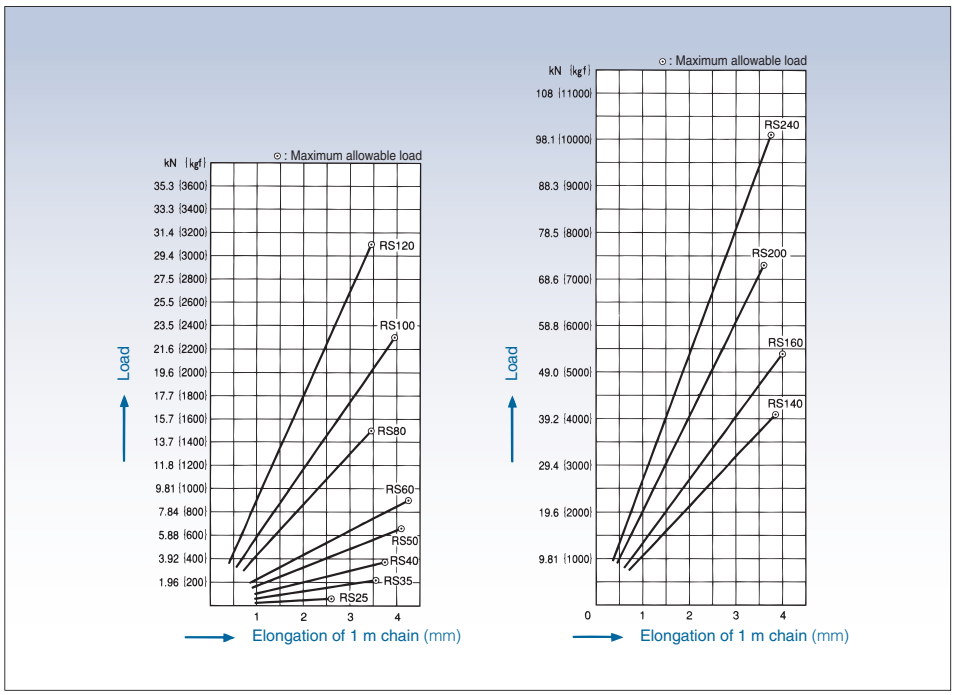
Moment of inertia is used to show the degree of inertia in rotational movement; in other words, "rotation difficulty", or "rotation ease." This is equivalent to the mass (weight) of the object being used for straight-line transmission.
Moment of inertia is shown in the SI units table as:
$I = mk^2$ (kg・m² m: mass of rotating body k: turning radius)
It is shown in the Gravimetric units table as:
$J = \frac{G \cdot K^2}{G}$ (kgf・m・s² G: mass of rotating body G: gravitational acceleration).
Although, $GD^2 = 4GJ$ (D: diameter of rotating body) is generally being used now in place of moment of inertia.

## 7. Total Length Tolerance of Roller Chain

Length test method and length tolerance are specified in JIS B 1801-2009. The length tolerance of any individual size when subjected to a measured load (e.g. 500 N [50.99 kgf] for RS 80) specified in JIS is 0 to +0.15% of the reference length. The reference length is calculated by multiplying the reference pitch (P) by the number of links. (Applicable to products bearing a JIS identification number.)

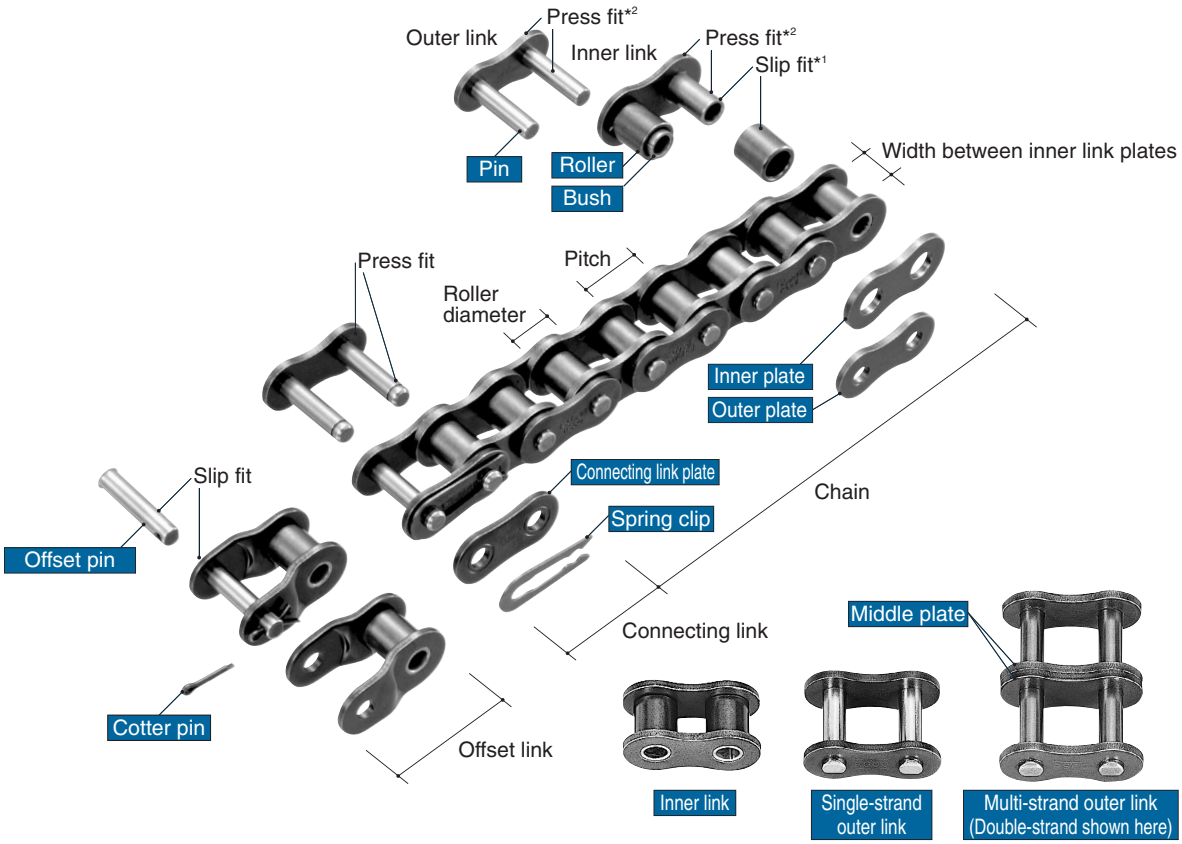
## 8. Elastic Elongation of Chain under Load

An elastic elongation curve of a chain under load looks as shown below. Values shown here are the standard references for single-strand RS Roller Chains. Actual values may slightly differ. Do not apply loads greater than the maximum allowable load to roller chains.



# Roller Chain Construction

## 1. Basic Structure (Photo: RS Roller Chain)




### Basic Three Dimensions

The pitch, roller diameter, and inner width of the inner link are considered the basic three dimensions of a roller chain. When these dimensions are identical, a roller chain and sprocket are dimensionally compatible.

Spring clips, cotter pins and spring pins are essential parts that prevent connecting plates from falling off, maintaining the strength of the chain itself. Always install these parts.

*1 Slip Fit

When the shafts and holes are fitted together, there is a continuous loose fit. This is a fit where the range of tolerance for the hole is larger than the range of tolerance for the shaft (pin or bush).

*2 Press Fit

When the shafts and holes are fitted together, there is a continuous interferential fit. This is a fit where the range of tolerance for the hole is smaller than the range of tolerance for the shaft (pin or bush).

### Plate

The plate bears the tension placed on the chain. Usually this is a repetitive load, but sometimes it is accompanied by shock. Therefore, the plate must have not only great static tensile strength, but also must hold up to the dynamic forces of load and shock.

### Pin

The pin is subject to shearing and bending forces transmitted by the plate. At the same time, it forms a load-bearing part, together with the bush, when the chain flexes during sprocket engagement. Therefore, the pin needs high tensile and shear strength, resistance to bending, and sufficient endurance against shock and wear.

### Bush

The bush is subject to complex forces from all parts, especially from the repetition of shock loads when the chain engages the sprocket. Therefore, the bush needs extremely high shock resistance. In addition, the bush forms a load-bearing part together with the pin, and as such requires great wear resistance.

### Roller

The roller is subject to impact load as it strikes the sprocket teeth during chain engagement with the sprocket. After engagement, the roller changes its point of contact and balance. It is held between the sprocket teeth and bush, and moves on the tooth face while receiving a compression load. Therefore, it must be resistant to wear and still have strength against shock, fatigue and compression. RS11 / 15 / 25 / 35 do not have rollers.

### Roller Link

Two bushes are press fit into two inner plates, and rollers are inserted to allow rotation around the outside of the bush. This is the same for single-strand and multi-strand chain.

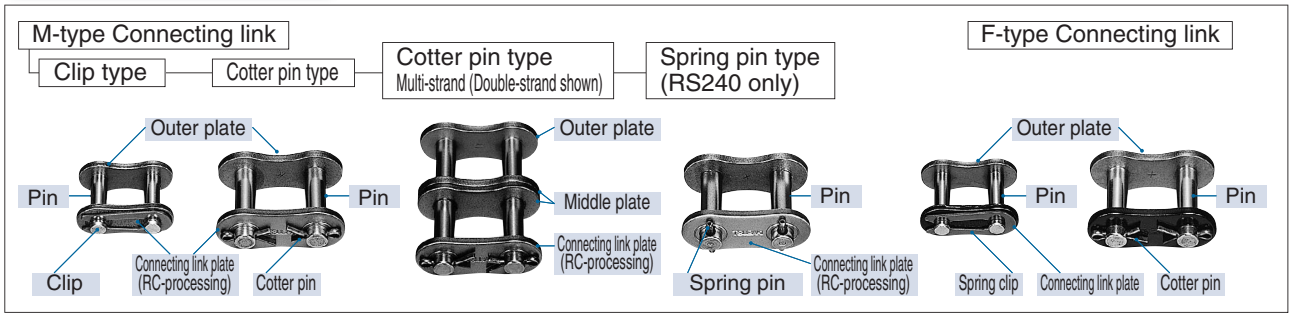
### Outer Link and Middle Plate

The pin link consists of two pins that have been press fit into two outer plates. With multi-strand roller chain, a middle plate is added to the pin link. The middle plate is slip fit for standard RS Roller Chain and press fit for Super Roller Chain.

## 2. Assembly Parts

Roller Chains are usually made up of a number of connected links in an endless formation, or used by fixing the chain ends, but the need for connecting links will eventually arise. Although offset links can be used when there are an odd number of links in the roller chain, please use a design that requires an even number of links as much as possible. Please note that connecting links and offset links are normally coated with an anti-rust agent only. Always thoroughly lubricate pin and bush when assembling.

### 2.1 Connecting Links

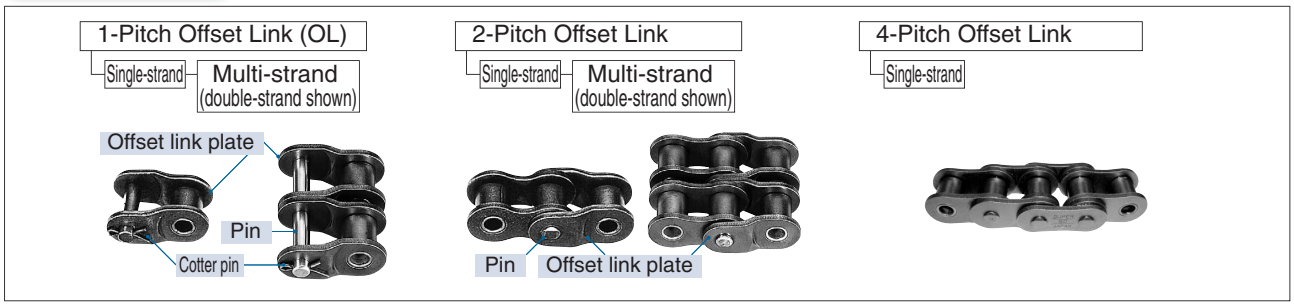



| Chain type | Connecting link type | Pin / Connecting link plate fitting | Connecting link plate fastening | Note |
|---|---|---|---|---|
| RS Roller Chain | M-type connecting link<br>Code: CL | Slip fit<br>(M) | Spring clip<br>Cotter pin<br>Spring pin | ● For multi-strand chain, make sure the plate with *Ring coining is on the outermost side when assembling.<br>● Operating speed is indicated by the white area in the kW ratings table. |
| | F-type connecting link *<br>Code: FCL | Press fit | Spring clip, Cotter pin<br>Spring pin<br>T-pin | ● Make sure to use the chain according to the specified applications on page 131 and within the speed region of the colored area in the kW rating tables. |
| Lambda Chain | M-type connecting link<br>Code: CL | Slip fit<br>(M) | Spring clip<br>Cotter pin | ● Can be used in all areas of the kW ratings table for Lambda Chain.<br>● Connecting plates are ring coined. |
| Super Roller Chain | M-type connecting link<br>Code: MCL | Slip fit<br>(M) | Spring pin | ● Connecting plates are ring coined. |
| | F-type connecting link<br>Code: FCL | Press fit | Spring pin | ● Use under extreme conditions (e.g., high shock, very high load, possible side force, etc.). |
| Super-H Roller Chain | F-type connecting link<br>Code: CL | Press fit | Spring pin | ● Use exclusive connecting link. |
| Heavy Duty Roller Chain | F-type connecting link<br>Code: CL | Press fit | Cotter pin<br>Spring pin | ● Use exclusive connecting link. |
| Other roller chains in catalog | M-type connecting link<br>Code: CL | Slip fit<br>(M) | Cotter pin, Spring clip<br>Spring pin<br>T-pin, Z-pin | ● Refer to individual dimension diagrams.<br>Only NP, NEP and Low Noise Roller Chains use ring coined connecting link plates. |

Note 1. The connecting link plate fastening method for each chain size is indicated in the dimension tables and the table notes.
2. The color of F-type connecting links for RS Roller Chain and RS-HT Roller Chain marked with * is black.
Remark: Ring Coin (RC) Processing
This Tsubaki original processing adds an area of plastic deformation around pin holes to generate residual stress around the holes.

Ring Coin Processing

### 2.2 Offset Link




Note: See the dimensional tables for roller chain types and sizes suitable for offset links.

# Roller Chain and Specialty Chain Lineup

| Series | Product | Features/Applications | Operating temperature range (℃) |
|---|---|---|---|
| Standard Roller Chains | RS Roller Chain | JIS-, ISO-compliant | –10 to + 60*1 |
| | BS/DIN Standard RS Roller Chain | ISO-compliant series | |
| Lube-Free Roller Chains | Lambda Chain | Lube-free, long-life (Special oil-impregnated bush) | –10 to +150 |
| | Surface Treated Lambda Chain | Lube-free, long-life (Special oil-impregnated bush) Surface treated (NP and NEP) | |
| | X-Lambda Chain | Super long-life via special oil-impregnated bush and felt seal | |
| | Lambda Chain KF Series | Lube-free, long-life (Special oil-impregnated bush), for high temperatures and food processing equipment. | –10 to +150*2 |
| | Heavy Duty Lambda Chain | Lube-free, long-life (Special oil-impregnated bush), heavy-duty, double-strand only | –10 to +150 |
| | Curved Lambda Chain | Lube-free, long-life (Special oil-impregnated bush), for curved lines | |
| | BS Lambda Chain | Lube-free, long-life (Special oil-impregnated bush), ISO-compliant BS Series | |
| Heavy Duty Roller Chains | Heavy Duty Roller Chain | High tensile strength (Approx. 19% increase over RS) | –10 to +60*1 |
| | Super Roller Chain | High tensile strength (Approx. 30% increase over RS) | |
| | Super-H Roller Chain | High fatigue strength, high tensile strength, for heavy-duty transmissions | |
| | Ultra Super Roller Chain | Maximum fatigue strength, maximum tensile strength, for super heavy-duty transmissions | |
| Corrosion Resistant Roller Chains | Stainless Steel Roller Chain | SS ··· High corrosion resistance, high heat resistance | –20 to +400 |
| | | NS ··· Higher corrosion resistance and higher heat resistance than SS | |
| | | AS ··· 1.5x maximum allowable load of SS, slightly less corrosion resistance | |
| | | LSC ··· Greater wear resistance than SS Series | –20 to +100*4 |
| | Surface Treated Roller Chain | NP ··· Low corrosion resistance, special nickel plating | –10 to +60*1 |
| | | NEP ··· High corrosion resistance | |
| | | APP ··· Anti-pitting | |
| | Titanium Roller Chain | Made of nonmagnetic titanium, high corrosion resistance | –20 to +400 |
| | Cold Resistant Roller Chain | Cold resistance specification | –40 to +60*1 |
| | Low Noise Roller Chain | Spring rollers, low noise | –10 to +60*1 |
| | Poly Steel Chain | Corrosion resistance, wear resistance, low noise, lightweight | –20 to +80 |
| | Curved Stainless Steel Roller Chain | Stainless steel, curved transmissions | –20 to +400 |
| Specialty Roller Chains | Curved Roller Chain | Side-flexing chain, curved transmissions | –10 to +60*1 |
| | Leaf Chain | Plate and pin construction, for lifting applications, AL-type, BL-type (AL ···), (BL ···) | |
| | Pin Gear Attachment Chain | Used in anchored configuration, gear transmission | |

Eco Link Mark
These new products meet our voluntary eco assessment criteria.

| Chain No. (Pitch: mm) *2 | | | | | | | | | | | | | | | Ref. page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 (3.7465) | 15 (4.7625) | 25 (6.35) | 35 (9.525) | 40 (12.70) | 50 (15.875) | 60 (19.05) | 80 (25.40) | 100 (31.75) | 120 (38.10) | 140 (44.45) | 160 (50.80) | 180 (57.15) | 200 (63.50) | 240 (76.20) | |
| | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 15 |
| | | *6 | RF06B ● | RS08B ● | RS10B ● | RS12B ● | RS16B ● | RS20B ● | RS24B ● | RS28B ● | RS32B ● | | RS40B ● | RS48B ●*6 | |
| | | | | ● | ● | ● | ● | ● | ● | ● | | | | | 55 |
| | | | | ● | ● | ● | ● | ● | ● | ● | | | | | |
| | | | | ● | ● | ● | ● | ● | ● | | | | | | |
| | | | | ● | ● | ● | ● | | | | | | | | |
| | | | | ● | ● | ● | ● | ● | | | | | | | |
| | | | | ● | ● | ● | | | | | | | | | |
| | | | RF06B ● | RS08B ● | RS10B ● | RS12B ● | RS16B ● | RS20B ● | RS24B ● | RS28B | RS32B | | RS40B | | |
| | | | | | | ● | ● | ● | ● | ● | ● | | ● | ● | 69 |
| | | | | | | | ● | ● | ● | ● | ● | | ● | ● | |
| | | | | | | | ● | ● | ● | ● | ● | | ● | ● | |
| | | | | | | | | ● | ● | ● | ● | | ● | ● | |
| ● | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 79 |
| | | ● | ● | ● | ● | ● | ● | | | | | | | | |
| | | | | ● | ● | ● | ● | | | | | | | | |
| | | | | ● | ● | ● | ● | | | | | | | | |
| | | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | |
| | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | |
| | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | |
| | | | ● | ● | | | | | | | | | | | |
| | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | |
| | | | | ● | ● | ● | ● | | | | | | | | |
| | | ● | ● | ● | ● | ● | | | | | | | | | |
| | | | | ● | ● | ● | ● | | | | | | | | |
| | | | | ● | ● | ● | ● | | | | | | | | 91 |
| | | | | 4 ● | 5 ● | 6 ● | 8 ● | 10 ● | 12 ● | 14 ● | 16 ● | | | | |
| | | | | ● | ● | ● | ● | ● | ● | ● | ● | | ● | ● | |

*1: The operating temperature range of pre-lubricated chains (those coated with oil when delivered) is -10 to +60℃ (-40 to +60℃ for KT specification). Chain kW ratings do not decrease until 150℃. To use in +60 to 150℃ environments, apply a high temperature lubrication. For details and precautions in usage, see "Temperature Selection Method" (page 188) and "Roller Chain Lubrication" (page 192).
*2. Lambda Chain KF Series gives better lubrication performance in high temperature ranges (from ambient temperatures to ~230℃. When using in the 150℃ - 230℃ range, refer to pg. 188 for temperature selection methods.
*3. RS11-SS-1 comes lubricated.
*4. Operating temperature range when using stainless steel rollers. Operating temperature range for plastic rollers is -20℃ to 80℃.
*5: Sizes marked with ● are standard products shown in this catalog. For details, see the corresponding section. Blank cells are specialty items and may be specially ordered. Contact a Tsubaki representative for details.
*6: RS05B (pitch 8.00) and RS56B (pitch 88.9) are also available.

# Ordering RS Roller Chain

The following example uses an RS Roller Chain.

Ordering is basically the same for other products, but some products are unavailable. See each section for details.

## 1. Ordering by Unit

With the exception of special specification chains, RS Roller Chain is normally stocked by unit. The total length of one unit includes one connecting link. Please purchase additional connecting links if you intend to separate the chain into two or more sections or join chains to create a longer chain.

Length of one unit: 3048 mm (10 feet); however
RS11-SS: 502 mm, RS15: 1000 mm,
RS25: 1016 mm, RS140: 3023 mm, RS180: 3086 mm.

### Ordering example

Ordering n units of RS80-1

| Product code | Chain number | Count | Units |
|---|---|---|---|
| A110113 | RS80-1-RP-U | n | U (unit) |

Ordering pieces of RS80-1 CL and OL

| Product code | Chain number | Count | Units |
|---|---|---|---|
| A115031 | RS80-1-CL | n | K (pcs) |
| A116025 | RS80-1-OL | n | K (pcs) |

Note: When ordering CL, note that there are two types: M-type CL and F-type CL.

- For M-type CL
  Example: RS80-1-CL
- For F-type CL, write FCL.
  Example: RS80-1-FCL

**Example:**

**RS 80 -1-RP-U (CP)**

- 80: Corresponding chain numbers
  15, 25, 37, 38, 40, 41, 50, 60, 80, 100, 120, 140, 160, 180, 200, 240
- 1: Number of strands
  2 strands, 3 strands, etc.
- RP / CP: (Select a type : RP or CP)
- U: Indicate "U".

Note: RP (rivet pin) is when the inner plates are connected by the outer plates via riveting.
CP (cotter pin) is when the inner plates are connected by the outer plates via cotter pins.

## 2. Ordering an Even Number of Links

Be sure to indicate configuration specification.

### 1 When the number of links is 8

8 links including the connecting link (CL)

Indicate the number of links of the chain segment only.
Example: In the case of 8LX2H, the chain segment is 14L with CL2K
In the case of 8LX3H, the chain segment is 21L with CL3K

### Ordering example

Ordering 8 links of RS50-1 Roller Chain

| Product code | Chain number | Count | Units |
|---|---|---|---|
| A110018 | RS50-1-RP | 7 | L |
| A115018 | RS50-1-CL | 1 | K |

**Configuration specification**

**8LX 1H** (number)

- 1H: Specify the number of chains required.

### 2 20-link complete endless

### Ordering example

Ordering 20-link complete endless RS50-1-RP

| Product code | Chain number | Count | Units |
|---|---|---|---|
| A110018 | RS50-1-RP | 20 | L |

**Configuration specification**

**20LX 1H** (number)(complete endless)

- 1H: Specify the number of chains required.

## 3. Matched and Tagged Chain

Deviations in chain length exist due to the manufacturing tolerances of the parts. When chains are to be used in parallel and minimizing the relative difference in the lengths is necessary, request a "matched and tagged" chain.

Note: A separate charge is required for a length matching.

### Example entry in special mention column

For example, if you need three sets of two single-strand, 120-link RS80 chains, the entry should be:

RS80-1-RP 720 links
Matched and tagged chain: 120 L x 2 H x 3 D

## 4. Long Length Formation

Chains whose total length exceeds one unit (3048mm) are called long length formations. Chains that exceed the lengths below are super long length formations and are delivered connected in special boxes. Additional fees apply.

| | RS25～RS180 | RS200 | RS240 |
|---|---|---|---|
| Single strand | 2.5 units | 100 links | 70 links |
| Multi-strand | Contact a Tsubaki representative | | |

## 5. Reel Chain

Single-strand RS25 to RS80 chain (see table below) is available on long-length reels.

### ■Ordering example

Ordering one reel of RS50-1-RP Roller Chain

| Product code | Chain number | Quantity | Units |
|---|---|---|---|
| A110089 | RS50-1-RP-10UR | 1 | R |

| Product code | Chain number | Units per reel | Number of links (unit: L) | Number of accessory CL (M-type connecting links) |
|---|---|---|---|---|
| **A110083** | RS25-1-RP-150UR | 150 | 23999 | 150 |
| **A110084** | RS35-1-RP-20UR | 20 | 6399 | 20 |
| **A110085** | RS37-1-RP-20UR | 20 | 4799 | 20 |
| **A110086** | RS38-1-RP-20UR | 20 | 4799 | 20 |
| **A110087** | RS41-1-RP-20UR | 20 | 4799 | 20 |
| **A110088** | RS40-1-RP-15UR | 15 | 3599 | 15 |
| **A110089** | RS50-1-RP-10UR | 10 | 1919 | 10 |
| **A110090** | RS60-1-RP-10UR | 10 | 1599 | 10 |
| **A110091** | RS80-1-RP-5UR | 5 | 599 | 5 |

## 6. Replacement Precautions

### When you do not know the roller chain number

**1** Verification of the roller chain specifications (strength type, material, etc.) is important. Check with the manufacturer.

**2** Check the roller chain size and specifications that are engraved on the roller chain plate.

**3** Measure the pitch, roller diameter, inner width of inner link, and plate thickness of the roller chain.

# RS® Sprocket Guide and Ordering Example

## 1 RS Sprocket Standard Pilot Bore Series

RS Sprockets are for RS Roller Chain (JIS/ISO standards).
With the Pilot Bore Series, the shaft hole is the pilot bore, and so will require processing before use.
(RS25 sprockets have an H8 pilot bore and are tapped. Other sizes have an H10 pilot bore.)

① RS Sprocket standard pilot bore (1B, 1C, 2B, 2C, 1A types)·····Pgs 18 – 45
② RS Sprocket standard pilot bore (2A type, single dual)·····Pg. 99

RS Sprocket Standard Pilot Bore Series

**Standard Pilot Bore (RS11 – RS240)**

Extensive line-up of standard sprockets.
Tsubaki also offers single dual (SD) type sprockets, which accommodate two strands of chain. Sprockets with small numbers of teeth have hardened teeth, while those with large numbers of teeth are not heat treated.

**Strong Type (RS35 – RS160)**

Features hardened teeth for sprockets with a large number of teeth. Strong Series sprockets are high quality sprockets with teeth hardened to the appropriate quality standards.

*The classification of small or large numbers of teeth varies with sprocket size. See each sprocket's dimensional chart for details.

### Teeth Specifications

#### ■Hardened teeth

Use a sprocket with hardened teeth when better strength and wear resistance are required.
Sprocket teeth are hardened on sprockets with a small number of teeth and on RS Strong Type Sprockets.

#### ■Unhardened teeth

Sprocket teeth are not heat treated.
Sprocket teeth are not heat treated on RS Sprockets with a large number of teeth.

●Example: RS40-1B

- Standard Pilot Bore Sprocket
  - Less than 40T — Standard, hardened teeth — **RS40-1B40T**
  - Greater than 42T
    - Standard, unhardened teeth — **RS40-1B42T**
    - Strong Type (hardened teeth) — **RS40-1B42TQ**

## 2 Fit Bore® Series

Each model is provided with a finished bore, keyway, and set screws·····Pg. 101

## 3 Lock Series

RS standard sprockets can be mounted to shafts without using keys·····Pg. 108

## Ordering Example for RS Sprocket Standard Pilot Bore Series

Please indicate product code and model number on your order.

### ■Ordering Example

(Standard Pilot Bore Type)

| Product code | Model Number | Qty. |
|---|---|---|
| G110189 | RS40-1B50T | 10 |

(Strong Type)

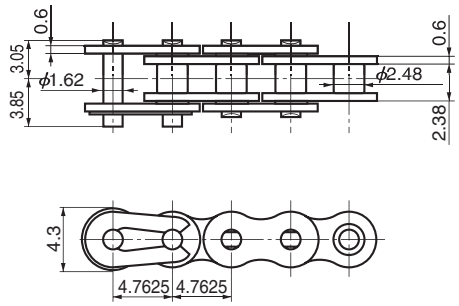
| Product code | Model Number | Qty. |
|---|---|---|
| G110189 | RS40-1B50TQ | 10 |

### ■Model Numbering Example

**RS40–1B 50T □**

- Chain size
  1: Single strand
  2: Double strand
- Type
  A: Flat
  B: Single hub
  C: Dual hub
  SD: Single dual
- No. of teeth
- Specifications
  Blank: Standard
  Q: Strong type (hardened teeth)

# RS15

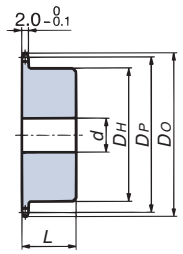



Drawing Scale 1.5/1

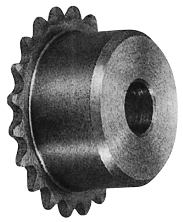
| TSUBAKI Chain Number | Minimum Tensile Strength kN{kgf} | Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass g/m | Number of Links Per Unit |
|---|---|---|---|---|---|
| RS15-1 | 1.77{180} | 2.26{230} | 0.31{32} | 75 | 210 |

Note: 1. No offset links available.
2. Bushed chain.

# RS15 Sprocket




Mechanically machined
1B type



| Number of Teeth | Pitch Circular Diameter ($D_P$) | Sprocket Outer Diameter ($D_O$) | Bore Diameter ($d$) | | Hub | | Approximate Weight (g) | Material |
|---|---|---|---|---|---|---|---|---|
| | | | Pilot Bore Diameter | Maximum | Diameter ($D_H$) | Length ($L$) | | |
| **11** | 16.90 | 19.0 | 4 | 7 | 11 | 10 | 9 | Machine-structural carbon steel |
| **12** | 18.40 | 20.5 | 4 | 8 | 12 | 10 | 10 | |
| **13** | 19.90 | 22.0 | 4 | 9 | 14 | 10 | 14 | |
| **14** | 21.40 | 23.5 | 6 | 10 | 15 | 12 | 17 | |
| **15** | 22.91 | 25.0 | 6 | 12 | 17 | 12 | 22 | |
| **16** | 24.41 | 26.5 | 8 | 12 | 18 | 12 | 23 | |
| **17** | 25.92 | 28.0 | 8 | 14 | 20 | 14 | 32 | |
| **18** | 27.43 | 29.5 | 8 | 14 | 22 | 14 | 40 | |
| **19** | 28.93 | 31.0 | 8 | 15 | 23 | 14 | 44 | |
| **20** | 30.44 | 32.5 | 8 | 15 | 24 | 14 | 49 | |
| **21** | 31.95 | 34.0 | 8 | 17 | 26 | 14 | 57 | |
| **22** | 33.46 | 35.5 | 8 | 17 | 27 | 14 | 62 | |
| **23** | 34.98 | 37.5 | 8 | 17 | 28 | 14 | 68 | |
| **24** | 36.49 | 39.0 | 8 | 20 | 30 | 16 | 88 | |
| **25** | 38.00 | 40.5 | 8 | 20 | 32 | 16 | 100 | |
| **26** | 39.51 | 42.0 | 10 | 22 | 33 | 16 | 104 | |
| **27** | 41.02 | 43.5 | 10 | 25 | 35 | 16 | 117 | |
| **28** | 42.54 | 45.0 | 10 | 25 | 37 | 16 | 131 | |
| **29** | 44.05 | 46.5 | 10 | 25 | 38 | 16 | 139 | |
| **30** | 45.56 | 48.0 | 10 | 25 | 39 | 16 | 147 | |
| **31** | 47.08 | 49.5 | 10 | 25 | 40 | 18 | 175 | |
| **32** | 48.59 | 51.0 | 10 | 25 | 40 | 18 | 176 | |
| **33** | 50.10 | 52.5 | 10 | 25 | 40 | 18 | 178 | |
| **34** | 51.62 | 54.0 | 10 | 25 | 40 | 18 | 180 | |
| **35** | 53.13 | 55.5 | 10 | 25 | 40 | 18 | 182 | |

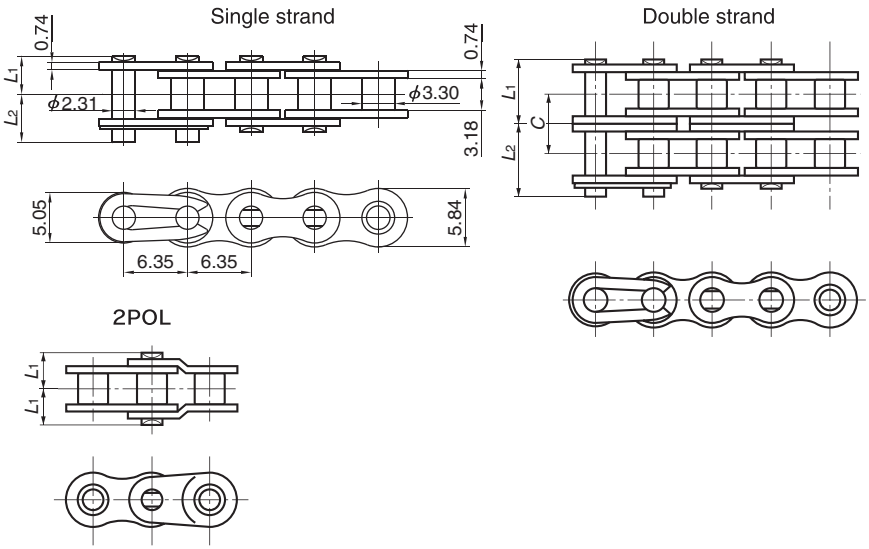
Note: 1. Bore diameter noted above is the typical range. Determine bore diameter and key bearing pressure based on general mechanical design.
2. Pilot bore diameters are finished to an H10 tolerance.

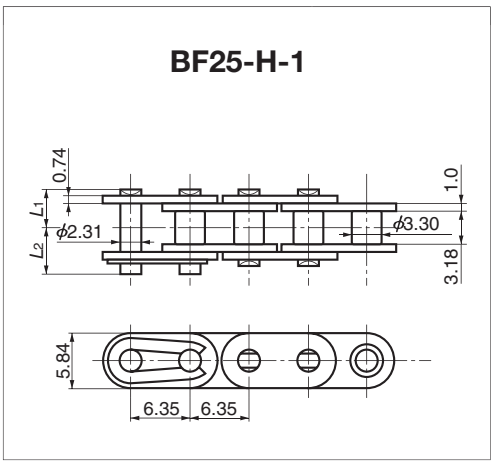
## Sprocket Number

RS15 -1B 15T

- 15T: Number of teeth
- -1B: Type
- RS15: Chain number

# RS25, BF25-H-1




Drawing Scale 1.25/1

| TSUBAKI Chain Number | Number of Strands | Pin Length $L_1+L_2$ | Dimensions $L_1$ | Dimensions $L_2$ | Transverse Pitch $C$ | Pin Type | ANSI Standard Min. Tensile Strength kN{kgf} | Tsubaki Minimum Tensile Strength kN{kgf} | Tsubaki Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RS25-1 | 1 | 8.3 | 3.8 | 4.5 | – | Riveting | 3.6 {367} | 4.12 {420} | 4.71 {480} | 0.64 {65} | 0.14 |
| RS25-2 | 2 | 14.7 | 6.95 | 7.75 | 6.4 | | 7.2 {734} | 8.24 {840} | 9.41 {960} | 1.08{110} | 0.27 |
| RS25-3 | 3 | 21.1 | 10.15 | 10.95 | 6.4 | | 10.8{1101} | 12.4{1260} | 14.1{1440} | 1.57{160} | 0.42 |
| BF25-H-1 | 1 | 8.82 | 4.01 | 4.81 | – | | – { – } | 4.9 {500} | 5.88 {600} | 0.78 {80} | 0.17 |

Note: 1. The offset link of RS25 is a two-pitch offset link only. 2. BF25H has no offset links. 3. Number of links per unit =160
4. RS25 and BF25H are both bushed chains.
*Maximum allowable load when using an M type connecting link is 80% of the above.

## ■RS25-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

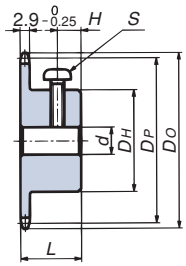
| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 50 | 100 | 300 | 500 | 700 | 900 | 1200 | 1500 | 1800 | 2100 | 2500 | 3000 | 3500 | 4000 | 4500 | 5000 | 5500 | 6000 | 6500 | 7000 | 7500 | 8000 | 8500 | 9000 | 10000 | |
| | A | | | | | | | | | | | B | | | | | | | | | | | | | | |
| 9 | 0.02 | 0.03 | 0.08 | 0.13 | 0.18 | 0.23 | 0.30 | 0.36 | 0.43 | 0.49 | 0.57 | 0.67 | 0.78 | 0.76 | 0.64 | 0.55 | 0.47 | 0.41 | 0.37 | 0.33 | 0.30 | 0.27 | 0.25 | 0.23 | 0.19 | |
| 10 | 0.02 | 0.04 | 0.10 | 0.15 | 0.20 | 0.26 | 0.33 | 0.41 | 0.48 | 0.55 | 0.64 | 0.76 | 0.87 | 0.89 | 0.75 | 0.64 | 0.55 | 0.49 | 0.43 | 0.39 | 0.35 | 0.32 | 0.29 | 0.26 | 0.23 | |
| 11 | 0.02 | 0.04 | 0.11 | 0.17 | 0.23 | 0.28 | 0.37 | 0.45 | 0.53 | 0.61 | 0.71 | 0.84 | 0.96 | 1.03 | 0.86 | 0.74 | 0.64 | 0.56 | 0.50 | 0.44 | 0.40 | 0.36 | 0.33 | 0.30 | 0.26 | |
| 12 | 0.02 | 0.04 | 0.12 | 0.18 | 0.25 | 0.31 | 0.40 | 0.49 | 0.58 | 0.67 | 0.78 | 0.92 | 1.06 | 1.17 | 0.98 | 0.84 | 0.73 | 0.64 | 0.57 | 0.51 | 0.46 | 0.41 | 0.38 | 0.35 | 0.30 | |
| 13 | 0.03 | 0.05 | 0.13 | 0.20 | 0.27 | 0.34 | 0.44 | 0.54 | 0.63 | 0.73 | 0.85 | 1.00 | 1.15 | 1.30 | 1.11 | 0.95 | 0.82 | 0.72 | 0.64 | 0.57 | 0.52 | 0.47 | 0.43 | 0.39 | 0.33 | |
| 14 | 0.03 | 0.05 | 0.14 | 0.22 | 0.29 | 0.37 | 0.48 | 0.58 | 0.69 | 0.79 | 0.92 | 1.09 | 1.25 | 1.41 | 1.24 | 1.06 | 0.92 | 0.80 | 0.71 | 0.64 | 0.58 | 0.52 | 0.48 | 0.44 | 0.37 | |
| 15 | 0.03 | 0.05 | 0.15 | 0.23 | 0.32 | 0.40 | 0.51 | 0.63 | 0.74 | 0.85 | 0.99 | 1.17 | 1.35 | 1.52 | 1.37 | 1.17 | 1.02 | 0.89 | 0.79 | 0.71 | 0.64 | 0.58 | 0.53 | 0.49 | 0.41 | |
| 16 | 0.03 | 0.06 | 0.16 | 0.25 | 0.34 | 0.43 | 0.55 | 0.67 | 0.79 | 0.91 | 1.07 | 1.26 | 1.44 | 1.63 | 1.51 | 1.29 | 1.12 | 0.98 | 0.87 | 0.78 | 0.70 | 0.64 | 0.58 | 0.54 | 0.46 | |
| 17 | 0.03 | 0.06 | 0.17 | 0.27 | 0.36 | 0.45 | 0.59 | 0.72 | 0.85 | 0.97 | 1.14 | 1.34 | 1.54 | 1.74 | 1.66 | 1.42 | 1.23 | 1.08 | 0.95 | 0.85 | 0.77 | 0.70 | 0.64 | 0.59 | 0.50 | |
| 18 | 0.04 | 0.07 | 0.18 | 0.28 | 0.39 | 0.48 | 0.63 | 0.76 | 0.90 | 1.04 | 1.21 | 1.43 | 1.64 | 1.85 | 1.81 | 1.54 | 1.34 | 1.17 | 1.04 | 0.93 | 0.84 | 0.76 | 0.70 | 0.64 | 0.55 | |
| 19 | 0.04 | 0.07 | 0.19 | 0.30 | 0.41 | 0.51 | 0.66 | 0.81 | 0.96 | 1.10 | 1.28 | 1.51 | 1.74 | 1.96 | 1.96 | 1.67 | 1.45 | 1.27 | 1.13 | 1.01 | 0.91 | 0.83 | 0.75 | 0.69 | 0.59 | |
| 20 | 0.04 | 0.07 | 0.20 | 0.32 | 0.43 | 0.54 | 0.70 | 0.86 | 1.01 | 1.16 | 1.36 | 1.60 | 1.84 | 2.07 | 2.11 | 1.81 | 1.57 | 1.37 | 1.22 | 1.09 | 0.98 | 0.89 | 0.81 | 0.75 | 0.64 | |
| 21 | 0.04 | 0.08 | 0.21 | 0.34 | 0.45 | 0.57 | 0.74 | 0.90 | 1.06 | 1.22 | 1.43 | 1.69 | 1.94 | 2.18 | 2.28 | 1.94 | 1.68 | 1.48 | 1.31 | 1.17 | 1.06 | 0.96 | 0.88 | 0.80 | 0.69 | |
| 22 | 0.04 | 0.08 | 0.22 | 0.35 | 0.48 | 0.60 | 0.78 | 0.95 | 1.12 | 1.29 | 1.50 | 1.77 | 2.04 | 2.30 | 2.44 | 2.08 | 1.81 | 1.58 | 1.41 | 1.26 | 1.13 | 1.03 | 0.94 | 0.86 | 0.74 | |
| 23 | 0.05 | 0.09 | 0.23 | 0.37 | 0.50 | 0.63 | 0.82 | 1.00 | 1.17 | 1.35 | 1.58 | 1.86 | 2.14 | 2.41 | 2.61 | 2.23 | 1.93 | 1.69 | 1.50 | 1.34 | 1.21 | 1.10 | 1.00 | 0.92 | 0.79 | |
| 24 | 0.05 | 0.09 | 0.25 | 0.39 | 0.53 | 0.66 | 0.85 | 1.04 | 1.23 | 1.41 | 1.65 | 1.95 | 2.24 | 2.52 | 2.78 | 2.37 | 2.06 | 1.81 | 1.60 | 1.43 | 1.29 | 1.17 | 1.07 | 0.98 | 0.84 | |
| 25 | 0.05 | 0.10 | 0.26 | 0.41 | 0.55 | 0.69 | 0.89 | 1.09 | 1.28 | 1.48 | 1.73 | 2.03 | 2.34 | 2.64 | 2.93 | 2.52 | 2.19 | 1.92 | 1.70 | 1.52 | 1.37 | 1.25 | 1.14 | 1.04 | 0.89 | C |
| 26 | 0.05 | 0.10 | 0.27 | 0.42 | 0.57 | 0.72 | 0.93 | 1.14 | 1.34 | 1.54 | 1.80 | 2.12 | 2.44 | 2.75 | 3.06 | 2.68 | 2.32 | 2.04 | 1.81 | 1.62 | 1.46 | 1.32 | 1.21 | 1.11 | 0.95 | |
| 28 | 0.06 | 0.11 | 0.29 | 0.46 | 0.62 | 0.78 | 1.01 | 1.23 | 1.45 | 1.67 | 1.95 | 2.30 | 2.64 | 2.98 | 3.31 | 2.99 | 2.59 | 2.28 | 2.02 | 1.81 | 1.63 | 1.48 | 1.35 | 1.24 | 1.06 | |
| 30 | 0.06 | 0.12 | 0.31 | 0.49 | 0.67 | 0.84 | 1.09 | 1.33 | 1.56 | 1.80 | 2.10 | 2.48 | 2.85 | 3.21 | 3.57 | 3.32 | 2.88 | 2.52 | 2.24 | 2.00 | 1.81 | 1.64 | 1.50 | 1.37 | 1.17 | |
| 32 | 0.07 | 0.12 | 0.33 | 0.53 | 0.72 | 0.90 | 1.16 | 1.42 | 1.68 | 1.93 | 2.25 | 2.66 | 3.05 | 3.44 | 3.83 | 3.65 | 3.17 | 2.78 | 2.47 | 2.21 | 1.99 | 1.81 | 1.65 | 1.51 | 1.29 | |
| 35 | 0.07 | 0.14 | 0.37 | 0.58 | 0.79 | 0.99 | 1.28 | 1.57 | 1.85 | 2.12 | 2.48 | 2.93 | 3.36 | 3.79 | 4.21 | 4.18 | 3.62 | 3.18 | 2.82 | 2.52 | 2.28 | 2.07 | 1.89 | 1.73 | 1.48 | |
| 40 | 0.08 | 0.16 | 0.43 | 0.67 | 0.91 | 1.14 | 1.48 | 1.81 | 2.13 | 2.45 | 2.87 | 3.38 | 3.88 | 4.38 | 4.87 | 5.11 | 4.43 | 3.89 | 3.45 | 3.08 | 2.78 | 2.52 | 2.30 | 2.11 | 1.81 | |
| 45 | 0.10 | 0.18 | 0.48 | 0.77 | 1.04 | 1.30 | 1.68 | 2.06 | 2.42 | 2.78 | 3.26 | 3.84 | 4.41 | 4.97 | 5.53 | 6.08 | 5.28 | 4.64 | 4.11 | 3.68 | 3.32 | 3.01 | 2.75 | 2.52 | 2.15 | |

Note: 1. Please contact a Tsubaki representative prior to use of kW ratings in the colored area of the table.

| Multi-strand factor | Number of chain strands | Multi-strand factor |
|---|---|---|
| | Double strand | 1.7 |
| | Triple strand | 2.5 |

| Lubrication method | | | Details on Pg. 193 |
|---|---|---|---|
| | A | Manual lubrication or drip lubrication | |
| | B | Oil bath or slinger disc lubrication | |
| | C | Forced pump lubrication | |

# RS25, BF25-H Sprocket




Notes:
1. Bores are finished and fitted with a screw.

Sintered alloy specification (1B type)

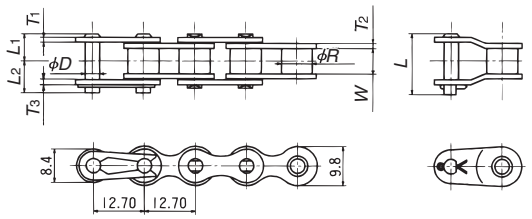
| Number of Teeth | Pitch Circular Diameter ($D_P$) | Sprocket Outer Diameter ($D_O$) | Bore Diameter ($d$) 1 type | Bore Diameter ($d$) 2 type | Hub Diameter ($D_H$) | Hub Length ($L$) | Cross-recessed Head Machine Screw Position ($H$) | Cross-recessed Head Machine Screw $S$ | Approx. Mass (g) | Material |
|---|---|---|---|---|---|---|---|---|---|---|
| **10** | 20.55 | 23.5 | 6H8 | 8H8 | 13 | 14 | 4 | M3X6 | 13 | Sintered alloy |
| **11** | 22.54 | 25.5 | 6H8 | 8H8 | 15 | 14 | 4 | M3X8 | 16 | |
| **12** | 24.53 | 27.5 | 8H8 | 10H8 | 17 | 14 | 4 | M4X8 | 20 | |
| **13** | 26.53 | 29.5 | 8H8 | 10H8 | 18 | 14 | 4 | M4X8 | 23 | |
| **14** | 28.54 | 31.5 | 8H8 | 10H8 | 19 | 14 | 4 | M4X8 | 26 | |
| **15** | 30.54 | 33.5 | 8H8 | 10H8 | 20 | 14 | 4 | M4X10 | 31 | |
| **16** | 32.55 | 35.5 | 8H8 | 10H8 | 21 | 16 | 5 | M4X10 | 38 | |
| **17** | 34.56 | 37.5 | 8H8 | 10H8 | 23 | 16 | 5 | M4X10 | 45 | |
| **18** | 36.57 | 39.5 | 8H8 | 10H8 | 25 | 16 | 5 | M4X12 | 52 | |
| **19** | 38.58 | 41.5 | 8H8 | 10H8 | 26 | 16 | 5 | M4X12 | 60 | |
| **20** | 40.59 | 43.5 | 8H8 | 10H8 | 28 | 16 | 5 | M4X14 | 68 | |
| **21** | 42.61 | 45.5 | 8H8 | 10H8 | 30 | 18 | 7 | M4X14 | 80 | |
| **22** | 44.62 | 48.0 | 8H8 | 10H8 | 30 | 18 | 7 | M4X14 | 84 | Machine-structural carbon steel |
| **23** | 46.63 | 50.0 | 8H8 | 10H8 | 30 | 18 | 7 | M4X14 | 88 | |
| **24** | 48.65 | 52.0 | 8H8 | 10H8 | 30 | 18 | 7 | M4X14 | 93 | |
| **25** | 50.66 | 54.0 | 8H8 | 10H8 | 30 | 18 | 7 | M4X14 | 98 | |
| **26** | 52.68 | 56.0 | 10H8 | 12H8 | 30 | 18 | 7 | M4X14 | 98 | |
| **28** | 56.71 | 60.0 | 10H8 | 12H8 | 30 | 18 | 7 | M4X14 | 103 | |
| **30** | 60.75 | 64.0 | 10H8 | 12H8 | 30 | 18 | 7 | M4X14 | 110 | |
| **32** | 64.78 | 68.0 | 10H8 | 12H8 | 30 | 18 | 7 | M4X14 | 117 | |

## Sprocket Number

RS25 -1B 10T 6

- Bore diameter (d)
- Number of teeth
- Type
- Chain number

# RS37-1, RS38-1, RS41-1




*Maximum allowable load when using an M type connecting link is 80% of the above.

| TSUBAKI Chain Number | Pitch $P$ | Roller Diameter $R$ | Inner Width of Inner Link $W$ | Plates $T_1$ | Plates $T_2$ | Plates $T_3$ | Pins $D$ | Pins $L_1+L_2$ | Pins $L_1$ | Pins $L_2$ | Pins $L$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RS37-1 | 12.70 | 7.80 | 3.40 | 1.0 | 1.0 | 1.2 | 3.63 | 11.0 | 5.1 | 5.9 | 12.45 |
| RS38-1 | 12.70 | 7.80 | 4.80 | 1.1 | 1.1 | 1.2 | 3.63 | 13.1 | 6.0 | 7.1 | 14.1 |
| RS41-1 | 12.70 | 7.77 | 6.38 | 1.25 | 1.25 | 1.25 | 3.59 | 14.7 | 6.75 | 7.95 | 15.1 |

| TSUBAKI Chain Number | ANSI Standard Min. Tensile Strength kN{kgf} | Tsubaki Minimum Tensile Strength kN{kgf} | Tsubaki Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m | Number of Links Per Unit |
|---|---|---|---|---|---|---|
| RS37-1 | – | 8.14{ 830} | 9.41{ 960} | 1.37{140} | 0.29 | 240 |
| RS38-1 | – | 8.14{ 830} | 9.41{ 960} | 1.37{140} | 0.35 | 240 |
| RS41-1 | 7.4{755} | 10.3{1050} | 11.8{1200} | 2.26{230} | 0.41 | 240 |

Note: 1. Maximum allowable load when using a one-pitch offset link (OL) is 65% of the above.
2. Number of links per unit = 240

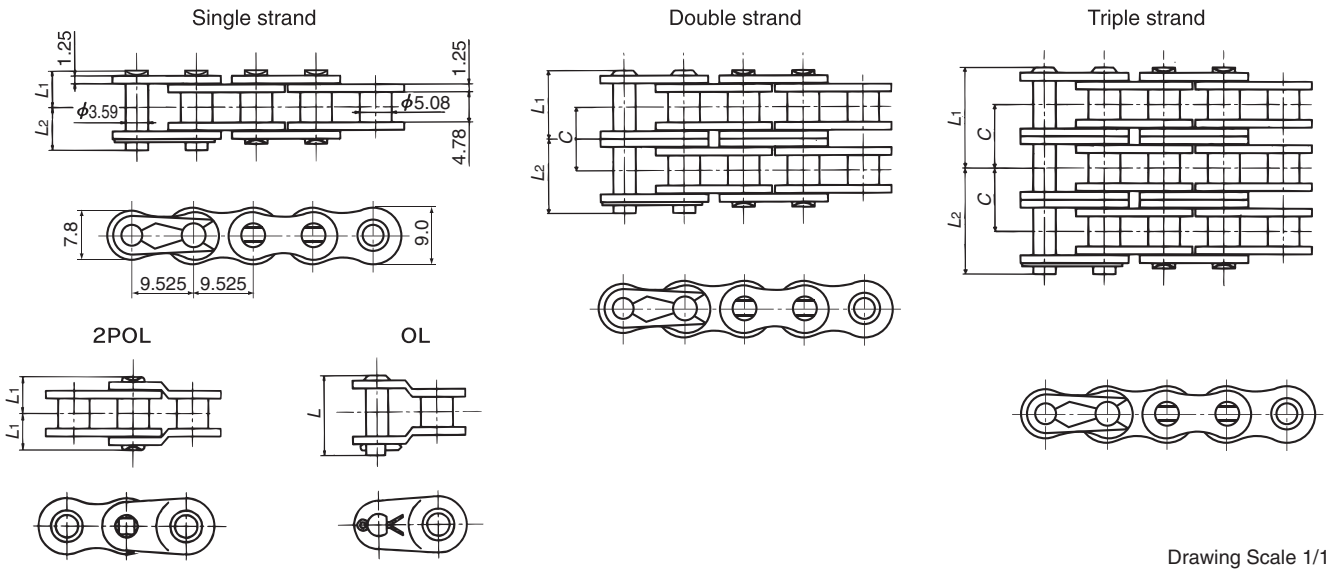
■ RS41-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm 10 | 25 | 50 | 100 | 200 | 300 | 400 | 500 | 700 | 900 | 1000 | 1200 | 1400 | 1600 | 1800 | 2100 | 2400 | 2700 | 3000 | 3500 | 4000 | 5000 | 6000 | 7000 | 8000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | | | | | | | | | B | | | | | | | | | | | | | | C | |
| **9** | 0.02 | 0.05 | 0.10 | 0.18 | 0.34 | 0.49 | 0.64 | 0.78 | 1.05 | 1.32 | 1.24 | 0.95 | 0.75 | 0.61 | 0.52 | 0.41 | 0.33 | 0.28 | 0.24 | 0.19 | 0.16 | 0.11 | 0.08 | 0.07 | 0.05 |
| **10** | 0.03 | 0.06 | 0.11 | 0.20 | 0.38 | 0.55 | 0.71 | 0.87 | 1.18 | 1.48 | 1.46 | 1.11 | 0.88 | 0.72 | 0.60 | 0.48 | 0.39 | 0.33 | 0.28 | 0.22 | 0.18 | 0.13 | 0.10 | 0.08 | 0.06 |
| **11** | 0.03 | 0.07 | 0.12 | 0.23 | 0.42 | 0.61 | 0.79 | 0.96 | 1.31 | 1.64 | 1.68 | 1.28 | 1.01 | 0.83 | 0.70 | 0.55 | 0.45 | 0.38 | 0.32 | 0.26 | 0.21 | 0.15 | 0.11 | 0.09 | 0.07 |
| **12** | 0.03 | 0.07 | 0.13 | 0.25 | 0.46 | 0.67 | 0.87 | 1.06 | 1.43 | 1.80 | 1.91 | 1.46 | 1.16 | 0.95 | 0.79 | 0.63 | 0.52 | 0.43 | 0.37 | 0.29 | 0.24 | 0.17 | 0.13 | 0.10 | 0.08 |
| **13** | 0.03 | 0.08 | 0.15 | 0.27 | 0.51 | 0.73 | 0.95 | 1.16 | 1.56 | 1.96 | 2.16 | 1.64 | 1.30 | 1.07 | 0.89 | 0.71 | 0.58 | 0.49 | 0.42 | 0.33 | 0.27 | 0.19 | 0.15 | 0.12 | 0.10 |
| **14** | 0.04 | 0.08 | 0.16 | 0.29 | 0.55 | 0.79 | 1.02 | 1.25 | 1.69 | 2.12 | 2.34 | 1.84 | 1.46 | 1.19 | 1.00 | 0.79 | 0.65 | 0.54 | 0.46 | 0.37 | 0.30 | 0.22 | 0.16 | 0.13 | 0.11 |
| **15** | 0.04 | 0.09 | 0.17 | 0.32 | 0.59 | 0.85 | 1.10 | 1.35 | 1.83 | 2.29 | 2.52 | 2.04 | 1.62 | 1.32 | 1.11 | 0.88 | 0.72 | 0.60 | 0.52 | 0.41 | 0.33 | 0.24 | 0.18 | 0.14 | 0.12 |
| **16** | 0.04 | 0.10 | 0.18 | 0.34 | 0.63 | 0.91 | 1.18 | 1.45 | 1.96 | 2.45 | 2.70 | 2.24 | 1.78 | 1.46 | 1.22 | 0.97 | 0.79 | 0.66 | 0.57 | 0.45 | 0.37 | 0.26 | 0.20 | 0.16 | 0.13 |
| **17** | 0.05 | 0.10 | 0.19 | 0.36 | 0.68 | 0.97 | 1.26 | 1.54 | 2.09 | 2.62 | 2.88 | 2.46 | 1.95 | 1.60 | 1.34 | 1.06 | 0.87 | 0.73 | 0.62 | 0.49 | 0.40 | 0.29 | 0.22 | 0.17 | 0.14 |
| **18** | 0.05 | 0.11 | 0.21 | 0.39 | 0.72 | 1.04 | 1.34 | 1.64 | 2.22 | 2.79 | 3.06 | 2.68 | 2.12 | 1.74 | 1.46 | 1.16 | 0.95 | 0.79 | 0.68 | 0.54 | 0.44 | 0.31 | 0.24 | 0.19 | |
| **19** | 0.05 | 0.12 | 0.22 | 0.41 | 0.76 | 1.10 | 1.42 | 1.74 | 2.36 | 2.95 | 3.25 | 2.90 | 2.30 | 1.89 | 1.58 | 1.25 | 1.03 | 0.86 | 0.73 | 0.58 | 0.48 | 0.34 | 0.26 | 0.21 | |
| **20** | 0.05 | 0.12 | 0.23 | 0.43 | 0.81 | 1.16 | 1.51 | 1.84 | 2.49 | 3.12 | 3.43 | 3.13 | 2.49 | 2.04 | 1.71 | 1.35 | 1.11 | 0.93 | 0.79 | 0.63 | 0.52 | 0.37 | 0.28 | 0.22 | |
| **21** | 0.06 | 0.13 | 0.24 | 0.46 | 0.85 | 1.22 | 1.59 | 1.94 | 2.63 | 3.29 | 3.62 | 3.37 | 2.68 | 2.19 | 1.84 | 1.46 | 1.19 | 1.00 | 0.85 | 0.68 | 0.55 | 0.40 | 0.30 | 0.24 | |
| **22** | 0.06 | 0.14 | 0.26 | 0.48 | 0.89 | 1.29 | 1.67 | 2.04 | 2.76 | 3.46 | 3.81 | 3.62 | 2.87 | 2.35 | 1.97 | 1.56 | 1.28 | 1.07 | 0.91 | 0.73 | 0.59 | 0.43 | 0.32 | 0.26 | |
| **23** | 0.06 | 0.14 | 0.27 | 0.50 | 0.94 | 1.35 | 1.75 | 2.14 | 2.90 | 3.63 | 3.99 | 3.87 | 3.07 | 2.51 | 2.10 | 1.67 | 1.37 | 1.15 | 0.98 | 0.78 | 0.64 | 0.45 | 0.35 | 0.27 | |
| **24** | 0.07 | 0.15 | 0.28 | 0.53 | 0.98 | 1.41 | 1.83 | 2.24 | 3.03 | 3.80 | 4.18 | 4.12 | 3.27 | 2.68 | 2.24 | 1.78 | 1.46 | 1.22 | 1.04 | 0.83 | 0.68 | 0.48 | 0.37 | 0.29 | |
| **25** | 0.07 | 0.16 | 0.29 | 0.55 | 1.03 | 1.48 | 1.92 | 2.34 | 3.17 | 3.97 | 4.37 | 4.38 | 3.48 | 2.85 | 2.38 | 1.89 | 1.55 | 1.30 | 1.11 | 0.88 | 0.72 | 0.52 | 0.39 | | |
| **26** | 0.07 | 0.16 | 0.31 | 0.57 | 1.07 | 1.54 | 2.00 | 2.44 | 3.31 | 4.15 | 4.56 | 4.65 | 3.69 | 3.02 | 2.53 | 2.01 | 1.64 | 1.38 | 1.18 | 0.93 | 0.76 | 0.55 | 0.42 | | |
| **28** | 0.08 | 0.18 | 0.33 | 0.62 | 1.16 | 1.67 | 2.16 | 2.65 | 3.58 | 4.49 | 4.94 | 5.19 | 4.12 | 3.37 | 2.83 | 2.24 | 1.84 | 1.54 | 1.31 | 1.04 | 0.85 | 0.61 | 0.46 | | |
| **30** | 0.08 | 0.19 | 0.36 | 0.67 | 1.25 | 1.80 | 2.33 | 2.85 | 3.86 | 4.84 | 5.32 | 5.76 | 4.57 | 3.74 | 3.13 | 2.49 | 2.04 | 1.71 | 1.46 | 1.16 | 0.95 | 0.68 | 0.52 | | |
| **32** | 0.09 | 0.21 | 0.38 | 0.72 | 1.34 | 1.93 | 2.50 | 3.06 | 4.14 | 5.19 | 5.70 | 6.34 | 5.03 | 4.12 | 3.45 | 2.74 | 2.24 | 1.88 | 1.60 | 1.27 | 1.04 | 0.75 | | | |
| **35** | 0.10 | 0.23 | 0.42 | 0.79 | 1.48 | 2.13 | 2.75 | 3.37 | 4.56 | 5.72 | 6.28 | 7.26 | 5.76 | 4.71 | 3.95 | 3.13 | 2.57 | 2.15 | 1.84 | 1.46 | 1.19 | 0.85 | | | |
| **40** | 0.12 | 0.26 | 0.49 | 0.91 | 1.71 | 2.46 | 3.18 | 3.89 | 5.27 | 6.60 | 7.26 | 8.55 | 7.04 | 5.76 | 4.83 | 3.83 | 3.13 | 2.63 | 2.24 | 1.78 | 1.46 | 1.04 | | | |
| **45** | 0.13 | 0.30 | 0.56 | 1.04 | 1.94 | 2.79 | 3.61 | 4.42 | 5.98 | 7.50 | 8.24 | 9.71 | 8.39 | 6.87 | 5.76 | 4.57 | 3.74 | 3.13 | 2.68 | 2.12 | 1.74 | | | | |

Note: 1. Please contact a Tsubaki representative prior to use of kW ratings in the colored area of the table.

| Lubrication method | | | Details on Pg. 193 |
|---|---|---|---|
| | A | Manual lubrication or drip lubrication | |
| | B | Oil bath or slinger disc lubrication | |
| | C | Forced pump lubrication | |

# RS35




Drawing Scale 1/1.2

| TSUBAKI Chain Number | Number of Strands | Pin Length $L_1+L_2$ | Dimensions $L_1$ | Dimensions $L_2$ | Offset Pin Length $L$ | Transverse Pitch $C$ | Pin Type | ANSI Standard Min. Tensile Strength kN{kgf} | Tsubaki Minimum Tensile Strength kN{kgf} | Tsubaki Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS35-1 | 1 | 12.7 | 5.85 | 6.85 | 13.5 | 10.1 | Riveting | 8.7 {887} | 9.81{1000} | 11.3{1150} | 2.16{220} | 0.33 |
| RS35-2 | 2 | 22.8 | 10.9 | 11.9 | 24.5 | | | 17.4{1774} | 19.6{2000} | 22.6{2300} | 3.63{370} | 0.69 |
| RS35-3 | 3 | 32.9 | 16.0 | 16.9 | 34.6 | | | 26.1{2661} | 29.4{3000} | 33.8{3450} | 5.39{550} | 1.05 |

Note: 1. Maximum allowable load when using a one-pitch offset link (OL) is 65% of the above.
2. Number of links per unit = 320 3. Bushed chain.

## ■RS35-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

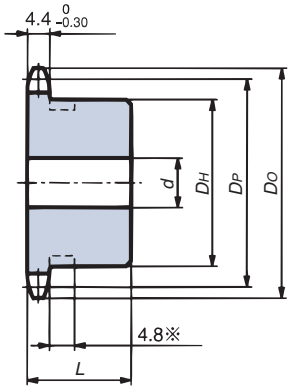
| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 50 | 100 | 300 | 500 | 700 | 900 | 1200 | 1500 | 1800 | 2100 | 2500 | 3000 | 3500 | 4000 | 4500 | 5000 | 5500 | 6000 | 6500 | 7000 | 7500 | 8000 | 8500 | 9000 | 10000 |
| | A | | | | | | | B | | | | | | | | | | | | | | | | | C |
| 9 | 0.09 | 0.17 | 0.47 | 0.74 | 1.00 | 1.26 | 1.63 | 1.99 | 2.34 | 2.69 | 2.13 | 1.62 | 1.29 | 1.05 | 0.88 | 0.75 | 0.65 | 0.57 | 0.51 | 0.46 | 0.41 | 0.37 | 0.34 | 0.31 | 0.27 |
| 10 | 0.10 | 0.19 | 0.52 | 0.83 | 1.12 | 1.41 | 1.82 | 2.23 | 2.63 | 3.02 | 2.50 | 1.90 | 1.51 | 1.23 | 1.03 | 0.88 | 0.77 | 0.67 | 0.60 | 0.53 | 0.48 | 0.44 | 0.40 | 0.37 | 0.31 |
| 11 | 0.12 | 0.22 | 0.58 | 0.92 | 1.24 | 1.56 | 2.02 | 2.47 | 2.91 | 3.34 | 2.88 | 2.19 | 1.74 | 1.42 | 1.19 | 1.02 | 0.88 | 0.77 | 0.69 | 0.61 | 0.55 | 0.50 | 0.46 | 0.42 | 0.36 |
| 12 | 0.13 | 0.24 | 0.64 | 1.01 | 1.37 | 1.71 | 2.22 | 2.71 | 3.20 | 3.67 | 3.28 | 2.50 | 1.98 | 1.62 | 1.36 | 1.16 | 1.01 | 0.88 | 0.78 | 0.70 | 0.63 | 0.57 | 0.52 | 0.48 | 0.41 |
| 13 | 0.14 | 0.26 | 0.70 | 1.10 | 1.49 | 1.87 | 2.42 | 2.96 | 3.49 | 4.01 | 3.70 | 2.82 | 2.23 | 1.83 | 1.53 | 1.31 | 1.13 | 1.00 | 0.88 | 0.79 | 0.71 | 0.65 | 0.59 | 0.54 | 0.46 |
| 14 | 0.15 | 0.28 | 0.75 | 1.19 | 1.61 | 2.02 | 2.62 | 3.21 | 3.78 | 4.34 | 4.14 | 3.15 | 2.50 | 2.04 | 1.71 | 1.46 | 1.27 | 1.11 | 0.99 | 0.88 | 0.80 | 0.72 | 0.66 | 0.61 | 0.52 |
| 15 | 0.16 | 0.30 | 0.81 | 1.29 | 1.74 | 2.18 | 2.83 | 3.45 | 4.07 | 4.68 | 4.59 | 3.49 | 2.77 | 2.27 | 1.90 | 1.62 | 1.41 | 1.23 | 1.09 | 0.98 | 0.88 | 0.80 | 0.73 | 0.67 | 0.57 |
| 16 | 0.17 | 0.32 | 0.87 | 1.38 | 1.87 | 2.34 | 3.03 | 3.70 | 4.36 | 5.01 | 5.05 | 3.85 | 3.05 | 2.5 | 2.09 | 1.79 | 1.55 | 1.36 | 1.21 | 1.08 | 0.97 | 0.88 | 0.81 | 0.74 | 0.63 |
| 17 | 0.19 | 0.35 | 0.93 | 1.47 | 1.99 | 2.50 | 3.23 | 3.95 | 4.66 | 5.35 | 5.54 | 4.21 | 3.34 | 2.74 | 2.29 | 1.96 | 1.70 | 1.49 | 1.32 | 1.18 | 1.07 | 0.97 | 0.88 | 0.81 | 0.69 |
| 18 | 0.20 | 0.37 | 0.99 | 1.56 | 2.12 | 2.66 | 3.44 | 4.21 | 4.96 | 5.69 | 6.03 | 4.59 | 3.64 | 2.98 | 2.50 | 2.13 | 1.85 | 1.62 | 1.44 | 1.29 | 1.16 | 1.05 | 0.96 | 0.88 | 0.75 |
| 19 | 0.21 | 0.39 | 1.05 | 1.66 | 2.25 | 2.82 | 3.65 | 4.46 | 5.25 | 6.04 | 6.54 | 4.98 | 3.95 | 3.23 | 2.71 | 2.31 | 2.00 | 1.76 | 1.56 | 1.40 | 1.26 | 1.14 | 1.04 | 0.96 | 0.82 |
| 20 | 0.22 | 0.41 | 1.11 | 1.75 | 2.37 | 2.98 | 3.86 | 4.71 | 5.55 | 6.38 | 7.06 | 5.37 | 4.26 | 3.49 | 2.93 | 2.50 | 2.16 | 1.90 | 1.69 | 1.51 | 1.36 | 1.23 | 1.13 | 1.03 | 0.88 |
| 21 | 0.23 | 0.43 | 1.17 | 1.85 | 2.5 | 3.14 | 4.06 | 4.97 | 5.85 | 6.72 | 7.6 | 5.78 | 4.59 | 3.76 | 3.15 | 2.69 | 2.33 | 2.04 | 1.81 | 1.62 | 1.46 | 1.33 | 1.21 | 1.11 | 0.95 |
| 22 | 0.24 | 0.46 | 1.23 | 1.94 | 2.63 | 3.30 | 4.27 | 5.22 | 6.16 | 7.07 | 8.15 | 6.20 | 4.92 | 4.03 | 3.37 | 2.88 | 2.50 | 2.19 | 1.94 | 1.74 | 1.57 | 1.42 | 1.30 | 1.19 | 1.02 |
| 23 | 0.26 | 0.48 | 1.29 | 2.04 | 2.76 | 3.46 | 4.48 | 5.48 | 6.46 | 7.42 | 8.68 | 6.63 | 5.26 | 4.30 | 3.61 | 3.08 | 2.67 | 2.34 | 2.08 | 1.86 | 1.68 | 1.52 | 1.39 | 1.28 | 1.09 |
| 24 | 0.27 | 0.50 | 1.35 | 2.13 | 2.89 | 3.62 | 4.69 | 5.74 | 6.76 | 7.77 | 9.09 | 7.06 | 5.61 | 4.59 | 3.85 | 3.28 | 2.85 | 2.50 | 2.21 | 1.98 | 1.79 | 1.62 | 1.48 | 1.36 | 1.16 |
| 25 | 0.28 | 0.52 | 1.41 | 2.23 | 3.02 | 3.79 | 4.91 | 6.00 | 7.07 | 8.12 | 9.50 | 7.51 | 5.96 | 4.88 | 4.09 | 3.49 | 3.03 | 2.66 | 2.35 | 2.11 | 1.90 | 1.72 | 1.57 | 1.45 | 1.23 |
| 26 | 0.29 | 0.55 | 1.47 | 2.33 | 3.15 | 3.95 | 5.12 | 6.26 | 7.37 | 8.47 | 9.91 | 7.97 | 6.32 | 5.17 | 4.34 | 3.70 | 3.21 | 2.82 | 2.50 | 2.23 | 2.02 | 1.83 | 1.67 | 1.53 | 1.31 |
| 28 | 0.32 | 0.59 | 1.59 | 2.52 | 3.41 | 4.28 | 5.54 | 6.78 | 7.99 | 9.18 | 10.7 | 8.90 | 7.06 | 5.78 | 4.85 | 4.14 | 3.59 | 3.15 | 2.79 | 2.50 | 2.25 | 2.04 | 1.87 | 1.71 | 1.46 |
| 30 | 0.34 | 0.64 | 1.72 | 2.72 | 3.68 | 4.61 | 5.97 | 7.30 | 8.60 | 9.89 | 11.6 | 9.87 | 7.83 | 6.41 | 5.37 | 4.59 | 3.98 | 3.49 | 3.10 | 2.77 | 2.50 | 2.27 | 2.07 | 1.90 | 1.62 |
| 32 | 0.37 | 0.68 | 1.84 | 2.91 | 3.94 | 4.94 | 6.40 | 7.83 | 9.23 | 10.6 | 12.4 | 10.9 | 8.63 | 7.06 | 5.92 | 5.05 | 4.38 | 3.85 | 3.41 | 3.05 | 2.75 | 2.50 | 2.28 | 2.09 | |
| 35 | 0.40 | 0.75 | 2.03 | 3.21 | 4.34 | 5.45 | 7.06 | 8.63 | 10.2 | 11.7 | 13.7 | 12.4 | 9.87 | 8.08 | 6.77 | 5.78 | 5.01 | 4.40 | 3.90 | 3.49 | 3.15 | 2.86 | 2.61 | 2.39 | |
| 40 | 0.47 | 0.87 | 2.34 | 3.71 | 5.02 | 6.29 | 8.15 | 9.96 | 11.7 | 13.5 | 15.8 | 15.2 | 12.1 | 9.87 | 8.27 | 7.06 | 6.12 | 5.37 | 4.77 | 4.26 | 3.85 | 3.49 | | | |
| 45 | 0.53 | 0.99 | 2.66 | 4.21 | 5.70 | 7.14 | 9.26 | 11.3 | 13.3 | 15.3 | 17.9 | 18.1 | 14.4 | 11.8 | 9.87 | 8.43 | 7.31 | 6.41 | 5.69 | 5.09 | | | | | |

Note: 1. KW rating when using a one-pitch offset link (OL) is 80% of the above.
2. Please contact a Tsubaki representative prior to use of kW ratings in the colored area of the table.

| | Number of chain strands | Multi-strand factor | Number of chain strands | Multi-strand factor |
|---|---|---|---|---|
| Multi-strand factor | Double strand | 1.7 | Quintuple strand | 3.9 |
| | Triple strand | 2.5 | Sextuple strand | 4.6 |
| | Quadruple strand | 3.3 | – | – |

| | | | |
|---|---|---|---|
| Lubrication method | A | Manual lubrication or drip lubrication | Details on Pg. 193 |
| | B | Oil bath or slinger disc lubrication | |
| | C | Forced pump lubrication | |

# RS35 Sprocket




Mechanically machined
(1B type)

## Sprocket Number

RS35 -1B 15T

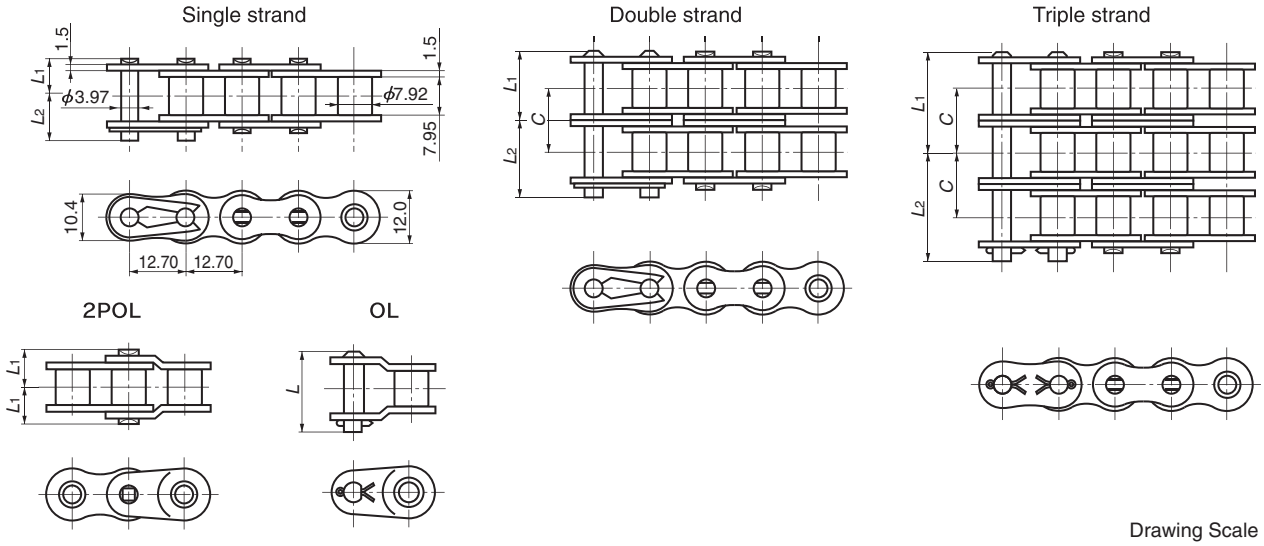
- Number of teeth
- Type
- Chain number

| Number of Teeth | Pitch Circular Diameter ($D_P$) | Sprocket Outer Diameter ($D_O$) | 1B type | | | | | | Number of Teeth |
|---|---|---|---|---|---|---|---|---|---|
| | | | Bore Diameter ($d$) | | Hub | | | Material | |
| **9** | 27.85 | 32 | 8 | 11 | 22 | 20 | 0.05 | ※ | **9** |
| **10** | 30.82 | 35 | 8 | 12 | 25 | 20 | 0.07 | ※ | **10** |
| **11** | 33.81 | 38 | 8 | 14 | 27 | 20 | 0.08 | ※ | **11** |
| **12** | 36.80 | 41 | 8 | 16.5 | 31 | 20 | 0.11 | ※ | **12** |
| **13** | 39.80 | 44 | 9.5 | 18 | 32 | 20 | 0.12 | ※ | **13** |
| **14** | 42.80 | 47 | 9.5 | 16.5 | 30 | 20 | 0.12 | Mechanically machined: machine-structural carbon steel | **14** |
| **15** | 45.81 | 51 | 9.5 | 19 | 35 | 20 | 0.16 | | **15** |
| **16** | 48.82 | 54 | 9.5 | 20 | 37 | 20 | 0.18 | | **16** |
| **17** | 51.84 | 57 | 9.5 | 24 | 41 | 20 | 0.22 | | **17** |
| **18** | 54.85 | 60 | 9.5 | 24.5 | 44 | 20 | 0.25 | | **18** |
| **19** | 57.87 | 63 | 9.5 | 28.5 | 47 | 20 | 0.29 | | **19** |
| **20** | 60.89 | 66 | 9.5 | 30 | 50 | 20 | 0.32 | | **20** |
| **21** | 63.91 | 69 | 9.5 | 32 | 53 | 20 | 0.36 | | **21** |
| **22** | 66.93 | 72 | 9.5 | 32 | 53 | 20 | 0.37 | | **22** |
| **23** | 69.95 | 75 | 9.5 | 32 | 53 | 20 | 0.38 | | **23** |
| **24** | 72.97 | 78 | 9.5 | 32 | 53 | 22 | 0.43 | | **24** |
| **25** | 76.00 | 81 | 12.7 | 32 | 53 | 22 | 0.43 | | **25** |
| **26** | 79.02 | 84 | 12.7 | 32 | 53 | 22 | 0.44 | | **26** |
| **27** | 82.05 | 87 | 12.7 | 32 | 53 | 22 | 0.45 | | **27** |
| **28** | 85.07 | 90 | 12.7 | 32 | 53 | 22 | 0.47 | | **28** |
| **30** | 91.12 | 96 | 12.7 | 32 | 53 | 22 | 0.50 | | **30** |
| **32** | 97.18 | 102 | 12.7 | 32 | 53 | 22 | 0.53 | | **32** |
| **34** | 103.23 | 109 | 12.7 | 32 | 53 | 22 | 0.56 | | **34** |
| **35** | 106.26 | 112 | 12.7 | 32 | 53 | 22 | 0.58 | | **35** |
| **36** | 109.29 | 115 | 12.7 | 32 | 53 | 22 | 0.59 | | **36** |
| **38** | 115.34 | 121 | 13 | 42 | 63 | 25 | 0.82 | | **38** |
| **40** | 121.40 | 127 | 13 | 42 | 63 | 25 | 0.86 | | **40** |
| **42** | 127.46 | 133 | 13 | 42 | 63 | 25 | 0.90 | | **42** |
| **45** | 136.55 | 142 | 13 | 42 | 63 | 25 | 0.96 | | **45** |
| **48** | 145.64 | 151 | 13 | 42 | 63 | 25 | 1.0 | | **48** |
| **50** | 151.69 | 157 | 13 | 42 | 63 | 25 | 1.1 | | **50** |
| **54** | 163.82 | 169 | 13 | 42 | 63 | 25 | 1.2 | | **54** |
| **60** | 182.00 | 187 | 13 | 42 | 63 | 25 | 1.4 | | **60** |
| **65** | 197.15 | 203 | 16 | 45 | 68 | 25 | 1.6 | | **65** |
| **70** | 212.30 | 218 | 16 | 45 | 68 | 25 | 1.7 | | **70** |
| **75** | 227.46 | 233 | 16 | 45 | 68 | 25 | 1.9 | | **75** |

Note: 1. Maximum bore diameter is the typical range. Determine bore diameter and key bearing pressure based on general mechanical design.
2. Models in shaded areas have hardened teeth.
3. Sprockets marked with an * have an outer groove around the hub. Groove outer diameter is 16 for 9T, 22 for 10T, 24 for 12T and 28 for 13T.
4. Sprockets with 42 or more teeth do not have hardened teeth, but the Strong Series of sprocket with hardened teeth can be made-to-order.

Example of
grooved sprocket

# RS40




Drawing Scale 1/1.6

| TSUBAKI Chain Number | Number of Strands | Pin Length $L_1+L_2$ | Dimensions $L_1$ | Dimensions $L_2$ | Offset Pin Length $L$ | Transverse Pitch $C$ | Pin Type | ANSI Standard Min. Tensile Strength kN{kgf} | Tsubaki Minimum Tensile Strength kN{kgf} | Tsubaki Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS40-1 | 1 | 18.2 | 8.25 | 9.95 | 18.2 | 14.4 | Riveting | 15.2 {1550} | 17.7 {1800} | 19.1 {1950} | 3.63 {370} | 0.64 |
| RS40-2 | 2 | 32.6 | 15.45 | 17.15 | 33.5 | | | 30.4 {3100} | 35.3 {3600} | 38.2 {3900} | 6.18 {630} | 1.27 |
| RS40-3 | 3 | 46.8 | 22.65 | 24.15 | 47.9 | | | 45.6 {4650} | 53.0 {5400} | 57.4 {5850} | 9.12 {930} | 1.90 |
| RS40-4 | 4 | 61.2 | 29.9 | 31.3 | 62.3 | | | – | 70.6 {7200} | 76.5 {7800} | 12.0 {1220} | 2.53 |
| RS40-5 | 5 | 75.7 | 37.1 | 38.6 | 76.8 | | | – | 88.3 {9000} | 95.6 {9750} | 14.1 {1440} | 3.16 |
| RS40-6 | 6 | 90.1 | 44.3 | 45.8 | 91.2 | | | – | 106 {10800} | 115 {11700} | 16.7 {1700} | 3.79 |

Note: 1. Maximum allowable load when using a one-pitch offset link (OL) is 65% of the above. Two pitch offset links (2POL) can be used at 100% of the above values.
2. Number of links per unit = 240

## ■RS40-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

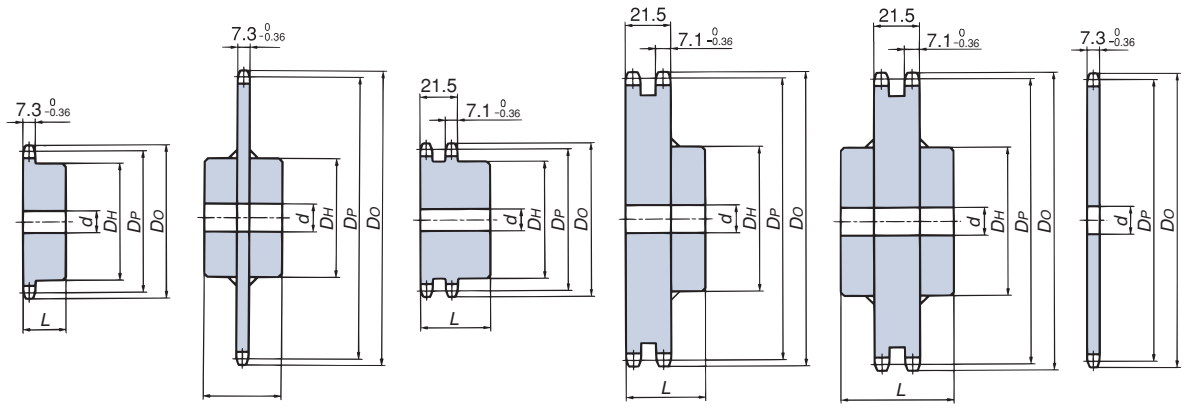
| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 200 | 300 | 400 | 500 | 700 | 900 | 1000 | 1200 | 1400 | 1600 | 1800 | 2100 | 2400 | 2700 | 3000 | 3500 | 4000 | 5000 | 6000 | 7000 | 8000 |
| | A | | | | | | | | | B | | | | | | | | | | | | | | C | |
| 9 | 0.07 | 0.15 | 0.28 | 0.52 | 0.97 | 1.40 | 1.81 | 2.21 | 3.00 | 3.75 | 3.75 | 3.75 | 3.75 | 3.07 | 2.58 | 2.04 | 1.67 | 1.40 | 1.20 | 0.95 | 0.78 | 0.56 | 0.42 | 0.34 | 0.27 |
| 10 | 0.07 | 0.17 | 0.31 | 0.58 | 1.09 | 1.57 | 2.03 | 2.48 | 3.36 | 4.21 | 4.40 | 4.40 | 4.40 | 3.60 | 3.02 | 2.39 | 1.96 | 1.64 | 1.40 | 1.11 | 0.91 | 0.65 | 0.50 | 0.39 | 0.32 |
| 11 | 0.08 | 0.19 | 0.35 | 0.65 | 1.21 | 1.74 | 2.25 | 2.75 | 3.72 | 4.67 | 5.07 | 5.07 | 5.07 | 4.15 | 3.48 | 2.76 | 2.26 | 1.89 | 1.62 | 1.28 | 1.05 | 0.75 | 0.57 | 0.45 | 0.37 |
| 12 | 0.09 | 0.20 | 0.38 | 0.71 | 1.32 | 1.91 | 2.47 | 3.02 | 4.09 | 5.13 | 5.64 | 5.67 | 5.67 | 4.73 | 3.97 | 3.15 | 2.58 | 2.16 | 1.84 | 1.46 | 1.20 | 0.86 | 0.65 | 0.52 | 0.42 |
| 13 | 0.10 | 0.22 | 0.41 | 0.77 | 1.44 | 2.08 | 2.69 | 3.29 | 4.46 | 5.59 | 6.15 | 6.18 | 6.18 | 5.34 | 4.47 | 3.55 | 2.90 | 2.43 | 2.08 | 1.65 | 1.35 | 0.97 | 0.73 | 0.58 | 0.48 |
| 14 | 0.11 | 0.24 | 0.45 | 0.84 | 1.56 | 2.25 | 2.92 | 3.57 | 4.83 | 6.06 | 6.66 | 6.70 | 6.70 | 5.96 | 5.00 | 3.97 | 3.25 | 2.72 | 2.32 | 1.84 | 1.51 | 1.08 | 0.82 | 0.65 | 0.53 |
| 15 | 0.11 | 0.26 | 0.48 | 0.90 | 1.69 | 2.43 | 3.14 | 3.84 | 5.20 | 6.52 | 7.17 | 7.21 | 7.21 | 6.61 | 5.54 | 4.40 | 3.60 | 3.02 | 2.58 | 2.04 | 1.67 | 1.20 | 0.91 | 0.72 | 0.59 |
| 16 | 0.12 | 0.28 | 0.52 | 0.97 | 1.81 | 2.60 | 3.37 | 4.12 | 5.58 | 7.00 | 7.69 | 7.74 | 7.74 | 7.28 | 6.10 | 4.84 | 3.97 | 3.32 | 2.84 | 2.25 | 1.84 | 1.32 | 1.00 | 0.80 | 0.65 |
| 17 | 0.13 | 0.30 | 0.55 | 1.03 | 1.93 | 2.78 | 3.60 | 4.40 | 5.96 | 7.47 | 8.21 | 8.26 | 8.26 | 7.98 | 6.69 | 5.31 | 4.34 | 3.64 | 3.11 | 2.47 | 2.02 | 1.44 | 1.10 | 0.87 | 0.71 |
| 18 | 0.14 | 0.32 | 0.59 | 1.10 | 2.05 | 2.96 | 3.83 | 4.68 | 6.34 | 7.94 | 8.73 | 8.79 | 8.79 | 8.69 | 7.28 | 5.78 | 4.73 | 3.97 | 3.39 | 2.69 | 2.20 | 1.57 | 1.20 | 0.95 | |
| 19 | 0.15 | 0.33 | 0.62 | 1.17 | 2.18 | 3.13 | 4.06 | 4.96 | 6.72 | 8.42 | 9.26 | 9.43 | 9.43 | 9.43 | 7.90 | 6.27 | 5.13 | 4.30 | 3.67 | 2.91 | 2.38 | 1.71 | 1.30 | 1.03 | |
| 20 | 0.16 | 0.35 | 0.66 | 1.23 | 2.30 | 3.31 | 4.29 | 5.24 | 7.10 | 8.90 | 9.79 | 10.2 | 10.2 | 10.2 | 8.53 | 6.77 | 5.54 | 4.64 | 3.97 | 3.15 | 2.58 | 1.84 | 1.40 | 1.11 | |
| 21 | 0.16 | 0.37 | 0.70 | 1.30 | 2.42 | 3.49 | 4.52 | 5.53 | 7.48 | 9.38 | 10.3 | 11.0 | 11.0 | 11.0 | 9.18 | 7.28 | 5.96 | 5.00 | 4.27 | 3.39 | 2.77 | 1.98 | 1.51 | 1.20 | |
| 22 | 0.17 | 0.39 | 0.73 | 1.37 | 2.55 | 3.67 | 4.76 | 5.81 | 7.87 | 9.87 | 10.8 | 11.7 | 11.7 | 11.7 | 9.84 | 7.81 | 6.39 | 5.36 | 4.57 | 3.63 | 2.97 | 2.13 | 1.62 | 1.28 | |
| 23 | 0.18 | 0.41 | 0.77 | 1.43 | 2.67 | 3.85 | 4.99 | 6.10 | 8.26 | 10.4 | 11.4 | 12.6 | 12.6 | 12.6 | 10.5 | 8.35 | 6.83 | 5.73 | 4.89 | 3.88 | 3.18 | 2.27 | 1.73 | 1.37 | |
| 24 | 0.19 | 0.43 | 0.80 | 1.50 | 2.80 | 4.03 | 5.22 | 6.39 | 8.65 | 10.8 | 11.9 | 13.4 | 13.4 | 13.4 | 11.2 | 8.90 | 7.28 | 6.10 | 5.21 | 4.14 | 3.39 | 2.42 | 1.84 | 1.46 | |
| 25 | 0.20 | 0.45 | 0.84 | 1.57 | 2.93 | 4.21 | 5.46 | 6.67 | 9.03 | 11.3 | 12.5 | 14.1 | 14.1 | 14.1 | 11.9 | 9.46 | 7.74 | 6.49 | 5.54 | 4.40 | 3.60 | 2.58 | 1.96 | | |
| 26 | 0.21 | 0.47 | 0.88 | 1.64 | 3.05 | 4.40 | 5.70 | 6.96 | 9.43 | 11.8 | 13.0 | 14.7 | 14.7 | 14.7 | 12.6 | 10.0 | 8.21 | 6.88 | 5.88 | 4.66 | 3.82 | 2.73 | 2.08 | | |
| 28 | 0.22 | 0.51 | 0.95 | 1.77 | 3.31 | 4.76 | 6.17 | 7.54 | 10.2 | 12.8 | 14.1 | 16.0 | 16.0 | 16.0 | 14.1 | 11.2 | 9.18 | 7.69 | 6.57 | 5.21 | 4.27 | 3.05 | 2.32 | | |
| 30 | 0.24 | 0.55 | 1.02 | 1.91 | 3.56 | 5.13 | 6.65 | 8.13 | 11.0 | 13.8 | 15.2 | 17.2 | 17.2 | 17.2 | 15.7 | 12.4 | 10.2 | 8.53 | 7.28 | 5.78 | 4.73 | 3.39 | 2.58 | | |
| 32 | 0.26 | 0.59 | 1.10 | 2.05 | 3.82 | 5.50 | 7.13 | 8.71 | 11.8 | 14.8 | 16.3 | 18.4 | 18.4 | 18.4 | 17.3 | 13.7 | 11.2 | 9.40 | 8.03 | 6.37 | 5.21 | 3.73 | | | |
| 35 | 0.28 | 0.65 | 1.21 | 2.26 | 4.21 | 6.06 | 7.85 | 9.60 | 13.0 | 16.3 | 17.9 | 20.3 | 20.3 | 20.3 | 19.8 | 15.7 | 12.8 | 10.8 | 9.18 | 7.28 | 5.96 | 4.27 | | | |
| 40 | 0.33 | 0.75 | 1.40 | 2.60 | 4.86 | 7.00 | 9.07 | 11.1 | 15.0 | 18.8 | 20.7 | 24.1 | 24.1 | 24.1 | 24.1 | 19.2 | 15.7 | 13.1 | 11.2 | 8.90 | 7.28 | 5.21 | | | |
| 45 | 0.37 | 0.85 | 1.59 | 2.96 | 5.52 | 7.95 | 10.3 | 12.6 | 17.0 | 21.4 | 23.5 | 27.7 | 28.8 | 28.8 | 28.8 | 22.9 | 18.7 | 15.7 | 13.4 | 10.6 | 8.69 | | | | |

Note: 1. KW rating when using a one-pitch offset link (OL) is 80% of the above. Two pitch offset links (2POL) can be used at 100% of the above values.
2. Please contact a Tsubaki representative prior to use of kW ratings in the colored area of the table.

| | Number of chain strands | Multi-strand factor | Number of chain strands | Multi-strand factor |
|---|---|---|---|---|
| Multi-strand factor | Double strand | 1.7 | Quintuple strand | 3.9 |
| | Triple strand | 2.5 | Sextuple strand | 4.6 |
| | Quadruple strand | 3.3 | – | – |

| | | | |
|---|---|---|---|
| Lubrication method | A | Manual lubrication or drip lubrication | Details on Pg. 193 |
| | B | Oil bath or slinger disc lubrication | |
| | C | Forced pump lubrication | |

# RS40 Sprocket

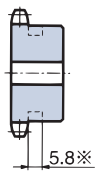



Mechanically machined 1B type | Welded construction 1C type | Mechanically machined / Welded construction 2B type | Welded construction 2C type

| Number of Teeth | Pitch Circular Diameter ($D_P$) | Sprocket Outer Diameter ($D_O$) | 1B type Bore Diameter ($d$) Pilot Bore Diameter | 1B type Bore Diameter ($d$) Maximum | 1B type Hub Diameter ($D_H$) | 1B type Hub Length ($L$) | 1B type Approx. Mass (kg) | 1B type Material | 1C type Bore Diameter ($d$) Pilot Bore Diameter | 1C type Bore Diameter ($d$) Maximum | 1C type Hub Diameter ($D_H$) | 1C type Hub Length ($L$) | 1C type Approx. Mass (kg) | 1C type Material | 2B type Bore Diameter ($d$) Pilot Bore Diameter | 2B type Bore Diameter ($d$) Maximum | 2B type Hub Diameter ($D_H$) | 2B type Hub Length ($L$) | 2B type Approx. Mass (kg) | 2B type Material | 2C type Bore Diameter ($d$) Pilot Bore Diameter | 2C type Bore Diameter ($d$) Maximum | 2C type Hub Diameter ($D_H$) | 2C type Hub Length ($L$) | 2C type Approx. Mass (kg) | 2C type Material | 1A type Pilot Bore Diameter $d$ | 1A type Approx. Mass (kg) | 1A type Material | Number of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | 37.13 | 43 | 9.5 | 15 | 28 | 22 | 0.10 | ※ | | | | | | | | | | | | | | | | | | | | | | 9 |
| 10 | 41.10 | 47 | 9.5 | 16.5 | 32 | 22 | 0.13 | ※ | | | | | | | | | | | | | | | | | | | | | | 10 |
| 11 | 45.08 | 51 | 9.5 | 20 | 37 | 22 | 0.17 | ※ | | | | | | | | | | | | | | | | | | | | | | 11 |
| 12 | 49.07 | 55 | 9.5 | 22 | 40 | 22 | 0.21 | ※ | | | | | | | 9.5 | 18 | 32 | 35 | 0.29 | | | | | | | | 16 | 0.08 | | 12 |
| 13 | 53.07 | 59 | 9.5 | 20 | 37 | 22 | 0.22 | | | | | | | | 12.7 | 20 | 37 | 35 | 0.36 | | | | | | | | 16 | 0.10 | | 13 |
| 14 | 57.07 | 63 | 9.5 | 24 | 42 | 22 | 0.28 | | | | | | | | 12.7 | 24 | 42 | 35 | 0.44 | | | | | | | | 16 | 0.12 | | 14 |
| 15 | 61.08 | 67 | 9.5 | 28.5 | 46 | 22 | 0.33 | | | | | | | | 12.7 | 29 | 46 | 35 | 0.53 | | | | | | | | 16 | 0.14 | | 15 |
| 16 | 65.10 | 71 | 12.7 | 30 | 50 | 22 | 0.37 | | | | | | | | 12.7 | 30 | 50 | 35 | 0.62 | | | | | | | | 16 | 0.16 | | 16 |
| 17 | 69.12 | 76 | 12.7 | 32 | 54 | 22 | 0.44 | | | | | | | | 12.7 | 32 | 54 | 35 | 0.71 | | | | | | | | 16 | 0.18 | | 17 |
| 18 | 73.14 | 80 | 12.7 | 35 | 57 | 22 | 0.49 | | | | | | | | 12.7 | 35 | 57 | 35 | 0.80 | | | | | | | | 16 | 0.21 | | 18 |
| 19 | 77.16 | 84 | 12.7 | 39.5 | 62 | 22 | 0.57 | | | | | | | | 12.7 | 40 | 62 | 35 | 0.93 | | | | | | | | 16 | 0.24 | | 19 |
| 20 | 81.18 | 88 | 12.7 | 45.5 | 67 | 25 | 0.73 | | | | | | | | 12.7 | 46 | 67 | 40 | 1.2 | | | | | | | | 16 | 0.26 | | 20 |
| 21 | 85.21 | 92 | 12.7 | 45.5 | 71 | 25 | 0.82 | | | | | | | | 12.7 | 47 | 71 | 40 | 1.3 | | | | | | | | 16 | 0.29 | | 21 |
| 22 | 89.24 | 96 | 12.7 | 50 | 75 | 25 | 0.91 | | | | | | | | 12.7 | 50 | 75 | 40 | 1.5 | | | | | | | | 16 | 0.32 | | 22 |
| 23 | 93.27 | 100 | 12.7 | 50 | 77 | 25 | 0.98 | | | | | | | | 12.7 | 50 | 77 | 40 | 1.6 | | | | | | | | 16 | 0.35 | | 23 |
| 24 | 97.30 | 104 | 12.7 | 42 | 63 | 25 | 0.80 | | | | | | | | 12.7 | 55 | 83 | 40 | 1.8 | | | | | | | | 16 | 0.39 | | 24 |
| 25 | 101.33 | 108 | 12.7 | 42 | 63 | 25 | 0.83 | | | | | | | | 12.7 | 59 | 87 | 40 | 2.0 | | | | | | | | 16 | 0.42 | | 25 |
| 26 | 105.36 | 112 | 12.7 | 42 | 63 | 25 | 0.87 | | | | | | | | 12.7 | 62 | 91 | 40 | 2.2 | | | | | | | | 16 | 0.46 | | 26 |
| 27 | 109.40 | 116 | 12.7 | 42 | 63 | 25 | 0.91 | | | | | | | | 12.7 | 65 | 95 | 40 | 2.4 | | | | | | | | 16 | 0.50 | | 27 |
| 28 | 113.43 | 120 | 12.7 | 42 | 63 | 25 | 0.95 | | 16 | 48 | 73 | 45 | 1.7 | | 12.7 | 67 | 99 | 40 | 2.6 | | | | | | | | 16 | 0.53 | | 28 |
| 30 | 121.50 | 128 | 12.7 | 42 | 63 | 25 | 1.0 | | 16 | 48 | 73 | 45 | 1.8 | | 12.7 | 73 | 106 | 40 | 3.0 | | | | | | | | 16 | 0.62 | | 30 |
| 32 | 129.57 | 137 | 16 | 45 | 68 | 28 | 1.3 | | 16 | 48 | 73 | 45 | 1.9 | | 12.7 | 78 | 115 | 50 | 4.2 | | | | | | | | 16 | 0.71 | | 32 |
| 34 | 137.64 | 145 | 16 | 45 | 68 | 28 | 1.4 | | 16 | 48 | 73 | 45 | 2.0 | | 12.7 | 84 | 124 | 50 | 4.9 | | | | | | | | 16 | 0.80 | | 34 |
| 35 | 141.68 | 149 | 16 | 45 | 68 | 28 | 1.4 | | 16 | 48 | 73 | 45 | 2.1 | | 16 | 63 | 93 | 50 | 3.9 | | 16 | 63 | 93 | 70 | 4.9 | | 16 | 0.85 | | 35 |
| 36 | 145.72 | 153 | 16 | 45 | 68 | 28 | 1.5 | | 16 | 48 | 73 | 45 | 2.1 | | 16 | 63 | 93 | 50 | 4.0 | | 16 | 63 | 93 | 70 | 5.1 | | 16 | 0.90 | | 36 |
| 38 | 153.79 | 161 | 16 | 45 | 68 | 28 | 1.6 | | 16 | 48 | 73 | 45 | 2.2 | | 16 | 63 | 93 | 50 | 4.3 | | 16 | 63 | 93 | 70 | 5.4 | | 16 | 1.0 | | 38 |
| 40 | 161.87 | 169 | 16 | 45 | 68 | 28 | 1.7 | | 16 | 48 | 73 | 45 | 2.3 | | 16 | 63 | 93 | 50 | 4.6 | | 16 | 63 | 93 | 70 | 5.7 | | 16 | 1.1 | | 40 |
| 42 | 169.94 | 177 | 18 | 48 | 73 | 32 | 2.0 | | 18 | 48 | 73 | 45 | 2.4 | | 16 | 63 | 93 | 50 | 5.0 | | 16 | 63 | 93 | 70 | 6.0 | | 18 | 1.2 | | 42 |
| 45 | 182.06 | 189 | 18 | 48 | 73 | 32 | 2.2 | | 18 | 48 | 73 | 45 | 2.6 | | 18 | 63 | 93 | 50 | 5.5 | | 18 | 63 | 93 | 70 | 6.5 | | 18 | 1.4 | | 45 |
| 48 | 194.18 | 201 | 18 | 48 | 73 | 32 | 2.4 | | 18 | 48 | 73 | 45 | 2.8 | | 18 | 63 | 93 | 50 | 6.0 | | 18 | 63 | 93 | 70 | 7.1 | | 18 | 1.6 | | 48 |
| 50 | 202.26 | 209 | 18 | 48 | 73 | 32 | 2.5 | | 18 | 48 | 73 | 45 | 3.0 | | 18 | 63 | 93 | 50 | 6.5 | | 18 | 63 | 93 | 70 | 7.5 | | 18 | 1.8 | | 50 |
| 54 | 218.42 | 226 | 18 | 48 | 73 | 32 | 2.8 | | 18 | 48 | 73 | 45 | 3.3 | | 18 | 63 | 93 | 50 | 7.3 | | 18 | 63 | 93 | 70 | 8.4 | | 18 | 2.1 | | 54 |
| 60 | 242.66 | 250 | 18 | 48 | 73 | 32 | 3.3 | | 18 | 48 | 73 | 45 | 3.8 | | 18 | 63 | 93 | 50 | 8.8 | | 18 | 63 | 93 | 70 | 9.8 | | 18 | 2.6 | | 60 |
| 65 | 262.87 | 270 | 23 | 55 | 83 | 32 | 4.0 | | 23 | 55 | 83 | 50 | 4.7 | | | | | | | | | | | | | | 23 | 3.0 | | 65 |
| 70 | 283.07 | 290 | 23 | 55 | 83 | 32 | 4.5 | | 23 | 55 | 83 | 50 | 5.2 | | | | | | | | | | | | | | 23 | 3.5 | | 70 |
| 75 | 303.28 | 311 | 23 | 55 | 83 | 32 | 5.0 | | 23 | 55 | 83 | 50 | 5.7 | | | | | | | | | | | | | | 23 | 4.0 | | 75 |

Material: Mechanically machined: machine-structural carbon steel; Welded specification: machine-structural carbon steel (teeth) and structural rolled steel (hub); Precut specification: machine-structural carbon steel; Note 6; Machine-structural carbon steel

Note: 1. Maximum bore diameter is the typical range. Determine bore diameter and key bearing pressure based on general mechanical design.
2. Models in shaded areas have hardened teeth.
3. The outer diameters above are given for the 1B type. Diameters vary slightly for all other types.
4. 1B-type sprockets marked with an * have an outer groove around the hub. Groove outer diameter is 21 for 9T, 25 for 10T, 30 for 11T and 32 for 12T.
5. For single-strand sprockets without hardened teeth, the Strong Series of sprocket with hardened teeth can be made-to-order.
6. Welded specification: machine-structural carbon steel (teeth) and structural rolled steel (hub)

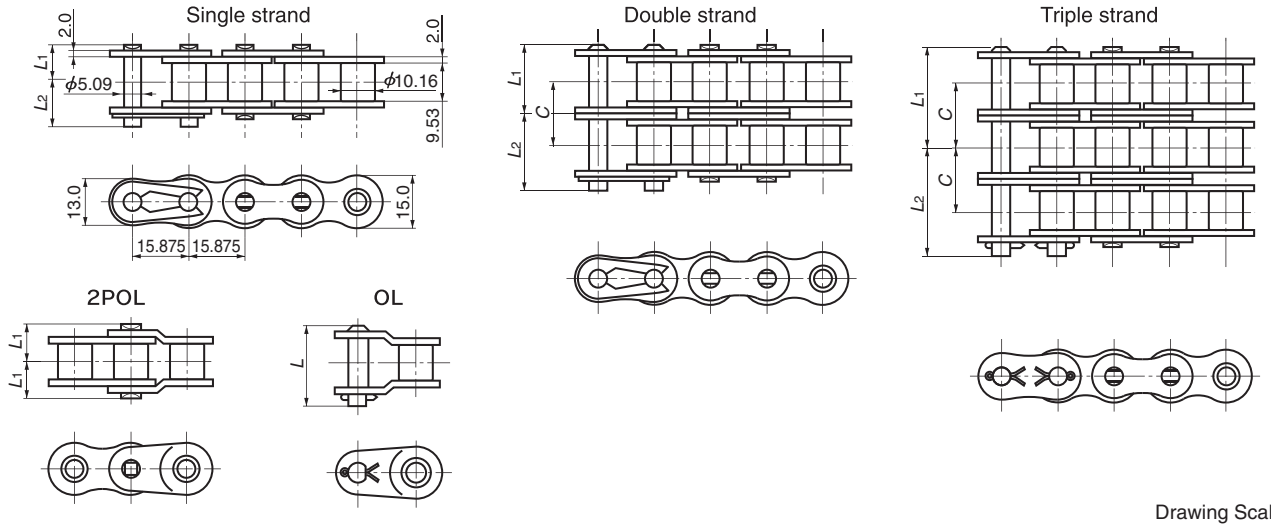



## Sprocket Number

RS40 -2B 15T

- Number of teeth
- Type
- Chain number

# RS50




Drawing Scale 1/2

| TSUBAKI Chain Number | Number of Strands | Pin Length $L_1+L_2$ | Dimensions $L_1$ | Dimensions $L_2$ | Offset Pin Length $L$ | Transverse Pitch $C$ | Pin Type | ANSI Standard Min. Tensile Strength kN{kgf} | Tsubaki Minimum Tensile Strength kN{kgf} | Tsubaki Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS50-1 | 1 | 22.2 | 10.3 | 11.9 | 22.6 | 18.1 | Riveting | 24 {2447} | 28.4 {2900} | 31.4 {3200} | 6.37{650} | 1.04 |
| RS50-2 | 2 | 40.5 | 19.35 | 21.15 | 41.8 | | | 48 {4895} | 56.9 {5800} | 62.8 {6400} | 10.7{1100} | 2.07 |
| RS50-3 | 3 | 58.6 | 28.4 | 30.2 | 59.9 | | | 72 {7342} | 85.3 {8700} | 94.1 {9600} | 16.0{1630} | 3.09 |
| RS50-4 | 4 | 76.7 | 37.45 | 39.25 | 78.1 | | | – | 114 {11600} | 126 {12800} | 21.1{2150} | 4.11 |
| RS50-5 | 5 | 94.8 | 46.5 | 48.3 | 96.2 | | | – | 142 {14500} | 157 {16000} | 24.9{2540} | 5.14 |
| RS50-6 | 6 | 113.0 | 55.6 | 57.4 | 114.4 | | | – | 171 {17400} | 188 {19200} | 29.3{2990} | 6.16 |

Note: 1. Maximum allowable load when using a one-pitch offset link (OL) is 65% of the above. Two pitch offset links (2POL) can be used at 100% of the above values.
2. Number of links per unit = 192

## ■RS50-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

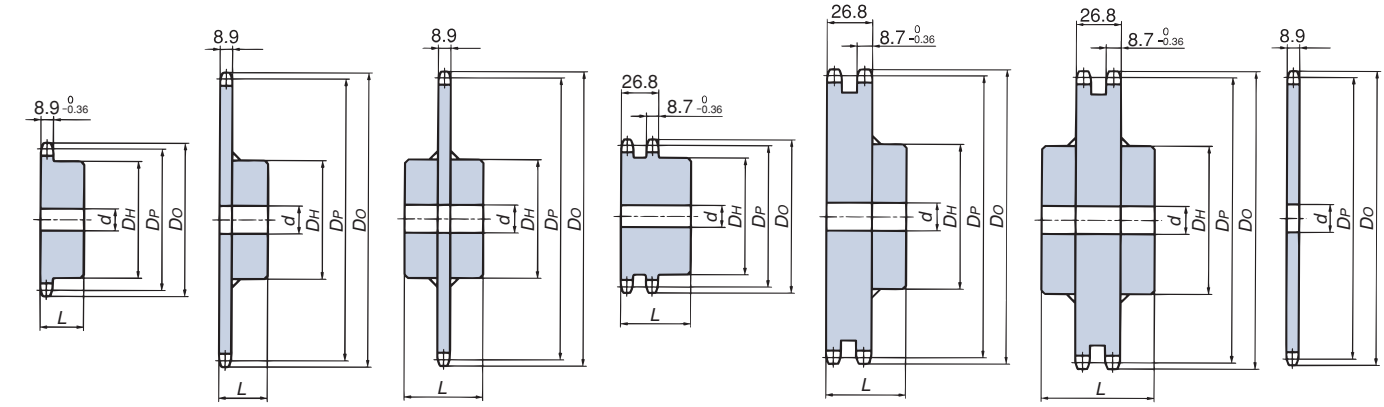
| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 200 | 300 | 400 | 500 | 700 | 900 | 1000 | 1200 | 1400 | 1600 | 1800 | 2100 | 2400 | 2700 | 3000 | 3500 | 4000 | 4500 | 5000 | 5500 | 6000 |
| | A | | | | | | | | B | | | | | | | | | | | | | C | | | |
| 9 | 0.14 | 0.33 | 0.61 | 1.14 | 2.13 | 3.07 | 3.97 | 4.86 | 6.35 | 6.35 | 6.35 | 5.66 | 4.49 | 3.67 | 3.08 | 2.44 | 2.00 | 1.68 | 1.43 | 1.14 | 0.93 | 0.78 | 0.67 | 0.58 | 0.51 |
| 10 | 0.16 | 0.37 | 0.69 | 1.28 | 2.39 | 3.44 | 4.45 | 5.44 | 7.11 | 7.11 | 7.11 | 6.62 | 5.26 | 4.30 | 3.61 | 2.86 | 2.34 | 1.96 | 1.68 | 1.33 | 1.09 | 0.91 | 0.78 | 0.68 | 0.59 |
| 11 | 0.18 | 0.41 | 0.76 | 1.42 | 2.64 | 3.81 | 4.93 | 6.03 | 7.88 | 7.88 | 7.88 | 7.64 | 6.07 | 4.96 | 4.16 | 3.30 | 2.70 | 2.26 | 1.93 | 1.53 | 1.26 | 1.05 | 0.90 | 0.78 | 0.68 |
| 12 | 0.20 | 0.45 | 0.83 | 1.56 | 2.90 | 4.18 | 5.42 | 6.63 | 8.71 | 8.71 | 8.71 | 8.71 | 6.91 | 5.66 | 4.74 | 3.76 | 3.08 | 2.58 | 2.20 | 1.75 | 1.43 | 1.20 | 1.02 | 0.89 | 0.78 |
| 13 | 0.21 | 0.49 | 0.91 | 1.70 | 3.17 | 4.56 | 5.91 | 7.22 | 9.78 | 9.82 | 9.82 | 9.82 | 7.79 | 6.38 | 5.34 | 4.24 | 3.47 | 2.91 | 2.48 | 1.97 | 1.61 | 1.35 | 1.15 | 1.00 | |
| 14 | 0.23 | 0.53 | 0.99 | 1.84 | 3.43 | 4.94 | 6.40 | 7.83 | 10.6 | 11.0 | 11.0 | 11.0 | 8.71 | 7.13 | 5.97 | 4.74 | 3.88 | 3.25 | 2.78 | 2.20 | 1.80 | 1.51 | 1.29 | 1.12 | |
| 15 | 0.25 | 0.57 | 1.06 | 1.98 | 3.70 | 5.32 | 6.90 | 8.43 | 11.4 | 12.2 | 12.2 | 12.2 | 9.66 | 7.90 | 6.62 | 5.26 | 4.30 | 3.61 | 3.08 | 2.44 | 2.00 | 1.68 | 1.43 | 1.24 | |
| 16 | 0.27 | 0.61 | 1.14 | 2.12 | 3.96 | 5.71 | 7.40 | 9.04 | 12.2 | 13.4 | 13.4 | 13.4 | 10.6 | 8.71 | 7.30 | 5.79 | 4.74 | 3.97 | 3.39 | 2.69 | 2.20 | 1.85 | 1.58 | 1.37 | |
| 17 | 0.29 | 0.65 | 1.22 | 2.27 | 4.23 | 6.10 | 7.90 | 9.65 | 13.1 | 14.7 | 14.7 | 14.7 | 11.7 | 9.54 | 7.99 | 6.34 | 5.19 | 4.35 | 3.71 | 2.95 | 2.41 | 2.02 | 1.73 | 1.50 | |
| 18 | 0.30 | 0.69 | 1.29 | 2.41 | 4.50 | 6.48 | 8.40 | 10.3 | 13.9 | 15.8 | 15.8 | 15.8 | 12.7 | 10.4 | 8.71 | 6.91 | 5.66 | 4.74 | 4.05 | 3.21 | 2.63 | 2.20 | 1.88 | | |
| 19 | 0.32 | 0.73 | 1.37 | 2.56 | 4.77 | 6.87 | 8.90 | 10.9 | 14.7 | 16.8 | 16.8 | 16.8 | 13.8 | 11.3 | 9.44 | 7.49 | 6.13 | 5.14 | 4.39 | 3.48 | 2.85 | 2.39 | 2.04 | | |
| 20 | 0.34 | 0.78 | 1.45 | 2.70 | 5.04 | 7.26 | 9.41 | 11.5 | 15.6 | 17.7 | 17.7 | 17.7 | 14.9 | 12.2 | 10.2 | 8.09 | 6.62 | 5.55 | 4.74 | 3.76 | 3.08 | 2.58 | 2.20 | | |
| 21 | 0.36 | 0.82 | 1.53 | 2.85 | 5.32 | 7.66 | 9.92 | 12.1 | 16.4 | 18.7 | 18.7 | 18.7 | 16.0 | 13.1 | 11.0 | 8.71 | 7.13 | 5.97 | 5.10 | 4.05 | 3.31 | 2.78 | 2.37 | | |
| 22 | 0.38 | 0.86 | 1.61 | 3.00 | 5.59 | 8.05 | 10.4 | 12.8 | 17.3 | 19.6 | 19.6 | 19.6 | 17.2 | 14.0 | 11.8 | 9.34 | 7.64 | 6.41 | 5.47 | 4.34 | 3.55 | 2.98 | 2.54 | | |
| 23 | 0.40 | 0.90 | 1.68 | 3.14 | 5.87 | 8.45 | 10.9 | 13.4 | 18.1 | 20.6 | 20.6 | 20.6 | 18.3 | 15.0 | 12.6 | 9.98 | 8.17 | 6.85 | 5.85 | 4.64 | 3.80 | 3.18 | | | |
| 24 | 0.41 | 0.95 | 1.76 | 3.29 | 6.14 | 8.85 | 11.5 | 14.0 | 19.0 | 21.6 | 21.6 | 21.6 | 19.5 | 16.0 | 13.4 | 10.6 | 8.71 | 7.30 | 6.23 | 4.94 | 4.05 | 3.39 | | | |
| 25 | 0.43 | 0.99 | 1.84 | 3.44 | 6.42 | 9.24 | 12.0 | 14.6 | 19.8 | 22.5 | 22.5 | 22.5 | 20.8 | 17.0 | 14.3 | 11.3 | 9.26 | 7.76 | 6.62 | 5.26 | 4.30 | 3.61 | | | |
| 26 | 0.45 | 1.03 | 1.92 | 3.59 | 6.70 | 9.64 | 12.5 | 15.3 | 20.7 | 23.5 | 23.5 | 23.5 | 22.0 | 18.0 | 15.1 | 12.0 | 9.82 | 8.23 | 7.03 | 5.58 | 4.56 | 3.82 | | | |
| 28 | 0.49 | 1.12 | 2.08 | 3.89 | 7.25 | 10.4 | 13.5 | 16.5 | 22.4 | 25.5 | 25.5 | 25.5 | 24.6 | 20.2 | 16.9 | 13.4 | 11.0 | 9.20 | 7.85 | 6.23 | 5.10 | 4.27 | | | |
| 30 | 0.53 | 1.20 | 2.24 | 4.19 | 7.81 | 11.3 | 14.6 | 17.8 | 24.1 | 27.5 | 27.5 | 27.5 | 27.3 | 22.4 | 18.7 | 14.9 | 12.2 | 10.2 | 8.71 | 6.91 | 5.66 | | | | |
| 32 | 0.57 | 1.29 | 2.41 | 4.49 | 8.38 | 12.1 | 15.6 | 19.1 | 25.9 | 30.1 | 30.1 | 30.1 | 30.1 | 24.6 | 20.6 | 16.4 | 13.4 | 11.2 | 9.59 | 7.61 | 6.23 | | | | |
| 35 | 0.62 | 1.42 | 2.65 | 4.95 | 9.23 | 13.3 | 17.2 | 21.1 | 28.5 | 34.4 | 34.4 | 34.4 | 34.4 | 28.2 | 23.6 | 18.7 | 15.3 | 12.9 | 11.0 | 8.71 | 7.13 | | | | |
| 40 | 0.72 | 1.64 | 3.06 | 5.71 | 10.7 | 15.4 | 19.9 | 24.3 | 32.9 | 41.3 | 42.1 | 42.1 | 42.1 | 34.4 | 28.8 | 22.9 | 18.7 | 15.7 | 13.4 | 10.6 | | | | | |
| 45 | 0.82 | 1.86 | 3.48 | 6.49 | 12.1 | 17.4 | 22.6 | 27.6 | 37.4 | 46.9 | 48.9 | 48.9 | 48.9 | 41.1 | 34.4 | 27.3 | 22.4 | 18.7 | 16.0 | | | | | | |

Note: 1. KW rating when using a one-pitch offset link (OL) is 80% of the above. Two pitch offset links (2POL) can be used at 100% of the above values.
2. Please contact a Tsubaki representative prior to use of kW ratings in the colored area of the table.

| | Number of chain strands | Multi-strand factor | Number of chain strands | Multi-strand factor |
|---|---|---|---|---|
| Multi-strand factor | Double strand | 1.7 | Quintuple strand | 3.9 |
| | Triple strand | 2.5 | Sextuple strand | 4.6 |
| | Quadruple strand | 3.3 | – | – |

| | | | |
|---|---|---|---|
| Lubrication method | A | Manual lubrication or drip lubrication | Details on Pg. 193 |
| | B | Oil bath or slinger disc lubrication | |
| | C | Forced pump lubrication | |

# RS50 Sprocket

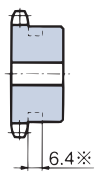



Mechanically machined — Welded construction: 1B type
Welded construction: 1C type
Mechanically machined — Welded construction: 2B type
Welded construction: 2C type
1A type

| Number of Teeth | Pitch Circular Diameter ($D_P$) | Sprocket Outer Diameter ($D_O$) | 1B type Bore Diameter ($d$) Pilot Bore Diameter | 1B type Bore Diameter ($d$) Maximum | 1B type Hub Diameter ($D_H$) | 1B type Hub Length ($L$) | 1B type Approx. Mass (kg) | 1B type Material | 1C type Bore Diameter ($d$) Pilot Bore Diameter | 1C type Bore Diameter ($d$) Maximum | 1C type Hub Diameter ($D_H$) | 1C type Hub Length ($L$) | 1C type Approx. Mass (kg) | 1C type Material | 2B type Bore Diameter ($d$) Pilot Bore Diameter | 2B type Bore Diameter ($d$) Maximum | 2B type Hub Diameter ($D_H$) | 2B type Hub Length ($L$) | 2B type Approx. Mass (kg) | 2B type Material | 2C type Bore Diameter ($d$) Pilot Bore Diameter | 2C type Bore Diameter ($d$) Maximum | 2C type Hub Diameter ($D_H$) | 2C type Hub Length ($L$) | 2C type Approx. Mass (kg) | 2C type Material | 1A type Pilot Bore Diameter $d$ | 1A type Approx. Mass (kg) | 1A type Material | Number of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | 46.42 | 53 | 9.5 | 19 | 34 | 25 | 0.18 | ※ | | | | | | | | | | | | | | | | | | | | | | 9 |
| 10 | 51.37 | 58 | 9.5 | 22 | 40 | 25 | 0.24 | ※ | | | | | | | | | | | | | | | | | | | | | | 10 |
| 11 | 56.35 | 64 | 12.7 | 25 | 46 | 25 | 0.30 | ※ | | | | | | | | | | | | | | | | | | | | | | 11 |
| 12 | 61.34 | 69 | 12.7 | 32 | 51 | 25 | 0.37 | ※ | | | | | | | 12.7 | 24 | 42 | 40 | 0.55 | | | | | | | | 18 | 0.16 | | 12 |
| 13 | 66.33 | 74 | 12.7 | 32 | 51 | 25 | 0.42 | ※ | | | | | | | 12.7 | 28.5 | 47 | 40 | 0.68 | | | | | | | | 18 | 0.19 | | 13 |
| 14 | 71.34 | 79 | 12.7 | 32 | 52 | 25 | 0.49 | | | | | | | | 12.7 | 32 | 52 | 40 | 0.81 | | | | | | | | 18 | 0.23 | | 14 |
| 15 | 76.35 | 84 | 12.7 | 35 | 57 | 25 | 0.58 | | | | | | | | 12.7 | 35 | 57 | 40 | 0.96 | | | | | | | | 18 | 0.27 | | 15 |
| 16 | 81.37 | 89 | 12.7 | 40 | 62 | 25 | 0.68 | | | | | | | | 12.7 | 40 | 62 | 45 | 1.2 | | | | | | | | 18 | 0.31 | | 16 |
| 17 | 86.39 | 94 | 12.7 | 45.5 | 67 | 25 | 0.78 | | | | | | | | 12.7 | 45.5 | 67 | 45 | 1.4 | | | | | | | | 18 | 0.35 | | 17 |
| 18 | 91.42 | 100 | 12.7 | 47.5 | 72 | 28 | 0.99 | | | | | | | | 12.7 | 47.5 | 72 | 45 | 1.6 | | | | | | | | 18 | 0.40 | | 18 |
| 19 | 96.45 | 105 | 12.7 | 47.5 | 73 | 28 | 1.1 | | | | | | | | 15.9 | 52 | 79 | 45 | 1.9 | | | | | | | | 18 | 0.45 | | 19 |
| 20 | 101.48 | 110 | 12.7 | 47.5 | 73 | 28 | 1.1 | | | | | | | | 15.9 | 55 | 82 | 45 | 2.1 | | | | | | | | 18 | 0.50 | | 20 |
| 21 | 106.51 | 115 | 15.9 | 47.5 | 73 | 28 | 1.2 | | | | | | | | 15.9 | 60 | 89 | 45 | 2.4 | | | | | | | | 18 | 0.56 | | 21 |
| 22 | 111.55 | 120 | 15.9 | 47.5 | 73 | 28 | 1.2 | | | | | | | | 15.9 | 63 | 92 | 50 | 2.8 | | | | | | | | 18 | 0.61 | | 22 |
| 23 | 116.59 | 125 | 15.9 | 47.5 | 73 | 28 | 1.3 | | | | | | | | 15.9 | 67 | 99 | 50 | 3.2 | | | | | | | | 18 | 0.67 | | 23 |
| 24 | 121.62 | 130 | 15.9 | 47.5 | 73 | 28 | 1.3 | | | | | | | | 15.9 | 70 | 102 | 50 | 3.5 | | | | | | | | 18 | 0.74 | | 24 |
| 25 | 126.66 | 135 | 15.9 | 47.5 | 73 | 28 | 1.4 | | | | | | | | 15.9 | 75 | 109 | 50 | 3.9 | | | | | | | | 18 | 0.80 | | 25 |
| 26 | 131.70 | 140 | 18 | 48 | 73 | 28 | 1.5 | | | | | | | | 18 | 63 | 93 | 50 | 3.6 | | 18 | 63 | 93 | 75 | 4.9 | | 18 | 0.87 | | 26 |
| 27 | 136.74 | 145 | 18 | 48 | 73 | 28 | 1.5 | | | | | | | | 18 | 63 | 93 | 50 | 3.8 | | 18 | 63 | 93 | 75 | 5.2 | | 18 | 0.94 | | 27 |
| 28 | 141.79 | 150 | 18 | 48 | 73 | 28 | 1.6 | | 18 | 55 | 83 | 50 | 2.7 | | 18 | 63 | 93 | 50 | 4.0 | | 18 | 66 | 98 | 80 | 6.0 | | 18 | 1.0 | | 28 |
| 30 | 151.87 | 161 | 18 | 48 | 73 | 28 | 1.8 | | 18 | 55 | 83 | 50 | 2.9 | | 18 | 63 | 93 | 50 | 4.5 | | 18 | 66 | 98 | 80 | 6.5 | | 18 | 1.2 | | 30 |
| 32 | 161.96 | 171 | 18 | 48 | 73 | 28 | 1.9 | | 18 | 55 | 83 | 50 | 3.0 | | 18 | 63 | 93 | 50 | 5.0 | | 18 | 66 | 98 | 80 | 7.0 | | 18 | 1.3 | | 32 |
| 34 | 172.05 | 181 | 18 | 48 | 73 | 28 | 2.1 | | 18 | 55 | 83 | 50 | 3.2 | | 18 | 63 | 93 | 50 | 5.5 | | 18 | 66 | 98 | 80 | 7.5 | | 18 | 1.5 | | 34 |
| 35 | 177.10 | 186 | 18 | 48 | 73 | 28 | 2.2 | | 18 | 55 | 83 | 50 | 3.3 | | 18 | 63 | 93 | 50 | 5.8 | | 18 | 66 | 98 | 80 | 7.7 | | 18 | 1.6 | | 35 |
| 36 | 182.15 | 191 | 23 | 55 | 83 | 35 | 2.7 | | 23 | 55 | 83 | 50 | 3.3 | | 18 | 63 | 93 | 50 | 6.1 | | 18 | 66 | 98 | 80 | 8.0 | | 23 | 1.7 | | 36 |
| 38 | 192.24 | 201 | 23 | 55 | 83 | 35 | 2.9 | | 23 | 55 | 83 | 50 | 3.5 | | 18 | 63 | 93 | 50 | 6.7 | | 18 | 66 | 98 | 80 | 8.6 | | 23 | 1.9 | | 38 |
| 40 | 202.33 | 211 | 23 | 55 | 83 | 35 | 3.2 | | 23 | 55 | 83 | 50 | 3.8 | | 23 | 66 | 98 | 56 | 7.7 | | 23 | 66 | 98 | 80 | 9.1 | | 23 | 2.1 | | 40 |
| 42 | 212.43 | 221 | 23 | 55 | 83 | 35 | 3.4 | | 23 | 55 | 83 | 50 | 4.0 | | 23 | 66 | 98 | 56 | 8.4 | | 23 | 66 | 98 | 80 | 9.8 | | 23 | 2.3 | | 42 |
| 45 | 227.58 | 237 | 23 | 55 | 83 | 35 | 3.7 | | 23 | 55 | 83 | 50 | 4.3 | | 23 | 66 | 98 | 56 | 9.4 | | 23 | 66 | 98 | 80 | 10.8 | | 23 | 2.7 | | 45 |
| 48 | 242.73 | 252 | 23 | 55 | 83 | 35 | 4.1 | | 23 | 55 | 83 | 50 | 4.7 | | 23 | 66 | 98 | 56 | 10.6 | | 23 | 66 | 98 | 80 | 12.0 | | 23 | 3.1 | | 48 |
| 50 | 252.82 | 262 | 23 | 55 | 83 | 35 | 4.4 | | 23 | 55 | 83 | 50 | 5.0 | | 23 | 66 | 98 | 56 | 11.4 | | 23 | 66 | 98 | 80 | 12.8 | | 23 | 3.4 | | 50 |
| 54 | 273.03 | 282 | 23 | 55 | 83 | 35 | 5.0 | | 23 | 55 | 83 | 50 | 5.6 | | 23 | 66 | 98 | 63 | 13.4 | | 23 | 66 | 98 | 80 | 14.4 | | 23 | 3.9 | | 54 |
| 60 | 303.33 | 312 | 23 | 55 | 83 | 35 | 5.9 | | 23 | 63 | 93 | 60 | 7.4 | | 23 | 66 | 98 | 63 | 16.2 | | 23 | 66 | 98 | 80 | 17.2 | | 23 | 4.9 | | 60 |
| 65 | 328.58 | 338 | 23 | 63 | 93 | 40 | 7.3 | | 23 | 63 | 93 | 60 | 8.3 | | | | | | | | | | | | | | 23 | 5.7 | | 65 |
| 70 | 353.84 | 363 | 23 | 63 | 93 | 40 | 8.2 | | 23 | 63 | 93 | 60 | 9.2 | | | | | | | | | | | | | | 23 | 6.6 | | 70 |
| 75 | 379.10 | 388 | 23 | 63 | 93 | 40 | 9.2 | | 23 | 63 | 93 | 60 | 10.2 | | | | | | | | | | | | | | 23 | 7.6 | | 75 |

Material: Mechanically machined: machine-structural carbon steel; Note 6; Welded construction: machine-structural carbon steel (teeth) and structural rolled steel (hub); Machine-structural carbon steel

Note: 1. Maximum bore diameter is the typical range. Determine bore diameter and key bearing pressure based on general mechanical design.
2. Models in shaded areas have hardened teeth.
3. The outer diameters above are given for the 1B type. Diameters vary slightly for all other types.
4. 1B-type sprockets marked with an * have an outer groove around the hub. Groove outer diameter is 27 for 9T, 37 for 11T, 42 for 12T and 47 for 13T.
5. For single-strand sprockets without hardened teeth, the Strong Series of sprocket with hardened teeth can be made-to-order.
6. Welded specifications, machine-structural carbon steel (teeth), and structural rolled steel (hub).

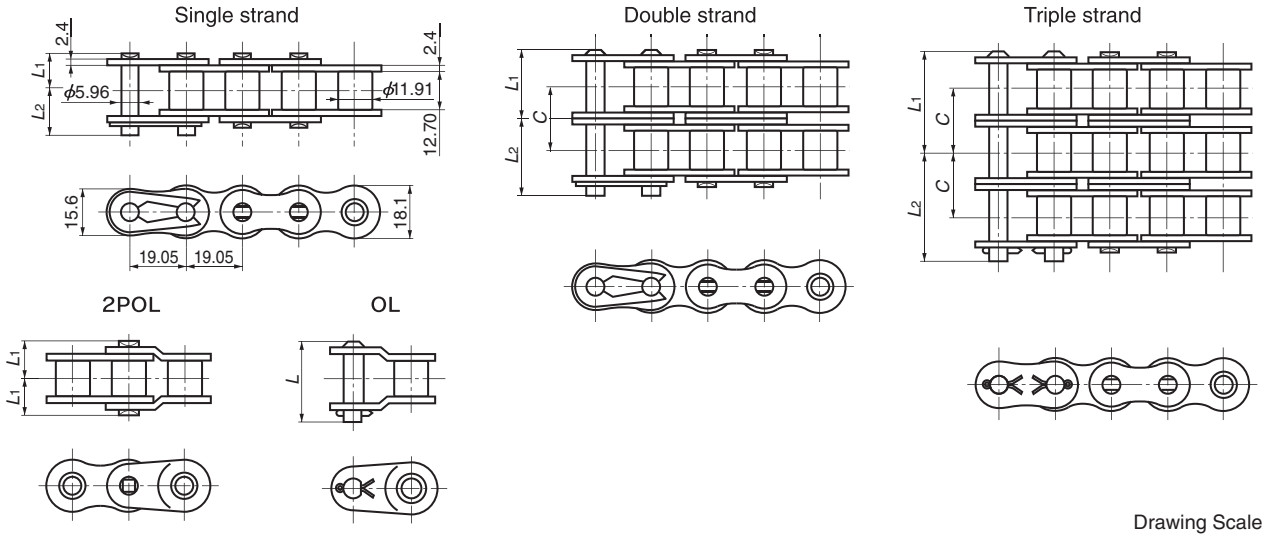



## Sprocket Number

RS50 -2B 15T

- Number of teeth
- Type
- Chain number

# RS60




Drawing Scale 1/2.4

| TSUBAKI Chain Number | Number of Strands | Pin Length $L_1+L_2$ | Dimensions $L_1$ | Dimensions $L_2$ | Offset Pin Length $L$ | Transverse Pitch $C$ | Pin Type | ANSI Standard Min. Tensile Strength kN{kgf} | Tsubaki Minimum Tensile Strength kN{kgf} | Tsubaki Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS60-1 | 1 | 27.6 | 12.85 | 14.75 | 28.2 | 22.8 | Riveting Cotter pin | 34.2 {3487} | 40.2 {4100} | 44.1 {4500} | 8.83 {900} | 1.53 |
| RS60-2 | 2 | 50.5 | 24.25 | 26.25 | 52.6 | | Riveting | 68.4 {6975} | 80.4 {8200} | 88.3 {9000} | 15.0 {1530} | 3.04 |
| RS60-3 | 3 | 73.8 | 35.65 | 38.15 | 75.5 | | | 102.6{10462} | 121 {12300} | 132 {13500} | 22.1 {2250} | 4.54 |
| RS60-4 | 4 | 96.6 | 47.05 | 49.55 | 98.3 | | | – | 161 {16400} | 177 {18000} | 29.1 {2970} | 6.04 |
| RS60-5 | 5 | 119.5 | 58.5 | 61.0 | 121.2 | | | – | 201 {20500} | 221 {22500} | 34.4 {3510} | 7.54 |
| RS60-6 | 6 | 142.4 | 69.9 | 72.5 | 144.0 | | | – | 241 {24600} | 265 {27000} | 40.6 {4140} | 9.05 |

Note: 1. Maximum allowable load when using a one-pitch offset link (OL) is 65% of the above. Two pitch offset links (2POL) can be used at 100% of the above values.
2. Number of links per unit = 160

## ■RS60-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

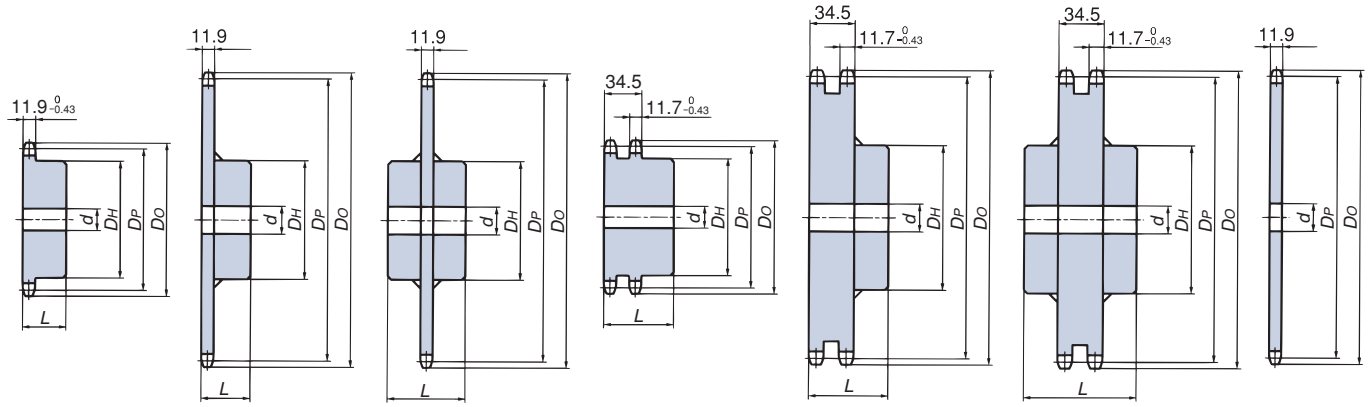
| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1400 | 1600 | 1800 | 2000 | 2500 | 3000 | 3500 | 4000 | 4500 |
| | A | | | | | | | B | | | | | | | | | | | | | | | C | | |
| 9 | 0.24 | 0.55 | 1.02 | 1.90 | 2.73 | 3.54 | 5.10 | 6.61 | 8.08 | 9.52 | 10.1 | 10.1 | 10.1 | 8.6 | 7.46 | 6.54 | 5.19 | 4.25 | 3.56 | 3.04 | 2.18 | 1.66 | 1.31 | 1.08 | 0.90 |
| 10 | 0.27 | 0.61 | 1.14 | 2.13 | 3.06 | 3.97 | 5.72 | 7.41 | 9.05 | 10.7 | 11.4 | 11.4 | 11.4 | 10.1 | 8.73 | 7.66 | 6.08 | 4.98 | 4.17 | 3.56 | 2.55 | 1.94 | 1.54 | 1.26 | 1.06 |
| 11 | 0.30 | 0.68 | 1.26 | 2.36 | 3.40 | 4.40 | 6.34 | 8.21 | 10.0 | 11.8 | 12.7 | 12.7 | 12.7 | 11.6 | 10.1 | 8.84 | 7.02 | 5.74 | 4.81 | 4.11 | 2.94 | 2.24 | 1.78 | 1.45 | 1.22 |
| 12 | 0.33 | 0.74 | 1.39 | 2.59 | 3.73 | 4.83 | 6.96 | 9.02 | 11.0 | 13.0 | 13.9 | 13.9 | 13.9 | 13.2 | 11.5 | 10.1 | 8.00 | 6.54 | 5.48 | 4.68 | 3.35 | 2.55 | 2.02 | 1.66 | 1.39 |
| 13 | 0.36 | 0.81 | 1.51 | 2.82 | 4.07 | 5.27 | 7.59 | 9.83 | 12.0 | 14.2 | 15.2 | 15.2 | 15.2 | 14.9 | 12.9 | 11.4 | 9.02 | 7.38 | 6.18 | 5.28 | 3.78 | 2.87 | 2.28 | 1.87 | |
| 14 | 0.39 | 0.88 | 1.64 | 3.06 | 4.41 | 5.71 | 8.22 | 10.7 | 13.0 | 15.3 | 16.7 | 16.7 | 16.7 | 16.7 | 14.5 | 12.7 | 10.1 | 8.25 | 6.91 | 5.90 | 4.22 | 3.21 | 2.55 | 2.09 | |
| 15 | 0.41 | 0.95 | 1.77 | 3.30 | 4.75 | 6.15 | 8.86 | 11.5 | 14.0 | 16.5 | 18.5 | 18.5 | 18.5 | 18.5 | 16.0 | 14.1 | 11.2 | 9.15 | 7.66 | 6.54 | 4.68 | 3.56 | 2.83 | 2.31 | |
| 16 | 0.44 | 1.01 | 1.89 | 3.53 | 5.09 | 6.59 | 9.50 | 12.3 | 15.0 | 17.7 | 20.4 | 20.4 | 20.4 | 20.4 | 17.7 | 15.5 | 12.3 | 10.1 | 8.44 | 7.21 | 5.16 | 3.92 | 3.11 | 2.55 | |
| 17 | 0.47 | 1.08 | 2.02 | 3.77 | 5.43 | 7.04 | 10.1 | 13.1 | 16.1 | 18.9 | 21.7 | 22.3 | 22.3 | 22.3 | 19.4 | 17.0 | 13.5 | 11.0 | 9.25 | 7.90 | 5.65 | 4.30 | 3.41 | 2.79 | |
| 18 | 0.51 | 1.15 | 2.15 | 4.01 | 5.78 | 7.49 | 10.8 | 14.0 | 17.1 | 20.1 | 23.1 | 23.7 | 23.7 | 23.7 | 21.1 | 18.5 | 14.7 | 12.0 | 10.1 | 8.60 | 6.16 | 4.68 | 3.72 | 3.04 | |
| 19 | 0.54 | 1.22 | 2.28 | 4.25 | 6.13 | 7.94 | 11.4 | 14.8 | 18.1 | 21.3 | 24.5 | 25.1 | 25.1 | 25.1 | 22.9 | 20.1 | 15.9 | 13.0 | 10.9 | 9.33 | 6.68 | 5.08 | 4.03 | 3.30 | |
| 20 | 0.57 | 1.29 | 2.41 | 4.50 | 6.48 | 8.39 | 12.1 | 15.7 | 19.1 | 22.6 | 25.9 | 26.6 | 26.6 | 26.6 | 24.7 | 21.7 | 17.2 | 14.1 | 11.8 | 10.1 | 7.21 | 5.48 | 4.35 | | |
| 21 | 0.60 | 1.36 | 2.54 | 4.74 | 6.83 | 8.84 | 12.7 | 16.5 | 20.2 | 23.8 | 27.3 | 28.0 | 28.0 | 28.0 | 26.6 | 23.3 | 18.5 | 15.2 | 12.7 | 10.8 | 7.76 | 5.90 | 4.68 | | |
| 22 | 0.63 | 1.43 | 2.67 | 4.98 | 7.18 | 9.30 | 13.4 | 17.4 | 21.2 | 25.0 | 28.7 | 29.5 | 29.5 | 29.5 | 28.5 | 25.0 | 19.8 | 16.2 | 13.6 | 11.6 | 8.32 | 6.33 | 5.02 | | |
| 23 | 0.66 | 1.50 | 2.80 | 5.23 | 7.53 | 9.76 | 14.1 | 18.2 | 22.3 | 26.2 | 30.1 | 30.9 | 30.9 | 30.9 | 30.5 | 26.7 | 21.2 | 17.4 | 14.6 | 12.4 | 8.89 | 6.76 | 5.37 | | |
| 24 | 0.69 | 1.57 | 2.93 | 5.47 | 7.89 | 10.2 | 14.7 | 19.1 | 23.3 | 27.5 | 31.5 | 32.5 | 32.5 | 32.5 | 32.5 | 28.5 | 22.6 | 18.5 | 15.5 | 13.2 | 9.48 | 7.21 | 5.72 | | |
| 25 | 0.72 | 1.64 | 3.07 | 5.72 | 8.24 | 10.7 | 15.4 | 19.9 | 24.4 | 28.7 | 33.0 | 34.5 | 34.5 | 34.5 | 34.5 | 30.3 | 24.0 | 19.7 | 16.5 | 14.1 | 10.1 | 7.66 | 6.08 | | |
| 26 | 0.75 | 1.71 | 3.20 | 5.97 | 8.60 | 11.1 | 16.0 | 20.8 | 25.4 | 29.9 | 34.4 | 36.6 | 36.6 | 36.6 | 36.6 | 32.1 | 25.5 | 20.9 | 17.5 | 14.9 | 10.7 | 8.13 | 6.45 | | |
| 28 | 0.81 | 1.86 | 3.47 | 6.47 | 9.31 | 12.1 | 17.4 | 22.5 | 27.5 | 32.4 | 37.3 | 40.9 | 40.9 | 40.9 | 40.9 | 35.9 | 28.5 | 23.3 | 19.5 | 16.7 | 11.9 | 9.09 | | | |
| 30 | 0.88 | 2.00 | 3.73 | 6.97 | 10.0 | 13.0 | 18.7 | 24.3 | 29.7 | 34.9 | 40.1 | 44.9 | 44.9 | 44.9 | 44.9 | 39.8 | 31.6 | 25.9 | 21.7 | 18.5 | 13.2 | 10.1 | | | |
| 32 | 0.94 | 2.14 | 4.00 | 7.47 | 10.8 | 13.9 | 20.1 | 26.0 | 31.8 | 37.5 | 43.0 | 48.1 | 48.1 | 48.1 | 48.1 | 43.9 | 34.8 | 28.5 | 23.9 | 20.4 | 14.6 | 11.1 | | | |
| 35 | 1.04 | 2.36 | 4.41 | 8.23 | 11.9 | 15.4 | 22.1 | 28.7 | 35.0 | 41.3 | 47.4 | 53.0 | 53.0 | 53.0 | 53.0 | 50.2 | 39.8 | 32.6 | 27.3 | 23.3 | 16.7 | 12.7 | | | |
| 40 | 1.20 | 2.73 | 5.09 | 9.50 | 13.7 | 17.7 | 25.5 | 33.1 | 40.5 | 47.7 | 54.8 | 61.3 | 61.3 | 61.3 | 61.3 | 61.3 | 48.7 | 39.8 | 33.4 | 28.5 | 20.4 | | | | |
| 45 | 1.36 | 3.10 | 5.78 | 10.8 | 15.5 | 20.1 | 29.0 | 37.6 | 45.9 | 54.1 | 62.2 | 70.1 | 73.2 | 73.2 | 73.2 | 73.2 | 58.1 | 47.5 | 39.8 | 34.0 | 24.3 | | | | |

Note: 1. KW rating when using a one-pitch offset link (OL) is 80% of the above. Two pitch offset links (2POL) can be used at 100% of the above values.
2. Please contact a Tsubaki representative prior to use of kW ratings in the colored area of the table.

| | Number of chain strands | Multi-strand factor | Number of chain strands | Multi-strand factor |
|---|---|---|---|---|
| Multi-strand factor | Double strand | 1.7 | Quintuple strand | 3.9 |
| | Triple strand | 2.5 | Sextuple strand | 4.6 |
| | Quadruple strand | 3.3 | – | – |

| | | | |
|---|---|---|---|
| Lubrication method | A | Manual lubrication or drip lubrication | Details on Pg. 193 |
| | B | Oil bath or slinger disc lubrication | |
| | C | Forced pump lubrication | |

# RS60 Sprocket




Mechanically machined Welded construction — 1B type
Welded construction — 1C type
Mechanically machined Welded construction — 2B type
Welded construction — 2C type
1A type

| Number of Teeth | Pitch Circular Diameter ($D_P$) | Sprocket Outer Diameter ($D_O$) | 1B type Bore Diameter ($d$) Pilot Bore Diameter | 1B type Bore Diameter ($d$) Maximum | 1B type Hub Diameter ($D_H$) | 1B type Hub Length ($L$) | 1B type Approx. Mass (kg) | Material | 1C type Bore Diameter ($d$) Pilot Bore Diameter | 1C type Bore Diameter ($d$) Maximum | 1C type Hub Diameter ($D_H$) | 1C type Hub Length ($L$) | 1C type Approx. Mass (kg) | Material | 2B type Bore Diameter ($d$) Pilot Bore Diameter | 2B type Bore Diameter ($d$) Maximum | 2B type Hub Diameter ($D_H$) | 2B type Hub Length ($L$) | 2B type Approx. Mass (kg) | Material | 2C type Bore Diameter ($d$) Pilot Bore Diameter | 2C type Bore Diameter ($d$) Maximum | 2C type Hub Diameter ($D_H$) | 2C type Hub Length ($L$) | 2C type Approx. Mass (kg) | Material | 1A type Pilot Bore Diameter $d$ | 1A type Approx. Mass (kg) | Material | Number of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **9** | 55.70 | 64 | 9.5 | 24.5 | 43 | 32 | 0.36 | ※ | | | | | | | | | | | | | | | | | | | | | | **9** |
| **10** | 61.65 | 70 | 12.7 | 30 | 49 | 32 | 0.45 | ※ | | | | | | | | | | | | | | | | | | | | | | **10** |
| **11** | 67.62 | 76 | 12.7 | 32 | 51 | 32 | 0.55 | ※ | | | | | | | | | | | | | | | | | | | | | | **11** |
| **12** | 73.60 | 83 | 12.7 | 32 | 51 | 32 | 0.63 | | | | | | | | 12.7 | 32 | 51 | 50 | 1.1 | | | | | | | | 18 | 0.33 | | **12** |
| **13** | 79.60 | 89 | 15.9 | 35 | 57 | 32 | 0.76 | | | | | | | | 15.9 | 35 | 57 | 50 | 1.3 | | | | | | | | 18 | 0.39 | | **13** |
| **14** | 85.61 | 95 | 15.9 | 39.5 | 62 | 32 | 0.90 | | | | | | | | 15.9 | 39.5 | 62 | 56 | 1.6 | | | | | | | | 18 | 0.46 | | **14** |
| **15** | 91.63 | 101 | 15.9 | 45.5 | 68 | 32 | 1.1 | | | | | | | | 15.9 | 45.5 | 68 | 56 | 1.9 | | | | | | | | 18 | 0.53 | | **15** |
| **16** | 97.65 | 107 | 15.9 | 47.5 | 73 | 32 | 1.2 | | | | | | | | 15.9 | 50 | 76 | 56 | 2.3 | | | | | | | | 18 | 0.61 | | **16** |
| **17** | 103.67 | 113 | 15.9 | 47.5 | 73 | 32 | 1.3 | | | | | | | | 15.9 | 55 | 82 | 56 | 2.7 | | | | | | | | 18 | 0.69 | | **17** |
| **18** | 109.70 | 119 | 15.9 | 55 | 83 | 40 | 1.9 | | | | | | | | 15.9 | 59 | 87 | 56 | 3.0 | | | | | | | | 18 | 0.78 | | **18** |
| **19** | 115.74 | 126 | 15.9 | 55 | 83 | 40 | 2.0 | | | | | | | | 15.9 | 63 | 95 | 56 | 3.5 | | | | | | | | 18 | 0.88 | | **19** |
| **20** | 121.78 | 132 | 15.9 | 55 | 83 | 40 | 2.1 | | | | | | | | 15.9 | 69 | 101 | 56 | 3.9 | | | | | | | | 18 | 0.98 | | **20** |
| **21** | 127.82 | 138 | 15.9 | 55 | 83 | 40 | 2.2 | | | | | | | | 15.9 | 75 | 107 | 56 | 4.4 | | | | | | | | 18 | 1.1 | | **21** |
| **22** | 133.86 | 144 | 15.9 | 55 | 83 | 40 | 2.3 | | | | | | | | 15.9 | 78 | 113 | 56 | 4.9 | | | | | | | | 18 | 1.2 | | **22** |
| **23** | 139.90 | 150 | 18 | 55 | 83 | 40 | 2.4 | | | | | | | | 18 | 66 | 98 | 56 | 4.8 | | 18 | 66 | 98 | 80 | 6.2 | | 18 | 1.3 | | **23** |
| **24** | 145.95 | 156 | 18 | 55 | 83 | 40 | 2.6 | | | | | | | | 18 | 66 | 98 | 56 | 5.1 | | 18 | 66 | 98 | 80 | 6.6 | | 18 | 1.4 | | **24** |
| **25** | 151.99 | 162 | 18 | 55 | 83 | 40 | 2.7 | | | | | | | | 18 | 66 | 98 | 56 | 5.4 | | 18 | 66 | 98 | 80 | 6.9 | | 18 | 1.6 | | **25** |
| **26** | 158.04 | 168 | 18 | 55 | 83 | 40 | 2.8 | | | | | | | | 18 | 66 | 98 | 56 | 5.8 | | 18 | 66 | 98 | 80 | 7.3 | | 18 | 1.7 | | **26** |
| **27** | 164.09 | 174 | 18 | 55 | 83 | 40 | 3.0 | | | | | | | | 18 | 66 | 98 | 56 | 6.2 | | 18 | 66 | 98 | 80 | 7.7 | | 18 | 1.8 | | **27** |
| **28** | 170.14 | 181 | 18 | 55 | 83 | 40 | 3.1 | | 18 | 55 | 83 | 50 | 3.6 | | 18 | 66 | 98 | 56 | 6.6 | | 18 | 66 | 98 | 80 | 8.1 | | 18 | 2.0 | | **28** |
| **30** | 182.25 | 193 | 18 | 55 | 83 | 40 | 3.4 | | 18 | 55 | 83 | 50 | 3.9 | | 18 | 66 | 98 | 56 | 7.5 | | 18 | 66 | 98 | 80 | 8.9 | | 18 | 2.3 | | **30** |
| **32** | 194.35 | 205 | 18 | 55 | 83 | 40 | 3.8 | | 18 | 55 | 83 | 50 | 4.2 | | 18 | 66 | 98 | 56 | 8.4 | | 18 | 66 | 98 | 80 | 9.9 | | 18 | 2.6 | | **32** |
| **34** | 206.46 | 217 | 18 | 55 | 83 | 40 | 4.1 | | 18 | 55 | 83 | 50 | 4.5 | | 18 | 66 | 98 | 56 | 9.4 | | 18 | 66 | 98 | 80 | 10.8 | | 18 | 3.0 | | **34** |
| **35** | 212.52 | 223 | 18 | 55 | 83 | 40 | 4.3 | | 18 | 55 | 83 | 50 | 4.7 | | 18 | 66 | 98 | 56 | 9.9 | | 18 | 75 | 107 | 85 | 12.2 | | 18 | 3.1 | | **35** |
| **36** | 218.57 | 229 | 18 | 55 | 83 | 40 | 4.5 | | 18 | 55 | 83 | 50 | 4.9 | | 18 | 66 | 98 | 56 | 10.4 | | 18 | 75 | 107 | 85 | 12.7 | | 18 | 3.3 | | **36** |
| **38** | 230.69 | 241 | 18 | 55 | 83 | 40 | 4.9 | | 18 | 63 | 93 | 55 | 6.0 | | 18 | 66 | 98 | 56 | 11.5 | | 18 | 75 | 107 | 85 | 13.8 | | 18 | 3.7 | | **38** |
| **40** | 242.80 | 253 | 18 | 55 | 83 | 40 | 5.3 | | 18 | 63 | 93 | 55 | 6.4 | | 18 | 66 | 98 | 56 | 12.7 | | 18 | 75 | 107 | 85 | 15.0 | | 18 | 4.1 | | **40** |
| **42** | 254.92 | 266 | 23 | 63 | 93 | 45 | 6.2 | | 23 | 63 | 93 | 55 | 6.7 | | 23 | 75 | 107 | 71 | 15.1 | | 23 | 75 | 107 | 85 | 16.1 | | 23 | 4.5 | | **42** |
| **45** | 273.09 | 284 | 23 | 63 | 93 | 45 | 6.9 | | 23 | 63 | 93 | 55 | 7.4 | | 23 | 75 | 107 | 71 | 17.1 | | 23 | 75 | 107 | 85 | 18.1 | | 23 | 5.2 | | **45** |
| **48** | 291.27 | 302 | 23 | 63 | 93 | 45 | 7.6 | | 23 | 63 | 93 | 55 | 8.2 | | 23 | 75 | 107 | 71 | 19.1 | | 23 | 75 | 107 | 85 | 20.1 | | 23 | 6.0 | | **48** |
| **50** | 303.39 | 314 | 23 | 63 | 93 | 45 | 8.2 | | 23 | 63 | 93 | 55 | 8.7 | | 23 | 75 | 107 | 71 | 20.6 | | 23 | 75 | 107 | 85 | 21.6 | | 23 | 6.5 | | **50** |
| **54** | 327.63 | 338 | 23 | 63 | 93 | 45 | 9.3 | | 23 | 63 | 93 | 55 | 9.8 | | 23 | 75 | 107 | 71 | 23.7 | | 23 | 75 | 107 | 85 | 24.7 | | 23 | 7.6 | | **54** |
| **60** | 363.99 | 375 | 23 | 63 | 93 | 45 | 11.1 | | 23 | 75 | 107 | 70 | 13.3 | | 23 | 75 | 107 | 71 | **28.7** | | 23 | 75 | 107 | 90 | **30.1** | | 23 | 9.4 | | **60** |
| **65** | 394.30 | 405 | 28 | 75 | 107 | 45 | 13.2 | | 28 | 75 | 107 | 70 | 14.9 | | | | | | | | | | | | | | 28 | 11.0 | | **65** |
| **70** | 424.61 | 436 | 28 | 75 | 107 | 45 | 15.0 | | 28 | 75 | 107 | 70 | 16.7 | | | | | | | | | | | | | | 28 | 12.8 | | **70** |
| **75** | 454.92 | 466 | 28 | 75 | 107 | 45 | 16.9 | | 28 | 75 | 107 | 70 | 18.6 | | | | | | | | | | | | | | 28 | 14.7 | | **75** |

Material: Mechanically machined: machine-structural carbon steel; Welded construction: machine-structural carbon steel (teeth) and structural rolled steel (hub); Machine-structural carbon steel

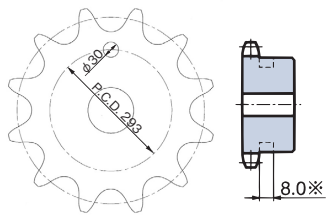
Note: 1. Maximum bore diameter is the typical range. Determine bore diameter and key bearing pressure based on general mechanical design.
2. Models in shaded areas have hardened teeth.
3. Outer diameters above are given for the 1B type. Diameters vary slightly for all other types.
4. 1B-type sprockets marked with an * have an outer groove around the hub. Groove outer diameter is 32 for 9T, 37 for 10T and 45 for 11T.
5. For single-strand sprockets without hardened teeth, the Strong Series of sprocket with hardened teeth can be made-to-order.
6. Models with approximate masses in bold have one hanging hole processed. See the diagram on the right for information.

## Sprocket Number

RS60 -2B 15T

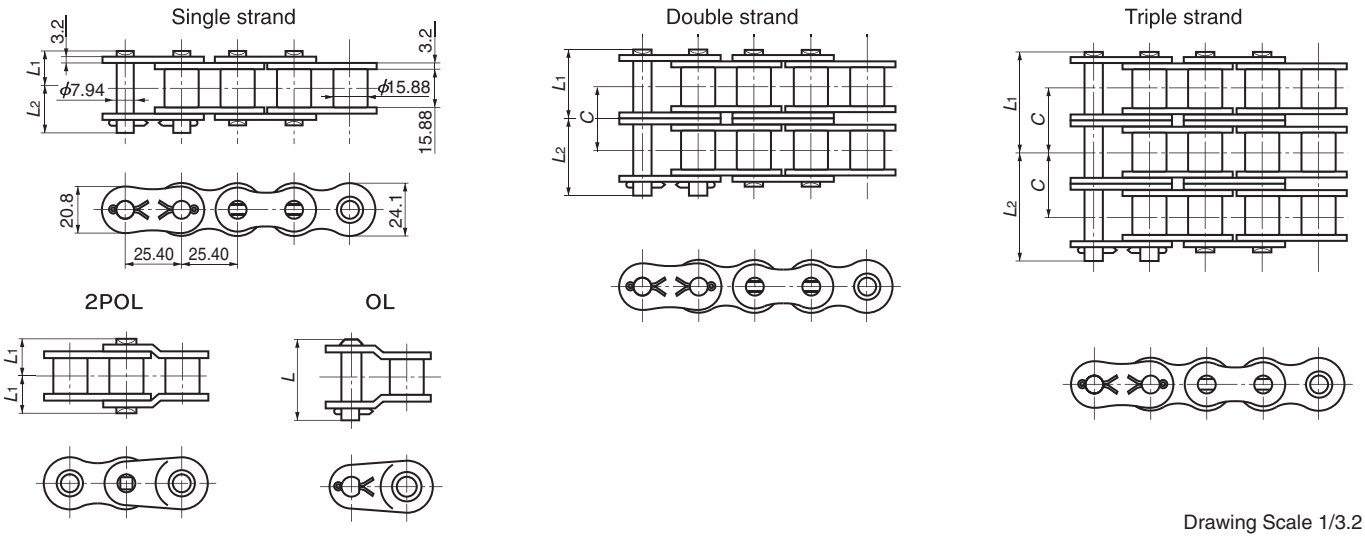
- Number of teeth
- Type
- Chain number

## Hanging Hole Dimensions




The phase relationship between the hanging hole and teeth may vary.

# RS80




Drawing Scale 1/3.2

| TSUBAKI Chain Number | Number of Strands | Pin Length $L_1+L_2$ | Dimensions $L_1$ | Dimensions $L_2$ | Offset Pin Length $L$ | Transverse Pitch $C$ | Pin Type | ANSI Standard Min. Tensile Strength kN{kgf} | Tsubaki Minimum Tensile Strength kN{kgf} | Tsubaki Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS80-1 | 1 | 35.5 | 16.25 | 19.25 | 36.6 | 29.3 | Riveting Cotter pin | 61.2 {6241} | 71.6{7300} | 78.5{8000} | 14.7{1500} | 2.66 |
| RS80-2 | 2 | 64.8 | 30.9 | 33.9 | 67.5 | | Riveting | 122.4{12481} | 143 {14600} | 157 {16000} | 25.0{2550} | 5.27 |
| RS80-3 | 3 | 94.1 | 45.6 | 48.5 | 96.9 | | | 183.6{18722} | 215 {21900} | 235 {24000} | 36.8{3750} | 7.89 |
| RS80-4 | 4 | 123.5 | 60.25 | 63.25 | 126.3 | | | – | 286 {29200} | 314 {32000} | 48.5{4950} | 10.50 |
| RS80-5 | 5 | 152.9 | 74.95 | 77.95 | 155.6 | | | – | 358 {36500} | 392 {40000} | 57.4{5850} | 13.11 |
| RS80-6 | 6 | 182.1 | 89.6 | 92.5 | 184.9 | | | – | 430 {43800} | 471 {48000} | 67.7{6900} | 15.73 |

Note: 1. Maximum allowable load when using a one-pitch offset link (OL) is 65% of the above. Two pitch offset links (2POL) can be used at 100% of the above values.
2. Number of links per unit = 120

## ■RS80-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

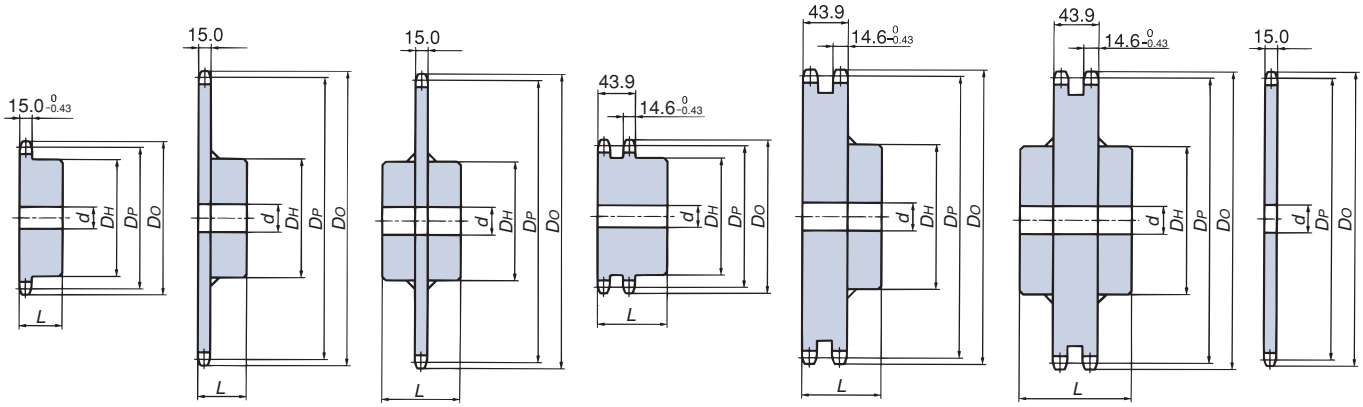
| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1400 | 1600 | 1800 | 2000 | 2200 | 2400 | 2700 | 3000 | 3400 |
| | A | | | | | | B | | | | | | | | | | | | | | C | | | | |
| 9 | 0.53 | 1.21 | 2.26 | 4.21 | 6.07 | 7.86 | 11.3 | 14.7 | 17.9 | 18.2 | 18.2 | 15.1 | 12.7 | 10.8 | 9.39 | 8.24 | 6.54 | 5.35 | 4.48 | 3.83 | 3.32 | 2.91 | 2.44 | 2.08 | 1.73 |
| 10 | 0.59 | 1.36 | 2.53 | 4.72 | 6.80 | 8.81 | 12.7 | 16.4 | 20.1 | 20.4 | 20.4 | 17.7 | 14.9 | 12.7 | 11.0 | 9.65 | 7.66 | 6.27 | 5.25 | 4.48 | 3.89 | 3.41 | 2.86 | 2.44 | 2.02 |
| 11 | 0.66 | 1.50 | 2.80 | 5.23 | 7.54 | 9.76 | 14.1 | 18.2 | 22.3 | 22.6 | 22.6 | 20.4 | 17.1 | 14.6 | 12.7 | 11.1 | 8.83 | 7.23 | 6.06 | 5.17 | 4.48 | 3.94 | 3.30 | 2.82 | 1.27 |
| 12 | 0.72 | 1.65 | 3.08 | 5.75 | 8.28 | 10.7 | 15.4 | 20.0 | 24.5 | 24.9 | 24.9 | 23.3 | 19.5 | 16.7 | 14.5 | 12.7 | 10.1 | 8.24 | 6.90 | 5.89 | 5.11 | 4.48 | 3.76 | 3.21 | |
| 13 | 0.79 | 1.80 | 3.36 | 6.27 | 9.03 | 11.7 | 16.8 | 21.8 | 26.7 | 27.1 | 27.1 | 26.3 | 22.0 | 18.8 | 16.3 | 14.3 | 11.3 | 9.29 | 7.78 | 6.65 | 5.76 | 5.06 | 4.24 | 3.62 | |
| 14 | 0.85 | 1.95 | 3.64 | 6.79 | 9.78 | 12.7 | 18.2 | 23.6 | 28.9 | 29.4 | 29.4 | 29.4 | 24.6 | 21.0 | 18.2 | 16.0 | 12.7 | 10.4 | 8.70 | 7.43 | 6.44 | 5.65 | 4.74 | 4.04 | |
| 15 | 0.92 | 2.10 | 3.92 | 7.31 | 10.5 | 13.6 | 19.7 | 25.5 | 31.1 | 32.6 | 32.6 | 32.6 | 27.3 | 23.3 | 20.2 | 17.7 | 14.1 | 11.5 | 9.65 | 8.24 | 7.14 | 6.27 | 5.25 | 4.48 | |
| 16 | 0.99 | 2.25 | 4.20 | 7.84 | 11.3 | 14.6 | 21.1 | 27.3 | 33.4 | 35.9 | 35.9 | 35.9 | 30.1 | 25.7 | 22.2 | 19.5 | 15.5 | 12.7 | 10.6 | 9.08 | 7.87 | 6.90 | 5.79 | 4.94 | |
| 17 | 1.05 | 2.40 | 4.49 | 8.37 | 12.1 | 15.6 | 22.5 | 29.2 | 35.6 | 39.3 | 39.3 | 39.3 | 32.9 | 28.1 | 24.4 | 21.4 | 17.0 | 13.9 | 11.6 | 9.94 | 8.62 | 7.56 | 6.34 | 5.41 | |
| 18 | 1.12 | 2.56 | 4.77 | 8.91 | 12.8 | 16.6 | 23.9 | 31.0 | 37.9 | 42.8 | 42.8 | 42.8 | 35.9 | 30.6 | 26.5 | 23.3 | 18.5 | 15.1 | 12.7 | 10.8 | 9.39 | 8.24 | 6.90 | 5.89 | |
| 19 | 1.19 | 2.71 | 5.06 | 9.44 | 13.6 | 17.6 | 25.4 | 32.9 | 40.2 | 46.0 | 46.0 | 46.0 | 38.9 | 33.2 | 28.8 | 25.3 | 20.1 | 16.4 | 13.8 | 11.7 | 10.2 | 8.93 | 7.49 | 6.39 | |
| 20 | 1.26 | 2.87 | 5.35 | 9.98 | 14.4 | 18.6 | 26.8 | 34.8 | 42.5 | 48.7 | 48.7 | 48.7 | 42.0 | 35.9 | 31.1 | 27.3 | 21.7 | 17.7 | 14.9 | 12.7 | 11.0 | 9.65 | 8.09 | | |
| 21 | 1.32 | 3.02 | 5.64 | 10.5 | 15.2 | 19.6 | 28.3 | 36.6 | 44.8 | 51.3 | 51.3 | 51.3 | 45.2 | 38.6 | 33.5 | 29.4 | 23.3 | 19.1 | 16.0 | 13.6 | 11.8 | 10.4 | 8.70 | | |
| 22 | 1.39 | 3.18 | 5.93 | 11.1 | 15.9 | 20.6 | 29.7 | 38.5 | 47.1 | 53.9 | 53.9 | 53.9 | 48.5 | 41.4 | 35.9 | 31.5 | 25.0 | 20.4 | 17.1 | 14.6 | 12.7 | 11.1 | 9.33 | | |
| 23 | 1.46 | 3.33 | 6.22 | 11.6 | 16.7 | 21.7 | 31.2 | 40.4 | 49.4 | 56.6 | 56.6 | 56.6 | 51.8 | 44.2 | 38.3 | 33.7 | 26.7 | 21.9 | 18.3 | 15.6 | 13.6 | 11.9 | 9.97 | | |
| 24 | 1.53 | 3.49 | 6.51 | 12.2 | 17.5 | 22.7 | 32.7 | 42.3 | 51.7 | 59.3 | 59.3 | 59.3 | 55.2 | 47.2 | 40.9 | 35.9 | 28.5 | 23.3 | 19.5 | 16.7 | 14.5 | 12.7 | 10.6 | | |
| 25 | 1.60 | 3.65 | 6.81 | 12.7 | 18.3 | 23.7 | 34.1 | 44.2 | 54.1 | 61.9 | 61.9 | 61.9 | 58.7 | 50.1 | 43.5 | 38.1 | 30.3 | 24.8 | 20.8 | 17.7 | 15.4 | 13.5 | 11.3 | | |
| 26 | 1.67 | 3.80 | 7.10 | 13.2 | 19.1 | 24.7 | 35.6 | 46.1 | 56.4 | 64.6 | 64.6 | 64.6 | 62.3 | 53.2 | 46.1 | 40.5 | 32.1 | 26.3 | 22.0 | 18.8 | 16.3 | 14.3 | 12.0 | | |
| 28 | 1.81 | 4.12 | 7.69 | 14.4 | 20.7 | 26.8 | 38.6 | 50.0 | 61.1 | 70.0 | 70.0 | 70.0 | 69.6 | 59.4 | 51.5 | 45.2 | 35.9 | 29.4 | 24.6 | 21.0 | 18.2 | 16.0 | | | |
| 30 | 1.95 | 4.44 | 8.29 | 15.5 | 22.3 | 28.9 | 41.6 | 53.8 | 65.8 | 77.2 | 77.2 | 77.2 | 77.2 | 65.9 | 57.1 | 50.1 | 39.8 | 32.6 | 27.3 | 23.3 | 20.2 | 17.7 | | | |
| 32 | 2.09 | 4.76 | 8.88 | 16.6 | 23.9 | 30.9 | 44.6 | 57.7 | 70.6 | 83.2 | 85.0 | 85.0 | 85.0 | 72.6 | 62.9 | 55.2 | 43.8 | 35.9 | 30.1 | 25.7 | 22.2 | 19.5 | | | |
| 35 | 2.30 | 5.24 | 9.79 | 18.3 | 26.3 | 34.1 | 49.1 | 63.6 | 77.7 | 91.6 | 97.3 | 97.3 | 97.3 | 83.0 | 72.0 | 63.2 | 50.1 | 41.0 | 34.4 | 29.4 | 25.5 | | | | |
| 40 | 2.66 | 6.06 | 11.3 | 21.1 | 30.4 | 39.4 | 56.7 | 73.5 | 89.8 | 106 | 114 | 114 | 114 | 101 | 87.9 | 77.2 | 61.3 | 50.1 | 42.0 | 35.9 | 14.9 | | | | |
| 45 | 3.02 | 6.88 | 12.8 | 24.0 | 34.5 | 44.7 | 64.4 | 83.4 | 102 | 120 | 130 | 130 | 130 | 121 | 105 | 92.1 | 73.1 | 59.8 | 50.1 | 40.4 | | | | | |

Note: 1. KW rating when using a one-pitch offset link (OL) is 65% of the above. Two pitch offset links (2POL) can be used at 100% of the above values.
2. Please contact a Tsubaki representative prior to use of kW ratings in the colored area of the table.

| | Number of chain strands | Multi-strand factor | Number of chain strands | Multi-strand factor |
|---|---|---|---|---|
| Multi-strand factor | Double strand | 1.7 | Quintuple strand | 3.9 |
| | Triple strand | 2.5 | Sextuple strand | 4.6 |
| | Quadruple strand | 3.3 | – | – |

| | | | |
|---|---|---|---|
| Lubrication method | A | Manual lubrication or drip lubrication | Details on Pg. 193 |
| | B | Oil bath or slinger disc lubrication | |
| | C | Forced pump lubrication | |

# RS80 Sprocket




Mechanically machined Welded construction — 1B type
Welded construction — 1C type
Mechanically machined Welded construction — 2B type
Welded construction — 2C type
1A type

| Number of Teeth | Pitch Circular Diameter ($D_P$) | Sprocket Outer Diameter ($D_O$) | 1B type Bore Diameter ($d$) Pilot Bore Diameter | 1B type Bore Diameter ($d$) Maximum | 1B type Hub Diameter ($D_H$) | 1B type Hub Length ($L$) | 1B type Approx. Mass (kg) | 1B type Material | 1C type Bore Diameter ($d$) Pilot Bore Diameter | 1C type Bore Diameter ($d$) Maximum | 1C type Hub Diameter ($D_H$) | 1C type Hub Length ($L$) | 1C type Approx. Mass (kg) | 1C type Material | 2B type Bore Diameter ($d$) Pilot Bore Diameter | 2B type Bore Diameter ($d$) Maximum | 2B type Hub Diameter ($D_H$) | 2B type Hub Length ($L$) | 2B type Approx. Mass (kg) | 2B type Material | 2C type Bore Diameter ($d$) Pilot Bore Diameter | 2C type Bore Diameter ($d$) Maximum | 2C type Hub Diameter ($D_H$) | 2C type Hub Length ($L$) | 2C type Approx. Mass (kg) | 2C type Material | 1A type Pilot Bore Diameter $d$ | 1A type Approx. Mass (kg) | 1A type Material | Number of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | 74.26 | 85 | 15.9 | 35 | 58 | 40 | 0.79 | ※ Mechanically machined: machine-structural carbon steel | | | | | | | | | | | | | | | | | | | | | | 9 |
| 10 | 82.20 | 93 | 15.9 | 32 | 52 | 40 | 0.88 | | | | | | | | | | | | | | | | | | | | | | | 10 |
| 11 | 90.16 | 102 | 15.9 | 38 | 60 | 40 | 1.1 | | | | | | | | | | | | | | | | | | | | | | | 11 |
| 12 | 98.14 | 110 | 19 | 45 | 67 | 40 | 1.4 | | | | | | | | 19 | 46 | 67 | 63 | 2.3 | Mechanically machined: machine-structural carbon steel | | | | | | | 23 | 0.73 | | 12 |
| 13 | 106.14 | 118 | 19 | 50 | 77 | 40 | 1.7 | | | | | | | | 19 | 50 | 77 | 63 | 2.9 | | | | | | | | 23 | 0.87 | | 13 |
| 14 | 114.15 | 127 | 19 | 50 | 77 | 40 | 1.9 | | | | | | | | 19 | 58 | 86 | 63 | 3.5 | | | | | | | | 23 | 1.0 | | 14 |
| 15 | 122.17 | 135 | 19 | 63 | 93 | 40 | 2.5 | | | | | | | | 19 | 64 | 94 | 63 | 4.1 | | | | | | | | 23 | 1.2 | | 15 |
| 16 | 130.20 | 143 | 19 | 63 | 93 | 40 | 2.7 | | | | | | | | 19 | 70 | 102 | 71 | 5.3 | | | | | | | | 23 | 1.4 | | 16 |
| 17 | 138.23 | 151 | 19 | 63 | 93 | 40 | 2.8 | | | | | | | | 19 | 76 | 110 | 71 | 6.1 | | | | | | | | 23 | 1.6 | | 17 |
| 18 | 146.27 | 159 | 19 | 63 | 93 | 40 | 3.0 | | | | | | | | 23 | 66 | 98 | 71 | 6.1 | | 23 | 75 | 98 | 89 | 7.2 | Welded construction: machine-structural carbon steel (teeth) and structural rolled steel (hub) | 23 | 1.8 | Machine-structural carbon steel | 18 |
| 19 | 154.32 | 167 | 23 | 63 | 93 | 40 | 3.2 | | | | | | | | 23 | 66 | 98 | 71 | 6.7 | | 23 | 75 | 107 | 94 | 8.6 | | 23 | 2.0 | | 19 |
| 20 | 162.37 | 176 | 23 | 63 | 93 | 40 | 3.4 | | | | | | | | 23 | 75 | 107 | 71 | 7.7 | | 23 | 75 | 107 | 94 | 9.4 | | 23 | 2.2 | | 20 |
| 21 | 170.42 | 184 | 23 | 63 | 93 | 40 | 3.7 | | | | | | | | 23 | 75 | 107 | 71 | 8.3 | | 23 | 75 | 107 | 94 | 10.1 | | 23 | 2.4 | | 21 |
| 22 | 178.48 | 192 | 28 | 75 | 107 | 45 | 4.7 | | 28 | 75 | 107 | 60 | 5.7 | Welded construction: machine-structural carbon steel (teeth) and structural rolled steel (hub) | 28 | 80 | 117 | 71 | 9.3 | | 28 | 80 | 117 | 100 | 11.8 | | 28 | 2.7 | | 22 |
| 23 | 186.54 | 200 | 28 | 75 | 107 | 45 | 4.9 | | 28 | 75 | 107 | 60 | 5.9 | | 28 | 80 | 117 | 71 | 10.0 | | 28 | 80 | 117 | 100 | 12.6 | | 28 | 2.9 | | 23 |
| 24 | 194.60 | 208 | 28 | 75 | 107 | 45 | 5.2 | | 28 | 75 | 107 | 60 | 6.2 | | 28 | 80 | 117 | 80 | 11.6 | Welded construction: machine-structural carbon steel (teeth) and structural rolled steel (hub) | 28 | 80 | 117 | 100 | 13.3 | | 28 | 3.2 | | 24 |
| 25 | 202.66 | 216 | 28 | 75 | 107 | 45 | 5.5 | | 28 | 75 | 107 | 60 | 6.5 | | 28 | 80 | 117 | 80 | 12.4 | | 28 | 80 | 117 | 100 | 14.1 | | 28 | 3.5 | | 25 |
| 26 | 210.72 | 224 | 28 | 75 | 107 | 45 | 5.8 | | 28 | 75 | 107 | 60 | 6.8 | | 28 | 80 | 117 | 80 | 13.2 | | 28 | 80 | 117 | 100 | 15.0 | | 28 | 3.8 | | 26 |
| 27 | 218.79 | 233 | 28 | 75 | 107 | 45 | 6.1 | | 28 | 75 | 107 | 60 | 7.1 | | 28 | 80 | 117 | 80 | 14.1 | | 28 | 80 | 117 | 100 | 15.8 | | 28 | 4.1 | | 27 |
| 28 | 226.86 | 241 | 28 | 75 | 107 | 45 | 6.4 | | 28 | 75 | 107 | 65 | 7.7 | | 28 | 80 | 117 | 80 | 15.0 | | 28 | 80 | 117 | 100 | 16.7 | | 28 | 4.4 | | 28 |
| 30 | 243.00 | 257 | 28 | 75 | 107 | 45 | 7.1 | | 28 | 75 | 107 | 65 | 8.4 | | 28 | 80 | 117 | 80 | 17.0 | | 28 | 80 | 117 | 100 | 18.7 | | 28 | 5.1 | | 30 |
| 32 | 259.14 | 273 | 28 | 75 | 107 | 45 | 7.8 | | 28 | 75 | 107 | 65 | 9.1 | | 28 | 80 | 117 | 80 | 19.0 | | 28 | 80 | 117 | 100 | 20.7 | | 28 | 5.8 | | 32 |
| 34 | 275.28 | 289 | 28 | 75 | 107 | 45 | 8.6 | | 28 | 75 | 107 | 65 | 9.9 | | 28 | 80 | 117 | 80 | 21.2 | | 28 | 80 | 117 | 100 | 22.9 | | 28 | 6.6 | | 34 |
| 35 | 283.36 | 297 | 28 | 75 | 107 | 45 | 9.0 | | 28 | 75 | 107 | 65 | 10.3 | | 28 | 80 | 117 | 80 | 22.4 | | 28 | 89 | 127 | 105 | 25.4 | | 28 | 7.0 | | 35 |
| 36 | 291.43 | 306 | 33 | 80 | 117 | 50 | 10.1 | Welded construction: machine-structural carbon steel (teeth) and structural rolled steel (hub) | 33 | 80 | 117 | 65 | 11.3 | | 28 | 80 | 117 | 80 | 23.6 | | 28 | 89 | 127 | 105 | 26.6 | | 33 | 7.4 | | 36 |
| 38 | 307.58 | 322 | 33 | 80 | 117 | 50 | 11.0 | | 33 | 80 | 117 | 80 | 13.3 | | 28 | 80 | 117 | 80 | 26.0 | | 28 | 89 | 127 | 105 | 29.1 | | 33 | 8.3 | | 38 |
| 40 | 323.74 | 338 | 33 | 80 | 117 | 50 | 12.0 | | 33 | 80 | 117 | 80 | 14.3 | | 33 | 89 | 127 | 90 | **29.8** | | 33 | 89 | 127 | 105 | **31.3** | | 33 | 9.2 | | 40 |
| 42 | 339.89 | 354 | 33 | 80 | 117 | 50 | 12.9 | | 33 | 80 | 117 | 80 | 15.2 | | 33 | 89 | 127 | 90 | **32.5** | | 33 | 89 | 127 | 105 | **34.1** | | 33 | 10.2 | | 42 |
| 45 | 364.12 | 378 | 33 | 80 | 117 | 50 | 14.5 | | 33 | 80 | 117 | 80 | 16.8 | | 33 | 89 | 127 | 90 | **36.9** | | 33 | 89 | 127 | 105 | **38.4** | | 33 | 11.7 | | 45 |
| 48 | 388.36 | 403 | 33 | 80 | 117 | 50 | 16.1 | | 33 | 80 | 117 | 80 | 18.4 | | 33 | 89 | 127 | 90 | **41.6** | Note 8 | 33 | 89 | 127 | 105 | **43.2** | | 33 | 13.4 | | 48 |
| 50 | 404.52 | 419 | 33 | 80 | 117 | 50 | 17.3 | | 33 | 80 | 117 | 80 | 19.6 | | 33 | 89 | 127 | 90 | **45.0** | | 33 | 89 | 127 | 105 | **46.5** | | 33 | 14.5 | | 50 |
| 54 | 436.84 | 451 | 33 | 80 | 117 | 50 | 19.8 | | 33 | 80 | 117 | 80 | 22.0 | | 33 | 89 | 127 | 90 | **52.2** | | 33 | 89 | 127 | 105 | **53.6** | | 33 | 17.0 | | 54 |
| 60 | 485.33 | 500 | 33 | 80 | 117 | 50 | 23.9 | | 33 | 80 | 117 | 80 | 26.1 | | 33 | 89 | 127 | 90 | **63.9** | | 33 | 89 | 127 | 105 | **65.3** | | 33 | 21.0 | | 60 |
| 65 | 525.73 | 540 | 33 | 89 | 127 | 63 | 29.3 | | 33 | 89 | 127 | 90 | 31.7 | | | | | | | | | | | | | | 33 | 24.7 | | 65 |
| 70 | 566.15 | 581 | 33 | 89 | 127 | 63 | 33.3 | | 33 | 89 | 127 | 90 | 35.7 | | | | | | | | | | | | | | 33 | 28.8 | | 70 |
| 75 | 606.56 | 621 | 33 | 89 | 127 | 63 | 37.7 | | 33 | 89 | 127 | 90 | 40.0 | | | | | | | | | | | | | | 33 | 33.1 | | 75 |

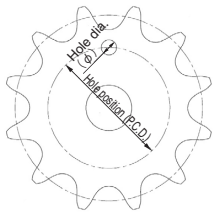
Note: 1. Maximum bore diameter is the typical range. Determine bore diameter and key bearing pressure based on general mechanical design.
2. Models in shaded areas have hardened teeth.
3. Outer diameters above are given for the 1B type. Diameters vary slightly for all other types.
4. 1B-type sprockets marked with an * have an outer groove around the hub. Groove outer diameter is 44 for 9T.
5. For single-strand sprockets without hardened teeth, the Strong Series of sprocket with hardened teeth can be made-to-order.
6. Models with approximate masses in bold have one hanging hole processed. See the diagram on the right for information.
7. Welded specifications, structural rolled steel (teeth and hub).

## Sprocket Number

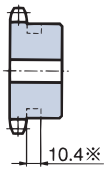
RS80 -2B 15T

- 15T — Number of teeth
- -2B — Type
- RS80 — Chain number

## Hanging Hole Dimensions

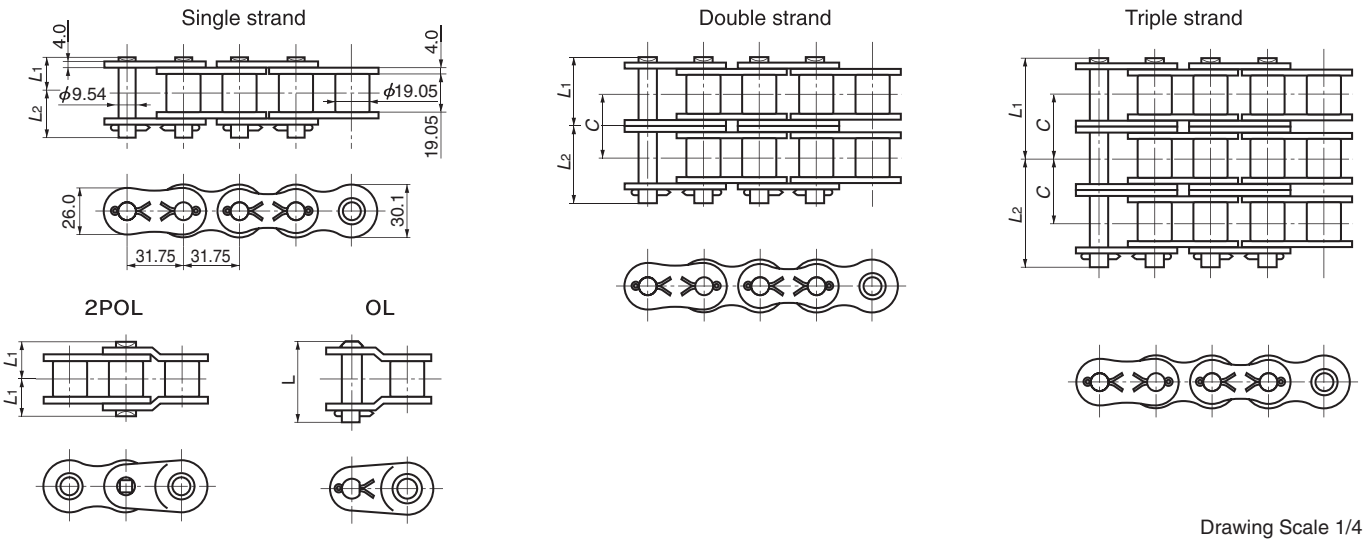



| No. of teeth | 2B, 2C Type bore dia. (ϕ30) Hole position (P.C.D.) |
|---|---|
| 40 | 242 |
| 42 | 258 |
| 45 | 283 |
| 48 | 307 |
| 50 | 323 |
| 54 | 355 |
| 60 | 404 |




The phase relationship between the hanging hole and teeth may vary.

# RS100




Drawing Scale 1/4

| TSUBAKI Chain Number | Number of Strands | Pin Length $L_1+L_2$ | Dimensions $L_1$ | Dimensions $L_2$ | Offset Pin Length $L$ | Transverse Pitch $C$ | Pin Type | ANSI Standard Min. Tensile Strength kN{kgf} | Tsubaki Minimum Tensile Strength kN{kgf} | Tsubaki Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS100-1 | 1 | 42.6 | 19.75 | 22.85 | 43.7 | 35.8 | Cotter pin Riveting | 95.4 {9728} | 107{10900} | 118{12000} | 22.6 {2300} | 3.99 |
| RS100-2 | 2 | 78.5 | 37.7 | 40.8 | 81.5 | | Cotter pin | 190.8{19456} | 214{21800} | 235{24000} | 38.3 {3910} | 7.85 |
| RS100-3 | 3 | 114.4 | 55.65 | 58.75 | 117.3 | | | 286.2{29184} | 321{32700} | 353{36000} | 56.4 {5750} | 11.77 |
| RS100-4 | 4 | 150.2 | 73.55 | 76.65 | 153.1 | | Riveting | – | 428{43600} | 471{48000} | 74.4 {7590} | 15.70 |
| RS100-5 | 5 | 186.1 | 91.5 | 94.6 | 188.9 | | | – | 534{54500} | 588{60000} | 88.0 {8970} | 19.53 |
| RS100-6 | 6 | 222.0 | 109.45 | 112.55 | 224.7 | | | – | 641{65400} | 706{72000} | 104{10580} | 23.48 |

Note: 1. Maximum allowable load when using a one-pitch offset link (OL) is 65% of the above. Two pitch offset links (2POL) can be used at 100% of the above values.
2. Number of links per unit = 96

## ■RS100-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

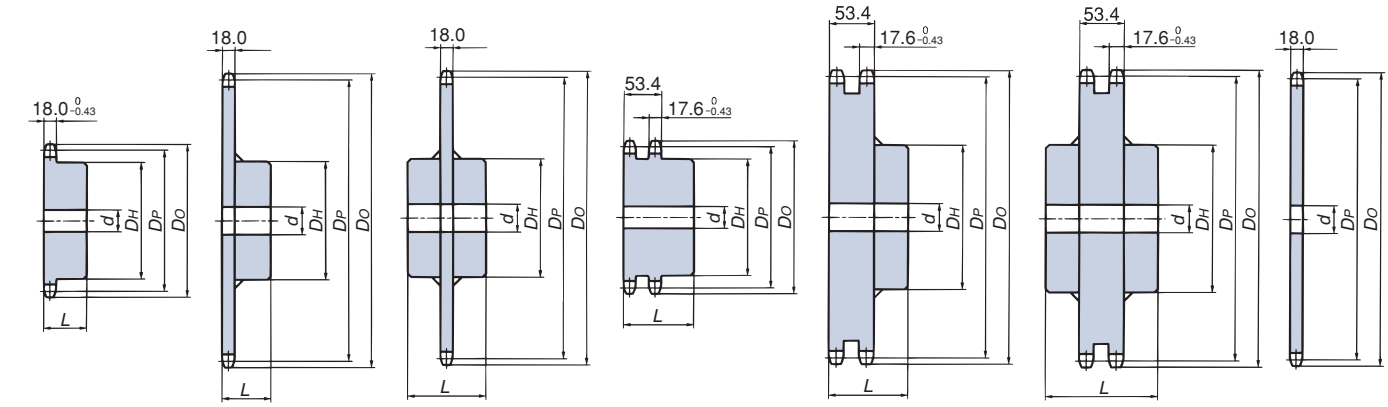
| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1600 | 1800 | 2000 | 2200 | 2400 | 2600 |
| | A | | | | | B | | | | | | | | | | | | C | | | | | | |
| 9 | 1.02 | 2.33 | 4.34 | 8.10 | 11.7 | 15.1 | 21.8 | 26.4 | 26.4 | 26.4 | 22.1 | 18.1 | 15.2 | 12.9 | 11.2 | 9.85 | 8.73 | 7.82 | 6.40 | 5.36 | 4.58 | 3.97 | 3.48 | 3.09 |
| 10 | 1.14 | 2.61 | 4.86 | 9.07 | 13.1 | 16.9 | 24.4 | 29.6 | 29.6 | 29.6 | 25.9 | 21.2 | 17.8 | 15.2 | 13.1 | 11.5 | 10.2 | 9.15 | 7.49 | 6.28 | 5.36 | 4.65 | 4.08 | 3.62 |
| 11 | 1.27 | 2.89 | 5.39 | 10.1 | 14.5 | 18.8 | 27.0 | 32.8 | 32.8 | 32.8 | 29.9 | 24.4 | 20.5 | 17.5 | 15.2 | 13.3 | 11.8 | 10.6 | 8.64 | 7.24 | 6.18 | 5.36 | 4.70 | 0.96 |
| 12 | 1.39 | 3.17 | 5.92 | 11.0 | 15.9 | 20.6 | 29.7 | 36.1 | 36.1 | 36.1 | 34.0 | 27.9 | 23.3 | 19.9 | 17.3 | 15.2 | 13.4 | 12.0 | 9.85 | 8.25 | 7.05 | 6.11 | 5.36 | |
| 13 | 1.52 | 3.46 | 6.45 | 12.0 | 17.3 | 22.5 | 32.4 | 39.3 | 39.3 | 39.3 | 38.4 | 31.4 | 26.3 | 22.5 | 19.5 | 17.1 | 15.2 | 13.6 | 11.1 | 9.31 | 7.95 | 6.89 | 6.04 | |
| 14 | 1.64 | 3.75 | 6.99 | 13.0 | 18.8 | 24.3 | 35.1 | 42.9 | 42.9 | 42.9 | 42.9 | 35.1 | 29.4 | 25.1 | 21.8 | 19.1 | 16.9 | 15.2 | 12.4 | 10.4 | 8.88 | 7.70 | 6.76 | |
| 15 | 1.77 | 4.04 | 7.53 | 14.1 | 20.2 | 26.2 | 37.8 | 47.6 | 47.6 | 47.6 | 47.6 | 38.9 | 32.6 | 27.9 | 24.1 | 21.2 | 18.8 | 16.8 | 13.8 | 11.5 | 9.85 | 8.54 | 7.49 | |
| 16 | 1.90 | 4.33 | 8.08 | 15.1 | 21.7 | 28.1 | 40.5 | 52.4 | 52.4 | 52.4 | 52.4 | 42.9 | 35.9 | 30.7 | 26.6 | 23.3 | 20.7 | 18.5 | 15.2 | 12.7 | 10.8 | 9.40 | 8.25 | |
| 17 | 2.03 | 4.62 | 8.62 | 16.1 | 23.2 | 30.0 | 43.3 | 56.0 | 57.4 | 57.4 | 57.4 | 47.0 | 39.4 | 33.6 | 29.1 | 25.6 | 22.7 | 20.3 | 16.6 | 13.9 | 11.9 | 10.3 | | |
| 18 | 2.15 | 4.92 | 9.17 | 17.1 | 24.7 | 31.9 | 46.0 | 59.6 | 62.5 | 62.5 | 62.5 | 51.2 | 42.9 | 36.6 | 31.7 | 27.9 | 24.7 | 22.1 | 18.1 | 15.2 | 12.9 | 11.2 | | |
| 19 | 2.28 | 5.21 | 9.72 | 18.1 | 26.1 | 33.9 | 48.8 | 63.2 | 67.8 | 67.8 | 67.8 | 55.5 | 46.5 | 39.7 | 34.4 | 30.2 | 26.8 | 24.0 | 19.6 | 16.4 | 14.0 | 12.2 | | |
| 20 | 2.41 | 5.51 | 10.3 | 19.2 | 27.6 | 35.8 | 51.5 | 66.8 | 71.9 | 71.9 | 71.9 | 59.9 | 50.2 | 42.9 | 37.2 | 32.6 | 28.9 | 25.9 | 21.2 | 17.8 | 15.2 | 13.1 | | |
| 21 | 2.55 | 5.81 | 10.8 | 20.2 | 29.1 | 37.7 | 54.3 | 70.4 | 75.8 | 75.8 | 75.8 | 64.5 | 54.0 | 46.1 | 40.0 | 35.1 | 31.1 | 27.9 | 22.8 | 19.1 | 16.3 | 14.1 | | |
| 22 | 2.68 | 6.10 | 11.4 | 21.3 | 30.6 | 39.7 | 57.1 | 74.0 | 79.7 | 79.7 | 79.7 | 69.1 | 57.9 | 49.5 | 42.9 | 37.6 | 33.4 | 29.9 | 24.4 | 20.5 | 17.5 | 15.2 | | |
| 23 | 2.81 | 6.40 | 12.0 | 22.3 | 32.1 | 41.6 | 59.9 | 77.7 | 83.7 | 83.7 | 83.6 | 73.9 | 61.9 | 52.9 | 45.8 | 40.2 | 35.7 | 31.9 | 26.1 | 21.9 | 18.7 | 5.77 | | |
| 24 | 2.94 | 6.71 | 12.5 | 23.4 | 33.6 | 43.6 | 62.8 | 81.3 | 87.6 | 87.6 | 87.6 | 78.8 | 66.0 | 56.4 | 48.9 | 42.9 | 38.0 | 34.0 | 27.9 | 23.3 | 19.9 | | | |
| 25 | 3.07 | 7.01 | 13.1 | 24.4 | 35.2 | 45.5 | 65.6 | 85.0 | 91.5 | 91.5 | 91.5 | 83.8 | 70.2 | 59.9 | 51.9 | 45.6 | 40.4 | 36.2 | 29.6 | 24.8 | 21.2 | | | |
| 26 | 3.21 | 7.31 | 13.6 | 25.5 | 36.7 | 47.5 | 68.4 | 88.7 | 95.5 | 95.5 | 95.5 | 88.8 | 74.4 | 63.6 | 55.1 | 48.4 | 42.9 | 38.4 | 31.4 | 26.3 | 22.5 | | | |
| 28 | 3.47 | 7.92 | 14.8 | 27.6 | 39.7 | 51.5 | 74.1 | 96.0 | 103 | 103 | 103 | 99.3 | 83.2 | 71.0 | 61.6 | 54.0 | 47.9 | 42.9 | 35.1 | 29.4 | 25.1 | | | |
| 30 | 3.74 | 8.53 | 15.9 | 29.7 | 42.8 | 55.5 | 79.9 | 103 | 111 | 111 | 111 | 110 | 92.3 | 78.8 | 68.3 | 59.9 | 53.2 | 47.6 | 38.9 | 32.6 | 7.5 | | | |
| 32 | 4.01 | 9.15 | 17.1 | 31.9 | 45.9 | 59.5 | 85.6 | 111 | 121 | 121 | 121 | 121 | 102 | 86.8 | 75.2 | 66.0 | 58.6 | 52.4 | 42.9 | 33.7 | | | | |
| 35 | 4.42 | 10.1 | 18.8 | 35.1 | 50.6 | 65.5 | 94.3 | 122 | 139 | 139 | 139 | 139 | 116 | 99.3 | 86.1 | 75.5 | 67.0 | 59.9 | 49.1 | 41.1 | | | | |
| 40 | 5.10 | 11.6 | 21.7 | 40.5 | 58.4 | 75.7 | 109 | 141 | 170 | 170 | 170 | 170 | 142 | 121 | 105 | 92.3 | 81.8 | 73.2 | 59.9 | | | | | |
| 45 | 5.80 | 13.2 | 24.7 | 46.0 | 66.3 | 85.9 | 124 | 160 | 196 | 196 | 196 | 195 | 170 | 145 | 125 | 110 | 97.6 | 87.4 | 33.8 | | | | | |

Note: 1. KW rating when using a one-pitch offset link (OL) is 65% of the above. Two pitch offset links (2POL) can be used at 100% of the above values.
2. Please contact a Tsubaki representative prior to use of kW ratings in the colored area of the table.

| | Number of chain strands | Multi-strand factor | Number of chain strands | Multi-strand factor |
|---|---|---|---|---|
| Multi-strand factor | Double strand | 1.7 | Quintuple strand | 3.9 |
| | Triple strand | 2.5 | Sextuple strand | 4.6 |
| | Quadruple strand | 3.3 | – | – |

| | | | |
|---|---|---|---|
| Lubrication method | A | Manual lubrication or drip lubrication | Details on Pg. 193 |
| | B | Oil bath or slinger disc lubrication | |
| | C | Forced pump lubrication | |

# RS100 Sprocket




Mechanically machined / Welded construction — 1B type
Welded construction — 1C type
Mechanically machined / Welded construction — 2B type
Welded construction — 2C type
1A type

| Number of Teeth | Pitch Circular Diameter ($D_P$) | Sprocket Outer Diameter ($D_O$) | 1B type Bore Diameter ($d$) Pilot Bore Diameter | 1B Bore Diameter ($d$) Maximum | 1B Hub Diameter ($D_H$) | 1B Hub Length ($L$) | 1B Approx. Mass (kg) | 1B Material | 1C Bore Diameter ($d$) Pilot Bore Diameter | 1C Bore Diameter ($d$) Maximum | 1C Hub Diameter ($D_H$) | 1C Hub Length ($L$) | 1C Approx. Mass (kg) | 1C Material | 2B Bore Diameter ($d$) Pilot Bore Diameter | 2B Bore Diameter ($d$) Maximum | 2B Hub Diameter ($D_H$) | 2B Hub Length ($L$) | 2B Approx. Mass (kg) | 2B Material | 2C Bore Diameter ($d$) Pilot Bore Diameter | 2C Bore Diameter ($d$) Maximum | 2C Hub Diameter ($D_H$) | 2C Hub Length ($L$) | 2C Approx. Mass (kg) | 2C Material | 1A Pilot Bore Diameter $d$ | 1A Approx. Mass (kg) | 1A Material | Number of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **10** | 102.75 | 117 | 18 | 43 | 65 | 50 | 1.8 | Mechanically machined: machine-structural carbon steel | | | | | | | | | | | | Mechanically machined: machine-structural carbon steel | | | | | | | | | | **10** |
| **11** | 112.70 | 127 | 23 | 50 | 75 | 50 | 2.2 | | | | | | | | | | | | | | | | | | | | | | | **11** |
| **12** | 122.67 | 138 | 23 | 57 | 86 | 50 | 2.8 | | | | | | | | 23 | 58 | 86 | 80 | 4.7 | | | | | | | | 28 | 1.4 | Machine-structural carbon steel | **12** |
| **13** | 132.67 | 148 | 23 | 59 | 88 | 50 | 3.1 | | | | | | | | 23 | 65 | 95 | 80 | 5.7 | | | | | | | | **28** | 1.7 | | **13** |
| **14** | 142.68 | 158 | 23 | 59 | 88 | 50 | 3.4 | | | | | | | | 23 | 72 | 105 | 80 | 6.8 | | | | | | | | 28 | 2.0 | | **14** |
| **15** | 152.71 | 168 | 28 | 66 | 98 | 50 | 4.0 | | | | | | | | 28 | 66 | 98 | 80 | 7.3 | | 28 | 66 | 98 | 99 | 8.4 | Welded construction: machine-structural carbon steel (teeth) and structural rolled steel (hub) | 28 | 2.3 | | **15** |
| **16** | 162.75 | 179 | 28 | 66 | 98 | 50 | 4.3 | | | | | | | | 28 | 66 | 98 | 80 | 8.3 | | 28 | 75 | 107 | 104 | 10.2 | | 28 | 2.6 | | **16** |
| **17** | 172.79 | 189 | 28 | 75 | 107 | 50 | 5.1 | | | | | | | | 28 | 75 | 107 | 80 | 9.6 | | 28 | 75 | 107 | 104 | 11.3 | | 28 | 3.0 | | **17** |
| **18** | 182.84 | 199 | 28 | 75 | 107 | 50 | 5.4 | | | | | | | | 28 | 75 | 107 | 80 | 10.7 | | 28 | 75 | 107 | 104 | 12.4 | | 28 | 3.4 | | **18** |
| **19** | 192.90 | 209 | 28 | 75 | 107 | 50 | 5.8 | | | | | | | | 28 | 89 | 127 | 90 | 13.6 | | 28 | 89 | 127 | 115 | 16.0 | | 28 | 3.8 | | **19** |
| **20** | 202.96 | 220 | 28 | 75 | 107 | 50 | 6.3 | | | | | | | | 28 | 89 | 127 | 90 | 14.8 | Welded construction: machine-structural carbon steel (teeth) and structural rolled steel (hub) | 28 | 89 | 127 | 115 | 17.2 | | 28 | 4.2 | | **20** |
| **21** | 213.03 | 230 | 28 | 75 | 107 | 50 | 6.7 | | | | | | | | 28 | 89 | 127 | 90 | 16.0 | | 28 | 89 | 127 | 115 | 18.5 | | 28 | 4.6 | | **21** |
| **22** | 223.10 | 240 | 33 | 80 | 117 | 56 | 8.1 | | 33 | 80 | 117 | 80 | 9.9 | Welded construction: machine-structural carbon steel (teeth) and structural rolled steel (hub) | 33 | 95 | 137 | 90 | 17.8 | | 33 | 95 | 137 | 110 | 20.1 | | 33 | 5.1 | | **22** |
| **23** | 233.17 | 250 | 33 | 80 | 117 | 56 | 8.6 | | 33 | 80 | 117 | 80 | 10.4 | | 33 | 95 | 137 | 90 | 19.2 | | 33 | 95 | 137 | 110 | 21.5 | | 33 | 5.6 | | **23** |
| **24** | 243.25 | 260 | 33 | 80 | 117 | 56 | 9.1 | | 33 | 80 | 117 | 80 | 10.9 | | 33 | 95 | 137 | 90 | 20.7 | | 33 | 95 | 137 | 110 | 23.0 | | 33 | 6.1 | | **24** |
| **25** | 253.32 | 270 | 33 | 80 | 117 | 56 | 9.6 | | 33 | 80 | 117 | 80 | 11.4 | | 33 | 95 | 137 | 90 | 22.2 | | 33 | 95 | 137 | 110 | 24.5 | | 33 | 6.6 | | **25** |
| **26** | 263.41 | 281 | 33 | 80 | 117 | 56 | 10.2 | | 33 | 80 | 117 | 80 | 12.0 | | 33 | 95 | 137 | 90 | 23.8 | | 33 | 95 | 137 | 110 | 26.1 | | 33 | 7.2 | | **26** |
| **27** | 273.49 | 291 | 33 | 80 | 117 | 56 | 10.8 | | 33 | 80 | 117 | 80 | 12.6 | | 33 | 95 | 137 | 90 | 25.4 | | 33 | 95 | 137 | 110 | 27.8 | | 33 | 7.8 | | **27** |
| **28** | 283.57 | 301 | 33 | 80 | 117 | 56 | 11.4 | | 33 | 80 | 117 | 80 | 13.2 | | 33 | 95 | 137 | 90 | 27.2 | | 33 | 95 | 137 | 110 | 29.5 | | 33 | 8.4 | | **28** |
| **30** | 303.75 | 321 | 33 | 80 | 117 | 56 | 12.7 | | 33 | 80 | 117 | 80 | 14.5 | | 33 | 95 | 137 | 90 | 30.9 | | 33 | 95 | 137 | 110 | 33.2 | | 33 | 9.6 | | **30** |
| **32** | 323.92 | 341 | 33 | 80 | 117 | 56 | 14.1 | Welded construction: machine-structural carbon steel (teeth) and structural rolled steel (hub) | 33 | 89 | 127 | 90 | 17.7 | | 33 | 95 | 137 | 90 | **34.4** | | 33 | 95 | 137 | 110 | **36.7** | | 33 | 11.0 | | **32** |
| **34** | 344.10 | 362 | 33 | 89 | 127 | 63 | 16.8 | | 33 | 89 | 127 | 90 | 19.1 | | 33 | 95 | 137 | 90 | **38.6** | | 33 | 95 | 137 | 110 | **40.9** | | 33 | 12.5 | | **34** |
| **35** | 354.20 | 372 | 33 | 89 | 127 | 63 | 17.5 | | 33 | 89 | 127 | 90 | 19.9 | | 33 | 95 | 137 | 90 | **40.8** | | 33 | 95 | 137 | 110 | **43.1** | | 33 | 13.2 | | **35** |
| **36** | 364.29 | 382 | 33 | 89 | 127 | 63 | 18.3 | | 33 | 89 | 127 | 90 | 20.7 | | 33 | 95 | 137 | 90 | **43.0** | | 33 | 95 | 137 | 110 | **45.3** | | 33 | 14.0 | | **36** |
| **38** | 384.48 | 402 | 33 | 89 | 127 | 63 | 20.0 | | 33 | 89 | 127 | 90 | 22.3 | | 33 | 103 | 137 | 90 | **47.8** | | 33 | 103 | 147 | 120 | **52.4** | | 33 | 15.7 | | **38** |
| **40** | 404.67 | 422 | 33 | 89 | 127 | 63 | 21.7 | | 33 | 89 | 127 | 90 | 24.1 | | 33 | 103 | 147 | 100 | **54.7** | Welded construction: structural rolled steel (teeth and hub) | 33 | 103 | 147 | 120 | **57.4** | | 33 | 17.4 | | **40** |
| **42** | 424.86 | 443 | 33 | 89 | 127 | 63 | 23.6 | | 33 | 89 | 127 | 90 | 25.9 | | 33 | 103 | 147 | 100 | **60.0** | | 33 | 103 | 147 | 120 | **62.6** | | 33 | 19.2 | | **42** |
| **45** | 455.15 | 473 | 33 | 89 | 127 | 63 | 26.5 | | 33 | 89 | 127 | 90 | 28.8 | | 33 | 103 | 147 | 100 | **68.5** | | 33 | 103 | 147 | 120 | **71.1** | | 33 | 22.1 | | **45** |
| **48** | 485.45 | 503 | 33 | 89 | 127 | 63 | **29.3** | | 33 | 89 | 127 | 90 | **31.7** | | 33 | 103 | 147 | 115 | **79.4** | | 33 | 103 | 147 | 120 | **80.0** | | 33 | **25.0** | | **48** |
| **50** | 505.65 | 524 | 33 | 89 | 127 | 63 | **31.5** | | 33 | 89 | 127 | 90 | **33.9** | | 33 | 103 | 147 | 115 | **85.8** | | 33 | 103 | 147 | 120 | **86.4** | | 33 | **27.2** | | **50** |
| **54** | 546.05 | 564 | 33 | 103 | 147 | 80 | **39.7** | | 33 | 103 | 147 | 90 | **40.9** | | 33 | 103 | 147 | 115 | **99.4** | | 33 | 103 | 147 | 120 | **99.9** | | 33 | **31.9** | | **54** |
| **60** | 606.66 | 625 | 33 | 103 | 147 | 80 | **47.4** | | 33 | 103 | 147 | 100 | **49.8** | | 33 | 103 | 147 | 115 | **121.6** | | 33 | 103 | 147 | 120 | **122.1** | | 33 | **39.5** | | **60** |
| **65** | 657.17 | 675 | 33 | 103 | 147 | 80 | **54.1** | | 38 | 103 | 147 | 100 | **56.6** | | | | | | | | | | | | | | 38 | **46.4** | | **65** |
| **70** | 707.68 | 726 | 33 | 103 | 147 | 80 | **61.8** | | 38 | 103 | 147 | 100 | **64.1** | | | | | | | | | | | | | | 38 | **53.9** | | **70** |
| **75** | 758.20 | 777 | 33 | 103 | 147 | 80 | **70.0** | | 38 | 103 | 147 | 100 | **72.2** | | | | | | | | | | | | | | 38 | **62.0** | | **75** |

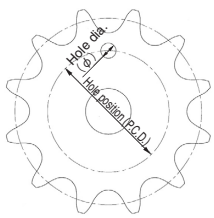
Note: 1. Maximum bore diameter is the typical range. Determine bore diameter and key bearing pressure based on general mechanical design.
2. Models in shaded areas have hardened teeth.
3. Outer diameters above are given for the 1B type. Diameters vary slightly for all other types.
4. For single-strand sprockets without hardened teeth, the Strong Series of sprocket with hardened teeth can be made-to-order.
5. Models with approximate masses in bold have one hanging hole processed.
See the diagram on the right for information.

## Sprocket Number

RS100 -2B 15T

- Number of teeth
- Type
- Chain number

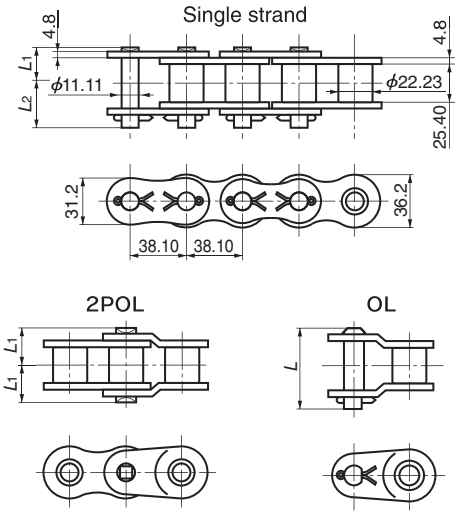
## Hanging Hole Dimensions

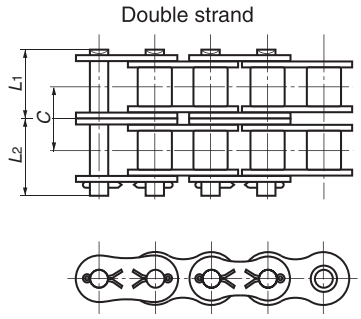


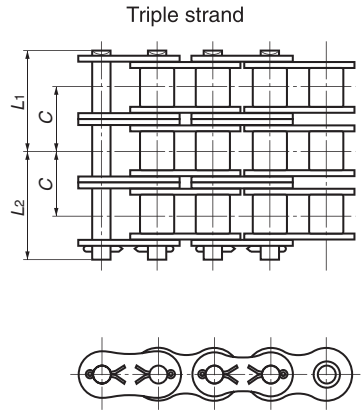

The phase relationship between the hanging hole and teeth may vary.

| No. of teeth | 1B, 1C, 1A Type bore dia. (φ40) Hole position (P.C.D.) | 2B, 2C Type bore dia. (φ35) Hole position (P.C.D.) |
|---|---|---|
| **32** | | 224 |
| **34** | | 245 |
| **35** | | 255 |
| **36** | | 365 |
| **38** | | 285 |
| **40** | | 305 |
| **42** | | 326 |
| **45** | | 356 |
| **48** | 392 | 386 |
| **50** | 412 | 407 |
| **54** | 453 | 447 |
| **60** | 513 | 508 |
| **65** | 564 | |
| **70** | 614 | |
| **75** | 665 | |

# RS120




Drawing Scale 1/4.8

| TSUBAKI Chain Number | Number of Strands | Pin Length $L_1+L_2$ | Dimensions $L_1$ | Dimensions $L_2$ | Offset Pin Length $L$ | Transverse Pitch $C$ | Pin Type | ANSI Standard Min. Tensile Strength kN{kgf} | Tsubaki Minimum Tensile Strength kN{kgf} | Tsubaki Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS120-1 | 1 | 53.8 | 24.9 | 28.9 | 55.0 | 45.4 | Cotter pin Riveting | 137.1{13980} | 148{15100} | 167 {17000} | 30.4 {3100} | 5.93 |
| RS120-2 | 2 | 99.2 | 47.6 | 51.6 | 103.2 | | Cotter pin | 274.2{27961} | 296{30200} | 333 {34000} | 51.7 {5270} | 11.70 |
| RS120-3 | 3 | 144.8 | 70.4 | 74.4 | 148.6 | | | 411.3{41941} | 444{45300} | 500 {51000} | 76.0 {7750} | 17.53 |
| RS120-4 | 4 | 190.2 | 93.1 | 97.1 | 194.0 | | Riveting | – | 592{60400} | 667 {68000} | 100{10230} | 23.36 |
| RS120-5 | 5 | 235.7 | 115.85 | 119.85 | 239.4 | | | – | 740{75500} | 834 {85000} | 119{12090} | 29.16 |
| RS120-6 | 6 | 281.1 | 138.55 | 142.55 | 284.8 | | | – | 888{90600} | 1000{102000} | 140{14260} | 34.96 |

Note: 1. Maximum allowable load when using a one-pitch offset link (OL) is 65% of the above. Two pitch offset links (2POL) can be used at 100% of the above values.
2. Number of links per unit = 80

## ■RS120-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

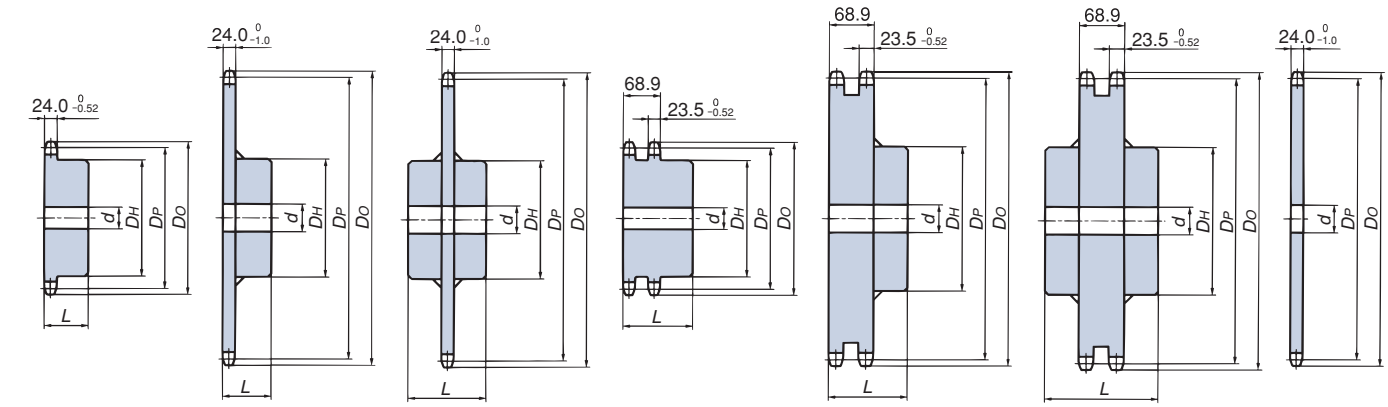
| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 |
| | A | | | | B | | | | | | | | | | C | | | | | | | | | | |
| 9 | 1.65 | 3.75 | 7.00 | 13.1 | 18.8 | 24.4 | 35.1 | 41.1 | 41.1 | 32.2 | 25.6 | 20.9 | 17.5 | 15.0 | 13.0 | 11.4 | 10.1 | 9.04 | 8.15 | 7.40 | 6.76 | 6.20 | 5.72 | 5.30 | 4.92 |
| 10 | 1.84 | 4.21 | 7.85 | 14.6 | 21.1 | 27.3 | 39.4 | 46.1 | 46.0 | 37.7 | 30.0 | 24.5 | 20.5 | 17.5 | 15.2 | 13.3 | 11.8 | 10.6 | 9.55 | 8.67 | 7.91 | 7.26 | 6.70 | 6.20 | 5.76 |
| 11 | 2.04 | 4.66 | 8.70 | 16.2 | 23.4 | 30.3 | 43.6 | 51.0 | 51.0 | 43.5 | 34.6 | 28.3 | 23.7 | 20.2 | 17.5 | 15.4 | 13.7 | 12.2 | 11.0 | 10.0 | 9.13 | 8.38 | 7.73 | 7.16 | |
| 12 | 2.24 | 5.12 | 9.56 | 17.8 | 25.7 | 33.3 | 47.9 | 56.1 | 56.1 | 49.6 | 39.4 | 32.2 | 27.0 | 23.1 | 20.0 | 17.5 | 15.6 | 13.9 | 12.6 | 11.4 | 10.4 | 9.55 | 8.81 | 8.15 | |
| 13 | 2.45 | 5.58 | 10.4 | 19.4 | 28.0 | 36.3 | 52.3 | 61.1 | 61.1 | 55.9 | 44.4 | 36.3 | 30.5 | 26.0 | 22.5 | 19.8 | 17.5 | 15.7 | 14.2 | 12.8 | 11.7 | 10.8 | 9.93 | 9.19 | |
| 14 | 2.65 | 6.05 | 11.3 | 21.1 | 30.3 | 39.3 | 56.6 | 66.2 | 66.2 | 62.5 | 49.6 | 40.6 | 34.0 | 29.1 | 25.2 | 22.1 | 19.6 | 17.5 | 15.8 | 14.4 | 13.1 | 12.0 | 11.1 | 6.67 | |
| 15 | 2.86 | 6.52 | 12.2 | 22.7 | 32.7 | 42.3 | 61.0 | 71.3 | 71.3 | 69.3 | 55.0 | 45.0 | 37.7 | 32.2 | 27.9 | 24.5 | 21.7 | 19.5 | 17.5 | 15.9 | 14.5 | 13.3 | 12.3 | | |
| 16 | 3.06 | 6.99 | 13.0 | 24.3 | 35.0 | 45.4 | 65.4 | 76.5 | 76.5 | 76.4 | 60.6 | 49.6 | 41.6 | 35.5 | 30.8 | 27.0 | 24.0 | 21.4 | 19.3 | 17.5 | 16.0 | 14.7 | 13.6 | | |
| 17 | 3.27 | 7.46 | 13.9 | 26.0 | 37.4 | 48.5 | 69.8 | 83.7 | 83.7 | 83.7 | 66.4 | 54.3 | 45.5 | 38.9 | 33.7 | 29.6 | 26.2 | 23.5 | 21.2 | 19.2 | 17.5 | 16.1 | 14.8 | | |
| 18 | 3.48 | 7.93 | 14.8 | 27.6 | 39.8 | 51.6 | 74.3 | 91.2 | 91.2 | 91.2 | 72.3 | 59.2 | 49.6 | 42.4 | 36.7 | 32.2 | 28.6 | 25.6 | 23.1 | 20.9 | 19.1 | 17.5 | 8.43 | | |
| 19 | 3.69 | 8.41 | 15.7 | 29.3 | 42.2 | 54.7 | 78.7 | 98.9 | 98.9 | 98.9 | 78.4 | 64.2 | 53.8 | 45.9 | 39.8 | 35.0 | 31.0 | 27.7 | 25.0 | 22.7 | 20.7 | 19.0 | | | |
| 20 | 3.90 | 8.89 | 16.6 | 31.0 | 44.6 | 57.8 | 83.2 | 107 | 107 | 107 | 84.7 | 69.3 | 58.1 | 49.6 | 43.0 | 37.7 | 33.5 | 30.0 | 27.0 | 24.5 | 22.4 | 20.5 | | | |
| 21 | 4.11 | 9.37 | 17.5 | 32.6 | 47.0 | 60.9 | 87.7 | 114 | 115 | 115 | 91.2 | 74.6 | 62.5 | 53.4 | 46.3 | 40.6 | 36.0 | 32.2 | 29.1 | 26.4 | 24.1 | 22.1 | | | |
| 22 | 4.32 | 9.85 | 18.4 | 34.3 | 49.4 | 64.0 | 92.2 | 119 | 123 | 123 | 97.7 | 80.0 | 67.0 | 57.2 | 49.6 | 43.5 | 38.6 | 34.6 | 31.2 | 28.3 | 25.8 | 12.4 | | | |
| 23 | 4.53 | 10.3 | 19.3 | 36.0 | 51.9 | 67.2 | 96.8 | 125 | 132 | 132 | 104 | 85.5 | 71.7 | 61.2 | 53.0 | 46.6 | 41.3 | 36.9 | 33.3 | 30.2 | 27.6 | | | | |
| 24 | 4.75 | 10.8 | 20.2 | 37.7 | 54.3 | 70.3 | 101 | 131 | 140 | 140 | 111 | 91.2 | 76.4 | 65.2 | 56.5 | 49.6 | 44.0 | 39.4 | 35.5 | 32.2 | 29.4 | | | | |
| 25 | 4.96 | 11.3 | 21.1 | 39.4 | 56.7 | 73.5 | 106 | 137 | 146 | 146 | 118 | 96.9 | 81.2 | 69.3 | 60.1 | 52.8 | 46.8 | 41.9 | 37.7 | 34.3 | 30.8 | | | | |
| 26 | 5.17 | 11.8 | 22.0 | 41.1 | 59.2 | 76.7 | 110 | 143 | 152 | 152 | 126 | 103 | 86.1 | 73.5 | 63.7 | 55.9 | 49.6 | 44.4 | 40.0 | 36.3 | 19.8 | | | | |
| 28 | 5.61 | 12.8 | 23.9 | 44.5 | 64.1 | 83.1 | 120 | 155 | 165 | 165 | 140 | 115 | 96.3 | 82.2 | 71.2 | 62.5 | 55.5 | 49.6 | 44.7 | 40.6 | | | | | |
| 30 | 6.04 | 13.8 | 25.7 | 48.0 | 69.1 | 89.5 | 129 | 167 | 178 | 178 | 156 | 127 | 107 | 91.2 | 79.0 | 69.3 | 61.5 | 55.0 | 49.6 | 31.6 | | | | | |
| 32 | 6.47 | 14.8 | 27.6 | 51.4 | 74.1 | 96.0 | 138 | 179 | 191 | 191 | 171 | 140 | 118 | 100 | 87.0 | 76.4 | 67.8 | 60.6 | 54.7 | | | | | | |
| 35 | 7.13 | 16.3 | 30.4 | 56.7 | 81.6 | 106 | 152 | 197 | 210 | 210 | 196 | 161 | 135 | 115 | 99.6 | 87.4 | 77.5 | 69.3 | 35.6 | | | | | | |
| 40 | 8.24 | 18.8 | 35.1 | 65.4 | 94.3 | 122 | 176 | 228 | 242 | 242 | 240 | 196 | 164 | 140 | 122 | 107 | 94.7 | 44.4 | | | | | | | |
| 45 | 9.36 | 21.3 | 39.8 | 74.3 | 107 | 139 | 200 | 259 | 286 | 286 | 286 | 234 | 196 | 167 | 145 | 127 | 59.7 | | | | | | | | |

Note: 1. KW rating when using a one-pitch offset link (OL) is 65% of the above. Two pitch offset links (2POL) can be used at 100% of the above values.
2. Please contact a Tsubaki representative prior to use of kW ratings in the colored area of the table.

| Multi-strand factor | Number of chain strands | Multi-strand factor | Number of chain strands | Multi-strand factor |
|---|---|---|---|---|
| | Double strand | 1.7 | Quintuple strand | 3.9 |
| | Triple strand | 2.5 | Sextuple strand | 4.6 |
| | Quadruple strand | 3.3 | – | – |

| Lubrication method | | | |
|---|---|---|---|
| | A | Manual lubrication or drip lubrication | Details on Pg. 193 |
| | B | Oil bath or slinger disc lubrication | |
| | C | Forced pump lubrication | |

# RS120 Sprocket




Mechanically machined Welded construction — 1B type
Welded construction — 1C type
Mechanically machined Welded construction — 2B type
Welded construction — 2C type
1A type

| Number of Teeth | Pitch Circular Diameter ($D_P$) | Sprocket Outer Diameter ($D_O$) | 1B type Bore Diameter ($d$) Pilot Bore Diameter | 1B Bore Diameter ($d$) Maximum | 1B Hub Diameter ($D_H$) | 1B Hub Length ($L$) | 1B Approx. Mass (kg) | 1B Material | 1C Bore Diameter ($d$) Pilot Bore Diameter | 1C Bore Diameter ($d$) Maximum | 1C Hub Diameter ($D_H$) | 1C Hub Length ($L$) | 1C Approx. Mass (kg) | 1C Material | 2B Bore Diameter ($d$) Pilot Bore Diameter | 2B Bore Diameter ($d$) Maximum | 2B Hub Diameter ($D_H$) | 2B Hub Length ($L$) | 2B Approx. Mass (kg) | 2B Material | 2C Bore Diameter ($d$) Pilot Bore Diameter | 2C Bore Diameter ($d$) Maximum | 2C Hub Diameter ($D_H$) | 2C Hub Length ($L$) | 2C Approx. Mass (kg) | 2C Material | 1A Pilot Bore Diameter $d$ | 1A Approx. Mass (kg) | 1A Material | Number of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **10** | 123.29 | 140 | 23 | 51 | 78 | 56 | 3.0 | Mechanically machined: machine-structural carbon steel | | | | | | | | | | | | Mechanically machined: machine-structural carbon steel | | | | | | | | | Machine-structural carbon steel | **10** |
| **11** | 135.23 | 153 | 28 | 60 | 91 | 56 | 3.8 | | | | | | | | | | | | | | | | | | | | | | | **11** |
| **12** | 147.21 | 165 | 28 | 66 | 98 | 56 | 4.5 | | | | | | | | 28 | 71 | 103 | 100 | 8.6 | | | | | | | | 28 | 2.8 | | **12** |
| **13** | 159.20 | 177 | 28 | 66 | 98 | 56 | 5.0 | | | | | | | | 28 | 80 | 115 | 100 | 10.5 | | | | | | | | 28 | 3.3 | | **13** |
| **14** | 171.22 | 190 | 28 | 75 | 107 | 56 | 6.0 | | | | | | | | 28 | 75 | 107 | 100 | 11.8 | Welded construction: machine-structural carbon steel (teeth) and structural rolled steel (hub) | 28 | 75 | 107 | 114 | 12.6 | Welded construction: machine-structural carbon steel (teeth) and structural rolled steel (hub) | 28 | 3.9 | | **14** |
| **15** | 183.25 | 202 | 33 | 80 | 117 | 63 | 7.4 | | | | | | | | 33 | 80 | 117 | 100 | 13.6 | | 33 | 80 | 117 | 119 | 15.1 | | 33 | 4.4 | | **15** |
| **16** | 195.29 | 214 | 33 | 80 | 117 | 63 | 8.1 | | | | | | | | 33 | 80 | 117 | 100 | 15.4 | | 33 | 80 | 117 | 119 | 17.0 | | 33 | 5.1 | | **16** |
| **17** | 207.35 | 227 | 33 | 80 | 117 | 63 | 8.8 | | | | | | | | 33 | 80 | 117 | 100 | 17.3 | | 33 | 80 | 117 | 119 | 18.9 | | 33 | 5.8 | | **17** |
| **18** | 219.41 | 239 | 33 | 80 | 117 | 63 | 9.5 | | | | | | | | 33 | 89 | 127 | 100 | 19.7 | | 33 | 89 | 127 | 125 | 22.2 | | 33 | 6.5 | | **18** |
| **19** | 231.48 | 251 | 33 | 80 | 117 | 63 | 10.3 | | | | | | | | 33 | 89 | 127 | 100 | 21.8 | | 33 | 89 | 127 | 125 | 24.3 | | 33 | 7.3 | | **19** |
| **20** | 243.55 | 263 | 33 | 89 | 127 | 63 | 11.7 | | | | | | | | 33 | 89 | 127 | 100 | 24.1 | | 33 | 89 | 127 | 125 | 26.5 | | 33 | 8.1 | | **20** |
| **21** | 255.63 | 276 | 33 | 89 | 127 | 63 | 12.5 | | | | | | | | 33 | 89 | 127 | 100 | 26.5 | | 33 | 89 | 127 | 125 | 28.9 | | 33 | 9.0 | | **21** |
| **22** | 267.72 | 288 | 33 | 89 | 127 | 63 | 13.6 | Welded construction: machine-structural carbon steel (teeth) and structural rolled steel (hub) | 33 | 89 | 127 | 80 | 15.1 | Welded construction: machine-structural carbon steel (teeth) and structural rolled steel (hub) | 33 | 110 | 157 | 100 | 30.6 | | 33 | 110 | 157 | 135 | 35.8 | | 33 | 9.9 | | **22** |
| **23** | 279.80 | 300 | 33 | 89 | 127 | 63 | 14.6 | | 33 | 89 | 127 | 80 | 16.1 | | 33 | 110 | 157 | 100 | 33.2 | | 33 | 110 | 157 | 135 | 38.4 | | 33 | 10.8 | | **23** |
| **24** | 291.90 | 312 | 33 | 89 | 127 | 63 | 15.6 | | 33 | 89 | 127 | 80 | 17.0 | | 33 | 110 | 157 | 100 | 36.0 | | 33 | 110 | 157 | 135 | 41.2 | | 33 | 11.8 | | **24** |
| **25** | 303.99 | 324 | 33 | 89 | 127 | 63 | 16.6 | | 33 | 89 | 127 | 80 | 18.1 | | 33 | 110 | 157 | 100 | 38.8 | | 33 | 110 | 157 | 135 | 44.0 | | 33 | 12.9 | | **25** |
| **26** | 316.09 | 337 | 33 | 89 | 127 | 63 | 17.7 | | 33 | 89 | 127 | 80 | 19.2 | | 33 | 110 | 157 | 100 | 41.8 | | 33 | 110 | 157 | 135 | 47.1 | | 33 | 14.0 | | **26** |
| **27** | 328.19 | 349 | 33 | 89 | 127 | 63 | 18.8 | | 33 | 89 | 127 | 80 | 20.3 | | 33 | 110 | 157 | 100 | 44.9 | | 33 | 110 | 157 | 135 | 50.1 | | 33 | 15.1 | | **27** |
| **28** | 340.29 | 361 | 33 | 103 | 147 | 71 | 22.3 | | 33 | 95 | 137 | 100 | 24.5 | | 33 | 110 | 157 | 100 | 48.1 | | 33 | 110 | 157 | 135 | 53.4 | | 33 | 16.2 | | **28** |
| **30** | 364.49 | 385 | 33 | 103 | 147 | 71 | 24.8 | | 33 | 95 | 137 | 100 | 27.0 | | **33** | **110** | **157** | **100** | **54.5** | | 33 | 110 | 157 | 135 | **59.7** | | 33 | 18.7 | | **30** |
| **32** | 388.71 | 410 | 33 | 103 | 147 | 71 | 27.4 | | 33 | 95 | 137 | 100 | 29.6 | | 33 | 110 | 157 | 100 | **61.9** | Welded construction: structural rolled steel (teeth and hub) | 33 | 110 | 157 | 135 | **67.1** | Welded construction: structural rolled steel (teeth and hub) | 33 | 21.3 | | **32** |
| **34** | 412.93 | 434 | 33 | 103 | 147 | 71 | 30.2 | | 33 | 95 | 137 | 100 | 32.5 | | 33 | 110 | 157 | 100 | **69.7** | | 33 | 110 | 157 | 135 | **74.9** | | 33 | 24.1 | | **34** |
| **35** | 425.04 | 446 | 33 | 103 | 147 | 71 | **31.4** | | 33 | 95 | 137 | 100 | **33.7** | | **33** | **110** | **157** | **100** | **73.7** | | 33 | 110 | 157 | 135 | **79.0** | | 33 | **25.4** | | **35** |
| **36** | 437.15 | 458 | 33 | 103 | 147 | 71 | **33.0** | | 33 | 95 | 137 | 100 | **35.2** | | 38 | 110 | 157 | 100 | **77.8** | | 33 | 110 | 157 | 135 | **83.3** | | 33 | **26.9** | | **36** |
| **38** | 461.37 | 483 | 38 | 103 | 147 | 80 | **37.1** | | 38 | 103 | 147 | 100 | **39.5** | | 38 | 110 | 157 | 100 | **86.7** | | 33 | 110 | 157 | 135 | **92.1** | | 38 | **30.0** | | **38** |
| **40** | 485.60 | 507 | 38 | 103 | 147 | 80 | **40.4** | | 38 | 103 | 147 | 100 | **42.8** | | 38 | 120 | 177 | 110 | **99.1** | | 38 | 120 | 177 | 160 | **108.4** | | 38 | **33.3** | | **40** |
| **42** | 509.83 | 531 | 38 | 103 | 147 | 80 | **43.9** | | 38 | 103 | 147 | 110 | **47.5** | | 38 | 120 | 177 | 110 | **109.0** | | 38 | 120 | 177 | 160 | **118.3** | | 38 | **36.8** | | **42** |
| **45** | 546.19 | 568 | 38 | 103 | 147 | 80 | **49.5** | | 38 | 103 | 147 | 110 | **53.1** | | 38 | 120 | 177 | 110 | **124.7** | | 38 | 120 | 177 | 160 | **134.0** | | 38 | **42.4** | | **45** |
| **48** | 582.54 | 604 | 38 | 103 | 147 | 80 | **55.4** | | 38 | 103 | 147 | 110 | **59.1** | | 38 | 120 | 177 | 110 | **141.4** | | 38 | 120 | 177 | 160 | **150.7** | | 38 | **48.4** | | **48** |
| **50** | 606.78 | 628 | 38 | 103 | 147 | 80 | **59.6** | | 38 | 103 | 147 | 110 | **63.3** | | 38 | 120 | 177 | 110 | **153.3** | | 38 | 120 | 177 | 160 | **162.6** | | 38 | **52.6** | | **50** |
| **54** | 655.26 | 677 | 38 | 110 | 157 | 90 | **71.1** | | 38 | 103 | 147 | 110 | **72.2** | | 38 | 120 | 177 | 110 | **178.5** | | 38 | 120 | 177 | 160 | **187.6** | | 38 | **61.5** | | **54** |
| **60** | 727.99 | 750 | 38 | 110 | 157 | 90 | **85.8** | | 38 | 118 | 167 | 120 | **91.8** | | 38 | 120 | 177 | 110 | **219.9** | | 38 | 120 | 177 | 160 | **229.3** | | 38 | **76.1** | | **60** |
| **65** | 788.60 | 811 | 38 | 118 | 167 | 94 | **101.2** | | 38 | 118 | 167 | 120 | **105.2** | | | | | | | | | | | | | | 38 | **89.6** | | **65** |
| **70** | 849.22 | 871 | 38 | 118 | 167 | 94 | **115.7** | | 38 | 118 | 167 | 120 | **119.7** | | | | | | | | | | | | | | 38 | **104.0** | | **70** |
| **75** | 909.84 | 932 | 38 | 118 | 167 | 94 | **131.3** | | 38 | 118 | 167 | 120 | **135.2** | | | | | | | | | | | | | | 38 | **119.6** | | **75** |

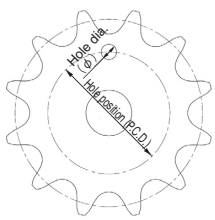
Note: 1. Maximum bore diameter is the typical range. Determine bore diameter and key bearing pressure based on general mechanical design.
2. Models in shaded areas have hardened teeth.
3. Outer diameters above are given for the 1B type. Diameters vary slightly for all other types.
4. For sprockets without hardened teeth, the Strong Series of sprocket with hardened teeth can be made-to-order.
5. Models with approximate masses in bold have one hanging hole processed.
See the diagram on the right for information.

## Sprocket Number

RS120 -2B 15T

- Number of teeth
- Type
- Chain number

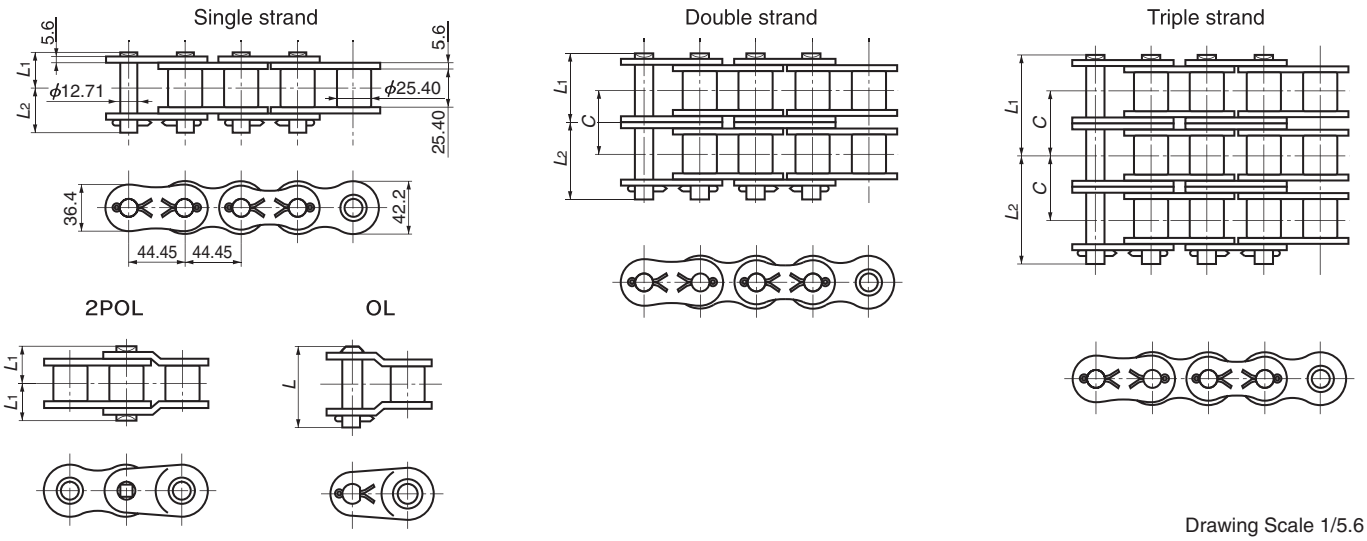
### Hanging Hole Dimensions




The phase relationship between the hanging hole and teeth may vary.

| No. of teeth | 1B, 1C, 1A Type bore dia. (φ40) Hole position (P.C.D.) | 2B, 2C Type bore dia. (φ35) Hole position (P.C.D.) |
|---|---|---|
| **30** | | 258 |
| **32** | | 382 |
| **34** | | 307 |
| **35** | 322 | 319 |
| **36** | 344 | 331 |
| **38** | 359 | 355 |
| **40** | 383 | 380 |
| **42** | 407 | 404 |
| **45** | 443 | 440 |
| **48** | 480 | 477 |
| **50** | 504 | 501 |
| **54** | 553 | 550 |
| **60** | 625 | 623 |
| **65** | 686 | |
| **70** | 746 | |
| **75** | 807 | |

# RS140




Drawing Scale 1/5.6

| TSUBAKI Chain Number | Number of Strands | Pin Length $L_1+L_2$ | Dimensions $L_1$ | Dimensions $L_2$ | Offset Pin Length $L$ | Transverse Pitch $C$ | Pin Type | ANSI Standard Min. Tensile Strength kN{kgf} | Tsubaki Minimum Tensile Strength kN{kgf} | Tsubaki Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS140-1 | 1 | 58.6 | 26.9 | 31.7 | 59.5 | 48.9 | Cotter pin | 185.9{18957} | 193{19700} | 216{22000} | 40.2{4100} | 7.49 |
| RS140-2 | 2 | 107.5 | 51.35 | 56.15 | 112.3 | | | 371.8{37913} | 386{39400} | 431{44000} | 68.4{6970} | 14.83 |
| RS140-3 | 3 | 156.6 | 75.85 | 80.75 | 161.3 | | | 557.7{56870} | 580{59100} | 647{66000} | 101{10250} | 22.20 |
| RS140-4 | 4 | 205.5 | 100.3 | 105.2 | 210.2 | | Riveting | – | 773{78800} | 863{88000} | 133{13530} | 28.52 |
| RS140-5 | 5 | 254.4 | 124.8 | 129.6 | 259.1 | | | – | 966{98500} | 1080{110000} | 157{15990} | 36.97 |
| RS140-6 | 6 | 303.5 | 149.3 | 154.2 | 308.0 | | | – | 1160{118200} | 1290{132000} | 185{18860} | 44.30 |

Note: 1. Maximum allowable load when using a one-pitch offset link (OL) is 65% of the above. Two pitch offset links (2POL) can be used at 100% of the above values.
2. Number of links per unit = 80

## ■RS140-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

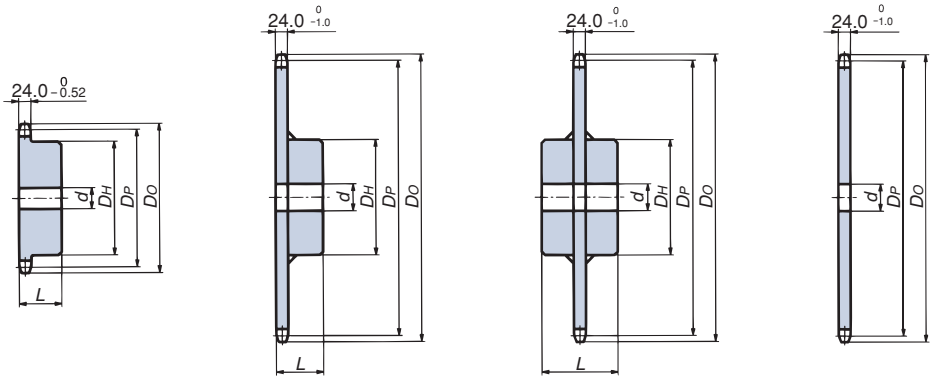
| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 |
| | A | | | B | | | | | | | | | | | | | C | | | | | | | | |
| 9 | 2.54 | 5.79 | 10.8 | 20.2 | 29.0 | 37.6 | 46.0 | 54.2 | 56.1 | 56.1 | 56.1 | 47.9 | 41.5 | 36.5 | 28.9 | 23.7 | 19.8 | 16.9 | 14.7 | 12.9 | 11.4 | 10.2 | 9.22 | 8.37 | 7.64 |
| 10 | 2.84 | 6.49 | 12.1 | 22.6 | 32.5 | 42.2 | 51.5 | 60.7 | 65.6 | 65.6 | 65.6 | 56.1 | 48.7 | 42.7 | 33.9 | 27.7 | 23.2 | 19.8 | 17.2 | 15.1 | 13.4 | 12.0 | 10.8 | 9.81 | |
| 11 | 3.15 | 7.19 | 13.4 | 25.0 | 36.1 | 46.7 | 57.1 | 67.3 | 72.7 | 72.7 | 72.7 | 64.8 | 56.1 | 49.3 | 39.1 | 32.0 | 26.8 | 22.9 | 19.8 | 17.4 | 15.4 | 13.8 | 12.5 | 11.3 | |
| 12 | 3.46 | 7.90 | 14.7 | 27.5 | 39.6 | 51.3 | 62.7 | 73.9 | 79.9 | 79.9 | 79.9 | 73.8 | 64.0 | 56.1 | 44.5 | 36.5 | 30.6 | 26.1 | 22.6 | 19.8 | 17.6 | 15.7 | 14.2 | 12.9 | |
| 13 | 3.78 | 8.61 | 16.1 | 30.0 | 43.2 | 56.0 | 68.4 | 80.6 | 87.1 | 87.1 | 87.1 | 83.2 | 72.1 | 63.3 | 50.2 | 41.1 | 34.5 | 29.4 | 25.5 | 22.4 | 19.8 | 17.8 | 16.0 | 14.5 | |
| 14 | 4.09 | 9.33 | 17.4 | 32.5 | 46.8 | 60.6 | 74.1 | 87.3 | 94.4 | 94.4 | 94.4 | 93.0 | 80.6 | 70.7 | 56.1 | 45.9 | 38.5 | 32.9 | 28.5 | 25.0 | 22.2 | 19.8 | 17.9 | 16.2 | |
| 15 | 4.41 | 10.1 | 18.8 | 35.0 | 50.4 | 65.3 | 79.8 | 94.1 | 103 | 103 | 103 | 103 | 89.4 | 78.4 | 62.3 | 51.0 | 42.7 | 36.5 | 31.6 | 27.7 | 24.6 | 22.0 | 19.8 | | |
| 16 | 4.72 | 10.8 | 20.1 | 37.5 | 54.1 | 70.0 | 85.6 | 101 | 114 | 114 | 114 | 114 | 98.5 | 86.4 | 68.6 | 56.1 | 47.0 | 40.2 | 34.8 | 30.6 | 27.1 | 24.2 | 21.9 | | |
| 17 | 5.04 | 11.5 | 21.5 | 40.1 | 57.7 | 74.8 | 91.4 | 108 | 124 | 124 | 124 | 124 | 108 | 94.6 | 75.1 | 61.5 | 51.5 | 44.0 | 38.1 | 33.5 | 29.7 | 26.6 | 23.9 | | |
| 18 | 5.37 | 12.2 | 22.8 | 42.6 | 61.4 | 79.5 | 97.2 | 115 | 132 | 136 | 136 | 136 | 117 | 103 | 81.8 | 67.0 | 56.1 | 47.9 | 41.5 | 36.5 | 32.3 | 28.9 | 26.1 | | |
| 19 | 5.69 | 13.0 | 24.2 | 45.2 | 65.1 | 84.3 | 103 | 121 | 140 | 144 | 144 | 144 | 127 | 112 | 88.7 | 72.6 | 60.9 | 52.0 | 45.1 | 39.5 | 35.1 | 31.4 | 28.3 | | |
| 20 | 6.01 | 13.7 | 25.6 | 47.8 | 68.8 | 89.1 | 109 | 128 | 147 | 152 | 152 | 152 | 138 | 121 | 95.8 | 78.4 | 65.7 | 56.1 | 48.7 | 42.7 | 37.9 | 33.9 | | | |
| 21 | 6.34 | 14.5 | 27.0 | 50.3 | 72.5 | 93.9 | 115 | 135 | 155 | 161 | 161 | 161 | 148 | 130 | 103 | 84.4 | 70.7 | 60.4 | 52.3 | 45.9 | 40.7 | 36.5 | | | |
| 22 | 6.66 | 15.2 | 28.4 | 52.9 | 76.3 | 98.8 | 121 | 142 | 163 | 169 | 169 | 169 | 159 | 139 | 111 | 90.5 | 75.8 | 64.8 | 56.1 | 49.3 | 43.7 | 39.1 | | | |
| 23 | 6.99 | 15.9 | 29.8 | 55.5 | 80.0 | 104 | 127 | 149 | 172 | 177 | 177 | 177 | 170 | 149 | 118 | 96.7 | 81.1 | 69.2 | 60.0 | 52.7 | 46.7 | 41.8 | | | |
| 24 | 7.32 | 16.7 | 31.2 | 58.2 | 83.8 | 109 | 133 | 156 | 180 | 186 | 186 | 186 | 181 | 159 | 126 | 103 | 86.4 | 73.8 | 64.0 | 56.1 | 49.8 | 44.5 | | | |
| 25 | 7.65 | 17.5 | 32.6 | 60.8 | 87.5 | 113 | 139 | 163 | 188 | 194 | 194 | 194 | 192 | 169 | 134 | 110 | 91.9 | 78.4 | 68.0 | 59.7 | 52.9 | 47.4 | | | |
| 26 | 7.98 | 18.2 | 34.0 | 63.4 | 91.3 | 118 | 145 | 170 | 196 | 204 | 204 | 204 | 204 | 179 | 142 | 116 | 97.4 | 83.2 | 72.1 | 63.3 | 56.1 | | | | |
| 28 | 8.65 | 19.7 | 36.8 | 68.7 | 98.9 | 128 | 157 | 185 | 212 | 228 | 228 | 228 | 228 | 200 | 159 | 130 | 109 | 93.0 | 80.6 | 70.7 | 62.7 | | | | |
| 30 | 9.32 | 21.3 | 39.7 | 74.0 | 107 | 138 | 169 | 199 | 229 | 253 | 253 | 253 | 253 | 222 | 176 | 144 | 121 | 103 | 89.4 | 78.4 | 69.6 | | | | |
| 32 | 9.99 | 22.8 | 42.5 | 79.3 | 114 | 148 | 181 | 213 | 245 | 276 | 276 | 276 | 276 | 244 | 194 | 159 | 133 | 114 | 98.5 | 86.4 | | | | | |
| 35 | 11.0 | 25.1 | 46.8 | 87.4 | 126 | 163 | 199 | 235 | 270 | 304 | 304 | 304 | 304 | 280 | 222 | 182 | 152 | 130 | 113 | 98.9 | | | | | |
| 40 | 12.7 | 29.0 | 54.1 | 101 | 145 | 188 | 230 | 271 | 312 | 351 | 351 | 351 | 351 | 342 | 271 | 222 | 186 | 159 | 133 | | | | | | |
| 45 | 14.4 | 32.9 | 61.4 | 115 | 165 | 214 | 262 | 308 | 354 | 399 | 408 | 408 | 408 | 408 | 323 | 265 | 222 | 177 | 69.2 | | | | | | |

Note: 1. KW rating when using a one-pitch offset link (OL) is 65% of the above. Two pitch offset links (2POL) can be used at 100% of the above values.
2. Please contact a Tsubaki representative prior to use of kW ratings in the colored area of the table.

| | Number of chain strands | Multi-strand factor | Number of chain strands | Multi-strand factor |
|---|---|---|---|---|
| Multi-strand factor | Double strand | 1.7 | Quintuple strand | 3.9 |
| | Triple strand | 2.5 | Sextuple strand | 4.6 |
| | Quadruple strand | 3.3 | – | – |

| | | | |
|---|---|---|---|
| Lubrication method | A | Manual lubrication or drip lubrication | Details on Pg. 193 |
| | B | Oil bath or slinger disc lubrication | |
| | C | Forced pump lubrication | |

# RS140 Sprocket




Mechanically machined — Welded construction (1B type) — Welded construction (1C type) — 1A type

| Number of Teeth | Pitch Circular Diameter ($D_P$) | Sprocket Outer Diameter ($D_O$) | 1B type: Bore Diameter ($d$) Pilot Bore Diameter | 1B: Bore Diameter ($d$) Maximum | 1B: Hub Diameter ($D_H$) | 1B: Hub Length ($L$) | 1B: Approx. Mass (kg) | 1B: Material | 1C: Bore Diameter ($d$) Pilot Bore Diameter | 1C: Bore Diameter ($d$) Maximum | 1C: Hub Diameter ($D_H$) | 1C: Hub Length ($L$) | 1C: Approx. Mass (kg) | 1C: Material | 1A: Pilot Bore Diameter ($d$) | 1A: Approx. Mass (kg) | 1A: Material | Number of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **10** | 143.84 | 163 | 28 | 60 | 91 | 56 | 4.1 | Mechanically machined: machine-structural carbon steel | | | | | | | 28 | 2.6 | Machine-structural carbon steel | **10** |
| **11** | 157.77 | 178 | 33 | 73 | 106 | 56 | 5.1 | | | | | | | | 33 | 3.2 | | **11** |
| **12** | 171.74 | 193 | 33 | 80 | 117 | 56 | 6.3 | | | | | | | | 33 | 3.8 | | **12** |
| **13** | 185.74 | 207 | 33 | 80 | 117 | 63 | 7.5 | | | | | | | | 33 | 4.5 | | **13** |
| **14** | 199.76 | 221 | 33 | 89 | 127 | 63 | 8.9 | | | | | | | | 33 | 5.3 | | **14** |
| **15** | 213.79 | 236 | 33 | 89 | 127 | 63 | 9.7 | | | | | | | | 33 | 6.1 | | **15** |
| **16** | 227.84 | 250 | 33 | 89 | 127 | 63 | 10.6 | | | | | | | | 33 | 7.0 | | **16** |
| **17** | 241.91 | 264 | 33 | 89 | 127 | 63 | 11.5 | | | | | | | | 33 | 7.9 | | **17** |
| **18** | 255.98 | 279 | 33 | 89 | 127 | 63 | 12.5 | | | | | | | | 33 | 9.0 | | **18** |
| **19** | 270.06 | 293 | 33 | 95 | 137 | 71 | 15.1 | | | | | | | | 33 | 10.0 | | **19** |
| **20** | 284.14 | 307 | 33 | 95 | 137 | 71 | 16.2 | | | | | | | | 33 | 11.1 | | **20** |
| **21** | 298.24 | 322 | 33 | 95 | 137 | 71 | 17.4 | | | | | | | | 33 | 12.3 | | **21** |
| **22** | 312.34 | 336 | 33 | 103 | 147 | 71 | 19.6 | Welded construction: machine-structural carbon steel (teeth) and structural rolled steel (hub) | 33 | 103 | 147 | 115 | 25.1 | Welded construction: machine-structural carbon steel (teeth) and structural rolled steel (hub) | 33 | 13.6 | | **22** |
| **23** | 326.44 | 350 | 33 | 103 | 147 | 71 | 21.0 | | 33 | 103 | 147 | 115 | 26.4 | | 33 | 14.8 | | **23** |
| **24** | 340.54 | 364 | 33 | 103 | 147 | 71 | 22.3 | | 33 | 103 | 147 | 115 | 27.7 | | 33 | 16.2 | | **24** |
| **25** | 354.65 | 379 | 38 | 103 | 147 | 80 | 24.7 | | 38 | 103 | 147 | 115 | 28.9 | | 38 | 17.6 | | **25** |
| **26** | 368.77 | 393 | 38 | 103 | 147 | 80 | **26.0** | | 38 | 103 | 147 | 115 | **30.1** | | 38 | **18.8** | | **26** |
| **27** | 382.88 | 407 | 38 | 103 | 147 | 80 | **27.6** | | 38 | 103 | 147 | 115 | **31.7** | | 38 | **20.3** | | **27** |
| **28** | 397.00 | 421 | 38 | 103 | 147 | 80 | **29.2** | | 38 | 103 | 147 | 115 | **33.2** | | 38 | **21.9** | | **28** |
| **30** | 425.24 | 450 | 38 | 103 | 147 | 80 | **32.6** | | 38 | 103 | 147 | 115 | **36.6** | | 38 | **25.3** | | **30** |
| **32** | 453.49 | 478 | 38 | 103 | 147 | 80 | **36.3** | | 38 | 103 | 147 | 115 | **40.2** | | 38 | **28.9** | | **32** |
| **34** | 481.75 | 506 | 38 | 103 | 147 | 80 | **40.1** | | 38 | 103 | 147 | 115 | **44.0** | | 38 | **32.7** | | **34** |
| **35** | 495.88 | 521 | 38 | 110 | 157 | 90 | **44.6** | | 38 | 110 | 157 | 125 | **49.2** | | 38 | **34.7** | | **35** |
| **36** | 510.01 | 535 | 38 | 110 | 157 | 90 | **46.7** | | 38 | 110 | 157 | 125 | **51.2** | | 38 | **36.8** | | **36** |
| **38** | 538.27 | 563 | 38 | 110 | 157 | 90 | **51.1** | | 38 | 110 | 157 | 125 | **55.5** | | 38 | **41.1** | | **38** |
| **40** | 566.54 | 591 | 38 | 110 | 157 | 90 | **55.6** | | 38 | 118 | 167 | 130 | **62.9** | | 38 | **45.6** | | **40** |
| **42** | 594.81 | 620 | 38 | 118 | 167 | 94 | **62.3** | | 38 | 118 | 167 | 130 | **67.6** | | 38 | **50.4** | | **42** |
| **45** | 637.22 | 662 | 38 | 118 | 167 | 94 | **70.0** | | 38 | 118 | 167 | 130 | **75.2** | | 38 | **58.0** | | **45** |
| **48** | 679.63 | 705 | 38 | 118 | 167 | 94 | **78.3** | | 38 | 118 | 167 | 130 | **83.4** | | 38 | **66.1** | | **48** |
| **50** | 707.91 | 733 | 38 | 118 | 167 | 94 | **84.0** | | 38 | 118 | 167 | 130 | **89.1** | | 38 | **71.8** | | **50** |
| **54** | 764.47 | 790 | 38 | 118 | 167 | 94 | **96.7** | | 38 | 118 | 167 | 130 | **101.2** | | 38 | **84.0** | | **54** |
| **60** | 849.32 | 875 | 38 | 118 | 167 | 94 | **116.6** | | 38 | 118 | 167 | 155 | **125.2** | | 38 | **103.9** | | **60** |

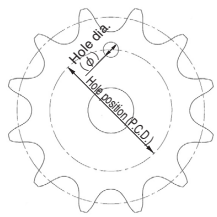
Note: 1. Maximum bore diameter is the typical range. Determine bore diameter and key bearing pressure based on general mechanical design.
2. Models in shaded areas have hardened teeth.
3. For sprockets without hardened teeth, the Strong Series of sprocket with hardened teeth can be made-to-order.
4. Models with approximate masses in bold have one hanging hole processed.
See the diagram on the right for information.

## Sprocket Number

RS140 -1B 15T

- Number of teeth
- Type
- Chain number

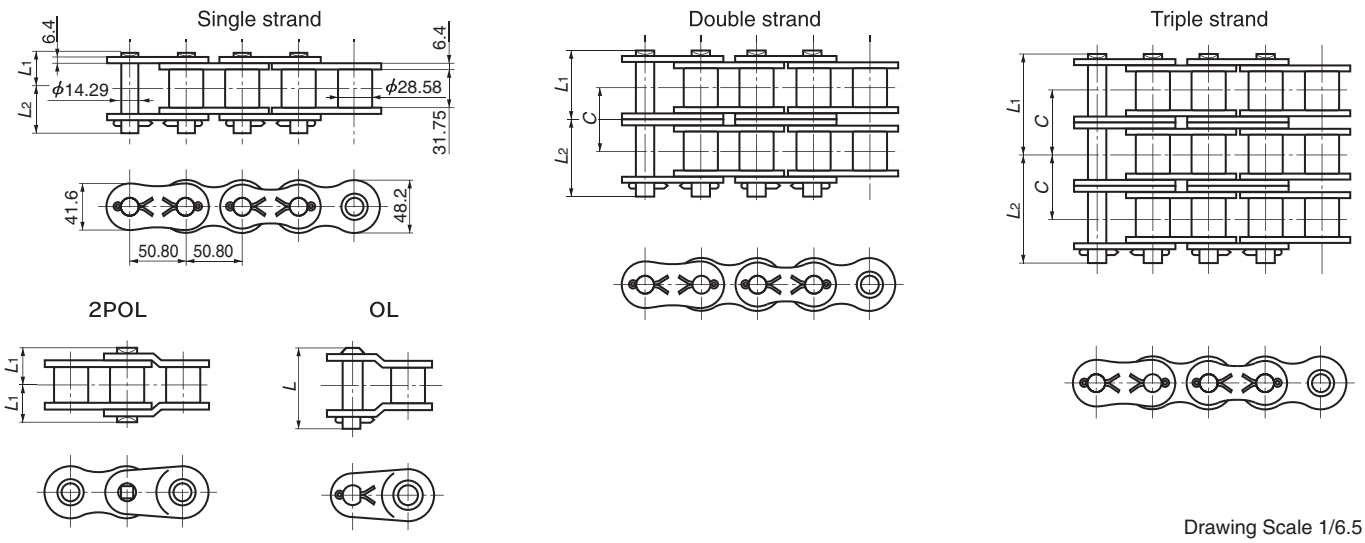
### Hanging Hole Dimensions




The phase relationship between the hanging hole and teeth may vary.

| No. of teeth | 1B, 1C, 1A Type bore dia. (φ40) Hole position (P.C.D.) |
|---|---|
| **26** | 263 |
| **27** | 277 |
| **28** | 291 |
| **30** | 319 |
| **32** | 348 |
| **34** | 376 |
| **35** | 390 |
| **36** | 404 |
| **38** | 432 |
| **40** | 461 |
| **42** | 489 |
| **45** | 531 |
| **48** | 574 |
| **50** | 602 |
| **54** | 659 |
| **60** | 743 |

# RS160




Drawing Scale 1/6.5

| TSUBAKI Chain Number | Number of Strands | Pin Length $L_1+L_2$ | Dimensions $L_1$ | Dimensions $L_2$ | Offset Pin Length $L$ | Transverse Pitch $C$ | Pin Type | ANSI Standard Min. Tensile Strength kN{kgf} | Tsubaki Minimum Tensile Strength kN{kgf} | Tsubaki Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS160-1 | 1 | 68.7 | 31.85 | 36.85 | 70.2 | 58.5 | Cotter pin | 244.6{24942} | 255 {26000} | 279 {28500} | 53.0{5400} | 10.10 |
| RS160-2 | 2 | 127.3 | 61.15 | 66.15 | 132.2 | | | 489.2{49885} | 510 {52000} | 559 {57000} | 90.0{9180} | 20.04 |
| RS160-3 | 3 | 185.9 | 90.45 | 95.45 | 190.7 | | | 733.8{74827} | 765 {78000} | 838 {85500} | 132{13500} | 30.02 |
| RS160-4 | 4 | 244.4 | 119.75 | 124.65 | 249.2 | | Riveting | – | 1020{104000} | 1120{114000} | 175{17820} | 40.06 |
| RS160-5 | 5 | 303.0 | 149.05 | 153.95 | 307.7 | | | – | 1270{130000} | 1400{142500} | 207{21060} | 49.89 |
| RS160-6 | 6 | 361.6 | 178.3 | 183.3 | 366.2 | | | – | 1530{156000} | 1680{171000} | 244{24840} | 59.93 |

Note: 1. Maximum allowable load when using a one-pitch offset link (OL) is 65% of the above. Two pitch offset links (2POL) can be used at 100% of the above values.
2. Number of links per unit = 60

## ■RS160-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

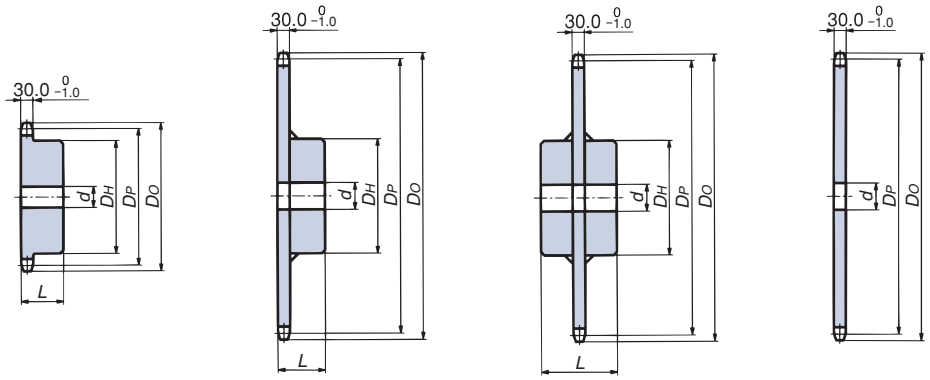
| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 1000 | 1100 | 1200 | 1300 |
| | A | | | B | | | | | | | | | | | | C | | | | | | | | |
| 9 | 3.82 | 8.72 | 16.3 | 30.4 | 43.8 | 56.7 | 69.3 | 74.5 | 74.5 | 74.5 | 62.5 | 53.3 | 46.2 | 40.6 | 36.0 | 32.2 | 29.0 | 26.4 | 24.1 | 22.1 | 18.9 | 16.3 | 14.3 | 12.7 |
| 10 | 4.29 | 9.78 | 18.2 | 34.0 | 49.0 | 63.5 | 77.6 | 87.3 | 87.3 | 87.3 | 73.2 | 62.5 | 54.1 | 47.5 | 42.1 | 37.7 | 34.0 | 30.9 | 28.2 | 25.9 | 22.1 | 19.1 | 16.8 | 14.9 |
| 11 | 4.75 | 10.8 | 20.2 | 37.7 | 54.3 | 70.4 | 86.1 | 98.5 | 98.5 | 98.5 | 84.4 | 72.1 | 62.5 | 54.8 | 48.6 | 43.5 | 39.2 | 35.6 | 32.5 | 29.8 | 25.5 | 22.1 | 19.4 | 17.2 |
| 12 | 5.22 | 11.9 | 22.2 | 41.4 | 59.7 | 77.3 | 94.5 | 108 | 108 | 108 | 96.2 | 82.1 | 71.2 | 62.5 | 55.4 | 49.6 | 44.7 | 40.6 | 37.0 | 34.0 | 29.0 | 25.2 | 22.1 | 19.6 |
| 13 | 5.69 | 13.0 | 24.2 | 45.2 | 65.1 | 84.3 | 103 | 118 | 118 | 118 | 108 | 92.6 | 80.2 | 70.4 | 62.5 | 55.9 | 50.4 | 45.7 | 41.8 | 38.3 | 32.7 | 28.4 | 24.9 | 22.1 |
| 14 | 6.16 | 14.1 | 26.2 | 49.0 | 70.5 | 91.4 | 112 | 128 | 128 | 128 | 121 | 103 | 89.7 | 78.7 | 69.8 | 62.5 | 56.3 | 51.1 | 46.7 | 42.8 | 36.6 | 31.7 | 27.8 | 24.7 |
| 15 | 6.64 | 15.1 | 28.3 | 52.7 | 76.0 | 98.4 | 120 | 138 | 138 | 138 | 134 | 115 | 99.5 | 87.3 | 77.4 | 69.3 | 62.5 | 56.7 | 51.8 | 47.5 | 40.6 | 35.2 | 30.9 | |
| 16 | 7.12 | 16.2 | 30.3 | 56.6 | 81.5 | 106 | 129 | 148 | 148 | 148 | 148 | 126 | 110 | 96.2 | 85.3 | 76.3 | 68.8 | 62.5 | 57.0 | 52.3 | 44.7 | 38.7 | 34.0 | |
| 17 | 7.60 | 17.3 | 32.4 | 60.4 | 87.0 | 113 | 138 | 162 | 162 | 162 | 162 | 138 | 120 | 105 | 93.4 | 83.6 | 75.4 | 68.4 | 62.5 | 57.3 | 48.9 | 42.4 | 37.2 | |
| 18 | 8.09 | 18.4 | 34.4 | 64.2 | 92.5 | 120 | 146 | 173 | 177 | 177 | 177 | 151 | 131 | 115 | 102 | 91.1 | 82.1 | 74.5 | 68.1 | 62.5 | 53.3 | 46.2 | 40.6 | |
| 19 | 8.57 | 19.6 | 36.5 | 68.1 | 98.1 | 127 | 155 | 183 | 192 | 192 | 192 | 164 | 142 | 124 | 110 | 98.8 | 89.0 | 80.8 | 73.8 | 67.7 | 57.8 | 50.1 | 44.0 | |
| 20 | 9.06 | 20.7 | 38.6 | 72.0 | 104 | 134 | 164 | 193 | 207 | 207 | 207 | 177 | 153 | 134 | 119 | 107 | 96.2 | 87.3 | 79.7 | 73.2 | 62.5 | 54.1 | 47.5 | |
| 21 | 9.55 | 21.8 | 40.6 | 75.9 | 109 | 142 | 173 | 204 | 220 | 220 | 220 | 190 | 165 | 145 | 128 | 115 | 103 | 93.9 | 85.8 | 78.7 | 67.2 | 58.3 | 51.1 | |
| 22 | 10.0 | 22.9 | 42.7 | 79.8 | 115 | 149 | 182 | 214 | 231 | 231 | 231 | 204 | 177 | 155 | 138 | 123 | 111 | 101 | 92.0 | 84.4 | 72.1 | 62.5 | | |
| 23 | 10.5 | 24.0 | 44.8 | 83.7 | 121 | 156 | 191 | 225 | 243 | 243 | 243 | 218 | 189 | 166 | 147 | 132 | 119 | 108 | 98.3 | 90.2 | 77.0 | 66.8 | | |
| 24 | 11.0 | 25.2 | 47.0 | 87.6 | 126 | 164 | 200 | 236 | 254 | 254 | 254 | 232 | 201 | 177 | 157 | 140 | 126 | 115 | 105 | 96.2 | 82.1 | 71.2 | | |
| 25 | 11.5 | 26.3 | 49.1 | 91.6 | 132 | 171 | 209 | 246 | 266 | 266 | 266 | 247 | 214 | 188 | 167 | 149 | 134 | 122 | 111 | 102 | 87.3 | 75.4 | | |
| 26 | 12.0 | 27.4 | 51.2 | 95.5 | 138 | 178 | 218 | 257 | 277 | 277 | 277 | 262 | 227 | 199 | 177 | 158 | 143 | 129 | 118 | 108 | 92.6 | 80.2 | | |
| 28 | 13.0 | 29.7 | 55.5 | 103 | 149 | 193 | 236 | 278 | 300 | 300 | 300 | 293 | 254 | 223 | 197 | 177 | 159 | 145 | 132 | 121 | 103 | 89.7 | | |
| 30 | 14.0 | 32.0 | 59.8 | 112 | 161 | 208 | 254 | 300 | 325 | 325 | 325 | 325 | 281 | 247 | 219 | 196 | 177 | 160 | 146 | 134 | 115 | | | |
| 32 | 15.1 | 34.3 | 64.1 | 120 | 172 | 223 | 273 | 321 | 358 | 358 | 358 | 358 | 310 | 272 | 241 | 216 | 195 | 177 | 161 | 148 | 126 | | | |
| 35 | 16.6 | 37.8 | 70.6 | 132 | 190 | 246 | 300 | 354 | 407 | 409 | 409 | 409 | 354 | 311 | 276 | 247 | 223 | 202 | 185 | 169 | 134 | | | |
| 40 | 19.2 | 43.7 | 81.5 | 152 | 219 | 284 | 347 | 409 | 470 | 485 | 485 | 485 | 433 | 380 | 337 | 302 | 272 | 247 | 225 | 192 | | | | |
| 45 | 21.7 | 49.6 | 92.6 | 173 | 249 | 322 | 394 | 464 | 533 | 551 | 551 | 551 | 517 | 454 | 402 | 360 | 312 | 260 | 202 | 141 | | | | |

Note: 1. KW rating when using a one-pitch offset link (OL) is 65% of the above. Two pitch offset links (2POL) can be used at 100% of the above values.
2. Please contact a Tsubaki representative prior to use of kW ratings in the colored area of the table.

| Multi-strand factor | Number of chain strands | Multi-strand factor | Number of chain strands | Multi-strand factor |
|---|---|---|---|---|
| | Double strand | 1.7 | Quintuple strand | 3.9 |
| | Triple strand | 2.5 | Sextuple strand | 4.6 |
| | Quadruple strand | 3.3 | – | – |

| Lubrication method | | | |
|---|---|---|---|
| | A | Manual lubrication or drip lubrication | Details on Pg. 193 |
| | B | Oil bath or slinger disc lubrication | |
| | C | Forced pump lubrication | |

# RS160 Sprocket




Mechanically machined — Welded construction — 1B type

Welded construction — 1C type

1A type

| Number of Teeth | Pitch Circular Diameter ($D_P$) | Sprocket Outer Diameter ($D_O$) | 1B type Bore Diameter ($d$) Pilot Bore Diameter | 1B Bore Diameter ($d$) Maximum | 1B Hub Diameter ($D_H$) | 1B Hub Length ($L$) | 1B Approx. Mass (kg) | 1B Material | 1C Bore Diameter ($d$) Pilot Bore Diameter | 1C Bore Diameter ($d$) Maximum | 1C Hub Diameter ($D_H$) | 1C Hub Length ($L$) | 1C Approx. Mass (kg) | 1C Material | 1A Pilot Bore Diameter ($d$) | 1A Approx. Mass (kg) | 1A Material | Number of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **10** | 164.39 | 187 | 33 | 70 | 105 | 63 | 6.3 | Mechanically machined: machine-structural carbon steel | | | | | | | 33 | 4.3 | Machine-structural carbon steel | **10** |
| **11** | 180.31 | 203 | 33 | 80 | 117 | 63 | 7.8 | | | | | | | | 33 | 5.3 | | **11** |
| **12** | 196.28 | 220 | 33 | 89 | 127 | 63 | 9.4 | | | | | | | | 33 | 6.3 | | **12** |
| **13** | 212.27 | 237 | 33 | 95 | 137 | 71 | 11.9 | | | | | | | | 33 | 7.5 | | **13** |
| **14** | 228.29 | 253 | 33 | 95 | 137 | 71 | 13.2 | | | | | | | | 33 | 8.8 | | **14** |
| **15** | 244.33 | 269 | 33 | 95 | 137 | 71 | 14.5 | | | | | | | | 33 | 10.1 | | **15** |
| **16** | 260.39 | 286 | 33 | 103 | 147 | 71 | 16.7 | | | | | | | | 33 | 11.6 | | **16** |
| **17** | 276.46 | 302 | 33 | 103 | 147 | 71 | 18.2 | | | | | | | | 33 | 13.1 | | **17** |
| **18** | 292.55 | 319 | 33 | 103 | 147 | 71 | 19.9 | | | | | | | | 33 | 14.8 | | **18** |
| **19** | 308.64 | 335 | 33 | 103 | 147 | 71 | 21.6 | | | | | | | | 33 | 16.5 | | **19** |
| **20** | 324.74 | 351 | 33 | 103 | 147 | 71 | 23.4 | | | | | | | | 33 | 18.3 | | **20** |
| **21** | 340.84 | 368 | 33 | 103 | 147 | 71 | 25.4 | | | | | | | | 33 | 20.3 | | **21** |
| **22** | 356.96 | 384 | 38 | 118 | 167 | 80 | 30.6 | Welded construction: machine-structural carbon steel (teeth) and structural rolled steel (hub) | 38 | 118 | 167 | 125 | 37.8 | Welded construction: machine-structural carbon steel (teeth) and structural rolled steel (hub) | 38 | 22.2 | | **22** |
| **23** | 373.07 | 400 | 38 | 118 | 167 | 80 | **32.4** | | 38 | 118 | 167 | 125 | **39.6** | | 38 | **24.0** | | **23** |
| **24** | 389.19 | 416 | 38 | 118 | 167 | 80 | **34.6** | | 38 | 118 | 167 | 125 | **41.8** | | 38 | **26.2** | | **24** |
| **25** | 405.32 | 433 | 38 | 118 | 167 | 80 | **37.0** | | 38 | 118 | 167 | 125 | **44.2** | | 38 | **28.6** | | **25** |
| **26** | 421.45 | 449 | 38 | 118 | 167 | 80 | **39.5** | | 38 | 118 | 167 | 125 | **46.6** | | 38 | **31.0** | | **26** |
| **27** | 437.58 | 465 | 38 | 118 | 167 | 80 | **42.0** | | 38 | 118 | 167 | 125 | **49.1** | | 38 | **33.5** | | **27** |
| **28** | 453.72 | 481 | 38 | 118 | 167 | 80 | **44.6** | | 38 | 118 | 167 | 125 | **51.7** | | 38 | **36.1** | | **28** |
| **30** | 485.99 | 514 | 38 | 118 | 167 | 100 | **53.5** | | 38 | 118 | 167 | 125 | **57.2** | | 38 | **41.6** | | **30** |
| **32** | 518.28 | 546 | 38 | 118 | 167 | 100 | **59.5** | | 38 | 118 | 167 | 125 | **63.0** | | 38 | **47.4** | | **32** |
| **34** | 550.57 | 579 | 38 | 118 | 167 | 100 | **65.8** | | 38 | 118 | 167 | 125 | **69.3** | | 38 | **53.7** | | **34** |
| **35** | 566.72 | 595 | 38 | 118 | 167 | 100 | **69.2** | | 38 | 118 | 167 | 135 | **74.2** | | 38 | **57.0** | | **35** |
| **36** | 582.86 | 611 | 38 | 118 | 167 | 100 | **72.6** | | 38 | 118 | 167 | 135 | **77.6** | | 38 | **60.3** | | **36** |
| **38** | 615.17 | 644 | 38 | 118 | 167 | 100 | **80.1** | | 38 | 118 | 167 | 135 | **84.6** | | 38 | **67.4** | | **38** |
| **40** | 647.47 | 676 | 38 | 132 | 187 | 121 | **94.4** | | 38 | 132 | 187 | 150 | **99.7** | | 38 | **74.8** | | **40** |
| **42** | 679.78 | 708 | 38 | 132 | 187 | 121 | **102.2** | | 38 | 132 | 187 | 150 | **107.5** | | 38 | **82.6** | | **42** |
| **45** | 728.25 | 757 | 38 | 132 | 187 | 121 | **115.2** | | 38 | 132 | 187 | 150 | **119.9** | | 38 | **95.0** | | **45** |
| **48** | 776.72 | 806 | 38 | 132 | 187 | 121 | **128.5** | | 38 | 132 | 187 | 150 | **133.2** | | 38 | **108.4** | | **48** |
| **50** | 809.04 | 838 | 38 | 132 | 187 | 121 | **137.9** | | 38 | 132 | 187 | 150 | **142.5** | | 38 | **117.7** | | **50** |
| **54** | 873.68 | 903 | 38 | 132 | 187 | 121 | **157.7** | | 38 | 132 | 187 | 150 | **162.4** | | 38 | **137.5** | | **54** |
| **60** | 970.65 | 1000 | 38 | 132 | 187 | 121 | **190.7** | | 38 | 132 | 187 | 160 | **197.0** | | 38 | **170.1** | | **60** |

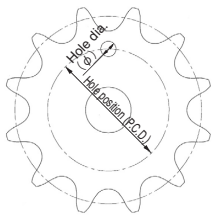
Note: 1. Maximum bore diameter is the typical range. Determine bore diameter and key bearing pressure based on general mechanical design.
2. Models in shaded areas have hardened teeth.
3. For sprockets without hardened teeth, the Strong Series of sprocket with hardened teeth can be made-to-order.
4. Models with approximate masses in bold have one hanging hole processed.
See the diagram on the right for information.

## Sprocket Number

RS160 -1B 15T

- Number of teeth
- Type
- Chain number

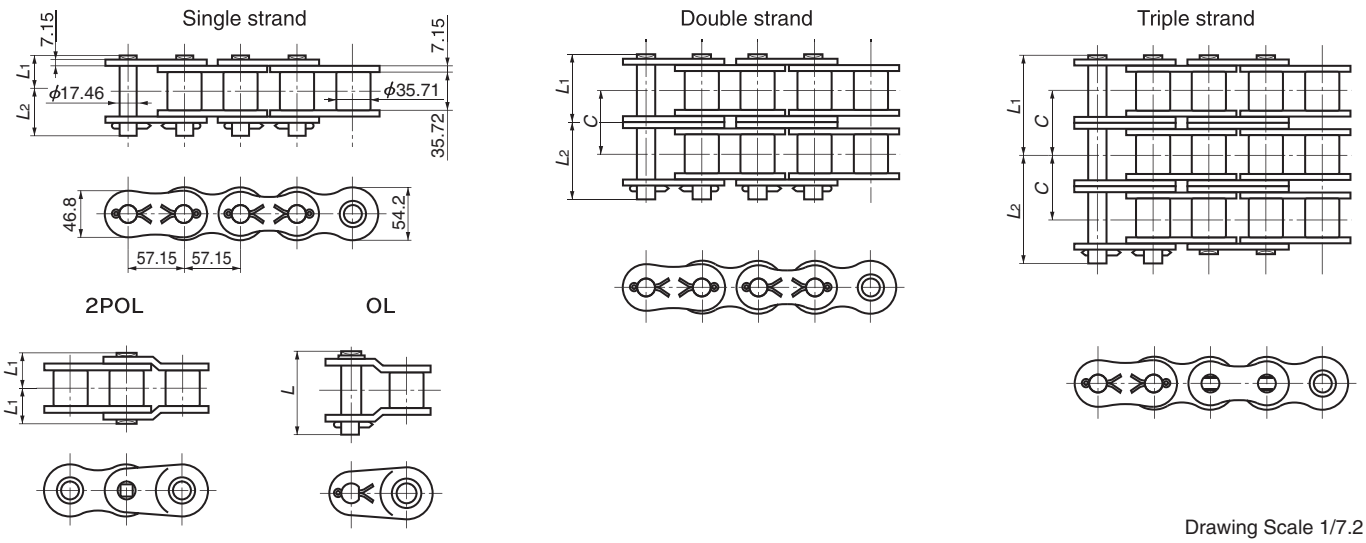
### Hanging Hole Dimensions




The phase relationship between the hanging hole and teeth may vary.

| No. of teeth | 1B, 1C, 1A Type bore dia. ($\phi$40) Hole position (P.C.D.) | No. of teeth | 1B, 1C, 1A Type bore dia. ($\phi$40) Hole position (P.C.D.) |
|---|---|---|---|
| **23** | 261 | **36** | 471 |
| **24** | 277 | **38** | 503 |
| **25** | 293 | **40** | 535 |
| **26** | 309 | **42** | 568 |
| **27** | 326 | **45** | 616 |
| **28** | 342 | **48** | 665 |
| **30** | 374 | **50** | 697 |
| **32** | 406 | **54** | 762 |
| **34** | 438 | **60** | 859 |
| **35** | 455 | | |

# RS180




Drawing Scale 1/7.2

| TSUBAKI Chain Number | Number of Strands | Pin Length $L_1+L_2$ | Dimensions $L_1$ | Dimensions $L_2$ | Offset Pin Length $L$ | Transverse Pitch $C$ | Pin Type | ANSI Standard Min. Tensile Strength kN{kgf} | Tsubaki Minimum Tensile Strength kN{kgf} | Tsubaki Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS180-1 | 1 | 78.1 | 35.65 | 42.45 | 80.6 | 65.8 | Cotter pin | 308.2{31428} | 336 {34300} | 370 {37700} | 60.8{6200} | 13.45 |
| RS180-2 | 2 | 144.1 | 68.75 | 75.35 | 151.1 | | | 616.4{62885} | 673 {68600} | 739 {75400} | 103{10540} | 26.52 |
| RS180-3 | 3 | 210.2 | 101.7 | 108.5 | 216.9 | | Riveting | 924.6{94283} | 1010{102900} | 1110{113100} | 152{15500} | 38.22 |
| RS180-4 | 4 | 276.1 | 134.65 | 141.45 | 282.8 | | | – | 1350{137200} | 1480{150800} | 201{20460} | 50.90 |
| RS180-5 | 5 | 342.0 | 167.6 | 174.4 | 348.6 | | | – | 1680{171500} | 1850{188500} | 237{24180} | 63.59 |
| RS180-6 | 6 | 407.9 | 200.55 | 207.35 | 414.4 | | | – | 2020{205800} | 2180{226200} | 280{28520} | 76.27 |

Note: 1. Maximum allowable load when using a one-pitch offset link (OL) is 65% of the above. Two pitch offset links (2POL) can be used at 100% of the above values.
2. Number of links per unit = 54

## ■RS180-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

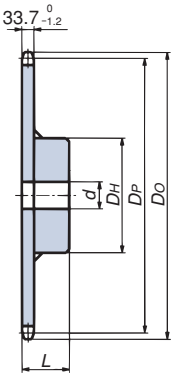
| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 | 1050 | 1100 |
| | A | | | B | | | | | | | | | | C | | | | | | | | | | |
| 9 | 4.94 | 11.3 | 21.0 | 39.2 | 56.5 | 73.2 | 89.4 | 90.8 | 90.8 | 81.9 | 68.6 | 58.6 | 50.8 | 44.6 | 39.5 | 35.4 | 31.9 | 29.0 | 26.4 | 24.3 | 22.4 | 20.7 | 19.3 | 18.0 |
| 10 | 5.53 | 12.6 | 23.5 | 43.9 | 63.3 | 82.0 | 100 | 102 | 102 | 95.9 | 80.4 | 68.6 | 59.5 | 52.2 | 46.3 | 41.4 | 37.4 | 33.9 | 31.0 | 28.4 | 26.2 | 24.3 | 22.6 | 21.0 |
| 11 | 6.13 | 14.0 | 26.1 | 48.7 | 70.1 | 90.9 | 111 | 113 | 113 | 111 | 92.7 | 79.2 | 68.6 | 60.2 | 53.4 | 47.8 | 43.1 | 39.1 | 35.7 | 32.8 | 30.2 | 28.0 | 26.0 | 24.3 |
| 12 | 6.73 | 15.4 | 28.7 | 53.5 | 77.0 | 100 | 122 | 126 | 126 | 126 | 106 | 90.2 | 78.2 | 68.6 | 60.9 | 54.5 | 49.1 | 44.6 | 40.7 | 37.4 | 34.4 | 31.9 | 29.6 | 27.6 |
| 13 | 7.34 | 16.7 | 31.3 | 58.3 | 84.0 | 109 | 133 | 142 | 142 | 142 | 119 | 102 | 88.2 | 77.4 | 68.6 | 61.4 | 55.4 | 50.3 | 45.9 | 42.1 | 38.8 | 36.0 | 33.4 | |
| 14 | 7.95 | 18.1 | 33.9 | 63.2 | 91.0 | 118 | 144 | 159 | 159 | 159 | 133 | 114 | 98.5 | 86.5 | 76.7 | 68.6 | 61.9 | 56.2 | 51.3 | 47.1 | 43.4 | 40.2 | 37.4 | |
| 15 | 8.57 | 19.5 | 36.5 | 68.1 | 98.0 | 127 | 155 | 176 | 176 | 176 | 148 | 126 | 109 | 95.9 | 85.1 | 76.1 | 68.6 | 62.3 | 56.9 | 52.2 | 48.1 | 44.6 | 41.4 | |
| 16 | 9.19 | 21.0 | 39.1 | 73.0 | 105 | 136 | 166 | 191 | 191 | 191 | 163 | 139 | 120 | 106 | 93.7 | 83.9 | 75.6 | 68.6 | 62.7 | 57.5 | 53.0 | 49.1 | 45.6 | |
| 17 | 9.81 | 22.4 | 41.8 | 77.9 | 112 | 145 | 178 | 201 | 201 | 201 | 178 | 152 | 132 | 116 | 103 | 91.8 | 82.8 | 75.2 | 68.6 | 63.0 | 58.1 | 53.8 | | |
| 18 | 10.4 | 23.8 | 44.4 | 82.9 | 119 | 155 | 189 | 216 | 216 | 216 | 194 | 166 | 144 | 126 | 112 | 100 | 90.2 | 81.9 | 74.8 | 68.6 | 63.3 | 58.6 | | |
| 19 | 11.1 | 25.2 | 47.1 | 87.9 | 127 | 164 | 200 | 229 | 229 | 229 | 211 | 180 | 156 | 137 | 121 | 109 | 97.8 | 88.8 | 81.1 | 74.4 | 68.6 | 63.5 | | |
| 20 | 11.7 | 26.7 | 49.8 | 92.9 | 134 | 173 | 212 | 243 | 243 | 243 | 227 | 194 | 168 | 148 | 131 | 117 | 106 | 95.9 | 87.6 | 80.4 | 74.1 | 68.6 | | |
| 21 | 12.3 | 28.1 | 52.5 | 97.9 | 141 | 183 | 223 | 256 | 256 | 256 | 245 | 209 | 181 | 159 | 141 | 126 | 114 | 103 | 94.2 | 86.5 | 79.7 | 73.8 | | |
| 22 | 13.0 | 29.6 | 55.2 | 103 | 148 | 192 | 235 | 269 | 269 | 269 | 262 | 224 | 194 | 170 | 151 | 135 | 122 | 111 | 101 | 92.7 | 85.5 | | | |
| 23 | 13.6 | 31.0 | 57.9 | 108 | 156 | 202 | 246 | 282 | 282 | 282 | 280 | 239 | 208 | 182 | 162 | 145 | 130 | 118 | 108 | 99.1 | 91.4 | | | |
| 24 | 14.2 | 32.5 | 60.6 | 113 | 163 | 211 | 258 | 299 | 299 | 299 | 299 | 255 | 221 | 194 | 172 | 154 | 139 | 126 | 115 | 106 | 97.4 | | | |
| 25 | 14.9 | 33.9 | 63.3 | 118 | 170 | 221 | 270 | 318 | 318 | 318 | 318 | 271 | 235 | 206 | 183 | 164 | 148 | 134 | 122 | 112 | 104 | | | |
| 26 | 15.5 | 35.4 | 66.1 | 123 | 178 | 230 | 281 | 331 | 337 | 337 | 337 | 288 | 249 | 219 | 194 | 174 | 157 | 142 | 130 | 119 | | | | |
| 28 | 16.8 | 38.4 | 71.6 | 134 | 192 | 249 | 305 | 359 | 377 | 377 | 377 | 322 | 279 | 245 | 217 | 194 | 175 | 159 | 145 | 133 | | | | |
| 30 | 18.1 | 41.3 | 77.1 | 144 | 207 | 269 | 328 | 387 | 418 | 418 | 418 | 357 | 309 | 271 | 241 | 215 | 194 | 176 | 161 | 148 | | | | |
| 32 | 19.4 | 44.3 | 82.7 | 154 | 222 | 288 | 352 | 415 | 448 | 448 | 448 | 393 | 341 | 299 | 265 | 237 | 214 | 194 | 177 | | | | | |
| 35 | 21.4 | 48.8 | 91.1 | 170 | 245 | 317 | 388 | 457 | 494 | 494 | 494 | 449 | 390 | 342 | 303 | 271 | 245 | 217 | 164 | | | | | |
| 40 | 24.7 | 56.4 | 105 | 196 | 283 | 366 | 448 | 504 | 504 | 504 | 504 | 463 | 429 | 391 | 347 | 297 | 242 | 182 | | | | | | |
| 45 | 28.1 | 64.0 | 119 | 223 | 321 | 416 | 509 | 551 | 551 | 551 | 507 | 471 | 431 | 383 | 329 | 269 | 202 | | | | | | | |

Note: 1. KW rating when using a one-pitch offset link (OL) is 65% of the above. Two pitch offset links (2POL) can be used at 100% of the above values.
2. Please contact a Tsubaki representative prior to use of kW ratings in the colored area of the table.

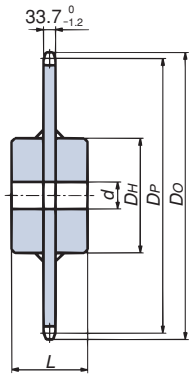
| Multi-strand factor | Number of chain strands | Multi-strand factor | Number of chain strands | Multi-strand factor |
|---|---|---|---|---|
| | Double strand | 1.7 | Quintuple strand | 3.9 |
| | Triple strand | 2.5 | Sextuple strand | 4.6 |
| | Quadruple strand | 3.3 | – | – |

| Lubrication method | | | |
|---|---|---|---|
| | A | Manual lubrication or drip lubrication | Details on Pg. 193 |
| | B | Oil bath or slinger disc lubrication | |
| | C | Forced pump lubrication | |

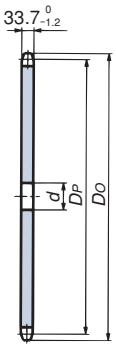
# RS180 Sprocket




Welded construction
1B type




Welded construction
1C type




1A type

| Number of Teeth | Pitch Circular Diameter ($D_P$) | Sprocket Outer Diameter ($D_O$) | 1B type Bore Diameter ($d$) Pilot Bore Diameter | 1B type Bore Diameter ($d$) Maximum | 1B type Hub Diameter ($D_H$) | 1B type Hub Length ($L$) | 1B type Approx. Mass (kg) | 1B type Material | 1C type Bore Diameter ($d$) Pilot Bore Diameter | 1C type Bore Diameter ($d$) Maximum | 1C type Hub Diameter ($D_H$) | 1C type Hub Length ($L$) | 1C type Approx. Mass (kg) | 1C type Material | 1A type Pilot Bore Diameter ($d$) | 1A type Approx. Mass (kg) | 1A type Material | Number of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **11** | 202.85 | 229 | 43 | 75 | 110 | 55 | 8.6 | Welded construction: machine-structural carbon steel (teeth) and structural rolled steel (hub) | | | | | | Welded construction: machine-structural carbon steel (teeth) and structural rolled steel (hub) | 43 | 7.0 | Machine-structural carbon steel | **11** |
| **12** | 220.81 | 248 | 43 | 85 | 130 | 65 | 11.6 | | | | | | | | 43 | 8.5 | | **12** |
| **13** | 238.81 | 266 | 43 | 95 | 150 | 75 | 15.6 | | | | | | | | 43 | 10.1 | | **13** |
| **14** | 256.83 | 285 | 43 | 105 | 170 | 80 | 19.7 | | | | | | | | 43 | 11.9 | | **14** |
| **15** | 274.87 | 303 | 43 | 110 | 180 | 80 | 22.6 | | | | | | | | 43 | 13.8 | | **15** |
| **16** | 292.94 | 322 | 43 | 110 | 180 | 80 | 24.6 | | | | | | | | 43 | 15.8 | | **16** |
| **17** | 311.02 | 340 | 43 | 115 | 180 | 80 | 26.8 | | | | | | | | 43 | 17.9 | | **17** |
| **18** | 329.12 | 358 | 43 | 115 | 180 | 80 | 29.2 | | | | | | | | 43 | 20.2 | | **18** |
| **19** | 347.21 | 377 | 43 | 115 | 180 | 80 | 31.6 | | | | | | | | 43 | 22.7 | | **19** |
| **20** | 365.33 | 395 | 43 | 115 | 180 | 80 | 34.2 | | | | | | | | 43 | 25.2 | | **20** |
| **21** | 383.45 | 413 | | | | | | | 63 | 120 | 190 | 85 | 37.8 | | 63 | 27.5 | | **21** |
| **22** | 401.57 | 432 | | | | | | | 63 | 120 | 190 | 85 | **40.4** | | 63 | **30.0** | | **22** |
| **23** | 419.70 | 450 | | | | | | | 63 | 120 | 200 | 90 | **45.7** | | 63 | **33.0** | | **23** |
| **24** | 437.84 | 468 | | | | | | | 63 | 125 | 200 | 90 | **48.8** | | 63 | **36.1** | | **24** |
| **25** | 455.99 | 487 | | | | | | | 63 | 125 | 200 | 90 | **52.0** | | 63 | **39.4** | | **25** |
| **26** | 474.13 | 505 | | | | | | | 63 | 125 | 200 | 90 | **55.4** | | 63 | **42.8** | | **26** |
| **27** | 492.28 | 523 | | | | | | | 63 | 125 | 200 | 90 | **58.9** | | 63 | **46.3** | | **27** |
| **28** | 510.43 | 542 | | | | | | | 63 | 125 | 200 | 90 | **62.6** | | 63 | **50.0** | | **28** |
| **30** | 546.74 | 578 | | | | | | | 63 | 135 | 220 | 110 | **78.7** | | 63 | **57.7** | | **30** |
| **32** | 583.06 | 615 | | | | | | | 63 | 135 | 220 | 110 | **86.9** | | 63 | **65.9** | | **32** |
| **34** | 619.39 | 651 | | | | | | | 63 | 135 | 220 | 110 | **95.8** | | 63 | **74.8** | | **34** |
| **35** | 637.55 | 669 | | | | | | | 63 | 135 | 220 | 110 | **100.4** | | 63 | **79.4** | | **35** |
| **36** | 655.72 | 688 | | | | | | | 63 | 135 | 220 | 110 | **105.1** | | 63 | **84.1** | | **36** |
| **38** | 692.06 | 724 | | | | | | | 63 | 135 | 220 | 110 | **115.0** | | 63 | **94.0** | | **38** |
| **40** | 728.41 | 760 | | | | | | | 63 | 150 | 240 | 125 | **134.7** | Welded construction: structural rolled steel (teeth and hub) | 63 | **104.5** | | **40** |
| **42** | 764.75 | 797 | | | | | | | 63 | 150 | 240 | 125 | **145.8** | | 63 | **115.6** | | **42** |
| **45** | 819.28 | 852 | | | | | | | 63 | 150 | 240 | 125 | **163.3** | | 63 | **133.1** | | **45** |
| **48** | 873.81 | 906 | | | | | | | 63 | 150 | 240 | 125 | **182.1** | | 63 | **151.8** | | **48** |
| **50** | 910.17 | 943 | | | | | | | 63 | 150 | 240 | 125 | **195.3** | | 63 | **165.1** | | **50** |
| **54** | 982.89 | 1016 | | | | | | | 63 | 150 | 240 | 125 | **223.3** | | 63 | **193.1** | | **54** |
| **60** | 1091.98 | 1125 | | | | | | | 63 | 150 | 240 | 125 | **269.5** | | 63 | **239.2** | | **60** |

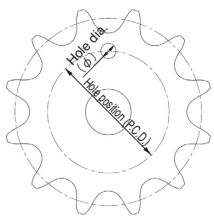
Note: 1. Maximum bore diameter is the typical range. Determine bore diameter and key bearing pressure based on general mechanical design.
2. Models with approximate masses in bold have one hanging hole processed.
See the diagram on the right for information.

## Sprocket Number

RS180 -1B 15T

- Number of teeth
- Type
- Chain number

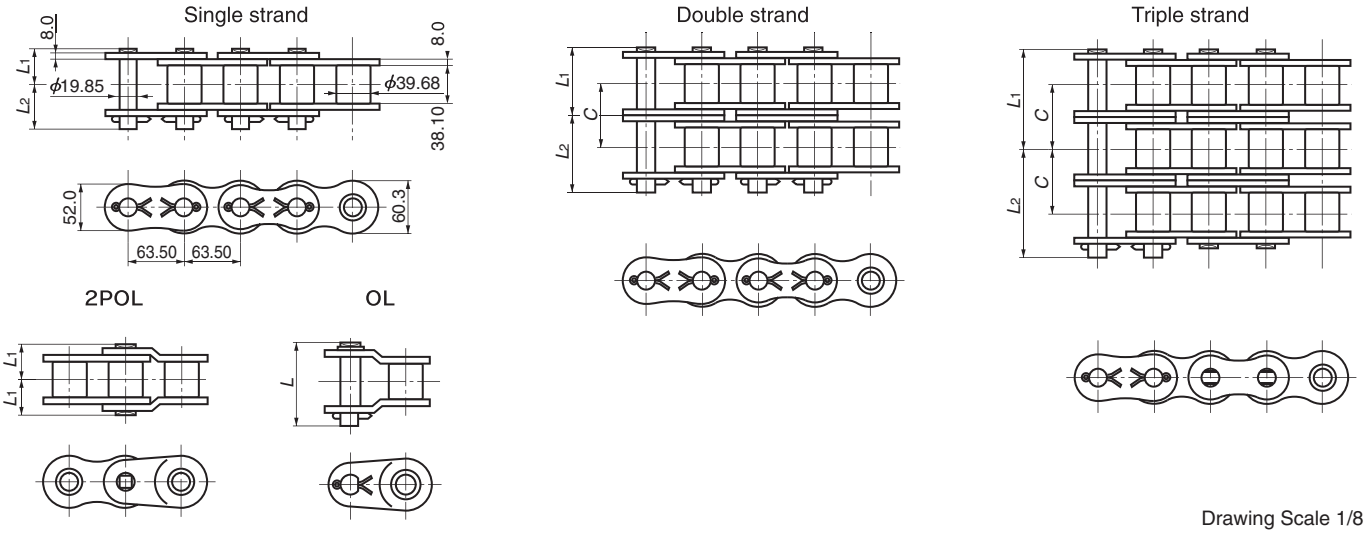
### Hanging Hole Dimensions




The phase relationship between the hanging hole and teeth may vary.

| No. of teeth | 1B, 1C, 1A Type bore dia. (φ40) Hole position (P.C.D.) | No. of teeth | 1B, 1C, 1A Type bore dia. (φ40) Hole position (P.C.D.) |
|---|---|---|---|
| **22** | 276 | **35** | 512 |
| **23** | 294 | **36** | 531 |
| **24** | 313 | **38** | 567 |
| **25** | 331 | **40** | 603 |
| **26** | 349 | **42** | 640 |
| **27** | 367 | **45** | 694 |
| **28** | 385 | **48** | 749 |
| **30** | 422 | **50** | 785 |
| **32** | 458 | **54** | 858 |
| **34** | 464 | **60** | 967 |

# RS200




Drawing Scale 1/8

| TSUBAKI Chain Number | Number of Strands | Pin Length $L_1+L_2$ | Dimensions $L_1$ | Dimensions $L_2$ | Offset Pin Length $L$ | Transverse Pitch $C$ | Pin Type | ANSI Standard Min. Tensile Strength kN{kgf} | Tsubaki Minimum Tensile Strength kN{kgf} | Tsubaki Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS200-1 | 1 | 83.8 | 39.0 | 44.8 | 87.3 | 71.6 | Cotter pin | 381.7 {38923} | 427 {43500} | 471 {48000} | 71.6{7300} | 16.49 |
| RS200-2 | 2 | 155.5 | 74.85 | 80.65 | 161.2 | | | 763.4 {77845} | 853 {87000} | 941 {96000} | 122{12410} | 32.63 |
| RS200-3 | 3 | 227.2 | 110.75 | 116.45 | 233.0 | | Riveting | 1145.1{116768} | 1280{130500} | 1410{144000} | 179{18250} | 49.02 |
| RS200-4 | 4 | 298.9 | 146.6 | 152.3 | 304.7 | | | – | 1710{174000} | 1880{192000} | 236{24090} | 65.16 |
| RS200-5 | 5 | 370.6 | 182.4 | 188.2 | 376.3 | | | – | 2130{217500} | 2350{240000} | 279{28470} | 81.32 |
| RS200-6 | 6 | 442.3 | 218.25 | 224.05 | 448.0 | | | – | 2560{261000} | 2820{288000} | 329{33580} | 97.59 |

Note: 1. Maximum allowable load when using a one-pitch offset link (OL) is 65% of the above. Two pitch offset links (2POL) can be used at 100% of the above values.
2. Number of links per unit = 48

## ■RS200-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

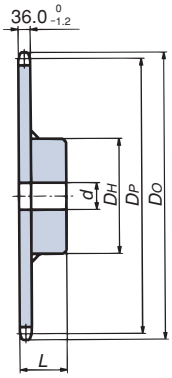
| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 15 | 20 | 30 | 40 | 50 | 70 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 |
| | A | | | | | B | | | | | | | | | | C | | | |
| 9 | 6.46 | 9.30 | 12.1 | 17.4 | 22.5 | 27.5 | 37.2 | 51.3 | 73.9 | 95.73 | 108 | 108 | 108 | 89.1 | 74.7 | 63.8 | 55.3 | 48.5 | 43.0 |
| 10 | 7.24 | 10.4 | 13.5 | 19.5 | 25.2 | 30.8 | 41.7 | 57.5 | 82.8 | 107 | 122 | 122 | 122 | 104 | 87.5 | 74.7 | 64.7 | 56.8 | 50.4 |
| 11 | 8.02 | 11.6 | 15.0 | 21.6 | 27.9 | 34.1 | 46.2 | 63.7 | 91.8 | 119 | 135 | 135 | 135 | 120 | 101 | 86.1 | 74.7 | 65.5 | 58.1 |
| 12 | 8.81 | 12.7 | 16.4 | 23.7 | 30.7 | 37.5 | 50.8 | 70.0 | 101 | 131 | 148 | 148 | 148 | 137 | 115 | 98.2 | 85.1 | 74.7 | |
| 13 | 9.61 | 13.8 | 17.9 | 25.8 | 33.5 | 40.9 | 55.4 | 76.3 | 110 | 142 | 161 | 161 | 161 | 155 | 130 | 111 | 95.9 | 84.2 | |
| 14 | 10.4 | 15.0 | 19.4 | 28.0 | 36.2 | 44.3 | 60.0 | 82.7 | 119 | 154 | 175 | 175 | 175 | 173 | 145 | 124 | 107 | 94.1 | |
| 15 | 11.2 | 16.2 | 20.9 | 30.1 | 39.0 | 47.7 | 64.6 | 89.1 | 128 | 166 | 192 | 192 | 192 | 192 | 161 | 137 | 119 | 104 | |
| 16 | 12.0 | 17.3 | 22.4 | 32.3 | 41.9 | 51.2 | 69.3 | 95.5 | 138 | 178 | 211 | 211 | 211 | 211 | 177 | 151 | 131 | 115 | |
| 17 | 12.8 | 18.5 | 24.0 | 34.5 | 44.7 | 54.6 | 74.0 | 102 | 147 | 190 | 231 | 231 | 231 | 231 | 194 | 166 | 143 | 126 | |
| 18 | 13.7 | 19.7 | 25.5 | 36.7 | 47.5 | 58.1 | 78.7 | 108 | 156 | 202 | 247 | 252 | 252 | 252 | 211 | 180 | 156 | 137 | |
| 19 | 14.5 | 20.8 | 27.0 | 38.9 | 50.4 | 61.6 | 83.4 | 115 | 166 | 215 | 262 | 273 | 273 | 273 | 229 | 196 | 170 | 149 | |
| 20 | 15.3 | 22.0 | 28.5 | 41.1 | 53.3 | 65.1 | 88.2 | 122 | 175 | 227 | 277 | 290 | 290 | 290 | 247 | 211 | 183 | | |
| 21 | 16.1 | 23.2 | 30.1 | 43.3 | 56.2 | 68.6 | 92.9 | 128 | 185 | 239 | 292 | 305 | 305 | 305 | 266 | 227 | 197 | | |
| 22 | 17.0 | 24.4 | 31.6 | 45.6 | 59.0 | 72.2 | 97.7 | 135 | 194 | 251 | 307 | 321 | 321 | 321 | 285 | 244 | 211 | | |
| 23 | 17.8 | 25.6 | 33.2 | 47.8 | 62.0 | 75.7 | 103 | 141 | 204 | 264 | 322 | 337 | 337 | 337 | 305 | 260 | 226 | | |
| 24 | 18.6 | 26.8 | 34.8 | 50.1 | 64.9 | 79.3 | 107 | 148 | 213 | 276 | 338 | 353 | 353 | 353 | 325 | 278 | 241 | | |
| 25 | 19.5 | 28.0 | 36.3 | 52.3 | 67.8 | 82.9 | 112 | 155 | 223 | 289 | 353 | 369 | 369 | 369 | 346 | 295 | 256 | | |
| 26 | 20.3 | 29.3 | 37.9 | 54.6 | 70.7 | 86.5 | 117 | 161 | 232 | 301 | 368 | 385 | 385 | 385 | 367 | 313 | 271 | | |

Note: 1. KW rating when using a one-pitch offset link (OL) is 65% of the above. Two pitch offset links (2POL) can be used at 100% of the above values.
2. Please contact a Tsubaki representative prior to use of kW ratings in the colored area of the table.

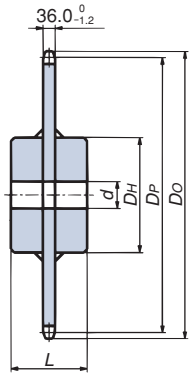
| Multi-strand factor | Number of chain strands | Multi-strand factor | Number of chain strands | Multi-strand factor |
|---|---|---|---|---|
| | Double strand | 1.7 | Quintuple strand | 3.9 |
| | Triple strand | 2.5 | Sextuple strand | 4.6 |
| | Quadruple strand | 3.3 | – | – |

| Lubrication method | | | |
|---|---|---|---|
| | A | Manual lubrication or drip lubrication | Details on Pg. 193 |
| | B | Oil bath or slinger disc lubrication | |
| | C | Forced pump lubrication | |

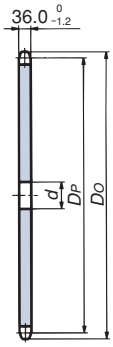
# RS200 Sprocket




Welded construction
1B type




Welded construction
1C type




1A type

| Number of Teeth | Pitch Circular Diameter ($D_P$) | Sprocket Outer Diameter ($D_O$) | 1B type: Bore Diameter ($d$) Pilot Bore Diameter | 1B type: Bore Diameter ($d$) Maximum | 1B type: Hub Diameter ($D_H$) | 1B type: Hub Length ($L$) | 1B type: Approx. Mass (kg) | 1B type: Material | 1C type: Bore Diameter ($d$) Pilot Bore Diameter | 1C type: Bore Diameter ($d$) Maximum | 1C type: Hub Diameter ($D_H$) | 1C type: Hub Length ($L$) | 1C type: Approx. Mass (kg) | 1C type: Material | 1A type: Pilot Bore Diameter ($d$) | 1A type: Approx. Mass (kg) | 1A type: Material | Number of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **11** | 225.39 | 254 | 43 | 80 | 130 | 65 | 12.3 | Welded construction: machine-structural carbon steel (teeth) and structural rolled steel (hub) | | | | | | Welded construction: machine-structural carbon steel (teeth) and structural rolled steel (hub) | 43 | 9.4 | Machine-structural carbon steel | **11** |
| **12** | 245.34 | 275 | 43 | 90 | 150 | 75 | 16.6 | | | | | | | | 43 | 11.3 | | **12** |
| **13** | 265.34 | 296 | 43 | 100 | 170 | 80 | 21.0 | | | | | | | | 43 | 13.4 | | **13** |
| **14** | 285.37 | 316 | 43 | 110 | 180 | 80 | 24.3 | | | | | | | | 43 | 15.7 | | **14** |
| **15** | 305.42 | 337 | 43 | 115 | 180 | 80 | 26.8 | | | | | | | | 43 | 18.2 | | **15** |
| **16** | 325.49 | 357 | 43 | 115 | 180 | 80 | 29.5 | | | | | | | | 43 | 20.9 | | **16** |
| **17** | 345.58 | 378 | 43 | 120 | 190 | 85 | 34.5 | | | | | | | | 43 | 23.7 | | **17** |
| **18** | 365.68 | 398 | 43 | 120 | 190 | 85 | 37.5 | | | | | | | | 43 | 26.8 | | **18** |
| **19** | 385.79 | 419 | | | | | | | 63 | 125 | 200 | 90 | 41.7 | | 63 | 29.5 | | **19** |
| **20** | 405.92 | 439 | | | | | | | 63 | 125 | 200 | 90 | 45.1 | | 63 | 32.9 | | **20** |
| **21** | 426.05 | 459 | | | | | | | 63 | 135 | 220 | 110 | **56.5** | | 63 | **36.1** | | **21** |
| **22** | 446.20 | 480 | | | | | | | 63 | 135 | 220 | 110 | **60.2** | | 63 | **39.9** | | **22** |
| **23** | 466.34 | 500 | | | | | | | 63 | 140 | 230 | 110 | **66.2** | Welded construction: structural rolled steel (teeth and hub) | 63 | **43.8** | | **23** |
| **24** | 486.49 | 520 | | | | | | | 63 | 140 | 230 | 110 | **70.3** | | 63 | **47.8** | | **24** |
| **25** | 506.65 | 541 | | | | | | | 63 | 140 | 230 | 110 | **74.6** | | 63 | **52.2** | | **25** |
| **26** | 526.81 | 561 | | | | | | | 63 | 140 | 230 | 110 | **79.1** | | 63 | **56.7** | | **26** |
| **27** | 546.98 | 581 | | | | | | | 63 | 140 | 230 | 110 | **83.7** | | 63 | **61.3** | | **27** |
| **28** | 567.14 | 602 | | | | | | | 63 | 140 | 230 | 110 | **88.5** | | 63 | **66.1** | | **28** |
| **30** | 607.49 | 642 | | | | | | | 63 | 150 | 240 | 125 | **105.8** | | 63 | **76.3** | | **30** |
| **32** | 647.85 | 683 | | | | | | | 63 | 150 | 240 | 125 | **116.7** | | 63 | **87.2** | | **32** |
| **34** | 688.21 | 723 | | | | | | | 63 | 150 | 240 | 125 | **128.3** | | 63 | **98.8** | | **34** |
| **35** | 708.39 | 744 | | | | | | | 63 | 150 | 240 | 125 | **134.5** | | 63 | **104.9** | | **35** |
| **36** | 728.58 | 764 | | | | | | | 63 | 150 | 240 | 125 | **140.7** | | 63 | **111.2** | | **36** |
| **38** | 768.96 | 804 | | | | | | | 63 | 150 | 240 | 125 | **153.8** | | 63 | **124.2** | | **38** |
| **40** | 809.34 | 845 | | | | | | | 63 | 170 | 270 | 140 | **182.3** | | 63 | **138.1** | | **40** |
| **42** | 849.73 | 885 | | | | | | | 63 | 170 | 270 | 140 | **196.8** | | 63 | **152.6** | | **42** |
| **45** | 910.31 | 946 | | | | | | | 63 | 170 | 270 | 140 | **219.9** | | 63 | **175.8** | | **45** |
| **48** | 970.90 | 1007 | | | | | | | 68 | 170 | 270 | 140 | **244.1** | | 68 | **200.4** | | **48** |
| **50** | 1011.30 | 1047 | | | | | | | 68 | 170 | 270 | 140 | **261.5** | | 68 | **217.8** | | **50** |
| **54** | 1092.10 | 1128 | | | | | | | 68 | 170 | 270 | 140 | **298.5** | | 68 | **254.7** | | **54** |
| **60** | 1213.31 | 1250 | | | | | | | 68 | 170 | 270 | 140 | **359.4** | | 68 | **315.6** | | **60** |

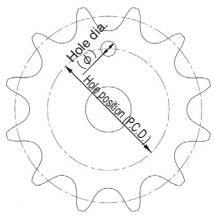
Note: 1. Maximum bore diameter is the typical range. Determine bore diameter and key bearing pressure based on general mechanical design.
2. Models with approximate masses in bold have one hanging hole processed.
See the diagram on the right for information.

## Sprocket Number

RS200 -1B 15T

- Number of teeth
- Type
- Chain number

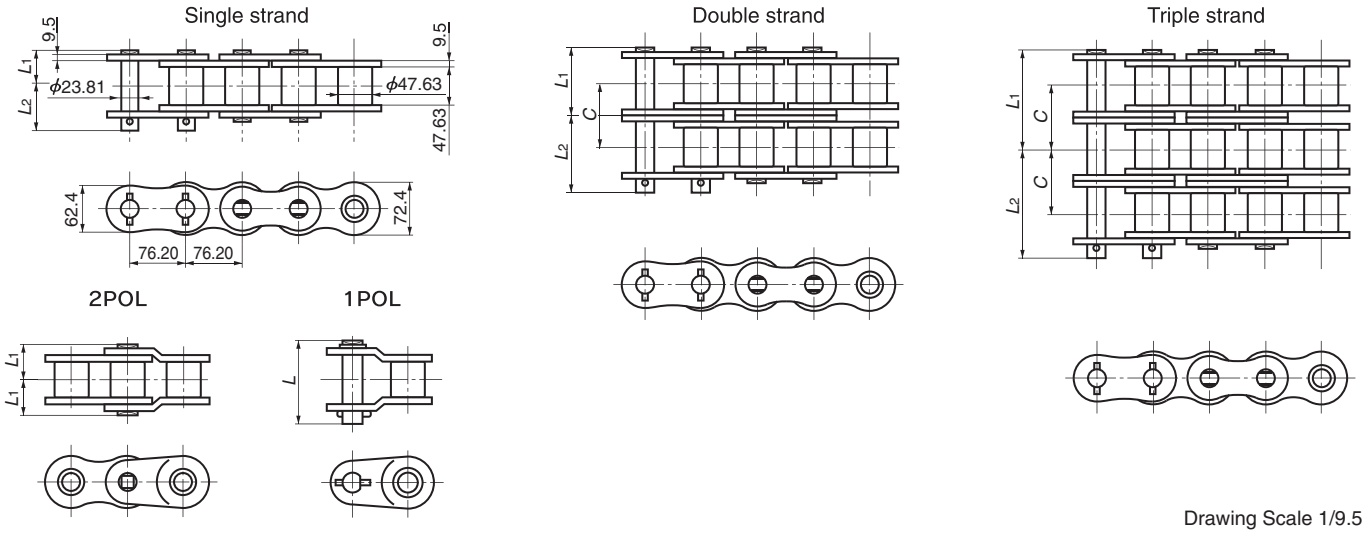
### Hanging Hole Dimensions




The phase relationship between the hanging hole and teeth may vary.

| No. of teeth | 1B, 1C, 1A Type bore dia. (φ40) Hole position (P.C.D.) | No. of teeth | 1B, 1C, 1A Type bore dia. (φ40) Hole position (P.C.D.) |
|---|---|---|---|
| **21** | 291 | **34** | 553 |
| **22** | 311 | **35** | 573 |
| **23** | 331 | **36** | 593 |
| **24** | 351 | **38** | 634 |
| **25** | 371 | **40** | 674 |
| **26** | 392 | **42** | 715 |
| **27** | 412 | **45** | 775 |
| **28** | 432 | **48** | 836 |
| **30** | 472 | **50** | 876 |
| **32** | 513 | **54** | 957 |
| | | **60** | 1078 |

# RS240




Drawing Scale 1/9.5

| TSUBAKI Chain Number | Number of Strands | Pin Length $L_1+L_2$ | Dimensions $L_1$ | Dimensions $L_2$ | Offset Pin Length $L$ | Transverse Pitch $C$ | Pin Type | ANSI Standard Min. Tensile Strength kN{kgf} | Tsubaki Minimum Tensile Strength kN{kgf} | Tsubaki Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS240-1 | 1 | 103.4 | 47.9 | 55.5 | 106.7 | 87.8 | Riveting | 550.4{56125} | 623 {63500} | 686 {70000} | 99.0{10100} | 24.5 |
| RS240-2 | 2 | 191.3 | 91.9 | 99.4 | 198.4 | | | 1100.8{112250} | 1250{127000} | 1370{140000} | 168{17170} | 48.1 |
| RS240-3 | 3 | 279.0 | 135.85 | 143.15 | 286.3 | | | 1651.2{168376} | 1870{190500} | 2060{210000} | 248{25250} | 71.6 |
| RS240-4 | 4 | 367.1 | 179.8 | 187.3 | 374.2 | | | – | 2490{254000} | 2750{280000} | 327{33330} | 95.1 |
| RS240-5 | 5 | 455.0 | 223.75 | 231.25 | 462.0 | | | – | 3110{317500} | 3430{350000} | 386{39390} | 118.6 |
| RS240-6 | 6 | 542.8 | 267.7 | 275.1 | 550.1 | | | – | 3740{381000} | 4120{420000} | 456{46460} | 142.1 |

Note: 1. Maximum allowable load when using a one-pitch offset link (OL) is 65% of the above. Two pitch offset links (2POL) can be used at 100% of the above values.
2. Number of links per unit = 40

## ■RS240-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

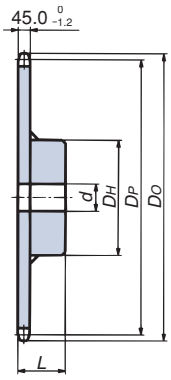
| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 125 | 150 | 175 | 200 | 250 | 300 | 350 | 400 | 450 |
| | A | | | | | | B | | | | | | | | | | | | C | |
| 9 | 5.74 | 10.7 | 15.4 | 20.0 | 24.4 | 28.8 | 37.3 | 45.6 | 53.7 | 69.6 | 85.1 | 104 | 123 | 141 | 159 | 159 | 159 | 126 | 103 | 86.5 |
| 10 | 6.43 | 12.0 | 17.3 | 22.4 | 27.4 | 32.3 | 41.8 | 51.1 | 60.2 | 78.0 | 95.4 | 117 | 137 | 158 | 178 | 183 | 183 | 148 | 121 | 101 |
| 11 | 7.13 | 13.3 | 19.2 | 24.8 | 30.4 | 35.8 | 46.3 | 56.7 | 66.8 | 86.5 | 106 | 129 | 152 | 175 | 197 | 202 | 202 | 170 | 140 | 116 |
| 12 | 7.83 | 14.6 | 21.1 | 27.3 | 33.4 | 39.3 | 50.9 | 62.2 | 73.3 | 95.0 | 116 | 142 | 167 | 192 | 217 | 222 | 222 | 194 | 159 | |
| 13 | 8.54 | 15.9 | 23.0 | 29.7 | 36.4 | 42.8 | 55.5 | 67.9 | 80.0 | 104 | 127 | 155 | 182 | 210 | 236 | 242 | 242 | 219 | 179 | |
| 14 | 9.25 | 17.3 | 24.9 | 32.2 | 39.4 | 46.4 | 60.1 | 73.5 | 86.6 | 112 | 137 | 168 | 198 | 227 | 256 | 263 | 263 | 245 | 200 | |
| 15 | 9.97 | 18.6 | 26.8 | 34.7 | 42.4 | 50.0 | 64.8 | 79.2 | 93.3 | 121 | 148 | 181 | 213 | 245 | 276 | 283 | 283 | 271 | 222 | |
| 16 | 10.7 | 19.9 | 28.7 | 37.2 | 45.5 | 53.6 | 69.5 | 84.9 | 100 | 130 | 158 | 194 | 228 | 262 | 296 | 299 | 299 | 269 | 245 | |
| 17 | 11.4 | 21.3 | 30.7 | 39.7 | 48.6 | 57.2 | 74.2 | 90.7 | 107 | 138 | 169 | 207 | 244 | 280 | 300 | 300 | 300 | 281 | 268 | |
| 18 | 12.1 | 22.7 | 32.6 | 42.3 | 51.7 | 60.9 | 78.9 | 96.4 | 114 | 147 | 180 | 220 | 259 | 298 | 303 | 303 | 303 | 291 | 281 | |
| 19 | 12.9 | 24.0 | 34.6 | 44.8 | 54.8 | 64.6 | 83.6 | 102 | 120 | 156 | 191 | 233 | 275 | 316 | 317 | 317 | 317 | 304 | 293 | |
| 20 | 13.6 | 25.4 | 36.6 | 47.4 | 57.9 | 68.2 | 88.4 | 108 | 127 | 165 | 202 | 246 | 290 | 330 | 330 | 330 | 330 | 316 | 304 | |
| 21 | 14.3 | 26.8 | 38.5 | 49.9 | 61.0 | 71.9 | 93.2 | 114 | 134 | 174 | 213 | 260 | 306 | 345 | 345 | 345 | 345 | 328 | 314 | |
| 22 | 15.1 | 28.1 | 40.5 | 52.5 | 64.2 | 75.6 | 98.0 | 120 | 141 | 183 | 223 | 273 | 322 | 346 | 346 | 346 | 342 | 339 | 315 | |
| 23 | 15.8 | 29.5 | 42.5 | 55.1 | 67.3 | 79.3 | 103 | 126 | 148 | 192 | 234 | 287 | 338 | 370 | 370 | 370 | 359 | 350 | 334 | |
| 24 | 16.6 | 30.9 | 44.5 | 57.7 | 70.5 | 83.1 | 108 | 132 | 155 | 201 | 246 | 300 | 354 | 396 | 396 | 396 | 376 | 360 | | |
| 25 | 17.3 | 32.3 | 46.5 | 60.3 | 73.7 | 86.8 | 112 | 137 | 162 | 210 | 257 | 314 | 370 | 410 | 410 | 410 | 388 | 370 | | |
| 26 | 18.1 | 33.7 | 48.5 | 62.9 | 76.9 | 90.6 | 117 | 143 | 169 | 219 | 268 | 327 | 386 | 418 | 418 | 418 | 397 | 380 | | |

Note: 1. KW rating when using a one-pitch offset link (OL) is 65% of the above. Two pitch offset links (2POL) can be used at 100% of the above values.
2. Please contact a Tsubaki representative prior to use of kW ratings in the colored area of the table.

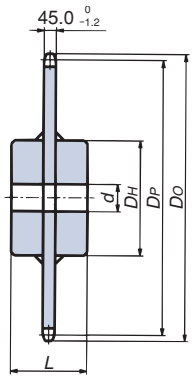
| Multi-strand factor | Number of chain strands | Multi-strand factor | Number of chain strands | Multi-strand factor |
|---|---|---|---|---|
| | Double strand | 1.7 | Quintuple strand | 3.9 |
| | Triple strand | 2.5 | Sextuple strand | 4.6 |
| | Quadruple strand | 3.3 | – | – |

| Lubrication method | | | |
|---|---|---|---|
| | A | Manual lubrication or drip lubrication | Details on Pg. 193 |
| | B | Oil bath or slinger disc lubrication | |
| | C | Forced pump lubrication | |

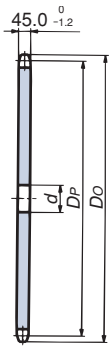
# RS240 Sprocket




Welded construction
1B type




Welded construction
1C type




1A type

| Number of Teeth | Pitch Circular Diameter ($D_P$) | Sprocket Outer Diameter ($D_O$) | 1B type: Bore Diameter ($d$) Pilot Bore Diameter | 1B: Bore Diameter ($d$) Maximum | 1B: Hub Diameter ($D_H$) | 1B: Hub Length ($L$) | 1B: Approx. Mass (kg) | 1B: Material | 1C: Bore Diameter ($d$) Pilot Bore Diameter | 1C: Bore Diameter ($d$) Maximum | 1C: Hub Diameter ($D_H$) | 1C: Hub Length ($L$) | 1C: Approx. Mass (kg) | 1C: Material | 1A: Pilot Bore Diameter ($d$) | 1A: Approx. Mass (kg) | 1A: Material | Number of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **11** | 270.47 | 305 | 43 | 90 | 150 | 75 | 21.3 | Welded construction: machine-structural carbon steel (teeth) and structural rolled steel (hub) | | | | | | Welded construction: structural rolled steel (teeth and hub) | 43 | 17.1 | Machine-structural carbon steel | **11** |
| **12** | 294.41 | 330 | 43 | 100 | 170 | 85 | 27.8 | | | | | | | | 43 | 20.6 | | **12** |
| **13** | 318.41 | 355 | 43 | 120 | 200 | 100 | 37.7 | | | | | | | | 43 | 24.4 | | **13** |
| **14** | 342.44 | 380 | 43 | 130 | 210 | 110 | 46.0 | | | | | | | | 43 | 28.6 | | **14** |
| **15** | 366.50 | 404 | | | | | | | 63 | 140 | 230 | 110 | 52.4 | | 63 | 32.5 | | **15** |
| **16** | 390.59 | 429 | | | | | | | 63 | 140 | 230 | 110 | 57.2 | | 63 | 37.3 | | **16** |
| **17** | 414.70 | 453 | | | | | | | 63 | 145 | 230 | 110 | 62.3 | | 63 | 42.4 | | **17** |
| **18** | 438.82 | 478 | | | | | | | 63 | 145 | 230 | 110 | 67.8 | | 63 | 47.9 | | **18** |
| **19** | 462.95 | 502 | | | | | | | 63 | 150 | 240 | 120 | 78.7 | | 63 | 53.6 | | **19** |
| **20** | 487.11 | 527 | | | | | | | 63 | 150 | 240 | 120 | **84.3** | | 63 | **59.2** | | **20** |
| **21** | 511.26 | 551 | | | | | | | 63 | 155 | 240 | 120 | **90.7** | | 63 | **65.6** | | **21** |
| **22** | 535.43 | 576 | | | | | | | 63 | 155 | 240 | 120 | **97.4** | | 63 | **72.3** | | **22** |
| **23** | 559.61 | 600 | | | | | | | 63 | 160 | 260 | 140 | **116.9** | | 63 | **79.4** | | **23** |
| **24** | 583.79 | 625 | | | | | | | 63 | 160 | 260 | 140 | **124.3** | | 63 | **86.8** | | **24** |
| **25** | 607.98 | 649 | | | | | | | 63 | 160 | 260 | 140 | **132.0** | | 63 | **94.5** | | **25** |
| **26** | 632.17 | 673 | | | | | | | 63 | 160 | 260 | 140 | **140.1** | | 63 | **102.6** | | **26** |
| **27** | 656.37 | 698 | | | | | | | 63 | 160 | 260 | 140 | **148.5** | | 63 | **111.0** | | **27** |
| **28** | 680.57 | 722 | | | | | | | 63 | 160 | 260 | 140 | **157.1** | | 63 | **119.6** | | **28** |
| **30** | 728.99 | 771 | | | | | | | 63 | 165 | 260 | 140 | **175.5** | | 63 | **138.0** | | **30** |
| **32** | 777.42 | 819 | | | | | | | 63 | 165 | 260 | 140 | **195.1** | | 63 | **157.6** | | **32** |
| **34** | 825.86 | 868 | | | | | | | 63 | 165 | 260 | 140 | **216.1** | | 63 | **178.5** | | **34** |
| **35** | 850.07 | 892 | | | | | | | 63 | 165 | 260 | 140 | **227.0** | | 63 | **189.4** | | **35** |
| **36** | 874.30 | 917 | | | | | | | 63 | 165 | 260 | 140 | **238.3** | | 63 | **200.8** | | **36** |
| **38** | 922.75 | 965 | | | | | | | 63 | 165 | 260 | 140 | **261.8** | | 63 | **224.3** | | **38** |
| **40** | 971.21 | 1014 | | | | | | | 68 | 170 | 270 | 140 | **289.3** | | 68 | **248.9** | | **40** |
| **42** | 1019.67 | 1063 | | | | | | | 68 | 170 | 270 | 140 | **315.4** | | 68 | **275.2** | | **42** |
| **45** | 1092.37 | 1135 | | | | | | | 68 | 170 | 270 | 140 | **357.0** | | 68 | **316.8** | | **45** |
| **48** | 1165.08 | 1208 | | | | | | | 68 | 170 | 270 | 140 | **401.6** | | 68 | **361.4** | | **48** |
| **50** | 1213.56 | 1257 | | | | | | | 68 | 170 | 270 | 140 | **432.9** | | 68 | **392.7** | | **50** |
| **54** | 1310.52 | 1354 | | | | | | | 68 | 170 | 270 | 140 | **499.5** | | 68 | **459.2** | | **54** |
| **60** | 1455.98 | 1500 | | | | | | | 68 | 170 | 270 | 140 | **609.3** | | 68 | **568.8** | | **60** |

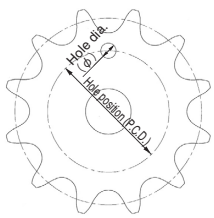
Note: 1. Maximum bore diameter is the typical range. Determine bore diameter and key bearing pressure based on general mechanical design.
2. Models with approximate masses in bold have one hanging hole processed.
See the diagram on the right for information.

## Sprocket Number

RS240 -1B 14T

- Number of teeth
- Type
- Chain number

### Hanging Hole Dimensions

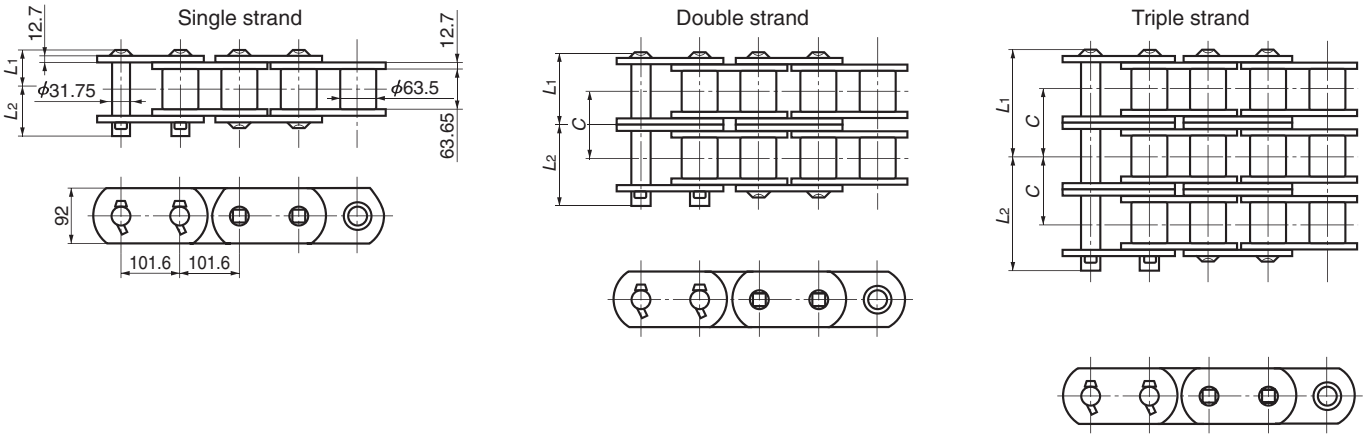



The phase relationship between the hanging hole and teeth may vary.

| No. of teeth | 1B, 1C, 1A Type bore dia. (ϕ40) Hole position (P.C.D.) | No. of teeth | 1B, 1C, 1A Type bore dia. (ϕ40) Hole position (P.C.D.) |
|---|---|---|---|
| **20** | 355 | **32** | 635 |
| **21** | 378 | **34** | 681 |
| **22** | 401 | **35** | 704 |
| **23** | 424 | **36** | 726 |
| **24** | 447 | **38** | 773 |
| **25** | 470 | **40** | 821 |
| **26** | 494 | **42** | 867 |
| **27** | 517 | **45** | 938 |
| **28** | 540 | **48** | 1009 |
| **30** | 587 | **50** | 1054 |
| | | **54** | 1148 |
| | | **60** | 1291 |

# RF320-T, RF400-T

## RF320-T

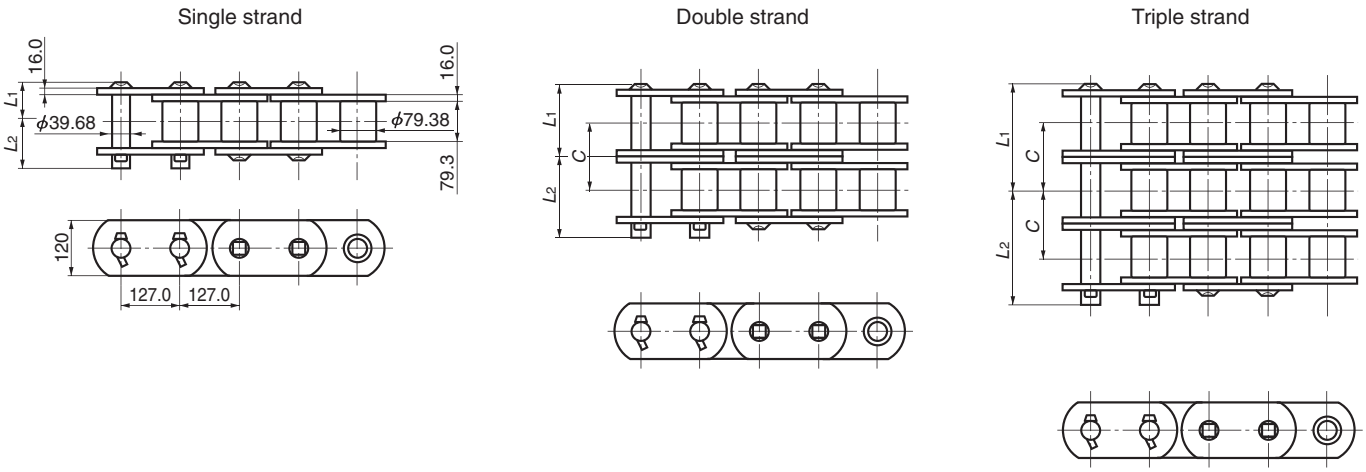



Drawing Scale: 1/12.7

| TSUBAKI Chain Number | Number of Strands | Pin Length $L_1+L_2$ | Dimensions $L_1$ | Dimensions $L_2$ | Offset Pin Length $L$ | Transverse Pitch $C$ | Pin Type | Tsubaki Minimum Tensile Strength kN{kgf} | Tsubaki Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RF320-T-1 | 1 | 141.4 | 63.8 | 77.6 | – | 117.1 | Riveting | 1000{102000} | 1150{117000} | 123{12500} | 47.6 |
| RF320-T-2 | 2 | 258.7 | 122.4 | 136.3 | – | | | 2000{204000} | 2290{234000} | 208{21250} | 94.6 |
| RF320-T-3 | 3 | 375.9 | 181.05 | 194.85 | – | | | 3000{306000} | 3440{351000} | 306{31250} | 141.5 |
| RF320-T-4 | 4 | 493.2 | 239.65 | 253.55 | – | | | 4000{408000} | 4590{468000} | 405{41250} | 188.5 |

Note 1. Number of links per unit = 30

## RF400-T




Drawing Scale 1/16

| TSUBAKI Chain Number | Number of Strands | Pin Length $L_1+L_2$ | Dimensions $L_1$ | Dimensions $L_2$ | Offset Pin Length $L$ | Transverse Pitch $C$ | Pin Type | Tsubaki Minimum Tensile Strength kN{kgf} | Tsubaki Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RF400-T-1 | 1 | 172.3 | 79.65 | 92.65 | – | 146.8 | Riveting | 1730{176000} | 1950{199000} | 188{19200} | 83.9 |
| RF400-T-2 | 2 | 319.0 | 153.05 | 165.95 | – | | | 3450{352000} | 3900{398000} | 320{32640} | 166.8 |
| RF400-T-3 | 3 | 465.7 | 226.45 | 239.25 | – | | | 5180{528000} | 5850{597000} | 471{48000} | 249.7 |
| RF400-T-4 | 4 | 612.3 | 299.8 | 312.5 | – | | | 6900{704000} | 7810{796000} | 621{63360} | 332.7 |

Note 1. Number of links per unit = 24

MEMO

# BS/DIN Standard RS Roller Chain

## Tsubaki presents its 4th generation BS/DIN standard RS Roller Chain, GT4 WINNER.

**GT4 WINNER was crafted with ultimate wear life in mind, a proven benefit for customers looking for real savings in chain maintenance & product replacement. Tsubaki BS/DIN European Standard chain is available in chain sizes from RS05B to RS56B. Single, double, and triple strand chains are available.**

### 1 Lube Groove (LG) Solid Bush

Thanks to Tsubaki's own innovative fabrication technology, we have developed a new seamless solid bush. This high precision solid bush with special lube grooves (LG) improves lubrication retention, greatly extending the original wear life of the chain.

※ LG solid bushes (PAT.) are avaliable for 16B to 24B

Lube Groove (LG) Solid Bush

### 2 Ring Coin (RC) Processing

Residual stress generated from a groove around the connecting plate hole eliminates strength reduction caused by the gap between the pin and the plate necessary for connecting and disconnecting. With this groove, the connecting link achieves the same strength as the chain itself.

※ RC processing is avaliable for 08B to 40B

Ring Coin (RC) Processing

### 3 Center Sink Rivet

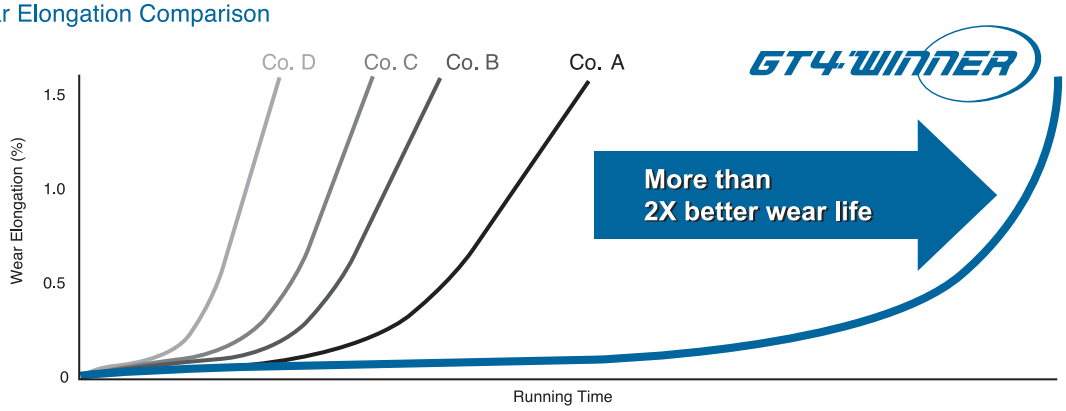
Tsubaki's chains can easily be disassembled thanks to our unique center sink rivet head, reducing the time needed for chain maintenance.
An additional benefit is that should the chain be inadvertently overloaded, the markings on the rivet head will identify where pin rotation has occurred, giving a clear indication of chain overload.

※ Center sink rivets are available for 08B to 16B

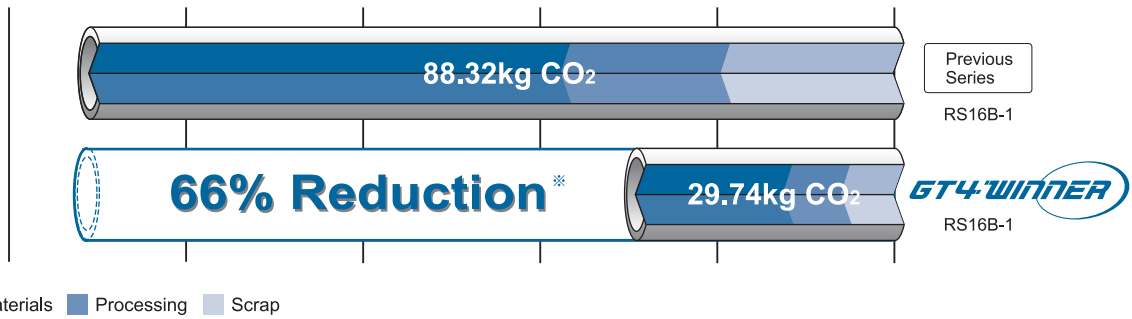
Center Sink Rivet

## Extremely Long Wear Life

### Wear Elongation Comparison




## $CO_2$ Reduction




With its focus on manufacturing chain with a substantially longer wear life, Tsubaki is helping to create an environment in harmony with our planet. Less frequent chain replacement results in less consumption of resources and contributes to significantly lower $CO_2$ emissions.

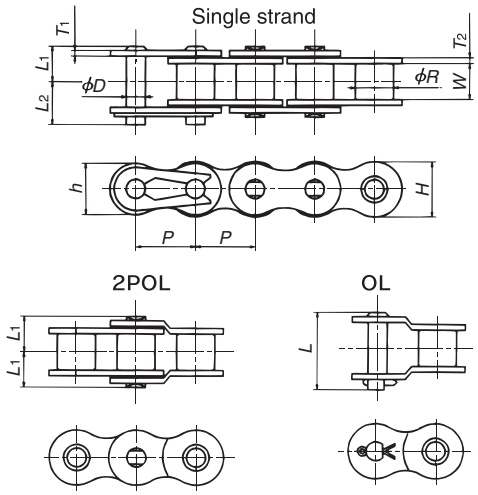
※ Results of RS Roller Chain (16B-1) LCA inventory analysis.

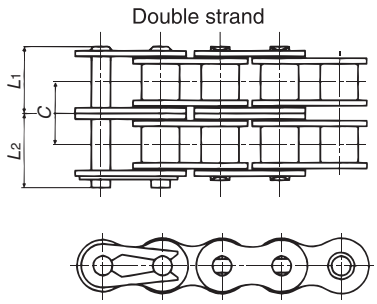
## Quick and Accurate Selection

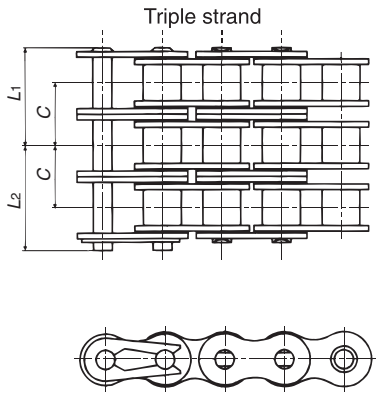
We are listing our new maximum allowable loads, as well as our new maximum kilowatt ratings table.
This will allow quicker and more accurate chain selection.

| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1400 | 1600 | 1800 | 2000 | 22[illegible] |
| | AI | | | | AII | | | B | | | | | | | | | | | | | |
| 9 | 0.35 | 0.81 | 1.51 | 2.82 | 4.06 | 5.25 | 7.57 | 9.81 | 12.0 | 14.1 | 16.2 | 15.1 | 12.7 | 10.8 | 9.39 | 8.24 | 6.54 | 5.35 | 4.48 | 3.83 | 3.[illegible] |
| 10 | 0.40 | 0.91 | 1.69 | 3.16 | 4.54 | 5.89 | 8.48 | 11.0 | 13.4 | 15.8 | 18.2 | 17.7 | 14.9 | 12.7 | 11.0 | 9.65 | 7.66 | 6.27 | 5.25 | 4.48 | 3.8 |
| 11 | 0.44 | 1.00 | 1.87 | 3.50 | 5.04 | 6.53 | 9.40 | 12.2 | 14.9 | 17.5 | 20.2 | 20.4 | 17.1 | 14.6 | 12.7 | 11.1 | 8.83 | 7.23 | 6.06 | 5.17 | 4.4 |
| 12 | 0.48 | 1.10 | 2.06 | 3.84 | 5.53 | 7.17 | 10.3 | 13.4 | 16.4 | 19.3 | 22.1 | 23.3 | 19.5 | 16.7 | 14.5 | 12.7 | 10.1 | 8.24 | 6.90 | 5.89 | 5.1 |
| 13 | 0.53 | 1.20 | 2.24 | 4.19 | 6.03 | 7.82 | 11.3 | 14.6 | 17.8 | 21.0 | 24.1 | 26.3 | 22.0 | 18.8 | 16.3 | 14.3 | 11.3 | 9.29 | 7.78 | 6.65 | 5.7 |
| 14 | 0.57 | 1.30 | 2.43 | 4.54 | 6.54 | 8.47 | 12.2 | 15.8 | 19.3 | 22.8 | 26.1 | 29.4 | 24.6 | 21.0 | 18.2 | 16.0 | 12.7 | 10.4 | 8.70 | 7.43 | 6.4 |
| 15 | 0.62 | 1.40 | 2.62 | 4.89 | 7.04 | 9.12 | 13.1 | 17.0 | 20.8 | 24.5 | 28.2 | 31.8 | 27.3 | 23.3 | 20.2 | 17.7 | 14.1 | 11.5 | 9.65 | 8.24 | 7.1 |
| 16 | 0.66 | 1.51 | 2.81 | 5.24 | 7.55 | 9.78 | 14.1 | 18.3 | 22.3 | 26.3 | 30.2 | 34.1 | 30.1 | 25.7 | 22.2 | 19.5 | 15.5 | 12.7 | 10.6 | 9.08 | 7.8 |
| 17 | 0.70 | 1.61 | 3.00 | 5.60 | 8.06 | 10.4 | 15.0 | 19.5 | 23.8 | 28.1 | 32.2 | 36.4 | 32.9 | 28.1 | 24.4 | 21.4 | 17.0 | 13.9 | 11.6 | 9.94 | 8.4 |
| 18 | 0.75 | 1.71 | 3.19 | 5.95 | 8.57 | 11.1 | 16.0 | 20.7 | 25.3 | 29.9 | 34.3 | 38.7 | 35.9 | 30.6 | 26.5 | 23.3 | 18.5 | 15.1 | 12.7 | 10.8 | 9.3 |
| 19 | 0.79 | 1.81 | 3.38 | 6.31 | 9.09 | 11.8 | 17.0 | 22.0 | 26.9 | 31.7 | 36.4 | 41.0 | 38.9 | 33.2 | 28.8 | 25.3 | 20.1 | 16.4 | 13.8 | 11.7 | 10 |
| 20 | 0.84 | 1.92 | 3.57 | 6.67 | 9.61 | 12.4 | 17.9 | 23.2 | 28.4 | 33.5 | 38.4 | 43.3 | 42.0 | 35.9 | 31.1 | 27.3 | 21.7 | 17.7 | 14.9 | 12.7 | 11 |
| 21 | 0.89 | 2.02 | 3.77 | 7.03 | 10.1 | 13.1 | 18.9 | 24.5 | 29.9 | 35.3 | 40.5 | 45.7 | 45.2 | 38.6 | 33.5 | 29.4 | 23.3 | 19.1 | 16.0 | 13.6 | 11 |
| 22 | 0.93 | 2.12 | 3.96 | 7.39 | 10.6 | 13.8 | 19.9 | 25.7 | 31.5 | 37.1 | 42.6 | 48.0 | 48.5 | 41.4 | 35.9 | 31.5 | 25.0 | 20.4 | 17.1 | 14.6 | 12 |
| 23 | 0.98 | 2.23 | 4.16 | 7.76 | 11.2 | 14.5 | 20.8 | 27.0 | 33.0 | 38.9 | 44.7 | 50.4 | 51.8 | 44.2 | 38.3 | 33.7 | 26.7 | 21.9 | 18.3 | 15.4 | 13 |

# BS/DIN Standard RS Roller Chain




Connecting link
RS20B to RS40B: Cotter pin type

| TSUBAKI Chain Number | JIS No. | Pitch $P$ | Roller Diameter $R$ | Inner Width of Inner Link $W$ | Plates | | | | Pin Diameter $D$ |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Thickness $T_1$ | Thickness $T_2$ | Height $H$ | Height $h$ | |
| RS05B-1 | 05B | 8.00 | 5.00 | 3.00 | 0.75 | 0.75 | 7.1 | 7.1 | 2.30 |
| RF06B-1 | 06B | 9.525 | 6.35 | 5.72 | 1.0 | 1.3 | 8.2 | 8.2 | 3.27 |
| RS08B-1 | 08B | 12.70 | 8.51 | 7.75 | 1.6 | 1.6 | 11.8 | 10.4 | 4.45 |
| RS10B-1 | 10B | 15.875 | 10.16 | 9.65 | 1.5 | 1.5 | 14.7 | 13.7 | 5.08 |
| RS12B-1 | 12B | 19.05 | 12.07 | 11.68 | 1.8 | 1.8 | 16.1 | 16.1 | 5.72 |
| RS16B-1 | 16B | 25.40 | 15.88 | 17.02 | 3.2 | 4.0 | 21.0 | 21.0 | 8.28 |
| RS20B-1 | 20B | 31.75 | 19.05 | 19.56 | 3.4 | 4.4 | 26.0 | 26.0 | 10.19 |
| RS24B-1 | 24B | 38.10 | 25.40 | 25.40 | 5.6 | 6.0 | 33.4 | 31.2 | 14.63 |
| RS28B-1 | 28B | 44.45 | 27.94 | 30.99 | 6.3 | 7.5 | 36.4 | 36.4 | 15.90 |
| RS32B-1 | 32B | 50.80 | 29.21 | 30.99 | 6.3 | 7.0 | 42.2 | 41.6 | 17.81 |
| RS40B-1 | 40B | 63.50 | 39.37 | 38.10 | 8.0 | 8.5 | 52.9 | 52.0 | 22.89 |
| RS48B-1 | 48B | 76.2 | 48.26 | 45.72 | 10.0 | 12.1 | 63.8 | 59.8 | 29.23 |
| RS56B-1 | 56B | 88.9 | 53.98 | 53.34 | 12.3 | 13.6 | 77.8 | 73.0 | 34.32 |

Note: Outer plate thickness is given for single-strand chain. Outer plate thickness will vary for multi-strand chains due to their relation to the horizontal pitch.

| TSUBAKI Chain Number | Number of Strands | Pin Length $L_1 + L_2$ | Dimensions $L_1$ | Dimensions $L_2$ | Offset Pin Length $L$ | Transverse Pitch $C$ | Tsubaki Minimum Tensile Strength kN{kgf} | ISO "B" Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m |
|---|---|---|---|---|---|---|---|---|---|---|
| RS05B-1 | 1 | 8.5 | 3.8 | 4.7 | — | — | 5.0 {510} | 4.4 {449} | 1.26{128} | 0.18 |
| RF06B-1 | 1 | 13.8 | 6.1 | 7.7 | 15.1 | | 9.0 {920} | 8.90 {910} | 1.95{199} | 0.39 |
| RF06B-2 | 2 | 24.0 | 11.2 | 12.8 | 25.9 | 10.24 | 17.0 {1730} | 16.9 {1720} | 3.32{339} | 0.75 |
| RF06B-3 | 3 | 34.3 | 16.4 | 17.9 | 36.1 | | 24.9 {2540} | 24.9 {2540} | 4.88{498} | 1.11 |
| RS08B-1 | 1 | 18.4 | 8.4 | 10.0 | 18.6 | | 19.0 {1930} | 17.8 {1820} | 3.80{387} | 0.70 |
| RS08B-2 | 2 | 32.2 | 15.3 | 16.9 | 34.5 | 13.92 | 32.0 {3260} | 31.1 {3170} | 6.46{659} | 1.35 |
| RS08B-3 | 3 | 46.1 | 22.25 | 23.85 | 48.4 | | 47.5 {4840} | 44.5 {4540} | 9.50{969} | 2.00 |
| RS10B-1 | 1 | 20.8 | 9.55 | 11.25 | 20.8 | | 23 {2340} | 22.2 {2260} | 4.52{461} | 0.95 |
| RS10B-2 | 2 | 37.4 | 17.85 | 19.55 | 39.4 | 16.59 | 44.5 {4540} | 44.5 {4540} | 7.68{783} | 1.85 |
| RS10B-3 | 3 | 54.0 | 26.15 | 27.85 | 56.0 | | 66.8 {6810} | 66.7 {6800} | 11.3{1150} | 2.80 |
| RS12B-1 | 1 | 24.1 | 11.1 | 13.0 | 24.4 | | 31 {3160} | 28.9 {2950} | 5.28{538} | 1.25 |
| RS12B-2 | 2 | 43.6 | 20.85 | 22.75 | 45.9 | 19.46 | 61 {6220} | 57.8 {5890} | 8.98{916} | 2.50 |
| RS12B-3 | 3 | 63.1 | 30.6 | 32.5 | 65.4 | | 92 {9400} | 86.7 {8840} | 13.2{1350} | 3.80 |
| RS16B-1 | 1 | 37.7 | 17.75 | 19.95 | 41.1 | | 70 {7100} | 60 {6120} | 13.1{1340} | 2.70 |
| RS16B-2 | 2 | 69.3 | 33.55 | 35.75 | 75.2 | 31.88 | 128 {13000} | 106 {10800} | 22.3{2270} | 5.40 |
| RS16B-3 | 3 | 101.2 | 49.5 | 51.7 | 107.1 | | 192 {19600} | 160 {16300} | 32.8{3340} | 8.00 |
| RS20B-1 | 1 | 43.0 | 19.9 | 23.1 | 46.6 | | 98.1{10000} | 95 {9690} | 18.4{1880} | 3.85 |
| RS20B-2 | 2 | 79.7 | 38.25 | 41.45 | 84.6 | 36.45 | 197 {20100} | 170 {17300} | 31.3{3190} | 7.65 |
| RS20B-3 | 3 | 116.2 | 56.5 | 59.7 | 121.0 | | 295 {30100} | 250 {25500} | 46.0{4690} | 11.45 |
| RS24B-1 | 1 | 58.5 | 26.65 | 31.85 | 61.7 | | 167 {17000} | 160 {16300} | 27.1{2760} | 7.45 |
| RS24B-2 | 2 | 106.8 | 50.8 | 56.0 | 112.8 | 48.36 | 335 {34100} | 280 {28600} | 46.1{4700} | 14.65 |
| RS24B-3 | 3 | 155.3 | 75.1 | 80.2 | 161.1 | | 500 {51000} | 425 {43300} | 67.8{6910} | 21.75 |
| RS28B-1 | 1 | 69.9 | 32.45 | 37.45 | 74.4 | | 200 {20400} | 200 {20400} | 37.5{3820} | 9.45 |
| RS28B-2 | 2 | 129.3 | 62.15 | 67.15 | 136.6 | 59.56 | 374 {38100} | 360 {36700} | 63.8{6510} | 18.80 |
| RS28B-3 | 3 | 188.9 | 91.95 | 96.95 | 195.9 | | 560 {57100} | 530 {54000} | 93.8{9570} | 28.20 |
| RS32B-1 | 1 | 69.8 | 32.1 | 37.7 | 73.3 | | 255 {26000} | 250 {25500} | 41.0{4180} | 10.25 |
| RS32B-2 | 2 | 128.1 | 61.25 | 66.85 | 134.5 | 58.55 | 485 {49500} | 450 {45900} | 69.7{7110} | 20.10 |
| RS32B-3 | 3 | 186.6 | 90.5 | 96.1 | 192.6 | | 729 {74300} | 670 {68300} | 103 {10500} | 29.90 |
| RS40B-1 | 1 | 84.3 | 39.25 | 45.05 | 88.6 | | 373 {38000} | 355 {36200} | 51.0{5200} | 16.35 |
| RS40B-2 | 2 | 156.6 | 75.4 | 81.2 | 163.2 | 72.29 | 716 {73000} | 630 {64200} | 86.7{8840} | 32.00 |
| RS40B-3 | 3 | 228.8 | 111.5 | 117.3 | 235.3 | | 1080 {110000} | 950 {96900} | 128 {13100} | 47.75 |
| RS48B-1 | 1 | 108.1 | 49.3 | 58.8 | 117.7 | | 565 {57600} | 565 {57600} | 77.0{7850} | 25.00 |
| RS48B-2 | 2 | 199.4 | 95.0 | 104.4 | 209.0 | 91.21 | 1000 {102000} | 1000 {102000} | 131 {13400} | 50.00 |
| RS48B-3 | 3 | 290.6 | 140.6 | 150.0 | 300.2 | | 1520 {155000} | 1500 {153000} | 193 {19700} | 75.00 |
| RS56B-1 | 1 | 126.3 | 57.3 | 69.0 | — | | 851 {86800} | 850 {86700} | 103 {10500} | 33.90 |
| RS56B-2 | 2 | 232.9 | 110.6 | 122.3 | — | 106.6 | 1700 {173000} | 1600 {163000} | 175 {17800} | 67.18 |
| RS56B-3 | 3 | 339.5 | 163.9 | 175.6 | — | | 2250 {229000} | 2240 {228000} | 257 {26200} | 100.40 |

Note: 1. RF06B plate is flat:
2. Multi-strand RF06B and RS08B chains have one middle plate.
3. Maximum allowable load when using 05B, 06B, 48B, 56B, connecting link (CL) is 80% of the above.
4. Maximum allowable load when using one-pitch and two-pitch offset link (OL&2POL) is 60% of the above.
5. There is no offset link for 56B.

# Kilowatt Ratings Tables (RS05B～RS08B)



## ■RS05B Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Lubrication Type / Small Sprocket No. of Teeth | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 50 | 100 | 300 | 500 | 700 | 900 | 1200 | 1500 | 1800 | 2100 | 2500 | 3000 | 3500 | 4000 | 4500 | 5000 | 5500 | 6000 | 6500 | 7000 | 7500 | 8000 | 8500 | 9000 | 10000 |
| | A Ⅰ | | | | | A Ⅱ | | | | B | | | | | | | | | | | | | | | C |
| 9 | 0.04 | 0.07 | 0.18 | 0.29 | 0.39 | 0.49 | 0.64 | 0.78 | 0.92 | 1.06 | 1.09 | 0.83 | 0.66 | 0.54 | 0.45 | 0.38 | 0.33 | 0.29 | 0.26 | 0.23 | 0.21 | 0.19 | 0.17 | 0.16 | 0.14 |
| 10 | 0.04 | 0.08 | 0.21 | 0.33 | 0.44 | 0.55 | 0.72 | 0.87 | 1.03 | 1.18 | 1.27 | 0.97 | 0.77 | 0.63 | 0.53 | 0.45 | 0.39 | 0.34 | 0.30 | 0.27 | 0.25 | 0.22 | 0.20 | 0.19 | 0.16 |
| 11 | 0.05 | 0.08 | 0.23 | 0.36 | 0.49 | 0.61 | 0.79 | 0.97 | 1.14 | 1.31 | 1.47 | 1.12 | 0.89 | 0.73 | 0.61 | 0.52 | 0.45 | 0.40 | 0.35 | 0.31 | 0.28 | 0.26 | 0.23 | 0.22 | 0.18 |
| 12 | 0.05 | 0.09 | 0.25 | 0.40 | 0.54 | 0.67 | 0.87 | 1.07 | 1.26 | 1.44 | 1.67 | 1.27 | 1.01 | 0.83 | 0.69 | 0.59 | 0.51 | 0.45 | 0.40 | 0.36 | 0.32 | 0.29 | 0.27 | 0.25 | 0.21 |
| 13 | 0.05 | 0.10 | 0.27 | 0.43 | 0.58 | 0.73 | 0.95 | 1.16 | 1.37 | 1.57 | 1.84 | 1.44 | 1.14 | 0.93 | 0.78 | 0.67 | 0.58 | 0.51 | 0.45 | 0.40 | 0.36 | 0.33 | 0.30 | 0.28 | 0.24 |
| 14 | 0.06 | 0.11 | 0.30 | 0.47 | 0.63 | 0.79 | 1.03 | 1.26 | 1.48 | 1.70 | 1.99 | 1.60 | 1.27 | 1.04 | 0.87 | 0.75 | 0.65 | 0.57 | 0.50 | 0.45 | 0.41 | 0.37 | 0.34 | 0.31 | 0.26 |
| 15 | 0.06 | 0.12 | 0.32 | 0.50 | 0.68 | 0.86 | 1.11 | 1.36 | 1.60 | 1.84 | 2.15 | 1.78 | 1.41 | 1.16 | 0.97 | 0.83 | 0.72 | 0.63 | 0.56 | 0.50 | 0.45 | 0.41 | 0.37 | 0.34 | 0.29 |
| 16 | 0.07 | 0.13 | 0.34 | 0.54 | 0.73 | 0.92 | 1.19 | 1.45 | 1.71 | 1.97 | 2.30 | 1.96 | 1.56 | 1.27 | 1.07 | 0.91 | 0.79 | 0.69 | 0.61 | 0.55 | 0.50 | 0.45 | 0.41 | 0.38 | 0.32 |
| 17 | 0.07 | 0.14 | 0.36 | 0.58 | 0.78 | 0.98 | 1.27 | 1.55 | 1.83 | 2.10 | 2.46 | 2.15 | 1.70 | 1.39 | 1.17 | 1.00 | 0.86 | 0.76 | 0.67 | 0.60 | 0.54 | 0.49 | 0.45 | 0.41 | 0.35 |
| 18 | 0.08 | 0.14 | 0.39 | 0.61 | 0.83 | 1.04 | 1.35 | 1.65 | 1.94 | 2.23 | 2.61 | 2.34 | 1.86 | 1.52 | 1.27 | 1.09 | 0.94 | 0.83 | 0.73 | 0.66 | 0.59 | 0.54 | 0.49 | 0.45 | 0.38 |
| 19 | 0.08 | 0.15 | 0.41 | 0.65 | 0.88 | 1.10 | 1.43 | 1.75 | 2.06 | 2.37 | 2.77 | 2.54 | 2.01 | 1.65 | 1.38 | 1.18 | 1.02 | 0.90 | 0.80 | 0.71 | 0.64 | 0.58 | 0.53 | 0.49 | 0.42 |
| 20 | 0.09 | 0.16 | 0.43 | 0.69 | 0.93 | 1.17 | 1.51 | 1.85 | 2.18 | 2.50 | 2.93 | 2.74 | 2.17 | 1.78 | 1.49 | 1.27 | 1.10 | 0.97 | 0.86 | 0.77 | 0.69 | 0.63 | 0.57 | 0.53 | 0.45 |
| 21 | 0.09 | 0.17 | 0.46 | 0.73 | 0.98 | 1.23 | 1.59 | 1.95 | 2.30 | 2.64 | 3.09 | 2.95 | 2.34 | 1.91 | 1.60 | 1.37 | 1.19 | 1.04 | 0.92 | 0.83 | 0.75 | 0.68 | 0.62 | 0.57 | 0.48 |
| 22 | 0.10 | 0.18 | 0.48 | 0.76 | 1.03 | 1.29 | 1.68 | 2.05 | 2.42 | 2.78 | 3.25 | 3.16 | 2.51 | 2.05 | 1.72 | 1.47 | 1.27 | 1.12 | 0.99 | 0.89 | 0.80 | 0.73 | 0.66 | 0.61 | 0.52 |
| 23 | 0.10 | 0.19 | 0.51 | 0.80 | 1.08 | 1.36 | 1.76 | 2.15 | 2.53 | 2.91 | 3.41 | 3.38 | 2.68 | 2.19 | 1.84 | 1.57 | 1.36 | 1.19 | 1.06 | 0.95 | 0.85 | 0.78 | 0.71 | 0.65 | 0.56 |
| 24 | 0.11 | 0.20 | 0.53 | 0.84 | 1.13 | 1.42 | 1.84 | 2.25 | 2.65 | 3.05 | 3.57 | 3.60 | 2.86 | 2.34 | 1.96 | 1.67 | 1.45 | 1.27 | 1.13 | 1.01 | 0.91 | 0.83 | 0.76 | 0.69 | 0.59 |
| 25 | 0.11 | 0.21 | 0.55 | 0.88 | 1.19 | 1.49 | 1.93 | 2.35 | 2.77 | 3.19 | 3.73 | 3.83 | 3.04 | 2.49 | 2.08 | 1.78 | 1.54 | 1.35 | 1.20 | 1.07 | 0.97 | 0.88 | 0.80 | 0.74 | 0.63 |
| 26 | 0.12 | 0.21 | 0.58 | 0.91 | 1.24 | 1.55 | 2.01 | 2.46 | 2.89 | 3.32 | 3.89 | 4.06 | 3.22 | 2.64 | 2.21 | 1.89 | 1.64 | 1.44 | 1.27 | 1.14 | 1.03 | 0.93 | 0.85 | 0.78 | 0.67 |
| 28 | 0.12 | 0.23 | 0.62 | 0.99 | 1.34 | 1.68 | 2.18 | 2.66 | 3.13 | 3.60 | 4.21 | 4.54 | 3.60 | 2.95 | 2.47 | 2.11 | 1.83 | 1.60 | 1.42 | 1.27 | 1.15 | 1.04 | 0.95 | 0.87 | 0.75 |
| 30 | 0.13 | 0.25 | 0.67 | 1.07 | 1.44 | 1.81 | 2.34 | 2.87 | 3.38 | 3.88 | 4.54 | 5.03 | 3.99 | 3.27 | 2.74 | 2.34 | 2.03 | 1.78 | 1.58 | 1.41 | 1.27 | 1.16 | 1.06 | 0.97 | 0.83 |
| 32 | 0.14 | 0.27 | 0.72 | 1.14 | 1.55 | 1.94 | 2.51 | 3.07 | 3.62 | 4.16 | 4.87 | 5.54 | 4.40 | 3.60 | 3.02 | 2.58 | 2.23 | 1.96 | 1.74 | 1.56 | 1.40 | 1.27 | 1.16 | 1.07 | 0.91 |
| 35 | 0.16 | 0.30 | 0.80 | 1.26 | 1.70 | 2.14 | 2.77 | 3.38 | 3.99 | 4.58 | 5.36 | 6.32 | 5.03 | 4.12 | 3.45 | 2.95 | 2.56 | 2.24 | 1.99 | 1.78 | 1.60 | 1.46 | 1.33 | 1.22 | 1.04 |
| 40 | 0.18 | 0.34 | 0.92 | 1.45 | 1.97 | 2.47 | 3.20 | 3.91 | 4.61 | 5.29 | 6.19 | 7.30 | 6.15 | 5.03 | 4.22 | 3.60 | 3.12 | 2.74 | 2.43 | 2.17 | 1.96 | 1.78 | 1.62 | 1.49 | 1.27 |
| 45 | 0.21 | 0.39 | 1.04 | 1.65 | 2.24 | 2.80 | 3.63 | 4.44 | 5.23 | 6.00 | 7.00 | 8.30 | 7.34 | 6.01 | 5.03 | 4.30 | 3.72 | 3.27 | 2.90 | 2.59 | 2.34 | 2.12 | 1.94 | 1.78 | 1.52 |

## ■RF06B Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Lubrication Type / Small Sprocket No. of Teeth | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 50 | 100 | 300 | 500 | 700 | 900 | 1200 | 1500 | 1800 | 2100 | 2500 | 3000 | 3500 | 4000 | 4500 | 5000 | 5500 | 6000 | 6500 | 7000 | 7500 | 8000 | 8500 | 9000 | 10000 |
| | A Ⅰ | | | | A Ⅱ | | | B | | | | | | | | | | | | C | | | | | |
| 9 | 0.07 | 0.13 | 0.34 | 0.54 | 0.72 | 0.91 | 1.18 | 1.44 | 1.70 | 1.62 | 1.25 | 0.95 | 0.75 | 0.62 | 0.52 | 0.44 | 0.38 | 0.34 | 0.30 | 0.27 | 0.24 | 0.22 | 0.20 | 0.18 | 0.16 |
| 10 | 0.08 | 0.14 | 0.38 | 0.60 | 0.81 | 1.02 | 1.32 | 1.61 | 1.90 | 1.90 | 1.46 | 1.11 | 0.88 | 0.72 | 0.61 | 0.52 | 0.45 | 0.39 | 0.35 | 0.31 | 0.28 | 0.26 | 0.23 | 0.21 | 0.18 |
| 11 | 0.08 | 0.16 | 0.42 | 0.66 | 0.90 | 1.13 | 1.46 | 1.79 | 2.11 | 2.19 | 1.69 | 1.28 | 1.02 | 0.83 | 0.70 | 0.60 | 0.52 | 0.45 | 0.40 | 0.36 | 0.33 | 0.30 | 0.27 | 0.25 | 0.21 |
| 12 | 0.09 | 0.17 | 0.46 | 0.73 | 0.99 | 1.24 | 1.61 | 1.96 | 2.31 | 2.50 | 1.92 | 1.46 | 1.16 | 0.95 | 0.80 | 0.68 | 0.59 | 0.52 | 0.46 | 0.41 | 0.37 | 0.34 | 0.31 | 0.28 | 0.24 |
| 13 | 0.10 | 0.19 | 0.50 | 0.80 | 1.08 | 1.35 | 1.75 | 2.14 | 2.52 | 2.82 | 2.17 | 1.65 | 1.31 | 1.07 | 0.90 | 0.77 | 0.67 | 0.58 | 0.52 | 0.46 | 0.42 | 0.38 | 0.35 | 0.32 | 0.27 |
| 14 | 0.11 | 0.20 | 0.54 | 0.86 | 1.17 | 1.46 | 1.90 | 2.32 | 2.73 | 3.14 | 2.43 | 1.84 | 1.46 | 1.20 | 1.00 | 0.86 | 0.74 | 0.65 | 0.58 | 0.52 | 0.47 | 0.42 | 0.39 | 0.36 | 0.30 |
| 15 | 0.12 | 0.22 | 0.59 | 0.93 | 1.26 | 1.58 | 2.04 | 2.50 | 2.94 | 3.38 | 2.69 | 2.05 | 1.62 | 1.33 | 1.11 | 0.95 | 0.82 | 0.72 | 0.64 | 0.57 | 0.52 | 0.47 | 0.43 | 0.39 | 0.34 |
| 16 | 0.13 | 0.23 | 0.63 | 1.00 | 1.35 | 1.69 | 2.19 | 2.68 | 3.16 | 3.63 | 2.96 | 2.25 | 1.79 | 1.46 | 1.23 | 1.05 | 0.91 | 0.80 | 0.71 | 0.63 | 0.57 | 0.52 | 0.47 | 0.43 | 0.37 |
| 17 | 0.13 | 0.25 | 0.67 | 1.06 | 1.44 | 1.81 | 2.34 | 2.86 | 3.37 | 3.87 | 3.25 | 2.47 | 1.96 | 1.60 | 1.34 | 1.15 | 0.99 | 0.87 | 0.77 | 0.69 | 0.62 | 0.57 | 0.52 | 0.48 | 0.41 |
| 18 | 0.14 | 0.27 | 0.71 | 1.13 | 1.53 | 1.92 | 2.49 | 3.04 | 3.58 | 4.12 | 3.54 | 2.69 | 2.13 | 1.75 | 1.46 | 1.25 | 1.08 | 0.95 | 0.84 | 0.75 | 0.68 | 0.62 | 0.56 | 0.52 | 0.44 |
| 19 | 0.15 | 0.28 | 0.76 | 1.20 | 1.62 | 2.04 | 2.64 | 3.22 | 3.80 | 4.36 | 3.83 | 2.92 | 2.31 | 1.89 | 1.59 | 1.36 | 1.18 | 1.03 | 0.91 | 0.82 | 0.74 | 0.67 | 0.61 | 0.56 | 0.48 |
| 20 | 0.16 | 0.30 | 0.80 | 1.27 | 1.72 | 2.15 | 2.79 | 3.41 | 4.02 | 4.61 | 4.14 | 3.15 | 2.50 | 2.05 | 1.71 | 1.46 | 1.27 | 1.11 | 0.99 | 0.88 | 0.80 | 0.72 | 0.66 | 0.61 | 0.52 |
| 21 | 0.17 | 0.31 | 0.84 | 1.34 | 1.81 | 2.27 | 2.94 | 3.59 | 4.23 | 4.86 | 4.46 | 3.39 | 2.69 | 2.20 | 1.84 | 1.58 | 1.37 | 1.20 | 1.06 | 0.95 | 0.86 | 0.78 | 0.71 | 0.65 | 0.56 |
| 22 | 0.18 | 0.33 | 0.89 | 1.41 | 1.90 | 2.39 | 3.09 | 3.78 | 4.45 | 5.11 | 4.78 | 3.63 | 2.88 | 2.36 | 1.98 | 1.69 | 1.46 | 1.28 | 1.14 | 1.02 | 0.92 | 0.83 | 0.76 | 0.70 | 0.60 |
| 23 | 0.19 | 0.35 | 0.93 | 1.47 | 2.00 | 2.50 | 3.24 | 3.96 | 4.67 | 5.36 | 5.11 | 3.88 | 3.08 | 2.52 | 2.11 | 1.81 | 1.56 | 1.37 | 1.22 | 1.09 | 0.98 | 0.89 | 0.81 | 0.75 | 0.64 |
| 24 | 0.19 | 0.36 | 0.97 | 1.54 | 2.09 | 2.62 | 3.39 | 4.15 | 4.89 | 5.62 | 5.44 | 4.14 | 3.29 | 2.69 | 2.25 | 1.92 | 1.67 | 1.46 | 1.30 | 1.16 | 1.05 | 0.95 | 0.87 | 0.80 | 0.68 |
| 25 | 0.20 | 0.38 | 1.02 | 1.61 | 2.18 | 2.74 | 3.55 | 4.34 | 5.11 | 5.87 | 5.79 | 4.40 | 3.49 | 2.86 | 2.40 | 2.05 | 1.77 | 1.56 | 1.38 | 1.24 | 1.11 | 1.01 | 0.92 | 0.85 | 0.72 |
| 26 | 0.21 | 0.40 | 1.06 | 1.68 | 2.28 | 2.86 | 3.70 | 4.52 | 5.33 | 6.12 | 6.14 | 4.67 | 3.71 | 3.03 | 2.54 | 2.17 | 1.88 | 1.65 | 1.46 | 1.31 | 1.18 | 1.07 | 0.98 | 0.90 | 0.77 |
| 28 | 0.23 | 0.43 | 1.15 | 1.82 | 2.47 | 3.09 | 4.01 | 4.90 | 5.78 | 6.63 | 6.86 | 5.22 | 4.14 | 3.39 | 2.84 | 2.43 | 2.10 | 1.84 | 1.64 | 1.46 | 1.32 | 1.20 | 1.09 | 1.00 | 0.86 |
| 30 | 0.25 | 0.46 | 1.24 | 1.96 | 2.66 | 3.33 | 4.32 | 5.28 | 6.22 | 7.15 | 7.61 | 5.79 | 4.59 | 3.76 | 3.15 | 2.69 | 2.33 | 2.05 | 1.81 | 1.62 | 1.46 | 1.33 | 1.21 | 1.11 | 0.95 |
| 32 | 0.27 | 0.49 | 1.33 | 2.11 | 2.85 | 3.58 | 4.63 | 5.66 | 6.67 | 7.66 | 8.38 | 6.38 | 5.06 | 4.14 | 3.47 | 2.96 | 2.57 | 2.25 | 2.00 | 1.79 | 1.61 | 1.46 | 1.34 | 1.23 | 1.05 |
| 35 | 0.29 | 0.55 | 1.47 | 2.32 | 3.14 | 3.94 | 5.10 | 6.24 | 7.35 | 8.44 | 9.59 | 7.29 | 5.79 | 4.74 | 3.97 | 3.39 | 2.94 | 2.58 | 2.29 | 2.05 | 1.84 | 1.67 | 1.53 | 1.40 | |
| 40 | 0.34 | 0.63 | 1.69 | 2.68 | 3.63 | 4.55 | 5.89 | 7.20 | 8.49 | 9.75 | 11.4 | 8.91 | 7.07 | 5.79 | 4.85 | 4.14 | 3.59 | 3.15 | 2.79 | 2.50 | 2.25 | 2.05 | | | |
| 45 | 0.38 | 0.72 | 1.92 | 3.04 | 4.12 | 5.17 | 6.69 | 8.18 | 9.64 | 11.1 | 13.0 | 10.6 | 8.44 | 6.91 | 5.79 | 4.94 | 4.28 | 3.76 | 3.33 | 2.98 | | | | | |

## ■RS08B Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Lubrication Type / Small Sprocket No. of Teeth | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 200 | 300 | 400 | 500 | 700 | 900 | 1000 | 1200 | 1400 | 1600 | 1800 | 2100 | 2400 | 2700 | 3000 | 3500 | 4000 | 5000 | 6000 | 7000 | 8000 |
| | A Ⅰ | | | | | A Ⅱ | | | B | | | | | | | | | | | C | | | | | |
| 9 | 0.05 | 0.12 | 0.22 | 0.41 | 0.76 | 1.10 | 1.42 | 1.74 | 2.35 | 2.95 | 3.24 | 3.75 | 3.75 | 3.07 | 2.58 | 2.04 | 1.67 | 1.40 | 1.20 | 0.95 | 0.78 | 0.56 | 0.42 | 0.34 | 0.27 |
| 10 | 0.06 | 0.13 | 0.25 | 0.46 | 0.85 | 1.23 | 1.59 | 1.95 | 2.64 | 3.31 | 3.63 | 4.28 | 4.40 | 3.60 | 3.02 | 2.39 | 1.96 | 1.64 | 1.40 | 1.11 | 0.91 | 0.65 | 0.50 | 0.39 | 0.32 |
| 11 | 0.06 | 0.15 | 0.27 | 0.51 | 0.95 | 1.36 | 1.77 | 2.16 | 2.92 | 3.66 | 4.03 | 4.75 | 5.07 | 4.15 | 3.48 | 2.76 | 2.26 | 1.89 | 1.62 | 1.28 | 1.05 | 0.75 | 0.57 | 0.45 | 0.37 |
| 12 | 0.07 | 0.16 | 0.30 | 0.56 | 1.04 | 1.50 | 1.94 | 2.37 | 3.21 | 4.03 | 4.43 | 5.22 | 5.67 | 4.73 | 3.97 | 3.15 | 2.58 | 2.16 | 1.84 | 1.46 | 1.20 | 0.86 | 0.65 | 0.52 | 0.42 |
| 13 | 0.08 | 0.17 | 0.33 | 0.61 | 1.13 | 1.63 | 2.12 | 2.59 | 3.50 | 4.39 | 4.83 | 5.69 | 6.18 | 5.34 | 4.47 | 3.55 | 2.90 | 2.43 | 2.08 | 1.65 | 1.35 | 0.97 | 0.73 | 0.58 | 0.48 |
| 14 | 0.08 | 0.19 | 0.35 | 0.66 | 1.23 | 1.77 | 2.29 | 2.80 | 3.79 | 4.75 | 5.23 | 6.16 | 6.70 | 5.96 | 5.00 | 3.97 | 3.25 | 2.72 | 2.32 | 1.84 | 1.51 | 1.08 | 0.82 | 0.65 | 0.53 |
| 15 | 0.09 | 0.20 | 0.38 | 0.71 | 1.32 | 1.91 | 2.47 | 3.02 | 4.09 | 5.12 | 5.63 | 6.64 | 7.21 | 6.61 | 5.54 | 4.40 | 3.60 | 3.02 | 2.58 | 2.04 | 1.67 | 1.20 | 0.91 | 0.72 | 0.59 |
| 16 | 0.10 | 0.22 | 0.41 | 0.76 | 1.42 | 2.04 | 2.65 | 3.24 | 4.38 | 5.49 | 6.04 | 7.12 | 7.74 | 7.28 | 6.10 | 4.84 | 3.97 | 3.32 | 2.84 | 2.25 | 1.84 | 1.32 | 1.00 | 0.80 | 0.65 |
| 17 | 0.10 | 0.23 | 0.43 | 0.81 | 1.51 | 2.18 | 2.83 | 3.46 | 4.68 | 5.86 | 6.45 | 7.60 | 8.26 | 7.98 | 6.69 | 5.31 | 4.34 | 3.64 | 3.11 | 2.47 | 2.02 | 1.44 | 1.10 | 0.87 | 0.71 |
| 18 | 0.11 | 0.25 | 0.46 | 0.86 | 1.61 | 2.32 | 3.01 | 3.68 | 4.97 | 6.24 | 6.86 | 8.08 | 8.79 | 8.69 | 7.28 | 5.78 | 4.73 | 3.97 | 3.39 | 2.69 | 2.20 | 1.57 | 1.20 | 0.95 | |
| 19 | 0.12 | 0.26 | 0.49 | 0.92 | 1.71 | 2.46 | 3.19 | 3.90 | 5.27 | 6.61 | 7.27 | 8.57 | 9.43 | 9.43 | 7.90 | 6.27 | 5.13 | 4.30 | 3.67 | 2.91 | 2.38 | 1.71 | 1.30 | 1.03 | |
| 20 | 0.12 | 0.28 | 0.52 | 0.97 | 1.81 | 2.60 | 3.37 | 4.12 | 5.57 | 6.99 | 7.68 | 9.05 | 10.2 | 10.2 | 8.53 | 6.77 | 5.54 | 4.64 | 3.97 | 3.15 | 2.58 | 1.84 | 1.40 | 1.11 | |
| 21 | 0.13 | 0.29 | 0.55 | 1.02 | 1.90 | 2.74 | 3.55 | 4.34 | 5.88 | 7.37 | 8.10 | 9.54 | 11.0 | 11.0 | 9.18 | 7.28 | 5.96 | 5.00 | 4.27 | 3.39 | 2.77 | 1.98 | 1.51 | 1.20 | |
| 22 | 0.13 | 0.31 | 0.57 | 1.07 | 2.00 | 2.88 | 3.73 | 4.56 | 6.18 | 7.75 | 8.52 | 10.0 | 11.5 | 11.7 | 9.84 | 7.81 | 6.39 | 5.36 | 4.57 | 3.63 | 2.97 | 2.13 | 1.62 | 1.28 | |
| 23 | 0.14 | 0.32 | 0.60 | 1.13 | 2.10 | 3.02 | 3.92 | 4.79 | 6.48 | 8.13 | 8.94 | 10.5 | 12.1 | 12.6 | 10.5 | 8.35 | 6.83 | 5.73 | 4.89 | 3.88 | 3.18 | 2.27 | 1.73 | 1.37 | |
| 24 | 0.15 | 0.34 | 0.63 | 1.18 | 2.20 | 3.17 | 4.10 | 5.01 | 6.79 | 8.51 | 9.36 | 11.0 | 12.7 | 13.4 | 11.2 | 8.90 | 7.28 | 6.10 | 5.21 | 4.14 | 3.39 | 2.42 | 1.84 | 1.46 | |
| 25 | 0.15 | 0.35 | 0.66 | 1.23 | 2.30 | 3.31 | 4.29 | 5.24 | 7.09 | 8.89 | 9.78 | 11.5 | 13.2 | 14.1 | 11.9 | 9.46 | 7.74 | 6.49 | 5.54 | 4.40 | 3.60 | 2.58 | 1.96 | | |
| 26 | 0.16 | 0.37 | 0.69 | 1.28 | 2.40 | 3.45 | 4.47 | 5.47 | 7.40 | 9.28 | 10.2 | 12.0 | 13.8 | 14.7 | 12.6 | 10.0 | 8.21 | 6.88 | 5.88 | 4.66 | 3.82 | 2.73 | 2.08 | | |
| 28 | 0.18 | 0.40 | 0.75 | 1.39 | 2.60 | 3.74 | 4.84 | 5.92 | 8.02 | 10.1 | 11.1 | 13.0 | 15.0 | 14.1 | 11.2 | 9.18 | 7.69 | 6.57 | 5.21 | 4.27 | 3.05 | 2.32 | | | |
| 30 | 0.19 | 0.43 | 0.80 | 1.50 | 2.80 | 4.03 | 5.22 | 6.38 | 8.64 | 10.8 | 11.9 | 14.0 | 16.1 | 17.2 | 15.7 | 12.4 | 10.2 | 8.53 | 7.28 | 5.78 | 4.73 | 3.39 | 2.58 | | |
| 32 | 0.20 | 0.46 | 0.86 | 1.61 | 3.00 | 4.32 | 5.60 | 6.84 | 9.26 | 11.6 | 12.8 | 15.0 | 17.3 | 18.4 | 17.3 | 13.7 | 11.2 | 9.40 | 8.03 | 6.37 | 5.21 | 3.73 | 0.86 | | |
| 35 | 0.22 | 0.51 | 0.95 | 1.77 | 3.30 | 4.76 | 6.17 | 7.54 | 10.2 | 12.8 | 14.1 | 16.6 | 19.0 | 20.3 | 19.8 | 15.7 | 12.8 | 10.8 | 9.18 | 7.28 | 5.96 | 4.27 | | | |
| 40 | 0.26 | 0.59 | 1.10 | 2.05 | 3.82 | 5.50 | 7.12 | 8.71 | 11.8 | 14.8 | 16.2 | 19.1 | 22.0 | 24.1 | 24.1 | 19.2 | 15.7 | 13.1 | 11.2 | 8.90 | 7.28 | 5.21 | | | |
| 45 | 0.29 | 0.67 | 1.24 | 2.32 | 4.33 | 6.24 | 8.09 | 9.89 | 13.4 | 16.8 | 18.4 | 21.7 | 25.0 | 28.2 | 28.8 | 22.9 | 18.7 | 15.7 | 13.4 | 10.6 | 8.69 | | | | |

Note: 1. KW rating when using a one-pitch and two pitch offset link (OL＆2POL) is 80% of the above.
2. Please contact a Tsubaki representative prior to use of kW ratings in the colored area of the table.

| Multi-strand factor | Number of chain strands | Multi-strand factor |
|---|---|---|
| | Double strand | 1.7 |
| | Triple strand | 2.5 |

| Lubrication method | | | |
|---|---|---|---|
| | A Ⅰ | Manual lubrication or drip lubrication | Details on Pg. 193 |
| | A Ⅱ | Drip lubrication | |
| | B | Oil bath or slinger disc lubrication | |
| | C | Forced pump lubrication | |

# Kilowatt Ratings Tables (RS10B～RS16B)



## ■RS10B Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Lubrication Type / Small Sprocket No. of Teeth | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 200 | 300 | 400 | 500 | 700 | 900 | 1000 | 1200 | 1400 | 1600 | 1800 | 2100 | 2400 | 2700 | 3000 | 3500 | 4000 | 4500 | 5000 | 5500 | 6000 |
| | A Ⅰ | | | | | A Ⅱ | | | B | | | | | | | | | | | C | | | | | |
| 9 | 0.08 | 0.17 | 0.33 | 0.61 | 1.13 | 1.63 | 2.11 | 2.58 | 3.50 | 4.39 | 4.82 | 5.66 | 4.49 | 3.67 | 3.08 | 2.44 | 2.00 | 1.68 | 1.43 | 1.14 | 0.93 | 0.78 | 0.67 | 0.58 | 0.51 |
| 10 | 0.09 | 0.20 | 0.36 | 0.68 | 1.27 | 1.83 | 2.37 | 2.90 | 3.92 | 4.92 | 5.40 | 6.37 | 5.26 | 4.30 | 3.61 | 2.86 | 2.34 | 1.96 | 1.68 | 1.33 | 1.09 | 0.91 | 0.78 | 0.68 | 0.59 |
| 11 | 0.09 | 0.22 | 0.40 | 0.75 | 1.41 | 2.03 | 2.63 | 3.21 | 4.35 | 5.45 | 5.99 | 7.06 | 6.07 | 4.96 | 4.16 | 3.30 | 2.70 | 2.26 | 1.93 | 1.53 | 1.26 | 1.05 | 0.90 | 0.78 | 0.68 |
| 12 | 0.10 | 0.24 | 0.44 | 0.83 | 1.55 | 2.23 | 2.88 | 3.53 | 4.77 | 5.99 | 6.58 | 7.75 | 6.91 | 5.66 | 4.74 | 3.76 | 3.08 | 2.58 | 2.20 | 1.75 | 1.43 | 1.20 | 1.02 | 0.89 | 0.78 |
| 13 | 0.11 | 0.26 | 0.48 | 0.90 | 1.69 | 2.43 | 3.15 | 3.84 | 5.20 | 6.53 | 7.17 | 8.45 | 7.79 | 6.38 | 5.34 | 4.24 | 3.47 | 2.91 | 2.48 | 1.97 | 1.61 | 1.35 | 1.15 | 1.00 | |
| 14 | 0.12 | 0.28 | 0.52 | 0.98 | 1.83 | 2.63 | 3.41 | 4.17 | 5.64 | 7.07 | 7.77 | 9.16 | 8.71 | 7.13 | 5.97 | 4.74 | 3.88 | 3.25 | 2.78 | 2.20 | 1.80 | 1.51 | 1.29 | 1.12 | |
| 15 | 0.13 | 0.30 | 0.56 | 1.05 | 1.97 | 2.83 | 3.67 | 4.49 | 6.07 | 7.62 | 8.37 | 9.87 | 9.66 | 7.90 | 6.62 | 5.26 | 4.30 | 3.61 | 3.08 | 2.44 | 2.00 | 1.68 | 1.43 | 1.24 | |
| 16 | 0.14 | 0.32 | 0.61 | 1.13 | 2.11 | 3.04 | 3.94 | 4.81 | 6.51 | 8.17 | 8.98 | 10.6 | 10.6 | 8.71 | 7.30 | 5.79 | 4.74 | 3.97 | 3.39 | 2.69 | 2.20 | 1.85 | 1.58 | 1.37 | |
| 17 | 0.15 | 0.35 | 0.65 | 1.21 | 2.25 | 3.24 | 4.20 | 5.14 | 6.95 | 8.72 | 9.59 | 11.3 | 11.7 | 9.54 | 7.99 | 6.34 | 5.19 | 4.35 | 3.71 | 2.95 | 2.41 | 2.02 | 1.73 | 1.50 | |
| 18 | 0.16 | 0.37 | 0.69 | 1.28 | 2.40 | 3.45 | 4.47 | 5.46 | 7.40 | 9.27 | 10.2 | 12.0 | 12.7 | 10.4 | 8.71 | 6.91 | 5.66 | 4.74 | 4.05 | 3.21 | 2.63 | 2.20 | 1.88 | | |
| 19 | 0.17 | 0.39 | 0.73 | 1.36 | 2.54 | 3.66 | 4.74 | 5.79 | 7.84 | 9.83 | 10.8 | 12.7 | 13.8 | 11.3 | 9.44 | 7.49 | 6.13 | 5.14 | 4.39 | 3.48 | 2.85 | 2.39 | 2.04 | | |
| 20 | 0.18 | 0.41 | 0.77 | 1.44 | 2.68 | 3.87 | 5.01 | 6.12 | 8.29 | 10.4 | 11.4 | 13.5 | 14.9 | 12.2 | 10.2 | 8.09 | 6.62 | 5.55 | 4.74 | 3.76 | 3.08 | 2.58 | 2.20 | | |
| 21 | 0.19 | 0.44 | 0.81 | 1.52 | 2.83 | 4.08 | 5.28 | 6.45 | 8.74 | 11.0 | 12.0 | 14.2 | 16.0 | 13.1 | 11.0 | 8.71 | 7.13 | 5.97 | 5.10 | 4.05 | 3.31 | 2.78 | 2.37 | | |
| 22 | 0.20 | 0.46 | 0.85 | 1.59 | 2.98 | 4.29 | 5.55 | 6.79 | 9.19 | 11.5 | 12.7 | 14.9 | 17.1 | 14.0 | 11.8 | 9.34 | 7.64 | 6.41 | 5.47 | 4.34 | 3.55 | 2.98 | 2.54 | | |
| 23 | 0.21 | 0.48 | 0.90 | 1.67 | 3.12 | 4.50 | 5.82 | 7.12 | 9.64 | 12.1 | 13.3 | 15.7 | 18.0 | 15.0 | 12.6 | 9.98 | 8.17 | 6.85 | 5.85 | 4.64 | 3.80 | 3.18 | | | |
| 24 | 0.22 | 0.50 | 0.94 | 1.75 | 3.27 | 4.71 | 6.10 | 7.46 | 10.1 | 12.7 | 13.9 | 16.4 | 18.8 | 16.0 | 13.4 | 10.6 | 8.71 | 7.30 | 6.23 | 4.94 | 4.05 | 3.39 | | | |
| 25 | 0.23 | 0.53 | 0.98 | 1.83 | 3.42 | 4.92 | 6.37 | 7.79 | 10.5 | 13.2 | 14.5 | 17.1 | 19.7 | 17.0 | 14.3 | 11.3 | 9.26 | 7.76 | 6.62 | 5.26 | 4.30 | 3.61 | | | |
| 26 | 0.24 | 0.55 | 1.02 | 1.91 | 3.56 | 5.13 | 6.65 | 8.13 | 11.0 | 13.8 | 15.2 | 17.9 | 20.5 | 18.0 | 15.1 | 12.0 | 9.82 | 8.23 | 7.03 | 5.58 | 4.56 | 3.82 | | | |
| 28 | 0.26 | 0.59 | 1.11 | 2.07 | 3.86 | 5.56 | 7.20 | 8.81 | 11.9 | 14.9 | 16.4 | 19.4 | 22.2 | 20.2 | 16.9 | 13.4 | 11.0 | 9.20 | 7.85 | 6.23 | 5.10 | 4.27 | | | |
| 30 | 0.28 | 0.64 | 1.19 | 2.23 | 4.16 | 5.99 | 7.76 | 9.49 | 12.8 | 16.1 | 17.7 | 20.9 | 24.0 | 22.4 | 18.7 | 14.9 | 12.2 | 10.2 | 8.71 | 6.91 | 5.66 | | | | |
| 32 | 0.30 | 0.69 | 1.28 | 2.39 | 4.46 | 6.42 | 8.32 | 10.2 | 13.8 | 17.3 | 19.0 | 22.4 | 25.7 | 24.6 | 20.6 | 16.4 | 13.4 | 11.2 | 9.59 | 7.61 | 6.23 | | | | |
| 35 | 0.33 | 0.76 | 1.41 | 2.63 | 4.91 | 7.08 | 9.17 | 11.2 | 15.2 | 19.0 | 20.9 | 24.6 | 28.3 | 28.2 | 23.6 | 18.7 | 15.3 | 12.9 | 11.0 | 8.71 | 6.92 | | | | |
| 40 | 0.38 | 0.87 | 1.63 | 3.04 | 5.67 | 8.17 | 10.6 | 12.9 | 17.5 | 22.0 | 24.2 | 28.5 | 32.7 | 34.4 | 28.8 | 22.9 | 18.7 | 15.7 | 13.4 | 10.6 | | | | | |
| 45 | 0.43 | 0.99 | 1.85 | 3.45 | 6.44 | 9.28 | 12.0 | 14.7 | 19.9 | 24.9 | 27.4 | 32.3 | 37.1 | 41.1 | 34.4 | 27.3 | 22.4 | 18.7 | 16.0 | | | | | | |

## ■RS12B Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Lubrication Type / Small Sprocket No. of Teeth | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1400 | 1600 | 1800 | 2000 | 2500 | 3000 | 3500 | 4000 | 4500 |
| | A Ⅰ | | | | | A Ⅱ | | | B | | | | | | | | | | | | C | | | | |
| 9 | 0.11 | 0.24 | 0.46 | 0.85 | 1.23 | 1.59 | 2.29 | 2.96 | 3.62 | 4.27 | 4.90 | 5.53 | 6.15 | 6.76 | 7.37 | 6.54 | 5.19 | 4.25 | 3.56 | 3.04 | 2.18 | 1.66 | 1.31 | 1.08 | 0.90 |
| 10 | 0.12 | 0.27 | 0.51 | 0.95 | 1.37 | 1.78 | 2.56 | 3.32 | 4.06 | 4.78 | 5.50 | 6.20 | 6.89 | 7.58 | 8.25 | 7.66 | 6.08 | 4.98 | 4.17 | 3.56 | 2.55 | 1.94 | 1.54 | 1.26 | 1.06 |
| 11 | 0.13 | 0.30 | 0.57 | 1.06 | 1.52 | 1.97 | 2.84 | 3.68 | 4.50 | 5.30 | 6.09 | 6.87 | 7.64 | 8.40 | 9.15 | 8.84 | 7.02 | 5.74 | 4.81 | 4.11 | 2.94 | 2.24 | 1.78 | 1.45 | 1.22 |
| 12 | 0.15 | 0.33 | 0.62 | 1.16 | 1.67 | 2.17 | 3.12 | 4.04 | 4.94 | 5.82 | 6.69 | 7.55 | 8.39 | 9.22 | 10.1 | 10.1 | 8.00 | 6.54 | 5.48 | 4.68 | 3.35 | 2.55 | 2.02 | 1.66 | 1.39 |
| 13 | 0.16 | 0.36 | 0.68 | 1.27 | 1.82 | 2.36 | 3.40 | 4.41 | 5.39 | 6.35 | 7.30 | 8.23 | 9.15 | 10.1 | 11.0 | 11.4 | 9.02 | 7.38 | 6.18 | 5.28 | 3.78 | 2.87 | 2.28 | 1.87 | |
| 14 | 0.17 | 0.39 | 0.74 | 1.37 | 1.98 | 2.56 | 3.69 | 4.78 | 5.84 | 6.88 | 7.90 | 8.91 | 9.91 | 10.9 | 11.9 | 12.7 | 10.1 | 8.25 | 6.91 | 5.90 | 4.22 | 3.21 | 2.55 | 2.09 | |
| 15 | 0.19 | 0.42 | 0.79 | 1.48 | 2.13 | 2.76 | 3.97 | 5.15 | 6.29 | 7.41 | 8.52 | 9.60 | 10.7 | 11.7 | 12.8 | 13.8 | 11.2 | 9.15 | 7.66 | 6.54 | 4.68 | 3.56 | 2.83 | 2.31 | |
| 16 | 0.20 | 0.46 | 0.85 | 1.58 | 2.28 | 2.96 | 4.26 | 5.52 | 6.74 | 7.95 | 9.13 | 10.3 | 11.4 | 12.6 | 13.7 | 14.8 | 12.3 | 10.1 | 8.44 | 7.21 | 5.16 | 3.92 | 3.11 | 2.55 | |
| 17 | 0.21 | 0.49 | 0.91 | 1.69 | 2.44 | 3.16 | 4.55 | 5.89 | 7.20 | 8.49 | 9.75 | 11.0 | 12.2 | 13.4 | 14.6 | 15.8 | 13.5 | 11.0 | 9.25 | 7.90 | 5.65 | 4.30 | 3.41 | 2.79 | |
| 18 | 0.23 | 0.52 | 0.96 | 1.80 | 2.59 | 3.36 | 4.84 | 6.27 | 7.66 | 9.03 | 10.4 | 11.7 | 13.0 | 14.3 | 15.6 | 16.8 | 14.7 | 12.0 | 10.1 | 8.60 | 6.16 | 4.68 | 3.72 | 3.04 | |
| 19 | 0.24 | 0.55 | 1.02 | 1.91 | 2.75 | 3.56 | 5.13 | 6.64 | 8.12 | 9.57 | 11.0 | 12.4 | 13.8 | 15.2 | 16.5 | 17.9 | 15.9 | 13.0 | 10.9 | 9.33 | 6.68 | 5.08 | 4.03 | 3.30 | |
| 20 | 0.25 | 0.58 | 1.08 | 2.02 | 2.90 | 3.76 | 5.42 | 7.02 | 8.58 | 10.1 | 11.6 | 13.1 | 14.6 | 16.0 | 17.5 | 18.9 | 17.2 | 14.1 | 11.8 | 10.1 | 7.21 | 5.48 | 4.35 | | |
| 21 | 0.27 | 0.61 | 1.14 | 2.13 | 3.06 | 3.97 | 5.71 | 7.40 | 9.05 | 10.7 | 12.2 | 13.8 | 15.4 | 16.9 | 18.4 | 19.9 | 18.5 | 15.2 | 12.7 | 10.8 | 7.76 | 5.90 | 4.68 | | |
| 22 | 0.28 | 0.64 | 1.20 | 2.23 | 3.22 | 4.17 | 6.01 | 7.78 | 9.51 | 11.2 | 12.9 | 14.5 | 16.1 | 17.8 | 19.3 | 20.9 | 19.8 | 16.2 | 13.6 | 11.6 | 8.32 | 6.33 | 5.02 | | |
| 23 | 0.30 | 0.67 | 1.26 | 2.34 | 3.38 | 4.38 | 6.30 | 8.17 | 10.0 | 11.8 | 13.5 | 15.2 | 16.9 | 18.6 | 20.3 | 21.9 | 21.2 | 17.4 | 14.6 | 12.4 | 8.89 | 6.76 | 5.37 | | |
| 24 | 0.31 | 0.71 | 1.32 | 2.46 | 3.54 | 4.58 | 6.60 | 8.55 | 10.5 | 12.3 | 14.1 | 16.0 | 17.7 | 19.5 | 21.2 | 23.0 | 22.6 | 18.5 | 15.5 | 13.2 | 9.48 | 7.21 | 5.72 | | |
| 25 | 0.32 | 0.74 | 1.37 | 2.57 | 3.70 | 4.79 | 6.90 | 8.93 | 10.9 | 12.9 | 14.8 | 16.7 | 18.5 | 20.4 | 22.2 | 24.0 | 24.0 | 19.7 | 16.5 | 14.1 | 10.1 | 7.66 | 6.08 | | |
| 26 | 0.34 | 0.77 | 1.43 | 2.68 | 3.86 | 5.00 | 7.19 | 9.32 | 11.4 | 13.4 | 15.4 | 17.4 | 19.3 | 21.3 | 23.2 | 25.1 | 25.5 | 20.9 | 17.5 | 14.9 | 10.7 | 8.13 | 6.45 | | |
| 28 | 0.37 | 0.83 | 1.55 | 2.90 | 4.18 | 5.41 | 7.79 | 10.1 | 12.3 | 14.5 | 16.7 | 18.8 | 21.0 | 23.0 | 25.1 | 27.1 | 28.5 | 23.3 | 19.5 | 16.7 | 11.9 | 9.09 | | | |
| 30 | 0.39 | 0.90 | 1.67 | 3.12 | 4.50 | 5.83 | 8.40 | 10.9 | 13.3 | 15.7 | 18.0 | 20.3 | 22.6 | 24.8 | 27.0 | 29.2 | 31.6 | 25.9 | 21.7 | 18.5 | 13.2 | 10.1 | | | |
| 32 | 0.42 | 0.96 | 1.80 | 3.35 | 4.82 | 6.25 | 9.00 | 11.7 | 14.3 | 16.8 | 19.3 | 21.8 | 24.2 | 26.6 | 29.0 | 31.4 | 34.8 | 28.5 | 23.9 | 20.4 | 14.6 | 11.1 | | | |
| 35 | 0.46 | 1.06 | 1.98 | 3.69 | 5.32 | 6.89 | 9.92 | 12.8 | 15.7 | 18.5 | 21.3 | 24.0 | 26.7 | 29.3 | 31.9 | 34.5 | 39.7 | 32.6 | 27.3 | 23.3 | 16.7 | 12.7 | | | |
| 40 | 0.54 | 1.22 | 2.28 | 4.26 | 6.14 | 7.95 | 11.5 | 14.8 | 18.1 | 21.4 | 24.6 | 27.7 | 30.8 | 33.9 | 36.9 | 39.9 | 45.8 | 39.8 | 33.4 | 28.5 | 20.4 | | | | |
| 45 | 0.61 | 1.39 | 2.59 | 4.84 | 6.97 | 9.03 | 13.0 | 16.9 | 20.6 | 24.3 | 27.9 | 31.5 | 35.0 | 38.5 | 41.9 | 45.3 | 52.1 | 47.5 | 39.8 | 34.0 | 24.3 | | | | |

## ■RS16B Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Lubrication Type / Small Sprocket No. of Teeth | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1400 | 1600 | 1800 | 2000 | 2200 | 2400 | 2700 | 3000 | 3400 |
| | A Ⅰ | | | | | A Ⅱ | | | B | | | | | | | | | C | | | | | | | |
| 9 | 0.35 | 0.81 | 1.51 | 2.82 | 4.06 | 5.25 | 7.57 | 9.81 | 12.0 | 14.1 | 16.2 | 15.1 | 12.7 | 10.8 | 9.39 | 8.24 | 6.54 | 5.35 | 4.48 | 3.83 | 3.32 | 2.91 | 2.44 | 2.08 | 1.73 |
| 10 | 0.40 | 0.91 | 1.69 | 3.16 | 4.54 | 5.89 | 8.48 | 11.0 | 13.4 | 15.8 | 18.2 | 17.7 | 14.9 | 12.7 | 11.0 | 9.65 | 7.66 | 6.27 | 5.25 | 4.48 | 3.89 | 3.41 | 2.86 | 2.44 | 2.02 |
| 11 | 0.44 | 1.00 | 1.87 | 3.50 | 5.04 | 6.53 | 9.40 | 12.2 | 14.9 | 17.5 | 20.2 | 20.4 | 17.1 | 14.6 | 12.7 | 11.1 | 8.83 | 7.23 | 6.06 | 5.17 | 4.48 | 3.94 | 3.30 | 2.82 | 2.33 |
| 12 | 0.48 | 1.10 | 2.06 | 3.84 | 5.53 | 7.17 | 10.3 | 13.4 | 16.4 | 19.3 | 22.1 | 23.3 | 19.5 | 16.7 | 14.5 | 12.7 | 10.1 | 8.24 | 6.90 | 5.89 | 5.11 | 4.48 | 3.76 | 3.21 | 2.66 |
| 13 | 0.53 | 1.20 | 2.24 | 4.19 | 6.03 | 7.82 | 11.3 | 14.6 | 17.8 | 21.0 | 24.1 | 26.3 | 22.0 | 18.8 | 16.3 | 14.3 | 11.3 | 9.29 | 7.78 | 6.65 | 5.76 | 5.06 | 4.24 | 3.62 | 3.00 |
| 14 | 0.57 | 1.30 | 2.43 | 4.54 | 6.54 | 8.47 | 12.2 | 15.8 | 19.3 | 22.8 | 26.1 | 29.4 | 24.6 | 21.0 | 18.2 | 16.0 | 12.7 | 10.4 | 8.70 | 7.43 | 6.44 | 5.65 | 4.74 | 4.04 | 3.35 |
| 15 | 0.62 | 1.40 | 2.62 | 4.89 | 7.04 | 9.12 | 13.1 | 17.0 | 20.8 | 24.5 | 28.2 | 31.8 | 27.3 | 23.3 | 20.2 | 17.7 | 14.1 | 11.5 | 9.65 | 8.24 | 7.14 | 6.27 | 5.25 | 4.48 | 3.72 |
| 16 | 0.66 | 1.51 | 2.81 | 5.24 | 7.55 | 9.78 | 14.1 | 18.3 | 22.3 | 26.3 | 30.2 | 34.1 | 30.1 | 25.7 | 22.2 | 19.5 | 15.5 | 12.7 | 10.6 | 9.08 | 7.87 | 6.90 | 5.79 | 4.94 | 4.09 |
| 17 | 0.70 | 1.61 | 3.00 | 5.60 | 8.06 | 10.4 | 15.0 | 19.5 | 23.8 | 28.1 | 32.2 | 36.4 | 32.9 | 28.1 | 24.4 | 21.4 | 17.0 | 13.9 | 11.6 | 9.94 | 8.62 | 7.56 | 6.34 | 5.41 | 0.01 |
| 18 | 0.75 | 1.71 | 3.19 | 5.95 | 8.57 | 11.1 | 16.0 | 20.7 | 25.3 | 29.9 | 34.3 | 38.7 | 35.9 | 30.6 | 26.5 | 23.3 | 18.5 | 15.1 | 12.7 | 10.8 | 9.39 | 8.24 | 6.90 | 5.89 | |
| 19 | 0.79 | 1.81 | 3.38 | 6.31 | 9.09 | 11.8 | 17.0 | 22.0 | 26.9 | 31.7 | 36.4 | 41.0 | 38.9 | 33.2 | 28.8 | 25.3 | 20.1 | 16.4 | 13.8 | 11.7 | 10.2 | 8.93 | 7.49 | 6.39 | |
| 20 | 0.84 | 1.92 | 3.57 | 6.67 | 9.61 | 12.4 | 17.9 | 23.2 | 28.4 | 33.5 | 38.4 | 43.3 | 42.0 | 35.9 | 31.1 | 27.3 | 21.7 | 17.7 | 14.9 | 12.7 | 11.0 | 9.65 | 8.09 | 6.90 | |
| 21 | 0.89 | 2.02 | 3.77 | 7.03 | 10.1 | 13.1 | 18.9 | 24.5 | 29.9 | 35.3 | 40.5 | 45.7 | 45.2 | 38.6 | 33.5 | 29.4 | 23.3 | 19.1 | 16.0 | 13.6 | 11.8 | 10.4 | 8.70 | 7.43 | |
| 22 | 0.93 | 2.12 | 3.96 | 7.39 | 10.6 | 13.8 | 19.9 | 25.7 | 31.5 | 37.1 | 42.6 | 48.0 | 48.5 | 41.4 | 35.9 | 31.5 | 25.0 | 20.4 | 17.1 | 14.6 | 12.7 | 11.1 | 9.33 | 7.96 | |
| 23 | 0.98 | 2.23 | 4.16 | 7.76 | 11.2 | 14.5 | 20.8 | 27.0 | 33.0 | 38.9 | 44.7 | 50.4 | 51.8 | 44.2 | 38.3 | 33.7 | 26.7 | 21.9 | 18.3 | 15.6 | 13.6 | 11.9 | 9.97 | 8.51 | |
| 24 | 1.02 | 2.33 | 4.35 | 8.12 | 11.7 | 15.2 | 21.8 | 28.3 | 34.6 | 40.7 | 46.8 | 52.8 | 55.2 | 47.2 | 40.9 | 35.9 | 28.5 | 23.3 | 19.5 | 16.7 | 14.5 | 12.7 | 10.6 | 9.08 | |
| 25 | 1.07 | 2.44 | 4.55 | 8.49 | 12.2 | 15.8 | 22.8 | 29.6 | 36.1 | 42.6 | 48.9 | 55.2 | 58.7 | 50.1 | 43.5 | 38.1 | 30.3 | 24.8 | 20.8 | 17.7 | 15.4 | 13.5 | 11.3 | 6.15 | |
| 26 | 1.11 | 2.54 | 4.75 | 8.85 | 12.8 | 16.5 | 23.8 | 30.8 | 37.7 | 44.4 | 51.0 | 57.5 | 62.3 | 53.2 | 46.1 | 40.5 | 32.1 | 26.3 | 22.0 | 18.8 | 16.3 | 14.3 | 12.0 | | |
| 28 | 1.21 | 2.75 | 5.14 | 9.59 | 13.8 | 17.9 | 25.8 | 33.4 | 40.8 | 48.1 | 55.3 | 62.3 | 69.3 | 59.4 | 51.5 | 45.2 | 35.9 | 29.4 | 24.6 | 21.0 | 18.2 | 16.0 | 13.4 | | |
| 30 | 1.30 | 2.97 | 5.54 | 10.3 | 14.9 | 19.3 | 27.8 | 36.0 | 44.0 | 51.8 | 59.6 | 67.2 | 74.7 | 65.9 | 57.1 | 50.1 | 39.8 | 32.6 | 27.3 | 23.3 | 20.2 | 17.7 | 14.9 | | |
| 32 | 1.40 | 3.18 | 5.94 | 11.1 | 16.0 | 20.7 | 29.8 | 38.6 | 47.2 | 55.6 | 63.9 | 72.0 | 80.1 | 72.6 | 62.9 | 55.2 | 43.8 | 35.9 | 30.1 | 25.7 | 22.2 | 19.5 | 9.65 | | |
| 35 | 1.54 | 3.51 | 6.54 | 12.2 | 17.6 | 22.8 | 32.8 | 42.5 | 52.0 | 61.2 | 70.3 | 79.3 | 88.2 | 83.0 | 72.0 | 63.2 | 50.1 | 41.0 | 34.4 | 29.4 | 25.5 | 22.3 | | | |
| 40 | 1.78 | 4.05 | 7.56 | 14.1 | 20.3 | 26.3 | 37.9 | 49.1 | 60.0 | 70.7 | 81.3 | 91.6 | 102 | 101 | 87.9 | 77.2 | 61.3 | 50.1 | 42.0 | 35.9 | 31.1 | 11.5 | | | |
| 45 | 2.02 | 4.60 | 8.58 | 16.0 | 23.1 | 29.9 | 43.0 | 55.8 | 68.2 | 80.3 | 92.3 | 104 | 116 | 121 | 105 | 92.1 | 73.1 | 59.8 | 50.1 | 42.8 | 25.6 | | | | |

Note: 1. KW rating when using a one-pitch and two pitch offset link (OL＆2POL) is 80% of the above.
2. Please contact a Tsubaki representative prior to use of kW ratings in the colored area of the table.

| Multi-strand factor | Number of chain strands | Multi-strand factor |
|---|---|---|
| | Double strand | 1.7 |
| | Triple strand | 2.5 |

| Lubrication method | | | |
|---|---|---|---|
| | A Ⅰ | Manual lubrication or drip lubrication | Details on Pg. 193 |
| | A Ⅱ | Drip lubrication | |
| | B | Oil bath or slinger disc lubrication | |
| | C | Forced pump lubrication | |

# Kilowatt Ratings Tables (RS20B～RS28B)



## ■RS20B Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Lubrication Type / Small Sprocket No. of Teeth | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1600 | 1800 | 2000 | 2200 | 2400 | 2600 |
| | A I | | | A II | | | B | | | | | | | | C | | | | | | | | | |
| 9 | 0.62 | 1.42 | 2.65 | 4.94 | 7.12 | 9.23 | 13.3 | 17.2 | 21.0 | 24.8 | 22.1 | 18.1 | 15.2 | 12.9 | 11.2 | 9.85 | 8.73 | 7.82 | 6.40 | 5.36 | 4.58 | 3.97 | 3.48 | 3.09 |
| 10 | 0.70 | 1.59 | 2.97 | 5.54 | 7.98 | 10.3 | 14.9 | 19.3 | 23.6 | 27.8 | 25.9 | 21.2 | 17.8 | 15.2 | 13.1 | 11.5 | 10.2 | 9.15 | 7.49 | 6.28 | 5.36 | 4.65 | 4.08 | 3.62 |
| 11 | 0.77 | 1.76 | 3.29 | 6.14 | 8.84 | 11.5 | 16.5 | 21.4 | 26.1 | 30.8 | 29.9 | 24.4 | 20.5 | 17.5 | 15.2 | 13.3 | 11.8 | 10.6 | 8.64 | 7.24 | 6.18 | 5.36 | 4.70 | 4.17 |
| 12 | 0.85 | 1.94 | 3.61 | 6.75 | 9.72 | 12.6 | 18.1 | 23.5 | 28.7 | 33.8 | 34.0 | 27.9 | 23.3 | 19.9 | 17.3 | 15.2 | 13.4 | 12.0 | 9.85 | 8.25 | 7.05 | 6.11 | 5.36 | 1.76 |
| 13 | 0.93 | 2.11 | 3.94 | 7.35 | 10.6 | 13.7 | 19.8 | 25.6 | 31.3 | 36.9 | 38.4 | 31.4 | 26.3 | 22.5 | 19.5 | 17.1 | 15.2 | 13.6 | 11.1 | 9.31 | 7.95 | 6.89 | 6.04 | |
| 14 | 1.00 | 2.29 | 4.27 | 7.97 | 11.5 | 14.9 | 21.4 | 27.7 | 33.9 | 40.0 | 42.9 | 35.1 | 29.4 | 25.1 | 21.8 | 19.1 | 16.9 | 15.2 | 12.4 | 10.4 | 8.88 | 7.70 | 6.76 | |
| 15 | 1.08 | 2.46 | 4.60 | 8.58 | 12.4 | 16.0 | 23.1 | 29.9 | 36.5 | 43.1 | 47.6 | 38.9 | 32.6 | 27.9 | 24.1 | 21.2 | 18.8 | 16.8 | 13.8 | 11.5 | 9.85 | 8.54 | 7.49 | |
| 16 | 1.16 | 2.64 | 4.93 | 9.20 | 13.3 | 17.2 | 24.7 | 32.0 | 39.2 | 46.2 | 52.4 | 42.9 | 35.9 | 30.7 | 26.6 | 23.3 | 20.7 | 18.5 | 15.2 | 12.7 | 10.8 | 9.40 | 8.25 | |
| 17 | 1.24 | 2.82 | 5.27 | 9.83 | 14.2 | 18.3 | 26.4 | 34.2 | 41.8 | 49.3 | 56.6 | 47.0 | 39.4 | 33.6 | 29.1 | 25.6 | 22.7 | 20.3 | 16.6 | 13.9 | 11.9 | 10.3 | 9.04 | |
| 18 | 1.32 | 3.00 | 5.60 | 10.5 | 15.1 | 19.5 | 28.1 | 36.4 | 44.5 | 52.4 | 60.2 | 51.2 | 42.9 | 36.6 | 31.7 | 27.9 | 24.7 | 22.1 | 18.1 | 15.2 | 12.9 | 11.2 | 1.81 | |
| 19 | 1.39 | 3.18 | 5.94 | 11.1 | 16.0 | 20.7 | 29.8 | 38.6 | 47.2 | 55.6 | 63.8 | 55.5 | 46.5 | 39.7 | 34.4 | 30.2 | 26.8 | 24.0 | 19.6 | 16.4 | 14.0 | 12.2 | | |
| 20 | 1.47 | 3.36 | 6.28 | 11.7 | 16.9 | 21.9 | 31.5 | 40.8 | 49.8 | 58.7 | 67.5 | 59.9 | 50.2 | 42.9 | 37.2 | 32.6 | 28.9 | 25.9 | 21.2 | 17.8 | 15.2 | 13.1 | | |
| 21 | 1.55 | 3.54 | 6.62 | 12.3 | 17.8 | 23.0 | 33.2 | 43.0 | 52.5 | 61.9 | 71.1 | 64.5 | 54.0 | 46.1 | 40.0 | 35.1 | 31.1 | 27.9 | 22.8 | 19.1 | 16.3 | 14.1 | | |
| 22 | 1.63 | 3.73 | 6.96 | 13.0 | 18.7 | 24.2 | 34.9 | 45.2 | 55.3 | 65.1 | 74.8 | 69.1 | 57.9 | 49.5 | 42.9 | 37.6 | 33.4 | 29.9 | 24.4 | 20.5 | 17.5 | 15.2 | | |
| 23 | 1.71 | 3.91 | 7.30 | 13.6 | 19.6 | 25.4 | 36.6 | 47.4 | 58.0 | 68.3 | 78.5 | 73.9 | 61.9 | 52.9 | 45.8 | 40.2 | 35.7 | 31.9 | 26.1 | 21.9 | 18.7 | 15.5 | | |
| 24 | 1.80 | 4.09 | 7.64 | 14.3 | 20.5 | 26.6 | 38.3 | 49.7 | 60.7 | 71.5 | 82.2 | 78.8 | 66.0 | 56.4 | 48.9 | 42.9 | 38.0 | 34.0 | 27.9 | 23.3 | 19.9 | 6.46 | | |
| 25 | 1.88 | 4.28 | 7.99 | 14.9 | 21.5 | 27.8 | 40.1 | 51.9 | 63.4 | 74.7 | 85.9 | 83.8 | 70.2 | 59.9 | 51.9 | 45.6 | 40.4 | 36.2 | 29.6 | 24.8 | 21.2 | | | |
| 26 | 1.96 | 4.46 | 8.33 | 15.5 | 22.4 | 29.0 | 41.8 | 54.1 | 66.2 | 78.0 | 89.6 | 88.8 | 74.4 | 63.6 | 55.1 | 48.4 | 42.9 | 38.4 | 31.4 | 26.3 | 22.5 | | | |
| 28 | 2.12 | 4.84 | 9.03 | 16.8 | 24.3 | 31.4 | 45.3 | 58.6 | 71.7 | 84.5 | 97.0 | 99.3 | 83.2 | 71.0 | 61.6 | 54.0 | 47.9 | 42.9 | 35.1 | 29.4 | 25.1 | | | |
| 30 | 2.28 | 5.21 | 9.72 | 18.1 | 26.1 | 33.9 | 48.8 | 63.2 | 77.2 | 91.0 | 105 | 110 | 92.3 | 78.8 | 68.3 | 59.9 | 53.2 | 47.6 | 38.9 | 32.6 | 19.0 | | | |
| 32 | 2.45 | 5.59 | 10.4 | 19.5 | 28.0 | 36.3 | 52.3 | 67.7 | 82.8 | 97.6 | 112 | 121 | 102 | 86.8 | 75.2 | 66.0 | 58.6 | 52.4 | 42.9 | 35.9 | | | | |
| 35 | 2.70 | 6.15 | 11.5 | 21.4 | 30.9 | 40.0 | 57.6 | 74.6 | 91.2 | 107 | 123 | 139 | 116 | 99.3 | 86.1 | 75.5 | 67.0 | 59.9 | 49.1 | 41.1 | | | | |
| 40 | 3.12 | 7.11 | 13.3 | 24.8 | 35.7 | 46.2 | 66.5 | 86.2 | 105 | 124 | 143 | 161 | 142 | 121 | 105 | 92.3 | 81.8 | 73.2 | 59.9 | | | | | |
| 45 | 3.54 | 8.07 | 15.1 | 28.1 | 40.5 | 52.5 | 75.6 | 97.9 | 120 | 141 | 162 | 183 | 170 | 145 | 125 | 110 | 97.6 | 87.4 | 42.7 | | | | | |

## ■RS24B Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Lubrication Type / Small Sprocket No. of Teeth | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 |
| | A I | | | A II | | B | | | | | | C | | | | | | | | | | | | | |
| 9 | 1.10 | 2.51 | 4.68 | 8.74 | 12.6 | 16.3 | 23.5 | 30.4 | 37.2 | 32.2 | 25.6 | 20.9 | 17.5 | 15.0 | 13.0 | 11.4 | 10.1 | 9.04 | 8.15 | 7.40 | 6.76 | 6.20 | 5.72 | 5.30 | 3.57 |
| 10 | 1.23 | 2.81 | 5.25 | 9.79 | 14.1 | 18.3 | 26.3 | 34.1 | 41.7 | 37.7 | 30.0 | 24.5 | 20.5 | 17.5 | 15.2 | 13.3 | 11.8 | 10.6 | 9.55 | 8.67 | 7.91 | 7.26 | 6.70 | 6.20 | |
| 11 | 1.37 | 3.12 | 5.82 | 10.9 | 15.6 | 20.3 | 29.2 | 37.8 | 46.2 | 43.5 | 34.6 | 28.3 | 23.7 | 20.2 | 17.5 | 15.4 | 13.7 | 12.2 | 11.0 | 10.0 | 9.13 | 8.38 | 7.73 | 7.16 | |
| 12 | 1.50 | 3.42 | 6.39 | 11.9 | 17.2 | 22.2 | 32.0 | 41.5 | 50.7 | 49.6 | 39.4 | 32.2 | 27.0 | 23.1 | 20.0 | 17.5 | 15.6 | 13.9 | 12.6 | 11.4 | 10.4 | 9.55 | 8.81 | 8.15 | |
| 13 | 1.64 | 3.73 | 6.97 | 13.0 | 18.7 | 24.3 | 34.9 | 45.3 | 55.3 | 55.9 | 44.4 | 36.3 | 30.5 | 26.0 | 22.5 | 19.8 | 17.5 | 15.7 | 14.2 | 12.8 | 11.7 | 10.8 | 9.93 | 4.00 | |
| 14 | 1.77 | 4.04 | 7.55 | 14.1 | 20.3 | 26.3 | 37.8 | 49.0 | 59.9 | 62.5 | 49.6 | 40.6 | 34.0 | 29.1 | 25.2 | 22.1 | 19.6 | 17.5 | 15.8 | 14.4 | 13.1 | 12.0 | 11.1 | | |
| 15 | 1.91 | 4.36 | 8.13 | 15.2 | 21.9 | 28.3 | 40.8 | 52.8 | 64.6 | 69.3 | 55.0 | 45.0 | 37.7 | 32.2 | 27.9 | 24.5 | 21.7 | 19.5 | 17.5 | 15.9 | 14.5 | 13.3 | 12.3 | | |
| 16 | 2.05 | 4.67 | 8.72 | 16.3 | 23.4 | 30.4 | 43.7 | 56.6 | 69.2 | 76.4 | 60.6 | 49.6 | 41.6 | 35.5 | 30.8 | 27.0 | 24.0 | 21.4 | 19.3 | 17.5 | 16.0 | 14.7 | 11.3 | | |
| 17 | 2.19 | 4.99 | 9.31 | 17.4 | 25.0 | 32.4 | 46.7 | 60.5 | 73.9 | 83.7 | 66.4 | 54.3 | 45.5 | 38.9 | 33.7 | 29.6 | 26.2 | 23.5 | 21.2 | 19.2 | 17.5 | 16.1 | 5.18 | | |
| 18 | 2.33 | 5.30 | 9.90 | 18.5 | 26.6 | 34.5 | 49.6 | 64.3 | 78.6 | 91.2 | 72.3 | 59.2 | 49.6 | 42.4 | 36.7 | 32.2 | 28.6 | 25.6 | 23.1 | 20.9 | 19.1 | 17.5 | | | |
| 19 | 2.47 | 5.62 | 10.5 | 19.6 | 28.2 | 36.5 | 52.6 | 68.2 | 83.4 | 98.2 | 78.4 | 64.2 | 53.8 | 45.9 | 39.8 | 35.0 | 31.0 | 27.7 | 25.0 | 22.7 | 20.7 | 19.0 | | | |
| 20 | 2.61 | 5.94 | 11.1 | 20.7 | 29.8 | 38.6 | 55.6 | 72.1 | 88.1 | 104 | 84.7 | 69.3 | 58.1 | 49.6 | 43.0 | 37.7 | 33.5 | 30.0 | 27.0 | 24.5 | 22.4 | 15.3 | | | |
| 21 | 2.75 | 6.27 | 11.7 | 21.8 | 31.4 | 40.7 | 58.6 | 76.0 | 92.9 | 109 | 91.2 | 74.6 | 62.5 | 53.4 | 46.3 | 40.6 | 36.0 | 32.2 | 29.1 | 26.4 | 24.1 | 8.05 | | | |
| 22 | 2.89 | 6.59 | 12.3 | 22.9 | 33.0 | 42.8 | 61.7 | 79.9 | 97.7 | 115 | 97.7 | 80.0 | 67.0 | 57.2 | 49.6 | 43.5 | 38.6 | 34.6 | 31.2 | 28.3 | 25.8 | 0.02 | | | |
| 23 | 3.03 | 6.91 | 12.9 | 24.1 | 34.7 | 44.9 | 64.7 | 83.8 | 102 | 121 | 104 | 85.5 | 71.7 | 61.2 | 53.0 | 46.6 | 41.3 | 36.9 | 33.3 | 30.2 | 27.6 | | | | |
| 24 | 3.17 | 7.24 | 13.5 | 25.2 | 36.3 | 47.0 | 67.7 | 87.8 | 107 | 126 | 111 | 91.2 | 76.4 | 65.2 | 56.5 | 49.6 | 44.0 | 39.4 | 35.5 | 32.2 | 21.6 | | | | |
| 25 | 3.32 | 7.56 | 14.1 | 26.3 | 37.9 | 49.1 | 70.8 | 91.7 | 112 | 132 | 118 | 96.9 | 81.2 | 69.3 | 60.1 | 52.8 | 46.8 | 41.9 | 37.7 | 34.3 | 13.5 | | | | |
| 26 | 3.46 | 7.89 | 14.7 | 27.5 | 39.6 | 51.3 | 73.9 | 95.7 | 117 | 138 | 126 | 103 | 86.1 | 73.5 | 63.7 | 55.9 | 49.6 | 44.4 | 40.0 | 36.3 | 4.6 | | | | |
| 28 | 3.75 | 8.55 | 16.0 | 29.8 | 42.9 | 55.5 | 80.0 | 104 | 127 | 149 | 140 | 115 | 96.3 | 82.2 | 71.2 | 62.5 | 55.5 | 49.6 | 44.7 | 31.0 | | | | | |
| 30 | 4.04 | 9.21 | 17.2 | 32.1 | 46.2 | 59.8 | 86.2 | 112 | 137 | 161 | 156 | 127 | 107 | 91.2 | 79.0 | 69.3 | 61.5 | 55.0 | 49.6 | 12.8 | | | | | |
| 32 | 4.33 | 9.87 | 18.4 | 34.4 | 49.5 | 64.2 | 92.4 | 120 | 146 | 172 | 171 | 140 | 118 | 100 | 87.0 | 76.4 | 67.8 | 60.6 | 44.1 | | | | | | |
| 35 | 4.77 | 10.9 | 20.3 | 37.9 | 54.6 | 70.7 | 102 | 132 | 161 | 190 | 196 | 161 | 135 | 115 | 99.6 | 87.4 | 77.5 | 69.3 | 14.8 | | | | | | |
| 40 | 5.51 | 12.6 | 23.4 | 43.8 | 63.0 | 81.6 | 118 | 152 | 186 | 219 | 240 | 196 | 164 | 140 | 122 | 107 | 83.7 | 20.8 | | | | | | | |
| 45 | 6.26 | 14.3 | 26.6 | 49.7 | 71.6 | 92.7 | 134 | 173 | 212 | 249 | 286 | 234 | 196 | 167 | 145 | 102 | 32.0 | | | | | | | | |

## ■RS28B Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Lubrication Type / Small Sprocket No. of Teeth | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 |
| | A I | | | A II | B | | | | | | | | | | C | | | | | | | | | | |
| 9 | 1.78 | 4.05 | 7.56 | 14.1 | 20.3 | 26.3 | 32.2 | 37.9 | 43.6 | 49.1 | 54.6 | 47.9 | 41.5 | 36.5 | 28.9 | 23.7 | 19.8 | 16.9 | 14.7 | 12.9 | 11.4 | 10.2 | 9.22 | 8.37 | 2.37 |
| 10 | 1.99 | 4.54 | 8.47 | 15.8 | 22.8 | 29.5 | 36.1 | 42.5 | 48.8 | 55.0 | 61.2 | 56.1 | 48.7 | 42.7 | 33.9 | 27.7 | 23.2 | 19.8 | 17.2 | 15.1 | 13.4 | 12.0 | 10.8 | 9.81 | |
| 11 | 2.21 | 5.03 | 9.39 | 17.5 | 25.2 | 32.7 | 40.0 | 47.1 | 54.1 | 61.0 | 67.8 | 64.8 | 56.1 | 49.3 | 39.1 | 32.0 | 26.8 | 22.9 | 19.8 | 17.4 | 15.4 | 13.8 | 12.5 | 11.3 | |
| 12 | 2.42 | 5.53 | 10.3 | 19.2 | 27.7 | 35.9 | 43.9 | 51.7 | 59.4 | 67.0 | 74.5 | 73.8 | 64.0 | 56.1 | 44.5 | 36.5 | 30.6 | 26.1 | 22.6 | 19.8 | 17.6 | 15.7 | 14.2 | 12.1 | |
| 13 | 2.64 | 6.03 | 11.2 | 21.0 | 30.2 | 39.2 | 47.9 | 56.4 | 64.8 | 73.1 | 81.2 | 83.2 | 72.1 | 63.3 | 50.2 | 41.1 | 34.5 | 29.4 | 25.5 | 22.4 | 19.8 | 17.8 | 16.0 | 8.18 | |
| 14 | 2.86 | 6.53 | 12.2 | 22.7 | 32.7 | 42.4 | 51.9 | 61.1 | 70.2 | 79.2 | 88.0 | 93.0 | 80.6 | 70.7 | 56.1 | 45.9 | 38.5 | 32.9 | 28.5 | 25.0 | 22.2 | 19.8 | 17.9 | 3.47 | |
| 15 | 3.08 | 7.03 | 13.1 | 24.5 | 35.3 | 45.7 | 55.9 | 65.8 | 75.6 | 85.3 | 94.8 | 103 | 89.4 | 78.4 | 62.3 | 51.0 | 42.7 | 36.5 | 31.6 | 27.7 | 24.6 | 22.0 | 19.8 | | |
| 16 | 3.31 | 7.54 | 14.1 | 26.3 | 37.8 | 49.0 | 59.9 | 70.6 | 81.1 | 91.4 | 102 | 112 | 98.5 | 86.4 | 68.6 | 56.1 | 47.0 | 40.2 | 34.8 | 30.6 | 27.1 | 24.2 | 21.9 | | |
| 17 | 3.53 | 8.05 | 15.0 | 28.0 | 40.4 | 52.3 | 64.0 | 75.4 | 86.6 | 97.6 | 109 | 119 | 108 | 94.6 | 75.1 | 61.5 | 51.5 | 44.0 | 38.1 | 33.5 | 29.7 | 26.6 | 18.1 | | |
| 18 | 3.75 | 8.56 | 16.0 | 29.8 | 43.0 | 55.6 | 68.0 | 80.2 | 92.1 | 104 | 115 | 127 | 117 | 103 | 81.8 | 67.0 | 56.1 | 47.9 | 41.5 | 36.5 | 32.3 | 28.9 | 12.7 | | |
| 19 | 3.98 | 9.08 | 16.9 | 31.6 | 45.5 | 59.0 | 72.1 | 85.0 | 97.6 | 110 | 122 | 135 | 127 | 112 | 88.7 | 72.6 | 60.9 | 52.0 | 45.1 | 39.5 | 35.1 | 31.4 | 6.60 | | |
| 20 | 4.21 | 9.60 | 17.9 | 33.4 | 48.1 | 62.4 | 76.2 | 89.8 | 103 | 116 | 129 | 142 | 138 | 121 | 95.8 | 78.4 | 65.7 | 56.1 | 48.7 | 42.7 | 37.9 | 33.9 | | | |
| 21 | 4.43 | 10.1 | 18.9 | 35.2 | 50.7 | 65.7 | 80.3 | 94.7 | 109 | 123 | 136 | 150 | 148 | 130 | 103 | 84.4 | 70.7 | 60.4 | 52.3 | 45.9 | 40.7 | 32.7 | | | |
| 22 | 4.66 | 10.6 | 19.8 | 37.0 | 53.3 | 69.1 | 84.5 | 100 | 114 | 129 | 143 | 158 | 159 | 139 | 111 | 90.5 | 75.8 | 64.8 | 56.1 | 49.3 | 43.7 | 26.9 | | | |
| 23 | 4.89 | 11.2 | 20.8 | 38.9 | 56.0 | 72.5 | 88.6 | 104 | 120 | 135 | 150 | 165 | 170 | 149 | 118 | 96.7 | 81.1 | 69.2 | 60.0 | 52.7 | 46.7 | 20.4 | | | |
| 24 | 5.12 | 11.7 | 21.8 | 40.7 | 58.6 | 75.9 | 92.8 | 109 | 126 | 142 | 158 | 173 | 181 | 159 | 126 | 103 | 86.4 | 73.8 | 64.0 | 56.1 | 49.8 | 13.3 | | | |
| 25 | 5.35 | 12.2 | 22.8 | 42.5 | 61.2 | 79.3 | 97.0 | 114 | 131 | 148 | 165 | 181 | 192 | 169 | 134 | 110 | 91.9 | 78.4 | 68.0 | 59.7 | 52.5 | 5.51 | | | |
| 26 | 5.58 | 12.7 | 23.8 | 44.4 | 63.9 | 82.8 | 101 | 119 | 137 | 154 | 172 | 189 | 204 | 179 | 142 | 116 | 97.4 | 83.2 | 72.1 | 63.3 | 46.6 | | | | |
| 28 | 6.05 | 13.8 | 25.8 | 48.1 | 69.2 | 89.7 | 110 | 129 | 148 | 167 | 186 | 205 | 223 | 200 | 159 | 130 | 109 | 93.0 | 80.6 | 70.7 | 32.8 | | | | |
| 30 | 6.52 | 14.9 | 27.7 | 51.8 | 74.6 | 96.6 | 118 | 139 | 160 | 180 | 200 | 220 | 240 | 222 | 176 | 144 | 121 | 103 | 89.4 | 71.9 | 16.5 | | | | |
| 32 | 6.99 | 15.9 | 29.7 | 55.5 | 80.0 | 104 | 127 | 149 | 171 | 193 | 215 | 236 | 257 | 244 | 194 | 159 | 133 | 114 | 98.5 | 58.4 | | | | | |
| 35 | 7.70 | 17.6 | 32.8 | 61.2 | 88.1 | 114 | 139 | 164 | 189 | 213 | 237 | 260 | 284 | 280 | 222 | 182 | 152 | 130 | 96.9 | 33.8 | | | | | |
| 40 | 8.89 | 20.3 | 37.9 | 70.6 | 102 | 132 | 161 | 190 | 218 | 246 | 273 | 301 | 328 | 318 | 271 | 222 | 186 | 128 | 58.2 | | | | | | |
| 45 | 10.1 | 23.0 | 43.0 | 80.2 | 116 | 150 | 183 | 216 | 248 | 279 | 311 | 341 | 341 | 326 | 284 | 230 | 165 | 90.3 | 6.45 | | | | | | |

Note: 1. KW rating when using a one-pitch and two pitch offset link (OL＆2POL) is 80% of the above.
2. Please contact a Tsubaki representative prior to use of kW ratings in the colored area of the table.

| Multi-strand factor | Number of chain strands | Multi-strand factor |
|---|---|---|
| | Double strand | 1.7 |
| | Triple strand | 2.5 |

| Lubrication method | | | |
|---|---|---|---|
| | A I | Manual lubrication or drip lubrication | Details on Pg. 193 |
| | A II | Drip lubrication | |
| | B | Oil bath or slinger disc lubrication | |
| | C | Forced pump lubrication | |

# Kilowatt Ratings Tables (RS32B～RS48B)



## ■RS32B Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Lubrication Type / Small Sprocket No. of Teeth | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 1000 | 1100 | 1200 | 1300 |
| | A Ⅰ | | A Ⅱ | | B | | | | | | | | C | | | | | | | | | | | |
| 9 | 2.22 | 5.06 | 9.45 | 17.6 | 25.4 | 32.9 | 40.2 | 47.4 | 54.4 | 61.4 | 62.5 | 53.3 | 46.2 | 40.6 | 36.0 | 32.2 | 29.0 | 26.4 | 24.1 | 22.1 | 18.9 | 16.3 | 14.3 | 12.7 |
| 10 | 2.49 | 5.67 | 10.6 | 19.7 | 28.4 | 36.9 | 45.1 | 53.1 | 61.0 | 68.8 | 73.2 | 62.5 | 54.1 | 47.5 | 42.1 | 37.7 | 34.0 | 30.9 | 28.2 | 25.9 | 22.1 | 19.1 | 16.8 | 14.9 |
| 11 | 2.76 | 6.29 | 11.7 | 21.9 | 31.5 | 40.8 | 49.9 | 58.8 | 67.6 | 76.2 | 84.4 | 72.1 | 62.5 | 54.8 | 48.6 | 43.5 | 39.2 | 35.6 | 32.5 | 29.8 | 25.5 | 22.1 | 19.4 | 17.2 |
| 12 | 3.03 | 6.91 | 12.9 | 24.0 | 34.6 | 44.9 | 54.9 | 64.6 | 74.3 | 83.7 | 93.1 | 82.1 | 71.2 | 62.5 | 55.4 | 49.6 | 44.7 | 40.6 | 37.0 | 34.0 | 29.0 | 25.2 | 22.1 | 16.8 |
| 13 | 3.30 | 7.53 | 14.1 | 26.2 | 37.8 | 48.9 | 59.8 | 70.5 | 81.0 | 91.3 | 102 | 92.6 | 80.2 | 70.4 | 62.5 | 55.9 | 50.4 | 45.7 | 41.8 | 38.3 | 32.7 | 28.4 | 24.9 | 13.8 |
| 14 | 3.58 | 8.16 | 15.2 | 28.4 | 40.9 | 53.0 | 64.8 | 76.3 | 87.7 | 98.9 | 110 | 103 | 89.7 | 78.7 | 69.8 | 62.5 | 56.3 | 51.1 | 46.7 | 42.8 | 36.6 | 31.7 | 27.8 | 10.1 |
| 15 | 3.85 | 8.79 | 16.4 | 30.6 | 44.1 | 57.1 | 69.8 | 82.3 | 94.5 | 107 | 118 | 115 | 100 | 87.3 | 77.4 | 69.3 | 62.5 | 56.7 | 51.8 | 47.5 | 40.6 | 35.2 | 30.9 | 5.67 |
| 16 | 4.13 | 9.42 | 17.6 | 32.8 | 47.3 | 61.2 | 74.8 | 88.2 | 101 | 114 | 127 | 126 | 110 | 96.2 | 85.3 | 76.3 | 68.8 | 62.5 | 57.0 | 52.3 | 44.7 | 38.7 | 34.0 | 0.57 |
| 17 | 4.41 | 10.1 | 18.8 | 35.0 | 50.5 | 65.4 | 79.9 | 94.2 | 108 | 122 | 136 | 138 | 120 | 105 | 93.4 | 83.6 | 75.4 | 68.4 | 62.5 | 57.3 | 48.9 | 42.4 | 32.1 | |
| 18 | 4.69 | 10.7 | 20.0 | 37.3 | 53.7 | 69.5 | 85.0 | 100 | 115 | 130 | 144 | 151 | 131 | 115 | 102 | 91.1 | 82.1 | 74.5 | 68.1 | 62.5 | 53.3 | 46.2 | 28.3 | |
| 19 | 4.97 | 11.3 | 21.2 | 39.5 | 56.9 | 73.7 | 90.1 | 106 | 122 | 138 | 153 | 164 | 142 | 124 | 110 | 98.8 | 89.0 | 80.8 | 73.8 | 67.7 | 57.8 | 50.1 | 23.8 | |
| 20 | 5.26 | 12.0 | 22.4 | 41.8 | 60.1 | 77.9 | 95.2 | 112 | 129 | 145 | 162 | 177 | 153 | 134 | 119 | 107 | 96.2 | 87.3 | 79.7 | 73.2 | 62.5 | 54.1 | 18.8 | |
| 21 | 5.54 | 12.6 | 23.6 | 44.0 | 63.4 | 82.1 | 100 | 118 | 136 | 153 | 170 | 187 | 165 | 145 | 128 | 115 | 103 | 93.9 | 85.8 | 78.7 | 67.2 | 57.4 | 13.1 | |
| 22 | 5.83 | 13.3 | 24.8 | 46.3 | 66.7 | 86.4 | 106 | 124 | 143 | 161 | 179 | 197 | 177 | 155 | 138 | 123 | 111 | 101 | 92.0 | 84.4 | 72.1 | 53.7 | 6.77 | |
| 23 | 6.11 | 13.9 | 26.0 | 48.6 | 69.9 | 90.6 | 111 | 131 | 150 | 169 | 188 | 207 | 189 | 166 | 147 | 132 | 119 | 108 | 98.3 | 90.2 | 77.0 | 49.5 | | |
| 24 | 6.40 | 14.6 | 27.2 | 50.8 | 73.2 | 94.9 | 116 | 137 | 157 | 177 | 197 | 216 | 201 | 177 | 157 | 140 | 126 | 115 | 105 | 96.2 | 82.1 | 44.7 | | |
| 25 | 6.69 | 15.3 | 28.5 | 53.1 | 76.5 | 99.1 | 121 | 143 | 164 | 185 | 206 | 226 | 214 | 188 | 167 | 149 | 134 | 122 | 111 | 102 | 87.3 | 39.4 | | |
| 26 | 6.98 | 15.9 | 29.7 | 55.4 | 79.8 | 103 | 126 | 149 | 171 | 193 | 215 | 236 | 227 | 199 | 177 | 158 | 143 | 129 | 118 | 108 | 86.3 | 33.4 | | |
| 28 | 7.56 | 17.2 | 32.2 | 60.0 | 86.5 | 112 | 137 | 161 | 185 | 209 | 232 | 256 | 251 | 223 | 197 | 177 | 159 | 145 | 132 | 121 | 78.2 | 19.8 | | |
| 30 | 8.14 | 18.6 | 34.7 | 64.7 | 93.2 | 121 | 148 | 174 | 200 | 225 | 250 | 269 | 260 | 247 | 219 | 196 | 177 | 160 | 146 | 125 | 68.0 | 3.84 | | |
| 32 | 8.73 | 19.9 | 37.2 | 69.4 | 100 | 129 | 158 | 186 | 214 | 242 | 269 | 278 | 268 | 255 | 239 | 216 | 195 | 174 | 147 | 119 | 55.7 | | | |
| 35 | 9.6 | 21.9 | 40.9 | 76.4 | 110 | 143 | 174 | 205 | 236 | 266 | 296 | 291 | 278 | 262 | 243 | 221 | 195 | 168 | 137 | 105 | 33.3 | | | |
| 40 | 11.1 | 25.3 | 47.3 | 88.3 | 127 | 165 | 201 | 237 | 273 | 307 | 318 | 306 | 289 | 268 | 243 | 215 | 184 | 150 | 112 | 72.6 | | | | |
| 45 | 12.6 | 28.8 | 53.7 | 100 | 144 | 187 | 229 | 269 | 310 | 342 | 331 | 314 | 293 | 266 | 235 | 201 | 163 | 121 | 76.2 | 28.4 | | | | |

## ■RS40B Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Lubrication Type / Small Sprocket No. of Teeth | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 15 | 20 | 30 | 40 | 50 | 70 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 |
| | A Ⅰ | | | A Ⅱ | | | | B | | | | | | C | | | | | |
| 9 | 3.45 | 4.97 | 6.44 | 9.27 | 12.0 | 14.7 | 19.9 | 27.4 | 39.5 | 51.1 | 62.5 | 73.7 | 84.6 | 89.1 | 74.7 | 63.8 | 55.3 | 48.5 | 43.0 |
| 10 | 3.87 | 5.57 | 7.21 | 10.4 | 13.5 | 16.5 | 22.3 | 30.7 | 44.2 | 57.3 | 70.0 | 82.5 | 94.8 | 101 | 87.5 | 74.7 | 64.7 | 56.8 | 50.4 |
| 11 | 4.29 | 6.17 | 8.00 | 11.5 | 14.9 | 18.2 | 24.7 | 34.0 | 49.0 | 63.5 | 77.6 | 91.5 | 105 | 110 | 101 | 86.1 | 74.7 | 65.5 | 58.1 |
| 12 | 4.71 | 6.78 | 8.78 | 12.7 | 16.4 | 20.0 | 27.1 | 37.4 | 53.9 | 69.8 | 85.3 | 101 | 116 | 118 | 115 | 98.2 | 85.1 | 74.7 | 66.2 |
| 13 | 5.13 | 7.39 | 9.58 | 13.8 | 17.9 | 21.8 | 29.6 | 40.8 | 58.7 | 76.1 | 93.0 | 110 | 126 | 127 | 122 | 111 | 95.9 | 84.2 | 74.7 |
| 14 | 5.56 | 8.01 | 10.4 | 14.9 | 19.4 | 23.7 | 32.0 | 44.2 | 63.6 | 82.4 | 101 | 119 | 136 | 135 | 130 | 123 | 107 | 94.1 | 83.4 |
| 15 | 5.99 | 8.63 | 11.2 | 16.1 | 20.9 | 25.5 | 34.5 | 47.6 | 68.5 | 88.8 | 109 | 128 | 145 | 142 | 137 | 129 | 119 | 104 | 92.5 |
| 16 | 6.42 | 9.25 | 12.0 | 17.3 | 22.4 | 27.3 | 37.0 | 51.0 | 73.5 | 95.2 | 116 | 137 | 153 | 150 | 144 | 135 | 125 | 112 | 96.7 |
| 17 | 6.86 | 9.88 | 12.8 | 18.4 | 23.9 | 29.2 | 39.5 | 54.5 | 78.5 | 102 | 124 | 146 | 160 | 157 | 150 | 141 | 129 | 115 | 99.2 |
| 18 | 7.29 | 10.5 | 13.6 | 19.6 | 25.4 | 31.0 | 42.0 | 57.9 | 83.5 | 108 | 132 | 156 | 168 | 164 | 157 | 147 | 134 | 119 | 101 |
| 19 | 7.73 | 11.1 | 14.4 | 20.8 | 26.9 | 32.9 | 44.6 | 61.4 | 88.5 | 115 | 140 | 165 | 175 | 171 | 163 | 152 | 138 | 122 | 103 |
| 20 | 8.17 | 11.8 | 15.3 | 22.0 | 28.5 | 34.8 | 47.1 | 64.9 | 93.5 | 121 | 148 | 175 | 182 | 177 | 168 | 156 | 142 | 124 | 104 |
| 21 | 8.61 | 12.4 | 16.1 | 23.2 | 30.0 | 36.7 | 49.6 | 68.4 | 98.6 | 128 | 156 | 184 | 189 | 183 | 174 | 161 | 145 | 126 | 105 |
| 22 | 9.06 | 13.0 | 16.9 | 24.3 | 31.5 | 38.6 | 52.2 | 72.0 | 104 | 134 | 164 | 193 | 195 | 189 | 179 | 165 | 148 | 128 | 106 |
| 23 | 9.50 | 13.7 | 17.7 | 25.5 | 33.1 | 40.5 | 54.8 | 75.5 | 109 | 141 | 172 | 203 | 202 | 195 | 184 | 169 | 151 | 130 | 106 |
| 24 | 10.0 | 14.3 | 18.6 | 26.7 | 34.7 | 42.4 | 57.3 | 79.0 | 114 | 148 | 180 | 210 | 208 | 200 | 188 | 173 | 153 | 131 | 105 |
| 25 | 10.4 | 15.0 | 19.4 | 28.0 | 36.2 | 44.3 | 59.9 | 82.6 | 119 | 154 | 188 | 217 | 214 | 205 | 193 | 176 | 155 | 132 | 105 |
| 26 | 10.8 | 15.6 | 20.2 | 29.2 | 37.8 | 46.2 | 62.5 | 86.2 | 124 | 161 | 197 | 223 | 219 | 210 | 197 | 179 | 157 | 132 | 104 |

## ■RS48B Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Lubrication Type / Small Sprocket No. of Teeth | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 125 | 150 | 175 | 200 | 250 | 300 | 350 | 400 | 450 |
| | A Ⅰ | | | | A Ⅱ | | | | B | | | | | | | | C | | | |
| 9 | 3.35 | 6.25 | 9.00 | 11.7 | 14.3 | 16.8 | 21.8 | 26.6 | 31.4 | 40.6 | 49.7 | 60.7 | 71.5 | 76.2 | 78.6 | 80.5 | 79.2 | 75.2 | 69.0 | 60.7 |
| 10 | 3.75 | 7.00 | 10.1 | 13.1 | 16.0 | 18.8 | 24.4 | 29.8 | 35.1 | 45.5 | 55.6 | 68.0 | 80.1 | 84.1 | 86.6 | 88.5 | 86.9 | 82.3 | 75.2 | 65.8 |
| 11 | 4.16 | 7.76 | 11.2 | 14.5 | 17.7 | 20.9 | 27.0 | 33.0 | 38.9 | 50.4 | 61.7 | 75.4 | 87.6 | 91.7 | 94.5 | 96.4 | 94.4 | 89.1 | 81.1 | 70.6 |
| 12 | 4.57 | 8.53 | 12.3 | 15.9 | 19.5 | 22.9 | 29.7 | 36.3 | 42.8 | 55.4 | 67.7 | 82.8 | 94.9 | 99.3 | 102 | 104 | 102 | 95.7 | 86.7 | 75.0 |
| 13 | 4.98 | 9.30 | 13.4 | 17.4 | 21.2 | 25.0 | 32.4 | 39.6 | 46.6 | 60.4 | 73.9 | 90.3 | 102 | 107 | 110 | 112 | 109 | 102 | 92.0 | 79.1 |
| 14 | 5.40 | 10.1 | 14.5 | 18.8 | 23.0 | 27.1 | 35.1 | 42.9 | 50.5 | 65.5 | 80.0 | 97.8 | 109 | 114 | 117 | 119 | 115 | 108 | 97.0 | 82.9 |
| 15 | 5.82 | 10.9 | 15.6 | 20.3 | 24.8 | 29.2 | 37.8 | 46.2 | 54.4 | 70.5 | 86.2 | 105 | 116 | 121 | 124 | 126 | 122 | 114 | 102 | 86.3 |
| 16 | 6.24 | 11.6 | 16.8 | 21.7 | 26.5 | 31.3 | 40.5 | 49.5 | 58.4 | 75.6 | 92.4 | 113 | 123 | 128 | 132 | 133 | 128 | 119 | 106 | 89.4 |
| 17 | 6.66 | 12.4 | 17.9 | 23.2 | 28.3 | 33.4 | 43.3 | 52.9 | 62.3 | 80.7 | 98.7 | 121 | 130 | 135 | 138 | 140 | 135 | 125 | 110 | 92.2 |
| 18 | 7.08 | 13.2 | 19.0 | 24.7 | 30.1 | 35.5 | 46.0 | 56.3 | 66.3 | 85.9 | 105 | 128 | 136 | 142 | 145 | 146 | 141 | 130 | 114 | 94.6 |
| 19 | 7.51 | 14.0 | 20.2 | 26.1 | 32.0 | 37.7 | 48.8 | 59.6 | 70.3 | 91.0 | 111 | 134 | 143 | 149 | 152 | 152 | 146 | 134 | 118 | 96.7 |
| 20 | 7.93 | 14.8 | 21.3 | 27.6 | 33.8 | 39.8 | 51.6 | 63.0 | 74.3 | 96.2 | 118 | 141 | 149 | 155 | 158 | 159 | 152 | 139 | 121 | 98.5 |
| 21 | 8.36 | 15.6 | 22.5 | 29.1 | 35.6 | 42.0 | 54.4 | 66.4 | 78.3 | 101 | 124 | 147 | 156 | 162 | 165 | 165 | 157 | 143 | 124 | 100 |
| 22 | 8.80 | 16.4 | 23.6 | 30.6 | 37.4 | 44.1 | 57.2 | 69.9 | 82.3 | 107 | 130 | 153 | 162 | 168 | 171 | 170 | 162 | 147 | 126 | 101 |
| 23 | 9.23 | 17.2 | 24.8 | 32.1 | 39.3 | 46.3 | 60.0 | 73.3 | 86.4 | 112 | 137 | 159 | 168 | 174 | 177 | 176 | 167 | 151 | 129 | 102 |
| 24 | 9.66 | 18.0 | 26.0 | 33.6 | 41.1 | 48.5 | 62.8 | 76.7 | 90.4 | 117 | 143 | 164 | 174 | 180 | 183 | 182 | 171 | 154 | 131 | 102 |
| 25 | 10.1 | 18.8 | 27.1 | 35.2 | 43.0 | 50.6 | 65.6 | 80.2 | 94.5 | 122 | 150 | 170 | 180 | 186 | 189 | 187 | 176 | 157 | 133 | 102 |
| 26 | 10.5 | 19.7 | 28.3 | 36.7 | 44.8 | 52.8 | 68.5 | 83.7 | 98.6 | 128 | 156 | 176 | 186 | 192 | 195 | 192 | 180 | 160 | 134 | 102 |

Note: 1. KW rating when using a one-pitch and two-pitch offset link (OL＆2POL) is 80% of the above. (There is no two-pitch offset link for 48B.)
2. Please contact a Tsubaki representative prior to use of kW ratings in the colored area of the table.

| Multi-strand factor | Number of chain strands | Multi-strand factor |
|---|---|---|
| | Double strand | 1.7 |
| | Triple strand | 2.5 |

| Lubrication method | | | |
|---|---|---|---|
| | A Ⅰ | Manual lubrication or drip lubrication | Details on Pg. 193 |
| | A Ⅱ | Drip lubrication | |
| | B | Oil bath or slinger disc lubrication | |
| | C | Forced pump lubrication | |

# Kilowatt Ratings Tables (RS56B)

■RS56B Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Lubrication Type / Small Sprocket No. of Teeth | Small Sprocket Max rpm | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 125 | 150 | 175 | 200 | 250 | 300 | 350 | 400 | 450 |
| | AⅠ | | | AⅡ | | | | B | | | | | | | | C | | | | |
| 9 | 5.23 | 9.76 | 14.1 | 18.2 | 22.3 | 26.2 | 34.0 | 41.5 | 48.5 | 55.7 | 61.0 | 65.5 | 68.1 | 69.0 | 68.5 | 64.1 | 55.8 | 44.2 | 29.9 | 13.2 |
| 10 | 5.86 | 10.9 | 15.7 | 20.4 | 24.9 | 29.4 | 38.1 | 46.5 | 53.6 | 61.6 | 67.4 | 72.3 | 75.0 | 75.9 | 75.3 | 70.1 | 60.7 | 47.6 | 31.5 | 12.7 |
| 11 | 6.49 | 12.1 | 17.5 | 22.6 | 27.6 | 32.6 | 42.2 | 51.6 | 58.7 | 67.4 | 73.7 | 78.9 | 81.8 | 82.7 | 81.9 | 76.0 | 65.3 | 50.8 | 32.8 | 11.8 |
| 12 | 7.13 | 13.3 | 19.2 | 24.8 | 30.4 | 35.8 | 46.3 | 56.7 | 63.7 | 73.1 | 79.8 | 85.4 | 88.4 | 89.3 | 88.3 | 81.6 | 69.7 | 53.6 | 33.7 | 10.6 |
| 13 | 7.78 | 14.5 | 20.9 | 27.1 | 33.1 | 39.0 | 50.5 | 61.8 | 68.7 | 78.7 | 85.9 | 91.9 | 95.0 | 95.7 | 94.5 | 87.0 | 73.9 | 56.1 | 34.3 | 8.98 |
| 14 | 8.42 | 15.7 | 22.6 | 29.3 | 35.9 | 42.3 | 54.7 | 66.8 | 73.6 | 84.3 | 91.9 | 98.2 | 101 | 102 | 101 | 92.2 | 77.7 | 58.3 | 34.5 | 6.96 |
| 15 | 9.08 | 16.9 | 24.4 | 31.6 | 38.6 | 45.5 | 59.0 | 71.3 | 78.5 | 89.8 | 97.9 | 104 | 108 | 108 | 106 | 97.2 | 81.4 | 60.2 | 34.4 | 4.56 |
| 16 | 9.73 | 18.2 | 26.2 | 33.9 | 41.4 | 48.8 | 63.2 | 75.7 | 83.3 | 95.2 | 104 | 110 | 114 | 114 | 112 | 102 | 84.7 | 61.8 | 33.9 | 1.77 |
| 17 | 10.4 | 19.4 | 27.9 | 36.2 | 44.2 | 52.1 | 67.5 | 80.0 | 88.0 | 101 | 109 | 116 | 120 | 120 | 118 | 106 | 87.8 | 63.1 | 33.1 | |
| 18 | 11.1 | 20.6 | 29.7 | 38.5 | 47.0 | 55.4 | 71.8 | 84.3 | 92.8 | 106 | 115 | 122 | 126 | 126 | 123 | 111 | 90.7 | 64.1 | 32.0 | |
| 19 | 11.7 | 21.9 | 31.5 | 40.8 | 49.9 | 58.8 | 76.1 | 88.6 | 97.4 | 111 | 121 | 128 | 131 | 131 | 128 | 115 | 93.3 | 64.8 | 30.5 | |
| 20 | 12.4 | 23.1 | 33.3 | 43.1 | 52.7 | 62.1 | 80.5 | 92.9 | 102 | 116 | 126 | 134 | 137 | 137 | 133 | 119 | 95.6 | 65.2 | 28.7 | |
| 21 | 13.1 | 24.4 | 35.1 | 45.5 | 55.6 | 65.5 | 84.8 | 97.0 | 107 | 121 | 132 | 139 | 143 | 142 | 138 | 122 | 97.7 | 65.3 | 26.5 | |
| 22 | 13.7 | 25.6 | 36.9 | 47.8 | 58.4 | 68.8 | 89.2 | 101 | 111 | 126 | 137 | 145 | 148 | 147 | 143 | 126 | 100 | 65.1 | 24.0 | |
| 23 | 14.4 | 26.9 | 38.7 | 50.1 | 61.3 | 72.2 | 93.1 | 105 | 116 | 131 | 142 | 150 | 153 | 152 | 147 | 129 | 101 | 64.6 | 21.1 | |
| 24 | 15.1 | 28.1 | 40.5 | 52.5 | 64.2 | 75.6 | 96.7 | 109 | 120 | 136 | 147 | 155 | 158 | 157 | 152 | 132 | 102 | 63.8 | 17.9 | |
| 25 | 15.8 | 29.4 | 42.4 | 54.9 | 67.1 | 79.0 | 100 | 113 | 124 | 141 | 152 | 161 | 163 | 162 | 156 | 135 | 103 | 62.7 | 14.4 | |
| 26 | 16.4 | 30.7 | 44.2 | 57.2 | 70.0 | 82.5 | 104 | 117 | 129 | 146 | 157 | 166 | 168 | 166 | 160 | 138 | 104 | 61.3 | 10.5 | |

Note: 1. There is no offset link for 56B.
2. Please contact a Tsubaki representative prior to use of kW ratings in the colored area of the table.

| | Number of chain strands | Multi-strand factor |
|---|---|---|
| Multi-strand factor | Double strand | 1.7 |
| | Triple strand | 2.5 |

| | | | |
|---|---|---|---|
| Lubrication method | AⅠ | Manual lubrication or drip lubrication | Details on Pg. 193 |
| | AⅡ | Drip lubrication | |
| | B | Oil bath or slinger disc lubrication | |
| | C | Forced pump lubrication | |

# Lube-Free Roller Chains

## Lambda Chain

Tsubaki is a pioneer in the industry, being the first to develop a chain that uses special oil-impregnated bushes. Since first being introduced in 1988, Lambda Chain has gained an outstanding reputation in a variety of industries and applications. It is capable of meeting a wide range of customer needs for long life in a lubrication-free environment, resulting in a reduction in overall long-term costs.

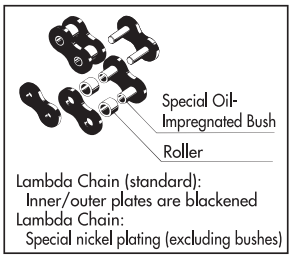
**Long life without additional lubrication** ··· Special oil-impregnated bushes provide long service life.

**Interchangeability** ····· Compatible with RS Standard Roller Chain.
Note: Single-strand chains use an RS standard sprocket, whereas double-strand chains require a special sprocket because the transverse pitch (dimension C) differs from that of RS Roller Chain.

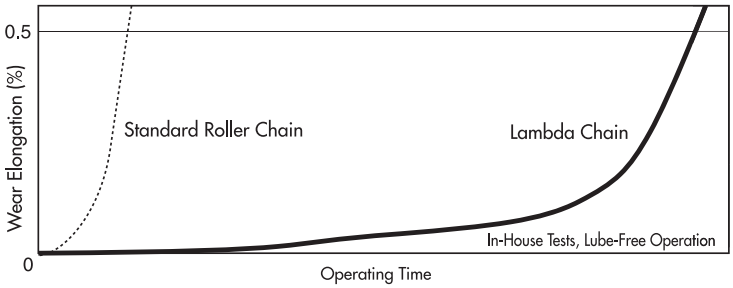
**Operating temperature range** ··· -10°C to 150°C

**Selection** ····· Use the General Selection Method.

Basic Construction




Performance in Normal Temperatures (–10°C to 60°C)



Oil impregnated bushes

## Long Life Lambda Chain (X-Λ® [X-Lambda])

**The inclusion of an oil-impregnated felt seal in the construction of X-Lambda Chain significantly improves the anti-wear performance of standard Lambda Chain. Ideal for environments where even longer replacement intervals compared to standard Lambda Chain are required.**

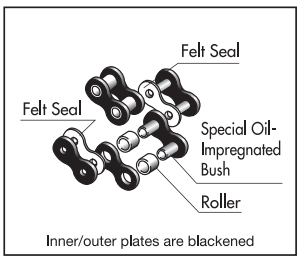
**Ultra long life in a lube-free chain** ··· The combination of a special oil-impregnated bush and felt seal further extends service life.

**Interchangeability** ····· Compatible with standard Lambda Chain. However, as the overall pin length is longer than RS Roller Chain and Lambda Chain, please check that there will be no interference with machinery or other equipment.

**Operating temperature range** ··· -10°C to 150°C

**Selection** ····· Use the General Selection Method.

Basic Construction

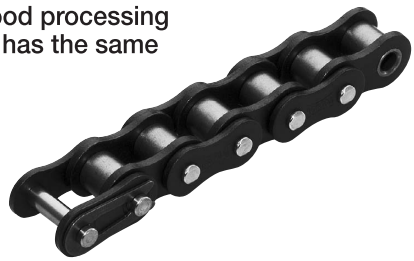



## Lambda Chain KF Series (Heat Resistant Series)

Even in high-temperature environments (150°C to 230°C), our special lubricant that is resistant to volatilization and degradation brings out maximum wear performance in the chain. KF Series uses environmentally friendly NSF-H1 grade certified lube, making it usable on food processing equipment where it is difficult to lubricate and wear is a problem. KF Series has the same or better life than our Food Grade Lambda Series.

**Operating temperature range** ··· -10°C to 230°C
Note: Best between 150°C to 230°C

**Chain size** ····· RS40-LMD to RS80-LMD-KF



⚠ Do not use in environments over 230°C. This will lead to a serious decrease in wear life. Harmful gases may be emitted in temperatures over 280°C.

# Products

## Lambda Chain

Inner and outer plates are blackened. This treatment provides better corrosion resistance, as well as improving the overall appearance of the chain. To ensure compatibility with RS Roller Chain, the inner plate is one size thicker with the same tensile strength and maximum allowable load as RS Roller Chain. Thus, pins are longer than those of RS Roller Chain, so please check that there will be no interference with equipment.
Note: Kilowatt ratings differ slightly from RS Roller Chain.

## BS Lambda Chain (ISO 606 B Series)

Lambda Chain that conforms to ISO 606 B Series. The dimensions are fully interchangeable with existing BS chains. Specially shaped pins are used on single-strand 08B to 16B sizes to enable easy chain disassembly using a standard chain breaker.

## Surface-Treated Lambda Chain

Standard Lambda Chain with corrosion-resistant surface treatments on the plates and rollers.

**NP:** Nickel-plated plates and rollers provide mild corrosion resistance.

**NEP:** A special corrosion-resistant surface treatment is applied to the plates and rollers to improve corrosion resistance.

## Heavy Duty Lambda Chain

The outer and inner plates are one size thicker than standard Lambda Chain to give the chain the same strength as RS Roller Chain, even in double-strand configuration.
Note: Requires special sprockets.

## Curved Lambda Chain

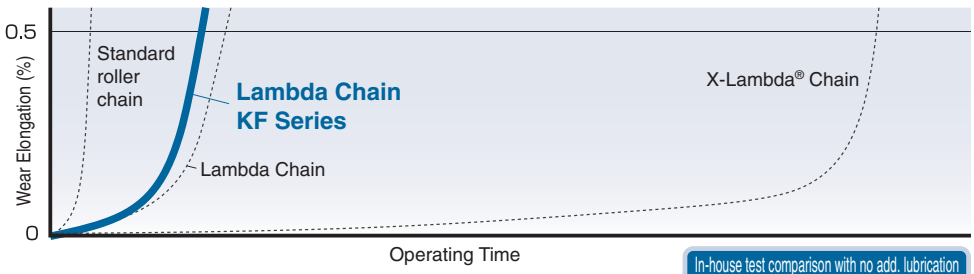
Lambda Chain with a wide horizontal bending radius thanks to its original pin and bush construction and a large clearance between plates. Curved conveyance can be easily configured using RS standard sprockets.

## Wear Life Comparison

A roller chain's wear life varies depending on the chain speed and load acting on it, the number of teeth on the sprocket, operating conditions and temperature, and so on.
The graph below provides a rough guide to roller chain wear life.
*Wear life for Lambda Chain is +0.5% elongation.

### Ambient temperature performance [-10℃ to 60℃]

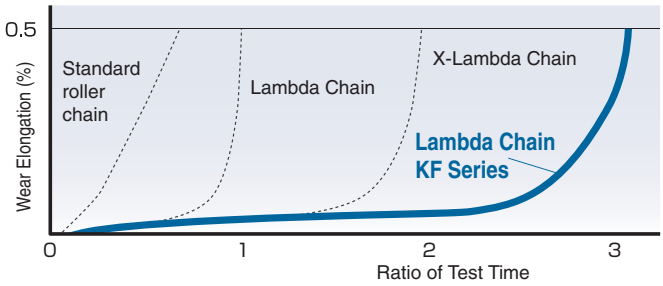
*The amount of wear life increase for RS120 and RS140 is not as large as for RS100 and below




In-house test comparison with no add. lubrication

### 150℃ Range

*The operating temperature range for Lambda and X-Lambda Chain is 150℃.



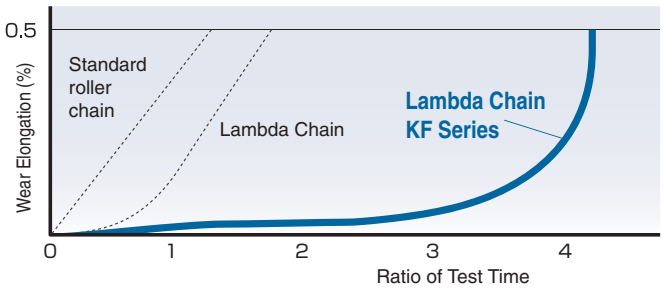

*Kilowatt ratings will drop to 3/4 of the listed catalog values when using in the 150℃ - 200℃ range. Select a chain to match your operating temperature.

**In-house test data for RS50**

In-house test comparison with no add. lubrication

### 230℃ Range

*Data in the 230℃ range provided for reference only. Do not use Lambda Chain at 230℃.




*Kilowatt ratings will drop to 1/2 of the listed catalog values when using in the 200℃ - 230℃ range. Select a chain to match your operating temperature.

**In-house test data for RS50**

In-house test comparison with no add. lubrication

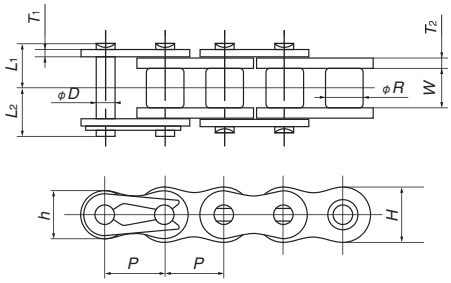
### ⚠ Safety Precautions for Lambda Chain

1. Do not use Lambda Chain if the chain will come in direct contact with food or where coating flakes or wear dust can contaminate food. Also, in non-food applications, appropriately cover the chain or contact a Tsubaki representative about chain selection if using in environments where coating flakes or wear dust present problems. Though nickel is not subject to the Japan Food Sanitation Law or the Industrial Safety and Health Law, plating on sliding parts can peel.
2. Lambda Chain uses NSF-H1 non-compliant anti-rust lubrication/assembly oil.
3. Do not use Lambda Chain where there is the possibility of exposure to chemicals, water, or cleaning/degreasing vapors.

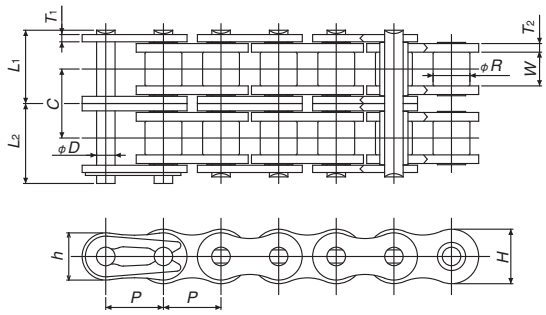
**Chain Selection:** See page 163.

# Lambda Chain

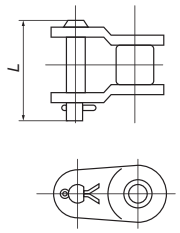
Single strand




Double strand

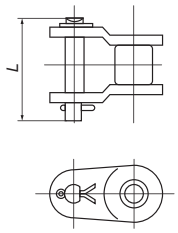



OL




#40 - #80

OL




#100 - #140

Offset links are not available for double strand.

Cotter pins are used in connecting links for RS80 and larger size chains.
Cotter pins are used in both main body and connecting links for RS100 and large chains.

| TSUBAKI Chain Number | | Pitch | Roller Diameter | Inner Width of Inner Link | Plates | | | | Pins | | | Offset Pin Length |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Single-strand | Double-strand | P | R | W | Thickness $T_1$ | Thickness $T_2$ | Height H | Height h | Diameter D | $L_1$ 2-strand value in ( ) | $L_2$ 2-strand value in ( ) | L |
| RS40-LMD-1 | RS40-LMD-2 | 12.70 | 7.92 | 7.55 | 1.5 | 2.0 | 12.0 | 10.4 | 3.97 | 8.75 (16.5 ) | 10.45 (18.1 ) | 20.0 |
| RS50-LMD-1 | RS50-LMD-2 | 15.875 | 10.16 | 9.26 | 2.0 | 2.4 | 15.0 | 13.0 | 5.09 | 10.75 (20.2 ) | 12.45 (22.0 ) | 24.0 |
| RS60-LMD-1 | RS60-LMD-2 | 19.05 | 11.91 | 12.28 | 2.4 | 3.2 | 18.1 | 15.6 | 5.96 | 13.70 (26.05) | 15.75 (28.05) | 32.0 |
| RS80-LMD-1 | RS80-LMD-2 | 25.40 | 15.88 | 15.48 | 3.2 | 4.0 | 24.1 | 20.8 | 7.94 | 17.15 (32.7 ) | 20.25 (35.9 ) | 39.9 |
| RS100-LMD-1 | RS100-LMD-2 | 31.75 | 19.05 | 18.70 | 4.0 | 4.8 | 30.1 | 26.0 | 9.54 | 20.65 (39.5 ) | 23.85 (42.5 ) | 47.5 |
| RS120-LMD-1 | | 38.10 | 22.23 | 24.75 | 4.8 | 5.6 | 36.2 | 31.2 | 11.11 | 25.75 | 29.95 | 59.0 |
| RS140-LMD-1 | | 44.45 | 25.40 | 24.75 | 5.6 | 6.4 | 42.2 | 36.4 | 12.71 | 27.70 | 32.20 | 63.7 |

| TSUBAKI Chain Number | | Minimum Tensile Strength kN{kgf} 2-strand value in ( ) | Approximate Mass kg/m 2-strand value in ( ) | Links Per Unit | Allowable Speed m/min | Transverse Pitch C |
|---|---|---|---|---|---|---|
| Single-strand | Double-strand | | | | | |
| RS40-LMD-1 | RS40-LMD-2 | 17.7{1800} ( 35.4{3600} ) | 0.70 (1.4 ) | 240 | 150 | 15.4 |
| RS50-LMD-1 | RS50-LMD-2 | 28.4{2900} ( 56.8{5800} ) | 1.11 (2.2 ) | 192 | 135 | 19.0 |
| RS60-LMD-1 | RS60-LMD-2 | 40.2{4100} ( 80.4{8200} ) | 1.72 (3.4 ) | 160 | 120 | 24.52 |
| RS80-LMD-1 | RS80-LMD-2 | 71.6{7300} (143{14600}) | 2.77 (5.5 ) | 120 | 90 | 31.1 |
| RS100-LMD-1 | RS100-LMD-2 | 107{10900} (214{21800}) | 4.30 (8.6 ) | 96 | 80 | 37.6 |
| RS120-LMD-1 | | 148{15000} | 6.4 | 80 | 50 | |
| RS140-LMD-1 | | 193{19700} | 8.1 | 68 | 50 | |

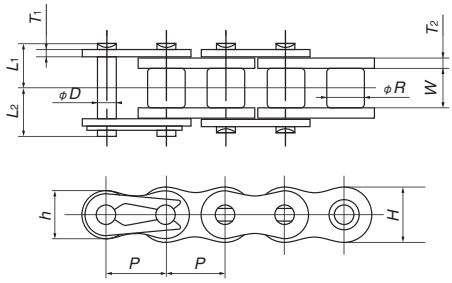
Note 1. Maximum allowable load when using a one-pitch offset link (OL) is 65% that of the above values.
2. Offset links are not available for double-strand chains. Chains should be designed for an even number of links.

## Precautions for Use

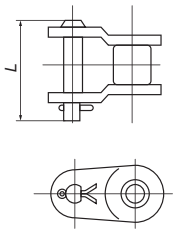
- Dust in the bush accelerates wear. Wet environments can cause the oil in the oil-impregnated bush to leak. Bushes are also coated with less rust-preventing oil, causing early rusting.
- Bush oil can leak in a vacuum, decreasing wear resistance. Do not use in a vacuum.
- The life of the chain will decrease dramatically if oil in the oil-impregnated bush is depleted. (See "(9) Lambda Chain Life" on pg. 150.)
- KW ratings for double strand Lambda Chain (Double strand coefficient)
  The coefficient of a double strand chain with the same part dimensions of a single strand chain is 1.4. To achieve the same coefficient of 1.7 of a multi-strand RS Roller Chain, use a Heavy Duty Lambda Chain with thicker outer and middle plates. In any event, sprockets must be customized. Double strand RS-type sprockets cannot be used.
- Double-strand Lambda Chain pin length
  Because the inner plate is thicker than that of an RS Roller Chain, the pin is longer by an equal amount (L1 and L"). Check for machine interference.

# NP Series

Single strand

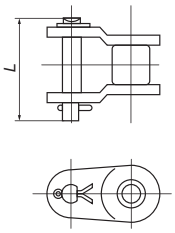



OL



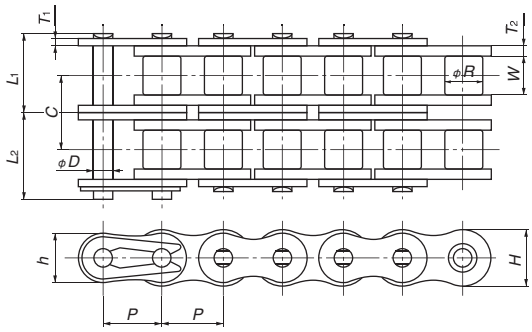

#40 - #80

OL




#100 - #140

Double strand




## Offset links are not available for double strand.

Cotter pins are used in connecting links for RS80 and larger size chains.
Cotter pins are used in both main body and connecting links for RS100 and large chains.

| TSUBAKI Chain Number | | Pitch | Roller Diameter | Inner width of Inner Link | Plates | | | | Pins | | | Offset Pin Length |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Single-strand | Double-strand | P | R | W | Thickness T1 | Thickness T2 | Height H | Height h | Diameter D | L1 2-strand value in ( ) | L2 2-strand value in ( ) | L |
| RS40-LMD-NP-1 | RS40-LMD-NP-2 | 12.70 | 7.92 | 7.55 | 1.5 | 2.0 | 12.0 | 10.4 | 3.97 | 8.75 (16.5 ) | 10.45 (18.1 ) | 20.0 |
| RS50-LMD-NP-1 | RS50-LMD-NP-2 | 15.875 | 10.16 | 9.26 | 2.0 | 2.4 | 15.0 | 13.0 | 5.09 | 10.75 (20.2 ) | 12.45 (22.0 ) | 24.0 |
| RS60-LMD-NP-1 | RS60-LMD-NP-2 | 19.05 | 11.91 | 12.28 | 2.4 | 3.2 | 18.1 | 15.6 | 5.96 | 13.70 (26.05) | 15.70 (28.05) | 32.0 |
| RS80-LMD-NP-1 | RS80-LMD-NP-2 | 25.40 | 15.88 | 15.48 | 3.2 | 4.0 | 24.1 | 20.8 | 7.94 | 17.15 (32.7 ) | 20.25 (35.9 ) | 39.9 |
| RS100-LMD-NP-1 | RS100-LMD-NP-2 | 31.75 | 19.05 | 18.70 | 4.0 | 4.8 | 30.1 | 26.0 | 9.54 | 20.65 (39.5 ) | 23.85 (42.5 ) | 47.5 |
| RS120-LMD-NP-1 | | 38.10 | 22.23 | 24.75 | 4.8 | 5.6 | 36.2 | 31.2 | 11.11 | 25.75 | 29.95 | 59.0 |
| RS140-LMD-NP-1 | | 44.45 | 25.40 | 24.75 | 5.6 | 6.4 | 42.2 | 36.4 | 12.71 | 27.70 | 32.20 | 63.7 |

| TSUBAKI Chain Number | | Minimum Tensile Strength kN{kgf} 2-strand value in ( ) | Approximate Mass kg/m 2-strand value in ( ) | Links Per Unit | Allowable Speed m/min | Transverse Pitch C |
|---|---|---|---|---|---|---|
| Single-strand | Double-strand | | | | | |
| RS40-LMD-NP-1 | RS40-LMD-NP-2 | 17.7{1800} ( 35.4{3600} ) | 0.70 ( 1.4 ) | 240 | 150 | 15.4 |
| RS50-LMD-NP-1 | RS50-LMD-NP-2 | 28.4{2900} ( 56.8{5800} ) | 1.11 ( 2.2 ) | 192 | 135 | 19.0 |
| RS60-LMD-NP-1 | RS60-LMD-NP-2 | 40.2{4100} ( 80.4{8200} ) | 1.72 ( 3.4 ) | 160 | 120 | 24.52 |
| RS80-LMD-NP-1 | RS80-LMD-NP-2 | 71.6{7300} (143{14600}) | 2.77 ( 5.5 ) | 120 | 90 | 31.1 |
| RS100-LMD-NP-1 | RS100-LMD-NP-2 | 107{10900} (214{21800}) | 4.30 ( 8.6 ) | 96 | 80 | 37.6 |
| RS120-LMD-NP-1 | | 148{15000} | 6.4 | 80 | 50 | |
| RS140-LMD-NP-1 | | 193{19700} | 8.1 | 68 | 50 | |

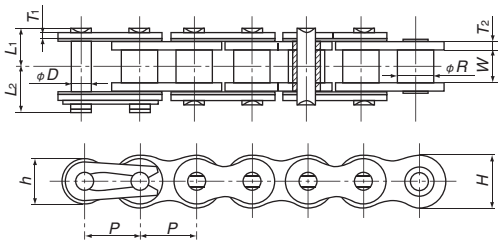
Note 1. Maximum allowable load when using a one-pitch offset link (OL) is 65% that of the above values.
2. Offset links are not available for double-strand chains. Chains should be designed with an even number of links.

## ⚠ Nickel-plated series

Do not use nickel-plated chain if the chain will come in direct contact with food or where coating flakes or wear dust can contaminate food. Also, in non-food applications, appropriately cover the chains or contact Tsubaki about chain selection if using in environments where coating flakes and wear dust present problems. Though nickel is not subject to the Food Sanitation Law or the Industrial Safety and Health Law, plating on sliding parts can peel.

# X-Lambda Chain (X-Λ®)

Single strand




Offset links are not available with X-Lambda Chains.
Cotter pins are used in connecting links for RS80 and larger size chains.
Cotter pins are used in both main body and connecting links for RS100 and large chains.

| TSUBAKI Chain Number | Pitch *P* | Roller Diameter *R* | Inner Width of Inner Link *W* | Plates | | | | Pins | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Thickness $T_1$ | Thickness $T_2$ | Height *H* | Heibht *h* | Diameter *D* | $L_1$ | $L_2$ |
| RS40-LMDX-1 | 12.70 | 7.92 | 7.55 | 1.5 | 2.0 | 12.0 | 10.4 | 3.97 | 9.4 | 11.1 |
| RS50-LMDX-1 | 15.875 | 10.16 | 9.26 | 2.0 | 2.4 | 15.0 | 13.0 | 5.09 | 11.4 | 13.1 |
| RS60-LMDX-1 | 19.05 | 11.91 | 12.28 | 2.4 | 3.2 | 18.1 | 15.6 | 5.96 | 14.8 | 16.5 |
| RS80-LMDX-1 | 25.40 | 15.88 | 15.48 | 3.2 | 4.0 | 24.1 | 20.8 | 7.94 | 18.3 | 20.9 |
| RS100-LMDX-1 | 31.75 | 19.05 | 18.70 | 4.0 | 4.8 | 30.1 | 26.0 | 9.54 | 21.8 | 24.5 |
| RS120-LMDX-1 | 38.10 | 22.23 | 24.75 | 4.8 | 5.6 | 36.2 | 31.2 | 11.11 | 26.7 | 30.75 |

| TSUBAKI Chain Number | Minimum Tensile Strength kN{kgf} | Approximate Mass kg/m | Number of Links Per Unit | Allowable Speed m/min |
|---|---|---|---|---|
| RS40-LMDX-1 | 17.7{1800} | 0.70 | 240 | 150 |
| RS50-LMDX-1 | 28.4{2900} | 1.11 | 192 | 135 |
| RS60-LMDX-1 | 40.2{4100} | 1.72 | 160 | 120 |
| RS80-LMDX-1 | 71.6{7300} | 2.77 | 120 | 90 |
| RS100-LMDX-1 | 107 {10900} | 4.30 | 96 | 80 |
| RS120-LMDX-1 | 148 {15000} | 6.40 | 80 | 50 |

## Precautions for use

- Because of its felt seals and inner plates that are thicker than RS Roller Chain's inner plates, the pins are longer (L1 and L2). Check for equipment interference.
- Offset links are not available for X-Lambda Chains. Chains should be designed with an even number of links.
- Due to oil in the felt seal, more oil adheres to the surface of X-Lambda Chains than regular Lambda Chains.

## Connecting

Use a connecting link (with felt seal) to connect X-Lambda Chains. Set the felt seals on the inside of both the outer plate and connecting plate (Fig.1). (For chain connecting instructions, see pg. 140.)

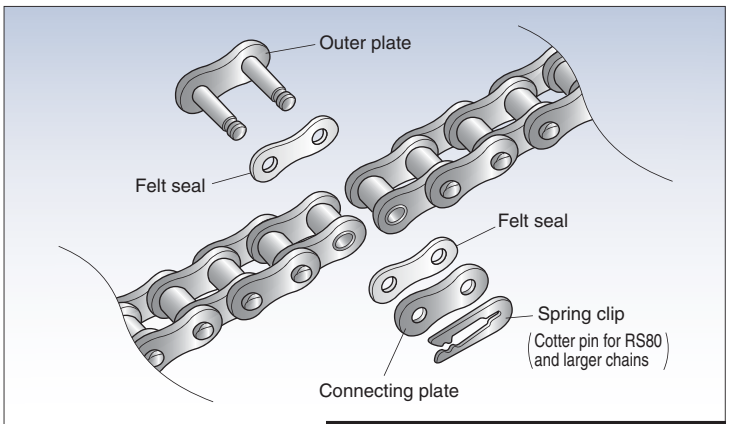
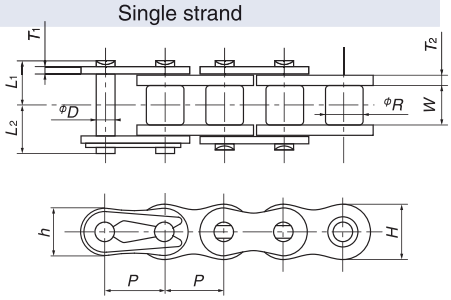


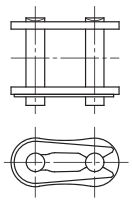

Fig. 1 Connection using connecting link

# Lambda Chain KF Series (Heat Resistant Series)

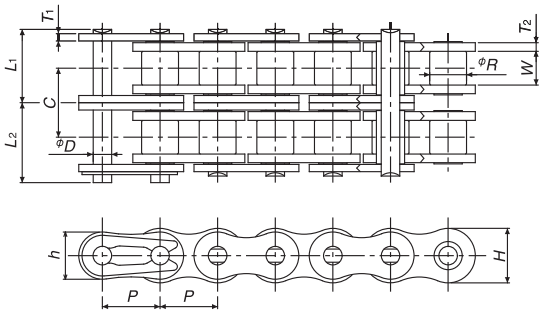
Single strand




JL



Double strand




**Offset links are not available for double-strand Lambda Chain.**
Cotter pins are used in connecting links for RS80 chains.

## Base Chain Dimensions

Unit: mm

| Tsubaki Chain No. | | Pitch $P$ | Roller Dia. $R$ | Width Between Inner Link Plates $W$ | Plate | | | | Pin | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Thickness $T_1$ | Thickness $T_2$ | Height $H$ | Height $h$ | Dia. $D$ | $L_1$ | | $L_2$ | |
| Single Strand | Double Strand | | | | | | | | | Single Strand | Double Strand | Single Strand | Double Strand |
| RS40-LMD-KF-1 | RS40-LMD-KF-2 | 12.70 | 7.92 | 7.55 | 1.5 | 2.0 | 12.0 | 10.4 | 3.97 | 8.75 | 16.5 | 10.45 | 18.1 |
| RS50-LMD-KF-1 | RS50-LMD-KF-2 | 15.875 | 10.16 | 9.26 | 2.0 | 2.4 | 15.0 | 13.0 | 5.09 | 10.75 | 20.2 | 12.45 | 22.0 |
| RS60-LMD-KF-1 | RS60-LMD-KF-2 | 19.05 | 11.91 | 12.28 | 2.4 | 3.2 | 18.1 | 15.6 | 5.96 | 13.70 | 26.05 | 15.70 | 28.05 |
| RS80-LMD-KF-1 | RS80-LMD-KF-2 | 25.40 | 15.88 | 15.48 | 3.2 | 4.0 | 24.1 | 20.8 | 7.94 | 17.15 | 32.7 | 20.25 | 35.9 |

| Tsubaki Chain No. | | Min. Tensile Strength kN {kgf} | | Approx. Mass (kg/m) | | No. of Links per Unit | Allowable Speed (m/min) | Transverse Pitch $C$ |
|---|---|---|---|---|---|---|---|---|
| Single Strand | Double Strand | Single Strand | Double Strand | Single Strand | Double Strand | | | |
| RS40-LMD-KF-1 | RS40-LMD-KF-2 | 17.7 {1800} | 35.3 {3600} | 0.70 | 1.4 | 240 | 150 | 15.4 |
| RS50-LMD-KF-1 | RS50-LMD-KF-2 | 28.4 {2900} | 56.9 {5800} | 1.11 | 2.2 | 192 | 135 | 19.0 |
| RS60-LMD-KF-1 | RS60-LMD-KF-2 | 40.2 {4100} | 80.4 {8200} | 1.72 | 3.4 | 160 | 120 | 24.52 |
| RS80-LMD-KF-1 | RS80-LMD-KF-2 | 71.6 {7300} | 143 {14600} | 2.77 | 5.5 | 120 | 90 | 31.1 |

Notes: 1. Offset links are not available for double-strand chain. Use an even number of links.
2. Offset links for single-strand chain use special numbering only for double-pitch offset links.

## Operating Temperature Range: -10°C to 230°C

## Precautions for Use

- Kilowatt ratings for double-strand Lambda Chain (multi-strand coefficient):
  The multi-strand coefficient of a double-strand chain with the same part dimensions of a single-strand chain is 1.4. Special sprockets are required; double-strand RS standard sprockets cannot be used.
- Double-strand Lambda Chain pin length:
  Because the inner plates are thicker than those of RS Roller Chain, the pins are longer by an equal amount ($L_1$, $L_2$). Please check that there will be no interference with equipment.
- Made to order

## Chain Selection: See page 163.

# Kilowatt Ratings Tables (Lambda Chain / Surface Treated Lambda Chain / X-Lambda Chain / Lambda Chain KF Series)



## ■RS40-LMD-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Small sprocket number of teeth | Small Sprocket Max rpm | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 200 | 300 | 400 | 500 | 700 | 900 | 1000 | 1200 |
| 9 | 0.05 | 0.11 | 0.21 | 0.39 | 0.72 | 1.04 | 1.35 | 1.64 | 2.23 | 2.79 | 3.07 | 3.62 |
| 10 | 0.05 | 0.12 | 0.23 | 0.43 | 0.81 | 1.16 | 1.51 | 1.84 | 2.49 | 3.13 | 3.44 | |
| 11 | 0.06 | 0.14 | 0.26 | 0.48 | 0.90 | 1.29 | 1.67 | 2.04 | 2.76 | 3.47 | 3.81 | |
| 12 | 0.07 | 0.15 | 0.28 | 0.53 | 0.98 | 1.42 | 1.84 | 2.24 | 3.04 | 3.81 | | |
| 13 | 0.07 | 0.17 | 0.31 | 0.57 | 1.07 | 1.54 | 2.00 | 2.45 | 3.31 | 4.15 | | |
| 14 | 0.08 | 0.18 | 0.33 | 0.62 | 1.16 | 1.67 | 2.17 | 2.65 | 3.59 | | | |
| 15 | 0.08 | 0.19 | 0.36 | 0.67 | 1.25 | 1.80 | 2.34 | 2.86 | 3.87 | | | |
| 16 | 0.09 | 0.21 | 0.39 | 0.72 | 1.34 | 1.93 | 2.50 | 3.06 | 4.14 | | | |
| 17 | 0.10 | 0.22 | 0.41 | 0.77 | 1.43 | 2.06 | 2.67 | 3.27 | | | | |
| 18 | 0.10 | 0.23 | 0.44 | 0.82 | 1.52 | 2.20 | 2.84 | 3.48 | | | | |
| 19 | 0.11 | 0.25 | 0.46 | 0.87 | 1.62 | 2.33 | 3.02 | 3.69 | | | | |
| 20 | 0.12 | 0.26 | 0.49 | 0.92 | 1.71 | 2.46 | 3.19 | 3.90 | | | | |
| 21 | 0.12 | 0.28 | 0.52 | 0.96 | 1.80 | 2.59 | 3.36 | 4.11 | | | | |
| 22 | 0.13 | 0.29 | 0.54 | 1.01 | 1.89 | 2.73 | 3.53 | 4.32 | | | | |
| 23 | 0.13 | 0.31 | 0.57 | 1.06 | 1.99 | 2.86 | 3.71 | 4.53 | | | | |
| 24 | 0.14 | 0.32 | 0.60 | 1.11 | 2.08 | 3.00 | 3.88 | | | | | |
| 25 | 0.15 | 0.33 | 0.62 | 1.16 | 2.17 | 3.13 | 4.06 | | | | | |
| 26 | 0.15 | 0.35 | 0.65 | 1.21 | 2.27 | 3.27 | 4.23 | | | | | |
| 28 | 0.17 | 0.38 | 0.71 | 1.32 | 2.46 | 3.54 | 4.58 | | | | | |
| 30 | 0.18 | 0.41 | 0.76 | 1.42 | 2.65 | 3.81 | | | | | | |
| 32 | 0.19 | 0.44 | 0.81 | 1.52 | 2.84 | 4.09 | | | | | | |
| 35 | 0.21 | 0.48 | 0.90 | 1.67 | 3.13 | 4.50 | | | | | | |
| 40 | 0.24 | 0.56 | 1.04 | 1.93 | 3.61 | | | | | | | |
| 45 | 0.28 | 0.63 | 1.18 | 2.20 | 4.10 | | | | | | | |

## ■RS50-LMD-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Small sprocket number of teeth | Small Sprocket Max rpm | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 |
| 9 | 0.10 | 0.23 | 0.43 | 0.80 | 1.49 | 2.15 | 2.78 | 3.40 | 4.01 | 4.60 | 5.19 | 5.77 |
| 10 | 0.11 | 0.26 | 0.48 | 0.90 | 1.67 | 2.41 | 3.12 | 3.81 | 4.49 | 5.16 | 5.82 | |
| 11 | 0.12 | 0.28 | 0.53 | 0.99 | 1.85 | 2.67 | 3.46 | 4.22 | 4.98 | 5.72 | | |
| 12 | 0.14 | 0.31 | 0.58 | 1.09 | 2.03 | 2.93 | 3.80 | 4.64 | 5.47 | 6.28 | | |
| 13 | 0.15 | 0.34 | 0.64 | 1.19 | 2.22 | 3.19 | 4.14 | 5.06 | 5.96 | | | |
| 14 | 0.16 | 0.37 | 0.69 | 1.29 | 2.40 | 3.46 | 4.48 | 5.48 | 6.46 | | | |
| 15 | 0.17 | 0.40 | 0.74 | 1.39 | 2.59 | 3.73 | 4.83 | 5.91 | | | | |
| 16 | 0.19 | 0.43 | 0.80 | 1.49 | 2.78 | 4.00 | 5.18 | 6.33 | | | | |
| 17 | 0.20 | 0.46 | 0.85 | 1.59 | 2.96 | 4.27 | 5.53 | 6.76 | | | | |
| 18 | 0.21 | 0.49 | 0.91 | 1.69 | 3.15 | 4.54 | 5.88 | | | | | |
| 19 | 0.23 | 0.51 | 0.96 | 1.79 | 3.34 | 4.81 | 6.24 | | | | | |
| 20 | 0.24 | 0.54 | 1.01 | 1.89 | 3.53 | 5.09 | 6.59 | | | | | |
| 21 | 0.25 | 0.57 | 1.07 | 2.00 | 3.72 | 5.36 | 6.95 | | | | | |
| 22 | 0.26 | 0.60 | 1.12 | 2.10 | 3.91 | 5.64 | | | | | | |
| 23 | 0.28 | 0.63 | 1.18 | 2.20 | 4.11 | 5.92 | | | | | | |
| 24 | 0.29 | 0.66 | 1.24 | 2.30 | 4.30 | 6.19 | | | | | | |
| 25 | 0.30 | 0.69 | 1.29 | 2.41 | 4.49 | 6.47 | | | | | | |
| 26 | 0.32 | 0.72 | 1.35 | 2.51 | 4.69 | 6.75 | | | | | | |
| 28 | 0.34 | 0.78 | 1.46 | 2.72 | 5.08 | 7.32 | | | | | | |
| 30 | 0.37 | 0.84 | 1.57 | 2.93 | 5.47 | | | | | | | |
| 32 | 0.40 | 0.90 | 1.69 | 3.14 | 5.87 | | | | | | | |
| 35 | 0.44 | 0.99 | 1.86 | 3.46 | 6.46 | | | | | | | |
| 40 | 0.50 | 1.15 | 2.14 | 4.00 | 7.47 | | | | | | | |
| 45 | 0.57 | 1.30 | 2.44 | 4.54 | | | | | | | | |

## ■RS60-LMD-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Small sprocket number of teeth | Small Sprocket Max rpm | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 250 | 300 | 400 | 500 | 600 | 700 |
| 9 | 0.18 | 0.41 | 0.76 | 1.41 | 2.03 | 2.63 | 3.22 | 3.79 | 4.92 | 6.01 | 7.08 | 8.14 |
| 10 | 0.20 | 0.45 | 0.85 | 1.58 | 2.28 | 2.95 | 3.61 | 4.25 | 5.51 | 6.73 | 7.94 | |
| 11 | 0.22 | 0.50 | 0.94 | 1.75 | 2.53 | 3.27 | 4.00 | 4.71 | 6.11 | 7.46 | | |
| 12 | 0.24 | 0.55 | 1.03 | 1.93 | 2.77 | 3.59 | 4.39 | 5.18 | 6.71 | 8.20 | | |
| 13 | 0.26 | 0.60 | 1.13 | 2.10 | 3.03 | 3.92 | 4.79 | 5.65 | 7.31 | | | |
| 14 | 0.29 | 0.65 | 1.22 | 2.28 | 3.28 | 4.25 | 5.19 | 6.12 | 7.92 | | | |
| 15 | 0.31 | 0.70 | 1.31 | 2.45 | 3.53 | 4.57 | 5.59 | 6.59 | 8.54 | | | |
| 16 | 0.33 | 0.75 | 1.41 | 2.63 | 3.79 | 4.90 | 6.00 | 7.06 | | | | |
| 17 | 0.35 | 0.81 | 1.50 | 2.81 | 4.04 | 5.24 | 6.40 | 7.54 | | | | |
| 18 | 0.38 | 0.86 | 1.60 | 2.98 | 4.30 | 5.57 | 6.81 | 8.02 | | | | |
| 19 | 0.40 | 0.91 | 1.70 | 3.16 | 4.56 | 5.90 | 7.22 | 8.51 | | | | |
| 20 | 0.42 | 0.96 | 1.79 | 3.34 | 4.82 | 6.24 | 7.63 | 8.99 | | | | |
| 21 | 0.44 | 1.01 | 1.89 | 3.53 | 5.08 | 6.58 | 8.04 | | | | | |
| 22 | 0.47 | 1.06 | 1.99 | 3.71 | 5.34 | 6.92 | 8.46 | | | | | |
| 23 | 0.49 | 1.12 | 2.08 | 3.89 | 5.60 | 7.26 | 8.87 | | | | | |
| 24 | 0.51 | 1.17 | 2.18 | 4.07 | 5.87 | 7.60 | 9.29 | | | | | |
| 25 | 0.54 | 1.22 | 2.28 | 4.26 | 6.13 | 7.94 | 9.71 | | | | | |
| 26 | 0.56 | 1.28 | 2.38 | 4.44 | 6.40 | 8.29 | | | | | | |
| 28 | 0.61 | 1.38 | 2.58 | 4.81 | 6.93 | 8.98 | | | | | | |
| 30 | 0.65 | 1.49 | 2.78 | 5.18 | 7.46 | 9.67 | | | | | | |
| 32 | 0.70 | 1.60 | 2.98 | 5.56 | 8.00 | | | | | | | |
| 35 | 0.77 | 1.76 | 3.28 | 6.12 | 8.82 | | | | | | | |
| 40 | 0.89 | 2.03 | 3.79 | 7.07 | 10.2 | | | | | | | |
| 45 | 1.01 | 2.31 | 4.30 | 8.03 | | | | | | | | |

## ■RS80-LMD-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Small sprocket number of teeth | Small Sprocket Max rpm | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 75 | 100 | 125 | 150 | 200 | 250 | 300 | 350 |
| 9 | 0.40 | 0.91 | 1.69 | 2.44 | 3.16 | 3.86 | 4.55 | 5.90 | 7.21 | 8.50 | 9.76 |
| 10 | 0.45 | 1.02 | 1.90 | 2.73 | 3.54 | 4.33 | 5.10 | 6.61 | 8.08 | 9.52 | 10.9 |
| 11 | 0.49 | 1.13 | 2.10 | 3.03 | 3.93 | 4.80 | 5.65 | 7.33 | 8.96 | 10.6 | |
| 12 | 0.54 | 1.24 | 2.31 | 3.33 | 4.31 | 5.27 | 6.21 | 8.05 | 9.84 | | |
| 13 | 0.59 | 1.35 | 2.52 | 3.63 | 4.70 | 5.75 | 6.77 | 8.77 | 10.7 | | |
| 14 | 0.64 | 1.46 | 2.73 | 3.93 | 5.09 | 6.23 | 7.34 | 9.51 | 11.6 | | |
| 15 | 0.69 | 1.58 | 2.94 | 4.24 | 5.49 | 6.71 | 7.90 | 10.2 | | | |
| 16 | 0.74 | 1.69 | 3.15 | 4.54 | 5.88 | 7.19 | 8.48 | 11.0 | | | |
| 17 | 0.79 | 1.80 | 3.37 | 4.85 | 6.28 | 7.68 | 9.05 | 11.7 | | | |
| 18 | 0.84 | 1.92 | 3.58 | 5.16 | 6.68 | 8.17 | 9.63 | | | | |
| 19 | 0.89 | 2.03 | 3.80 | 5.47 | 7.08 | 8.66 | 10.2 | | | | |
| 20 | 0.94 | 2.15 | 4.01 | 5.78 | 7.49 | 9.15 | 10.8 | | | | |
| 21 | 0.99 | 2.27 | 4.23 | 6.09 | 7.89 | 9.65 | 11.4 | | | | |
| 22 | 1.04 | 2.38 | 4.45 | 6.41 | 8.30 | 10.1 | 12.0 | | | | |
| 23 | 1.10 | 2.50 | 4.67 | 6.72 | 8.71 | 10.6 | 12.5 | | | | |
| 24 | 1.15 | 2.62 | 4.89 | 7.04 | 9.12 | 11.1 | | | | | |
| 25 | 1.20 | 2.74 | 5.11 | 7.35 | 9.53 | 11.6 | | | | | |
| 26 | 1.25 | 2.85 | 5.33 | 7.67 | 9.94 | 12.2 | | | | | |
| 28 | 1.36 | 3.09 | 5.77 | 8.31 | 10.8 | 13.2 | | | | | |
| 30 | 1.46 | 3.33 | 6.22 | 8.96 | 11.6 | | | | | | |
| 32 | 1.57 | 3.57 | 6.67 | 9.60 | 12.4 | | | | | | |
| 35 | 1.73 | 3.94 | 7.34 | 10.6 | 13.7 | | | | | | |
| 40 | 1.99 | 4.55 | 8.48 | 12.2 | | | | | | | |
| 45 | 2.26 | 5.16 | 9.63 | 13.9 | | | | | | | |

Note 1. KW ratings when using a one-pitch offset link (OL) are 80% that of the above values.
Note 2. KW ratings shown for X-Lambda Chain, whose wear performance is 7x greater than RS Roller Chains in lube-free operation (14x for RS40 to RS60; 2.5x for RS120 and RS140) and over 5x that of Lambda Chains. (See "Glossary".)
Note 3. Kilowatt ratings tables for RS Roller Chains differ from the above.
Note 4. Lambda Chain KF Series must be selected with ambient temperature selection coefficients factored in. (See Pg. 163.)

# Kilowatt Ratings Tables (Lambda Chain / Surface Treated Lambda Chain / X-Lambda Chain / Lambda Chain KF Series)

## ■RS100-LMD-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Small sprocket number of teeth | Small Sprocket Max rpm | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 |
| 9 | 0.66 | 1.51 | 2.82 | 4.07 | 5.27 | 6.44 | 7.59 | 8.72 | 9.83 | 10.9 | 12.0 | 13.1 |
| 10 | 0.74 | 1.70 | 3.16 | 4.56 | 5.90 | 7.22 | 8.50 | 9.77 | 11.0 | 12.2 | 13.5 | |
| 11 | 0.82 | 1.88 | 3.51 | 5.05 | 6.54 | 8.00 | 9.42 | 10.8 | 12.2 | 13.6 | | |
| 12 | 0.90 | 2.06 | 3.85 | 5.55 | 7.19 | 8.79 | 10.4 | 11.9 | 13.4 | | | |
| 13 | 0.99 | 2.25 | 4.20 | 6.05 | 7.84 | 9.58 | 11.3 | 13.0 | | | | |
| 14 | 1.07 | 2.44 | 4.55 | 6.55 | 8.49 | 10.4 | 12.2 | 14.0 | | | | |
| 15 | 1.15 | 2.63 | 4.90 | 7.06 | 9.15 | 11.2 | 13.2 | | | | | |
| 16 | 1.23 | 2.82 | 5.26 | 7.57 | 9.81 | 12.0 | 14.1 | | | | | |
| 17 | 1.32 | 3.01 | 5.61 | 8.08 | 10.5 | 12.8 | | | | | | |
| 18 | 1.40 | 3.20 | 5.97 | 8.60 | 11.1 | 13.6 | | | | | | |
| 19 | 1.49 | 3.39 | 6.33 | 9.11 | 11.8 | 14.4 | | | | | | |
| 20 | 1.57 | 3.58 | 6.69 | 9.63 | 12.5 | 15.3 | | | | | | |
| 21 | 1.66 | 3.78 | 7.05 | 10.2 | 13.2 | | | | | | | |
| 22 | 1.74 | 3.97 | 7.41 | 10.7 | 13.8 | | | | | | | |
| 23 | 1.83 | 4.17 | 7.78 | 11.2 | 14.5 | | | | | | | |
| 24 | 1.91 | 4.36 | 8.14 | 11.7 | 15.2 | | | | | | | |
| 25 | 2.00 | 4.56 | 8.51 | 12.3 | 15.9 | | | | | | | |
| 26 | 2.09 | 4.76 | 8.88 | 12.8 | | | | | | | | |
| 28 | 2.26 | 5.15 | 9.62 | 13.9 | | | | | | | | |
| 30 | 2.43 | 5.55 | 10.4 | 14.9 | | | | | | | | |
| 32 | 2.61 | 5.95 | 11.1 | 16.0 | | | | | | | | |
| 35 | 2.88 | 6.56 | 12.2 | | | | | | | | | |
| 40 | 3.32 | 7.58 | 14.1 | | | | | | | | | |
| 45 | 3.77 | 8.60 | 16.1 | | | | | | | | | |

## ■RS120-LMD-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Small sprocket number of teeth | Small Sprocket Max rpm | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 125 |
| 9 | 0.65 | 1.22 | 1.75 | 2.27 | 2.77 | 3.27 | 4.23 | 5.17 | 6.09 | 7.90 | 9.65 | 11.8 |
| 10 | 0.73 | 1.36 | 1.96 | 2.54 | 3.11 | 3.66 | 4.74 | 5.80 | 6.83 | 8.85 | 10.8 | 13.2 |
| 11 | 0.81 | 1.51 | 2.17 | 2.82 | 3.44 | 4.06 | 5.25 | 6.42 | 7.57 | 9.81 | 12.0 | |
| 12 | 0.89 | 1.66 | 2.39 | 3.09 | 3.78 | 4.46 | 5.77 | 7.06 | 8.31 | 10.8 | 13.2 | |
| 13 | 0.97 | 1.81 | 2.60 | 3.37 | 4.12 | 4.86 | 6.29 | 7.69 | 9.07 | 11.7 | 14.4 | |
| 14 | 1.05 | 1.96 | 2.82 | 3.65 | 4.47 | 5.26 | 6.82 | 8.33 | 9.82 | 12.7 | | |
| 15 | 1.13 | 2.11 | 3.04 | 3.94 | 4.81 | 5.67 | 7.35 | 8.98 | 10.6 | 13.7 | | |
| 16 | 1.21 | 2.26 | 3.26 | 4.22 | 5.16 | 6.08 | 7.88 | 9.63 | 11.3 | 14.7 | | |
| 17 | 1.29 | 2.41 | 3.48 | 4.51 | 5.51 | 6.49 | 8.41 | 10.3 | 12.1 | | | |
| 18 | 1.38 | 2.57 | 3.70 | 4.79 | 5.86 | 6.90 | 8.94 | 10.9 | 12.9 | | | |
| 19 | 1.46 | 2.72 | 3.92 | 5.08 | 6.21 | 7.32 | 9.48 | 11.6 | 13.7 | | | |
| 20 | 1.54 | 2.88 | 4.15 | 5.37 | 6.57 | 7.74 | 10.0 | 12.3 | 14.4 | | | |
| 21 | 1.63 | 3.03 | 4.37 | 5.66 | 6.92 | 8.15 | 10.6 | 12.9 | 15.2 | | | |
| 22 | 1.71 | 3.19 | 4.60 | 5.95 | 7.28 | 8.58 | 11.1 | 13.6 | | | | |
| 23 | 1.79 | 3.35 | 4.82 | 6.25 | 7.64 | 9.00 | 11.7 | 14.2 | | | | |
| 24 | 1.88 | 3.50 | 5.05 | 6.54 | 7.99 | 9.42 | 12.2 | 14.9 | | | | |
| 25 | 1.96 | 3.66 | 5.28 | 6.83 | 8.35 | 9.84 | 12.8 | 15.6 | | | | |
| 26 | 2.05 | 3.82 | 5.50 | 7.13 | 8.72 | 10.3 | 13.3 | 16.3 | | | | |
| 28 | 2.22 | 4.14 | 5.96 | 7.72 | 9.44 | 11.1 | 14.4 | | | | | |
| 30 | 2.39 | 4.46 | 6.42 | 8.32 | 10.2 | 12.0 | 15.5 | | | | | |
| 32 | 2.56 | 4.78 | 6.89 | 8.92 | 10.9 | 12.9 | 16.7 | | | | | |
| 35 | 2.82 | 5.27 | 7.59 | 9.83 | 12.0 | 14.2 | | | | | | |
| 40 | 3.26 | 6.08 | 8.76 | 11.4 | 13.9 | 16.4 | | | | | | |
| 45 | 3.70 | 6.91 | 9.95 | 12.9 | 15.8 | | | | | | | |

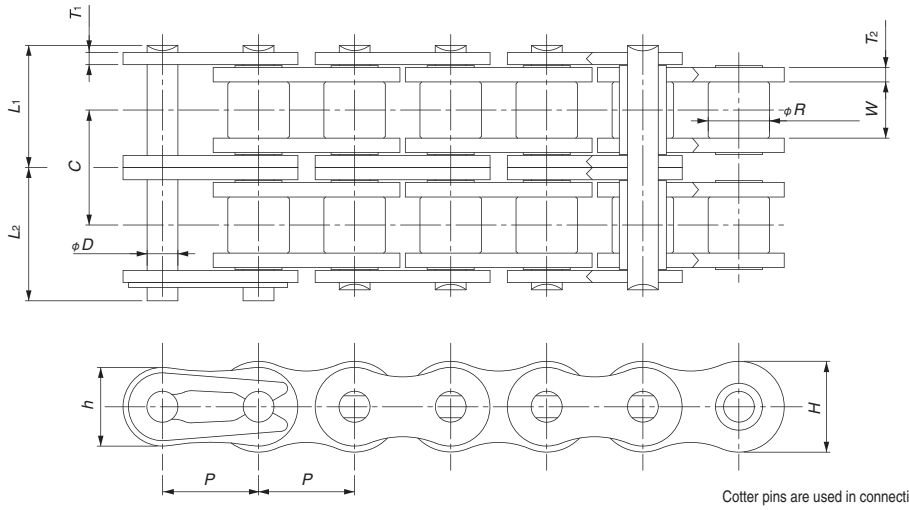
## ■RS140-LMD-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Small sprocket number of teeth | Small Sprocket Max rpm | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 125 |
| 9 | 1.02 | 1.90 | 2.74 | 3.55 | 4.34 | 5.12 | 6.63 | 8.10 | 9.55 | 12.4 | 15.1 | 18.5 |
| 10 | 1.14 | 2.13 | 3.07 | 3.98 | 4.87 | 5.73 | 7.43 | 9.08 | 10.7 | 13.9 | 16.9 | |
| 11 | 1.27 | 2.36 | 3.41 | 4.41 | 5.39 | 6.35 | 8.23 | 10.1 | 11.9 | 15.4 | 18.8 | |
| 12 | 1.39 | 2.60 | 3.74 | 4.85 | 5.92 | 6.98 | 9.04 | 11.1 | 13.0 | 16.9 | | |
| 13 | 1.52 | 2.83 | 4.08 | 5.28 | 6.46 | 7.61 | 9.86 | 12.1 | 14.2 | 18.4 | | |
| 14 | 1.64 | 3.07 | 4.42 | 5.72 | 7.00 | 8.25 | 10.7 | 13.1 | 15.4 | 19.9 | | |
| 15 | 1.77 | 3.30 | 4.76 | 6.17 | 7.54 | 8.88 | 11.5 | 14.1 | 16.6 | | | |
| 16 | 1.90 | 3.54 | 5.10 | 6.61 | 8.08 | 9.52 | 12.3 | 15.1 | 17.8 | | | |
| 17 | 2.03 | 3.78 | 5.45 | 7.06 | 8.63 | 10.2 | 13.2 | 16.1 | 19.0 | | | |
| 18 | 2.16 | 4.02 | 5.80 | 7.51 | 9.18 | 10.8 | 14.0 | 17.1 | 20.2 | | | |
| 19 | 2.29 | 4.27 | 6.14 | 7.96 | 9.73 | 11.5 | 14.9 | 18.2 | | | | |
| 20 | 2.42 | 4.51 | 6.49 | 8.41 | 10.3 | 12.1 | 15.7 | 19.2 | | | | |
| 21 | 2.55 | 4.75 | 6.85 | 8.87 | 10.8 | 12.8 | 16.6 | 20.2 | | | | |
| 22 | 2.68 | 5.00 | 7.20 | 9.33 | 11.4 | 13.4 | 17.4 | 21.3 | | | | |
| 23 | 2.81 | 5.24 | 7.55 | 9.78 | 12.0 | 14.1 | 18.3 | | | | | |
| 24 | 2.94 | 5.49 | 7.91 | 10.2 | 12.5 | 14.8 | 19.1 | | | | | |
| 25 | 3.07 | 5.74 | 8.26 | 10.7 | 13.1 | 15.4 | 20.0 | | | | | |
| 26 | 3.21 | 5.99 | 8.62 | 11.2 | 13.7 | 16.1 | 20.8 | | | | | |
| 28 | 3.48 | 6.48 | 9.34 | 12.1 | 14.8 | 17.4 | 22.6 | | | | | |
| 30 | 3.74 | 6.99 | 10.1 | 13.0 | 15.9 | 18.8 | | | | | | |
| 32 | 4.01 | 7.49 | 10.8 | 14.0 | 17.1 | 20.1 | | | | | | |
| 35 | 4.42 | 8.25 | 11.9 | 15.4 | 18.8 | 22.2 | | | | | | |
| 40 | 5.11 | 9.53 | 13.7 | 17.8 | 21.7 | | | | | | | |

Note 1. KW ratings when using a one-pitch offset link (OL) are 80% that of the above values.
Note 2. KW ratings shown for X-Lambda Chain, whose wear performance is 7x greater than RS Roller Chains in lube-free operation (14x for RS40 to RS60; 2.5x for RS120 and RS140) and over 5x that of Lambda Chains. (See "Glossary".)
Note 3. Kilowatt ratings tables for RS Roller Chains differ from the above.
Note 4. Lambda Chain KF Series must be selected with ambient temperature selection coefficients factored in. (See Pg. 163.)

# Heavy Duty Lambda Chain

Double strand




Cotter pins are used in connecting links for RS80 and larger sized chains.

| TSUBAKI Chain Number / Normal Specification | Pitch P | Roller Diameter R | Inner Width of Inner Link W | Plates | | | | Pins | | | Transverse Pitch C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Thickness $T_1$ | Thickness $T_2$ | Height H | Height h | Diameter D | $L_1$ | $L_2$ | |
| RS40-LMD-H-2 | 12.70 | 7.92 | 7.55 | 2.0 | 2.0 | 12.0 | 10.4 | 3.97 | 17.5 | 19.15 | 16.4 |
| RS50-LMD-H-2 | 15.875 | 10.16 | 9.26 | 2.4 | 2.4 | 15.0 | 13.0 | 5.09 | 20.95 | 22.65 | 19.7 |
| RS60-LMD-H-2 | 19.05 | 11.91 | 12.28 | 3.2 | 3.2 | 18.1 | 15.6 | 5.96 | 27.55 | 29.45 | 26.1 |
| RS80-LMD-H-2 | 25.40 | 15.88 | 15.48 | 4.0 | 4.0 | 24.1 | 20.8 | 7.94 | 34.6 | 37.2 | 32.6 |
| RS100-LMD-H-2 | 31.75 | 19.05 | 18.70 | 4.8 | 4.8 | 30.1 | 26.0 | 9.54 | 41.35 | 44.05 | 39.1 |

| TSUBAKI Chain Number / Normal Specification | Minimum Tensile Strength kN{kgf} | Approximate Mass kg/m | Number of Links Per Unit | Allowable Speed m/min |
|---|---|---|---|---|
| RS40-LMD-H-2 | 35.4 {3600} | 1.57 | 240 | 150 |
| RS50-LMD-H-2 | 56.8 {5800} | 2.35 | 192 | 135 |
| RS60-LMD-H-2 | 80.4 {8200} | 3.59 | 160 | 120 |
| RS80-LMD-H-2 | 143 {14600} | 6.18 | 120 | 90 |
| RS100-LMD-H-2 | 214 {21800} | 9.03 | 96 | 80 |

## Ambient temperature: -10 to 150℃

## Sprocket

- The chain horizontal pitch (C) differs from that of RS Roller Chain. Therefore, double-strand RS-type sprockets cannot be used. Use only customized sprockets.

## Kilowatt ratings (Multiple strand coefficient)

- The multiple-strand coefficient of Heavy Duty Lambda Chains is 1.7. To select a chain, multiply the kW ratings on pgs. 61 and 62 by 1.7.
- Use an H-grade FCL (press fit) for the connecting link. (Using a MCL decreases the multiple strand coefficient.)

## Offset link

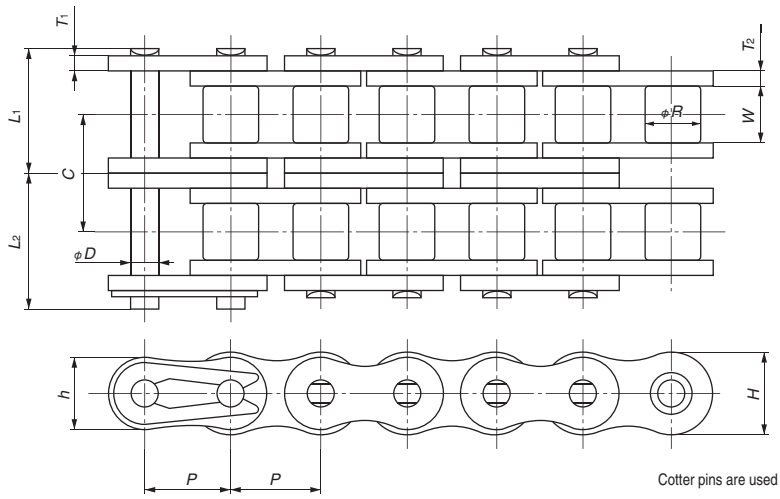
- Offset links are available.

## Pin length

- Because the outer and inner plates are thicker than RS Roller Chain's outer and inner plates, the pins are longer by an equal amount (L1 and L2). Check for machine interference.

# Heavy Duty Lambda Chain NP Series

Double strand




Cotter pins are used in connecting links for RS80 and larger sized chains.

| TSUBAKI Chain Number Nickel-plated Specification | Pitch P | Roller Diameter R | Inner Width of Inner Link W | Plates | | | | Pins | | | Transverse Pitch C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Thickness $T_1$ | Thickness $T_2$ | Height H | Height h | Diameter D | $L_1$ | $L_2$ | |
| RS40-LMD-H-NP-2 | 12.70 | 7.92 | 7.55 | 2.0 | 2.0 | 12.0 | 10.4 | 3.97 | 17.5 | 19.15 | 16.4 |
| RS50-LMD-H-NP-2 | 15.875 | 10.16 | 9.26 | 2.4 | 2.4 | 15.0 | 13.0 | 5.09 | 20.95 | 22.65 | 19.7 |
| RS60-LMD-H-NP-2 | 19.05 | 11.91 | 12.28 | 3.2 | 3.2 | 18.1 | 15.6 | 5.96 | 27.55 | 29.45 | 26.1 |
| RS80-LMD-H-NP-2 | 25.40 | 15.88 | 15.48 | 4.0 | 4.0 | 24.1 | 20.8 | 7.94 | 34.6 | 37.2 | 32.6 |
| RS100-LMD-H-NP-2 | 31.75 | 19.05 | 18.70 | 4.8 | 4.8 | 30.1 | 26.0 | 9.54 | 41.35 | 44.05 | 39.1 |

| TSUBAKI Chain Number Nickel-plated Specification | Minimum Tensile Strength kN{kgf} | Approximate Mass kg/m | Number of Links Per Unit | Allowable Speed m/min |
|---|---|---|---|---|
| RS40-LMD-H-NP-2 | 35.4 {3600} | 1.57 | 240 | 150 |
| RS50-LMD-H-NP-2 | 56.8 {5800} | 2.35 | 192 | 135 |
| RS60-LMD-H-NP-2 | 80.4 {8200} | 3.59 | 160 | 120 |
| RS80-LMD-H-NP-2 | 143 {14600} | 6.18 | 120 | 90 |
| RS100-LMD-H-NP-2 | 214 {21800} | 9.03 | 96 | 80 |

## Ambient temperature: -10 to 150℃

## Sprocket

- The chain horizontal pitch (C) differs from that of RS Roller Chain. Therefore, double-strand RS-type sprockets cannot be used. Use only customized sprockets.

## Kilowatt ratings (Multiple strand coefficient)

- The multiple-strand coefficient of Heavy Duty Lambda Chains is 1.7. To select a chain, multiply the kW ratings on pgs. 61 and 62 by 1.7.
- Use an H-grade FCL (press fit) for the connecting link. (Using a MCL decreases the multiple strand coefficient.)

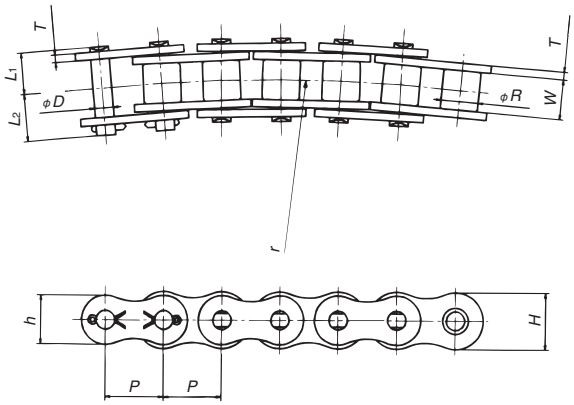
## Offset link

- Offset links are available.

## Pin length

- Because the outer and inner plates are thicker than RS Roller Chain's outer and inner plates, the pins are longer by an equal amount (L1 and L2). Check for machine interference with equipment in use.

# Curved Lambda Chain




| TSUBAKI Chain Number | Pitch P | Roller Diameter R | Inner Width of Inner Link W | Plates | | | Pins | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Thickness T | Height H | Height h | Diameter D | $L_1 + L_2$ | $L_1$ | $L_2$ |
| RS40-LMC-CU-1 | 12.70 | 7.92 | 7.95 | 1.5 | 12.0 | 10.4 | 3.59 | 18.2 | 8.45 | 9.75 |
| RS50-LMC-CU-1 | 15.875 | 10.16 | 9.53 | 2.0 | 15.0 | 13.0 | 4.45 | 22.0 | 10.3 | 11.7 |
| RS60-LMC-CU-1 | 19.05 | 11.91 | 12.70 | 2.4 | 18.1 | 15.6 | 5.35 | 27.5 | 12.95 | 14.55 |

| TSUBAKI Chain Number | Minimum Tensile Strength kN{kgf} | Approximate Mass kg/m | Number of Links Per Unit | Minimum Horizontal Bending Radius r |
|---|---|---|---|---|
| RS40-LMC-CU-1 | 11.1 {1130} | 0.61 | 240 | 400 |
| RS50-LMC-CU-1 | 17.3 {1760} | 1.01 | 192 | 500 |
| RS60-LMC-CU-1 | 25.1 {2560} | 1.40 | 160 | 600 |

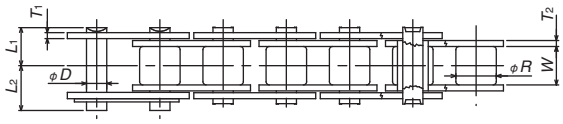
**Ambient temperature:** -10 to 150℃

**Sprocket:** Can use RS Sprockets.

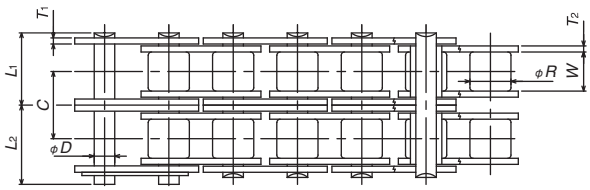
- Attachment chains are available.
- See 4.6 on pg. 195 for installation.

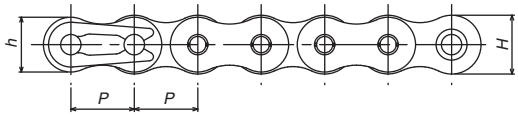
# BS Lambda Chain (ISO606 B Series)

Single strand

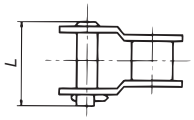



Double strand

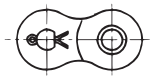



OL




Cotter pins are used in connecting links for RS20B and larger sized chains.
Double-strand OL use connecting pins on both ends.



Single-pitch offset link (OL)

| TSUBAKI Chain Number | | JIS No. | Pitch $P$ | Roller Diameter $R$ | Inner Width of Inner Link $W$ | Plates | | | | Pins | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Single-strand | Double-strand | | | | | Thickness $T_1$ | Thickness $T_2$ | Height $H$ | Height $h$ | Diameter $D$ | $L_1$ 2-strand value in ( ) | $L_2$ 2-strand value in ( ) |
| RF06B-LM-1 | RF06B-LM-2 | 06B | 9.525 | 6.35 | 5.72 | 1.0 | 1.3 | 8.2 | 8.2 | 3.28 | 6.1 (11.2) | 7.7 (12.8) |
| RS08B-LM-1 | RS08B-LM-2 | 08B | 12.70 | 8.51 | 7.75 | 1.6 | 1.6 | 12.0 | 10.4 | 4.45 | 8.4 (15.3) | 10.0 (16.9) |
| RS10B-LM-1 | RS10B-LM-2 | 10B | 15.875 | 10.16 | 9.65 | 1.5 | 1.5 | 14.7 | 13.7 | 5.08 | 9.55 (17.85) | 11.25 (19.55) |
| RS12B-LM-1 | RS12B-LM-2 | 12B | 19.05 | 12.07 | 11.68 | 1.8 | 1.8 | 16.1 | 16.1 | 5.72 | 11.1 (20.85) | 13.0 (22.75) |
| RS16B-LM-1 | RS16B-LM-2 | 16B | 25.40 | 15.88 | 17.02 | 3.2 | 4.0 | 21.0 | 21.0 | 8.28 | 17.75 (33.55) | 19.95 (35.75) |
| RS20B-LM-1 | RS20B-LM-2 | 20B | 31.75 | 19.05 | 19.56 | 3.4 | 4.4 | 26.4 | 26.0 | 10.19 | 19.9 (38.25) | 23.1 (41.45) |
| RS24B-LM-1 | RS24B-LM-2 | 24B | 38.10 | 25.40 | 25.40 | 5.6 | 6.0 | 33.4 | 31.2 | 14.63 | 26.65 (50.8) | 31.85 (56.0) |

| TSUBAKI Chain Number | | Offset Pin Length $L$ 2-strand value in ( ) | Minimum Tensile Strength kN{kgf} | | Approximate Mass kg/m 2-strand value in ( ) | Allowable Speed (m/min) | Transverse Pitch $C$ |
|---|---|---|---|---|---|---|---|
| Single-strand | Double-strand | | Single-strand | Double-strand | | | |
| RF06B-LM-1 | RF06B-LM-2 | 15.1 ( 25.9 ) | 8.90 {910} | 16.9 {1720} | 0.39 ( 0.75 ) | 160 | 10.24 |
| RS08B-LM-1 | RS08B-LM-2 | 18.6 ( 34.5 ) | 17.8 {1820} | 31.1 {3170} | 0.70 ( 1.35 ) | 150 | 13.92 |
| RS10B-LM-1 | RS10B-LM-2 | 20.8 ( 39.4 ) | 22.2 {2260} | 44.5 {4540} | 0.95 ( 1.85 ) | 135 | 16.59 |
| RS12B-LM-1 | RS12B-LM-2 | 24.4 ( 45.9 ) | 28.9 {2950} | 57.8 {5890} | 1.25 ( 2.50 ) | 120 | 19.46 |
| RS16B-LM-1 | RS16B-LM-2 | 41.1 ( 75.2 ) | 60.0 {6120} | 106 {10800} | 2.70 ( 5.40 ) | 90 | 31.88 |
| RS20B-LM-1 | RS20B-LM-2 | 46.6 ( 84.6 ) | 95.0 {9690} | 170 {17300} | 3.85 ( 7.65 ) | 80 | 36.45 |
| RS24B-LM-1 | RS24B-LM-2 | 61.7 (112.8) | 160 {16300} | 280 {28600} | 7.45 (14.65) | 50 | 48.36 |

Note 1. RF06B plate is flat:
2. Multi-strand RF06B and RS08B chains have one middle plate.
3. Minimum tensile strength of attachment chains differs from those above. Contact a Tsubaki representative for details.

## Ambient temperature: -10 to 150˚C

## Sprocket

■ Use BS Roller chain (ISO-compliant B Series) sprockets.

## Pin type

■ Single-strand RS08B to RS16B chains use a special pin for easy cutting / connection (center sink pin).
Other sizes and double-strand chains use dual riveting.

## Easy cutting / connection

■ Cutting and connecting is easy with a special tool due to a newly developed pin and new riveting style.
(On single-strand chains from RS08B to RS16B.)

# Kilowatt Ratings Tables (BS Lambda Chain [ISO 606 B Series])



## ■RF06B-LM-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Small sprocket number of teeth | Small Sprocket Max rpm | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 50 | 100 | 300 | 500 | 700 | 900 | 1200 | 1500 | 1800 |
| 9 | 0.06 | 0.11 | 0.31 | 0.49 | 0.66 | 0.83 | 1.07 | 1.31 | 1.55 |
| 10 | 0.07 | 0.13 | 0.35 | 0.55 | 0.74 | 0.93 | 1.20 | 1.47 | |
| 11 | 0.08 | 0.14 | 0.38 | 0.61 | 0.82 | 1.03 | 1.33 | 1.63 | |
| 12 | 0.08 | 0.16 | 0.42 | 0.67 | 0.90 | 1.13 | 1.47 | | |
| 13 | 0.09 | 0.17 | 0.46 | 0.73 | 0.98 | 1.23 | 1.60 | | |
| 14 | 0.10 | 0.18 | 0.50 | 0.79 | 1.07 | 1.34 | | | |
| 15 | 0.11 | 0.20 | 0.54 | 0.85 | 1.15 | 1.44 | | | |
| 16 | 0.11 | 0.21 | 0.57 | 0.91 | 1.23 | 1.54 | | | |
| 17 | 0.12 | 0.23 | 0.61 | 0.97 | 1.31 | 1.65 | | | |
| 18 | 0.13 | 0.24 | 0.65 | 1.03 | 1.40 | 1.75 | | | |
| 19 | 0.14 | 0.26 | 0.69 | 1.09 | 1.48 | | | | |
| 20 | 0.15 | 0.27 | 0.73 | 1.16 | 1.57 | | | | |
| 21 | 0.15 | 0.29 | 0.77 | 1.22 | 1.65 | | | | |
| 22 | 0.16 | 0.30 | 0.81 | 1.28 | 1.74 | | | | |
| 23 | 0.17 | 0.32 | 0.85 | 1.35 | 1.82 | | | | |
| 24 | 0.18 | 0.33 | 0.89 | 1.41 | | | | | |
| 25 | 0.19 | 0.35 | 0.93 | 1.47 | | | | | |
| 26 | 0.19 | 0.36 | 0.97 | 1.54 | | | | | |

## ■RS08B-LM-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Small sprocket number of teeth | Small Sprocket Max rpm | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 200 | 300 | 400 | 500 | 700 | 900 | 1000 | 1200 |
| 9 | 0.05 | 0.11 | 0.20 | 0.38 | 0.71 | 1.02 | 1.32 | 1.62 | 2.19 | 2.75 | 3.02 | 3.56 |
| 10 | 0.05 | 0.12 | 0.23 | 0.43 | 0.80 | 1.15 | 1.48 | 1.81 | 2.46 | 3.08 | 3.39 | |
| 11 | 0.06 | 0.14 | 0.25 | 0.47 | 0.88 | 1.27 | 1.65 | 2.01 | 2.72 | 3.41 | 3.75 | |
| 12 | 0.07 | 0.15 | 0.28 | 0.52 | 0.97 | 1.40 | 1.81 | 2.21 | 2.99 | 3.75 | | |
| 13 | 0.07 | 0.16 | 0.30 | 0.57 | 1.06 | 1.52 | 1.97 | 2.41 | 3.26 | 4.09 | | |
| 14 | 0.08 | 0.18 | 0.33 | 0.61 | 1.14 | 1.65 | 2.13 | 2.61 | 3.53 | | | |
| 15 | 0.08 | 0.19 | 0.35 | 0.66 | 1.23 | 1.78 | 2.30 | 2.81 | 3.81 | | | |
| 16 | 0.09 | 0.20 | 0.38 | 0.71 | 1.32 | 1.90 | 2.47 | 3.01 | 4.08 | | | |
| 17 | 0.10 | 0.22 | 0.41 | 0.76 | 1.41 | 2.03 | 2.63 | 3.22 | | | | |
| 18 | 0.10 | 0.23 | 0.43 | 0.80 | 1.50 | 2.16 | 2.80 | 3.42 | | | | |
| 19 | 0.11 | 0.24 | 0.46 | 0.85 | 1.59 | 2.29 | 2.97 | 3.63 | | | | |
| 20 | 0.11 | 0.26 | 0.48 | 0.90 | 1.68 | 2.42 | 3.14 | 3.84 | | | | |
| 21 | 0.12 | 0.27 | 0.51 | 0.95 | 1.77 | 2.55 | 3.31 | 4.04 | | | | |
| 22 | 0.13 | 0.29 | 0.54 | 1.00 | 1.86 | 2.68 | 3.48 | 4.25 | | | | |
| 23 | 0.13 | 0.30 | 0.56 | 1.05 | 1.96 | 2.82 | 3.65 | 4.46 | | | | |
| 24 | 0.14 | 0.32 | 0.59 | 1.10 | 2.05 | 2.95 | 3.82 | | | | | |
| 25 | 0.14 | 0.33 | 0.61 | 1.15 | 2.14 | 3.08 | 3.99 | | | | | |
| 26 | 0.15 | 0.34 | 0.64 | 1.20 | 2.23 | 3.22 | 4.17 | | | | | |

## ■RS10B-LM-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Small sprocket number of teeth | Small Sprocket Max rpm | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 200 | 300 | 400 | 500 | 700 | 900 |
| 9 | 0.07 | 0.16 | 0.30 | 0.55 | 1.03 | 1.48 | 1.92 | 2.35 | 3.18 | 3.99 |
| 10 | 0.08 | 0.18 | 0.33 | 0.62 | 1.15 | 1.66 | 2.15 | 2.63 | 3.56 | |
| 11 | 0.09 | 0.20 | 0.37 | 0.69 | 1.28 | 1.84 | 2.39 | 2.92 | 3.95 | |
| 12 | 0.09 | 0.22 | 0.40 | 0.75 | 1.41 | 2.02 | 2.62 | 3.21 | 4.34 | |
| 13 | 0.10 | 0.24 | 0.44 | 0.82 | 1.53 | 2.21 | 2.86 | 3.50 | | |
| 14 | 0.11 | 0.26 | 0.48 | 0.89 | 1.66 | 2.39 | 3.10 | 3.79 | | |
| 15 | 0.12 | 0.28 | 0.51 | 0.96 | 1.79 | 2.58 | 3.34 | 4.08 | | |
| 16 | 0.13 | 0.30 | 0.55 | 1.03 | 1.92 | 2.76 | 3.58 | 4.38 | | |
| 17 | 0.14 | 0.32 | 0.59 | 1.10 | 2.05 | 2.95 | 3.82 | 4.67 | | |
| 18 | 0.15 | 0.34 | 0.63 | 1.17 | 2.18 | 3.14 | 4.06 | | | |
| 19 | 0.16 | 0.36 | 0.66 | 1.24 | 2.31 | 3.33 | 4.31 | | | |
| 20 | 0.16 | 0.38 | 0.70 | 1.31 | 2.44 | 3.52 | 4.55 | | | |
| 21 | 0.17 | 0.40 | 0.74 | 1.38 | 2.57 | 3.71 | 4.80 | | | |
| 22 | 0.18 | 0.42 | 0.78 | 1.45 | 2.71 | 3.90 | | | | |
| 23 | 0.19 | 0.44 | 0.82 | 1.52 | 2.84 | 4.09 | | | | |
| 24 | 0.20 | 0.46 | 0.85 | 1.59 | 2.97 | 4.28 | | | | |
| 25 | 0.21 | 0.48 | 0.89 | 1.66 | 3.11 | 4.47 | | | | |
| 26 | 0.22 | 0.50 | 0.93 | 1.74 | 3.24 | 4.67 | | | | |

## ■RS12B-LM-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Small sprocket number of teeth | Small Sprocket Max rpm | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 600 | 700 |
| 9 | 0.10 | 0.23 | 0.42 | 0.79 | 1.13 | 1.47 | 2.11 | 2.74 | 3.35 | 3.95 | 4.53 |
| 10 | 0.11 | 0.25 | 0.47 | 0.88 | 1.27 | 1.64 | 2.37 | 3.07 | 3.75 | 4.42 | |
| 11 | 0.12 | 0.28 | 0.52 | 0.98 | 1.41 | 1.82 | 2.63 | 3.40 | 4.16 | | |
| 12 | 0.14 | 0.31 | 0.58 | 1.07 | 1.55 | 2.00 | 2.89 | 3.74 | 4.57 | | |
| 13 | 0.15 | 0.34 | 0.63 | 1.17 | 1.69 | 2.18 | 3.15 | 4.08 | | | |
| 14 | 0.16 | 0.36 | 0.68 | 1.27 | 1.83 | 2.37 | 3.41 | 4.41 | | | |
| 15 | 0.17 | 0.39 | 0.73 | 1.37 | 1.97 | 2.55 | 3.67 | 4.76 | | | |
| 16 | 0.18 | 0.42 | 0.78 | 1.46 | 2.11 | 2.73 | 3.94 | | | | |
| 17 | 0.20 | 0.45 | 0.84 | 1.56 | 2.25 | 2.92 | 4.20 | | | | |
| 18 | 0.21 | 0.48 | 0.89 | 1.66 | 2.40 | 3.10 | 4.47 | | | | |
| 19 | 0.22 | 0.51 | 0.94 | 1.76 | 2.54 | 3.29 | 4.74 | | | | |
| 20 | 0.23 | 0.54 | 1.00 | 1.86 | 2.68 | 3.48 | 5.01 | | | | |
| 21 | 0.25 | 0.56 | 1.05 | 1.96 | 2.83 | 3.67 | | | | | |
| 22 | 0.26 | 0.59 | 1.11 | 2.07 | 2.98 | 3.85 | | | | | |
| 23 | 0.27 | 0.62 | 1.16 | 2.17 | 3.12 | 4.04 | | | | | |
| 24 | 0.29 | 0.65 | 1.22 | 2.27 | 3.27 | 4.23 | | | | | |
| 25 | 0.30 | 0.68 | 1.27 | 2.37 | 3.42 | 4.43 | | | | | |
| 26 | 0.31 | 0.71 | 1.33 | 2.47 | 3.56 | 4.62 | | | | | |

Note 1. KW ratings when using a one-pitch offset link (OL) are 80% that of the above values.
2. Kilowatt ratings tables for BS Roller Chains differ from the above.

| | Number of chain strands | Multi-strand factor |
|---|---|---|
| Multi-strand factor | Double strand | 1.4 |

# Kilowatt Ratings Tables (BS Lambda Chain [ISO 606 B Series])

## ■RS16B-LM-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Small sprocket number of teeth | Small Sprocket Max rpm | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 300 | 350 |
| 9 | 0.32 | 0.73 | 1.36 | 2.54 | 3.65 | 4.73 | 6.82 | 7.83 |
| 10 | 0.36 | 0.82 | 1.52 | 2.84 | 4.09 | 5.30 | 7.64 | 8.78 |
| 11 | 0.40 | 0.90 | 1.69 | 3.15 | 4.54 | 5.88 | 8.47 | |
| 12 | 0.44 | 0.99 | 1.85 | 3.46 | 4.98 | 6.46 | | |
| 13 | 0.47 | 1.08 | 2.02 | 3.77 | 5.43 | 7.04 | | |
| 14 | 0.51 | 1.17 | 2.19 | 4.09 | 5.89 | 7.63 | | |
| 15 | 0.55 | 1.26 | 2.36 | 4.40 | 6.34 | 8.22 | | |
| 16 | 0.59 | 1.36 | 2.53 | 4.72 | 6.80 | 8.81 | | |
| 17 | 0.63 | 1.45 | 2.70 | 5.04 | 7.26 | 9.41 | | |
| 18 | 0.68 | 1.54 | 2.87 | 5.36 | 7.72 | | | |
| 19 | 0.72 | 1.63 | 3.05 | 5.68 | 8.19 | | | |
| 20 | 0.76 | 1.73 | 3.22 | 6.01 | 8.65 | | | |
| 21 | 0.80 | 1.82 | 3.39 | 6.33 | 9.12 | | | |
| 22 | 0.84 | 1.91 | 3.57 | 6.66 | 9.59 | | | |
| 23 | 0.88 | 2.01 | 3.74 | 6.99 | 10.1 | | | |
| 24 | 0.92 | 2.10 | 3.92 | 7.32 | | | | |
| 25 | 0.96 | 2.20 | 4.10 | 7.65 | | | | |
| 26 | 1.00 | 2.29 | 4.27 | 7.98 | | | | |

## ■RS20B-LM-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Small sprocket number of teeth | Small Sprocket Max rpm | | | | | | |
|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 275 |
| 9 | 0.54 | 1.23 | 2.30 | 4.30 | 6.19 | 8.02 | 10.7 |
| 10 | 0.61 | 1.38 | 2.58 | 4.82 | 6.94 | 8.99 | |
| 11 | 0.67 | 1.53 | 2.86 | 5.34 | 7.69 | 9.96 | |
| 12 | 0.74 | 1.68 | 3.14 | 5.87 | 8.45 | 10.9 | |
| 13 | 0.81 | 1.84 | 3.43 | 6.39 | 9.21 | | |
| 14 | 0.87 | 1.99 | 3.71 | 6.93 | 9.98 | | |
| 15 | 0.94 | 2.14 | 4.00 | 7.46 | 10.8 | | |
| 16 | 1.01 | 2.30 | 4.29 | 8.00 | 11.5 | | |
| 17 | 1.08 | 2.45 | 4.58 | 8.54 | | | |
| 18 | 1.14 | 2.61 | 4.87 | 9.09 | | | |
| 19 | 1.21 | 2.77 | 5.16 | 9.63 | | | |
| 20 | 1.28 | 2.92 | 5.46 | 10.2 | | | |
| 21 | 1.35 | 3.08 | 5.75 | 10.7 | | | |
| 22 | 1.42 | 3.24 | 6.05 | 11.3 | | | |
| 23 | 1.49 | 3.40 | 6.35 | 11.8 | | | |
| 24 | 1.56 | 3.56 | 6.64 | 12.4 | | | |
| 25 | 1.63 | 3.72 | 6.94 | 13.0 | | | |
| 26 | 1.70 | 3.88 | 7.24 | | | | |

## ■RS24B-LM-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Small sprocket number of teeth | Small Sprocket Max rpm | | | | |
|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 125 |
| 9 | 0.97 | 2.20 | 4.11 | 7.67 | 9.38 |
| 10 | 1.08 | 2.47 | 4.61 | 8.60 | 10.5 |
| 11 | 1.20 | 2.74 | 5.11 | 9.53 | |
| 12 | 1.32 | 3.01 | 5.61 | 10.5 | |
| 13 | 1.44 | 3.28 | 6.12 | 11.4 | |
| 14 | 1.56 | 3.55 | 6.63 | | |
| 15 | 1.68 | 3.83 | 7.14 | | |
| 16 | 1.80 | 4.10 | 7.65 | | |
| 17 | 1.92 | 4.38 | 8.17 | | |
| 18 | 2.04 | 4.66 | 8.69 | | |
| 19 | 2.17 | 4.94 | 9.22 | | |
| 20 | 2.29 | 5.22 | 9.74 | | |
| 21 | 2.41 | 5.50 | 10.3 | | |
| 22 | 2.54 | 5.79 | 10.8 | | |
| 23 | 2.66 | 6.07 | 11.3 | | |
| 24 | 2.79 | 6.36 | 11.9 | | |
| 25 | 2.91 | 6.64 | 12.4 | | |
| 26 | 3.04 | 6.93 | 12.9 | | |

Note 1. KW ratings when using a one-pitch offset link (OL) are 80% that of the above values.
2. Kilowatt ratings tables for BS Roller Chains differ from the above.

| | Number of chain strands | Multi-strand factor |
|---|---|---|
| Multi-strand factor | Double strand | 1.4 |

# Heavy Duty Roller Chains

## 1. Extensive line-up with outstanding reliability

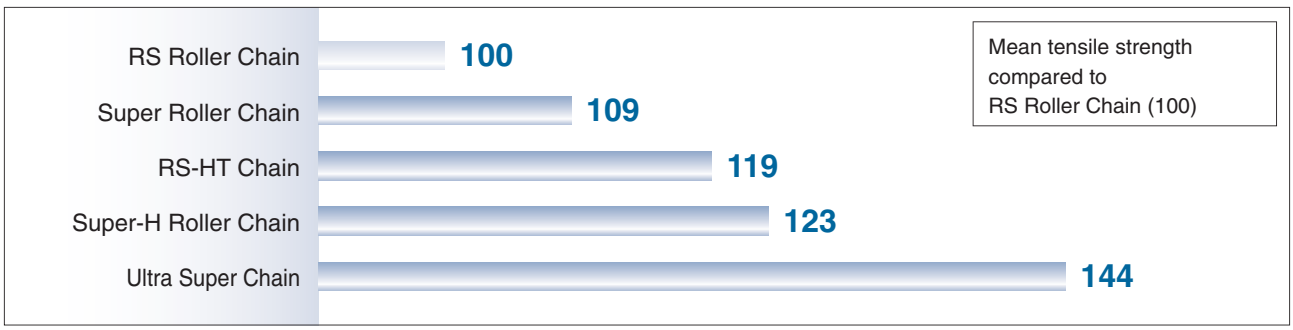
Tsubaki's Heavy Duty Roller Chains come in a wide array of products. Their high maximum allowable load make them commonly used in compact transmission systems.

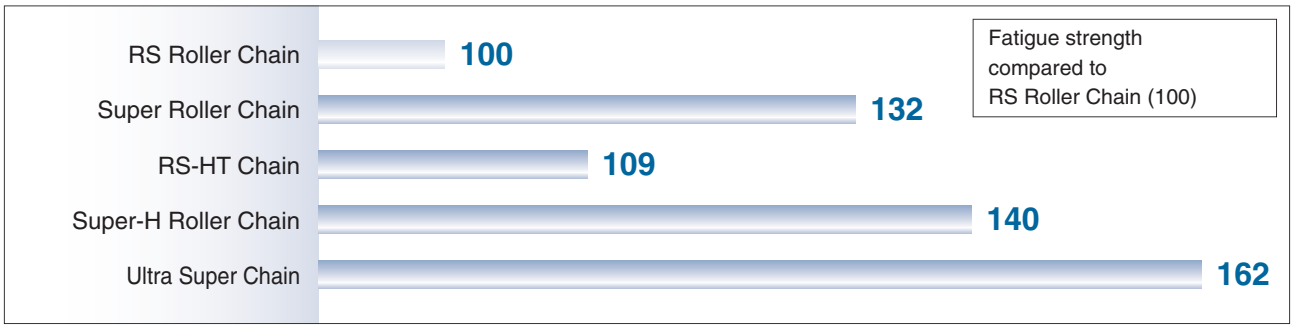
## 2. Uses

Use Tsubaki Heavy Duty Roller Chains when capacity exceeds that of RS Roller Chains, such as in:

1. Harsh environments where the chain will be subjected to heavy impact.
2. Compact drives for equipment or machines that must work in tight spaces.
3. When higher transmission power, allowable load or tensile strength is required.
4. When a lower rate of elastic elongation is required.

## 3. Tensile strength and fatigue strength comparison




## 4. Applications and features

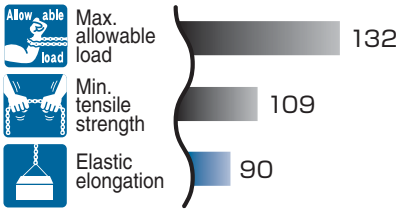
| Item \ Model | Super Roller Chain | RS-HT Chain | Super-H Roller Chain | Ultra Super Chain |
|---|---|---|---|---|
| Main applications | For heavy-duty transmission, lifting | | | |
| Features | ● High kilowatt ratings<br>● High shock absorption<br>● Can go down one size when used in place of RS Roller Chain | ● High kilowatt ratings<br>● High tensile strength | ● High fatigue strength<br>● High tensile strength<br>● High shock absorption | ● Has the highest fatigue strength, tensile strength, and shock absorption of all Tsubaki chains. Designed for compact drives. |
| | Note<br>Tsubaki's Heavy Duty Roller Chains are designed for low to medium speed heavy-duty transmission. RS Roller Chain should be used in speed ranges not appearing in the kilowatt ratings tables. | | | |
| Example applications | Construction machinery, farm equipment, lifting mechanisms, port equipment, parking structures, etc. | | | |
| Offset links | ● Single-strand 4POL | ● Offset links are not available. Use an even number of links. | | |
| Sprockets | ● Both single and multi-strand chains can use RS Roller Chain sprockets. | ● Use sprockets made of S35C or higher carbon steel. Small sprockets must have hardened teeth. Steel sprockets cannot be used. | | |
| Design drawings | Pgs. 71 - 73 | Pgs. 74 - 76 | Pg. 77 | Pg. 78 |

# Product Line-up

## Super Chain

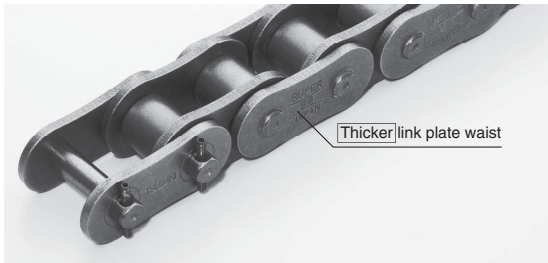
▶P71

Super Chain has the same three basic dimensions of RS Roller Chain, but it has a thicker waist that provides a 30% increase in maximum allowable load over RS Roller Chain. Suitable for situations where RS Roller Chain would suffer fatigue breakage, and allows users to go one size down.




■Applicable sizes:
RS80 – 240, up to sextuple strands

■Chain Numbering Example:
**RS80-SUP-1-M**
Super Chain
Designate the connecting link type



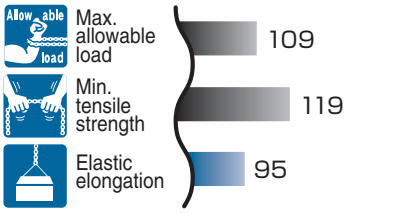
●Connecting link has same strength as the rest of the chain
Uses a connecting link that is easy to attach and remove, yet still has the same strength as the rest of the chain thanks to Tsubaki's ring coining process.

●Four pitch offset links (4POL)
Super Chain can even be used with an odd number links to create the perfect length for your needs. (4POL max. allowable load and kW ratings are 90% of the base chain. Only available for single strand chain.)

## RS-HT Chain

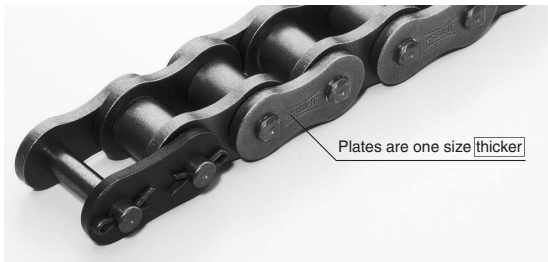
▶P74

The outer and inner plates are one size thicker than on RS Roller Chains.
RS-HT Chain has 20% greater tensile strength than RS Roller Chain, and so is ideal for applications requiring high tensile strength and low elastic elongation.




■Applicable Sizes:
RS60 – RS240, up to triple strands

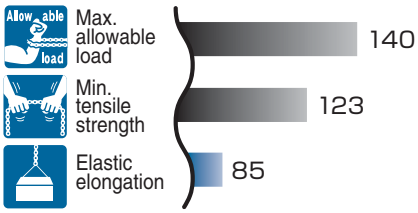
■Chain Numbering Example:
**RS80-HT-1**
RS-HT Chain




## Super-H Chain

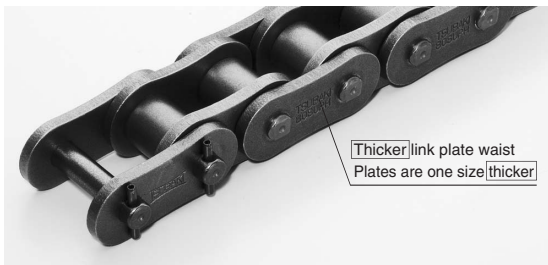
▶P77

Features inner and outer link plates shaped the same way as Super Chain that are one size thicker than RS Roller Chain. This gives Super-H Chains a higher allowable load and fatigue strength for applications requiring shock absorption.




■Applicable Sizes:
RS80 – RS240, up to triple strands

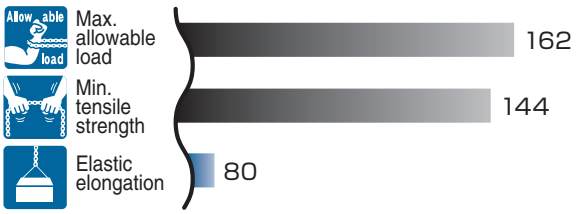
■Chain Numbering Example:
**RS80-SUP-H-1**
Super-H Chain

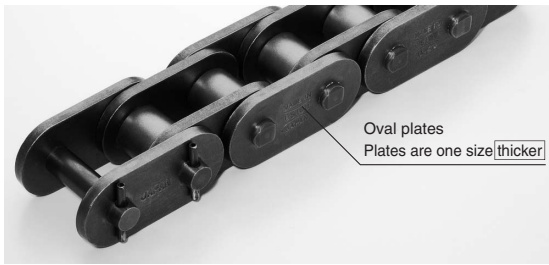



## Ultra Super Chain

▶P78

Inner and outer link plates are oval and one size thicker than RS Roller Chains. Ultra Super Chains have the highest allowable load, tensile strength, and shock absorption of any Tsubaki drive chain, and are suitable for drives requiring a compact design.




■Applicable Sizes: RF100 – RF240, single strand only

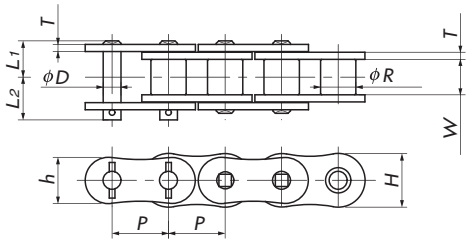
■Chain Numbering Example: **RF100-US-1**
Oval plates
Ultra Super Chain

*The values in each graph are shown in relation to 100 for standard roller chain. (Comparison with RS80.)

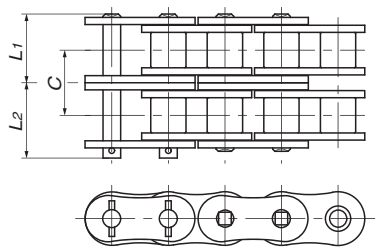
# Super Roller Chain



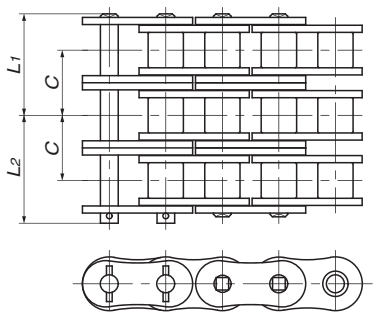
Single strand



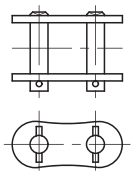

Double strand



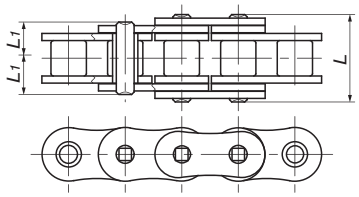

Triple strand




JL



4POL




Connecting links
Slip fit M-type connecting links (MCL) and press fit F-type connecting links (FCL) available.
(See pg.12)

| TSUBAKI Chain Number | Pitch *P* | Roller Diameter *R* | Inner Width of Inner Link *W* | Plates | | | Pins *D* | 4 pitch offset links Pin Length *L* |
|---|---|---|---|---|---|---|---|---|
| | | | | Thickness *T* | Height *H* | Height *h* | | |
| **RS80-SUP-1**<br>**RS80-SUP-2**<br>RS80-SUP-3 | 25.40 | 15.88 | 15.88 | 3.2 | 24.1 | 20.8 | 7.94 | 39.3 |
| **RS100-SUP-1**<br>**RS100-SUP-2**<br>RS100-SUP-3 | 31.75 | 19.05 | 19.05 | 4.0 | 30.1 | 26.0 | 9.54 | 48.0 |
| **RS120-SUP-1**<br>**RS120-SUP-2**<br>RS120-SUP-3 | 38.10 | 22.23 | 25.40 | 4.8 | 36.2 | 31.2 | 11.11 | 59.9 |
| **RS140-SUP-1**<br>**RS140-SUP-2**<br>RS140-SUP-3 | 44.45 | 25.40 | 25.40 | 5.6 | 42.2 | 36.4 | 12.71 | 65.7 |
| **RS160-SUP-1**<br>**RS160-SUP-2**<br>RS160-SUP-3 | 50.80 | 28.58 | 31.75 | 6.4 | 48.2 | 41.6 | 14.29 | 77.2 |
| RS200-SUP-1<br>RS200-SUP-2<br>RS200-SUP-3 | 63.50 | 39.68 | 38.10 | 8.0 | 60.3 | 52.0 | 19.85 | 94.9 |
| RS240-SUP-1<br>RS240-SUP-2<br>RS240-SUP-3 | 76.20 | 47.63 | 47.63 | 9.5 | 72.4 | 62.4 | 23.81 | 116.0 |

| TSUBAKI Chain Number | Number of Strands | Pin Length $L_1+L_2$ | Dimensions $L_1$ | Dimensions $L_2$ | Transverse Pitch *C* | Minimum Tensile Strength kN{kgf} | Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m | Links Per Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| **RS80-SUP-1**<br>**RS80-SUP-2**<br>RS80-SUP-3 | 1<br>2<br>3 | 35.5<br>64.8<br>94.1 | 16.25<br>30.9<br>45.6 | 19.25<br>33.9<br>48.5 | 29.3 | 74.2{ 7570}<br>148 { 15140}<br>223 { 22710} | 85.3{ 8700}<br>171 { 17400}<br>256 { 26100} | 18.6{ 1900}<br>31.7{ 3230}<br>46.6{ 4750} | 2.81<br>5.62<br>8.40 | 120 |
| **RS100-SUP-1**<br>**RS100-SUP-2**<br>RS100-SUP-3 | 1<br>2<br>3 | 42.6<br>78.5<br>114.4 | 19.75<br>37.7<br>55.65 | 22.85<br>40.8<br>58.75 | 35.8 | 111 { 11300}<br>222 { 22600}<br>332 { 33900} | 127 { 13000}<br>255 { 26000}<br>382 { 39000} | 30.4{ 3100}<br>51.7{ 5270}<br>76.0{ 7750} | 4.25<br>8.38<br>12.57 | 96 |
| **RS120-SUP-1**<br>**RS120-SUP-2**<br>RS120-SUP-3 | 1<br>2<br>3 | 53.8<br>99.2<br>144.8 | 24.9<br>47.6<br>70.4 | 28.9<br>51.6<br>74.4 | 45.4 | 162 { 16500}<br>324 { 33000}<br>485 { 49500} | 186 { 19000}<br>373 { 38000}<br>559 { 57000} | 39.2{ 4000}<br>66.7{ 6800}<br>98.1{10000} | 6.3<br>12.44<br>18.64 | 80 |
| **RS140-SUP-1**<br>**RS140-SUP-2**<br>RS140-SUP-3 | 1<br>2<br>3 | 58.6<br>107.5<br>156.6 | 26.9<br>51.35<br>75.85 | 31.7<br>56.15<br>80.75 | 48.9 | 213 { 21700}<br>426 { 43400}<br>638 { 65100} | 245 { 25000}<br>490 { 50000}<br>735 { 75000} | 53.9{ 5500}<br>91.7{ 9350}<br>135 {13750} | 8.04<br>15.92<br>23.84 | 68 |
| **RS160-SUP-1**<br>**RS160-SUP-2**<br>RS160-SUP-3 | 1<br>2<br>3 | 68.7<br>127.3<br>185.9 | 31.85<br>61.15<br>90.45 | 36.85<br>66.15<br>95.45 | 58.5 | 273 { 27800}<br>545 { 55600}<br>818 { 83400} | 314 { 32000}<br>628 { 64000}<br>941 { 96000} | 70.6{ 7200}<br>120 {12240}<br>177 {18000} | 10.79<br>21.43<br>32.10 | 60 |
| RS200-SUP-1<br>RS200-SUP-2<br>RS200-SUP-3 | 1<br>2<br>3 | 83.8<br>155.5<br>227.2 | 39.0<br>74.85<br>110.75 | 44.8<br>80.65<br>116.45 | 71.6 | 439 { 44800}<br>879 { 89600}<br>1320 {134400} | 505 { 51500}<br>1010 {103000}<br>1520 {154500} | 94.1{ 9600}<br>160 {16320}<br>235 {24000} | 17.63<br>34.91<br>52.44 | 48 |
| RS240-SUP-1<br>RS240-SUP-2<br>RS240-SUP-3 | 1<br>2<br>3 | 103.4<br>191.3<br>279.0 | 47.9<br>91.9<br>135.85 | 55.5<br>99.4<br>143.15 | 87.8 | 639 { 65200}<br>1280 {130400}<br>1920 {195600} | 735 { 75000}<br>1470 {150000}<br>2210 {225000} | 132 {13500}<br>225 {22950}<br>331 {33750} | 25.63<br>50.88<br>76.11 | 40 |

Note 1. Pins are riveted.
2. Four-pitch offset links (4POL) available for single strand only.
3. Maximum allowable load when using a four-pitch offset link (4POL) is 90% that of the above values.
4. Models in bold are stock items. All other models are made-to-order.

# Kilowatt Ratings Tables (RS80-SUP～RS140-SUP)

## ■RS80-SUP-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Lubrication Type / Small Sprocket No. of Teeth | Small Sprocket Max rpm | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 600 | 700 | 800 |
| | AⅡ | | | B | | | C | | | | | |
| 13 | 1.00 | 2.28 | 4.25 | 7.93 | 11.4 | 14.8 | 21.3 | 27.6 | 32.1 | 32.1 | 32.1 | |
| 14 | 1.08 | 2.47 | 4.60 | 8.59 | 12.4 | 16.0 | 23.1 | 29.9 | 35.9 | 35.9 | 35.9 | |
| 15 | 1.17 | 2.66 | 4.96 | 9.25 | 13.3 | 17.3 | 24.9 | 32.2 | 39.4 | 39.8 | 39.8 | |
| 16 | 1.25 | 2.85 | 5.32 | 9.92 | 14.3 | 18.5 | 26.7 | 34.6 | 42.2 | 43.8 | 43.8 | |
| 17 | 1.33 | 3.04 | 5.68 | 10.6 | 15.3 | 19.8 | 28.5 | 36.9 | 45.1 | 48.0 | 48.0 | |
| 18 | 1.42 | 3.24 | 6.04 | 11.3 | 16.2 | 21.0 | 30.3 | 39.2 | 48.0 | 51.4 | 51.4 | |
| 19 | 1.50 | 3.43 | 6.40 | 11.9 | 17.2 | 22.3 | 32.1 | 41.6 | 50.9 | 54.4 | 54.4 | |
| 20 | 1.59 | 3.63 | 6.77 | 12.6 | 18.2 | 23.6 | 33.9 | 44.0 | 53.8 | 57.5 | 57.5 | |
| 21 | 1.68 | 3.82 | 7.13 | 13.3 | 19.2 | 24.8 | 35.8 | 46.3 | 56.7 | 60.7 | 60.7 | |
| 22 | 1.76 | 4.02 | 7.50 | 14.0 | 20.2 | 26.1 | 37.6 | 48.7 | 59.6 | 63.8 | 63.8 | |
| 23 | 1.85 | 4.22 | 7.87 | 14.7 | 21.2 | 27.4 | 39.5 | 51.1 | 62.5 | 66.9 | 66.9 | |
| 24 | 1.94 | 4.42 | 8.24 | 15.4 | 22.1 | 28.7 | 41.3 | 53.5 | 65.4 | 70.1 | 70.1 | |
| 25 | 2.02 | 4.61 | 8.61 | 16.1 | 23.1 | 30.0 | 43.2 | 56.0 | 68.4 | 73.2 | 73.2 | |
| 26 | 2.11 | 4.81 | 8.98 | 16.8 | 24.1 | 31.3 | 45.1 | 58.4 | 71.4 | 76.4 | 76.4 | |
| 28 | 2.29 | 5.22 | 9.73 | 18.2 | 26.2 | 33.9 | 48.8 | 63.2 | 77.3 | 83.0 | 83.0 | 83.0 |
| 30 | 2.46 | 5.62 | 10.5 | 19.6 | 28.2 | 36.5 | 52.6 | 68.1 | 83.3 | 92.1 | 92.1 | 92.1 |
| 32 | 2.64 | 6.02 | 11.2 | 21.0 | 30.2 | 39.1 | 56.4 | 73.0 | 89.3 | 101 | 101 | 101 |
| 35 | 2.91 | 6.64 | 12.4 | 23.1 | 33.3 | 43.1 | 62.1 | 80.5 | 98.4 | 116 | 116 | 116 |
| 40 | 3.36 | 7.67 | 14.3 | 26.7 | 38.5 | 49.8 | 71.8 | 93.0 | 114 | 134 | 137 | 137 |
| 45 | 3.82 | 8.71 | 16.2 | 30.3 | 43.7 | 56.6 | 81.5 | 106 | 129 | 152 | 156 | 156 |

## ■RS100-SUP-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Lubrication Type / Small Sprocket No. of Teeth | Small Sprocket Max rpm | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 600 | 700 |
| | AⅡ | | | B | C | | | | | | |
| 13 | 2.04 | 4.65 | 8.68 | 16.2 | 23.3 | 30.2 | 43.5 | 48.9 | 48.9 | | |
| 14 | 2.21 | 5.04 | 9.40 | 17.6 | 25.3 | 32.8 | 47.2 | 54.0 | 54.0 | 54.0 | |
| 15 | 2.38 | 5.43 | 10.1 | 18.9 | 27.2 | 35.3 | 50.8 | 59.9 | 59.9 | 59.9 | |
| 16 | 2.55 | 5.82 | 10.9 | 20.3 | 29.2 | 37.8 | 54.5 | 66.0 | 66.0 | 66.0 | |
| 17 | 2.72 | 6.22 | 11.6 | 21.6 | 31.2 | 40.4 | 58.2 | 72.3 | 72.3 | 72.3 | |
| 18 | 2.90 | 6.61 | 12.3 | 23.0 | 33.2 | 43.0 | 61.9 | 78.8 | 78.8 | 78.8 | |
| 19 | 3.07 | 7.01 | 13.1 | 24.4 | 35.2 | 45.5 | 65.6 | 85.0 | 85.4 | 85.4 | |
| 20 | 3.25 | 7.41 | 13.8 | 25.8 | 37.2 | 48.1 | 69.3 | 89.8 | 91.8 | 91.8 | |
| 21 | 3.42 | 7.81 | 14.6 | 27.2 | 39.2 | 50.7 | 73.1 | 94.7 | 96.8 | 96.8 | |
| 22 | 3.60 | 8.21 | 15.3 | 28.6 | 41.2 | 53.4 | 76.9 | 99.6 | 102 | 102 | |
| 23 | 3.78 | 8.62 | 16.1 | 30.0 | 43.2 | 56.0 | 80.6 | 104 | 107 | 107 | |
| 24 | 3.95 | 9.02 | 16.8 | 31.4 | 45.2 | 58.6 | 84.4 | 109 | 112 | 112 | |
| 25 | 4.13 | 9.43 | 17.6 | 32.8 | 47.3 | 61.3 | 88.2 | 114 | 117 | 117 | |
| 26 | 4.31 | 9.84 | 18.4 | 34.2 | 49.3 | 63.9 | 92.1 | 119 | 122 | 122 | |
| 28 | 4.67 | 10.7 | 19.9 | 37.1 | 53.4 | 69.2 | 99.7 | 129 | 132 | 132 | |
| 30 | 5.03 | 11.5 | 21.4 | 40.0 | 57.6 | 74.6 | 107 | 139 | 142 | 142 | |
| 32 | 5.40 | 12.3 | 23.0 | 42.9 | 61.7 | 80.0 | 115 | 149 | 153 | 153 | |
| 35 | 5.94 | 13.6 | 25.3 | 47.2 | 68.0 | 88.1 | 127 | 164 | 170 | 170 | 170 |
| 40 | 6.87 | 15.7 | 29.2 | 54.5 | 78.6 | 102 | 147 | 190 | 207 | 207 | 207 |
| 45 | 7.80 | 17.8 | 33.2 | 61.9 | 89.2 | 116 | 166 | 216 | 247 | 247 | 247 |

## ■RS120-SUP-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Lubrication Type / Small Sprocket No. of Teeth | Small Sprocket Max rpm | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 600 |
| | AⅡ | | B | | C | | | | | |
| 13 | 3.16 | 7.20 | 13.4 | 25.1 | 36.1 | 46.8 | 67.4 | 73.5 | 73.5 | |
| 14 | 3.42 | 7.80 | 14.6 | 27.2 | 39.1 | 50.7 | 73.0 | 82.2 | 82.2 | |
| 15 | 3.68 | 8.40 | 15.7 | 29.3 | 42.1 | 54.6 | 78.6 | 91.2 | 91.2 | |
| 16 | 3.95 | 9.01 | 16.8 | 31.4 | 45.2 | 58.5 | 84.3 | 100 | 100 | |
| 17 | 4.22 | 9.62 | 17.9 | 33.5 | 48.2 | 62.5 | 90.0 | 110 | 110 | |
| 18 | 4.48 | 10.2 | 19.1 | 35.6 | 51.3 | 66.5 | 95.8 | 118 | 118 | |
| 19 | 4.75 | 10.8 | 20.2 | 37.8 | 54.4 | 70.5 | 102 | 125 | 125 | |
| 20 | 5.03 | 11.5 | 21.4 | 39.9 | 57.5 | 74.5 | 107 | 132 | 132 | |
| 21 | 5.30 | 12.1 | 22.5 | 42.1 | 60.6 | 78.5 | 113 | 139 | 139 | |
| 22 | 5.57 | 12.7 | 23.7 | 44.2 | 63.7 | 82.6 | 119 | 146 | 146 | |
| 23 | 5.84 | 13.3 | 24.9 | 46.4 | 66.9 | 86.6 | 125 | 153 | 153 | |
| 24 | 6.12 | 14.0 | 26.0 | 48.6 | 70.0 | 90.7 | 131 | 160 | 160 | |
| 25 | 6.39 | 14.6 | 27.2 | 50.8 | 73.2 | 94.8 | 137 | 168 | 168 | |
| 26 | 6.67 | 15.2 | 28.4 | 53.0 | 76.3 | 98.9 | 142 | 175 | 175 | |
| 28 | 7.23 | 16.5 | 30.8 | 57.4 | 82.7 | 107 | 154 | 190 | 190 | |
| 30 | 7.79 | 17.8 | 33.1 | 61.9 | 89.1 | 115 | 166 | 204 | 204 | |
| 32 | 8.35 | 19.0 | 35.5 | 66.3 | 95.5 | 124 | 178 | 219 | 219 | |
| 35 | 9.20 | 21.0 | 39.1 | 73.1 | 105 | 136 | 196 | 247 | 247 | 247 |
| 40 | 10.6 | 24.2 | 45.2 | 84.4 | 122 | 157 | 227 | 294 | 302 | 302 |
| 45 | 12.1 | 27.5 | 51.4 | 95.8 | 138 | 179 | 258 | 334 | 360 | 360 |

## ■RS140-SUP-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Lubrication Type / Small Sprocket No. of Teeth | Small Sprocket Max rpm | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 |
| | AⅡ | | B | C | | | | | | | | | |
| 13 | 5.06 | 11.5 | 21.5 | 40.2 | 57.9 | 75.0 | 91.7 | 96.8 | 96.8 | 96.8 | | | |
| 14 | 5.48 | 12.5 | 23.3 | 43.6 | 62.7 | 81.3 | 99.4 | 109 | 109 | 109 | 109 | | |
| 15 | 5.91 | 13.5 | 25.2 | 46.9 | 67.6 | 87.6 | 107 | 121 | 121 | 121 | 121 | | |
| 16 | 6.34 | 14.5 | 27.0 | 50.3 | 72.5 | 93.9 | 115 | 133 | 133 | 133 | 133 | | |
| 17 | 6.76 | 15.4 | 28.8 | 53.7 | 77.4 | 100 | 123 | 144 | 144 | 144 | 144 | | |
| 18 | 7.19 | 16.4 | 30.6 | 57.1 | 82.3 | 107 | 130 | 153 | 153 | 153 | 153 | | |
| 19 | 7.63 | 17.4 | 32.5 | 60.6 | 87.3 | 113 | 138 | 162 | 162 | 162 | 162 | | |
| 20 | 8.06 | 18.4 | 34.3 | 64.0 | 92.2 | 119 | 146 | 171 | 171 | 171 | 171 | | |
| 21 | 8.50 | 19.4 | 36.2 | 67.5 | 97.2 | 126 | 154 | 181 | 181 | 181 | 181 | | |
| 22 | 8.94 | 20.4 | 38.0 | 71.0 | 102 | 132 | 162 | 190 | 190 | 190 | 190 | | |
| 23 | 9.38 | 21.4 | 39.9 | 74.5 | 107 | 139 | 170 | 199 | 199 | 199 | 199 | | |
| 24 | 9.82 | 22.4 | 41.8 | 78.0 | 112 | 146 | 178 | 209 | 209 | 209 | 209 | | |
| 25 | 10.3 | 23.4 | 43.7 | 81.5 | 117 | 152 | 186 | 219 | 222 | 222 | 222 | 222 | |
| 26 | 10.7 | 24.4 | 45.6 | 85.0 | 122 | 159 | 194 | 229 | 235 | 235 | 235 | 235 | |
| 28 | 11.6 | 26.4 | 49.4 | 92.1 | 133 | 172 | 210 | 248 | 263 | 263 | 263 | 263 | |
| 30 | 12.5 | 28.5 | 53.2 | 99.2 | 143 | 185 | 226 | 267 | 292 | 292 | 292 | 292 | |
| 32 | 13.4 | 30.6 | 57.0 | 106 | 153 | 199 | 243 | 286 | 313 | 313 | 313 | 313 | |
| 35 | 14.8 | 33.7 | 62.8 | 117 | 169 | 219 | 267 | 315 | 345 | 345 | 345 | 345 | |
| 40 | 17.0 | 38.9 | 72.5 | 135 | 195 | 253 | 309 | 364 | 398 | 398 | 398 | 398 | |
| 45 | 19.4 | 44.1 | 82.4 | 154 | 221 | 287 | 351 | 413 | 464 | 464 | 464 | 464 | 464 |

Note: 1. Use RS Roller Chains in the high speed range.
2. Maximum allowable load when using a four-pitch offset link (OL) is 90% that of the above values.

| Multi-strand factor | Number of chain strands | Multi-strand factor | Number of chain strands | Multi-strand factor |
|---|---|---|---|---|
| | Double strand | 1.7 | Quintuple strand | 3.9 |
| | Triple strand | 2.5 | Sextuple strand | 4.6 |
| | Quadruple strand | 3.3 | – | – |

| Lubrication method | | | |
|---|---|---|---|
| | AII | drip lubrication | Details on Pg. 193 |
| | B | Oil bath or slinger disc lubrication | |
| | C | Forced pump lubrication | |

# Kilowatt Ratings Tables (RS160-SUP～RS240-SUP)



## ■RS160-SUP-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Lubrication Type / Small Sprocket No. of Teeth | Small Sprocket Max rpm | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 |
| | AⅡ | | B | C | | | | | | | |
| 13 | 7.58 | 17.3 | 32.3 | 60.2 | 86.7 | 112 | 129 | 129 | 129 | | |
| 14 | 8.21 | 18.7 | 34.9 | 65.2 | 93.9 | 122 | 145 | 145 | 145 | 145 | |
| 15 | 8.84 | 20.2 | 37.7 | 70.3 | 101 | 131 | 160 | 160 | 160 | 160 | |
| 16 | 9.48 | 21.6 | 40.4 | 75.3 | 109 | 141 | 172 | 177 | 177 | 177 | |
| 17 | 10.1 | 23.1 | 43.1 | 80.4 | 116 | 150 | 183 | 193 | 193 | 193 | |
| 18 | 10.8 | 24.6 | 45.8 | 85.5 | 123 | 160 | 195 | 207 | 207 | 207 | |
| 19 | 11.4 | 26.0 | 48.6 | 90.7 | 131 | 169 | 207 | 219 | 219 | 219 | |
| 20 | 12.1 | 27.5 | 51.4 | 95.9 | 138 | 179 | 219 | 232 | 232 | 232 | |
| 21 | 12.7 | 29.0 | 54.1 | 101 | 146 | 189 | 230 | 244 | 244 | 244 | |
| 22 | 13.4 | 30.5 | 56.9 | 106 | 153 | 198 | 242 | 257 | 257 | 257 | |
| 23 | 14.0 | 32.0 | 59.7 | 111 | 161 | 208 | 254 | 270 | 270 | 270 | |
| 24 | 14.7 | 33.5 | 62.5 | 117 | 168 | 218 | 266 | 282 | 282 | 282 | |
| 25 | 15.4 | 35.0 | 65.4 | 122 | 176 | 228 | 278 | 295 | 295 | 295 | |
| 26 | 16.0 | 36.5 | 68.2 | 127 | 183 | 237 | 290 | 308 | 308 | 308 | |
| 28 | 17.4 | 39.6 | 73.9 | 138 | 199 | 257 | 314 | 343 | 343 | 343 | 343 |
| 30 | 18.7 | 42.7 | 79.6 | 149 | 214 | 277 | 339 | 380 | 380 | 380 | 380 |
| 32 | 20.0 | 45.7 | 85.3 | 159 | 229 | 297 | 363 | 419 | 419 | 419 | 419 |
| 35 | 22.1 | 50.4 | 94.0 | 175 | 253 | 327 | 400 | 472 | 472 | 472 | 472 |
| 40 | 25.5 | 58.2 | 109 | 203 | 292 | 378 | 462 | 545 | 545 | 545 | 545 |
| 45 | 29.0 | 66.1 | 123 | 230 | 331 | 429 | 525 | 619 | 619 | 619 | 619 |

## ■RS200-SUP-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Lubrication Type / Small Sprocket No. of Teeth | Small Sprocket Max rpm | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 15 | 20 | 30 | 40 | 50 | 70 | 100 | 150 | 200 | 250 | 300 | 350 |
| | AⅡ | | B | | | C | | | | | | | |
| 13 | 12.6 | 18.2 | 23.6 | 33.9 | 44.0 | 53.7 | 72.8 | 100 | 144 | 187 | 194 | 194 | |
| 14 | 13.7 | 19.7 | 25.5 | 36.8 | 47.6 | 58.2 | 78.8 | 109 | 156 | 203 | 211 | 211 | 211 |
| 15 | 14.7 | 21.2 | 27.5 | 39.6 | 51.3 | 62.7 | 84.9 | 117 | 169 | 218 | 234 | 234 | 234 |
| 16 | 15.8 | 22.8 | 29.5 | 42.5 | 55.0 | 67.3 | 91.0 | 126 | 181 | 234 | 258 | 258 | 258 |
| 17 | 16.9 | 24.3 | 31.5 | 45.3 | 58.7 | 71.8 | 97.2 | 134 | 193 | 250 | 283 | 283 | 283 |
| 18 | 17.9 | 25.8 | 33.5 | 48.2 | 62.5 | 76.4 | 103 | 143 | 205 | 266 | 308 | 308 | 308 |
| 19 | 19.0 | 27.4 | 35.5 | 51.1 | 66.2 | 81.0 | 110 | 151 | 218 | 282 | 334 | 334 | 334 |
| 20 | 20.1 | 29.0 | 37.5 | 54.0 | 70.0 | 85.6 | 116 | 160 | 230 | 298 | 355 | 355 | 355 |
| 21 | 21.2 | 30.5 | 39.5 | 57.0 | 73.8 | 90.2 | 122 | 168 | 242 | 314 | 374 | 374 | 374 |
| 22 | 22.3 | 32.1 | 41.6 | 59.9 | 77.6 | 94.9 | 128 | 177 | 255 | 330 | 393 | 393 | 393 |
| 23 | 23.4 | 33.7 | 43.6 | 62.8 | 81.4 | 99.5 | 135 | 186 | 268 | 347 | 412 | 412 | 412 |
| 24 | 24.5 | 35.3 | 45.7 | 65.8 | 85.2 | 104 | 141 | 194 | 280 | 363 | 432 | 432 | 432 |
| 25 | 25.6 | 36.9 | 47.7 | 68.8 | 89.1 | 109 | 147 | 203 | 293 | 379 | 451 | 451 | 451 |
| 26 | 26.7 | 38.4 | 49.8 | 71.7 | 92.9 | 114 | 154 | 212 | 305 | 396 | 471 | 471 | 471 |

## ■RS240-SUP-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

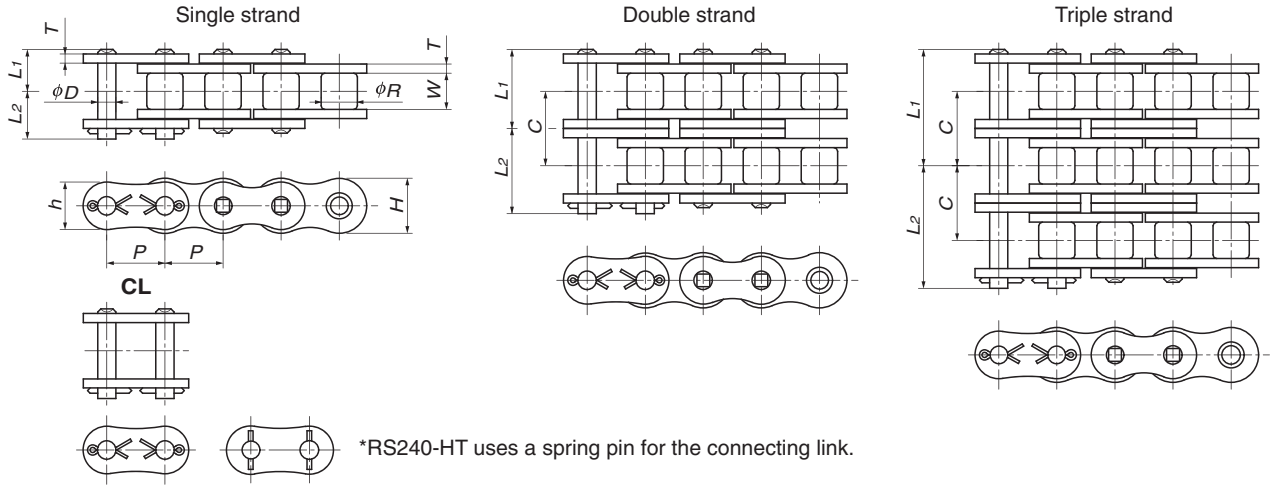
| Lubrication Type / Small Sprocket No. of Teeth | Small Sprocket Max rpm | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 125 | 150 | 175 | 200 | 250 | 300 |
| | AⅡ | | | B | | | C | | | | | | | | | | |
| 13 | 11.4 | 21.3 | 30.6 | 39.7 | 48.5 | 57.1 | 74.0 | 90.5 | 107 | 138 | 169 | 206 | 243 | 276 | 276 | 276 | 276 |
| 14 | 12.3 | 23.0 | 33.2 | 43.0 | 52.5 | 61.9 | 80.2 | 98.0 | 115 | 150 | 183 | 224 | 263 | 303 | 308 | 308 | 308 |
| 15 | 13.3 | 24.8 | 35.7 | 46.3 | 56.6 | 66.7 | 86.4 | 106 | 124 | 161 | 197 | 241 | 284 | 326 | 341 | 341 | 341 |
| 16 | 14.3 | 26.6 | 38.3 | 49.6 | 60.7 | 71.5 | 92.6 | 113 | 133 | 173 | 211 | 258 | 304 | 350 | 376 | 376 | 376 |
| 17 | 15.2 | 28.4 | 40.9 | 53.0 | 64.8 | 76.3 | 98.9 | 121 | 142 | 185 | 226 | 276 | 325 | 373 | 412 | 412 | 412 |
| 18 | 16.2 | 30.2 | 43.5 | 56.4 | 68.9 | 81.2 | 105 | 129 | 151 | 196 | 240 | 293 | 346 | 397 | 448 | 449 | 449 |
| 19 | 17.2 | 32.0 | 46.1 | 59.8 | 73.0 | 86.1 | 112 | 136 | 161 | 208 | 254 | 311 | 366 | 421 | 475 | 483 | 483 |
| 20 | 18.1 | 33.8 | 48.7 | 63.2 | 77.2 | 91.0 | 118 | 144 | 170 | 220 | 269 | 329 | 387 | 445 | 502 | 510 | 510 |
| 21 | 19.1 | 35.7 | 51.4 | 66.6 | 81.4 | 95.9 | 124 | 152 | 179 | 232 | 283 | 346 | 408 | 469 | 529 | 538 | 538 |
| 22 | 20.1 | 37.5 | 54.0 | 70.0 | 85.6 | 101 | 131 | 160 | 188 | 244 | 298 | 364 | 429 | 493 | 556 | 565 | 565 |
| 23 | 21.1 | 39.4 | 56.7 | 73.4 | 89.8 | 106 | 137 | 168 | 197 | 256 | 313 | 382 | 450 | 517 | 583 | 593 | 593 |
| 24 | 22.1 | 41.2 | 59.4 | 76.9 | 94.0 | 111 | 144 | 175 | 207 | 268 | 327 | 400 | 472 | 542 | 611 | 621 | 621 |
| 25 | 23.1 | 43.1 | 62.0 | 80.4 | 98.2 | 116 | 150 | 183 | 216 | 280 | 342 | 418 | 493 | 566 | 638 | 649 | 649 |
| 26 | 24.1 | 44.9 | 64.7 | 83.8 | 102 | 121 | 156 | 191 | 225 | 292 | 357 | 436 | 514 | 591 | 666 | 677 | 677 |

Note: 1. Use RS Roller Chains in the high speed range.
2. Maximum allowable load when using a four-pitch offset link (OL) is 90% that of the above values.

| Multi-strand factor | Number of chain strands | Multi-strand factor | Number of chain strands | Multi-strand factor |
|---|---|---|---|---|
| | Double strand | 1.7 | Quintuple strand | 3.9 |
| | Triple strand | 2.5 | Sextuple strand | 4.6 |
| | Quadruple strand | 3.3 | – | – |

| Lubrication method | | | |
|---|---|---|---|
| | AII | drip lubrication | Details on Pg. 193 |
| | B | Oil bath or slinger disc lubrication | |
| | C | Forced pump lubrication | |

# RS-HT Chain




*RS240-HT uses a spring pin for the connecting link.

| TSUBAKI Chain Number | Pitch *P* | Roller Diameter *R* | Inner Width of Inner Link *W* | Plates | | | Pins *D* |
|---|---|---|---|---|---|---|---|
| | | | | Thickness *T* | Height *H* | Height *h* | |
| RS60-HT-1<br>RS60-HT-2<br>RS60-HT-3 | 19.05 | 11.91 | 12.70 | 3.2 | 18.1 | 15.6 | 5.96 |
| RS80-HT-1<br>RS80-HT-2<br>RS80-HT-3 | 25.40 | 15.88 | 15.88 | 4.0 | 24.1 | 20.8 | 7.94 |
| RS100-HT-1<br>RS100-HT-2<br>RS100-HT-3 | 31.75 | 19.05 | 19.05 | 4.8 | 30.1 | 26.0 | 9.54 |
| RS120-HT-1<br>RS120-HT-2<br>RS120-HT-3 | 38.10 | 22.23 | 25.40 | 5.6 | 36.2 | 31.2 | 11.11 |
| RS140-HT-1<br>RS140-HT-2<br>RS140-HT-3 | 44.45 | 25.40 | 25.40 | 6.4 | 42.2 | 36.4 | 12.71 |
| RS160-HT-1<br>RS160-HT-2<br>RS160-HT-3 | 50.80 | 28.58 | 31.75 | 7.15 | 48.2 | 41.6 | 14.29 |
| RS200-HT-1<br>RS200-HT-2<br>RS200-HT-3 | 63.50 | 39.68 | 38.10 | 9.5 | 60.3 | 52.0 | 19.85 |
| RS240-HT-1<br>RS240-HT-2<br>RS240-HT-3 | 76.20 | 47.63 | 47.63 | 12.7 | 72.4 | 62.4 | 23.81 |

| TSUBAKI Chain Number | Number of Strands | Dimensions $L_1$ | Dimensions $L_2$ | Transverse Pitch *C* | Minimum Tensile Strength kN{kgf} | Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m | Links Per Unit |
|---|---|---|---|---|---|---|---|---|---|
| RS60-HT-1 | 1 | 14.8 | 17.0 | – | 48.1{ 4900} | 55.9{ 5700} | 9.81{ 1000} | 1.80 | 160 |
| RS60-HT-2 | 2 | 27.8 | 29.9 | 26.1 | 96.1{ 9800} | 112 { 11400} | 16.7 { 1700} | 3.59 | |
| RS60-HT-3 | 3 | 40.85 | 42.95 | 26.1 | 144 { 14700} | 168 { 17100} | 24.5 { 2500} | 5.36 | |
| RS80-HT-1 | 1 | 18.3 | 20.9 | – | 81.4{ 8300} | 93.2{ 9500} | 16.2 { 1650} | 3.11 | 120 |
| RS80-HT-2 | 2 | 34.6 | 37.2 | 32.6 | 163 { 16600} | 186 { 19000} | 27.6 { 2810} | 6.18 | |
| RS80-HT-3 | 3 | 50.95 | 53.55 | 32.6 | 244 { 24900} | 279 { 28500} | 40.5 { 4130} | 9.24 | |
| RS100-HT-1 | 1 | 21.8 | 24.5 | – | 124 { 12600} | 142 { 14500} | 24.5 { 2500} | 4.58 | 96 |
| RS100-HT-2 | 2 | 41.4 | 44.1 | 39.1 | 247 { 25200} | 284 { 29000} | 41.7 { 4250} | 9.03 | |
| RS100-HT-3 | 3 | 61.0 | 63.6 | 39.1 | 371 { 37800} | 427 { 43500} | 61.3 { 6250} | 13.54 | |
| RS120-HT-1 | 1 | 26.95 | 30.55 | – | 167 { 17000} | 191 { 19500} | 32.4 { 3300} | 6.53 | 80 |
| RS120-HT-2 | 2 | 51.4 | 55.0 | 48.9 | 333 { 34000} | 382 { 39000} | 55.0 { 5610} | 12.90 | |
| RS120-HT-3 | 3 | 75.9 | 79.4 | 48.9 | 500 { 51000} | 574 { 58500} | 80.9 { 8250} | 19.33 | |
| RS140-HT-1 | 1 | 28.9 | 33.1 | – | 218 { 22200} | 250 { 25500} | 42.7 { 4350} | 8.27 | 68 |
| RS140-HT-2 | 2 | 55.0 | 59.5 | 52.2 | 435 { 44400} | 500 { 51000} | 72.6 { 7400} | 16.38 | |
| RS140-HT-3 | 3 | 81.15 | 85.25 | 52.2 | 653 { 66600} | 750 { 76500} | 107 {10880} | 24.54 | |
| RS160-HT-1 | 1 | 33.95 | 38.45 | – | 278 { 28300} | 319 { 32500} | 55.9 { 5700} | 10.97 | 60 |
| RS160-HT-2 | 2 | 64.9 | 69.6 | 61.9 | 555 { 56600} | 638 { 65000} | 95 { 9690} | 21.78 | |
| RS160-HT-3 | 3 | 95.95 | 100.45 | 61.9 | 833 { 84900} | 956 { 97500} | 140 {14250} | 32.63 | |
| RS200-HT-1 | 1 | 42.9 | 48.1 | – | 486 { 49600} | 559 { 57000} | 78.5 { 8000} | 18.41 | 48 |
| RS200-HT-2 | 2 | 82.05 | 87.3 | 78.3 | 973 { 99200} | 1120 {114000} | 133 {13600} | 36.47 | |
| RS200-HT-3 | 3 | 121.25 | 126.55 | 78.3 | 1460 {148800} | 1680 {171000} | 196 {20000} | 54.77 | |
| RS240-HT-1 | 1 | 54.8 | 62.3 | – | 768 { 78300} | 883 { 90000} | 113 {11500} | 29.13 | 40 |
| RS240-HT-2 | 2 | 105.3 | 112.9 | 101.2 | 1540 {156600} | 1770 {180000} | 192 {19550} | 57.35 | |
| RS240-HT-3 | 3 | 156.05 | 163.55 | 101.2 | 2300 {234900} | 2650 {270000} | 282 {28750} | 85.47 | |

Note 1. No offset links available.
2. Made-to-order product.

# Kilowatt Ratings Tables (RS60-HT～RS120-HT)



## ■RS60-HT-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm 10 | 25 | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | | | | | | | B | | | | | | | | C |
| 9 | 0.27 | 0.61 | 1.13 | 2.11 | 3.04 | 3.93 | 5.67 | 7.34 | 8.98 | 10.1 | 10.1 | 10.1 | 10.1 | | | |
| 10 | 0.30 | 0.68 | 1.27 | 2.36 | 3.40 | 4.41 | 6.35 | 8.23 | 10.1 | 11.4 | 11.4 | 11.4 | 11.4 | | | |
| 11 | 0.33 | 0.75 | 1.40 | 2.62 | 3.77 | 4.89 | 7.04 | 9.12 | 11.1 | 12.7 | 12.7 | 12.7 | 12.7 | | | |
| 12 | 0.36 | 0.83 | 1.54 | 2.88 | 4.14 | 5.37 | 7.73 | 10.0 | 12.2 | 13.9 | 13.9 | 13.9 | 13.9 | | | |
| 13 | 0.39 | 0.90 | 1.68 | 3.14 | 4.52 | 5.85 | 8.43 | 10.9 | 13.4 | 15.2 | 15.2 | 15.2 | 15.2 | | | |
| 14 | 0.43 | 0.98 | 1.82 | 3.40 | 4.89 | 6.34 | 9.13 | 11.8 | 14.5 | 16.7 | 16.7 | 16.7 | 16.7 | 16.7 | | |
| 15 | 0.46 | 1.05 | 1.96 | 3.66 | 5.27 | 6.83 | 9.84 | 12.7 | 15.6 | 18.4 | 18.5 | 18.5 | 18.5 | 18.5 | | |
| 16 | 0.49 | 1.13 | 2.10 | 3.93 | 5.65 | 7.32 | 10.6 | 13.7 | 16.7 | 19.7 | 20.4 | 20.4 | 20.4 | 20.4 | | |
| 17 | 0.53 | 1.20 | 2.25 | 4.19 | 6.04 | 7.82 | 11.3 | 14.6 | 17.8 | 21.0 | 22.3 | 22.3 | 22.3 | 22.3 | | |
| 18 | 0.56 | 1.28 | 2.39 | 4.46 | 6.42 | 8.32 | 12.0 | 15.5 | 19.0 | 22.4 | 23.7 | 23.7 | 23.7 | 23.7 | | |
| 19 | 0.59 | 1.36 | 2.53 | 4.73 | 6.81 | 8.82 | 12.7 | 16.5 | 20.1 | 23.7 | 25.1 | 25.1 | 25.1 | 25.1 | | |
| 20 | 0.63 | 1.43 | 2.68 | 4.99 | 7.19 | 9.32 | 13.4 | 17.4 | 21.3 | 25.1 | 26.6 | 26.6 | 26.6 | 26.6 | | |
| 21 | 0.66 | 1.51 | 2.82 | 5.27 | 7.58 | 9.83 | 14.2 | 18.3 | 22.4 | 26.4 | 28.0 | 28.0 | 28.0 | 28.0 | | |
| 22 | 0.70 | 1.59 | 2.97 | 5.54 | 7.97 | 10.3 | 14.9 | 19.3 | 23.6 | 27.8 | 29.5 | 29.5 | 29.5 | 29.5 | | |
| 23 | 0.73 | 1.67 | 3.11 | 5.81 | 8.37 | 10.8 | 15.6 | 20.2 | 24.7 | 29.1 | 30.9 | 30.9 | 30.9 | 30.9 | | |
| 24 | 0.77 | 1.75 | 3.26 | 6.08 | 8.76 | 11.3 | 16.3 | 21.2 | 25.9 | 30.5 | 32.5 | 32.5 | 32.5 | 32.5 | 32.5 | |
| 25 | 0.80 | 1.83 | 3.41 | 6.36 | 9.16 | 11.9 | 17.1 | 22.1 | 27.1 | 31.9 | 34.5 | 34.5 | 34.5 | 34.5 | 34.5 | |
| 26 | 0.83 | 1.90 | 3.55 | 6.63 | 9.55 | 12.4 | 17.8 | 23.1 | 28.2 | 33.3 | 36.6 | 36.6 | 36.6 | 36.6 | 36.6 | |
| 28 | 0.90 | 2.06 | 3.85 | 7.18 | 10.3 | 13.4 | 19.3 | 25.0 | 30.6 | 36.0 | 40.9 | 40.9 | 40.9 | 40.9 | 40.9 | |
| 30 | 0.97 | 2.22 | 4.15 | 7.74 | 11.1 | 14.4 | 20.8 | 26.9 | 32.9 | 38.8 | 44.6 | 44.9 | 44.9 | 44.9 | 44.9 | |
| 32 | 1.04 | 2.38 | 4.45 | 8.30 | 12.0 | 15.5 | 22.3 | 28.9 | 35.3 | 41.6 | 47.8 | 48.1 | 48.1 | 48.1 | 48.1 | |
| 35 | 1.15 | 2.63 | 4.90 | 9.14 | 13.2 | 17.1 | 24.6 | 31.8 | 38.9 | 45.9 | 52.7 | 53.0 | 53.0 | 53.0 | 53.0 | |
| 40 | 1.33 | 3.03 | 5.66 | 10.6 | 15.2 | 19.7 | 28.4 | 36.8 | 44.9 | 53.0 | 60.8 | 61.3 | 61.3 | 61.3 | 61.3 | 61.3 |
| 45 | 1.51 | 3.44 | 6.43 | 12.0 | 17.3 | 22.4 | 32.2 | 41.8 | 51.0 | 60.1 | 69.1 | 73.2 | 73.2 | 73.2 | 73.2 | 73.2 |

## ■RS80-HT-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm 10 | 25 | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 600 | 700 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | | | | | | B | | | | C |
| 9 | 0.58 | 1.33 | 2.49 | 4.64 | 6.69 | 8.66 | 12.5 | 16.2 | 18.2 | 18.2 | |
| 10 | 0.65 | 1.49 | 2.79 | 5.20 | 7.49 | 9.71 | 14.0 | 18.1 | 20.4 | 20.4 | |
| 11 | 0.73 | 1.66 | 3.09 | 5.77 | 8.31 | 10.8 | 15.5 | 20.1 | 22.6 | 22.6 | |
| 12 | 0.80 | 1.82 | 3.39 | 6.33 | 9.12 | 11.8 | 17.0 | 22.1 | 24.9 | 24.9 | |
| 13 | 0.87 | 1.98 | 3.70 | 6.91 | 9.95 | 12.9 | 18.6 | 24.0 | 27.1 | 27.1 | |
| 14 | 0.94 | 2.15 | 4.01 | 7.48 | 10.8 | 14.0 | 20.1 | 26.1 | 29.4 | 29.4 | |
| 15 | 1.01 | 2.31 | 4.32 | 8.06 | 11.6 | 15.0 | 21.7 | 28.1 | 32.6 | 32.6 | |
| 16 | 1.09 | 2.48 | 4.63 | 8.64 | 12.4 | 16.1 | 23.2 | 30.1 | 35.9 | 35.9 | |
| 17 | 1.16 | 2.65 | 4.94 | 9.23 | 13.3 | 17.2 | 24.8 | 32.1 | 39.3 | 39.3 | |
| 18 | 1.24 | 2.82 | 5.26 | 9.82 | 14.1 | 18.3 | 26.4 | 34.2 | 41.8 | 42.8 | |
| 19 | 1.31 | 2.99 | 5.58 | 10.4 | 15.0 | 19.4 | 28.0 | 36.2 | 44.3 | 46.0 | |
| 20 | 1.38 | 3.16 | 5.89 | 11.0 | 15.8 | 20.5 | 29.6 | 38.3 | 46.8 | 48.7 | |
| 21 | 1.46 | 3.33 | 6.21 | 11.6 | 16.7 | 21.6 | 31.2 | 40.4 | 49.3 | 51.3 | |
| 22 | 1.53 | 3.50 | 6.53 | 12.2 | 17.6 | 22.7 | 32.8 | 42.4 | 51.9 | 53.9 | |
| 23 | 1.61 | 3.67 | 6.85 | 12.8 | 18.4 | 23.9 | 34.4 | 44.5 | 54.4 | 56.6 | |
| 24 | 1.69 | 3.85 | 7.18 | 13.4 | 19.3 | 25.0 | 36.0 | 46.6 | 57.0 | 59.3 | |
| 25 | 1.76 | 4.02 | 7.50 | 14.0 | 20.2 | 26.1 | 37.6 | 48.7 | 59.6 | 61.9 | |
| 26 | 1.84 | 4.19 | 7.82 | 14.6 | 21.0 | 27.2 | 39.2 | 50.8 | 62.2 | 64.6 | |
| 28 | 1.99 | 4.54 | 8.48 | 15.8 | 22.8 | 29.5 | 42.5 | 55.1 | 67.3 | 70.0 | |
| 30 | 2.15 | 4.89 | 9.13 | 17.0 | 24.5 | 31.8 | 45.8 | 59.3 | 72.5 | 77.2 | |
| 32 | 2.30 | 5.25 | 9.79 | 18.3 | 26.3 | 34.1 | 49.1 | 63.6 | 77.8 | 85.0 | 85.0 |
| 35 | 2.53 | 5.78 | 10.8 | 20.1 | 29.0 | 37.6 | 54.1 | 70.1 | 85.7 | 97.3 | 97.3 |
| 40 | 2.93 | 6.68 | 12.5 | 23.2 | 33.5 | 43.4 | 62.5 | 81.0 | 99.0 | 114 | 114 |
| 45 | 3.32 | 7.58 | 14.1 | 26.4 | 38.0 | 49.3 | 71.0 | 91.9 | 112 | 130 | 130 |

## ■RS100-HT-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm 10 | 25 | 50 | 100 | 150 | 200 | 300 | 400 | 500 |
|---|---|---|---|---|---|---|---|---|---|
| | A | | | | | B | | | |
| 9 | 1.10 | 2.52 | 4.70 | 8.78 | 12.6 | 16.4 | 23.6 | 26.4 | |
| 10 | 1.24 | 2.82 | 5.27 | 9.83 | 14.2 | 18.4 | 26.4 | 29.6 | |
| 11 | 1.37 | 3.13 | 5.84 | 10.9 | 15.7 | 20.3 | 29.3 | 32.8 | |
| 12 | 1.51 | 3.44 | 6.42 | 12.0 | 17.2 | 22.3 | 32.2 | 36.1 | |
| 13 | 1.64 | 3.75 | 7.00 | 13.1 | 18.8 | 24.4 | 35.1 | 39.3 | |
| 14 | 1.78 | 4.06 | 7.58 | 14.1 | 20.4 | 26.4 | 38.0 | 42.9 | |
| 15 | 1.92 | 4.38 | 8.17 | 15.2 | 21.9 | 28.4 | 41.0 | 47.6 | |
| 16 | 2.06 | 4.69 | 8.76 | 16.3 | 23.5 | 30.5 | 43.9 | 52.4 | |
| 17 | 2.20 | 5.01 | 9.35 | 17.4 | 25.1 | 32.6 | 46.9 | 57.4 | 57.4 |
| 18 | 2.34 | 5.33 | 9.94 | 18.6 | 26.7 | 34.6 | 49.9 | 62.5 | 62.5 |
| 19 | 2.48 | 5.65 | 10.5 | 19.7 | 28.3 | 36.7 | 52.9 | 67.8 | 67.8 |
| 20 | 2.62 | 5.97 | 11.1 | 20.8 | 29.9 | 38.8 | 55.9 | 71.9 | 71.9 |
| 21 | 2.76 | 6.29 | 11.7 | 21.9 | 31.6 | 40.9 | 58.9 | 75.8 | 75.8 |
| 22 | 2.90 | 6.62 | 12.3 | 23.0 | 33.2 | 43.0 | 61.9 | 79.7 | 79.7 |
| 23 | 3.04 | 6.94 | 13.0 | 24.2 | 34.8 | 45.1 | 65.0 | 83.7 | 83.7 |
| 24 | 3.19 | 7.27 | 13.6 | 25.3 | 36.5 | 47.2 | 68.0 | 87.6 | 87.6 |
| 25 | 3.33 | 7.60 | 14.2 | 26.5 | 38.1 | 49.4 | 71.1 | 91.5 | 91.5 |
| 26 | 3.47 | 7.93 | 14.8 | 27.6 | 39.8 | 51.5 | 74.2 | 95.5 | 95.5 |
| 28 | 3.76 | 8.59 | 16.0 | 29.9 | 43.1 | 55.8 | 80.4 | 103 | 103 |
| 30 | 4.06 | 9.25 | 17.3 | 32.2 | 46.4 | 60.1 | 86.6 | 111 | 111 |
| 32 | 4.35 | 9.92 | 18.5 | 34.5 | 49.8 | 64.5 | 92.8 | 120 | 121 |
| 35 | 4.79 | 10.9 | 20.4 | 38.0 | 54.8 | 71.0 | 102 | 132 | 139 |
| 40 | 5.53 | 12.6 | 23.6 | 44.0 | 63.3 | 82.0 | 118 | 153 | 170 |
| 45 | 6.28 | 14.3 | 26.7 | 49.9 | 71.9 | 93.1 | 134 | 174 | 196 |

Lubrication method "C" range

## ■RS120-HT-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm 10 | 25 | 50 | 100 | 150 | 200 | 300 | 400 | 500 |
|---|---|---|---|---|---|---|---|---|---|
| | A | | | | B | | | | C |
| 9 | 1.75 | 4.00 | 7.46 | 13.9 | 20.1 | 26.0 | 37.4 | 41.1 | |
| 10 | 1.96 | 4.48 | 8.36 | 15.6 | 22.5 | 29.1 | 41.9 | 46.1 | |
| 11 | 2.18 | 4.97 | 9.27 | 17.3 | 24.9 | 32.3 | 46.5 | 51.0 | |
| 12 | 2.39 | 5.46 | 10.2 | 19.0 | 27.4 | 35.5 | 51.1 | 56.1 | |
| 13 | 2.61 | 5.95 | 11.1 | 20.7 | 29.8 | 38.7 | 55.7 | 61.1 | |
| 14 | 2.83 | 6.45 | 12.0 | 22.4 | 32.3 | 41.9 | 60.3 | 66.2 | |
| 15 | 3.04 | 6.94 | 13.0 | 24.2 | 34.8 | 45.1 | 65.0 | 71.3 | |
| 16 | 3.26 | 7.45 | 13.9 | 25.9 | 37.3 | 48.4 | 69.7 | 76.5 | |
| 17 | 3.49 | 7.95 | 14.8 | 27.7 | 39.9 | 51.7 | 74.4 | 83.7 | |
| 18 | 3.71 | 8.46 | 15.8 | 29.4 | 42.4 | 54.9 | 79.1 | 91.2 | |
| 19 | 3.93 | 8.96 | 16.7 | 31.2 | 45.0 | 58.3 | 83.9 | 98.9 | |
| 20 | 4.15 | 9.47 | 17.7 | 33.0 | 47.5 | 61.6 | 88.7 | 107 | |
| 21 | 4.38 | 9.99 | 18.6 | 34.8 | 50.1 | 64.9 | 93.5 | 115 | 115 |
| 22 | 4.60 | 10.5 | 19.6 | 36.6 | 52.7 | 68.2 | 98.3 | 123 | 123 |
| 23 | 4.83 | 11.0 | 20.6 | 38.4 | 55.3 | 71.6 | 103 | 132 | 132 |
| 24 | 5.06 | 11.5 | 21.5 | 40.2 | 57.9 | 75.0 | 108 | 140 | 140 |
| 25 | 5.29 | 12.1 | 22.5 | 42.0 | 60.5 | 78.3 | 113 | 146 | 146 |
| 26 | 5.51 | 12.6 | 23.5 | 43.8 | 63.1 | 81.7 | 118 | 152 | 152 |
| 28 | 5.97 | 13.6 | 25.4 | 47.5 | 68.3 | 88.5 | 128 | 165 | 165 |
| 30 | 6.44 | 14.7 | 27.4 | 51.1 | 73.6 | 95.4 | 137 | 178 | 178 |
| 32 | 6.90 | 15.7 | 29.4 | 54.8 | 79.0 | 102 | 147 | 191 | 191 |
| 35 | 7.60 | 17.3 | 32.4 | 60.4 | 87.0 | 113 | 162 | 210 | 210 |
| 40 | 8.78 | 20.0 | 37.4 | 69.7 | 100 | 130 | 187 | 242 | 242 |
| 45 | 9.97 | 22.7 | 42.4 | 79.2 | 114 | 148 | 213 | 276 | 286 |

Note: 1. Use RS Roller Chains in the high speed range.

| Multi-strand factor | Number of chain strands | Multi-strand factor |
|---|---|---|
| | Double strand | 1.7 |
| | Triple strand | 2.5 |

| Lubrication method | | | Details on Pg. 193 |
|---|---|---|---|
| | A | Manual lubrication or drip lubrication | |
| | B | Oil bath or slinger disc lubrication | |
| | C | Forced pump lubrication | |

# Kilowatt Ratings Tables (RS140HT～RS240HT)

## ■RS140-HT-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 |
| | A | | | B | | | | | | | C |
| 9 | 2.70 | 6.15 | 11.5 | 21.4 | 30.8 | 40.0 | 48.9 | 56.1 | 56.1 | | |
| 10 | 3.02 | 6.89 | 12.9 | 24.0 | 34.6 | 44.8 | 54.7 | 64.5 | 65.6 | | |
| 11 | 3.35 | 7.64 | 14.3 | 26.6 | 38.3 | 49.6 | 60.7 | 71.5 | 72.7 | | |
| 12 | 3.68 | 8.39 | 15.7 | 29.2 | 42.1 | 54.5 | 66.7 | 78.5 | 79.9 | | |
| 13 | 4.01 | 9.15 | 17.1 | 31.9 | 45.9 | 59.4 | 72.7 | 85.6 | 87.1 | | |
| 14 | 4.34 | 9.91 | 18.5 | 34.5 | 49.7 | 64.4 | 78.7 | 92.8 | 94.4 | | |
| 15 | 4.68 | 10.7 | 19.9 | 37.2 | 53.6 | 69.4 | 84.8 | 100 | 103 | | |
| 16 | 5.02 | 11.4 | 21.4 | 39.9 | 57.4 | 74.4 | 90.9 | 107 | 114 | | |
| 17 | 5.36 | 12.2 | 22.8 | 42.6 | 61.3 | 79.4 | 97.1 | 114 | 124 | | |
| 18 | 5.70 | 13.0 | 24.3 | 45.3 | 65.2 | 84.5 | 103 | 122 | 136 | 136 | |
| 19 | 6.04 | 13.8 | 25.7 | 48.0 | 69.1 | 89.6 | 109 | 129 | 144 | 144 | |
| 20 | 6.39 | 14.6 | 27.2 | 50.7 | 73.1 | 94.7 | 116 | 136 | 152 | 152 | |
| 21 | 6.73 | 15.4 | 28.7 | 53.5 | 77.0 | 100 | 122 | 144 | 161 | 161 | |
| 22 | 7.08 | 16.1 | 30.1 | 56.2 | 81.0 | 105 | 128 | 151 | 169 | 169 | |
| 23 | 7.43 | 16.9 | 31.6 | 59.0 | 85.0 | 110 | 135 | 159 | 177 | 177 | |
| 24 | 7.78 | 17.7 | 33.1 | 61.8 | 89.0 | 115 | 141 | 166 | 186 | 186 | |
| 25 | 8.13 | 18.5 | 34.6 | 64.6 | 93.0 | 120 | 147 | 174 | 194 | 194 | |
| 26 | 8.48 | 19.3 | 36.1 | 67.3 | 97.0 | 126 | 154 | 181 | 204 | 204 | |
| 28 | 9.18 | 21.0 | 39.1 | 73.0 | 105 | 136 | 166 | 196 | 225 | 228 | |
| 30 | 9.90 | 22.6 | 42.1 | 78.6 | 113 | 147 | 179 | 211 | 243 | 253 | |
| 32 | 10.6 | 24.2 | 45.2 | 84.3 | 121 | 157 | 192 | 227 | 260 | 276 | |
| 35 | 11.7 | 26.7 | 49.8 | 92.8 | 134 | 173 | 212 | 250 | 287 | 304 | |
| 40 | 13.5 | 30.8 | 57.5 | 107 | 154 | 200 | 245 | 288 | 331 | 351 | |
| 45 | 15.3 | 35.0 | 65.3 | 122 | 175 | 227 | 278 | 327 | 376 | 408 | 408 |

## ■RS160-HT-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 |
| | A | | | B | | | | | C | |
| 9 | 4.03 | 9.20 | 17.2 | 32.0 | 46.2 | 59.8 | 73.1 | 74.5 | | |
| 10 | 4.52 | 10.3 | 19.2 | 35.9 | 51.7 | 67.0 | 81.9 | 87.3 | | |
| 11 | 5.01 | 11.4 | 21.3 | 39.8 | 57.3 | 74.3 | 90.8 | 98.5 | | |
| 12 | 5.50 | 12.6 | 23.4 | 43.7 | 63.0 | 81.6 | 100 | 108 | | |
| 13 | 6.00 | 13.7 | 25.5 | 47.7 | 68.7 | 88.9 | 109 | 118 | | |
| 14 | 6.50 | 14.8 | 27.7 | 51.6 | 74.4 | 96.4 | 118 | 128 | | |
| 15 | 7.00 | 16.0 | 29.8 | 55.6 | 80.1 | 104 | 127 | 138 | | |
| 16 | 7.51 | 17.1 | 32.0 | 59.6 | 85.9 | 111 | 136 | 148 | | |
| 17 | 8.02 | 18.3 | 34.1 | 63.7 | 91.7 | 119 | 145 | 162 | | |
| 18 | 8.53 | 19.5 | 36.3 | 67.7 | 97.6 | 126 | 155 | 177 | 177 | |
| 19 | 9.04 | 20.6 | 38.5 | 71.8 | 103 | 134 | 164 | 192 | 192 | |
| 20 | 9.56 | 21.8 | 40.7 | 75.9 | 109 | 142 | 173 | 204 | 207 | |
| 21 | 10.1 | 23.0 | 42.9 | 80.0 | 115 | 149 | 183 | 215 | 220 | |
| 22 | 10.6 | 24.2 | 45.1 | 84.1 | 121 | 157 | 192 | 226 | 231 | |
| 23 | 11.1 | 25.3 | 47.3 | 88.3 | 127 | 165 | 201 | 237 | 243 | |
| 24 | 11.6 | 26.5 | 49.5 | 92.4 | 133 | 172 | 211 | 248 | 254 | |
| 25 | 12.2 | 27.7 | 51.8 | 96.6 | 139 | 180 | 220 | 260 | 266 | |
| 26 | 12.7 | 28.9 | 54.0 | 101 | 145 | 188 | 230 | 271 | 277 | |
| 28 | 13.7 | 31.3 | 58.5 | 109 | 157 | 204 | 249 | 293 | 300 | |
| 30 | 14.8 | 33.8 | 63.0 | 118 | 169 | 219 | 268 | 316 | 325 | |
| 32 | 15.9 | 36.2 | 67.6 | 126 | 182 | 235 | 288 | 339 | 358 | |
| 35 | 17.5 | 39.9 | 74.4 | 139 | 200 | 259 | 317 | 373 | 409 | 409 |
| 40 | 20.2 | 46.1 | 86.0 | 160 | 231 | 299 | 366 | 431 | 485 | 485 |
| 45 | 22.9 | 52.3 | 97.6 | 182 | 262 | 340 | 416 | 490 | 551 | 551 |

## ■RS200-HT-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 15 | 20 | 30 | 40 | 50 | 70 | 100 | 150 | 200 | 250 | 300 |
| | A | | | | | B | | | | | | C |
| 9 | 7.08 | 10.2 | 13.2 | 19.0 | 24.7 | 30.1 | 40.8 | 56.2 | 81.0 | 105 | 108 | |
| 10 | 7.93 | 11.4 | 14.8 | 21.3 | 27.6 | 33.8 | 45.7 | 63.0 | 90.8 | 118 | 122 | |
| 11 | 8.79 | 12.7 | 16.4 | 23.6 | 30.6 | 37.4 | 50.7 | 69.9 | 101 | 130 | 135 | |
| 12 | 9.66 | 13.9 | 18.0 | 26.0 | 33.6 | 41.1 | 55.7 | 76.7 | 111 | 143 | 148 | |
| 13 | 10.5 | 15.2 | 19.7 | 28.3 | 36.7 | 44.8 | 60.7 | 83.7 | 121 | 156 | 161 | |
| 14 | 11.4 | 16.4 | 21.3 | 30.7 | 39.7 | 48.6 | 65.8 | 90.6 | 131 | 169 | 175 | |
| 15 | 12.3 | 17.7 | 22.9 | 33.0 | 42.8 | 52.3 | 70.8 | 97.6 | 141 | 182 | 192 | |
| 16 | 13.2 | 19.0 | 24.6 | 35.4 | 45.9 | 56.1 | 76.0 | 105 | 151 | 195 | 211 | |
| 17 | 14.1 | 20.3 | 26.3 | 37.8 | 49.0 | 59.9 | 81.1 | 112 | 161 | 209 | 231 | |
| 18 | 15.0 | 21.6 | 27.9 | 40.2 | 52.1 | 63.7 | 86.3 | 119 | 171 | 222 | 252 | 252 |
| 19 | 15.9 | 22.9 | 29.6 | 42.7 | 55.3 | 67.5 | 91.4 | 126 | 182 | 235 | 273 | 273 |
| 20 | 16.8 | 24.2 | 31.3 | 45.1 | 58.4 | 71.4 | 96.6 | 133 | 192 | 249 | 290 | 290 |
| 21 | 17.7 | 25.5 | 33.0 | 47.5 | 61.6 | 75.3 | 102 | 140 | 202 | 262 | 305 | 305 |
| 22 | 18.6 | 26.8 | 34.7 | 50.0 | 64.7 | 79.1 | 107 | 148 | 213 | 276 | 321 | 321 |
| 23 | 19.5 | 28.1 | 36.4 | 52.4 | 67.9 | 83.0 | 112 | 155 | 223 | 289 | 337 | 337 |
| 24 | 20.4 | 29.4 | 38.1 | 54.9 | 71.1 | 86.9 | 118 | 162 | 234 | 303 | 353 | 353 |
| 25 | 21.3 | 30.7 | 39.8 | 57.4 | 74.3 | 90.9 | 123 | 170 | 244 | 316 | 369 | 369 |
| 26 | 22.3 | 32.1 | 41.6 | 59.9 | 77.5 | 94.8 | 128 | 177 | 255 | 330 | 385 | 385 |

Note: 1. Use RS Roller Chains in the high speed range.

| Multi-strand factor | Number of chain strands | Multi-strand factor |
|---|---|---|
| | Double strand | 1.7 |
| | Triple strand | 2.5 |

## ■RS240-HT-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

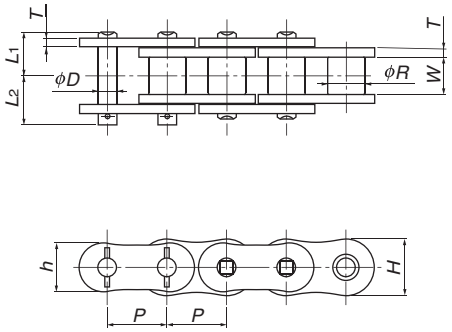
| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 125 | 150 | 175 | 200 | 250 |
| | A | | | | | | B | | | | | | | | | |
| 9 | 6.55 | 12.2 | 17.6 | 22.8 | 27.9 | 32.9 | 42.6 | 52.1 | 61.3 | 79.5 | 97.2 | 119 | 140 | 159 | 159 | |
| 10 | 7.34 | 13.7 | 19.7 | 25.6 | 31.3 | 36.8 | 47.7 | 58.3 | 68.7 | 89.1 | 109 | 133 | 157 | 180 | 183 | 183 |
| 11 | 8.14 | 15.2 | 21.9 | 28.3 | 34.7 | 40.8 | 52.9 | 64.7 | 76.2 | 98.7 | 121 | 148 | 174 | 200 | 202 | 202 |
| 12 | 8.94 | 16.7 | 24.0 | 31.1 | 38.1 | 44.9 | 58.1 | 71.0 | 83.7 | 108 | 133 | 162 | 191 | 219 | 222 | 222 |
| 13 | 9.75 | 18.2 | 26.2 | 34.0 | 41.5 | 48.9 | 63.4 | 77.4 | 91.3 | 118 | 145 | 177 | 208 | 239 | 242 | 242 |
| 14 | 10.6 | 19.7 | 28.4 | 36.8 | 45.0 | 53.0 | 68.6 | 83.9 | 98.9 | 128 | 157 | 191 | 226 | 259 | 263 | 263 |
| 15 | 11.4 | 21.2 | 30.6 | 39.6 | 48.4 | 57.1 | 73.9 | 90.4 | 107 | 138 | 169 | 206 | 243 | 279 | 283 | 283 |
| 16 | 12.2 | 22.8 | 32.8 | 42.5 | 51.9 | 61.2 | 79.3 | 96.9 | 114 | 148 | 181 | 221 | 261 | 299 | 299 | 299 |
| 17 | 13.0 | 24.3 | 35.0 | 45.4 | 55.5 | 65.3 | 84.6 | 103 | 122 | 158 | 193 | 236 | 278 | 300 | 300 | |
| 18 | 13.9 | 25.9 | 37.2 | 48.3 | 59.0 | 69.5 | 90.0 | 110 | 130 | 168 | 205 | 251 | 296 | 303 | 303 | |
| 19 | 14.7 | 27.4 | 39.5 | 51.2 | 62.5 | 73.7 | 95.5 | 117 | 137 | 178 | 218 | 266 | 314 | 317 | 317 | |
| 20 | 15.5 | 29.0 | 41.7 | 54.1 | 66.1 | 77.9 | 101 | 123 | 145 | 188 | 230 | 281 | 330 | 330 | | |
| 21 | 16.4 | 30.5 | 44.0 | 57.0 | 69.7 | 82.1 | 106 | 130 | 153 | 198 | 243 | 297 | 345 | 345 | | |
| 22 | 17.2 | 32.1 | 46.3 | 59.9 | 73.3 | 86.3 | 112 | 137 | 161 | 209 | 255 | 312 | 346 | 346 | | |
| 23 | 18.1 | 33.7 | 48.5 | 62.9 | 76.9 | 90.6 | 117 | 143 | 169 | 219 | 268 | 327 | 370 | 370 | | |
| 24 | 18.9 | 35.3 | 50.8 | 65.8 | 80.5 | 94.8 | 123 | 150 | 177 | 229 | 280 | 343 | 396 | 396 | | |
| 25 | 19.8 | 36.9 | 53.1 | 68.8 | 84.1 | 99.1 | 128 | 157 | 185 | 240 | 293 | 358 | 410 | 410 | | |
| 26 | 20.6 | 38.5 | 55.4 | 71.8 | 87.7 | 103 | 134 | 164 | 193 | 250 | 306 | 373 | 418 | 418 | | |

※C区分

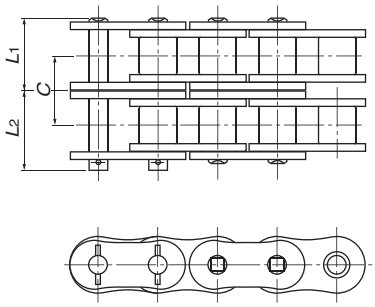
| Lubrication method | | | |
|---|---|---|---|
| | A | Manual lubrication or drip lubrication | Details on Pg. 193 |
| | B | Oil bath or slinger disc lubrication | |
| | C | Forced pump lubrication | |

# Super-H Roller Chain

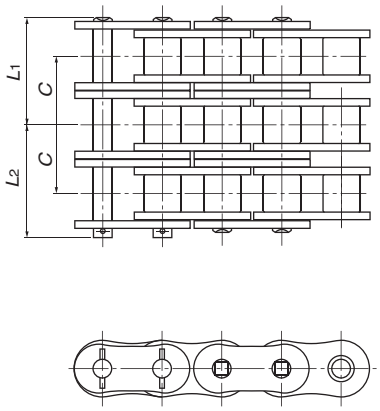
Single strand




Double strand




Triple strand



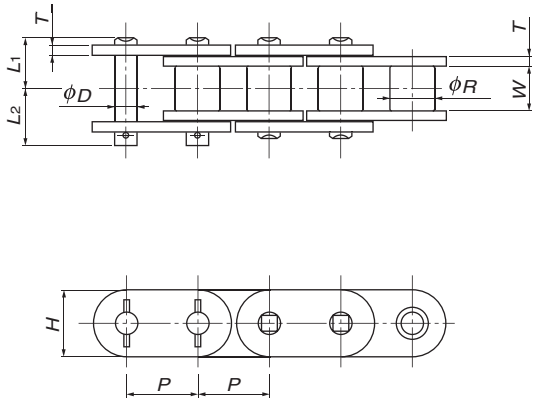

| TSUBAKI Chain Number | Number of Strands | Pitch P | Roller Diameter R | Inner Width of Inner Link W | Plates Thickness T | Plates Width H | Plates Width h | Pins Diameter D | Pins L1 | Pins L2 | Transverse Pitch C | Minimum Tensile Strength kN{kgf} | Average Tensile Strength kN{kgf} | Maximum Allowable Load Tension kN{kgf} | Approximate Mass kg/m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS80-SUP-H-1 | 1 | | | | | | | | 18.3 | 20.9 | – | 85.3{ 8700} | 98.1{ 10000} | 20.6{ 2100} | 3.29 |
| RS80-SUP-H-2 | 2 | 25.40 | 15.88 | 15.88 | 4.0 | 24.1 | 20.8 | 7.94 | 34.6 | 37.2 | 32.6 | 171 { 17400} | 196 { 20000} | 35.0{ 3570} | 6.52 |
| RS80-SUP-H-3 | 3 | | | | | | | | 50.95 | 53.55 | 32.6 | 256 { 26100} | 294 { 30000} | 51.5{ 5250} | 9.75 |
| RS100-SUP-H-1 | 1 | | | | | | | | 21.8 | 24.5 | – | 127 { 12900} | 145 { 14800} | 32.4{ 3300} | 4.88 |
| RS100-SUP-H-2 | 2 | 31.75 | 19.05 | 19.05 | 4.8 | 30.1 | 26.0 | 9.54 | 41.4 | 44.1 | 39.1 | 253 { 25800} | 290 { 29600} | 55.0{ 5610} | 9.51 |
| RS100-SUP-H-3 | 3 | | | | | | | | 61.0 | 63.6 | 39.1 | 380 { 38700} | 435 { 44400} | 80.9{ 8250} | 14.14 |
| RS120-SUP-H-1 | 1 | | | | | | | | 26.95 | 30.55 | – | 171 { 17400} | 196 { 20000} | 42.2{ 4300} | 6.94 |
| RS120-SUP-H-2 | 2 | 38.10 | 22.23 | 25.40 | 5.6 | 36.2 | 31.2 | 11.11 | 51.4 | 55.0 | 48.9 | 341 { 34800} | 392 { 40000} | 71.7{ 7310} | 13.51 |
| RS120-SUP-H-3 | 3 | | | | | | | | 75.85 | 79.55 | 48.9 | 512 { 52200} | 588 { 60000} | 105 {10750} | 20.09 |
| RS140-SUP-H-1 | 1 | | | | | | | | 28.9 | 33.1 | – | 222 { 22600} | 255 { 26000} | 56.9{ 5800} | 8.88 |
| RS140-SUP-H-2 | 2 | 44.45 | 25.40 | 25.40 | 6.4 | 42.2 | 36.4 | 12.71 | 55.0 | 59.5 | 52.2 | 443 { 45200} | 510 { 52000} | 96.7{ 9860} | 17.38 |
| RS140-SUP-H-3 | 3 | | | | | | | | 81.15 | 85.25 | 52.2 | 665 { 67800} | 765 { 78000} | 142 {14500} | 25.88 |
| RS160-SUP-H-1 | 1 | | | | | | | | 33.95 | 38.45 | – | 281 { 28700} | 324 { 33000} | 73.5{ 7500} | 11.72 |
| RS160-SUP-H-2 | 2 | 50.80 | 28.58 | 31.75 | 7.15 | 48.2 | 41.6 | 14.29 | 64.9 | 69.6 | 61.9 | 563 { 57400} | 647 { 66000} | 125 {12750} | 22.97 |
| RS160-SUP-H-3 | 3 | | | | | | | | 95.95 | 100.45 | 61.9 | 844 { 86100} | 971 { 99000} | 184 {18750} | 34.22 |
| RS200-SUP-H-1 | 1 | | | | | | | | 42.9 | 48.1 | – | 520 { 53000} | 598 { 61000} | 100 {10200} | 19.68 |
| RS200-SUP-H-2 | 2 | 63.50 | 39.68 | 38.10 | 9.5 | 60.3 | 52.0 | 19.85 | 82.05 | 87.3 | 78.3 | 1040 {106000} | 1200 {122000} | 170 {17340} | 38.48 |
| RS200-SUP-H-3 | 3 | | | | | | | | 121.25 | 126.55 | 78.3 | 1560 {159000} | 1790 {183000} | 250 {25500} | 57.29 |
| RS240-SUP-H-1 | 1 | | | | | | | | 54.8 | 62.3 | – | 802 { 81800} | 922 { 94000} | 139 {14200} | 30.47 |
| RS240-SUP-H-2 | 2 | 76.20 | 47.63 | 47.63 | 12.7 | 72.4 | 62.4 | 23.81 | 105.3 | 112.9 | 101.2 | 1600 {163600} | 1840 {188000} | 237 {24140} | 59.77 |
| RS240-SUP-H-3 | 3 | | | | | | | | 156.05 | 163.55 | 101.2 | 2410 {245400} | 2770 {282000} | 348 {35500} | 89.09 |

| Size | RS80 SUP-H | RS100 SUP-H | RS120 SUP-H | RS140 SUP-H | RS160 SUP-H | RS200 SUP-H | RS240 SUP-H |
|---|---|---|---|---|---|---|---|
| Number of Links Per Unit | 120 | 96 | 80 | 68 | 60 | 48 | 40 |

## Notes for use

- Select chains and sprockets as per the Allowable Load Selection Method.
- Offset links are not available due to the super heavy duty nature of transmission. Use an even number of links.
- Use drip lubrication, oil bath or splash lubrication, or forced pump lubrication.
- RS Roller Chain sprockets can be used only with single strand chains. Steel sprockets cannot be used. Use sprockets made of S35C or higher carbon steel. Sprockets with lower teeth number must also have hardened teeth. Check key strength, etc.

# Ultra Super Roller Chain




| TSUBAKI Chain Number | Pitch P | Roller Diameter R | Inner Width of Inner Link W | Plates | | Pins | | | | Minimum Tensile Strength kN{kgf} | Average Tensile Strength kN{kgf} | Maximum Allowable Load Tension kN{kgf} | Approximate Mass kg/m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Thickness T | Width H | Diameter D | $L_1+L_2$ | $L_1$ | $L_2$ | | | | |
| RF100-US-1 | 31.75 | 19.05 | 19.05 | 4.8 | 30.1 | 10.32 | 47.7 | 22.35 | 25.35 | 149{15200} | 172 {17500} | 39.2{4000} | 5.07 |
| RF120-US-1 | 38.10 | 22.23 | 25.40 | 5.6 | 36.2 | 12.28 | 59.1 | 27.55 | 31.55 | 213{21700} | 245 {25000} | 53.9{5500} | 7.22 |
| RF140-US-1 | 44.45 | 25.40 | 25.40 | 6.4 | 42.2 | 13.97 | 63.7 | 29.5 | 34.2 | 273{27800} | 314 {32000} | 63.7{6500} | 9.24 |
| RF160-US-1 | 50.80 | 28.58 | 31.75 | 7.1 | 48.2 | 15.62 | 74.7 | 34.5 | 40.2 | 341{34800} | 392 {40000} | 85.3{8700} | 12.19 |
| RF200-US-1 | 63.50 | 39.68 | 38.10 | 9.5 | 60.3 | 20.41 | 93.9 | 42.95 | 50.95 | 580{59100} | 667 {68000} | 108{11000} | 20.47 |
| RF240-US-1 | 76.20 | 47.63 | 47.63 | 12.7 | 72.4 | 24.73 | 119.7 | 54.8 | 64.9 | 853{87000} | 981{100000} | 151{15400} | 31.69 |

## Notes for use

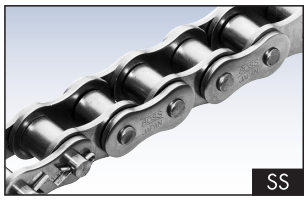
- Select chains and sprockets as per the Allowable Load Selection Method.
- Offset links are not available due to the super heavy-duty nature of transmission. Use an even number of links.
- Use drip lubrication, oil bath or splash lubrication, or forced pump lubrication.
- RS Roller Chain sprockets can be used only with single strand chains. Steel sprockets cannot be used. Use sprockets made of S35C or higher carbon steel. Sprockets with lower teeth number must also have hardened teeth. Check key strength, etc.
- Check key strength, etc.
- Multi-strand chains are not available. Consider other heavy duty chains if required.

# Corrosion Resistant Roller Chains

## Stainless Steel Roller Chains

These roller chains are made of stainless steel. (See pg. 189 regarding the corrosion resistance of stainless steel drive chains.)

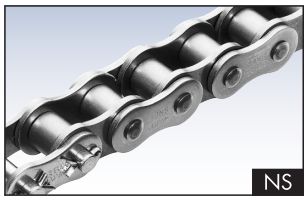
### SS Series — Basic stainless steel chain using SUS304 equivalent.




These roller chains are made of 304 stainless steel (301 stainless steel clips). They offer greater corrosion resistance than RS Roller Chains and RS Surface Treated Roller Chains, and can be used in water and in corrosive atmospheres that are acidic or alkaline, as well as in low or high temperatures (-20 to 400˚C). 304 stainless steel is only marginally magnetic. Some magnetism exists only due to the cold-forging process.

–20˚C～400˚C

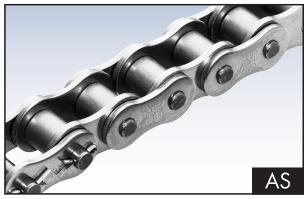
### NS Series — Highly corrosion resistant stainless steel chain using SUS316.




These roller chains are made of 316 stainless steel (301 stainless steel clips on RS25NS, and 304 stainless steel cotter pins on RS80NS). They are suited for applications that require higher corrosion resistance than SS chains. Except for the clips, they are non-magnetic.

–20˚C～400˚C

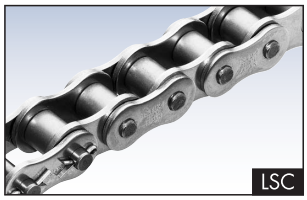
### AS Series — Stainless steel chain with 1.5 times the allowable load of SS Series.




The pins and rollers of these roller chains are made of precipitation-hardened, tempered stainless steel, while the plates and bushes are 18-8SUS (304 stainless steel clips are 17-7SUS (301 stainless steel)). They have a maximum allowable load that is 1.5 times that of SS chains. Corrosion resistance is slightly less than that of SS chains. AS chains are suited for applications that require corrosion resistance, heat resistance, and smaller sizes / higher kilowatt ratings than SS chains. Because of its precipitation-hardened stainless steel, the chains are magnetic.

–20˚C～400˚C

### LSC Series — Lube-free, long life stainless steel chain.



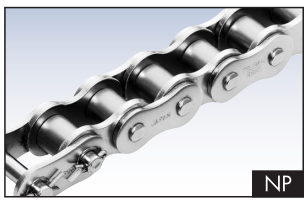

This lube-free roller chain uses 18-8SUS (SUS304 equivalent) for the base chain and special engineering plastic sleeves in the bush. Suitable for situations requiring greater wear resistance than SS Series. Engineering plastic rollers also available.

–20˚C～100˚C*
*Operating temperature range with stainless steel rollers.
Engineering plastic rollers: -20˚C to 80˚C

## Surface Treated Roller Chains

These are surface-treated RS Roller Chains.

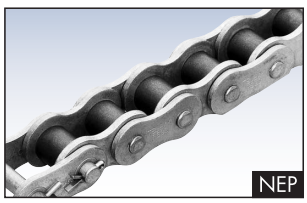
### NP Series — Nickel plating provides an attractive appearance.




These chains are RS Roller Chains with nickel plating. The nickel plating not only improves appearance, but also adds a small degree of corrosion resistance. Therefore, they can be used in applications where there is exposure to water. Bear in mind when making your selection that maximum allowable load is approximately. 15% lower than with RS Roller Chains.

–10˚C～60˚C
*Maximum 150˚C possible when used with a lubricant suited to the temperature range.

### NEP Series RoHS compliant — Uses a special coating for outstanding corrosion resistance.




NEP Chain is a Coating chain with a high corrosion resistance thanks to its zinc coating base and two different kinds of special surface coatings for rollers and other parts. The zinc coating and special surface coatings protect the chain body from corrosive environments, giving it superior rust prevention. NEP Chain has superior anti-rust capabilities over previous WP or DP chains, reducing its load on the environment.

–10˚C～60˚C
*Maximum 150˚C possible when used with a lubricant suited to the temperature range.

### APP Series — For protection against pitting corrosion fracture.

Pins are treated with a non-strength degrading surface treatment to protect against pitting corrosion that leads to fatigue breakage, making it highly effective in environments that readily promote corrosion, such as outdoor or coastal applications.

### ⚠ Safety precautions when using Surface Treated Drive Chains

Do not use NP / NEP Series Surface Treated Drive Chains if the chains will come in direct contact with food or where coating flakes or wear dust can contaminate food. The specific gravity of flaked NEP film is lighter than water and will float.
Also, in non-food applications, either appropriately cover the chains or contact Tsubaki about chain selection if usage is planned in environments where coating flakes and wear dust present problems. Though nickel is not subject to the Food Sanitation Law or the Industrial Safety and Health Law, plating on sliding parts can flake.

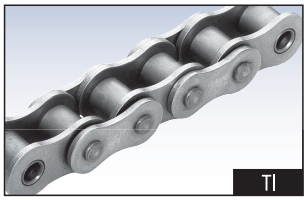
## Key

- **Corrosion resistant** — Usable in contact with water
- **Non-magnetic** — No magnetism.
- **Lube-free** — Requires no additional lubrication
- **Chemical resistant** — Resistant to various chemicals. (Consult Tsubaki's chemical resistance chart for more details.)
- **Allowable load** — Has an allowable load similar to steel chains (80% to 100%)
- **Sanitary** — Relatively hygienic to use.
- **Operating temperature range** — Temperature range for chain operation.
- **Weight** — Relatively lightweight and easy to handle.
- **Resistant to stress corrosion cracking** — Resistant to hydrogen embrittlement fracture.
- **Low noise** — Runs quieter than standard roller chain.

## Titanium Roller Chains

Titanium chains are non-magnetic and offer high corrosion resistance. For details on corrosion resistance selection, see pg. 188.

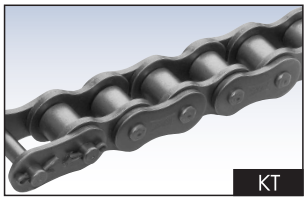
–20˚C～400˚C




## Cold Resistant Roller Chains

These chains can be used in lower temperatures than RS Roller Chains yet deliver the same allowable load (when using an F-type connecting link). Expect a 20% reduction in strength when using an M-type connecting link.

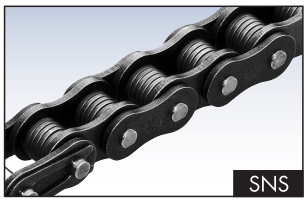
–40˚C～60˚C*
*Can be used at -60ºC when selected by temperature.




## Low Noise Roller Chains

These chains emit 6 to 8 dB less noise than pre-lubed RS Roller Chains (in-house comparison testing).

–10˚C～60˚C

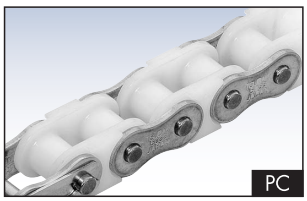



## Poly Steel® Chains

### ■PC (Standard Series) — Clean, quiet running chain.

The pins and outer plates of these chains are made of 304 stainless steel (301 stainless steel clips), while the inner plates are of engineered plastic (white). They are lube-free, low noise (5 dB less than RS Roller Chains) and lightweight (50% of RS Roller Chains). They can be used in temperatures of –20 to 80˚C. For details on corrosion resistance selection, see pg. 188.

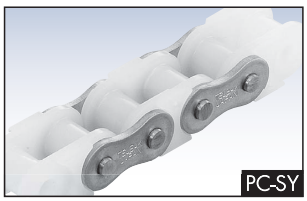
–20˚C～80˚C




### ■PC-SY (Super Chemical Resistance Series) — Poly Steel Chain with superb chemical resistance.

The pins and outer plates of these chains are made of titanium, while the inner plates are of a special engineered plastic (matte white); therefore they are suited for applications in which PC Chains have insufficient corrosion resistance. They can be used in temperatures of –20 to 80˚C. For details on corrosion resistance selection, see pg. 188. Bear in mind when making your selection that maximum allowable load is about 60% that of PC Chains.

–20˚C～80˚C



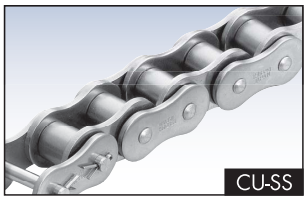

### ■BS-PC (BS Standard Series)

Poly Steel Chain that conforms to BS standards.

## Curved Stainless Steel Roller Chains

These roller chains have a wide sideflex due to its original pin / bush construction and the large clearance between its plates. Curved transmission is easy using RS-type standard sprockets.

–20˚C～400˚C




### ⚠ Pre-Delivery Lubrication

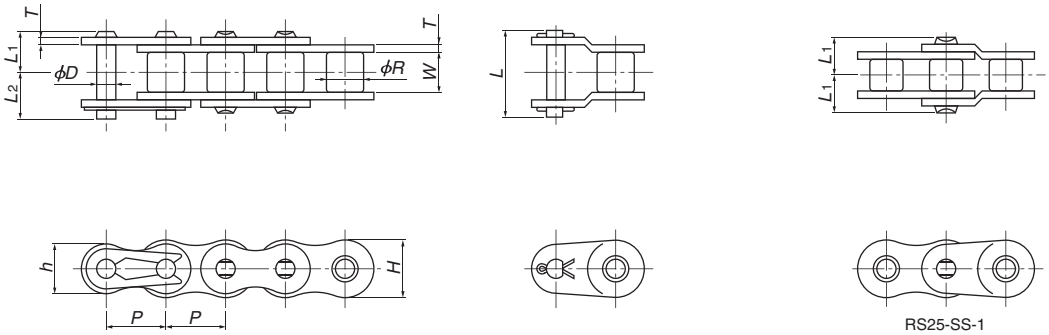
- SS Series and NS Series Stainless Steel Roller Chains, Titanium Roller Chains, and Curved Stainless Steel Roller Chains are not lubricated before delivery. Always lubricate your chain before use, except when chains are to be used submerged in or in contact with water. If chains are not lubricated for use, then they may suffer articulation problems prematurely.
- The maximum allowable load is calculated under lubricated conditions (including water lubricant).

*RS11-SS-1 chain is lubricated.

# SS Series

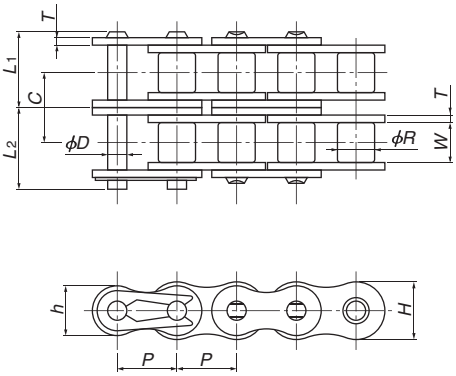


Single strand




RS25-SS-1
RS25-SS-1 uses 2-pitch OL.

Double strand




## Connecting link

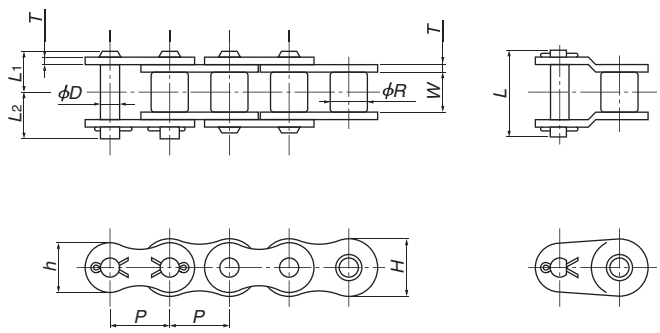
RS11-SS-1 to RS60-SS-1: Clip-type (11SS to 25SS: Dual riveting / 35SS to 60SS: Button-head riveting)
RS80-SS-1 to RS240-SS-1: Cotter pin-type (Dual riveting)

SS Series Stainless Steel Roller Chains are not lubricated before delivery. Always lubricate your chain before use, except when chains are to be used submerged in or in contact with water. If chains are not lubricated for use, then they may suffer articulation problems prematurely.
The maximum allowable load is calculated under lubricated conditions (including water lubricant).
*RS11-SS-1 chain is lubricated.

| TSUBAKI Chain Number | Number of Strands | Pitch P | Roller Diameter R | Inner Width of Inner Link W | Plates Thickness T | Plates Height H | Plates Height h | Pins Diameter D | Pins $L_1+L_2$ | Pins $L_1$ | Pins $L_2$ | Pins Offset Pin Length L | Transverse Pitch C | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m | Links Per Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A140001** | **RS11-SS-1** | 3.7465 | ※2.285 | 1.83 | 0.38 | 3.5 | 3.5 | 1.57 | 5.44 | 2.275 | 3.165 | – | – | 0.05 {5} | 0.052 | 134 |
| **A140002** | **RS25-SS-1** | 6.35 | ※3.30 | 3.18 | 0.75 | 5.84 | 5.05 | 2.31 | 8.6 | 3.8 | 4.8 | – | – | 0.12 {12} | 0.14 | 160 |
| **A140003** | **RS35-SS-1** | 9.525 | ※5.08 | 4.78 | 1.25 | 9.0 | 7.8 | 3.59 | 12.9 | 6.05 | 6.85 | 14.7 | – | 0.26 {27} | 0.33 | 320 |
| **A140004** | **RS40-SS-1** | 12.70 | 7.92 | 7.95 | 1.5 | 12.0 | 10.4 | 3.97 | 17.9 | 8.25 | 9.65 | 18.6 | – | 0.44 {45} | 0.64 | 240 |
| A140005 | RS40-SS-2 | | | | | | | | 32.6 | 15.25 | 17.35 | 33.5 | 14.4 | 0.88 {90} | 1.27 | |
| **A140006** | **RS50-SS-1** | 15.875 | 10.16 | 9.53 | 2.0 | 15.0 | 13.0 | 5.09 | 22.3 | 10.3 | 12.0 | 23.9 | – | 0.69 {70} | 1.04 | 192 |
| A140007 | RS50-SS-2 | | | | | | | | 40.4 | 19.15 | 21.25 | 41.8 | 18.1 | 1.37 {140} | 2.07 | |
| **A140008** | **RS60-SS-1** | 19.05 | 11.91 | 12.70 | 2.4 | 18.1 | 15.6 | 5.96 | 27.6 | 12.85 | 14.75 | 29.4 | – | 1.03 {105} | 1.53 | 160 |
| A140009 | RS60-SS-2 | | | | | | | | 50.4 | 24.25 | 26.15 | 52.6 | 22.8 | 2.06 {210} | 3.04 | |
| **A140010** | **RS80-SS-1** | 25.40 | 15.88 | 15.88 | 3.2 | 24.1 | 20.8 | 7.94 | 35.7 | 16.25 | 19.45 | 39.0 | – | 1.77 {180} | 2.66 | 120 |
| A1400011 | RS80-SS-2 | | | | | | | | 64.8 | 30.90 | 33.90 | 68.05 | 29.3 | 3.53 {360} | 5.30 | |
| A1400012 | RS100-SS-1 | 31.75 | 19.05 | 19.05 | 4.0 | 30.1 | 26.0 | 9.54 | 42.6 | 19.75 | 22.85 | 45.7 | – | 2.55 {260} | 4.01 | 96 |
| A1400013 | RS100-SS-2 | | | | | | | | 78.5 | 37.70 | 40.80 | 81.6 | 35.8 | 5.10 {520} | 7.99 | |
| A14 | RS120-SS-1 | 38.10 | 22.23 | 25.40 | 5.0 | 36.2 | 31.2 | 11.11 | 55.55 | 25.75 | 29.80 | 59.7 | – | 3.82 {390} | 6.13 | 80 |
| A14 | RS120-SS-2 | | | | | | | | 100.6 | 48.35 | 52.25 | 104.9 | 45.4 | 7.65 {780} | 12.22 | |
| A14 | RS140-SS-1 | 44.45 | 25.40 | 25.40 | 6.0 | 42.2 | 36.4 | 12.71 | 61.1 | 28.15 | 32.95 | 66.2 | – | 4.61 {470} | 7.91 | 68 |
| A14 | RS140-SS-2 | | | | | | | | 110.0 | 52.70 | 57.30 | 114.6 | 48.9 | 9.22 {940} | 15.77 | |
| A14 | RS160-SS-1 | 50.80 | 28.58 | 31.75 | 7.0 | 48.2 | 41.6 | 14.29 | 72.1 | 33.55 | 38.55 | 77.3 | – | 6.37 {650} | 10.86 | 60 |
| A14 | RS160-SS-2 | | | | 6.4 | | | | 127.2 | 66.05 | 61.15 | 132.2 | 58.5 | 12.7 {1300} | 21.66 | |
| A14 | RS180-SS-1 | 57.15 | 35.71 | 35.72 | 7.15 | 54.2 | 46.8 | 17.46 | 78.1 | 35.65 | 42.45 | 84.9 | – | 8.55 {872} | 13.45 | 54 |
| A14 | RS200-SS-1 | 63.50 | 39.68 | 38.10 | 8.0 | 60.3 | 52.0 | 19.85 | 84.8 | 39.5 | 45.3 | 90.8 | – | 10.8 {1100} | 16.54 | 48 |
| A14 | RS240-SS-1 | 76.20 | 47.63 | 47.63 | 10.0 | 72.4 | 62.4 | 23.81 | 105.5 | 49.0 | 56.5 | 113.2 | – | 15.7 {1600} | 24.50 | 40 |

Note: 1. Chains marked with an ※ are rollerless - - bush diameter given.
2. Multi-strand stainless steel chains and sprockets are made-to-order. Be aware that chain sizes greater than RS120-SS-1 have a different plate thickness than RS Roller Chains.

# NS Series




## Connecting link

RS25-NS-1: Clip-type
RS80-NS-1: Cotter pin-type (SUS304)
RS35-NS-1 to RS60-NS-1: Cotter pin-type (SUS316)

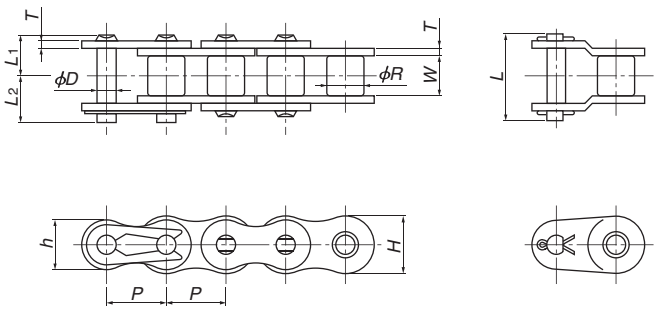
NS Series Stainless Steel Roller Chains are not lubricated before delivery. Always lubricate your chain before use, except when chains are to be used submerged in or in contact with water. If chains are not lubricated for use, then they may suffer articulation problems prematurely.

| TSUBAKI Chain Number | Pitch P | Roller Diameter R | Inner Width of Inner Link W | Plates | | | Pins | | | | | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m | Links Per Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Thickness T | Height H | Height h | Diameter D | $L_1+L_2$ | $L_1$ | $L_2$ | Offset Pin Length L | | | |
| RS25-NS-1 | 6.35 | ※3.30 | 3.18 | 0.75 | 5.85 | 5.05 | 2.31 | 8.6 | 3.8 | 4.5 | (7.6) | 0.12 {12} | 0.14 | 160 |
| RS35-NS-1 | 9.525 | ※5.08 | 4.78 | 1.25 | 9.0 | 7.8 | 3.59 | 13.0 | 5.85 | 7.15 | 14.7 | 0.26 {27} | 0.33 | 320 |
| RS40-NS-1 | 12.70 | 7.92 | 7.95 | 1.5 | 12.0 | 10.4 | 3.97 | 17.9 | 8.25 | 9.65 | 18.6 | 0.44 {45} | 0.64 | 240 |
| RS50-NS-1 | 15.875 | 10.16 | 9.53 | 2.0 | 15.0 | 13.0 | 5.09 | 22.2 | 10.3 | 11.9 | 23.9 | 0.69 {70} | 1.04 | 192 |
| RS60-NS-1 | 19.05 | 11.91 | 12.70 | 2.4 | 18.1 | 15.6 | 5.96 | 28.1 | 12.85 | 15.25 | 29.4 | 1.03{105} | 1.53 | 160 |
| RS80-NS-1 | 25.40 | 15.88 | 15.88 | 3.2 | 24.1 | 20.8 | 7.94 | 35.7 | 16.25 | 19.45 | 39.0 | 1.77{180} | 2.66 | 120 |

Note: 1. Chains marked with an ※ are rollerless - - bush diameter given.
2. RS25-NS-1 uses only 2POL.



# AS Series




## Connecting link

RS40-AS-1 to RS60-AS-1: Clip-type
RS80-AS-1: Cotter pin-type

| TSUBAKI Chain Number | Pitch P | Roller Diameter R | Inner Width of Inner Link W | Plates | | | Pins | | | | | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m | Links Per Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Thickness T | Height H | Height h | Diameter D | $L_1+L_2$ | $L_1$ | $L_2$ | Offset Pin Length L | | | |
| RS40-AS-1 | 12.70 | 7.92 | 7.95 | 1.5 | 12.0 | 10.4 | 3.97 | 18.2 | 8.25 | 9.95 | 18.6 | 0.69{70} | 0.64 | 240 |
| RS50-AS-1 | 15.875 | 10.16 | 9.53 | 2.0 | 15.0 | 13.0 | 5.09 | 22.3 | 10.3 | 12.0 | 23.9 | 1.03{105} | 1.04 | 192 |
| RS60-AS-1 | 19.05 | 11.91 | 12.70 | 2.4 | 18.1 | 15.6 | 5.96 | 27.6 | 12.85 | 14.75 | 29.4 | 1.57{160} | 1.53 | 160 |
| RS80-AS-1 | 25.40 | 15.88 | 15.88 | 3.2 | 24.1 | 20.8 | 7.94 | 35.7 | 16.25 | 19.45 | 39.0 | 2.65{270} | 2.66 | 120 |

See pg. 122 for information on corrosion resistant sprockets.

# LSC Series Stainless Steel Drive Chain



Tsubaki's LSC Series Stainless Steel Drive Chain provides long life not only in dry environments, but also in contact with water or even underwater. Stainless steel chains are an ideal choice in production lines with a washdown process; in the food industry, where water is often part of the production process; in sanitary and pharmaceutical packaging industries; and in a wide variety of other industries.

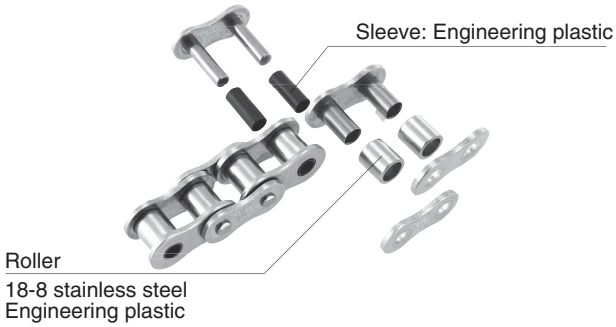
## Uses a special plastic sleeve for the bearing

Features black engineering plastic sleeves between SS Series stainless steel chain pins and bushes. Rollers can be either stainless steel or engineering plastic (white).

### Material

Base chain: 18-8 stainless steel (SUS 304 equivalent) for pins, bushes, and plates
Rollers: 18-8 stainless steel (SUS 304 equivalent) or engineering plastic (white)
Sleeves: Engineering plastic (black)

## Basic construction



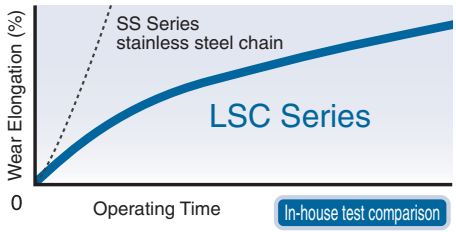

## Features

**Long life** ····· Stainless steel rollers provide over four times the wear life of SS Series Stainless Steel Chain. Engineering plastic rollers provide over ten times the wear life.

**Quiet and lightweight** ····· 15% lighter
7-10dB quieter
*Comparison between LSC Chain with engineering plastic rollers and SS Series chain.

**Clean** ····· Ideal for equipment in situations where cleanliness is important.

**Operating temperature range** ····· -20℃ to 100℃ (with stainless steel rollers)
-20℃ to 80℃ (with engineering plastic rollers)




Wear life comparison with stainless steel chain (18-8 stainless steel, SUS304 equiv.)

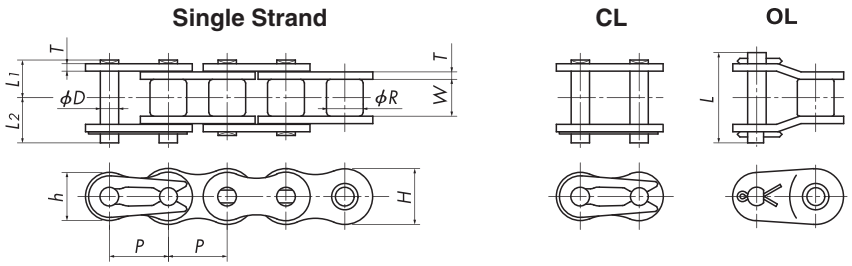
| Operating environment \ Roller type | Stainless steel | Engineering plastic |
|---|---|---|
| Dry | Over 4x the wear life | Over 10x the wear life |
| In contact with water, underwater | Over 4x the wear life | ——— |

Engineering plastic rollers may suffer premature wear when in contact with water or underwater. Tsubaki does not recommend their use in these environments.

(In-house test comparison)

⚠ Caution when disassembling or connecting LSC Series Chain — When disassembling the chain, be careful that the engineering plastic sleeves (black pipe) between the pins and bushes do not fall out. Also, ensure that the sleeves are present between the pins and bushes when connecting.

⚠ Clean regularly to remove any black dust that may appear.




### Connecting Link

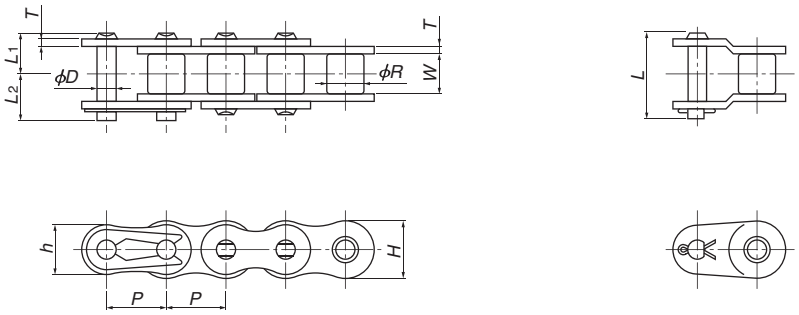
RS40 – RS60 : Clip type
RS80 : Cotter pin type

| TSUBAKI Chain Number | | Pitch | Roller Dia. | Inner Link Inner Width | Plate | | | Pin | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Steel Rollers | Engineering Plastic Rollers | P | R | W | T | H | h | D | L1+L2 | L1 | L2 | Offset Pin Length L |
| RS40-LSC-1 | RS40SP-LSC-1 | 12.70 | 7.92 | 7.95 | 1.5 | 12.0 | 10.4 | 3.97 | 18.2 | 8.25 | 9.95 | 18.6 |
| RS50-LSC-1 | RS50SP-LSC-1 | 15.875 | 10.16 | 9.53 | 2.0 | 15.0 | 13.0 | 5.09 | 22.3 | 10.3 | 12.0 | 23.9 |
| RS60-LSC-1 | RS60SP-LSC-1 | 19.05 | 11.91 | 12.70 | 2.4 | 18.1 | 15.6 | 5.96 | 27.6 | 12.85 | 14.75 | 29.4 |
| RS80-LSC-1 | RS80SP-LSC-1 | 25.40 | 15.88 | 15.88 | 3.2 | 24.1 | 20.8 | 7.94 | 35.5 | 16.25 | 19.25 | 39.0 |

| TSUBAKI Chain Number | | Maximum Allowable Load kN{kgf} | | Approximate Mass kg/m | | No. of Links per Unit |
|---|---|---|---|---|---|---|
| Steel Rollers | Engineering Plastic Rollers | Steel Rollers | Engineering Plastic Rollers | Steel Rollers | Engineering Plastic Rollers | |
| RS40-LSC-1 | RS40SP-LSC-1 | 0.44{45} | 0.23{23} | 0.64 | 0.50 | 240 |
| RS50-LSC-1 | RS50SP-LSC-1 | 0.69{70} | 0.34{35} | 1.04 | 0.88 | 192 |
| RS60-LSC-1 | RS60SP-LSC-1 | 1.03{105} | 0.54{55} | 1.53 | 1.27 | 160 |
| RS80-LSC-1 | RS80SP-LSC-1 | 1.77{180} | – | 2.66 | – | 120 |

*Made-to-order product.

# NP Series




Connecting link

RS25-NP-1 to RS60-NP-1: Clip-type (Dual riveting)
RS80-NP-1 to RS120-NP-1: Cotter pin-type (Dual riveting)

RS25-NP-1 uses 2POL.

| TSUBAKI Chain Number | Pitch $P$ | Roller Diameter $R$ | Inner Width of Inner Link $W$ | Plates | | | Pins | | | | | Pin type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Thickness $T$ | Height $H$ | Height $h$ | Diameter $D$ | $L_1 + L_2$ | $L_1$ | $L_2$ | Offset Pin Length $L$ | |
| RS25-NP-1 | 6.35 | ※3.30 | 3.18 | 0.75 | 5.84 | 5.05 | 2.31 | 8.3 | 3.8 | 4.5 | 7.6 | Riveting |
| RS35-NP-1 | 9.525 | ※5.08 | 4.78 | 1.25 | 9.0 | 7.8 | 3.59 | 12.7 | 5.85 | 6.85 | 13.5 | 〃 |
| RS40-NP-1 | 12.70 | 7.92 | 7.95 | 1.5 | 12.0 | 10.4 | 3.97 | 18.2 | 8.25 | 9.95 | 18.0 | 〃 |
| RS50-NP-1 | 15.875 | 10.16 | 9.53 | 2.0 | 15.0 | 13.0 | 5.09 | 22.2 | 10.3 | 11.9 | 22.5 | 〃 |
| RS60-NP-1 | 19.05 | 11.91 | 12.70 | 2.4 | 18.1 | 15.6 | 5.96 | 27.6 | 12.85 | 14.75 | 28.2 | 〃 |
| RS80-NP-1 | 25.40 | 15.88 | 15.88 | 3.2 | 24.1 | 20.8 | 7.94 | 35.5 | 16.25 | 19.25 | 36.0 | 〃 |
| RS100-NP-1 | 31.75 | 19.05 | 19.05 | 4.0 | 30.1 | 26.0 | 9.54 | 42.6 | 19.75 | 22.85 | 44.4 | Cotter pin |
| RS120-NP-1 | 38.10 | 22.23 | 25.40 | 4.8 | 36.2 | 31.2 | 11.11 | 53.8 | 24.9 | 28.9 | 45.4 | 〃 |

| TSUBAKI Chain Number | Minimum Tensile Strength kN{kgf} | Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m | Number of Links Per Unit |
|---|---|---|---|---|---|
| RS25-NP-1 | 4.12 {420} | 4.7 {480} | 0.64 {65} | 0.14 | 160 |
| RS35-NP-1 | 9.81{1000} | 11.3 {1150} | 1.86 {190} | 0.33 | 320 |
| RS40-NP-1 | 17.7 {1800} | 19.1 {1950} | 3.04 {310} | 0.64 | 240 |
| RS50-NP-1 | 28.4 {2900} | 31.4 {3200} | 5.39 {550} | 1.04 | 192 |
| RS60-NP-1 | 40.2 {4100} | 44.1 {4500} | 7.26 {740} | 1.53 | 160 |
| RS80-NP-1 | 71.6 {7300} | 78.5 {8000} | 12.7 {1300} | 2.66 | 120 |
| RS100-NP-1 | 107 {10900} | 118 {12000} | 19.1 {1950} | 3.99 | 96 |
| RS120-NP-1 | 148 {15100} | 167 {17000} | 25.5 {2600} | 5.93 | 80 |

Chains marked with an ※ are rollerless - - bush diameter given.
Note: 1. Maximum allowable load when using a one-pitch offset link (OL) is 65% of the above.

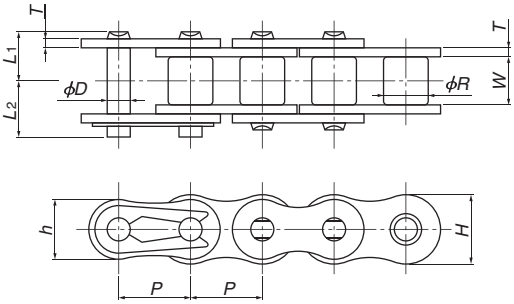
## ⚠ Precautions in Usage

1. Do not use surface-treated drive chains if the chains will come in direct contact with food or where flaked coating can contaminate food.
2. Though nickel is not subject to the Food Sanitation Law or Industrial Safety and Health Law, use with caution.

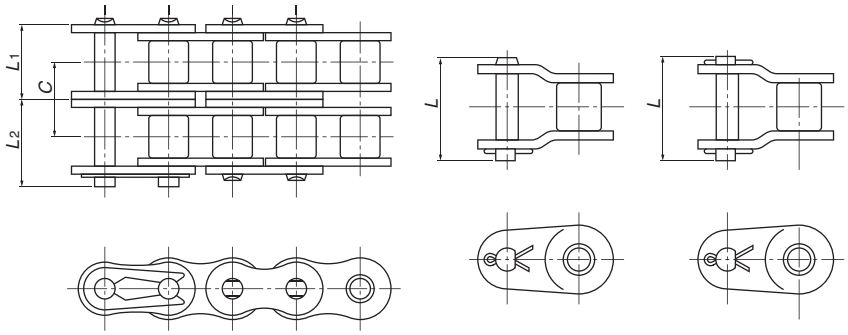
# NEP Series



Single strand




Double strand




## Connecting link

RS35 to RS60: Clip-type
RS80 or larger: Cotter pin-type
All sizes of NEP chains are riveted (RP).

| TSUBAKI Chain Number | Pitch $P$ | Roller Diameter $R$ | Inner Width of Inner Link $W$ | Plates | | | Pins | | | | | Transverse Pitch $C$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Thickness $T$ | Height $H$ | Height $h$ | Diameter $D$ | $L_1 + L_2$ | $L_1$ | $L_2$ | Offset Pin Length $L$ | |
| RS35-NEP-1 | 9.525 | (5.08) | 4.78 | 1.25 | 9.0 | 7.8 | 3.59 | 12.7 | 5.85 | 6.85 | 13.5 | — |
| RS40-NEP-1 | 12.70 | 7.92 | 7.95 | 1.5 | 12.0 | 10.4 | 3.97 | 18.2 | 8.25 | 9.95 | 18.0 | — |
| RS40-NEP-2 | | | | | | | | 32.6 | 15.45 | 17.15 | 33.5 | 14.4 |
| RS50-NEP-1 | 15.875 | 10.16 | 9.53 | 2.0 | 15.0 | 13.0 | 5.09 | 22.2 | 10.3 | 11.9 | 22.6 | — |
| RS50-NEP-2 | | | | | | | | 40.5 | 19.35 | 21.15 | 41.8 | 18.1 |
| RS60-NEP-1 | 19.05 | 11.91 | 12.70 | 2.4 | 18.1 | 15.6 | 5.96 | 27.6 | 12.85 | 14.75 | 28.2 | — |
| RS60-NEP-2 | | | | | | | | 50.5 | 24.25 | 26.25 | 52.6 | 22.8 |
| RS80-NEP-1 | 25.40 | 15.88 | 15.88 | 3.2 | 24.1 | 20.8 | 7.94 | 35.5 | 16.25 | 19.25 | 38.2 | — |
| RS80-NEP-2 | | | | | | | | 64.8 | 30.9 | 33.9 | 67.5 | 29.3 |
| RS100-NEP-1 | 31.75 | 19.05 | 19.05 | 4.0 | 30.1 | 26.0 | 9.54 | 42.6 | 19.75 | 22.85 | 45.7 | — |
| RS100-NEP-2 | | | | | | | | 78.5 | 37.7 | 40.8 | 81.5 | 35.8 |
| RS120-NEP-1 | 38.10 | 22.23 | 25.40 | 4.8 | 36.2 | 31.2 | 11.11 | 53.8 | 24.9 | 28.9 | 57.8 | — |
| RS140-NEP-1 | 44.45 | 25.40 | 25.40 | 5.6 | 42.2 | 36.4 | 12.71 | 58.6 | 26.9 | 31.7 | 63.4 | — |
| RS160-NEP-1 | 50.80 | 28.58 | 31.75 | 6.4 | 48.2 | 41.6 | 14.29 | 68.7 | 31.85 | 36.85 | 73.6 | — |

| TSUBAKI Chain Number | Minimum Tensile Strength kN{kgf} | Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m | Number of Links Per Unit |
|---|---|---|---|---|---|
| RS35-NEP-1 | 9.81{1000} | 11.3{1150} | 2.16{220} | 0.33 | 320 |
| RS40-NEP-1 | 17.1{1800} | 19.1{1950} | 3.63{370} | 0.64 | 240 |
| RS40-NEP-2 | 35.3{3600} | 38.2{3900} | 6.18{630} | 1.27 | |
| RS50-NEP-1 | 28.4{2900} | 31.4{3200} | 6.37{650} | 1.04 | 192 |
| RS50-NEP-2 | 56.9{5800} | 62.8{6400} | 10.7{1100} | 2.07 | |
| RS60-NEP-1 | 40.2{4100} | 44.1{4500} | 8.83{900} | 1.53 | 160 |
| RS60-NEP-2 | 80.4{8200} | 88.3{9000} | 15.0{1530} | 3.04 | |
| RS80-NEP-1 | 71.6{7300} | 78.5{8000} | 14.7{1500} | 2.66 | 120 |
| RS80-NEP-2 | 143 {14600} | 157 {16000} | 25.0{2550} | 5.27 | |
| RS100-NEP-1 | 107 {10900} | 118 {12000} | 22.6{2300} | 3.99 | 96 |
| RS100-NEP-2 | 214 {21800} | 235 {24000} | 38.3{3910} | 7.85 | |
| RS120-NEP-1 | 148 {15100} | 167 {17000} | 30.4{3100} | 5.93 | 80 |
| RS140-NEP-1 | 193 {19700} | 216 {22000} | 40.2{4100} | 7.49 | 68 |
| RS160-NEP-1 | 255 {26000} | 279 {28500} | 53.0{5400} | 10.10 | 60 |

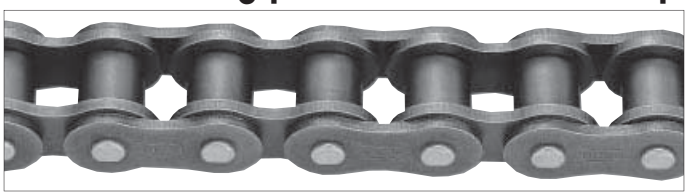
Note: 1. Maximum allowable load when using a one-pitch offset link (OL) is 65% of the above.
2. RS35-NEP is a bushed chain; it does not have rollers.
3. Multi-strand RS35-NEP is not available.
4. 2-pitch offset links are not available.
5. Please contact a Tsubaki representative for information regarding RS180 and above chains.

## ⚠ Precautions in Usage

1. Depending on the conditions of use, if steel roller chains are used with stainless steel sprockets, the roller may prematurely wear due to galvanic corrosion. Please avoid this set up as much as possible.
2. Compared to single-strand chain, the inner link of multi-strand chain is slightly less corrosion resistant (based on in-house testing).

# APP Series

## Outstanding performance in atmospheres conducive to pitting corrosion



**Pins are treated with a special surface treatment to protect against pitting corrosion that leads to fatigue breakage, thus preventing strength loss. This treatment is highly effective in environments that readily promote corrosion, such as outdoors or in coastal applications.**

Note: Pitting is a type of localized corrosion affecting metal surfaces. Pits form toward the interior, and if pitting occurs on pin surfaces, that pin can quickly lead to fatigue breakage and chain failure.

## ■Features

① **No strength loss!**
Same as standard steel chain.

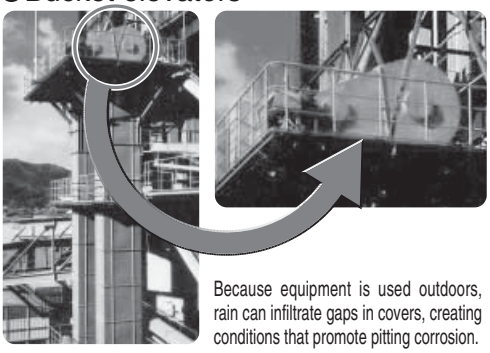
② **Eco-friendly chrome-free!**
Special surface treatment does not use hazardous hexavalent chromium.

## ■Example applications

APP Chains are ideal for atmospheres that readily promote corrosion.

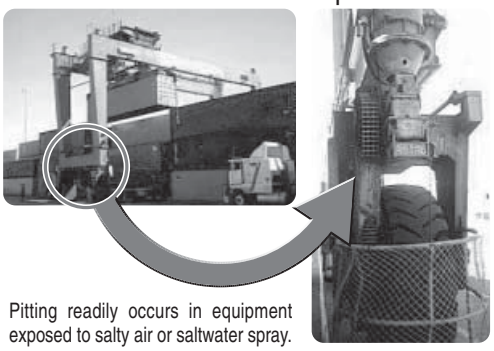
■Outdoor uses ■Coastal or riverside uses ■When regular lubrication is difficult

●Bucket elevators



Because equipment is used outdoors, rain can infiltrate gaps in covers, creating conditions that promote pitting corrosion.

●Transfer cranes and other port machinery

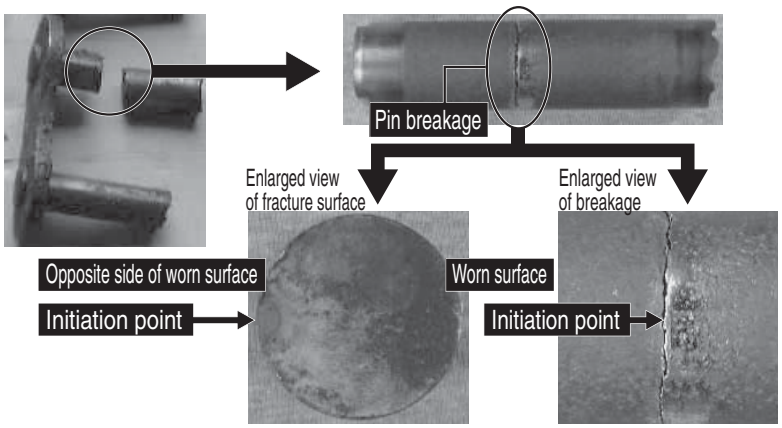


Pitting readily occurs in equipment exposed to salty air or saltwater spray.

## ■Examples of fatigue breakage caused by pitting corrosion

Chain: RS240 Equipment: Port container carrier

Pitting corrosion of the pin due to insufficient lubrication (effects of salty air and saltwater) and corrosive atmosphere - - Fatigue breakage




Pitting corrosion readily occurs on the opposite side of the bush wear surface.

Pitting was observed in more than one location.

Secondary fracture in link plate

Load can become imbalanced after pin breakage, leading to secondary breaks in plates.

## ■Applicable models

■Single/Double Strand RS Roller Chain ■Single Strand Heavy Duty Roller Chain (For other models, contact a Tsubaki representative.)

Except for the surface-treated pins, dimensions and other specifications are the same as other roller chains.

## ■Chain number

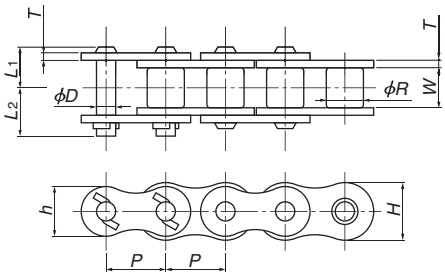
**RS80-APP-1** **RS80-SUP-APP-1-F or M** **RS80-HT-APP-1**

Note: Select connecting link (CL).

Anti-Pitting Roller Chain

## Corrosion Resistant Roller Chains

# Titanium Roller Chains




Titanium Roller Chains are not lubricated before delivery. Always lubricate your chain before use, except when chains are to be used submerged in or in contact with water. If chains are not lubricated for use, then they may suffer articulation problems prematurely.

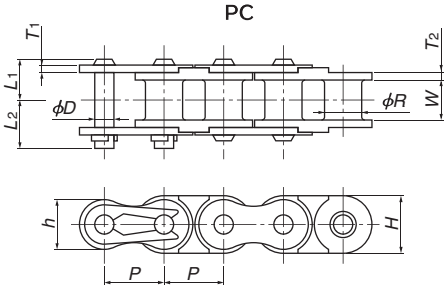
| Model | Pitch P | Roller Diameter R | Inner Width of Inner Link W | Plates | | | Pins | | | | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m | Links Per Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Thickness T | Height H | Height h | Diameter D | $L_1+L_2$ | $L_1$ | $L_2$ | | | |
| RS35-TI-1 | 9.525 | ※5.08 | 4.78 | 1.25 | 9.0 | 7.8 | 3.59 | 13.2 | 6.05 | 7.15 | 0.26{27} | 0.19 | 320 |
| RS40-TI-1 | 12.70 | 7.92 | 7.95 | 1.5 | 12.0 | 10.4 | 3.97 | 18.35 | 8.25 | 10.1 | 0.44{45} | 0.37 | 240 |

Note: 1. The figure shown is the bush diameter. 2. Connecting links (CL) use Z-pins.
3. Offset links are not available.

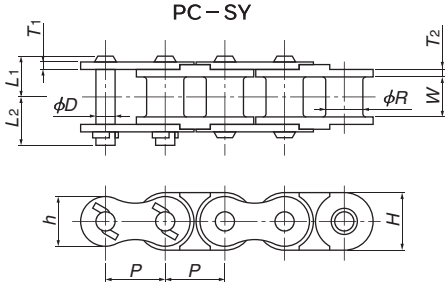
## Corrosion Resistant Roller Chains

# Poly Steel Chains

PC




PC – SY




- Recheck chain tension when replacing stainless steel chains with Poly Steel chains.
- No offset links available.

### PC Specification

| TSUBAKI Chain Number | Pitch P | Bush Diameter R | Inner Width of Inner Link W | Plates | | | | Pins | | | | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m | Links Per Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Thickness $T_1$ | Thickness $T_2$ | Height H | Height h | Diameter D | $L_1+L_2$ | $L_1$ | $L_2$ | | | |
| RS25-PC-1 | 6.35 | 3.30 | 3.18 | 0.75 | 1.3 | 6.0 | 5.05 | 2.31 | 10.0 | 4.5 | 5.5 | 0.08 {8} | 0.095 | 160 |
| RS35-PC-1 | 9.525 | 5.08 | 4.78 | 1.25 | 2.2 | 9.0 | 7.8 | 3.59 | 14.7 | 6.85 | 7.85 | 0.18{18} | 0.22 | 320 |
| RS40-PC-1 | 12.70 | 7.92 | 7.95 | 1.5 | 1.5 | 12.0 | 10.4 | 3.97 | 18.2 | 8.25 | 9.95 | 0.44{45} | 0.39 | 240 |
| RS50-PC-1 | 15.875 | 10.16 | 9.53 | 2.0 | 2.0 | 15.0 | 13.0 | 5.09 | 22.3 | 10.3 | 12.0 | 0.69{70} | 0.58 | 192 |
| RS60-PC-1 | 19.05 | 11.91 | 12.70 | 2.4 | 2.4 | 18.1 | 15.6 | 5.96 | 27.6 | 12.85 | 14.75 | 0.88{90} | 0.82 | 160 |

### PC-SY Specification

| TSUBAKI Chain Number | Pitch P | Bush Diameter R | Inner Width of Inner Link W | Plates | | | | Pins | | | | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m | Links Per Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Thickness $T_1$ | Thickness $T_2$ | Height H | Height h | Diameter D | $L_1+L_2$ | $L_1$ | $L_2$ | | | |
| RS40-PC-SY-1 | 12.70 | 7.92 | 7.95 | 1.5 | 1.5 | 12.0 | 10.4 | 3.97 | 18.35 | 8.25 | 10.1 | 0.25{25} | 0.39 | 240 |
| RS50-PC-SY-1 | 15.875 | 10.16 | 9.53 | 2.0 | 2.0 | 15.0 | 13.0 | 5.09 | 22.3 | 10.3 | 12.0 | 0.39{40} | 0.58 | 192 |
| RS60-PC-SY-1 | 19.05 | 11.91 | 12.70 | 2.4 | 2.4 | 18.1 | 15.6 | 5.96 | 28.1 | 12.85 | 15.25 | 0.49{50} | 0.82 | 160 |

### BS-PC Specification

| TSUBAKI Chain Number | Pitch P | Bush Diameter R | Inner Width of Inner Link W | Plates | | | | Pins | | | | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m | Links Per Unit (3m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Thickness $T_1$ | Thickness $T_2$ | Height H | Height h | Diameter D | $L_1+L_2$ | $L_1$ | $L_2$ | | | |
| RF06B-PC-1 | 9.525 | 6.35 | 5.72 | 1.0 | 1.3 | 8.2 | 8.2 | 3.28 | 13.75 | 6.5 | 7.25 | 0.20{20} | 0.23 | 320 |
| RS08B-PC-1 | 12.70 | 8.51 | 7.75 | 1.5 | 1.6 | 12.0 | 11.4 | 4.45 | 18.4 | 8.35 | 10.05 | 0.46{47} | 0.4 | 240 |
| RS10B-PC-1 | 15.875 | 10.16 | 9.65 | 1.5 | 1.5 | 14.7 | 13.7 | 5.08 | 20.8 | 9.55 | 11.25 | 0.53{54} | 0.52 | 192 |
| RS12B-PC-1 | 19.05 | 12.07 | 11.68 | 1.8 | 1.8 | 16.1 | 15.6 | 5.72 | 24.1 | 11.1 | 13.0 | 0.70{71} | 0.65 | 160 |

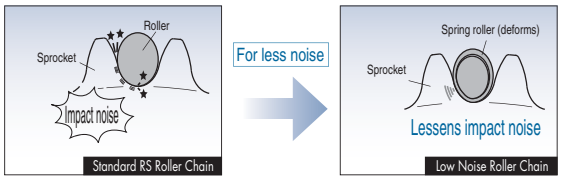
# Corrosion Resistant Roller Chains

## Low Noise Roller Chains

Tsubaki's uniquely structured spring rollers are used for the chain rollers. When Tsubaki's Low Noise Roller Chain engages the sprocket, the spring roller deforms and absorbs the force of impact, reducing impact noise between chain and sprocket for lower noise levels. Compared with Tsubaki's standard RS Roller Chain (pre-lubricated), noise levels of Low Noise Roller Chain are 6 - 8 dB lower. (In-house comparison testing)

### ■Benefits of noise reduction

- Less factory noise for a better work environment.
- A low noise function is added to machinery and equipment used for manufacturing, and contributes to upgrading and improving their overall image.
- Belts were considered as a countermeasure for noise; however, there are many limitations in terms of application, strength and overall cost. Low Noise Chain is the perfect countermeasure.
- Recommended for applications where silence is a major concern, such as stage lifts used in theaters.




### ■Features

#### Low noise

Noise levels reduced by 6 dB to 8 dB compared with the RS Roller Chain.

#### Interchangeability

Dimensional specifications are the same as for RS Roller Chain.
Note: There are limits on drive power; check kW ratings tables on pgs. 90–92.

#### Selection

Use the General Selection Method (the kilowatt ratings tables on pgs. 90–92).
See selection pages for more details.

#### Operating temperatures

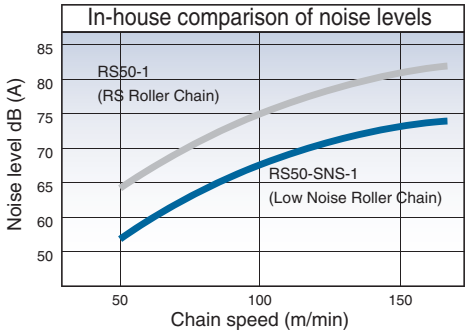
–10°C to 60°C

#### Allowable chain speed

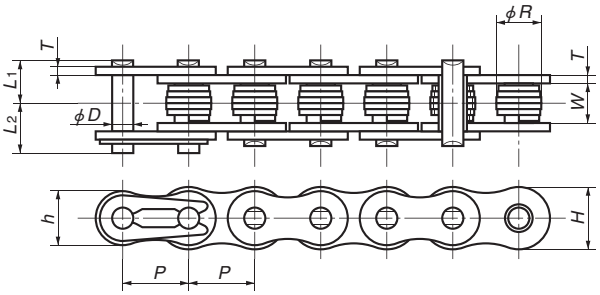
200 m / min (max.)

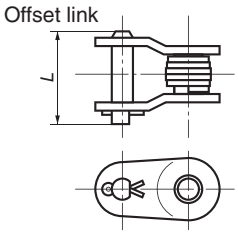
#### Sprocket

Can be used with standard RS sprockets.
If the chain cannot be sufficiently lubricated, choose sprockets with hardered teeth specifications.




- Test conditions
  Chain tension: 3.29 kN
  Lubrication: Pre-lubrication only
  Measurement position: 300 mm from drive sprocket




Connecting link
RS80-SNS-1: Cotter pin-type

| TSUBAKI Chain Number | Pitch $P$ | Roller Diameter $R$ | Inner Width of Inner Link $W$ | Plates | | | Pins | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Thickness $T$ | Height $H$ | Height $h$ | Diameter $D$ | $L_1 + L_2$ | $L_1$ | $L_2$ | $L$ |
| RS40-SNS-1 | 12.70 | 8.5 | 7.95 | 1.5 | 12.0 | 10.4 | 3.97 | 18.2 | 8.25 | 9.95 | 18.0 |
| RS50-SNS-1 | 15.875 | 10.8 | 9.53 | 2.0 | 15.0 | 13.0 | 5.09 | 22.3 | 10.3 | 12.0 | 22.5 |
| RS60-SNS-1 | 19.05 | 12.6 | 12.70 | 2.4 | 18.1 | 15.6 | 5.96 | 27.6 | 12.85 | 14.75 | 28.2 |
| RS80-SNS-1 | 25.40 | 16.8 | 15.88 | 3.2 | 24.1 | 20.8 | 7.94 | 35.5 | 16.25 | 19.25 | 36.0 |

| TSUBAKI Chain Number | Minimum Tensile Strength kN{kgf} | Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m | Number of Links Per Unit |
|---|---|---|---|---|---|
| RS40-SNS-1 | 17.7{1800} | 19.1{1950} | 3.63{370} | 0.64 | 240 |
| RS50-SNS-1 | 28.4{2900} | 31.4{3200} | 6.37{650} | 1.04 | 192 |
| RS60-SNS-1 | 40.2{4100} | 44.1{4500} | 8.83{900} | 1.53 | 160 |
| RS80-SNS-1 | 71.6{7300} | 78.5{8000} | 14.7 {1500} | 2.66 | 120 |

Note: 1. Maximum allowable load when using 1-pitch offset links (OL) is 65% of the above values.
2. Stocked item.
3. Uses the same connecting link (CL) as RS Roller Chain.

### ■Offset Links (OL)

| Product Code | Chain Number |
|---|---|
| A146043 | RS40-SNS-1-OL |
| A146044 | RS50-SNS-1-OL |
| A146045 | RS60-SNS-1-OL |
| A146046 | RS80-SNS-1-OL |

# Kilowatt Ratings Tables (RS40-SNS-1～RS80-SNS-1)



## RS40-SNS-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 200 | 300 | 400 | 500 | 700 | 900 | 1000 | 1200 | 1400 | 1600 |
| | Oiled or with drip-oiling system | | | | | | | | | Oil bath | | | | |
| 9 | 0.05 | 0.11 | 0.21 | 0.39 | 0.72 | 1.04 | 1.35 | 1.64 | 1.06 | 0.73 | 0.62 | 0.47 | 0.38 | 0.31 |
| 10 | 0.05 | 0.12 | 0.23 | 0.43 | 0.81 | 1.16 | 1.51 | 1.84 | 1.25 | 0.85 | 0.73 | 0.55 | 0.44 | |
| 11 | 0.06 | 0.14 | 0.26 | 0.48 | 0.90 | 1.29 | 1.67 | 2.04 | 1.44 | 0.99 | 0.84 | 0.64 | 0.51 | |
| 12 | 0.07 | 0.15 | 0.28 | 0.53 | 0.98 | 1.42 | 1.84 | 2.24 | 1.64 | 1.12 | 0.96 | 0.73 | | |
| 13 | 0.07 | 0.17 | 0.31 | 0.57 | 1.07 | 1.54 | 2.00 | 2.45 | 1.85 | 1.27 | 1.08 | 0.82 | | |
| 14 | 0.08 | 0.18 | 0.33 | 0.62 | 1.16 | 1.67 | 2.17 | 2.65 | 2.06 | 1.42 | 1.21 | | | |
| 15 | 0.08 | 0.19 | 0.36 | 0.67 | 1.25 | 1.80 | 2.34 | 2.86 | 2.29 | 1.57 | 1.34 | | | |
| 16 | 0.09 | 0.21 | 0.39 | 0.72 | 1.34 | 1.93 | 2.50 | 3.06 | 2.52 | 1.73 | | | | |
| 17 | 0.10 | 0.22 | 0.41 | 0.77 | 1.43 | 2.06 | 2.67 | 3.27 | 2.76 | 1.89 | | | | |
| 18 | 0.10 | 0.23 | 0.44 | 0.82 | 1.52 | 2.20 | 2.84 | 3.48 | 3.01 | | | | | |
| 19 | 0.11 | 0.25 | 0.46 | 0.87 | 1.62 | 2.33 | 3.02 | 3.69 | 3.26 | | | | | |
| 20 | 0.12 | 0.26 | 0.49 | 0.92 | 1.71 | 2.46 | 3.19 | 3.90 | 3.52 | | | | | |
| 21 | 0.12 | 0.28 | 0.52 | 0.96 | 1.80 | 2.59 | 3.36 | 4.11 | 3.79 | | | | | |
| 22 | 0.13 | 0.29 | 0.54 | 1.01 | 1.89 | 2.73 | 3.53 | 4.32 | 4.06 | | | | | |
| 23 | 0.13 | 0.31 | 0.57 | 1.06 | 1.99 | 2.86 | 3.71 | 4.53 | | | | | | |
| 24 | 0.14 | 0.32 | 0.60 | 1.11 | 2.08 | 3.00 | 3.88 | 4.74 | | | | | | |
| 25 | 0.15 | 0.33 | 0.62 | 1.16 | 2.17 | 3.13 | 4.06 | 4.96 | | | | | | |
| 26 | 0.15 | 0.35 | 0.65 | 1.21 | 2.27 | 3.27 | 4.23 | 5.17 | | | | | | |
| 28 | 0.17 | 0.38 | 0.71 | 1.32 | 2.46 | 3.54 | 4.58 | 5.60 | | | | | | |
| 30 | 0.18 | 0.41 | 0.76 | 1.42 | 2.65 | 3.81 | 4.94 | 6.04 | | | | | | |
| 32 | 0.19 | 0.44 | 0.81 | 1.52 | 2.84 | 4.09 | 5.29 | | | | | | | |
| 35 | 0.21 | 0.48 | 0.90 | 1.67 | 3.13 | 4.50 | 5.83 | | | | | | | |
| 40 | 0.24 | 0.56 | 1.04 | 1.93 | 3.61 | 5.20 | | | | | | | | |
| 45 | 0.28 | 0.63 | 1.18 | 2.20 | 4.10 | 5.91 | | | | | | | | |

## RS50-SNS-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 200 | 300 | 400 | 500 | 700 | 900 | 1000 | 1200 |
| | Oiled or with drip-oiling system | | | | | | | | Oil bath | | | |
| 9 | 0.10 | 0.23 | 0.43 | 0.80 | 1.49 | 2.15 | 2.78 | 2.11 | 1.27 | 0.87 | 0.74 | 0.57 |
| 10 | 0.11 | 0.26 | 0.48 | 0.90 | 1.67 | 2.41 | 3.12 | 2.47 | 1.49 | 1.02 | 0.87 | 0.66 |
| 11 | 0.12 | 0.28 | 0.53 | 0.99 | 1.85 | 2.67 | 3.46 | 2.85 | 1.72 | 1.18 | 1.01 | |
| 12 | 0.14 | 0.31 | 0.58 | 1.09 | 2.03 | 2.93 | 3.80 | 3.24 | 1.96 | 1.34 | 1.15 | |
| 13 | 0.15 | 0.34 | 0.64 | 1.19 | 2.22 | 3.19 | 4.14 | 3.66 | 2.21 | 1.51 | | |
| 14 | 0.16 | 0.37 | 0.69 | 1.29 | 2.40 | 3.46 | 4.48 | 4.09 | 2.47 | | | |
| 15 | 0.17 | 0.40 | 0.74 | 1.39 | 2.59 | 3.73 | 4.83 | 4.53 | 2.74 | | | |
| 16 | 0.19 | 0.43 | 0.80 | 1.49 | 2.78 | 4.00 | 5.18 | 4.99 | 3.01 | | | |
| 17 | 0.20 | 0.46 | 0.85 | 1.59 | 2.96 | 4.27 | 5.53 | 5.47 | 3.30 | | | |
| 18 | 0.21 | 0.49 | 0.91 | 1.69 | 3.15 | 4.54 | 5.88 | 5.96 | | | | |
| 19 | 0.23 | 0.51 | 0.96 | 1.79 | 3.34 | 4.81 | 6.24 | 6.46 | | | | |
| 20 | 0.24 | 0.54 | 1.01 | 1.89 | 3.53 | 5.09 | 6.59 | 6.98 | | | | |
| 21 | 0.25 | 0.57 | 1.07 | 2.00 | 3.72 | 5.36 | 6.95 | 7.51 | | | | |
| 22 | 0.26 | 0.60 | 1.12 | 2.10 | 3.91 | 5.64 | 7.31 | 8.05 | | | | |
| 23 | 0.28 | 0.63 | 1.18 | 2.20 | 4.11 | 5.92 | 7.66 | 8.60 | | | | |
| 24 | 0.29 | 0.66 | 1.24 | 2.30 | 4.30 | 6.19 | 8.03 | 9.17 | | | | |
| 25 | 0.30 | 0.69 | 1.29 | 2.41 | 4.49 | 6.47 | 8.39 | 9.75 | | | | |
| 26 | 0.32 | 0.72 | 1.35 | 2.51 | 4.69 | 6.75 | 8.75 | | | | | |
| 28 | 0.34 | 0.78 | 1.46 | 2.72 | 5.08 | 7.32 | 9.48 | | | | | |
| 30 | 0.37 | 0.84 | 1.57 | 2.93 | 5.47 | 7.88 | 10.2 | | | | | |
| 32 | 0.40 | 0.90 | 1.69 | 3.14 | 5.87 | 8.45 | | | | | | |
| 35 | 0.44 | 0.99 | 1.86 | 3.46 | 6.46 | 9.31 | | | | | | |
| 40 | 0.50 | 1.15 | 2.14 | 4.00 | 7.47 | 10.8 | | | | | | |
| 45 | 0.57 | 1.30 | 2.44 | 4.54 | 8.48 | | | | | | | |

## RS60-SNS-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

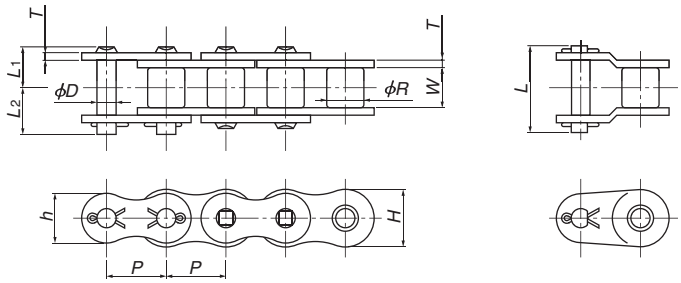
| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 |
| | Oiled or with drip-oiling system | | | | | | | Oil bath | | | | | | | |
| 9 | 0.18 | 0.41 | 0.76 | 1.41 | 2.03 | 2.63 | 3.79 | 3.41 | 2.44 | 1.85 | 1.47 | 1.20 | 1.01 | 0.86 | 0.75 |
| 10 | 0.20 | 0.45 | 0.85 | 1.58 | 2.28 | 2.59 | 4.25 | 3.99 | 2.85 | 2.17 | 1.72 | 1.41 | 1.18 | 1.01 | |
| 11 | 0.22 | 0.50 | 0.94 | 1.75 | 2.53 | 3.27 | 4.71 | 4.60 | 3.29 | 2.50 | 1.99 | 1.63 | 1.36 | | |
| 12 | 0.24 | 0.55 | 1.03 | 1.93 | 2.77 | 3.59 | 5.18 | 5.24 | 3.79 | 2.85 | 2.26 | 1.85 | | | |
| 13 | 0.26 | 0.60 | 1.13 | 2.10 | 3.03 | 3.92 | 5.65 | 5.91 | 4.23 | 3.22 | 2.55 | 2.09 | | | |
| 14 | 0.29 | 0.65 | 1.22 | 2.28 | 3.28 | 4.25 | 6.12 | 6.61 | 4.73 | 3.60 | 2.85 | | | | |
| 15 | 0.31 | 0.70 | 1.31 | 2.45 | 3.53 | 4.57 | 6.59 | 7.33 | 5.24 | 3.99 | | | | | |
| 16 | 0.33 | 0.75 | 1.41 | 2.63 | 3.79 | 4.90 | 7.06 | 8.07 | 5.78 | 4.39 | | | | | |
| 17 | 0.35 | 0.81 | 1.50 | 2.81 | 4.04 | 5.24 | 7.54 | 8.84 | 6.33 | 4.81 | | | | | |
| 18 | 0.38 | 0.86 | 1.60 | 2.98 | 4.30 | 5.57 | 8.02 | 9.63 | 6.89 | | | | | | |
| 19 | 0.40 | 0.91 | 1.70 | 3.16 | 4.56 | 5.90 | 8.51 | 10.4 | 7.47 | | | | | | |
| 20 | 0.42 | 0.96 | 1.79 | 3.34 | 4.82 | 6.24 | 8.99 | 11.3 | 8.07 | | | | | | |
| 21 | 0.44 | 1.01 | 1.89 | 3.53 | 5.08 | 6.58 | 9.48 | 12.1 | | | | | | | |
| 22 | 0.47 | 1.06 | 1.99 | 3.71 | 5.34 | 6.92 | 9.96 | 12.9 | | | | | | | |
| 23 | 0.49 | 1.12 | 2.08 | 3.89 | 5.60 | 7.26 | 10.5 | 13.5 | | | | | | | |
| 24 | 0.51 | 1.17 | 2.18 | 4.07 | 5.87 | 7.60 | 10.9 | 14.2 | | | | | | | |
| 25 | 0.54 | 1.22 | 2.28 | 4.26 | 6.13 | 7.94 | 11.4 | 14.8 | | | | | | | |
| 26 | 0.56 | 1.28 | 2.38 | 4.44 | 6.40 | 8.29 | 11.9 | 15.5 | | | | | | | |
| 28 | 0.61 | 1.38 | 2.58 | 4.81 | 6.93 | 8.98 | 12.9 | | | | | | | | |
| 30 | 0.65 | 1.49 | 2.78 | 5.18 | 7.46 | 9.67 | 13.9 | | | | | | | | |
| 32 | 0.70 | 1.60 | 2.98 | 5.56 | 8.00 | 10.4 | 14.9 | | | | | | | | |
| 35 | 0.77 | 1.76 | 3.28 | 6.12 | 8.82 | 11.4 | | | | | | | | | |
| 40 | 0.89 | 2.03 | 3.79 | 7.07 | 10.2 | 13.2 | | | | | | | | | |
| 45 | 1.01 | 2.31 | 4.30 | 8.03 | 11.6 | 15.0 | | | | | | | | | |

## RS80-SNS-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

| Small Sprocket No. of Teeth \ Lubrication Type | Small Sprocket Max rpm | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 25 | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 600 | 700 | 800 |
| | Oiled or with drip-oiling system | | | | | | Oil bath | | | | | |
| 9 | 0.40 | 0.91 | 1.69 | 3.16 | 4.55 | 5.90 | 6.60 | 4.29 | 3.07 | 2.33 | 1.85 | 1.52 |
| 10 | 0.45 | 1.02 | 1.90 | 3.54 | 5.10 | 6.61 | 7.73 | 5.02 | 3.59 | 2.73 | 2.17 | |
| 11 | 0.49 | 1.13 | 2.10 | 3.93 | 5.65 | 7.33 | 8.92 | 5.79 | 4.14 | 3.15 | 2.50 | |
| 12 | 0.54 | 1.24 | 2.31 | 4.31 | 6.21 | 8.05 | 10.2 | 6.60 | 4.72 | 3.59 | | |
| 13 | 0.59 | 1.35 | 2.52 | 4.70 | 6.77 | 8.77 | 11.5 | 7.44 | 5.33 | 4.05 | | |
| 14 | 0.64 | 1.46 | 2.73 | 5.09 | 7.34 | 9.51 | 12.8 | 8.32 | 5.95 | | | |
| 15 | 0.69 | 1.58 | 2.94 | 5.49 | 7.90 | 10.2 | 14.2 | 9.22 | 6.60 | | | |
| 16 | 0.74 | 1.69 | 3.15 | 5.88 | 8.48 | 11.0 | 15.6 | 10.2 | | | | |
| 17 | 0.79 | 1.80 | 3.37 | 6.28 | 9.05 | 11.7 | 16.9 | 11.1 | | | | |
| 18 | 0.84 | 1.92 | 3.58 | 6.68 | 9.63 | 12.5 | 18.0 | 12.1 | | | | |
| 19 | 0.89 | 2.03 | 3.80 | 7.08 | 10.2 | 13.2 | 19.0 | 13.1 | | | | |
| 20 | 0.94 | 2.15 | 4.01 | 7.49 | 10.8 | 14.0 | 20.1 | | | | | |
| 21 | 0.99 | 2.27 | 4.23 | 7.89 | 11.4 | 14.7 | 21.2 | | | | | |
| 22 | 1.04 | 2.38 | 4.45 | 8.30 | 12.0 | 15.5 | 22.3 | | | | | |
| 23 | 1.10 | 2.50 | 4.67 | 8.71 | 12.5 | 16.2 | 23.4 | | | | | |
| 24 | 1.15 | 2.62 | 4.89 | 9.12 | 13.1 | 17.0 | 24.5 | | | | | |
| 25 | 1.20 | 2.74 | 5.11 | 9.53 | 13.7 | 17.8 | 25.6 | | | | | |
| 26 | 1.25 | 2.85 | 5.33 | 9.94 | 14.3 | 18.5 | 26.7 | | | | | |
| 28 | 1.36 | 3.09 | 5.77 | 10.8 | 15.5 | 20.1 | | | | | | |
| 30 | 1.46 | 3.33 | 6.22 | 11.6 | 16.7 | 21.6 | | | | | | |
| 32 | 1.57 | 3.57 | 6.67 | 12.4 | 17.9 | 23.2 | | | | | | |
| 35 | 1.73 | 3.94 | 7.34 | 13.7 | 19.7 | 25.6 | | | | | | |
| 40 | 1.99 | 4.55 | 8.48 | 15.8 | 22.8 | | | | | | | |
| 45 | 2.26 | 5.16 | 9.63 | 18.0 | 25.9 | | | | | | | |

Note: With a one-pitch offset link kW ratings are 80% of that shown above.

# Cold Resistant Roller Chains



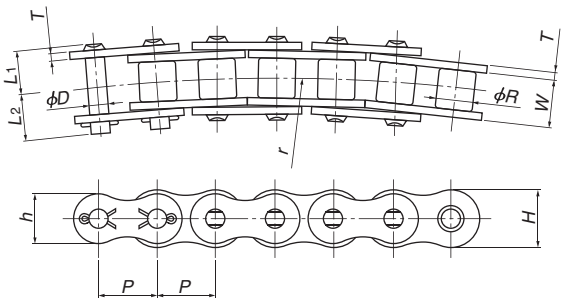

| Model | Pitch P | Roller Diameter R | Inner Width of Inner Link W | Plates | | | Pins | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Thickness T | Height H | Height h | Diameter D | $L_1 + L_2$ | $L_1$ | $L_2$ | Offset Pin Length L |
| RS35-KT-1 | 9.525 | ※5.08 | 4.78 | 1.25 | 9.0 | 7.8 | 3.59 | 12.9 | 5.85 | 7.05 | 13.5 |
| RS40-KT-1 | 12.70 | 7.92 | 7.95 | 1.5 | 12.0 | 10.4 | 3.97 | 17.9 | 8.25 | 9.65 | 18.0 |
| RS50-KT-1 | 15.875 | 10.16 | 9.53 | 2.0 | 15.0 | 13.0 | 5.09 | 22.2 | 10.3 | 11.9 | 23.7 |
| RS60-KT-1 | 19.05 | 11.91 | 12.70 | 2.4 | 18.1 | 15.6 | 5.96 | 28.1 | 12.85 | 15.25 | 28.2 |
| RS80-KT-1 | 25.40 | 15.88 | 15.88 | 3.2 | 24.1 | 20.8 | 7.94 | 35.5 | 16.25 | 19.25 | 36.6 |
| RS100-KT-1 | 31.75 | 19.05 | 19.05 | 4.0 | 30.1 | 26.0 | 9.54 | 42.6 | 19.75 | 22.85 | 43.7 |
| RS120-KT-1 | 38.10 | 22.23 | 25.40 | 4.8 | 36.2 | 31.2 | 11.11 | 53.8 | 24.9 | 28.9 | 55.0 |
| RS140-KT-1 | 44.45 | 25.40 | 25.40 | 5.6 | 42.2 | 36.4 | 12.71 | 58.6 | 26.9 | 31.7 | 62.8 |
| RS160-KT-1 | 50.80 | 28.58 | 31.75 | 6.4 | 48.2 | 41.6 | 14.29 | 68.7 | 31.85 | 36.85 | 70.2 |

| Model | Minimum Tensile Strength kN{kgf} | Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m | Number of Links Per Unit |
|---|---|---|---|---|---|
| RS35-KT-1 | 9.81{1000} | 11.3{1150} | 2.16{220} | 0.33 | 320 |
| RS40-KT-1 | 17.7 {1800} | 19.1{1950} | 3.63{370} | 0.64 | 240 |
| RS50-KT-1 | 28.4 {2900} | 31.4{3200} | 6.37{650} | 1.04 | 192 |
| RS60-KT-1 | 40.2 {4100} | 44.1{4500} | 8.83{900} | 1.53 | 160 |
| RS80-KT-1 | 71.6 {7300} | 78.5{8000} | 14.7{1500} | 2.66 | 120 |
| RS100-KT-1 | 107 {10900} | 118 {12000} | 22.6{2300} | 3.99 | 96 |
| RS120-KT-1 | 148 {15100} | 167 {17000} | 30.4{3100} | 5.93 | 80 |
| RS140-KT-1 | 193 {19700} | 216 {22000} | 40.2{4100} | 7.49 | 68 |
| RS160-KT-1 | 255 {26000} | 279 {28500} | 53.0{5400} | 10.10 | 60 |

Note: 1. Values marked with * are rollerless.
2. Offset pin shape varies according to size.
3. Maximum allowable load when using MCL is 80% of the above values.
4. Maximum allowable load when using 1-pitch offset links (OL) is 65% of the above values.
5. Normally, chains are coated only with anti-rust oil when shipped. Chain should be lubricated with an oil suitable to the ambient temperature during actual use. Customized models that are coated with a silicon (low temperature) oil are also available.



# Curved Stainless Steel Roller Chain



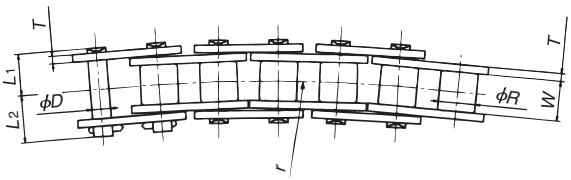

Curved Stainless Steel Roller Chains are not lubricated before delivery. Always lubricate your chain before use, except when chains are to be used submerged in or in contact with water. If chains are not lubricated for use, then they may suffer articulation problems prematurely.

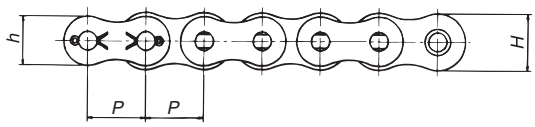
## Stainless Steel (SUS304) Specification

| Model | Pitch P | Roller Diameter R | Inner Width of Inner Link W | Plates | | | Pins | | | | Min. Radius r | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m | Links Per Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Thickness T | Height H | Height h | Diameter D | $L_1 + L_2$ | $L_1$ | $L_2$ | | | | |
| RS40-CU-SS-1 | 12.70 | 7.92 | 7.95 | 1.5 | 12.0 | 10.4 | 3.59 | 18.1 | 8.35 | 9.75 | 400 | 0.26 {27} | 0.61 | 240 |
| RS50-CU-SS-1 | 15.875 | 10.16 | 9.53 | 2.0 | 15.0 | 13.0 | 3.97 | 22.2 | 10.15 | 12.05 | 500 | 0.44 {45} | 1.01 | 192 |
| RS60-CU-SS-1 | 19.05 | 11.91 | 12.70 | 2.4 | 18.1 | 15.6 | 5.09 | 28.3 | 13.25 | 15.05 | 600 | 0.69 {70} | 1.40 | 160 |
| RS80-CU-SS-1 | 25.40 | 15.88 | 15.88 | 3.2 | 24.1 | 20.8 | 5.96 | 35.0 | 16.5 | 18.5 | 800 | 1.03{105} | 2.47 | 120 |

Note: 1. Made-to-order product.

# Curved Roller Chain




| TSUBAKI Chain Number | Pitch P | Roller Diameter R | Inner Width of Inner Link W | Plates | | | Pins | | | | Tightest lateral bend diameter r | Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m | Number of Links Per Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Thickness T | Height H | Height h | Diameter D | $L_1 + L_2$ | $L_1$ | $L_2$ | | | | | |
| RS40-CU-1 | 12.70 | 7.92 | 7.95 | 1.5 | 12.0 | 10.4 | 3.97 | 18.2 | 8.45 | 9.75 | 350 | 15.5{1580} | 1.86{190} | 0.61 | 240 |
| RS50-CU-1 | 15.875 | 10.16 | 9.53 | 2.0 | 15.0 | 13.0 | 5.09 | 23.0 | 10.6 | 12.4 | 400 | 24.1{2460} | 2.84{290} | 1.01 | 192 |
| RS60-CU-1 | 19.05 | 11.91 | 12.70 | 2.4 | 18.1 | 15.6 | 5.96 | 28.3 | 13.25 | 15.05 | 500 | 34.9{3560} | 4.02{410} | 1.40 | 160 |
| RS80-CU-1 | 25.40 | 15.88 | 15.88 | 3.2 | 24.1 | 20.8 | 7.94 | 36.8 | 16.75 | 20.05 | 600 | 61.6{6280} | 6.96{710} | 2.47 | 120 |

## ■Features

Due to Tsubaki's exclusive pin and bush structure, this roller chain has a large sideflex radius thanks to its wide plate-plate clearance. RS sprockets can be used for easy curved drive use.

## ■Applications

Curved roller conveyor drive and curved conveyors.
Guides are required for curving areas.

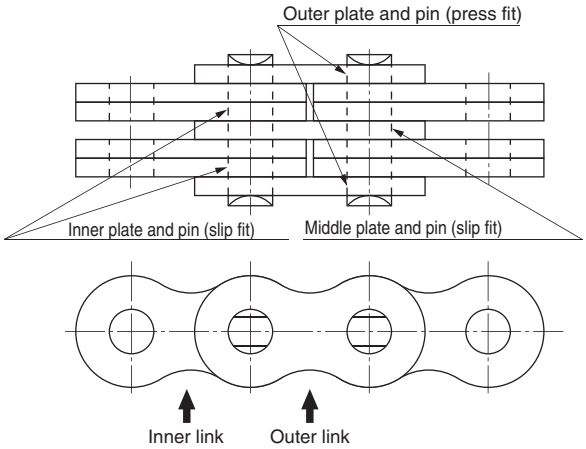
# Leaf Chains

## ■Construction

Leaf chains are also commonly called balance chains. The most basic type of steel chain, they consist of just plates and pins. Conforming to JIS specifications and suitable for use in low-speed equipment, leaf chains are mainly used for lifting, counterweights, and motion drives.
The plates are connected by pins and take the strain when load is applied. Pins are press fitted to outer plates and riveted. However, a slip fit* is used with middle and inner plates and pins.
The pins pass between the plates and have to withstand the bulk of the shear forces resulting when the chain is under tension and move freely within the inner plate holes when the chain articulates.

*** Slip fit**
When a pin is fitted to a hole, some play is normally allowed. The tolerance range of the hole diameter is larger than the tolerance range for the pin diameter.

*** Press fit**
When a pin is fitted to a hole, the pin is normally tight against the hole. The tolerance range of the hole diameter is less than the tolerance range for the pin diameter.

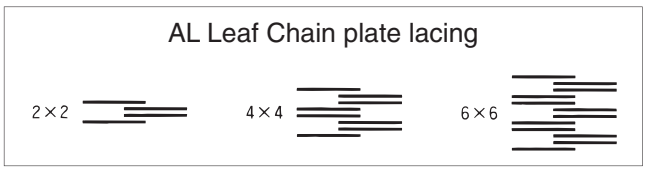


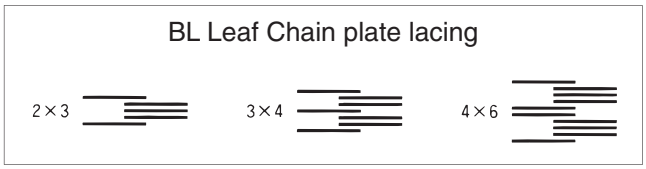

## ◆Types

There are two types of leaf chain: AL for light loads and BL for heavy loads. The dimensions and plate configuration for each is different.

**AL Type** External plate dimensions and thickness are the same as for the outer plates of RS Roller Chain with the same pitch, while the pin diameter is almost the same.

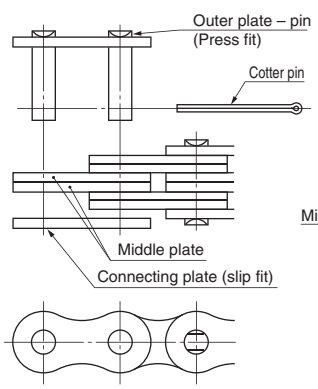
**BL Type** Plate width is the same as for the inner plates of RS Roller Chain of the same pitch. Plate thickness is the same as for one pitch larger RS roller chain, as is pin diameter.



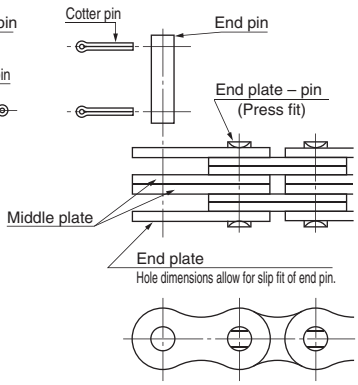




## ◆End links

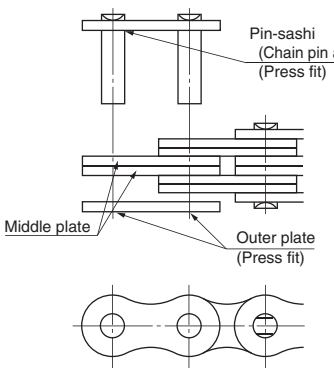
1. Connecting link



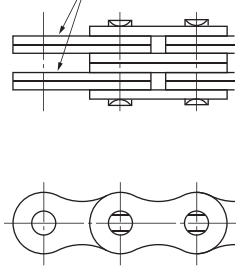

2. End link




3. Outer link




4. Inner link




Note: All four types require a slip fit between inner / middle plate holes and pins.

# Leaf Chains

Chain number

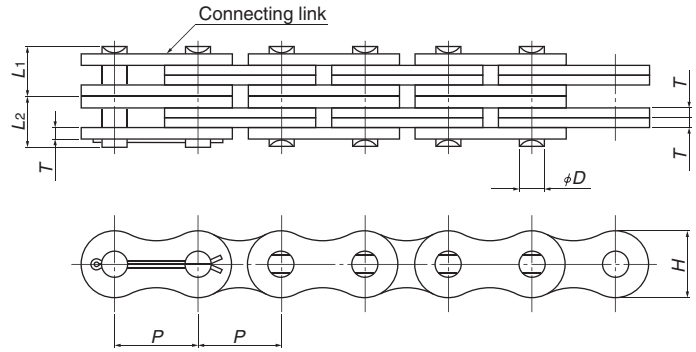
AL 4 22

Type (AL or BL)

Lacing (2 x 2)

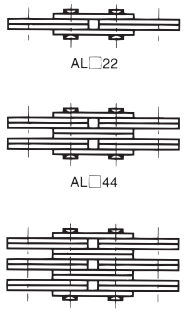
Chain pitch (4 corresponds to RS40)

## ■Dimensions

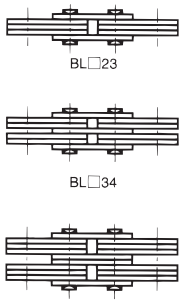



(Diagram shows AL Type 44)

AL type




BL type




### AL Type

| TSUBAKI Chain Number | Pitch P | Plate Configuration | Plates H | Plates T | Pins D | Pins $L_1$ | Pins $L_2$ | Minimum Tensile Strength kN{kgf} | Approximate Mass kg/m |
|---|---|---|---|---|---|---|---|---|---|
| AL422 | 12.70 | 2×2 | 10.4 | 1.5 | 3.97 | 4.20 | 5.30 | 16.7{ 1700} | 0.38 |
| AL444 | | 4×4 | | | | 7.43 | 8.52 | 33.3{ 3400} | 0.74 |
| AL466 | | 6×6 | | | | 10.65 | 11.75 | 50.5{ 5100} | 1.10 |
| AL522 | 15.875 | 2×2 | 13.0 | 2.0 | 5.08 | 5.43 | 6.97 | 27.5{ 2800} | 0.62 |
| AL544 | | 4×4 | | | | 9.68 | 11.22 | 54.9{ 5600} | 1.22 |
| AL566 | | 6×6 | | | | 13.90 | 15.45 | 82.4{ 8400} | 1.81 |
| AL622 | 19.05 | 2×2 | 15.6 | 2.4 | 5.94 | 6.33 | 8.22 | 38.2{ 3900} | 0.87 |
| AL644 | | 4×4 | | | | 11.28 | 13.17 | 76.5{ 7800} | 1.71 |
| AL666 | | 6×6 | | | | 16.23 | 18.12 | 115{11700} | 2.54 |
| AL822 | 25.40 | 2×2 | 20.8 | 3.2 | 7.90 | 8.18 | 10.97 | 64.7{ 6600} | 1.51 |
| AL844 | | 4×4 | | | | 14.90 | 17.70 | 129{13200} | 2.98 |
| AL866 | | 6×6 | | | | 21.60 | 24.40 | 194{19800} | 4.44 |
| AL1022 | 31.75 | 2×2 | 26.0 | 4.0 | 9.48 | 10.03 | 13.22 | 98.1{10000} | 2.69 |
| AL1044 | | 4×4 | | | | 18.35 | 21.55 | 196{20000} | 5.31 |
| AL1066 | | 6×6 | | | | 26.65 | 29.85 | 294{30000} | 7.93 |
| AL1222 | 38.10 | 2×2 | 31.2 | 4.8 | 11.04 | 12.10 | 15.80 | 141{14400} | 3.57 |
| AL1244 | | 4×4 | | | | 22.00 | 25.70 | 282{28800} | 7.07 |
| AL1266 | | 6×6 | | | | 31.93 | 35.62 | 424{43200} | 10.56 |
| AL1444 | 44.45 | 4×4 | 36.4 | 5.6 | 12.64 | 25.65 | 30.15 | 373{38000} | 10.34 |
| AL1466 | | 6×6 | | | | 37.28 | 41.77 | 559{57000} | 15.16 |
| AL1644 | 50.80 | 4×4 | 41.6 | 6.4 | 14.21 | 29.03 | 34.02 | 471{48000} | 12.98 |
| AL1666 | | 6×6 | | | | 42.23 | 47.22 | 706{72000} | 19.41 |

### BL Type

| TSUBAKI Chain Number | Pitch P | Plate Configuration | Plates H | Plates T | Pins D | Pins $L_1$ | Pins $L_2$ | Minimum Tensile Strength kN{kgf} | Approximate Mass kg/m |
|---|---|---|---|---|---|---|---|---|---|
| BL423 | 12.70 | 2×3 | 12.0 | 2.0 | 5.08 | 6.48 | 8.02 | 23.5{ 2400} | 0.84 |
| BL434 | | 3×4 | | | | 8.60 | 10.15 | 35.3{ 3600} | 1.13 |
| BL446 | | 4×6 | | | | 11.80 | 13.35 | 47.1{ 4800} | 1.65 |
| BL523 | 15.875 | 2×3 | 15.0 | 2.4 | 5.94 | 7.55 | 9.45 | 39.2{ 4000} | 1.27 |
| BL534 | | 3×4 | | | | 10.05 | 11.95 | 58.8{ 6000} | 1.69 |
| BL546 | | 4×6 | | | | 13.75 | 15.65 | 78.5{ 8000} | 2.40 |
| BL623 | 19.05 | 2×3 | 18.1 | 3.2 | 7.90 | 9.88 | 12.67 | 63.7{ 6500} | 2.04 |
| BL634 | | 3×4 | | | | 13.23 | 16.02 | 95.6{ 9750} | 2.83 |
| BL646 | | 4×6 | | | | 18.25 | 21.05 | 127{13000} | 4.01 |
| BL823 | 25.40 | 2×3 | 24.1 | 4.0 | 9.48 | 12.10 | 15.30 | 103{10500} | 3.20 |
| BL834 | | 3×4 | | | | 16.28 | 19.47 | 155{15800} | 4.44 |
| BL846 | | 4×6 | | | | 22.50 | 25.70 | 206{21000} | 6.32 |
| BL1023 | 31.75 | 2×3 | 30.1 | 4.8 | 11.04 | 14.45 | 18.15 | 141{14400} | 4.69 |
| BL1034 | | 3×4 | | | | 19.43 | 23.12 | 216{22000} | 6.55 |
| BL1046 | | 4×6 | | | | 26.85 | 30.55 | 282{28800} | 9.29 |
| BL1223 | 38.10 | 2×3 | 36.2 | 5.6 | 12.64 | 16.95 | 21.45 | 186{19000} | 6.54 |
| BL1234 | | 3×4 | | | | 22.75 | 27.25 | 299{30500} | 9.10 |
| BL1246 | | 4×6 | | | | 31.48 | 35.97 | 373{38000} | 12.01 |
| BL1423 | 44.45 | 2×3 | 42.2 | 6.4 | 14.21 | 19.10 | 24.10 | 235{24000} | 9.06 |
| BL1434 | | 3×4 | | | | 25.70 | 30.70 | 387{39500} | 11.32 |
| BL1446 | | 4×6 | | | | 35.63 | 40.62 | 471{48000} | 18.00 |
| BL1623 | 50.80 | 2×3 | 48.2 | 7.2 | 17.38 | 21.63 | 28.22 | 353{36000} | 12.16 |
| BL1634 | | 3×4 | | | | 29.20 | 35.80 | 554{56500} | 16.95 |
| BL1646 | | 4×6 | | | | 40.53 | 47.12 | 706{72000} | 24.09 |

# Leaf Chains

## ■Clevises

Connecting links, end links, outer links, and inner links can all be used for Leaf Chain end links. When connecting end links (outer link, inner link), use the types of clevises shown below. Contact a Tsubaki representative with special requests.

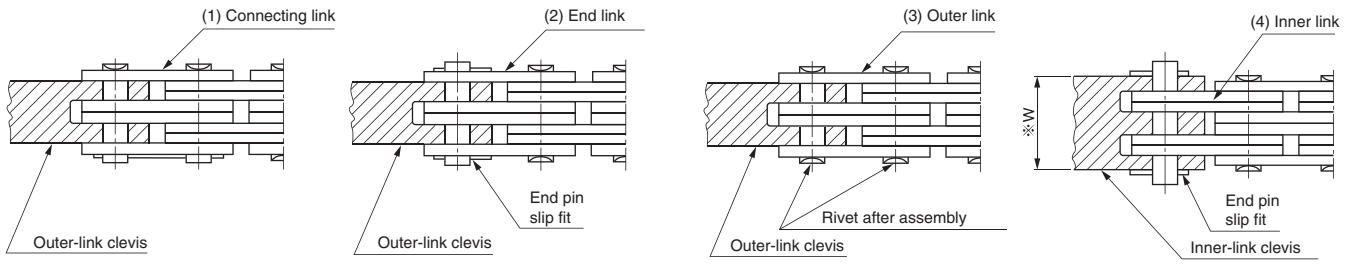
### Connecting Leaf Chain to a clevis

1. Connecting the chain end to a (1) connecting link, (2) end link, or (3) outer link.

   Connect an outer-link clevis to the connecting link, end link, or outer link.

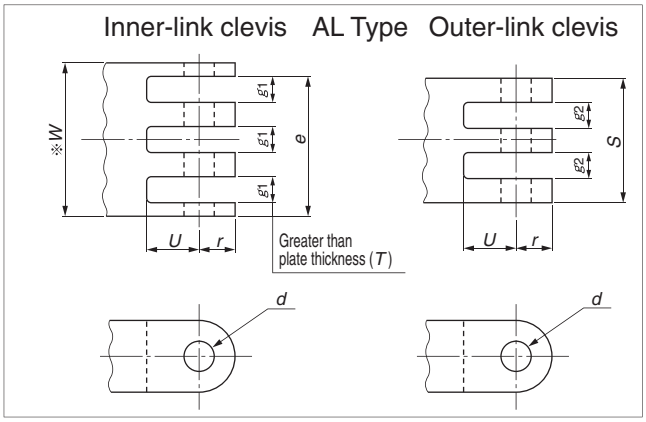
2. Connecting the chain end to an (4) inner link.

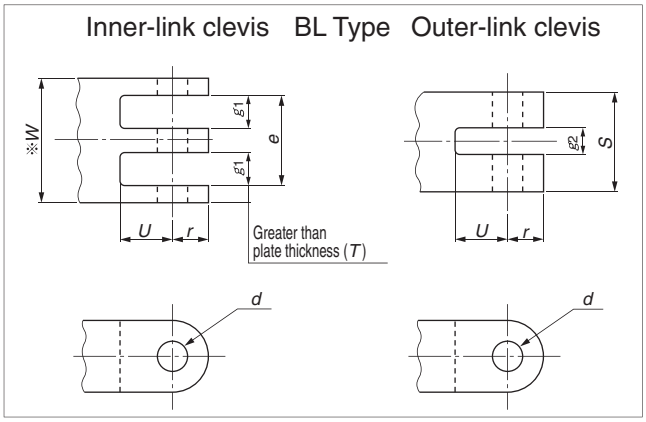
   Connect an inner-link clevis to the end pin.
   The end pin length varies according to the external width (W) of the clevis. When ordering, specify the W dimension.




Tsubaki will make end pins to your specification.

### Clevis size and material



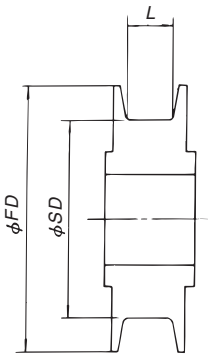

| AL Leaf Chain Number | d | r (max.) | U (min.) | e $^{+0.2}_{0}$ | g1 $^{+0.1}_{0}$ | s $^{0}_{-0.2}$ | g2 $^{+0.1}_{0}$ |
|---|---|---|---|---|---|---|---|
| AL422 | $4.02^{+0.05}_{0}$ | 6.3 | 6.0 | — | 3.4 | 3.1 | — |
| AL444 | | | | 9.8 | | 9.5 | 3.4 |
| AL466 | | | | 16.2 | | 15.9 | 3.4 |
| AL522 | $5.13^{+0.05}_{0}$ | 7.9 | 7.2 | — | 4.4 | 4.1 | — |
| AL544 | | | | 12.9 | | 12.6 | 4.4 |
| AL566 | | | | 21.3 | | 21.0 | 4.4 |
| AL622 | $6.00^{+0.05}_{0}$ | 9.5 | 9.0 | — | 5.1 | 4.8 | — |
| AL644 | | | | 15.0 | | 14.7 | 5.1 |
| AL666 | | | | 24.8 | | 24.5 | 5.1 |
| AL822 | $7.97^{+0.1}_{0}$ | 12.7 | 11.5 | — | 6.9 | 6.4 | — |
| AL844 | | | | 20.3 | | 19.8 | 6.9 |
| AL866 | | | | 33.7 | | 33.2 | 6.9 |
| AL1022 | $9.57^{+0.1}_{0}$ | 15.8 | 14.5 | — | 8.5 | 8.0 | — |
| AL1044 | | | | 25.1 | | 24.6 | 8.5 |
| AL1066 | | | | 41.7 | | 41.2 | 8.5 |
| AL1222 | $11.14^{+0.1}_{0}$ | 19.0 | 17.5 | — | 10.1 | 9.6 | — |
| AL1244 | | | | 29.9 | | 29.4 | 10.1 |
| AL1266 | | | | 49.7 | | 49.2 | 10.1 |
| AL1444 | $12.74^{+0.1}_{0}$ | 22.2 | 20.0 | 35.1 | 11.9 | 34.5 | 11.9 |
| AL1466 | | | | 58.3 | | 57.7 | 11.9 |
| AL1644 | $14.32^{+0.1}_{0}$ | 25.4 | 23.0 | 39.9 | 13.5 | 39.2 | 13.5 |
| AL1666 | | | | 66.3 | | 65.6 | 13.5 |

| BL Leaf Chain Number | d | r (max.) | U (min.) | e $^{+0.2}_{0}$ | g1 $^{+0.1}_{0}$ | s $^{0}_{-0.2}$ | g2 $^{+0.1}_{0}$ |
|---|---|---|---|---|---|---|---|
| BL423 | $5.13^{+0.05}_{0}$ | 6.3 | 6.3 | — | 6.5 | 6.2 | — |
| BL434 | | | | 10.7 | 4.4 | 10.4 | 2.3 |
| BL446 | | | | 17.1 | 6.5 | 16.8 | 4.4 |
| BL523 | $6.00^{+0.05}_{0}$ | 7.9 | 7.9 | — | 7.6 | 7.3 | — |
| BL534 | | | | 12.5 | 5.1 | 12.2 | 2.6 |
| BL546 | | | | 19.9 | 7.6 | 19.6 | 5.1 |
| BL623 | $7.97^{+0.1}_{0}$ | 9.5 | 9.5 | — | 10.3 | 9.8 | — |
| BL634 | | | | 17.0 | 6.9 | 16.5 | 3.6 |
| BL646 | | | | 27.0 | 10.3 | 26.5 | 6.9 |
| BL823 | $9.57^{+0.1}_{0}$ | 12.7 | 12.7 | — | 12.7 | 12.2 | — |
| BL834 | | | | 21.0 | 8.5 | 20.5 | 4.4 |
| BL846 | | | | 33.4 | 12.7 | 32.9 | 8.5 |
| BL1023 | $11.14^{+0.1}_{0}$ | 15.8 | 15.8 | — | 15.1 | 14.6 | — |
| BL1034 | | | | 25.0 | 10.1 | 24.5 | 5.2 |
| BL1046 | | | | 39.8 | 15.1 | 39.3 | 10.1 |
| BL1223 | $12.74^{+0.1}_{0}$ | 19.0 | 19.0 | — | 17.7 | 17.1 | — |
| BL1234 | | | | 29.3 | 11.9 | 28.7 | 6.1 |
| BL1246 | | | | 46.7 | 17.7 | 46.1 | 11.9 |
| BL1423 | $14.32^{+0.1}_{0}$ | 22.2 | 22.2 | — | 20.1 | 19.4 | — |
| BL1434 | | | | 33.3 | 13.5 | 32.6 | 6.9 |
| BL1446 | | | | 53.1 | 20.1 | 52.4 | 13.5 |
| BL1623 | $17.49^{+0.15}_{0}$ | 25.4 | 25.4 | — | 23.1 | 22.1 | — |
| BL1634 | | | | 38.2 | 15.6 | 37.2 | 8.0 |
| BL1646 | | | | 60.9 | 23.1 | 59.9 | 15.6 |

Use heat-treated alloy steel (SCM435, etc.) in order to obtain a hardness of HRC40 to 45.
For clevises with screws, however, the hardness must be HRC30 to 35 in order to reduce any hazard due to delayed fractures.

# ■Sheaves

Refer to the following chart when manufacturing sheaves.




*SD* = Minimum external sheave diameter = chain pitch x 5
*L* = Minimum groove width = pin length x 1.05
*FD* = Flange external diameter
= SD + maximum plate height (H)

AL Type

| Chain Pitch | Minimum External Sheave Diameter *SD* | Flange External Diameter *FD* | Minimum Groove Width *L* | | |
|---|---|---|---|---|---|
| | | | 2×2 | 4×4 | 6×6 |
| 12.70 | 63.50 | 73.90 | 8.85 | 15.60 | 22.40 |
| 15.875 | 79.38 | 92.38 | 11.40 | 20.35 | 29.20 |
| 19.05 | 95.25 | 110.85 | 13.30 | 23.70 | 34.10 |
| 25.40 | 127.00 | 147.80 | 17.20 | 31.30 | 45.40 |
| 31.75 | 158.75 | 184.75 | 21.10 | 38.55 | 56.00 |
| 38.10 | 190.50 | 221.70 | 25.45 | 46.20 | 67.05 |
| 44.45 | 222.25 | 258.65 | — | 53.90 | 78.30 |
| 50.80 | 254.00 | 295.60 | — | 61.00 | 88.70 |

BL Type

| Chain Pitch | Minimum External Sheave Diameter *SD* | Flange External Diameter *FD* | Minimum Groove Width *L* | | |
|---|---|---|---|---|---|
| | | | 2×3 | 3×4 | 4×6 |
| 12.70 | 63.50 | 75.50 | 13.60 | 18.10 | 24.80 |
| 15.875 | 79.38 | 94.38 | 15.90 | 21.15 | 28.90 |
| 19.05 | 95.25 | 113.35 | 20.75 | 27.80 | 38.35 |
| 25.40 | 127.00 | 151.10 | 25.45 | 34.20 | 47.25 |
| 31.75 | 158.75 | 188.85 | 30.35 | 40.80 | 56.40 |
| 38.10 | 190.50 | 226.70 | 35.60 | 47.80 | 66.10 |
| 44.45 | 222.25 | 264.45 | 40.15 | 54.00 | 74.85 |
| 50.80 | 254.00 | 302.20 | 45.45 | 61.35 | 85.15 |

1. Dimensions for L in the table above assume that only the rivet pin is wound around the sheave. If a connecting pin is wound around the sheave, use L ≧ 2 (L2) x 1.05. Design L with an appropriate width while minding the installation precision of the sheave.
2. Use sheaves made of machine-structural carbon copper. (S45C, etc.)
3. Use heat-treated HRC (35 to 40) for high repetition applications.

# Precautions for Use

① Lubricate regularly to prevent pin rotation and improve wear life.

Recommended lubrication: ISO VG 100 to 150 (SAE30 to SAE40)

Lubrication method: With the chain loose, use a brush or oil stick to sufficiently lubricate the outer chain, making sure that oil also penetrates between plates.

Lubrication period: Lubricate regularly so that sliding sections between pins and inner plates do not dry out.

② Avoid use in corrosive environments.

Wipe immediately when there is contact with water and lubricate well. When there is a possibility of corrosion, apply a large amount of grease to the surface of the chain. (To lubricate, wipe off grease and reapply after lubricating between plates.)

③ Check for elongation.

Replace chain when elongation reaches allowable elongation limit (3%).

**Guidelines for checking chain elongation**

In order to prevent chain backlash, measure with slight tension on the chain.

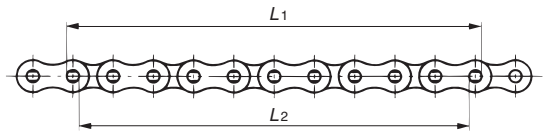
Use calipers to measure the distance between the outside L1 and inside L2 of the pins for the portion of the chain articulating around the sheave as shown in the illustration to obtain

$L = (L_1 + L_2)/2$

Obtain chain elongation percentage using the following formula.

$$\text{Chain elongation} = \frac{L - \text{Standard length}}{\text{Standard length}} \times 100(\%)$$

Standard length = Chain pitch x No. of links




Measure between 6 to 10 links

Note: Pitch elongation limit can be quickly checked with a chain elongation scale. For details, see pg. 120.

# Ordering

Specify the chain number, number of links, chain end specifications, and link pin requirements.

① The following specifications exist for each end of the chain. Specify your preference.

1. Connecting link
2. End link (Outer and inner end link hole diameters are the same)
3. Outer link
4. Inner link

② If no chain end specification

With orders for an odd number of links, each end will be given an inner link. With orders for an even number of links, one end will have an inner link and the other a connecting link.

③ End pins are available.

# Leaf Chains

## ■Selection

1. Determine the following based on usage conditions.
- Chain speed
- Number of repetitions per day
- Work load (including inertia and impact strength)
  When a chain speed of 30 m/min or 1,000 cycles/day is exceeded, Leaf Chains may be inappropriate due to wear. Use an RS Roller Chain.

2. Determine the type of chain.
- BL Type is recommended.
- Limit use of AL Type to applications with no impact load or wear considerations (under 100 cycles/day).

3. Determine chain size using the following formula.

Work load x Usage coefficient (Table 1) x Safety ratio (Table 2) ≦ Minimum tensile strength

4. ⚠ It is dangerous to use below the safety ratio in Table 2 as it may result in pin rotation and a reduction in strength. In addition, even if the safety ratio in Table 2 is followed, insufficient lubrication may also cause the pins to rotate. Always lubricate the chain regularly.

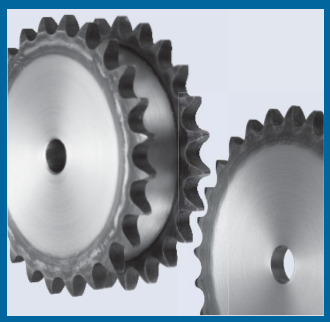
Table 1 Usage coefficient

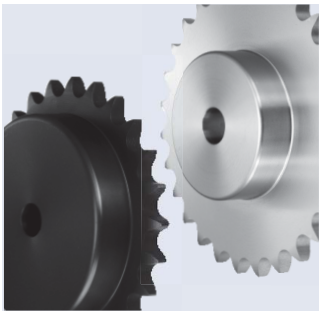
| Type of impact | Applications | Usage coefficient |
|---|---|---|
| Smooth power transmission | Starts and stops are smooth, and load changes are slight (balance weight suspension, etc.) | 1.0 |
| Slight impact | Repeated starts and stops, load changes, and reverse operation (forklifts, etc.) | 1.3 |
| Impact | Violent starts and stops, load changes, and reverse operation (mining and construction, etc.) | 1.5 |

Table 2 Safety ratio

| | Plate combinations / No. of cycles | Safety ratio | |
|---|---|---|---|
| | | 2×2、3×4<br>2×3、4×4 | 4×6<br>6×6 |
| BL Type | 1,000 cycles/day or less | 8 or more | 9 or more |
| AL Type | 10 cycles/day or less | 8 or more | 9 or more |
| | 100 cycles/day or less | 12 or more | 11 or more |

5. Where determining a chain's safety ratio is established by law, select a chain with some leeway using that method and this catalog.





# RS Sprocket Line-up

## Index


■ **RS Sprocket Standard Pilot Bore Series** (1B, 1C, 2B, 2C, and 1A types) —— **Starting from pg. 18**
■ **RS Sprocket Standard Pilot Bore Series** (2A type, Single-Dual type) —— **Pg. 98**
■ **Fit Bore Series** —— **Pg. 101**
■ **Lock Series** (S/N types) —— **Pg. 108**
■ **Corrosion Resistant Series** (Stainless Steel, Engineering Plastic, and Fit Bore types) —— **Pg. 122**
■ **Specialty Sprockets** —— **Pg. 133**
■ **Easy Bore Finishing Service** —— **Pg. 134**
■ **RS Sprocket Engineering Information** —— **Pg. 139**

# RS Sprocket Types

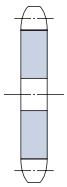
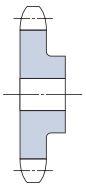
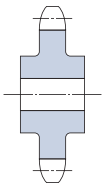
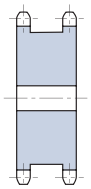
RS Sprocket types are determined by the following six items.

**RS50-1B15T-SS-□-□**

①Size of chain used ②No. of teeth ③Construction ④Material ⑤Bore type ⑥Tooth hardening

## ③Construction

RS Sprockets come in the following four types

| Type | A (Flat) | B (Single Hub) | C (Dual Hub) | SD (Single Dual) |
|---|---|---|---|---|
| Construction |  |  |  |  |
| Specification | Flat structure with no hub (boss) | Flat structure with a hub (boss) on a single side | Flat structure with hubs (bosses) on both sides | Structure where two single strand chains can be mounted |

## ④Material

RS Sprockets come standard in the following materials

| Material | Specification | Code |
|---|---|---|
| Carbon steel | Standard specifications<br>*Carbon steel for general engineering purposes (General rolled steel used on hubs and other areas) | Blank (no code) |
| Stainless steel | Corrosion resistant sprocket<br>*Ni-Cr stainless steel | -SS |
| Plastic | Corrosion resistant, lube-free sprocket<br>*Engineering plastic | -P |
| Sintered alloy | For RS25 chains<br>*Ferrous sintered alloy | Blank (no code) |

## ⑤Bore type

RS Sprockets come with the following three types of bores for mounting on shafts.

| Visual Appearance | Type | Code |
|---|---|---|
| | Pilot Bore sprocket<br>Each sprocket is provided with a pilot bore that needs processing before use. | Blank (no code) |
| | Fit Bore sprocket<br>Bore diameter is finished to an H7 tolerance, and the keyway tolerance is JIS Js9 tolerance. Includes holes for set screws. Can be used as is without further additional machining. | -H□□J<br>Bore diameter |
| | Lock sprocket<br>Tightening the bolts will create frictional force on the tapered sleeve that will tightly secure the sprocket to the shaft. No troublesome keyway machining is needed on the shaft side, making it easy to mount and align phases. Removal is also a snap. | Refer to each product page. |

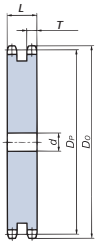
## ⑥Tooth hardening

| Material | Description |
|---|---|
| Hardened teeth | Use sprockets with hardened teeth when high tooth strength and increased wear life are required.<br>Sprockets with small numbers of teeth and Strong Type RS Sprockets have hardened teeth. |
| Unhardened teeth | The sprocket teeth have not been hardened.<br>RS Sprockets with large numbers of teeth have unhardened teeth. |

## List of RS Sprockets

| Chain Used | Sprocket Type | | | | |
|---|---|---|---|---|---|
| | Construction | | Bore | Material | Tooth Hardening |
| Drive Chain | Single strand | A Type | Pilot bore | Carbon steel | Hardened or unhardened |
| | | B Type | Pilot bore<br>Fit Bore Series<br>Lock Series | Carbon steel<br>Sintered alloy<br>Stainless steel<br>Engineering plastic | Hardened or unhardened |
| | | C Type | Pilot bore | Carbon steel | Hardened or unhardened |
| | SD Type | | Pilot bore | Carbon steel | Hardened |
| | Double strand | B Type | Pilot bore | Carbon steel | Hardened or unhardened |
| | | C Type | Pilot bore | Carbon steel | Hardened or unhardened |
| BS/DIN Roller Chain | Uses a specialty sprocket (made-to-order) | | | Carbon steel | Hardened or unhardened |
| Pin Gear Chain<br>(See the Pin Gear Drive section for more information.) | Uses a specialty sprocket (made-to-order) | | | Carbon steel | Hardened |
| Lambda Chain | Single strand | | Can use standard drive sprockets | | |
| | Double strand or greater | | Uses a specialty sprocket (made-to-order) | | |

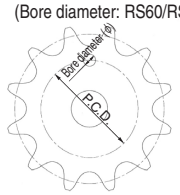
# RS Sprocket 2A Type (Pilot bore or Strong Pilot bore types)




## 2A Sprocket Teeth and Lateral Width Dimensions

| Type | Width L | Tolerance | Tooth Width T | Tolerance |
|---|---|---|---|---|
| RS40-2A | 21.5 | $^{0}_{-0.52}$ | 7.1 | $^{0}_{-0.36}$ |
| RS50-2A | 26.8 | $^{0}_{-0.52}$ | 8.7 | $^{0}_{-0.36}$ |
| RS60-2A | 34.5 | $^{0}_{0.62}$ | 11.7 | $^{0}_{-0.43}$ |
| RS80-2A | 43.9 | $^{0}_{-0.62}$ | 14.6 | $^{0}_{-0.43}$ |
| RS100-2A | 53.4 | $^{0}_{-0.74}$ | 17.6 | $^{0}_{-0.43}$ |
| RS120-2A | 68.9 | $^{0}_{-0.74}$ | 23.5 | $^{0}_{-0.52}$ |

Hanging hole dimensions
(Bore diameter: RS60/RS80: ϕ30, RS100, RS120: ϕ35)




The phase relationship between hanging hole and teeth may differ from the drawing.

### ●RS40 2A Type

| Model Number | Pitch Circle Diameter Dp | (Outer Diameter) (Do) | Pilot Bore Diameter d | Approximate Mass (kg) | Material |
|---|---|---|---|---|---|
| RS40-2A35T | 141.68 | 149 | 16 | 2.4 | Machine-structural carbon steel, machined. |
| RS40-2A36T | 145.72 | 153 | 16 | 2.5 | |
| RS40-2A38T | 153.79 | 161 | 16 | 2.8 | |
| RS40-2A40T | 161.87 | 169 | 16 | 3.1 | |
| RS40-2A42T | 169.94 | 177 | 16 | 3.5 | |
| RS40-2A45T | 182.06 | 189 | 18 | 4.0 | |
| RS40-2A48T | 194.18 | 201 | 18 | 4.6 | |
| RS40-2A50T | 202.26 | 209 | 18 | 5.0 | |
| RS40-2A54T | 218.42 | 226 | 18 | 5.8 | |
| RS40-2A60T | 242.66 | 250 | 18 | 7.3 | |

### ●RS60 2A Type

| Model Number | Pitch Circle Diameter Dp | (Outer Diameter) (Do) | Pilot Bore Diameter d | Approximate Mass (kg) | Material | Bore Phase (P.C.D.) |
|---|---|---|---|---|---|---|
| RS60-2A23T | 139.90 | 150 | 18 | 3.5 | Machine-structural carbon steel, machined. | |
| RS60-2A24T | 145.95 | 156 | 18 | 3.8 | | |
| RS60-2A25T | 151.99 | 162 | 18 | 4.2 | | |
| RS60-2A26T | 158.04 | 168 | 18 | 4.6 | | |
| RS60-2A27T | 164.09 | 174 | 18 | 4.9 | | |
| RS60-2A28T | 170.14 | 180 | 18 | 5.4 | | |
| RS60-2A30T | 182.25 | 193 | 18 | 6.2 | | |
| RS60-2A32T | 194.35 | 205 | 18 | 7.1 | | |
| RS60-2A34T | 206.46 | 217 | 18 | 8.1 | | |
| RS60-2A35T | 212.52 | 223 | 18 | 8.6 | | |
| RS60-2A36T | 218.57 | 229 | 18 | 9.1 | | |
| RS60-2A38T | 230.69 | 241 | 18 | 10.2 | | |
| RS60-2A40T | 242.80 | 253 | 18 | 11.4 | | |
| RS60-2A42T | 254.92 | 266 | 23 | 12.6 | | |
| RS60-2A45T | 273.09 | 284 | 23 | 14.5 | | |
| RS60-2A48T | 291.27 | 302 | 23 | 16.6 | | |
| RS60-2A50T | 303.39 | 314 | 23 | 18.1 | | |
| RS60-2A54T | 327.63 | 338 | 23 | 21.2 | | |
| RS60-2A60T | 363.99 | 375 | 23 | 26.2 | | 293 |

### ●RS100 2A Type

| Model Number | Pitch Circle Diameter Dp | (Outer Diameter) (Do) | Pilot Bore Diameter d | Approximate Mass (kg) | Material | Bore Phase (P.C.D.) |
|---|---|---|---|---|---|---|
| RS100-2A15T | 152.71 | 168 | 28 | 5.8 | Machine-structural carbon steel, machined. | |
| RS100-2A16T | 162.75 | 179 | 28 | 6.8 | | |
| RS100-2A17T | 172.79 | 189 | 28 | 7.8 | | |
| RS100-2A18T | 182.84 | 199 | 28 | 8.8 | | |
| RS100-2A19T | 192.90 | 209 | 28 | 10.0 | | |
| RS100-2A20T | 202.96 | 220 | 28 | 11.2 | | |
| RS100-2A21T | 213.03 | 230 | 28 | 12.4 | | |
| RS100-2A22T | 223.10 | 240 | 33 | 13.7 | | |
| RS100-2A23T | 233.17 | 250 | 33 | 15.0 | | |
| RS100-2A24T | 243.25 | 260 | 33 | 16.5 | | |
| RS100-2A25T | 253.32 | 270 | 33 | 18.1 | | |
| RS100-2A26T | 263.41 | 281 | 33 | 19.7 | | |
| RS100-2A27T | 273.49 | 291 | 33 | 21.3 | | |
| RS100-2A28T | 283.57 | 301 | 33 | 23.0 | | |
| RS100-2A30T | 303.75 | 321 | 33 | 26.8 | | |
| RS100-2A32T | 323.92 | 341 | 33 | 30.3 | | 224 |
| RS100-2A34T | 344.10 | 362 | 33 | 34.5 | | 245 |
| RS100-2A35T | 354.20 | 372 | 33 | 36.7 | | 255 |
| RS100-2A36T | 364.29 | 382 | 33 | 38.9 | Rolled steel, machined. | 365 |
| RS100-2A38T | 384.48 | 402 | 33 | 43.7 | | 285 |
| RS100-2A40T | 404.67 | 422 | 33 | 48.7 | | 305 |
| RS100-2A42T | 424.86 | 443 | 33 | 53.9 | | 326 |
| RS100-2A45T | 455.15 | 473 | 33 | 62.4 | | 356 |
| RS100-2A48T | 485.45 | 503 | 33 | 71.4 | | 386 |
| RS100-2A50T | 505.65 | 524 | 33 | 77.7 | | 407 |
| RS100-2A54T | 546.05 | 564 | 33 | 91.2 | | 447 |
| RS100-2A60T | 606.66 | 625 | 33 | 113.4 | | 508 |

### ■Ordering Example

RS40 -2A 35T
- No. of teeth
- Type
- Chain no.

### ■Strong Type Sprocket Ordering Example

RS40 -2A 35T Q
- Strong type
- No. of teeth
- Type
- Chain no.

### ●RS50 2A Type

| Model Number | Pitch Circle Diameter Dp | (Outer Diameter) (Do) | Pilot Bore Diameter d | Approximate Mass (kg) | Material |
|---|---|---|---|---|---|
| RS50-2A26T | 131.70 | 140 | 18 | 2.4 | Machine-structural carbon steel, machined. |
| RS50-2A27T | 136.74 | 145 | 18 | 2.6 | |
| RS50-2A28T | 141.79 | 150 | 18 | 2.8 | |
| RS50-2A30T | 151.87 | 161 | 18 | 3.3 | |
| RS50-2A32T | 161.96 | 171 | 18 | 3.8 | |
| RS50-2A34T | 172.05 | 181 | 18 | 4.3 | |
| RS50-2A35T | 177.10 | 186 | 18 | 4.6 | |
| RS50-2A36T | 182.15 | 191 | 18 | 4.9 | |
| RS50-2A38T | 192.24 | 201 | 18 | 5.5 | |
| RS50-2A40T | 202.33 | 211 | 23 | 6.0 | |
| RS50-2A42T | 212.43 | 221 | 23 | 6.7 | |
| RS50-2A45T | 227.58 | 237 | 23 | 7.7 | |
| RS50-2A48T | 242.73 | 252 | 23 | 8.9 | |
| RS50-2A50T | 252.82 | 262 | 23 | 9.7 | |
| RS50-2A54T | 273.03 | 282 | 23 | 11.3 | |
| RS50-2A60T | 303.33 | 312 | 23 | 14.1 | |

### ●RS80 2A Type

| Model Number | Pitch Circle Diameter Dp | (Outer Diameter) (Do) | Pilot Bore Diameter d | Approximate Mass (kg) | Material | Bore Phase (P.C.D.) |
|---|---|---|---|---|---|---|
| RS80-2A18T | 146.27 | 159 | 23 | 4.6 | Machine-structural carbon steel, machined. | |
| RS80-2A19T | 154.32 | 167 | 23 | 5.2 | | |
| RS80-2A20T | 162.37 | 176 | 23 | 5.8 | | |
| RS80-2A21T | 170.42 | 184 | 23 | 6.5 | | |
| RS80-2A22T | 178.48 | 192 | 28 | 7.1 | | |
| RS80-2A23T | 186.54 | 200 | 28 | 7.9 | | |
| RS80-2A24T | 194.60 | 208 | 28 | 8.6 | | |
| RS80-2A25T | 202.66 | 216 | 28 | 9.4 | | |
| RS80-2A26T | 210.72 | 224 | 28 | 10.2 | | |
| RS80-2A27T | 218.79 | 233 | 28 | 11.1 | | |
| RS80-2A28T | 226.86 | 241 | 28 | 12.0 | | |
| RS80-2A30T | 243.00 | 257 | 28 | 14.0 | | |
| RS80-2A32T | 259.14 | 273 | 28 | 16.0 | | |
| RS80-2A34T | 275.28 | 289 | 28 | 18.2 | | |
| RS80-2A35T | 283.36 | 297 | 28 | 19.4 | | |
| RS80-2A36T | 291.43 | 306 | 28 | 20.6 | | |
| RS80-2A38T | 307.58 | 322 | 28 | 23.0 | | |
| RS80-2A40T | 323.74 | 338 | 33 | 25.4 | | 242 |
| RS80-2A42T | 339.89 | 354 | 33 | 28.1 | | 258 |
| RS80-2A45T | 364.12 | 378 | 33 | 32.5 | | 283 |
| RS80-2A48T | 388.36 | 403 | 33 | 37.3 | | 307 |
| RS80-2A50T | 404.52 | 419 | 33 | 40.6 | | 323 |
| RS80-2A54T | 436.84 | 451 | 33 | 47.7 | Rolled steel, machined. | 355 |
| RS80-2A60T | 485.33 | 500 | 33 | 59.4 | | 404 |

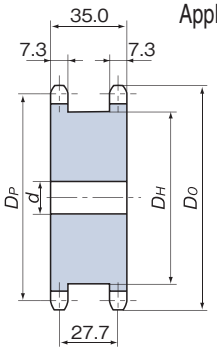
### ●RS120 2A Type

| Model Number | Pitch Circle Diameter Dp | (Outer Diameter) (Do) | Pilot Bore Diameter d | Approximate Mass (kg) | Material | Bore Phase (P.C.D.) |
|---|---|---|---|---|---|---|
| RS120-2A14T | 171.22 | 190 | 28 | 9.6 | Machine-structural carbon steel, machined. | |
| RS120-2A15T | 183.25 | 202 | 33 | 11.1 | | |
| RS120-2A16T | 195.29 | 214 | 33 | 12.9 | | |
| RS120-2A17T | 207.35 | 227 | 33 | 14.7 | | |
| RS120-2A18T | 219.41 | 239 | 33 | 16.7 | | |
| RS120-2A19T | 231.48 | 251 | 33 | 18.8 | | |
| RS120-2A20T | 243.55 | 263 | 33 | 21.1 | | |
| RS120-2A21T | 255.63 | 276 | 33 | 23.5 | | |
| RS120-2A22T | 267.72 | 288 | 33 | 25.9 | | |
| RS120-2A23T | 279.80 | 300 | 33 | 28.5 | | |
| RS120-2A24T | 291.90 | 312 | 33 | 31.3 | | |
| RS120-2A25T | 303.99 | 324 | 33 | 34.2 | | |
| RS120-2A26T | 316.09 | 337 | 33 | 37.2 | | |
| RS120-2A27T | 328.19 | 349 | 33 | 40.3 | | |
| RS120-2A28T | 340.29 | 361 | 33 | 43.5 | | |
| RS120-2A30T | 364.49 | 385 | 33 | 49.9 | | 258 |
| RS120-2A32T | 388.71 | 410 | 33 | 57.2 | Rolled steel, machined. | 382 |
| RS120-2A34T | 412.93 | 434 | 33 | 65.0 | | 307 |
| RS120-2A35T | 425.04 | 446 | 33 | 69.1 | | 319 |
| RS120-2A36T | 437.15 | 458 | 38 | 73.2 | | 331 |
| RS120-2A38T | 461.37 | 483 | 38 | 82.1 | | 355 |
| RS120-2A40T | 285.60 | 507 | 38 | 91.3 | | 380 |
| RS120-2A42T | 509.83 | 531 | 38 | 101.2 | | 404 |
| RS120-2A45T | 546.19 | 568 | 38 | 116.9 | | 440 |
| RS120-2A48T | 582.54 | 604 | 38 | 133.6 | | 477 |
| RS120-2A50T | 606.78 | 628 | 38 | 145.5 | | 501 |
| RS120-2A54T | 655.26 | 677 | 38 | 170.6 | | 550 |
| RS120-2A60T | 727.99 | 750 | 38 | 212.0 | | 623 |

Note: 1. Maximum bore diameters shown are standard figures. Decide and confirm bore diameters and key surface pressures based on standard machinery design.
2. Sprockets shown with hole positions come with a hanging hole on the sprocket plate. Refer to the diagram above for hanging hole dimensions.
3. Strong Type sprockets, with teeth that can be hardened, are also available. (Made-to-order)

# RS40～80 (SD: Single Dual)

## RS40 SD Type




Applicable chain pitch : 12.70mm Roller dia : 7.92mm

Model numbering example
RS40-SD-□□T
No. of teeth

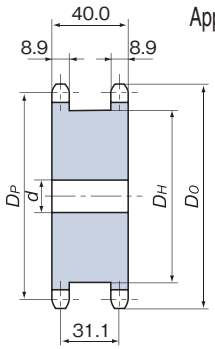
● RS40 SD Type

All models have hardened teeth.

| Model Number | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | d Pilot Bore | d Max. | Hub Diameter $D_H$ | Hub Length $L$ | Approximate Mass (kg) |
|---|---|---|---|---|---|---|---|
| RS40-SD-12T | 49.07 | 55 | 9.5 | 19 | 34 | 35 | 0.34 |
| RS40-SD-13T | 53.07 | 59 | 12.7 | 22 | 38 | 35 | 0.40 |
| RS40-SD-14T | 57.07 | 63 | 12.7 | 24 | 42 | 35 | 0.48 |
| RS40-SD-15T | 61.08 | 67 | 12.7 | 27 | 46 | 35 | 0.56 |
| RS40-SD-16T | 65.10 | 71 | 12.7 | 31 | 50 | 35 | 0.66 |
| RS40-SD-17T | 69.12 | 76 | 12.7 | 34 | 54 | 35 | 0.76 |
| RS40-SD-18T | 73.14 | 80 | 12.7 | 38 | 59 | 35 | 0.88 |
| RS40-SD-19T | 77.16 | 84 | 12.7 | 41 | 63 | 35 | 0.99 |
| RS40-SD-20T | 81.18 | 88 | 12.7 | 44 | 67 | 35 | 1.12 |
| RS40-SD-21T | 85.21 | 92 | 12.7 | 47 | 71 | 35 | 1.24 |
| RS40-SD-22T | 89.24 | 96 | 12.7 | 50 | 75 | 35 | 1.38 |
| RS40-SD-23T | 93.27 | 100 | 12.7 | 51 | 78 | 35 | 1.50 |
| RS40-SD-24T | 97.30 | 104 | 12.7 | 55 | 83 | 35 | 1.67 |
| RS40-SD-25T | 101.33 | 108 | 12.7 | 58 | 87 | 35 | 1.83 |
| Material/Specifications | Machine-structural carbon steel, machined. | | | | | | |

Contact a Tsubaki representative for teeth numbers not shown above.

## RS50 SD Type




Applicable chain pitch : 15.875mm Roller dia : 10.16mm

Model numbering example
RS50-SD-□□T
No. of teeth

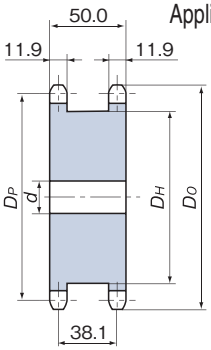
● RS50 SD Type

All models have hardened teeth.

| Model Number | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | d Pilot Bore | d Max. | Hub Diameter $D_H$ | Hub Length $L$ | Approximate Mass (kg) |
|---|---|---|---|---|---|---|---|
| RS50-SD-12T | 61.34 | 69 | 12.7 | 25 | 43 | 40 | 0.62 |
| RS50-SD-13T | 66.33 | 74 | 12.7 | 29 | 48 | 40 | 0.75 |
| RS50-SD-14T | 71.34 | 79 | 12.7 | 33 | 53 | 40 | 0.90 |
| RS50-SD-15T | 76.35 | 84 | 12.7 | 37 | 58 | 40 | 1.05 |
| RS50-SD-16T | 81.37 | 89 | 12.7 | 41 | 63 | 40 | 1.22 |
| RS50-SD-17T | 86.39 | 94 | 12.7 | 44 | 68 | 40 | 1.40 |
| RS50-SD-18T | 91.42 | 100 | 12.7 | 48 | 73 | 40 | 1.60 |
| RS50-SD-19T | 96.45 | 105 | 15.9 | 52 | 79 | 40 | 1.80 |
| RS50-SD-20T | 101.48 | 110 | 15.9 | 56 | 84 | 40 | 2.02 |
| RS50-SD-21T | 106.51 | 115 | 15.9 | 60 | 89 | 40 | 2.25 |
| RS50-SD-22T | 111.55 | 120 | 15.9 | 62 | 92 | 40 | 2.44 |
| RS50-SD-23T | 116.59 | 125 | 15.9 | 67 | 99 | 40 | 2.75 |
| RS50-SD-24T | 121.62 | 130 | 15.9 | 70 | 102 | 40 | 2.96 |
| RS50-SD-25T | 126.66 | 135 | 15.9 | 75 | 109 | 40 | 3.30 |
| Material/Specifications | Machine-structural carbon steel, machined. | | | | | | |

Contact a Tsubaki representative for teeth numbers not shown above.

## RS60 SD Type




Applicable chain pitch : 19.05mm Roller dia : 11.91mm

Model numbering example
RS60-SD-□□T
No. of teeth

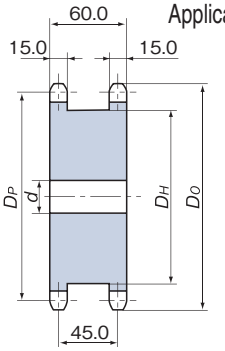
● RS60 SD Type

All models have hardened teeth.

| Model Number | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | d Pilot Bore | d Max. | Hub Diameter $D_H$ | Hub Length $L$ | Approximate Mass (kg) |
|---|---|---|---|---|---|---|---|
| RS60-SD-12T | 73.60 | 83 | 12.7 | 31 | 51 | 50 | 1.16 |
| RS60-SD-13T | 79.60 | 89 | 15.9 | 36 | 57 | 50 | 1.37 |
| RS60-SD-14T | 85.61 | 95 | 15.9 | 42 | 64 | 50 | 1.65 |
| RS60-SD-15T | 91.63 | 101 | 15.9 | 46 | 70 | 50 | 1.93 |
| RS60-SD-16T | 97.65 | 107 | 15.9 | 50 | 76 | 50 | 2.24 |
| RS60-SD-17T | 103.67 | 113 | 15.9 | 55 | 82 | 50 | 2.57 |
| RS60-SD-18T | 109.70 | 119 | 15.9 | 59 | 88 | 50 | 2.92 |
| RS60-SD-19T | 115.74 | 126 | 15.9 | 64 | 94 | 50 | 3.29 |
| RS60-SD-20T | 121.78 | 132 | 15.9 | 68 | 100 | 50 | 3.69 |
| RS60-SD-21T | 127.82 | 138 | 15.9 | 74 | 107 | 50 | 4.14 |
| RS60-SD-22T | 133.86 | 144 | 15.9 | 78 | 113 | 50 | 4.58 |
| RS60-SD-23T | 139.90 | 150 | 18 | 82 | 119 | 50 | 5.02 |
| RS60-SD-24T | 145.95 | 156 | 18 | 87 | 125 | 50 | 5.51 |
| RS60-SD-25T | 151.99 | 162 | 18 | 91 | 130 | 50 | 5.98 |
| Material/Specifications | Machine-structural carbon steel, machined. | | | | | | |

Contact a Tsubaki representative for teeth numbers not shown above.

## RS80 SD Type




Applicable chain pitch : 25.40mm Roller dia : 15.88mm

Model numbering example
RS80-SD-□□T
No. of teeth

● RS80 SD Type

All models have hardened teeth.

| Model Number | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | d Pilot Bore | d Max. | Hub Diameter $D_H$ | Hub Length $L$ | Approximate Mass (kg) |
|---|---|---|---|---|---|---|---|
| RS80-SD-12T | 98.14 | 110 | 20 | 45 | 69 | 60 | 2.5 |
| RS80-SD-13T | 106.14 | 118 | 20 | 50 | 77 | 60 | 3.0 |
| RS80-SD-14T | 114.15 | 127 | 20 | 55 | 85 | 60 | 3.6 |
| RS80-SD-15T | 122.17 | 135 | 20 | 63 | 93 | 60 | 4.2 |
| RS80-SD-16T | 130.20 | 143 | 20 | 70 | 102 | 60 | 4.9 |
| RS80-SD-17T | 138.23 | 151 | 20 | 74 | 110 | 60 | 5.6 |
| RS80-SD-18T | 146.27 | 159 | 20 | 80 | 118 | 60 | 6.4 |
| Material/Specifications | Machine-structural carbon steel, machined. | | | | | | |

Contact a Tsubaki representative for teeth numbers not shown above.

Note: Maximum bore diameters shown are standard figures. Decide and confirm bore diameters and key surface pressures based on standard machinery design.

# RS Sprocket Fit Bore (Machined Bore) Series

For RS35 – RS100 Type 1B sprockets.
The bore and keyway have been machined, and comes with two set screws.
Can be used as is with no additional troublesome machining.

## Specifications

Tooth hardening · · · All models feature induction hardened teeth
Bore · · · · · · · · · Bore diameters in high demand for motors and reducers are available and finished to within H7 tolerances.
Keyway · · · · · · · Finished with a tooth root standard based on Js9 (standard parallel key class) of new JIS B1301-1976 standards. Contact a Tsubaki representative if precise phase matching is required.
Set screws · · · · · All models come with two set screws on the keyway and 90˚ side, or 120˚ side if the finished bore diameter exceeds 40mm.

## Bore Tolerance

| Applicable Bore Diameter | Tolerance (H7) |
|---|---|
| 6 and up to 10 | +0.015<br>0 |
| More than 10 and up to 18 | +0.018<br>0 |
| More than 18 and up to 30 | +0.021<br>0 |
| More than 30 and up to 50 | +0.025<br>0 |
| More than 50 and up to 65 | +0.030<br>0 |

## Keyway Dimensions and Set Screw Size

| Applicable Bore Dia. | Keyway Width | Tolerance (Js9) | Keyway Depth | Tolerance | Set Screw Size |
|---|---|---|---|---|---|
| 10 and up to 12 | 4 | ±0.0150 | 1.8 | +0.1<br>0 | M4 |
| More than 12 and up to 17 | 5 | | 2.3 | | M5 |
| More than 17 and up to 22 | 6 | | 2.8 | | M6 |
| More than 22 and up to 30 | 8 | ±0.0180 | 3.3 | +0.2<br>0 | |
| More than 30 and up to 38 | 10 | | | | M8 |
| More than 38 and up to 44 | 12 | ±0.0215 | | | |
| More than 44 and up to 50 | 14 | | 3.8 | | |
| More than 50 and up to 58 | 16 | | 4.3 | | M10 |
| More than 58 and up to 65 | 18 | | 4.4 | | |

## Precautions

1. When using the set screws, be sure to tighten the set screws securely so that they will not loosen. Remove the set screws if they are not required.
2. Take appropriate measures, such as the use of a stopper plate, to prevent the sprocket from falling off the shaft.

## RS Sprocket Fit Bore Ordering Guide

Include the product code and model number in your order.

### Ordering Example

| Product Code | Model Number | Quantity |
|---|---|---|
| G120381 | RS40-1B20T-H15J | 10 |

### Model Numbering Example

**RS40-1B 20T-H 15 J**

- RS40 – Chain Number
- 1B – Hub type (1B: Single hub only)
- 20T – No. of teeth
- H – Bore tolerance (H7)
- 15 – Bore dia.
- J – Keyway tolerance (Js9)

## Other bore processing information

Tsubaki offers the following additional finishing for sprocket bores besides our Fit Bore Series (bore finished within H7 tolerances, keyway finished based on Js9 standards).

Use Tsubaki's **Easy Bore Finishing service (pg. 134)** if there is no Fit Bore Series for your desired sprocket.

↓

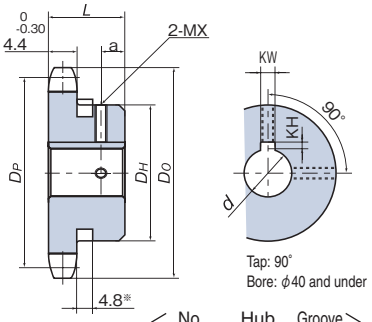
Contact a Tsubaki representative regarding special bore finishing.

# RS35 Fit Bore®

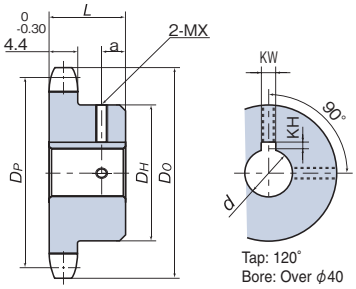
## RS35 Fit Bore

Applicable chain pitch : 9.525mm Roller dia : 5.08mm

Hub with groove (9T – 13T)




Hub without groove (14T and over)




| No. of teeth | Hub dia | Groove dia |
|---|---|---|
| 9T | ϕ 22 | ϕ 16 |
| 10T | ϕ 25 | ϕ 18 |
| 11T | ϕ 27 | ϕ 22 |
| 12T | ϕ 31 | ϕ 24 |
| 13T | ϕ 32 | ϕ 28 |

*The groove is provided on the perimeter of the hub to prevent interference with the chain.

| Applicable Bore Dia. | Keyway Width | Tolerance (Js9) | Keyway Depth | Tolerance | Set Screw Size |
|---|---|---|---|---|---|
| 10 and up to 12 | 4 | ±0.0150 | 1.8 | +0.1 0 | M4 |
| More than 12 and up to 17 | 5 | | 2.3 | | M5 |
| More than 17 and up to 22 | 6 | | 2.8 | | M6 |
| More than 22 and up to 30 | 8 | ±0.0180 | 3.3 | +0.2 0 | M8 |
| More than 30 and up to 38 | 10 | | | | |
| More than 38 and up to 44 | 12 | ±0.0215 | | | |
| More than 44 and up to 50 | 14 | | 3.8 | | |
| More than 50 and up to 58 | 16 | | 4.3 | | M10 |
| More than 58 and up to 65 | 18 | | 4.4 | | |

・Comes with two alloy steel set screws.

### Model Numbering Example

RS35-1B 20T – H 15 J

- Keyway tolerance (Js9)
- Bore dia.
- Bore tolerance (H7)
- No. of teeth
- Type
- Chain number

| Model Number | No. of Teeth | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Hub Dia. $D_H$ | Hub Length $L$ | Tap Position a | Finished Bore Dia. $d$ 10 | 12 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 22 | No. of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RS35-1B 9T-H□□J** | 9 | 27.85 | 32 | 22 | 20 | 5 | ◎ | | | | | | | | | | 9 |
| **RS35-1B10T-H□□J** | 10 | 30.82 | 35 | 25 | 20 | 5 | ◎ | ◎ | | | | | | | | | 10 |
| **RS35-1B11T-H□□J** | 11 | 33.81 | 38 | 27 | 20 | 5 | ◎ | ◎ | ◎ | | | | | | | | 11 |
| **RS35-1B12T-H□□J** | 12 | 36.80 | 41 | 31 | 20 | 5 | ◎ | ◎ | ○ | ◎ | ○ | | | | | | 12 |
| **RS35-1B13T-H□□J** | 13 | 39.80 | 44 | 32 | 20 | 5 | ◎ | ◎ | ◎ | ◎ | ○ | ◎ | ◎ | | | | 13 |
| **RS35-1B14T-H□□J** | 14 | 42.81 | 47 | 30 | 20 | 8 | ◎ | ◎ | ○ | ◎ | ○ | | | | | | 14 |
| **RS35-1B15T-H□□J** | 15 | 45.81 | 51 | 35 | 20 | 8 | ◎ | ◎ | ○ | ◎ | ◎ | ◎ | ◎ | ○ | | | 15 |
| **RS35-1B16T-H□□J** | 16 | 48.82 | 54 | 37 | 20 | 8 | ◎ | ◎ | ○ | ◎ | ◎ | ◎ | ◎ | ○ | ◎ | | 16 |
| **RS35-1B17T-H□□J** | 17 | 51.84 | 57 | 41 | 20 | 8 | | ◎ | ○ | ◎ | ○ | ◎ | ○ | ○ | ◎ | ◎ | 17 |
| **RS35-1B18T-H□□J** | 18 | 54.85 | 60 | 44 | 20 | 8 | | ◎ | ○ | ◎ | ◎ | ◎ | ◎ | ○ | ◎ | ○ | 18 |
| **RS35-1B19T-H□□J** | 19 | 57.87 | 63 | 47 | 20 | 8 | | ○ | ○ | ◎ | ◎ | ◎ | ○ | ○ | ◎ | ○ | 19 |
| **RS35-1B20T-H□□J** | 20 | 60.89 | 66 | 50 | 20 | 8 | | ◎ | ○ | ◎ | ◎ | ◎ | ◎ | ○ | ◎ | ◎ | 20 |
| **RS35-1B21T-H□□J** | 21 | 63.91 | 69 | 53 | 20 | 8 | | ○ | ○ | ◎ | ○ | ○ | ◎ | ○ | ◎ | ○ | 21 |
| **RS35-1B22T-H□□J** | 22 | 66.93 | 72 | 53 | 20 | 8 | | ○ | ○ | ◎ | ○ | ○ | ○ | ○ | ◎ | ◎ | 22 |
| **RS35-1B23T-H□□J** | 23 | 69.95 | 75 | 53 | 20 | 8 | | ○ | ○ | ◎ | ○ | ◎ | ○ | ○ | ◎ | ○ | 23 |
| **RS35-1B24T-H□□J** | 24 | 72.97 | 78 | 53 | 22 | 10 | | ◎ | ○ | ◎ | ○ | ○ | ○ | ○ | ◎ | ○ | 24 |
| **RS35-1B25T-H□□J** | 25 | 76.00 | 81 | 53 | 22 | 10 | | | | ◎ | ○ | ○ | ○ | ○ | ◎ | ○ | 25 |
| **RS35-1B26T-H□□J** | 26 | 79.02 | 84 | 53 | 22 | 10 | | | | ○ | ○ | ○ | ○ | ○ | ◎ | ○ | 26 |
| **RS35-1B27T-H□□J** | 27 | 82.05 | 87 | 53 | 22 | 10 | | | | ◎ | ○ | ○ | ○ | ○ | ○ | ○ | 27 |
| RS35-1B28T-H□□J | 28 | 85.07 | 90 | 53 | 22 | 10 | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 28 |
| **RS35-1B30T-H□□J** | 30 | 91.12 | 96 | 53 | 22 | 10 | | | | ◎ | ○ | ○ | ○ | ○ | ◎ | ○ | 30 |
| RS35-1B32T-H□□J | 32 | 97.18 | 102 | 53 | 22 | 10 | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 32 |
| RS35-1B34T-H□□J | 34 | 103.23 | 109 | 53 | 22 | 10 | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 34 |
| RS35-1B35T-H□□J | 35 | 106.26 | 112 | 53 | 22 | 10 | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 35 |
| RS35-1B36T-H□□J | 36 | 109.29 | 115 | 53 | 22 | 10 | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 36 |
| RS35-1B38T-H□□J | 38 | 115.34 | 121 | 63 | 25 | 10 | | | | | | | | | ○ | ○ | 38 |
| RS35-1B40T-H□□J | 40 | 121.40 | 127 | 63 | 25 | 10 | | | | | | | | | ○ | ○ | 40 |

| Model Number | No. of Teeth | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Hub Dia. $D_H$ | Hub Length $L$ | Tap Position a | Finished Bore Dia. $d$ 24 | 25 | 28 | 30 | 32 | 35 | 38 | No. of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RS35-1B17T-H□□J** | 17 | 51.84 | 57 | 41 | 20 | 8 | ◎ | | | | | | | 17 |
| **RS35-1B18T-H□□J** | 18 | 54.85 | 60 | 44 | 20 | 8 | ◎ | | | | | | | 18 |
| **RS35-1B19T-H□□J** | 19 | 57.87 | 63 | 47 | 20 | 8 | ◎ | ◎ | ○ | | | | | 19 |
| **RS35-1B20T-H□□J** | 20 | 60.89 | 66 | 50 | 20 | 8 | ◎ | ◎ | ○ | ◎ | | | | 20 |
| **RS35-1B21T-H□□J** | 21 | 63.91 | 69 | 53 | 20 | 8 | ○ | ◎ | ○ | ○ | ○ | | | 21 |
| **RS35-1B22T-H□□J** | 22 | 66.93 | 72 | 53 | 20 | 8 | ○ | ◎ | ○ | ○ | ○ | | | 22 |
| RS35-1B23T-H□□J | 23 | 69.95 | 75 | 53 | 20 | 8 | ○ | ○ | ○ | ○ | ○ | | | 23 |
| **RS35-1B24T-H□□J** | 24 | 72.97 | 78 | 53 | 22 | 7 | ○ | ◎ | ◎ | ○ | ○ | | | 24 |
| **RS35-1B25T-H□□J** | 25 | 76.00 | 81 | 53 | 22 | 7 | ○ | ◎ | ○ | ○ | ○ | | | 25 |
| **RS35-1B26T-H□□J** | 26 | 79.02 | 84 | 53 | 22 | 7 | ○ | ◎ | ○ | ○ | ○ | | | 26 |
| RS35-1B27T-H□□J | 27 | 82.05 | 87 | 53 | 22 | 7 | ○ | ○ | ○ | ○ | ○ | | | 27 |
| RS35-1B28T-H□□J | 28 | 85.07 | 90 | 53 | 22 | 7 | ○ | ○ | ○ | ○ | ○ | | | 28 |
| **RS35-1B30T-H□□J** | 30 | 91.12 | 96 | 53 | 22 | 7 | ○ | ◎ | ○ | ○ | ○ | | | 30 |
| RS35-1B32T-H□□J | 32 | 97.18 | 102 | 53 | 22 | 7 | ○ | ○ | ○ | ○ | ○ | | | 32 |
| RS35-1B34T-H□□J | 34 | 103.23 | 109 | 53 | 22 | 7 | ○ | ○ | ○ | ○ | ○ | | | 34 |
| RS35-1B35T-H□□J | 35 | 106.26 | 112 | 53 | 22 | 7 | ○ | ○ | ○ | ○ | ○ | | | 35 |
| RS35-1B36T-H□□J | 36 | 109.29 | 115 | 53 | 22 | 7 | ○ | ○ | ○ | ○ | ○ | | | 36 |
| RS35-1B38T-H□□J | 38 | 115.34 | 121 | 63 | 25 | 10 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 38 |
| RS35-1B40T-H□□J | 40 | 121.40 | 127 | 63 | 25 | 10 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 40 |

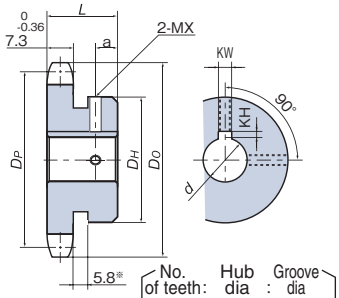
Enter the bore diameter for the □ found in the model numbers.

# RS40 Fit Bore®

## RS40 Fit Bore

Applicable chain pitch : 12.70mm Roller dia : 7.92mm

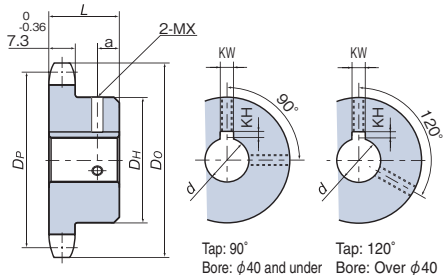
Hub with groove (9T – 12T)




| No. of teeth | Hub dia | Groove dia |
|---|---|---|
| 9T | φ 28 | φ 21 |
| 10T | φ 32 | φ 25 |
| 11T | φ 37 | φ 30 |
| 12T | φ 40 | φ 32 |

*The groove is provided on the perimeter of the hub to prevent interference with the chain.

Hub without groove (13T and over)




| Applicable Bore Dia. | Keyway Width | Tolerance (Js9) | Keyway Depth | Tolerance | Set Screw Size |
|---|---|---|---|---|---|
| 10 and up to 12 | 4 | ±0.0150 | 1.8 | +0.1 0 | M4 |
| More than 12 and up to 17 | 5 | | 2.3 | | M5 |
| More than 17 and up to 22 | 6 | | 2.8 | | M6 |
| More than 22 and up to 30 | 8 | ±0.0180 | 3.3 | +0.2 0 | M8 |
| More than 30 and up to 38 | 10 | | | | |
| More than 38 and up to 44 | 12 | ±0.0215 | | | |
| More than 44 and up to 50 | 14 | | 3.8 | | |
| More than 50 and up to 58 | 16 | | 4.3 | | M10 |
| More than 58 and up to 65 | 18 | | 4.4 | | |

・Comes with two alloy steel set screws.

### Model Numbering Example

RS40-1B 20T – H 15 J

- Keyway tolerance (Js9)
- Bore dia.
- Bore tolerance (H7)
- No. of teeth
- Type
- Chain number

| Model Number | No. of Teeth | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Hub Dia. $D_H$ | Hub Length $L$ | Tap Position a | Finished Bore Dia. $d$ 10 | 12 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 22 | No. of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS40-1B 9T-H□□J | 9 | 37.13 | 43 | 28 | 22 | 5 | ◎ | ◎ | ○ | ◎ | | | | | | | 9 |
| RS40-1B10T-H□□J | 10 | 41.10 | 47 | 32 | 22 | 5 | ◎ | ◎ | ○ | ◎ | ◎ | | | | | | 10 |
| RS40-1B11T-H□□J | 11 | 45.08 | 51 | 37 | 22 | 5 | ○ | ◎ | ○ | ◎ | ◎ | ○ | ◎ | ◎ | ◎ | | 11 |
| RS40-1B12T-H□□J | 12 | 49.07 | 55 | 40 | 22 | 5 | ◎ | ◎ | ○ | ◎ | ◎ | ◎ | ◎ | ○ | ◎ | ◎ | 12 |
| RS40-1B13T-H□□J | 13 | 53.07 | 59 | 37 | 22 | 7 | | ◎ | ○ | ◎ | ◎ | ◎ | ◎ | ○ | ◎ | | 13 |
| RS40-1B14T-H□□J | 14 | 57.07 | 63 | 42 | 22 | 7 | | ◎ | ○ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | 14 |
| RS40-1B15T-H□□J | 15 | 61.08 | 67 | 46 | 22 | 7 | | ◎ | ○ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | 15 |
| RS40-1B16T-H□□J | 16 | 65.10 | 71 | 50 | 22 | 7 | | | ○ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | 16 |
| RS40-1B17T-H□□J | 17 | 69.12 | 76 | 54 | 22 | 7 | | | ○ | ◎ | ○ | ◎ | ◎ | ◎ | ◎ | ◎ | 17 |
| RS40-1B18T-H□□J | 18 | 73.14 | 80 | 57 | 22 | 7 | | | ○ | ◎ | ◎ | ◎ | ◎ | ○ | ◎ | ◎ | 18 |
| RS40-1B19T-H□□J | 19 | 77.16 | 84 | 62 | 22 | 7 | | | ○ | ◎ | ○ | ○ | ◎ | ○ | ◎ | ◎ | 19 |
| RS40-1B20T-H□□J | 20 | 81.18 | 88 | 67 | 25 | 7 | | | ○ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | 20 |
| RS40-1B21T-H□□J | 21 | 85.21 | 92 | 71 | 25 | 7 | | | ○ | ○ | ○ | ○ | ◎ | ○ | ◎ | ◎ | 21 |
| RS40-1B22T-H□□J | 22 | 89.24 | 96 | 75 | 25 | 7 | | | ○ | ◎ | ◎ | ◎ | ◎ | ○ | ◎ | ◎ | 22 |
| RS40-1B23T-H□□J | 23 | 93.27 | 100 | 77 | 25 | 7 | | | ○ | ◎ | ○ | ○ | ○ | ○ | ◎ | ◎ | 23 |
| RS40-1B24T-H□□J | 24 | 97.30 | 104 | 63 | 25 | 7 | | | ○ | ◎ | ○ | ○ | ◎ | ○ | ◎ | ◎ | 24 |
| RS40-1B25T-H□□J | 25 | 101.33 | 108 | 63 | 25 | 7 | | | ○ | ○ | ○ | ○ | ◎ | ○ | ◎ | ◎ | 25 |
| RS40-1B26T-H□□J | 26 | 105.36 | 112 | 63 | 25 | 7 | | | ○ | ○ | ○ | ○ | ◎ | ○ | ◎ | ◎ | 26 |
| RS40-1B27T-H□□J | 27 | 109.40 | 116 | 63 | 25 | 7 | | | ○ | ○ | ○ | ○ | ○ | ○ | ◎ | ◎ | 27 |
| RS40-1B28T-H□□J | 28 | 113.43 | 120 | 63 | 25 | 7 | | | ○ | ○ | ○ | ○ | ○ | ○ | ◎ | ◎ | 28 |
| RS40-1B30T-H□□J | 30 | 121.50 | 128 | 63 | 25 | 7 | | | ○ | ○ | ○ | ○ | ○ | ○ | ◎ | ◎ | 30 |
| RS40-1B32T-H□□J | 32 | 129.57 | 137 | 68 | 28 | 8 | | | | | | | | | ◎ | ○ | 32 |
| RS40-1B34T-H□□J | 34 | 137.64 | 145 | 68 | 28 | 8 | | | | | | | | | ◎ | ○ | 34 |
| RS40-1B35T-H□□J | 35 | 141.68 | 149 | 68 | 28 | 8 | | | | | | | | | ◎ | ○ | 35 |
| RS40-1B36T-H□□J | 36 | 145.72 | 153 | 68 | 28 | 8 | | | | | | | | | ◎ | ○ | 36 |

| Model Number | No. of Teeth | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Hub Dia. $D_H$ | Hub Length $L$ | Tap Position a | Finished Bore Dia. $d$ 24 | 25 | 28 | 30 | 32 | 35 | 38 | 40 | 42 | 45 | No. of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS40-1B14T-H□□J | 14 | 57.07 | 63 | 42 | 22 | 7 | ◎ | | | | | | | | | | 14 |
| RS40-1B15T-H□□J | 15 | 61.08 | 67 | 46 | 22 | 7 | ◎ | ◎ | ◎ | | | | | | | | 15 |
| RS40-1B16T-H□□J | 16 | 65.10 | 71 | 50 | 22 | 7 | ◎ | ◎ | ◎ | ◎ | | | | | | | 16 |
| RS40-1B17T-H□□J | 17 | 69.12 | 76 | 54 | 22 | 7 | ◎ | ◎ | ◎ | ◎ | ◎ | | | | | | 17 |
| RS40-1B18T-H□□J | 18 | 73.14 | 80 | 57 | 22 | 7 | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | | | | | 18 |
| RS40-1B19T-H□□J | 19 | 77.16 | 84 | 62 | 22 | 7 | ◎ | ◎ | ◎ | ◎ | ○ | ○ | ○ | | | | 19 |
| RS40-1B20T-H□□J | 20 | 81.18 | 88 | 67 | 25 | 7 | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ○ | ○ | 20 |
| RS40-1B21T-H□□J | 21 | 85.21 | 92 | 71 | 25 | 7 | ○ | ◎ | ◎ | ◎ | ○ | ◎ | ○ | ◎ | ○ | ○ | 21 |
| RS40-1B22T-H□□J | 22 | 89.24 | 96 | 75 | 25 | 7 | ◎ | ◎ | ◎ | ◎ | ○ | ◎ | ○ | ○ | ○ | ○ | 22 |
| RS40-1B23T-H□□J | 23 | 93.27 | 100 | 77 | 25 | 7 | ○ | ◎ | ○ | ◎ | ◎ | ◎ | ◎ | ○ | ○ | ○ | 23 |
| RS40-1B24T-H□□J | 24 | 97.30 | 104 | 63 | 25 | 7 | ◎ | ◎ | ◎ | ◎ | ○ | ◎ | ○ | ○ | ○ | | 24 |
| RS40-1B25T-H□□J | 25 | 101.33 | 108 | 63 | 25 | 7 | ○ | ◎ | ◎ | ◎ | ○ | ◎ | ○ | ○ | ○ | | 25 |
| RS40-1B26T-H□□J | 26 | 105.36 | 112 | 63 | 25 | 7 | ○ | ◎ | ○ | ◎ | ○ | ◎ | ○ | ○ | ○ | | 26 |
| RS40-1B27T-H□□J | 27 | 109.40 | 116 | 63 | 25 | 7 | ○ | ◎ | ○ | ◎ | ○ | ◎ | ○ | ○ | ○ | | 27 |
| RS40-1B28T-H□□J | 28 | 113.43 | 120 | 63 | 25 | 7 | ○ | ◎ | ○ | ◎ | ○ | ◎ | ○ | ◎ | ○ | | 28 |
| RS40-1B30T-H□□J | 30 | 121.50 | 128 | 63 | 25 | 7 | ○ | ◎ | ◎ | ◎ | ○ | ◎ | ○ | ◎ | ○ | | 30 |
| RS40-1B32T-H□□J | 32 | 129.57 | 137 | 68 | 28 | 8 | ○ | ◎ | ○ | ◎ | ○ | ◎ | | ○ | | | 32 |
| RS40-1B34T-H□□J | 34 | 137.64 | 145 | 68 | 28 | 8 | ○ | ◎ | ○ | ◎ | ○ | ◎ | | ◎ | | | 34 |
| RS40-1B35T-H□□J | 35 | 141.68 | 149 | 68 | 28 | 8 | ○ | ◎ | ○ | ◎ | ○ | ◎ | | ◎ | | | 35 |
| RS40-1B36T-H□□J | 36 | 145.72 | 153 | 68 | 28 | 8 | ○ | ◎ | ○ | ◎ | ○ | ◎ | | ◎ | | | 36 |
| RS40-1B38T-H□□J | 38 | 153.79 | 161 | 68 | 28 | 8 | ○ | ◎ | ○ | ◎ | ◎ | ◎ | | ◎ | | | 38 |
| RS40-1B40T-H□□J | 40 | 161.87 | 169 | 68 | 28 | 8 | | ◎ | ○ | ◎ | ◎ | ◎ | | ◎ | | | 40 |

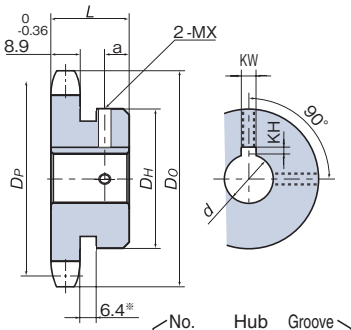
Enter the bore diameter for the □ found in the model numbers.

# RS50 Fit Bore®

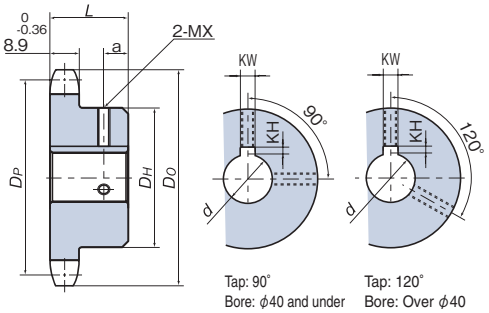
## RS50 Fit Bore

Applicable chain pitch : 15.875mm Roller dia : 10.16mm

Hub with groove (9T – 13T)




Hub without groove (14T and over)




| No. of teeth | Hub dia | Groove dia |
|---|---|---|
| 9T | φ 34 | φ 27 |
| 10T | φ 40 | φ 32 |
| 11T | φ 46 | φ 37 |
| 12T | φ 51 | φ 42 |
| 13T | φ 51 | φ 47 |

*The groove is provided on the perimeter of the hub to prevent interference with the chain.

| Applicable Bore Dia. | Keyway Width | Tolerance (Js9) | Keyway Depth | Tolerance | Set Screw Size |
|---|---|---|---|---|---|
| 10 and up to 12 | 4 | ±0.0150 | 1.8 | +0.1 0 | M4 |
| More than 12 and up to 17 | 5 | | 2.3 | | M5 |
| More than 17 and up to 22 | 6 | | 2.8 | | M6 |
| More than 22 and up to 30 | 8 | ±0.0180 | 3.3 | +0.2 0 | M8 |
| More than 30 and up to 38 | 10 | | | | |
| More than 38 and up to 44 | 12 | ±0.0215 | | | |
| More than 44 and up to 50 | 14 | | 3.8 | | |
| More than 50 and up to 58 | 16 | | 4.3 | | M10 |
| More than 58 and up to 65 | 18 | | 4.4 | | |

・Comes with two alloy steel set screws.

### Model Numbering Example

RS50-1B 20T – H 15 J

- Keyway tolerance (Js9)
- Bore dia.
- Bore tolerance (H7)
- No. of teeth
- Type
- Chain number

| Model Number | No. of Teeth | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Hub Dia. $D_H$ | Hub Length $L$ | Tap Position a | Finished Bore Dia. $d$ 14 | 15 | 16 | 17 | 18 | 19 | 20 | 22 | 24 | No. of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS50-1B 9T-H□□J | 9 | 46.42 | 53 | 34 | 25 | 6 | | | ○ | ○ | ○ | ○ | | | | 9 |
| RS50-1B10T-H□□J | 10 | 51.37 | 58 | 40 | 25 | 6 | | ○ | ○ | ○ | ○ | ○ | ◎ | ◎ | | 10 |
| RS50-1B11T-H□□J | 11 | 56.35 | 64 | 46 | 25 | 6 | | ○ | ○ | ○ | ○ | ○ | ◎ | ◎ | ◎ | 11 |
| RS50-1B12T-H□□J | 12 | 61.34 | 69 | 51 | 25 | 6 | | ◎ | ○ | ○ | ◎ | ○ | ◎ | ◎ | ◎ | 12 |
| RS50-1B13T-H□□J | 13 | 66.33 | 74 | 51 | 25 | 6 | ○ | ○ | ○ | ○ | ◎ | ◎ | ◎ | ◎ | ◎ | 13 |
| RS50-1B14T-H□□J | 14 | 71.34 | 79 | 52 | 25 | 7 | ○ | ◎ | ○ | ○ | ◎ | ◎ | ◎ | ◎ | ◎ | 14 |
| RS50-1B15T-H□□J | 15 | 76.35 | 84 | 57 | 25 | 7 | ○ | ○ | ○ | ○ | ◎ | ◎ | ◎ | ◎ | ◎ | 15 |
| RS50-1B16T-H□□J | 16 | 81.37 | 89 | 62 | 25 | 7 | ○ | ○ | ○ | ○ | ◎ | ○ | ◎ | ◎ | ◎ | 16 |
| RS50-1B17T-H□□J | 17 | 86.39 | 94 | 67 | 25 | 7 | ○ | ○ | ○ | ○ | ◎ | ○ | ◎ | ◎ | ◎ | 17 |
| RS50-1B18T-H□□J | 18 | 91.42 | 100 | 72 | 28 | 8 | ○ | ○ | ○ | ○ | ○ | ○ | ◎ | ◎ | ◎ | 18 |
| RS50-1B19T-H□□J | 19 | 96.45 | 105 | 73 | 28 | 8 | ○ | ○ | ○ | ○ | ○ | ○ | ◎ | ○ | ○ | 19 |
| RS50-1B20T-H□□J | 20 | 101.48 | 110 | 73 | 28 | 8 | ○ | ○ | ○ | ○ | ◎ | ◎ | ◎ | ◎ | ○ | 20 |
| RS50-1B21T-H□□J | 21 | 106.51 | 115 | 73 | 28 | 8 | | | | ○ | ○ | ○ | ○ | ◎ | ○ | 21 |
| RS50-1B22T-H□□J | 22 | 111.55 | 120 | 73 | 28 | 8 | | | | ○ | ○ | ○ | ◎ | ◎ | ○ | 22 |
| RS50-1B23T-H□□J | 23 | 116.59 | 125 | 73 | 28 | 8 | | | | ○ | ○ | ○ | ○ | ◎ | ○ | 23 |
| RS50-1B24T-H□□J | 24 | 121.62 | 130 | 73 | 28 | 8 | | | | ○ | ○ | ○ | ○ | ◎ | ○ | 24 |
| RS50-1B25T-H□□J | 25 | 126.66 | 135 | 73 | 28 | 8 | | | | ○ | ○ | ○ | ◎ | ○ | ○ | 25 |

| Model Number | No. of Teeth | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Hub Dia. $D_H$ | Hub Length $L$ | Tap Position a | Finished Bore Dia. $d$ 25 | 28 | 30 | 32 | 35 | 38 | 40 | 42 | 45 | No. of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS50-1B11T-H□□J | 11 | 56.35 | 64 | 46 | 25 | 6 | ◎ | | | | | | | | | 11 |
| RS50-1B12T-H□□J | 12 | 61.34 | 69 | 51 | 25 | 6 | ◎ | ◎ | ◎ | ◎ | | | | | | 12 |
| RS50-1B13T-H□□J | 13 | 66.33 | 74 | 51 | 25 | 6 | ◎ | ◎ | ◎ | ◎ | | | | | | 13 |
| RS50-1B14T-H□□J | 14 | 71.34 | 79 | 52 | 25 | 7 | ◎ | ◎ | ◎ | ◎ | | | | | | 14 |
| RS50-1B15T-H□□J | 15 | 76.35 | 84 | 57 | 25 | 7 | ◎ | ◎ | ◎ | ◎ | ◎ | | | | | 15 |
| RS50-1B16T-H□□J | 16 | 81.37 | 89 | 62 | 25 | 7 | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | | | 16 |
| RS50-1B17T-H□□J | 17 | 86.39 | 94 | 67 | 25 | 7 | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ○ | ○ | 17 |
| RS50-1B18T-H□□J | 18 | 91.42 | 100 | 72 | 28 | 8 | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | 18 |
| RS50-1B19T-H□□J | 19 | 96.45 | 105 | 73 | 28 | 8 | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ○ | ○ | 19 |
| RS50-1B20T-H□□J | 20 | 101.48 | 110 | 73 | 28 | 8 | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | 20 |
| RS50-1B21T-H□□J | 21 | 106.51 | 115 | 73 | 28 | 8 | ◎ | ◎ | ◎ | ○ | ◎ | ○ | ◎ | ○ | ○ | 21 |
| RS50-1B22T-H□□J | 22 | 111.55 | 120 | 73 | 28 | 8 | ◎ | ◎ | ◎ | ○ | ◎ | ◎ | ◎ | ○ | ◎ | 22 |
| RS50-1B23T-H□□J | 23 | 116.59 | 125 | 73 | 28 | 8 | ◎ | ◎ | ◎ | ◎ | ◎ | ○ | ◎ | ○ | ○ | 23 |
| RS50-1B24T-H□□J | 24 | 121.62 | 130 | 73 | 28 | 8 | ◎ | ◎ | ◎ | ○ | ◎ | ○ | ◎ | ○ | ○ | 24 |
| RS50-1B25T-H□□J | 25 | 126.66 | 135 | 73 | 28 | 8 | ◎ | ◎ | ◎ | ◎ | ◎ | ○ | ◎ | ○ | ◎ | 25 |
| RS50-1B26T-H□□J | 26 | 131.70 | 140 | 73 | 28 | 8 | ○ | ◎ | ◎ | ○ | ◎ | ○ | ○ | | ○ | 26 |
| RS50-1B27T-H□□J | 27 | 136.74 | 145 | 73 | 28 | 8 | ○ | ○ | ○ | ◎ | ◎ | ○ | ○ | | ○ | 27 |
| RS50-1B28T-H□□J | 28 | 141.79 | 150 | 73 | 28 | 8 | ◎ | ◎ | ◎ | ◎ | ○ | ○ | ◎ | | ○ | 28 |
| RS50-1B30T-H□□J | 30 | 151.87 | 161 | 73 | 28 | 8 | ◎ | ◎ | ◎ | ◎ | ◎ | ○ | ◎ | | ○ | 30 |
| RS50-1B32T-H□□J | 32 | 161.96 | 171 | 73 | 28 | 8 | ◎ | ◎ | ◎ | ◎ | ◎ | ○ | ◎ | | ○ | 32 |
| RS50-1B34T-H□□J | 34 | 172.05 | 181 | 73 | 28 | 8 | ◎ | ○ | ◎ | ○ | ◎ | ○ | ◎ | | ◎ | 34 |
| RS50-1B35T-H□□J | 35 | 177.10 | 186 | 73 | 28 | 8 | ○ | ○ | ◎ | ○ | ◎ | ○ | ◎ | | ○ | 35 |

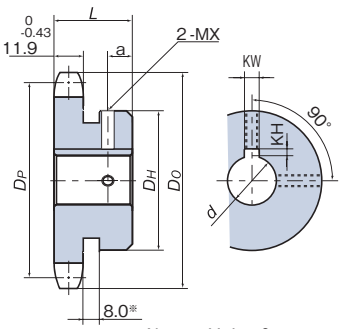
Enter the bore diameter for the □ found in the model numbers.

# RS60 Fit Bore®

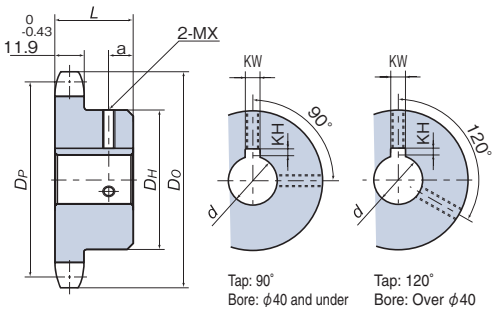
## RS60 Fit Bore

Applicable chain pitch : 19.05mm Roller dia : 11.91mm

Hub with groove (9T – 11T)




Hub without groove (12T and over)




| No. of teeth | Hub dia | Groove dia |
|---|---|---|
| 9T | ϕ 43 | ϕ 32 |
| 10T | ϕ 49 | ϕ 37 |
| 11T | ϕ 51 | ϕ 45 |

*The groove is provided on the perimeter of the hub to prevent interference with the chain.

| Applicable Bore Dia. | Keyway Width | Tolerance (Js9) | Keyway Depth | Tolerance | Set Screw Size |
|---|---|---|---|---|---|
| 10 and up to 12 | 4 | ±0.0150 | 1.8 | +0.1 0 | M4 |
| More than 12 and up to 17 | 5 | | 2.3 | | M5 |
| More than 17 and up to 22 | 6 | | 2.8 | | M6 |
| More than 22 and up to 30 | 8 | ±0.0180 | 3.3 | +0.2 0 | M8 |
| More than 30 and up to 38 | 10 | | | | |
| More than 38 and up to 44 | 12 | ±0.0215 | | | |
| More than 44 and up to 50 | 14 | | 3.8 | | |
| More than 50 and up to 58 | 16 | | 4.3 | | M10 |
| More than 58 and up to 65 | 18 | | 4.4 | | |

・Comes with two alloy steel set screws.

### Model Numbering Example

RS60-1B 20T – H 19 J

- Keyway tolerance (Js9)
- Bore dia.
- Bore tolerance (H7)
- No. of teeth
- Type
- Chain number

| Model Number | No. of Teeth | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Hub Dia. $D_H$ | Hub Length $L$ | Tap Position a | Finished Bore Dia. $d$ 19 | 20 | 22 | 24 | 25 | 28 | 30 | 32 | No. of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS60-1B 9T-H□□J | 9 | 55.70 | 64 | 43 | 32 | 6 | | ○ | ○ | ○ | | | | | 9 |
| RS60-1B10T-H□□J | 10 | 61.65 | 70 | 49 | 32 | 6 | ○ | ○ | ○ | ○ | ◎ | ◎ | ○ | | 10 |
| RS60-1B11T-H□□J | 11 | 67.62 | 76 | 51 | 32 | 6 | ○ | ○ | ○ | ○ | ◎ | ◎ | ◎ | ◎ | 11 |
| RS60-1B12T-H□□J | 12 | 73.60 | 83 | 51 | 32 | 12 | ○ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | 12 |
| RS60-1B13T-H□□J | 13 | 79.60 | 89 | 57 | 32 | 12 | ○ | ○ | ○ | ○ | ◎ | ◎ | ◎ | ◎ | 13 |
| RS60-1B14T-H□□J | 14 | 85.61 | 95 | 62 | 32 | 12 | ○ | ◎ | ◎ | ○ | ◎ | ◎ | ◎ | ◎ | 14 |
| RS60-1B15T-H□□J | 15 | 91.63 | 101 | 68 | 32 | 12 | ○ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | 15 |
| RS60-1B16T-H□□J | 16 | 97.65 | 107 | 73 | 32 | 12 | ○ | ◎ | ○ | ○ | ◎ | ◎ | ◎ | ◎ | 16 |
| RS60-1B17T-H□□J | 17 | 103.67 | 113 | 73 | 32 | 12 | ○ | ○ | ○ | ○ | ◎ | ◎ | ◎ | ◎ | 17 |
| RS60-1B18T-H□□J | 18 | 109.70 | 119 | 83 | 40 | 12 | ○ | ○ | ○ | ○ | ◎ | ◎ | ◎ | ◎ | 18 |
| RS60-1B19T-H□□J | 19 | 115.74 | 126 | 83 | 40 | 12 | ○ | ◎ | ○ | ○ | ◎ | ◎ | ◎ | ◎ | 19 |
| RS60-1B20T-H□□J | 20 | 121.78 | 132 | 83 | 40 | 12 | ○ | ◎ | ◎ | ○ | ◎ | ◎ | ◎ | ◎ | 20 |
| RS60-1B21T-H□□J | 21 | 127.82 | 138 | 83 | 40 | 12 | | ○ | ○ | ○ | ◎ | ○ | ◎ | ◎ | 21 |
| RS60-1B22T-H□□J | 22 | 133.86 | 144 | 83 | 40 | 12 | | ○ | ○ | ○ | ◎ | ○ | ◎ | ◎ | 22 |
| RS60-1B23T-H□□J | 23 | 139.90 | 150 | 83 | 40 | 12 | | ○ | ○ | ○ | ◎ | ○ | ◎ | ◎ | 23 |
| RS60-1B24T-H□□J | 24 | 145.95 | 156 | 83 | 40 | 12 | | ○ | ○ | ○ | ◎ | ○ | ◎ | ◎ | 24 |
| RS60-1B25T-H□□J | 25 | 151.99 | 162 | 83 | 40 | 12 | | ○ | ○ | ○ | ○ | ○ | ◎ | ○ | 25 |
| RS60-1B26T-H□□J | 26 | 158.04 | 168 | 83 | 40 | 12 | | ○ | ○ | ○ | ○ | ◎ | ◎ | ◎ | 26 |
| RS60-1B27T-H□□J | 27 | 164.09 | 174 | 83 | 40 | 12 | | | ○ | ○ | ◎ | ○ | ○ | ○ | 27 |
| RS60-1B28T-H□□J | 28 | 170.14 | 180 | 83 | 40 | 12 | | | ○ | ○ | ○ | ○ | ○ | ○ | 28 |
| RS60-1B30T-H□□J | 30 | 182.25 | 193 | 83 | 40 | 12 | | | ○ | ○ | ○ | ○ | ◎ | ◎ | 30 |

| Model Number | No. of Teeth | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Hub Dia. $D_H$ | Hub Length $L$ | Tap Position a | Finished Bore Dia. $d$ 35 | 38 | 40 | 42 | 45 | 48 | 50 | 55 | No. of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS60-1B13T-H□□J | 13 | 79.60 | 89 | 57 | 32 | 12 | ◎ | | | | | | | | 13 |
| RS60-1B14T-H□□J | 14 | 85.61 | 95 | 62 | 32 | 12 | ◎ | ◎ | | | | | | | 14 |
| RS60-1B15T-H□□J | 15 | 91.63 | 101 | 68 | 32 | 12 | ◎ | ◎ | ◎ | ◎ | ◎ | | | | 15 |
| RS60-1B16T-H□□J | 16 | 97.65 | 107 | 73 | 32 | 12 | ◎ | ◎ | ◎ | ◎ | ◎ | | | | 16 |
| RS60-1B17T-H□□J | 17 | 103.67 | 113 | 73 | 32 | 12 | ◎ | ◎ | ◎ | ○ | ◎ | | | | 17 |
| RS60-1B18T-H□□J | 18 | 109.70 | 119 | 83 | 40 | 12 | ◎ | ◎ | ◎ | ○ | ◎ | ○ | ◎ | ◎ | 18 |
| RS60-1B19T-H□□J | 19 | 115.74 | 126 | 83 | 40 | 12 | ◎ | ◎ | ◎ | ◎ | ◎ | ○ | ◎ | ◎ | 19 |
| RS60-1B20T-H□□J | 20 | 121.78 | 132 | 83 | 40 | 12 | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | 20 |
| RS60-1B21T-H□□J | 21 | 127.82 | 138 | 83 | 40 | 12 | ◎ | ◎ | ◎ | ◎ | ◎ | ○ | ◎ | ◎ | 21 |
| RS60-1B22T-H□□J | 22 | 133.86 | 144 | 83 | 40 | 12 | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | 22 |
| RS60-1B23T-H□□J | 23 | 139.90 | 150 | 83 | 40 | 12 | ◎ | ○ | ◎ | ○ | ○ | | ◎ | ◎ | 23 |
| RS60-1B24T-H□□J | 24 | 145.95 | 156 | 83 | 40 | 12 | ◎ | ◎ | ◎ | ◎ | ◎ | | ◎ | ◎ | 24 |
| RS60-1B25T-H□□J | 25 | 151.99 | 162 | 83 | 40 | 12 | ◎ | ○ | ◎ | ○ | ◎ | | ◎ | ◎ | 25 |
| RS60-1B26T-H□□J | 26 | 158.04 | 168 | 83 | 40 | 12 | ◎ | ◎ | ◎ | ○ | ◎ | | ◎ | ◎ | 26 |
| RS60-1B27T-H□□J | 27 | 164.09 | 174 | 83 | 40 | 12 | ◎ | ○ | ◎ | ○ | ◎ | | ◎ | | 27 |
| RS60-1B28T-H□□J | 28 | 170.14 | 180 | 83 | 40 | 12 | ◎ | ○ | ◎ | ○ | ◎ | | ◎ | | 28 |
| RS60-1B30T-H□□J | 30 | 182.25 | 193 | 83 | 40 | 12 | ◎ | ◎ | ◎ | ◎ | ◎ | | ◎ | | 30 |

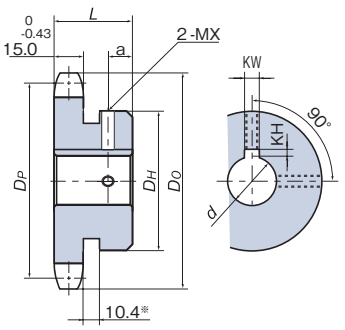
Enter the bore diameter for the □ found in the model numbers.

# RS80 Fit Bore®

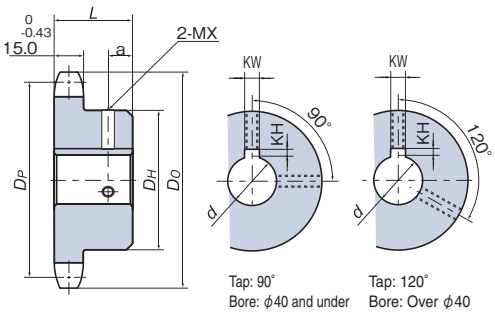
## RS80 Fit Bore

Applicable chain pitch : 25.40mm Roller dia : 15.88mm

Hub with groove (9T)




Hub without groove (10T and over)




| No. of teeth | Hub dia | Groove dia |
|---|---|---|
| 9T | ϕ 58 | ϕ 44 |

*The groove is provided on the perimeter of the hub to prevent interference with the chain.

| Applicable Bore Dia. | Keyway Width | Tolerance (Js9) | Keyway Depth | Tolerance | Set Screw Size |
|---|---|---|---|---|---|
| 10 and up to 12 | 4 | ±0.0150 | 1.8 | +0.1 0 | M4 |
| More than 12 and up to 17 | 5 | | 2.3 | | M5 |
| More than 17 and up to 22 | 6 | | 2.8 | | M6 |
| More than 22 and up to 30 | 8 | ±0.0180 | 3.3 | +0.2 0 | M8 |
| More than 30 and up to 38 | 10 | | | | |
| More than 38 and up to 44 | 12 | ±0.0215 | | | |
| More than 44 and up to 50 | 14 | | 3.8 | | |
| More than 50 and up to 58 | 16 | | 4.3 | | M10 |
| More than 58 and up to 65 | 18 | | 4.4 | | |

・Comes with two alloy steel set screws.

### Model Numbering Example

RS80-1B 20T − H 25 J

- Keyway tolerance (Js9)
- Bore dia.
- Bore tolerance (H7)
- No. of teeth
- Type
- Chain number

| Model Number | No. of Teeth | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Hub Dia. $D_H$ | Hub Length $L$ | Tap Position a | Finished Bore Dia. $d$ | | | | | | | No. of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 25 | 28 | 30 | 32 | 35 | 38 | |
| RS80-1B 9T-H□□J | 9 | 74.26 | 85 | 58 | 40 | 8 | | ○ | ○ | ○ | ◎ | ◎ | | 9 |
| RS80-1B10T-H□□J | 10 | 82.20 | 93 | 52 | 40 | 12 | | ◎ | ○ | ◎ | ◎ | | | 10 |
| RS80-1B11T-H□□J | 11 | 90.16 | 102 | 60 | 40 | 12 | | ○ | ○ | ◎ | ◎ | ◎ | ◎ | 11 |
| RS80-1B12T-H□□J | 12 | 98.14 | 110 | 67 | 40 | 12 | | ○ | ○ | ◎ | ◎ | ◎ | ◎ | 12 |
| RS80-1B13T-H□□J | 13 | 106.14 | 118 | 77 | 40 | 12 | | ○ | ○ | ◎ | ○ | ◎ | ◎ | 13 |
| RS80-1B14T-H□□J | 14 | 114.15 | 127 | 77 | 40 | 12 | | ○ | ○ | ◎ | ◎ | ◎ | ◎ | 14 |
| RS80-1B15T-H□□J | 15 | 122.17 | 135 | 93 | 40 | 12 | | ○ | ◎ | ◎ | ◎ | ◎ | ◎ | 15 |
| RS80-1B16T-H□□J | 16 | 130.20 | 143 | 93 | 40 | 12 | | ○ | ○ | ◎ | ○ | ◎ | ◎ | 16 |
| RS80-1B17T-H□□J | 17 | 138.23 | 151 | 93 | 40 | 12 | | ○ | ○ | ◎ | ◎ | ◎ | ◎ | 17 |
| RS80-1B18T-H□□J | 18 | 146.27 | 159 | 93 | 40 | 12 | | ○ | ○ | ◎ | ◎ | ◎ | ◎ | 18 |
| RS80-1B19T-H□□J | 19 | 154.32 | 167 | 93 | 40 | 12 | | ○ | ○ | ○ | ○ | ○ | ◎ | 19 |
| RS80-1B20T-H□□J | 20 | 162.37 | 176 | 93 | 40 | 12 | | ○ | ○ | ◎ | ○ | ◎ | ◎ | 20 |
| RS80-1B21T-H□□J | 21 | 170.42 | 184 | 93 | 40 | 12 | | ○ | ○ | ○ | ○ | ○ | ○ | 21 |

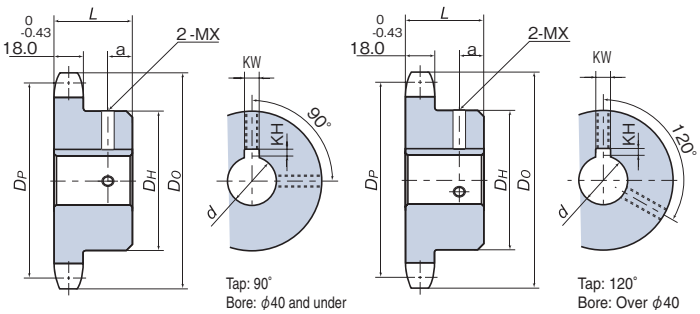
| Model Number | No. of Teeth | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Hub Dia. $D_H$ | Hub Length $L$ | Tap Position a | Finished Bore Dia. $d$ | | | | | | | No. of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 40 | 42 | 45 | 48 | 50 | 55 | 60 | |
| RS80-1B12T-H□□J | 12 | 98.14 | 110 | | 40 | 12 | ◎ | ◎ | ◎ | | | | | 12 |
| RS80-1B13T-H□□J | 13 | 106.14 | 118 | | 40 | 12 | ◎ | ◎ | ◎ | ◎ | ◎ | | | 13 |
| RS80-1B14T-H□□J | 14 | 114.15 | 127 | | 40 | 12 | ◎ | ◎ | ◎ | ◎ | ◎ | | | 14 |
| RS80-1B15T-H□□J | 15 | 122.17 | 135 | | 40 | 12 | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | 15 |
| RS80-1B16T-H□□J | 16 | 130.20 | 143 | | 40 | 12 | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | 16 |
| RS80-1B17T-H□□J | 17 | 138.23 | 151 | | 40 | 12 | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | 17 |
| RS80-1B18T-H□□J | 18 | 146.27 | 159 | | 40 | 12 | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | 18 |
| RS80-1B19T-H□□J | 19 | 154.32 | 167 | | 40 | 12 | ◎ | ○ | ◎ | ○ | ◎ | ◎ | ◎ | 19 |
| RS80-1B20T-H□□J | 20 | 162.37 | 176 | | 40 | 12 | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | 20 |
| RS80-1B21T-H□□J | 21 | 170.42 | 184 | | 40 | 12 | ◎ | ○ | ◎ | ○ | ◎ | ◎ | ◎ | 21 |

Enter the bore diameter for the □ found in the model numbers.

# RS100 Fit Bore®

## RS100 Fit Bore

Applicable chain pitch : 31.75mm Roller dia : 19.05mm




| Applicable Bore Dia. | Keyway Width | Tolerance (Js9) | Keyway Depth | Tolerance | Set Screw Size |
|---|---|---|---|---|---|
| 10 and up to 12 | 4 | ±0.0150 | 1.8 | +0.1 0 | M4 |
| More than 12 and up to 17 | 5 | | 2.3 | | M5 |
| More than 17 and up to 22 | 6 | | 2.8 | | M6 |
| More than 22 and up to 30 | 8 | ±0.0180 | 3.3 | +0.2 0 | M8 |
| More than 30 and up to 38 | 10 | | | | |
| More than 38 and up to 44 | 12 | ±0.0215 | | | |
| More than 44 and up to 50 | 14 | | 3.8 | | |
| More than 50 and up to 58 | 16 | | 4.3 | | M10 |
| More than 58 and up to 65 | 18 | | 4.4 | | |

・Comes with two alloy steel set screws.

### Model Numbering Example

RS100-1B 20T − H 38 J

- Keyway tolerance (Js9)
- Bore dia.
- Bore tolerance (H7)
- No. of teeth
- Type
- Chain number

| Model Number | No. of Teeth | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Hub Dia. $D_H$ | Hub Length $L$ | Tap Position a | Finished Bore Dia. $d$ | | | | | | | No. of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 25 | 28 | 30 | 32 | 35 | 38 | |
| RS100-1B10T-H□□J | 10 | 102.75 | 117 | 65 | 50 | 15 | | ○ | ○ | ○ | ○ | ○ | ○ | 10 |
| RS100-1B11T-H□□J | 11 | 112.70 | 127 | 75 | 50 | 15 | | ○ | ○ | ○ | ○ | ○ | ○ | 11 |
| **RS100-1B12T-H□□J** | 12 | 122.67 | 138 | 86 | 50 | 15 | | ○ | ○ | ○ | ○ | ◎ | ○ | 12 |
| **RS100-1B13T-H□□J** | 13 | 132.67 | 148 | 88 | 50 | 15 | | ○ | ○ | ○ | ○ | ○ | ◎ | 13 |
| RS100-1B14T-H□□J | 14 | 142.68 | 158 | 88 | 50 | 15 | | ○ | ○ | ○ | ○ | ○ | ○ | 14 |
| **RS100-1B15T-H□□J** | 15 | 152.71 | 168 | 98 | 50 | 15 | | | | | ○ | ◎ | ○ | 15 |
| RS100-1B16T-H□□J | 16 | 162.75 | 179 | 98 | 50 | 15 | | | | | | | ○ | 16 |
| RS100-1B17T-H□□J | 17 | 172.79 | 189 | 107 | 50 | 15 | | | | | | | ○ | 17 |
| RS100-1B18T-H□□J | 18 | 182.84 | 199 | 107 | 50 | 15 | | | | | | | ○ | 18 |
| RS100-1B19T-H□□J | 19 | 192.90 | 209 | 107 | 50 | 15 | | | | | | | ○ | 19 |
| RS100-1B20T-H□□J | 20 | 202.96 | 220 | 107 | 50 | 15 | | | | | | | ○ | 20 |

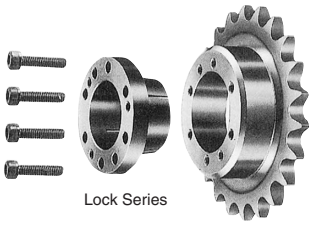
| Model Number | No. of Teeth | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Hub Dia. $D_H$ | Hub Length $L$ | Tap Position a | Finished Bore Dia. $d$ | | | | | | | No. of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 40 | 42 | 45 | 48 | 50 | 55 | 60 | |
| RS100-1B10T-H□□J | 10 | 102.75 | 117 | 65 | 50 | 15 | ○ | ○ | | | | | | 10 |
| RS100-1B11T-H□□J | 11 | 112.70 | 127 | 75 | 50 | 15 | ○ | ○ | ○ | ○ | ○ | | | 11 |
| **RS100-1B12T-H□□J** | 12 | 122.67 | 138 | 86 | 50 | 15 | ○ | ○ | ○ | ○ | ◎ | ◎ | | 12 |
| **RS100-1B13T-H□□J** | 13 | 132.67 | 148 | 88 | 50 | 15 | ○ | ○ | ○ | ○ | ◎ | ◎ | | 13 |
| **RS100-1B14T-H□□J** | 14 | 142.68 | 158 | 88 | 50 | 15 | ○ | ○ | ○ | ○ | ○ | ◎ | | 14 |
| **RS100-1B15T-H□□J** | 15 | 152.71 | 168 | 98 | 50 | 15 | ○ | ○ | ○ | ○ | ◎ | ◎ | ◎ | 15 |
| **RS100-1B16T-H□□J** | 16 | 162.75 | 179 | 98 | 50 | 15 | | | ○ | | ◎ | ◎ | ◎ | 16 |
| **RS100-1B17T-H□□J** | 17 | 172.79 | 189 | 107 | 50 | 15 | | | ○ | | ○ | | ◎ | 17 |
| **RS100-1B18T-H□□J** | 18 | 182.84 | 199 | 107 | 50 | 15 | | | ○ | | ◎ | | ◎ | 18 |
| **RS100-1B19T-H□□J** | 19 | 192.90 | 209 | 107 | 50 | 15 | | | ○ | | ○ | | ◎ | 19 |
| **RS100-1B20T-H□□J** | 20 | 202.96 | 220 | 107 | 50 | 15 | | | ○ | | ○ | | ◎ | 20 |
| **RS100-1B21T-H□□J** | 21 | 213.03 | 230 | 107 | 50 | 15 | | | ○ | | ○ | | ◎ | 21 |

Enter the bore diameter for the □ found in the model numbers.

# Lock Series (with Tightening Device) S Type

Applicable models: RS35 – RS100 1B Type RS Sprockets
Allows RS standard sprockets to be mounted to shafts without using keys.

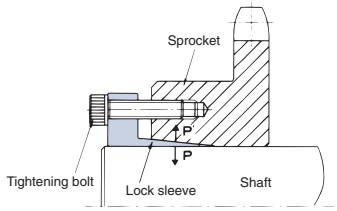
## ■Features




1. No wobbling after mounting (tightening)
2. Easy phase alignment
3. Easy mounting and dismounting
4. No retainers required

## ■Tightening Principle

The inner diameter of the sprocket and the outer diameter of the lock sleeve are tapered. When the mounting bolts are tightened, the sprocket will slide and move up on the tapered surface. A wedge action will generate force P and force P' in the radial direction to press on the shaft and tapered inner side, and frictional force will tightly secure the sprocket and shaft.

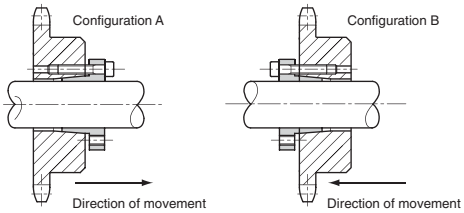



## ■Bolt Tightening Positions

The same sleeve is used for all models, so some holes may not be used. Check the installation guide that comes with the product before attaching the mounting bolts for use.

## ■Direction of Sprocket Movement when Tightening Bolts

When mounting a Lock Series S Type sprocket, the sprocket will move 0.5mm – 1.0mm in the direction of the shaft between the time the sprocket is initially secured and the time the sprocket is tightened. Therefore, take this movement into consideration when centering the sprocket. The amount of sprocket movement varies with the type. (See the illustration on the right.)




## ■General Precautions

1) Allowable transmission torque
   Ensure that the load torque does not exceed the specified transmission torque in the dimension table.
2) Shaft diameter tolerance and surface roughness
   Use a shaft diameter tolerance of h8 and a surface roughness degree of 12S as your standards.
3) Mounting to shafts provided with keyways or D-shaped shafts
   The allowable transmission torque will decrease by 10% when mounting the sprocket to a shaft provided with a finished keyway, such as a motor shaft, or to a D-shaped shaft.
4) Mounting to cold finished carbon steel bars
   The allowable transmission torque will decrease by 10% when mounting the sprocket to a cold finished carbon steel bar (drawn steel with an allowable diameter of 8 – 10 class).
5) Ensure that the shaft is a solid shaft using S35C grade or higher steel.
6) Operating temperature range: -20℃ to 200℃
7) Always use a torque wrench when tightening the bolts. (Refer to the torque wrench operation manual for proper use.)

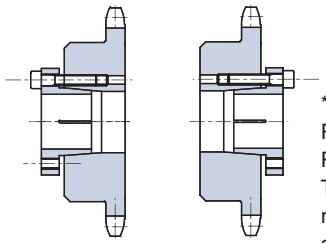
# Ordering Lock Series S Type Sprockets

Please include the product code and model number in your order.

## ■Ordering Example

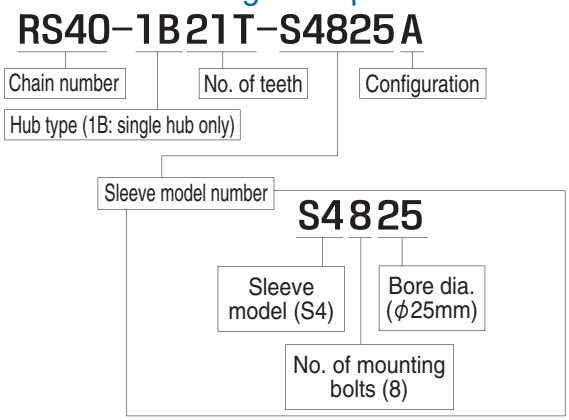
| Product Code | Model Number | No. of Pieces | Unit |
|---|---|---|---|
| G110218 | RS40-1B21T-S4825A | 10 | K (pcs) |

## ■Sleeve Mounting Configuration




*Caution regarding sleeve mounting:
RS35-1B19T-S33□□□
RS40-1B15T-S33□□□
The above models can use configuration A only, as configuration B will cause interference with the chain.

## ■Model Numbering Example

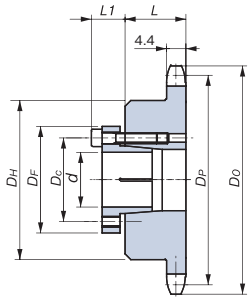


# RS35 Lock Series (S Type)

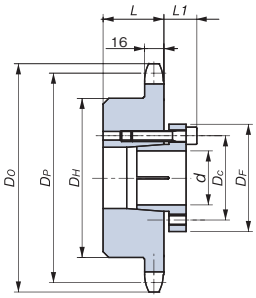
## RS35 Lock Series S Type, Configurations A & B

●Applicable chain pitch : 9.525mm ●Roller dia : 5.08mm

Configuration A




Configuration B




### ■ Lock Series S Type dimensions

| Sleeve Model | $\phi D_F$ (mm) | $\phi D_C$ (mm) | $L_1$ (mm) | Bolt Size (M x S) | Tightening Torque (N·m) |
|---|---|---|---|---|---|
| S1 | 32.0 | 24.0 | 12.0 | M4×16 | 4.2 |
| S2 | 42.0 | 32.0 | 14.0 | M5×18 | 8.3 |
| S3 | 48.0 | 38.5 | 15.5 | M5×20 | 8.3 |
| S4 | 56.0 | 46.0 | 15.5 | M5×20 | 8.3 |
| S5 | 66.0 | 56.0 | 17.5 | M5×22 | 8.3 |
| S6 | 80.0 | 68.0 | 21.0 | M6×25 | 16.8 |
| S7 | 101.0 | 86.0 | 24.5 | M8×30 | 40.5 |

## ■Ordering Example

Example: RS35-1B, No. of teeth: 15, Sleeve configuration: A, Bore dia.: 10mm

| Product Code | Model Number |
|---|---|
| G131001 | RS35-1B15T-S1410A |

## ■Model Numbering Example

RS35-1B23T-S1616■

- Chain no.
- Sprocket type
- Sprocket no. of teeth
- Configuration A or B
- Sleeve model no.
  - S1616
  - Bore dia. ($\phi$16mm)
  - No. of mounting bolts (6)
  - Sleeve model no. (S1)

## ■Dimensions

All models feature hardened teeth.

| Model Number | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Hub Dia. $D_H$ | Hub Length $L$ | Applicable Bore Dia. $d$ 10 | 11 | 12 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 22 | No. of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS35-1B15T-S14□□■ | 45.81 | 51 | 35 | 20 | ● | ● | ● | ● | ● | ● | | | | | | 15 |
| RS35-1B16T-S14□□■ | 48.82 | 54 | 37 | 20 | ● | ● | ● | ● | ● | ● | | | | | | 16 |
| RS35-1B17T-S14□□■ | 51.84 | 57 | 41 | 20 | ● | ● | ● | ● | ● | ● | | | | | | 17 |
| RS35-1B17T-S24□□■ | | | | | | | | | | | ● | ● | ● | ● | ● | |
| RS35-1B18T-S14□□■ | 54.85 | 60 | 44 | 20 | | ● | ● | ● | ● | ● | | | | | | 18 |
| RS35-1B18T-S24□□■ | | | | | | | | | | | ● | ● | ● | ● | ● | |
| RS35-1B19T-S14□□■ | 57.87 | 63 | 47 | 20 | | ● | ● | ● | ● | ● | | | | | | 19 |
| RS35-1B19T-S24□□■ | | | | | | | | | | | ● | ● | ● | ● | ● | |
| RS35-1B20T-S14□□■ | 60.89 | 66 | 50 | 20 | | | ● | ● | ● | ● | | | | | | 20 |
| RS35-1B20T-S24□□■ | | | | | | | | | | | ● | ● | ● | ● | ● | |
| RS35-1B21T-S16□□■ | 63.91 | 69 | 53 | 20 | | | | ● | ● | ● | | | | | | 21 |
| RS35-1B21T-S24□□■ | | | | | | | | | | | ● | ● | ● | ● | ● | |
| RS35-1B22T-S16□□■ | 66.93 | 72 | 53 | 20 | | | | ● | ● | ● | | | | | | 22 |
| RS35-1B22T-S24□□■ | | | | | | | | | | | ● | ● | ● | ● | ● | |
| RS35-1B23T-S16□□■ | 69.95 | 75 | 53 | 20 | | | | ● | ● | ● | | | | | | 23 |
| RS35-1B23T-S24□□■ | | | | | | | | | | | ● | ● | ● | ● | ● | |
| RS35-1B24T-S16□□■ | 72.97 | 78 | 53 | 20 | | | | ● | ● | ● | | | | | | 24 |
| RS35-1B24T-S24□□■ | | | | | | | | | | | ● | ● | ● | ● | ● | |
| RS35-1B25T-S16□□■ | 76.00 | 81 | 53 | 20 | | | | ● | ● | ● | | | | | | 25 |
| RS35-1B25T-S24□□■ | | | | | | | | | | | ● | ● | ● | ● | ● | |
| RS35-1B26T-S16□□■ | 79.02 | 84 | 53 | 22 | | | | ● | ● | ● | | | | | | 26 |
| RS35-1B26T-S24□□■ | | | | | | | | | | | ● | ● | ● | ● | ● | |
| RS35-1B27T-S16□□■ | 82.05 | 87 | 53 | 22 | | | | ● | ● | ● | | | | | | 27 |
| RS35-1B27T-S24□□■ | | | | | | | | | | | ● | ● | ● | ● | ● | |
| RS35-1B28T-S16□□■ | 85.07 | 90 | 53 | 22 | | | | ● | ● | ● | | | | | | 28 |
| RS35-1B28T-S24□□■ | | | | | | | | | | | ● | ● | ● | ● | ● | |
| RS35-1B30T-S16□□■ | 91.12 | 96 | 53 | 22 | | | | ● | ● | ● | | | | | | 30 |
| RS35-1B30T-S24□□■ | | | | | | | | | | | ● | ● | ● | ● | ● | |
| RS35-1B32T-S16□□■ | 97.18 | 102 | 53 | 22 | | | | ● | ● | ● | | | | | | 32 |
| RS35-1B32T-S24□□■ | | | | | | | | | | | ● | ● | ● | ● | ● | |
| RS35-1B34T-S16□□■ | 103.23 | 109 | 53 | 22 | | | | ● | ● | ● | | | | | | 34 |
| RS35-1B34T-S24□□■ | | | | | | | | | | | ● | ● | ● | ● | ● | |
| RS35-1B35T-S16□□■ | 106.26 | 112 | 53 | 22 | | | | ● | ● | ● | | | | | | 35 |
| RS35-1B35T-S24□□■ | | | | | | | | | | | ● | ● | ● | ● | ● | |
| RS35-1B36T-S16□□■ | 109.29 | 115 | 53 | 22 | | | | ● | ● | ● | | | | | | 36 |
| RS35-1B36T-S24□□■ | | | | | | | | | | | ● | ● | ● | ● | ● | |
| RS35-1B38T-S16□□■ | 115.34 | 121 | 63 | 25 | | | | ● | ● | ● | | | | | | 38 |
| RS35-1B38T-S24□□■ | | | | | | | | | | | ● | ● | ● | ● | ● | |
| RS35-1B40T-S16□□■ | 121.40 | 127 | 63 | 25 | | | | ● | ● | ● | | | | | | 40 |
| RS35-1B40T-S24□□■ | | | | | | | | | | | ● | ● | ● | ● | ● | |

Input the bore diameter in the white □□ boxes after the model number, and configuration A or B in the black ■ box. ● circles indicate applicable bore diameters.

# RS35 Lock Series (S Type)

## Dimensions

All models feature hardened teeth.

| Model Number | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Hub Dia. $D_H$ | Hub Length $L$ | Applicable Bore Dia. $d$ | | | | | | No. of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 24 | 25 | 28 | 30 | 32 | 35 | |
| ※RS35-1B19T-S33□□A | 57.87 | 63 | 47 | 20 | ● | ● | ● | | | | 19 |
| RS35-1B20T-S33□□■ | 60.89 | 66 | 50 | 20 | ● | ● | ● | | | | 20 |
| RS35-1B21T-S34□□■ | 63.91 | 69 | 53 | 20 | ● | ● | ● | | | | 21 |
| RS35-1B22T-S44□□■ | 66.93 | 72 | 53 | 20 | ● | ● | ● | ● | ● | ● | 22 |
| RS35-1B23T-S44□□■ | 69.95 | 75 | 53 | 20 | ● | ● | ● | ● | ● | ● | 23 |
| RS35-1B24T-S44□□■ | 72.97 | 78 | 53 | 20 | ● | ● | ● | ● | ● | ● | 24 |
| RS35-1B25T-S44□□■ | 76.00 | 81 | 53 | 20 | ● | ● | ● | ● | ● | ● | 25 |
| RS35-1B26T-S44□□■ | 79.02 | 84 | 53 | 22 | ● | ● | ● | ● | ● | ● | 26 |
| RS35-1B27T-S44□□■ | 82.05 | 87 | 53 | 22 | ● | ● | ● | ● | ● | ● | 27 |
| RS35-1B28T-S44□□■ | 85.07 | 90 | 53 | 22 | ● | ● | ● | ● | ● | ● | 28 |
| RS35-1B30T-S44□□■ | 91.12 | 96 | 53 | 22 | ● | ● | ● | ● | ● | ● | 30 |
| RS35-1B32T-S44□□■ | 97.18 | 102 | 53 | 22 | ● | ● | ● | ● | ● | ● | 32 |
| RS35-1B34T-S44□□■ | 103.23 | 109 | 53 | 22 | ● | ● | ● | ● | ● | ● | 34 |
| RS35-1B35T-S44□□■ | 106.26 | 112 | 53 | 22 | ● | ● | ● | ● | ● | ● | 35 |
| RS35-1B36T-S44□□■ | 109.29 | 115 | 53 | 22 | ● | ● | ● | ● | ● | ● | 36 |
| RS35-1B38T-S44□□■ | 115.34 | 121 | 63 | 25 | ● | ● | ● | ● | ● | ● | 38 |
| RS35-1B40T-S44□□■ | 121.40 | 127 | 63 | 25 | ● | ● | ● | ● | ● | ● | 40 |

Input the bore diameter in the white□□ boxes after the model number, and configuration A or B in the black■ box. ●circles indicate applicable bore diameters.
Note: Models with asterisks * indicate that only configuration A is available.

## RS35 Lock Series (S Type) Maximum Allowable Torque

(Unit: N·m)

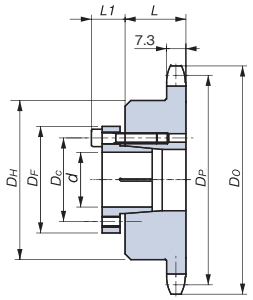
| No. of teeth \ Bore dia. | 10 | 11 | 12 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 22 | 24 | 25 | 28 | 30 | 32 | 35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15T | 58 | 63 | 69 | 81 | 86 | 92 | | | | | | | | | | | |
| 16T | | | | | | | | | | | | | | | | | |
| 17T | | | | | | | 158 | 167 | 177 | 186 | 205 | 167 | 174 | 195 | | | |
| 18T | | | | | | | | | | | | | | | | | |
| 19T | | | | | | | | | | | | | | | | | |
| 20T | | | | | | | | | | | | | | | | | |
| 21T | | | | 121 | 130 | 138 | | | | | | 223 | 232 | 260 | 279 | 298 | 325 |
| 22-40T | | | | | | | | | | | | | | | | | |

# RS40 Lock Series (S Type)

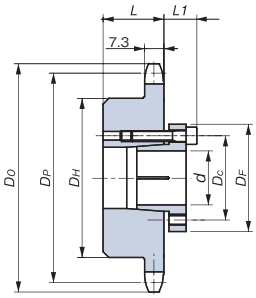
## RS40 Lock Series S Type, Configurations A & B

●Applicable chain pitch : 12.7mm ●Roller dia : 7.92mm

Configuration A




Configuration B




### ■ Lock Series S Type dimensions

| Sleeve Model | $\phi D_F$ (mm) | $\phi D_C$ (mm) | $L_1$ (mm) | Bolt Size (M x S) | Tightening Torque (N·m) |
|---|---|---|---|---|---|
| S1 | 32.0 | 24.0 | 12.0 | M4×16 | 4.2 |
| S2 | 42.0 | 32.0 | 14.0 | M5×18 | 8.3 |
| S3 | 48.0 | 38.5 | 15.5 | M5×20 | 8.3 |
| S4 | 56.0 | 46.0 | 15.5 | M5×20 | 8.3 |
| S5 | 66.0 | 56.0 | 17.5 | M5×22 | 8.3 |
| S6 | 80.0 | 68.0 | 21.0 | M6×25 | 16.8 |
| S7 | 101.0 | 86.0 | 24.5 | M8×30 | 40.5 |

## ■Ordering Example

Example: RS40-1B, No. of teeth: 14, Sleeve configuration: A, Bore dia.: 14mm

| Product Code | Model Number |
|---|---|
| G131266 | RS40-1B14T-S1614A |

## ■Model Numbering Example

RS40-1B21T-S4825■

- Chain no.
- Sprocket type
- Sprocket no. of teeth
- Configuration A or B
- Sleeve model no.
  - S4825
  - Bore dia. (φ25mm)
  - No. of mounting bolts (8)
  - Sleeve model no. (S4)

## ■Dimensions

All models feature hardened teeth.

| Model Number | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Hub Dia. $D_H$ | Hub Length $L$ | Applicable Bore Dia. $d$ 14 | 15 | 16 | 17 | 18 | 19 | 20 | 22 | No. of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS40-1B14T-S16□□■ | 57.07 | 63 | 42 | 22 | ● | | | | | | | | 14 |
| RS40-1B14T-S24□□■ | | | | | | ● | ● | ● | ● | ● | ● | ● | |
| RS40-1B15T-S16□□■ | 61.08 | 67 | 46 | 22 | ● | | | | | | | | 15 |
| RS40-1B15T-S24□□■ | | | | | | ● | ● | ● | ● | ● | ● | ● | |
| RS40-1B16T-S16□□■ | 65.10 | 71 | 50 | 22 | ● | | | | | | | | 16 |
| RS40-1B16T-S24□□■ | | | | | | ● | ● | ● | ● | ● | ● | ● | |
| RS40-1B17T-S24□□■ | 69.12 | 76 | 54 | 22 | | ● | ● | ● | ● | ● | ● | ● | 17 |
| RS40-1B18T-S24□□■ | 73.14 | 80 | 57 | 22 | | ● | ● | ● | ● | ● | ● | ● | 18 |
| RS40-1B19T-S24□□■ | 77.16 | 84 | 62 | 22 | | ● | ● | ● | ● | ● | ● | ● | 19 |
| RS40-1B20T-S25□□■ | 81.18 | 88 | 67 | 25 | | ● | ● | ● | ● | ● | ● | ● | 20 |
| RS40-1B21T-S25□□■ | 85.21 | 92 | 71 | 25 | | ● | ● | ● | ● | ● | ● | ● | 21 |
| RS40-1B22T-S25□□■ | 89.24 | 96 | 75 | 25 | | ● | ● | ● | ● | ● | ● | ● | 22 |
| RS40-1B23T-S25□□■ | 93.27 | 100 | 77 | 25 | | ● | ● | ● | ● | ● | ● | ● | 23 |
| RS40-1B24T-S25□□■ | 97.30 | 104 | 63 | 25 | | ● | ● | ● | ● | ● | ● | ● | 24 |
| RS40-1B25T-S25□□■ | 101.33 | 108 | 63 | 25 | | | ● | ● | ● | ● | ● | ● | 25 |
| RS40-1B26T-S25□□■ | 105.36 | 112 | 63 | 25 | | | | ● | ● | ● | ● | ● | 26 |
| RS40-1B27T-S25□□■ | 109.40 | 116 | 63 | 25 | | | | ● | ● | ● | ● | ● | 27 |
| RS40-1B28T-S25□□■ | 113.43 | 120 | 63 | 25 | | | | ● | ● | ● | ● | ● | 28 |
| RS40-1B30T-S25□□■ | 121.50 | 128 | 63 | 25 | | | | | | ● | ● | ● | 30 |
| RS40-1B32T-S25□□■ | 129.57 | 137 | 68 | 28 | | | | | | | ● | ● | 32 |

Input the bore diameter in the white □□ boxes after the model number, and configuration A or B in the black ■ box. ● circles indicate applicable bore diameters.

# RS40 Lock Series (S Type)

## Dimensions

All models feature hardened teeth.

| Model Number | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Hub Dia. $D_H$ | Hub Length $L$ | Applicable Bore Dia. $d$ | | | | | | | | | | No. of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 24 | 25 | 28 | 30 | 32 | 35 | 38 | 40 | 42 | 45 | |
| ※RS40-1B15T-S33□□A | 61.08 | 67 | 46 | 22 | ● | ● | ● | | | | | | | | 15 |
| RS40-1B16T-S33□□■ | 65.10 | 71 | 50 | 22 | ● | ● | ● | | | | | | | | 16 |
| RS40-1B17T-S44□□■ | 69.12 | 76 | 54 | 22 | ● | ● | ● | ● | ● | ● | | | | | 17 |
| RS40-1B18T-S44□□■ | 73.14 | 80 | 57 | 22 | ● | ● | ● | ● | ● | ● | | | | | 18 |
| RS40-1B19T-S44□□■ | 77.16 | 84 | 62 | 22 | ● | ● | ● | ● | ● | ● | | | | | 19 |
| RS40-1B20T-S48□□■ | 81.18 | 88 | 67 | 25 | ● | ● | ● | ● | ● | ● | | | | | 20 |
| RS40-1B20T-S56□□■ | | | | | | | | | | | ● | ● | ● | ● | |
| RS40-1B21T-S48□□■ | 85.21 | 92 | 71 | 25 | ● | ● | ● | ● | ● | ● | | | | | 21 |
| RS40-1B21T-S56□□■ | | | | | | | | | | | ● | ● | ● | ● | |
| RS40-1B22T-S48□□■ | 89.24 | 96 | 75 | 25 | ● | ● | ● | ● | ● | ● | | | | | 22 |
| RS40-1B22T-S56□□■ | | | | | | | | | | | ● | ● | ● | ● | |
| RS40-1B23T-S48□□■ | 93.27 | 100 | 77 | 25 | ● | ● | ● | ● | ● | ● | | | | | 23 |
| RS40-1B23T-S56□□■ | | | | | | | | | | | ● | ● | ● | ● | |
| RS40-1B24T-S48□□■ | 97.30 | 104 | 63 | 25 | ● | ● | ● | ● | ● | ● | | | | | 24 |
| RS40-1B24T-S56□□■ | | | | | | | | | | | ● | ● | ● | ● | |
| RS40-1B25T-S48□□■ | 101.33 | 108 | 63 | 25 | ● | ● | ● | ● | ● | ● | | | | | 25 |
| RS40-1B25T-S56□□■ | | | | | | | | | | | ● | ● | ● | ● | |
| RS40-1B26T-S48□□■ | 105.36 | 112 | 63 | 25 | ● | ● | ● | ● | ● | ● | | | | | 26 |
| RS40-1B26T-S56□□■ | | | | | | | | | | | ● | ● | ● | ● | |
| RS40-1B27T-S48□□■ | 109.40 | 116 | 63 | 25 | ● | ● | ● | ● | ● | ● | | | | | 27 |
| RS40-1B27T-S56□□■ | | | | | | | | | | | ● | ● | ● | ● | |
| RS40-1B28T-S48□□■ | 113.43 | 120 | 63 | 25 | ● | ● | ● | ● | ● | ● | | | | | 28 |
| RS40-1B28T-S56□□■ | | | | | | | | | | | ● | ● | ● | ● | |
| RS40-1B30T-S48□□■ | 121.50 | 128 | 63 | 25 | ● | ● | ● | ● | ● | ● | | | | | 30 |
| RS40-1B30T-S56□□■ | | | | | | | | | | | ● | ● | ● | ● | |
| RS40-1B32T-S48□□■ | 129.57 | 137 | 68 | 28 | ● | ● | ● | ● | ● | ● | | | | | 32 |
| RS40-1B32T-S56□□■ | | | | | | | | | | | ● | ● | ● | ● | |
| RS40-1B34T-S48□□■ | 137.64 | 145 | 68 | 28 | ● | ● | ● | ● | ● | ● | | | | | 34 |
| RS40-1B34T-S56□□■ | | | | | | | | | | | ● | ● | ● | ● | |
| RS40-1B35T-S48□□■ | 141.68 | 149 | 68 | 28 | ● | ● | ● | ● | ● | ● | | | | | 35 |
| RS40-1B35T-S56□□■ | | | | | | | | | | | ● | ● | ● | ● | |
| RS40-1B36T-S48□□■ | 145.72 | 153 | 68 | 28 | ● | ● | ● | ● | ● | ● | | | | | 36 |
| RS40-1B36T-S56□□■ | | | | | | | | | | | ● | ● | ● | ● | |
| RS40-1B38T-S48□□■ | 153.79 | 161 | 68 | 28 | ● | ● | ● | ● | ● | ● | | | | | 38 |
| RS40-1B38T-S56□□■ | | | | | | | | | | | ● | ● | ● | ● | |
| RS40-1B40T-S48□□■ | 161.87 | 169 | 68 | 28 | ● | ● | ● | ● | ● | ● | | | | | 40 |
| RS40-1B40T-S56□□■ | | | | | | | | | | | ● | ● | ● | ● | |

Input the bore diameter in the white □□ boxes after the model number, and configuration A or B in the black ■ box. ● circles indicate applicable bore diameters.
Note: Models with asterisks * indicate that only configuration A is available.

## RS40 Lock Series (S Type) Maximum Allowable Torque

(Unit: N·m)

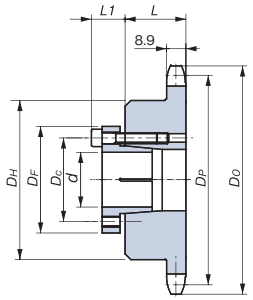
| No. of teeth \ Bore dia. | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 22 | 24 | 25 | 28 | 30 | 32 | 35 | 38 | 40 | 42 | 45 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14T | | | | | | | | | | | | | | | | | | |
| 15T | 121 | | | | | | | | 167 | 174 | 195 | | | | | | | |
| 16T | | | | | | | | | | | | | | | | | | |
| 17T | | 139 | 149 | 158 | 167 | 177 | 186 | 205 | | | | | | | | | | |
| 18T | | | | | | | | | 223 | 232 | 260 | 279 | 298 | 325 | | | | |
| 19T | | | | | | | | | | | | | | | | | | |
| 20T | | | | | | | | | | | | | | | | | | |
| 21T | | | | | | | | | | | | | | | | | | |
| 22T | | 174 | 186 | | | | | | | | | | | | | | | |
| 23T | | | | | | | | | | | | | | | | | | |
| 24T | | | | 198 | 209 | 221 | 232 | 256 | 446 | 465 | 521 | 558 | 595 | 651 | 530 | 558 | 586 | 628 |
| 25T | | | | | | | | | | | | | | | | | | |
| 26T | | | | | | | | | | | | | | | | | | |
| 27T | | | | | | | | | | | | | | | | | | |
| 28T | | | | | | | | | | | | | | | | | | |
| 30T | | | | | | | | | | | | | | | | | | |
| 32T | | | | | | | | | | | | | | | | | | |
| 34-40T | | | | | | | | | | | | | | | | | | |

# RS50 Lock Series (S Type)

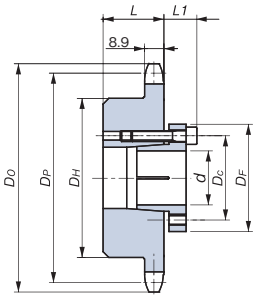
## RS50 Lock Series S Type, Configurations A & B

●Applicable chain pitch : 15.875mm ●Roller dia : 10.16mm

Configuration A




Configuration B




### ■ Lock Series S Type dimensions

| Sleeve Model | $\phi D_F$ (mm) | $\phi D_C$ (mm) | $L_1$ (mm) | Bolt Size (M x S) | Tightening Torque (N·m) |
|---|---|---|---|---|---|
| S1 | 32.0 | 24.0 | 12.0 | M4×16 | 4.2 |
| S2 | 42.0 | 32.0 | 14.0 | M5×18 | 8.3 |
| S3 | 48.0 | 38.5 | 15.5 | M5×20 | 8.3 |
| S4 | 56.0 | 46.0 | 15.5 | M5×20 | 8.3 |
| S5 | 66.0 | 56.0 | 17.5 | M5×22 | 8.3 |
| S6 | 80.0 | 68.0 | 21.0 | M6×25 | 16.8 |
| S7 | 101.0 | 86.0 | 24.5 | M8×30 | 40.5 |

## ■Ordering Example

Example: RS50-1B, No. of teeth: 14, Sleeve configuration: A, Bore dia.: 15mm

| Product Code | Model Number |
|---|---|
| G131562 | RS50-1B14T-S2515A |

## ■Model Numbering Example

RS50-1B20T-S4828■

- Chain no.
- Sprocket type
- Sprocket no. of teeth
- Configuration A or B
- Sleeve model no.
  - S4828
  - Bore dia. (φ28mm)
  - No. of mounting bolts (8)
  - Sleeve model no. (S4)

## ■Dimensions

Teeth hardened up to 35T.

| Model Number | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Hub Dia. $D_H$ | Hub Length $L$ | Applicable Bore Dia. $d$ 15 | 16 | 17 | 18 | 19 | 20 | 22 | 24 | 25 | 28 | 30 | No. of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS50-1B14T-S25□□■ | 71.34 | 79 | 52 | 25 | ● | ● | | | | | | | | | | 14 |
| RS50-1B14T-S26□□■ | | | | | | | ● | ● | ● | ● | ● | | | | | |
| RS50-1B15T-S25□□■ | 76.35 | 84 | 57 | 25 | ● | ● | | | | | | | | | | 15 |
| RS50-1B15T-S26□□■ | | | | | | | ● | ● | ● | ● | ● | | | | | |
| RS50-1B15T-S44□□■ | | | | | | | | | | | | ● | ● | ● | ● | |
| RS50-1B16T-S25□□■ | 81.37 | 89 | 62 | 25 | ● | ● | | | | | | | | | | 16 |
| RS50-1B16T-S26□□■ | | | | | | | ● | ● | ● | ● | ● | | | | | |
| RS50-1B16T-S44□□■ | | | | | | | | | | | | ● | ● | ● | ● | |
| RS50-1B17T-S26□□■ | 86.39 | 94 | 67 | 25 | | | | | | ● | ● | | | | | 17 |
| RS50-1B17T-S48□□■ | | | | | | | | | | | | ● | ● | ● | ● | |
| RS50-1B18T-S26□□■ | 91.42 | 100 | 72 | 28 | | | | | | | ● | | | | | 18 |
| RS50-1B18T-S48□□■ | | | | | | | | | | | | ● | ● | ● | ● | |
| RS50-1B19T-S26□□■ | 96.45 | 105 | 73 | 28 | | | | | | | ● | | | | | 19 |
| RS50-1B19T-S48□□■ | | | | | | | | | | | | ● | ● | ● | ● | |
| RS50-1B20T-S48□□■ | 101.48 | 110 | 73 | 28 | | | | | | | | ● | ● | ● | ● | 20 |
| RS50-1B21T-S48□□■ | 106.51 | 115 | 73 | 28 | | | | | | | | ● | ● | ● | ● | 21 |
| RS50-1B22T-S48□□■ | 111.55 | 120 | 73 | 28 | | | | | | | | ● | ● | ● | ● | 22 |
| RS50-1B23T-S48□□■ | 116.59 | 125 | 73 | 28 | | | | | | | | ● | ● | ● | ● | 23 |
| RS50-1B24T-S48□□■ | 121.62 | 130 | 73 | 28 | | | | | | | | ● | ● | ● | ● | 24 |
| RS50-1B25T-S48□□■ | 126.66 | 135 | 73 | 28 | | | | | | | | ● | ● | ● | ● | 25 |
| RS50-1B26T-S48□□■ | 131.70 | 140 | 73 | 28 | | | | | | | | ● | ● | ● | ● | 26 |
| RS50-1B27T-S48□□■ | 136.74 | 145 | 73 | 28 | | | | | | | | ● | ● | ● | ● | 27 |
| RS50-1B28T-S48□□■ | 141.79 | 150 | 73 | 28 | | | | | | | | | ● | ● | ● | 28 |
| RS50-1B30T-S48□□■ | 151.87 | 161 | 73 | 28 | | | | | | | | | ● | ● | ● | 30 |
| RS50-1B32T-S48□□■ | 161.96 | 171 | 73 | 28 | | | | | | | | | ● | ● | ● | 32 |
| RS50-1B34T-S48□□■ | 172.05 | 181 | 73 | 28 | | | | | | | | | | | ● | 34 |

Input the bore diameter in the white □□ boxes after the model number, and configuration A or B in the black ■ box. ● circles indicate applicable bore diameters.

# RS50 Lock Series (S Type)

## Dimensions

Teeth hardened up to 35T.

| Model Number | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Hub Dia. $D_H$ | Hub Length $L$ | Applicable Bore Dia. $d$ | | | | | | | | | No. of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 32 | 35 | 38 | 40 | 42 | 45 | 48 | 50 | 55 | |
| RS50-1B15T-S44□□■ | 76.35 | 84 | 57 | 25 | ● | ● | | | | | | | | 15 |
| RS50-1B16T-S44□□■ | 81.37 | 89 | 62 | 25 | ● | ● | | | | | | | | 16 |
| RS50-1B17T-S48□□■ | 86.39 | 94 | 67 | 25 | ● | ● | | | | | | | | 17 |
| RS50-1B17T-S56□□■ | | | | | | | ● | ● | ● | ● | | | | |
| RS50-1B18T-S48□□■ | 91.42 | 100 | 72 | 28 | ● | ● | | | | | | | | 18 |
| RS50-1B18T-S56□□■ | | | | | | | ● | ● | ● | ● | | | | |
| RS50-1B19T-S48□□■ | 96.45 | 105 | 73 | 28 | ● | ● | | | | | | | | 19 |
| RS50-1B19T-S56□□■ | | | | | | | ● | ● | ● | ● | | | | |
| RS50-1B20T-S48□□■ | 101.48 | 110 | 73 | 28 | ● | ● | | | | | | | | 20 |
| RS50-1B20T-S56□□■ | | | | | | | ● | ● | ● | ● | | | | |
| RS50-1B21T-S48□□■ | 106.51 | 115 | 73 | 28 | ● | ● | | | | | | | | 21 |
| RS50-1B21T-S56□□■ | | | | | | | ● | ● | ● | ● | | | | |
| RS50-1B22T-S48□□■ | 111.55 | 120 | 73 | 28 | ● | ● | | | | | | | | 22 |
| RS50-1B22T-S56□□■ | | | | | | | ● | ● | ● | ● | | | | |
| RS50-1B23T-S48□□■ | 116.59 | 125 | 73 | 28 | ● | ● | | | | | | | | 23 |
| RS50-1B23T-S56□□■ | | | | | | | ● | ● | ● | ● | | | | |
| RS50-1B24T-S48□□■ | 121.62 | 130 | 73 | 28 | ● | ● | | | | | | | | 24 |
| RS50-1B24T-S56□□■ | | | | | | | ● | ● | ● | ● | | | | |
| RS50-1B25T-S48□□■ | 126.66 | 135 | 73 | 28 | ● | ● | | | | | | | | 25 |
| RS50-1B25T-S56□□■ | | | | | | | ● | ● | ● | ● | | | | |
| RS50-1B26T-S48□□■ | 131.70 | 140 | 73 | 28 | ● | ● | | | | | | | | 26 |
| RS50-1B26T-S56□□■ | | | | | | | ● | ● | ● | ● | | | | |
| RS50-1B27T-S48□□■ | 136.74 | 145 | 73 | 28 | ● | ● | | | | | | | | 27 |
| RS50-1B27T-S56□□■ | | | | | | | ● | ● | ● | ● | | | | |
| RS50-1B28T-S48□□■ | 141.79 | 150 | 73 | 28 | ● | ● | | | | | | | | 28 |
| RS50-1B28T-S56□□■ | | | | | | | ● | ● | ● | ● | | | | |
| RS50-1B30T-S48□□■ | 151.87 | 161 | 73 | 28 | ● | ● | | | | | | | | 30 |
| RS50-1B30T-S56□□■ | | | | | | | ● | ● | ● | ● | | | | |
| RS50-1B32T-S48□□■ | 161.96 | 171 | 73 | 28 | ● | ● | | | | | | | | 32 |
| RS50-1B32T-S56□□■ | | | | | | | ● | ● | ● | ● | | | | |
| RS50-1B34T-S48□□■ | 172.05 | 181 | 73 | 28 | ● | ● | | | | | | | | 34 |
| RS50-1B34T-S56□□■ | | | | | | | ● | ● | ● | ● | | | | |
| RS50-1B35T-S48□□■ | 177.10 | 186 | 73 | 28 | ● | ● | | | | | | | | 35 |
| RS50-1B35T-S56□□■ | | | | | | | ● | ● | ● | ● | | | | |
| RS50-1B36T-S510□□■ | 182.15 | 191 | 83 | 35 | | | ● | ● | ● | ● | | | | 36 |
| RS50-1B36T-S66□□■ | | | | | | | | | | | ● | ● | ● | |
| RS50-1B38T-S510□□■ | 192.24 | 201 | 83 | 35 | | | ● | ● | ● | ● | | | | 38 |
| RS50-1B38T-S66□□■ | | | | | | | | | | | ● | ● | ● | |
| RS50-1B40T-S510□□■ | 202.33 | 211 | 83 | 35 | | | ● | ● | ● | ● | | | | 40 |
| RS50-1B40T-S66□□■ | | | | | | | | | | | ● | ● | ● | |

Input the bore diameter in the white □□ boxes after the model number, and configuration A or B in the black ■ box. ● circles indicate applicable bore diameters.

## RS50 Lock Series (S Type) Maximum Allowable Torque

(Unit: N·m)

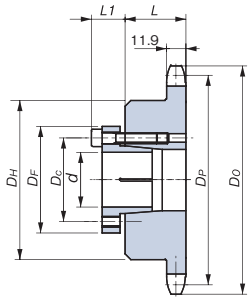
| No. of teeth \ Bore dia. | 15 | 16 | 17 | 18 | 19 | 20 | 22 | 24 | 25 | 28 | 30 | 32 | 35 | 38 | 40 | 42 | 45 | 48 | 50 | 55 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14T | | | | | | | | | | | | | | | | | | | | |
| 15T | 174 | 186 | 237 | 251 | 265 | 279 | | 223 | 232 | 260 | 279 | 298 | 325 | | | | | | | |
| 16T | | | | | | | 307 | | | | | | | | | | | | | |
| 17T | | | | | | | | 446 | 465 | 521 | 558 | 595 | 651 | 530 | 558 | 586 | 628 | | | |
| 18T | | | | | | | | | | | | | | | | | | | | |
| 19T | | | | | | | | | | | | | | | | | | | | |
| 20T | | | | | | | | | | | | | | | | | | | | |
| 21T | | | | | | | | | | | | | | | | | | | | |
| 22T | | | | | | | | | | | | | | | | | | | | |
| 23T | | | | | | | | | | | | | | | | | | | | |
| 24T | | | | | | | | | | | | | | | | | | | | |
| 25T | | | | | | | | | | | | | | | | | | | | |
| 26T | | | | | | | | | | | | | | | | | | | | |
| 27T | | | | | | | | | | | | | | | | | | | | |
| 28T | | | | | | | | | | | | | | | | | | | | |
| 30T | | | | | | | | | | | | | | | | | | | | |
| 32T | | | | | | | | | | | | | | | | | | | | |
| 34T | | | | | | | | | | | | | | | | | | | | |
| 35T | | | | | | | | | | | | | | | | | | | | |
| 36-40T | | | | | | | | | | | | | | 883 | 930 | 976 | 1046 | 1116 | 1162 | 1279 |

# RS60 Lock Series (S Type)

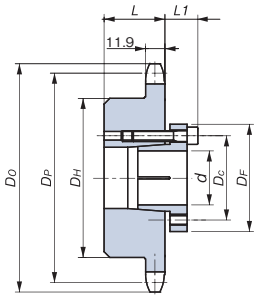
## RS60 Lock Series S Type, Configurations A & B

●Applicable chain pitch : 19.05mm ●Roller dia : 11.91mm

Configuration A




Configuration B




### ■ Lock Series S Type dimensions

| Sleeve Model | $\phi D_F$ (mm) | $\phi D_C$ (mm) | $L_1$ (mm) | Bolt Size (M x S) | Tightening Torque (N·m) |
|---|---|---|---|---|---|
| S1 | 32.0 | 24.0 | 12.0 | M4×16 | 4.2 |
| S2 | 42.0 | 32.0 | 14.0 | M5×18 | 8.3 |
| S3 | 48.0 | 38.5 | 15.5 | M5×20 | 8.3 |
| S4 | 56.0 | 46.0 | 15.5 | M5×20 | 8.3 |
| S5 | 66.0 | 56.0 | 17.5 | M5×22 | 8.3 |
| S6 | 80.0 | 68.0 | 21.0 | M6×25 | 16.8 |
| S7 | 101.0 | 86.0 | 24.5 | M8×30 | 40.5 |

## ■Ordering Example

Example: RS60-1B, No. of teeth: 12, Sleeve configuration: A, Bore dia.: 18mm

| Product Code | Model Number |
|---|---|
| G131765 | RS60-1B12T-S2618A |

## ■Model Numbering Example

**RS60-1B16T-S4828■**

- RS60: Chain no.
- 1B: Sprocket type
- 16T: Sprocket no. of teeth
- S4828: Sleeve model no.
  - S4: Sleeve model no. (S4)
  - 8: No. of mounting bolts (8)
  - 28: Bore dia. (φ28mm)
- ■: Configuration A or B

## ■Dimensions

Teeth hardened up to 30T.

| Model Number | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Hub Dia. $D_H$ | Hub Length $L$ | Applicable Bore Dia. $d$ 18 | 19 | 20 | 22 | 24 | 25 | 28 | 30 | 32 | 35 | No. of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS60-1B12T-S26□□■ | 73.60 | 83 | 51 | 32 | ● | ● | ● | ● | | | | | | | 12 |
| RS60-1B13T-S26□□■ | 79.60 | 89 | 57 | 32 | ● | ● | ● | ● | | | | | | | 13 |
| RS60-1B13T-S46□□■ | | | | | | | | | ● | ● | ● | ● | ● | ● | |
| RS60-1B14T-S26□□■ | 85.61 | 95 | 62 | 32 | ● | ● | ● | ● | | | | | | | 14 |
| RS60-1B14T-S46□□■ | | | | | | | | | ● | ● | ● | ● | ● | ● | |
| RS60-1B15T-S48□□■ | 91.63 | 101 | 68 | 32 | | | | | ● | ● | ● | ● | ● | ● | 15 |
| RS60-1B16T-S48□□■ | 97.65 | 107 | 73 | 32 | | | | | ● | ● | ● | ● | ● | ● | 16 |
| RS60-1B17T-S48□□■ | 103.67 | 113 | 73 | 32 | | | | | | ● | ● | ● | ● | ● | 17 |
| RS60-1B18T-S48□□■ | 109.70 | 119 | 83 | 40 | | | | | | | ● | ● | ● | ● | 18 |
| RS60-1B19T-S48□□■ | 115.74 | 126 | 83 | 40 | | | | | | | ● | ● | ● | ● | 19 |
| RS60-1B20T-S48□□■ | 121.78 | 132 | 83 | 40 | | | | | | | | ● | ● | ● | 20 |
| RS60-1B21T-S48□□■ | 127.82 | 138 | 83 | 40 | | | | | | | | | ● | ● | 21 |
| RS60-1B22T-S48□□■ | 133.86 | 144 | 83 | 40 | | | | | | | | | ● | ● | 22 |
| RS60-1B23T-S48□□■ | 139.90 | 150 | 83 | 40 | | | | | | | | | | ● | 23 |
| RS60-1B24T-S48□□■ | 145.95 | 156 | 83 | 40 | | | | | | | | | | ● | 24 |
| RS60-1B25T-S48□□■ | 151.99 | 162 | 83 | 40 | | | | | | | | | | ● | 25 |

Input the bore diameter in the white □□ boxes after the model number, and configuration A or B in the black ■ box. ● circles indicate applicable bore diameters.

# RS60 Lock Series (S Type)

## Dimensions

Teeth hardened up to 30T.

| Model Number | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Hub Dia. $D_H$ | Hub Length $L$ | Applicable Bore Dia. $d$ 38 | 40 | 42 | 45 | 48 | 50 | 55 | No. of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS60-1B15T-S56□□■ | 91.63 | 101 | 68 | 32 | ● | ● | ● | ● | | | | 15 |
| RS60-1B16T-S56□□■ | 97.65 | 107 | 73 | 32 | ● | ● | ● | ● | | | | 16 |
| RS60-1B17T-S56□□■ | 103.67 | 113 | 73 | 32 | ● | ● | ● | ● | | | | 17 |
| RS60-1B18T-S510□□■ | 109.70 | 119 | 83 | 40 | ● | ● | ● | ● | | | | 18 |
| RS60-1B18T-S66□□■ | | | | | | | | | ● | ● | ● | |
| RS60-1B19T-S510□□■ | 115.74 | 126 | 83 | 40 | ● | ● | ● | ● | | | | 19 |
| RS60-1B19T-S66□□■ | | | | | | | | | ● | ● | ● | |
| RS60-1B20T-S510□□■ | 121.78 | 132 | 83 | 40 | ● | ● | ● | ● | | | | 20 |
| RS60-1B20T-S66□□■ | | | | | | | | | ● | ● | ● | |
| RS60-1B21T-S510□□■ | 127.82 | 138 | 83 | 40 | ● | ● | ● | ● | | | | 21 |
| RS60-1B21T-S66□□■ | | | | | | | | | ● | ● | ● | |
| RS60-1B22T-S510□□■ | 133.86 | 144 | 83 | 40 | ● | ● | ● | ● | | | | 22 |
| RS60-1B22T-S66□□■ | | | | | | | | | ● | ● | ● | |
| RS60-1B23T-S510□□■ | 139.90 | 150 | 83 | 40 | ● | ● | ● | ● | | | | 23 |
| RS60-1B23T-S66□□■ | | | | | | | | | ● | ● | ● | |
| RS60-1B24T-S510□□■ | 145.95 | 156 | 83 | 40 | ● | ● | ● | ● | | | | 24 |
| RS60-1B24T-S66□□■ | | | | | | | | | ● | ● | ● | |
| RS60-1B25T-S510□□■ | 151.99 | 162 | 83 | 40 | ● | ● | ● | ● | | | | 25 |
| RS60-1B25T-S66□□■ | | | | | | | | | ● | ● | ● | |
| RS60-1B26T-S510□□■ | 158.04 | 168 | 83 | 40 | ● | ● | ● | ● | | | | 26 |
| RS60-1B26T-S66□□■ | | | | | | | | | ● | ● | ● | |
| RS60-1B27T-S510□□■ | 164.09 | 174 | 83 | 40 | ● | ● | ● | ● | | | | 27 |
| RS60-1B27T-S66□□■ | | | | | | | | | ● | ● | ● | |
| RS60-1B28T-S510□□■ | 170.14 | 180 | 83 | 40 | ● | ● | ● | ● | | | | 28 |
| RS60-1B28T-S66□□■ | | | | | | | | | ● | ● | ● | |
| RS60-1B30T-S510□□■ | 182.25 | 193 | 83 | 40 | ● | ● | ● | ● | | | | 30 |
| RS60-1B30T-S66□□■ | | | | | | | | | ● | ● | ● | |
| RS60-1B32T-S510□□■ | 194.35 | 205 | 83 | 40 | ● | ● | ● | ● | | | | 32 |
| RS60-1B32T-S66□□■ | | | | | | | | | ● | ● | ● | |
| RS60-1B34T-S510□□■ | 206.46 | 217 | 83 | 40 | | ● | ● | ● | | | | 34 |
| RS60-1B34T-S66□□■ | | | | | | | | | ● | ● | ● | |
| RS60-1B35T-S510□□■ | 212.52 | 223 | 83 | 40 | | | | ● | | | | 35 |
| RS60-1B35T-S66□□■ | | | | | | | | | ● | ● | ● | |
| RS60-1B36T-S510□□■ | 218.57 | 229 | 83 | 40 | | | | ● | | | | 36 |
| RS60-1B36T-S66□□■ | | | | | | | | | ● | ● | ● | |
| RS60-1B38T-S510□□■ | 230.69 | 241 | 83 | 40 | | | | ● | | | | 38 |
| RS60-1B38T-S66□□■ | | | | | | | | | ● | ● | ● | |
| RS60-1B40T-S66□□■ | 242.80 | 253 | 83 | 40 | | | | | ● | ● | ● | 40 |

Input the bore diameter in the white □□ boxes after the model number, and configuration A or B in the black ■ box. ● circles indicate applicable bore diameters.

## RS60 Lock Series (S Type) Maximum Allowable Torque

(Unit: N·m)

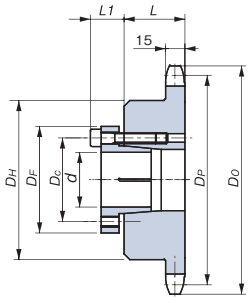
| No. of teeth \ Bore dia. | 18 | 19 | 20 | 22 | 24 | 25 | 28 | 30 | 32 | 35 | 38 | 40 | 42 | 45 | 48 | 50 | 55 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12T | 251 | 265 | 279 | 307 | | | | | | | | | | | | | |
| 13T | | | | | 335 | 349 | 391 | 418 | 446 | 488 | | | | | | | |
| 14T | | | | | | | | | | | | | | | | | |
| 15T | | | | | 446 | 465 | 521 | 558 | 595 | 651 | 530 | 558 | 586 | 628 | | | |
| 16T | | | | | | | | | | | | | | | | | |
| 17T | | | | | | | | | | | | | | | | | |
| 18T | | | | | | | | | | | 883 | 930 | 976 | 1046 | 1116 | 1162 | 1279 |
| 19T | | | | | | | | | | | | | | | | | |
| 20T | | | | | | | | | | | | | | | | | |
| 21T | | | | | | | | | | | | | | | | | |
| 22T | | | | | | | | | | | | | | | | | |
| 23T | | | | | | | | | | | | | | | | | |
| 24T | | | | | | | | | | | | | | | | | |
| 25T | | | | | | | | | | | | | | | | | |
| 26T | | | | | | | | | | | | | | | | | |
| 27T | | | | | | | | | | | | | | | | | |
| 28T | | | | | | | | | | | | | | | | | |
| 30T | | | | | | | | | | | | | | | | | |
| 32T | | | | | | | | | | | | | | | | | |
| 34T | | | | | | | | | | | | | | | | | |
| 35T | | | | | | | | | | | | | | | | | |
| 36T | | | | | | | | | | | | | | | | | |
| 38T | | | | | | | | | | | | | | | | | |
| 40T | | | | | | | | | | | | | | | | | |

# RS80 Lock Series (S Type)

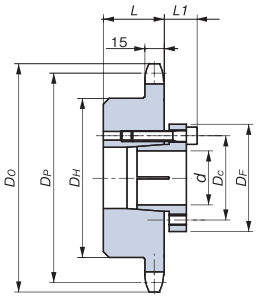
## RS80 Lock Series S Type, Configurations A & B

●Applicable chain pitch : 25.4mm ●Roller dia : 15.88mm

Configuration A




Configuration B




### ■ Lock Series S Type dimensions

| Sleeve Model | $\phi D_F$ (mm) | $\phi D_C$ (mm) | $L_1$ (mm) | Bolt Size (M x S) | Tightening Torque (N·m) |
|---|---|---|---|---|---|
| S1 | 32.0 | 24.0 | 12.0 | M4×16 | 4.2 |
| S2 | 42.0 | 32.0 | 14.0 | M5×18 | 8.3 |
| S3 | 48.0 | 38.5 | 15.5 | M5×20 | 8.3 |
| S4 | 56.0 | 46.0 | 15.5 | M5×20 | 8.3 |
| S5 | 66.0 | 56.0 | 17.5 | M5×22 | 8.3 |
| S6 | 80.0 | 68.0 | 21.0 | M6×25 | 16.8 |
| S7 | 101.0 | 86.0 | 24.5 | M8×30 | 40.5 |

## ■Ordering Example

Example: RS80-1B, No. of teeth: 12, Sleeve configuration: A, Bore dia.: 24mm

| Product Code | Model Number |
|---|---|
| G133001 | RS80-1B12T-S4824A |

## ■Model Numbering Example

RS80-1B18T-S51038■

- RS80: Chain no.
- 1B: Sprocket type
- 18T: Sprocket no. of teeth
- S51038: Sleeve model no.
- ■: Configuration A or B

Sleeve model no. S51038:
- 038: Bore dia. (φ38mm)
- 10: No. of mounting bolts (10)
- 51: Sleeve model no. (S5)

## ■Dimensions

Teeth hardened up to 21T.

| Model Number | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Hub Dia. $D_H$ | Hub Length $L$ | Applicable Bore Dia. $d$ | | | | | | | | | | No. of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 24 | 25 | 28 | 30 | 32 | 35 | 38 | 40 | 42 | 45 | |
| RS80-1B12T-S48□□■ | 98.14 | 110 | 67 | 40 | ● | ● | ● | ● | ● | ● | | | | | 12 |
| RS80-1B13T-S48□□■ | 106.14 | 118 | 77 | 40 | ● | ● | ● | ● | ● | ● | | | | | 13 |
| RS80-1B13T-S510□□■ | | | | | | | | | | | ● | ● | ● | ● | |
| RS80-1B14T-S48□□■ | 114.15 | 127 | 77 | 40 | ● | ● | ● | ● | ● | ● | | | | | 14 |
| RS80-1B14T-S510□□■ | | | | | | | | | | | ● | ● | ● | ● | |
| RS80-1B15T-S510□□■ | 122.17 | 135 | 93 | 40 | | | | | | ● | ● | ● | ● | ● | 15 |
| RS80-1B16T-S510□□■ | 130.20 | 143 | 93 | 40 | | | | | | ● | ● | ● | ● | ● | 16 |
| RS80-1B17T-S510□□■ | 138.23 | 151 | 93 | 40 | | | | | | ● | ● | ● | ● | ● | 17 |
| RS80-1B18T-S510□□■ | 146.27 | 159 | 93 | 40 | | | | | | ● | ● | ● | ● | ● | 18 |
| RS80-1B19T-S510□□■ | 154.32 | 167 | 93 | 40 | | | | | | ● | ● | ● | ● | ● | 19 |
| RS80-1B20T-S510□□■ | 162.37 | 176 | 93 | 40 | | | | | | ● | ● | ● | ● | ● | 20 |
| RS80-1B21T-S510□□■ | 170.42 | 184 | 93 | 40 | | | | | | ● | ● | ● | ● | ● | 21 |

Input the bore diameter in the white □□ boxes after the model number, and configuration A or B in the black ■ box. ● circles indicate applicable bore diameters.

# RS80 Lock Series (S Type)

## Dimensions

Teeth hardened up to 21T.

| Model Number | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Hub Dia. $D_H$ | Hub Length $L$ | Applicable Bore Dia. $d$ | | | | | | No. of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 48 | 50 | 55 | 60 | 65 | 70 | |
| RS80-1B15T-S66□□■ | 122.17 | 135 | 93 | 40 | ● | ● | ● | | | | 15 |
| RS80-1B16T-S66□□■ | 130.20 | 143 | 93 | 40 | ● | ● | ● | | | | 16 |
| RS80-1B17T-S66□□■ | 138.23 | 151 | 93 | 40 | ● | ● | ● | | | | 17 |
| RS80-1B18T-S66□□■ | 146.27 | 159 | 93 | 40 | ● | ● | ● | | | | 18 |
| RS80-1B19T-S66□□■ | 154.32 | 167 | 93 | 40 | ● | ● | ● | | | | 19 |
| RS80-1B20T-S68□□■ | 162.37 | 176 | 93 | 40 | ● | ● | ● | | | | 20 |
| RS80-1B21T-S68□□■ | 170.42 | 184 | 93 | 40 | ● | ● | ● | | | | 21 |
| RS80-1B22T-S612□□■ | 178.48 | 192 | 107 | 45 | ● | ● | ● | | | | 22 |
| RS80-1B22T-S75□□■ | | | | | | | | ● | ● | ● | |
| RS80-1B23T-S612□□■ | 186.54 | 200 | 107 | 45 | ● | ● | ● | | | | 23 |
| RS80-1B23T-S75□□■ | | | | | | | | ● | ● | ● | |
| RS80-1B24T-S612□□■ | 194.60 | 208 | 107 | 45 | ● | ● | ● | | | | 24 |
| RS80-1B24T-S75□□■ | | | | | | | | ● | ● | ● | |
| RS80-1B25T-S612□□■ | 202.66 | 216 | 107 | 45 | ● | ● | ● | | | | 25 |
| RS80-1B25T-S75□□■ | | | | | | | | ● | ● | ● | |
| RS80-1B26T-S612□□■ | 210.72 | 224 | 107 | 45 | ● | ● | ● | | | | 26 |
| RS80-1B26T-S75□□■ | | | | | | | | ● | ● | ● | |
| RS80-1B27T-S612□□■ | 218.79 | 233 | 107 | 45 | ● | ● | ● | | | | 27 |
| RS80-1B27T-S75□□■ | | | | | | | | ● | ● | ● | |
| RS80-1B28T-S612□□■ | 226.86 | 241 | 107 | 45 | ● | ● | ● | | | | 28 |
| RS80-1B28T-S75□□■ | | | | | | | | ● | ● | ● | |
| RS80-1B30T-S612□□■ | 243.00 | 257 | 107 | 45 | ● | ● | ● | | | | 30 |
| RS80-1B30T-S75□□■ | | | | | | | | ● | ● | ● | |
| RS80-1B32T-S612□□■ | 259.14 | 273 | 107 | 45 | ● | ● | ● | | | | 32 |
| RS80-1B32T-S75□□■ | | | | | | | | ● | ● | ● | |
| RS80-1B34T-S612□□■ | 275.28 | 289 | 107 | 45 | ● | ● | ● | | | | 34 |
| RS80-1B34T-S75□□■ | | | | | | | | ● | ● | ● | |
| RS80-1B35T-S612□□■ | 283.36 | 297 | 107 | 45 | ● | ● | ● | | | | 35 |
| RS80-1B35T-S75□□■ | | | | | | | | ● | ● | ● | |

Input the bore diameter in the white □□ boxes after the model number, and configuration A or B in the black ■ box. ● circles indicate applicable bore diameters.

## RS80 Lock Series (S Type) Maximum Allowable Torque

(Unit: N·m)

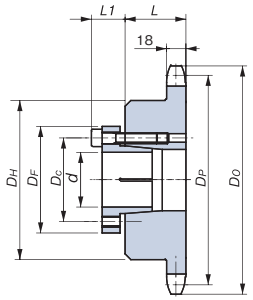
| No. of teeth \ Bore dia. | 24 | 25 | 28 | 30 | 32 | 35 | 38 | 40 | 42 | 45 | 48 | 50 | 55 | 60 | 65 | 70 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12T | | | | | | | | | | | | | | | | |
| 13T | 446 | 465 | 521 | 558 | 595 | 651 | | | | | | | | | | |
| 14T | | | | | | | | | | | | | | | | |
| 15T | | | | | | | | | | | | | | | | |
| 16T | | | | | | | | | | | | | | | | |
| 17T | | | | | | | 883 | 930 | 976 | 1046 | 1116 | 1162 | 1279 | | | |
| 18T | | | | | | 814 | | | | | | | | | | |
| 19T | | | | | | | | | | | | | | | | |
| 20T | | | | | | | | | | | 1275 | 1329 | 1461 | | | |
| 21T | | | | | | | | | | | | | | | | |
| 22-35T | | | | | | | | | | | 2232 | 2325 | 2557 | 2140 | 2319 | 2497 |

# RS100 Lock Series (S Type)

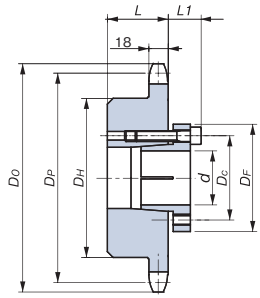
## RS100 Lock Series S Type, Configurations A & B

●Applicable chain pitch : 31.75mm ●Roller dia : 19.05mm

Configuration A




Configuration B




### ■ Lock Series S Type dimensions

| Sleeve Model | $\phi D_F$ (mm) | $\phi D_C$ (mm) | $L_1$ (mm) | Bolt Size (M x S) | Tightening Torque (N·m) |
|---|---|---|---|---|---|
| S1 | 32.0 | 24.0 | 12.0 | M4×16 | 4.2 |
| S2 | 42.0 | 32.0 | 14.0 | M5×18 | 8.3 |
| S3 | 48.0 | 38.5 | 15.5 | M5×20 | 8.3 |
| S4 | 56.0 | 46.0 | 15.5 | M5×20 | 8.3 |
| S5 | 66.0 | 56.0 | 17.5 | M5×22 | 8.3 |
| S6 | 80.0 | 68.0 | 21.0 | M6×25 | 16.8 |
| S7 | 101.0 | 86.0 | 24.5 | M8×30 | 40.5 |

## ■Ordering Example

Example: RS100-1B, No. of teeth: 13, Sleeve configuration: A, Bore dia.: 48mm

| Product Code | Model Number |
|---|---|
| G133149 | RS100-B13T-S6848A |

## ■Model Numbering Example

**RS100-1B16T-S6848■**

- Chain no.
- Sprocket type
- Sprocket no. of teeth
- Configuration A or B
- Sleeve model no.
  - S6848
  - Bore dia. (φ48mm)
  - No. of mounting bolts (8)
  - Sleeve model no. (S6)

## ■Dimensions

All models feature hardened teeth.

| Model Number | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Hub Dia. $D_H$ | Hub Length $L$ | Applicable Bore Dia. $d$ 48 | 50 | 55 | 60 | 65 | 70 | No. of Teeth |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RS100-1B13T-S68□□■ | 132.67 | 148 | 88 | 50 | ● | ● | ● | | | | 13 |
| RS100-1B14T-S68□□■ | 142.68 | 158 | 88 | 50 | ● | ● | ● | | | | 14 |
| RS100-1B15T-S68□□■ | 152.71 | 168 | 98 | 50 | ● | ● | ● | | | | 15 |
| RS100-1B16T-S68□□■ | 162.75 | 179 | 98 | 50 | ● | ● | ● | | | | 16 |
| RS100-1B17T-S612□□■ | 172.79 | 189 | 107 | 50 | ● | ● | ● | | | | 17 |
| RS100-1B17T-S75□□■ | | | | | | | | ● | ● | ● | |
| RS100-1B18T-S612□□■ | 182.84 | 199 | 107 | 50 | ● | ● | ● | | | | 18 |
| RS100-1B18T-S75□□■ | | | | | | | | ● | ● | ● | |
| RS100-1B19T-S612□□■ | 192.90 | 209 | 107 | 50 | ● | ● | ● | | | | 19 |
| RS100-1B19T-S75□□■ | | | | | | | | ● | ● | ● | |
| RS100-1B20T-S612□□■ | 202.96 | 220 | 107 | 50 | ● | ● | ● | | | | 20 |
| RS100-1B20T-S75□□■ | | | | | | | | ● | ● | ● | |
| RS100-1B21T-S612□□■ | 213.03 | 230 | 107 | 50 | ● | ● | ● | | | | 21 |
| RS100-1B21T-S75□□■ | | | | | | | | ● | ● | ● | |

Input the bore diameter in the white □□ boxes after the model number, and configuration A or B in the black ■ box. ● circles indicate applicable bore diameters.

## ■RS100 Lock Series (S Type) Maximum Allowable Torque

(Unit: N·m)

| No. of teeth \ Bore dia. | 48 | 50 | 55 | 60 | 65 | 70 |
|---|---|---|---|---|---|---|
| 13T | 1488 | 1550 | 1705 | | | |
| 14T | | | | | | |
| 15T | | | | | | |
| 16T | | | | | | |
| 17T | 2232 | 2325 | 2257 | 2140 | 2319 | 2497 |
| 18T | | | | | | |
| 19T | | | | | | |
| 20T | | | | | | |
| 21T | | | | | | |

# Lock Series (with Tightening Device) N Type

Applicable models: RS35 – RS60 1B Type RS Sprockets
Allows RS standard sprockets to be mounted to shafts without using keys.

## ■Features

1. **Greatly increases work efficiency**
   Unlike conventional products that require a number of tightening bolts, this type can be simply tightened with a nut and coupled to a shaft with ease. Furthermore, it can be easily dismounted for fine-adjustment and mounted again.
2. **Suitable for small shaft diameters**
   Tsubaki offers standard models with diameters ranging from 7 – 28mm to match a wide-variety of customer needs.
3. **Compact design**
   Features a compact design with strength calculations that take the maximum allowable load of the chain in mind while eliminating any waste.

## ■General Precautions

1) Allowable transmission torque
   Ensure that the load torque does not exceed the specified transmission torque in the dimension table.
2) Shaft diameter tolerance and surface roughness
   Use a shaft diameter tolerance of h8 and a surface roughness degree of 12S as your standards.
3) Mounting to shafts provided with keyways or D-shaped shafts
   The allowable transmission torque will decrease by 10% when mounting the sprocket to a shaft provided with a finished keyway, such as a motor shaft, or to a D-shaped shaft.
4) Mounting to cold finished carbon steel bars
   The allowable transmission torque will decrease by 10% when mounting the sprocket to a cold finished carbon steel bar (drawn steel with an allowable diameter of 8 – 10 class).
5) Ensure that the shaft is a solid shaft using S35C grade or higher steel.
6) Operating temperature range: -20℃ to 200℃
7) Always use a torque wrench when tightening the bolts. (Refer to the torque wrench operation manual for proper use.)

## Ordering Lock Series N Type Sprockets

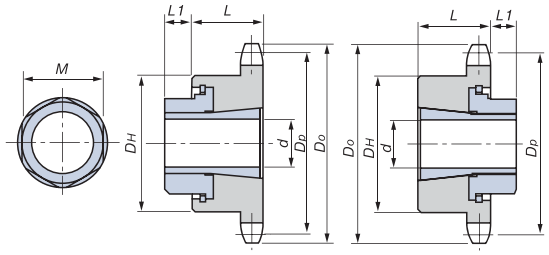
Please include the product code and model number in your order.

### ■Ordering Example

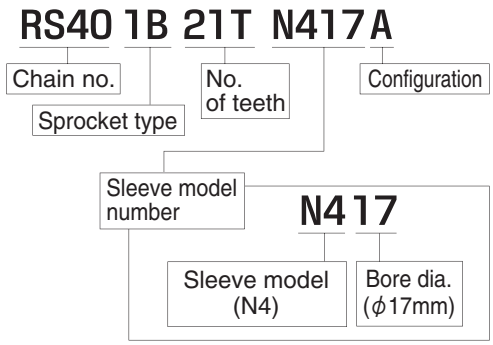
| Model Number | No. of Pieces | Unit |
|---|---|---|
| RS40-1B21T-N417A | 10 | K (pcs) |

### ■Sleeve Mounting Configuration

Configuration A　　Configuration B




### ■Ordering Example




## ■ RS35 Lock Series N Type

●Applicable chain pitch : 9.525mm ●Roller dia : 5.08mm
All models feature hardened teeth.

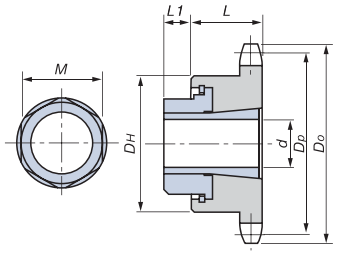
| No. of Teeth | Basic Dimensions: Pitch Circle Dia. Dp | Basic Dimensions: Outer Dia. Do | Hub: Dia. DH | Hub: Length L | Bore dia. d | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Max. Allowable Transmission Torque (N·m) | 23 | 26 | 29 | 42 | 46 | 50 | 104 | 111 | 119 | 161 | 171 | 180 |
| 12 | 36.80 | 41 | 31 | 20 | Suitable sleeve model and dimensions | ※ | ※ | ※ | | | | | | | | | |
| 13 | 39.80 | 44 | 32 | 20 | | | N1XX | | | | | | | | | | |
| 14 | 42.80 | 47 | 30 | 20 | | | | | | | | | | | | | |
| 15 | 45.81 | 51 | 35 | 20 | | | | | | (Example) | | | | | | | |
| 16 | 48.82 | 54 | 37 | 20 | | | | | | | | | | | | | |
| 17 | 51.84 | 57 | 41 | 20 | | | | | | | | | | | | | |
| 18 | 54.85 | 60 | 44 | 20 | | | | | | | | | | | | | |
| 19 | 57.87 | 63 | 47 | 20 | | | | | | | | | | | | | |
| 20 | 60.89 | 66 | 50 | 20 | | | | | N2XX | | | | | | | | |
| 21 | 63.91 | 69 | 53 | 20 | | | | | | | | | | | | | |
| 22 | 66.93 | 72 | 53 | 20 | | | | | | | | | | | | | |
| 23 | 69.95 | 75 | 53 | 20 | | | | | | | | | | | | | |
| 24 | 72.97 | 78 | 53 | 22 | | | | | | | | | | | | | |
| 25 | 76.00 | 81 | 53 | 22 | | | | | | | | | | | | | |
| 26 | 79.02 | 84 | 53 | 22 | | | | | | | | | | | | | |
| 27 | 82.05 | 87 | 53 | 22 | | | | | | | | | | | | | |
| 28 | 85.07 | 90 | 53 | 22 | | | | | | | | | | | | | |
| 30 | 91.12 | 96 | 53 | 22 | | | | | | | | N3XX | | | | | |
| 32 | 97.18 | 102 | 53 | 22 | | | | | | | | | | | | | |
| 34 | 103.23 | 109 | 53 | 22 | | | | | | | | | | | | | |
| 35 | 106.26 | 112 | 53 | 22 | | | | | | | | | | | | | |
| 36 | 109.29 | 115 | 53 | 22 | | | | | | | | | | | | | |
| 38 | 115.34 | 121 | 63 | 25 | | | | | | | | | | | N4XX | | |
| 40 | 121.40 | 127 | 63 | 25 | | | | | | | | | | | | | |

Models with 12T and asterisks * indicate that only configuration A is available.

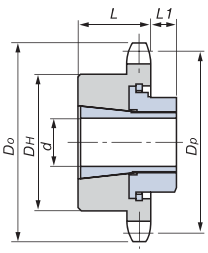
●Understanding the table　(Ex.) RS35 chain, Required no. of teeth: 15, Required bore dia.: 11mm
Use an N211 sleeve. "XX" in the table refers to bore diameter. Maximum transmission torque will be 46N·m.

# RS35 – RS60 Lock Series (N Type)

Configuration A




Configuration B




## ■ Lock Series N Type dimensions

| Sleeve Model | Sleeve Protrusion *L1* | Nut Width Across Flats (M x S) | Nut Tightening Torque (N·m) |
|---|---|---|---|
| N1 | 5 | 18 | 18 |
| N2 | 6 | 22 | 28 |
| N3 | 8 | 30 | 65 |
| N4 | 10 | 36 | 100 |
| N5 | 11 | 41 | 130 |
| N6 | 11 | 46 | 200 |

## RS40 Lock Series N Type

●Applicable chain pitch : 12.7mm ●Roller dia : 7.92mm
All models feature hardened teeth.

| No. of Teeth | Basic Dimensions: Pitch Circle Dia. *Dp* | Basic Dimensions: Outer Dia. *Do* | Hub: Dia. *DH* | Hub: Length *L* | Bore dia. *d* | 10 | 11 | 12 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 22 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Max. Allowable Transmission Torque (N·m) | 42 | 46 | 50 | 104 | 111 | 119 | 161 | 171 | 180 | 214 | 236 | 257 |
| 11 | 45.08 | 51 | 37 | 22 | Suitable sleeve model and dimensions | ※ | ※ | ※ | | | | | | | | | |
| 12 | 49.07 | 55 | 40 | 22 | | ※ | ※ | ※ | | | | | | | | | |
| 13 | 53.07 | 59 | 37 | 22 | | | N2XX | | | | | | | | | | |
| 14 | 57.07 | 63 | 42 | 22 | | | | | | | | | | | | | |
| 15 | 61.08 | 67 | 46 | 22 | | | | | | | | | | | | | |
| 16 | 65.10 | 71 | 50 | 22 | | | | | | | | | | | | | |
| 17 | 69.12 | 76 | 54 | 22 | | | | | | | | | | | | | |
| 18 | 73.14 | 80 | 57 | 22 | | | | | | | | | | | | | |
| 19 | 77.16 | 84 | 62 | 22 | | | | | | N3XX | | | | | | | |
| 20 | 81.18 | 88 | 67 | 25 | | | | | | | | | | | | | |
| 21 | 85.21 | 92 | 71 | 25 | | | | | | | | | | | | | |
| 22 | 89.24 | 96 | 75 | 25 | | | | | | | | | | | | | |
| 23 | 93.27 | 100 | 77 | 25 | | | | | | | | | | | | | |
| 24 | 97.30 | 104 | 63 | 25 | | | | | | | | | | | | | |
| 25 | 101.33 | 108 | 63 | 25 | | | | | | | | | | | | | |
| 26 | 105.36 | 112 | 63 | 25 | | | | | | | | | | | | | |
| 27 | 109.40 | 116 | 63 | 25 | | | | | | | | | N4XX | | | | |
| 28 | 113.43 | 120 | 63 | 25 | | | | | | | | | | | | | |
| 30 | 121.50 | 128 | 63 | 25 | | | | | | | | | | | | | |
| 32 | 129.57 | 137 | 68 | 28 | | | | | | | | | | | | | |
| 34 | 137.64 | 145 | 68 | 28 | | | | | | | | | | | | | |
| 35 | 141.68 | 149 | 68 | 28 | | | | | | | | | | | | N5XX | |
| 36 | 145.72 | 153 | 68 | 28 | | | | | | | | | | | | | |
| 38 | 153.79 | 161 | 68 | 28 | | | | | | | | | | | | | |
| 40 | 161.87 | 169 | 68 | 28 | | | | | | | | | | | | | |

Models with 11 and 12T and asterisks * indicate that only configuration A is available.

## RS50 Lock Series N Type

●Applicable chain pitch : 15.875mm ●Roller dia : 10.16mm
All models feature hardened teeth.

| No. of Teeth | Basic Dimensions: Pitch Circle Dia. *Dp* | Basic Dimensions: Outer Dia. *Do* | Hub: Dia. *DH* | Hub: Length *L* | Bore dia. *d* | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 22 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Max. Allowable Transmission Torque (N·m) | 104 | 111 | 119 | 161 | 171 | 180 | 214 | 236 | 257 |
| 11 | 56.35 | 64 | 46 | 25 | Suitable sleeve model and dimensions | ※ | ※ | ※ | | | | | | |
| 12 | 61.34 | 69 | 51 | 25 | | ※ | ※ | ※ | ※ | ※ | ※ | | | |
| 13 | 66.33 | 74 | 51 | 25 | | | N3XX | | ※ | ※ | ※ | | | |
| 14 | 71.34 | 79 | 52 | 25 | | | | | | | | | | |
| 15 | 76.35 | 84 | 57 | 25 | | | | | | N4XX | | | | |
| 16 | 81.37 | 89 | 62 | 25 | | | | | | | | | | |
| 17 | 86.39 | 94 | 67 | 25 | | | | | | | | | | |
| 18 | 91.42 | 100 | 72 | 28 | | | | | | | | | | |
| 19 | 96.45 | 105 | 73 | 28 | | | | | | | | | | |
| 20 | 101.48 | 110 | 73 | 28 | | | | | | | | | | |
| 21 | 106.51 | 115 | 73 | 28 | | | | | | | | N5XX | | |
| 22 | 111.55 | 120 | 73 | 28 | | | | | | | | | | |
| 23 | 116.59 | 125 | 73 | 28 | | | | | | | | | | |
| 24 | 121.62 | 130 | 73 | 28 | | | | | | | | | | |
| 25 | 126.66 | 135 | 73 | 28 | | | | | | | | | | |

Models with 11, 12, and 13T and asterisks * indicate that only configuration A is available.

## RS60 Lock Series N Type

●Applicable chain pitch : 19.05mm ●Roller dia : 11.91mm
All models feature hardened teeth.

| No. of Teeth | Basic Dimensions: Pitch Circle Dia. *Dp* | Basic Dimensions: Outer Dia. *Do* | Hub: Dia. *DH* | Hub: Length *L* | Bore dia. *d* | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 22 | 24 | 25 | 26 | 28 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Max. Allowable Transmission Torque (N·m) | 104 | 111 | 119 | 161 | 171 | 180 | 214 | 236 | 257 | 370 | 385 | 415 |
| 9 | 55.70 | 64 | 43 | 32 | Suitable sleeve model and dimensions | ※ | ※ | ※ | | | | | | | | | |
| 10 | 61.65 | 70 | 49 | 32 | | ※ | ※ | ※ | | | | | | | | | |
| 11 | 67.62 | 76 | 51 | 32 | | | N3XX | | ※ | ※ | ※ | | | | | | |
| 12 | 73.60 | 83 | 51 | 32 | | | | | | | | | | | | | |
| 13 | 79.60 | 89 | 57 | 32 | | | | | | | | | | | | | |
| 14 | 85.61 | 95 | 62 | 32 | | | | | | N4XX | | | | | | | |
| 15 | 91.63 | 101 | 68 | 32 | | | | | | | | | | | | | |
| 16 | 97.65 | 107 | 73 | 32 | | | | | | | | | | | | | |
| 17 | 103.67 | 113 | 73 | 32 | | | | | | | | | N5XX | | | | |
| 18 | 109.70 | 119 | 83 | 40 | | | | | | | | | | | | | |
| 19 | 115.74 | 126 | 83 | 40 | | | | | | | | | | | | N6XX | |
| 20 | 121.78 | 132 | 83 | 40 | | | | | | | | | | | | | |
| 21 | 127.82 | 138 | 83 | 40 | | | | | | | | | | | | | |
| 22 | 133.86 | 144 | 83 | 40 | | | | | | | | | | | | | |
| 23 | 139.90 | 150 | 83 | 40 | | | | | | | | | | | | | |
| 24 | 145.95 | 156 | 83 | 40 | | | | | | | | | | | | | |
| 25 | 151.99 | 162 | 83 | 40 | | | | | | | | | | | | | |

Models with 9, 10, and 11T and asterisks * indicate that only configuration A is available.

See pg. 79 for Tsubaki's corrosion resistant chain series

# RS Sprocket Corrosion Resistant Series

Includes our stainless steel pilot bore series with excellent corrosion resistance and our engineering plastic series that can be operated with no lubrication. *See pg. 189 for a table of corrosion resistance.

## ■Stainless steel pilot bore series

Uses stainless steel for excellent corrosion resistance. These sprockets are also highly heat and cold resistant and can be used in special environments as well. Tsubaki has a stock of single-strand 1B type sprockets (single-hub type) for RS11 – RS80 chain sizes.

## ■Engineering plastic pilot bore series

Made of special MC901 nylon (dark blue), these sprockets can be operated without lubrication. Chain speed should not exceed 70m/min, but chain speeds up to 150m/min are possible with additional lubrication. Tsubaki has a limited stock of single-strand 1B type sprockets (single-hub type) for RS35 – RS60 chain sizes.

## Ordering Standard Pilot Bore Series Sprockets

Please indicate product code and model number on your order.

### ■Ordering Example

Stainless steel

| Product Code | Model No. | Quantity | Unit |
|---|---|---|---|
| G140001 | RS25-1B10T-SS | 10 | (pcs) |

Engineering plastic

| Product Code | Model No. | Quantity | Unit |
|---|---|---|---|
| G140157 | RS35-1B13T-P | 10 | (pcs) |

### ■Model Numbering Example

**RS35-1B 13T-□**

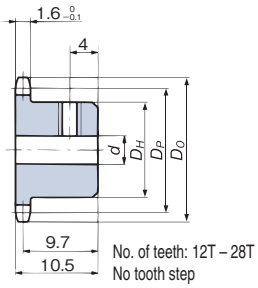
- Chain no.
- Hub type 1B: single hub / 1C: Dual hub
- No. of teeth
- Series: Stainless steel: -SS / Eng. plastic: -P

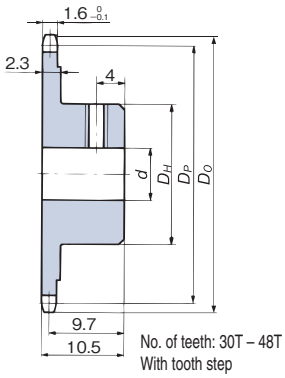
# RS11 (Corrosion Resistant Stainless Steel)

See pg. 79 for Tsubaki's corrosion resistant chain series

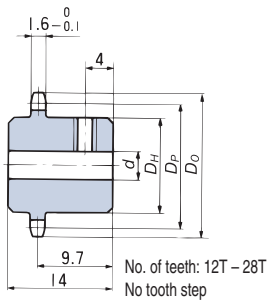
## RS11 1B Type with stainless steel pilot bore

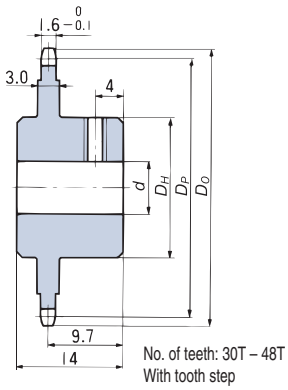
Applicable chain pitch: 3.7465mm Roller dia.: 2.285mm




## RS11 1C Type with stainless steel pilot bore




(Be aware that no set screws are provided.)

| Model No. | No. of Teeth | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Bore Dia. $d$ Pilot bore | Bore Dia. $d$ Max. | Hub Dia. $D_H$ | Set Screw Hole | 1B Approx. Mass (g) | 1C Approx. Mass (g) |
|---|---|---|---|---|---|---|---|---|---|
| RS11-1■12T-SS | 12 | 14.475 | 16.2 | 4 | 6 | 9.4 | M3×0.5 | 5.9 | 7.4 |
| RS11-1■15T-SS | 15 | 18.020 | 19.9 | 4 | 9 | 13 | | 11.5 | 14.7 |
| RS11-1■16T-SS | 16 | 19.204 | 21.1 | 4 | 9 | 14 | | 13.5 | 17.3 |
| RS11-1■18T-SS | 18 | 21.575 | 23.5 | 4 | 11 | 16 | | 17.7 | 22.8 |
| RS11-1■20T-SS | 20 | 23.949 | 25.9 | 6 | 13 | 19 | M4×0.7 | 23.3 | 30.8 |
| RS11-1■24T-SS | 24 | 28.703 | 30.7 | 6 | 13 | 19 | | 25.7 | 32.7 |
| RS11-1■28T-SS | 28 | 33.462 | 35.5 | 6 | 13 | 19 | | 28.7 | 35.7 |
| RS11-1■30T-SS | 30 | 35.842 | 37.9 | 6 | 13 | 19 | | 29.7 | 39.3 |
| RS11-1■34T-SS | 34 | 40.604 | 42.7 | 6 | 13 | 19 | | 37.9 | 48.9 |
| RS11-1■36T-SS | 36 | 42.986 | 45.1 | 6 | 13 | 19 | | 40.7 | 52.4 |
| RS11-1■40T-SS | 40 | 47.751 | 49.8 | 6 | 13 | 19 | | 46.5 | 59.9 |
| RS11-1■48T-SS | 48 | 57.283 | 59.4 | 6 | 13 | 19 | | 60.5 | 77.8 |
| Material/Specifications | Machined stainless steel | | | | | | | | |

Indicate type (B or C) in the ■ in the table above.

Contact a Tsubaki representative regarding numbers of teeth other than those above.

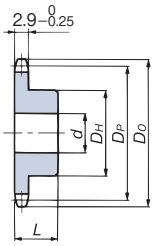
Note: Max. shaft bore diameter shown is for general situations. Please decide or confirm shaft bore diameter and key contact stress based on general machine design.

See pg. 79 for Tsubaki's corrosion resistant chain series

# RS25 · RS35 (Corrosion Resistant Stainless Steel)

## RS25 1B Type with stainless steel pilot bore

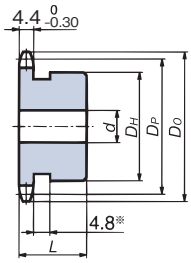
Applicable chain pitch: 6.35mm  Roller dia.: 3.3mm




## RS35 1B Type with stainless steel pilot bore

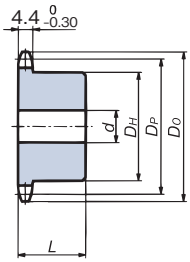
Applicable chain pitch: 9.525mm  Roller dia.: 5.08mm

Hub with groove (10T – 13T)




| No. of teeth : | Hub dia. : | Groove dia. |
|---|---|---|
| 10T | : ϕ 25 | : ϕ 18 |
| 11T | : ϕ 27 | : ϕ 22 |
| 12T | : ϕ 31 | : ϕ 24 |
| 13T | : ϕ 32 | : ϕ 28 |

Hub without groove (14T and over)




*The groove is provided on the hub perimeter to prevent sprocket – chain interference.

### RS25 1B Type with stainless steel pilot bore

| Model No. | No. of Teeth | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Bore Dia. $d$ Pilot bore | Bore Dia. $d$ Max. | Hub Dia. Pilot bore $D_H$ | Hub Dia. Max. $L$ | Approx. Mass (kg) |
|---|---|---|---|---|---|---|---|---|
| **RS25-1B10T-SS** | 10 | 20.55 | 23 | 6 | 9 | 14 | 15 | 0.02 |
| **RS25-1B11T-SS** | 11 | 22.54 | 25 | 6 | 10 | 16 | 15 | 0.03 |
| **RS25-1B12T-SS** | 12 | 24.53 | 28 | 6 | 11 | 18 | 15 | 0.04 |
| **RS25-1B13T-SS** | 13 | 26.53 | 30 | 6 | 12 | 20 | 15 | 0.05 |
| **RS25-1B14T-SS** | 14 | 28.54 | 32 | 6 | 12 | 20 | 15 | 0.06 |
| **RS25-1B15T-SS** | 15 | 30.54 | 34 | 6 | 12 | 20 | 20 | 0.07 |
| **RS25-1B16T-SS** | 16 | 32.55 | 36 | 8 | 15 | 25 | 20 | 0.08 |
| **RS25-1B17T-SS** | 17 | 34.56 | 38 | 8 | 15 | 25 | 20 | 0.09 |
| **RS25-1B18T-SS** | 18 | 36.57 | 40 | 8 | 15 | 25 | 20 | 0.10 |
| **RS25-1B19T-SS** | 19 | 38.58 | 42 | 8 | 15 | 25 | 20 | 0.10 |
| **RS25-1B20T-SS** | 20 | 40.59 | 44 | 8 | 15 | 25 | 20 | 0.10 |
| **RS25-1B21T-SS** | 21 | 42.61 | 46 | 10 | 18 | 30 | 20 | 0.12 |
| **RS25-1B22T-SS** | 22 | 44.62 | 48 | 10 | 18 | 30 | 20 | 0.13 |
| **RS25-1B23T-SS** | 23 | 46.63 | 50 | 10 | 18 | 30 | 20 | 0.13 |
| **RS25-1B24T-SS** | 24 | 48.65 | 52 | 10 | 21 | 35 | 20 | 0.15 |
| **RS25-1B25T-SS** | 25 | 50.66 | 54 | 10 | 21 | 35 | 20 | 0.16 |
| **RS25-1B26T-SS** | 26 | 52.68 | 56 | 10 | 25 | 40 | 20 | 0.17 |
| **RS25-1B27T-SS** | 27 | 54.70 | 58 | 10 | 25 | 40 | 20 | 0.20 |
| **RS25-1B28T-SS** | 28 | 56.71 | 60 | 10 | 25 | 40 | 20 | 0.21 |
| **RS25-1B30T-SS** | 30 | 60.75 | 64 | 12 | 28 | 45 | 20 | 0.23 |
| **RS25-1B32T-SS** | 32 | 64.78 | 68 | 12 | 31 | 50 | 20 | 0.40 |
| **RS25-1B34T-SS** | 34 | 68.82 | 72 | 12 | 31 | 50 | 20 | 0.41 |
| **RS25-1B35T-SS** | 35 | 70.84 | 74 | 12 | 31 | 50 | 20 | 0.41 |
| **RS25-1B36T-SS** | 36 | 72.86 | 76 | 12 | 31 | 50 | 20 | 0.42 |
| **RS25-1B38T-SS** | 38 | 76.90 | 80 | 12 | 31 | 50 | 22 | 0.43 |
| **RS25-1B40T-SS** | 40 | 80.93 | 84 | 12 | 31 | 50 | 22 | 0.45 |
| Material/Specifications | Machined stainless steel | | | | | | | |

Contact a Tsubaki representative regarding numbers of teeth other than those above.

### RS35 1B Type with stainless steel pilot bore

| Model No. | No. of Teeth | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Bore Dia. $d$ Pilot bore | Bore Dia. $d$ Max. | Hub Dia. Pilot bore $D_H$ | Hub Dia. Max. $L$ | Approx. Mass (kg) |
|---|---|---|---|---|---|---|---|---|
| **RS35-1B10T-SS** | 10 | 30.82 | 35 | 8 | 12 | 25 | 20 | 0.08 |
| **RS35-1B11T-SS** | 11 | 33.81 | 38 | 8 | 14 | 27 | 20 | 0.09 |
| **RS35-1B12T-SS** | 12 | 36.80 | 41 | 8 | 16.5 | 31 | 20 | 0.12 |
| **RS35-1B13T-SS** | 13 | 39.80 | 44 | 9.5 | 18 | 32 | 20 | 0.12 |
| **RS35-1B14T-SS** | 14 | 42.80 | 47 | 9.5 | 16.5 | 30 | 20 | 0.12 |
| **RS35-1B15T-SS** | 15 | 45.81 | 51 | 9.5 | 19 | 35 | 20 | 0.16 |
| **RS35-1B16T-SS** | 16 | 48.82 | 54 | 9.5 | 20 | 37 | 20 | 0.19 |
| **RS35-1B17T-SS** | 17 | 51.84 | 57 | 9.5 | 24 | 41 | 20 | 0.22 |
| **RS35-1B18T-SS** | 18 | 54.85 | 60 | 9.5 | 24.5 | 44 | 20 | 0.25 |
| **RS35-1B19T-SS** | 19 | 57.87 | 63 | 9.5 | 28.5 | 47 | 20 | 0.28 |
| **RS35-1B20T-SS** | 20 | 60.89 | 66 | 9.5 | 30 | 50 | 20 | 0.32 |
| **RS35-1B21T-SS** | 21 | 63.91 | 69 | 9.5 | 32 | 53 | 20 | 0.36 |
| **RS35-1B22T-SS** | 22 | 66.93 | 72 | 9.5 | 32 | 53 | 20 | 0.37 |
| **RS35-1B23T-SS** | 23 | 69.95 | 75 | 9.5 | 32 | 53 | 20 | 0.40 |
| **RS35-1B24T-SS** | 24 | 72.97 | 78 | 9.5 | 32 | 53 | 22 | 0.43 |
| **RS35-1B25T-SS** | 25 | 76.00 | 81 | 12.7 | 32 | 53 | 22 | 0.44 |
| **RS35-1B26T-SS** | 26 | 79.02 | 84 | 12.7 | 32 | 53 | 22 | 0.45 |
| **RS35-1B27T-SS** | 27 | 82.05 | 87 | 12.7 | 32 | 53 | 22 | 0.46 |
| **RS35-1B28T-SS** | 28 | 85.07 | 90 | 12.7 | 32 | 53 | 22 | 0.48 |
| **RS35-1B30T-SS** | 30 | 91.12 | 96 | 12.7 | 32 | 53 | 22 | 0.51 |
| **RS35-1B32T-SS** | 32 | 97.18 | 102 | 12.7 | 32 | 53 | 22 | 0.54 |
| **RS35-1B34T-SS** | 34 | 103.23 | 109 | 12.7 | 32 | 53 | 22 | 0.57 |
| **RS35-1B35T-SS** | 35 | 106.26 | 112 | 12.7 | 32 | 53 | 22 | 0.59 |
| **RS35-1B36T-SS** | 36 | 109.29 | 115 | 12.7 | 32 | 53 | 22 | 0.61 |
| **RS35-1B38T-SS** | 38 | 115.34 | 121 | 13 | 42 | 63 | 25 | 0.82 |
| **RS35-1B40T-SS** | 40 | 121.40 | 127 | 13 | 42 | 63 | 25 | 0.85 |
| Material/Specifications | Machined stainless steel | | | | | | | |

Contact a Tsubaki representative regarding numbers of teeth other than those above.

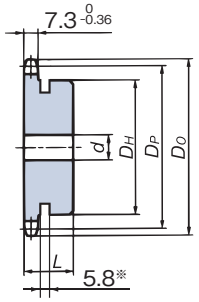
See pg. 79 for Tsubaki's corrosion resistant chain series

# RS40・RS50 (Corrosion Resistant Stainless Steel)

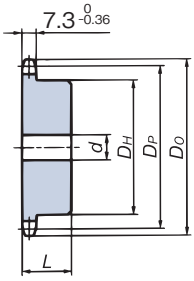
## RS40 1B Type with stainless steel pilot bore

Applicable chain pitch: 12.70mm Roller dia.: 7.92mm

Hub with groove (10T – 12T)




Hub without groove (13T and over)



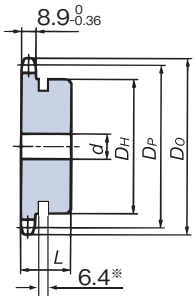

| No. of teeth | Hub dia. | Groove dia. |
|---|---|---|
| 10T | φ 32 | φ 25 |
| 11T | φ 37 | φ 30 |
| 12T | φ 40 | φ 32 |

*The groove is provided on the hub perimeter to prevent sprocket – chain interference.

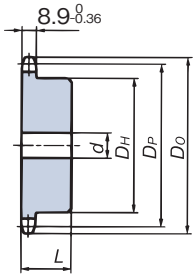
## RS50 1B Type with stainless steel pilot bore

Applicable chain pitch: 15.875mm Roller dia.: 10.16mm

Hub with groove (10T – 13T)




Hub without groove (14T – 40T)




| No. of teeth | Hub dia. | Groove dia. |
|---|---|---|
| 10T | φ 40 | φ 32 |
| 11T | φ 46 | φ 37 |
| 12T | φ 51 | φ 42 |
| 13T | φ 51 | φ 47 |

*The groove is provided on the hub perimeter to prevent sprocket – chain interference.

### RS40 1B Type with stainless steel pilot bore

| Model No. | No. of Teeth | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Bore Dia. $d$ Pilot bore | Bore Dia. $d$ Max. | Hub Dia. Pilot bore $D_H$ | Hub Dia. Max. $L$ | Approx. Mass (kg) |
|---|---|---|---|---|---|---|---|---|
| **RS40-1B10T-SS** | 10 | 41.10 | 47 | 9.5 | 16.5 | 32 | 22 | 0.14 |
| **RS40-1B11T-SS** | 11 | 45.08 | 51 | 9.5 | 20 | 37 | 22 | 0.19 |
| **RS40-1B12T-SS** | 12 | 49.07 | 55 | 9.5 | 22 | 40 | 22 | 0.22 |
| **RS40-1B13T-SS** | 13 | 53.07 | 59 | 9.5 | 20 | 37 | 22 | 0.23 |
| **RS40-1B14T-SS** | 14 | 57.07 | 63 | 9.5 | 24 | 42 | 22 | 0.28 |
| **RS40-1B15T-SS** | 15 | 61.08 | 67 | 9.5 | 28.5 | 46 | 22 | 0.34 |
| **RS40-1B16T-SS** | 16 | 65.10 | 71 | 12.7 | 30 | 50 | 22 | 0.40 |
| **RS40-1B17T-SS** | 17 | 69.12 | 76 | 12.7 | 32 | 54 | 22 | 0.46 |
| **RS40-1B18T-SS** | 18 | 73.14 | 80 | 12.7 | 35 | 57 | 22 | 0.51 |
| **RS40-1B19T-SS** | 19 | 77.16 | 84 | 12.7 | 39.5 | 62 | 22 | 0.59 |
| **RS40-1B20T-SS** | 20 | 81.18 | 88 | 12.7 | 45.5 | 67 | 25 | 0.76 |
| **RS40-1B21T-SS** | 21 | 85.21 | 92 | 12.7 | 45.5 | 71 | 25 | 0.85 |
| **RS40-1B22T-SS** | 22 | 89.24 | 96 | 12.7 | 50 | 75 | 25 | 0.95 |
| **RS40-1B23T-SS** | 23 | 93.27 | 100 | 12.7 | 50 | 77 | 25 | 1.0 |
| **RS40-1B24T-SS** | 24 | 97.30 | 104 | 12.7 | 42 | 63 | 25 | 0.84 |
| **RS40-1B25T-SS** | 25 | 101.33 | 108 | 12.7 | 42 | 63 | 25 | 0.88 |
| **RS40-1B26T-SS** | 26 | 105.36 | 112 | 12.7 | 42 | 63 | 25 | 0.92 |
| **RS40-1B27T-SS** | 27 | 109.40 | 116 | 12.7 | 42 | 63 | 25 | 0.96 |
| **RS40-1B28T-SS** | 28 | 113.43 | 120 | 12.7 | 42 | 63 | 25 | 1.0 |
| **RS40-1B30T-SS** | 30 | 121.50 | 128 | 12.7 | 42 | 63 | 25 | 1.1 |
| **RS40-1B32T-SS** | 32 | 129.57 | 137 | 16 | 45 | 68 | 28 | 1.3 |
| **RS40-1B34T-SS** | 34 | 137.64 | 145 | 16 | 45 | 68 | 28 | 1.3 |
| **RS40-1B35T-SS** | 35 | 141.68 | 149 | 16 | 45 | 68 | 28 | 1.4 |
| **RS40-1B36T-SS** | 36 | 145.72 | 153 | 16 | 45 | 68 | 28 | 1.4 |
| **RS40-1B38T-SS** | 38 | 153.79 | 161 | 16 | 45 | 68 | 28 | 1.5 |
| **RS40-1B40T-SS** | 40 | 161.87 | 169 | 16 | 45 | 68 | 28 | 1.6 |
| Material/Specifications | Machined stainless steel | | | | | | | |

Contact a Tsubaki representative regarding numbers of teeth other than those above.

### RS50 1B Type with stainless steel pilot bore

| Model No. | No. of Teeth | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Bore Dia. $d$ Pilot bore | Bore Dia. $d$ Max. | Hub Dia. Pilot bore $D_H$ | Hub Dia. Max. $L$ | Approx. Mass (kg) |
|---|---|---|---|---|---|---|---|---|
| **RS50-1B10T-SS** | 10 | 51.37 | 58 | 9.5 | 22 | 40 | 25 | 0.27 |
| **RS50-1B11T-SS** | 11 | 56.35 | 64 | 12.7 | 25 | 46 | 25 | 0.33 |
| **RS50-1B12T-SS** | 12 | 61.34 | 69 | 12.7 | 32 | 51 | 25 | 0.41 |
| **RS50-1B13T-SS** | 13 | 66.33 | 74 | 12.7 | 32 | 51 | 25 | 0.46 |
| **RS50-1B14T-SS** | 14 | 71.34 | 79 | 12.7 | 32 | 52 | 25 | 0.52 |
| **RS50-1B15T-SS** | 15 | 76.35 | 84 | 12.7 | 35 | 57 | 25 | 0.62 |
| **RS50-1B16T-SS** | 16 | 81.37 | 89 | 12.7 | 40 | 62 | 25 | 0.72 |
| **RS50-1B17T-SS** | 17 | 86.39 | 94 | 12.7 | 45.5 | 67 | 25 | 0.83 |
| **RS50-1B18T-SS** | 18 | 91.42 | 100 | 12.7 | 47.5 | 72 | 28 | 1.0 |
| **RS50-1B19T-SS** | 19 | 96.45 | 105 | 12.7 | 47.5 | 73 | 28 | 1.1 |
| **RS50-1B20T-SS** | 20 | 101.48 | 110 | 12.7 | 47.5 | 73 | 28 | 1.2 |
| **RS50-1B21T-SS** | 21 | 106.51 | 115 | 15.9 | 47.5 | 73 | 28 | 1.2 |
| **RS50-1B22T-SS** | 22 | 111.55 | 120 | 15.9 | 47.5 | 73 | 28 | 1.3 |
| **RS50-1B23T-SS** | 23 | 116.59 | 125 | 15.9 | 47.5 | 73 | 28 | 1.3 |
| **RS50-1B24T-SS** | 24 | 121.62 | 130 | 15.9 | 47.5 | 73 | 28 | 1.4 |
| **RS50-1B25T-SS** | 25 | 126.66 | 135 | 15.9 | 47.5 | 73 | 28 | 1.5 |
| **RS50-1B26T-SS** | 26 | 131.70 | 140 | 18 | 48 | 73 | 28 | 1.5 |
| **RS50-1B27T-SS** | 27 | 136.74 | 145 | 18 | 48 | 73 | 28 | 1.5 |
| **RS50-1B28T-SS** | 28 | 141.79 | 150 | 18 | 48 | 73 | 28 | 1.6 |
| **RS50-1B30T-SS** | 30 | 151.87 | 161 | 18 | 48 | 73 | 28 | 1.8 |
| **RS50-1B32T-SS** | 32 | 161.96 | 171 | 18 | 48 | 73 | 28 | 1.9 |
| **RS50-1B34T-SS** | 34 | 172.05 | 181 | 18 | 48 | 73 | 28 | 2.1 |
| **RS50-1B35T-SS** | 35 | 177.10 | 186 | 18 | 48 | 73 | 28 | 2.2 |
| **RS50-1B36T-SS** | 36 | 182.15 | 191 | 23 | 55 | 83 | 35 | 2.7 |
| **RS50-1B38T-SS** | 38 | 192.24 | 201 | 23 | 55 | 83 | 35 | 2.9 |
| **RS50-1B40T-SS** | 40 | 202.33 | 211 | 23 | 55 | 83 | 35 | 3.1 |
| Material/Specifications | Machined stainless steel | | | | | | | |

Contact a Tsubaki representative regarding numbers of teeth other than those above.

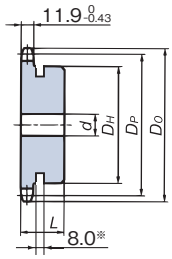
See pg. 79 for Tsubaki's corrosion resistant chain series

# RS60・RS80 (Corrosion Resistant Stainless Steel)

## RS60 1B Type with stainless steel pilot bore

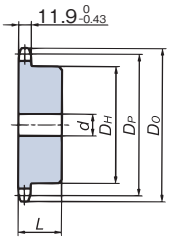
Applicable chain pitch: 19.05mm Roller dia.: 11.91mm

Hub with groove (10T – 11T)




| No. of teeth : | Hub dia. : | Groove dia. |
|---|---|---|
| 10T | : ϕ 49 | : ϕ 37 |
| 11T | : ϕ 51 | : ϕ 45 |

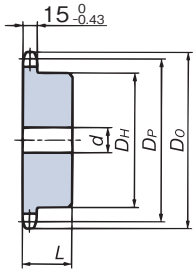
Hub without groove (12T – 30T)




*The groove is provided on the hub perimeter to prevent sprocket – chain interference.

## RS80 1B Type with stainless steel pilot bore

Applicable chain pitch: 25.40mm Roller dia.: 15.88mm




### RS60 1B Type with stainless steel pilot bore

| Model No. | No. of Teeth | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Bore Dia. $d$ Pilot bore | Bore Dia. $d$ Max. | Hub Dia. Pilot bore $D_H$ | Hub Dia. Max. $L$ | Approx. Mass (kg) |
|---|---|---|---|---|---|---|---|---|
| **RS60-1B10T-SS** | 10 | 61.65 | 70 | 12.7 | 30 | 49 | 32 | 0.49 |
| **RS60-1B11T-SS** | 11 | 67.62 | 76 | 12.7 | 32 | 51 | 32 | 0.60 |
| **RS60-1B12T-SS** | 12 | 73.60 | 83 | 12.7 | 32 | 51 | 32 | 0.69 |
| **RS60-1B13T-SS** | 13 | 79.60 | 89 | 15.9 | 35 | 57 | 32 | 0.81 |
| **RS60-1B14T-SS** | 14 | 85.61 | 95 | 15.9 | 39.5 | 62 | 32 | 0.96 |
| **RS60-1B15T-SS** | 15 | 91.63 | 101 | 15.9 | 45.5 | 68 | 32 | 1.1 |
| **RS60-1B16T-SS** | 16 | 97.65 | 107 | 15.9 | 47.5 | 73 | 32 | 1.3 |
| **RS60-1B17T-SS** | 17 | 103.67 | 113 | 15.9 | 47.5 | 73 | 32 | 1.4 |
| **RS60-1B18T-SS** | 18 | 109.70 | 119 | 15.9 | 55 | 83 | 40 | 2.0 |
| **RS60-1B19T-SS** | 19 | 115.74 | 126 | 15.9 | 55 | 83 | 40 | 2.1 |
| **RS60-1B20T-SS** | 20 | 121.78 | 132 | 15.9 | 55 | 83 | 40 | 2.2 |
| **RS60-1B21T-SS** | 21 | 127.82 | 138 | 15.9 | 55 | 83 | 40 | 2.3 |
| **RS60-1B22T-SS** | 22 | 133.86 | 144 | 15.9 | 55 | 83 | 40 | 2.5 |
| **RS60-1B23T-SS** | 23 | 139.90 | 150 | 18 | 55 | 83 | 40 | 2.5 |
| **RS60-1B24T-SS** | 24 | 145.95 | 156 | 18 | 55 | 83 | 40 | 2.6 |
| **RS60-1B25T-SS** | 25 | 151.99 | 162 | 18 | 55 | 83 | 40 | 2.7 |
| **RS60-1B26T-SS** | 26 | 158.04 | 168 | 18 | 55 | 83 | 40 | 2.9 |
| **RS60-1B27T-SS** | 27 | 164.09 | 174 | 18 | 55 | 83 | 40 | 3.0 |
| **RS60-1B28T-SS** | 28 | 170.14 | 180 | 18 | 55 | 83 | 40 | 3.1 |
| **RS60-1B30T-SS** | 30 | 182.25 | 193 | 18 | 55 | 83 | 40 | 3.4 |
| Material/Specifications | Machined stainless steel | | | | | | | |

Contact a Tsubaki representative regarding numbers of teeth other than those above.

### RS80 1B Type with stainless steel pilot bore

| Model No. | No. of Teeth | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Bore Dia. $d$ Pilot bore | Bore Dia. $d$ Max. | Hub Dia. Pilot bore $D_H$ | Hub Dia. Max. $L$ | Approx. Mass (kg) |
|---|---|---|---|---|---|---|---|---|
| **RS80-1B10T-SS** | 10 | 82.20 | 93 | 15.9 | 32 | 52 | 40 | 0.97 |
| **RS80-1B11T-SS** | 11 | 90.16 | 102 | 15.9 | 38 | 60 | 40 | 1.2 |
| **RS80-1B12T-SS** | 12 | 98.14 | 110 | 19 | 45 | 67 | 40 | 1.5 |
| **RS80-1B13T-SS** | 13 | 106.14 | 118 | 19 | 50 | 77 | 40 | 1.9 |
| **RS80-1B14T-SS** | 14 | 114.15 | 127 | 19 | 50 | 77 | 40 | 2.0 |
| **RS80-1B15T-SS** | 15 | 122.17 | 135 | 19 | 63 | 93 | 40 | 2.6 |
| **RS80-1B16T-SS** | 16 | 130.20 | 143 | 19 | 63 | 93 | 40 | 2.8 |
| **RS80-1B17T-SS** | 17 | 138.23 | 151 | 19 | 63 | 93 | 40 | 3.0 |
| **RS80-1B18T-SS** | 18 | 146.27 | 159 | 19 | 63 | 93 | 40 | 3.2 |
| **RS80-1B19T-SS** | 19 | 154.32 | 167 | 23 | 63 | 93 | 40 | 3.4 |
| **RS80-1B20T-SS** | 20 | 162.37 | 176 | 23 | 63 | 93 | 40 | 3.6 |
| **RS80-1B21T-SS** | 21 | 170.42 | 184 | 23 | 63 | 93 | 40 | 3.8 |
| **RS80-1B22T-SS** | 22 | 178.48 | 192 | 28 | 75 | 107 | 45 | 4.8 |
| **RS80-1B23T-SS** | 23 | 186.54 | 200 | 28 | 75 | 107 | 45 | 5.1 |
| **RS80-1B24T-SS** | 24 | 194.60 | 208 | 28 | 75 | 107 | 45 | 5.4 |
| **RS80-1B25T-SS** | 25 | 202.66 | 216 | 28 | 75 | 107 | 45 | 5.6 |
| Material/Specifications | Machined stainless steel | | | | | | | |

Contact a Tsubaki representative regarding numbers of teeth other than those above.

See pg. 79 for Tsubaki's corrosion resistant chain series

# RS35 – RS60 (Corrosion Resistant Engineering Plastic)

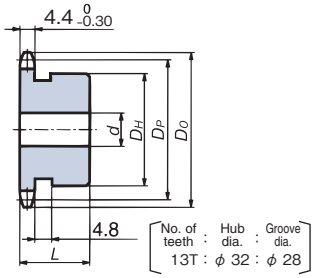
## Corrosion Resistant Engineering Plastic Pilot Bore Series

### ●Operating Conditions

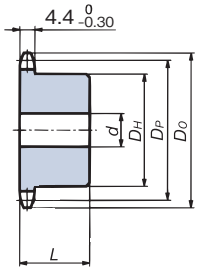
Operating temperature : -10℃ to 60℃
Permissible speed : Recommended at a circumferential speed of 70m/min or below (lube-free operation)
(Can be used up to 150m/min in lubed or pre-lubed operation.)
Material : Special MC901 nylon (dark blue)

### ● RS35 Engineering plastic pilot bore sprocket

Hub with groove (13T)



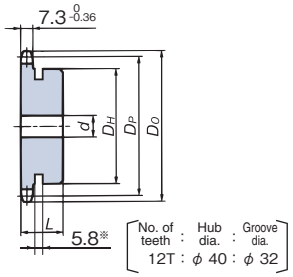

Hub without groove (14T and over)



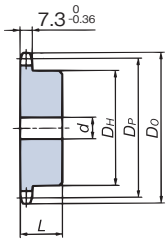

| Model No. | No. of Teeth | Allowable Transmission Torque N・m | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Bore Dia. $d$ Pilot bore | Bore Dia. $d$ Max. | Hub Dia. Pilot bore $D_H$ | Hub Dia. Max. $L$ | Approx. Mass (kg) |
|---|---|---|---|---|---|---|---|---|---|
| **RS35-1B13T-P** | 13 | 5.30 | 39.80 | 44 | 9.5 | 14 | 32 | 20 | 0.02 |
| **RS35-1B14T-P** | 14 | 5.69 | 42.80 | 46 | 9.5 | 15 | 30 | 20 | 0.02 |
| **RS35-1B15T-P** | 15 | 6.08 | 45.81 | 51 | 9.5 | 17 | 35 | 20 | 0.02 |
| **RS35-1B16T-P** | 16 | 6.47 | 48.82 | 53 | 9.5 | 19 | 37 | 20 | 0.03 |
| **RS35-1B17T-P** | 17 | 6.86 | 51.84 | 57 | 9.5 | 22 | 41 | 20 | 0.03 |
| **RS35-1B18T-P** | 18 | 7.26 | 54.85 | 60 | 12.7 | 22 | 44 | 20 | 0.04 |
| **RS35-1B20T-P** | 20 | 8.04 | 60.89 | 66 | 12.7 | 27 | 50 | 20 | 0.05 |
| **RS35-1B22T-P** | 22 | 8.83 | 66.93 | 72 | 12.7 | 28 | 53 | 20 | 0.06 |
| **RS35-1B24T-P** | 24 | 9.71 | 72.97 | 78 | 12.7 | 32 | 53 | 22 | 0.08 |
| RS35-1B25T-P | 25 | 10.1 | 76.00 | 81 | 12.7 | 32 | 53 | 22 | 0.08 |
| RS35-1B26T-P | 26 | 10.5 | 79.02 | 83 | 12.7 | 35 | 53 | 22 | 0.09 |
| RS35-1B28T-P | 28 | 11.3 | 85.07 | 90 | 12.7 | 40 | 53 | 22 | 0.10 |
| RS35-1B30T-P | 30 | 12.1 | 91.12 | 96 | 12.7 | 42 | 53 | 22 | 0.12 |

### ● RS40 Engineering plastic pilot bore sprocket

Hub with groove (12T)



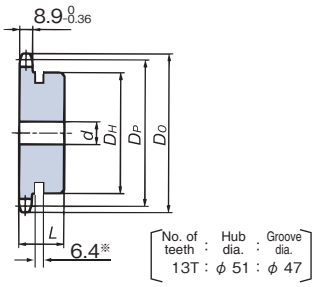

Hub without groove (13T and over)



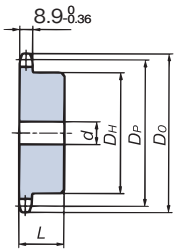

| Model No. | No. of Teeth | Allowable Transmission Torque N・m | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Bore Dia. $d$ Pilot bore | Bore Dia. $d$ Max. | Hub Dia. Pilot bore $D_H$ | Hub Dia. Max. $L$ | Approx. Mass (kg) |
|---|---|---|---|---|---|---|---|---|---|
| **RS40-1B12T-P** | 12 | 10.8 | 49.07 | 53 | 9.5 | 16 | 40 | 22 | 0.03 |
| **RS40-1B13T-P** | 13 | 11.7 | 53.07 | 58 | 12.7 | 18 | 37 | 22 | 0.04 |
| **RS40-1B14T-P** | 14 | 12.6 | 57.07 | 63 | 12.7 | 22 | 42 | 22 | 0.04 |
| **RS40-1B15T-P** | 15 | 13.4 | 61.08 | 67 | 12.7 | 25 | 46 | 22 | 0.05 |
| **RS40-1B16T-P** | 16 | 14.3 | 65.10 | 71 | 12.7 | 27 | 50 | 22 | 0.06 |
| **RS40-1B17T-P** | 17 | 15.3 | 69.12 | 75 | 12.7 | 28 | 54 | 22 | 0.07 |
| **RS40-1B18T-P** | 18 | 16.2 | 73.14 | 78 | 12.7 | 30 | 57 | 22 | 0.08 |
| **RS40-1B20T-P** | 20 | 17.9 | 81.18 | 88 | 12.7 | 35 | 67 | 25 | 0.11 |
| **RS40-1B22T-P** | 22 | 19.6 | 89.24 | 96 | 12.7 | 42 | 75 | 25 | 0.14 |
| **RS40-1B24T-P** | 24 | 21.5 | 97.30 | 104 | 12.7 | 50 | 80 | 25 | 0.16 |
| **RS40-1B25T-P** | 25 | 22.4 | 101.33 | 108 | 12.7 | 50 | 80 | 25 | 0.17 |
| RS40-1B26T-P | 26 | 23.2 | 105.36 | 112 | 12.7 | 52 | 85 | 25 | 0.18 |
| RS40-1B28T-P | 28 | 25.0 | 113.43 | 120 | 12.7 | 55 | 90 | 25 | 0.21 |
| RS40-1B30T-P | 30 | 26.8 | 121.50 | 128 | 12.7 | 60 | 100 | 25 | 0.26 |

### ● RS50 Engineering plastic pilot bore sprocket

Hub with groove (13T)

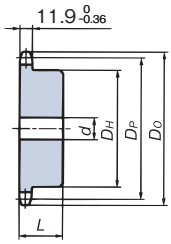



Hub without groove (14T and over)




| Model No. | No. of Teeth | Allowable Transmission Torque N・m | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Bore Dia. $d$ Pilot bore | Bore Dia. $d$ Max. | Hub Dia. Pilot bore $D_H$ | Hub Dia. Max. $L$ | Approx. Mass (kg) |
|---|---|---|---|---|---|---|---|---|---|
| **RS50-1B13T-P** | 13 | 22.8 | 66.34 | 73 | 12.7 | 25 | 51 | 25 | 0.07 |
| **RS50-1B14T-P** | 14 | 24.5 | 71.34 | 78 | 12.7 | 28 | 52 | 25 | 0.08 |
| **RS50-1B15T-P** | 15 | 26.2 | 76.35 | 83 | 12.7 | 30 | 57 | 25 | 0.09 |
| **RS50-1B16T-P** | 16 | 27.9 | 81.37 | 89 | 12.7 | 32 | 62 | 25 | 0.11 |
| **RS50-1B17T-P** | 17 | 29.6 | 86.39 | 93 | 12.7 | 35 | 67 | 25 | 0.12 |
| **RS50-1B18T-P** | 18 | 31.4 | 91.42 | 98 | 12.7 | 40 | 72 | 28 | 0.15 |
| **RS50-1B20T-P** | 20 | 34.8 | 101.48 | 110 | 15.9 | 50 | 80 | 28 | 0.20 |
| **RS50-1B22T-P** | 22 | 38.2 | 111.55 | 120 | 15.9 | 55 | 90 | 28 | 0.24 |
| **RS50-1B24T-P** | 24 | 41.8 | 121.62 | 130 | 15.9 | 60 | 100 | 28 | 0.29 |
| **RS50-1B25T-P** | 25 | 43.4 | 126.66 | 135 | 15.9 | 60 | 100 | 28 | 0.31 |
| RS50-1B26T-P | 26 | 45.2 | 131.70 | 140 | 18 | 65 | 110 | 28 | 0.34 |
| RS50-1B28T-P | 28 | 48.6 | 141.79 | 150 | 18 | 70 | 120 | 28 | 0.40 |
| RS50-1B30T-P | 30 | 52.2 | 151.87 | 161 | 18 | 70 | 120 | 28 | 0.43 |

### ● RS60 Engineering plastic pilot bore sprocket




| Model No. | No. of Teeth | Allowable Transmission Torque N・m | Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Bore Dia. $d$ Pilot bore | Bore Dia. $d$ Max. | Hub Dia. Pilot bore $D_H$ | Hub Dia. Max. $L$ | Approx. Mass (kg) |
|---|---|---|---|---|---|---|---|---|---|
| **RS60-1B13T-P** | 13 | 41.0 | 79.60 | 88 | 15.9 | 30 | 57 | 32 | 0.12 |
| **RS60-1B14T-P** | 14 | 44.1 | 85.61 | 93 | 15.9 | 32 | 62 | 32 | 0.14 |
| **RS60-1B15T-P** | 15 | 47.2 | 91.62 | 99 | 15.9 | 35 | 68 | 32 | 0.16 |
| **RS60-1B16T-P** | 16 | 50.3 | 97.65 | 107 | 15.9 | 42 | 73 | 32 | 0.19 |
| **RS60-1B17T-P** | 17 | 53.3 | 103.67 | 113 | 15.9 | 50 | 80 | 32 | 0.21 |
| **RS60-1B18T-P** | 18 | 56.5 | 109.71 | 119 | 15.9 | 52 | 85 | 40 | 0.30 |
| **RS60-1B20T-P** | 20 | 62.7 | 121.78 | 132 | 15.9 | 60 | 95 | 40 | 0.38 |
| RS60-1B22T-P | 22 | 68.9 | 133.86 | 144 | 15.9 | 65 | 110 | 40 | 0.51 |
| RS60-1B24T-P | 24 | 75.1 | 145.95 | 156 | 18 | 70 | 120 | 40 | 0.57 |
| RS60-1B25T-P | 25 | 78.3 | 151.99 | 162 | 18 | 70 | 120 | 40 | 0.59 |
| RS60-1B26T-P | 26 | 81.4 | 158.04 | 168 | 18 | 70 | 120 | 40 | 0.62 |
| RS60-1B28T-P | 28 | 87.6 | 170.14 | 180 | 18 | 70 | 120 | 40 | 0.65 |
| RS60-1B30T-P | 30 | 93.8 | 182.25 | 193 | 18 | 70 | 120 | 40 | 0.70 |

Bold lettering indicates stock items.

# RS Sprocket Corrosion Resistant Fit Bore® Series

## ■Stainless steel fit bore sprockets

Applicable models: RS25 – RS80 1B Type stainless steel sprockets
Each model is provided with a finished bore, keyway, and two set screws (RS25 has no keyway and only one set screw).
Can be used as is without additional machining.

Applicable bore processing specifications

Applicable bore dia. : 06 – 65mm
Bore tolerance : H7
(RS25 has a bore tolerance of H8 with no keyway)
Keyway specifications : New JIS standards (JIS B 1301 – 1996), normal type parallel key
Keyway tolerance : Js9

## Ordering Corrosion Resistant Stainless Steel Fit Bore Sprockets

Please indicate product code and model number on your order.

### ■Ordering Example

| Product Code | Model No. | Quantity | Unit |
|---|---|---|---|
| G150001 | RS25-1B10T-SS-H08 | 10 | (pcs) |

### ■Model Numbering Example

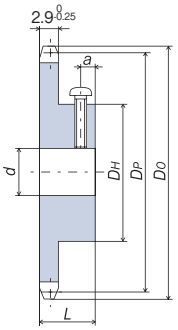
**RS35-1B 10T-SS-H10 J**

- RS35: Chain no.
- 1B: Hub type (1B: single hub only)
- 10T: No. of teeth
- SS: Mat.: Stainless steel
- H10: Bore dia. (Finished tolerance: H7)
- J: Keyway tolerance: Js9

# RS25 Stainless Steel Fit Bore® Sprockets

See pg. 79 for Tsubaki's corrosion resistant chain series

## ■ RS25 Stainless Steel Fit Bore Sprockets




### Model Numbering Example

**RS25 – 1B 10T – SS –H □□**

- □□: Bore dia. : Finished tolerance of H8 (Put a zero (0) first if the finished diameter is a single-digit value.)
- SS: Stainless steel : SS
- 10T: No. of teeth
- 1B: Hub type (1B: Single hub only)
- RS25: Chain no.

Set screw size

| Bore dia. *d* | Bolt size |
|---|---|
| 06 | M3 |
| 08~15 | M4 |

Comes with one stainless steel round Philips head screw.

Specifications: Bore tolerance of H8 provided with no keyway and one set screw.

| Model No. | No. of Teeth | Basic Dimensions: Pitch Circle Dia. $D_P$ | Basic Dimensions: (Outer Dia.) ($D_O$) | Hub: Dia. $D_H$ | Hub: Length $L$ | Tap position $a$ | Finished bore dia. *d* Tolerance H8: 06 | 08 | 10 | 12 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RS25-1B10T-SS-H□□ | 10 | 20.55 | 23 | 14 | 15 | 5 | ● | ● | | | |
| RS25-1B11T-SS-H□□ | 11 | 22.54 | 25 | 16 | 15 | 5 | ● | ● | | | |
| RS25-1B12T-SS-H□□ | 12 | 24.53 | 28 | 18 | 15 | 5 | ● | ● | ● | | |
| RS25-1B13T-SS-H□□ | 13 | 26.53 | 30 | 20 | 15 | 5 | ● | ● | ● | | |
| RS25-1B14T-SS-H□□ | 14 | 28.54 | 32 | 20 | 15 | 5 | ● | ● | ● | | |
| RS25-1B15T-SS-H□□ | 15 | 30.54 | 34 | 20 | 20 | 7 | ● | ● | ● | | |
| RS25-1B16T-SS-H□□ | 16 | 32.55 | 36 | 25 | 20 | 7 | | ● | ● | | |
| RS25-1B17T-SS-H□□ | 17 | 34.56 | 38 | 25 | 20 | 7 | | ● | ● | | |
| RS25-1B18T-SS-H□□ | 18 | 36.57 | 40 | 25 | 20 | 7 | | ● | ● | | |
| RS25-1B19T-SS-H□□ | 19 | 38.58 | 42 | 25 | 20 | 7 | | ● | ● | | |
| RS25-1B20T-SS-H□□ | 20 | 40.59 | 44 | 25 | 20 | 7 | | ● | ● | | |
| RS25-1B21T-SS-H□□ | 21 | 42.61 | 46 | 30 | 20 | 7 | | | ● | ● | |
| RS25-1B22T-SS-H□□ | 22 | 44.62 | 48 | 30 | 20 | 7 | | | ● | ● | |
| RS25-1B23T-SS-H□□ | 23 | 46.63 | 50 | 30 | 20 | 7 | | | ● | ● | |
| RS25-1B24T-SS-H□□ | 24 | 48.65 | 52 | 35 | 20 | 7 | | | ● | ● | |
| RS25-1B25T-SS-H□□ | 25 | 50.66 | 54 | 35 | 20 | 7 | | | ● | ● | |
| RS25-1B26T-SS-H□□ | 26 | 52.68 | 56 | 40 | 20 | 7 | | | ● | ● | |
| RS25-1B27T-SS-H□□ | 27 | 54.70 | 58 | 40 | 20 | 7 | | | ● | ● | |
| RS25-1B28T-SS-H□□ | 28 | 56.71 | 60 | 40 | 20 | 7 | | | ● | ● | |
| RS25-1B30T-SS-H□□ | 30 | 60.75 | 64 | 45 | 20 | 7 | | | | ● | ● |
| RS25-1B32T-SS-H□□ | 32 | 64.78 | 68 | 50 | 20 | 7 | | | | ● | ● |

● Circles indicate permissible bore diameters.

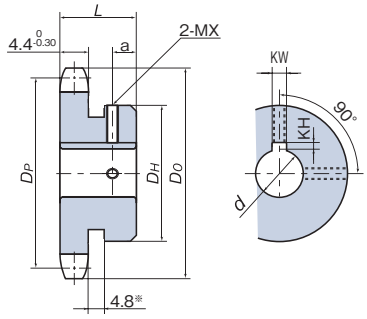
See pg. 79 for Tsubaki's corrosion resistant chain series

# RS35 Stainless Steel Fit Bore® Sprockets

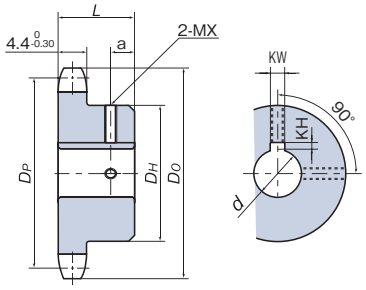
## RS35 Stainless Steel Fit Bore Sprockets

Applicable chain pitch: 9.525mm  Roller dia.: 5.08mm

Hub with groove (10T – 13T)




Hub without groove (14T and over)




| No. of teeth | Hub dia. | Groove dia. |
|---|---|---|
| 10T | φ 25 | φ 18 |
| 11T | φ 27 | φ 22 |
| 12T | φ 31 | φ 24 |
| 13T | φ 32 | φ 28 |

*The groove is provided on the hub perimeter to prevent sprocket – chain interference.

| Applicable Bore Dia. | Keyway Width KW | Tolerance (Js9) | Keyway Depth KH | Tolerance | Set Screw Size MX |
|---|---|---|---|---|---|
| 10 and up to 12 | 4 | ±0.0150 | 1.8 | +0.1 0 | M4 |
| More than 12 and up to 17 | 5 | | 2.3 | | M5 |
| More than 17 and up to 22 | 6 | | 2.8 | | M6 |
| More than 22 and up to 30 | 8 | ±0.0180 | 3.3 | +0.2 0 | |
| More than 30 and up to 38 | 10 | | | | M8 |
| More than 38 and up to 44 | 12 | ±0.0215 | | | |
| More than 44 and up to 50 | 14 | | 3.8 | | |
| More than 50 and up to 58 | 16 | | 4.3 | | M10 |
| More than 58 and up to 65 | 18 | | 4.4 | | |

Provided with two stainless steel set screws.

### Model Numbering Example

RS35 – 1B 20T – SS – H□□ J

- Keyway tolerance (Js9)
- Bore dia.
- Bore tolerance (H7)
- Stainless steel : SS
- No of teeth
- Type
- Chain no.

| Model No. | No. of Teeth | Basic Dimensions: Pitch Circle Dia. $D_P$ | Basic Dimensions: (Outer Dia.) ($D_O$) | Hub: Dia. $D_H$ | Hub: Length $L$ | Tap position $a$ | Finished bore dia. $d$ Tolerance H7: 10 | 12 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 22 | 24 | 25 | 28 | 30 | 32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS35-1B10T-SS-H□□J | 10 | 30.82 | 35 | 25 | 20 | 5 | ● | ● | | | | | | | | | | | | | |
| RS35-1B11T-SS-H□□J | 11 | 33.81 | 38 | 27 | 20 | 5 | ● | ● | ● | | | | | | | | | | | | |
| RS35-1B12T-SS-H□□J | 12 | 36.80 | 41 | 31 | 20 | 5 | ● | ● | ● | ● | ● | | | | | | | | | | |
| RS35-1B13T-SS-H□□J | 13 | 39.80 | 44 | 32 | 20 | 5 | ● | ● | ● | ● | ● | ● | ● | | | | | | | | |
| RS35-1B14T-SS-H□□J | 14 | 42.81 | 47 | 30 | 20 | 8 | ● | ● | ● | ● | ● | | | | | | | | | | |
| RS35-1B15T-SS-H□□J | 15 | 45.81 | 51 | 35 | 20 | 8 | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | |
| RS35-1B16T-SS-H□□J | 16 | 48.82 | 54 | 37 | 20 | 8 | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | |
| RS35-1B17T-SS-H□□J | 17 | 51.84 | 57 | 41 | 20 | 8 | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | |
| RS35-1B18T-SS-H□□J | 18 | 54.85 | 60 | 44 | 20 | 8 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | |
| RS35-1B19T-SS-H□□J | 19 | 57.87 | 63 | 47 | 20 | 8 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | |
| RS35-1B20T-SS-H□□J | 20 | 60.89 | 66 | 50 | 20 | 8 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| RS35-1B21T-SS-H□□J | 21 | 63.91 | 69 | 53 | 20 | 8 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| RS35-1B22T-SS-H□□J | 22 | 66.93 | 72 | 53 | 20 | 8 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| RS35-1B23T-SS-H□□J | 23 | 69.95 | 75 | 53 | 20 | 8 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| RS35-1B24T-SS-H□□J | 24 | 72.97 | 78 | 53 | 22 | 10/7※ | | | ● | ● | ● | ● | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ |
| RS35-1B25T-SS-H□□J | 25 | 76.00 | 81 | 53 | 22 | 10/7※ | | | | ● | ● | ● | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ |
| RS35-1B26T-SS-H□□J | 26 | 79.02 | 84 | 53 | 22 | 10/7※ | | | | ● | ● | ● | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ |
| RS35-1B27T-SS-H□□J | 27 | 82.05 | 87 | 53 | 22 | 10/7※ | | | | ● | ● | ● | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ |
| RS35-1B28T-SS-H□□J | 28 | 85.07 | 90 | 53 | 22 | 10/7※ | | | | ● | ● | ● | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ |
| RS35-1B30T-SS-H□□J | 30 | 91.12 | 96 | 53 | 22 | 10/7※ | | | | ● | ● | ● | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ |

● circles indicate applicable bore diameters.
○ circles indicate that the tap position is at 7mm for applicable bore diameters.

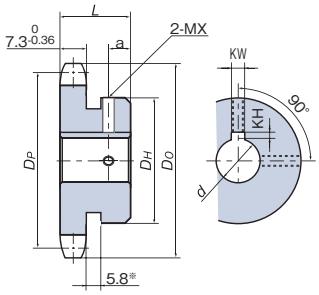
See pg. 79 for Tsubaki's corrosion resistant chain series

# RS40 Stainless Steel Fit Bore® Sprockets

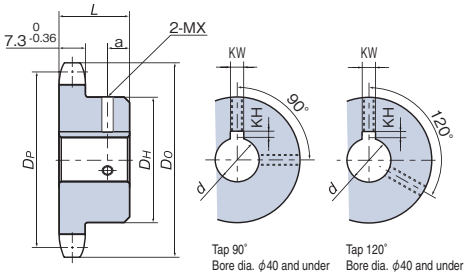
## RS40 Stainless Steel Fit Bore Sprockets

Applicable chain pitch: 12.70mm  Roller dia.: 7.92mm

Hub with groove (10T – 12T)




Hub without groove (13T and over)




| No. of teeth | Hub dia. | Groove dia. |
|---|---|---|
| 10T | ϕ 32 | ϕ 25 |
| 11T | ϕ 37 | ϕ 30 |
| 12T | ϕ 40 | ϕ 32 |

*The groove is provided on the hub perimeter to prevent sprocket – chain interference.

| Applicable Bore Dia. | Keyway Width KW | Tolerance (Js9) | Keyway Depth KH | Tolerance | Set Screw Size MX |
|---|---|---|---|---|---|
| 10 and up to 12 | 4 | ±0.0150 | 1.8 | +0.1 0 | M4 |
| More than 12 and up to 17 | 5 | | 2.3 | | M5 |
| More than 17 and up to 22 | 6 | | 2.8 | | M6 |
| More than 22 and up to 30 | 8 | ±0.0180 | 3.3 | +0.2 0 | |
| More than 30 and up to 38 | 10 | | | | M8 |
| More than 38 and up to 44 | 12 | ±0.0215 | | | |
| More than 44 and up to 50 | 14 | | 3.8 | | |
| More than 50 and up to 58 | 16 | | 4.3 | | M10 |
| More than 58 and up to 65 | 18 | | 4.4 | | |

Provided with two stainless steel set screws.

### Model Numbering Example

RS40 – 1B 20T – SS – H□□ J

- Keyway tolerance (Js9)
- Bore dia.
- Bore tolerance (H7)
- Stainless steel : SS
- No of teeth
- Type
- Chain no.

| Model No. | No. of Teeth | Basic Dimensions: Pitch Circle Dia. $D_P$ | Basic Dimensions: (Outer Dia.) ($D_O$) | Hub: Dia. $D_H$ | Hub: Length $L$ | Tap position $a$ | Finished bore dia. $d$ Tolerance H7 | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 10 | 12 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 22 | 24 | 25 | 28 | 30 | 32 | 35 | 38 | 40 | 42 | 45 | 48 |
| RS40-1B10T-SS-H□□J | 10 | 41.10 | 47 | 32 | 22 | 5 | ● | ● | ● | ● | ● | | | | | | | | | | | | | | | | |
| RS40-1B11T-SS-H□□J | 11 | 45.08 | 51 | 37 | 22 | 5 | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | | | |
| RS40-1B12T-SS-H□□J | 12 | 49.07 | 55 | 40 | 22 | 5 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | | |
| RS40-1B13T-SS-H□□J | 13 | 53.07 | 59 | 37 | 22 | 7 | | | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | | | |
| RS40-1B14T-SS-H□□J | 14 | 57.07 | 63 | 42 | 22 | 7 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | |
| RS40-1B15T-SS-H□□J | 15 | 61.08 | 67 | 46 | 22 | 7 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | |
| RS40-1B16T-SS-H□□J | 16 | 65.10 | 71 | 50 | 22 | 7 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | |
| RS40-1B17T-SS-H□□J | 17 | 69.12 | 76 | 54 | 22 | 7 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | |
| RS40-1B18T-SS-H□□J | 18 | 73.14 | 80 | 57 | 22 | 7 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | |
| RS40-1B19T-SS-H□□J | 19 | 77.16 | 84 | 62 | 22 | 7 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | |
| RS40-1B20T-SS-H□□J | 20 | 81.18 | 88 | 67 | 25 | 7 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| RS40-1B21T-SS-H□□J | 21 | 85.21 | 92 | 71 | 25 | 7 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| RS40-1B22T-SS-H□□J | 22 | 89.24 | 96 | 75 | 25 | 7 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| RS40-1B23T-SS-H□□J | 23 | 93.27 | 100 | 77 | 25 | 7 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| RS40-1B24T-SS-H□□J | 24 | 97.30 | 104 | 63 | 25 | 7 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | |
| RS40-1B25T-SS-H□□J | 25 | 101.33 | 108 | 63 | 25 | 7 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | |
| RS40-1B26T-SS-H□□J | 26 | 105.36 | 112 | 63 | 25 | 7 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | |
| RS40-1B27T-SS-H□□J | 27 | 109.40 | 116 | 63 | 25 | 7 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | |
| RS40-1B28T-SS-H□□J | 28 | 113.43 | 120 | 63 | 25 | 7 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | |
| RS40-1B30T-SS-H□□J | 30 | 121.50 | 128 | 63 | 25 | 7 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | |

● Circles indicate permissible bore diameters.

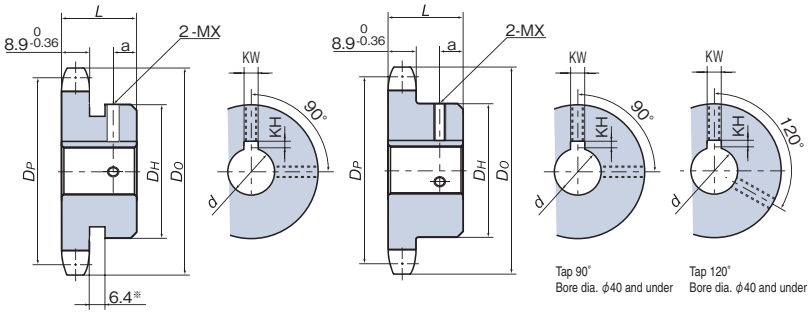
See pg. 79 for Tsubaki's corrosion resistant chain series

# RS50 Stainless Steel Fit Bore® Sprockets

## RS50 Stainless Steel Fit Bore Sprockets

Applicable chain pitch: 15.875mm  Roller dia.: 10.16mm

Hub with groove (10T – 13T)  Hub without groove (14T and over)




| No. of teeth | Hub dia. | Groove dia. |
|---|---|---|
| 10T | ϕ 40 | ϕ 32 |
| 11T | ϕ 46 | ϕ 37 |
| 12T | ϕ 51 | ϕ 42 |
| 13T | ϕ 51 | ϕ 47 |

*The groove is provided on the hub perimeter to prevent sprocket – chain interference.

| Applicable Bore Dia. | Keyway Width KW | Tolerance (Js9) | Keyway Depth KH | Tolerance | Set Screw Size MX |
|---|---|---|---|---|---|
| 10 and up to 12 | 4 | ±0.0150 | 1.8 | +0.1 0 | M4 |
| More than 12 and up to 17 | 5 | | 2.3 | | M5 |
| More than 17 and up to 22 | 6 | | 2.8 | | M6 |
| More than 22 and up to 30 | 8 | ±0.0180 | 3.3 | +0.2 0 | |
| More than 30 and up to 38 | 10 | | | | M8 |
| More than 38 and up to 44 | 12 | ±0.0215 | | | |
| More than 44 and up to 50 | 14 | | 3.8 | | |
| More than 50 and up to 58 | 16 | | 4.3 | | M10 |
| More than 58 and up to 65 | 18 | | 4.4 | | |

Provided with two stainless steel set screws.

### Model Numbering Example

RS50 – 1B 20T – SS – H □□ J

- Keyway tolerance (Js9)
- Bore dia.
- Bore tolerance (H7)
- Stainless steel : SS
- No of teeth
- Type
- Chain no.

| Model No. | No. of Teeth | Basic Dimensions Pitch Circle Dia. $D_P$ | (Outer Dia.) ($D_O$) | Hub Dia. $D_H$ | Hub Length $L$ | Tap position $a$ | Finished bore dia. $d$ Tolerance H7 | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 10 | 12 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 22 | 24 | 25 | 28 | 30 | 32 | 35 | 38 | 40 | 42 | 45 | 48 |
| RS50-1B10T-SS-H□□J | 10 | 51.37 | 58 | 40 | 25 | 6 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | | |
| RS50-1B11T-SS-H□□J | 11 | 56.35 | 64 | 46 | 25 | 6 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | |
| RS50-1B12T-SS-H□□J | 12 | 61.34 | 69 | 51 | 25 | 6 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | |
| RS50-1B13T-SS-H□□J | 13 | 66.34 | 74 | 51 | 25 | 6 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | |
| RS50-1B14T-SS-H□□J | 14 | 71.34 | 79 | 52 | 25 | 7 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | |
| RS50-1B15T-SS-H□□J | 15 | 76.35 | 84 | 57 | 25 | 7 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | |
| RS50-1B16T-SS-H□□J | 16 | 81.37 | 89 | 62 | 25 | 7 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | |
| RS50-1B17T-SS-H□□J | 17 | 86.39 | 94 | 67 | 25 | 7 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| RS50-1B18T-SS-H□□J | 18 | 91.41 | 100 | 72 | 28 | 8 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| RS50-1B19T-SS-H□□J | 19 | 96.45 | 105 | 73 | 28 | 8 | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| RS50-1B20T-SS-H□□J | 20 | 101.48 | 110 | 73 | 28 | 8 | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| RS50-1B21T-SS-H□□J | 21 | 106.51 | 115 | 73 | 28 | 8 | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| RS50-1B22T-SS-H□□J | 22 | 111.55 | 120 | 73 | 28 | 8 | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| RS50-1B23T-SS-H□□J | 23 | 116.58 | 125 | 73 | 28 | 8 | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| RS50-1B24T-SS-H□□J | 24 | 121.62 | 130 | 73 | 28 | 8 | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| RS50-1B25T-SS-H□□J | 25 | 126.66 | 135 | 73 | 28 | 8 | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| RS50-1B26T-SS-H□□J | 26 | 131.70 | 140 | 73 | 28 | 8 | | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| RS50-1B27T-SS-H□□J | 27 | 136.74 | 145 | 73 | 28 | 8 | | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| RS50-1B28T-SS-H□□J | 28 | 141.79 | 150 | 73 | 28 | 8 | | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| RS50-1B30T-SS-H□□J | 30 | 151.87 | 161 | 73 | 28 | 8 | | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

● circles indicate applicable bore diameters.

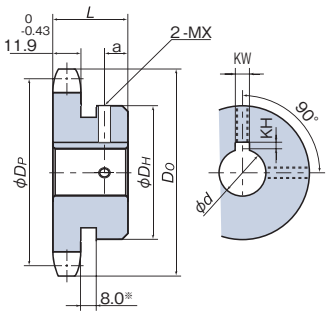
See pg. 79 for Tsubaki's corrosion resistant chain series

# RS60 Stainless Steel Fit Bore® Sprockets

## RS60 Stainless Steel Fit Bore Sprockets

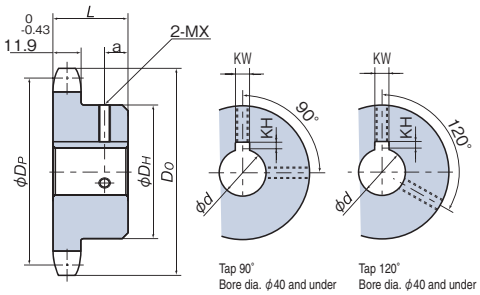
Applicable chain pitch: 19.05mm  Roller dia.: 11.91mm

Hub with groove (10T – 11T)




| No. of teeth : | Hub dia. : | Groove dia. |
|---|---|---|
| 10T | : φ 49 | : φ 37 |
| 11T | : φ 51 | : φ 45 |

Hub without groove (12T and over)




*The groove is provided on the hub perimeter to prevent sprocket – chain interference.

| Applicable Bore Dia. | Keyway Width KW | Tolerance (Js9) | Keyway Depth KH | Tolerance | Set Screw Size MX |
|---|---|---|---|---|---|
| 10 and up to 12 | 4 | ±0.0150 | 1.8 | +0.1 0 | M4 |
| More than 12 and up to 17 | 5 | | 2.3 | | M5 |
| More than 17 and up to 22 | 6 | | 2.8 | | M6 |
| More than 22 and up to 30 | 8 | ±0.0180 | 3.3 | +0.2 0 | |
| More than 30 and up to 38 | 10 | | | | M8 |
| More than 38 and up to 44 | 12 | ±0.0215 | | | |
| More than 44 and up to 50 | 14 | | 3.8 | | |
| More than 50 and up to 58 | 16 | | 4.3 | | M10 |
| More than 58 and up to 65 | 18 | | 4.4 | | |

Provided with two stainless steel set screws.

### Model Numbering Example

RS60 – 1B 20T – SS – H □□ J

- Keyway tolerance (Js9)
- Bore dia.
- Bore tolerance (H7)
- Stainless steel : SS
- No of teeth
- Type
- Chain no.

| Model No. | No. of Teeth | Basic Dimensions Pitch Circle Dia. $D_P$ | Basic Dimensions (Outer Dia.) ($D_O$) | Hub Dia. $D_H$ | Hub Length $L$ | Tap position $a$ | Finished bore dia. $d$ Tolerance H7 | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 22 | 24 | 25 | 28 | 30 | 32 | 35 | 38 | 40 | 42 | 45 | 48 | 50 | 55 |
| RS60-1B10T-SS-H□□J | 10 | 61.65 | 70 | 49 | 32 | 6 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | |
| RS60-1B11T-SS-H□□J | 11 | 67.62 | 76 | 51 | 32 | 6 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | |
| RS60-1B12T-SS-H□□J | 12 | 73.60 | 83 | 51 | 32 | 12 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | |
| RS60-1B13T-SS-H□□J | 13 | 79.60 | 89 | 57 | 32 | 12 | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | |
| RS60-1B14T-SS-H□□J | 14 | 85.61 | 95 | 62 | 32 | 12 | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | |
| RS60-1B15T-SS-H□□J | 15 | 91.62 | 101 | 68 | 32 | 12 | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | |
| RS60-1B16T-SS-H□□J | 16 | 97.65 | 107 | 73 | 32 | 12 | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | |
| RS60-1B17T-SS-H□□J | 17 | 103.67 | 113 | 73 | 32 | 12 | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | |
| RS60-1B18T-SS-H□□J | 18 | 109.71 | 119 | 83 | 40 | 12 | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| RS60-1B19T-SS-H□□J | 19 | 115.74 | 126 | 83 | 40 | 12 | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| RS60-1B20T-SS-H□□J | 20 | 121.78 | 132 | 83 | 40 | 12 | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| RS60-1B21T-SS-H□□J | 21 | 127.82 | 138 | 83 | 40 | 12 | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| RS60-1B22T-SS-H□□J | 22 | 133.86 | 144 | 83 | 40 | 12 | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| RS60-1B23T-SS-H□□J | 23 | 139.90 | 150 | 83 | 40 | 12 | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| RS60-1B24T-SS-H□□J | 24 | 145.95 | 156 | 83 | 40 | 12 | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| RS60-1B25T-SS-H□□J | 25 | 151.99 | 162 | 83 | 40 | 12 | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| RS60-1B26T-SS-H□□J | 26 | 158.04 | 168 | 83 | 40 | 12 | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| RS60-1B27T-SS-H□□J | 27 | 164.09 | 174 | 83 | 40 | 12 | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| RS60-1B28T-SS-H□□J | 28 | 170.14 | 180 | 83 | 40 | 12 | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| RS60-1B30T-SS-H□□J | 30 | 182.25 | 193 | 83 | 40 | 12 | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

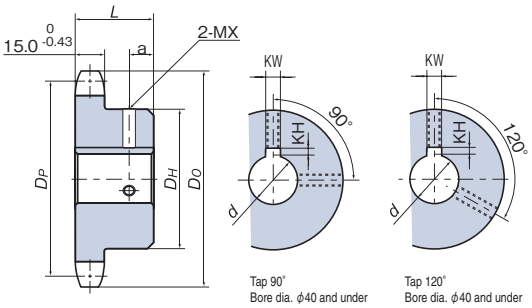
● Circles indicate permissible bore diameters.

See pg. 79 for Tsubaki's corrosion resistant chain series

# RS80 Stainless Steel Fit Bore® Sprockets

## RS80 Stainless Steel Fit Bore Sprockets

Applicable chain pitch: 25.40mm  Roller dia.: 15.88mm




| Applicable Bore Dia. | Keyway Width KW | Tolerance (Js9) | Keyway Depth KH | Tolerance | Set Screw Size MX |
|---|---|---|---|---|---|
| 10 and up to 12 | 4 | ±0.0150 | 1.8 | +0.1 0 | M4 |
| More than 12 and up to 17 | 5 | | 2.3 | | M5 |
| More than 17 and up to 22 | 6 | | 2.8 | | M6 |
| More than 22 and up to 30 | 8 | ±0.0180 | 3.3 | +0.2 0 | |
| More than 30 and up to 38 | 10 | | | | M8 |
| More than 38 and up to 44 | 12 | ±0.0215 | | | |
| More than 44 and up to 50 | 14 | | 3.8 | | |
| More than 50 and up to 58 | 16 | | 4.3 | | M10 |
| More than 58 and up to 65 | 18 | | 4.4 | | |

Provided with two stainless steel set screws.

### Model Numbering Example

RS80 – 1B 20T – SS – H □□ J

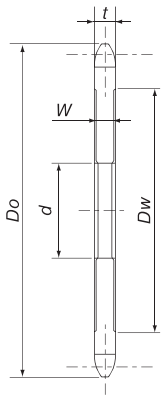
- Keyway tolerance (Js9)
- Bore dia.
- Bore tolerance (H7)
- Stainless steel : SS
- No of teeth
- Type
- Chain no.

| Model No. | No. of Teeth | Basic Dimensions: Pitch Circle Dia. $D_P$ | Basic Dimensions: (Outer Dia.) ($D_O$) | Hub: Dia. $D_H$ | Hub: Length $L$ | Tap position $a$ | Finished bore dia. $d$ Tolerance H7: 17 | 18 | 19 | 20 | 22 | 24 | 25 | 28 | 30 | 32 | 35 | 38 | 40 | 42 | 45 | 48 | 50 | 55 | 60 | 65 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS80-1B10T-SS-H□□J | 10 | 82.20 | 93 | 52 | 40 | 12 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | |
| RS80-1B11T-SS-H□□J | 11 | 90.16 | 102 | 60 | 40 | 12 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | |
| RS80-1B12T-SS-H□□J | 12 | 98.14 | 110 | 67 | 40 | 12 | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | |
| RS80-1B13T-SS-H□□J | 13 | 106.14 | 118 | 77 | 40 | 12 | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | |
| RS80-1B14T-SS-H□□J | 14 | 114.15 | 127 | 77 | 40 | 12 | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | |
| RS80-1B15T-SS-H□□J | 15 | 122.17 | 135 | 93 | 40 | 12 | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| RS80-1B16T-SS-H□□J | 16 | 130.20 | 143 | 93 | 40 | 12 | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| RS80-1B17T-SS-H□□J | 17 | 138.23 | 151 | 93 | 40 | 12 | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| RS80-1B18T-SS-H□□J | 18 | 146.27 | 159 | 93 | 40 | 12 | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| RS80-1B19T-SS-H□□J | 19 | 154.32 | 167 | 93 | 40 | 12 | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| RS80-1B20T-SS-H□□J | 20 | 162.37 | 176 | 93 | 40 | 12 | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| RS80-1B21T-SS-H□□J | 21 | 170.42 | 184 | 93 | 40 | 12 | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| RS80-1B22T-SS-H□□J | 22 | 178.48 | 192 | 107 | 45 | 12 | | | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| RS80-1B23T-SS-H□□J | 23 | 186.54 | 200 | 107 | 45 | 12 | | | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| RS80-1B24T-SS-H□□J | 24 | 194.60 | 208 | 107 | 45 | 12 | | | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| RS80-1B25T-SS-H□□J | 25 | 202.66 | 216 | 107 | 45 | 12 | | | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

● circles indicate applicable bore diameters.

# Torque Limiter Sprockets

Torque limiters are typical mechanical devices for overload protection, and as such it is essential that the friction surface of the center member be finished properly to ensure the precise, accurate overload detection of the torque limiter. Dedicated sprockets for torque limiters are provided with special surface processing to realize the ideal surface finish.




- Manufacturer's recommended value: Former JIS 3S – 6S
- Torque limiter sprocket: Ra 1.6$\mu$m and under (roughly former JIS 6S)

Model Numbering Example

**RS40–1A 20T–CM 30**

- Chain no.
- Sprocket type (Type A)
- No. of teeth
- Torque limiter sprocket
- Finished bore dia. *d*

| Chain No. | RS40 | RS50 | RS60 | RS80 | RS100 |
|---|---|---|---|---|---|
| *W* | 6.5 | 8.0 | 10.5 | 13.5 | 16.5 |
| *t* | 7.3 | 8.9 | 11.9 | 15.0 | 18.0 |

- Operating conditions: Sprocket width > Torque limiter bush width (The sprocket width must be larger than the bush width.)
- All other dimensions are the same as those for standard 1A Type sprockets.
- Refer to the following table for the *d* and *Dw* ranges.
- Uses an H7 finished bore diameter ( *d* ).

Note: Be sure to check the with the torque limiter manufacturer's catalog for the dimensions of each part. Specify the model number of the torque limiter when placing your order.

## ■ Torque Limiter Compatibility Table (Ref.)

Applicable sprocket range *d* × *Dw*

| No. of Teeth | | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 30 | 32 | 34 | 35 | 36 | 38 | 40 | 42 | 45 | 48 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS40* | TL200 | 30 × 53 | | | | | | | | | | | | | | | | | | | | | | | |
| | TL250 | | | | 41 × 68 | | | | | | | | | | | | | | | | | | | | |
| | TL350 | | | | | | | | | | | 49 × 92 | | | | | | | | | | | | | |
| RS50 | TL250 | | 41 × 68 | | | | | | | | | | | | | | | | | | | | | | |
| | TL350 | | | | | | 49 × 92 | | | | | | | | | | | | | | | | | | |
| | TL500 | | | | | | | | | | | | | | 74 × 134 | | | | | | | | | | |
| RS60 | TL350 | | | 49 × 92 | | | | | | | | | | | | | | | | | | | | | |
| | TL500 | | | | | | | | | | 74 × 134 | | | | | | | | | | | | | | |
| | TL700 | | | | | | | | | | | | | | | | 105 × 184 | | | | | | | | |
| RS80 | TL500 | | | | 74 × 132 | | | | | | | | | | | | | | | | | | | | |
| | TL700 | | | | | | | | | | | 105 × 184 | | | | | | | | | | | | | |
| RS100 | TL500 | 74 × 132 | | | | | | | | | | | | | | | | | | | | | | | |
| | TL700 | | | | | | 105 × 184 | | | | | | | | | | | | | | | | | | |

Sprockets compatible with torque limiters from every major manufacturer are available. We also offer made-to-order sprockets. Contact a Tsubaki representative for more information.

*Check the bush width if TL250 or TL350 are used with RS40 sprockets.

# BS Roller Chain Sprockets (conform to BS standards)

Dedicated BS sprockets are required for BS Roller Chains.
Please contact a Tsubaki representative for more information.

**★Made-to-order item**

(Unit: mm)

| RS Chain No. | BS Chain Specifications | | | BS Sprocket Specifications | | | |
|---|---|---|---|---|---|---|---|
| | Pitch | Roller Dia. | Inner Link Inner Width | Tooth Width | Pitch Dia. | Outer Dia. | Corresponding BS/RS Chain Nos. |
| RF06B | 9.53 | 6.35 | 5.72 | 5.30 | Same as the basic dimensions of the corresponding RS sprocket model | Roughly the same as the basic dimensions of the corresponding RS sprocket model (may be slightly smaller) | RF06B → RS35 |
| RS08B | 12.70 | 8.51 | 7.75 | 7.20 | | | RS08B → RS40 |
| RS10B | 15.88 | 10.16 | 9.65 | 9.00 | | | RS10B → RS50 |
| RS12B | 19.05 | 12.07 | 11.68 | 11.00 | | | RS12B → RS60 |
| RS16B | 25.40 | 15.88 | 17.02 | 16.10 | | | RS16B → RS80 |
| RS20B | 31.75 | 19.05 | 19.56 | 18.60 | | | RS20B → RS100 |
| RS24B | 38.10 | 25.40 | 25.40 | 24.20 | | | RS24B → RS120 |
| RS28B | 44.45 | 27.94 | 30.99 | 29.20 | | | RS28B → RS140 |
| RS32B | 50.80 | 29.21 | 30.99 | 29.20 | | | RS32B → RS160 |
| RS40B | 63.50 | 39.37 | 38.10 | 36.40 | | | RS40B → RS200 |

●Model Numbering Example

**RS08B–1B 20T**

- BS chain no.
- No. of teeth

| Strands | Sprocket type |
|---|---|
| Single strand : 1<br>Double strand : 2 | Type A (flat) : A<br>Type B (single hub) : B<br>Type C (dual hub) : C |

# Easy Bore Finishing Service

## ■Easy Bore Finishing Service features

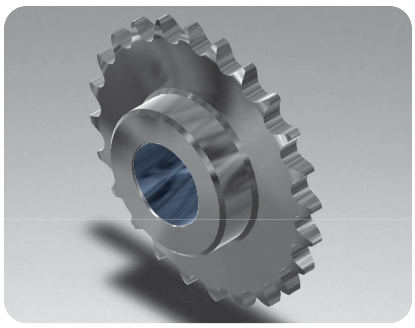
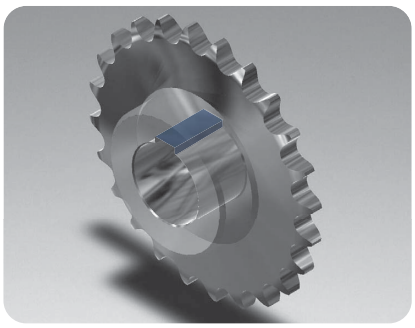
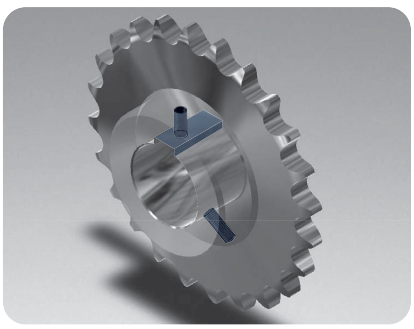
· Coded processing specifications allow for accurate specification confirmation and submittal.
· Processing codes eliminate the need to create or attach drawings when ordering.
· Processing codes also allow for speedy finishing and reliable delivery.

## Applicable sprockets and limitations for Easy Bore Finishing Service

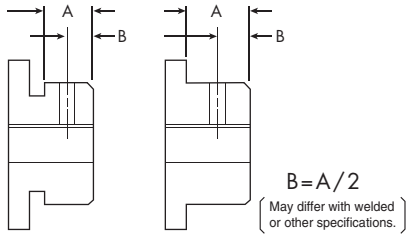
| Applicable Sprockets | Applicable Models |
|---|---|
| RS Sprockets (1A, 1B, 2B, and 1C Types) | For all stock items |
| RS Sprockets (SD Type) | |
| RS Sprockets (Stainless Steel Series) | |

| | |
|---|---|
| **Limitations** | **We cannot provide delivery drawings, certificates of inspection, or mill sheets. (Orders requiring such items will be treated as standard made-to-order items.)** |

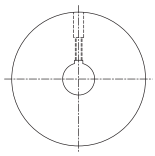
## Processing Range

| Bore Finishing (L) | Keyway Finishing (K) | Hole Tapping (D) |
|---|---|---|
|  |  |  |
| · Whole number dimensions only in 1 mm units. No imperial (inch) dimensions available.<br>· Bore tolerances: Choose from H7, G7, or M7. | · Parallel keyways only.<br>· Keyway tolerances: Choose from Js9, F7, P9, or E9. Follows JIS standards for keyway width and height. | · Tapped hole size determined by bore diameter (see pg. 136).<br>· Choose up to two (2) hole locations:<br>D1: Above the keyway<br>D2: Above the keyway and at 90˚<br>D3: Above the keyway and at 120˚<br>(See below)<br>· Set screws provided. |

## Tapped hole position




Tapped holes with be counterbored when hole is long.



## Set screw specifications

· Steel cup point set screws with hexagonal hole

· Use stainless steel screws with stainless steel sprockets

# Easy Bore Finishing Service

## List of Applicable Sprockets for Easy Bore Finishing Service

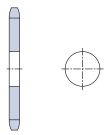
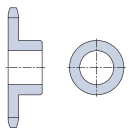
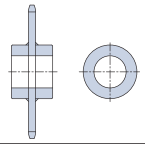
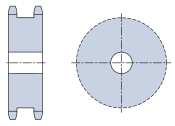
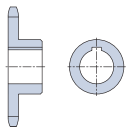
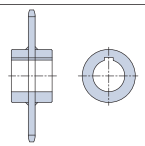
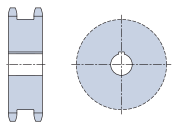
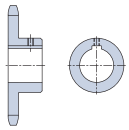
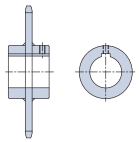
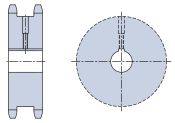
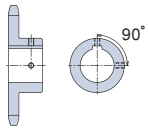
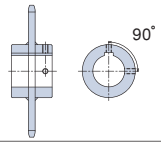
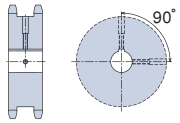
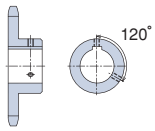
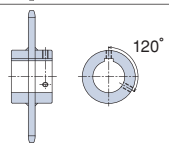
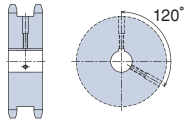
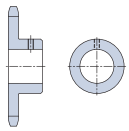
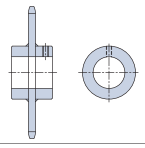
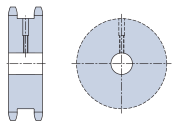
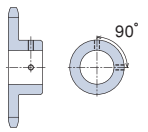
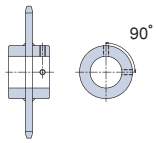
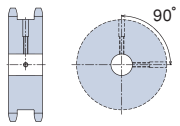
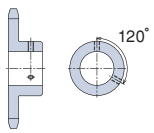
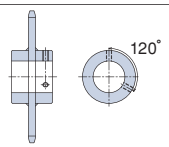
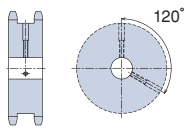
RS Sprockets (●: Hardened teeth, ○ : Standard teeth, ◎ : Both)

| Sprocket Model / No. of Teeth | Steel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Stainless Steel | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Single Strand | | | | | | | | | | | | | | | | | | | | Double Strand | | | | | | SD Type | | | | Single Strand Type | | | | | |
| | 35 | 40 | | | 50 | | | 60 | | | 80 | | | 100 | | | 120 | | 140 | 160 | 40 | 50 | 60 | 80 | 100 | 120 | 40 | 50 | 60 | 80 | 25 | 35 | 40 | 50 | 60 | 80 |
| | B | A | B | C | A | B | C | A | B | C | A | B | C | A | B | C | A | B | B | B | B | B | B | B | B | B | | | | | B | B | B | B | B | B |
| 9 | ● | | ● | | | ● | | | ● | | | ● | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | ● | | ● | | | ● | | | ● | | | ● | | | ● | | | ● | ● | ● | | | | | | | | | | | ○ | ○ | ○ | ○ | ○ | ○ |
| 11 | ● | | ● | | | ● | | | ● | | | ● | | | ● | | | ● | ● | ● | | | | | | | | | | | ○ | ○ | ○ | ○ | ○ | ○ |
| 12 | ● | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ |
| 13 | ● | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ |
| 14 | ● | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | ● | ● | ● | ● | ● | ● | ● | ○ | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ |
| 15 | ● | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | ● | ● | ● | ● | ● | ● | ○ | ○ | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ |
| 16 | ● | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | ● | ● | ● | ● | ● | ● | ○ | ○ | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ |
| 17 | ● | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | ● | ● | ● | ● | ● | ● | ○ | ○ | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ |
| 18 | ● | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | ● | ● | ● | ● | ● | ○ | ○ | ○ | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ |
| 19 | ● | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | ● | ● | ● | ● | ● | ○ | ○ | ○ | ● | ● | ● | | ○ | ○ | ○ | ○ | ○ | ○ |
| 20 | ● | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | ● | ● | ● | ● | ● | ○ | ○ | ○ | ● | ● | ● | | ○ | ○ | ○ | ○ | ○ | ○ |
| 21 | ● | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ● | ● | ● | ● | ● | ● | ○ | ○ | ○ | ● | ● | ● | | ○ | ○ | ○ | ○ | ○ | ○ |
| 22 | ● | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ◎ | ○ | ◎ | ○ | ◎ | | ○ | ○ | ○ | ● | ● | ● | ○ | | | ● | ● | ● | | ○ | ○ | ○ | ○ | ○ | ○ |
| 23 | ● | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ◎ | ○ | ◎ | ○ | ● | | | | | ● | ● | ○ | ○ | | | ● | ● | ● | | ○ | ○ | ○ | ○ | ○ | ○ |
| 24 | ● | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ◎ | ○ | ◎ | ○ | ◎ | | ○ | ○ | ○ | ● | ● | ○ | ○ | ○ | ○ | ● | ● | ● | | ○ | ○ | ○ | ○ | ○ | ○ |
| 25 | ● | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ◎ | ○ | ◎ | ○ | ◎ | | ○ | ○ | ○ | ● | ● | ○ | ○ | | | ● | ● | ● | | ○ | ○ | ○ | ○ | ○ | ○ |
| 26 | ● | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ◎ | ○ | ◎ | ○ | ◎ | | ○ | ○ | ○ | ● | ○ | ○ | ○ | | | | | | | ○ | ○ | ○ | ○ | ○ | |
| 27 | ● | ◎ | ● | | ◎ | ● | | ◎ | ● | | ◎ | ◎ | ○ | ◎ | ○ | ● | | | | | | | | | | | | | | | ○ | ○ | ○ | ○ | ○ | |
| 28 | ● | ◎ | ● | | ◎ | ● | | ◎ | ● | ◎ | ◎ | ◎ | ○ | ◎ | ○ | ◎ | | ○ | | | | | | | | | | | | | ○ | ○ | ○ | ○ | ○ | |
| 30 | ● | ◎ | ● | | ◎ | ● | | ◎ | ● | ◎ | ◎ | ◎ | ○ | ◎ | ○ | ◎ | | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | | | | | ○ | ○ | ○ | ○ | ○ | |
| 32 | ● | ◎ | ● | | ◎ | ● | | ◎ | ○ | ○ | ◎ | ◎ | ○ | ◎ | ○ | ○ | | ○ | | | | | | | | | | | | | ○ | ○ | ○ | ○ | | |
| 34 | ● | ◎ | ● | | ◎ | ● | | ◎ | ○ | ○ | ◎ | ◎ | ○ | | | | | | | | | | | | | | | | | | ○ | ○ | ○ | ○ | | |
| 35 | ● | ◎ | ● | | ◎ | ● | | ◎ | ○ | ○ | ◎ | ◎ | ○ | ◎ | ○ | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | | | | ○ | ○ | ○ | ○ | | |
| 36 | ● | ◎ | ● | ○ | ◎ | ◎ | ○ | ◎ | ○ | ○ | ◎ | ◎ | ○ | ◎ | ○ | ○ | | ○ | | | | | | | | | | | | | ○ | ○ | ○ | ○ | | |
| 38 | ● | ◎ | ● | ○ | ◎ | ◎ | ○ | ◎ | ○ | ○ | ◎ | ◎ | ○ | | | | | | | | | | | | | | | | | | ○ | ○ | ○ | ○ | | |
| 40 | ● | ◎ | ● | ○ | ◎ | ◎ | ○ | ◎ | ○ | ○ | ◎ | ◎ | ○ | ◎ | ○ | ○ | | ○ | ○ | | ○ | ○ | ○ | ○ | ○ | | | | | | ○ | ○ | ○ | ○ | | |
| 42 | ○ | ◎ | ○ | ○ | ◎ | ○ | ○ | ◎ | ○ | ○ | ◎ | ◎ | ○ | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | ○ | ◎ | ○ | ○ | ◎ | ○ | ○ | ◎ | ○ | ○ | ◎ | ◎ | ○ | ◎ | ○ | ○ | | ○ | | | ○ | ○ | ○ | ○ | ○ | | | | | | | | | | | |
| 48 | ○ | ◎ | ○ | ○ | ◎ | ○ | ○ | ◎ | ○ | ○ | ◎ | ◎ | ○ | ◎ | ○ | ○ | | ○ | | | | | | | | | | | | | | | | | | |
| 50 | ○ | ◎ | ○ | ○ | ◎ | ○ | ○ | ◎ | ○ | ○ | ◎ | ◎ | ○ | | | | | | | | | | | | | | | | | | | | | | | |
| 54 | ○ | ◎ | ○ | ○ | ◎ | ○ | ○ | ◎ | ○ | ○ | ◎ | ◎ | ○ | ◎ | ○ | ○ | | | | | ○ | ○ | ○ | ○ | | | | | | | | | | | | |
| 60 | ○ | ◎ | ○ | ○ | ◎ | ○ | ○ | ◎ | ○ | ○ | ◎ | ◎ | ○ | ◎ | ○ | ○ | | *Note | | | ○ | ○ | ○ | ○ | | | | | | | | | | | | |
| 65 | ○ | ◎ | ○ | ○ | ◎ | ○ | ○ | ◎ | ○ | ○ | ◎ | ◎ | ○ | | | | | | | | | | | | | | | | | | | | | | | |
| 70 | ○ | ◎ | ○ | ○ | ◎ | ○ | ○ | ◎ | ○ | ○ | ◎ | ◎ | ○ | ◎ | | ○ | | | | | | | | | | | | | | | | | | | | |
| 75 | ○ | ◎ | ○ | ○ | ◎ | ○ | ○ | ◎ | ○ | ○ | ◎ | ◎ | ○ | ◎ | | ○ | | | | | | | | | | | | | | | | | | | | |

Note: Processing fee for boxes colored blue in the thick outlined area is relatively high.

# Easy Bore Finishing Service

## Processing Code and Details

| | Processing Code | | | A Type | B Type | C Type | SD Type |
|---|---|---|---|---|---|---|---|
| | Bore | Key | Tap | | | | |
| I | | | |  |  |  |  |
| II | | | | — |  |  |  |
| III | | | 1 | — |  |  |  |
| | | | 2 | — |   |   |   |
| | | | 3 | — |   |   |   |
| IV | | | 1 | — |  |  |  |
| | | | 2 | — |   |   |   |
| | | | 3 | — |   |   |   |
| | | | | | | | |

Tap hole "1" shown above is tapped in one spot in the center of the keyway. Tap hole "2" is tapped at a 90° angle to tap hole "1", while tap hole "3" is tapped at a 120° angle to tap hole "1".

## List of Finishing Dimensions

With a key tolerance of Js9, P9 (new JIS)

| Bore Dia. | Keyway Width | Tap Size | Bore Mounting Dim. |
|---|---|---|---|
| 10～12 | 4 | M4 | 1 |
| 13～17 | 5 | M5 | |
| 18～20 | 6 | M6 | |
| 21～22 | | | 1.2 |
| 23～30 | 8 | | |
| 31～32 | 10 | M8 | |

With a key tolerance of F7, E9 (former JIS)

| Bore Dia. | Keyway Width | Tap Size | Bore Mounting Dim. |
|---|---|---|---|
| 10～13 | 4 | M4 | 1 |
| 14～20 | 5 | M5 | |
| 21～30 | 7 | M6 | 1.2 |
| 31～32 | 10 | M8 | |
| 33～40 | | | 1.6 |
| 41～50 | 12 | | |

・With processing code IV (no keyway), the bore mounting dimensions will be half of the new JIS table.

# Easy Bore Finishing Service

(Continued from previous page)

With a key tolerance of Js9, P9 (new JIS)

| Bore Dia. | Keyway Width | Tap Size | Bore Mounting Dim. |
|---|---|---|---|
| 33～38 | 10 | M8 | 1.6 |
| 39～44 | 12 | | |
| 45～50 | 14 | | |
| 51～58 | 16 | M10 | 2.5 |
| 59～65 | 18 | | |
| 66～75 | 20 | M12 | |
| 76～80 | 22 | | |
| 81～85 | | | 3 |
| 86～95 | 25 | M16 | |
| 96～110 | 28 | | |
| 111～130 | 32 | M20 | |

With a key tolerance of F7, E9 (former JIS)

| Bore Dia. | Keyway Width | Tap Size | Bore Mounting Dim. |
|---|---|---|---|
| 51～60 | 15 | M8 | 2.5 |
| 61～70 | 18 | M10 | |
| 71～80 | 20 | M12 | |
| 81～95 | 24 | | 3 |
| 96～110 | 28 | M16 | |
| 111～125 | 32 | M20 | |
| 126～140 | 35 | | |

・With processing code IV (no keyway), the bore mounting dimensions will be half of the new JIS table.

## Easy Bore Finishing Service Numbering Example

**Product Code**

**G19**

G19: RS sprocket

**Sprocket Model Number**

**R S 80 - 1B 20 T**

Sprocket model number
(Strong type: TQ, Stainless steel: T-SS)

**Additional Processing Code**

**H 50 J 3**

Bore dia.
mm

**Bore tolerance**

H : H7
G : G7
M : M7

**Keyway tolerance**

Blank : None
New JIS J : Js9
P : P9
Former JIS F : F7
E : E9

**Hole tapping specifications**

0: None
1: One spot above keyway
2: One spot above keyway +90˚
3: One spot above keyway +120˚

Note: Contact a Tsubaki representative when set screws will differ or the hub length will be machined.

# Easy Bore Finishing Service Reference

## ■Allowable bore dimensional tolerances

(Taken from JIS B0401-2)

Unit : μm

| Bore Classification mm | | G7 | | H6 | | H7 | | H8 | | M7 | | N7 | | P7 | | R7 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| More than | Up to | Above | Below | Above | Below | Above | Below | Above | Below | Above | Below | Above | Below | Above | Below | Above | Below |
| 3 | 6 | +16 | + 4 | + 8 | 0 | +12 | 0 | +18 | 0 | +0 | −12 | − 4 | −16 | − 8 | − 20 | − 11 | − 23 |
| 6 | 10 | +20 | + 5 | + 9 | 0 | +15 | 0 | +22 | 0 | +0 | −15 | − 4 | −19 | − 9 | − 24 | − 13 | − 28 |
| 10 | 18 | +24 | + 6 | +11 | 0 | +18 | 0 | +27 | 0 | +0 | −18 | − 5 | −23 | − 11 | − 29 | − 16 | − 34 |
| 18 | 30 | +28 | + 7 | +13 | 0 | +21 | 0 | +33 | 0 | +0 | −21 | − 7 | −28 | − 14 | − 35 | − 20 | − 41 |
| 30 | 40 | +34 | + 9 | +16 | 0 | +25 | 0 | +39 | 0 | +0 | −25 | − 8 | −33 | − 17 | − 42 | − 25 | − 50 |
| 40 | 50 | | | | | | | | | | | | | | | | |
| 50 | 65 | +40 | +10 | +19 | 0 | +30 | 0 | +46 | 0 | +0 | −30 | − 9 | −39 | − 21 | − 51 | − 30 | − 60 |
| 65 | 80 | | | | | | | | | | | | | | | − 32 | − 62 |
| 80 | 100 | +47 | +12 | +22 | 0 | +35 | 0 | +54 | 0 | +0 | −35 | − 10 | −45 | − 24 | − 59 | − 38 | − 73 |
| 100 | 120 | | | | | | | | | | | | | | | − 41 | − 76 |
| 120 | 140 | +54 | +14 | +25 | 0 | +40 | 0 | +63 | 0 | +0 | −40 | − 12 | −52 | − 28 | − 68 | − 48 | − 88 |
| 140 | 160 | | | | | | | | | | | | | | | − 50 | − 90 |
| 160 | 180 | | | | | | | | | | | | | | | − 53 | − 93 |
| 180 | 200 | +61 | +15 | +29 | 0 | +46 | 0 | +72 | 0 | +0 | −46 | − 147 | −60 | − 33 | − 79 | − 60 | − 106 |
| 200 | 225 | | | | | | | | | | | | | | | − 63 | − 109 |
| 225 | 250 | | | | | | | | | | | | | | | − 67 | − 113 |
| 250 | 280 | +69 | +17 | +32 | 0 | +52 | 0 | +81 | 0 | +0 | −52 | − 14 | −66 | − 36 | − 88 | − 74 | − 126 |
| 280 | 315 | | | | | | | | | | | | | | | − 78 | − 130 |
| 315 | 355 | +75 | +18 | +36 | 0 | +57 | 0 | +89 | 0 | +0 | −57 | − 16 | −73 | − 41 | − 98 | − 87 | − 144 |
| 355 | 400 | | | | | | | | | | | | | | | − 93 | − 150 |
| 400 | 450 | +83 | +20 | +40 | 0 | +63 | 0 | +97 | 0 | +0 | −63 | − 17 | −80 | − 45 | − 108 | − 103 | − 166 |
| 450 | 500 | | | | | | | | | | | | | | | − 109 | − 172 |

## ■Keyway dimensions and tolerances

New JIS (B1301 – 1996)

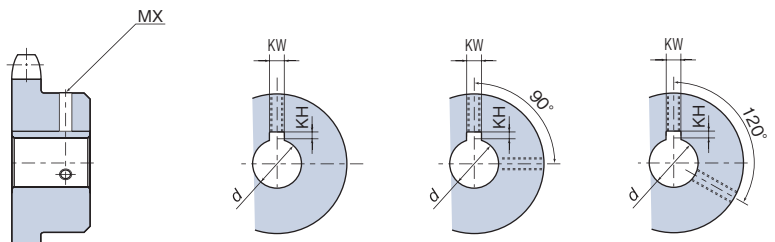
| Applicable Bore Dia. | Keyway Width | Tolerance (Js9) | Tolerance (P9) | Keyway Depth | Tolerance | Set Screw |
|---|---|---|---|---|---|---|
| d | KW | | | KH | | MX |
| 10~12 | 4 | ±0.0150 | 0.012<br>−0.042 | 1.8 | +0.1<br>0 | M4 |
| 12~17 | 5 | | | 2.3 | | M5 |
| 17~22 | 6 | | | 2.8 | | M6 |
| 22~30 | 8 | ±0.0180 | −0.015<br>−0.051 | 3.3 | +0.2<br>0 | |
| 30~38 | 10 | | | 3.3 | | M8 |
| 38~44 | 12 | ±0.0215 | −0.018<br>−0.061 | 3.3 | | |
| 44~50 | 14 | | | 3.8 | | |
| 50~58 | 16 | | | 4.3 | | M10 |
| 58~65 | 18 | | | 4.4 | | |
| 65~75 | 20 | ±0.0260 | −0.022<br>−0.074 | 4.9 | | M12 |
| 75~85 | 22 | | | 5.4 | | |
| 85~95 | 25 | | | 5.4 | | M16 |
| 95~110 | 28 | | | 6.4 | | |
| 110~130 | 32 | ±0.0310 | −0.026<br>−0.088 | 7.4 | | M20 |
| 130~150 | 36 | | | 8.4 | +0.3<br>0 | |
| 150~170 | 40 | | | 9.4 | | |
| 170~200 | 45 | | | 10.4 | | M24 |
| 200~230 | 50 | | | 11.4 | | |
| 230~260 | 56 | ±0.0370 | −0.032<br>−0.106 | 12.4 | | |
| 260~290 | 63 | | | 12.4 | | |
| 290~330 | 70 | | | 14.4 | | |
| 330~380 | 80 | | | 15.4 | | |
| 380~440 | 90 | ±0.0435 | −0.037<br>−0.124 | 17.4 | | |
| 440~500 | 100 | | | 19.5 | | |

Former JIS (B1301 – 1959)

Unit : μm

| Applicable Bore Dia. | Keyway Width | Tolerance (F7) | Tolerance (E9) | Keyway Depth | Tolerance | Set Screw |
|---|---|---|---|---|---|---|
| d | KW | | | KH | | MX |
| More than 10, up to 13 | 4 | +0.022<br>+0.010 | +0.050<br>+0.020 | 1.5 | +0.050<br>0 | M4 |
| More than 13, up to 20 | 5 | | | 2.0 | | M5 |
| More than 20, up to 30 | 7 | +0.028<br>+0.013 | +0.061<br>+0.025 | 3.0 | | M6 |
| More than 30, up to 40 | 10 | | | 3.5 | | M8 |
| More than 40, up to 50 | 12 | +0.034<br>+0.016 | +0.075<br>+0.032 | 3.5 | | |
| More than 50, up to 60 | 15 | | | 5.0 | | |
| More than 60, up to 70 | 18 | | | 6.0 | | M10 |
| More than 70, up to 80 | 20 | +0.041<br>+0.020 | +0.092<br>+0.040 | 6.0 | | M12 |
| More than 80, up to 95 | 24 | | | 8.0 | | |
| More than 95, up to 110 | 28 | | | 9.0 | | M16 |
| More than 110, up to 125 | 32 | +0.050<br>+0.025 | +0.112<br>+0.050 | 10.0 | | M20 |
| More than 125, up to 140 | 35 | | | 11.0 | +0.075<br>0 | |
| More than 140, up to 160 | 38 | | | 12.0 | | |
| More than 160, up to 180 | 42 | | | 13.0 | | |
| More than 180, up to 200 | 45 | | | 14.0 | | M24 |
| More than 200, up to 224 | 50 | | | 15.5 | | |
| More than 224, up to 250 | 56 | +0.060<br>+0.030 | +0.134<br>+0.060 | 17.5 | | |
| More than 250, up to 280 | 63 | | | 20.0 | | |
| More than 280, up to 315 | 71 | | | 22.5 | +0.100<br>0 | |
| More than 315, up to 355 | 80 | | | 25.0 | | |
| More than 355, up to 400 | 90 | +0.071<br>+0.036 | +0.159<br>+0.072 | 28.0 | | |
| More than 400, up to 450 | 100 | | | 31.5 | | |
| More than 450, up to 500 | 112 | | | 35.5 | | |

Note: Combinations of Tsubaki standard processing and bore/keyway specifications may differ from the above. Refer to the processing dimension lists on pgs. 136 – 137.



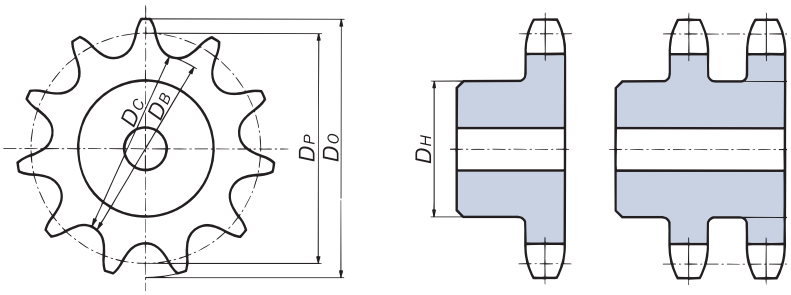

Tapped hole position: 1

Tapped hole position: 2

Tapped hole position: 3

# RS Sprocket Engineering Information

## 1. Part names and standard dimensional formulae




$D_P = P/\sin\frac{180°}{N}$

$D_O = P\ (0.6 + \cot\frac{180°}{N})$

$D_B = D_P - d_I$

$D_C = D_B$ (When number of teeth is even)

$D_C = D_P \cos\frac{90°}{N} - d_I$ (When number of teeth is odd)

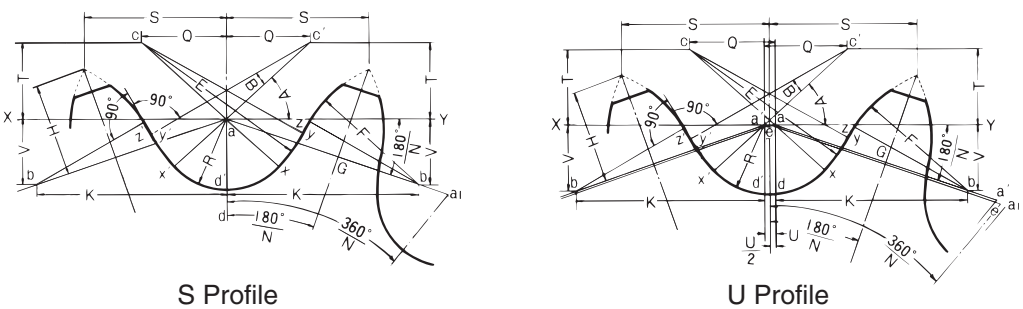
$D_H = P\ (\cot\frac{180°}{N} - 1) - 0.76$

$D_P$ = Pitch diameter
$D_O$ = Standard outer diameter
$D_B$ = Tooth root diameter
$D_C$ = Tooth root distance
$D_H$ = Max. hub diameter and max. groove diameter
$P$ = Chain pitch
$d_I$ = Roller outer diameter
$N$ = Number of teeth

## 2. Tooth profile specifications

### 2-1. Tooth profile

Tsubaki sprocket teeth profiles use S profiles from JIS standards, and are machine hobbed.
We currently are partially combining these with JIS standard U profiles.




S Profile U Profile

$pa = p\ (1 + \frac{D_S - d_I}{D_P})$

$D_S = 2R = 1.005\ d_I + 0.076$

$U = 0.07\ (p - d_I) + 0.051$

$R = D_S/2 = 0.5025\ d_I + 0.038$

$A = 35° + 60°/N$

$B = 18° - 56°/N$

$ac = 0.8\ d_I$

$Q = 0.8\ d_I \cos(35° + 60°/N)$

$T = 0.8\ d_I \sin(35° + 60°/N)$

$E = cy = 1.3025\ d_I + 0.038$

$\overline{xy} = (2.605 d_I + 0.076) \sin(9° - 28°/N)$

$yz = d_I\ [1.4 \sin(17° - 64°/N) - 0.8 \sin(18° - 56°/N)]$

$G = ab = 1.4\ d_I$ [Point b forms a line from point a on the XY line to the 180º/N angle on the XY line.]

$K = 1.4\ d_I \cos 180°/N$

$V = 1.4\ d_I \sin 180°/N$

$F = d_I\ [0.8 \cos(18° - 56°/N) + 1.4 \cos(17° - 64°/N) - 1.3025] - 0.038$

$H = \sqrt{F^2 - (1.4\ d_I - \frac{pa}{2} + \frac{U}{2}\cos 180°/N)^2} + \frac{U}{2} \sin 180°/N$

[Assuming that U = 0 for the S profile]

$S = \frac{pa}{2}\cos 180°/N + H \sin 180°/N$

Outer diameter when teeth profiles taper = $pa \cot 180°/N + 2H$

Max. pressure angle = $x_{ab}$ = $35° - 120°/N$

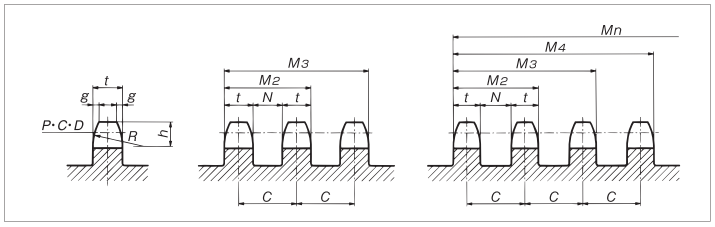
Min. pressure angle = $x_{ab} - B = 17° - 64°/N$

Ave. pressure angle = $26° - 92°/N$

N= No. of teeth, dI= Roller outer dia., DP= Pitch diameter, p= Chain pitch, pa= Tooth profile pitch (a-a1 for S profiles, e-e1 for U profiles)

# Engineering Information

## 2-2 Tooth width dimensions




| Chain No. | Each Strand | | | t (Max.) | | | C | Double/Triple Strands | | | Quadruple or More Strands | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | g (ref.) | h | R (min.) | Single strand | Double/triple strands | Quadruple or more strands | Double strands or more | $M_2$ | $M_3$ | N | $M_2$ | $M_3$ | $M_4$ | $M_5$ | $M_6$ | N |
| **RS 11** | 0.5 | 1.9 | 4.0 | 1.6 | — | — | — | — | — | — | — | — | — | — | — | — |
| **RS 15** | 0.6 | 2.4 | 5.1 | 2.0 | — | — | — | — | — | — | — | — | — | — | — | — |
| **RS 25** | 0.8 | 3.2 | 6.8 | 2.9 | 2.8 | 2.8 | 6.4 | 9.2 | 15.6 | 3.6 | 9.2 | 15.6 | 22.0 | 28.4 | 34.8 | 3.6 |
| **RS 35** | 1.2 | 4.8 | 10.1 | 4.4 | 4.3 | 4.2 | 10.1 | 14.4 | 24.5 | 5.8 | 14.3 | 24.4 | 34.5 | 44.6 | 54.7 | 5.9 |
| **RS 41** | 1.6 | 6.4 | 13.5 | 5.8 | — | — | — | — | — | — | — | — | — | — | — | — |
| **RS 40** | 1.6 | 6.4 | 13.5 | 7.3 | 7.1 | 7.0 | 14.4 | 21.5 | 35.9 | 7.3 | 21.4 | 35.8 | 50.2 | 64.6 | 79.0 | 7.4 |
| **RS 50** | 2.0 | 7.9 | 16.9 | 8.9 | 8.7 | 8.6 | 18.1 | 26.8 | 44.9 | 9.4 | 26.7 | 44.8 | 62.9 | 81.0 | 99.1 | 9.5 |
| **RS 60** | 2.4 | 9.5 | 20.3 | 11.9 | 11.7 | 11.4 | 22.8 | 34.5 | 57.3 | 11.1 | 34.2 | 57.0 | 79.8 | 102.6 | 125.4 | 11.4 |
| **RS 80** | 3.2 | 12.7 | 27.0 | 15.0 | 14.6 | 14.3 | 29.3 | 43.9 | 73.2 | 14.7 | 43.6 | 72.9 | 102.2 | 131.5 | 160.8 | 15.0 |
| **RS100** | 4.0 | 15.9 | 33.8 | 18.0 | 17.6 | 17.2 | 35.8 | 53.4 | 89.2 | 18.2 | 53.0 | 88.8 | 124.6 | 160.4 | 196.2 | 18.6 |
| **RS120** | 4.7 | 19.0 | 40.5 | 24.0 | 23.5 | 23.0 | 45.4 | 68.9 | 114.3 | 21.9 | 68.4 | 113.8 | 159.2 | 204.6 | 250.0 | 22.4 |
| **RS140** | 5.5 | 22.2 | 47.3 | 24.0 | 23.5 | 23.0 | 48.9 | 72.4 | 121.3 | 25.4 | 71.9 | 120.8 | 169.7 | 218.6 | 267.5 | 25.9 |
| **RS160** | 6.3 | 25.4 | 54.0 | 30.0 | 29.3 | 28.7 | 58.5 | 87.8 | 146.3 | 29.2 | 87.2 | 145.7 | 204.2 | 262.7 | 321.2 | 29.8 |
| **RS180** | 7.1 | 28.6 | 60.8 | 33.7 | 33.0 | 32.3 | 65.8 | 98.8 | 164.6 | 32.8 | 98.1 | 163.9 | 229.7 | 295.5 | 361.3 | 33.5 |
| **RS200** | 8.0 | 31.8 | 67.5 | 36.0 | 35.2 | 34.4 | 71.6 | 106.8 | 178.4 | 36.4 | 106.0 | 177.6 | 249.2 | 320.8 | 392.4 | 37.2 |
| **RS240** | 9.5 | 38.1 | 81.0 | 45.0 | 44.0 | 43.1 | 87.8 | 131.8 | 219.6 | 43.8 | 130.9 | 218.7 | 306.5 | 394.3 | 482.1 | 44.7 |

## Maximum sprocket hub diameter and standard maximum bore diameter

| Chain No. | RS25 | | RS35 | | RS40・41 | | RS50 | | RS60 | | RS80 | | RS100 | | RS120 | | RS140 | | RS160 | | RS180 | | RS200 | | RS240 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chain Pitch | 6.35 | | 9.525 | | 12.70 | | 15.875 | | 19.05 | | 25.40 | | 31.75 | | 38.10 | | 44.45 | | 50.80 | | 57.15 | | 63.50 | | 76.20 | |
| No. of Teeth | Hub dia. | Max. bore dia. | Hub dia. | Max. bore dia. | Hub dia. | Max. bore dia. | Hub dia. | Max. bore dia. | Hub dia. | Max. bore dia. | Hub dia. | Max. bore dia. | Hub dia. | Max. bore dia. | Hub dia. | Max. bore dia. | Hub dia. | Max. bore dia. | Hub dia. | Max. bore dia. | Hub dia. | Max. bore dia. | Hub dia. | Max. bore dia. | Hub dia. | Max. bore dia. |
| **10** | 12 | 3.2 | 19 | 8.8 | 26 | 14 | 32 | 18 | 39 | 22 | 52 | 32 | 65 | 42 | 78 | 50 | 92 | 60 | 105 | 70 | 118 | 78 | 131 | 88 | 158 | 108 |
| **11** | 15 | 5.6 | 22 | 11 | 30 | 18 | 37 | 22 | 45 | 27 | 60 | 38 | 76 | 50 | 91 | 60 | 106 | 71 | 121 | 80 | 137 | 92 | 152 | 103 | 183 | 126 |
| **12** | 17 | 7.2 | 25 | 13 | 34 | 20 | 43 | 26 | 51 | 31 | 69 | 45 | 86 | 57 | 103 | 69 | 121 | 80 | 138 | 93 | 155 | 106 | 173 | 118 | 207 | 144 |
| **13** | 19 | 8.8 | 28 | 15 | 38 | 22 | 48 | 30 | 57 | 36 | 77 | 51 | 96 | 64 | 116 | 79 | 135 | 91 | 155 | 105 | 174 | 119 | 193 | 132 | 232 | 162 |
| **14** | 21 | 10 | 31 | 17 | 42 | 26 | 53 | 33 | 64 | 41 | 85 | 57 | 107 | 72 | 128 | 85 | 150 | 101 | 171 | 117 | 192 | 132 | 214 | 148 | 257 | 180 |
| **15** | 23 | 12 | 35 | 20 | 46 | 28 | 58 | 37 | 70 | 46 | 93 | 61 | 117 | 80 | 140 | 95 | 164 | 111 | 187 | 129 | 211 | 146 | 235 | 163 | 282 | 199 |
| **16** | 25 | 13 | 38 | 21 | 50 | 31 | 63 | 41 | 76 | 51 | 102 | 68 | 127 | 85 | 153 | 104 | 178 | 122 | 204 | 141 | 229 | 159 | 255 | 179 | 306 | 216 |
| **17** | 27 | 14 | 41 | 24 | 54 | 34 | 68 | 45 | 82 | 53 | 110 | 74 | 137 | 93 | 165 | 112 | 193 | 132 | 220 | 152 | 248 | 173 | 275 | 193 | 331 | 232 |
| **18** | 29 | 16 | 44 | 26 | 59 | 37 | 73 | 49 | 88 | 59 | 118 | 80 | 148 | 100 | 177 | 121 | 207 | 144 | 237 | 165 | 266 | 186 | 296 | 208 | 355 | 252 |
| **19** | 31 | 17 | 47 | 29 | 63 | 41 | 79 | 51 | 94 | 62 | 126 | 84 | 158 | 108 | 189 | 129 | 221 | 153 | 253 | 177 | 284 | 199 | 316 | 224 | 380 | 268 |
| **20** | 33 | 19 | 50 | 30 | 67 | 44 | 84 | 55 | 100 | 66 | 134 | 90 | 168 | 114 | 202 | 140 | 235 | 163 | 269 | 188 | 303 | 213 | 337 | 238 | 404 | 283 |
| **21** | 35 | 20 | 53 | 33 | 71 | 47 | 89 | 59 | 107 | 72 | 142 | 95 | 178 | 122 | 214 | 148 | 250 | 175 | 285 | 200 | 321 | 226 | 357 | 254 | 429 | 303 |
| **22** | 37 | 21 | 56 | 35 | 75 | 50 | 94 | 62 | 113 | 77 | 150 | 101 | 188 | 128 | 226 | 157 | 264 | 185 | 302 | 212 | 339 | 239 | 377 | 266 | 453 | 318 |
| **23** | 39 | 22 | 59 | 37 | 79 | 51 | 99 | 65 | 119 | 80 | 159 | 109 | 199 | 137 | 238 | 165 | 278 | 196 | 318 | 224 | 358 | 254 | 398 | 278 | 477 | 338 |
| **24** | 41 | 24 | 62 | 40 | 83 | 54 | 104 | 70 | 125 | 83 | 167 | 113 | 209 | 144 | 251 | 176 | 292 | 205 | 334 | 235 | 376 | 265 | 418 | 294 | 502 | 354 |
| **25** | 43 | 25 | 65 | 42 | 87 | 57 | 109 | 73 | 131 | 88 | 175 | 120 | 219 | 152 | 263 | 184 | 307 | 217 | 351 | 249 | 394 | 275 | 438 | 310 | 526 | 372 |

Note: When selecting max. bore diameter, select a hub wall thickness that matches the operating conditions based on standard machine design. Standard-type max. bore diameters for standard situations (SS400 sprocket, JIS keyway) are shown for your reference. The values have been calculated using JIS hub diameter formulae.

# Pin Gear Products Guide

## Index


■Sprockets for Chain-type Pin Gears — Pg. 142
■Attachment Chains for Chain-type Pin Gears — Pg. 143
■Pin Gear Drive Units — Pg. 145
■Selection Guide for Pin Gear Drive Units — Pg. 150

# Chain-type Pin Gears

For linear drive and large radius rotary drives, a chain gear drive is used by a drive source (motor, etc.) through a reducer. Chains require a large space, and gears need precision machining, which can lead to high costs and other issues. Pins gears are perfect in these situations.
An attachment chain is wound around the outside of a drum in place of a gear drive wheel, and a specially machined sprocket is used for the pinion gear. For linear drives, the attachment chain is attached linearly and used in place of a rack.

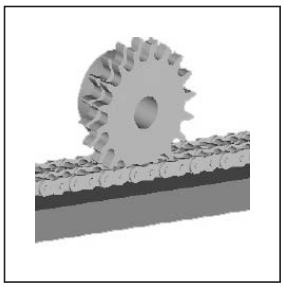
The following is a rough comparison of pin gears and gear racks.

| | Freedom of Layout | Precision | Cost | Durability |
|---|---|---|---|---|
| Pin Gears | Excellent | OK | Good | Good |
| Gear Racks | Poor | Good | OK | OK |

## ●Pin Gear Drive Types

There are linear, inner rotary, and outer rotary pin gear drives.

Linear



Inner rotary

Outer rotary

# Sprockets for Chain-type Pin Gears

Unlike sprockets where the chain wraps around them, sprockets for pin gears engage the chain, which requires them to have special teeth profiles. Using a unique principle, Tsubaki's special tooth profiles are designed for the lowest possible backlash and enable smooth engagement. Especially, the tooth profile changes to match the mounting diameter of the pin gear chain in inner/outer rotary applications for the optimal pin gear drive.

Contact a Tsubaki representative for more information.

## ●Reference Dimensions

Reference values for pin gear sprockets by number of teeth. (Unit : mm)

| | RS40 | | RS50 | | RS60 | | RS80 | | RS100 | | RS120 | | RS140 | | RS160 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tooth Width | 7.3 | | 8.9 | | 11.9 | | 15.0 | | 18.0 | | 24.0 | | 24.0 | | 30.0 | |
| No. of Teeth | Pitch Diameter $D_P$ | Outer Diameter $D_O$ | Pitch Diameter $D_P$ | Outer Diameter $D_O$ | Pitch Diameter $D_P$ | Outer Diameter $D_O$ | Pitch Diameter $D_P$ | Outer Diameter $D_O$ | Pitch Diameter $D_P$ | Outer Diameter $D_O$ | Pitch Diameter $D_P$ | Outer Diameter $D_O$ | Pitch Diameter $D_P$ | Outer Diameter $D_O$ | Pitch Diameter $D_P$ | Outer Diameter $D_O$ |
| 15 | 62.29 | 70.9 | 77.77 | 88.1 | 93.32 | 106.3 | 124.17 | 141.8 | 155.09 | 177.9 | 186.11 | 212.8 | 216.94 | 247.7 | 247.94 | 282.2 |
| 16 | 66.33 | 75.1 | 82.82 | 93.3 | 99.38 | 112.6 | 132.26 | 150.1 | 165.19 | 188.1 | 198.23 | 224.9 | 231.09 | 261.6 | 264.11 | 298.4 |
| 17 | 70.37 | 79.3 | 87.87 | 98.6 | 10.545 | 119.0 | 140.34 | 158.6 | 175.30 | 198.2 | 210.36 | 237.0 | 245.24 | 275.7 | 280.28 | 314.6 |
| 18 | 74.42 | 83.5 | 92.93 | 103.9 | 111.51 | 125.3 | 148.43 | 167.1 | 185.41 | 208.3 | 222.49 | 249.2 | 259.39 | 289.9 | 296.45 | 330.7 |
| 19 | 78.46 | 87.8 | 97.98 | 109.1 | 117.57 | 131.5 | 156.51 | 175.4 | 195.51 | 218.4 | 234.62 | 261.3 | 273.54 | 304.0 | 312.62 | 346.9 |
| 20 | 82.50 | 92.0 | 103.03 | 114.3 | 123.64 | 137.9 | 164.60 | 183.7 | 205.62 | 228.5 | 246.74 | 273.4 | 287.69 | 318.2 | 328.79 | 363.1 |
| 21 | 86.54 | 96.0 | 108.09 | 119.6 | 129.70 | 144.0 | 172.68 | 191.7 | 215.73 | 238.6 | 258.87 | 285.5 | 301.84 | 332.3 | 344.96 | 379.3 |
| 22 | 90.56 | 100.1 | 113.14 | 124.9 | 135.77 | 150.1 | 180.77 | 199.8 | 225.83 | 248.7 | 271.00 | 297.7 | 315.99 | 346.5 | 361.13 | 395.4 |
| 23 | 94.63 | 104.1 | 118.19 | 130.2 | 141.83 | 156.1 | 188.85 | 207.9 | 235.94 | 258.8 | 283.13 | 309.8 | 330.14 | 360.6 | 377.30 | 411.6 |
| 24 | 98.67 | 108.2 | 123.24 | 135.4 | 147.89 | 162.2 | 196.94 | 216.0 | 246.04 | 268.9 | 295.25 | 321.9 | 344.28 | 374.8 | 393.47 | 427.8 |
| 25 | 102.71 | 112.2 | 128.30 | 140.5 | 153.96 | 168.2 | 205.02 | 224.1 | 256.15 | 279.0 | 307.38 | 334.1 | 358.43 | 388.9 | 409.64 | 443.9 |

### ■Model Numbering Example

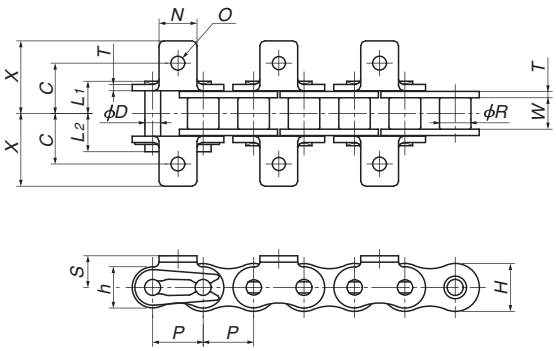
See pg. 182 for selection.

RS80–1B 18T G

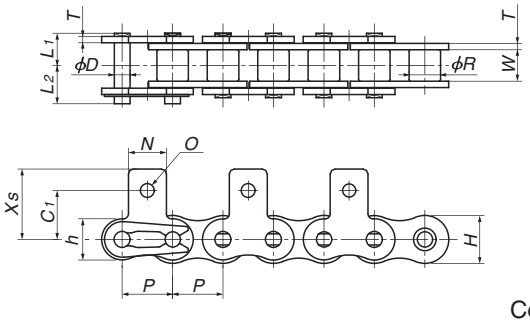
- RS80 – Chain no.
- 1B – Sprocket type
- 18T – No. of teeth
- G – Chain-type pin gear

# Attachment Chains for Chain-type Pin Gears

K1 Attachment




SK1 Attachment



## Connecting Links

RS40 – RS60: Clip type
RS80 – RS200: Cotter pin type
RS240: Spring pin type

Attachment dimensions are all common to standard K1 and SK1 attachment chains. (See the Tsubaki Small Size Conveyor Chain catalog for more information.)

| TSUBAKI Chain Number | Pitch *P* | Roller Diameter *R* | Inner Link Inner Width *W* | Plate | | | Pin | | | Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Thickness *T* | Width *H* | Width *h* | Dia. *D* | $L_1$ | $L_2$ | | | |
| RS40 | 12.70 | 7.92 | 7.95 | 1.5 | 12.0 | 10.4 | 3.97 | 8.25 | 9.95 | 16.7{1700} | 2.16{220} | 0.64 |
| RS50 | 15.875 | 10.16 | 9.53 | 2.0 | 15.0 | 13.0 | 5.09 | 10.3 | 12.0 | 27.5{2800} | 4.12{420} | 1.04 |
| RS60 | 19.05 | 11.91 | 12.70 | 2.4 | 18.1 | 15.6 | 5.96 | 12.85 | 14.75 | 40.2{4100} | 4.90{500} | 1.53 |
| RS80 | 25.40 | 15.88 | 15.88 | 3.2 | 24.1 | 20.8 | 7.94 | 16.25 | 19.25 | 68.6{7000} | 9.41{960} | 2.66 |
| RS100 | 31.75 | 19.05 | 19.05 | 4.0 | 30.1 | 26.0 | 9.54 | 19.75 | 22.85 | 108{11000} | 15.7{1600} | 3.99 |
| RS120 | 38.10 | 22.23 | 25.40 | 4.8 | 36.2 | 31.2 | 11.11 | 24.9 | 28.90 | 151{15400} | 20.6{2100} | 5.93 |
| RS140 | 44.45 | 25.40 | 25.40 | 5.6 | 42.2 | 36.4 | 12.71 | 26.9 | 31.70 | 204{20800} | 29.4{3000} | 7.49 |
| RS160 | 50.80 | 28.58 | 31.75 | 6.4 | 48.2 | 41.6 | 14.29 | 31.85 | 36.85 | 258{26300} | 37.3{3800} | 10.10 |
| RS200 | 63.50 | 39.68 | 38.10 | 8.0 | 60.3 | 52.0 | 19.85 | 39.0 | 44.80 | 431{44000} | 46.1{4700} | 16.49 |
| RS240 | 76.20 | 47.63 | 47.63 | 9.5 | 72.4 | 62.4 | 23.81 | 47.9 | 55.50 | 667{68000} | 68.6{7000} | 24.50 |

| TSUBAKI Chain Number | Attachment | | | | | | | K1/SK1 Additional Weight per Attachment Location kg | Number of Links per Unit | Delivery |
|---|---|---|---|---|---|---|---|---|---|---|
| | *C* | $C_1$ | *N* | *O* | *S* | *X* | $X_S$ | | | |
| RS40 | 12.7 | 12.7 | 9.5 | 3.6 | 8.0 | 17.8 | 17.40 | 0.004 | 240 | Contact a Tsubaki representative. |
| RS50 | 15.9 | 15.9 | 12.7 | 5.2 | 10.3 | 23.4 | 23.05 | 0.006 | 192 | |
| RS60 | 19.05 | 18.3 | 15.9 | 5.2 | 11.9 | 28.2 | 26.85 | 0.014 | 160 | |
| RS80 | 25.4 | 24.6 | 19.1 | 6.8 | 15.9 | 36.6 | 35.45 | 0.026 | 120 | |
| RS100 | 31.75 | 31.8 | 25.4 | 8.7 | 19.8 | 44.9 | 44.00 | 0.052 | 96 | |
| RS120 | 38.1 | 36.5 | 28.6 | 10.3 | 23.0 | 55.8 | 52.85 | 0.088 | 80 | |
| RS140 | 44.5 | 44.5 | 34.9 | 11.9 | 28.6 | 63.1 | 63.50 | 0.142 | 68 | |
| RS160 | 50.8 | 50.8 | 38.1 | 14.3 | 31.8 | 71.8 | 70.10 | 0.194 | 60 | |
| RS200 | 63.5 | 63.5 | 48.0 | 17.5 | 42.9 | 83.5 | 85.50 | 0.356 | 48 | |
| RS240 | 76.2 | 76.2 | 57.2 | 21.0 | 47.7 | 97.9 | 106.70 | 0.553 | 40 | |

Note: Use heat treated mounting bolts. (See pg. 182 for selection.)

## ■Model Numbering Example

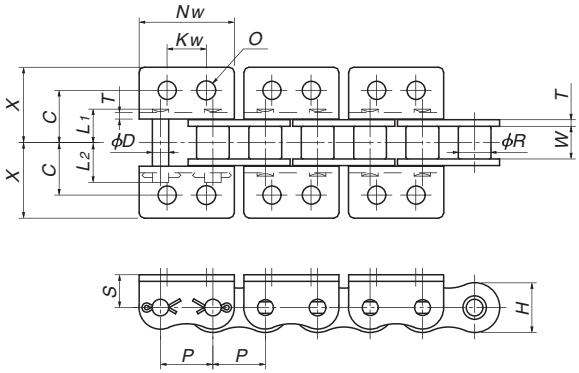
See pg. 182 for selection.

**RS80–1L K1**

Chain no. | Attachment spacing | Attachment type

# Attachment Chains for Chain-type Pin Gears

WK2 Attachment



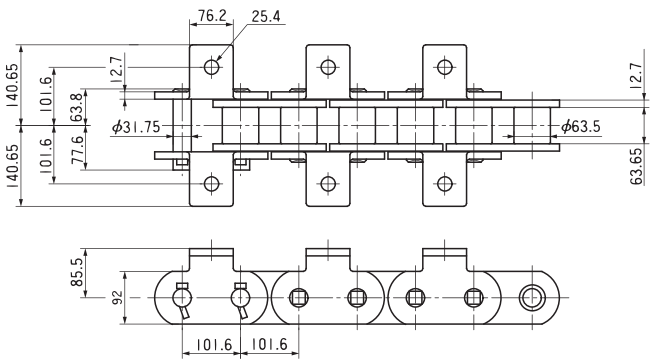

1. Attachment hole diameter is larger than that of K1 attachment chain, and bolt strength is greater.
2. Attachment strength is greater than that of K1 attachment chain.
3. RS200 and RS240 chains use flat plates.
4. Spring pins are used with RS240 connecting links.
5. Made-to-order item.

Attachment dimensions are all common to standard WK2 attachment chains. (See the Tsubaki Small Size Conveyor Chain catalog for more information.)

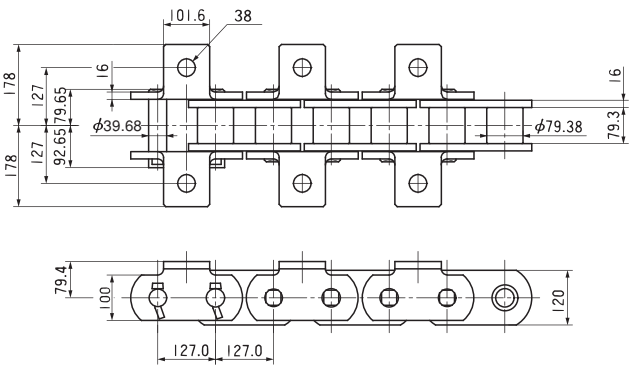
| Product Code | TSUBAKI Chain Number | Pitch *P* | Roller Diameter *R* | Inner Link Inner Width *W* | Plate | | Pin | | | Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Thickness *T* | Width *H* | Dia. *D* | $L_1$ | $L_2$ | | | |
| B11 | RS40 | 12.70 | 7.92 | 7.95 | 1.5 | 12.0 | 3.97 | 8.25 | 9.95 | 16.7{1700} | 2.65{270} | 0.64 |
| | RS50 | 15.875 | 10.16 | 9.53 | 2.0 | 15.0 | 5.09 | 10.3 | 12.0 | 27.5{2800} | 4.31{440} | 1.04 |
| | RS60 | 19.05 | 11.91 | 12.70 | 2.4 | 18.1 | 5.96 | 12.85 | 14.75 | 40.2{4100} | 6.28{640} | 1.53 |
| | RS80 | 25.40 | 15.88 | 15.88 | 3.2 | 24.1 | 7.94 | 16.25 | 19.25 | 68.6{7000} | 10.7{1090} | 2.66 |
| | RS100 | 31.75 | 19.05 | 19.05 | 4.0 | 30.1 | 9.54 | 19.75 | 22.85 | 108{11000} | 17.1{1740} | 3.99 |
| | RS200 | 63.50 | 39.68 | 38.10 | 8.0 | 60.3 | 19.85 | 39.0 | 44.8 | 431{44000} | 46.1{4700} | 16.49 |
| | RS240 | 76.20 | 47.63 | 47.63 | 9.5 | 72.4 | 23.81 | 47.9 | 55.5 | 667{68000} | 68.6{7000} | 24.15 |

| TSUBAKI Chain Number | Attachment | | | | | | WK2 Additional Weight per Attachment Location kg | Number of Links per Unit | Delivery |
|---|---|---|---|---|---|---|---|---|---|
| | *C* | *X* | *Nw* | *Kw* | *O* | *S* | | | |
| RS40 | 12.7 | 17.8 | 23.0 | 9.5 | 4.5 | 8.0 | 0.006 | 240 | Contact a Tsubaki representative. |
| RS50 | 15.9 | 23.4 | 28.8 | 11.9 | 5.5 | 10.3 | 0.014 | 192 | |
| RS60 | 19.05 | 28.2 | 34.6 | 14.3 | 6.6 | 11.9 | 0.024 | 160 | |
| RS80 | 25.4 | 36.6 | 46.1 | 19.1 | 9.0 | 15.9 | 0.056 | 120 | |
| RS100 | 31.75 | 44.9 | 57.7 | 23.8 | 11.0 | 19.8 | 0.110 | 96 | |
| RS200 | 63.5 | 83.5 | 115.4 | 63.5 | 17.5 | 42.9 | 0.857 | 48 | |
| RS240 | 76.2 | 97.9 | 138.5 | 57.0 | 21.0 | 47.7 | 1.338 | 40 | |

RF320-T-K1 Attachment Chain




RS400-T-K1 Attachment Chain




| Product Code | TSUBAKI Chain Number | Average Tensile Strength kN{kgf} | Maximum Allowable Load kN{kgf} | Approximate Mass kg/m | K1 Additional Weight per Attachment Location kg | Number of Links per Unit | Delivery |
|---|---|---|---|---|---|---|---|
| B11 | RF320-T | 1150{117000} | 104{10600} | 47.6 | 1.732 | 30 | Contact a Tsubaki representative. |
| | RF400-T | 1950{199000} | 176{17900} | 83.9 | 3.136 | 24 | |

★See pg. 182 for selection

# Pin Gear Drive Units

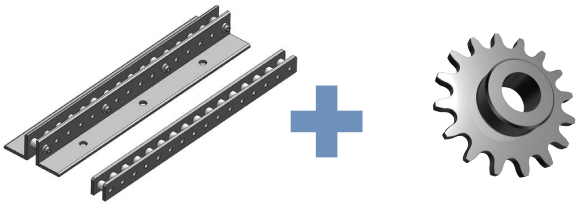
A new drive system to replace gears and racks.

## Construction

A pin gear drive unit is a drive unit with a pin gear and engaging pin rack (or pin wheel) set.

### Linear Drives

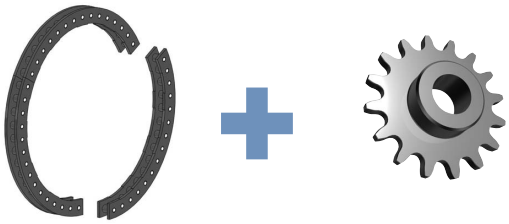
Pin Rack | Pin Gear



Pin rack length (number of pins) can be designed freely.

### Rotary Drives

Pin Wheels | Pin Gears

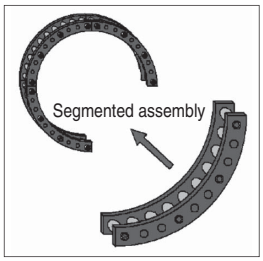


Pin wheel diameter (number of pins) can be designed freely.

## Features

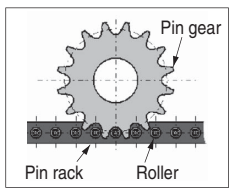
- **Simple installation, rough mounting OK**
  Both the pin racks and pin wheels use hollow pins for installation, making it easy to use the hole for mounting.
- **Segmented units allow for assembly on large equipment**
  With racks, the joining faces can be aligned to ensure unit pitch spacing is maintained and to enable long linear drive.
  Pin wheels for large equipment are also segmented for assembly, enabling large diameter pin wheels.
- **Larger transmission power than chain types, enabling small sized operations.**

Pin Wheel



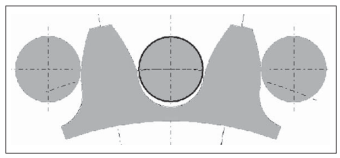

## Construction

Pin gears feature special tooth profiles for smooth, continuous engagement with the rollers. Teeth have been hardened to increase their strength and wear resistance.




## Unique Pin Gear Tooth Profile

The pin gear tooth profile is an approximation of an involute curve to provide smooth engagement and power transmission between pin wheel and rack. They also incorporate a unique Tsubaki design to give them even further strength.



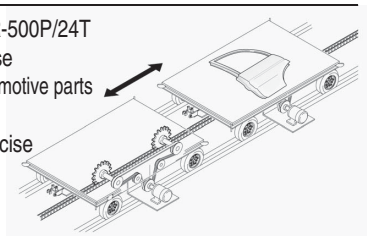
Unique Pin Gear Unit
Tooth Profile

## Usage Examples

### Linear Cart Drive

(Sample model no.) PDU35-AR-500P/24T
(Application) Drive for transverse cart conveying automotive parts

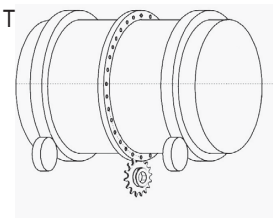
Installation precision is less precise than with gear racks, making assembly a snap.



### Drum Drive

(Sample model no.) PDU55-GW-90P/21T
(Application) Drive for drum rotation

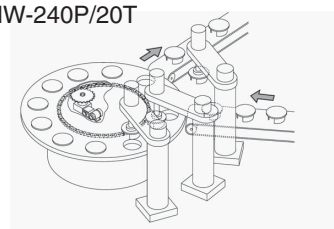
Switched from gears – easier to mount than cylindrical gears.



### Table Drive

(Sample model no.) PDU40-NW-240P/20T
(Application) Drive for part assembly table

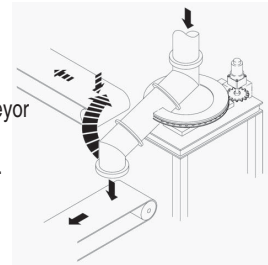
Much cheaper than an intra-cylindrical gear.



### Swivel Drive

(Sample model no.)
PDU35-GW-75P/150P (semicircular)/19T
(Application) Drive for branching equipment on a powder conveyor

Easier to assembly than a chain-type unit.



# Pin Gear Drive Units

## Specifications

Tsubaki features both Standard Series (steel) and S Series (stainless steel) pin gear drive units to match your usage environment.

### New for 2012

- The hollow pin (bush) used for attaching the unit to the frame is now every pitch, instead of every third pitch.
- The construction of the S Series (stainless steel) is not the same as the Standard Series.

### List of Specifications

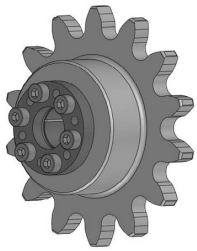
| Pitch*1 mm | Standard Series (steel) | | | S Series (stainless steel) | | |
|---|---|---|---|---|---|---|
| | Frame model | Allowable Tangential Load Fp (kN) | Backlash (Ref.)*2 | Frame model | Allowable Tangential Load Fp (kN) | Backlash (Ref.)*2 |
| 20 | PDU20 | 4.7 | 0.26 ~ 0.47 | PDUS20 | 0.8 | 0.26 ~ 0.47 |
| 22 | PDU22 | 7.7 | 0.32 ~ 0.57 | PDUS22 | 1.1 | 0.32 ~ 0.57 |
| 30 | PDU30 | 12.8 | 0.32 ~ 0.66 | PDUS30 | 1.9 | 0.32 ~ 0.67 |
| 35 | PDU35 | 19.5 | 0.33 ~ 0.88 | PDUS35 | 2.6 | 0.33 ~ 0.88 |
| 40 | PDU40 | 27.3 | 0.41 ~ 0.86 | PDUS40 | 4.1 | 0.41 ~ 0.86 |
| 50 | PDU50 | 31.7 | 0.53 ~ 0.98 | PDUS50 | 5.1 | 0.53 ~ 1.08 |
| 55 | PDU55 | 52.9 | 0.61 ~ 1.06 | PDUS55 | 7.0 | 0.61 ~ 1.26 |
| 70 | PDU70 | 60.7 | 0.86 ~ 1.24 | PDUS70 | 9.9 | 0.86 ~ 1.61 |
| 80 | PDU80 | 71.5 | 0.89 ~ 1.20 | PDUS80 | 12.0 | 0.89 ~ 1.74 |
| 90 | PDU90 | 98.9 | 0.97 ~ 1.42 | PDUS90 | 16.8 | 0.97 ~ 1.92 |
| 120 | PDU120 | 122.5 | 1.30 ~ 1.57 | — | — | — |
| Allowable Speed | Tangential speed: 50m/min | | | | | |
| Operating Environment | Indoors (no contact with water) | | | Corrosive environments | | |
| Operating Temperature | -10℃ to 150℃ | | | -20℃ to 400℃ | | |
| Material | Frame | Rolled steel | | Frame | Austenitic stainless steel | |
| | Bush/roller | Alloy steel | | Bush/roller | Precipitation hardened stainless steel, others | |
| | Pin gear | Carbon steel | | Pin gear | Austenitic stainless steel, others | |

*1: The pin wheel pitch is a circular pitch.
*2: The amount of backlash (mm) above is a calculated value and not a guaranteed value. The amount of backlash may fluctuate with wear on the pin gear drive unit and pin gear.

## Special Specifications

Contact a Tsubaki representative regarding made-to-order items.

| | | |
|---|---|---|
| Surface Treatment | ● Black coating | Attractive appearance, some rust prevention |
| | ● Electroless Ni-P plating | Corrosion and wear resistance |
| | ● NEP coating | High corrosion resistance |
| Locking Pin Gear | ● Pin gear with a frictional locking mechanism | Easy positioning (*not available for S Series) |
| Small Backlash | Has 2/3 to 1/2 the standard backlash. | |

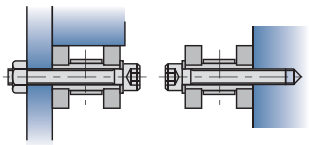


Locking Pin Gear

## Lubrication

Coat all roller outer surfaces with an extreme pressure grease before operation. The pin wheel and inner surfaces of the pin rack rollers have already been greased. Contact a Tsubaki representative if you are using the unit in an environment where you cannot grease, such as underwater, or in 130℃ temperatures or above.

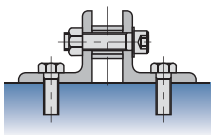
## Installation



Wheel　Flat (rack)

Uses a hollow pin. Use the pin hole to bolt the outer surface to the adjoining equipment.
A stopper or guide can be installed on the surface of the protruding area to allow for positioning when installing.

Angle (rack)



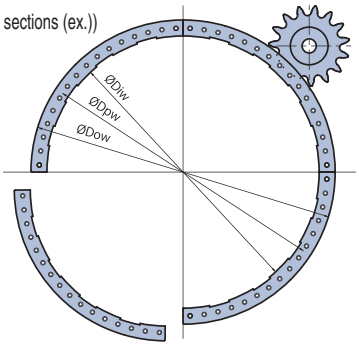
Angled linear racks have a hole for fastening bolts. Use them to bolt the feet to the adjoining equipment.

# Pin Gear Drive Units

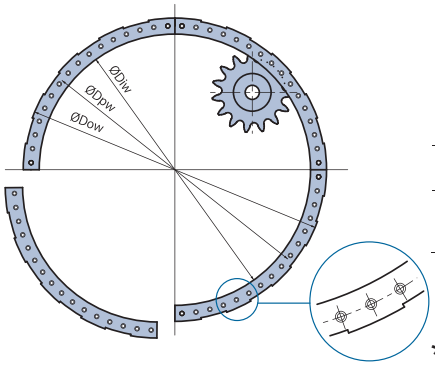
## ■Pin Wheel Models and Specifications

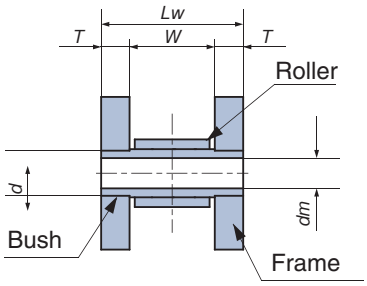
Outer Drive Pin Wheel

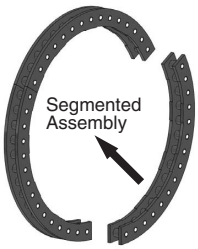
(with four sections (ex.))




Inner Drive Pin Wheel




■Pin wheel segments

Large pin wheels are segmented for assembly, allowing for large diameter pin wheels to be created by joining segments together.

★ 1. There are protrusions on the inner side of each outer drive wheel segment, or on the outer side of each inner drive wheel segment. These form the reference surface for mounting on the partner equipment.
2. The inner diameter Diw of the outer drive pin wheel and the outer diameter Dow of the inner drive pin wheel are the outer and inner dimensions of the partner equipment.
3. No mounting bolts are provided.
4. Pin wheels with numbers of rollers besides those listed available.
5. Pin wheels with partial circumferences (less than 360°) available.

### ■Model Numbering Example

**PDU70 – GW – 70P**

Frame no. P D U : Standard Series / PDUS : S Series

Pin wheel type GW : Outer drive / NW : Inner drive

No. of rollers

### Pin Wheel Specifications Table (Be aware that no mounting bolts are provided.)

| Frame model | PDU20 (Standard Series) PDUS20 (S Series) | | | | PDU22 (Standard Series) PDUS22 (S Series) | | | | PDU30 (Standard Series) PDUS30 (S Series) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Specifications | Circular pitch P | | 20 | | Circular pitch P | | 22 | | Circular pitch P | | 30 | |
| | Roller diameter ϕd | | 10.16 | | Roller diameter ϕd | | 11.91 | | Roller diameter ϕd | | 15.88 | |
| | Total width Lw | | Standard : 21<br>S : 22 | | Total width Lw | | Standard : 25<br>S : 26 | | Total width Lw | | Standard : 31<br>S : 31 | |
| | Inner width W | | 12 | | Inner width W | | 16 | | Inner width W | | 19 | |
| | Frame thickness T | | Standard : 4.5<br>S : 5 | | Frame thickness T | | Standard : 4.5<br>S : 5 | | Frame thickness T | | Standard : 6<br>S : 6 | |
| | Mounting hole ϕdm | | 4.5 | | Mounting hole ϕdm | | 4.5 | | Mounting hole ϕdm | | 6.4 | |
| | Mounting bolt size | | M4 | | Mounting bolt size | | M4 | | Mounting bolt size | | M6 | |
| Number of Rollers NT | Number of Segments | Pitch Diameter Dpw | Outer Drive Dow | Inner Drive Diw | Number of Segments | Pitch Diameter Dpw | Outer Drive Dow | Inner Drive Diw | Number of Segments | Pitch Diameter Dpw | Outer Drive Dow | Inner Drive Diw |
| 60 | 1 | 381.97 | 404 | 359 | 1 | 420.17 | 445 | 396 | 1 | 572.96 | 605 | 540 |
| 70 | 1 | 445.63 | 468 | 423 | 1 | 490.20 | 515 | 466 | 1 | 668.45 | 701 | 636 |
| 80 | 1 | 509.30 | 532 | 487 | 1 | 560.23 | 585 | 536 | 1 | 763.94 | 796 | 731 |
| 90 | 1 | 572.96 | 595 | 550 | 1 | 630.25 | 655 | 606 | 3 | 859.44 | 892 | 827 |
| 100 | 1 | 636.62 | 659 | 614 | 1 | 700.28 | 725 | 676 | 4 | 954.93 | 987 | 922 |
| 110 | 1 | 700.28 | 723 | 678 | 1 | 770.31 | 795 | 746 | 4 | 1050.42 | 1083 | 1018 |
| 120 | 1 | 763.94 | 786 | 741 | 3 | 840.34 | 865 | 816 | 5 | 1145.92 | 1178 | 1113 |
| 130 | 3 | 827.61 | 850 | 805 | 4 | 910.37 | 935 | 886 | 5 | 1241.41 | 1274 | 1209 |
| 140 | 3 | 891.27 | 914 | 869 | 4 | 980.39 | 1005 | 956 | 6 | 1336.90 | 1369 | 1304 |
| 150 | 4 | 954.93 | 977 | 932 | 4 | 1050.42 | 1075 | 1026 | 6 | 1432.39 | 1465 | 1400 |
| 160 | 4 | 1018.59 | 1041 | 996 | 5 | 1120.45 | 1145 | 1096 | 6 | 1527.89 | 1560 | 1495 |
| 170 | 4 | 1082.25 | 1105 | 1060 | 5 | 1190.48 | 1215 | 1166 | 7 | 1623.38 | 1656 | 1591 |
| 180 | 5 | 1145.92 | 1168 | 1123 | 5 | 1260.51 | 1285 | 1236 | 7 | 1718.87 | 1751 | 1686 |
| 190 | 5 | 1209.58 | 1232 | 1187 | 5 | 1330.54 | 1355 | 1306 | 8 | 1814.37 | 1847 | 1782 |
| 200 | 5 | 1273.24 | 1296 | 1251 | 6 | 1400.56 | 1425 | 1376 | 8 | 1909.86 | 1942 | 1877 |
| 220 | 6 | 1400.56 | 1423 | 1378 | 6 | 1540.62 | 1565 | 1516 | 9 | 2100.85 | 2133 | 2068 |
| 240 | 6 | 1527.89 | 1550 | 1505 | 7 | 1680.68 | 1705 | 1656 | 9 | 2291.83 | 2324 | 2259 |
| 260 | 7 | 1655.21 | 1678 | 1633 | 8 | 1820.73 | 1845 | 1796 | 10 | 2482.82 | 2515 | 2450 |
| 280 | 7 | 1782.54 | 1805 | 1760 | 8 | 1960.79 | 1985 | 1936 | 11 | 2673.80 | 2706 | 2641 |
| 300 | 8 | 1909.86 | 1932 | 1887 | 9 | 2100.85 | 2125 | 2076 | 12 | 2864.79 | 2897 | 2832 |

Pin wheels with numbers of rollers besides those listed are available.

# Pin Gear Drive Units

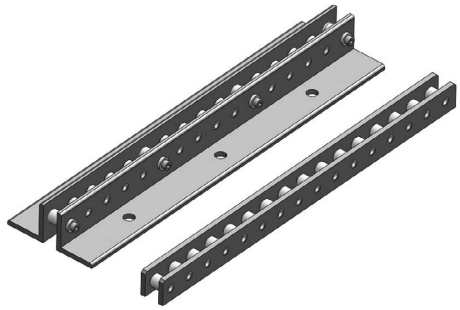
| Frame model | PDU35 (Standard Series) PDUS35 (S Series) | | | | PDU40 (Standard Series) PDUS40 (S Series) | | | | PDU50 (Standard Series) PDUS50 (S Series) | | | | PDU55 (Standard Series) PDUS55 (S Series) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Specifications | Circular pitch P | | 35 | | Circular pitch P | | 40 | | Circular pitch P | | 50 | | Circular pitch P | | 55 | |
| | Roller diameter ϕd | | 19.05 | | Roller diameter ϕd | | 22.23 | | Roller diameter ϕd | | 25.4 | | Roller diameter ϕd | | 28.58 | |
| | Total width Lw | | Standard : 40<br>S : 34 | | Total width Lw | | Standard : 46<br>S : 44 | | Total width Lw | | Standard : 52<br>S : 46 | | Total width Lw | | Standard : 60<br>S : 54 | |
| | Inner width W | | 22 | | Inner width W | | 28 | | Inner width W | | 28 | | Inner width W | | 36 | |
| | Frame thickness T | | Standard : 9<br>S : 6 | | Frame thickness T | | Standard : 9<br>S : 8 | | Frame thickness T | | Standard : 12<br>S : 9 | | Frame thickness T | | Standard : 12<br>S : 9 | |
| | Mounting hole ϕdm | | 9 | | Mounting hole ϕdm | | 10.8 | | Mounting hole ϕdm | | 12.8 | | Mounting hole ϕdm | | 12.8 | |
| | Mounting bolt size | | M8 | | Mounting bolt size | | M10 | | Mounting bolt size | | M12 | | Mounting bolt size | | M12 | |
| Number of Rollers NT | Number of Segments | Pitch Diameter Dpw | Outer Drive Dow | Inner Drive Diw | Number of Segments | Pitch Diameter Dpw | Outer Drive Dow | Inner Drive Diw | Number of Segments | Pitch Diameter Dpw | Outer Drive Dow | Inner Drive Diw | Number of Segments | Pitch Diameter Dpw | Outer Drive Dow | Inner Drive Diw |
| 60 | 1 | 668.45 | 709 | 628 | 3 | 763.94 | 812 | 715 | 3 | 954.93 | 1010 | 899 | 3 | 1050.42 | 1115 | 986 |
| 70 | 3 | 779.86 | 820 | 739 | 4 | 891.27 | 940 | 843 | 4 | 1114.08 | 1170 | 1059 | 4 | 1225.49 | 1290 | 1161 |
| 80 | 4 | 891.27 | 932 | 851 | 4 | 1018.59 | 1067 | 970 | 4 | 1273.24 | 1329 | 1218 | 5 | 1400.56 | 1465 | 1336 |
| 90 | 4 | 1002.68 | 1043 | 962 | 5 | 1145.92 | 1194 | 1097 | 5 | 1432.39 | 1488 | 1377 | 5 | 1575.63 | 1640 | 1511 |
| 100 | 5 | 1114.08 | 1155 | 1074 | 5 | 1273.24 | 1322 | 1225 | 5 | 1591.55 | 1647 | 1536 | 6 | 1750.70 | 1815 | 1686 |
| 110 | 5 | 1225.49 | 1266 | 1185 | 6 | 1400.56 | 1449 | 1352 | 6 | 1750.70 | 1806 | 1695 | 6 | 1925.77 | 1990 | 1861 |
| 120 | 6 | 1336.90 | 1377 | 1296 | 6 | 1527.89 | 1576 | 1479 | 6 | 1909.86 | 1965 | 1854 | 7 | 2100.85 | 2165 | 2036 |
| 130 | 6 | 1448.31 | 1489 | 1408 | 7 | 1655.21 | 1704 | 1607 | 7 | 2069.01 | 2125 | 2014 | 8 | 2275.92 | 2340 | 2211 |
| 140 | 6 | 1559.72 | 1600 | 1519 | 7 | 1782.54 | 1831 | 1734 | 7 | 2228.17 | 2284 | 2173 | 8 | 2450.99 | 2515 | 2386 |
| 150 | 7 | 1671.13 | 1712 | 1631 | 8 | 1909.86 | 1958 | 1861 | 8 | 2387.32 | 2443 | 2332 | 9 | 2626.06 | 2691 | 2562 |
| 160 | 7 | 1782.54 | 1823 | 1742 | 8 | 2037.18 | 2086 | 1989 | 8 | 2546.48 | 2602 | 2491 | 9 | 2801.13 | 2866 | 2737 |
| 170 | 8 | 1893.94 | 1934 | 1853 | 9 | 2164.51 | 2213 | 2116 | 9 | 2705.63 | 2761 | 2650 | 10 | 2976.20 | 3041 | 2912 |
| 180 | 8 | 2005.35 | 2046 | 1965 | 10 | 2291.83 | 2340 | 2243 | 9 | 2864.79 | 2920 | 2809 | 10 | 3151.27 | 3216 | 3087 |
| 190 | 9 | 2116.76 | 2157 | 2076 | 10 | 2419.16 | 2468 | 2371 | 10 | 3023.94 | 3079 | 2968 | 11 | 3326.34 | 3391 | 3262 |
| 200 | 9 | 2228.17 | 2269 | 2188 | 11 | 2546.48 | 2595 | 2498 | 11 | 3183.10 | 3239 | 3128 | 12 | 3501.41 | 3566 | 3437 |
| 220 | 10 | 2450.99 | 2491 | 2410 | 12 | 2801.13 | 2850 | 2753 | 12 | 3501.41 | 3557 | 3446 | 13 | 3851.55 | 3916 | 3787 |
| 240 | 11 | 2673.80 | 2714 | 2633 | 13 | 3055.77 | 3104 | 3007 | 13 | 3819.72 | 3875 | 3764 | 14 | 4201.69 | 4266 | 4137 |
| 260 | 12 | 2896.62 | 2937 | 2856 | 14 | 3310.42 | 3359 | 3262 | 14 | 4138.03 | 4194 | 4083 | 15 | 4551.83 | 4616 | 4487 |
| 280 | 13 | 3119.44 | 3160 | 3079 | 15 | 3565.07 | 3614 | 3517 | 15 | 4456.34 | 4512 | 4401 | 16 | 4901.97 | 4966 | 4837 |
| 300 | 14 | 3342.25 | 3383 | 3302 | 16 | 3819.72 | 3868 | 3771 | 16 | 4774.65 | 4830 | 4719 | 17 | 5252.11 | 5317 | 5188 |

| Frame model | PDU70 (Standard Series) PDUS70 (S Series) | | | | PDU80 (Standard Series) PDUS80 (S Series) | | | | PDU90 (Standard Series) PDUS90 (S Series) | | | | PDU120 (Standard Series) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Specifications | Circular pitch P | | 70 | | Circular pitch P | | 80 | | Circular pitch P | | 90 | | Circular pitch P | | 120 | |
| | Roller diameter ϕd | | 35.71 | | Roller diameter ϕd | | 39.68 | | Roller diameter ϕd | | 47.63 | | Roller diameter ϕd | | 63.5 | |
| | Total width Lw | | Standard : 72<br>S : 60 | | Total width Lw | | Standard : 74<br>S : 66 | | Total width Lw | | Standard : 90<br>S : 76 | | Total width Lw | | Standard : 112 | |
| | Inner width W | | 40 | | Inner width W | | 42 | | Inner width W | | 52 | | Inner width W | | 68 | |
| | Frame thickness T | | Standard : 16<br>S : 10 | | Frame thickness T | | Standard : 16<br>S : 12 | | Frame thickness T | | Standard : 19<br>S : 12 | | Frame thickness T | | Standard : 22 | |
| | Mounting hole ϕdm | | 17 | | Mounting hole ϕdm | | 17 | | Mounting hole ϕdm | | 22 | | Mounting hole ϕdm | | 32 | |
| | Mounting bolt size | | M16 | | Mounting bolt size | | M16 | | Mounting bolt size | | M20 | | Mounting bolt size | | M30 | |
| Number of Rollers NT | Number of Segments | Pitch Diameter Dpw | Outer Drive Dow | Inner Drive Diw | Number of Segments | Pitch Diameter Dpw | Outer Drive Dow | Inner Drive Diw | Number of Segments | Pitch Diameter Dpw | Outer Drive Dow | Inner Drive Diw | Number of Segments | Pitch Diameter Dpw | Outer Drive Dow | Inner Drive Diw |
| 60 | 4 | 1336.90 | 1409 | 1264 | 5 | 1527.89 | 1608 | 1447 | 6 | 1718.87 | 1815 | 1622 | 8 | 2291.83 | 2442 | 2141 |
| 70 | 5 | 1559.72 | 1632 | 1487 | 6 | 1782.54 | 1863 | 1702 | 7 | 2005.35 | 2102 | 1909 | 9 | 2673.80 | 2824 | 2523 |
| 80 | 6 | 1782.54 | 1855 | 1710 | 7 | 2037.18 | 2118 | 1957 | 8 | 2291.83 | 2388 | 2195 | 10 | 3055.77 | 3206 | 2905 |
| 90 | 7 | 2005.35 | 2078 | 1933 | 8 | 2291.83 | 2372 | 2211 | 9 | 2578.31 | 2675 | 2482 | 12 | 3437.75 | 3588 | 3287 |
| 100 | 7 | 2228.17 | 2301 | 2156 | 9 | 2546.48 | 2627 | 2466 | 10 | 2864.79 | 2961 | 2768 | 13 | 3819.72 | 3970 | 3669 |
| 110 | 8 | 2450.99 | 2523 | 2378 | 9 | 2801.13 | 2882 | 2721 | 11 | 3151.27 | 3248 | 3055 | 14 | 4201.69 | 4352 | 4051 |
| 120 | 9 | 2673.80 | 2746 | 2601 | 10 | 3055.77 | 3136 | 2975 | 12 | 3437.75 | 3534 | 3341 | 15 | 4583.66 | 4734 | 4433 |
| 130 | 10 | 2896.62 | 2969 | 2824 | 11 | 3310.42 | 3391 | 3230 | 12 | 3724.23 | 3821 | 3628 | 16 | 4965.63 | 5116 | 4815 |
| 140 | 10 | 3119.44 | 3192 | 3047 | 12 | 3565.07 | 3646 | 3485 | 13 | 4010.70 | 4107 | 3914 | 18 | 5347.61 | 5498 | 5197 |
| 150 | 11 | 3342.25 | 3415 | 3270 | 13 | 3819.72 | 3900 | 3739 | 14 | 4297.18 | 4394 | 4201 | 19 | 5729.58 | 5880 | 5579 |
| 160 | 12 | 3565.07 | 3638 | 3493 | 13 | 4074.37 | 4155 | 3994 | 15 | 4583.66 | 4680 | 4487 | 20 | 6111.55 | 6262 | 5961 |
| 170 | 12 | 3787.89 | 3860 | 3715 | 14 | 4329.01 | 4410 | 4249 | 16 | 4870.14 | 4967 | 4774 | 21 | 6493.52 | 6644 | 6343 |
| 180 | 13 | 4010.70 | 4083 | 3938 | 15 | 4583.66 | 4664 | 4503 | 17 | 5156.62 | 5253 | 5060 | 22 | 6875.49 | 7026 | 6725 |
| 190 | 14 | 4233.52 | 4306 | 4161 | 16 | 4838.31 | 4919 | 4758 | 18 | 5443.10 | 5540 | 5347 | 24 | 7257.47 | 7408 | 7107 |
| 200 | 15 | 4456.34 | 4529 | 4384 | 17 | 5092.96 | 5173 | 5012 | 19 | 5729.58 | 5826 | 5633 | 25 | 7639.44 | 7790 | 7489 |
| 220 | 16 | 4901.97 | 4974 | 4829 | 18 | 5602.25 | 5683 | 5522 | 21 | 6302.54 | 6399 | 6206 | 27 | 8403.38 | 8554 | 8253 |
| 240 | 17 | 5347.61 | 5420 | 5275 | 20 | 6111.55 | 6192 | 6031 | 22 | 6875.49 | 6972 | 6779 | 30 | 9167.32 | 9318 | 9017 |
| 260 | 19 | 5793.24 | 5866 | 5721 | 21 | 6620.85 | 6701 | 6540 | 24 | 7448.45 | 7545 | 7352 | 32 | 9931.27 | 10082 | 9781 |
| 280 | 20 | 6238.87 | 6311 | 6166 | 23 | 7130.14 | 7211 | 7050 | 26 | 8021.41 | 8118 | 7925 | 35 | 10695.21 | 10846 | 10545 |
| 300 | 22 | 6684.51 | 6757 | 6612 | 25 | 7639.44 | 7720 | 7559 | 28 | 8594.37 | 8691 | 8498 | 37 | 11459.16 | 11610 | 11309 |

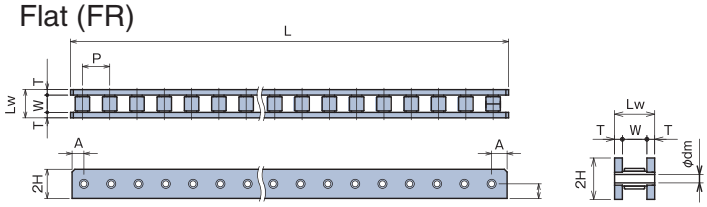
Pin wheels with numbers of rollers besides those listed are available.

# Pin Gear Drive Units

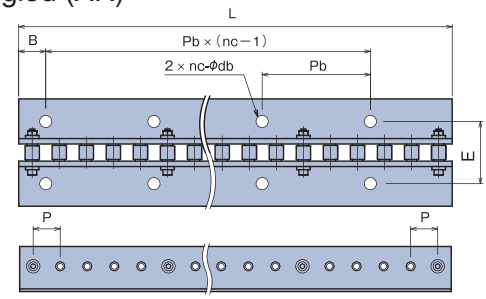
## ■Pin Rack Models and Specifications



Flat (FR)

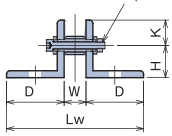



Angled (AR)




*The hollow pins in angled models need to be fixed to the rack by bolts and nuts.

*Bolts and nuts for fixing pins to the rack (shown in place).




### ■Model Numbering Example

**PDU55 - FR - 18P**

- Frame no.
  - P D U : Standard Series
  - PDUS : S Series
- Pin rack
  - FR : Flat
  - AR : Angled
- No. of rollers

### ■Flat Type Specifications Table

| Specifications | Frame model | Pitch P | Set Length: Total length L | Set Length: No. of rollers NT | Frame Thickness T | Pin Position A | Inner Width W | Total Width Lw | Total Height 2H | Bolt Bore Dia. ϕdm | Mounting Bolt Size | Mass kg | Minimum Available Length: Total length L | Minimum Available Length: No. of rollers NT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard Series | PDU20 | 20 | 800 | 40 | 4.5 | 10 | 12 | 21 | 22 | 4.5 | M4 | 1.5 | 160 | 8 |
| | PDU22 | 22 | 792 | 36 | 4.5 | 11 | 16 | 25 | 25 | 4.5 | M4 | 1.8 | 286 | 13 |
| | PDU30 | 30 | 780 | 26 | 6 | 15 | 19 | 31 | 32 | 6.5 | M6 | 3.0 | 300 | 10 |
| | PDU35 | 35 | 770 | 22 | 9 | 17.5 | 22 | 40 | 38 | 9 | M8 | 5.0 | 280 | 8 |
| | PDU40 | 40 | 800 | 20 | 9 | 20 | 28 | 46 | 45 | 10.8 | M10 | 6.4 | 280 | 7 |
| | PDU50 | 50 | 1000 | 20 | 12 | 25 | 28 | 52 | 65 | 12.8 | M12 | 14.0 | 300 | 6 |
| | PDU55 | 55 | 990 | 18 | 12 | 27.5 | 36 | 60 | 65 | 12.8 | M12 | 14.9 | 495 | 9 |
| | PDU70 | 70 | 980 | 14 | 16 | 35 | 40 | 72 | 75 | 17 | M16 | 22.2 | 420 | 6 |
| | PDU80 | 80 | 960 | 12 | 16 | 40 | 42 | 74 | 90 | 17 | M16 | 26.3 | 560 | 7 |
| | PDU90 | 90 | 990 | 11 | 19 | 45 | 52 | 90 | 100 | 22 | M20 | 36.5 | 540 | 6 |
| | PDU120 | 120 | 960 | 8 | 22 | 60 | 68 | 112 | 150 | 32 | M30 | 60.7 | 480 | 4 |
| S Series | PDUS20 | 20 | 800 | 40 | 5 | 10 | 12 | 22 | 22 | 4.5 | M4 | 1.6 | 160 | 8 |
| | PDUS22 | 22 | 792 | 36 | 5 | 11 | 16 | 26 | 25 | 4.5 | M4 | 2.0 | 286 | 13 |
| | PDUS30 | 30 | 780 | 26 | 6 | 15 | 19 | 31 | 32 | 6.5 | M6 | 3.1 | 300 | 10 |
| | PDUS35 | 35 | 770 | 22 | 6 | 17.5 | 22 | 34 | 38 | 9 | M8 | 3.7 | 280 | 8 |
| | PDUS40 | 40 | 800 | 20 | 8 | 20 | 28 | 44 | 50 | 10.8 | M10 | 6.5 | 280 | 7 |
| | PDUS50 | 50 | 1000 | 20 | 9 | 25 | 28 | 46 | 65 | 12.8 | M12 | 11.1 | 300 | 6 |
| | PDUS55 | 55 | 990 | 18 | 9 | 27.5 | 36 | 54 | 65 | 12.8 | M12 | 12.1 | 495 | 9 |
| | PDUS70 | 70 | 980 | 14 | 10 | 35 | 40 | 60 | 75 | 17 | M16 | 15.6 | 420 | 6 |
| | PDUS80 | 80 | 960 | 12 | 12 | 40 | 42 | 66 | 90 | 17 | M16 | 21.3 | 560 | 7 |
| | PDUS90 | 90 | 990 | 11 | 12 | 45 | 52 | 76 | 100 | 22 | M20 | 26.2 | 540 | 6 |

*Racks with numbers of rollers besides those listed are available.

Note:

1. Long length pin racks are constructed as either "set length x no. of rollers" or "set length x no. of rollers + no. of rollers less than set length." Contact a Tsubaki representative regarding special numbers of rollers.
2. No mounting bolts are provided.

### ■Angled Type Specifications

| Specifications | Frame model | Pitch P | Set Length: Total length L | Set Length: No. of rollers NT | Inner Width W | Total Width Lw | Angled Leg Width D | Center Height: H | Center Height: K | Mounting Hole Position: Width E | Mounting Hole Position: End width B | Mounting Hole Position: Pitch Pb | Mounting Hole Position: Mounting hole spacing Pb×nc | Mounting Hole Position: No. of holes (one side) nc | Mounting Hole Position: Bore dia. ϕdb | Mounting Bolt Size | Mass kg | Minimum Available Length: Total length L | Minimum Available Length: No. of rollers NT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard Series | PDU20 | 20 | 800 | 40 | 12 | 72 | 30 | 20 | 10 | 56 | 20 | 120 | 720 | 7 | 9 | M8 | 2.4 | 160 | 8 |
| | PDU22 | 22 | 792 | 36 | 16 | 96 | 40 | 27 | 13 | 60 | 22 | 88 | 704 | 9 | 11 | M10 | 3.3 | 132 | 6 |
| | PDU30 | 30 | 780 | 26 | 19 | 119 | 50 | 28 | 22 | 69 | 30 | 120 | 720 | 7 | 13.5 | M12 | 5.9 | 180 | 6 |
| | PDU35 | 35 | 770 | 22 | 22 | 122 | 50 | 30 | 20 | 76 | 35 | 140 | 700 | 6 | 13.5 | M12 | 7.7 | 210 | 6 |
| | PDU40 | 40 | 800 | 20 | 28 | 128 | 50 | 28 | 22 | 88 | 40 | 120 | 720 | 7 | 13.5 | M12 | 8.5 | 320 | 8 |
| | PDU50 | 50 | 1000 | 20 | 28 | 158 | 65 | 40 | 25 | 104 | 50 | 150 | 900 | 7 | 17.5 | M16 | 17.1 | 250 | 5 |
| | PDU55 | 55 | 990 | 18 | 36 | 166 | 65 | 37 | 28 | 112 | 55 | 165 | 825 | 6 | 17.5 | M16 | 18.0 | 440 | 8 |
| | PDU70 | 70 | 980 | 14 | Contact a Tsubaki representative for details. | | | | | | | | | | | | | 560 | 8 |
| | PDU80 | 80 | 960 | 12 | | | | | | | | | | | | | | 480 | 6 |
| | PDU90 | 90 | 990 | 11 | | | | | | | | | | | | | | 540 | 6 |
| | PDU120 | 120 | 960 | 8 | | | | | | | | | | | | | | 480 | 4 |
| S Series | PDUS20 | 20 | 800 | 40 | 12 | 72 | 30 | 20 | 10 | 56 | 20 | 120 | 720 | 7 | 9 | M8 | 2.4 | 160 | 8 |
| | PDUS22 | 22 | 792 | 36 | 16 | 96 | 40 | 27 | 13 | 60 | 22 | 88 | 704 | 9 | 11 | M10 | 3.4 | 132 | 6 |
| | PDUS30 | 30 | 780 | 26 | 19 | 119 | 50 | 28 | 22 | 69 | 30 | 120 | 720 | 7 | 13.5 | M12 | 6.6 | 180 | 6 |
| | PDUS35 | 35 | 770 | 22 | 22 | 122 | 50 | 30 | 20 | 76 | 35 | 140 | 700 | 6 | 13.5 | M12 | 6.8 | 210 | 6 |
| | PDUS40 | 40 | 800 | 20 | 28 | 128 | 50 | 28 | 22 | 88 | 40 | 120 | 720 | 7 | 13.5 | M12 | 7.5 | 320 | 8 |
| | PDUS50 | 50 | 1000 | 20 | 28 | 158 | 65 | 40 | 25 | 104 | 50 | 150 | 900 | 7 | 17.5 | M16 | 13.8 | 250 | 5 |
| | PDUS55 | 55 | 990 | 18 | 36 | 166 | 65 | 37 | 28 | 112 | 55 | 165 | 825 | 6 | 17.5 | M16 | 14.8 | 440 | 8 |

# Pin Gear Drive Unit Selection Guide

## ■Pin Gear Models and Specifications

Model Numbering Example

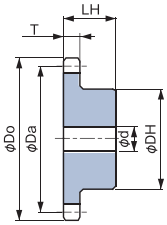
**PDU90 - S - 1B 24T**

Frame model
P D U : Standard Series
PDUS : S Series

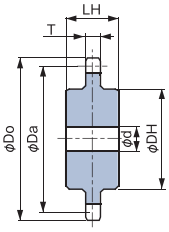
Pin gear
G : Outer drive
N : Inner drive
S : Linear drive

Hub type
1B: B type
1C: C type

No. of teeth




B Type




C Type

| | Standard Series | S Series |
|---|---|---|
| Material | Machine structural use carbon steel | Stainless steel |
| Configuration | B and C types | |
| Tooth hardening | Induction hardened and tempered | None |

*Other materials available.
*Shaft bore finishing available.
*Lock pin gear specifications (with a frictional locking mechanism) available. (See the diagram below.)

### ■Pin Gear Applicable Number of Teeth Range (for both Standard and S Series)

| No. of Teeth NT | Linear Rack | Outer Drive Pin Wheel Number of Rollers | | | | | | | | Inner Drive Pin Wheel Number of Rollers | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 60 | 70 | 80 | 100 | 150 | 200 | 250 | 300 | 60 | 70 | 80 | 100 | 150 | 200 | 250 |
| 11 | × | × | × | × | × | × | × | × | × | ○ | ○ | ○ | ○ | × | × | × |
| 12 | △ | × | × | × | × | × | × | × | × | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 13 | ○ | × | × | × | × | × | △ | △ | △ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 14 | ○ | × | × | △ | △ | △ | △ | △ | △ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 15 | ○ | △ | △ | △ | △ | △ | △ | △ | △ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 16 | ○ | △ | △ | △ | △ | △ | △ | △ | △ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 17 | ○ | △ | △ | △ | △ | △ | △ | △ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 18 | ○ | △ | △ | △ | △ | △ | △ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 19 | ○ | △ | △ | △ | △ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 20 | ○ | △ | △ | △ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 21 | ○ | △ | △ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 22 | ○ | △ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 23 | ○ | △ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 24 and more | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

○ : Permissible
△ : Tangential load may decrease depending on usage conditions. Contact a Tsubaki representative for more information.
× : Not allowed (due to an insufficient engagement factor)

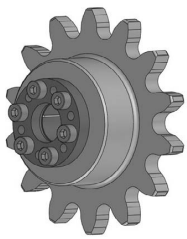
### ■Pin Gear Specifications Chart (for both Standard and S Series)

| Frame No. | PDU (S) 20 | | | | | PDU (S) 22 | | | | | PDU (S) 30 | | | | | PDU (S) 35 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Specifications | Pitch P | | 20 | | | Pitch P | | 22 | | | Pitch P | | 30 | | | Pitch P | | 35 | | |
| | Roller dia. (ref.) | | 10.16 | | | Roller dia. (ref.) | | 11.91 | | | Roller dia. (ref.) | | 15.88 | | | Roller dia. (ref.) | | 19.05 | | |
| | Tooth width T | | 9 | | | Tooth width T | | 12 | | | Tooth width T | | 15 | | | Tooth width T | | 18 | | |
| No. of Teeth NT | Pitch Dia. Da | Outer Dia. Do | Pilot Bore Dia. d | Hub Dia. DH | Hub Length LH | Pitch Dia. Da | Outer Dia. Do | Pilot Bore Dia. d | Hub Dia. DH | Hub Length LH | Pitch Dia. Da | Outer Dia. Do | Pilot Bore Dia. d | Hub Dia. DH | Hub Length LH | Pitch Dia. Da | Outer Dia. Do | Pilot Bore Dia. d | Hub Dia. DH | Hub Length LH |
| 11 | 72.43 | 85 | 12.7 | 43 | 20 | 80.03 | 95 | 12.7 | 45 | 30 | 108.44 | 129 | 15.9 | 65 | 50 | 126.55 | 151 | 23 | 75 | 80 |
| 12 | 78.59 | 91 | 12.7 | 49 | 20 | 86.83 | 102 | 12.7 | 50 | 40 | 117.79 | 138 | 19.0 | 75 | 50 | 137.49 | 162 | 23 | 85 | 80 |
| 14 | 91.13 | 105 | 12.7 | 50 | 30 | 100.44 | 115 | 15.9 | 60 | 40 | 136.49 | 157 | 19.0 | 80 | 50 | 159.57 | 184 | 23 | 110 | 90 |
| 16 | 103.66 | 116 | 12.7 | 50 | 30 | 114.05 | 129 | 15.9 | 70 | 40 | 155.39 | 176 | 19.0 | 80 | 60 | 181.65 | 206 | 28 | 120 | 100 |
| 18 | 116.19 | 129 | 12.7 | 60 | 30 | 127.85 | 143 | 15.9 | 70 | 50 | 174.29 | 194 | 19.0 | 90 | 60 | 203.74 | 228 | 28 | 120 | 100 |
| 20 | 128.72 | 141 | 12.7 | 60 | 30 | 141.66 | 157 | 15.9 | 70 | 50 | 192.99 | 213 | 23.0 | 90 | 70 | 225.82 | 250 | 28 | 130 | 100 |
| 22 | 141.46 | 154 | 15.9 | 60 | 40 | 155.66 | 171 | 15.9 | 70 | 50 | 212.08 | 232 | 23.0 | 90 | 70 | 247.90 | 272 | 33 | 130 | 110 |
| 24 | 153.99 | 167 | 15.9 | 60 | 40 | 169.47 | 184 | 18.0 | 70 | 50 | 230.98 | 251 | 23.0 | 100 | 70 | 269.58 | 294 | 33 | 130 | 110 |

| Frame No. | PDU (S) 40 | | | | | PDU (S) 50 | | | | | PDU (S) 55 | | | | | PDU (S) 70 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Specifications | Pitch P | | 40 | | | Pitch P | | 50 | | | Pitch P | | 55 | | | Pitch P | | 70 | | |
| | Roller dia. (ref.) | | 22.23 | | | Roller dia. (ref.) | | 25.4 | | | Roller dia. (ref.) | | 28.58 | | | Roller dia. (ref.) | | 35.71 | | |
| | Tooth width T | | 24 | | | Tooth width T | | 24 | | | Tooth width T | | 30 | | | Tooth width T | | 34 | | |
| No. of Teeth NT | Pitch Dia. Da | Outer Dia. Do | Pilot Bore Dia. d | Hub Dia. DH | Hub Length LH | Pitch Dia. Da | Outer Dia. Do | Pilot Bore Dia. d | Hub Dia. DH | Hub Length LH | Pitch Dia. Da | Outer Dia. Do | Pilot Bore Dia. d | Hub Dia. DH | Hub Length LH | Pitch Dia. Da | Outer Dia. Do | Pilot Bore Dia. d | Hub Dia. DH | Hub Length LH |
| 11 | 145.66 | 174 | 28 | 90 | 80 | 181.47 | 214 | 33 | 100 | 90 | 200.18 | 237 | 33 | 120 | 140 | 252.30 | 298 | 43 | 157 | 150 |
| 12 | 157.79 | 186 | 28 | 100 | 90 | 196.59 | 229 | 33 | 110 | 100 | 216.08 | 253 | 33 | 135 | 140 | 273.98 | 320 | 43 | 170 | 160 |
| 14 | 182.65 | 211 | 28 | 120 | 100 | 227.62 | 260 | 33 | 130 | 110 | 250.30 | 287 | 33 | 160 | 140 | 317.94 | 364 | 43 | 180 | 160 |
| 16 | 207.72 | 236 | 33 | 120 | 100 | 259.05 | 292 | 33 | 140 | 120 | 284.91 | 322 | 33 | 170 | 150 | 362.11 | 408 | 43 | 190 | 160 |
| 18 | 232.58 | 261 | 33 | 130 | 100 | 290.48 | 323 | 33 | 140 | 130 | 319.53 | 356 | 33 | 170 | 160 | 406.07 | 452 | 43 | 190 | 170 |
| 20 | 257.85 | 286 | 33 | 130 | 110 | 321.91 | 354 | 33 | 150 | 140 | 354.14 | 391 | 33 | 180 | 160 | 450.43 | 496 | 43 | 200 | 190 |
| 22 | 283.31 | 312 | 33 | 140 | 120 | 353.74 | 386 | 33 | 150 | 140 | 389.15 | 426 | 38 | 180 | 160 | 495.00 | 541 | 63 | 210 | 190 |
| 24 | 308.18 | 337 | 33 | 140 | 120 | 384.97 | 417 | 33 | 160 | 140 | 423.57 | 460 | 38 | 190 | 170 | 538.76 | 585 | 63 | 210 | 190 |

| Frame No. | PDU (S) 80 | | | | | PDU (S) 90 | | | | | PDU120 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Specifications | Pitch P | | 80 | | | Pitch P | | 90 | | | Pitch P | | 120 | | |
| | Roller dia. (ref.) | | 39.68 | | | Roller dia. (ref.) | | 47.63 | | | Roller dia. (ref.) | | 63.5 | | |
| | Tooth width T | | 36 | | | Tooth width T | | 45 | | | Tooth width T | | 60 | | |
| No. of Teeth NT | Pitch Dia. Da | Outer Dia. Do | Pilot Bore Dia. d | Hub Dia. DH | Hub Length LH | Pitch Dia. Da | Outer Dia. Do | Pilot Bore Dia. d | Hub Dia. DH | Hub Length LH | Pitch Dia. Da | Outer Dia. Do | Pilot Bore Dia. d | Hub Dia. DH | Hub Length LH |
| 11 | 288.11 | 339 | 43 | 180 | 150 | 325.13 | 387 | 43 | 210 | 180 | 435.17 | 517 | 63 | 250 | 240 |
| 12 | 312.78 | 364 | 43 | 190 | 160 | 352.77 | 414 | 43 | 220 | 190 | 472.37 | 554 | 63 | 260 | 240 |
| 14 | 363.11 | 414 | 43 | 200 | 180 | 409.07 | 470 | 43 | 230 | 210 | 546.76 | 629 | 63 | 270 | 250 |
| 16 | 413.64 | 465 | 43 | 210 | 200 | 465.97 | 527 | 63 | 240 | 230 | 621.15 | 703 | 63 | 280 | 260 |
| 18 | 463.97 | 515 | 43 | 220 | 200 | 522.66 | 584 | 63 | 250 | 250 | 696.95 | 779 | 63 | 290 | 280 |
| 20 | 514.50 | 566 | 63 | 230 | 200 | 579.56 | 641 | 63 | 260 | 250 | 772.54 | 855 | 68 | 300 | 300 |
| 22 | 565.43 | 617 | 63 | 230 | 210 | 636.85 | 698 | 63 | 270 | 260 | 848.94 | 931 | 68 | 310 | 320 |
| 24 | 615.55 | 667 | 63 | 240 | 230 | 692.95 | 754 | 63 | 270 | 260 | 923.73 | 1006 | 68 | 320 | 320 |

*Pin gear tooth profiles may change depending on the application (outer drive, inner drive, linear drive).



Lock Pin Gear Series

# Pin Gear Drive Unit Selection and Installation

## ■Selection Guide

**1. Provisionally select pin gear drive unit pitch diameter**

- **For rotating movement :** Provisionally select the pitch diameter of the pin wheel from the size of the rotating equipment. Provisionally select the pitch diameter of the pin gear from the reduction ratio.
- **For linear movement :** Provisionally select the pitch diameter of the pin gear from the equipment layout.

**2. Calculate tangential load Fw of the load**

Calculate tangential load Fw of the load acting on the pin wheel or pin rack from the load conditions.

**3. Calculate corrected tangential load Ft**

Find the usage factor **Ks** (Table 1) from the operating conditions and the speed factor **Kv** (Table 2) from the tangential speed and determine the corrected tangential load **Ft** by multiplying the above with the tangential load **Fw** of the load.

$$Ft = Ks \times Kv \times Fw$$

**4. Select the pin gear drive unit frame model**

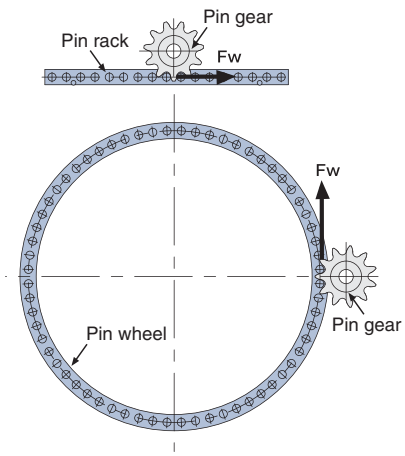
Select a pin gear drive unit frame model that satisfies the conditions below from the allowable tangential load **Fp** and the corrected tangential load **Ft** of each pin rack or pin wheel frame model.

**Allowable tangential load Fp > Corrected tangential load Ft**

**5. Select the model number**

- Pin wheel : Select the number of rollers of the pin wheel with a pitch diameter closest to the pitch diameter of the pin wheel provisionally selected and the selected frame model.
- Pin rack : Find the number of rack rollers from the selected frame model and the running distance (or the stroke distance).
- Pin gear : Select the number of teeth of the pin gears with a pitch diameter closest to the pitch diameter of the pin gear provisionally selected and the selected frame model.

Note: There are limits to the range of the number of pin gear teeth usable. (See the table on pg. 150.) Reselect the number of teeth if insufficient.




### Usage Factor Ks (Table 1)

| Operating Conditions | Hours of Operation per Day | | |
|---|---|---|---|
| | Less than 3 | Less than 12 | 24 Hours/Day |
| Continuous smooth transmission | 1.0 | 1.1 | 1.2 |
| Continuous impact load | 1.2 | 1.3 | 1.5 |
| Intermittent unidirectional operation | 1.3 | 1.5 | 1.7 |
| Intermittent forward – reverse operation | 1.5 | 1.7 | 2.2 |
| Continuous forward – reverse operation | 1.8 | 2.0 | 2.5 |

### Speed Factor Kv (Table 2)

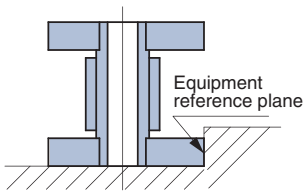
| Tangential Speed m/min | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 0 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 50 |
| 1.02 | 1.04 | 1.05 | 1.06 | 1.06 | 1.07 | 1.08 | 1.1 | 1.2 |

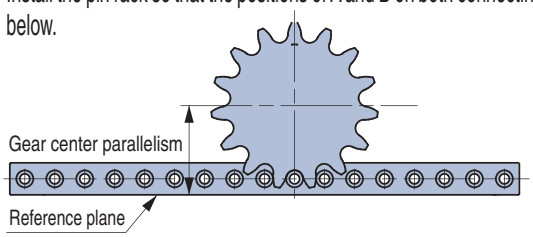
Note : 1. Allowable tangential speed for all frame models is 50m/min.
2. There are limits to the range of the number of pin gear teeth usable. Reselect the number of teeth if insufficient.

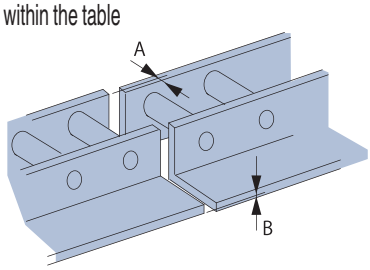
## ■Installation Precision

Pin wheel : The protruding surface of the pin wheel frame has been machined to be concentric with the roller mounting holes. The frame acts as a centering reference plane, allowing it to be mounted by press fitting it into the centering section of the equipment. The precision of the equipment's centering section should be finished as per the Centering Section Precision table below.

Pin rack : Calculate the parallelism between equipment beforehand so that the parallelism between the installation reference plane on the pin rack side and the pin gear center fall within the Gear Center Parallelism table below.
Install the pin rack so that the positions of A and B on both connecting elements fall within the table below.



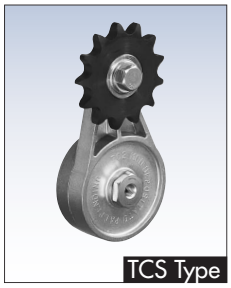

*Read all appropriate instructions before mounting.

| Frame Model | | PDU20 PDUS20 | PDU22 PDUS22 | PDU30 PDUS30 | PDU35 PDUS35 | PDU40 PDUS40 | PDU50 PDUS50 | PDU55 PDUS55 | PDU70 PDUS70 | PDU80 PDUS80 | PDU90 PDUS90 | PDU120 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rotating Drive | Centering section precision (mm) | 0.3 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 | 1.2 | 1.6 |
| Linear Drive | Gear center parallelism (mm) | 0.3 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 | 1.2 | 1.6 |
| | Connecting element positioning A・B (mm) | 0.1 | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.4 | 0.5 | 0.5 | 0.6 | 0.8 |

# Accessories (Peripheral Instruments)

## Chain Tensioners

The Tsubaki Chain Tensioner adjusts slackness in the chain to enable continuous and proper chain operation.


TCS Type

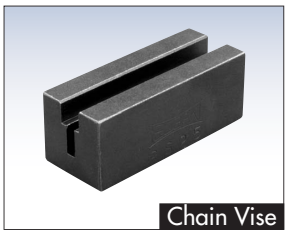
## Automatic Lubricator for Roller Chain

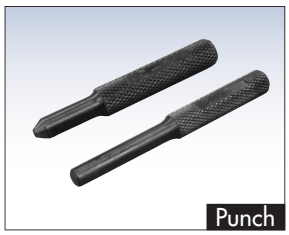
1. Operational period can be freely set
2. Reduces maintenance time
3. Lightweight, compact
4. Can be installed in any direction
5. Waterproof
6. Includes an inspection window
7. Highly safe
8. Reliable

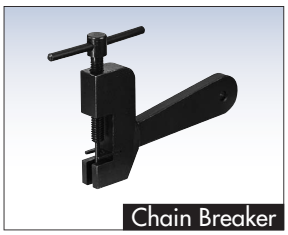
Automatic Lubricator for Roller Chain

## Chain Cutting Tools

These tools enable chains to be cut to the desired length.


Chain Vise


Punch


Chain Breaker

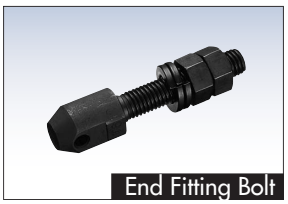
## Chain Connecting Tools

This tool pulls the two ends of the chain together when installing the chain on a machine.

Chain Puller

## End Fixtures

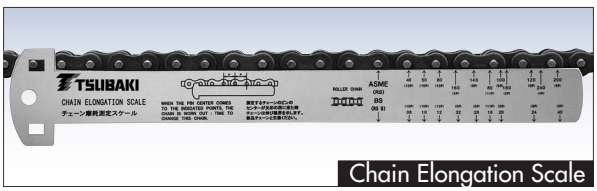
The end fitting bolts and end fitting bolt connecting links are designed to be stronger than those of RS Roller Chains.


End Fitting Bolt

End Fitting Bolt Connecting Link

## Chain Elongation Scale

Allows quick checks of pitch elongation limit.



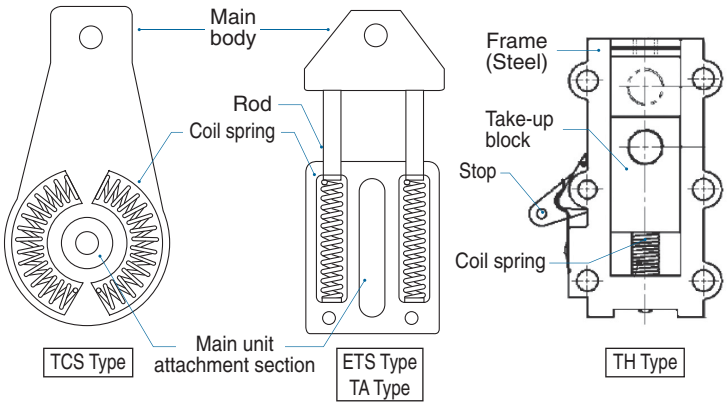
Chain Elongation Scale

# Chain Tensioners

Slackness in the chain can cause chain vibration and noise, and improper engagement with the sprocket, as well as preventing the chain from operating properly. The Tsubaki Chain Tensioner adjusts slackness in the chain to enable continuous and proper chain operation.
There are four types of Tsubaki Chain Tensioners: Our new TH Type (straight type, with idler sprocket), the TCS Type (swing type, with idler sprocket), the ETS Type (straight type, with idler sprocket), and the TA Type (straight type, with plastic shoe).

## ■Construction

### Main unit




The Tsubaki Chain Tensioner is composed of a main unit and an idler sprocket. (The TA Type is a unitized construction with plastic shoe.) The tensioner's main unit employs the elasticity of a built-in coil spring to tension.

### TA Type main unit attachment bolt

Table1

| Model Number | Main Unit Attachment Bolt | Model Number | Main Unit Attachment Bolt |
|---|---|---|---|
| CT-TA40 | M10 | CT-TA60 | M12 |
| CT-TA50 | M12 | CT-TA80 | M14 |

Note: Tensioner attachment bolt not included with tensioner.

### Idler sprocket

The idler sprocket is composed of a sprocket with a built-in bearing, (TH Type provided with a lube-free bush upon request) an attachment bolt, and a washer. The sprocket teeth undergo induction hardening. TCS and ETS Types are given a black coating, while TH Type is plated.

**TCS/ETS Types**

Table 2

| Model Number | Sprocket No. of Teeth | Sprocket Mounting Bolt | | | | Flat Washer | | Tensioner Mounting Bolt |
|---|---|---|---|---|---|---|---|---|
| | | Size | Length | Strength Classification | Quantity | Nominal | Quantity | |
| **CT-TCS40** | 17 | M10 | 30 | 10.9 | 1 | 10 | 2 | M10 |
| **CT-ETS40** | | | 35 | | | | | |
| **CT-TCS50** | 15 | M10 | 30 | 10.9 | 1 | 10 | 2 | M10 |
| **CT-ETS50** | | | 35 | | | | | |
| **CT-TCS60** | 13 | M12 | 35 | 10.9 | 1 | 12 | 2 | M12 |
| **CT-ETS60** | | | 45 | | | | | |
| **CT-TCS80** | 11 | M12 | 35 | 10.9 | 1 | 12 | 4 | M12 |
| **CT-ETS80** | | | 45 | | | | | |

**TH Type**

Table 3

| Model Number | Applicable Size | Sprocket No. of Teeth | Sprocket Mounting Bolt | |
|---|---|---|---|---|
| | | | Size | Length |
| **CT-TH1** | RS35-1 | 20 | M12 | 45 |
| | RS40-1 | 15 | | |
| **CT-TH2** | RS50-1 | 15 | M12 | 55 |
| | RS60-1 | 14 | | |
| | RS80-1 | 11 | | |

## ■TCS and ETS Type Assembly

Remove the main unit of the TCS or ETS Type tensioner, the idler sprocket, attachment bolt and washers from their packaging, and assemble them as shown in Fig. 1. The plastic shoe for the TA type comes as part of the main unit and no assembly is required.
One flat washer should be installed on each side of the idler sprocket. However, the CT-TCS80 and CT-ETS80 should have two washers installed on each side. The idler sprocket attachment bolt and flat washers are included with the idler sprocket.

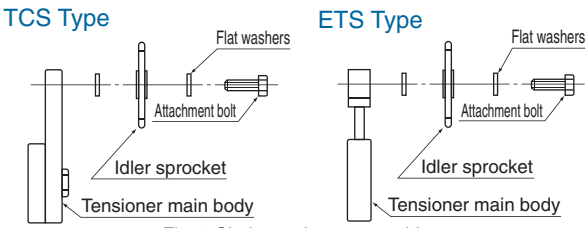



Fig. 1 Chain tensioner assembly

## ■Bolt Tightening Torque

When installing the tensioner on a base after attaching the idler sprocket to the tensioner, be sure to fasten the idler sprocket and the tensioner securely with a bolt. The table on the right indicates the tightening torque. Be sure to use bolts with a strength classification of 8.8T or more.

### Checking the rotation of the idler sprocket

If the idler sprocket is anchored in place, check whether or not the sprocket can turn smoothly. If it does not turn smoothly, the bolt may be too tight. Loosen the bolt and then retighten properly.

### Position adjustment

When setting the tensioner, adjust with a shim so that the center of the idler sprocket and chain are aligned.

### Attachment bolt locking torque

Unit: kN·m{kgf·m} Table 4

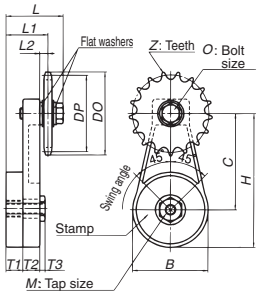
| | Idler sprocket attachment bolt | Tensioner attachment bolt |
|---|---|---|
| CT-TCS40,50 | 0.02{2.0} | 0.04{4.0} |
| CT-TCS60,80 | 0.03{3.0} | 0.05{5.0} |
| CT-ETS40,50 | 0.03{3.0} | 0.03{3.0} |
| CT-ETS60,80 | 0.04{4.0} | 0.04{4.0} |
| CT-TA40 | —— | 0.03{3.0} |
| CT-TA50,60 | —— | 0.04{4.0} |
| CT-TA80 | —— | 0.05{5.0} |

★ Refer to Tables 1 and 2 for bolt size.

# Chain Tensioners

## ■Product type

### 1 TCS Type: Swing type, with idler sprocket




■Ordering Indicate the code (product code and model number).

Model number (ex.) **CT-TCS 40**
- 40 → Applicable chain
- TCS → TCS Type
- CT → Chain tensioner

■Ordering Example

| Produce code | Model number | Quantity | Unit (pcs) |
|---|---|---|---|
| D210001 | CT-TCS40 | 1 | K |

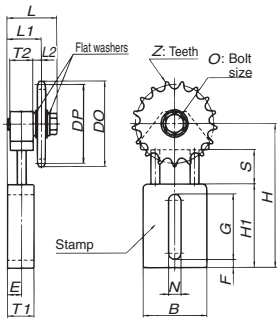
■Operating temperature : -10℃ to 100℃

Note 1. Only the CT-TCS80 has two washers installed on each side.
2. The swing angle of CT-TCS60 and CT-TCS80 is 30˚.

| Produce code | Model Number | Stamp | Applicable Chain | B | C | H | M | $T_1$ | $T_2$ | $T_3$ | Z | DP | DO | O | L | $L_1$ | $L_2$ | Plunge Force kN{kgf} | Approximate Mass kg/unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **D210001** | CT-TCS40 | TC-1 | RS40-1 | 69 | 87.5 | 122 | M10 | 15.5 | 15.5 | 5 | 17 | 69.12 | 75 | M10 | 50.5 | 37.5 | 6.5 | 0{0}~0.15{15} | 0.74 |
| **D210002** | CT-TCS50 | TC-1 | RS50-1 | 69 | 87.5 | 122 | M10 | 15.5 | 15.5 | 5 | 15 | 76.35 | 83 | M10 | 50.5 | 37.5 | 6.5 | 0{0}~0.15{15} | 0.82 |
| **D210003** | CT-TCS60 | TC-2 | RS60-1 | 90 | 100 | 145 | M12 | 18 | 18 | 7 | 13 | 79.60 | 88 | M12 | 60.5 | 44.5 | 8.5 | 0{0}~0.39{40} | 1.30 |
| **D210004** | CT-TCS80 | TC-2 | RS80-1 | 90 | 100 | 145 | M12 | 18 | 18 | 7 | 11 | 90.16 | 101 | M12 | 65.5 | 47 | 11 | 0{0}~0.39{40} | 1.52 |

Note: All models stocked.

### 2 ETS Type: Straight type, with idler sprocket




■Ordering Indicate the code (product code and model number).

Model number (ex.) **CT-ETS 40**
- 40 → Applicable chain
- ETS → ETS Type
- CT → Chain tensioner

■Ordering Example

| Produce code | Model number | Quantity | Unit (pcs) |
|---|---|---|---|
| D210005 | CT-ETS40 | 1 | K |

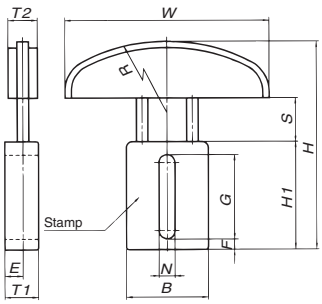
■Operating temperature : -10℃ to 100℃

Note: Only the CT-ETS80 has two washers installed on each side.

| Produce code | Model Number | Stamp | Applicable Chain | S | H | $H_1$ | F | G | B | N | $T_1$ | $T_2$ | E | Z | DP | DO | O | L | $L_1$ | $L_2$ | Plunge Force kN{kgf} | Approximate Mass kg/unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **D210005** | CT-ETS40 | TO-1 | RS40-1 | 30 | 129 | 74 | 7 | 58 | 56.2 | 11 | 23 | 20 | 12.5 | 17 | 69.12 | 76 | M10 | 42 | 29 | 6.5 | 0.10{10}~0.25{25} | 0.60 |
| **D210006** | CT-ETS50 | TO-1 | RS50-1 | 30 | 129 | 74 | 7 | 58 | 56.2 | 11 | 23 | 20 | 12.5 | 15 | 76.35 | 84 | M10 | 42 | 29 | 6.5 | 0.10{10}~0.25{25} | 0.69 |
| **D210007** | CT-ETS60 | TO-2 | RS60-1 | 38 | 163 | 87 | 9 | 70 | 70.5 | 12.5 | 28 | 25 | 15 | 13 | 79.60 | 89 | M12 | 52 | 36 | 8.5 | 0.15{15}~0.39{40} | 1.15 |
| **D210008** | CT-ETS80 | TO-2 | RS80-1 | 38 | 163 | 87 | 9 | 70 | 70.5 | 12.5 | 28 | 25 | 15 | 11 | 90.16 | 102 | M12 | 57 | 38.5 | 11 | 0.15{15}~0.39{40} | 1.37 |

Note: All models stocked.
Lubricate the rod section regularly.

### 3 TA Type: Straight type, with plastic shoe




■Ordering Indicate the code (product code and model number).

Model number (ex.) **CT-TA 40**
- 40 → Applicable chain
- TA → TA Type
- CT → Chain tensioner

■Ordering Example

| Produce code | Model number | Quantity | Unit (pcs) |
|---|---|---|---|
| D210009 | CT-TA40 | 1 | K |

■Operating temperature : -10℃ to 60℃

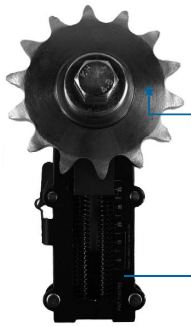
| Produce code | Model Number | Stamp | Applicable Chain | S | H | $H_1$ | F | G | B | N | $T_1$ | E | W | R | $T_2$ | Plunge Force kN{kgf} | Approximate Mass kg/unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **D210009** | CT-TA40 | TO-1 | RS40-1 | 30 | 143 | 74 | 7 | 58 | 56.2 | 11 | 23 | 12.5 | 140 | 120 | 20 | 0.10{10}~0.25{25} | 0.39 |
| **D210010** | CT-TA50 | TO-2 | RS50-1 | 38 | 164 | 87 | 9 | 70 | 70.5 | 12.5 | 28 | 15 | 140 | 140 | 22 | 0.15{15}~0.39{40} | 0.65 |
| **D210011** | CT-TA60 | TO-2 | RS60-1 | 38 | 164 | 87 | 9 | 70 | 70.5 | 12.5 | 28 | 15 | 140 | 140 | 22 | 0.15{15}~0.39{40} | 0.65 |
| **D210012** | CT-TA80 | TO-3 | RS80-1 | 44 | 187 | 104 | 9 | 86 | 82 | 14.5 | 33 | 17.5 | 140 | 160 | 25 | 0.29{30}~0.59{60} | 0.99 |

Note: All models stocked.
Lubricate the rod section regularly.

# Chain Tensioners



## 4 TH Type: Straight type, with idler sprocket



Choose your idler sprocket

Ball bearing type (Standard type)

Lube-free bush type (Optional type)

Unique ratchet and spring construction

The spring automatically controls chain sag and excessive vibration. The ratchet construction makes installation a snap.

CT-TH1 : For RS35-1 and RS40-1
CT-TH2 : For RS50-1, RS60-1, and RS80-1

### ■Ordering

Indicate the code (product code and model number).

Model number

Main body/ adapter: **CT-TH 1**
- Tensioner body size
- TH: TH Type tensioner / THS: TH Type tensioner adapter
- Chain tensioner

Idler sprocket: **RS35-THB 20T**
- Idler sprocket no. of teeth
- THB: Ball bearing type / THL: Lube-free bush type
- Applicable chain size

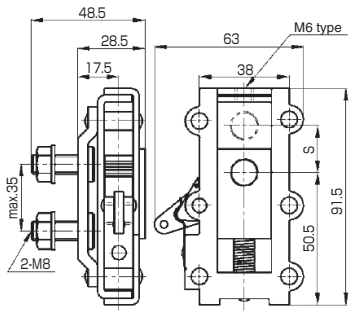
### ■Ordering Example

| Produce code | Model number | Quantity | Unit (pcs) |
|---|---|---|---|
| G651001 | CT-TH1 | 1 | K |
| G652000 | RS35-THB20T | 1 | K |
| G651003 | CT-THS1 | 1 | K |

## Dimensions

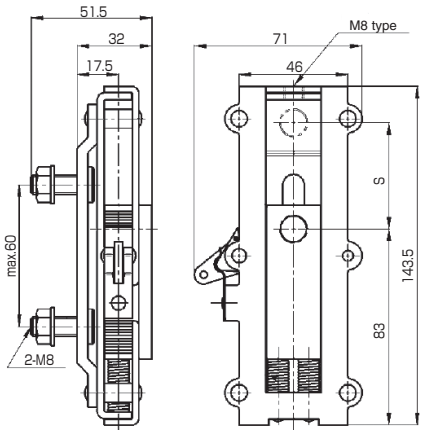
### ■Main Body

CT-TH1




*"S" indicates "stroke."

CT-TH2



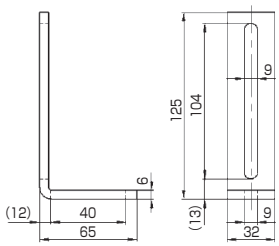

| Product Code | Model Number | Stroke S (mm) | Plunge Force (N) | |
|---|---|---|---|---|
| | | | Min. | Max. |
| G651001 | CT-TH1 | 25 | 39.2 | 117.6 |
| G651002 | CT-TH2 | 45 | 98.0 | 294.0 |

Each package will contain the following.

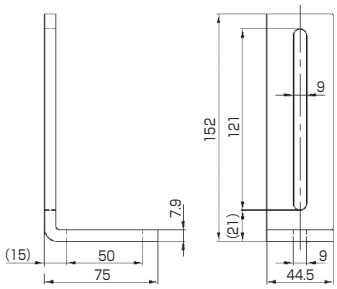
| Contains | Dimensions | CT-TH1 | CT-TH2 |
|---|---|---|---|
| Hexagonal Bolt | M12×45L | 1 | – |
| | M12×55L | – | 1 |
| Hexagonal Screw | M6×35L | 1 | – |
| | M8×55L | – | 1 |
| Round Head Screw | M8×23L | 2 | 2 |
| Hex Key | | 1 | 1 |
| Spacer | Thickness: 3mm | 1 | 3 |

### ■Adapter (fixed washer)

CT-THS1



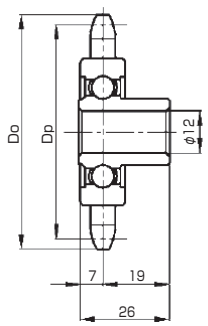

CT-THS2



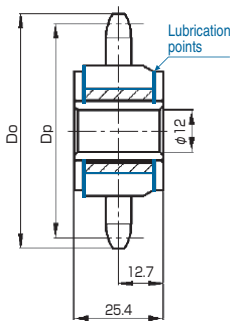

| Product Code | Model Number | Chain Tensioner |
|---|---|---|
| G651003 | CT-THS1 | CT-TH1 |
| G651004 | CT-THS2 | CT-TH2 |

### ■Idler Sprocket

Ball Bearing Type




Lube-free Bush Type




| | Product Code | Model Number | Idler No. of Teeth | Pitch Diameter (Dp) | Outer Diameter (Do) | Max. RPM | Allowable Bearing Load (N) |
|---|---|---|---|---|---|---|---|
| Ball Bearing Type | G652000 | RS35-THB20T | 20 | 60.89 | 66 | 3000 | 3300 |
| | G652010 | RS40-THB15T | 15 | 61.08 | 67 | | |
| | G652020 | RS50-THB15T | 15 | 76.35 | 84 | | |
| | G652030 | RS60-THB14T | 14 | 85.61 | 95 | | |
| | G652040 | RS80-THB11T | 11 | 90.16 | 102 | | |
| Lube-free Bush Type | G652001 | RS35-THL20T | 20 | 60.89 | 66 | 2500 | 343 |
| | G652011 | RS40-THL15T | 15 | 61.08 | 67 | | |
| | G652021 | RS50-THL15T | 15 | 76.35 | 84 | | |
| | G652031 | RS60-THL14T | 14 | 85.61 | 95 | | |

*Thoroughly lubricate sliding areas of lube-free bush type idler sprockets before use.

# Chain Tensioners

## Installation

### Attaching the TCS type tensioner

1) Attach the roller chain to the drive and driven sprockets.
2) In order to attach the tensioner to the slack side of the roller chain as shown in Fig. 2, first push in on the roller chain with the idler sprocket and determine the attachment position (bolt hole) for the tensioner.

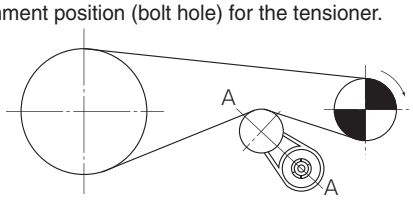



Fig. 2 Tensioner position (front)

3) Then, within a range where the roller chain does not contact the tensioner unit, ensure the force of the roller chain moves as perpendicular as possible to the A-A line. (Tensioner is a swing type unit.)
4) Adjust with a shim, as shown in Fig. 3, so that the center of the roller chain and idler sprocket are aligned.

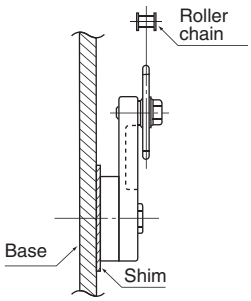



Fig. 3 Tensioner position (side)

5) Open a hole in the base that holds the tensioner. (A slotted hole is convenient.)
6) Push in on the chain with the tensioner and temporarily tighten the tensioner to the base with a bolt. (Fig. 4) Then tighten the hexagonal screw and anchor so that the swing angle is about 15˚.

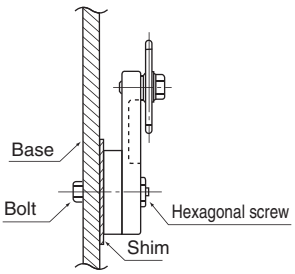



Fig. 4 Tightening the tensioner

7) Perform a test operation and check whether the tensioner works properly. If any of the following occurs, reset the tensioner.
   - Contacts the side of the idler sprocket: Not centered properly
   - Vertical or traverse vibration: Insufficient initial tension
   - Increased noise: Excessive initial tension

### Attaching the ETS and TA Type tensioners

1) Push in on the roller chain with the tensioner's idler sprocket (Fig. 5) and determine the position of the hole on the attachment base.

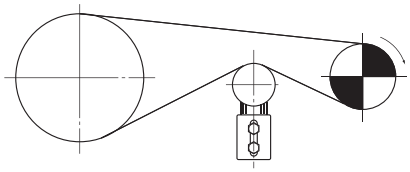


Fig. 5 Tensioner position (front)

2) Open a hole in the attachment base. In this case, two bolt holes are required, but a hole that is as long as possible will make positioning simpler, and the re-tensioning operation will be easier when the chain elongates.
3) Temporarily tighten the tensioner with two bolts. At this time, adjust with a shim, etc., so that the center of the idler sprocket and roller chain are aligned. (Fig. 6)

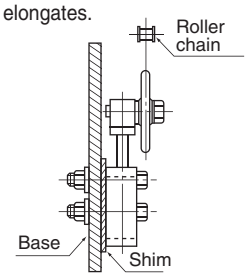



Fig. 6 Tightening the tensioner

4) Push in on the chain with the tensioner and, if the amount of slack is appropriate ($\delta$), tighten the nut and anchor the tensioner. Aim for a value less than $\delta$ = 0.02 x L. (Fig. 7)

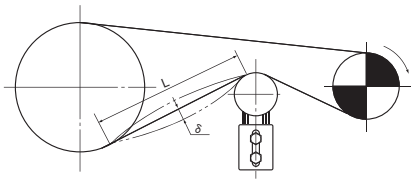
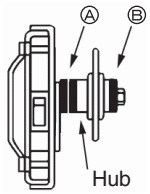



Fig. 7 Tensioner's anchored position

5) Perform a test operation and check whether the tensioner works properly. If any of the following occurs, reset the tensioner.
   - Contacts the side of the idler sprocket: Not centered properly
   - Vertical or traverse vibration: Insufficient initial tension
   - Increased noise: Excessive initial tension

### TH Type Tensioner Installation

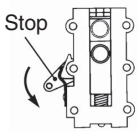
1)




Dia. 8

Always insert the spacer where indicated (positions A & B) as shown in Dia. 8 when installing the idler sprocket on the tensioner. (Failure to insert the spacer will result in tensioner contact with the roller chain. See Table 5.)
Attach the hub so that it faces the tensioner when installing ball bearing type idler sprockets. When attaching on the opposite side, install the number of spacers indicated in parentheses in Table 5.

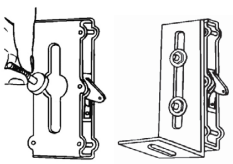
2)




Dia. 9

The tensioner stop should be positioned facing down (spring facing down) as per the diagram on the left.

3)



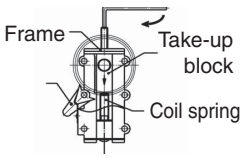
Dia. 10

Once the round head bolts are attached to the tensioner as shown, attach the adapter and tighten the nuts just until snug.

Adapter

⚠ Caution: Always install chain tensioners on the roller chain sag side. Tensioners cannot be installed on the tension side or used when the chain is run backwards.

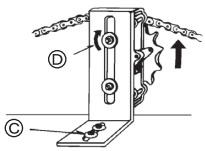
4)




Dia. 11

Attach a hexagonal screw to the tap hole on the end of the tensioner. Use the hex key to tighten the screw, and push the take-up block down as far as possible.
(Caution: Failure to perform action 2) above will prevent the take-up block from being pushed down.)

5)




Once the drive and driven sprockets have been aligned, fix the adapter to the attachment area using a mounting bolt ("C" in diagram, bolt not included).

6) Once the chain is engaging the sprocket, tighten the adapter mounting nuts ("D" in diagram). Next, after inverting the tensioner stop as shown by the arrow in Dia. 9, removing the hexagonal screw will activate the spring. Installation is now complete. Check the condition of the roller chain sag and the installation itself.

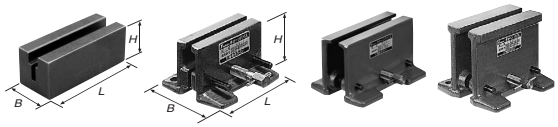
Number of Spacers — Table 5

| Idler Sprocket | | Number of Spacers | |
|---|---|---|---|
| Type | Model Number | "A" side in Dia. 8 | "B" side in Dia. 8 |
| Ball Bearing | RS35–THB20T | 0 ( 1 ) | 1 ( 0 ) |
| | RS40–THB15T | 0 | 1 |
| | RS50–THB15T | 0 ( 3 ) | 3 ( 0 ) |
| | RS60–THB14T | 0 | 3 |
| | RS80–THB11T | 2 | 1 |
| Lube-free Bush | RS35–THL20T | 0 | 1 |
| | RS40–THL15T | 1 | 0 |
| | RS50–THL15T | 2 | 1 |
| | RS60–THL14T | 3 | 0 |

# Chain Cutting Tools

Tsubaki provides roller chains in either unit lengths (3048 mm) or reels. The following tools are available for cutting the chain to a desired length. See "Roller Chain and Sprocket Handling" for use.

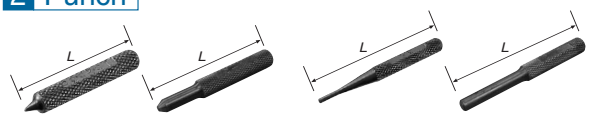
## 1 Chain Vise




RS-CR1 to RS-CR3 RS-CV1 RS-CV2 RS-CV3

| Model Number | Applicable Chain | | | Dimensions | | |
|---|---|---|---|---|---|---|
| | Single-strand | Double-strand | Triple-strand | *L* | *H* | *B* |
| RS-CR1 | RS15 | — | — | 50 | 16.4 | 20 |
| RS-CR2 | RS25 | — | — | 50 | 19 | 20 |
| RS-CR3 | RS35 | — | — | 60 | 30 | 30 |
| RS-CV1 | RS40 - 80 | RS40 | — | 100 | 65 | 94 - 115 |
| RS-CV2 | RS40 - 160 | RS40 - 100 | RS40 - 100 | 180 | 110 | 120 - 151 |
| RS-CV3 | RS80 - 240 | RS80 - 160 | RS80 - 100 | 200 | 170 | 180 - 220 |

## 2 Punch

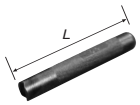



Primary punch Secondary punch

| Model Number | | | | Applicable Chain |
|---|---|---|---|---|
| Primary punch | *L* | Secondary punch | *L* | |
| RS-P11 | 52 | RS-P21 | 65 | RS15 |
| | | RS-P22 | 70 | RS25 |
| | | RS-P23 | 80 | RS35 |
| RS-P14 | 60 | RS-P24 | 80 | RS40 - 60 |
| RS-P15 | 70 | RS-P25 | 90 | RS80 - 120 |
| RS-P16 | 80 | RS-P26 | 120 | RS140 - 240 |

Note: 1. The RS-P11 can be used with three sizes: RS15, RS25, and RS35.

| Model Number Rivet punch | *L* | Applicable Chain |
|---|---|---|
| RS-RP01 | 100 | RS40 |
| RS-RP02 | 100 | RS50 |
| RS-RP03 | 100 | RS60 |
| RS-RP04 | 100 | RS80 |




Rivet punch

## 3 Chain Breakers

RS-CS-A RS-CS-B RS-CS-C

| Model Number | *L* | Applicable Chain (Single-strand) | Model Number | *L* | Applicable Chain (Single-strand & Double-strand) |
|---|---|---|---|---|---|
| RS-CS-A1 | 116 | RS25 | RS-CS-B1 | 185 | RS40 - 60 |
| RS-CS-A2 | 119 | RS35 | RS-CS-C1 | 222 | RS80 , 100 |
| RS-CS-A3 | 119 | RS41 | RS-CS-C2 | 290 | RS120 , 140 |
| RS-CS-A4 | 119 | RF06B | RS-CS-C3 | 708 | RS160 - 240 |

Note: In addition to RS Roller Chains, Chain Breakers can be used with BS Roller Chains and Marine Chains. However, Chain Breakers for Marine Chains are made-to-order.

## ■Ordering Specify the code (product code and model)

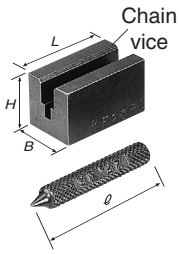
### ●Ordering Example

| Product code | Model number | Qty | Unit |
|---|---|---|---|
| **D210013** | **RS-CR1** | **1** | **K** |

## 4 Poly Steel Chain Cutting Tools

Standard chain cutting tools cannot be used on Poly Steel Chains. A special punch and vice for Poly Steel Chains are required.

‹Cutting Tools›



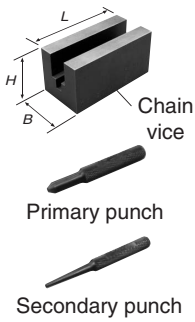

| Model Number | *L* | *H* | *B* | *ℓ* | Applicable Chain |
|---|---|---|---|---|---|
| RS-PC01-AST | 35 | 20 | 20 | 52 | RS25-PC-1 |
| RS-PC02-AST | 50 | 30 | 30 | 52 | RS35-PC-1 |
| RS-PC03-AST | 65 | 35 | 35 | 56 | RS40-PC-1 |
| RS-PC04-AST | 80 | 40 | 35 | 56 | RS50-PC-1 |
| RS-PC05-AST | 100 | 45 | 40 | 56 | RS60-PC-1 |

Note: 1. The special punch and vice are included as a set.

## 5 Lambda Chain Cutting Tools

A special vice and a primary and secondary punch are required to disassemble Lambda Chains.

‹Cutting Tools›



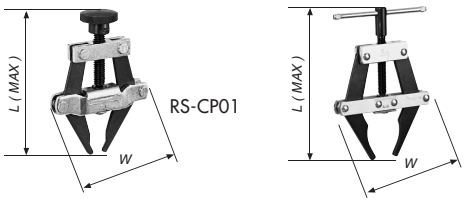

| Model Number | *L* | *H* | *B* | Applicable Chain |
|---|---|---|---|---|
| RS-LMD01-AST | 65 | 32 | 32 | RS40-LMD-1 |
| RS-LMD02-AST | 80 | 40 | 40 | RS50-LMD-1 |
| RS-LMD03-AST | 95 | 48 | 48 | RS60-LMD-1 |
| RS-LMD04-AST | 130 | 60 | 60 | RS80-LMD-1 |
| RS-LMD05-AST | 160 | 73 | 73 | RS100-LMD-1 |
| RS-LMD06-AST | 160 | 88 | 88 | RS120-LMD-1 |
| RS-LMD07-AST | 180 | 98 | 98 | RS140-LMD-1 |

Note: 1. The special punch and vice are included as a set. Punch dimensions are the same as for the punch in section 2.

# Chain Connecting Tool

## 1 Chain Puller

This tool pulls the two ends of the chain together when installing the chain on a machine.




RS-CP01 RS-CP02 RS-CP03

| Model Number | *L* | *W* | Applicable Chain (Single-strand) |
|---|---|---|---|
| RS-CP01 | 118 | 70 | RS35 - 60 |
| RS-CP02 | 185 | 112 | RS60 - 100 |
| RS-CP03 | 250 | 145 | RS80 - 240 |

# End Fixtures

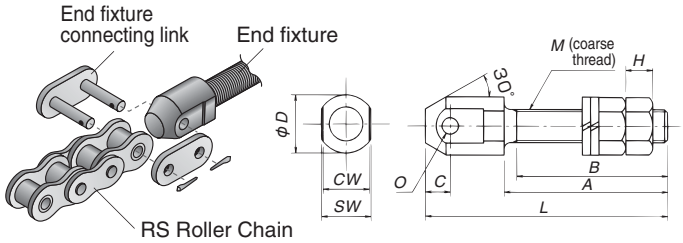
- Allows for reliable lifting equipment using RS Roller Chain.
- Designed to be stronger than RS Roller Chains, they sufficiently demonstrate RS Roller Chain's performance when connected to a chain with appropriate clearance.

## Ordering : Specify the code (product code and model number)

Model number (example) **RS40EB**
- End fixture
- Applicable chain

## Ordering Example

| Product code | Model number | Qty | Unit |
|---|---|---|---|
| D210068 | RS40EB | 1 | K |




### 1 End Fitting Bolts (for RS Roller Chains)

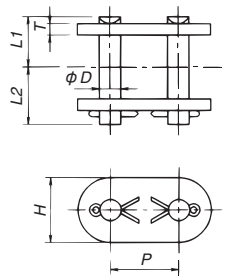
| Model Number | Applicable Chain | L | A | B | C | M | O | D | CW | SW | H | Approximate Weight kg/unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS40EB | RS40-1 | 61.0 | 41.5 | 38 | 6.0 | M 8 | 4.00 | 15 | 11.2 | 13.0 | 6.5 | 0.04 |
| RS50EB | RS50-1 | 72.5 | 48.5 | 44 | 7.5 | M10 | 5.12 | 19 | 13.8 | 17.0 | 8.0 | 0.07 |
| RS60EB | RS60-1 | 89.1 | 60.0 | 55 | 9.1 | M12 | 5.99 | 21 | 17.8 | 19.0 | 10.0 | 0.12 |
| RS80EB | RS80-1 | 117.1 | 79.0 | 73 | 12.1 | M16 | 7.98 | 28 | 22.6 | 24.0 | 13.0 | 0.27 |
| RS100EB | RS100-1 | 145.1 | 98.0 | 91 | 15.1 | M20 | 9.58 | 34 | 27.5 | 30.0 | 16.0 | 0.51 |
| RS120EB | RS120-1 | 173.1 | 117.0 | 108 | 18.1 | M24 | 11.15 | 40 | 35.5 | 35.5 | 19.0 | 0.86 |

Note: 1. SW dimensions are designed for wrench use.
2. Uses old JIS B1181 (type 1) nuts and JIS B1251 spring washers.
3. Black coating.

### 2 End Fitting Bolt Connecting Links (for RS Roller Chains)

| Model Number | Applicable Chain | P | H | D | T | $L_1$ | $L_2$ | Approximate Weight kg/unit |
|---|---|---|---|---|---|---|---|---|
| RS40EB-CL | RS40-1 | 12.70 | 12.0 | 3.97 | 2.0 | 8.8 | 10.2 | 0.01 |
| RS50EB-CL | RS50-1 | 15.875 | 15.0 | 5.09 | 2.4 | 10.7 | 12.3 | 0.02 |
| RS60EB-CL | RS60-1 | 19.05 | 18.1 | 5.96 | 3.2 | 14.0 | 16.1 | 0.04 |
| RS80EB-CL | RS80-1 | 25.40 | 24.0 | 7.94 | 4.0 | 17.5 | 20.1 | 0.09 |
| RS100EB-CL | RS100-1 | 31.75 | 28.6 | 9.54 | 4.8 | 21.0 | 23.7 | 0.156 |
| RS120EB-CL | RS120-1 | 38.10 | 34.4 | 11.11 | 5.6 | 26.05 | 29.55 | 0.264 |

Note: 1. Contact a Tsubaki representative for connecting links and end links of differing shapes.



## Strength

Strength when Tsubaki RS Roller Chains (except for M-type connecting links and offset links) are connected to end fitting bolts, and special connecting links are as follows.

| Applicable Chain | RS40-1 | RS50-1 | RS60-1 | RS80-1 | RS100-1 | RS120-1 |
|---|---|---|---|---|---|---|
| Minimum Tensile Strength kN{kgf} | 17.7{1800} | 28.4{2900} | 40.2{4100} | 71.6{7300} | 107{10900} | 148{15100} |
| Maximum Allowable Load kN{kgf} | 3.63{370} | 6.37{650} | 8.83{900} | 14.7{1500} | 22.6{2300} | 30.4{3100} |

### ⚠ Safety Precautions

- Operating temperature: -10 to 60℃ (Contact a Tsubaki representative for use in special environments.)
- Use the Tsubaki End Fitting Bolt Connecting Link when connecting an end fitting bolt and an RS Roller Chain. We recommended disassembling and lubricating regularly for safety.
- Do not use M-type connecting links for RS Roller Chains (that have a gap between the pin and connecting link plate) or offset links.
- Use only RS Roller Chains. These end fixtures cannot be used with Lube-Free Drive Chains, Heavy Duty Roller Chains, Super-H Roller Chains, and Ultra Super Roller Chains. (When using a Super Chain, always use a Super Chain connecting link.)
- Grease the surface of the connecting link pin in advance when attaching the end fitting bolt and RS Roller Chain. Take care to attach precisely and avoid twisting the chain.
- Attach so that there is no bending load on the end fitting bolt.
- Do not subject the threads or head of the end fitting bolt to impacts or cause them to become distorted.

# Automatic Lubricator for Roller Chain

## ■Features

### 1. High safety and reliability

The lubricator, certified with the GS mark from German TÜV safety standards, is filled with grease that satisfies international FDA and NSF (formerly USDA) standards, making it safe to use in food processing. Tsubaki auto lubricators help you increase safety in HACCP systems and contribute to your product liability countermeasures.

### 2. Usable in explosion-proof applications

Passed screening by TIIS, a non-governmental/non-profit organization recognized by the Minister of Health, Labor, and Welfare, and is certified as an explosion-protected electrical apparatus. There is no risk of explosion or fire from sparks or high temperatures from electrical apparatuses in environments with explosive gas, proving its safety.

### 3. Service life adjustable

You can easily set the service life to between 1 – 12 months with just an Allen wrench. Once set, the unit automatically operates by means of a gas generator.

### 4. Reduced maintenance time, features an inspection window

Automatic lubrication eliminates the need for frequent manual lubrication, which simplifies your lubrication schedule. The transparent PET plastic lubricator also features an inspection window so you can always check remaining lube and operating condition.

### 5. Lightweight, compact

Compact, with a diameter of ϕ50 and a height of 114mm (125mL), and weighing only 190g.

### 6. Can be installed in any direction

The lubricator can be installed facing up, down, or horizontally. However, if a brush is used it must be installed facing down.

### 7. Dust and water proof

Certified IP68 as dust and water proof for use in dusty or watery environments.

## ■Ordering Please specify the code (product code and model number)

### ●Ordering Example

| Product Code | Model No. | Qty | Unit (pc) |
|---|---|---|---|
| **D210062** | **SFM68** | **1** | **K** |

## ■Code chart

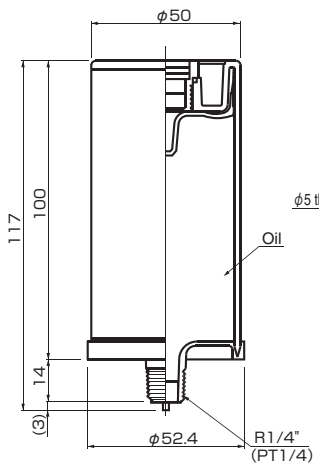
| Product Code | Model Number |
|---|---|
| D210062 | SFM68 |
| D210063 | SFM-ST2034 |
| D210064 | SFM-ST2010 |

## ■Specifications

| | |
|---|---|
| Operation | Hs gas pressure (dry battery type) |
| Operational pressure | Max. 0.3MPa |
| Volume | 125ml |
| Discharge period | 1 – 12 months, non-incremental (at an ambient temperature of 20℃) |
| Operating temperature range | -20 to 55℃ |
| Oil | Food grade oil (H1) |

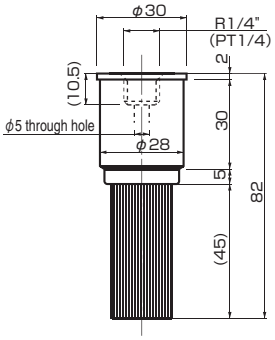
## ■Dimensions

Lubricator



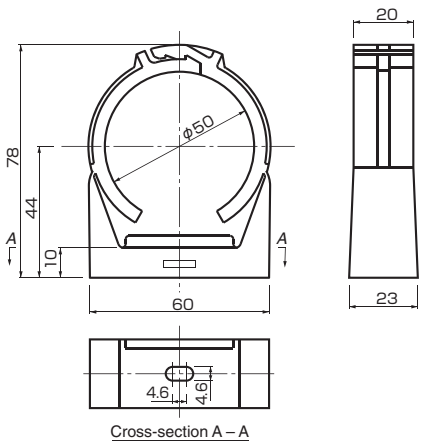

SFM68

Brush (optional)




SFM-ST2034

Clamp (optional)

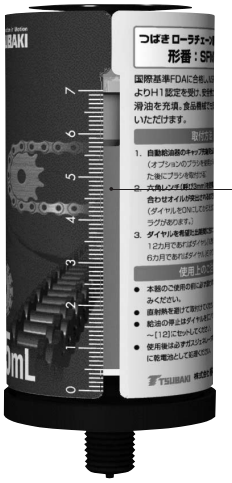


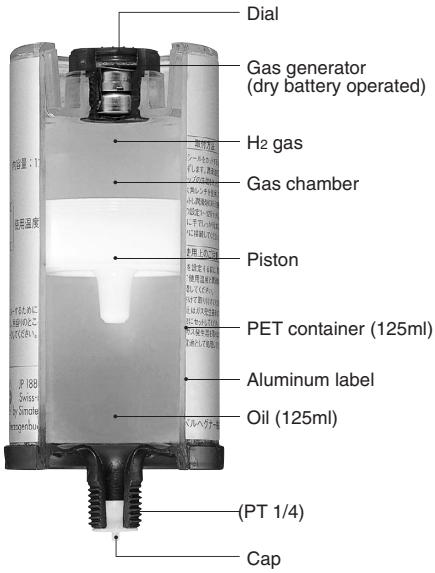

SFM-ST2010

# Automatic Lubricator for Roller Chain

## ■Operating principle

Turning on the gas generator switch generates H2 gas, the pressure of which pushes down on a piston and releases oil from the bottom of the lubricator. Setting the time adjustment dial allows users to control the amount of H2 gas generated for 1 – 12 months, thereby adjusting oil flow in one single step.

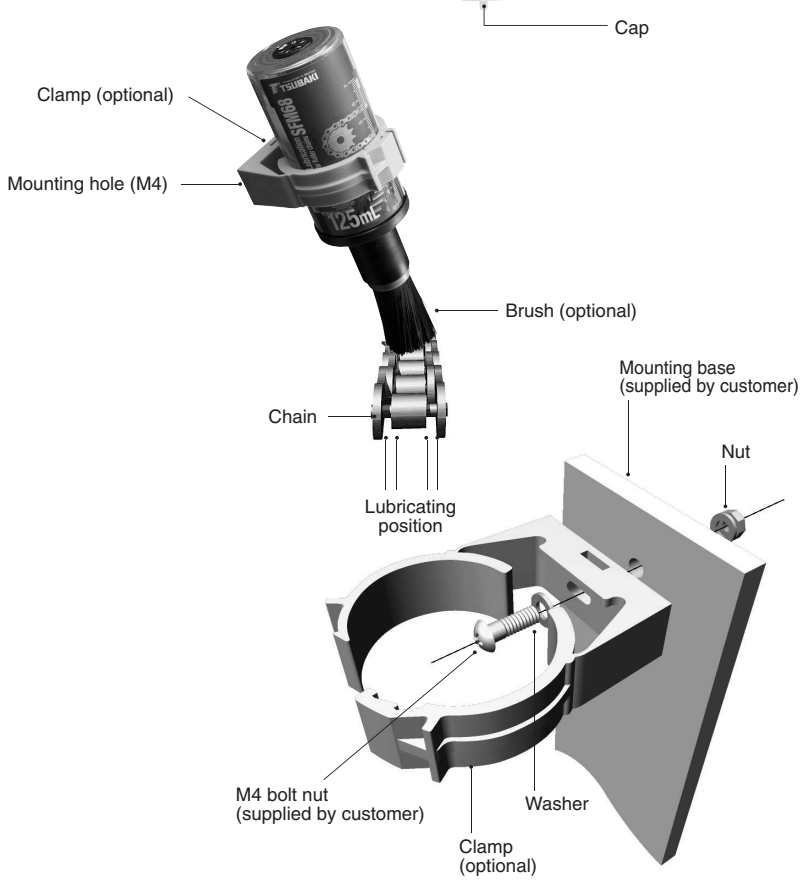



## ■Installation

Position the lubricator with the optional brush attached on the chain sag side so that oil can penetrate between the outer and inner plates. This will ensure the area between bushes and rollers are lubricated as well. The lubricator brush should lightly touch the chain plates. (See diagram on right.) Secure the optional clamp by drilling a tap hole in a bar or the like and securing with an M4 bolt, or by drilling a hole that an M4 bolt can pass through and securing with a nut. (See diagram on bottom right.)

Caution: The automatic lubricator should be used with roller chains operating in the "brush lubrication" or "drip lubrication" range. This product will not provide enough lubrication for roller chains used in the "oil bath" or "forced lubrication" range and should not be used.

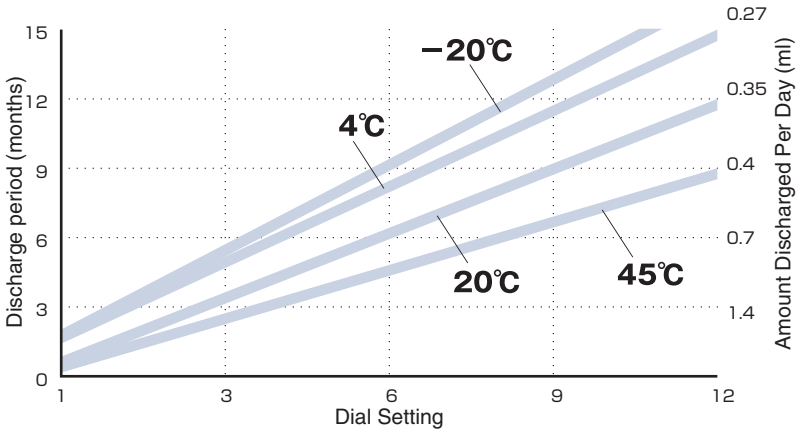



### 【Recommended Usage Range】

- ●Chain sizes
  #40 - #100 class drive chains and small size conveyor chains
- ●Chain speed
  Less than 50m/min
- ●Current lubrication method
  Brush or drip lubrication

## ■Notes on Usage

- ●The amount of oil dispensed varies with ambient temperature. Especially, the amount of oil released will be lower in lower temperatures, so the dial should be set to a lower value (shorter than your desired discharge time). (See diagram on right.)
- ●The length of the lubrication path (piping) should be less than 0.5m, with an inner diameter greater than 6mm. The path should also not be segmented.
- ●CAUTION: Do not use where exposed to flame or direct sunlight.
- ●Do not use where oil may contact or mix with food.
- ●When stopping oil discharge midway, be sure to set the dial to zero "0."



# Chain Elongation Scale

The chain elongation scale allows for quick checks of a chain's pitch elongation limit.
Used to check chain elongation on RS Roller Chains, BS Roller Chains, and Leaf Chains to determine when it is time for the chain to be replaced.

## ■Ordering : Specify the code (product code and model number)

### ●Ordering Example

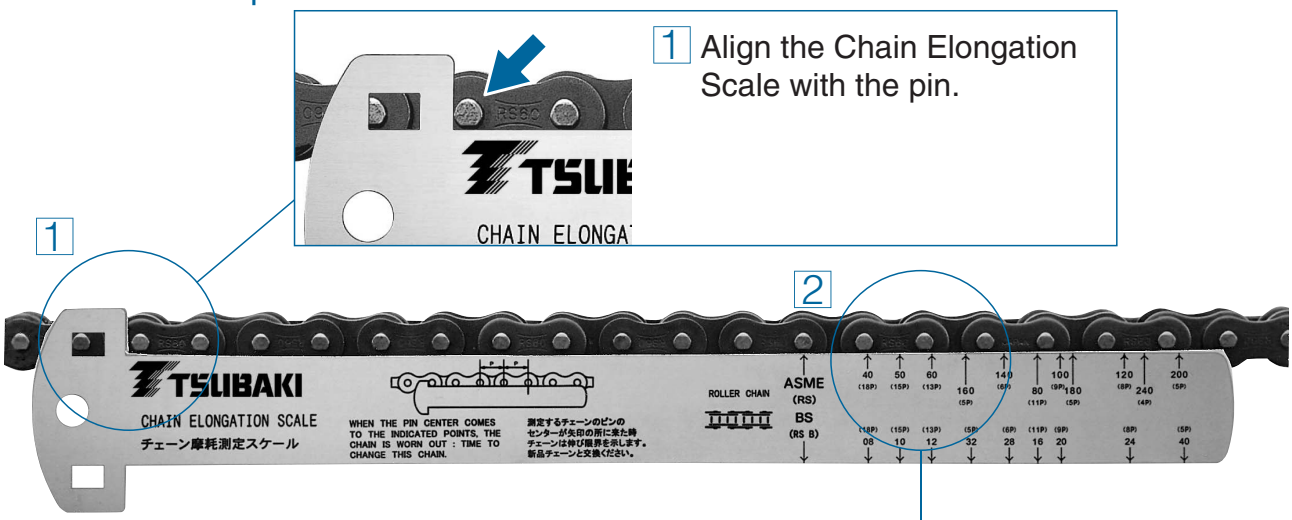
| Product code | Model number | Qty | Unit |
|---|---|---|---|
| **D210067** | **RS-CES** | **1** | **C** |

Note: 10 items per case

## ■Applicable chain sizes

RS Roller Chains : RS40 to RS240
BS Roller Chains : RS08B to RS32B
Leaf Chains (AL/BL) : #400 to #1600

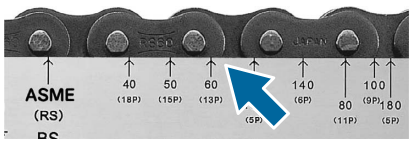
## ■Measurement procedure



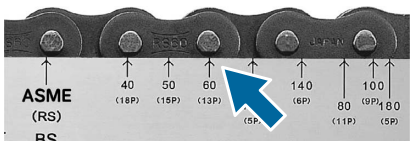

1 Align the Chain Elongation Scale with the pin.

2 Check where along the scale the pin is positioned (pitch indicated in parentheses).

Scale positioning on a new product




Wear elongation limit

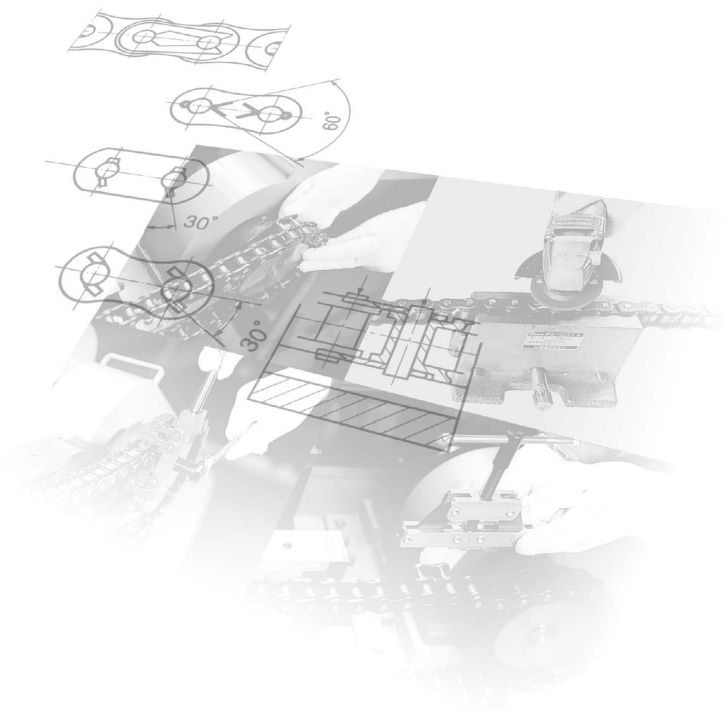



If the point or the scale is past the center of the pin, the chain has reached its elongation limit and should be replaced.

### ⚠ Safety Precautions

- Depending on the attachment and chain size, there may be interference with the Elongation Scale for specialty attachment chains or K2 attachment chains (catalog item).
- Check chain elongation at the location on the chain where the sprocket teeth engage the most.
- Check chain elongation at a location on the chain where tensile force is applied.
- Do not use the scale for any purpose other than measuring chain elongation.
- Always turn off the power switch to the equipment and confirm that it has come to a complete stop before checking chain elongation. In addition, make sure that the switch cannot be turned on accidentally.

# Roller Chain / Sprocket Selection, Installation, and Maintenance





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3. Provisional Selection Chart · · Pg. 166
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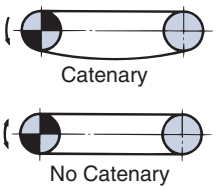
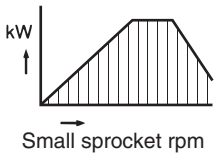
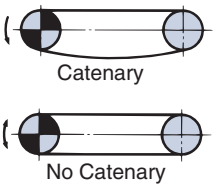
# Roller Chain Selection

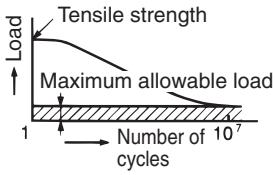
## 1. Selection Guide

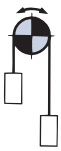
| Application | Key points for selection | Selection method |
|---|---|---|
| Ordinary transmission | Selection using kilowatt ratings tables | General selection method<br>Page 171 |
| Ordinary transmission | Selection based on maximum allowable load | Allowable load selection method<br>Starting frequency 5 times/day (8 hrs) or less<br>Page 173 |
| Lifting applications | Selection based on maximum allowable load<br>For connecting links, use F-type connecting links or connecting links for end fixtures. (Pg. 158, for RS chains only.) | Example of lifting transmissions<br>Page 178 |
| Shuttle traction | Selection based on maximum allowable load | Example of shuttle traction<br>Page 181 |
| Pin gear drive | Selection based on maximum allowable load (Chain speed V = 50 m/min or less) | Pin gear drive selection<br>Page 182 |

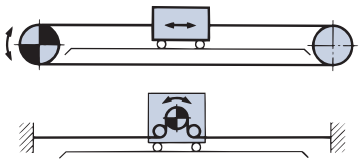


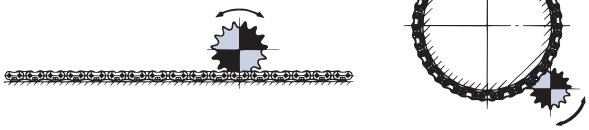







| Chain Type | Connecting parts that can be used in a normal atmosphere from -10˚C to 60˚C. | | | |
|---|---|---|---|---|
| | M type CL | F type CL | 2-pitch OL | 1-pitch OL |
| RS | ○ | ○ | ○ | □ |
| BS/DIN | ○ | (○) | □ | □ |
| RS-LMD | ○ | (○) | — | □ |
| RS-LMD-NP | ○ | — | — | □ |
| RS-LMDX | ○ | — | — | — |
| BS-LMD | ○ | — | — | □ |
| RS-SUP | ○ | ○ | — | — |
| RS-HT-F | — | ○ | — | — |
| RS-SNS | ○ | (○) | (○) | □ |
| RS | ○ | ○ | ○ | △ |
| BS/DIN | ○ | (○) | △ | △ |
| RS-SUP | ○ | ○ | — | — |
| RS-HT-F | — | ○ | — | — |
| RS-SUP-H | — | ○ | — | — |
| RF-US | — | ○ | — | — |
| NP | ○ | (○) | — | △ |
| NEP | ○ | (○) | — | — |
| SS, AS | ○ | — | — | ○ |
| RS-PC | ○ | — | — | — |
| RS-PC-SY | ○ | — | — | — |
| NS | ○ | — | — | ○ |
| TI | ○ | — | — | (○) |
| KT | △ | (○) | — | △ |
| RS-CU | ○ | (○) | — | — |
| RS-CU-SS | ○ | — | — | — |
| RS Attachment | ○ | — | — | — |
| RS | ○ | ○ | × | × |
| RS-SUP | ○ | ○ | — | — |

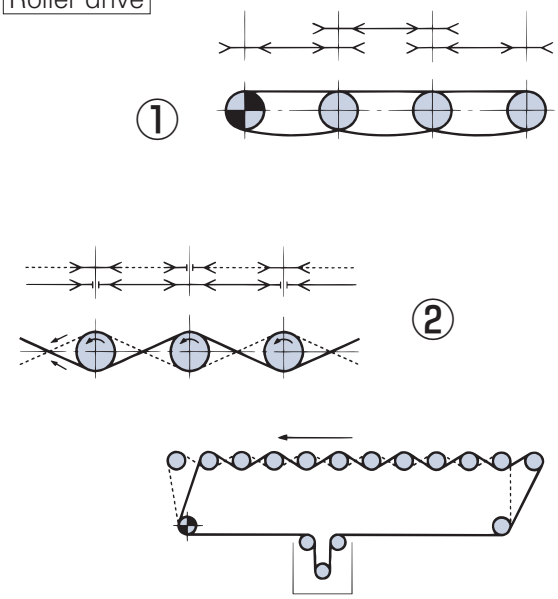
Remark: RS-SUP is only available in 4-pitch OL.

CL: "Connecting link"
OL: "Offset link"

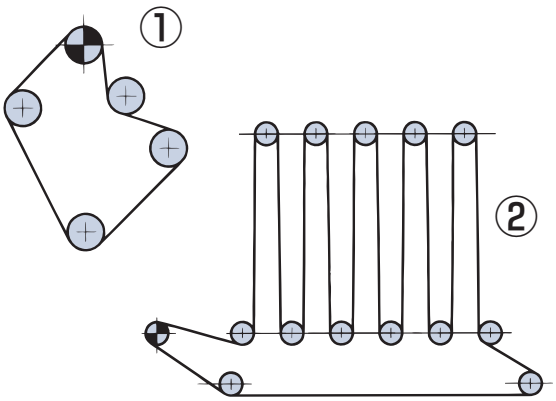
○ : Usable □ : Allow for a reduction in kilowatt ratings
△ : Allow for a reduction in strength — : Manufacturing not possible × : Unusable Dotted line: Made-to-order product

## Other selections

Roller drive

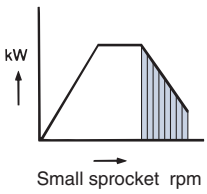



Multi-shaft drive

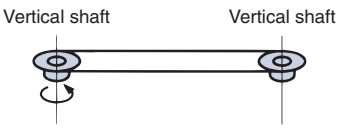



High-speed drive

Right side from peak of kW ratings tables (shaded area)




Vertical shaft drive




Please contact a Tsubaki representative regarding these applications.

## Required information for roller chain selection

1) Machine used
2) Type of impact
3) Motor type
4) Rated power of motor
5) Bore diameter of high-speed shaft and RPM
6) Bore diameter of low-speed shaft and RPM
7) Distance between shafts

## Motor characteristics required for chain selection

When using the allowable load selection method or the pin gear drive selection method, check the following characteristics of the motor.

1) Moment of inertia of motor
2) Rated torque of motor, or output shaft RPM
3) Starting torque of motor
4) Stalling torque of motor

⚠ Safety precautions

The roller chain selection conditions provided here are only applicable to the selection of roller chain model and size. Please evaluate accessory devices such as safety and lubrication devices separately.

# Roller Chain Selection



## 2. Service Factors

### ■Multi-strand factor

The load borne by multi-strand roller chain is unequal across the width of the chain, and thus it cannot be expected that the transmission capacity will be equal to the capacity of a single-strand roller chain multiplied by the number of strands. For this reason, the transmission capacity of multi-strand roller chain is obtained by multiplying the transmission capacity of single-strand roller chain by a multi-strand factor.

Table 1: Multi-strand factor

| Number of roller chain strands | Multi-strand factor |
|---|---|
| Double strand | 1.7 |
| Triple strand | 2.5 |
| Quadruple strand | 3.3 |
| Quintiple strand | 3.9 |
| Sextuple strand | 4.6 |

### ■Service factor Ks

The kW ratings are based on conditions of minimal load fluctuation. Depending on the degree of load fluctuation, it may be necessary to correct the kilowatt ratings using the service factor Ks.
Use Table 2 below to determine the appropriate service factor based on the type of machine and the source of power.
The design kW value is obtained by multiplying the kilowatt ratings by the service factor.

Table 2: Service factor Ks

| Type of impact | Power source / Example machines | Motor or Turbine | Internal combustion engine | |
|---|---|---|---|---|
| | | | With hydraulic drive | Without hydraulic drive |
| Smooth | Belt conveyors with little load fluctuation, chain conveyors, centrifugal pumps, centrifugal blowers, ordinary textile machines, and ordinary machines with little load fluctuation. | 1.0 | 1.0 | 1.2 |
| Moderate | Centrifugal compressors, marine engines, conveyors with moderate load fluctuation, automatic furnaces, dryers, pulverizers, general machine tools, compressors, general construction machines, general paper mill machines. | 1.3 | 1.2 | 1.4 |
| Large | Presses, crushers, construction and mining equipment, vibration machines, oil well rigs, rubber mixers, rolls, roll gangs, general machines with reverse or large-impact loads. | 1.5 | 1.4 | 1.7 |

### ■RPM factor Kn and teeth factor Kz

Table 3: RPM factor Kn and number of teeth factor Kz

| RPM r/min | RPM factor Kn |
|---|---|
| Less than 27 | 1.00 |
| 27 or more, less than 37 | 1.03 |
| 37 or more, less than 50 | 1.07 |
| 50 or more, less than 70 | 1.10 |
| 70 or more, less than 100 | 1.14 |
| 100 or more, less than 150 | 1.19 |
| 150 or more, less than 300 | 1.27 |
| 300 or more, less than 500 | 1.34 |
| 500 or more, less than 1000 | 1.44 |
| 1000 or more, less than 2000 | 1.54 |
| 2000 or more, less than 4000 | 1.65 |

| Number of teeth | Teeth factor Kz |
|---|---|
| 9 or more, less than 12 | 1.16 |
| 12 or more, less than 15 | 1.14 |
| 15 or more, less than 18 | 1.12 |
| 18 or more, less than 24 | 1.10 |
| 24 or more, less than 30 | 1.08 |
| 30 or more, less than 38 | 1.06 |
| 38 or more, less than 47 | 1.04 |
| 47 or more, less than 60 | 1.02 |
| 60 or higher | 1.00 |

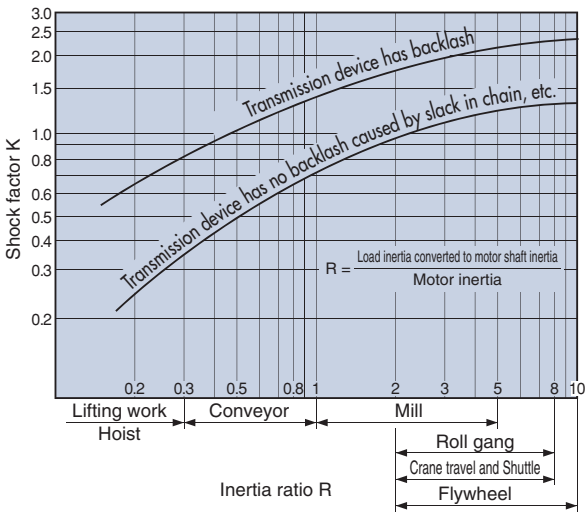
### ■Shock factor K

This coefficient is determined by the ratio of the moments of inertia between the prime mover and the driven machine (rate of I, $GD^2$), and the amount of backlash in the transmission device.

When the inertia ratio R is greater than 10, use R = 10.
When the inertia ratio R is less than 0.2, use R = 0.2.

If I or $GD^2$ of the prime mover or driven machine is unknown, use the value of R in Figure 1.

Figure 1: Shock factor K




### ■Imbalance load factor Ku

When carrying out shuttle traction and lifting with two chains, or four chains for shuttle drive and lifting, the chain tension will not be uniform. This must be accounted for by multiplying the following imbalance load coefficient Ku to adjust the left-and-right load imbalance.
Example: For four lifting strands, the imbalance load factor for one strand Ku= 0.6 × 0.6 = 0.36

Table 4: Imbalance load factor Ku

| | |
|---|---|
| 2 lifting strands | 0.6 |
| 4 lifting strands | 0.36 |

# 3. Provisional Selection Graph

Figure 2: RS Standard Roller Chain Provisional Selection Graph

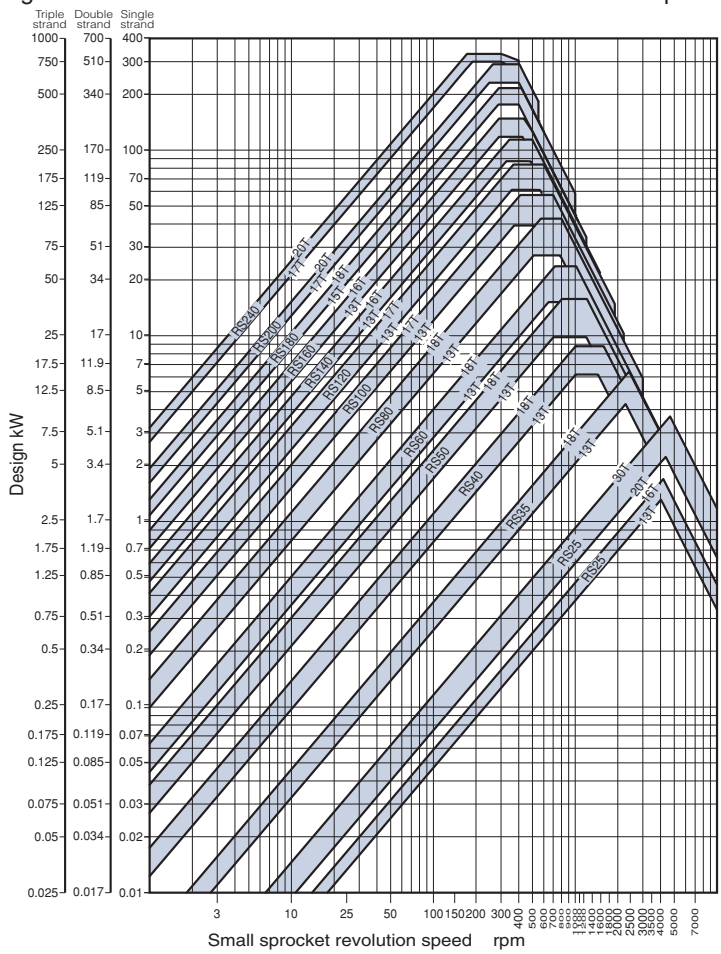
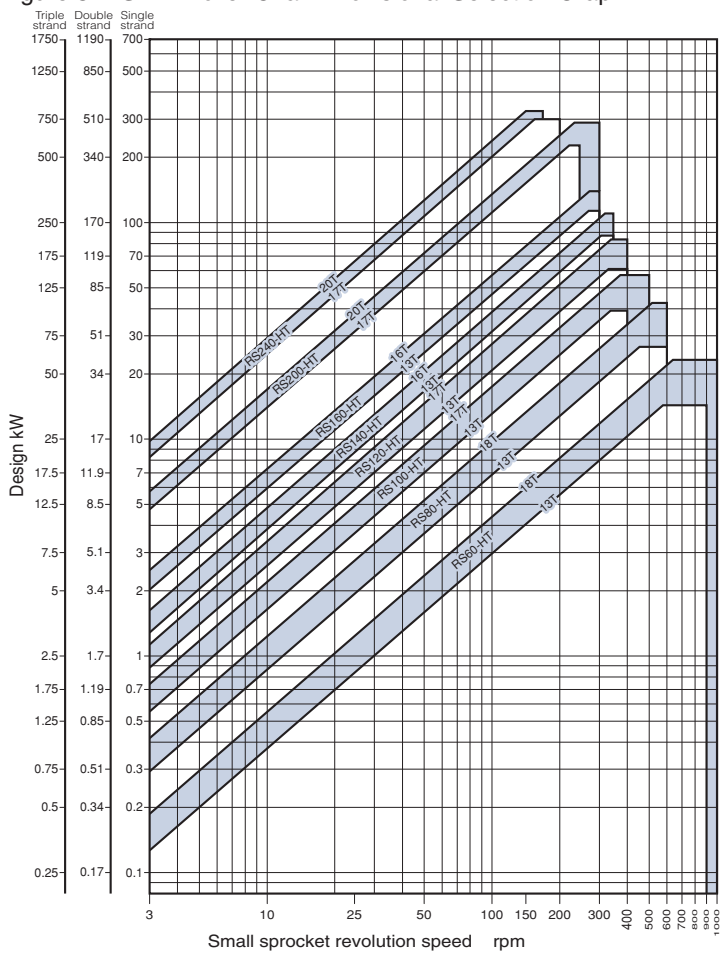



Figure 3: RS-HT Roller Chain Provisional Selection Graph




■How to use this table (Fig. 2)

1. Example: Single-strand chain, design kW=7kW

(1) Assume that the speed of the small sprocket is 100 rpm. Judging from the intersecting point of design kW value of 7 kW (vertical axis) and the speed value of 100 rpm (horizontal axis), RS80 and a sprocket with between 13 and 18 teeth would be appropriate. Therefore, based on the position of the intersection, we can see that a 15T sprocket can be used.

(2) Assume that the speed of the small sprocket is 200 rpm. Following the same procedure shown in the above example, RS80 and a sprocket with less than 13 teeth or RS60 and a sprocket with more than 18 teeth would be appropriate. This table is used for tentative selections only. The kW ratings tables should be used to confirm the chain sizes.

(3) Please allow for a drop in the kW rating values shown in the design kW ratings chart (Fig.2) when 1-pitch offset links or Super 4POL are used.

# Roller Chain Selection



Figure 4: RS Super Roller Chain Provisional Selection Graph

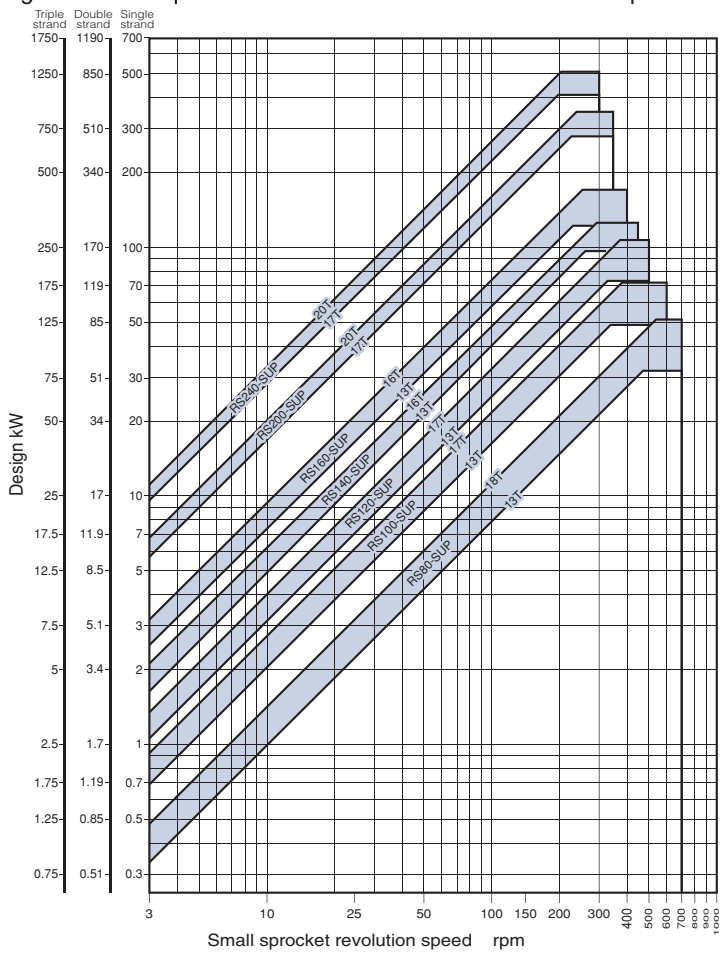
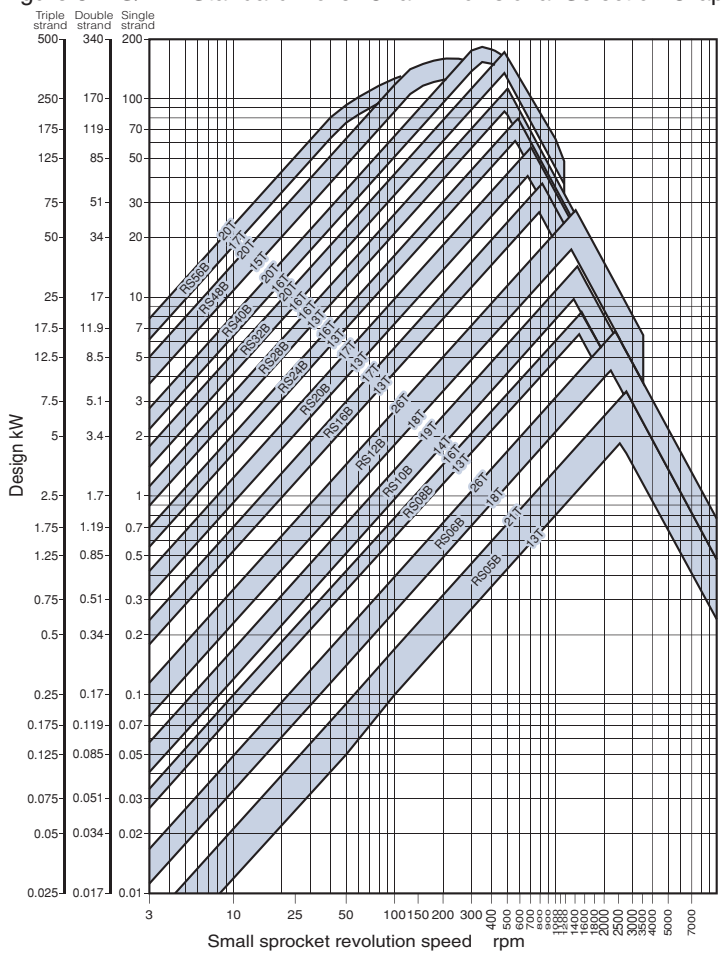



Figure 5: BS/DIN Standard Roller Chain Provisional Selection Graph



# 4. Selection Formulae

SI units and gravimetric units are both indicated

## 4-1 Symbols and units used in formulae (Table 5)

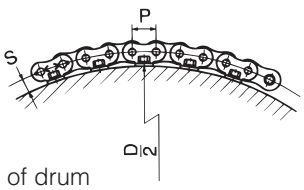
| Symbol | Description | SI units | Gravimetric units |
|---|---|---|---|
| C | Center distance in pitches | — | — |
| C′ | Center distance between shafts | m | m |
| d | Pitch circle diameter of the small sprocket | mm | mm |
| $d_2$ | Pitch circle diameter of the large sprocket | mm | mm |
| D | Outer diameter of the drum | mm | mm |
| $F_b$ | Chain tension when the prime mover is decelerating (stalling) | kN | kgf |
| $F'_b$ | Design chain tension when the prime mover is decelerating (stalling) | kN | kgf |
| $F_C$ | Chain tension of shuttle drive | kN | kgf |
| $F'_C$ | Design chain tension of shuttle drive | kN | kgf |
| $F_\ell$ | Chain tension from torque on load side (actual load) | kN | kgf |
| $F'_\ell$ | Design chain tension from torque on load side (actual load) | kN | kgf |
| Fm | Chain tension from prime mover rated output | kN | kgf |
| F′m | Design chain tension from prime mover rated output | kN | kgf |
| Fms | Chain tension from starting torque of prime mover | kN | kgf |
| F′ms | Design chain tension from starting torque of prime mover | kN | kgf |
| Fmb | Chain tension from stalling torque of prime mover | kN | kgf |
| F′mb | Design chain tension from stalling torque of prime mover | kN | kgf |
| $F_s$ | Chain tension when prime mover accelerates (starting) | kN | kgf |
| $F'_s$ | Design chain tension when prime mover accelerates (starting) | kN | kgf |
| Fw | Chain tension from load (actual load) | kN | kgf |
| F′w | Design chain tension from load (actual load) | kN | kgf |
| $f_1$ | Coefficient of friction between roller and rail (with lubrication 0.14, without lubrication 0.21) | — | — |
| G | Standard acceleration from gravity G = 9.80665 m/s² | — | — |
| i | Speed ratio (example) if ratio is 1/30 than i = 30 | — | — |
| $I_\ell\{GD^2_\ell\}$ | Converted moment of inertia of the loaded prime mover output shaft | kg·m² | kgf·m² |
| $I_m\{GD^2_m\}$ | Moment of inertia of the prime mover output shaft | kg·m² | kgf·m² |
| K | Shock factor Refer Table 4 | — | — |
| Kn | RPM factor | — | — |
| Ks | Service factor Refer Table 2 | — | — |
| Ku | Imbalance load factor Refer Table 5 | — | — |
| Kv | Speed factor Refer Table 3 | — | — |
| Kz | Number of teeth factor | — | — |
| L | Chain length (number of links) | — | — |
| m | Unit mass of chain | kg/m | kgf/m |
| M{W} | Mass of load (weight) | kg | kgf |
| μ | Coefficient of friction between the rail and the axle = 0.1 (shuttle drive)<br>Coefficient of friction between the rotating body and the support rollers = 0.3 (pin gear) | — | — |
| n | RPM of the small sprocket | rpm | rpm |
| $n_1$ | RPM of driver shaft | rpm | rpm |
| $n_2$ | RPM of driven shaft | rpm | rpm |
| P | Chain pitch | mm | mm |
| R | Inertia ratio Refer Table 4 | — | — |
| S | Attachment height for RS attachment chain (distance from the drum surface to the chain pitch center) | mm | mm |
| $t_b$ | The time for deceleration of the prime mover (when stalling) | s | s |
| $t_s$ | The time for acceleration of the prime mover (when starting) | s | s |
| $T_b$ | Stalling torque of the prime mover | %(kN·m) | %(kgf·m) |
| $T_s$ | Starting torque of the prime mover | %(kN·m) | %(kgf·m) |
| $T_\ell$ | Load torque | kN·m | kgf·m |
| Tm | Working torque | kN·m | kgf·m |
| Tn | Rated torque of the prime mover | kN·m | kgf·m |
| V | Chain speed | m/min | m/min |
| Z | Number of teeth of large sprocket | — | — |
| Z′ | Number of teeth of small sprocket | — | — |

# Roller Chain Selection



## 4-2 Formulae (Table 6)

1) Perform all selections using a transmission efficiency, including the chain, of $\eta = 1$.
2) Use the values calculated in items 11 and 12 of this table for the tension and kW ratings used for selection.

| Item | SI units | Gravitational units |
|---|---|---|
| 1. Chain length (number of links): L<br>Ordinary transmission | Ordinary transmission between two shafts<br>(1) When the number of teeth and distance between shafts has been decided for both sprockets:<br>$L = \frac{Z+Z'}{2} + 2C + \frac{\left(\frac{Z-Z'}{6.28}\right)^2}{C}$<br>(2) When the number of links of chain and the number of teeth has been decided:<br>$C = \frac{1}{8}\left\{2L - Z - Z' + \sqrt{(2L-Z-Z')^2 - \frac{8}{9.86}(Z-Z')^2}\right\}$<br>Even if the fractional part of the value found for L (below that of the decimal point) is small, round it up to the nearest integer and add a link. An offset link must be used when an odd number of links exist. However, if possible, change the number of teeth on the sprocket or the distance between shafts so that an even number of links may be used. | |
| Pin gear drive | When using a chain with attachment around a drum<br>$L = \frac{180^\circ}{\tan^{-1}\left(\frac{P}{D+2S}\right)}$<br>P: Chain pitch<br>D: Outer circumference of drum<br>S: Height of attachment<br>  <br><br>Round L up to an even number of links.<br>When attaching the chain attachment around the drum, insert shims at equal intervals for adjustment. | |
| 2. Chain speed: V | $V = \frac{P \times Z' \times n}{1000}$ (m/min) | |
| 3. Chain tension from rated output (kW) of motor: Fm | $Fm = \frac{60 \times kW}{V}$ (kN) | $Fm = \frac{6120 \times kW}{V}$ (kgf) |
| 4. Inertia where the motor shaft converts the moment of inertia of the load I ($GD^2$) : $I_\ell$ ($GD^2_\ell$) | $I_\ell = M \times \left(\frac{V}{2\pi n_1}\right)^2$ (kg·m²) | $GD^2_\ell = W \times \left(\frac{V}{\pi n_1}\right)^2$ (kgf·m²) |
| 5. Rated torque of motor: Tn | $Tn = 9.55 \times \frac{kW}{n_1}$ (kN·m) | $Tn = 974 \times \frac{kW}{n_1}$ kgf·m) |
| 6. Working torque: Tm | $Tm = \frac{Ts(\%) + T_b(\%)}{2 \times 100} \times Tn$ (kN·m)<br>Or $Tm = \frac{Ts(kN\cdot m) + T_b(kN\cdot m)}{2}$ (kN·m) | $Tm = \frac{Ts(\%) + T_b(\%)}{2 \times 100} \times Tn$ (kgf·m)<br>Or $Tm = \frac{Ts(kgf\cdot m) + T_b(kgf\cdot m)}{2}$ (kgf·m) |
| 7. Chain tension from starting torque: Fms<br><br>Chain tension from stalling torque: Fmb | $Fms = \frac{Ts(\%) \times i}{\{d/(2\times1000)\} \times 100} \times Tn \times 1$ (kN)<br>Or $Fms = \frac{Ts(kN\cdot m) \times i}{d/(2\times1000)} \times 1$ (kN)<br>$Fmb = \frac{T_b(\%) \times i}{\{d/(2\times1000)\} \times 100} \times Tn \times 1.2^{※}$ (kN)<br>Or $Fmb = \frac{T_b(kN\cdot m) \times i}{d/(2\times1000)} \times 1.2^{※}$ (kN)<br>※: Constants | $Fms = \frac{Ts(\%) \times i}{\{d/(2\times1000)\} \times 100} \times Tn \times 1$ (kgf·m)<br>Or $Fms = \frac{Ts(kN\cdot m) \times i}{d/(2\times1000)} \times 1$ (kgf·m)<br>$Fmb = \frac{T_b(\%) \times i}{\{d/(2\times1000)\} \times 100} \times Tn \times 1.2^{※}$ (kgf·m)<br>Or $Fmb = \frac{T_b(kN\cdot m) \times i}{d/(2\times1000)} \times 1.2^{※}$ (kgf·m)<br>※: Constants |

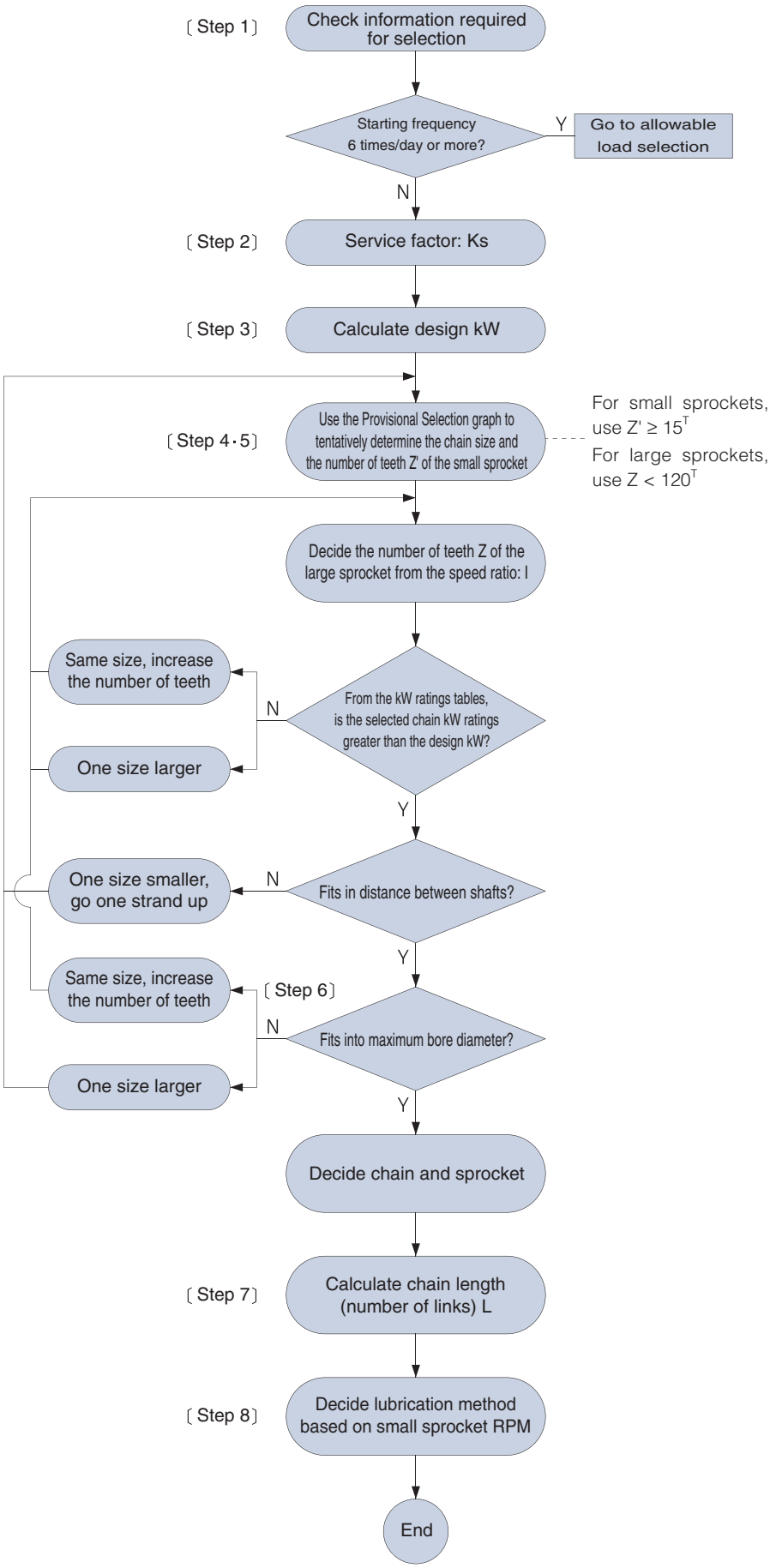
| Item | SI units | Gravimetric units |
|---|---|---|
| 8. Chain tension when motor accelerates: Fs<br><br>Chain tension when motor decelerates: Fb | $Fs = \frac{M \times V}{ts \times 60 \times 1000} + Fw \quad (kN)$<br><br>$Fb = \frac{M \times V}{tb \times 60 \times 1000} + Fw^{*} \quad (kN)$ | $Fs = \frac{W \times V}{ts \times 60 \times \underline{G}} + Fw \quad (kgf)$<br><br>$Fb = \frac{W \times V}{tb \times 60 \times \underline{G}} + Fw \quad (kgf)$ |
| 9. Design kW (for general selection) | Design kW = Rated kW of motor x Ks (kW) | |
| 10. Design chain tension<br>Design chain tension from motor: F'm<br>Design chain tension from starting torque: F'ms<br>Design chain tension from stalling torque: F'mb<br>Design chain tension from shuttle drive: F'c<br>Design chain tension during acceleration: F's<br>Design chain tension during deceleration: F'b<br>Design chain tension from load: F'w | $F'm = Fm \times Ks \times Kn \times Kz \quad (kN\{kgf\})$<br>$F'ms = Fms \times K \times Kn \times Kz \quad (kN\{kgf\})$<br>$F'mb = Fmb \times K \times Kn \times Kz \quad (kN\{kgf\})$<br>$F'c = Fc \times Ks \times Kn \times Kz \quad (kN\{kgf\})$<br>$F's = Fs \times Kn \times Kz \quad (kN\{kgf\})$<br>$F'b = Fb \times Kn \times Kz \quad (kN\{kgf\})$ | |
| | $F'w = M \times Ks \times Kn \times Kz \times \frac{G}{1000} \quad (kN)$ | $F'w = W(\text{ Or } Fw) \times Ks \times Kn \times Kz \quad (kgf)$ |
| | If the mass M (weight W) is not known, use the rated torque Tn of the motor to calculate the shaft torque T = Tn x i kN·m {kgf·m}, and use F = 2T/d in place of W. | |
| 11. Acceleration time of motor: ts | $ts = \frac{(Im + I_{\ell}) \times n_1}{9550 \times (Tm - T_{\ell})} \times (s)$ | $ts = \frac{(GD^2m + GD^2_{\ell}) \times n_1}{375 \times (Tm - T_{\ell})} \quad (s)$ |
| 12. Deceleration time of motor: tb | $tb = \frac{(Im + I_{\ell}) \times n_1}{9550 \times (Tm + T_{\ell})} \times (s)$ | $tb = \frac{(GD^2m + GD^2_{\ell}) \times n_1}{375 \times (Tm + T_{\ell})} \quad (s)$ |
| 13. Inertia ratio: R | $R = \frac{I_{\ell}}{Im}$ | $R = \frac{GD^2_{\ell}}{GD^2m}$ |
| 14. Conversion of the flywheel effect ($GD^2$) to moment of inertia ( I ) | $1kg \cdot m^2 \cdots (I)$ | $4kgf \cdot m^2 \cdots (GD^2)$ |

All chain tensions in the above formulae are the tensions when one strand of chain is used.
When using two or more strands of chain, calculate the chain tension for one strand and multiply it by the imbalance load factor Ku (Table 4) for the number of strands used.

# Roller Chain Selection

## 5. General Selection Method

### Procedure




### Ordinary transmission (forward / reverse), continual revolution transmission
### Using kW ratings tables, infrequent start-up

#### Steps 4 and 5

(1) Select chain and number of teeth of small sprocket

Use the provisional selection graph (Fig. 2, 3 and 4) or the kW ratings tables to obtain a chain and small sprocket number of teeth that satisfy the revolution speed of the high-speed shaft and the transmission kW. Select a chain with the smallest pitch that has the required kW ratings.

If a single strand chain does not have sufficient power, select a multi-strand chain. If site restrictions require a short distance between shafts and the smallest possible sprocket outer diameter, use a multi-strand roller chain with a small pitch.

(2) Select number of teeth for large sprocket

Once the number of teeth of the small sprocket has been decided, the number of teeth of the large sprocket is determined by multiplying the number of teeth of the small sprocket by the speed ratio.

The number of teeth of the small sprocket should be at least 15. However, it is not desirable if this causes the number of teeth of the large sprocket to exceed 120. In this event, the number of teeth of the small sprocket must be reduced; however, it is recommended to use more than 13 teeth.

#### Step 7

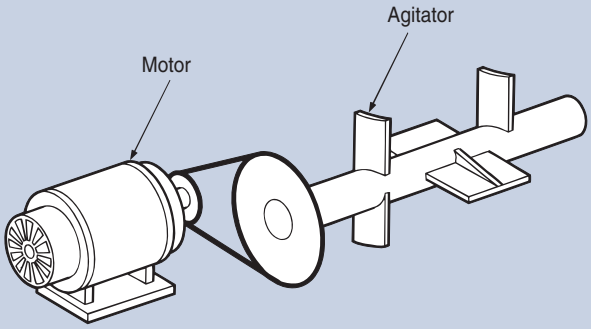
When the number of links is odd

If the number of links is odd, it is best to avoid using an offset link and instead change the distance between shafts so that the number of links is even. If the one-pitch offset link of RS roller chain or the four-pitch offset link of Super chain is used, allow for a decrease of transmission power as explained in the notes in the kW ratings tables.

## Selection example using the general selection method

### (Step 1) Required data

Machine used : Agitator
Type of shock : Moderate shock
Source of power : Motor
Rated power : 11 kW 1800 rpm
High speed shaft: Shaft diameter 45mm 90 rpm
Low speed shaft : Shaft diameter 60mm 30 rpm
Distance between shafts: 350 mm
Space limitation : 700 mm




### (Step 2) Determine the service factor

Service factor Ks = 1.3 from Table 2 Service Factor

### (Step 3) Determine the design kW

Design kW = 11 kW X 1.3 = 14.3 kW

### (Steps 4 and 5) Determine the chain and the number of teeth for the sprocket

Decide on the chain number and number of teeth of the small sprocket derived from the speed of the high speed shaft, at 90 rpm, and the design kW (14.3 kW).

(1)17T for single strand RS100 is derived from the basic selection figure and the kilowatt ratings table. Since the speed ratio is 1/3, the number of teeth will be 17T and 51T for RS100. But, with an outer diameter of 17T at 189 mm and 51T at 534 mm, these are not adequate because they do not fit in the required space. ∵189 + 534 > 700

(2) Checking multi-strand chains:

- 19T and 57T for RS80-2 is derived with double-strand chain, and the outer diameter of its sprockets are 167 mm and 476 mm, which is within limits. Check RS80 kilowatt ratings table for the kW ratings of 19T for RS80-2.
- The kW ratings for the small sprocket number of teeth (19T) is 5.06 kW at 50 rpm, and 9.44 kW at 100 rpm. By calculating proportionally using the differences in their tables, drive kW for 90 rpm is 8.56 kW.

(3) This 8.56 kW is the kilowatt rating of single-strand chain, and the kilowatt rating of double-strand chain that will be used is derived from the multi-strand factor in Table 1.
8.56 kW X 1.7 = 14.6 kW

(4) This kW rating, 14.6 kW, satisfies the design kW (14.3 kW).

### (Step 6) Check the bore diameter

(1) Check the bore diameter on the dimension table. Maximum bore diameter for RS80-2-19T is 63 mm, and it can be used for the required bore diameter of 45 mm.
Maximum bore diameter for RS80-2-57T is 80 mm, and it can be used for the 60 mm.

### (Step 7) Determine the distance between shafts

With a distance between shafts of 350 mm,

$\frac{(167+476)}{2} < 350$, and it will fit into the required space.

Number of the links is calculated as

$$L = \frac{57+19}{2} + 2 \times \frac{350}{25.4} + \frac{\left(\frac{57-19}{6.28}\right)^2}{\frac{350}{25.4}} = 68.2$$

In order to have an even number of links, raise the value to the right of the decimal point to an integer to get 70.

### (Step 8) Check lubrication method

Since the small sprocket is RS80-2-19T at a speed of 90 rpm, according to the kilowatt ratings table, lubrication method A will be used. It is necessary to use oil bath lubrication or lubrication with a slinger disc.

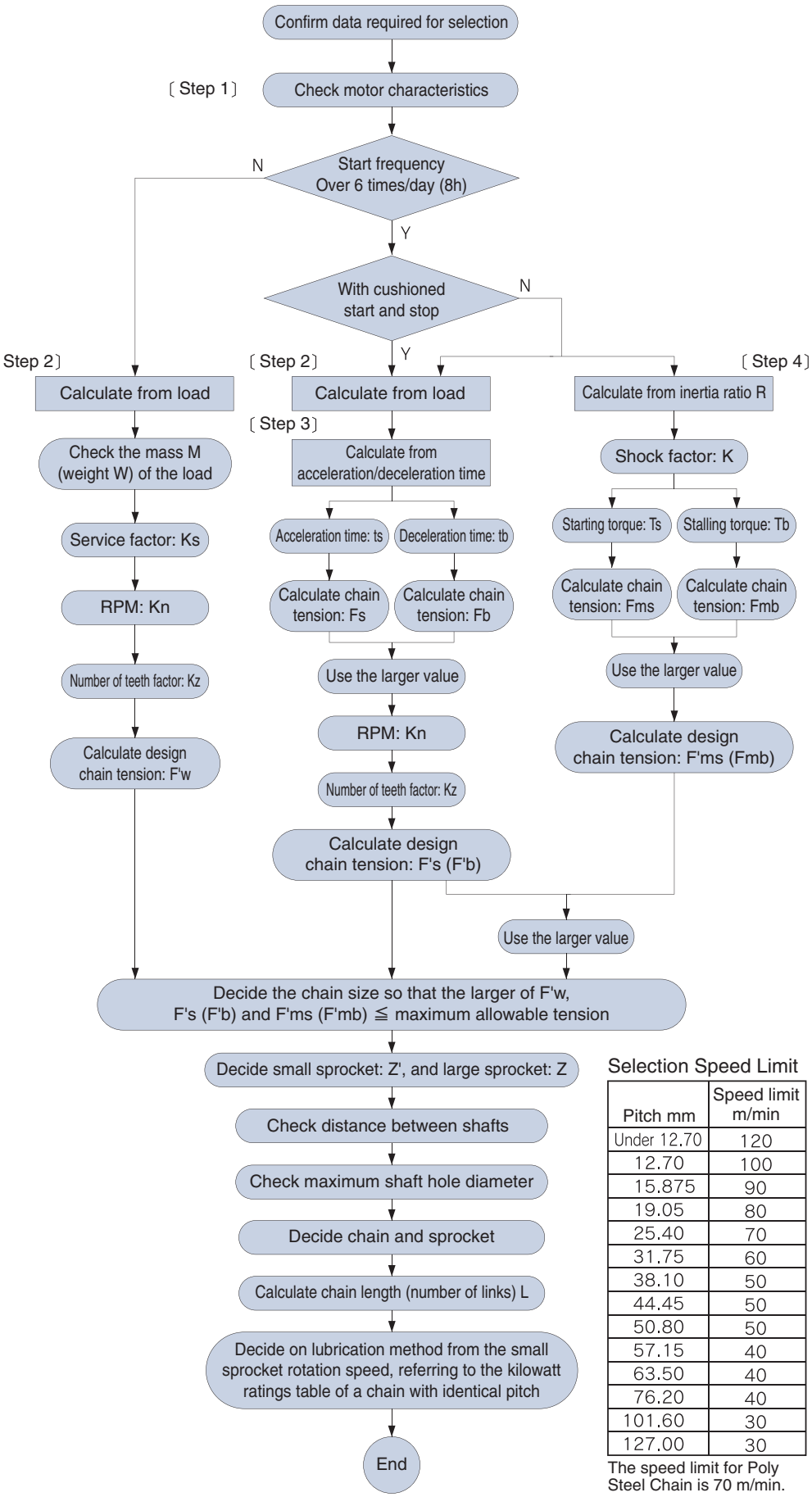
For selecting lifting or shuttle traction applications, do not use the General Selection method. Use the Allowable Load Selection method.

Reason: It is assumed that the braking force will be large when a balance weight is used, even if the motor capacity is small.

# Roller Chain Selection

## 6. Allowable Load Selection Method

### Procedures




**Selection Speed Limit**

| Pitch mm | Speed limit m/min |
|---|---|
| Under 12.70 | 120 |
| 12.70 | 100 |
| 15.875 | 90 |
| 19.05 | 80 |
| 25.40 | 70 |
| 31.75 | 60 |
| 38.10 | 50 |
| 44.45 | 50 |
| 50.80 | 50 |
| 57.15 | 40 |
| 63.50 | 40 |
| 76.20 | 40 |
| 101.60 | 30 |
| 127.00 | 30 |

The speed limit for Poly Steel Chain is 70 m/min.

The following selection method uses maximum allowable load for products with no kilowatt ratings tables, or for products operated at low speeds with frequent stops.

(1)For transmission with large shocks and other extreme conditions, in particular large-load transmission and transmission where a thrust load may operate, use F-type connecting links or two-pitch offset links.

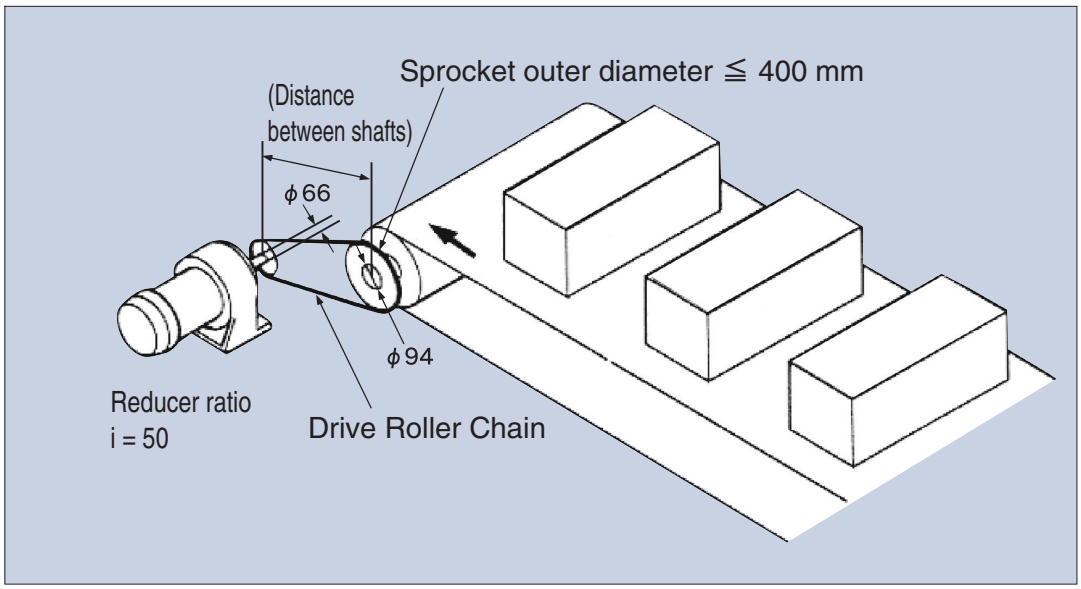
(2)When using a one-pitch offset link, or a Super Chain 4 pitch offset link, make the following allowances for strength with respect to the maximum allowable load
M-type CL*: 100%
F-type CL: 100%
Two-pitch offset link: 100%
(Reference)
One-pitch offset link: 65%
4 pitch offset link: 90%
(Super Chain single strand)
One and two-pitch offset link: 60%
(BS/DIN Chain)

(3)There is a possibility that the rim or boss of commercially available cast iron sprockets are not strong enough for the high tension of Super Chain, Super-H Roller Chain, and Ultra Super Chain. A type, B type, and C type RS sprockets are suitably strong.
(Use SS400, S35C, SC450, etc.)

(4)For high-speed sprockets, use a sprocket with hardened tooth tips.

(5)Be sure to lubricate roller chain, as the bearing pressure rises very high.

* Allow an 80% reduction for M type connecting links for RS15, 25, 37, 38, 41, BF25-H, 05B, 06B, 48B, 56B and RS-KT Corrosion Resistant roller chain.




Conditions

Machine used: Conveyor drive
Chain load M: 6000 kg
Chain speed: 30 m/min
Conveyor roller diameter: 380 mm
Belt thickness: 10 mm
Conveyor roller rotation torque: 3.3 kN/m (337 kg/m)
Motor : 11 kW n1 = 1800 rpm
Start torque 200%
Stop (maximum) torque 210%
Moment of inertia 0.088 kg/m$^2$
(GD$^2$ 0.352 kgf/m$^2$)

Reducer ratio: 1/50 (i = 50)
Drive shaft diameter: 66 mm
Driven shaft diameter: 94 mm
Distance b/w shafts: 500 mm
Driven sprocket diameter ≦ 400 mm
Starting frequency: 10 times/day
Type of shock: Moderate shock
Soft start/stop: None

## SI Units

### (Step 1) Check motor characteristics

Rated torque $Tn=9.55\times\frac{kW}{n1}=9.55\times\frac{11}{1800}=0.058$ (kN·m)

Starting torque $Ts=Tn\times2=0.058\times2=0.116$ (kN·m)

Stalling torque $Tb=Tn\times2.1=0.058\times2.1=0.122$ (kN·m)

Motor moment of inertia $Im=0.088$ (kg·m$^2$)

### (Step 2) Calculate from load

Driven shaft revolution

$$n2=\text{Speed of transport}\times\frac{1000}{(\text{External diameter of conveyor roller}+2\times\text{Belt thickness})\times\pi}$$

$$=30\times\frac{1000}{(380+20)\times\pi}=23.9\ (\text{r/min})$$

Drive shaft revolution

$$n=\text{Motor rotation}/i=\frac{1800}{50}=36\ (\text{r/min})$$

$$\text{Chain reducer ratio}=\frac{23.9}{36}=\frac{1}{1.51}$$

If the driven sprocket d2=400mm

$$\text{Chain tension } Fw=\text{Conveyor roller rotation torque}\times1000\times\frac{2}{d2}$$

$$=3.3\times1000\times\frac{2}{400}=16.5\ (\text{kN})$$

Tentatively select the chain.

With moderate shock・・・・・・・Usage factor Ks=1.3

Tentative design chain tension = Fw × Ks=16.5 × 1.3=21.5 (kN)

Tentatively select RS120-1 with a maximum allowable load of 30.4 kN.

## {Gravimetric units}

### (Step 1) Check motor characteristics

Rated torque $Tn=9.74\times\frac{kW}{n1}=9.74\times\frac{11}{1800}=5.95$ (kgf·m)

Starting torque $Ts=Tn\times2=5.95\times2=11.9$ (kgf·m)

Stalling torque $Tb=Tn\times2.1=5.95\times2.1=12.5$ (kgf·m)

GD$^2$ of the motor GD$^2$m=0.352 (kgf·m$^2$)

### (Step 2) Calculate from load

Driven shaft revolution

$$n2=\text{Speed of transport}\times\frac{1000}{(\text{External diameter of conveyor roller}+2\times\text{Belt thickness})\times\pi}$$

$$=30\times\frac{1000}{(380+20)\times\pi}=23.9\ (\text{r/min})$$

Drive shaft revolution

$$n=\text{Motor rotation}/i=\frac{1800}{50}=36\ (\text{r/min})$$

$$\text{Chain reducer ratio}=\frac{23.9}{36}=\frac{1}{1.51}$$

If the driven sprocket d2=400mm

$$\text{Chain tension } Fw=\text{Conveyor roller rotation torque}\times1000\times\frac{2}{d2}$$

$$=337\times1000\times\frac{2}{400}=1690\ (\text{kgf})$$

Tentatively select the chain.

With moderate shock・・・・・・・Usage factor Ks=1.3

Tentative design chain tension = Fw × Ks=1690 × 1.3=2200 (kgf)

Tentatively select RS120-1 with a maximum allowable load of 3100 kgf.

# Roller Chain Selection



31T from driven sprocket < 400mm

Outer diameter 398 mm PCD d2=376.60 (mm)

Number of teeth of drive sprocket $=\frac{31}{1.51}=21$T PCD d=255.63 (mm)

$$\text{Chain speed}=\frac{P\times Z'\times n}{1000}=\frac{38.1\times 21\times 36}{1000}$$

$$=28.8\text{m/min}<50\text{ m/min},$$

so it is possible to select by allowable load.

Small sprocket revolution 36r/min・・・・RPM Kn=1.03

Number of teeth of small sprocket 21T・・・・Number of teeth factor Kz=1.10

$$\text{Chain tension Fw}=\text{Conveyor roller rotation torque}\times 1000\times\frac{2}{d2}$$

$$=3.3\times 1000\times\frac{2}{376.6}=17.5\text{ (kN)}$$

Design chain tension $F'w=Fw\times Ks\times Kn\times Kz$

$=17.5\times 1.3\times 1.03\times 1.10=25.8$ (kN)・・・①

RS120-1 (Max. allowable load: 30.4kN) can be used.

Check the conveyance speed (selection conditions, 30 m/min)

$$\text{Conveyance speed at this point}=n2\times\frac{(\text{Conveyor roller external diameter}+2\times\text{Belt thickness})\times\pi}{1000}$$

$$=n1\times\frac{21}{31}\times\frac{(\text{Conveyor roller external diameter}+2\times\text{Belt})\times\pi}{1000}$$

$$=36\times\frac{21}{31}\times\frac{(380+2\times 10)\times\pi}{1000}$$

$$=30.6\text{ (m/min)}$$

## (Step 3) Calculate from acceleration/deceleration time

The small sprocket was decided as RS120 21T from the calculations in step 2.
Thus, calculate using the same pitch and number of teeth.
If the acceleration/deceleration time is known, use that value for the calculation.
The following is calculated assuming it is unknown.

$$\text{Working torque Tm}=\frac{(Ts+Tb)}{2}=\frac{(0.116+0.122)}{2}=0.119\text{ (kN·m)}$$

$$\text{Load torque}\quad T\ell=Fw\times\frac{d}{(2\times 1000\times i)}=17.5\times\frac{255.63}{(2\times 1000\times 50)}$$

$$=0.045\text{ (kN·m)}$$

Motor shaft conversion moment of inertia $I\ell$ of load side

$$I\ell=M\times\left(\frac{\text{Conveyance speed}}{2\times\pi\times n1}\right)^2$$

$$=6000\times\left(\frac{30.6}{2\times\pi\times 1800}\right)^2$$

$$=0.044\text{ (kg·m}^2)$$

Moment of inertia of the motor Im=0.088 (kg·m$^2$)

Acceleration time of the motor

$$ts=(Im+I\ell)\times\frac{n1}{9550\times(Tm-T\ell)}$$

$$=(0.088+0.044)\times\frac{1800}{9550\times(0.119-0.045)}$$

$$=0.34\text{ (s)}$$

Deceleration time of the motor

$$tb=(Im+I\ell)\times\frac{n1}{9550\times(Tm+T\ell)}$$

$$=(0.088+0.044)\times\frac{1800}{9550\times(0.119+0.045)}$$

$$=0.15\text{ (s)}$$

As tb < ts, chain tension during deceleration Fb is larger than chain tension during acceleration Fs. Thus, use the following.

Chain tension during deceleration

$$Fb=M\times\frac{\text{Conveyance speed}}{(tb\times 60\times 1000)}\times\frac{(\text{Conveyor roller external diameter}+2\times\text{Belt thickness})}{d2}+Fw$$

$$=6000\times\frac{30.6}{(0.15\times 60\times 1000)}\times\frac{(380+2\times 10)}{376.6}+17.5$$

$$=39.2\text{ (kN)}$$

31T from driven sprocket ＜400mm

Outer diameter 398 mm PCD d2=376.60 (mm)

Number of teeth of drive sprocket $=\frac{31}{1.51}=21$T PCD d=255.63 (mm)

$$\text{Chain speed}=\frac{P\times Z'\times n}{1000}=\frac{38.1\times 21\times 36}{1000}$$

$$=28.8\text{m/min}<50\text{ m/min},$$

so it is possible to select by allowable load.

Small sprocket revolution 36r/min・・・・RPM Kn=1.03

Number of teeth of small sprocket 21T・・・・Number of teeth factor Kz=1.10

$$\text{Chain tension Fw}=\text{Conveyor roller rotation torque}\times 1000\times\frac{2}{d2}$$

$$=337\times 1000\times\frac{2}{376.6}=1790\text{ (kgf)}$$

Design chain tension $F'w=Fw\times Ks\times Kn\times Kz$

$=1790\times 1.3\times 1.03\times 1.10=2640$ (kgf)・・・①

RS120-1 (Max. allowable load: 3100kgf) can be used.

Check the conveyance speed (selection condition 30s, m/min)

$$\text{Conveyance speed at this point}=n2\times\frac{(\text{Conveyor roller external diameter}+2\times\text{Belt thickness})\times\pi}{1000}$$

$$=n1\times\frac{21}{31}\times\frac{(\text{Conveyor roller external diameter}+2\times\text{Belt})\times\pi}{1000}$$

$$=36\times\frac{21}{31}\times\frac{(380+2\times 10)\times\pi}{1000}$$

$$=30.6\text{ (m/min)}$$

## (Step 3) Calculate from acceleration/deceleration time

The small sprocket was decided as RS120 21T from the calculations in step 2.
Thus, calculate using the same pitch and number of teeth.
If the acceleration/deceleration time is known, use that value for the calculation.
The following is calculated assuming it is unknown.

$$\text{Working torque Tm}=\frac{(Ts+Tb)}{2}=\frac{(11.9+12.5)}{2}=12.2\text{ (kgf·m)}$$

$$\text{Load torque}\quad T\ell=Fw\times\frac{d}{(2\times 1000\times i)}=1790\times\frac{255.63}{(2\times 1000\times 50)}$$

$$=4.58\text{ (kgf·m)}$$

Motor shaft conversion $GD^2$ of the load side

$$GD^2\ell=M\times\left(\frac{\text{Conveyance speed}}{\pi\times n1}\right)^2$$

$$=6000\times\left(\frac{30.6}{\pi\times 1800}\right)^2$$

$$=0.176\text{ (kgf·m}^2)$$

$GD^2$ of the motor $GD^2m=0.352$ (kgf·m$^2$)

Acceleration time of the motor

$$ts=(GD^2m+GD^2\ell)\times\frac{n1}{375\times(Tm-T\ell)}$$

$$=(0.352+0.176)\times\frac{1800}{375\times(12.2-4.58)}$$

$$=0.34\text{ (s)}$$

Deceleration time of the motor

$$tb=(GD^2m+GD^2\ell)\times\frac{n1}{375\times(Tm+T\ell)}$$

$$=(0.352+0.176)\times\frac{1800}{375\times(12.2+4.58)}$$

$$=0.34\text{ (s)}$$

As tb < ts, chain tension during deceleration Fb is larger than chain tension during acceleration Fs. Thus, use the following.

Chain tension during deceleration

$$Fb=M\times\frac{\text{Conveyance speed}}{(tb\times 60\times G)}\times\frac{(\text{Conveyor roller external diameter}+2\times\text{Belt thickness})}{d2}+Fw$$

$$=6000\times\frac{30.6}{(0.15\times 60\times G)}\times\frac{(380+2\times 10)}{376.6}+1790$$

$$=4000\text{ (kgf)}$$

Design chain tension

$F'b=Fb\times Kn\times Kz=39.2\times 1.03\times 1.10=44.4(kN)$ ・・・・・②

RS120-2 (maximum allowable load 51.7 kN) or RS120-SUP-2 (maximum allowable load 66.7 kN) can be used because F'b=44.4(kN).

Considering RS140 18T (outer diameter 279 mm d = 255.98) and 27T (outer diameter 407 mm d2 = 382.88) with similar PCD results conflict with the driven sprocket external diameter ≦ 400 mm, they cannot be used.

Chain reduction ratio becomes $\frac{36}{23.9}$ from the required $\frac{26}{18}$, and conveyance speed $=30\times\frac{36}{23.9}\times\frac{18}{26}=31.3$m/min,

but upon examination 26T (outer diameter 393mm d2=368.77)

② is F'b=46.3(kN)

RS140-1 cannot be used because its maximum allowable load is 40.2kN.

RS140-SUP-1 can be used because its maximum allowable load is 53.9kN.

Since the sprocket bore diameter of 18T is up to 89 mm, and for 26T is up to 103 mm, it can be used with a drive shaft diameter of 66 mm and driven shaft diameter of 94 mm.

With the distance between shafts at 500 mm, a sprocket with 18T (d=255.98) and 26T (d2=368.77) can be used.

Number of links will be 46 links.

Lubrication for RS140-SUP-1 should be oil bath or lubrication using a slinger disc as per the kilowatt ratings table.

## (Step 4) Calculate from inertia ratio R

Inertia ratio $R=\frac{I\ell}{Im}=\frac{0.044}{0.088}=0.5$

There is clearance in the drive equipment ・・・・Shock factor K=1.0

Starting torque Ts=0.116 (kN·m)

Chain tension from starting torque

$$Fms=Ts\times i\times 1000\times\frac{2}{d}$$
$$=0.116\times 50\times 1000\times\frac{2}{255.63}=45.4\ (kN)$$

Stalling torque Tb=0.122 (kN·m)

Chain tension from stalling torque

$$Fmb=Tb\times i\times 1.2\times 1000\times\frac{2}{d}$$
$$=0.122\times 50\times 1.2\times 1000\times\frac{2}{255.63}=57.3\ (kN)$$

Since Fmb＞Fms, use the larger Fmb.

Design chain tension

$F'mb=Fmb\times K\times Kn\times Kz=57.3\times 1.0\times 1.03\times 1.10=64.9$ (kN) ・・・・・③

Comparing ①, ②, and ③, ③ is the largest.

Since F'mb=64.3 (kN), RS120-3 (maximum allowable load 76.0 kN) or RS120-SUP-2 (maximum allowable load 66.7 kN) is usable.

With the distance between shafts at 500mm, a sprocket with 21T (d=255.63) and 31T (d2=376.60) can be used.

Number of links will be 54 links.

Lubrication for both RS120-1 and RS120-SUP-1 should be oil bath or lubrication by slinger disc as per the kilowatt ratings table.

Design chain tension

$F'b=Fb\times Kn\times Kz=4000\times 1.03\times 1.10=4530(kgf)$ ・・・・・②

RS120-2 (maximum allowable load 5270 kgf) or RS120-SUP-2 (maximum allowable load 6800kN) can be used because F'b=4530(kgf).

Considering RS140 18T (outer diameter 279 mm d = 255.98) and 27T (outer diameter 407 mm d2 = 382.88) with similar PCD results conflict with the driven sprocket external diameter ≦ 400 mm, they cannot be used.

Chain reduction ratio becomes $\frac{36}{23.9}$ from the required $\frac{26}{18}$, and conveyance speed $=30\times\frac{36}{23.9}\times\frac{18}{26}=31.3$m/min,

but upon examination 26T (outer diameter 393mm d2=368.77)

② is F'b=4720(kgf)

RS140-1 cannot be used because its maximum allowable load is 4100kgf.

RS140-SUP-1 can be used because its maximum allowable load is 5500kgf.

Since the sprocket bore diameter of 18T is up to 89 mm, and for 26T is up to 103 mm, it can be used with a drive shaft diameter of 66 mm and driven shaft diameter of 94 mm.

With the distance between shafts at 500 mm, a sprocket with 18T (d=255.98) and 26T (d2=368.77) can be used.

Number of links will be 46 links.

Lubrication for RS140-SUP-1 should be oil bath or lubrication using a slinger disc as per the kilowatt ratings table.

## (Step 4) Calculate from inertia ratio R

Inertia ratio $R=\frac{GD^2\ell}{GD^2m}=\frac{0.176}{0.352}=0.5$

There is clearance in the drive equipment ・・・・Shock factor K=1.0

Starting torque Ts=11.9 (kgf·m)

Chain tension from starting torque

$$Fms=Ts\times i\times 1000\times\frac{2}{d}$$
$$=11.9\times 50\times 1000\times\frac{2}{255.63}=4660\ (kgf)$$

Stalling torque Tb=12.5 (kgf·m)

Chain tension from stalling torque

$$Fmb=Tb\times i\times 1.2\times 1000\times\frac{2}{d}$$
$$=12.5\times 50\times 1.2\times 1000\times\frac{2}{255.63}=5870\ (kgf)$$

Since Fmb＞Fms, use the larger Fmb.

Design chain tension

$F'mb=Fmb\times K\times Kn\times Kz=5870\times 1.0\times 1.03\times 1.10=6650$ (kgf) ・・・・・③

Comparing ①, ②, and ③, ③ is the largest.

Since F'mb=6650 (kgf), RS120-3 (maximum allowable load 7750 kgf) or RS120-SUP-2 (maximum allowable load 6800 kgf) is usable.

With the distance between shafts at 500mm, a sprocket with 21T (d=255.63) and 31T (d2=376.60) can be used.

Number of links will be 54 links.

Lubrication for both RS120-1 and RS120-SUP-1 should be oil bath or lubrication by slinger disc as per the kilowatt ratings table.

# Roller Chain Selection

Considering RS160 15T (outer diameter 269mm d=244.33) and 23T (outer diameter 400mm d2=373.07) with similar PCD,
③ F'mb=69.0(kN) will be largest.
RS160-1 cannot be used because its maximum allowable load is 53.0 kN.
RS160-SUP-1 can be used because its maximum allowable load is 70.6kN.
Since a sprocket bore diameter with 15T is up to 95mm, and 23T is up to 118mm, it can be used for a drive shaft diameter of 66mm, and driven shaft diameter of 94mm.
With the distance between shafts at 500mm, a sprocket with 15T (d=244.33) and 23T (d2=373.07) can be used.
Number of links will be 42 links.
Lubrication for RS140-SUP-1 should be oil bath or lubrication by slinger disc as per kilowatt ratings table.

Considering RS160 15T (outer diameter 269mm d=244.33) and 23T (outer diameter 400mm d2=373.07) with similar PCD,
③ F'mb=7040(kgf) will be largest.
RS160-1 cannot be used because its maximum allowable load is 5400kgf.
RS160-SUP-1 can be used because its maximum allowable load is 7200kgf.
Since a sprocket bore diameter with 15T is up to 95mm, and 23T is up to 118mm, it can be used for a drive shaft diameter of 66mm, and driven shaft diameter of 94mm.
With the distance between shafts at 500mm, a sprocket with 15T (d=244.33) and 23T (d2=373.07) can be used.
Number of links will be 42 links.
Lubrication for RS140-SUP-1 should be oil bath or lubrication by slinger disc as per kilowatt ratings table.

## Measurement results

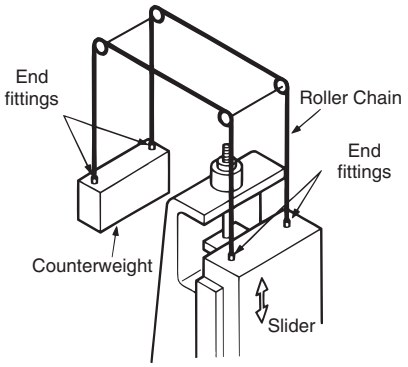
| Condition | Step | Chain size | Sprocket | Number of links | Lubrication class |
|---|---|---|---|---|---|
| Start frequency 6 times or less | Step 2 | RS120-1 | 21T×31T | 54 links | B |
| Start frequency 6 times or more with cushion start | Step 3 | RS120-2 | 21T×31T | 54 links | B |
| | | RS140-1 | 18T×26T | 46 links | B |
| Start frequency 6 times or more without cushion start | Step 3 Step 4 | RS120-3 | 21T×31T | 54 links | B |
| | | RS120-SUP-2 | | | B |
| | | RS160-SUP-1 | 15T×23T | 42 links | B |

Lubrication class B: Lubrication with oil bath or slinger disc
All shaft distances need to be adjusted.

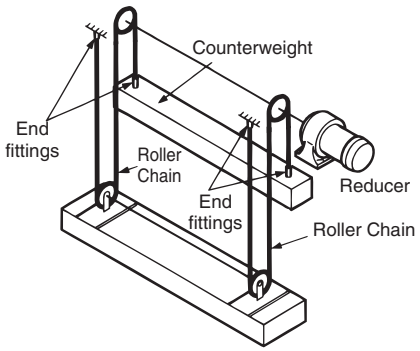
# 7. Example of lifting transmissions

There are many examples of where chain is used for lifting. By making use of Roller Chain features, choosing the right chain and following some important points, it is possible to use Roller Chain for lifting transmissions. Typical lifting applications are illustrated below. (Please give special consideration to safety devices.)

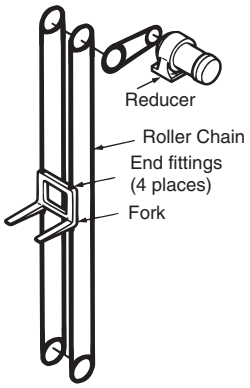
## Balancing



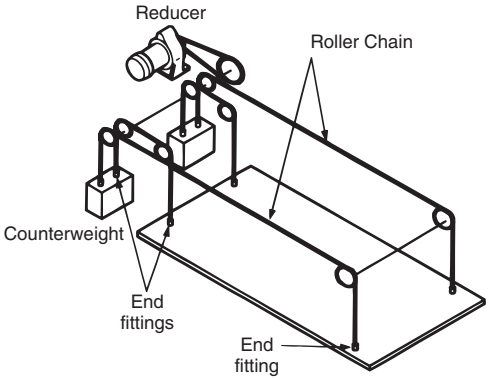

## Lifting equipment (1)




## Lifting equipment (2)




## Lifting equipment (3)




### ⚠ Selecting hanging roller chain

①If there are any laws or guidelines for chain selection, check and calculate accordingly. Make sure to follow the manufacturer's selections and select the safer of the two selections.
②Use F-type (semi press-fit) connecting links. Offset links cannot be used.
③Lubricate the chain joints as much as possible after you reduce the loads. Sufficient lubrication is also required at end fittings (end bolts and connecting links, etc.) and connecting parts, etc.

# Roller Chain Selection

## Weight required for counterweight to prevent sprocket tooth-jumping when using Roller Chain in lifting transmission applications

$$Tk = To \times \{\sin\phi / \sin(\phi + 2\alpha)\}^{K-1}$$

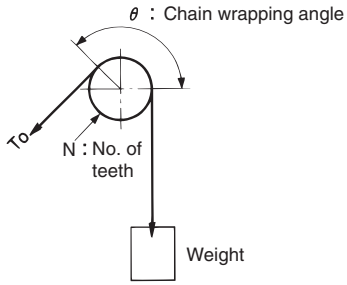
Tk : Minimum weight tension (minimum back-tension)

To : Roller Chain tension

$\phi$ : Sprocket minimum pressure angle $\phi = 17^\circ - \frac{64^\circ}{N}$

$2\alpha$ : Sprocket dividing angle $2\alpha = \frac{360^\circ}{N}$

K : Engaging no. of teeth $K = \frac{\theta}{360^\circ} \times N \cdots$ Round up to the nearest whole number to be safe.




If to = 1100kgf, N = 13T, and $\theta = 120^\circ$, then

$$\phi = 17^\circ - \frac{64^\circ}{N} = 17^\circ - \frac{64^\circ}{13} = 12.077$$

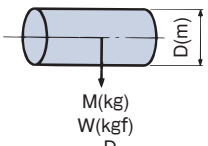
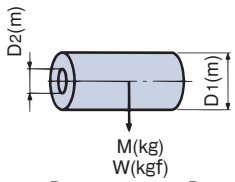
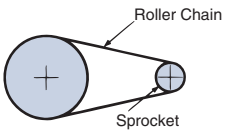
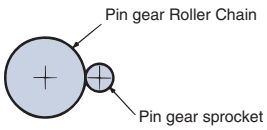
$$2\alpha = \frac{360^\circ}{N} = \frac{360^\circ}{13} = 27.692$$

$$K = \frac{\theta}{360^\circ} \times N = \frac{120^\circ}{360^\circ} \times 13 = 4.33 \ldots K = 4$$

$$Tk = 1100 \times \{\sin 12.077 / \sin(12.077 + 27.692)\}^{4-1} = 38.5 \text{ (kg)}$$

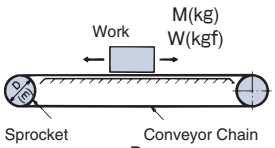
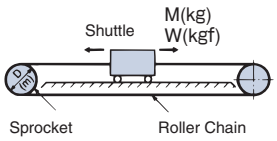
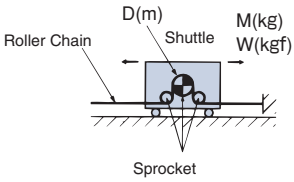
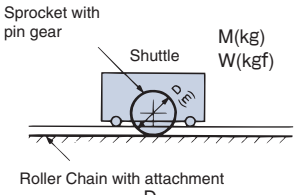
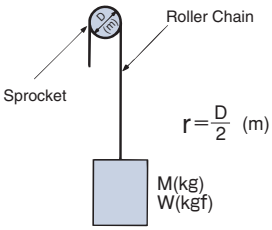
Accordingly, tooth-jumping will not occur if a 39 kg weight is used. However, this will change depending on the layout and amount of wear on the Roller Chain and sprocket teeth. Please use the above as a reference.

# 8. Calculating moment of inertia (Table 6)

| Rotating Body | (Moment of inertia) Calculation Method (SI Unit) | {GD² Calculation Method (Gravimetric Unit)} |
|---|---|---|
| Right cylinder   $r=\frac{D}{2}$ (m) | $I=\frac{1}{2}Mr^2$ $(kg\cdot m^2)$ | $GD^2=\frac{1}{2}WD^2$ $(kgf\cdot m^2)$ |
| Hollow right cylinder   $r_1=\frac{D_1}{2}$ (m) $r_2=\frac{D_2}{2}$ (m) | $I=\frac{1}{2}M(r_1^2+r_2^2)$ $(kg\cdot m^2)$ | $GD^2=\frac{1}{2}W(D_1^2+D_2^2)$ $(kgf\cdot m^2)$ |
| Wrapping drive   | Pin gear drive   | |

## Note

| | SI unit | {Gravimetric unit} |
|---|---|---|
| Moment of inertia (I) and fly wheel effect ($GD^2$) | 1 $kg\cdot m^2$ (I) | 4 $kgf\cdot m^2$ ($GD^2$) |

| Linear Body | (Moment of inertia) Calculation Method (SI Unit) | {GD² Calculation Method (Gravimetric Unit)} |
|---|---|---|
| Conveyor drive   $r=\frac{D}{2}$ (m) | $I=Mr^2(kg\cdot m^2)$ | $GD^2=WD^2$ $(kgf\cdot m^2)$ |
| Shuttle Traction     $r=\frac{D}{2}$ (m) | $I=Mr^2(kg\cdot m^2)$ | $GD^2=WD^2$ $(kgf\cdot m^2)$ |
| Pin gear drive   $r=\frac{D}{2}$ (m) | $I=Mr^2(kg\cdot m^2)$ | $GD^2=WD^2$ $(kgf\cdot m^2)$ |
| Lifting application   $r=\frac{D}{2}$ (m) | $I=Mr^2(kg\cdot m^2)$ | $GD^2=WD^2$ $(kgf\cdot m^2)$ |
| To convert moment of inertia load to motor shaft<br>$n_1$: Motor shaft rotating speed<br>$n_2$: Load shaft rotating speed | Moment of inertia load<br>$I_\ell=\left(\frac{n_2}{n_1}\right)^2 I$ $=\frac{I}{i^2}(kg\cdot m^2)$<br>$I_\ell=M\left(\frac{V}{2\pi n_1}\right)^2$ $(kg\cdot m^2)$ | Moment of inertia $GD^2$ load<br>$GD^2{}_\ell=\left(\frac{n_2}{n_1}\right)^2 GD^2$ $=\frac{GD^2}{i^2}(kgf\cdot m^2)$<br>$GD^2{}_\ell=W\left(\frac{V}{\pi n_1}\right)^2$ $(kgf\cdot m^2)$ |

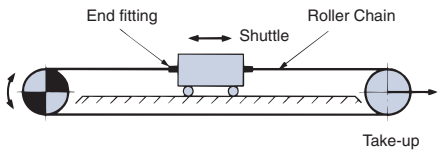
The above does not include the mass of the sprocket and chain.

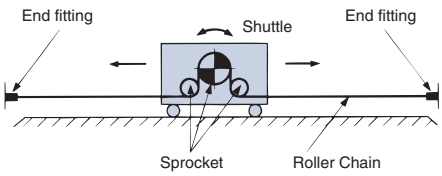
# Roller Chain Selection

## 9. Example of shuttle traction

The following are typical examples of using Roller Chain for shuttle traction. The roller chain can be attached to the shutttle with an end fitting and towed using a sprocket on one end (left figure), or the driving unit can be attached to the shuttle, with a roller chain fixed to both ends using end fittings (right figure).
There are similar ways to tow a shuttle at an angle. With the left figure the drive sprocket would be set at the top of the incline.

: Drive side



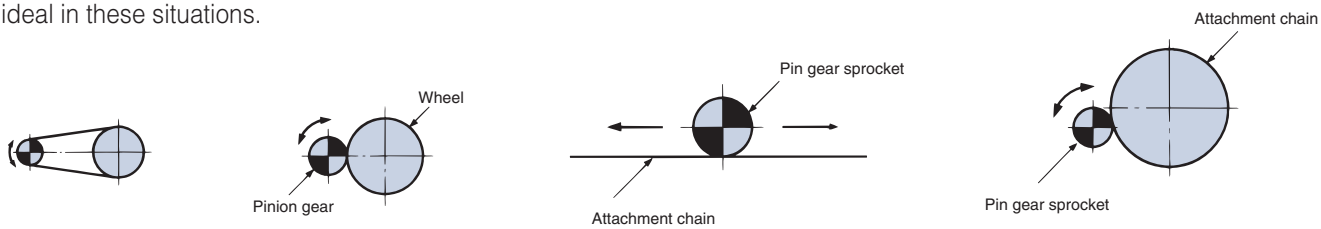




⚠ Selecting roller chain for shuttle traction

① If there are any laws or guidelines for chain selection, check and calculate accordingly. Make sure to follow the manufacturer's selections and select the safer of the two selections.
② Use F-Type (semi press-fit) connecting links. M-Type connecting links can only be used if there is minimal shock with no lateral force. Offset links cannot be used.
③ Lubricate the chain joints as much as possible after you reduce the loads. Sufficient lubrication is also required at end fittings (end bolts and connecting links, etc.) and connecting parts, etc.

# 10. Pin gear drive selection method

Generally, linear movement or large radius rotation is made possible by a roller chain and gear through a transmission source (motor, etc.) via a reducer.
A roller chain, however, needs a lot of space, and gears require precision machining, which increases the cost. A pin gear is ideal in these situations.




Roller chain　　Gear　　Pin gear (Linear)　　Pin gear (Rotary)

For pin gear drives, a roller chain is wrapped around the perimeter of a drum to make a wheel, and special sprockets (see Sprockets) are used instead of pinion gears. For linear motion, a roller chain is attached and used linearly instead of a rack.

| Item | Pin gear drive | Roller chain transmission | Gear transmission |
|---|---|---|---|
| Restrictions on distance between shafts | Yes | No | Yes |
| Number of engaged teeth | Low | High | Low |
| Speed ratio range | No limit | Up to 1:7 | No limit |
| Tooth shape | Special teeth | Sprocket teeth | Involute |
| Engagement accuracy | Normal | Normal | Precise |

## 10.1 Characteristics of pin gears

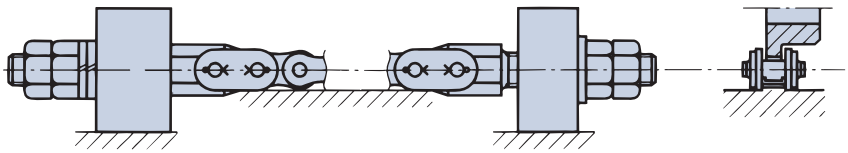
1) Economical at large speed ratios (1:5 or larger), especially when the drum has a large diameter.
2) Roller chain attachments are bolted onto the drum for easy installation and maintenance.
3) Design freedom in drum diameter, linear length, etc.
4) Rough installation accuracy and no precision machining required for gears.
5) Grease lubrication can be used.

▲ A pin gear is not suitable for ultra precise drives, and the noise level is high compared to gears.

## 10.2 Chain installation and precautions

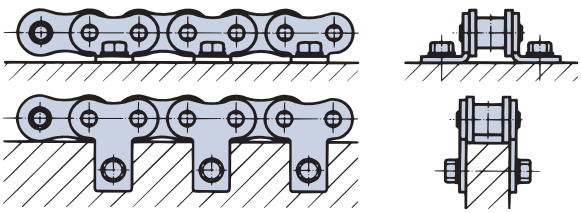
1) When used linearly (rack) with rollers facing up:

- Use standard roller chain.



Connecting links are used on both ends, and fittings are attached and bolts and nuts are fastened to remove any slack. (Both ends need to be secured snugly with double nuts.) NOTE: This is not recommended as tooth slipping and interference can occur.

- Used an attachment roller chain.



K1 attachment every 2nd link

SK1 attachment every 2nd link

Attach K1 or SK1 attachments every 2nd link and fasten with bolts and nuts every 2nd or 4th link with chain pulled taut so there is no slack or meandering. (K attachments are recommended.) The attachment holes are usually processed on-site.

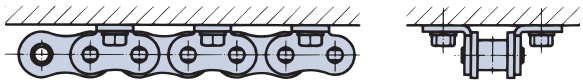
# Roller Chain Selection

Use bolts with a strength class 8.8 or higher (JIS1051-2000 Tensile strength 800 N/mm$^2$ or higher). (SCM435 heat treated bolts, etc.)

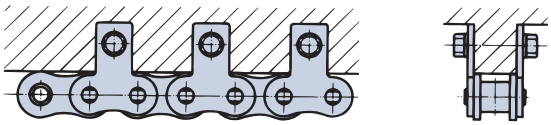
- The length of the chain should be the travel distance plus $\alpha$ .

  $\alpha$ : The distance of overrun based on usage conditions.

2) When used linearly (rack) with rollers facing down:



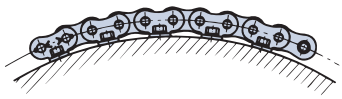
K1 attachment every 2nd link



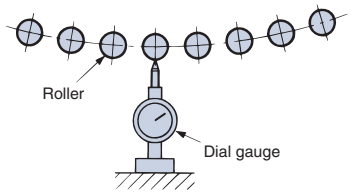
SK1 attachment every 2nd link

Attach K1 or SK1 attachments every 2nd link and fasten with bolts and nuts every 2nd or 4th link with chain pulled taut so there is no slack or meandering.

3) When wrapped partially or totally around the outside of a drum:

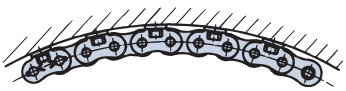


- Attachment chain length is in the range of -0.05 to 0.15% of standard length (nominal pitch x number of links). When the chain is wrapped around a drum, shims need to be used between the drum and the chain attachments to eliminate slack.
- Since K attachments can be adjusted with shims, they can be attached onto the drum more easily than SK attachments.
- When the drum is not perfectly round, the thickness of the shims needs to be adjusted while the chain is wrapped around the drum so the radius is circular. As shown below, a dial gauge or a surface gauge can be used for adjustment.
- Process tap holes to fit the holes of the chain attachments.



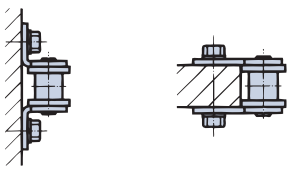

4) When wrapped partially or totally around the inside of a drum:

- Contact a Tsubaki representative.



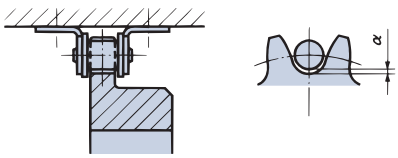
5) When used for lateral wrapping (horizontal drive)

- See section 3).
- Contact a Tsubaki representative for internal fits.



6) Sprocket attachment

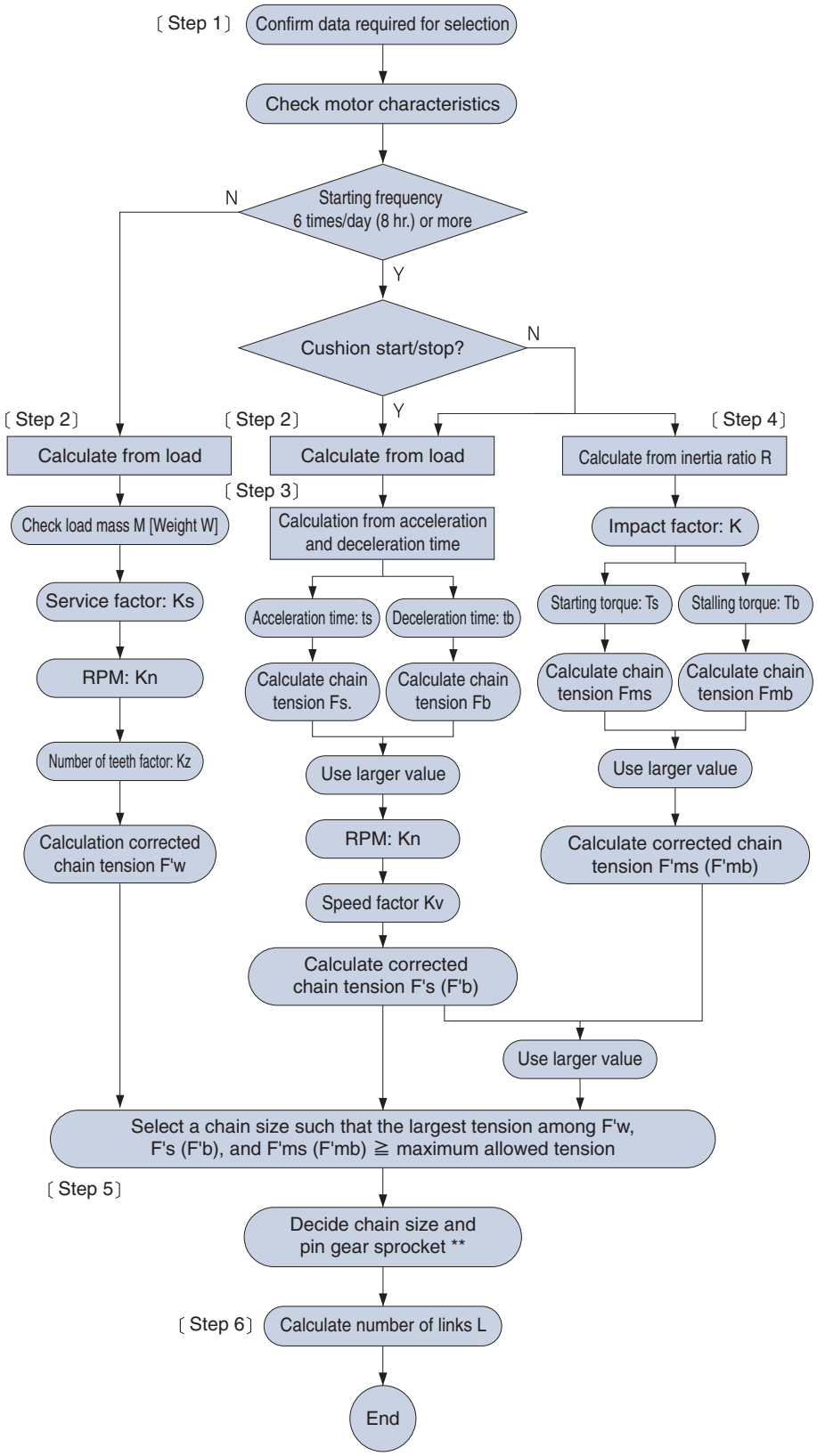
- Adjust the shaft of the sprocket so that the sprocket engages the chain straight.
- The clearance ($\alpha$) between the rollers and the bottom of the sprocket teeth should be less than the dimensions shown in the following table. The bottom of the teeth and rollers should not touch each other.




| Chain size | $\alpha$ |
|---|---|
| RS80 or less | 1.0mm |
| RS100 to RS180 | 1.5mm |
| RS200 or more | 2.0mm |

- When the bottom of the teeth and rollers touch each other in the clearance described above, the tooth form needs to be pre-designed with larger clearance $\alpha$. Contact a Tsubaki representative for details.

## Procedure



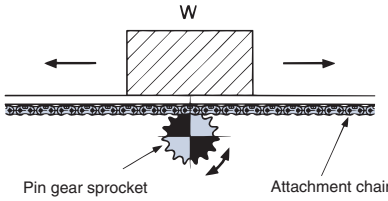

(Note) Chain relative speed V is 50 m/min or less.

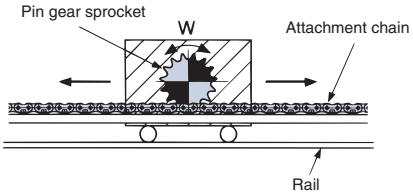
(When V is greater than 50 m/min
Linear: Roll drive, etc.
Drum: Change chain attachment diameter → Reduce size.)

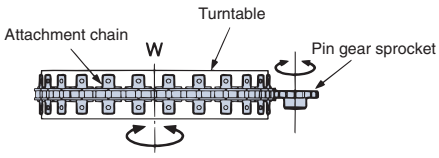
Pin gear speed factor Kv

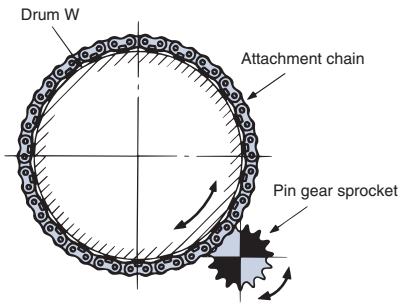
| Relative chain speed | Pin gear speed factor |
|---|---|
| 0 to 15 m/min | 1.0 |
| 15 to 30 | 1.2 |
| 30 to 50 | 1.4 |

** Sprocket for pin gear drive
This sprocket is exclusively for special tooth shapes.
N ≧ 13T, with N = 18T recommended.
Refer to previous sections for pin gear drive handling.



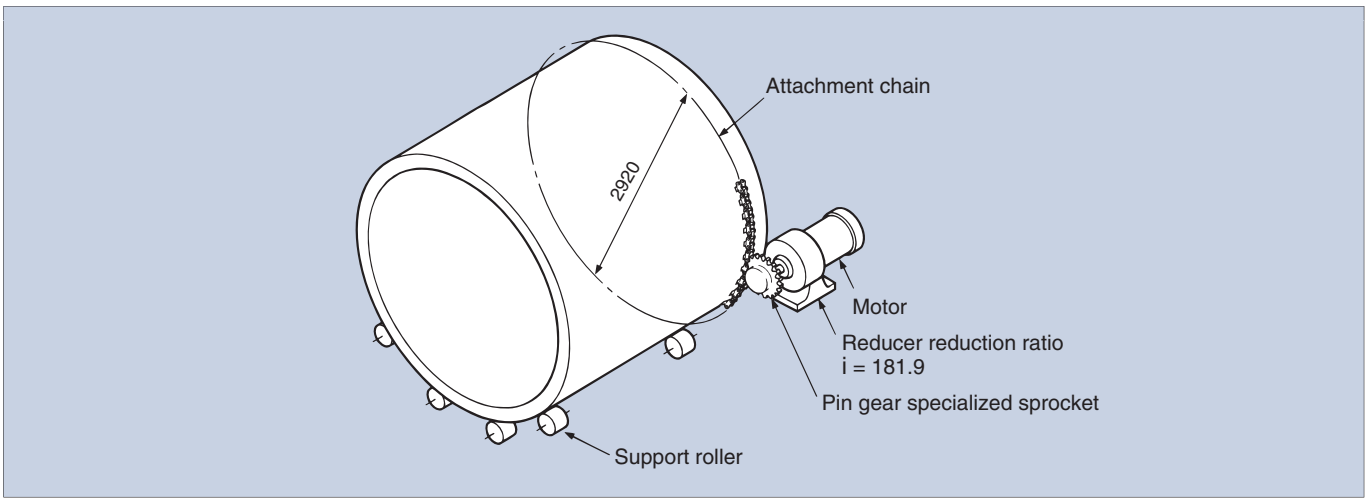



# Roller Chain Selection



## Pin gear drive selection example




### SI units

#### [Step 1] Check machine and motor characteristics

Machine: Cutting machine
Motor: 15 kW, 4P, 1750 rpm

Motor moment of inertia I : Im = 0.00425 kg · m²

Starting torque Ts ····· 290%
Stalling torque Tb ····· 305%
Reducer reduction ratio i ····· 181.9
Forward and reverse operation frequency ··· Max 900 times/hour
Sprocket pitch circle diameter (PCD) ··· Approximately $\phi$220 mm

Moment of inertia for the motor shaft converted load I : $I_\ell$ = 0.00072 kg · m²
There is no play in the chain.

#### [Step 2] Calculation from load

Rated torque of the motor $T_n = 9.55 \times \frac{kW}{n_1}$

$= 9.55 \times \frac{1.5}{1750}$

$= 0.00819\ (kN \cdot m)$

Pin gear drive sprocket shaft torque

$T = T_n \times i = 0.00819 \times 181.9$

$= 1.49\ (kN \cdot m)$

Chain working tension $F = \frac{2T}{d} = \frac{2 \times 1.49}{0.22}$

$= 13.6\ (kN)$

Design chain tension $F'_w = F \times K_s \times K_v$

$= 13.6 \times 1.5 \times 1.0$

$= 20.4\ (kN)$ ····· ①

### {Gravimetric units}

#### [Step 1] Check machine and motor characteristics

Machine: Cutting machine
Motor: 15 kW, 4P, 1750 rpm

GD² of the motor GD²=0.017 kgf · m²

Starting torque Ts ····· 290%
Stalling torque Tb ····· 305%
Reducer reduction ratio i ····· 181.9
Forward and reverse operation frequency ··· Max 900 times/hour
Sprocket pitch circle diameter (PCD) ··· Approximately $\phi$220 mm

GD² of the motor shaft converted load: $GD^2_\ell$ = 0.00072 kg · m²
There is no play in the chain.

#### [Step 2] Calculation from load

Revolution speed of the pin gear drive sprocket $n = 1750 \times \frac{1}{181.9} = 9.6$ rpm

Relative chain speed $V = \frac{220 \times \pi \times 9.6}{1000} = 6.6\ m/min$ ··· Speed factor $K_v = 1.0$

High forward and reverse operation frequency ····· Service factor $K_s = 1.5$

Load is calculated from the torque on the drive side as the mass of the load is unknown.

Rated torque of the motor $T_n = 974 \times \frac{kW}{n_1}$

$= 974 \times \frac{1.5}{1750}$

$= 0.835\ (kgf \cdot m)$

Pin gear drive sprocket shaft torque

$T = T_n \times i = 0.835 \times 181.9$

$= 152\ (kgf \cdot m)$

Chain working tension $F = \frac{2T}{d} = \frac{2 \times 1.49}{0.22}$

$= 1382\ (kgf)$

Design chain tension $F'_w = F \times K_s \times K_v$

$= 1382 \times 1.5 \times 1.0$

$= 2073\ (kgf)$ ····· ①

## [Step 3] Calculation based on acceleration and deceleration time

Working torque $T_m = \frac{T_s + T_b}{2 \times 100} \times T_n$

$= \frac{290 + 305}{2 \times 100} \times 0.00819$

$= 0.0244\ (kN \cdot m)$

As the load is unknown, the rated torque of the motor is $T_n = T_\ell$ and the load torque $T_\ell = 0.00819$ kN · m {0.835 kgf · m}

Acceleration time $t_s = \frac{(I_m + I_\ell) \times n_1}{9550 \times (T_m - T_\ell)}$

$= \frac{(0.00425 + 0.00072) \times 1750}{9550 \times (0.0244 - 0.00819)}$

$= 0.056\ (s)$

Acceleration time $t_b = \frac{(I_m + I_\ell) \times n_1}{9550 \times (T_m + T_\ell)}$

$= \frac{(0.00425 + 0.00072) \times 1750}{9550 \times (0.0244 + 0.00819)}$

$= 0.028\ (s)$

## [Step 3] Calculation based on acceleration and deceleration time

Working torque $T_m = \frac{T_s + T_b}{2 \times 100} \times T_n$

$= \frac{290 + 305}{2 \times 100} \times 0.835$

$= 2.48\ (kgf \cdot m)$

Acceleration time $t_s = \frac{(GD^2_m + GD^2_\ell) \times n_1}{375 \times (T_m - T_\ell)}$

$= \frac{(0.017 + 0.00288) \times 1750}{375 \times (2.48 - 0.835)}$

$= 0.056\ (s)$

Acceleration time $t_b = \frac{(GD^2_m + GD^2_\ell) \times n_1}{375 \times (T_m + T_\ell)}$

$= \frac{(0.017 + 0.00288) \times 1750}{375 \times (2.48 + 0.835)}$

$= 0.028\ (s)$

As the mass (weight) of the load is unknown, it is assumed that the mass M (weight W) is equivalent to the chain working tension F when a friction factor between the support roller and the rotator of 0.3 is applied.

$M = \frac{F}{\mu} \times \frac{1000}{G} = \frac{13.6}{0.3} \times \frac{1000}{9.80665} = 4623\ (kg)$

$F_w = F = 13.6\ (kN)$ [Value calculated in step]

As $t_b < t_s$,

Chain tension while decelerating $F_b = \frac{M \times V}{t_b \times 60 \times 1000} + F_w$

$= \frac{4623 \times 6.6}{0.028 \times 60 \times 1000} + 13.6$

$= 31.8\ (kN)$

Design chain tension while decelerating

$F'_b = F_b \times K_v$

$= 31.8 \times 1.0$

$= 31.8\ (kN)$ ····· ③

$W = \frac{F}{\mu} = \frac{1382}{0.3} = 4607\ (kgf)$

$F_w = F = 1382\ (kgf)$ [Value calculated in step]

As $t_b < t_s$,

Chain tension while decelerating $F_b = \frac{W \times V}{t_b \times 60 \times G} + F_w$

$= \frac{4607 \times 6.6}{0.028 \times 60 \times 9.80665} + 1382$

$= 3228\ (kgf)$

Design chain tension while decelerating

$F'_b = F_b \times K_v$

$= 3228 \times 1.0$

$= 3228\ (kgf)$ ····· ③

## [Step 4] Calculation based on the inertia ratio R

Inertia ratio $R = \frac{I_\ell}{I_m} = \frac{0.00072}{0.00425}$

$= 0.17$

## [Step 4] Calculation based on the inertia ratio R

Inertia ratio $R = \frac{GD^2_\ell}{GD^2_m} = \frac{0.00288}{0.017}$

$= 0.17$

According to Table 4, impact factor K = 0.23 (There is no play in the drive transmission equipment as R < 0.2, R = 0.2.)

Chain tension at start-up

$F_{ms} = \frac{T_s \times i}{(d/2) \times 100} \times T_n$

$= \frac{290 \times 181.9}{\frac{0.22}{2} \times 100} \times 0.00819$

$= 39.3\ (kN)$

Chain tension at stop

$F_{mb} = \frac{T_b \times i}{(d/2) \times 100} \times T_n \times 1.2$

$= \frac{305 \times 181.9}{\frac{0.22}{2} \times 100} \times 0.00819 \times 1.2$

$= 49.6\ (kN)$

As $F_{ms} < F_{mb}$,

Design chain tension $F'_{mb} = F_{mb} \times K \times K_v$

$= 49.6 \times 0.23 \times 1.0$

$= 11.4\ (kN)$ ····· ②

Chain tension at start-up

$F_{ms} = \frac{T_s \times i}{(d/2) \times 100} \times T_n$

$= \frac{290 \times 181.9}{\frac{0.22}{2} \times 100} \times 0.835$

$= 4004\ (kgf)$

Chain tension at stop

$F_{mb} = \frac{T_b \times i}{(d/2) \times 100} \times T_n \times 1.2$

$= \frac{305 \times 181.9}{\frac{0.22}{2} \times 100} \times 0.835 \times 1.2$

$= 5054\ (kgf)$

As $F_{ms} < F_{mb}$,

Design chain tension $F'_{mb} = F_{mb} \times K \times K_v$

$= 5054 \times 0.23 \times 1.0$

$= 1162\ (kgf)$ ····· ②

# Roller Chain Selection

## [Step 5] Comparison of ①, ②, and ③

Comparing ①, ②, and ③, an attachment chain for pin gears that meets 31.8kN [3228 kgf], the maximum working load ③ is selected.

The maximum allowable load for RS160 attachment chain, 37.3 kN [3800 kgf], is acceptable.

The number of the teeth is N = 14 T from the pitch circle diameter of the pin gear specialized sprocket, approximately $\phi$220. (PCD = 231.78 mm)

Step 2 and 3 are calculated again here.

[Step 2]

$$F = \frac{2T}{d} = \frac{2 \times 1.49}{0.23178} = 12.9\ (kN)$$

$$F'w = F \times Kv$$
$$= 12.9 \times 1.0 = 12.9\ (kN)$$

[Step 3]

$$Fmb = \frac{Tb \times i}{(d/2) \times 100} \times Tn \times 1.2$$
$$= \frac{305 \times 181.9}{\frac{0.23178}{2} \times 100} \times 0.00819 \times 1.2 = 46.4\ (kN)$$

$$F'mb = Fmb \times K \times Kv$$
$$= 46.4 \times 0.23 \times 1.0 = 10.7\ (kN)$$

The above selection is acceptable.

[Step 2]

$$F = \frac{2T}{d} = \frac{2 \times 152}{0.23178} = 1295\ (kgf)$$

$$F'w = F \times Kv$$
$$= 1295 \times 1.0 = 1295\ (kgf)$$

[Step 3]

$$Fmb = \frac{Tb \times i}{(d/2) \times 100} \times Tn \times 1.2$$
$$= \frac{305 \times 181.9}{\frac{0.23178}{2} \times 100} \times 0.835 \times 1.2 = 4797\ (kgf)$$

$$F'mb = Fmb \times K \times Kv$$
$$= 4797 \times 0.23 \times 1.0 = 1103\ (kgf)$$

The above selection is acceptable.

## [Step 6] Calculation of the number of links L

$$\text{Number of links L} = \frac{180^\circ}{\tan^{-1}\left(\frac{P}{D+2S}\right)} = \frac{180^\circ}{\tan^{-1}\left(\frac{50.8}{2920}\right)} = 180.6 \cdots\cdots 182 \text{ links}$$

[Conclusion] Chain: RS160 K1 attachments on every 2nd link with 182 links Sprocket: RS160 pin gear specialized sprocket 14T (PCD231.78 mm) or larger, S35C steel, teeth induction hardened.

(Cautions)

① Ambient conditions during applications are not taken into consideration. When the ambient conditions are not adequate, the selection needs to be made in consideration of the conditions.

② Refer to Section 10.2 on page 182 for cautions regarding pin gears.

# 11. Temperature Selection Method

## 11.1 RS Roller Chain temperature selection method

This selection method is for sizes that may experience strength degradation from temperature.
Additionally, lubrication shoud be carried out using a suitable lubricant according to the operating temperatures.

1) Problems with roller chain transmission at high temperatures
- Increased wear due to hardness reduction
- Increased elongation due to softening
- Poor articulation and increased wear due to oil degradation and carburization
- Increased wear and poor articulation due to scaling

2) Problems with roller chain transmission at low temperatures
- Reduction of impact strength due to low temperature brittleness
- Solidification of lubricant
- Poor articutation due to frost and ice adhesion

Table 7 Maximum allowable load of RS Roller Chain at high and low temperatures

| Temperature | RS roller chain | | RS Cold Resistant Chain * |
|---|---|---|---|
| | RS60 or under | RS80 or over | |
| Below – 60℃ | – | – | Unusable |
| – 60℃ - – 50℃ | – | – | Catalog Value × 1/2 |
| – 50℃ - – 40℃ | – | Unusable | 〃 ×2/3 |
| – 40℃ - – 30℃ | Unusable | Catalog Value X 1/4 | Catalog Value |
| – 30℃ - – 20℃ | Catalog Value X 1/4 | 〃 ×1/3 | 〃 |
| – 20℃ - – 10℃ | 〃 ×1/3 | 〃 ×1/2 | 〃 |
| – 10℃ - 60℃ | Catalog Value | Catalog Value | 〃 |
| 60℃ - 150℃ | Catalog Value | Catalog Value | Unusable |
| 150℃ - 200℃ | 〃 ×3/4 | 〃 ×3/4 | – |
| 200℃ - 250℃ | 〃 ×1/2 | 〃 ×1/2 | – |
| Over 250℃ | Unusable | Unusable | – |

Note)
1. * RS Cold Resistant Chain
   - Made to order
   - Select using allowable load selection method
2. The ambient temperature is different from the temperature of the roller chain itself.

## 11.2 Lambda Chain KF Series Lube Free Drive Chain Selection

Use the kilowatt ratings chart based selection method for selecting lube free drive chains.

Corrected kW < kW ratings =
Catalog kW ratings × Temperature coefficient

Note: The chain is usable if the kilowatt ratings are greater than the corrected kW.

Multiply the ambient temperature the chain will be used in by the temperature coefficient in Table 2 below to calculate kilowatt ratings. Calculate the temperature coefficient with the maximum usage temperature of the equipment on which the chain will be installed.

**Table 2: Temperature Coefficient by Ambient Temperature**

| Temperature | RS40 – RS80 |
|---|---|
| Room temperature – 150°C | Catalog kW rating × 1 |
| 150°C – 200°C | Catalog kW rating × 3/4 |
| 200°C – 230°C | Catalog kW rating × 1/2 |

Note: A double-strand LMC chain only has the maximum allowable load of a single-strand LMD chain.
Always confirm strength when using for power transmission.

## 11.3 Selection method for Stainless Steel Roller Chain (SS and NS series) at high temperatures (400℃ or higher)

As the temperature of a chain increases, its strength decreases. The usage limit at high temperatures is determined by the temperature of the chain itself. Contact a Tsubaki representative when using stainless steel chain at ambient temperatures of 400℃ or higher. However, chain cannot be used at 700℃ or higher. When a chain is selected using the temperature selection method, the chain speed must be below the maximum speed of the allowable load selection method.
Changes and cautions associated with high temperature environments are:
1) All clearances need to be abjusted to prevent poor articulation and poor roller rotation due to thermal expansion.
2) The chain may break (creep rupture) under low loads as the temperature increases.

# 12. Special selection method for Corrosion Resistant Roller Chain

When selecting Corrosion Resistant Chain use the allowable load selection method.
1) The maximum allowable tension for Corrosion Resistant Chain is low compared to Standard RS Roller Chain (excluding NEP).
2) Avoid using offset links when possible.
3) Refer to the following page when acid or alkali solutions or chemicals will come in direct contact with the chain.
4) Selection formula:

Maximum working load applied to the chain × Service factor Ks × RPM Kn × Number of teeth factor Kz ≦ Maximum allowable load of the chain

# Roller Chain Selection

## 13. Corrosion resistance guide for Corrosion Resistant Chains and Sprockets

Corrosion resistance varies accordingly depending on application conditions. This table should not be considered as a guarantee. Using this chart as a reference, be sure to check the corrosion resistance of the chain in advance according to the actual operating conditions determining chain type.

○ : Sufficient corrosion resistance
△ : Corrosion resistance in some applications
× : No corrosion resistance
– : Unknown

| Chemical / Food product | | | Corrosion-Resistant Drive Chain | | | | | | | Sprocket | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | SS | LSC | AS | NS | TI | PC | PC-SY | Engineering plastic | SS |
| Acetic acid | 10% | 20℃ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | △ | ○ |
| Acetone | | 20℃ | ○ | ○ | ○ | ○ | ○ | ○ | × | ○ | ○ |
| Alcohol (Methyl, ethyl, propyl, and butyl) | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Aluminum sulfate | Saturated | 20℃ | ○ | ○ | × | ○ | ○ | – | – | – | ○ |
| Ammonia water | | 20℃ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Ammonium chloride | 50% | Boiling point | △ | △ | × | ○ | ○ | – | – | – | △ |
| Ammonium nitrate | Saturated boiling | | ○ | ○ | ○ | ○ | ○ | △ | ○ | ○ | ○ |
| Ammonium sulfate | 〃 | 20℃ | ○ | ○ | △ | ○ | ○ | – | – | – | ○ |
| Beer | | 20℃ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Benzene | | 20℃ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Boric acid | 50% | 100℃ | ○ | – | ○ | ○ | ○ | – | – | – | ○ |
| Butyric acid | | 20℃ | ○ | – | ○ | ○ | ○ | ○ | – | ○ | ○ |
| Calcium chloride | 〃 | 20℃ | △ | – | × | ○ | ○ | △ | ○ | ○ | △ |
| Calcium hydroxide | 20% | Boiling | ○ | – | ○ | ○ | ○ | ○ | ○ | – | ○ |
| Calcium hypochlorite (Bleaching powder) Available chlorine | 11～14% | 20℃ | ○ | – | × | ○ | ○ | × | ○ | △ | ○ |
| Carbolic acid | | 20℃ | ○ | – | ○ | ○ | ○ | × | ○ | × | ○ |
| Carbon tetrachloride (Dry) | | 20℃ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Carbonated water | | | ○ | ○ | ○ | ○ | ○ | – | – | – | ○ |
| Chlorine gas (Dry) | | 20℃ | △ | – | × | △ | ○ | – | ○ | × | △ |
| Chlorine gas (Wet) | | 20℃ | × | × | × | △ | ○ | – | ○ | × | × |
| Chlorine water | | | × | × | × | ○ | ○ | × | – | × | × |
| Chromium acid | 5% | 20℃ | ○ | ○ | △ | ○ | ○ | × | ○ | × | ○ |
| Citric acid | 50% | 20℃ | ○ | ○ | ○ | ○ | ○ | – | ○ | ○ | ○ |
| Coffee | | Boiling | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Cola syrup | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Concentrated nitric acid | 65% | 20℃ | ○ | × | × | ○ | ○ | × | ○ | × | ○ |
| 〃 | 〃 | Boiled | △ | × | × | △ | ○ | × | × | × | △ |
| Creosote | | 20℃ | ○ | – | ○ | ○ | ○ | – | – | – | ○ |
| Developing solution (Photo) | | 20℃ | ○ | – | △ | ○ | ○ | ○ | ○ | ○ | ○ |
| Ether (Ethyl ether) | | 20℃ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Ferric chloride | 5% | 20℃ | △ | △ | × | △ | ○ | – | – | × | △ |
| Formalin (Formaldehyde) | 40% | 20℃ | ○ | ○ | ○ | ○ | ○ | – | – | △ | ○ |
| Formic acid | 50% | 20℃ | ○ | × | ○ | ○ | ○ | × | ○ | × | ○ |
| Fruit juice | | 20℃ | ○ | ○ | △ | ○ | ○ | ○ | ○ | ○ | ○ |
| Gasoline | | 20℃ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Glycerine | | 20℃ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Honey, syrup | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Hydrochloric acid | 2% | 20℃ | × | × | × | × | ○ | × | ○ | × | × |
| Hydrogen peroxide | 30% | 20℃ | ○ | – | △ | ○ | ○ | × | ○ | × | ○ |
| Hydrogen sulfide (Dry) | | | ○ | – | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 〃 | | (Moistened) | × | × | × | × | ○ | × | – | – | × |
| Kerosene | | 20℃ | ○ | ○ | ○ | ○ | ○ | – | ○ | – | ○ |
| Ketchup | | 20℃ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Lactic acid | 10% | 20℃ | ○ | ○ | △ | ○ | ○ | ○ | – | ○ | ○ |
| Lard | | | ○ | – | ○ | ○ | ○ | – | – | – | ○ |
| Linseed oil | 100% | 20℃ | ○ | – | △ | ○ | ○ | ○ | – | ○ | ○ |

| Chemical / Food product | | | Corrosion-Resistant Drive Chain | | | | | | | Sprocket | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | SS | LSC | AS | NS | TI | PC | PC-SY | Engineering plastic | SS |
| Malic acid | 50% | 50℃ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Mayonnaise | | 20℃ | ○ | ○ | △ | ○ | ○ | ○ | ○ | ○ | ○ |
| Milk | | 20℃ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Nitric acid | 5% | 20℃ | ○ | – | △ | ○ | ○ | × | ○ | × | ○ |
| Oil (Plant and mineral) | | 20℃ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Oleic acid | | 20℃ | ○ | ○ | ○ | ○ | ○ | ○ | – | ○ | ○ |
| Oxalic acid | 10% | 20℃ | ○ | ○ | △ | ○ | ○ | – | ○ | ○ | ○ |
| Paraffin | | 20℃ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Petroleum | | 20℃ | ○ | – | ○ | ○ | ○ | ○ | – | ○ | ○ |
| Phosphoric acid | 5% | 20℃ | ○ | – | △ | ○ | ○ | × | ○ | × | ○ |
| 〃 | 10% | 20℃ | △ | × | △ | △ | ○ | × | ○ | × | △ |
| Picric acid | Saturated | 20℃ | ○ | – | ○ | ○ | ○ | – | – | – | ○ |
| Potassium chloride | Saturated | 20℃ | ○ | ○ | △ | ○ | ○ | – | – | ○ | ○ |
| Potassium dichromate | 10% | 20℃ | ○ | ○ | ○ | ○ | ○ | ○ | – | ○ | ○ |
| Potassium hydroxide | 20% | 20℃ | ○ | × | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Potassium nitrate | 25% | 20℃ | ○ | ○ | ○ | ○ | ○ | ○ | – | ○ | ○ |
| 〃 | 25% | Boiling point | ○ | – | × | ○ | ○ | – | – | – | ○ |
| Potassium permanganate | Saturated | 20℃ | ○ | ○ | ○ | ○ | ○ | – | ○ | × | ○ |
| Seawater | | 20℃ | △ | △ | × | ○ | ○ | △ | ○ | ○ | △ |
| Soapy water | | 20℃ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Sodium carbonate | | Saturated boiling point | ○ | ○ | ○ | ○ | ○ | – | ○ | △ | ○ |
| Sodium chloride | 〃 | 20℃ | ○ | ○ | △ | ○ | ○ | ○ | ○ | ○ | ○ |
| Sodium cyanide | | 20℃ | ○ | ○ | – | ○ | ○ | – | – | – | ○ |
| Sodium hydrogen carbonate | | 20℃ | ○ | ○ | ○ | ○ | ○ | ○ | – | ○ | ○ |
| Sodium hydroxide | 25% | 20℃ | ○ | × | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Sodium hypochlorite | 10% | 20℃ | × | × | × | ○ | ○ | × | ○ | △ | × |
| Sodium perchlorate | 10% | Boiling point | ○ | – | × | ○ | ○ | – | – | – | ○ |
| Sodium sulfate | Saturated | 20℃ | ○ | ○ | ○ | ○ | ○ | – | – | – | ○ |
| Sodium thiosulfate | 25% | Boiling point | ○ | ○ | ○ | ○ | ○ | – | – | – | ○ |
| Soft drink | | 20℃ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Stearic acid | 100% | Boiling point | × | × | × | ○ | ○ | × | – | ○ | × |
| Sugar solution | | 20℃ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Sulfur Dioxide (Wet) | | 20℃ | ○ | – | × | ○ | ○ | – | – | – | ○ |
| Sulfuric acid | 5% | 20℃ | × | × | × | ○ | ○ | × | ○ | × | × |
| Synthetic detergent | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Tartaric acid | 10% | 20℃ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Turpentine oil | | 35℃ | ○ | – | ○ | ○ | ○ | – | – | – | ○ |
| Varnish | | | ○ | – | ○ | ○ | ○ | – | – | – | ○ |
| Vegetable juice | | 20℃ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Vinegar | | 20℃ | △ | – | × | ○ | ○ | △ | ○ | △ | △ |
| Water | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Whiskey | | 20℃ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Wine | | 20℃ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Zinc chloride | 50% | 20℃ | △ | △ | × | △ | ○ | △ | ○ | × | △ |
| Zinc sulfate | 25% | Saturated 20℃ | ○ | ○ | ○ | ○ | ○ | – | ○ | – | ○ |

# Handling Roller Chains and Sprockets

## 1. How to Cut Roller Chain

If the chain you purchased is either a unit length (3,048 mm) or on a reel, it is necessary for you to cut the chain to the necessary length.

How to cut a roller chain
- Using a chain vise and punch
- Using a chain breaker

### 1. 1 Using a chain vise and punch

1) For riveted type roller chain, grind down one end of the outer plate's two pins (same side) to the surface of the plate. Be careful of the chain overheating during the grinding process.This process is unnecessary for Poly Steel Chain as there are no rivets. As RS08B-1 to RS16B-1 use easy cutting pins, the rivets do not need to be ground.
2) Remove the cotter pin for cotter pin type roller chain.

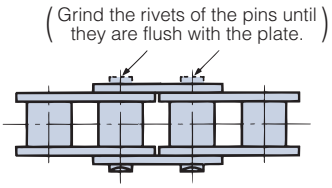



Fig. 1 Rivet-type roller chain

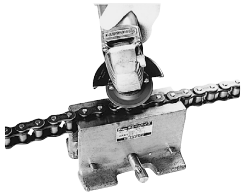


Fig. 2 Grinding the pin ends

3) Place the roller chain into the groove of the chain vise (see Accessories Section) and tighten the vise to secure the roller to be disassembled.
   ① Follow 1.3 and 1.4 for Poly Steel Chain and Lambda chain.
   ② For multi-strand Super Roller Chain, place the lowest roller into the groove of the chain vise.

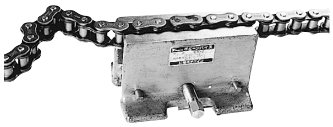
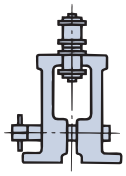


Fig. 3 Setting the roller chain in the chain vise



Setting Super Roller Chain

4) Place a primary punch (see Accessories Section), according to chain size, on the head of the ground pin, and then hit the head of the primary punch with a hammer. Make sure to hit the pins alternatively to ensure the pins are removed evenly and at the same time. Continue to tap the pin until just before the pin is removed from the outer plate.

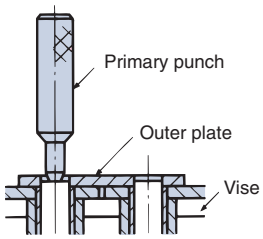



Fig. 4 Tapping the pin with the primary punch

5) Use a secondary punch (see Accessories Section) to remove the pin completely from the outer link plate. Check to make sure that the bush where the pin was removed has not come loose or deformed. Do not use if loose or deformed.

**⚠ Safety precautions**

① Make sure to use a grinder when grinding the riveted portion of one end of the rivet-type pin. If it is extracted without being ground first, more time and effort will be spent, and will damage the chain.
② Do not reuse any removed parts.

### 1. 2 Using a chain breaker

1) For riveted type roller chain, grind down one end of the outer plate's two pins (same side) to the surface of the link plate. (Same as 1.1) Remove the cotter pin for cotter pin type roller chain.
2) Remove the two pins from the same outer plate. Check to make sure that the bush where the pin was removed has not come loose or deformed. Do not use if loose or deformed.

Fig. 5 How to cut a chain using a chain screw

**⚠ Safety precautions**

① A chain breaker (see Accessories Section) is a tool made for cutting chain, and can cut roller chain that is set on a machine. In this case, it is necessary beforehand to support the load on the roller chain and the weight of the roller chain itself to prevent it from falling after being cut.
② Do not reuse any removed parts.

### 1. 3 How to cut Poly Steel Chain

1) Support the outer plate of the chain in the cradle and push down on the pinhead with the exclusive punch. Then lightly hit the head of the punch using a hammer.
2) Avoid using excess force on the engineering plastic part, as there is a possibility of causing damage.

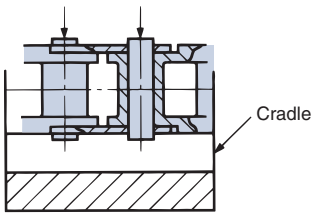



Fig. 6 Poly Steel Chain set in a cradle

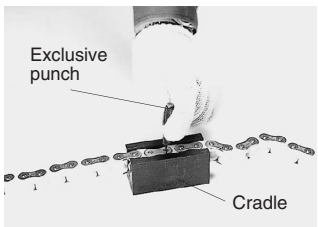



Fig. 7 Cutting Poly Steel Chain

# Handling Roller Chains and Sprockets



### 1. 1 How to cut Lambda Chain

1) Support the chain with a chain vise and grind down one end of the outer link plate's two pins (same side) to the surface of the link plate. Be careful of the chain overheating during the grinding process. Grinding should be carried out slowly so as not to overheat the bushes in particular.
2) Then cut the chain using an exclusive cradle (see Accessories section) and an RS Roller Chain punch. Important points for cutting are outlined in 4) and 5) in 1.1. However, use an exclusive cradle instead of a vise.
3) Hit the pins alternatively when removing the pins with a punch. Take extra care not to remove or cause any damage to the bush. Do not use bush if it has come loose or been damaged.

## 2. How to Connect Roller Chain

### 2. 1 When connecting chain on sprocket teeth

When connecting or disconnecting roller chain, it is convenient to use the sprocket teeth. Please carry out the following steps.

1) Wind the chain around one of the sprockets so that both ends of the chain are facing each other on the sprocket.
2) Insert the connecting link in the two end links of the chain.
3) Insert the connecting link plate of the connecting link and fasten the plate using the clips/cotter pins or spring pins provided.
4) When using a press-fit connecting link or F-Type (semi press-fit) connecting link, insert the connecting link plate by tapping it with a hammer until it moves into position. Then fasten it using the clips/cotter pins or spring pins provided.
5) When using the sprocket teeth to connect the chain, take care not to damage the teeth, particularly when using a cast iron sprocket.

Fig. 8 Connecting on a sprocket

### 2. 2 When connecting between shafts

If a sprocket cannot be used due to layout, follow the procedures below.

1) Wind the chain around the sprockets and pull the chain ends together using a chain puller (see Accessories section) or wire.
2) Insert the connecting link in the two end links of the chain.
3) Insert the connecting link plate of the connecting link and fasten the plate using the clips/cotter pins or spring pins provided.

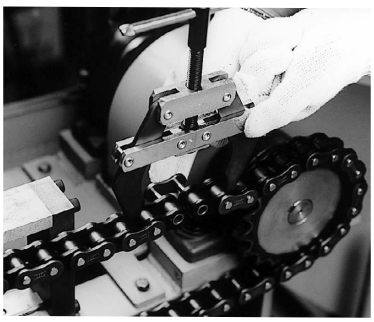


Fig. 9 Connecting between shafts

### 2. 3 Clip and Cotter Pins

1) Clip

Clips are used for small size roller chain (under RS60) connecting links. When connecting the chain, the clip should be inserted securely into the slot of the pin on the connecting link after the connecting plate has been inserted on the pin. If the legs of the clips are spread too far they will not catch properly and will fall off during operation of the chain, causing accidents. Care should be taken when inserting them. The clip is generally installed opposite to the direction of travel for the chain as shown in Fig. 10.

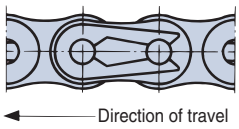
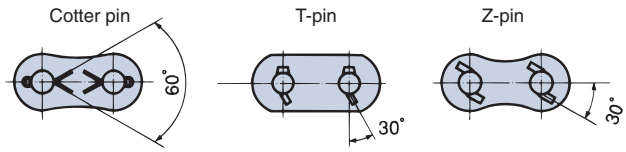



Fig. 10 Direction in which the clip is installed

2) Cotter Pins

Tsubaki cotter pins are heat treated for Standard, Heavy-Duty, and Lambda Chain. The legs of the cotter pin should be bent approx. 60 degrees. Cotter pins should not be reused, and commercially available cotter pins other than those produced by Tsubaki should be avoided.

Fig. 11 Opening range of pins




RS Roller Chain cotter pin dimensions (These pins are not available commercially.)

| Chain size | Nominal cotter pin dimension | Chain size | Nominal cotter pin dimension |
|---|---|---|---|
| RS35 | 1 × 6 | RS100 | 2.5×20 |
| RS40 | 1 × 6 | RS120 | 3 ×23 |
| RS50 | 1.6× 8 | RS140 · RS160 | 4 ×24.5 |
| RS60 | 2 ×10 | RS180 | 5 ×32 |
| RS80 | 2.5×14 | RS200 | 5 ×37 |

Note: RS240 uses a roll pin.

**⚠ Safety Precautions**

① Avoid using offset links wherever possible by varying the center distance between shafts or using an idler.

② In the case of pins and connecting link plate holes being press-fit type with F-Type or other connecting links, please avoid widening the connecting link plate hole or narrowing the pin diameter to make connecting easier, as this will result in a reduction in roller chain strength and cause an accident.

③ The outer link of cotter pin type roller chain can be used as a substitute for the connecting link. However, due to the press fit connection, the outer link plate must be carefully driven onto the pin parallel to the connecting link. If the connecting link plate is installed without due care to parallelism, chain damage or increased wear may result. Use caution as per (2) above.

④ Do not reuse press fit type link plates that have been detached, as the detachment results in a reduction in strength.

# 3. Roller Chain Lubrication

Lubrication is very important in roller chain transmission, and becomes especially important when stringent demands are placed on chain performance.
When lubrication is not complete, even the most advanced transmission device will not realize its full service life. Under some conditions the device may wear out within a very short period of time. For this reason, exercise special care with respect to lubrication.

1) The main reason for oiling and lubing roller chain is to minimize wear elongation of the chain and prevent corrosion. Wear elongation is caused by wear between the pin and bush in articulating parts.
2) Roller chain is coated with oil before being packaged (except for stainless steel chain). This oil is a high grade oil that prevents rust and provides lubrication. The oil prevents the wear that frequently occurs in the initial stage of operation, and it works well with lubrication oil to maintain a high wear resistance.
3) Avoid wiping the oil coating off of delivered roller chain, and avoid washing the chain with detergent or other cleaning agents.

## 3.1 Oil application locations

1) Roller chain wear occurs from wear between each pin and bush, and thus oil must be applied to these parts.
2) On the slack part of the chain, apply lubrication oil to the gap between each outer plate and inner plate. At the same time, apply oil between the bushes and rollers.

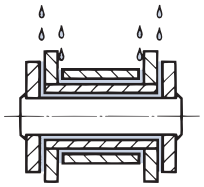


Fig. 10 Oiling locations

## 3.2 Chain used for lifting

1) In general the chain has no catenary parts. If possible, remove the load that acts on the roller chain before lubing the chain.
2) For roller chain that does not articulate, oil the chain sufficiently and then apply a thick layer of grease around the roller chain to prevent corrosion.
   Sufficiently lube end fitting connections, even if these do not move.
3) For roller chain that is used outdoors, contact with rain and snow will remove the lubrication and cause harmful corrosion, and thus a cover or other protection should be installed.
   If rain or snow does fall on the chain, remove the moisture and then promptly lube the chain and coat it with a thick layer of grease.

## 3.3 Recommended lubricating oils

1) SAE numbers (Table 1)

| Lubricant type | AⅠ・AⅡ・B | | | | C | | | |
|---|---|---|---|---|---|---|---|---|
| Ambient temperature / Chain number | −10°C to 0°C | 0°C to 40°C | 40°C to 50°C | 50°C to 60°C | −10°C to 0°C | 0°C to 40°C | 40°C to 50°C | 50°C to 60°C |
| RS50 or lower small pitch chain | SAE10W | SAE20 | SAE30 | SAE40 | SAE10W | SAE20 | SAE30 | SAE40 |
| RS60 / 80 | SAE20 | SAE30 | SAE40 | SAE50 | | | | |
| RS100 | | | | | SAE20 | SAE30 | SAE40 | SAE50 |
| RS120 or higher large pitch chain | SAE30 | SAE40 | SAE50 | | | | | |

2) Commercially available lubrication (Table 2)

Manufacturer names are shown in no particular order

| SAE / ISOVG (cSt40℃) / Manufacturer name | SAE10W | SAE20 | SAE30 | SAE40 | SAE50 |
|---|---|---|---|---|---|
| | 32 | 68 | 100 | 150 | 220 |
| Idemitsu Kosan | Daphne Mechanic Oil 32 | 〃 68 | 〃 100 | 〃 150 | 〃 220 |
| Exxon Mobile | DTE Oil Light | 〃 Heavy Medium | 〃 Heavy | 〃 Extra Heavy | 〃 BB |
| Showa Shell Sekiyu | Terasu Oil C32 | 〃 68 | 〃 100 | 〃 150 | 〃 220 |
| JX Nippon Oil & Energy | Super Mulpus DX32 | 〃 68 | 〃 100 | 〃 150 | 〃 220 |
| | FBK Oil RO32 | 〃 68 | 〃 100 | 〃 150 | 〃 220 |

3) Examples of lubrication at low and high temperatures (Table 3)

The following oils are available when roller chain is used at low or high temperatures. Regarding other brands, use an equivalent.

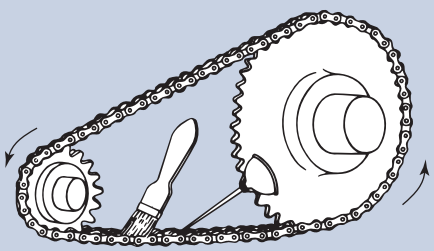
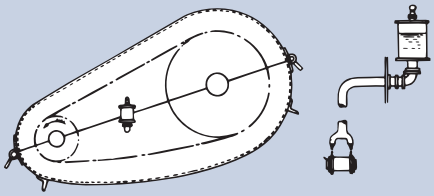
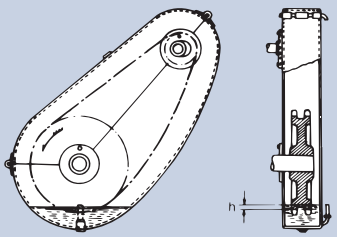
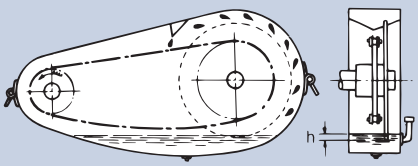
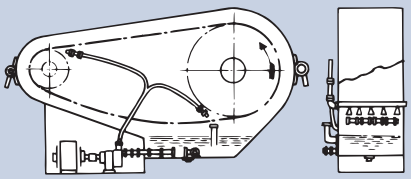
| Ambient and operating temperature | −50°C to −25°C | −25°C to 0°C | −10°C to 60°C | 60°C to 200°C | 150°C to 250°C |
|---|---|---|---|---|---|
| Manufacturer name Lubrication name | Toray Dow Corning SH510<br>Shin-Etsu Chemical KF50<br>GE Toshiba Silicon TSF431 | Exxon Mobile Artic Oil C baby | See above | Sato Special Oil Co. Hot Bearing Oil #255<br>Exxon Mobile DTE Oil HH<br>Matsuken Moresukohai Lube L-150 | Sato Special Oil Co. High Thermal Lube #700 |

Lubrication methods are drip, manual, and brush.

# Handling Roller Chains and Sprockets



## 3.4 Lubrication systems and methods (Table 4)

| Lubrication system | | Method | | Quantity |
|---|---|---|---|---|
| A | I |  | Apply oil to the gaps in the pins and inner links on the slack side of the chain. A brush can also be used.<br>⚠ Stop operation before oiling. | Oil with sufficient frequency (in general about once every 8 hours) so that the roller chain bearings do not dry out. |
| | II | Drip Lubrication<br>  | Using a simple case, this method drips oil supplied from an oil cup. | For one strand of chain, drip about 5 to 20 drops of oil each minute. Drip more oil on higher speed chains. |
| B | | Oil Bath<br>  | The chain is run through oil in a leak-free casing. | If depth h from the surface of the oil to the lowest point the chain reaches is too deep, the oil may heat up (80°C or higher) and deteriorate. The depth to which the chain descends in the oil should be about 6 to 12 mm. |
| | | Lubrication using a Slinger Disc<br>  | Use a slinger disc attached to a leak free case to splash oil on the chain. The peripheral velocity of the disc should be 200 m/min or higher.<br>If the width of the chain is greater than 125 mm, attach discs to both sides. | The lowest point h reached by the slinger disc should be about 12 to 25 mm below the surface of the oil. The roller chain should not enter the oil. |
| C | | Forced Lubrication<br>  | The oil is circulated in a leak-free case and cooled by a pump. When there are n strands of chain, n+1 oiling holes are required, targeting the gaps between each part. | Approximate oiling quantity per oiling hole (L/min) |

Approximate oiling quantity per oiling hole (L/min)

| Name \ Chain number | Chain speed (m/min) | RS60 or smaller | #80 #100 | #120 #140 | #160 or larger |
|---|---|---|---|---|---|
| RS | 500 – 800 | 1.0 | 1.5 | 2.5 | 4.0 |
| SUP | Less than 300 | | | | |
| RS | 800 – 1,100 | 2.0 | 2.5 | 3.5 | 5.0 |
| SUP | 300 – 500 | | | | |
| RS | 1,100 – 1,400 | 3.0 | 3.5 | 4.5 | 6.0 |
| SUP | 500 or more | | | | |

To verify sufficient lubrication is taking place, remove the chain and inspect the connecting pins and bushes. If the contact surfaces of the pins or bushes show tearing or a red or dark brown color, lubrication is generally not sufficient.

# 4. Layout and Installation of Roller Chain

## 4.1 Speed ratio and chain lap

A roller chain transmission speed ratio up to 7:1 is normally suitable; however, at very slow speeds a ratio up to about 10:1 is possible. The chain lap between the small sprocket and chain must be 120° or more. For lifting applications, the angle must be 90° or more.

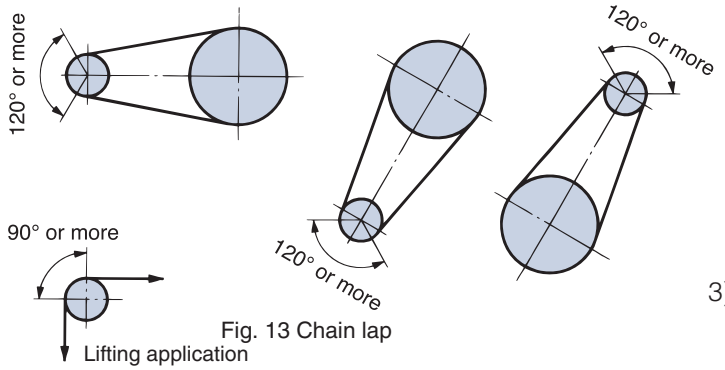


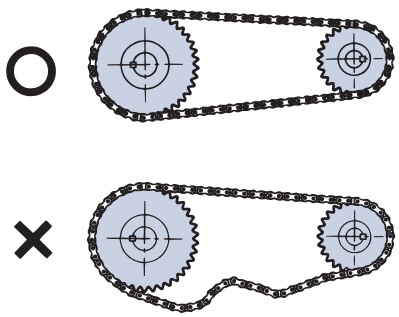

Fig. 13 Chain lap

## 4.2 Distance between shafts

The minimum distance can be as short as desired as long as the teeth of the two sprockets are not in contact. The optimum center-to-center distance between the shafts is 30 to 50 times the pitch of the roller chain. However, if the load is variable, a distance of 20 times or less is suitable.

## 4.3 Amount of slack

1) Unlike V or flat-belt transmission, there is no need to apply an initial tension in roller chain transmission; roller chain is normally used with a suitable amount of slack.
   If too much tension is applied to roller chain, the oil film between the pins and bushes will break, causing increased wear and damage on the roller chain and bearings. If there is too much slack in the roller chain, the chain will vibrate and ride up the sprocket, damaging both chain and sprocket.



2) If possible, the lower side should be the slack side in roller chain transmission. The amount of slack is appropriate when the distance (SS') that the chain can be moved perpendicularly by hand at the center of the slack side is 4% of the span (AB). (For example, when the span is 800 mm, the amount of slack should be 800 mm x 0.04 = 32 mm.)

   In the following situations, this should be 2%:
   1) When the transmission is vertical or close to vertical (a tensioner is required).
   2) When the distance between the shafts is more than 1 m.
   3) When frequent starts are made with a heavy load.
   4) When sudden reverse motion takes place.

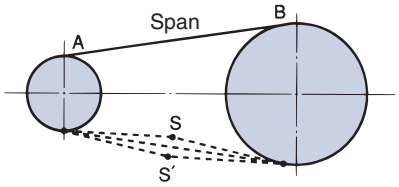



Fig. 14 Amount of slack

3) Roller chain will stretch slightly during the first few dozen hours of use as the contact surfaces wear in (about 0.05%). This may result in too much slack in the roller chain and may require adjustment of the slack.
   A tensioner can be used if the layout is designed for it. If you do not have a tensioner, move the shafts to adjust the amount of slack. Once the chain is worn in, very little stretching will occur.

## 4.4 Horizon precision and parallelism of the shafts

The installation precision of the sprocket has a large effect on the smoothness of roller chain transmission. It also affects roller chain life.
Install the sprockets correctly as described below.

1) Verify Horizontal precision with a level.
   Adjust the precision to within ±1/300.

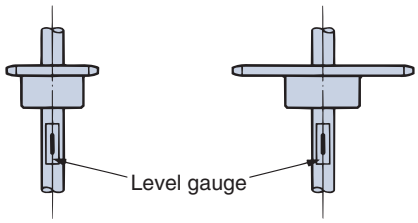



Fig. 15 Horizontal precision

2) Use a scale to correct the degree of parallelism of the shafts.
   Adjust the shafts so that they are parallel to within ±1/300 = (A-B/L).

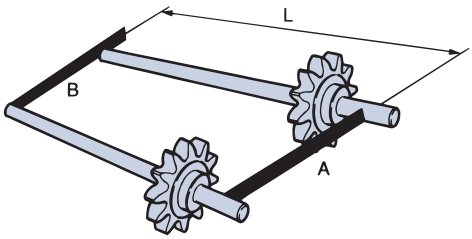



Fig. 16 Degree of parallelism of the shafts

# Handling Roller Chains and Sprockets



3) Using a straightedge (or a scale), adjust the two sprockets so that they are parallel. Adjust to within the following values based on the distance between the shafts.

Up to 1 m : ± 1 mm

1 m to 10m : $\pm \frac{\text{Distance between shafts(mm)}}{10{,}000}$

10m or more : ± 10 mm

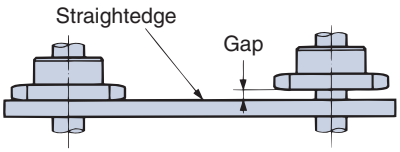



Fig. 17 Sprocket misalignment

4) Secure each sprocket to the shaft with a power lock, lock sprocket, or key (if needed use a collar, set bolt, etc.).

### 4.5 Layout (✤indicates the driver side in the illustrations)

1) General layout

Ideally, the line connecting the sprocket centers in the roller chain transmission equipment should be close to level. In a layout that is close to vertical, the roller chain may stretch and fall off the sprocket. Thus, an idler or tensioner should be used. If possible keep the angle of inclination within 60°.

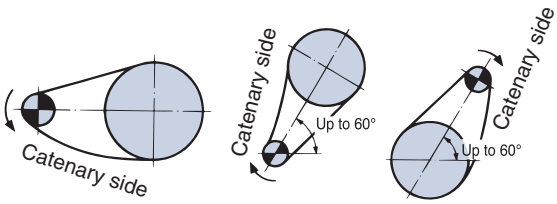



Fig. 18 General layout

2) Layouts requiring caution

(1) When the slack is on the upper side

When the center-to-center distance between the shafts is short, move the shafts to adjust the distance and slightly increase the tension.

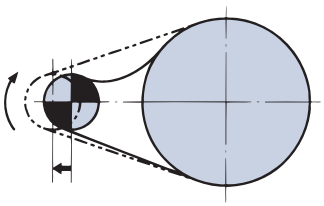


Fig. 19 Layout when the center-to-center distance is short

When the center-to-center distance is long, insert an intermediate idler under the slack part to support the roller chain.

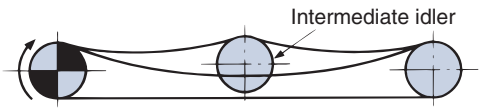



Fig. 20 Layout when the center-to-center distance is long

(2) When the chain speed is fast and the load varies

Roller chain may vibrate if the natural vibration frequency of the chain, shock frequency of the driven machine, or chordal action of the chain (vertical pulsation of the chain due to the polygon effect) synchronize. In this event, use a guide shoe (made of NBR or ultra-high polymer polyethylene) or other device to stop the vibration.

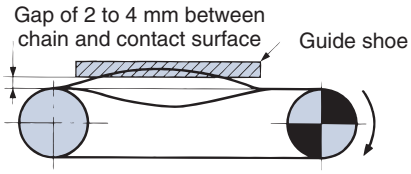



Fig. 21 Guide shoe to prevent vibration

(3) When the centerline is vertical

Install a tensioner that can automatically eliminate excess slack. This is particularly necessary when the drive shaft is on the bottom.

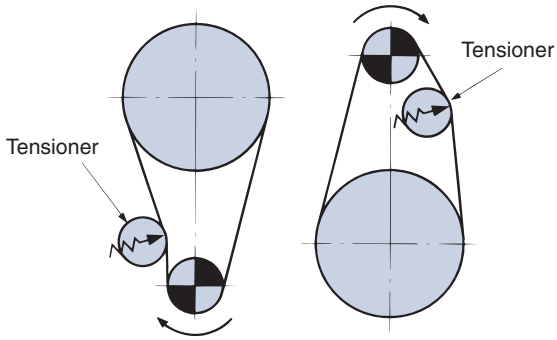
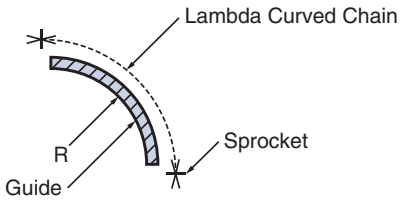



Fig. 22 Vertical transmission

### 4.6 Lambda Curved Chain installation

1) Installing the guide

Compared to a standard chain, a Lambda Curved Chain has a larger gutter between the pins and bushes, providing a greater degree of freedom. For this type of chain, please install a guide on the chain so that it engages straight onto the sprocket.




Guide

2) Minimum lateral bending radius (r)

Please manufacture the guide so that its minimum lateral bending radius is equal to or greater than the specifications shown below.

| | Minimum lateral bending radius (r) |
|---|---|
| RS40-LMC-CU-I | 400 |
| RS50-LMC-CU-I | 500 |
| RS60-LMC-CU-I | 600 |

# 5. Sprockets

## 5.1 Hardening the teeth

When a sprocket is used under the following conditions, the sprocket teeth must be hardened.

1) When there is a small number of teeth (24 or less), and the speed is 1/8 or higher of the maximum rotation speed indicated on the kilowatt ratings tables.
2) When using small sprockets with a speed ratio of greater than 4:1.
3) When a large load is used at low speed (when using the Low-Speed Selection Method).
4) When using under conditions that will cause the teeth to wear.

## 5.2 Number of teeth

As many teeth as possible should be used on the sprocket on the high-speed shaft side to help ensure smooth drive transmission. Generally, 15 or more teeth should be used. However, when the speed ratio is high and the number of teeth on the low-speed sprocket exceeds 120, chain engagement problems can occur when there is even slight chain wear. In this case, decrease the number of teeth on the high-speed sprocket, but the number of teeth should still be kept to 13 or higher. However, if the sprocket will be used at extremely low speed and not subjected to shock, a sprocket with 12 or fewer teeth can be used.

## 5.3 Precautions related to additional processing

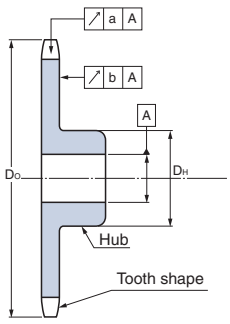
1) Shaft bore processing

① Maximum shaft bore processing dimensions

The maximum finished shaft bore size should be at or below the size shown in the specifications for each model number. Please contact a Tsubaki representative if using standards other than the JIS standards key.

② Finishing standards

When finishing, verify the standards for the tooth outer diameter ("$D_O$" in the diagram) and the hub outer diameter ("$D_H$" in the diagram).
Also, verify that the deflection on the tooth root ("a" in the diagram) and the deflection on the end surface of the tooth ("b" in the diagram) are at or below the values shown below.




When using machine specifications

| Diameter of tooth root cylinder | 90 or less | > 90 but ≦ 190 | > 190 but ≦ 850 | > 850 but ≦ 1180 | Greater than 1180 |
|---|---|---|---|---|---|
| Deflection at tooth root a | 0.15 | 0.0008d$f$+0.08 | | 0.76 | |
| Face runout | 0.25 | | 0.0009d$f$+0.08 | | 1.14 |

2) Sprocket welding

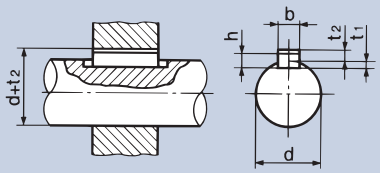
When welding a hub to Type A sprockets for use, the welding can cause deformation or deflection of the tooth and surface, making it impossible to maintain product quality. As such, welding should be avoided.
With Type A Strong Series sprockets, welding can also decrease the hardness of the sprockets, so again, welding should be avoided.

3) Processing on the hub outer diameter

Do not perform any additional processing to the outer diameter of the hub. If processing needs to be performed, please first contact a Tsubaki representative.

New JIS key (Table 5)

Parallel key
(JIS B 1301-1996)

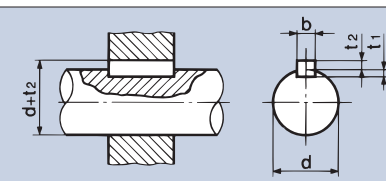



| Shaft bore diameter d | Designated key diameter Shaft × Height b × h | Keyway depth Shaft $t_1$ | Keyway depth Boss d+$t_2$ |
|---|---|---|---|
| 6 — 8 | 2×2 | 1.2 | d+ 1.0 |
| 8 〃 10 | 3×3 | 1.8 | d+ 1.4 |
| 10 〃 12 | 4×4 | 2.5 | d+ 1.8 |
| 12 〃 17 | 5×5 | 3.0 | d+ 2.3 |
| 17 〃 22 | 6×6 | 3.5 | d+ 2.8 |
| 20 〃 25 | (7×7) | 4.0 | d+ 3.0 |
| 22 〃 30 | 8×7 | 4.0 | d+ 3.3 |
| 30 〃 38 | 10×8 | 5.0 | d+ 3.3 |
| 38 〃 44 | 12×8 | 5.0 | d+ 3.3 |
| 44 〃 50 | 14×9 | 5.5 | d+ 3.8 |
| 50 〃 55 | (15×10) | 5.0 | d+ 5.0 |
| 50 〃 58 | 16×10 | 6.0 | d+ 4.3 |
| 58 〃 65 | 18×11 | 7.0 | d+ 4.4 |
| 65 〃 75 | 20×12 | 7.5 | d+ 4.9 |
| 75 〃 85 | 22×14 | 9.0 | d+ 5.4 |
| 80 〃 90 | (24×16) | 8.0 | d+ 8.0 |
| 85 〃 95 | 25×14 | 9.0 | d+ 5.4 |
| 95 〃 110 | 28×16 | 10.0 | d+ 6.4 |
| 110 〃 130 | 32×18 | 11.0 | d+ 7.4 |
| 125 〃 140 | (35×22) | 11.0 | d+11.0 |
| 130 〃 150 | 36×20 | 12.0 | d+ 8.4 |
| 140 〃 160 | (38×24) | 12.0 | d+12.0 |
| 150 〃 170 | 40×22 | 13.0 | d+ 9.4 |
| 160 〃 180 | (42×26) | 13.0 | d+13.0 |
| 170 〃 200 | 45×25 | 15.0 | d+10.4 |
| 200 〃 230 | 50×28 | 17.0 | d+11.4 |
| 230 〃 260 | 56×32 | 20.0 | d+12.4 |
| 260 〃 290 | 63×32 | 20.0 | d+12.4 |
| 290 〃 330 | 70×36 | 22.0 | d+14.4 |
| 330 〃 380 | 80×40 | 25.0 | d+15.4 |
| 380 〃 440 | 90×45 | 28.0 | d+17.4 |
| 440 〃 500 | 100×50 | 31.0 | d+19.5 |

Note: The nominal dimensions shown in parentheses are not defined in international standards.

Old JIS key (Table 6)

Parallel key
(JIS B 1301-1959)




| Shaft bore diameter d | Designated key diameter Shaft × Height b × ($t_2$ × $t_1$) | Keyway depth Shaft $t_1$ | Keyway depth Boss d+$t_2$ |
|---|---|---|---|
| 10 or higher 13 Greater than | 4×4 | 2.5 | d+ 1.5 |
| 13 or lower 20 〃 | 5×5 | 3.0 | d+ 2.0 |
| 20 〃 30 〃 | 7×7 | 4.0 | d+ 3.0 |
| 30 〃 40 〃 | 10×8 | 4.5 | d+ 3.5 |
| 40 〃 50 〃 | 12×8 | 4.5 | d+ 3.5 |
| 50 〃 60 〃 | 15×10 | 5 | d+ 5 |
| 60 〃 70 〃 | 18×12 | 6 | d+ 6 |
| 70 〃 80 〃 | 20×13 | 7 | d+ 6 |
| 80 〃 95 〃 | 24×16 | 8 | d+ 8 |
| 95 〃 110 〃 | 28×18 | 9 | d+ 9 |
| 110 〃 125 〃 | 32×20 | 10 | d+10 |
| 125 〃 140 〃 | 35×22 | 11 | d+11 |
| 140 〃 160 〃 | 38×24 | 12 | d+12 |
| 160 〃 180 〃 | 42×26 | 13 | d+13 |
| 180 〃 200 〃 | 45×28 | 14 | d+14 |
| 200 〃 224 〃 | 50×31.5 | 16 | d+15.5 |
| 224 〃 250 〃 | 56×35.5 | 18 | d+17.5 |

# Handling Roller Chains and Sprockets



## 6. Chain Test Run

After installing the chain, carry out a test run and check the following items before you actually start running the chain.

### 6.1 Pre-test Run

1) Connecting link plates, clips, and cotter pins are installed correctly.
2) Chain slack has been properly adjusted.
3) Adequate lubrication is available.
4) The chain is not touching the chain case.
5) The roller chain path is clean and free from obstructions.

### 6.2 Test Run

1) There should be no strange noises. Make sure the chain does not touch the case.
2) Look for excessive chain vibration.
3) Make sure the chain does not run up on the sprockets.
4) Ensure that the chain is not jammed into the sprockets.
5) The chain should articulate smoothly.

Check the inspection checklist if there are any problems, and ensure roller chain and sprocket are correctly installed.

## 7. Roller Chain Inspection

1) In general, roller chain life is said to be reached when parts are damaged or when 1.5% wear elongation occurs. See 6) in 7.3. Try to replace the chain before these conditions occur.
2) If roller chain selection and operating conditions are suitable, you can expect rather long life with no unexpected trouble from the chain. However, wear will progress between the pins and bushes after long periods. The following should be noted and inspected.

### 7.1 Inspection Checklist (Table 7)

| Procedures | Method | Inspection items | Reference page for details |
|---|---|---|---|
| Step Ⅰ | Visually check the chain during operation and look for any abnormalities. | 1. There should be no strange noises.<br>2. Look for excessive chain vibration.<br>3. Make sure the chain does not run up on the sprockets.<br>4. The chain is not jammed into the sprockets.<br>5. There are no stiff areas during articulation.<br>6. Adequate lubrication is available (lubricating system and quantity of oil).<br>7. Make sure the chain doesn't touch the case. | Inspection points are on the following pages and on the troubleshooting pages. |
| Step Ⅱ | Stop the chain and carefully inspect each part of the chain and sprocket. | 1. Check the external cleanliness, corrosion, and lubrication conditions; also, look for scratches or other damage to the plate side and edge surfaces, pin edges, and roller surfaces.<br>2. Inspect for pin rotation and inspect the clearance between plates and pins.<br>3. Inspect the sprocket teeth surfaces and teeth side surfaces for scratches or marks.<br>4. Measure the wear elongation of the chain.<br>5. Check the articulation of the chain and rotation of the rollers.<br>6. When using an end fitting for lifting applications, inspect the wear of the end bolts and the wear of the connecting plate pins. Also, check for proper installation at the same time. | |
| Step Ⅲ | In order to investigate in more detail, remove the roller chain and inspect it visuallly or check it with measuring instruments. | 1. The inspection items are identical to those in Step Ⅱ except in more detail. | |

## 7.2 Inspection intervals

Regular inspection of roller chain is recommend at one month intervals. Inspection should be carried out at shorter intervals in:

1) Special or corrosive environments.
2) High speeds with sudden stoppage.
3) Lifting or indexing operations.

## 7.3 Inspection requirements for ordinary transmission

1) Inspection lubrication conditions

① During operation, check to see if there is lubrication in the clearance between the outer plate and inner plate. Also, check if the chain or rotating disc is immersed in lubricating oil.

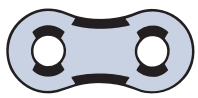
② When the chain is stationary, the chain surface will generally appear dirty from wear dust if lubrication is unsatisfactory. This is especially the case between the link plates.

③ When the chain is removed, connecting link pins and the edge of the inside of the bushes should be checked. If there are any scratches, or red or reddish-brown coloration, lubrication is improper or insufficient.

2) Inspecting link plates

① If repeat loads over the maximum allowable load are put on the chain, there is a strong possibility of fatigue breakage of the link plates. It is difficult to notice initial cracking from fatigue breakage simply from external observation.

② Usually, a crack develops at the edge of a hole or at the side of the link plate, as shown in the illustrations below. The presence of cracks should be checked carefully. Fatigue breakage progresses little by little, so it can be noticed with close attention.



Positions where cracks are likely to develop

Example of a crack

Fig. 23 Cracks on the link plates

③ When wear occurs from sliding between the edges of the plates and the guides, it is necessary to adjust the position of either the chain or the guides. The allowable wear on the link plates is limited to 5% of their height.

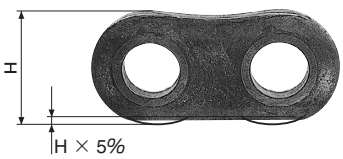
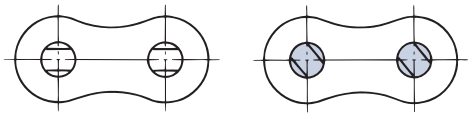



Fig. 24 Wear on the edges of the link plates

3) Inspecting Pins

When the pins rotate, the roller chain must be completely replaced with new chain. This also applies to the connecting pins. By removing the connecting parts it is possible to see the conditions of wear and rust on the surfaces of the pins.



Correct position　　Rotated position

Fig. 25 Rotation of the pins

4) Inspecting rollers

① As with the link plates, if rollers are also subjected to loads over the maximum allowable load, the repeated impact load between the chain and the sprockets may cause fatigue breakage to occur. The roller should be checked in the same way as the link plate.

② If foreign objects interfere with the engagement of the roller and sprocket, the roller may be damaged and a crack may develop. Careful attention should be paid to the above. Furthermore, with high-speed operations, even if foreign objects do not interfere with engagement, cracks may appear from the impact with the sprocket teeth.

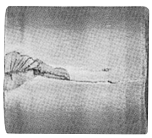


Fig. 26 Cracks on the rollers

③ Chains damaged by fatigue breakage from the rollers must be completely replaced, as each part has received the same amount of repeated load.

④ Also check for poor roller rotation.

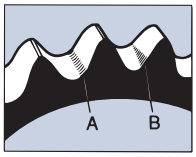
5) Inspecting sprockets

① Chain and sprocket engagement can be checked by observing the roller and teeth surface. Proper engagement is when the contact area is uniform with point A in the illstration. If the contact area is lopsided or the sides of the teeth are wearing away (point B), this may have been caused from improper installation of the sprockets or twisting of the roller chain. In this case, rechecking/readjustment is necessary.

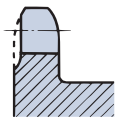
② The normal point of impact is slightly up from the tooth root. However, when initial tension is applied to the chain and tension remains on the slack side, the roller will slightly touch the tooth root. However, point A receives the strongest impact.

# Handling Roller Chains and Sprockets

③ When idlers or tensioners are used, the contact area will be the center of the tooth root.




B: Improper installation



Improper installation causes the surface of the teeth to become ground down

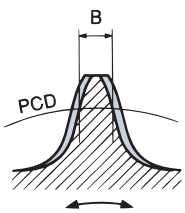
Fig. 27 Contact area of the sprocket teeth

④ When wear on the teeth reaches the values in the following table, the lifespan of the sprocket has been reached. For a sprocket with induction hardned teeth, the lifespan is reached when the hardned layer has been removed.

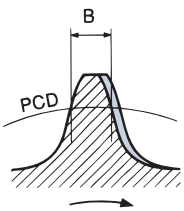
Limit of usage based on tooth thickness/Dimension B (Table 8)

| Size of RS Roller Chain | Dimension B | |
|---|---|---|
| | Normal | Pin-Gear |
| RS 11-SS-1 | 0.6 | — |
| 〃 15-1 | 1.1 | — |
| 〃 25-1 | 1.5 | — |
| 〃 35-1 | 2.5 | — |
| 〃 41-1 | 2.6 | — |
| 〃 40-1 | 2.5 | 3.1 |
| 〃 50-1 | 2.9 | 3.6 |
| 〃 60-1 | 3.7 | 4.6 |
| 〃 80-1 | 5.0 | 6.3 |
| 〃 100-1 | 6.9 | 8.6 |
| 〃 120-1 | 8.7 | 10.9 |
| 〃 140-1 | 10.6 | 13.3 |
| 〃 160-1 | 12.4 | 15.5 |
| 〃 180-1 | 11.3 | 14.1 |
| 〃 200-1 | 12.6 | 15.8 |
| 〃 240-1 | 15.1 | 18.9 |
| RF320-T-1 | 19.9 | 24.9 |
| RF400-T-1 | 24.9 | 31.2 |

| Size of BS Roller Chain | Dimension B Normal |
|---|---|
| RF06B-1 | 1.6 |
| RS08B-1 | 2.1 |
| 〃 10B-1 | 2.9 |
| 〃 12B-1 | 3.6 |
| 〃 16B-1 | 5.0 |
| 〃 20B-1 | 6.8 |
| 〃 24B-1 | 7.2 |
| 〃 28B-1 | 8.6 |
| 〃 32B-1 | 11.9 |
| 〃 40B-1 | 12.7 |




Forward and reverse




One direction

⑤ If a new roller chain is run on a worn sprocket, the chain will wear at a faster rate than normal. In this case, when replacing the chain, replacement of the sprocket is also recommended.

6) Inspection of chain elongation

① Chain elongation is caused not by deformation of the link plate, but by wear on the pin and bush. Therefore, the remaining chain life can be estimated by periodically measuring the chain elongation.

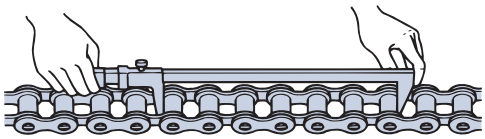
② Measuring chain elongation

(1) The chain should be measured whilst stretching it slightly to eliminate any slack.

(2) Measure the distance of the inside (L1) and outside (L2) of the rollers at both ends of the measured links using a vernier caliper to get measurement (L).

$$L = \frac{L_1 + L_2}{2}$$

(3) When measuring, use at least 6 to 10 links to help keep any measuring error down to a minimum.



Positioning of vernier calipers for measuring 6 links

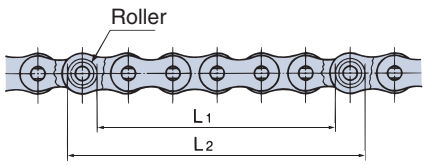



Fig. 28 Measuring length

(4) Finding chain elongation

$$\text{Chain elongation (\%)} = \frac{\text{Measured length - Standard length}}{\text{Standard length}} \times 100$$

Standard length = Chain pitch X Number of links

(5) For multi-strand roller chain, the measurement is carried out in the same way as for single strand roller chain of the same pitch.

(6) The limit of usage based on roller chain elongation for a smooth transmission is as follows.

Limit of usage based on elongation (table 9)

| | |
|---|---|
| Large sprocket with up to 60 teeth | Chain elongation 1.5% |
| Large sprocket with between 61 - 80 teeth | Chain elongation 1.2% |
| Large sprocket with between 81 - 100 teeth | Chain elongation 1.0% |
| Large sprocket with between 101 - 110 teeth | Chain elongation 0.8% |

(7) Dimensions for evaluating standard length (chain pitch x number of links) and 1.5% elongation are shown in Table 10 below.
(8) When the length of the roller chain cannot be measured with calipers, a tape measure may be used; however, measurements need to be taken over as many links as possible to reduce measuring error.
(9) When chain elongation of Lambda/X-Lambda Roller Chain reaches about 0.5% it may be losing its lubricating properties. This may be determined by the adhesion of red wear particles between the plates and the occurrence of articulation stiffness. When this occurs, the life of the chain has been reached.

Standard Length and 1.5% Elongation (Table 10)

| Chain No. | | RS25 | RS35 | RS41 | RS40 |
|---|---|---|---|---|---|
| 6 links measured | Standard length | 38.10 | 57.15 | 76.20 | 76.20 |
| | 1.5% elongation | 38.67 | 58.01 | 77.34 | 77.34 |
| 10 links measured | Standard length | 63.50 | 95.25 | 127.00 | 127.00 |
| | 1.5% elongation | 64.45 | 96.68 | 128.91 | 128.91 |

| Chain No. | | RS50 | RS60 | RS80 | RS100 |
|---|---|---|---|---|---|
| 6 links measured | Standard length | 95.25 | 114.30 | 152.40 | 190.50 |
| | 1.5% elongation | 96.68 | 116.01 | 154.69 | 193.36 |
| 10 links measured | Standard length | 158.75 | 190.50 | 254.00 | 317.50 |
| | 1.5% elongation | 161.13 | 193.36 | 257.81 | 322.26 |

| Chain No. | | RS120 | RS140 | RS160 | RS180 |
|---|---|---|---|---|---|
| 6 links measured | Standard length | 228.60 | 266.70 | 304.80 | 342.90 |
| | 1.5% elongation | 232.03 | 270.70 | 309.37 | 348.04 |
| 10 links measured | Standard length | 381.00 | 444.50 | 508.00 | 571.50 |
| | 1.5% elongation | 386.72 | 451.17 | 515.62 | 580.07 |

| Chain No. | | RS200 | RS240 |
|---|---|---|---|
| 6 links measured | Standard length | 381.00 | 457.20 |
| | 1.5% elongation | 386.72 | 464.06 |
| 10 links measured | Standard length | 635.00 | 762.00 |
| | 1.5% elongation | 644.53 | 773.43 |

## 7.4 Inspection of lifting and shuttle traction

1) This should be carried out with the same requirements as for ordinary transmission shown in item 6.3.
2) It is important to check the lubrication of the connecting parts between the roller chain and end brackets where end brackets are installed, as welll as the parts where the roller chain winds around the sprocket. (Refer to item 3.2 on page 192.)
3) The parts where the roller chain bends around the sprocket should be checked when inspecting the wear elongation of the roller chain.
4) Inspect for twisting and side bending of the roller chain. If partial twisting or side bending of the chain occurs, the complete roller chain should be replaced. (Fig. 29)

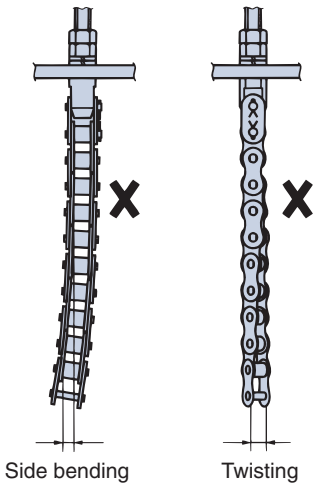



Fig. 29 Twisting of the roller chain

5) End fittings
Check for damage by deformation of the hole due to wear. If the hole is damaged or deformed, replace the end bracket immediately. The clearance on the pinhole of the bracket affects the life of the roller chain and should be kept to a minimum

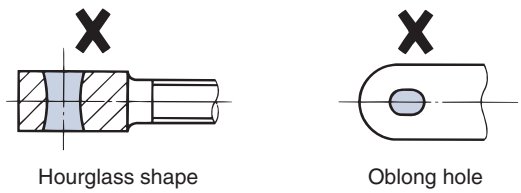



Fig. 30 Wear on the end fitting hole

## 7.5 Storage

Avoid storing spare parts, such as roller chains, sprockets, and end brackets, in high temperature/high humidity and dusty environments. Also, when storing roller chain that has been removed, wash the roller chain and then apply lubrication. After the roller chain clearances have been supplied with a sufficient amount of lubricant, wrap the chain in grease paper completely before storing away.

# Handling Roller Chains and Sprockets



## 8. Cautions on Use in Special Environments

As a general rule, roller chain should be used in a clean air flow; however, when used in special atmospheres, refer to the various items that follow.

### 8.1 Use in wet conditions

If the chain is used in a sterilizing machine or water screen, for example, where the chain is splashed with water or goes through heated vapor, the following problems may occur.

1) An increase in wear elongation due to improper or insufficient lubrication.
2) Decrease in fatigue strength from rust and corrosion (pitting) of the chain.
   1) Countermeasures
      (1) Reduce bearing pressure by using a larger sized chain to improve wear resistance.
      (2) Use corrosion resistant roller chain for rust prevention.

### 8.2 Use in acidic or alkaline conditions

If roller chain is exposed to acidic or alkaline conditions, such as battery acid and liquid used in plating processes, the following problems may occur.

1) Embrittlement fracture of link plates and pins.
2) Fatigue breakage of link plates and pins due to rust and pitting corrosion.
3) Wear from usual mechanical wear and corrosion.
4) Reduction in volume of the whole chain from corrosion.
5) In special cases where the chain is underwater (immersed in liquid), electrochemical corrosion may occur.
6) There are also circumstances where even stainless steel roller chain will corrode. Fig. 31 shows an example of chain that was used in a plating apparatus. The chain fell to pieces within one month due to the effects of the acid.
   1) Countermeasures for embrittlement fractures (Stress corrosion cracking)
      • Adopt a brittleness countermeasure that lowers crack susceptibility.
      • Install a cover or casing to prevent acids or alkalis from contacting the chain.
      • Adopt a high-grade material with anti-corrosive properties.
   2) Countermeasures for corrosion
      • Use surface-treated chain.
      • Install a cover or casing to prevent acids or alkalis from contacting the chain.
      • Adopt a high-grade material with anti-corrosive properties.

Fig. 31 Corrosion of stainless steel roller chain

Fig. 32 Hydrogen embrittlement cracking

In general, embrittlement fractures (stress corrosion cracking) occur around link plate holes. This is the area where the pin and bush are press-fitted to the link plate, and with the highest concentration of stress. Cracks are generated even when there is no tension on the chain. Roller chain in general is more susceptible to acids than alkalis, and in special cases, embrittlement fractures (stress corrosion cracking) are generated by seawater or pit water.

### 8.3 Use under conditions where wear is a problem

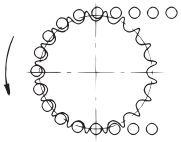
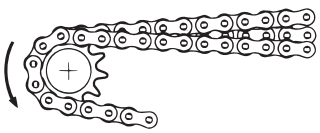
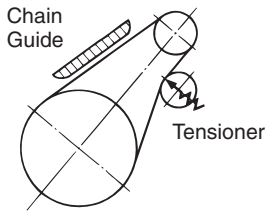
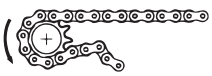
If the chain is exposed to highly abrasive materials that promote wear such as sand, coke, and metal particles, the following problems may occur:

1) When abrasive materials penetrate between the pins and bushes, chain wear is promoted and poor articulation occurs.
2) When abrasive materials penetrate between the bushes and rollers, chain wear is promoted and poor roller rotation occurs.
3) When the abrasive materials penetrate between the link plates, poor articulation occurs.
   1) Countermeasures
      • Install a protective casing against dust.
      • Remove foreign particles by regularly washing the roller chain.
      • Reduce bearing pressure by using a larger sized chain to improve wear resistance.
      • Increase wear resistance by applying special processing to the parts of the chain where wear is a problem.

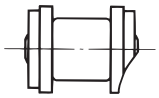
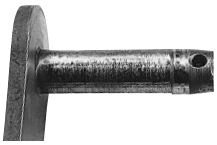
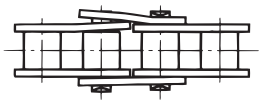
# 9. Roller Chain Drive Troubleshooting and Problem Solving

When there is significant damage and breakage to the roller chain and sprockets, please carry out the following remedies and replace with new chain and sprockets as necessary.

## 9.1 General

| Symptom | Possible Causes | Remedy |
|---|---|---|
|  Chain is riding up on the sprocket. | The roller chain and sprocket do not match. | Replace the chain or sprocket with the correct size. |
| | Excessive load. | Decrease the load, or increase the number of strands or size of the chain. |
| | Elongation of the chain due to wear or excessively worn sprocket teeth. | Replace with new chain and sprockets. |
| Unusual noises. | Improper installation of the sprocket or shaft. | Inspect and correct. |
| | Chain casing or bearings are loose. | Tighten all bolts and nuts. |
| | Excessive or insufficient slack in the chain. | Adjust the distance between shafts to obtain the proper amount of slack. |
| | Excessively worn chain or sprocket. | Replace the chain and sprocket with new chain and sprocket. |
| | Lack of or unsuitable lubrication. | Provide proper lubrication according to the operating conditions. |
| Excessive vibrations in chain. | Chain is resonating with periodic external force.  | Change the chain's mode of vibration.<br>1. Preventing resonance.<br>a. Change the natural frequency of the chain.<br>• Alter the effective tension either by applying an initial tension or adjusting the existing one.<br>• Install a tensioner to change the chain span.<br>• Replace the chain. Choose a different quality and spring coefficient.<br>b. Change the vibration frequency.<br>• Change the speed of rotation of the sprocket.<br>• Re-evaluate the device set-up.<br>2. Mechanically reducing the vibrations.<br>• Install a guide shoe.<br>• Install a self-adjusting tensioner on the slack side.<br>  |
| | Load fluctuations are excessively large. | Reduce fluctuations with a fluid coupling or similar technique. |
|  The chain winds onto the sprocket. (Poor separation from the sprocket teeth) | Span between shafts is too large. | Install an idler. |
| | Excessive slack in chain. | Adjust the chain length or distance between shafts.<br>Install a tensioner. |
| | Elongation of the chain due to chain wear or excessively worn sprocket teeth. | Replace with new chain and sprocket. |

# Handling Roller Chains and Sprockets

| Symptom | Possible Causes | Remedy |
|---|---|---|
| Rusting of the chain. | Improper lubrication or poor enviroment. | Replace chain and protect it from the environment with chain casing or proper lubrication. |
| Excessive wear on the inside surface of the link plates and sides of the sprocket teeth. | Improper installation. | Correct sprocket and shaft installation. |
| Excessive wear on the link plate side surfaces and pin heads. | Improper installation of guides, etc.  | Check the condition of the guides, and increase the gap between the guides and the chain. |
| Improper flex or bending of chain, tight joints. | Chain is not installed correctly. | Inspect the installation and correct as necessary. |
| | Contamination from metal dust or dirt because of improper lubrication. | Remove the chain, wash it thoroughly, and provide proper lubrication. |
| | Excessive load or bent pin. | Reduce the load or increase the number of or size of chains. Replace chain with a larger size. |
| | Corrosion or rusting. | Install a chain casing to protect the chain. |
| | Seizing from improper lubrication. | Provide proper lubrication according to the operating conditions. |
| | Seizing of pin and bush.  Pin and bush seized from high-speed operation. This causes improper bending and can lead to chain breakage. | Provide the proper operating conditions. |
| Spreading of link plates. | Uneven or excessive loading caused by improper installation.  | Replace with new chain and correct installation. |

## 9.2 Link Plate Related

| Symptom | Possible Causes | Remedy |
|---|---|---|
| Breakage of link plate. | Excessively large shock load. | Reduce shock loads by making the start-up, stopping, and other actions smoother (installing a shock absorber, etc.). Increase the size or number of chains. |
| | Vibration in the chain. | Install an anti-vibration device (for example, a tensioner or idler), Refer to "Excessive vibration in chain" page. |
| | Large inertia in the driven machine. (excessive load). | Increase the size of number of chains. |
| | Corrosion. | Replace with a new chain. Install a casing to protect the chain. Otherwise, periodically clean the chain. |

① Static fracture
Streching the link plate with a tensile load beyond its breaking load will cause it to strech and then break.

② Fatigue fracture
By repeatedly applying a load past its fatigue limit (fatigue strength), the fatigue will start at holes and then suddenly break.

③ Offset link plate fatigue
Offset link plates are bent at the center, and the resulting concentration of stress at the bend can cause a fatigue break. Avoid using offset links in high-stress applications.

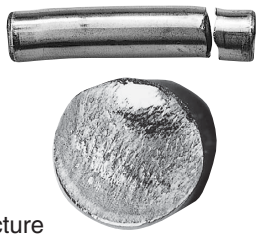
| | | |
|---|---|---|
| Crackes in the link plates (fatigue), which are perpendicular to the direction of pull. | Loads are greater than allowable. | Remove all large or excessively repeating loads. Otherwise, increase the size or number of chains. Replace with a new chain. |
| Deformation of link plate holes. | Excessive load. | Remove the cause of the excessive load. Replace with a new chain. |
| Corrosion stress cracks appear, usually as bow-shaped cracks in the link plate. | The chain is being used in an acidic or alkaline enviroment. (This is not caused by a repetitive load). | • Replace with a new chain. Install a casing to protect the chain from the environment.<br>• Consider a chain with a high resistance to corrosion stress cracks. (Please contact a Tsubaki representative.) |

# Handling Roller Chains and Sprockets



## 9.3 Pin Related

| Symptom | Possible Causes | Remedy |
|---|---|---|
| Breakage of pin. | Excessively large shock loads. | Reduce shock loads by making the start-up, stopping, and other actions smoother. |
| | Subject to a repetitive load greater than the fatigue limit of the pin. | Remove the large repetitive load. Otherwise, increase the size or number of chains. |
| | Corrosion. | Install a casing to protect the chain. Periodically clean and lubricate the chains. |



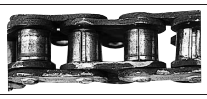
① Static fracture
The type of fracture found when subjecting the chain to the breakage test. Occurs when chain is subjected to a load greater than its breakage strength.

② Fatigue fracture
Occurs when the pin is repetitively subjected to loads greater than its fatigue limit. Re-check the size of the peak load and formulate a countermeasure.

③ Shock-induced bending fracture
The pin is subjected to a large shock load and breaks. The side with the initiating point receives tensile load, and the fracture progresses from this point. A pin is especially susceptible to becoming weak with regard to bending when the surface of the pin has corroded. This type of phenomenon occurs quite easily.

| | | |
|---|---|---|
| Pin rotates or begins to stick out. | Excessive load or improper lubrication. | Replace with new chain. Improve the lubrication or loading conditions. |
| Normal | Operating a chain at high load without proper lubrication can create friction between the pin and bush, causing the pin to rotate. In this condition, the pin may come out, leading to chain breakage. | Replace with new chain immediately. Do not weld or reuse the pins. (Dispose of the old chain to be sure that it is not used again by mistake.) Also, if the pin head or link plate surface is worn, check the installation. |
| Wear or rust occurs only at the connecting pin in a lifting application or similar operation. | Improper initial lubrication at installation. | Replace the connecting link. If pin wear is excessive, replace the chain also. Take special care to properly install the connecting section for devices such as end brackets used for lifting applications, etc. |

## 9.4 Bush / Roller Related

| Symptom | Possible Causes | Remedy |
|---|---|---|
| Roller and/or bush splits. (Falls off) | Excessive load or speed of rotation. | Choose a different chain according to the kW ratings table. |
| | Inadequate lubrication. | Replace the chain. Provide adequate lubrication according to the operating conditions. |
| | Fatigue fracture. Reached the point of fatigue during operation and eventually broke. Impact with the sprocket teeth at a force exceeding the chain's transmission capacity. | |
| Roller does not rotate. | RS11-SS-1, RS15-1, RS25-1, RS35-1 | A bushed chain and not a roller chain is being used. |
| | The inner link plate is moving inward, or the bush is cracked. | Replace with a new chain. Re-inspect the installation and load conditions. |
| | Foreign particles have gotten between the bush and roller. | Periodically clean the chain. Install a casing to protect the chain. |
| Roller is opening up. | Excessive load.  | Reduce the load. Provide adequate lubrication. |
| Roller is becoming hourglass shaped. | Excessive load or inadequate lubrication. | Replace with new chain. Improve the lubrication or loading conditions. |

# Roller Chain Inquiry Sheet

| | | | | | |
|---|---|---|---|---|---|
| 1 | Machine used | | | 2 | Chain New installation Replacement |
| 3 | For replacement situations only | Indicate currently used items at right | Chain number | | Sprocket number |
| | | | Number of links | | |
| 4 | Operation time Hours/day Days/month | | | 5 | Motor output shaft torque (rated) Hours/day Days/month |
| Note: If item “5” is not known, complete items 6, 7, and 8. | | | | 6 | Type and rated output of motor |
| 7 | Output and reduction gear ratio of reduction gears kW | | | 8 | RPM of drive shaft and driven shaft r/min Drive shaft( ) Driven shaft( ) |
| 9 | Do you have fluid couplings? Yes No | | | 10 | Do you have a cushioned start/stop? Yes No |
| 11 | Distance between shafts mm | | | 12 | Load fluctuation Smooth Moderate shock Large shock |
| 13 | Frequency of starting (stopping) or forward (reverse) operation Times/day (8 h) | | | | |
| Note: When frequency of item 12 is for ordinary transmission: 5 times/day (8 h) or more<br>When frequency of item 12 is for lifting, shuttle traction, or pin gear: 6 times/day (8h) or more } In this case, complete items 14 to 17. | | | | | |
| 14 | Moment of inertia or $GD^2$ of motor kg·m² { kgf·m² } | | | | |
| 15 | Moment of inertia or $GD^2$ converted to roller chain driven shaft inertia kg·m² { kgf·m² } | | | | |
| 16 | Starting torque kN·m { kgf·m } | | | 17 | Stopping torque kN·m { kgf·m² } |
| 18 | Ambient temperature Normal temperature (−10° C to 60° C ) ° C to ° C | | | | |
| 19 | Atmosphere Abrasive dust (Yes No), Other Acidic, alkaline, or other corrosive Fluid Gas (Yes No) | | | | |
| 20 | Drive shaft diameter ( ) mm Driven shaft diameter ( ) mm | | | | |
| 21 | Trouble or other special mention Company position | | | | |
| | | | | | |

22 Simple diagram of layout from prime mover to chain drive section

Note: For a conveyor drive or other application with a high shock frequency, indicate the size of the conveyed load, weight, speed, and conveyor length.

COMPANY

NAME TEL

DATE FAX

MEMO

# For Safe Use

## ⚠ WARNING

Obey the following points in order to prevent hazardous situations.

- Do not use chains and accessories (accessories and parts) for anything other than their original purpose.
- Never perform additional processing on the chain.
  - · Do not anneal the various parts of the chain.
  - · Do not clean the chain with either acid or alkali, as they may cause cracking.
  - · Do not electroplate the chain or its parts, as it may cause cracking due to hydrogen embrittlement.
  - · Do not weld the chain, as the heat may cause cracking or a reduction in strength.
  - · When heating or cutting the chain with a torch, remove the links immediately adjacent and do not use them again.
- When there is need to replace a lost or damaged portion of a chain, always replace the whole chain with a new product rather than replacing only the lost or damaged portion.
- When using a chain on suspension equipment, establish a safety perimeter and strictly prevent entry to the area directly below the suspended object.
- Always employ hazard protection devices for the chain and sprocket (safety cover, etc.).
- If a substance that can cause embrittlement cracking (acid, strong alkali, battery fluid, etc.) adheres to the chain, stop using the chain immediately and replace it with a new one.
- During installation, removal, maintenance inspection and lubrication of the chain:
  - · Perform the operation according to the instruction manual or this catalog.
  - · Always turn off the power switch to the device and make sure that it cannot be turned on accidentally.
  - · Anchor the chain and parts so that they cannot move freely.
  - · Perform cutting and connecting procedures properly using a press or other special tool.
  - · Wear clothing and employ protective devices that are appropriate to the job (safety glasses, gloves, safety shoes, etc.).
  - · Only allow experienced personnel to perform chain replacement procedures.
- A fail safe back up system is suggested whenever using Leaf Chain to safely support the load in the event of a chain failure.

## ⚠ CAUTION

Obey the following points in order to prevent accidents.

- Only handle the chain after thoroughly understanding its structure and specifications.
- When installing a chain, inspect it in advance to confirm that it has not been damaged in transport.
- Be sure to perform regular maintenance inspections on the chain and sprocket.
- Chain strength varies according to manufacturer. When selecting a chain based on a Tsubaki catalog, always use the corresponding Tsubaki product.
- Minimum tensile strength refers to the failure point when the corresponding load is applied to the chain once and does not refer to the allowable operational load.

# Warranty

1. Products manufactured by Seller: (a) conform to the design and specifications, if any, expressly agreed to in writing by Seller; and (b) are free of defects in workmanship and materials at the time of shipment. The warranties set forth in the preceding sentence are exclusive of all other warranties, express or implied, and extend only to Buyer and to no other person. ALL WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY EXCLUDED.

NON-RELIANCE

2. Buyer is not relying upon any advice, representations or warranties (except the warranties expressly set forth above) of Seller, or upon Seller's skill or judgment regarding the Seller's products.
   Buyer is solely responsible for the design and specifications of the products, including without limitation, the determination of suitability for Buyer's application of the products.

CLAIMS

3.
   (a) Any claim relating to quantity or type shall be made to Seller in writing within 7 days after receipt of the products; any such claim made thereafter shall be barred.
   (b) Any claim under the above-stated Limited Warranty shall be made to Seller in writing within three (3) months after receipt of the products; any such claim made thereafter shall be barred.
   (c) Seller's liability for breach of warranty or otherwise is limited to repair or replacement, at Seller's option, of non-conforming or defective products. Buyer waives all other remedies, including, but not limited to, all rights to consequential, special or incidental damages, including, but not limited to, damages resulting from personal injury, death or damage to or loss of use of property.
   (d) Repair, alteration, neglect or misuse of the products shall void all applicable warranties.

INDEMNIFICATION

4. Buyer will indemnify, defend and hold Seller harmless from all loss, liability, damage and expense, including attorneys' fees, arising out of any claim (a) for infringement of any patent, trademark, copyright, misappropriation of trade secrets, unfair competition or similar charge by any products supplied by Seller in accordance with the design or specifications furnished by Buyer, or (b) arising out of or connected with the products or any items into which the products are incorporated, including, but not limited to, any claim for product liability (whether or not based on negligence or strict liability of Seller), breach of warranty, breach of contract or otherwise.

ENTIRE AGREEMENT

5. These terms and conditions constitute the entire agreement between Buyer and Seller and supersede any inconsistent terms and conditions, whether contained in Buyer's purchase order or otherwise, and whether made heretofore or hereafter.
   No statement or writing subsequent to the date hereof which purports to modify or add to the terms and conditions hereof shall be binding unless consented to in writing, which makes specific reference hereto, and which has been signed by the party against which enforcement thereof is sought. Seller reserves the right to change these terms and conditions without prior notice.

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