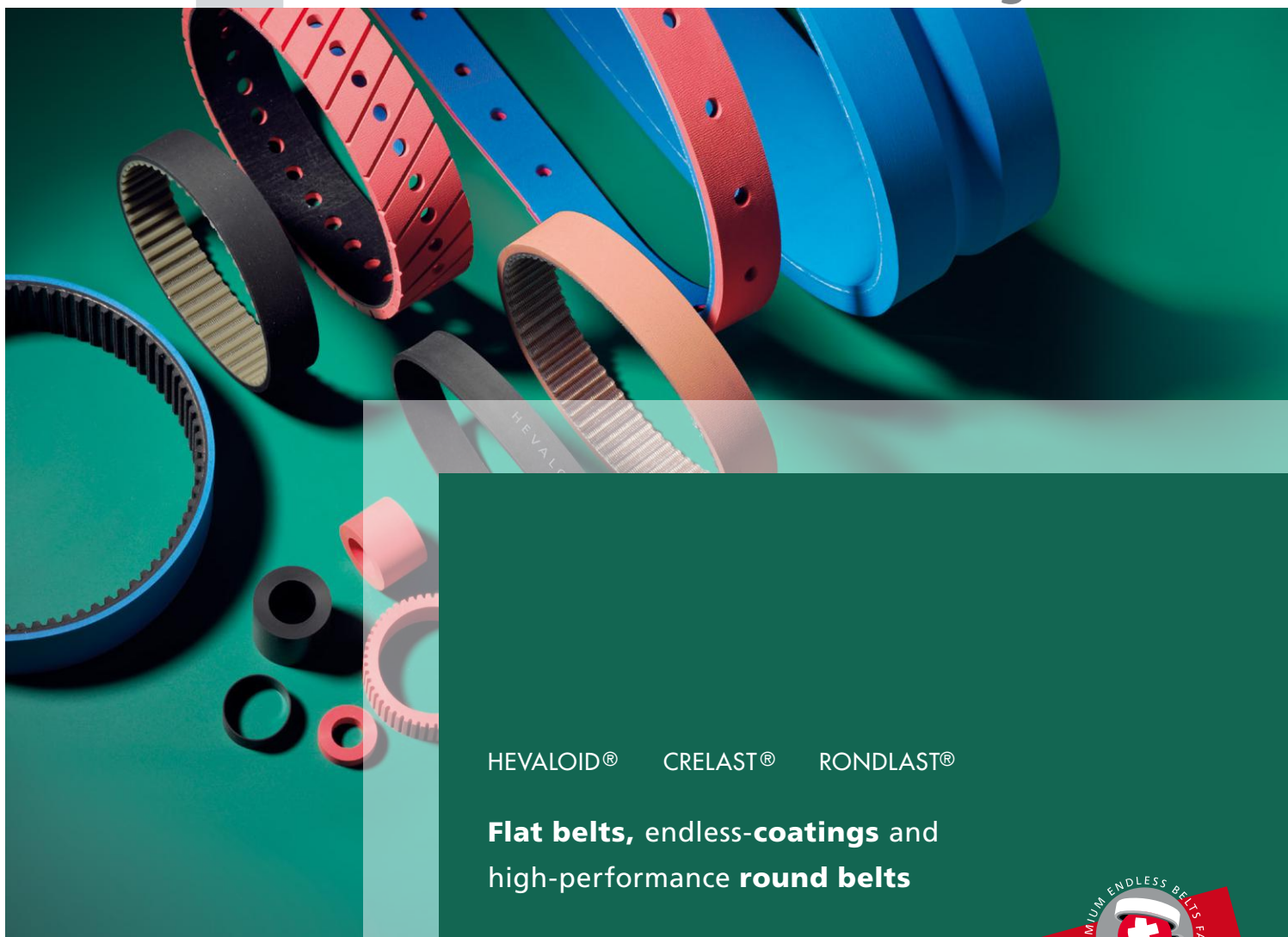


P

Product catalogue



HEVALOID® CRELAST® RONDLAST®

**Flat belts, endless-coatings and
high-performance round belts**

truly endless



graf 
ENDLESS BELTS

Endless... no splice, no seam

Preamble / Editorial



Edgar Seiz / Managing Director



Dipl.Ing. Werner Graf AG
Buechenstrasse 9
CH-9422 Staad

Dear customers and business partners

"As a manufacturer of "truly endless" flat belts we are practically pre-conditioned for specialities.

Most of our products go to our customers around the world as short runs. The diversity of belt specifications, in particular, demands maximum quality from order processing and manufacturing all the way to the final belts, which have to prove their reliability one hundred per cent in practice.

There is a very wide variety of know-how behind our SWISS PREMIUM ENDLESS BELTS FACTORY. Together with our employees, we uphold this high quality and do everything to keep it that way. Furthermore, our production is certified, which means we define and monitor every production step from raw material to finished product."

Sincerely, Edgar Seiz, Managing Director



Truly endless...

Not all endless belts
are truly endless!

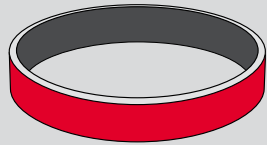
Our endless belts are made according to a unique process – where no splice and no seam occurs! The highest application security in long-term working does beat the spliced “endless” several times. Furthermore, we have a very deep production density, which allows us a quick and flexible response according your specific demands.

We would be pleased to support you with our long standing experience. Please do not hesitate to contact us!

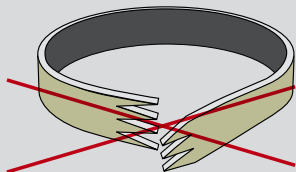


Our seal of quality guarantees you the genuineness of our “Graf-Endless-Belts”.

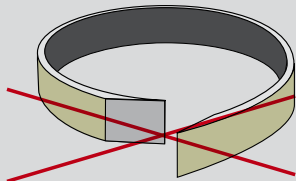
... for more than 80 years!



Truly endless - no splice,
no seam



“Endless” finger splice,
prone to vibration



“Endless” wedge splice,
prone to small radius

Product groups

HEVALOID® Flat belts length-stable	2
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Wire Feeder
Caterpillar
VFFS

Rubber
Silicone
Polyurethane

Drive
Conveyor

2

HEVALOID®

Endless-Flat belts length-stable



HEVALOID® - flat belts consist of a endless woven polyester fabric coated with synthetic rubber. These truly endless belts are reliable due to the high performance in any power transmission and conveying application.

The production of truly endless belts - no splice or seam - results in **very length-stable, high flexible and perfect running** belts.

Additionally, the black chloroprene rubber is very **resistant against abrasion, is antistatic** and perfectly designed for highest power transmission.

With the various rubber qualities at our disposal, we design the belts exactly according your requirements (**FDA, ATEX, RAL-colour, etc.**).

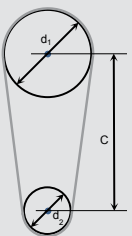
Transmission and conveying belts, endless

Type		5005	5065	525 HF	525	535
Thickness		0.5 mm	0.7 mm	1.0 mm	1.5 mm	2.0 mm
Surface	pulley side carrying side	smooth smooth	smooth smooth	profile smooth	profile smooth	profile smooth
Tensile member		Polyester fabric, endless woven				
Quality of rubber		Chloroprene black, 70 ShA				
Properties		antistatic, resistant against abrasion				
Temperature resistance		-25 ...100 °C	-25 ...100 °C	-25 ...100 °C	-25 ...100 °C	-25 ...100 °C
Minimum pulley--Ø		4 mm	6 mm	10 mm	20 mm	40 mm
Tensile strength, endless		> 800 N/cm	> 1000 N/cm	1500 N/cm	1500 N/cm	3000 N/cm
Force at 1% elongation		> 120 N/cm	> 150 N/cm	200 N/cm	220 N/cm	350 N/cm
Pretension		0.8 - 1.0 %	0.8 - 1.0 %	0.8 - 1.0 %	0.8 - 1.0 %	0.8 - 1.0 %
Dimensions	length width thickness	150 - 1500 mm 3 - 140/280 mm 0.5 mm	150 - 1500 mm 3 - 140/280 mm 0.7 mm	150 - 3000 mm 3 - 280 mm 1.0 mm	150 - 3000 mm 5 - 280 mm 1.5 mm	800 - 9000 mm 15 - 280 mm 2.0 mm
Tolerances	length width thickness	+/- 0.5 % +/- 0.5 mm +/- 0.1 mm	+/- 0.5 % +/- 0.5 mm +/- 0.1 mm	+/- 0.5 % +/- 0.5 mm +/- 0.1 mm	+/- 0.5 % +/- 0.5 mm +/- 0.1 mm	+/- 0.5 % +/- 0.5 mm +/- 0.1 mm

Special production: surfaces grinded / one-side gliding for slider bed units / tighter tolerances / other rubber qualities

Approx. power transmission

Belt-speed	5005	5065	525 HF	525	535
[m/s]	[kW/cm]	[kW/cm]	[kW/cm]	[kW/cm]	[kW/cm]
1	0.07	0.12	0.14	0.14	0.24
2	0.14	0.24	0.28	0.28	0.48
5	0.35	0.58	0.70	0.70	1.14
10	0.70	1.19	1.40	1.40	2.28
20	1.40	2.38	2.80	2.80	4.56
30	2.10	3.58	4.20	4.20	6.84



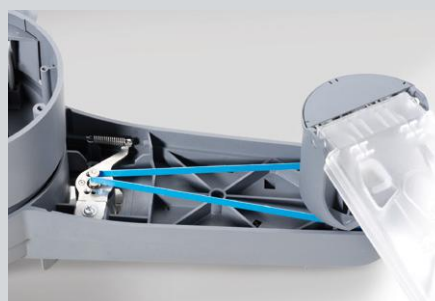
Applications: used for light to heavy power transmission and conveying applications, e.g. ATM and ticketing machines, folding and paper feeding units, wood and tool processing machines, as well as air ventilation and textile machines.



Drive unit of a friction feeder



Friction wheel drive



Motion of a robot arm



Flat belt drive of a suction pump

3

HEVALOID® Endless-Feeder belts



HEVALOID®-Feeder belts are made of high quality natural rubber (NR) – similar to LINATEX. These specially developed rubber qualities guarantee a **constant high friction and excellent resistance against abrasion.**

The following approved belt types are used:

- **ECT 06/ ECG 06** - length-stable (NR rubber with Polyester fabric)
- **EC** - fully elastic (NR rubber only)
- **CR/EC** - elastic (Two-layer belt with NR rubber on top)
- **SE** semi-elastic (with rhombic pattern)

For years, these truly endless belts convince customers in all kind of **folder/ gluer machines as well as in letter sorting plants.**

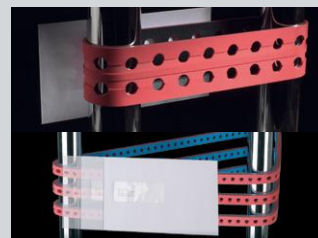
The truly endless - no splice or seam - production results in **very reliable, high flexible and perfect running belts.**

Feeder and conveyor belts

Type Hevaloid	ECT 06 red ECT 06 white* ECT 06 maroon non-elastic	ECG 06red ECG 06 white* ECG 06 maroon non-elastic	Type Crelast	EC red EC white* EC maroon elastic	CR/EC red CR/EC white* CR/EC maroon semi-elastic
Tensile member	Polyester fabric, endless woven		Tensile member	non	non
Pulley side	gliding	rubberized	Pulley side	Rubber, grinded	Rubber, grinded
Quality of rubber	Natural rubber 40 ShA 50 ShA	Natural rubber 40 ShA 50 ShA	Quality of rubber	Natural rubber 40 ShA 50 ShA	Natural rubber 40 ShA 50 ShA Inside CR black
Properties	wear-resistant, highest friction, highly wear-resistant, high friction *FDA conform	wear-resistant, highest friction, highly wear-resistant high friction *FDA conform	Properties	wear-resistant, highest friction, highly wear-resi- stant, high friction *FDA conform	Wear-resistant highest friction, highly wear-resi- stant, high friction *FDA conform
Temperature resistance	60 °C	60 °C	Temperature resistance	60 °C	60 °C
			Force- and tension-values at 5 % at 10 % at 20 %	0.09 (0.14) N/mm ² 0.16 (0.25) N/mm ² 0.28 (0.43) N/mm ²	0.5 N/mm ² - -
Pretension	0.5 - 1.0 %	0.5 - 1.0 %	Pretension	10-20 %	4-6 %
Dimensions			Dimensions		
length	150 - 499 mm +/- 1.0 % 500 - 9000 mm +/- 0.5 %		length	15 - 2000 mm +/- 1 % L0 = length without tension	
width	3 - 140 mm +/- 1.0 mm up to length of 499mm 3 - 280 mm +/- 1.0 mm longer than 500 mm		width	3 - 280 mm +/- 1 mm	
thickness	1.5 - 12.0 mm +/- 0.1mm up to length of 1999 mm 3.0 - 8.0 mm +/- 0.1mm longer than 2000 mm		thickness	0.8 - 15.0 mm +/- 0.1 mm	
endless vulcanized – no seam or splice					

Special production

- surface grinded more smooth or coarse
- with vacuum holes or diversity of grooves
- other dimensions or tighter tolerances
- other qualities of rubber, s.a. product group 11 „Feeder belts FDA“
- inscription of country of origin, item number, etc.



Einzug Grossbriefsortierung



Faltschachtel-Herstellung



Feeder unit of a folder/gluer machine



Friction feeder



Pick-off unit of letter C6/C5



Vacuum feeder unit FDA compatible

4

CRELAST®

Endless-Flat belts elastic



CRELAST® - flat belts are **elastic** - no tensile member - and endless cured according to our unique truly endless process.

The precise manufacturing length L0 results in the desired tension force for any low power transmission and/or exact conveying application.

The **low shaft load** and the fully elastic belt allows small and fixed axes (**no tensioning device needed**) which is preferred in the apparatus engineering.

For conveying and feeding of „paper“ we have developed our EC-flat belt types, made of natural rubber (NR)- similar to LINATEX. Natural rubber guarantees a constant high friction coefficient and excellent resistance against abrasion.

With the various rubber qualities at our disposal, we design the belts exactly according your requirements (FDA, ATEX, RAL-colour, etc.).

Folding and conveying belts elastic

Type	Crelast black	Crelast white*	Crelast blue or light grey	Crelast light beige	Crelast green*	Crelast SI black	Crelast EC red or white* EC maroon
Quality of rubber	Chloroprene 70 ShA	NBR 65 ShA	NBR 75 ShA	XNBR 75 ShA	EPDM 65 ShA	Silicone 80 ShA	Natural rubber 40 ShA 50 ShA
Properties	antistatic oil / grease resistant	*FDA wear-resistant	oil / grease and wear-resistant	very high resistance to abrasion	UV-, light- and ozone-proof	non-stick	wear-resistant highly wear-resistant
Temperature resistance	100 °C	80 °C	80 °C	100 °C	120 °C	160 °C	60 °C
Force- and tension-values at 4 % at 5 % at 6 %	0.42 N/mm ² 0.49 N/mm ² 0.56 N/mm ²	0.33 N/mm ² 0.39 N/mm ² 0.44 N/mm ²	0.56 N/mm ² 0.65 N/mm ² 0.74 N/mm ²	0.28 N/mm ² 0.34 N/mm ² 0.38 N/mm ²	0.20 N/mm ² 0.24 N/mm ² 0.28 N/mm ²	0.34 N/mm ² 0.40 N/mm ² 0.46 N/mm ²	at 5 % 0.09 (0.14) N/mm ² at 10 % 0.16 (0.25) N/mm ² at 20 % 0.28 (0.43) N/mm ²
Pretension	4-6 %	4-6 %	4-6 %	4-6 %	4-6 %	4-6 %	10-20 %
endless vulcanized – no seam or splice							
Dimensions length width thickness	15 - 2000 mm 2 - 280 mm 0.5 - 15.0 mm	+/- 1 % +/- 1 mm +/- 0.1 mm	L0 = length without tension				

*FDA conform

Special production

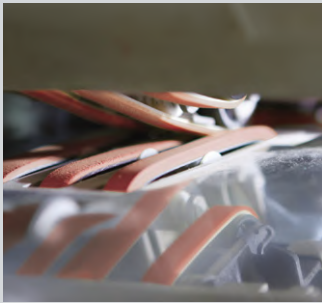
- surface grinded, profiled or smooth

- with tracking guide, grooves or cams

- other dimensions or tighter tolerances

- other qualities of rubber, s.a. product group 10 „Crelast SE flat belts semi-elastic“

- inscription of country of origin, item number, etc.



Letter feeding of franking machine



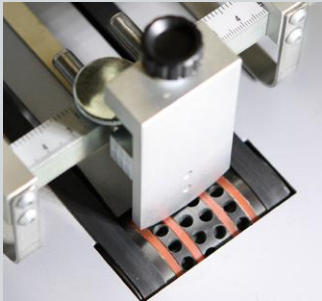
ATM feeding



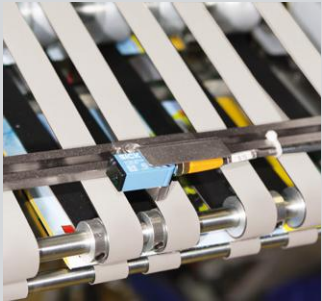
Top-down feeder of single-sheets



Light power transmission of paper drive axe



Vacuum feeder with friction covers



Paper conveying unit

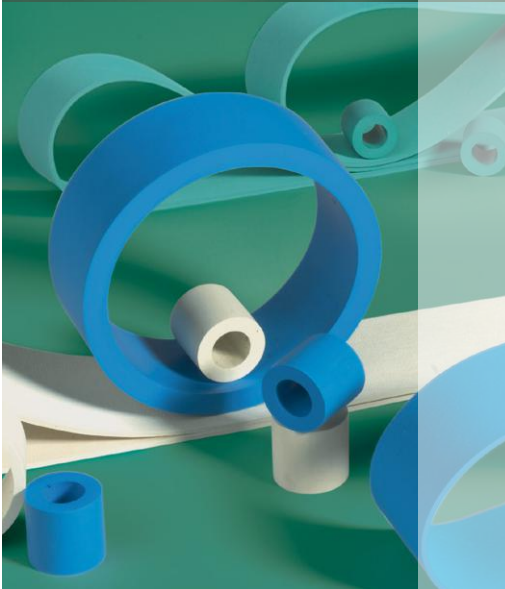
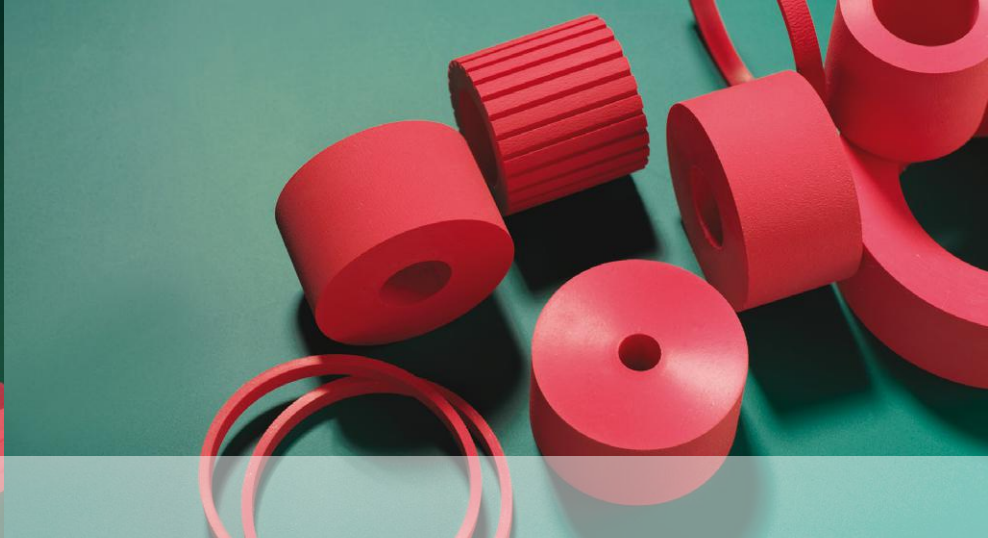


Feeding of cardboard tubes

5

CRELAST®

Endless-Roll and friction covers



Endless cured **roll and friction covers** convince due to their precise and homogenous surface, exceptional high running time and easyfitting (no glue needed due to sleeve technology).

Böwe, Neopost, PB, etc. are taking the advantage of our reliable and most durable friction covers i.e. in there high performance inserters, folders, feeders and franking machines.

The EC red-quality - as well as all our other rubber qualities - are cured and processed exactly according to your desire.

The truly endless - no splice or seam - production results in **very reliable, high flexible and perfect running covers.**

Roll and friction covers

Type	Crelast black	Crelast white*	Crelast blue or light grey	Crelast light beige	Crelast green*	Crelast SI black	Crelast EC red or white* EC maroon
Quality of rubber	Chloroprene 70 ShA	NBR 65 ShA	NBR 75 ShA	XNBR 75 ShA	EPDM 65 ShA	Silicone 80 ShA	Natural rubber 40 ShA 50 ShA
Properties	antistatic oil / grease resistant	*FDA wear- resistant	oil / grease and wear- resistant	very high resistance to abrasion	UV-, light- and ozone- proof	non-stick	wear-resistant highly wear- resistant
Temperature resistance	100 °C	80 °C	80 °C	100 °C	120 °C	160 °C	60 °C
Force- and tension-values at 4 % at 5 % at 6 %	0.42 N/mm ² 0.49 N/mm ² 0.56 N/mm ²	0.33 N/mm ² 0.39 N/mm ² 0.44 N/mm ²	0.56 N/mm ² 0.65 N/mm ² 0.74 N/mm ²	0.28 N/mm ² 0.34 N/mm ² 0.38 N/mm ²	0.20 N/mm ² 0.24 N/mm ² 0.28 N/mm ²	0.34 N/mm ² 0.40 N/mm ² 0.46 N/mm ²	at 5 % 0.09 (0.14) N/mm ² at 10 % 0.16 (0.25) N/mm ² at 20 % 0.28 (0.43) N/mm ²
Pretension	The produced diameter is generally 1 mm to 2 mm smaller than the diameter of the axe/pulley. endless vulcanized – no seam or splice						
Dimensions length width thickness	15 - 2000 mm 2 - 280 mm 0.5 - 15.0 mm	+/- 1 % +/- 1 mm +/- 0.1 mm	L0 = length without tension				

*FDA conform

„Sleeve“-Technology

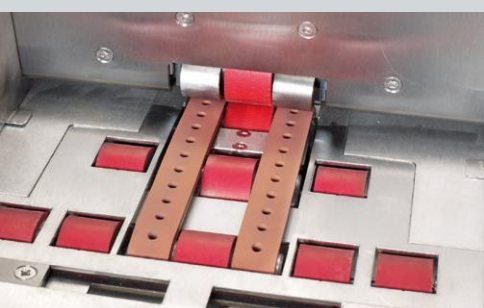
Our roll covers are produced slightly smaller than the diameter of your axes/pulleys and simply mounted, without any use of tools or adhesive agents. Thereby, the achieved pretension force does create a good and steady clamping force.
At the end of the life cycle, the covers will be removed – again without the use of any tools – and a new cover will be mounted on the same axes/pulleys.

Special production:

- with grooves: lateral, diagonal or alongside
- other dimensions or tighter tolerances
- other qualities of rubber



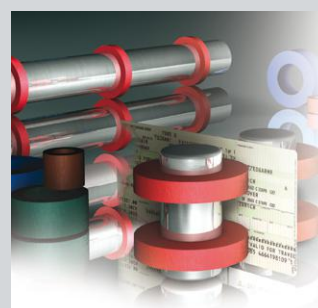
Paper feeding with friction covers



Feeder with friction covers



Drive for friction rollers



Roll and friction covers



Rubber roll for letter support

6

HEVALOID® Endless-Tube winder belts



HEVALOID® - tube winder belts consist of an **endless woven** polyester fabric coated with synthetic rubber. These truly endless belts have been successfully used for years in **tube winder machines**.

The production of truly endless belts - no splice or seam - results in **very length-stable, high flexible** and **high performing** belts.

The black chloroprene rubber is very **resistant against abrasion, antistatic** and results in a high running time.

The blue nitrile rubber is specially designed for non-marking applications.

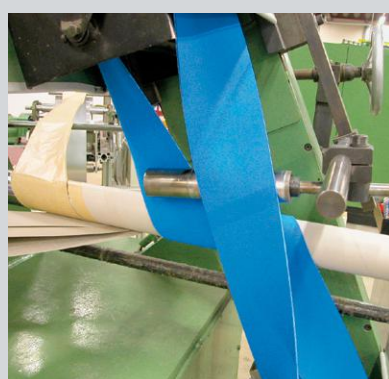
Die **HEVALOID®**- quality guarantees you a precise tube winding, a reliable stable feed and extremely high running time.

Tube winder belts black and blue

Type	535 TW	538 TW	565 TW	568 TW	585 TW	595 TW	598 TW
Thickness	2.5 mm	3.0 mm	4.0 mm	5.5 mm	6.0 mm	8.0 mm	8.0 mm
Mandrel-diameter	20 – 60 mm		50 – 120 mm		> 70 mm	> 120 mm	
Minimum-ø of tube	30 mm (20 mm if belt speed is less than 5 m/sec.)		60 mm (50 mm if belt speed is less than 5 m/sec.)		80 mm (70 mm if belt speed is less than 5 m/sec.)	130 mm (120 mm if belt speed is less than 5 m/sec.)	
Thickness of cardboard tube	2 – 4 mm		2 – 8 mm		> 4 mm	> 6 mm	
Tensile member	Polyester fabric, endless woven						
Quality of rubber	Chloroprene black, 85 ShA NBR blue, 75 ShA, especially for bright applications						
Temperature resistance	80 °C		80 °C		80 °C	80 °C	
Coefficient of friction μ	0.7 – 0.8		0.7 – 0.8		0.7 – 0.8	0.7 – 0.8	
Tensile strength, endless	3000 N/cm		4000 N/cm		> 4000 N/cm	> 4000 N/cm* > 6000 N/cm	
Elongation at break	8 – 9 %		8 – 9 %		8 – 9 %	8 – 9 %	
Force at 1 % elongation 2 % elongation	350 N/cm 700 N/cm		400 N/cm 800 N/cm		450 N/cm 900 N/cm	600 N/cm 1100 N/cm	
Dimensions	length	1400 – 9000 mm +/- 0.5 %	1400 – 9000 mm +/- 0.5 %		1800 – 9000 mm +/- 0.5 %	*1800 – 2999 mm 3000 – 9000 mm +/- 0.5 %	
	width	20 – 280 mm +/- 1 mm	20 – 280 mm +/- 1 mm		20 – 280 mm +/- 1 mm	20 – 280 mm +/- 1 mm	
Applications	Tubes of sanitary and domestic papers, industrial tubes, etc.		Tubes for cardboard cans, textile tubes, industrial tubes, etc.		Tubes for carpet rolls, washing agent drums, heavy industrial tubes, etc.	Tubes for very heavy industrial tubes, heavy carpet rolls, etc.	



Tube winder belt 565 TW, 3150x120x4.0 mm



Tube winder belt 568 TW, 3150x120x5.5 mm

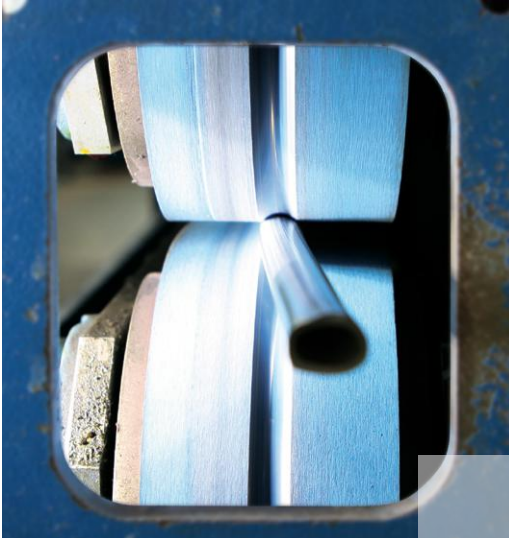


Composite cans aluminium/carton



Food composite cans

HEVALOID® Endless-Haul-off belts



Hault-off belts "Wire Feeder", "Caterpillar" and "VFFS"






These endless haul-off belts are used in all kinds of **extruders**, e.g. caterpillar haul-offs, cable processing machines, as strip machines or high-performance **feeding machines** in the packaging industry. The **haul-off belts "Wire Feeder"** are used in cut and crimp applications during automated wire and cable processing.

The area of application of the **haul-off belts "Caterpillar"** is the transportation of (extruded) pipes, tubes and profiles.

The **haul-off belts "VFFS"** are needed for the continuous film pull-off and transport in (high-speed) vertical form-fill-seal machines (VFFS)

Depending on the required pull-off force and wear resistance, a range of soft to very hard rubber qualities can be used (40 - 75 ShA).

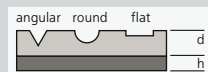
Haul-off belts endless

Type	HEVALOID V10902 blue		HEVALOID V11095 black	HEVALOID Flat belts	External brands* Poly-V-belts		External brands* Timing belts	
Carrying side d	ground		ground	endless coating – no seam or splice – ground surface				
Quality of rubber	NBR blue 75 ShA	CR black° 70 ShA	NBR white* 65 ShA	EPDM green* 65 ShA	NK maroon 50 ShA	NK white*, red, 40 ShA	SI light grey*, blue*, 40 ShA	PUR green° 70 ShA
Friction Steel/PE	0.4/0.2	0.5/0.3	0.4/0.2	0.8/0.3	0.8/0.7	0.9/0.8	0.4/0.3	0.4/0.2
Properties	highly wear resistant	wear resistant, antistatic		wear resistant, high to highest friction, UV-resistant, °antistatic, *FDA conform				
Temperature resistance	80 °C	100 °C	60 - 80 °C					
Pulley side h Profile								
	flat	flat	flat	longitudinal ribs		toothed		
Tension layer	Polyester endless woven	Polyester endless woven	Polyester endless woven	Polyester, Aramide endless wound		Steel, glas fiber, Aramide, endless wound		
Quality of rubber	NRB blue 75 ShA	CR black 70 ShA	NBR blue 75 ShA	NE black		NE or PU		
Tensile strength, endless	3000 N/cm	3000 N/cm	1500-6000N/cm	•		•		
Force at 1% elongation	350 N/cm	350 N/cm	220 - 600 N/cm	•		•		
Elongation at break	8 - 9 %	8 - 9 %	8 - 9 %	•		•		
Dimensions length width thickness (d)	150 - 1999 mm 20 - 280 mm 1 - 12 mm	2000 - 9000mm 20- 280mm 2- 8mm	+/- 1 % +/- 1 mm +/- 0.1 mm	• • •		• • •		

• q.v. information of external manufacturer

Millings of haul-off grooves

Millings increase the contact- and friction-surface between the profiles and the haul-off belts. The outcome of this is an augmented haul-off force and enables a mild drawing at smaller contact pressure. At the same time the grooves guide the profiles with precision on track.



Outstanding performances

- highest entrainment > due to approved Graf rubber-qualities
- excellent performance > due to highest wear resistance
- precise and steady belt running > due to optimal cutting of the belts
- constant haul-off pressure > due to exactly ground thickness of belts
- extreme durability > due to endless-vulcanisation



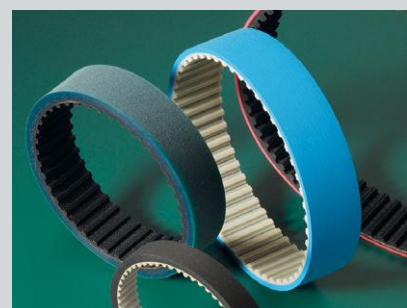
Extrusion plant for tubes FDA approved



„Caterpillar“ unit for composite pipes



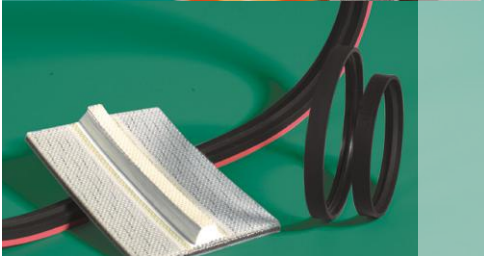
VFFS haul-off belts



Wire feeder belts

8

Endless-coatings



We are specialized in **endless coatings** of flat, timing and Poly-V-belts.

These endless coatings - **no splice, no seam** - are used since many decades in industrial systems and machines, as well as for automatisatisation technologies.

According to your needs and the desired properties, you can choose from a broad range of **rubber, polyurethane and silicone coatings**.

The belts and coatings can be processed due to customer request.

Our competent sales team is looking forward to providing your technical advice. Please contact us to benefit from our technical expertise.

Endless coatings on flat, timing and poly-V-belts

Type	CR black	NBR white*	NBR blue or light grey	XNBR light beige	EPDM green*	NR red or white*	NR maroon	SI l'grey* or blue* transpa.*	SI white blue, red	PUR various colours
Quality of rubber	Rubber Chloroprene 70 ShA	Rubber Nitrile 65 ShA	Rubber Nitrile 75 ShA	Rubber Nitrile 75 ShA	Rubber EPDM 65 ShA	Rubber Natural 40 ShA	Rubber Natural 50 ShA	Silicone 40 ShA 30 ShA	Silicone 50 ShA	Polyureth. EU/AU 30-80 ShA
Properties	antistatic oil/greas-resistant	*FDA wear-resistant	oil/greas and wear-resistant	very high wear-resistant	*FDA UV-, light- and ozone-proof	*FDA highest coefficient of friction	high coefficient of friction	*FDA non-stick	*FDA wear-resistant	*FDA wear-resistant antistatic
Temperature resistance	100 °C	80 °C	80 °C	100 °C	120 °C	60 °C	60 °C	150 °C	150 °C	80 °C

Produced dimensions

Length	150 – 1999 mm	2000 – 9000 mm	+/- 1 %
Width	max. 280 mm	max. 280 mm	+/- 1 mm
Thickness	0.5 – 12.0 mm	1.0 – 8.0 mm	+/- 0.1 mm

Processing

All the belts can be processed according your desire:

Perforation

Many folder/gluer machines, as well as VFFS units are using the support of vacuum energy to increase speed of machine and life time of the belts.

According to your desire, we are glad to perforate and mill your belts.

Milling alongside, lateral or diagonal

Today, many paper and cardboard handling machines have increased working speed. For this higher performance, higher friction coefficients of the feeder belts are needed; and milling of tracking or lateral grooves will improve it. Lateral grooves, do not only increase friction coefficient, furthermore they reduce dirt and paper dust on the surface. Therefore,

your machines are running with a higher through-put and interrupt-free!

Self-tracking-guide

Self-tracking-guides keep your belts on track, e.g. if you have lateral force on the belt or not enough belt tension force is available. According your desire we weld self-tracking-guides onto the belt or mill them direct out of the belt material.

Structure of the surface

Depending on your application and the used rubber quality we recommend various grindings or vulcanized web structures.

Marking of the belts

For many customers marking with Ink-Jet or screen printing ist very important, e.g. date, belt type, spare part number, dimensions, corporate identity sign, etc.











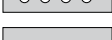







Speciality

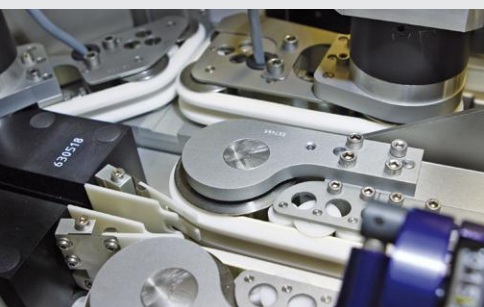
The coatings are truly endless, without any joint – no seam or splice! The surface of the coating is grinded.

Timing- and poly-V-belts supply

Normally we receive from our customer timing- and poly-V-belts in sleeves of minimum 200 mm width. The coated sleeves will be cut by us to the requested belt width.

Boring, milling and further processing

Vacuum holes cylindrical		
Vacuum holes conical		
Vacuum holes with oval millings		
Vacuum holes with cross millings		
Vacuum holes with diagonal millings		
Fräsungen, quer		
Grooves diagonal		
Grooves longitudinal for pull-out		
Self-tracking -guides		



Pharmaceutical packaging machine



„Tubular bag“ unit (VFFS)



Friction feeder FDA compatible



VFFS-Feeder unit for food and drugs

9

SOLUTUS®

Endless-Leather and fleece belts



SOLUTUS® - flat belts consist of **endlessly wound polyester yarns**. The basic belts consist of leather, fleece or multi-ply (high lateral stiffness) carcass.

These **truly endless belts** have been used for years in oily **machine drives** as well as for conveying applications (i.e. cardboard or metal sheets).

Special designed belts with endlessly wound **steel cords** are applied for **very length-stable** transmission belts (**LP 63 S**) i.e. for small **power stations** and **news paper printing** plants.

The endlessly wound belts convince due to their **very reliable, high flexible** and **perfect running belts**.

Leather and fleece belts

Type	Force at 1% elongation	Thickness	Minimum pul- ley diameter
	[N / cm]	[mm]	[mm]
LP 06 E	80	2.0	30
LP 09 E	180	2.2	40
LP 15 E	270	2.5	50
LL 06 E	80	3.0	50
LL 09 E	180	3.2	70
LL 15 E	270	3.7	90
VP 06 E	80	1.2	20
VP 09 E	180	1.4	30
VP 15 E	270	1.7	40
VV 06 E	80	2.5	50
VV 09 E	180	2.7	70
LP 63 S	2400	2.5	100
LL 63 S	2400	3.5	150

Approx. power transmission

Belt speed	Type 06	Type 09	Type 15
[m / s]	[kW / cm]	[kW / cm]	[kW / cm]
1	0.10	0.15	0.20
2	0.20	0.28	0.45
3	0.28	0.40	0.62
4	0.37	0.52	0.90
5	0.44	0.67	1.11
6	0.55	0.82	1.26
7	0.63	0.96	1.48
8	0.68	1.11	1.63
9	0.78	1.26	1.85
10	0.89	1.33	2.07
20	1.78	2.75	4.15
30	2.75	3.80	6.30

Pretension: 0.8 – 1.0 %

Standard-Types

LP running side leather / cover PU red
 LL running side leather / cover leather
 VP running side fleece / cover PU red
 VV running side fleece / cover fleece

Special design

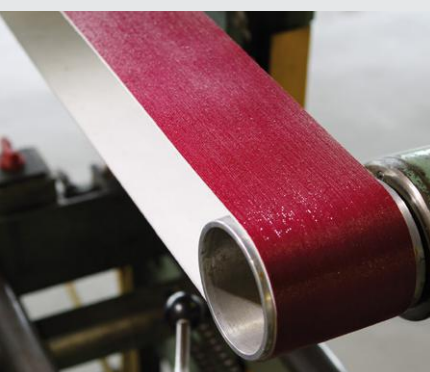
LP 63 S running side leather / cover PU, steel cord wound
 LL 63 S running side leather / cover leather, steel cord wound

Dimensions

Length 700 – 7000 mm
 Width 5 – 200 mm



Accumulating conveyor belt for carton



Heavy power transmission drive with LP 15 E



Transmission belt LP 63 S for power stations

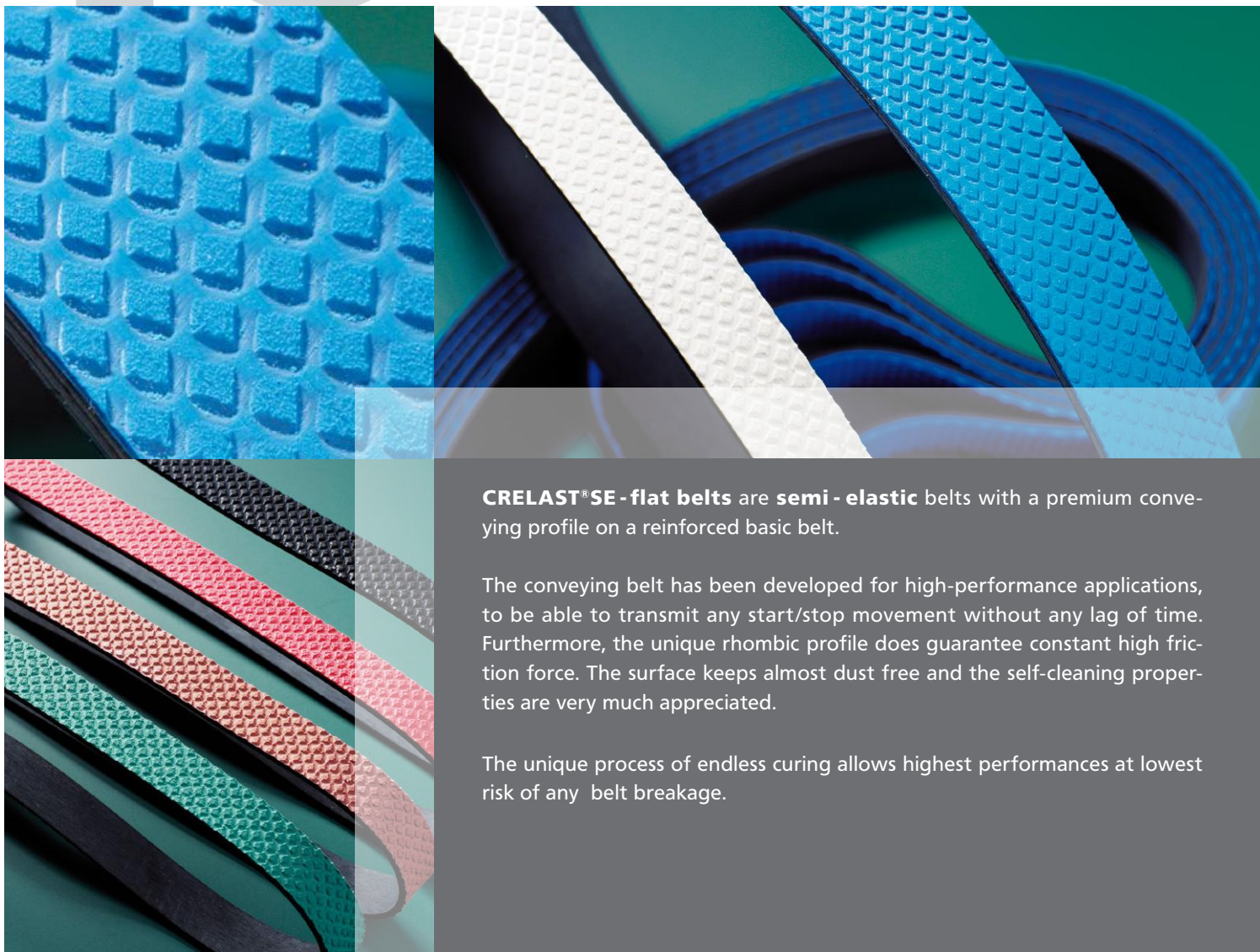


Conveying of punched metal sheets VV06 E

10

CRELAST®SE

Endless-Flat belts semi-elastic



CRELAST®SE -flat belts are **semi - elastic** belts with a premium conveying profile on a reinforced basic belt.

The conveying belt has been developed for high-performance applications, to be able to transmit any start/stop movement without any lag of time. Furthermore, the unique rhombic profile does guarantee constant high friction force. The surface keeps almost dust free and the self-cleaning properties are very much appreciated.

The unique process of endless curing allows highest performances at lowest risk of any belt breakage.

Crelast SE – Conveying belt with rhombic pattern, semi-elastic

Type	Crelast SE black/blue semi-elastic	Crelast SE black/white* semi-elastic	Crelast SE black/green* semi-elastic	Crelast SE black/black semi-elastic	Crelast SE black/maroon semi-elastic	Crelast SE black/red semi-elastic
Surface						
carrying side	NBR 75 ShA rhombic pattern	NBR 65 ShA rhombic pattern	EPDM 65 ShA rhombic pattern	CR 70 ShA rhombic pattern	NK 50 ShA rhombic pattern	NK 40 ShA rhombic pattern
pulley side	CR black	CR black	CR black	CR black	CR black	CR black
Properties	very high wear	*FDA wear-resistant	*FDA, UV-and ozone-proof	antistatic wear-resistant	high coefficient of friction	highest coeffi- cient of friction
Temperature resistance	80 °C	80 °C	100 °C	100 °C	60 °C	60 °C
Force- and tension values						
at 4 %	0.80 N/mm ²	0.80 N/mm ²	0.80 N/mm ²	0.80 N/mm ²	0.80 N/mm ²	0.80 N/mm ²
at 5 %	0.97 N/mm ²	0.97 N/mm ²	0.97 N/mm ²	0.97 N/mm ²	0.97 N/mm ²	0.97 N/mm ²
at 6 %	1.13 N/mm ²	1.13 N/mm ²	1.13 N/mm ²	1.13 N/mm ²	1.13 N/mm ²	1.13 N/mm ²
Pretension	4-6 %	4-6 %	4-6 %	4-6 %	4-6 %	4-6 %
endless vulcanized – no seam or splice						
Dimensions						
length	15 - 2000 mm +/- 1 %					
width	2 - 280 mm +/- 1 mm					
thickness	0.5 - 15.0 mm +/- 0.1 mm					

Special production

- other dimensions or tighter tolerances
- inscription of country of origin, item number, etc.

Outstanding performances

- highest entrainment › due to approved Graf rubber-quality
- smooth and economical belt running › due to highly cross-linked rubbers
- insensitive to dust and steady friction › due to Graf rhombic pattern
- for smallest pulley diameter from 6 mm › due to endless-vulcanisation
- extreme durability › due to established workmanship



Crelast SE black / blue
black / white



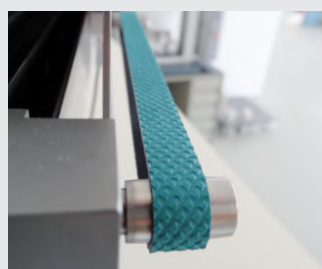
Crelast SE black / black
black / green



Crelast SE black / maroon
black / red



Paper feeder for folding machine



Quality control unit



Folding unit



Vakuum feeder for letter shops

11

HEVALOID® Endless-Feeder belts FDA



HEVALOID®-Feeder belts FDA are made of high quality natural rubber (NR white) – similar to LINATEX. These specially developed rubber qualities guarantee a **constant high friction, an excellent resistance against abrasion and they are FDA approved!**

The following approved belt types are used:

- **ECT 06/ ECG 06** - length-stable (NR rubber with Polyester fabric)
- **EC** - fully elastic (NR rubber only)
- **CR/EC** - elastic (Two-layer belt with NR rubber on top)
- **SE** semi-elastic (with rhombic pattern)

For years, these truly endless belts convince customers in all kind of **folder/ gluer machines as well as in friction feeders used for food and drug applications.**

The truly endless - no splice or seam - production results in **very reliable, high flexible and perfect running belts.**

Feeder and conveyor belts FDA

Type Hevaloid	ECT 06 white non-elastic	ECG 06 white non-elastic
Tensile member	Polyester fabric, endless woven	
Pulley side	gliding	rubberized
Quality of rubber	Natural rubber 40 ShA	Natural rubber 40 ShA
Properties	wear-resistant highest friction, FDA conform	wear-resistant highest friction, FDA conform
Temperature resistance	60 °C	60 °C
Pretension	0.5 - 1.0 %	0.5 - 1.0 %
Dimensions		
length	150 - 499 mm +/- 1.0 % 500 - 9000 mm +/- 0.5 %	
width	3 - 140 mm +/- 1.0mm up to l. of 499 mm 3 - 280 mm +/- 1.0mm longer than 500 mm	
thickness	1.5 - 12.0 mm +/- 0.1mm up to l. of 1999 mm	

endless vulcanized – no seam or splice

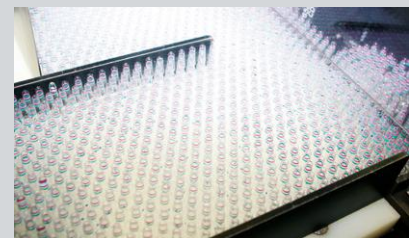
Type Crelast	EC white elastic	CR/EC white semi-elastic
Tensile member	non	non
Pulley side	Rubber, grinded	Rubber, grinded
Quality of rubber	Natural rubber 40 ShA	Natural rubber 40 ShA Inside CR black
Properties	wear-resistant highest friction, FDA conform	wear-resistant highest friction, FDA conform
Temperature resistance	60 °C	60 °C
Force- and tension-values at 5 % at 10 % at 20 %	0.09 N/mm ² 0.16 N/mm ² 0.28 N/mm ²	0.5 N/mm ² - -
Pretension	10-20 %	4-6 %
Dimensions		
length	15 - 2000 mm +/- 1 % L0 = length without tension	
width	3 - 280 mm +/- 1 mm	
thickness	0.8 - 15.0 mm +/- 0.1 mm	

Special production

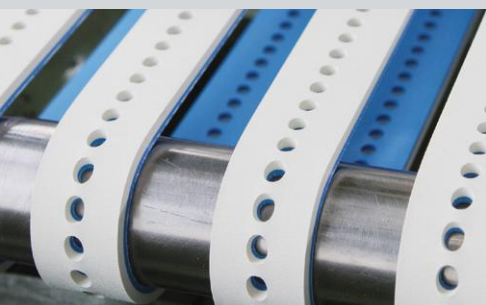
- surface grinded more smooth or coarse
- with vacuum holes or diversity of grooves
- other dimensions or tighter tolerances
- other qualities of rubber
- inscription of country of origin, item number, etc.



Friction feeder FDA



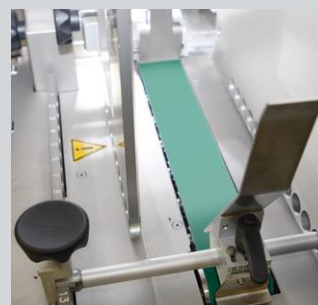
Pharmaceutical primary packaging



Vacuum feeder for drug folding boxes



Feeding of „medication booklet“



Feeder for inlier

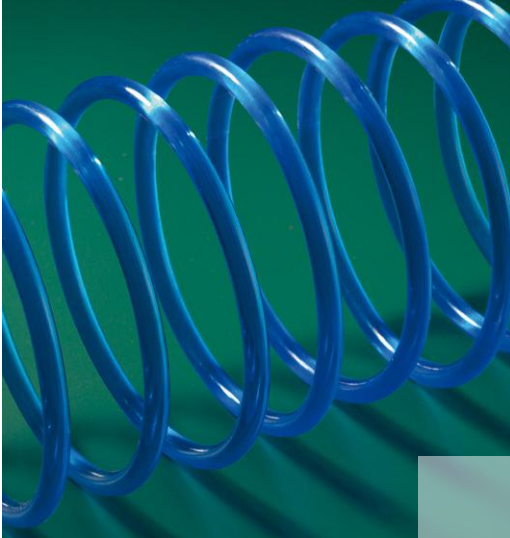


Positing system for vials

12

RONDLAST®

High-performance **round belts**



RONDLAST® High-performance **round belts** consist of 100 % virgin material and convince due to the homogenous and perfect welded joint!

Our round belts have been successfully used for decades in worldwide installed continuous operated (24/7) conveyors, as well as in sorting and transport systems.

Every RONDLAST® round belt - whether used in **Drive** or **Conveyor** systems - is unique and will be produced customer-specific. Thus, the desired performance and highest satisfaction is warranted.

Convince yourself of the enormous lifespan of our round belts and take advantage of our expertise!

High-performance round belts for conveyor, sorting and transport systems

Type	Rondlast PU clear 83 ShA orange 83 ShA	Rondlast PU clear blue 85 ShA clear red 85 ShA clear green 85 ShA	Rondlast PU black 88 ShA	Rondlast PU red 90 ShA	Rondlast PU clear 85 ShA	Rondlast PU clear water blue 90 ShA	Rondlast HT pearl white 92 ShA	Rondlast PU green 88 ShA blue 88 ShA
Quality	TPU Ester	TPU Ester	TPU Ester	TPU Ester	TPU Ether	TPU Ether	TPE Hytrel	TPU Ester
Surface	smooth	smooth	smooth	smooth	smooth	smooth	smooth	rough
Properties	FDA wear resistant oil/grease resistant very durable and reliable	FDA wear resistant oil/grease resistant increased strength	FDA highly wear and oil/grease resistant UV-proof strong and flexural	FDA highly wear and oil/grease resistant maximum strength and durability	FDA wear resistant oil/grease resistant UV-/waterproof	– wear resistant oil/grease resistant UV-/waterproof antistatic	FDA wear resistant oil/grease resistant cold & chemical resistant	– wear resistant oil/grease resistant low friction for accumulation op.
Temperature resistance	0 °C bis +55 °C	0 °C bis +55 °C	0 °C bis +55 °C	0 °C bis +55 °C	-20 °C bis +55 °C	-20 °C bis +55 °C	-40 °C bis +80 °C	0 °C bis +55 °C
Pretension/ Initial tension*	max. 15 %	max. 22 %	max. 25 %	max. 15 %	max. 15 %	max. 10 %	max. 8 %	max. 16 %

Endless welded...extra strong and reliable!

Dimensions			
length	from 75 mm	+/- 3 mm	L0 = original length without tension
cross-section	1.6 - 18 mm	+/- 3 %°	° minimum tolerance +/- 0.15 mm

* We would be pleased to calculate the best fitting RONDLAST® round belt for your specific application!

Applications:

Drive: Roller conveyors with drum motors or drive shafts for continuous operation, e.g. for letters, parcels, boxes

Conveyor: Belt conveyors and transport systems for continuous operation, e.g. for food papers, packaging

Special types:

Rondlast W - twisted round belts with hook, for simple and quick repairing

Rondlast S - reinforced length-stable round belts for increased power transmission

Rondlast H - hollow round belts; for simple mounting - with metal connectors

Rondlast SL - round belt slings / hold down clips for elastic drive of e.g. belt curves

Rondlast PU dark blue 85 ShA - round belt detectable by metal detectors for food applications



Endless...strong and reliable

Endless welded...

Our RONDLAST® round belts are endless welded according to a unique process.

Due to this process, our high-performance round belts are always surpassing "conventional" round belts several times – even under extreme stress.

Not any round belt – endless welded – convinces under extreme conditions!



Gouged, soft joint decreases the performance.



Bulging, hardened joint decreases the lifetime.



Roller conveyor curves



Drive „Flow splitting“



Parcel diverter



Drive for letter sorting



„Slicer“ FDA food conveyor

Dipl. Ing. Werner Graf AG



Our production site in Switzerland (Staad, SG)

Die Dipl. Ing. Werner Graf AG was founded in 1939 and changed into limited company in 1978.

Under our registered brand names **HEVALOID®** - **CRELAST®** - **RONDLAST®** we produce and supply truly endless power transmission belts, precise conveyor tapes, endless coatings and high-performance round belts.

The high quality and reliability convince our worldwide customers (OEM, representatives and end-users) for more than 80 years.

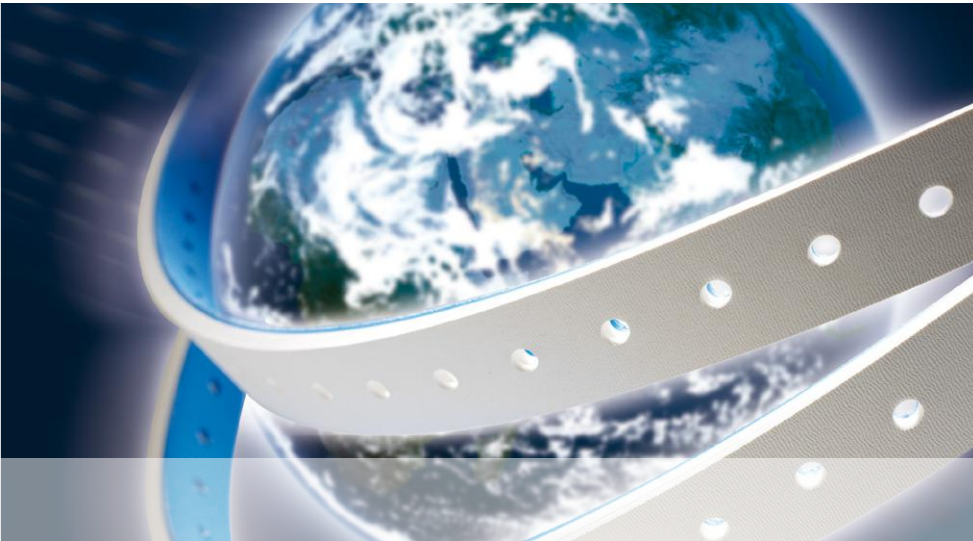


Dipl. Ing. Werner Graf AG
Buechenstrasse 9
CH-9422 Staad
info@grafbelts.ch
www.grafbelts.ch
Phone +41 71 868 60 60



INNOVATION

... for more than 80 years!



New solutions are being created in cooperation with our customers and business partners day-to-day. In many industrial fields we can provide the best solution with our existing know-how while we develop the solution for other applications within a defined development period.

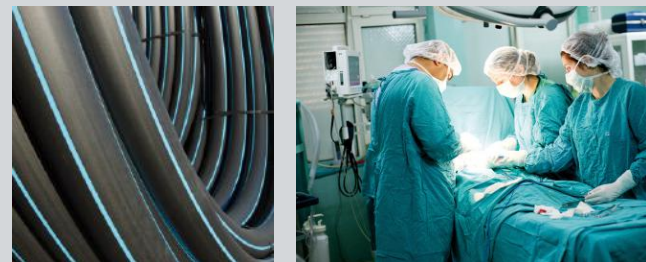
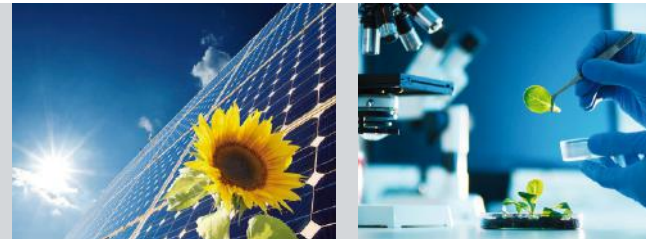
Whatever we tackle, we carry it through until it is ready for use and series production to the satisfaction of our international customers. That is our forte!

We always live up to our quality motto, "SWISS PREMIUM ENDLESS BELTS FACTORY."

Approved in many industrial branches, processing and conveying applications

Horology and watches manufacturing
 Pharmaceutical processing
 Medicine and laboratory technology
 Production of food and drugs
 Corrugated and carton handling
 Ventilation and measurement technology
 Motor drive and step-by-step control
 Power plants and circuitry
 Plastic extrusion plants
 Wood processing machines

Printing industry
 Textile finishing
 Paper handling
 Plastic film fabrication
 Bionics technology
 Solar technology
 Postal sorting machines
 Metall processing tools
 Packaging and automation
 engineering and many more.



Muster / Sample Collection

1

ÜBERSICHT
OVERVIEW

Endlos
Graf-Riemen
und Endlos-
Beschichtungen

Endless
Graf-Belts
and endless
coatings

2

HEVALOID®

Endlos
Flachriemen
längenstabil

Endless
Flat belts
length-stable

3

HEVALOID®

Endlos
Einzugsriemen

Endless
Feeder belts

4

CRELAST®

Endlos
Flachriemen
elastisch

Endless
Flat belts
elastic

5

CRELAST®

Endlos
Walzenbezüge
und Reibbeläge

Endless
Roll and friction
covers

6

HEVALOID®

Endlos
Hülsenwickel-
riemen

Endless
Tube winder
belts

7

HEVALOID®

Endlos

Abzugsriemen Kabelzug

Abzugsriemen Raupenabzug

Abzugsriemen VFFS

Endless

Haul-off belts Wire Feeder

Haul-off belts Caterpillar

Haul-off belts VFFS

8

BESCHICHTUNGEN
COATINGS

Endlos

Beschichtungen Gummi

Beschichtungen Silikon

Beschichtungen Polyurethan

Endless

Coatings Rubber

Coatings Silicone

Coatings Polyurethane

9

SOLUTUS®

Endlos

Leder- und
Vliesriemen

Endless

Leather and
fleece belts

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CRELAST® SE

Endlos

Flachriemen
semi-elastisch

Endless

Flat belts
semi-elastic

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HEVALOID®

Endlos

Einzugsriemen FDA

Endless

Feeder belts FDA

12

RONDLAST®

Hochleistungs

Rundriemen Antrieb

Rundriemen Transport

High-performance

Round belts Drive

Round belts Conveyor

