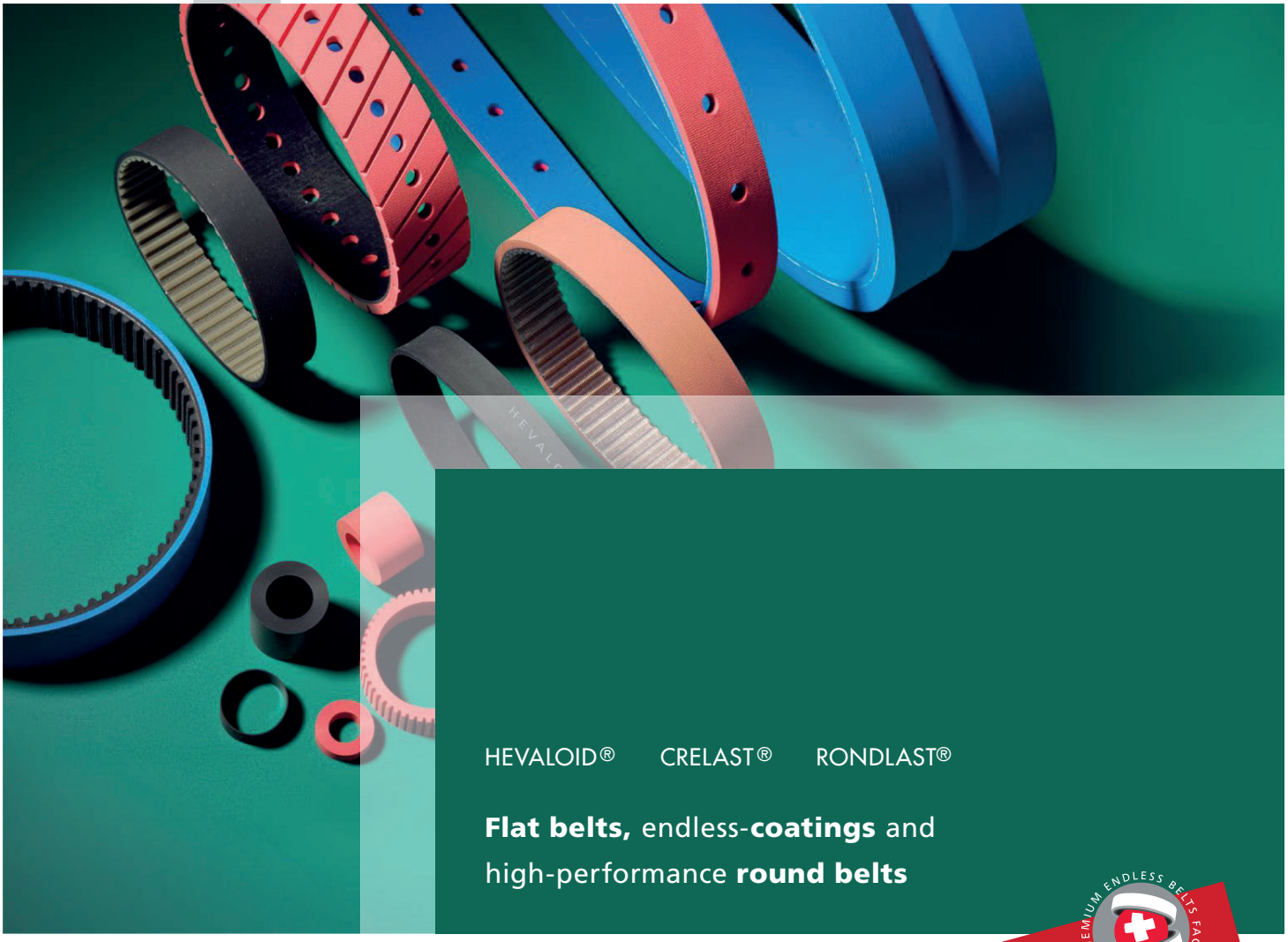
# Product catalogue



HEVALOID® CRELAST® RONDLAST®

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

**truly endless**

SWISS PREMIUM ENDLESS BELTS FACTORY

graf ENDLESS BELTS

# Preamble / Editorial

Edgar Seiz / Managing Director

**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

graf ENDLESS BELTS

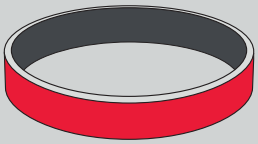
Dipl.Ing. Werner Graf AG
Buechenstrasse 9
CH-9422 Staad

## Truly endless...

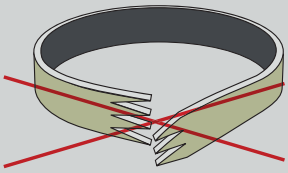
Not all endless belts
are truly endless!

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.

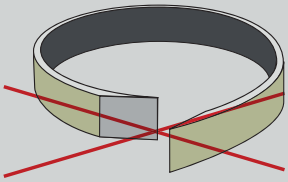
We would be pleased to support you with our long standing experience. Please do not hesitate to contact us!



**Truly endless** - no splice, no seam



"Endless" finger splice, prone to vibration



"Endless" wedge splice, prone to small radius

SWISS PREMIUM ENDLESS BELTS FACTORY

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

***... for more than 80 years!***

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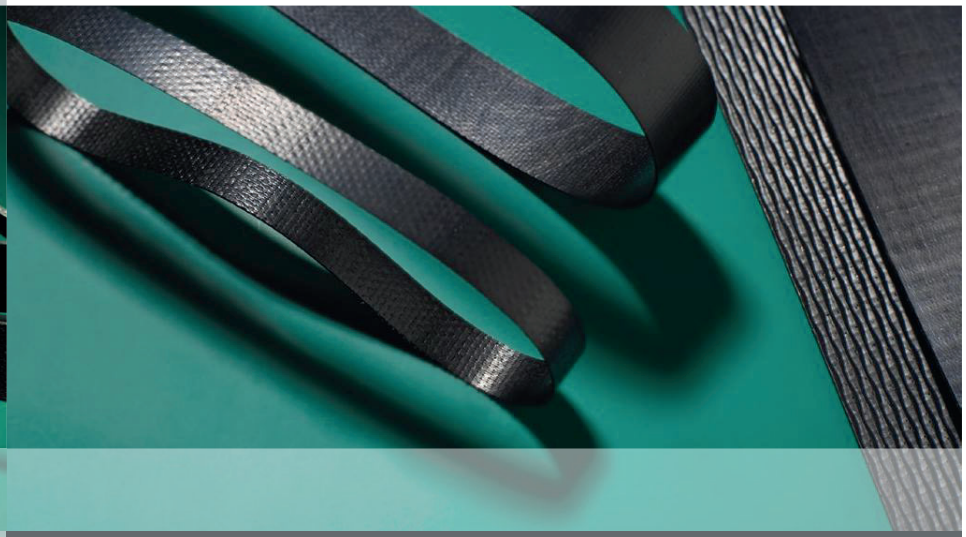
# HEVALOID®
## Endless-**Flat belts length-stable**



**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.)**.

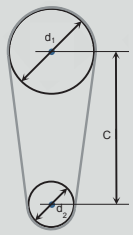
## Transmission and conveying belts, endless

| 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<br>carrying side | smooth<br>smooth | smooth<br>smooth | profile<br>smooth | profile<br>smooth | profile<br>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<br>width<br>thickness | 150 - 1500 mm<br>3 - 140/280 mm<br>0.5 mm | 150 - 1500 mm<br>3 - 140/280 mm<br>0.7 mm | 150 - 3000 mm<br>3 - 280 mm<br>1.0 mm | 150 - 3000 mm<br>5 - 280 mm<br>1.5 mm | 800 - 9000 mm<br>15 - 280 mm<br>2.0 mm |
| Tolerances | length<br>width<br>thickness | +/- 0.5 %<br>+/- 0.5 mm<br>+/- 0.1 mm | +/- 0.5 %<br>+/- 0.5 mm<br>+/- 0.1 mm | +/- 0.5 %<br>+/- 0.5 mm<br>+/- 0.1 mm | +/- 0.5 %<br>+/- 0.5 mm<br>+/- 0.1 mm | +/- 0.5 %<br>+/- 0.5 mm<br>+/- 0.1 mm |

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

## Approx. power transmission

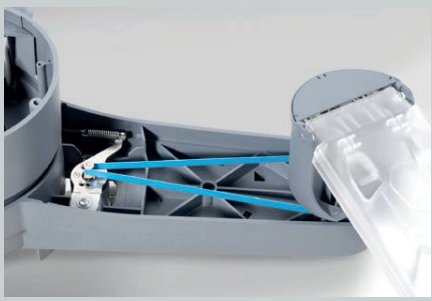
| Belt-speed | 5005 | 5065 | 525 HF | 525 | 535 |
|---|---|---|---|---|---|
| [m/s] | [kW/cm] | [kW/cm] | [kW/cm] | [kW/cm] | [kW/cm] |
| 1 | 0.07 | 0.12 | 0.14 | 0.14 | 0.24 |
| 2 | 0.14 | 0.24 | 0.28 | 0.28 | 0.48 |
| 5 | 0.35 | 0.58 | 0.70 | 0.70 | 1.14 |
| 10 | 0.70 | 1.19 | 1.40 | 1.40 | 2.28 |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

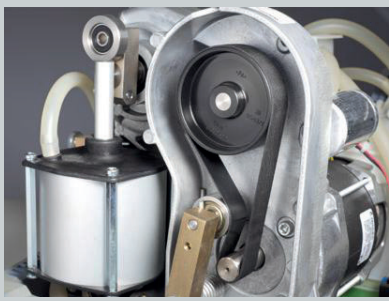



**Applications:** used for light to heavy power transmission and conveying applications, e.g. ATM and ticketing machines, folding and paper feeding units, wood and tool processing machines, as well as air ventilation and textile machines.

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.**

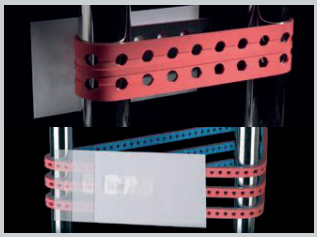
## Feeder and conveyor belts

| Type Hevaloid | ECT 06 red<br>ECT 06 white*<br>ECT 06 maroon<br>non-elastic | ECG 06red<br>ECG 06 white*<br>ECG 06 maroon<br>non-elastic |
|---|---|---|
| Tensile member | Polyester fabric, endless woven | |
| Pulley side | gliding | rubberized |
| Quality of rubber | Natural rubber<br>40 ShA<br>50 ShA | Natural rubber<br>40 ShA<br>50 ShA |
| Properties | wear-resistant,<br>highest friction,<br>highly wear-resistant,<br>high friction<br>*FDA conform | wear-resistant,<br>highest friction,<br>highly wear-resistant<br>high friction<br>*FDA conform |
| Temperature resistance | 60 °C | 60 °C |
| | | |
| Pretension | 0.5 - 1.0 % | 0.5 - 1.0 % |
| Dimensions | | |
| length | 150 - 499 mm +/- 1.0 %<br>500 - 9000 mm +/- 0.5 % | |
| width | 3 - 140 mm +/- 1.0 mm up to length of 499 mm<br>3 - 280 mm +/- 1.0 mm longer than 500 mm | |
| thickness | 1.5 - 12.0 mm +/- 0.1 mm up to length of 1999 mm<br>3.0 - 8.0 mm +/- 0.1 mm longer than 2000 mm | |
| | endless vulcanized – no seam or splice | |

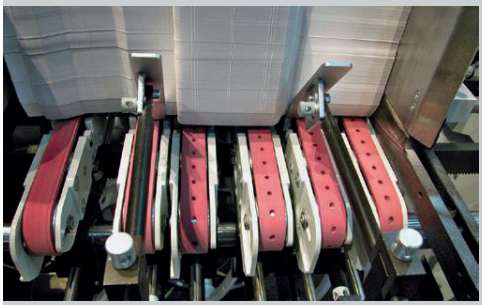
| Type Crelast | EC red<br>EC white*<br>EC maroon<br>elastic | CR/EC red<br>CR/EC white*<br>CR/EC maroon<br>semi-elastic |
|---|---|---|
| Tensile member | non | non |
| Pulley side | Rubber, grinded | Rubber, grinded |
| Quality of rubber | Natural rubber<br>40 ShA<br>50 ShA | Natural rubber<br>40 ShA<br>50 ShA<br>Inside CR black |
| Properties | wear-resistant,<br>highest friction,<br>highly wear-resistant, high friction<br>*FDA conform | Wear-resistant<br>highest friction,<br>highly wear-resistant, high friction<br>*FDA conform |
| Temperature resistance | 60 °C | 60 °C |
| Force- and tension-values<br>at 5 %<br>at 10 %<br>at 20 % | <br>0.09 (0.14) N/mm$^2$<br>0.16 (0.25) N/mm$^2$<br>0.28 (0.43) N/mm$^2$ | <br>0.5 N/mm$^2$<br>-<br>- |
| Pretension | 10-20 % | 4-6 % |
| Dimensions | | |
| length | 15 - 2000 mm +/- 1 %<br>L0 = length without tension | |
| width | 3 - 280 mm +/- 1 mm | |
| thickness | 0.8 - 15.0 mm +/- 0.1 mm | |

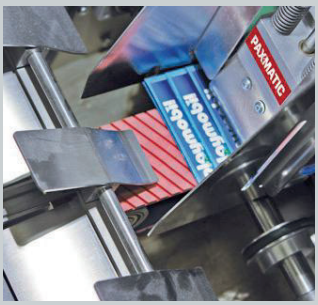
### Special production

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

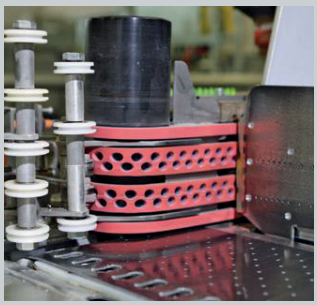

Einzug Grossbriefsortierung

Faltschachtel-Herstellung


Feeder unit of a folder/gluer machine



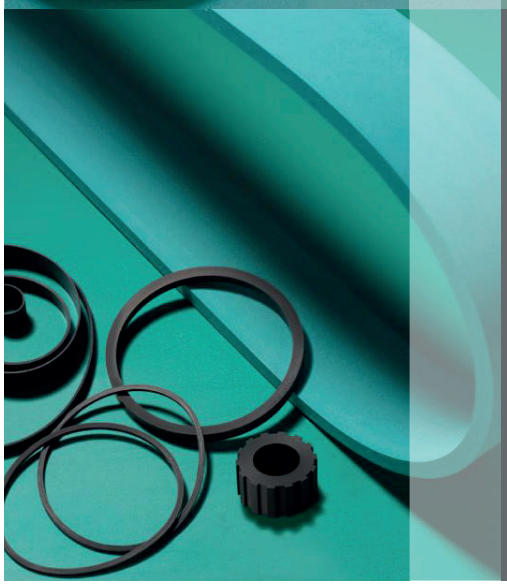
Friction feeder


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.).

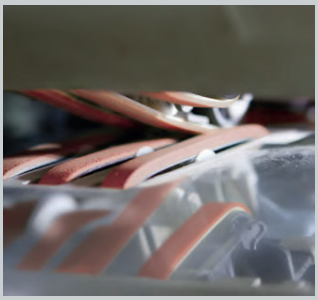
## Folding and conveying belts elastic

| 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

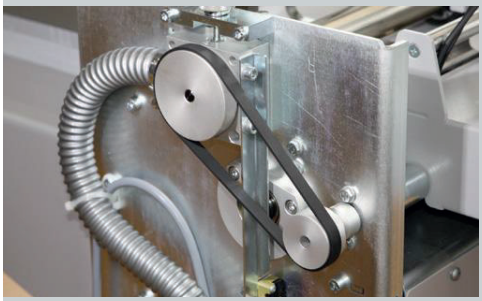
### Special production

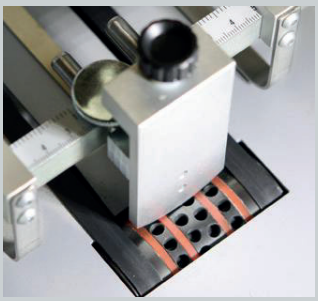
- surface grinded, profiled or smooth
- with tracking guide, grooves or cams
- other dimensions or tighter tolerances
- other qualities of rubber, s.a. product group 10 „Crelast SE flat belts semi-elastic“
- inscription of country of origin, item number, etc.

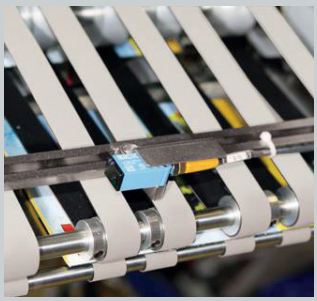

Letter feeding of franking machine

ATM feeding

Top-down feeder of single-sheets


Light power transmission of paper drive axe

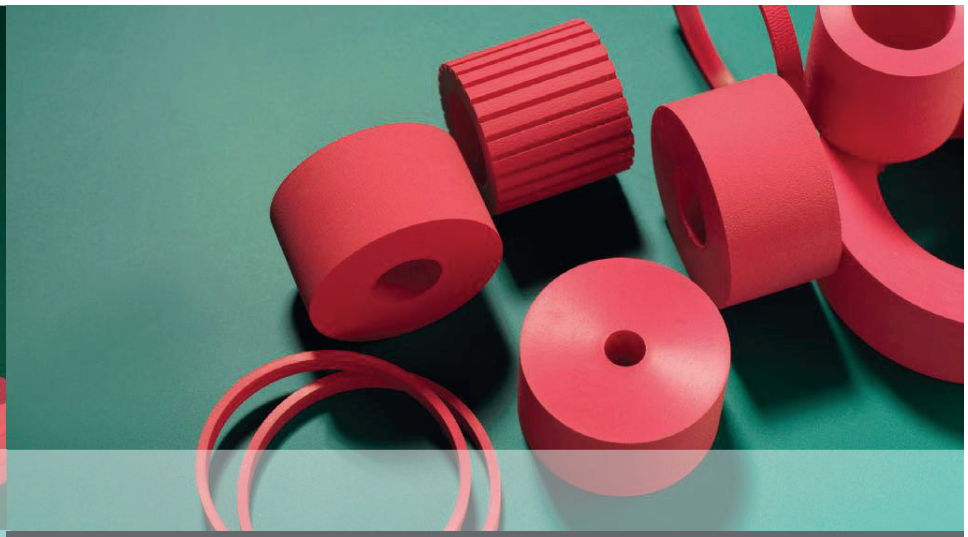

Vacuum feeder with friction covers


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 | | | | |

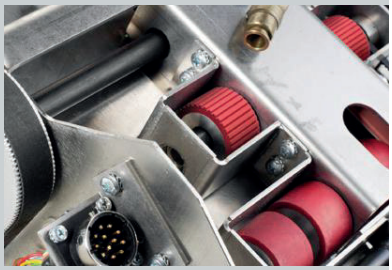
*FDA conform

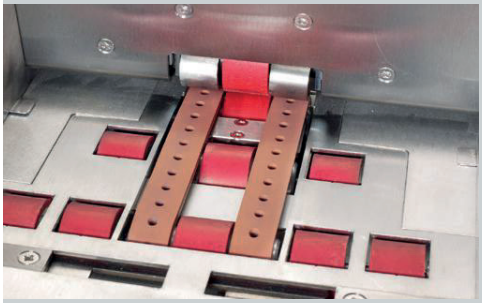
### „Sleeve"-Technology

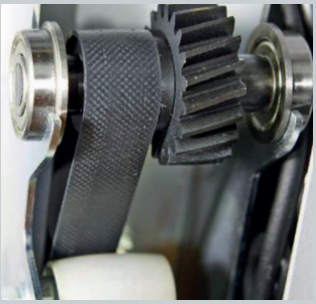
Our roll covers are produced slightly smaller than the diameter of your axes/pulleys and simply mounted, without any use of tools or adhesive agents. Thereby, the achieved pretension force does create a good and steady clamping force.
At the end of the life cycle, the covers will be removed – again without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

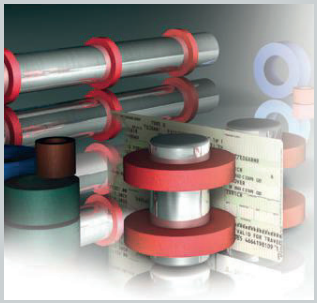
### Special production:

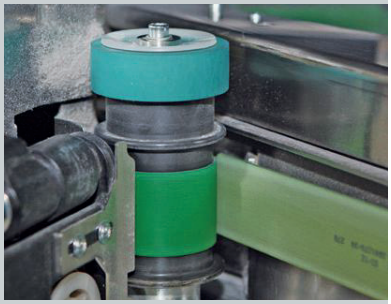
- with grooves: lateral, diagonal or alongside
- other dimensions or tighter tolerances
- other qualities of rubber


Paper feeding with friction covers


Feeder with friction covers

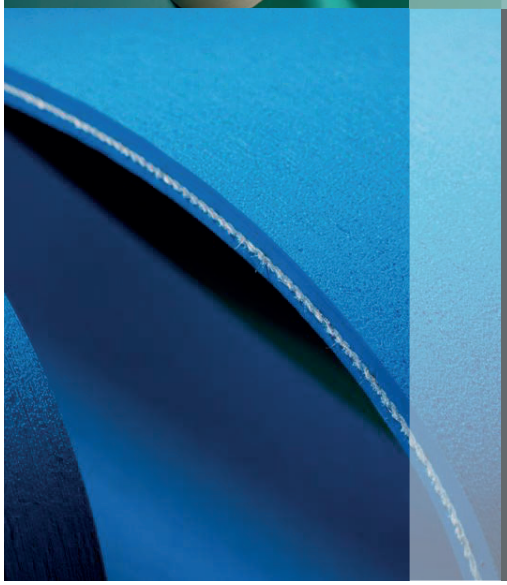

Drive for friction rollers


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.

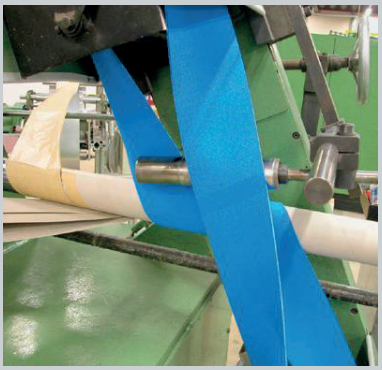
The black chloroprene rubber is very **resistant against abrasion, antistatic** and results in a high running time.
The blue nitrile rubber is specially designed for non-marking applications.

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*<br>> 6000 N/cm | |
| Elongation at break | 8 – 9 % | | 8 – 9 % | | 8 – 9 % | 8 – 9 % | |
| Force at 1 % elongation<br>2 % elongation | 350 N/cm<br>700 N/cm | | 400 N/cm<br>800 N/cm | | 450 N/cm<br>900 N/cm | 600 N/cm<br>1100 N/cm | |
| Dimensions length | 1400 – 9000 mm<br>+/- 0.5 % | | 1400 – 9000 mm<br>+/- 0.5 % | | 1800 – 9000 mm<br>+/- 0.5 % | *1800 – 2999 mm<br>3000 – 9000 mm<br>+/- 0.5 % | |
| width | 20 – 280 mm<br>+/- 1 mm | | 20 – 280 mm<br>+/- 1 mm | | 20 – 280 mm<br>+/- 1 mm | 20 – 280 mm<br>+/- 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

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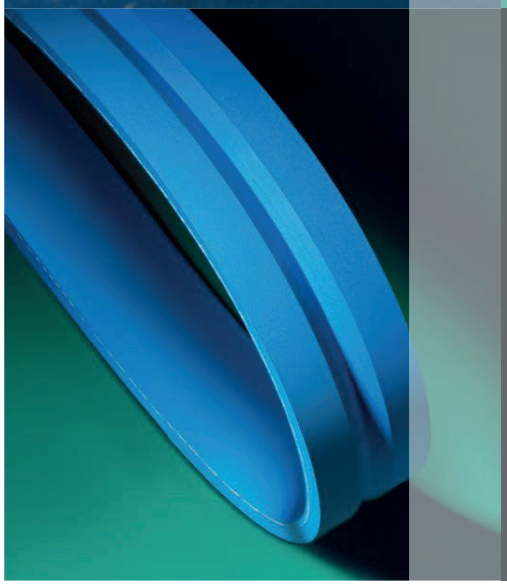
# HEVALOID®
## Endless-**Haul-off belts**



**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).

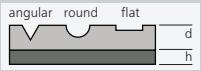
## Haul-off belts endless

| **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<br>length<br>width<br>thickness (d) | <br>150 - 1999 mm<br>20 - 280 mm<br>1 - 12 mm | <br>2000 - 9000 mm<br>20 - 280 mm<br>2 - 8 mm | <br>+/- 1 %<br>+/- 1 mm<br>+/- 0.1 mm | <br>•<br>•<br>• | <br>•<br>•<br>• |

• 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.

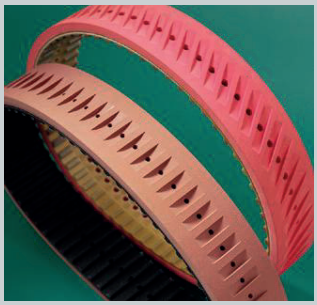


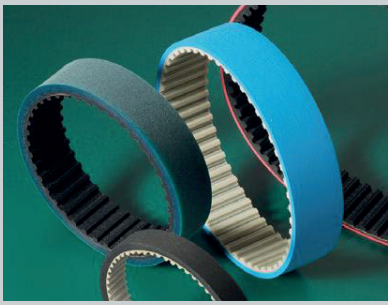

### Outstanding performances

- 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

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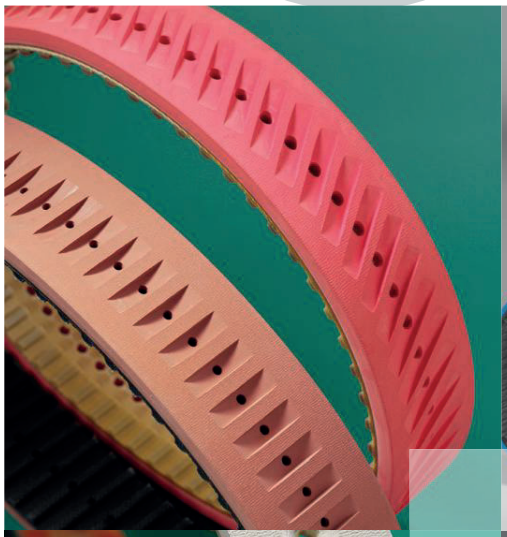
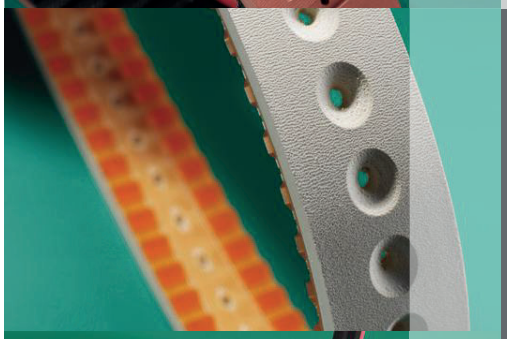
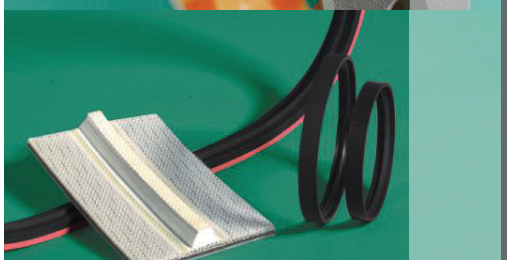
# Endless-**coatings**







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 automatisation 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 processes due to customer request.

Our competent sales team is looking forward to providing your technical advise. Pleas 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-resistent | very high wear-resistent | *FDA UV-, light- and ozone-proof | *FDA highest coefficient of friction | high coefficient of friction | *FDA non-stick | *FDA wear-resistent | *FDA wear-resistent 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 |

**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.

## 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.

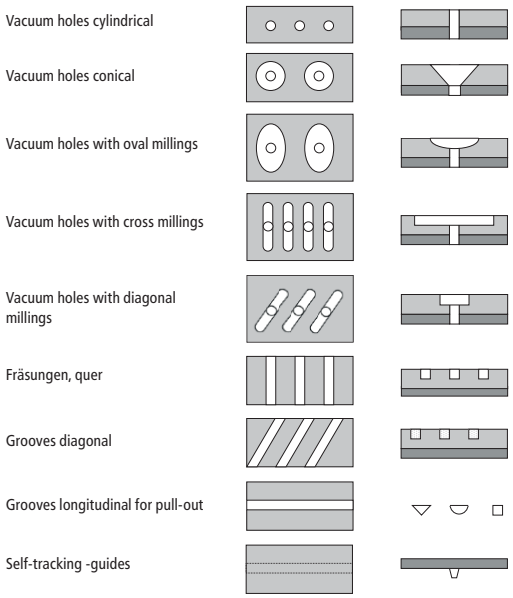
### Structure of the surface

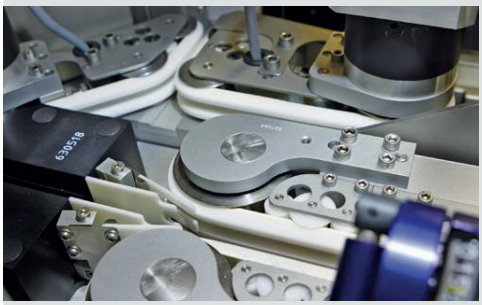
Depending on your application and the used rubber quality we recommend various grindings or vulcanized web structures.

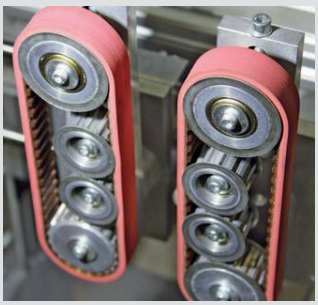
### Marking of the belts

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.

**Boring, milling and further processing**





Pharmaceutical packaging machine


„Tubular bag" unit (VFFS)

Friction feeder FDA compatible

VFFS-Feeder unit for food and drugs

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# 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 pulley 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

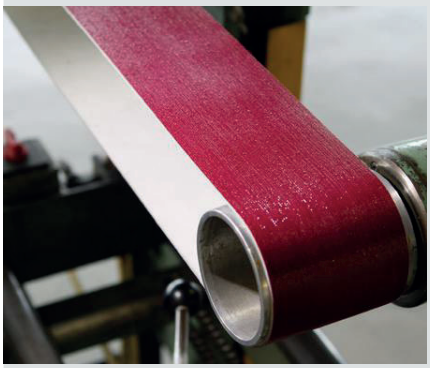
### Special design

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

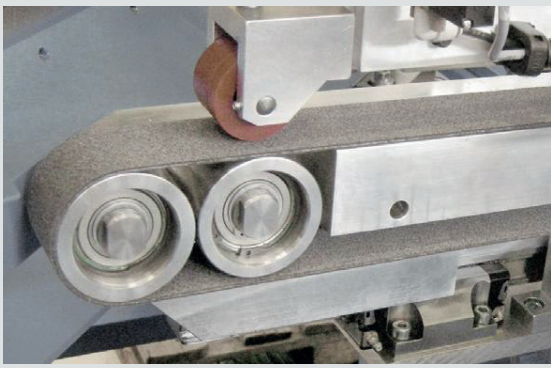
### Dimensions

Length 700 – 7000 mm
Width 5 – 200 mm

Accumulating conveyor belt for carton

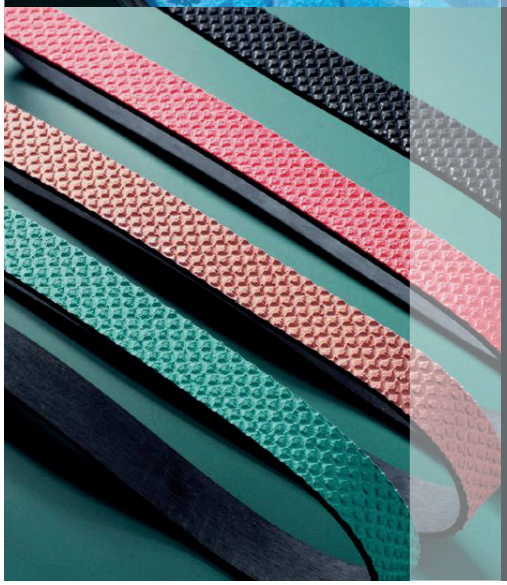

Heavy power transmission drive with LP 15 E

Transmission belt LP 63 S for power stations


Conveying of punched metal sheets VV 06 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

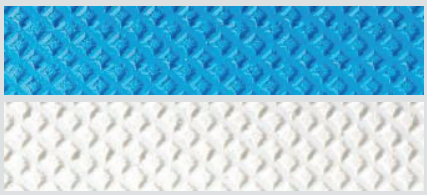
| **Type** | **Crelast SE black/blue** semi-elastic | **Crelast SE black/white*** semi-elastic | **Crelast SE black/green*** semi-elastic | **Crelast SE black/black** semi-elastic | **Crelast SE black/maroon** semi-elastic | **Crelast SE black/red** semi-elastic |
|---|---|---|---|---|---|---|
| Surface<br>carrying side | NBR<br>75 ShA<br>rhombic pattern | NBR<br>65 ShA<br>rhombic patternl | EPDM<br>65 ShA<br>rhombic pattern | CR<br>70 ShA<br>rhombic pattern | NK<br>50 ShA<br>rhombic pattern | NK<br>40 ShA<br>rhombic pattern |
| pulley side | CR black | CR black | CR black | CR black | CR black | CR black |
| Properties | very high wear | *FDA<br>wear-resistant | *FDA, UV-and ozone-proof | antistatic<br>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<br>at 4 %<br>at 5 %<br>at 6 % | <br>0.80 N/mm$^2$<br>0.97 N/mm$^2$<br>1.13 N/mm$^2$ | <br>0.80 N/mm$^2$<br>0.97 N/mm$^2$<br>1.13 N/mm$^2$ | <br>0.80 N/mm$^2$<br>0.97 N/mm$^2$<br>1.13 N/mm$^2$ | <br>0.80 N/mm$^2$<br>0.97 N/mm$^2$<br>1.13 N/mm$^2$ | <br>0.80 N/mm$^2$<br>0.97 N/mm$^2$<br>1.13 N/mm$^2$ | <br>0.80 N/mm$^2$<br>0.97 N/mm$^2$<br>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<br>length<br>width<br>thickness | <br>15 - 2000 mm +/- 1 %<br>2 - 280 mm +/- 1 mm<br>0.5 - 15.0 mm +/- 0.1 mm | | | | | |

### Special production

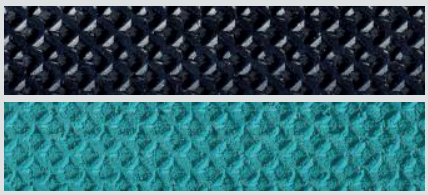
- other dimensions or tighter tolerances
- inscription of country of origin, item number, etc.

### Outstanding performances

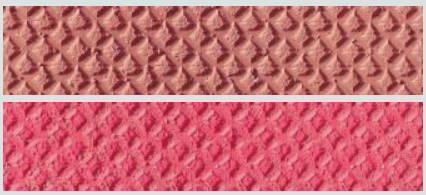
- highest entrainment › due to approved Graf rubber-quality
- smooth and economical belt running › due to highly cross-linked rubbers
- insensitive to dust and steady friction › due to Graf rhombic pattern
- for smallest pulley diameter from 6 mm › due to endless-vulcanisation
- extreme durability ›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



Crelast SE black / blue
black / white

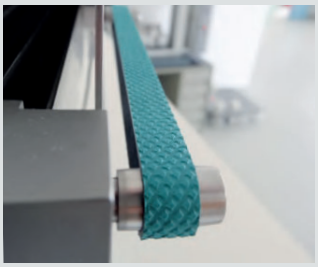


Crelast SE black / black
black / green



Crelast SE black / maroon
black / red

Paper feeder for folding machine



Quality control unit

Folding unit

Vakuum feeder for letter shops

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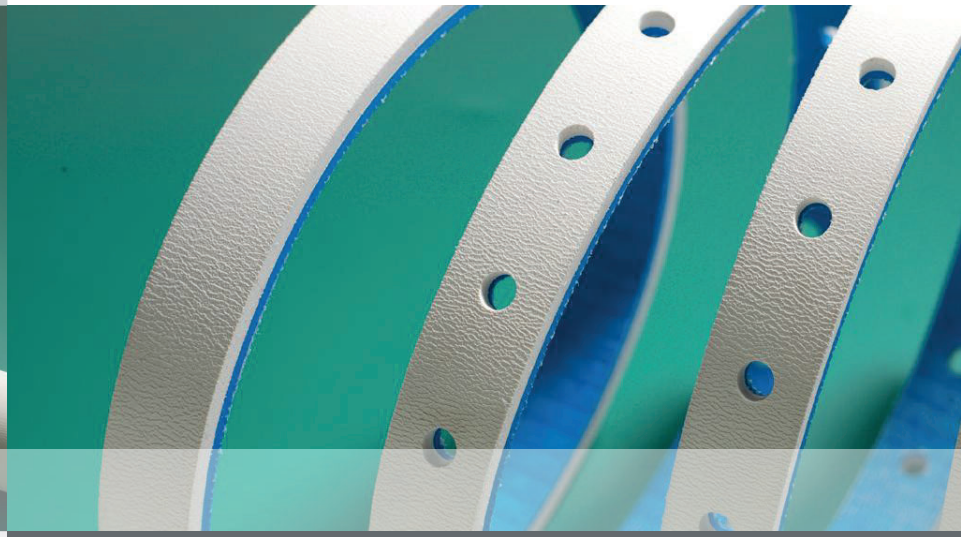
# HEVALOID®
## Endless-Feeder belts FDA



**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

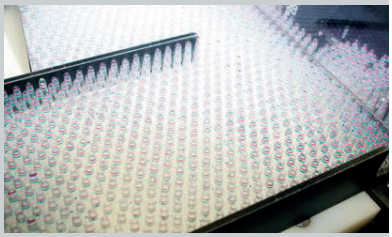
| Type Hevaloid | ECT 06 white<br>non-elastic | ECG 06 white<br>non-elastic |
|---|---|---|
| Tensile member | Polyester fabric, endless woven | |
| Pulley side | gliding | rubberized |
| Quality of rubber | Natural rubber<br>40 ShA | Natural rubber<br>40 ShA |
| Properties | wear-resistant<br>highest friction,<br>FDA conform | wear-resistant<br>highest friction,<br>FDA conform |
| Temperature resistance | 60 °C | 60 °C |
| | | |
| Pretension | 0.5 - 1.0 % | 0.5 - 1.0 % |
| Dimensions | | |
| length | 150 - 499 mm +/- 1.0 %<br>500 - 9000 mm +/- 0.5 % | |
| width | 3 - 140 mm +/- 1.0 mm up to l. of 499 mm<br>3 - 280 mm +/- 1.0 mm longer than 500 mm | |
| thickness | 1.5 - 12.0 mm +/- 0.1 mm up to l. of 1999 mm | |
| | endless vulcanized – no seam or splice | |

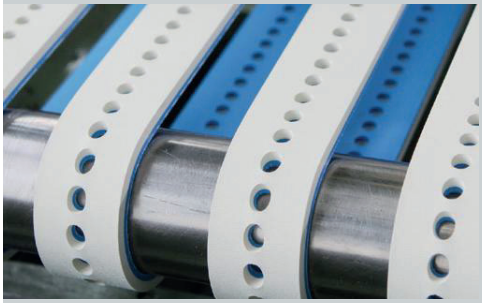
| Type Crelast | EC white<br>elastic | CR/EC white<br>semi-elastic |
|---|---|---|
| Tensile member | non | non |
| Pulley side | Rubber, grinded | Rubber, grinded |
| Quality of rubber | Natural rubber<br>40 ShA | Natural rubber<br>40 ShA<br>Inside CR black |
| Properties | wear-resistant<br>highest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

### Special production

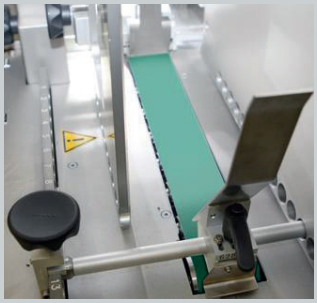
- surface grinded more smooth or coarse
- with vacuum holes or diversity of grooves
- other dimensions or tighter tolerances
- other qualities of rubber
- inscription of country of origin, item number, etc.

Friction feeder FDA


Pharamceutical primary packaging

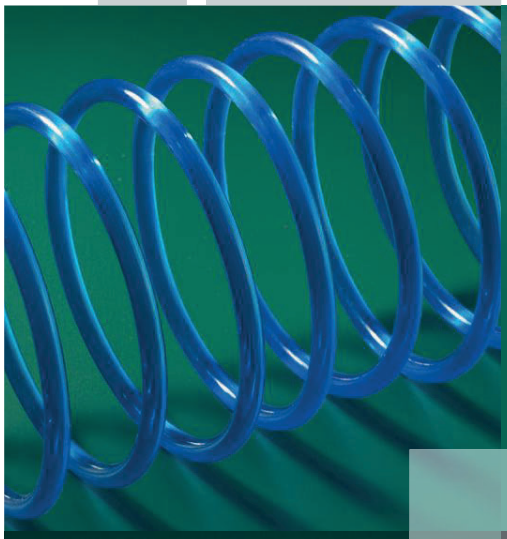

Vacuum feeder for drug folding boxes

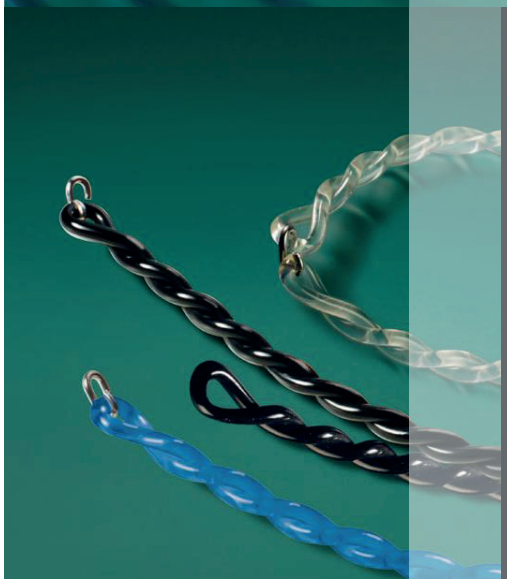
Feeding of „medication booklet“


Feeder for inlier

Positing system for vials

# 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 succsessfully used for decades in worldwide installed continuous operated (24/7) conveyors, as well as in sorting and transport systems.

Every RONDLAST® round belt - wether 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<br>wear resistant<br>oil/grease resistant<br>very durable<br>and reliable | FDA<br>wear resistant<br>oil/grease resistant<br>increased strenghth | FDA<br>highly wear and<br>oil/grease resistant<br>UV-proof strong<br>and flexural | FDA<br>highly wear and<br>oil/grease resistant<br>maximum strenghth<br>and durability | FDA<br>wear resistant<br>oil/grease resistant<br>UV-/waterproof | –<br>wear resistant<br>oil/grease resistant<br>UV-/waterproof<br>antistatic | FDA<br>wear resistant<br>oil/grease resistant<br>cold & chemical<br>resistant | –<br>wear resistant<br>oil/grease resistant<br>low friction for<br>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

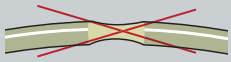
Endless…strong and reliable

**Endless welded...**

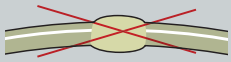
Our RONDLAST® round belts are endless welded according to a unique process.

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.

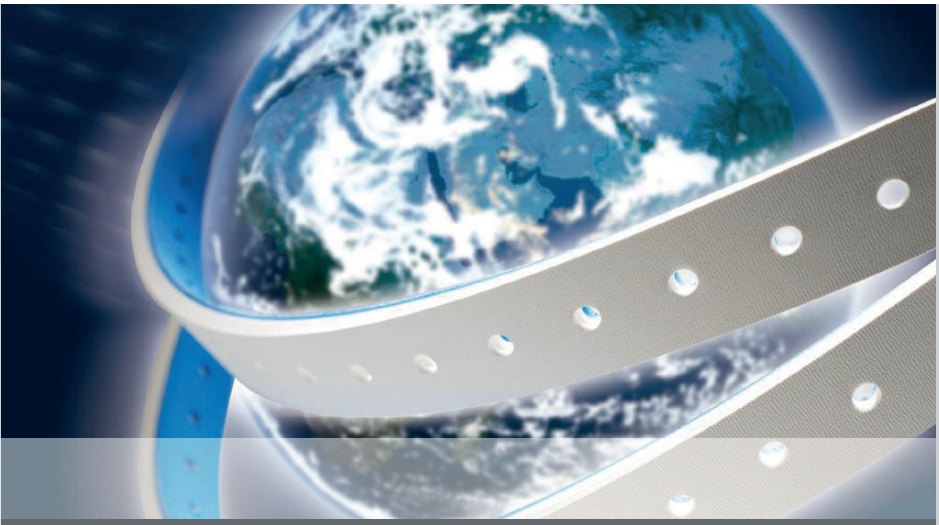
The high quality and reliability convince our worldwide customers (OEM, representatives and end-users) for more than 80 years.

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

graf ENDLESS BELTS

# INNOVATION

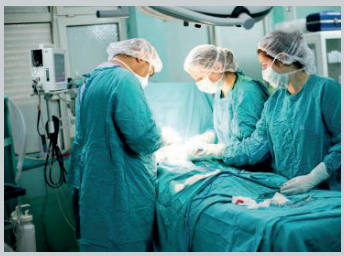
*... for more than 80 years!*

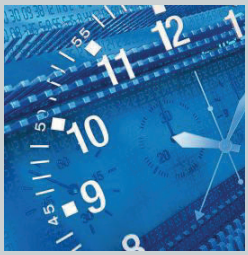


New solutions are being created in cooperation with our customers and business partners day-to-day. In many industrial fields we can provide the best solution with our existing know-how while we develop the solution for other applications within a defined development period.

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**

Horlogy 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**

## 10 CRELAST® SE

Endlos
**Flachriemen semi-elastisch**

Endless
**Flat belts semi-elastic**

## 11 HEVALOID®

Endlos
**Einzugsriemen FDA**

Endless
**Feeder belts FDA**

## 12 RONDLAST®

Hochleistungs

| | |
|---|---|
| **Rundriemen** | Antrieb |
| **Rundriemen** | Transport |

High-performance

| | |
|---|---|
| **Round belts** | Drive |
| **Round belts** | Conveyor |

graf ENDLESS BELTS

HEVALOID® CRELAST® RONDLAST®

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