

CONVEYOR BELTS



grupo peosa

Beltsiflex

belts technologies



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The conveyor belt is made up of a central core: **carcass**, and a protective coating: **cover**. There are a large variety of carcasses and covers, and each one may be combined until a suitable belt is found for the application.

CARCASS

When the belt is manufactured, the carcass is the essential part, as it provides the breaking strength of the conveyor belt it. May be manufactured out of **Fabrics** (Textile) or **metal cords** (metal).

TEXTILE

It is made up of Synthetic Fabrics (EP) **Polyester** longitudinally, ply, and **nylon** transversally, weave. This type of fabric is suitable for high stress absorption and breaking strength, high impact and moisture resistance, and is manufactured in different qualities depending on the application.

METAL

Steel Cord: Its carcass is made up of steel cords, and it is designated with the letters ST. These belts are highly resistant to tension and impacts, have low elongation values and are therefore used in very long belts or for heavy duty work, strong impacts, etc. They are used in mining, quarries, etc.

Fleximat: Like the ST belts, its carcass is made up of metal cords with transversal steel cords which multiply their properties in the toughest working conditions.

COVER

Covers are the rubber coatings that **protect the belt's** belt's carcass from damage due to impacts, from chemicals, temperature and others. They are manufactured with different **rubber composition** qualities, and should have a suitable thickness for covering the needs of the materials to be conveyed. They may be manufactured with different profiles on the top surface.

RUBBER PROPERTIES.

Covers are made with rubbers adapted to the materials to be conveyed and according to **international standards**. The properties of the rubber are determined according to the **resistance to the materials** to be conveyed, such as: Grease and mineral, animal and vegetable fat resistant, temperature resistant, abrasion resistant, flame resistant and other special ones that can be made to order.

AS REGARDS THEIR MANUFACTURING.

Covers may be manufactured without profiles, **smooth**, or with profiles. These may be: **chevron** with different shaped and sized profiles, **Grip Top** with a rough profile, **Special** with profiles made to order, and according to the materials to be conveyed and the work inclination.

DENOMINATION BELT

Belt identification is perfectly described in its denomination, where all its characteristics are defined.

E.g. 800 EP500/4 4+2 Y

800 = Belt width in mm

EP500/4 = Type of carcass

EP = Synthetic fabrics called EP (polyester for the tensioning ply and nylon for the weave).

500 = Carcass breaking strength expressed in Newtons/mm.

/4 = Carcass manufactured with 4 EP fabrics

4 = Working face coat in mm.

2 = Conveying surface coat in mm.

Y = Rubber type and quality



CARRACASS



Textile carcasses are divided into 4 different groups:

- EP BELT (polyester / nylon)
- HARDWOVEN
- SLIDE BELT
- RIP STOP

EP BELT (Standard textile)

Standard Beltsiflex textile belts are manufactured with synthetic fabrics known as EP (polyester for the tensioning ply and polyamide for the weave).

This type of fabric is suitable for high stress absorption and impact resistance.

They are totally resistant to moisture and are manufactured in standard widths. Nevertheless, intermediate and wider widths, up to 2600 mm, can be made to order. (consult for wider widths).

Beltsiflex belts have a high breaking strength, and their carcasses can be manufactured with values ranging from 200 N/mm to 2500 N/mm, although we recommend using steelcord reinforced carcasses starting at 1250 N/mm.

HARDWOVEN BELT

Beltsiflex presents the manufacturing of a new fabric used to fabricate conveyor belts called Straight Warp, a new concept for rubber belts.

Hard-Woven belts are manufactured out of this new Straight Warp fabric and have several advantages over conventional EP fabric belts, achieving high performance in applications where there is a risk of breakage and cuts:

Advantages in applications with large impacts, in general in extreme conveying conditions.

- The belt has a considerably longer useful life than traditional belts.
- The saw tooth joint system is more flexible with better adjustment to the drums.
- Greater durability when compared to a traditional rung system.
- Costs savings given that they are quicker to produce.

These belts are produced in two different series:

- **Single-layer Hard-Woven:** With one fabric and resistances HW500, HW630 and HW800.
- **Double-layer Hard-Woven:** Two fabrics and resistances HW1000, HW1250 and HW1600.

SLIDE BELT

Belts manufactured with **low friction coefficients** on their top side. This fabric makes sliding on a flat surface easier.

Normally flat surface tables where the conveyed product should be supported on a stable base.

There are 2 different slide belts:

- With single filament
- Without single filament.

RIP STOP BELT (with metal weave)

They are belts used in **tough applications**, where special slitting strength is required. They are manufactured with **polyester-nylon fabrics** that have a transversal **weave of metal cords** in the top rubber cover.



Steel cords **reinforce resistance** to longitudinal slitting that may be caused by foreign bodies or by the transported product itself.

These belts, with a core manufactured from **metal cords**, are recommended for the toughest conditions. Given their construction, they have **minimum elongation**, as the steel subjected to a lot of stress is not prone to elongation, and can be used on very long **conveyor belts**.

Metal cords give these **belts a very high breaking strength**. Steel has greater transversal strength, without being brittle and losing flexibility, which enables it to be adapted to small drums that are even smaller than those required by fabric belts. These belts, therefore, have low maintenance costs and a long useful life.

Carcasses with steel cords are divided into 2 main groups:

- STEELCORD (ST)
- FLEXIMAT (IW / SW)

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“ST” TYPE STEELCORD BELTS

They incorporate **steelcord tensioning longitudinally along the belt**, and are normally used in large mining installations. They are often of great dimensions in length and capacity.

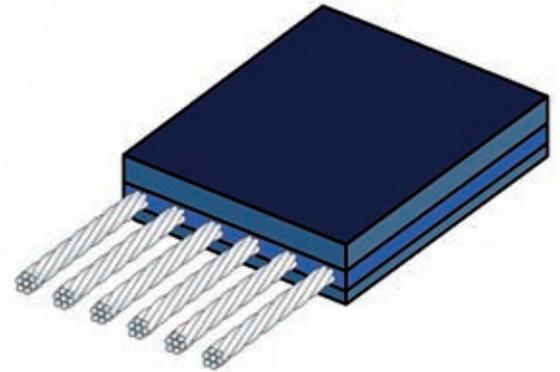
The **steel cord's stress** resistance makes this type of belt ideal for the mentioned applications. Furthermore, these belts also provide us with **several additional advantages**:

This type of belt has very low elongation values, thus **facilitating the construction of installations many kilometres long**.

More **flexible** than their equivalent with fabric reinforcement, they require drums with smaller diameters.

They have greater **perforation resistance**. They are **not subject to deformation either due to discontinuous heavy loads or external agents such as heat, cold, and humidity**, thus ensuring the belt moves in a straight aligned fashion.

They admit rubber coatings of any required thickness. **Breakages such as longitudinal slitting, damaged sides, or holes are easily repaired by hot vulcanisation, which guarantees the belt's long life**.



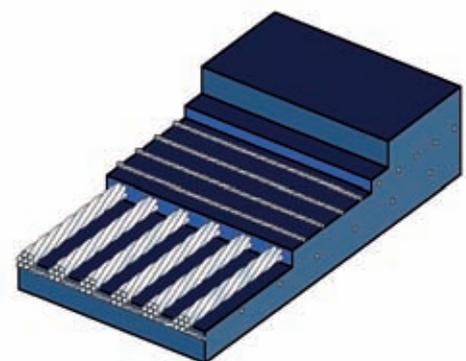
BELTS WITH FLEXIMAT MESH

In these belts, in addition to the advantages offered by Steelcord belts, they also incorporate transversal steelcord reinforcement, which multiplies their properties for the toughest working conditions.

They offer extraordinary resistance to impact and to the action of very sharp materials. They are manufactured with a metal wire mesh insertion both as tensioning ply (longitudinal) and weave (transversal).

They can incorporate one or two layers of steelcord tensioning ply and weave, which may be:

- **Rigid**: Indicated for special applications as part of the Bandaboard system or in installations with bucket elevators.
- **Flexible**: Suitable for conveying aggressive materials, they are highly resistant to impacts and slitting.
 - **IW**: 1 mesh
 - **SW**: 2 meshes (top and bottom face)



ACCESSORIES



JOINT RUBBER

Supply material inside the joint. Its formulation provides this rubber with **excellent adherence properties** and tearing flexibility, which gives the joints **very good performance**, even in the toughest belt situations.

It is placed between the belt's fabrics using a suitable thickness according to the characteristics of the belt to be joined.

Supplied in two thicknesses.

Calendering at 0.8 mm and identified by Red plastic.

Calendering at 1.6 mm and identified by Blue plastic.



COVER RUBBER

Supply material with properties for the **belt conveyor area**.

It is supplied in thicknesses from 2 mm to 8 mm.

Identified with Yellow plastic.

DISSOLVING

"ELASTO-DISOL" is the ideal product required for **hot vulcanising**, both for conveyor belts and for the **rubber coating of rollers and drums**. Given its characteristics, we recommend its use for any application where hot vulcanising rubber-metal, rubber-rubber, or rubber-fabric is necessary. This product comes in three formats: bottle with 25 litres, 5 litres, and 1 litre. "ELASTO-DISOL" is perfectly labelled and with usage instructions, to make it easy to use and to prevent any accidents from improper use.



GLUE

We recommend using **ELASTOGLUE 2022** when **belt assembly** is carried out in the **facilities** and when it is necessary to do this with the belt open and after vulcanising the joint of this belt base.

This product is also ideal for **cold gluing**, on both conveyor belts and for rubber-coated rollers and hoppers. Given its characteristics, we recommend **ELASTOGLUE 2022** for any application where gluing **rubber-metal, rubber-rubber, or rubber-fabric is necessary**.

PATCHES

Our experience has led us to manufacture a wide variety of special patches for repairing rubber conveyor belts. These patches are available in different types (with or without canvas reinforcement), different shapes (round, diamond shaped and in strips) and different sizes to fit the repair area.



PATCH ON STRIP	DIMENSIONS WIDTH	UNIT /BOX
PRT070S	70 x 10,000 mm	1 u.
PRT100S	100 x 10,000 mm	1 u.
PRT150S	150 x 10,000 mm	1 u.
PRT220S	220 x 10,000 mm	1 u.
REINFORCED WITH CANVAS		
PRT070C	70 x 10,000 mm	1 u.
PRT100C	100 x 10,000 mm	1 u.
PRT150C	150 x 10,000 mm	1 u.
PRT220C	220 x 10,000 mm	1 u.

PATCH IN DIAMOND	DIMENSIONS WIDTH	UNIT /BOX
PRR135S	135 x 160 mm	10 u.
PRR200S	200 x 260 mm	10 u.
PRR270S	270 x 360 mm	10 u.
PRR450S	450 x 470 mm	10 u.
REINFORCED WITH CANVAS		
PRR135C	135 x 160 mm	10 u.
PRR200C	200 x 260 mm	10 u.
PRR270C	270 x 360 mm	10 u.
PRR450C	450 x 470 mm	10 u.

IMPACT BAR

The force of the impact generated when large sized material falls from a certain height may seriously damage the conveyor belt. Bent troughs, damaged rollers, and broken belts are the most common problems observed. If the belt does not manage to adequately withstand stress in the loading area, the impact of material between adjacent rollers makes the belt buckle under, allowing material to escape underneath the side guards.

Using impact bars gets rid of all these problems by providing maximum support to both the belt width and along the loading area. Each impact bar has a top belt manufactured in polyurethane, designed to minimise belt-bar friction, and is assembled on a rubber cushion to absorb the impact, which is then attached to a metal support in order to fasten it.

Unit installation and bar replacement are easy to carry out.

Benefits of using the impact bars:

- Eliminates damage to the belts.
- Minimises material spillage.
- 35° and 45° troughs.
- 60° A shore hard rubbers to absorb the impact.
- Modular construction for easy installation.





$$L = \frac{\pi \cdot (D^2 - d^2)}{4 \cdot e}$$

$$D = \sqrt{\frac{4}{\pi} \cdot t \cdot L + d^2}$$

D = Diameter of the rolled up belt expressed in metres.
 t = Thickness of the belt expressed in metres.
 L = Length of the belt expressed in metres.
 d = Diameter of the reel core expressed in metres.

EQUIVALENCES

EQUIVALENCES BETWEEN THE METRIC AND IMPERIAL SYSTEMS

BELT WIDTHS

Inches	14	16	18	20	24	30	32	36	40	42	48	54	56	60	64	72
millimetres	350	400	450	500	600	750	800	900	1000	1050	1200	1350	1400	1500	1600	1800

WORKING STRESS

PIW (lb/in)	140	180	210	280	360	440	550	700	890	1100	1400	1560	1760	1960	2240	2510
kg/cm	250	315	400	500	630	800	1000	1250	1600	2000	2500	2800	3150	3500	4000	4500

COAT THICKNESSES

Inches	1/16	1/8	5/32	1/5	1/4	5/16	3/8	1/2	5/8	3/4
millimetres	2	3	4	5	6	8	10	13	16	20

Inch, in.	1.00	x	2.54	Centimetres
Feet, ft	1.00	x	304.8	Millimetres
Pound, lb.	1.00	x	0.4536	Kilograms
lb/in.	1.00	x	0.1785	Kg/cm.
Square Feet	1.00	x	0.0929	Metres ²
Square inches	1.00	x	6.4516	Centimetres ²
Feet per minute	196.85	/	1	Metres per second

For further information, visit our web at www.siban.com



grupo peosa

www.siban.com

ESPAÑA

Parque empresarial Abra Industrial Parc. 2.1.2.
48500 Gallarta – Abanto y Ciervana
VIZCAYA
Tfno. +34 94 4375000
Fax +34 94 438 61 11
siban.bilbao@siban.com

C/Basaldea Nº 25 P.I. Jundiz
01015 Vitoria
ALAVA
Tfno +34 945 292946
Fax +34 945 292941
siban.vitoria@siban.com

PORTUGAL

Recta do Mindelo, Estrada Nacional 13 Km 16
4486-851 Mindelo – Portugal
Tlf: +351 252 669040
Fax: +351 252 672301
siban.portugal@siban.com

FRANCIA

Zone Technopolis BT K
Rue Louis de Broglie
53810 Change
Tfno 06 75 205 741
Fax 02 44 843 991
siban.france@orange.fr

ALEMANIA

Friedrich-Ebert-Str. 134
47800 Krefeld
Tlf. Oficina: +49 (0) 2151 325-0703
Tlf. Movil: +49 (0) 1525 395-5588
Web: www.siban.com
E-Mail: siban@lubinski-foerdertechnik.de

REINO UNIDO

Firbeck, Nottinghamshire (U.K.),
Tel / Fax: +44 1909 732191
Mov: +44 7970 846741
Web: www.siban.co.uk
E-Mail: simon.drohan@siban.co.uk

HOLANDA

Bargerweg 25
NL-7826 BP Emmen
Netherlands
Tfno +31 591 855 253
Fax +31 591 858 046
sibannorth@home.nl

REPUBLICA DE ECUADOR

Parque empresarial El Zauce Km. 11,5
Avda. A- Manzana E – Solar 10 – Local 12
Centros de Bodegas 4
GUAYAQUIL
Tfno + 593 42 100 145 / 593 87227173
Fax +593 421 001 45
goiko@siban.com

CHILE

Avda Lo Ovalle 955
SANTIAGO DE CHILE
Tfno + 56 2 5253232
Fax + 56 2 5253232
www.siban.cl
nelazua@siban.cl