

grupo peosa



technologies ູ belt



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CONVEYOR BELT



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











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.

TEXTILE CARCASS



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.



METAL CARCASS

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 that 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)





METAL CARCASS



"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)









As described above, covers are the rubber coats that protect the carcass of the belt from damage due to impacts, chemicals, temperature and others.

They are manufactured with different rubber qualities. They should have a suitable thickness to cover the needs of the materials to be conveyed and may be built with different profiles on the top side.

Covers can be grouped depending on two of their characteristics:

- As regards the rubber's properties.
- As regards their manufacturing.

RUBBER PROPERTIES

In accordance with international standards, the properties of rubber are determined according to the resistance of the materials to be conveyed, such as, Grease and mineral, animal and vegetable fat resistant, temperature resistant, abrasion resistant, flame resistant, and other special properties that may be manufactured by special order.

QUALITY	TYPE	DESCRIPTION
	Y	For material conveying in normal conditions
	Х	For conveying heavy materials with knocking
ABRASION		and sharp edges
	W	For conveying highly abrasive materials
	RI	Anti-impact for heavy and bulky materials.
	RC130	Resistant to materials with medium temperatures, up to 130°.
HEAT RESISTANT	RC150	Resistant to materials with high temperatures, up to 150°.
	RC200	Resistant to materials with very high temperatures,
		up to 200°.
	BG	For materials with mineral oils
OIL AND GREASE RESISTANT	BGM	For materials with animal and mineral oils
RESISTANT	BGF	For materials that give off oil and fire protection
	к	For conveying materials with fire and
FLAME RESISTANT		explosion hazard
	S	For materials with explosion hazard and
		inside mines
ACID RESISTANT	с	Resistant to materials with acid content
	FOOD	With white rubber covers and for conveying food materials
FOOD	BLUE	With blue rubber covers, for foods and
		oil resistant
WHITE NON-FOOD	WHITE	Belt with white covers for materials that cannot be contaminated by colour and that are not for food.



COVER. RUBBER PROPERTIES

ABRASION RESISTANT BELTS"

They are manufactured according to standard DIN 22102, and depending on the application, have different qualities regarding abrasion resistance:

- Grade "Y" Anti-abrasive quality with value <150 mm³. Normally used for normal working conditions in cement factories, smelting, etc.
- Grade "X" Anti-abrasive quality with value <120 mm³ good breakage resistance. Used for materials with high gradings and sharp edges.
- Degree "W" Very anti-abrasive quality with value <90 mm³, for conveying very abrasive fine products.

HEAT RESISTANT BELTS

Suitable for conveying hot materials, they can resist high temperatures. The rubber compounds used in the cover have been designed to avoid premature aging due to contact with any source of heat.

- Applications: Moulding sands, moulds, furnace ashes, furnace feeding, clinker cement, agglomerate wood, etc.
 - Grade "BT" Average value 130°C and values up to 150°C. Manufactured with rubber compounds based on synthetic butyl rubber (SBR)
 - Grade "BST" Average value 150°C and values up to 200°C. Manufactured out of butyl rubber.





OIL AND GREASE RESISTANT BELTS

These belts are manufactured with synthetic rubbers. They resist the action of vegetable or animal fats and oils, materials impregnated with hydrocarbons, solvents, etc.

- Applications: Waste processing plants, urban solid waste treatment, transportation of animal and plant waste, industrial parts impregnated with mineral oils, chemical or organic fertilisers, etc.
 - Grade "BG" High resistance to oils and hydrocarbons.
 - Grade "BGM" Average resistance to vegetable oils.
 - Grade "BGF" Resistance to fats and oils and fire resistant according to ISO 280 AND ISO 340.

FLAME RESISTANT BELTS



Belts indicated for use in atmospheres with an explosion hazard. In addition to being antistatic, they are flame resistant.

- Applications: Underground mining, general transportation and unloading of cereals in ports, coal yards.
 - Grade "K" With fire resistant covers, unlike the rubber used in the belt carcass, which is not fire resistant. Manufactured according to DIN 22103, they are used outside the mine.
 - Grade "S" Thoroughly fire resistant. Manufactured according to standard DIN 22104, especially indicated for underground mining.

BLUE BELTS

This type of belt is manufactured with a special blue rubber, built to be able to be in contact with food, and also presents a general resistance to vegetable oils (grade BGM).



Covers may be produced without profiles, smooth, and with profiles. These may be ribbed with different shaped and sized profiles, Grip Top with rough profiles, Special with profiles made to order, and according to the materials to be conveyed and the work inclination.

- Smooth
- Ribbed
- Grip Top
- Special: Special embossing, shot blasting belts, with vulcanised profiles, overband.

SMOOTH

It is the construction for covers with no type of profile.

CHEVRON

Belts recommended for conveying material on sloping surfaces. Depending on the nature of the product and the type of belt chosen, they can convey material with an inclination of 45°.

We offer a very wide range of chevrons divided into five main types depending on the height. 15 mm, 20 mm, 25 mm, 32 mm and 50 mm ribs.

Widths vary depending on the type of chevrons, with a range from 250 mm to a maximum of 2500 mm. (ask about larger widths).

Example of chevron belt denomination:

KAN-15/570 600 EP400/3 3+1.5 AND

"KAN": The first 3 letters represent the type of chevron.
"15": The next 2 numbers indicate the chevron height in millimetres.
"570": The next digits refer to the total chevron width in millimetres (dimension A in the illustrations).

The reference of the base belt is added next, in this case a belt with a width of 600 mm. (refer to page 3, belt denomination).

Chevron belts can be classified in 2 groups:

- Standard, serial produced.
- Special ribbed belts.





CHEVRON BELTS SERIAL PRODUCTION



PATTEN WIDTH: A	BELT WIDTH: B	PITCH:C	BELT TYPE
470	500	230	EP 250/2-2+1.5
470	500	250	EP 400/3-3+1.5
570	570 600 230		EP 250/2-2+1.5
570	000	230	EP 400/3-3+1.5
770	800	300	EP 250/2-2+1.5
	600		EP 400/3-3+1.5



KAS-15



PATTEN WIDTH: A	BELT WIDTH: B	PITCH:C	BELT TYPE
285	400÷500	145	EP 250/2-2+1.5
205	+00.300	400-500	EP 400/3-3+1.5
435	600÷650	218	EP 250/2-2+1.5
433	000÷000	210	EP 400/3-3+1.5
585 700÷800	295	EP 250/2-2+1.5	
505	700-000	295	EP 400/3-3+1.5

H= 15 mm





15 SECTION

15







KAF-15



PATTEN WIDTH: A	BELT WIDTH: B	PITCH:C	BELT TYPE
250	400÷500	150	EP 250/2-2+1.5
200			EP 400/3-3+1.5
310	400÷500	150	EP 250/2-2+1.5
510	400.000	150	EP 400/3-3+1.5
400	500	150	EP 250/2-2+1.5
400	500	130	EP 400/3-3+1.5
480	600÷650	200	EP 250/2-2+1.5
400	000-050		EP 400/3-3+1.5
650	800	200	EP 250/2-2+1.5
050	800 200		EP 400/3-3+1.5

15



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CHEVRON BELTS SERIAL PRODUCTION



PATTEN WIDTH: A	BELT WIDTH: B	PITCH:C	BELT TYPE	
425	425 500÷800 312.5	312 5	EP 250/2-2+1.5	
723		EP 400/3-3+2		
750	50 800÷1600 451		800÷1600	EP 400/3-3+2
750	000-1000	451	EP 500/4-4+2	









H= 25 mm Ņ





PATTEN WIDTH: A	BELT WIDTH: B	PITCH:C	BELT TYPE
450	500÷650	330	EP 250/2-2+1.5 EP 400/3-3+2
680	800	330	EP 400/3-3+2
880	1000÷1200	330	EP 400/3-3+2
1280	1400	330	EP 400/3-3+2
1480	1600	330	EP 400/3-3+2







Α

B

10

Α

B

CHEVRON BELTS SPECIAL PRODUCTION



Beltsiflex®



CHEVRON BELTS SPECIAL PRODUCTION



PATTEN WIDTH: A	BELT WIDTH: B	PITCH: C	BELT TYPE
360	400÷800	200	Made to order

H= 20 mm



KSN-25



PATTEN WIDTH: A	BELT WIDTH: B	PITCH:C	BELT TYPE
420	500÷800	250	
750	850÷1200	250	Made to order
850	950÷1200	250	

H= 25 mm





SECTION





	CHEVRON HEIGHT	P ATTEN WIDTH: A	BELT WIDTH: B	BELT TYPE	DISTANCE BETWEEN INCLINATION: C
KSN-30/1080	- 30	1080	1100÷1500	Made to order	50
KSN-30/1500	30	1500	1500÷2000		470

KSN-50/1080	50	1080	1100÷1500	Made to	50
KSN-50/1500	50	1500	1500÷2000	order	470



A=1080

A=1500



GRIP TOP

These belts have a rough textured top cover. This prevents material from sliding on the belt.

Particularly suitable for inclined belting of parcels and sacks.





SPECIAL COVERS

SPECIAL COVERS

In addition to the standard range, we can offer the manufacturing of any other special type of belt required.

COVERS FOR SHOTBLASTING MACHINES

Belts specially indicated for use with shot blasting machines. They are made to order according to each machine's specifications. Holes are perforated in the belt with the aid of numerical control programmes in order to obtain great accuracy. Depending on the design of the machine, these belts can incorporate guide profiles and cross profiles, which are always vulcanised to the belt by thermo fusion.





COVERS WITH VULCANISED PROFILES

With the aim of adapting BeltSiFLEX® belts to any special transport situation, we have developed agile construction systems which allow the installation of all types of profiles on the belt.

Vulcanised by thermo fusion, they can be produced to order according to specific transportation requirements.



Side profiles to keep materials on the belt.



Guide profiles for perfect alignment of the belt when guiding is difficult.



Belts with cross cleats designed for the material to be transported.

OVERBAND COVERS

Belts with these covers incorporate magnetic separators. They are made to order, according to the working conditions of each line.

Factors such as the types of profiles and the spacing between them, as well as the inclusion of reinforcements, are determined according to the requirements of the material to be conveyed by the magnetic separator.









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 <u>belt conveyor area</u>. It is supplied in thicknesses from 2 mm to 8 mm. Identified with Yellow <u>plastic</u>.



GLUE

DISSOLVING

"ELASTO-DISOL 2005" 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 2005" is perfectly labelled and with usage instructions, to make it easy to use and to prevent any accidents from improper use.



We recommend using **ELASTOGLUE 2000** 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 2000** 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 WIDT H	UNIT /BOX
PRT070S	70 x 10,000 mm	1u.
PRT100S	100 x 10,000 mm	1 U.
PRT150S	150 x 10,000 mm	1 U.
PRT220S	220 x 10,000 mm	1 U.
REINF	ORCED WITH CANV	AS
PRT070C	70 x 10,000 mm	1u.
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 WIDT H	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.
REINFO	RCED WITH CAN	/AS
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.





WINDING LENGTH





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 WID	OTHS															
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
F eet, ft	1.00	х	304.8	Millimetres
Pound, lb.	1,00	x	0.4536	Kilograms
ib/in.	1.00	x	0.1785	Kg/cm.
Square F eet	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

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