

Beltsiflex

belts technologies

grupo peosa



THE BELTSIFLEX CONCEPT

Our belts, equipped with **sidewalls and cleats**, have been developed mainly for very steep inclined applications, **up to a gradient of 90°** (vertical plane).

As highly flexible conveyor belts, they facilitate **switching from horizontal to inclined conveying** (and viceversa); they can even be adapted to different layouts or arrangements to suit our client's needs.



- ▶ Beltsiflex **increases transport capacity up to 4 times** compared to other types of traditional belts on the same width range.
- ▶ It saves space by allowing **the vertical elevation of materials**, up to a gradient of 90°.
- ▶ This system allows for an **economical structural installation**, since it provides a single means of **conveying** materials, depending on the elevation height, where at least three conventional conveyors would have been necessary otherwise.
- ▶ Its **maintenance cost is lower** than that of a regular conveyor belts system.

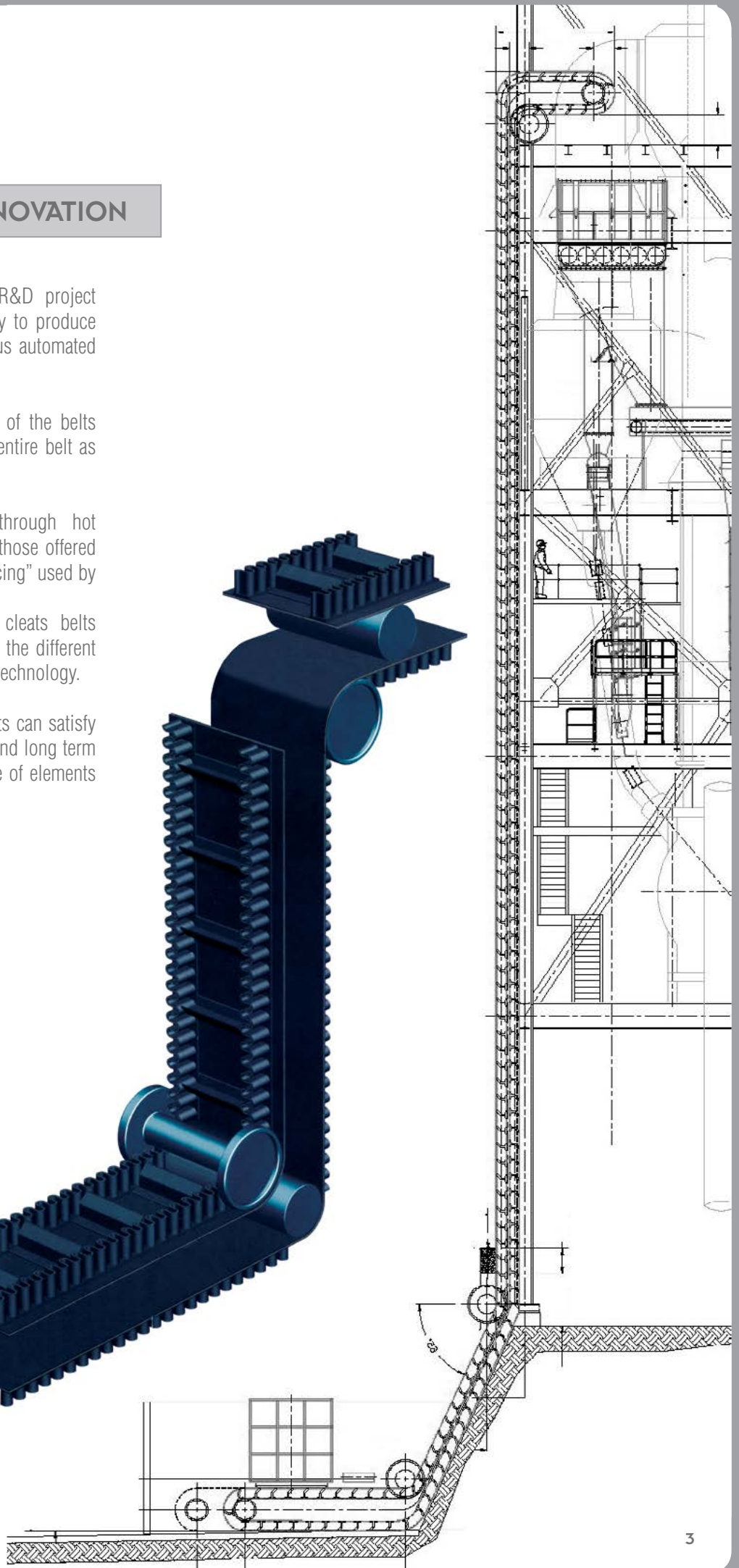
TECHNOLOGICAL INNOVATION

- The **Beltsiflex® system** is an R&D project that achieves the required technology to produce conveyor belts thanks to a continuous automated process.

The security, stability and durability of the belts are achieved by hot vulcanizing the entire belt as a single unit.

- The levels of adhesion gained through hot vulcanizing are 15 times better than those offered by the traditional means of "cold splicing" used by some companies nowadays. Our hot vulcanized sidewalls and cleats belts have **no risk of dismembering** of the different elements due to their hot vulcanizing technology.
- Amongst other advantages, these belts can satisfy the demand for **lower diameters**, and long term storage does not affect the adherence of elements to the belt's base.

HOT VULCANIZING



CLEATS

Cleats are always manufactured by press moulding. The quality or type of rubber used depends on the specifications of the product to be conveyed, fulfilling at all times the most demanding levels of wear resistance and abrasion strength.

Our cleats can be manufactured with or without fabric reinforcement. However, for cleats above 140 mm in height, we highly recommend the use of fabric reinforcement.



The recommended height of the cleats should be 10 to 20 mm lower than the height of the sidewalls.

Cleats type T, C, TC and TCFX differ mainly in their load capacity, and the choice will always depend on transportation needs.

Type TCFX consists of three elements: two bases joint to the belt and a cross cleat elevation screwed to the bases, which is always manufactured with fabric reinforcement.

RUBBER QUALITY:

| | | | |
|-------------------------|-----------------------------------|--------------------------|--------------------------------------|
| N NORMAL QUALITY | G GREASE AND OIL RESISTANT | S FLAME RESISTANT | HR HEAT RESISTANT UP TO 150°C |
|-------------------------|-----------------------------------|--------------------------|--------------------------------------|

CRITERIA FOR CLEAT CHOICE

In order to determine the dimensions of cleats when designing a Beltsiflex®, belt, we use the same formula that applies in the volumetric calculations of a conventional belt. Nevertheless, we must consider where the materials to be transported are to be placed within the carrying area formed by the

cross cleats and the sidewalls; the grain size of the product will be of vital importance for good operation and functionality of the installed system.

For high granulometry products:

With the aim of avoiding the loss, leak or projection of material during transportation or accidents due to obstruction, it is necessary to pay attention to three selection criteria, always dependant on maximum granulometry. These criteria will always be the minimum measures to be increase according to the transport capability desired.

1. Spacing between cleats:

The minimum distance between cleats must be twice the maximum grain size.

2. Cleat width:

The width of cleats must be at least 2.5 times the maximum grain size.

3. Cleat height:

EAs for the minimum height of the cleats, two aspects must be considered when making a choice:

- a) Once again, maximum grain size
- b) The angle of inclination of the belt:

It is recommended that you follow these criteria:

Angle of inclination: $0 \div 60^\circ$

Cleat height: $0.75 \div 1.0 \times \text{grain size ("g")}$

Angle of inclination: $60 \div 75^\circ$

Cleat height: $1.0 \div 1.2 \times \text{grain size ("g")}$

Angle of inclination: $75 \div 90^\circ$

Cleat height: $1.5 \times \text{grain size ("g")}$

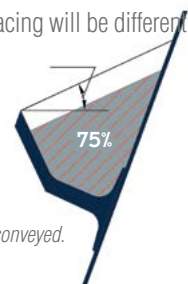
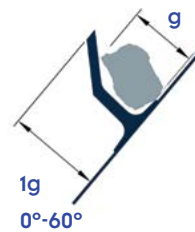
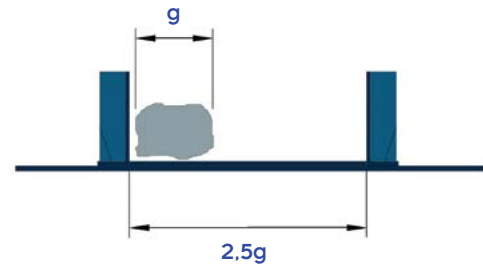
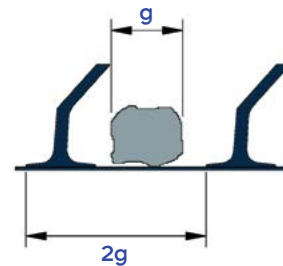
The height of the sidewall must always be in excess of between 10 and 20 mm than of the selected cleat.

For vertical belting, "TC" or "TCXF" type cleats must be used.

Products with low grain size :

The material conveyed within the pockets of the belt never takes up 100% of their carrying volume. When calculating the capacity of the pockets, we must always consider a 75% load, as indicated in the attached figure. When the granulometry of the materials to be carried is low, the shortest possible spacing between cleats should be selected in order to achieve maximum efficiency; depending on the type of cleat chosen, the spacing will be different.

The necessary belt width is determined according to belt dimensions, height and desired load capability.



Dynamic capability angle.
Depends on the material to be conveyed.

TYPE OF CLEATS

| TYPE | HEIGHT mm | BASE WIDTH mm | WEIGHT kg/m | MAX. LENGTH PRODUCED mm | RUBBER TYPE |
|------------------|--------------|------------------|----------------|----------------------------|----------------|
| T-30 | 30 | 80 | 1.1 | 3400 | N/G/S/HR |
| T-40 | 40 | 80 | 1.3 | 3400 | N/G/S/HR |
| T-50 | 50 | 80 | 1.45 | 3400 | N/G/S/HR |
| T-60 | 60 | 100 | 2.35 | 2400 | N/G/S/HR |
| T-75 | 75 | 100 | 2.55 | 2400 | N/G/S/HR |
| T-90 | 90 | 100 | 2.80 | 2400 | N/G/S/HR |
| T-110 / TF-110 | 110 | 100 | 3.10 | 2400 | N/G/S/HR |
| T-140 / TF-140 | 140 | 150 | 5.95 | 2400 | N/G/S/HR |
| T-160 / TF-160 | 160 | 150 | 6.45 | 2400 | N/G/S/HR |
| T-180 / TF-180 | 180 | 150 | 6.75 | 2400 | N/G/S/HR |
| C-75 / CF-75 | 75 | 85 | 1.80 | 2400 | N/G/S/HR |
| C-110 / CF-110 | 110 | 95 | 2.70 | 2400 | N/G/S/HR |
| TC-75 / TCF-75 | 75 | 80 | 2.00 | 2400 | N/G/S/HR |
| TC-90 / TCF-90 | 90 | 110 | 2.65 | 3400 | N/G/S/HR |
| TC-110 / TCF-110 | 110 | 110 | 3.10 | 3400 | N/G/S/HR |
| TC-140 / TCF-140 | 140 | 150 | 5.80 | 2850 | N/G/S/HR |
| TCF-160 | 160 | 150 | 6.45 | 2850 | N/G/S/HR |
| TCF-180 | 180 | 150 | 7.10 | 2850 | N/G/S/HR |
| TCF-220 | 220 | 160 | 8.50 | 2850 | N/G/S/HR |
| TCF-240 | 240 | 170 | 9.15 | 2850 | N/G/S/HR |
| TCF-260 | 260 | 170 | 9.80 | 2850 | N/G/S/HR |
| TCF-280 | 280 | 170 | 10.40 | 2850 | N/G/S/HR |
| TCXF-280 | 280 | 280 | 19.70 | 2400 | N/G/S/HR |
| TCXF-330 | 330 | 280 | 23.70 | 2400 | N/G/S/HR |
| TCXF-380 | 380 | 280 | 25.00 | 2400 | N/G/S/HR |
| TCXF-480 | 480 | 280 | 31.70 | 2400 | N/G/S/HR |
| TCXF-580 | 580 | 280 | 36.10 | 2400 | N/G/S/HR |

*The references with **F** letter= production with fabric reinforce.

*The indicated diameters are calculated for type **N** quality, they are merely for reference and it is necessary that you get a separate calculation for each specific project.

| SPECIALS TYPES | HEIGHT mm | BASE WIDTH mm | WEIGHT kg/m | MAX. LENGTH PRODUCED mm | RUBBER TYPE |
|-------------------|--------------|------------------|----------------|----------------------------|----------------|
| TL-160 / TLF-160 | 160 | 145 | 8.0 | 200 | N/G/S/HR |
| TX-35 / TXF-35 | 35 | 35 | 1.20 | 2850 | N/G/S/HR |
| TX-55 / TXF-55 | 55 | 40 | 1.70 | 1300 | N/G/S/HR |
| TX-240 / TXF-240 | 240 | 170 | 13.0 | 2700 | N/G/S/HR |
| C-45 / CLF-75 | 45 | 60 | 1.30 | 2400 | N/G/S/HR |

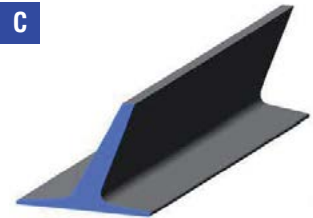
CLEAT SHAPE

| ø DRIVING AND RETURN DRUM mm | ø mm INFLEXION PULLEY | FABRIC REINFORCEMENT |
|------------------------------|-----------------------|---------------------------------------|
| 80 | 180 | WITHOUT FABRIC REINFORCEMENT |
| 100 | 180 | |
| 125 | 180 | |
| 150 | 315 | |
| 180 | 350 | |
| 240 | 375 | |
| 280 | 375 | WITH AND WITHOUT FABRIC REINFORCEMENT |
| 350 | 560 | |
| 400 | 640 | |
| 450 | 720 | |
| 180 | 300 | WITH AND WITHOUT FABRIC REINFORCEMENT |
| 280 | 350 | |
| 180 | 300 | WITH AND WITHOUT FABRIC REINFORCEMENT |
| 240 | 325 | |
| 280 | 350 | |
| 350 | 560 | |
| 400 | 640 | WITH FABRIC REINFORCEMENT |
| 450 | 720 | |
| 550 | 880 | |
| 600 | 960 | |
| 650 | 1040 | |
| 700 | 1120 | |
| 750 | 1300 | WITH FABRIC OR METAL REINFORCEMENT |
| 900 | 1500 | |
| 1000 | 1750 | |
| 1300 | 2200 | |
| 1500 | 2650 | |

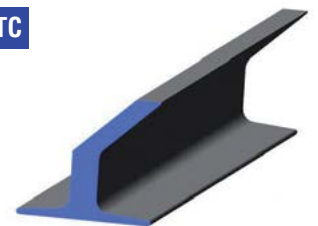
T



C



TC



TCXF



| ø DRIVING AND RETURN DRUM mm | ø mm INFLEXION PULLEY | FABRIC REINFORCEMENT |
|------------------------------|-----------------------|---------------------------------------|
| 400 | 650 | WITH AND WITHOUT FABRIC REINFORCEMENT |
| 100 | 180 | |
| 150 | 200 | |
| 600 | 960 | |
| 130 | 180 | |

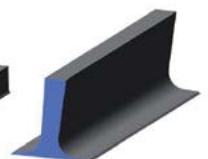
TX-35



TX-55



TX-240



CL-45



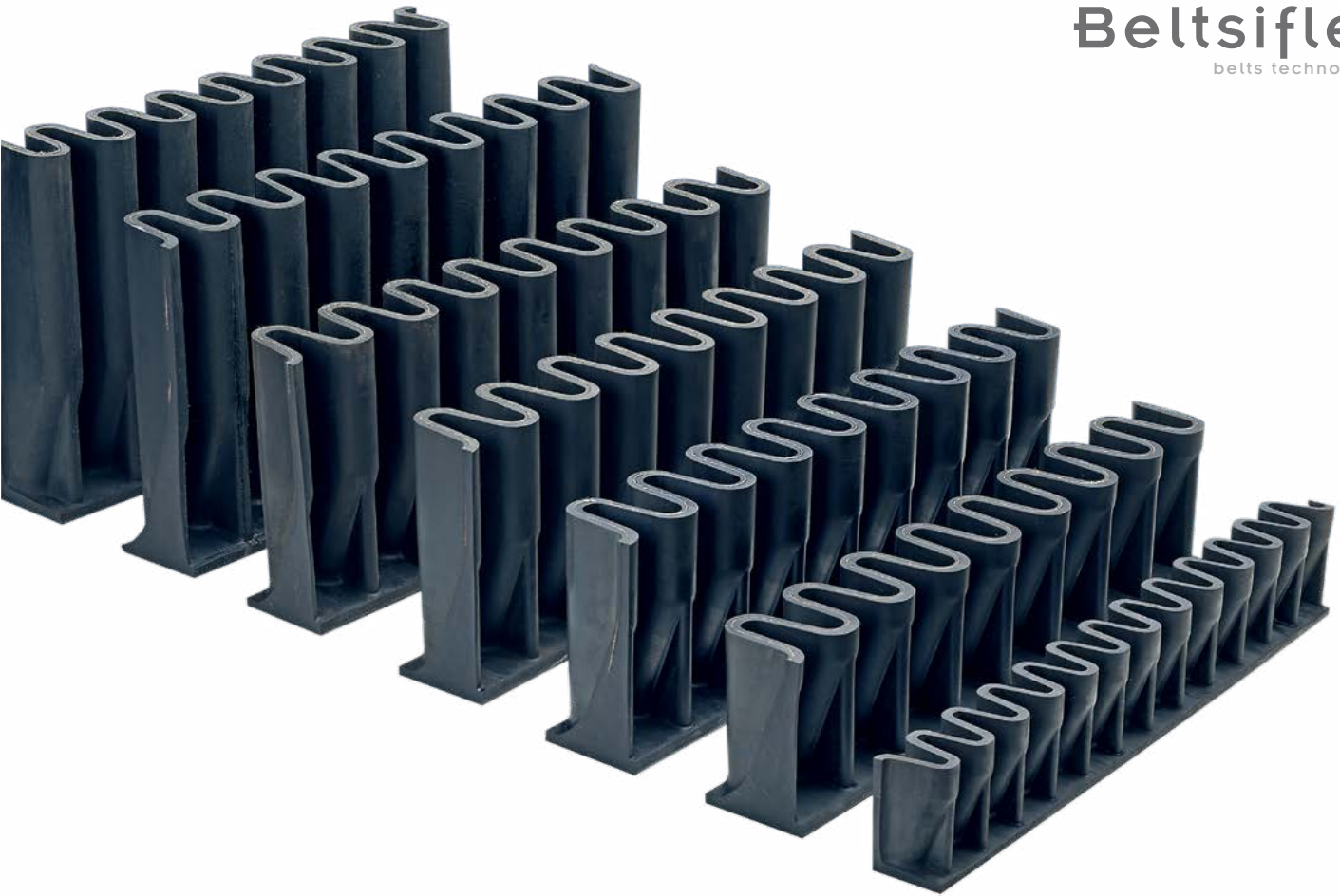
TL-160



Beltsiflex[®]

belts technologies





TYPES OF SIDEWALLS

Sidewalls are manufactured in a wide range of heights, from 40 mm up to 600 mm.

All sidewalls can be produced with a fabric reinforcement insert, particularly recommended for heights over 140 mm and necessary for heights of 160 mm and above.

The design of our sidewalls offers great vertical resistance, which adds greater stability to the belt and maintains a high degree of flexibility while allowing it to adapt to lower diameter pulleys.

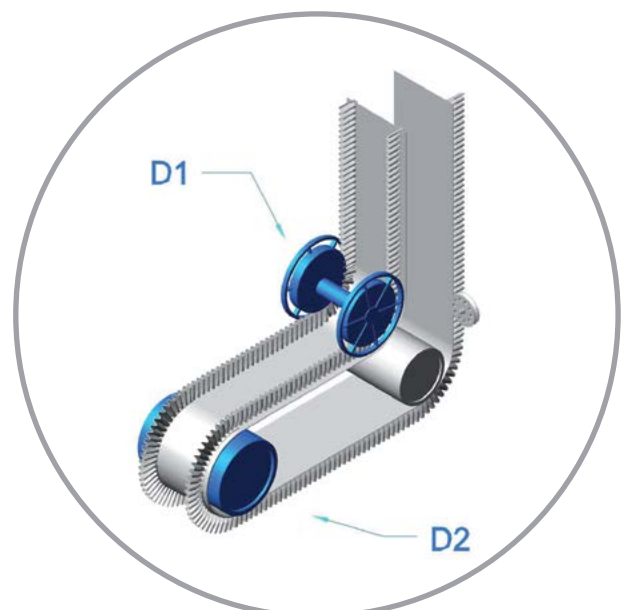
- It is important to observe the minimum diameters required in order to achieve the longest service life possible.

We generally recommend the following:

$D1 = 4 \times \text{sidewall height}$

$D2 = 2,5 \times \text{sidewall height}$

Depending on the quality of the rubber, it's necessary that you get a separate calculation for each specific project.



TYPES OF SIDEWALLS

| TYPE | HEIGHT mm | BASE WIDTH mm | WEIGHT kg/m | MAX. LENGTH PRODUCED mm | RUBBER TYPE |
|----------------|--------------|------------------|----------------|----------------------------|----------------|
| N-40 | 40 | 40 | 1.0 | 500 | N/G/S/HR |
| N-60 | 60 | 40 | 1.2 | 400 | N/G/S/HR |
| N-80 | 80 | 40 | 1.4 | 300 | N/G/S/HR |
| S-80 / SF-80 | 80 | 50 | 1.80 | 300 | N/G/S/HR |
| S-100 / SF-100 | 100 | 50 | 2.30 | 300 | N/G/S/HR |
| S-120 / SF-120 | 120 | 50 | 2.70 | 300 | N/G/S/HR |
| S-140 / SF-140 | 140 | 50 | 3.10 | 250 | N/G/S/HR |
| BSF-120 | 120 | 75 | 4.00 | 250 | N/G/S/HR |
| BSF-140 | 140 | 75 | 4.60 | 200 | N/G/S/HR |
| BSF-160 | 160 | 75 | 5.20 | 150 | N/G/S/HR |
| BSF-180 | 180 | 75 | 5.80 | 125 | N/G/S/HR |
| BSF-200 | 200 | 75 | 6.40 | 125 | N/G/S/HR |
| BSF-220 | 220 | 75 | 7.00 | 125 | N/G/S/HR |
| BSF-240 | 240 | 75 | 7.60 | 125 | N/G/S/HR |
| BSF-260 | 260 | 75 | 8.20 | 125 | N/G/S/HR |
| BSF-280 | 280 | 75 | 8.80 | 125 | N/G/S/HR |
| BSF-300 | 300 | 75 | 9.40 | 125 | N/G/S/HR |
| MSF-300 | 300 | 115 | 15.05 | 100 | N/G/S/HR |
| MSF-350 | 350 | 115 | 17.50 | 100 | N/G/S/HR |
| MSF-400 | 400 | 115 | 19.90 | 100 | N/G/S/HR |
| MSF-500 | 500 | 115 | 24.75 | 100 | N/G/S/HR |
| MSF-600 | 600 | 115 | 29.60 | 100 | N/G/S/HR |

*The references with **F** letter= production with fabric reinforce.

*The indicated diameters are calculated for type **N** quality, they are merely for reference and it is necessary a calculation for each specific project.

RUBBER QUALITY:

| | |
|-----------|----------------------------|
| N | NORMAL QUALITY |
| G | GREASE AND OIL RESISTANT |
| S | FLAME RESISTANT |
| HR | HEAT RESISTANT UP TO 150°C |

| PITCH | ø DRIVING AND RETURN DRUM mm | ø mm INFLEXION PULLEY | FABRIC REINFORCEMENT |
|-------|---------------------------------|--------------------------|--|
| 47 | 100 | 160 | WITHOUT FABRIC REINFORCEMENT |
| 47 | 150 | 240 | |
| 47 | 200 | 320 | |
| 50 | 200 | 320 | WITH AND WITHOUT FABRIC REINFORCEMENT |
| 50 | 250 | 400 | |
| 50 | 300 | 480 | |
| 50 | 350 | 560 | |
| 60 | 300 | 480 | WITH FABRIC REINFORCEMENT |
| 60 | 350 | 560 | |
| 60 | 400 | 640 | |
| 60 | 450 | 720 | |
| 60 | 500 | 800 | |
| 60 | 550 | 880 | |
| 60 | 600 | 960 | |
| 60 | 650 | 1040 | |
| 60 | 700 | 1120 | |
| 60 | 750 | 1200 | |
| 83 | 1000 | 1250 | WITH FABRIC REINFORCEMENT |
| 83 | 1100 | 1400 | |
| 83 | 1200 | 1650 | |
| 83 | 1500 | 2050 | |
| 83 | 1800 | 2500 | |

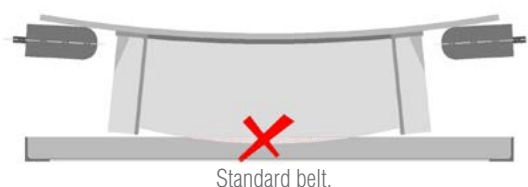
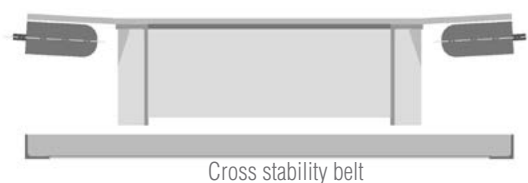


CROSS STABILITY BELTS

SIBAN has developed a cross stability rigid belt base for the construction of the Beltsiflex belts, necessary for the system performance optimisation. We can offer different constructions to suit the specifications of each installation.

The use of cross stability rigid belts offers **significant advantages**:

- ▶ Provides **better support** on the return strand.
- ▶ **Avoids the wear and tear** of sidewalls and cleats.
- ▶ **Prevents the crowning** of the carrying surface at deflection points.
- ▶ **Prevents the loss** of driving **power**.
- ▶ It is only possible to use a standard belt with no cross stability in small constructions without deflection points.



In order to adapt **Beltsiflex belts** to the characteristics of the materials to be transported, we offer a **variety of rubber compounds** used in the covers of the base belts, all manufactured according to **DIN** standards.

RUBBER QUALITY:



| | |
|-----------|----------------------------|
| N | NORMAL QUALITY |
| G | GREASE AND OIL RESISTANT |
| S | FLAME RESISTANT |
| HR | HEAT RESISTANT UP TO 150°C |

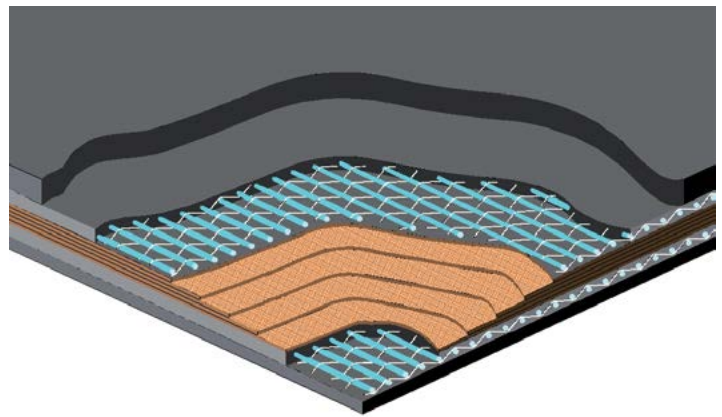
TYPES OF CROSS STABILITY BELTS

CROSS STABILITY RIGID FABRIC BELTS • TYPE XE

Manufactured with **fabric plies**, they are produced using the same **Beltsiflex®** elevated belting systems technology. They provide greater stability than the commonly used EP fabrics (polyester - nylon) by adding to these one or two **monofilament fabrics** to achieve the rigidity most suitable for the belt's characteristics.

All XE, XC and XS belt types are manufactured in the following rubber compound varieties:

- N** NORMAL QUALITY
- G** GREASE AND OIL RESISTANT
- S** FLAME RESISTANT
- HR** HEAT RESISTANT UP TO 150°C



MAXIMUM WIDTH IN STANDARD MANUFACTURING: 2400 mm

We manufacture belts with different covers and widths other than standard ones on request.

| TYPE | COVERS | | THICKNESS mm | WEIGHT kg/m | N. OF FABRICS | | ø DRIVING AND RETURN DRUM mm | ø mm INFLEXION PULLEY |
|----------|--------|-----------|-----------------|----------------|---------------|-------|------------------------------------|-----------------------------|
| | TOP mm | BOTTOM mm | | | TENSIONING | WEAVE | | |
| XE250/2 | TR 3 | TR 1.5 | 9.5 | 11.87 | 2 | 2 | 315 | 350 |
| XE400/3 | TR 4 | TR 2 | 12 | 14.87 | 3 | 2 | 400 | 500 |
| XE500/3 | TR 4 | TR 2 | 12.50 | 15.8 | 3 | 2 | 500 | 600 |
| XE630/4 | TR 4 | TR 2 | 13.50 | 17.3 | 4 | 2 | 600 | 750 |
| XE800/4 | TR 4 | TR 2 | 14 | 17.7 | 4 | 2 | 800 | 1000 |
| XE1000/5 | TR 4 | TR 2 | 15.2 | 18.9 | 5 | 2 | 1000 | 1200 |
| XE1250/5 | TR 4 | TR 2 | 16.5 | 20.54 | 5 | 2 | 1200 | 1400 |

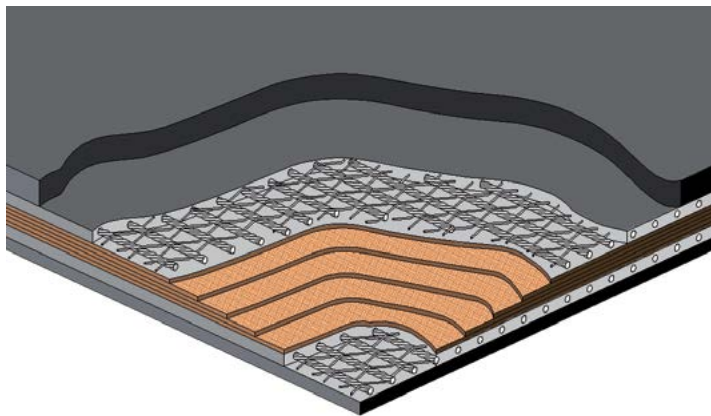
**The indicated diameters are merely for reference, being necessary to calculate them for the specifications of each specific project.*

TYPES OF CROSS STABILITY BELTS

CROSS STABILITY RIGID FABRIC BELTS TYPE XC

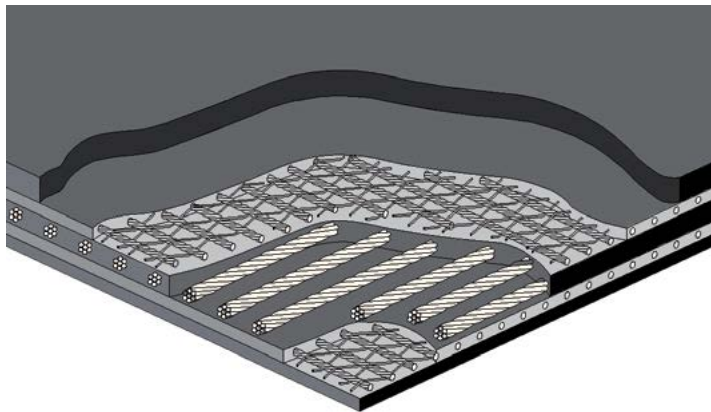
Manufactured with **fabric plies**, they are produced using the same **Beltsiflex®** XE type technology but differ from this in that their rigidity is achieved by inserting one or two **metal cords across the belt**.

This type of belt is recommended when the rigidity needed is not satisfied by the XE type. It is particularly indicated for the transportation of **large productions and heavy duty applications** requiring significant width dimensions.



CROSS STABILITY RIGID METAL BELTS TYPE XS

This belt differs from type XC in that it also incorporates **metal cord tensioning along the belt** and is used for the construction of big installations where the belt, not only supports high productions, but is also of **large dimensions**. The **elongation** values of this type of belts are nearly null.



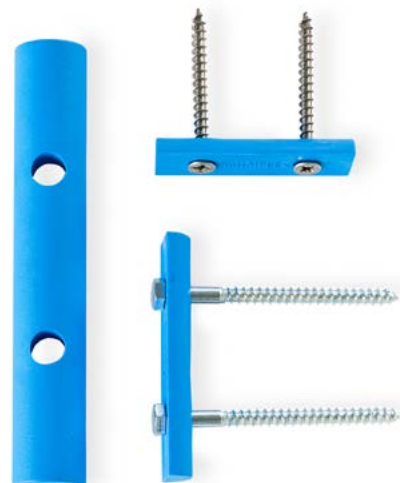
FIX • FASTENING FITTINGS

Lateral fastening fittings are made of nylon and allow **fixing the sidewalls to the cross cleats**. Their use is recommended from BSF-140 heights and above.

Each fix set comprises two parts made of nylon, depending on the type of belt, and 4 screws in galvanised Steel



| TYPE OF FIX | SIDEWALL TYPE | SCREW |
|----------------|----------------|----------------|
| NYLONFIX - 65 | SF120 / BSF120 | M5 x 60 |
| | BSF140 | |
| NYLONFIX - 80 | BSF140 | M6 x 80 |
| | BSF160 | |
| | BSF200 | |
| NYLONFIX - 120 | BSF240 | M6 x 80 |
| | BSF260 | |
| | BSF280 | |
| | BSF300 | |
| NYLONFIX - 150 | MSF300 | U bolts M10 |
| | MSF350 | |
| | MSF400 | |
| NYLONFIX - 170 | MSF500 | U bolts M12 |
| | MSF600 | |



BLINKERS

Blinkers are **fitted in-between the sidewall and the cleats profile**. Their use is recommended only when the **material to be transported is very fine and dusty**.

Blinkers avoid the transfer of materials through the small holes between the sidewalls and the cleats.



ALIGNING WHEELS

The **Beltsiflex® system** provides 2 technologies for producing its alignment wheels. These wheels can be produced entirely in damping rubber or entirely in steel with a rectified rolling zone in rubber.

We recommend the use of these wheels for their convenience when it comes to installing the belt and in situations where the belt tends to divert itself from the centre, and requires rectification of its working position. However, they must only be considered as a secondary security measure.

For maximum efficiency, they must be placed **before drums and deflection points**.



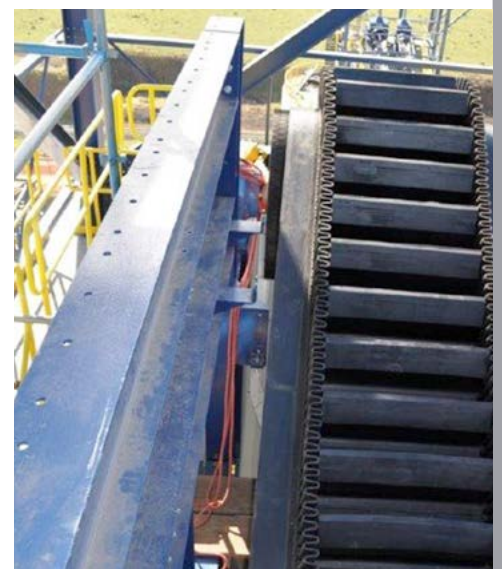
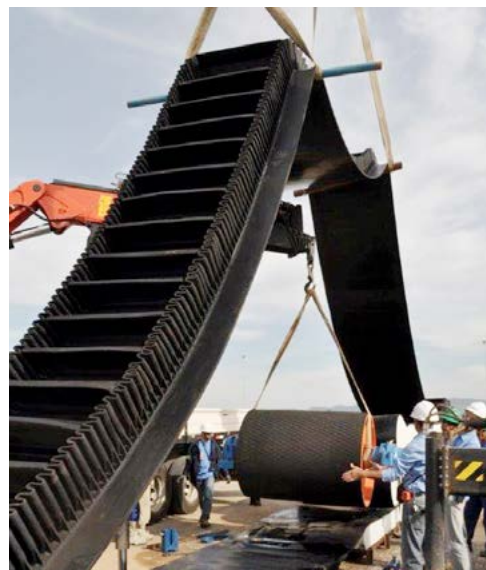
HOT SPLICING KIT

Siban's hot splicing kit is available in different grades: Normal Quality, Heat resistant quality, Oil resistant quality, Flame Retardant quality and white. These qualities can be offered for Textile and Steel cord belts. The hot splicing kit consists of:

- ▶ COVER RUBBER, filler material with specific characteristics for the running areas of the conveyor belt.
- ▶ UNCURED INTERPLY RUBBER, with outstanding properties of adhesion, tear resistance and flexibility providing a really good performance to the joints.
- ▶ RUBBER SOLUTION, the suitable and necessary product for hot vulcanized conveyor belts.

Depending on the width of the conveyor belt, the client will be provided with the appropriate materials for making the splicing kit.





QUESTIONNAIRE FOR BELT CALCULATION

COMPANY _____

PERSON _____ EMAIL _____

TEL. _____ FAX _____

Please indicate whether the belt you require is:

A BELT FOR REPLACEMENT ☐

A BELT FOR A NEW INSTALLATION ☐

INSTALLATION RELATED DATA

Distance between axes m
Length of bottom horizontal section a m
Length of top horizontal section c m
Lift height b m
Length of inclined section m
Angle of inclination α (°)
Angle of load β_2 (°)
Angle of discharge β_1 (°)
Belt speed m/s

MATERIAL

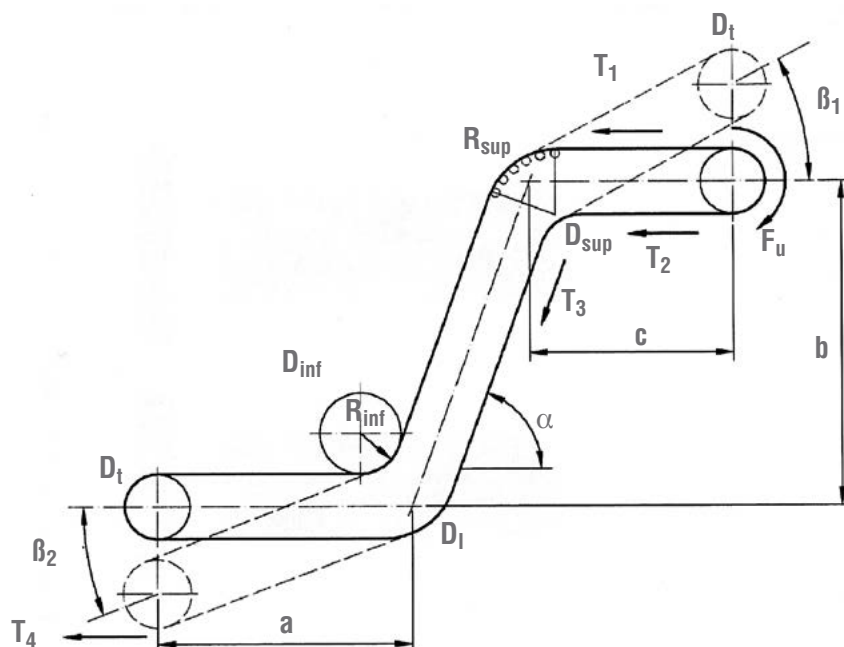
Capacity required tn/h
Maximum grain size mm
Material moisture content %
Density gr/cm³

BELT RELATED DATA

Belt width mm
Cleat type
Cleat length mm
Cleat pitch mm
Sidewall type
Free side insets mm

SPECIALS FEATURES

Temperature °C
Grease or oil presence
Explosive atmosphere
Material's natural angle of slide °
Ambient moisture content %





Beltsiflex[®]

belts technologies



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www.siban.com

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