BANDABORD

Beltsiflex

belts technologies

grupo peosa

The Beltsiflex® concept

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

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

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belts technologies

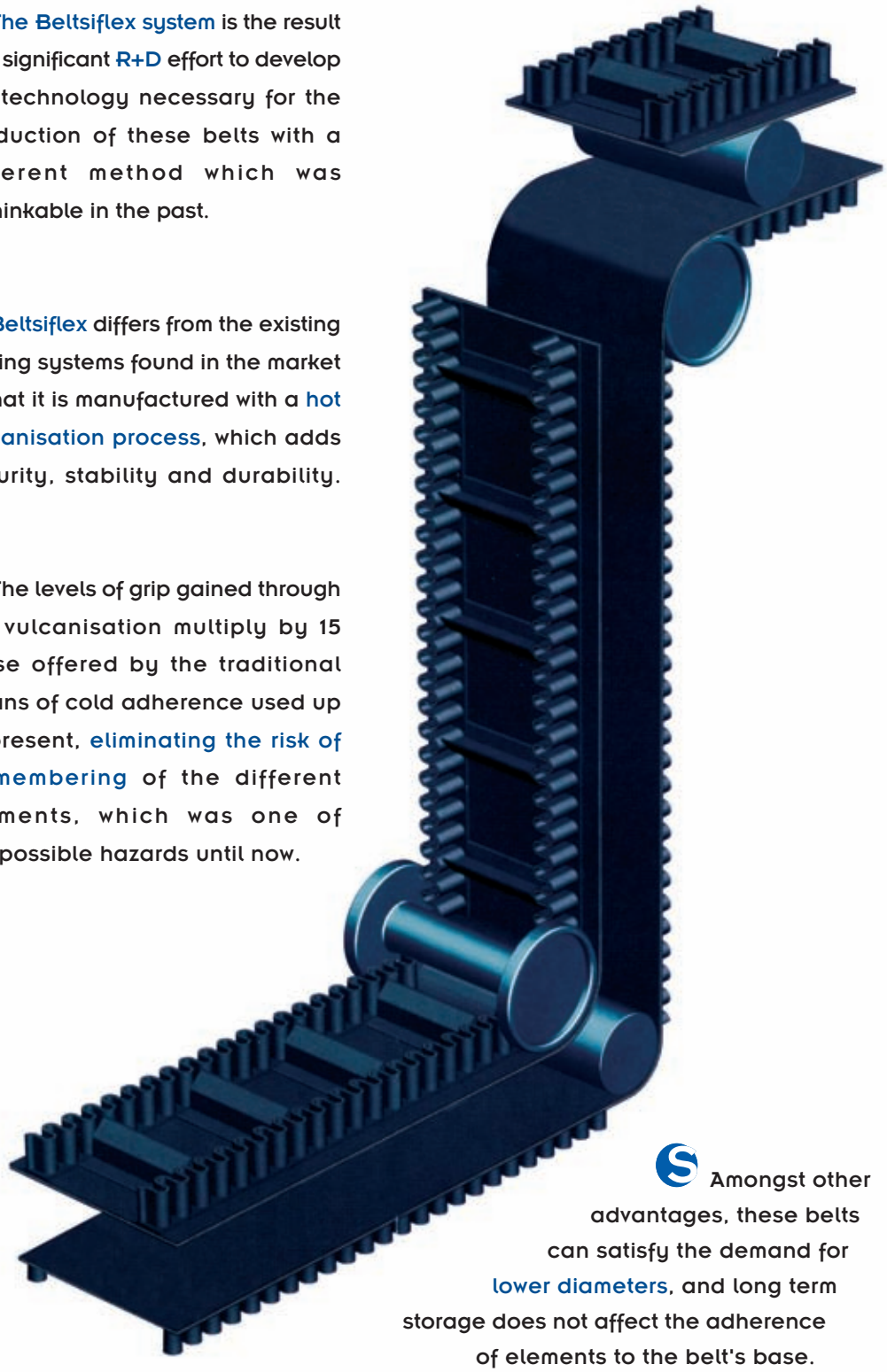
- Beltsiflex increases transport capacity up to 4 times compared to other types of traditional belts in the same width range.
- It saves space by allowing the vertical elevation of materials, up to a gradient of 90°.
- This system allows for an economical installation of facilities since it provides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

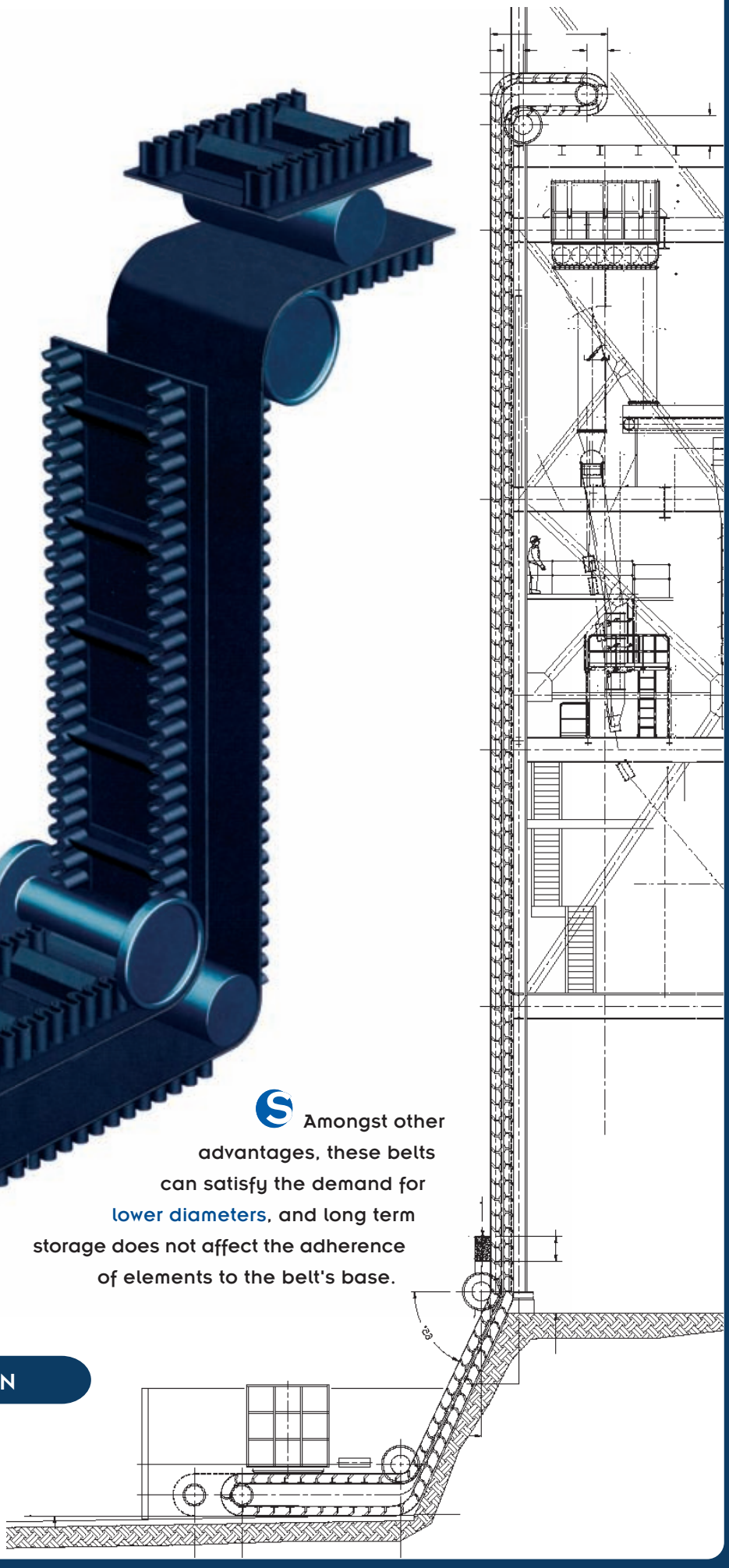
Technological Innovation

The Beltsiflex system is the result of a significant **R+D** effort to develop the technology necessary for the production of these belts with a different method which was unthinkable in the past.

Beltsiflex differs from the existing belting systems found in the market in that it is manufactured with a **hot vulcanisation process**, which adds security, stability and durability.

The levels of grip gained through hot vulcanisation multiply by 15 those offered by the traditional means of cold adherence used up to present, **eliminating the risk of dismembering** of the different elements, which was one of the possible hazards until now.





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 VULCANISATION

CLEATS

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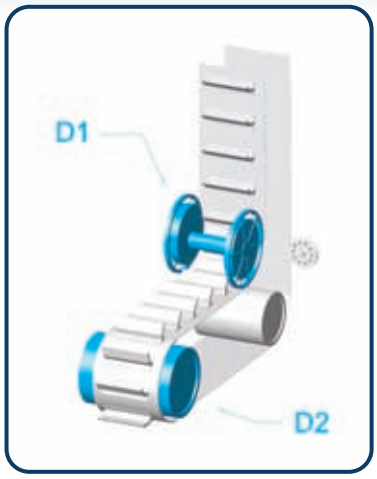
Cleats are always manufactured by press moulding. The quality or type of rubber used depends on the specifications of the product to be transported, fulfilling at all times the most demanding levels of wear resistance and abrasion strength.

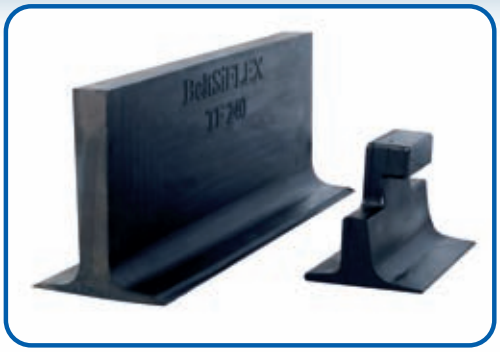
We offer the manufacture of cleats incorporating fabric reinforcement, which is recommended for heights above 140 mm.



In order to obtain the best possible service life, it is necessary to observe the recommendations regarding minimum diameter standards, taking as reference:

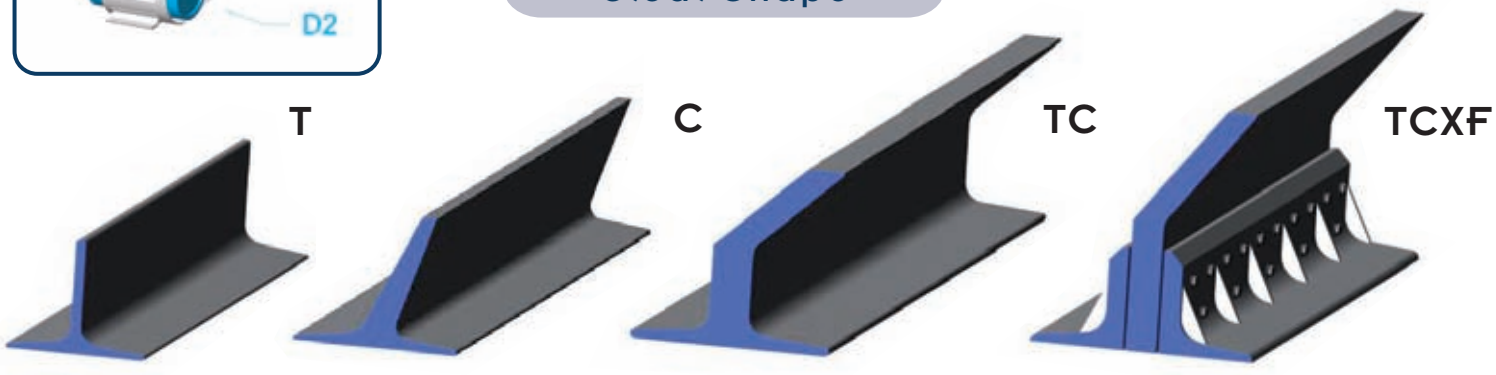
D1 = 4 x edge height.
D2 = 3 x edge height.

Depending on the quality of the rubber used, this general rule can vary.



Cleat Shape

T C TC TCXF



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

Cleat types 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

Y	G	S	RC
Normal quality	Grease and oil resistant	Flame resistant	Heat resistant up to 150 °C

Criteria for Cleat Choice

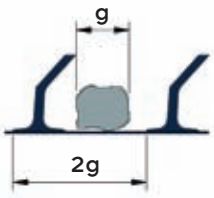
In order to determine the dimensions of cleats when designing a Beltsiflex belt, the same formula applied in volumetric calculation of a conventional belt are used. Nevertheless, we must consider where the materials to be transported are to be placed within the carrying area formed by the cross cleats and the sidewalls; the product's grain size will be of vital importance for the functioning of the system installed.

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 increase according to the transport capability desired

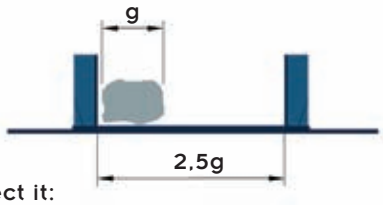
1.- Spacing between cleats:

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



2. Cleats width:

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



3. Cleats height:

EAs for the minimum height of the cleats, two aspects must be considered to select it:

a) Once again, maximum grain size

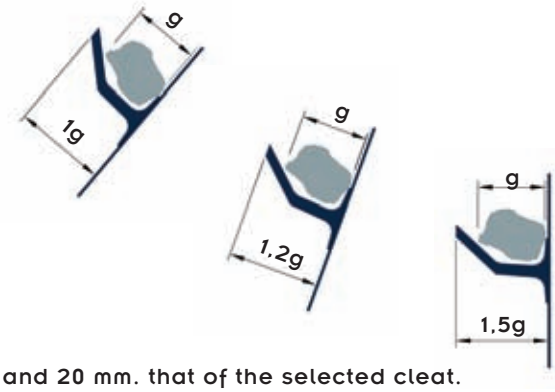
b) The angle of inclination of the belt:

It is recommended to follow these criteria:

Angle of inclination: 0 ÷ 60°
Cleat height: 0,75 ÷ 1,0 x grain size ("g")

Angle of inclination: 60 ÷ 75°
Cleat height: 1,0 ÷ 1,2 x grain size ("g")

Angle of inclination: 75 ÷ 90°
Cleat height: 1,5 x grain size ("g")

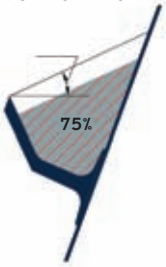


The height of the sidewall must always excess between 10 and 20 mm. that of the selected cleat.
For vertical belting, "TC" type cleats will be always used.

Products with low grain size :

The material conveyed in the belt's pockets never occupies their carrying area 100%. When calculating the pockets´capacity, we must always consider it is up to 75%, 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 belt width will be determined according to the dimensions, height of the conveyor belt and load capability desired.

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



Types of Cleats

TYPE	Height mm.	Base width mm.	Weight Kg/m	Max. length produced mm.	Rubber type
T-35	35	80	1,10	2.400	Y / G / S / RC
T-50	50	80	1,45	2.400	Y / G / S / RC
T-75	75	100	2,55	2.400	Y / G / S / RC
T-90	90	100	2,80	2.400	Y / G / S / RC
T-110 / TF-110	110	100	3,10	2.400	Y / G / S / RC
T-140 / TF-140	140	150	5,95	2.400	Y / G / S / RC
T-160 / TF-160	160	150	6,45	2.400	Y / G / S / RC
T-180 / TF-180	180	150	6,75	2.400	Y / G / S / RC
C-75 /CF-75	75	85	1,80	2.400	Y / G / S / RC
C-110 / CF-110	110	95	2,70	2.400	Y / G / S / RC
TC-75 / TCF-75	75	80	2,00	2.400	Y / G / S / RC
TC-90 /TCF-90	90	110	2,65	2.400	Y / G / S / RC
TC-110 / TCF-110	110	110	3,10	2.400	Y / G / S / RC
TC-140 / TCF-140	140	150	5,80	2.850	Y / G / S / RC
TCF-160	160	150	6,45	2.850	Y / G / S / RC
TCF-180	180	150	7,10	2.850	Y / G / S / RC
TCF-220	220	170	8,50	2.850	Y / G / S / RC
TCF-240	240	170	9,15	2.850	Y / G / S / RC
TCF-260	260	170	9,80	2.850	Y / G / S / RC
TCF-280	280	170	10,40	2.850	Y / G / S / RC
TCXF-280	280	280	19,70	2.400	Y / G / S / RC
TCXF-330	330	280	23,70	2.400	Y / G / S / RC
TCFX-380	380	280	25,00	2.400	Y / G / S / RC
TCFX-480	480	280	31,70	2.400	Y / G / S / RC
TCXF-580	580	280	36,10	2.400	Y / G / S / RC

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

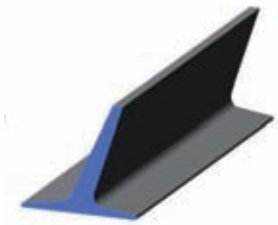
ESPECIAL TYPES	Height mm.	Base width mm.	Weight Kg/m	Max. length produced mm.	Rubber type
TL- 160 / TLF-160	160	145	8,0	200	Y / G / S / RC
TX-35 / TXF-35	35	35	1,20	1.300	Y / G / S / RC
TX-55 / TXF-55	55	40	1,70	1.300	Y / G / S / RC
TX-240 / TXF-240	240	170	13,0	620	Y / G / S / RC
CL-45 /CLF-45	45	60	1,30	2.400	Y / G / S / RC

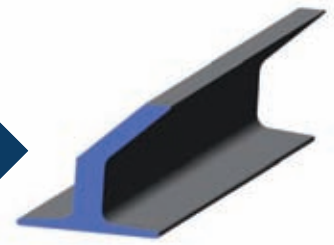
* The indicated diameters are calculated for type Y quality; they are merely for reference and it is necessary a calculation for each specific project.

Types of Cleats

Ø Driving and return drum mm.	Ø mm Inflexion Pulley	Fabric reinforcement
140	180	WITHOUT fabric reinforcement
140	180	
180	350	
240	375	
240	375	WITH & WITHOUT fabric reinforcement
420	560	
480	640	
540	720	
185	300	WITH & WITHOUT fabric reinforcement
250	350	
185	300	WITH & WITHOUT fabric reinforcement
220	325	
250	350	
420	560	
480	640	ONLY WITH fabric reinforcement
540	720	
660	880	
720	960	
780	1.040	
840	1.120	
950	1.300	ONLY WITH fabric or metal reinforcement
1.200	1.500	
1.350	1.750	
1.700	2.200	
2.100	2.650	

CLEAT SHAPE





Ø Driving and return drum mm.	Ø mm Inflexion Pulley	Fabric reinforcement
500	650	WITH & WITHOUT fabric reinforcement
140	180	
150	200	
720	960	
140	180	

TX-35 TX-55 TX-240

CL-45 TL-160

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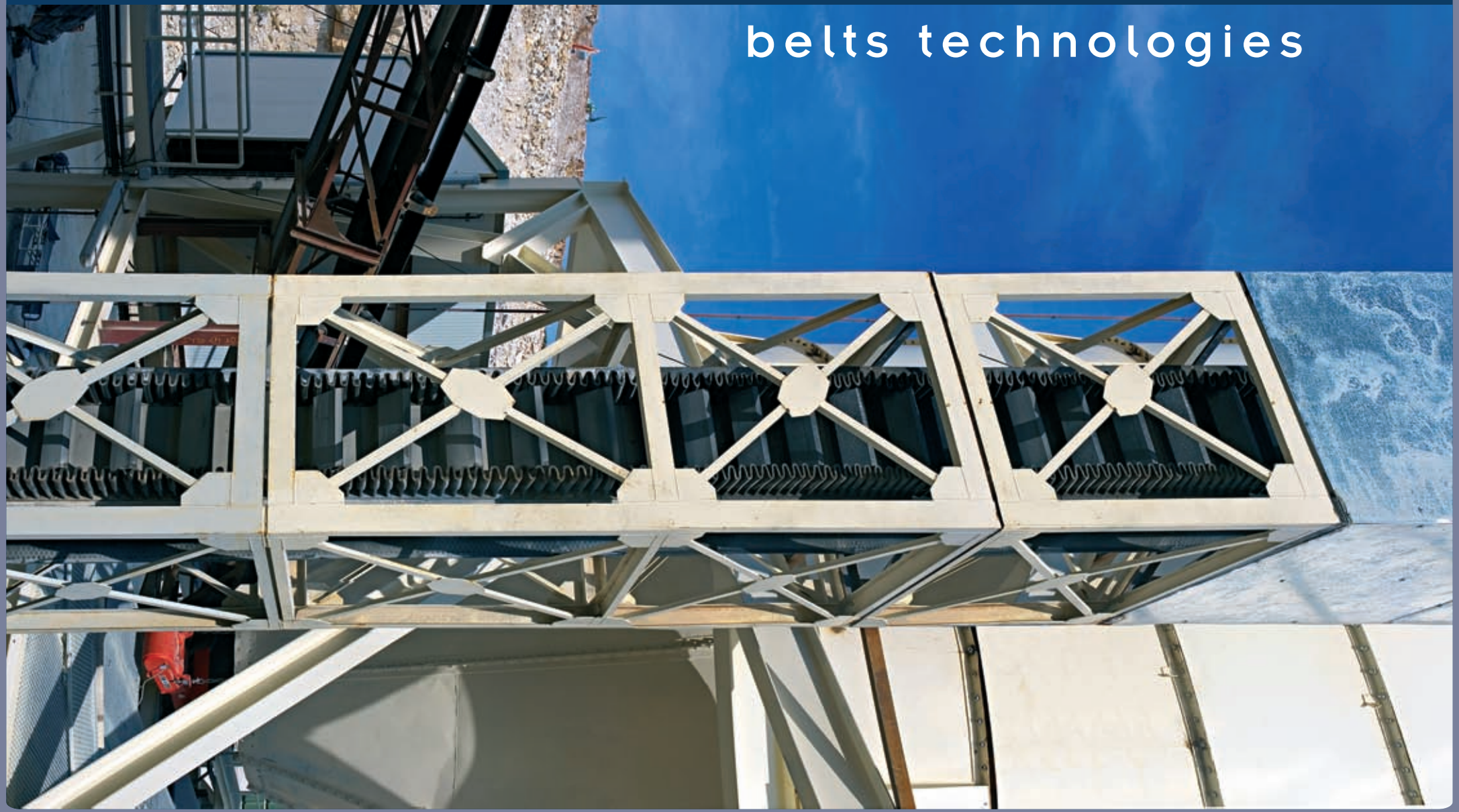
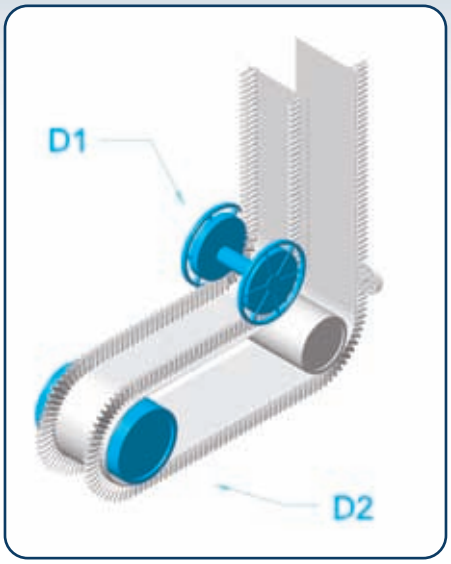


Types of Sidewalls

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 adapting to lower diameter pulleys.



It is important to observe the minimum diameters required in order to achieve the longest service life possible. As a general rule, we will follow:

D1 = 4 x sidewall height

D2 = 3 x sidewall height

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Types of Sidewalls

TYPE	Height mm.	Base Width mm.	Weight Kg/m	Max. Length Produced m.	Rubber Type
N-40	40	40	1,00	500	Y / G / S / RC
N-60	60	40	1,40	400	Y / G / S / RC
N-80	80	40	1,80	300	Y / G / S / RC
S-80 / SF-80	80	50	1,80	300	Y / G / S / RC
S-100 / SF-100	100	50	2,30	300	Y / G / S / RC
S-120 / SF-120	120	50	2,70	300	Y / G / S / RC
S-140 / SF-140	140	50	3,10	250	Y / G / S / RC
BSF-120	120	75	4,00	250	Y / G / S / RC
BSF-140	140	75	4,60	200	Y / G / S / RC
BSF-160	160	75	5,20	150	Y / G / S / RC
BSF-180	180	75	5,80	125	Y / G / S / RC
BSF-200	200	75	6,40	125	Y / G / S / RC
BSF-220	220	75	7,00	125	Y / G / S / RC
BSF-240	240	75	7,60	125	Y / G / S / RC
BSF-260	260	75	8,20	125	Y / G / S / RC
BSF-280	280	75	8,80	125	Y / G / S / RC
BSF-300	300	75	9,40	125	Y / G / S / RC
MSF-300	300	115	15,05	100	Y / G / S / RC
MSF-350	350	115	17,50	100	Y / G / S / RC
MSF-400	400	115	19,90	100	Y / G / S / RC
MSF-500	500	115	24,75	100	Y / G / S / RC
MSF-600	600	115	29,60	100	Y / G / S / RC

* The references with F letter means production with fabric reinforcement.

* The diameters indicated are calculated for quality type Y; they are merely for reference and adequate calculation is necessary for each specific project.

Rubber Quality

- **Y** Normal quality
- **G** Grease and oil resistant
- **S** Flame resistant
- **RC** Heat resistant up to 130 °C

Types of Sidewalls

Pitch	Ø Driving and return drum mm.	Ø mm Inflexion Pulleys	Fabric reinforcement
47	100	160	WITHOUT fabric reinforcement
47	150	240	
47	200	320	
50	240	320	WITH & WITHOUT fabric reinforcement
50	300	400	
50	325	480	
50	400	560	
60	360	480	ONLY WITH fabric reinforcement
60	420	560	
60	480	640	
60	540	720	
60	600	800	
60	660	880	
60	720	960	
60	780	1.040	
60	840	1.120	
60	900	1.200	
83	1.050	1.350	ONLY WITH fabric reinforcement
83	1.200	1.500	
83	1.400	1.800	
83	1.750	2.250	
83	2.100	2.700	

Cross Stability Belts

SIBAN has developed a cross stability rigid belt based on the construction of the Beltsiflex belts, necessary for the optimization of the system's performance.

We can offer different constructions to suit the specifications of each installation.

The use of cross stability rigid belts offers significant advantages:

Cross stability belt

Standard belt

- 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.

Y	G	S	RC
Abrasion resistantt	Oil and grease resistant	Flame retarded	Heat resistant up to 150 °C

Beltsiflex

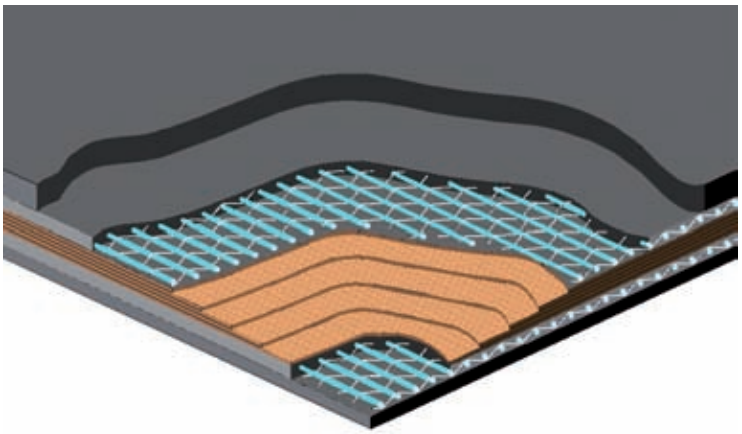
Types of Belts

Cross stability rigid fabric belts: Type "XEM"

Manufactured with fabric inserts, they are produced just as the Beltsiflex elevated belting systems. 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 XEM , EMXSC and XWXSC belt types are manufactured.

In the following rubber compound varieties:

- **Y** Abrasion resistant
- **G** Oil and grease resistant
- **S** Flame retarded
- **RC** Heat resistant up to 150 °C



Maximum width in standard manufacturing:	1.600 mm.

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

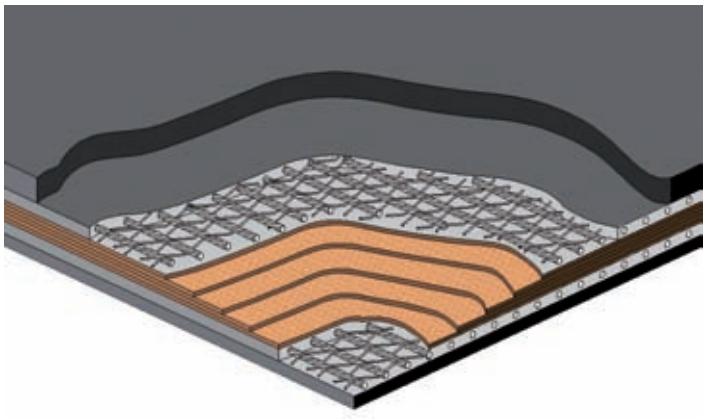
TYPE	Covers		Thickness mm.	Weight Kg/m	N° of Fabrics		Ø Driving and return drum mm.	Ø Inflexion pulleys mm.
	Top mm.	Bottom mm.			Tensioning	Weave		
XEM250/2+1TR	2	0	7,00	5,89	2	1	315	350
XEM250/2+1TR	3	1,5	8,50	8,60	2	1	315	350
XEM400/3+2TR	4	2	11,50	11,25	3	2	450	500
XEM500/3+2TR	4	2	11,80	11,56	3	2	500	600
XEM630/4+2TR	4	2	12,90	12,55	4	2	600	750
XEM800/4+2TR	4	2	13,50	13,00	4	2	750	1000
XEM800/5+2TR	4	2	14,00	13,55	5	2	800	1000
XEM1000/5+2TR	4	2	14,75	14,10	5	2	1000	1200
XEM1250/5+2TR	4	2	15,85	14,80	5	2	1200	1400

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

Types of Belts

Cross stability rigid fabric belts: Type "EMXSC"

Manufactured with fabric inserts, they are produced just as the Beltsiflex XEM type but differ from this in that their rigidity is achieved by inserting one or two metal cords across the band. This type of belt is recommended when the rigidity needed is not satisfied by the XEM type. It is particularly indicated for the transportation of large productions and heavy duty applications requiring significant width dimensions.



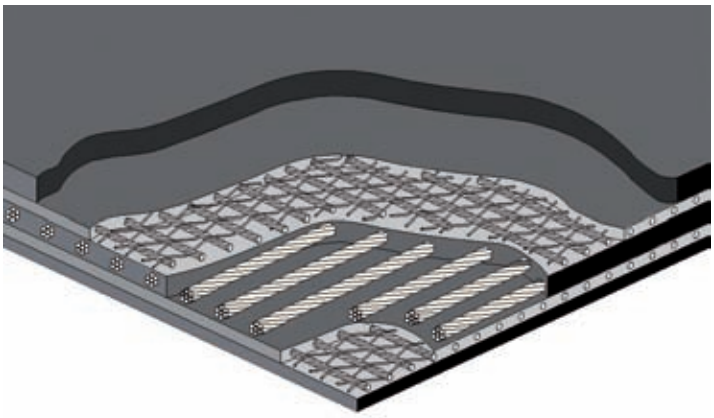
TYPE	Type of cross stability weave	N° of rigid cross weaves	N° of fabrics in tensioning plie		Ø Driving and return drum mm.	Ø Inflexion pulleys mm.
EMXSC800	BF500	1	EM200	4	900	1.200
		2	EM160	5		
EMXSC800	BF800	1	EM200	4	1.000	1.250
		2	EM160	5		
EMXSC1000	BF500	1	EM200	5	1.000	1.250
		2	EM200	5		
EMXSC1000	BF800	1	EM200	5	1.200	1.300
		2	EM200	5		
EMXSC1250	BF500	1	EM250	5	1.200	1.300
		2	EM250	5		
EMXSC1250	BF800	1	EM250	5	1.200	1.400
		2	EM250	5		
EMXSC1600	BF500	1	EM250	6	1.300	1.500
		2	EM400	4		
EMXSC1600	BF800	1	EM250	6	1.400	1.600
		2	EM400	4		
EMXSC2000	BF500	1	EM400	5	1.500	1.800
		2	EM400	5		
EMXSC2000	BF800	1	EM400	5	1.600	2.000
		2	EM400	5		

Maximum width manufactured:	2.200 mm.

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

Types of Belts

Cross Stability Rigid metal belts: Type "XWXSC"



This belt differs from type EMXSC 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.

The weight and thickness of these belts will depend on the rubber cover applied in each case.

TYPE	Type of cross stability weavel	N° type of cross stability wea	Ø drive and return pulley mm.	Ø Inflexion pulleys mm.
XWXSC1600	BF500	1 2	800	1200
XWXSC1600	BF800	1 2	900	1250
XWXSC2000	BF500	2	1200	1300
XWXSC2000	BF800	1 2	1200	1300
XWXSC2500	BF800	2	1500	1800
XWXSC3500	BF800	2	1600	1800
XWXSC5000	BF800	2	2300	2500

Maximum width manufactured	2.200 mm.

*The diameters for both EMXSC and XWXSC belts here indicated are merely for reference, being necessary to calculate them for each specific project according to the installation's dimensions and the qualities specified for the application.

Beltsiflex

FIX or 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 or steel, depending on the type of belt, and 4 screws in galvanised steel

Type of FIX	Sidewall Type	Screws
NYLONFIX-65	BSF120	M5 x 80
	BSF140	
NYLONFIX-80	BSF140	M6 x 80
	BSF160	
	BSF180	
	BSF 250	
	BSF 300	
	MSF300	
STEELFIX-120	MSF300	M8 x 160
	MSF350	
	MSF400	
STEELFIX-150	MSF500	U bolts M10
	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 transference of materials through the small holes between the sidewalls and the cleats.

Aligning Wheels

Aligning wheels must only be used with cross stability rigid belts. Made of high quality rubber, this type of wheels are mounted in the tracking area and are rectified with great precision, which allows the compression of the rail to protect the sides of the belt.

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.

ELASTOGLUE 2000

We recommend using the adhesive ELASTOGLUE 2000 when the assembly of the belt is carried out in the installation facility itself, so as to glue sidewalls and cross cleats to the base belt surface, where the splice point has been vulcanised for the sealing of sidewalls and cleats.

This product is also suitable for the cold splicing of conveyor belts and coating of rolls and feed chutes. The properties of ELASTOGLUE 2000 make it appropriate for any application requiring the sealing of rubber-metal, rubber-rubber and rubber-fabrics.

Cold vulcanisation adhesive

Beltsiflex

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Lab

Fatigue testing for components and base belt

Our vocation to improve our products is what motivates us to analyse every component in our lab's testing bench, which carries out fatigue testing and measures mechanical degradation. The data obtained allows us to further develop our products, leading to their better performance in critical situations.

Dynamometric testing

All our components undergo resistance tests with a dynamometer, where raw materials are analysed for quality control, implying they must satisfy demanding predetermined standards. All belts are tested and must fulfil the levels of elongation and breaking stress required by the customer and indicated in our technical descriptions.

The component's adherence to the belt is analysed by repeated and regular dynamometric test essays using samples obtained during the production process.

QUESTIONAIRE FOR BELT CALCULATION

COMPANY /:.....

PERSON / :..... E-MAIL.....

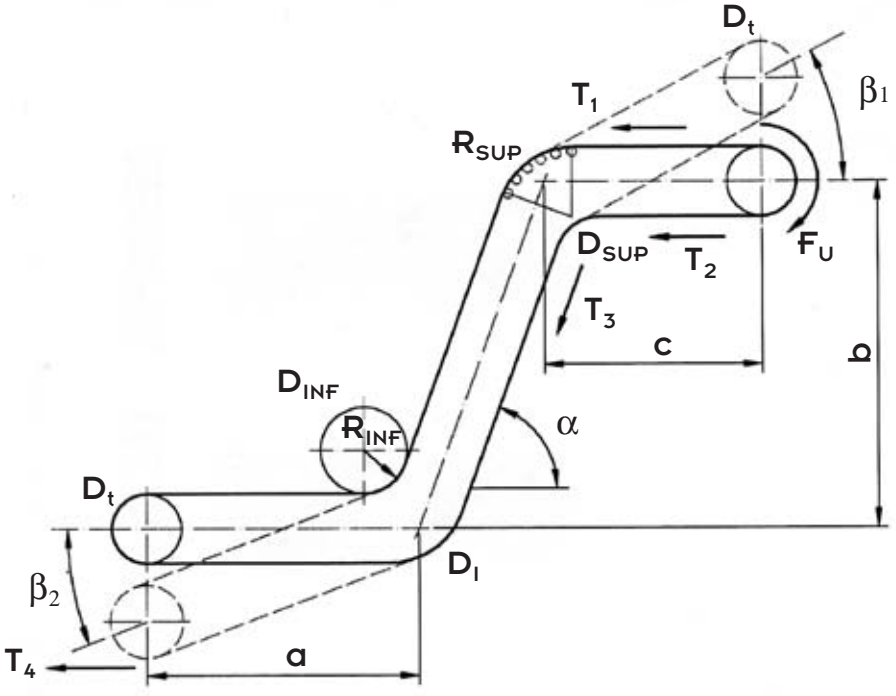
TEL ..... FAX.....

Please indicate whether the belt you require is:

A BELT FOR REPLACEMENT ☐ A BELT FOR A NEW INSTALLATION ☐

INSTALLATION RELATED DATA	
Distance between axles	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 RELATED DATA	
Capacity required	tn/h.
Maximum grain size	mm.
Material moisture content	%
Density	gr/cm^3

BELT RELATED DATA	
Belt width	mm.
Cleat type	
Cleat length	mm.
Cleat pitch	mm.
Sidewall type	
Free side insets	mm.
SPECIAL FEATURES	
Temperature	°C.
Grease or oil presence	
Explosive atmosphere	
Material's natural angle of slide	°
Ambient moisture content	%



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