

# FLEXOBORD<sup>®</sup>



## The sidewall conveyor belting



Also including full serie  
of cross stabilized  
conveyor belts:

**TEXRIGID<sup>®</sup>**  
**CROSSRIGID<sup>®</sup>**

## PRODUCT PRESENTATION

Flexobord is a conveyor belt used for conveying material, particularly useful when the inclination angle of the elevation system is very steep.

Its strength is given by the increasing of handling capacity, the absence of material spillage, the low power and maintenance required.

The main application fields of this belt are:

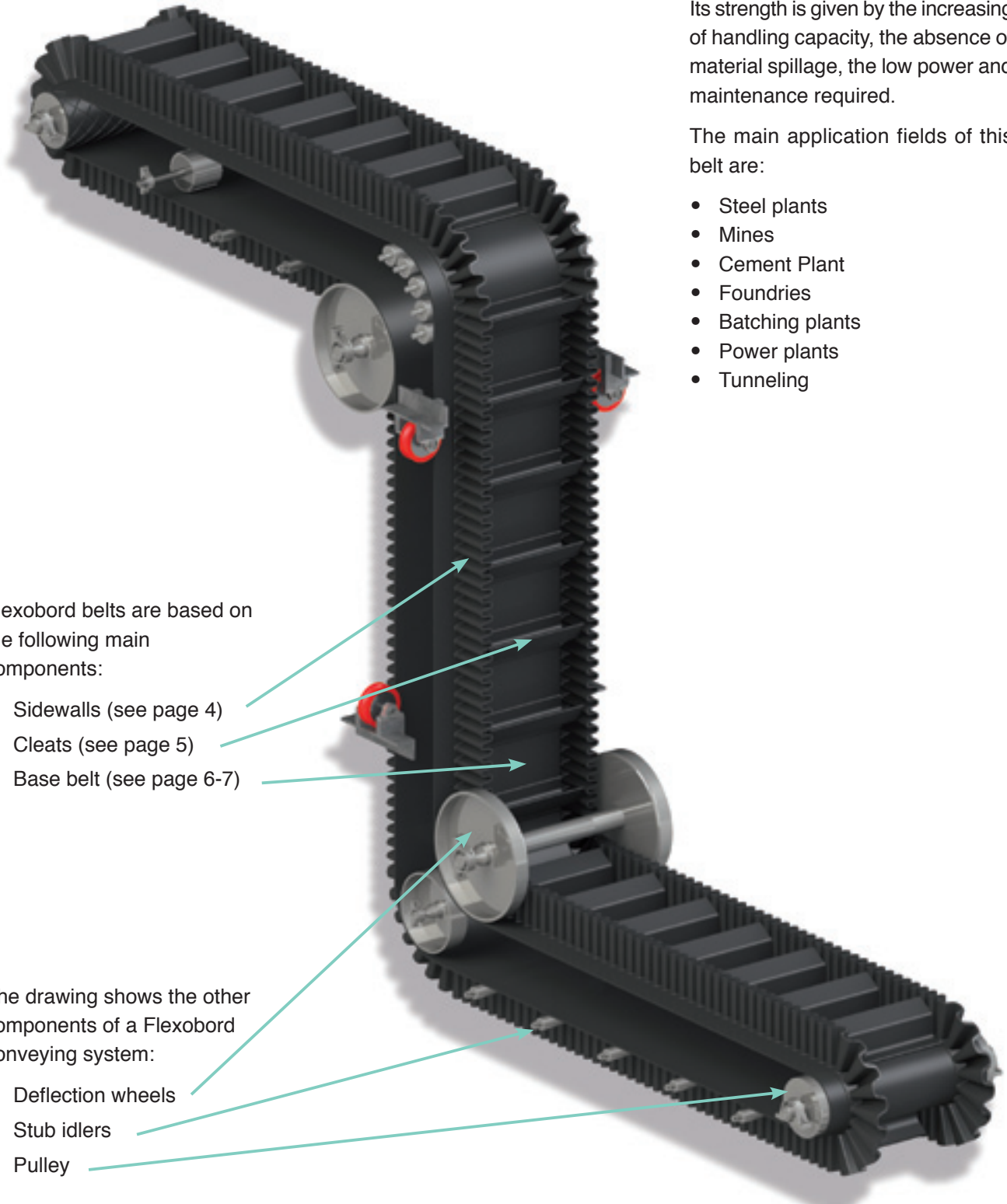
- Steel plants
- Mines
- Cement Plant
- Foundries
- Batching plants
- Power plants
- Tunneling

Flexobord belts are based on the following main components:

- Sidewalls (see page 4)
- Cleats (see page 5)
- Base belt (see page 6-7)

The drawing shows the other components of a Flexobord conveying system:

- Deflection wheels
- Stub idlers
- Pulley



## PRODUCT PRESENTATION

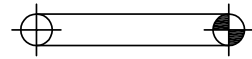
The correct choice of each component in relation to the final use is one of the most important contributions to the overall plant performances.

The complete range of SIG belts is produced according to the international standards; therefore the cross reinforcement of the carcass ensures the necessary transversal stiffness and prevents from hitting the full width return idlers.

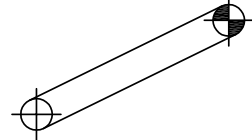
Sketches on the right show typical but not exhaustive Flexobord layouts; the belt designer must take into consideration these alternatives to guarantee correct plant performances.



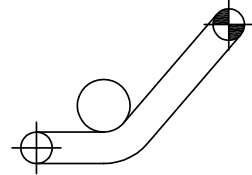
1. *Horizontal*



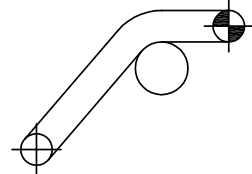
2. *Straight inclined*



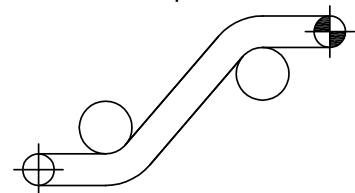
3. *"L" inverted*



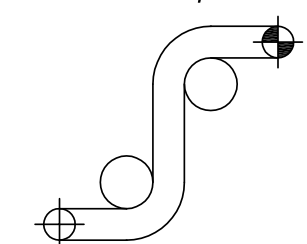
4. *Inclined + horizontal*



5. *"S" shape*

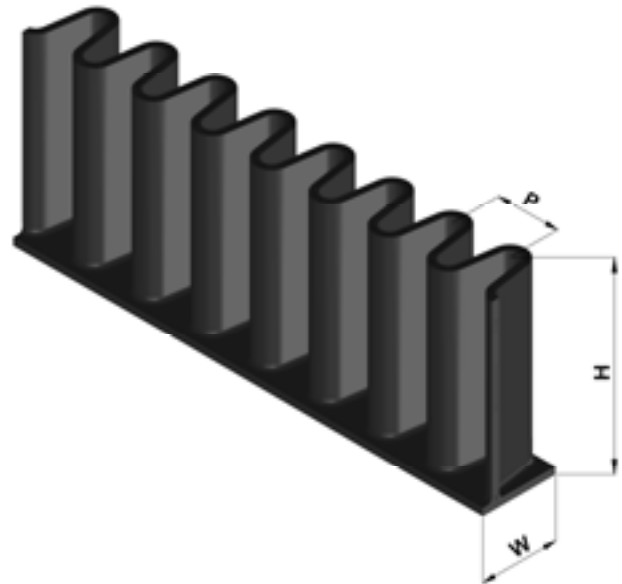


6. *"S" vertical shape*

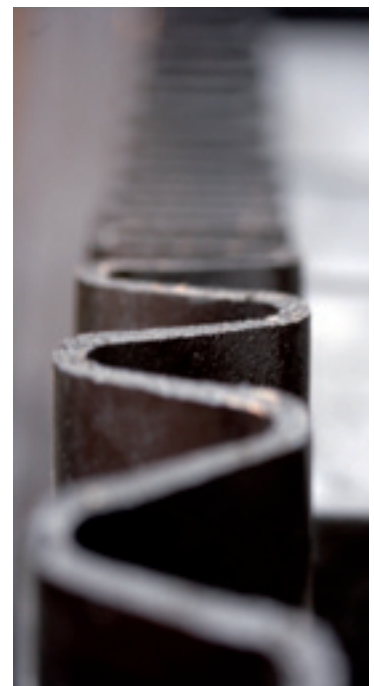


## SIDEWALLS

TYPE	Height H [mm]	Width W [mm]	Pitch P [mm]
40/30	40	30	25
40/50	40	50	50
60/50	60	50	50
80/50	80	50	50
100/50	100	50	50
120/50	120	50	50
160/70	160	70	55
200/80	200	80	65
200/75	200	75	60
240/80	240	80	65
240/75	240	75	60
250/75	250	75	60
280/75	280	75	60
300/100	300	100	85
300/75	300	75	60
400/100	400	100	83
500/100	500	100	83
600/100	600	100	83
630/100	630	100	83



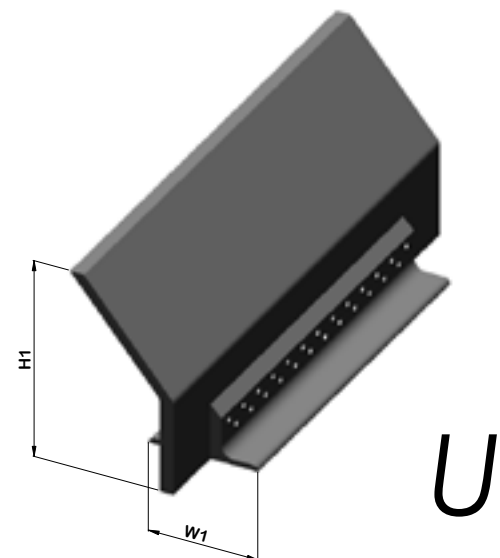
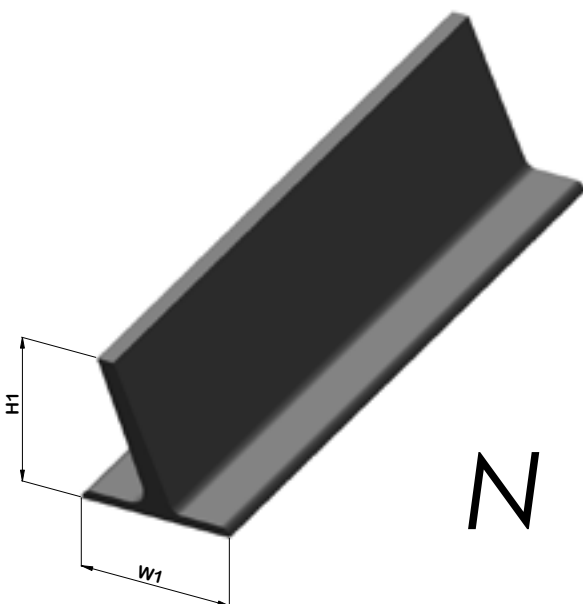
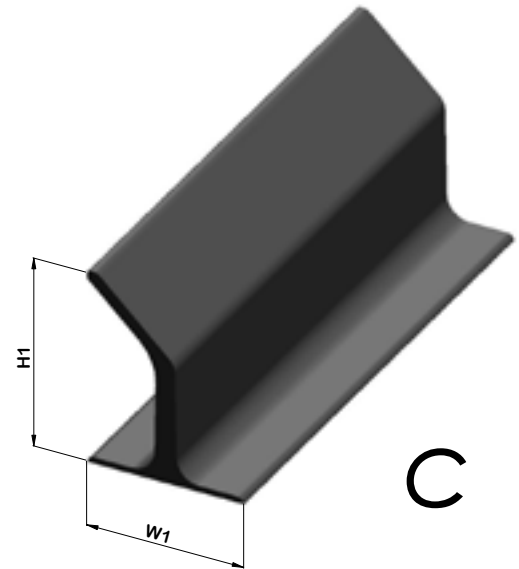
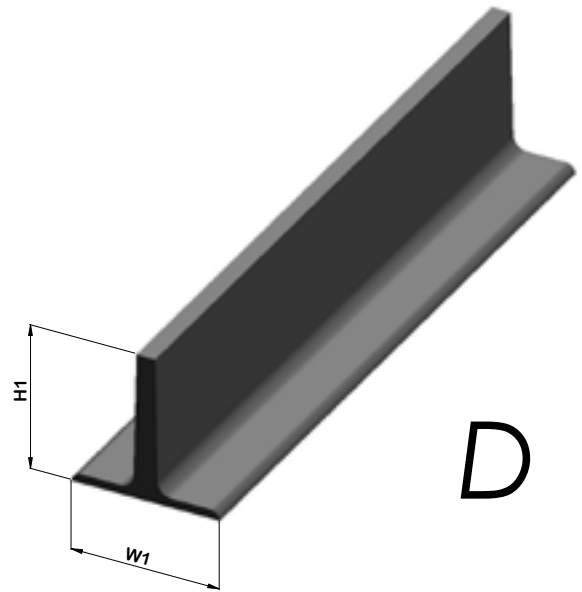
*Dimensions are only approximate.  
For different typologies, please ask our commercial dept.*



# CLEATS

TYPE	Height $H_1$ [mm]	Width $W_1$ [mm]
D55	55	80
D75	75	100
D90	90	110
D110	110	110
D140	140	150
D180	180	150
C70	70	70
C90	90	110
C110	110	110
C140	140	140
C180	180	170
C220	220	175
C230	230	175
C240	240	175
C280	280	190
N55	55	90
N75	75	90
N110	110	110
U180	180	228
U220	220	228
U280	280	228
U360	360	228
U380	380	228
U480	480	228
U580	580	228
U600	600	228

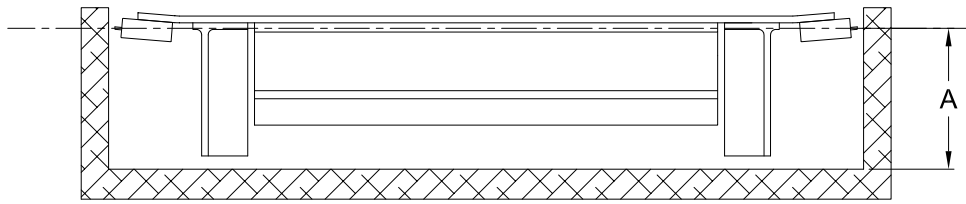
Dimensions are only approximate.  
For different typologies, please ask our commercial dept.



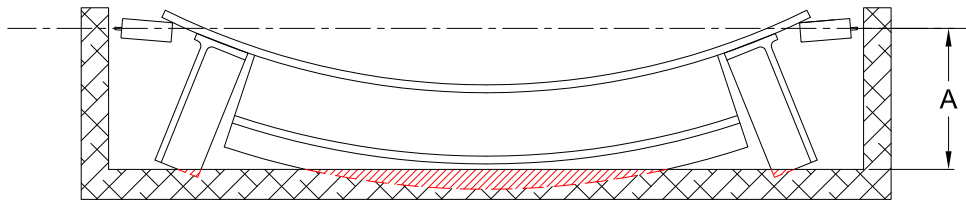
## BASE BELT – THE CROSS STABILIZED CONSTRUCTION

The main required characteristic of a base belt suitable for Flexobord applications is the controlled transversal stiffness, also named cross stabilized construction.

The following sketches indicate the consequences due to a wrong choice of the base belt:



**Correct**  
Cross stabilized base belt



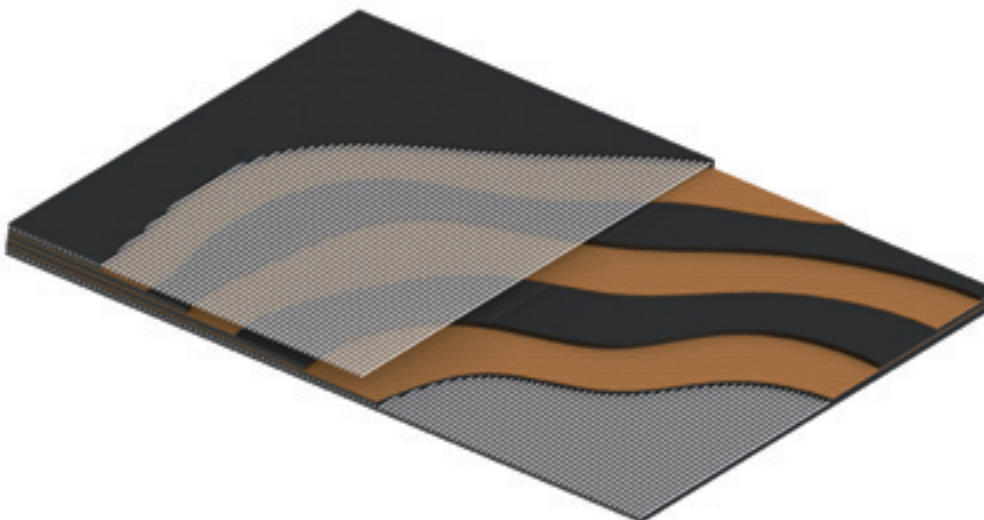
**Wrong**  
Common quality base belt

Standard base belt without any specific transversal stiffness can be used only for horizontal flat belts made with only corrugated sidewalls and without transversal cleats.

## BASE BELT SELECTION

According to the heaviness of the application, the following base belt typologies are available:

**XR** Composed by only textile fabrics with high transversal stiffness, feature provided by 2 additional special synthetic layers set in the cover rubber, assure the correct cross stabilizing properties. They are provided with cut edges for light and medium applications. This base construction can be sold as independent product with the brand name **TEXRIGID®**. The sketch below shows the cross stabilized construction.



**TEXRIGID®**  
Standard  
construction

500/3+2 5+3

630/4+2 5+3

800/5+2 5+3

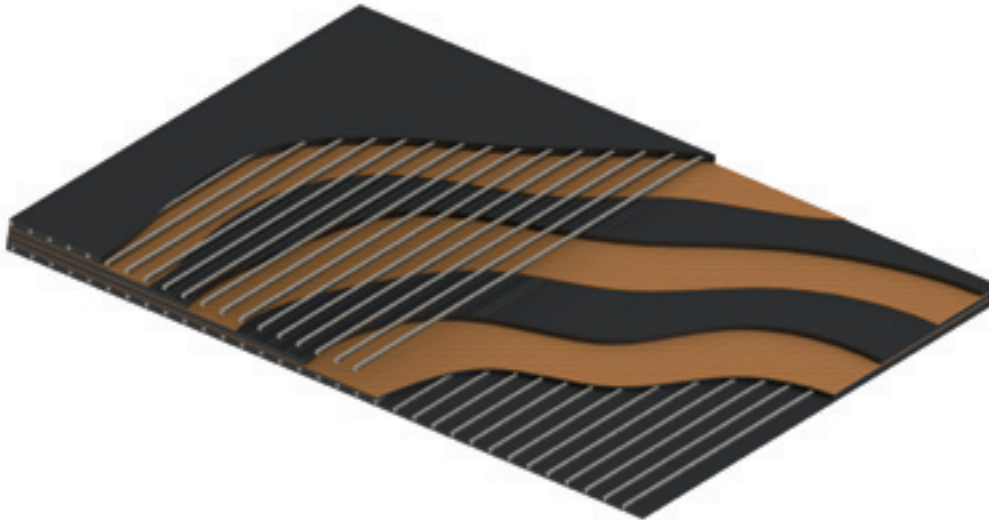
1000/5+2 5+3

1250/5+2 5+3

where "5+3" are top and bottom covers thickness

Unless specifically designed, **TEXRIGID®** are not suitable for sealing applications

**SR** Composed by a mix of multi-ply synthetic carcass and suitable steel reinforcement to ensure high transversal stiffness for heavy Flexobord applications. They are provided only with moulded edges. This cross stabilized base belt can be sold as independent product with the brand name **CROSSRIGID®**. The sketch shows the unique difference compared to Texrigid®, i.e. the presence of transversal steel cord in the cover.

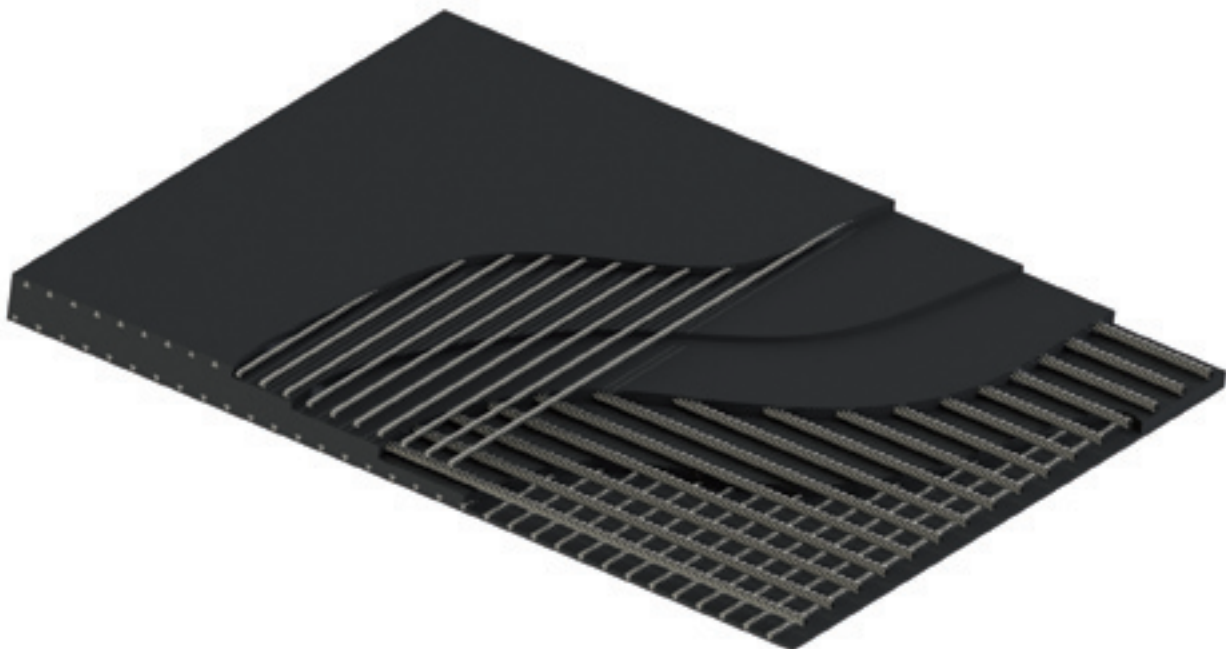


CROSSRIGID® Standard construction
500/3 5+3
630/4 5+3
800/5 5+3
1000/5 5+3
1250/5 5+3

where "5+3" are top and bottom covers thickness

**ST** Designed for the heaviest applications where high elevation and/or conveying capacity are involved, it is composed by longitudinal steel cords with a special transversal steel reinforcement to assure the required stiffness. Full range is available from 800 to 3500 KN/m; for the correct belt selection, please contact our technical dept.

This cross stabilized base belt can be sold as independent product with the brand name **CROSSRIGID HR®**. This belt type has a steel cords internal structure.



*The transversal stiffness of CROSSRIGID® is not suitable for sealing applications unless supported over the whole belt width with a suitable rigid structure; specific constructions are necessary for these special products to assure the static stability when they stay only along the edges: SIG SpA designs and produces such a products with the brand name SEALTEX.*

## ELEMENTS FOR PLANT DESIGN

### MINIMUM SUGGESTED PULLEY DIAMETER RELATED ON BELT TYPE

Belt Type	Belt Class [kN/m]	Drive Pulley [mm]	Take-up Pulley [mm]
XR / SR	500	400	315
	630	500	400
	800	630	500
	1000	800	630
	1250	1000	800

For Flexobord ST, please ask our technical dept.



### MINIMUM SUGGESTED PULLEY DIAMETER RELATED ON SIDEWALL TYPE

Sidewall Type	Drive Pulley [mm]	Take-up Pulley [mm]	Deflection Wheel [mm]
40/30	125	125	160
40/50	125	125	160
60/50	200	200	250
80/50	250	250	315
100/50	315	315	400
120/50	400	400	500
160/70	500	500	630
200/80	630	630	800
200/75	630	630	800
240/80	800	800	1000
240/75	800	800	1000
250/75	800	800	1000
280/75	1000	1000	1200
300/100	1000	1000	1200
300/75	1000	1000	1200
400/100	1250	1250	1600
500/100	1600	1600	2000
600/100	2000	2000	2500
630/100	2000	2000	2500

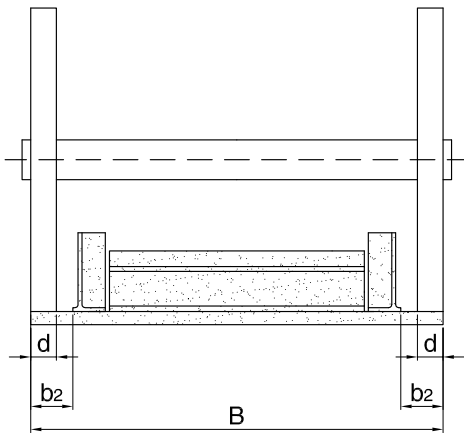


The minimum pulleys diameter must be the highest values between those set in the tables, influenced by the belt construction and the sidewall type.

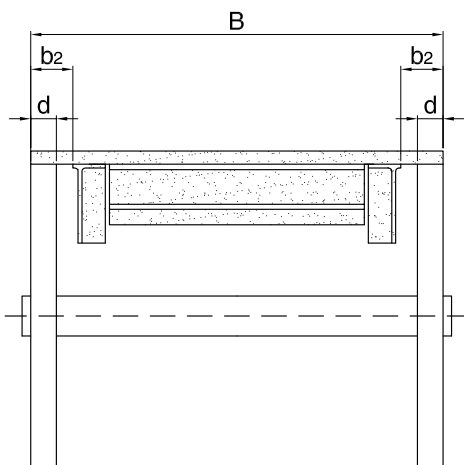


## DEFLECTION WHEELS - FREE LATERAL SPACE WIDTH

*Carrying side*



*Return side*



Belt width B [mm]	Free lateral space b <sub>2</sub> [mm]	Wheel min width [mm]
400	60	48
500	60	48
650	75	60
800	100	80
1000	125	100
1200	150	120
1400	175	140
1600	200	160
1800	225	185
2000	250	210

## OTHER USEFUL INFORMATIONS FOR PLANT DESIGN

- Minimum cleat pitch = 1,5 x Max lump size
- Minimum cleat height = (1,5 to 2) x Max lump size
- Width of support idlers (mm) = Belt width (mm) + 100 mm
- Idler pitch – carrying side ≤ 1 m max
- Pitch of full width return idlers ≤ 2 m
- Pitch of short return idlers ≤ 1 m
- Lateral idlers for alignment:  
min 4 for each straight section;  
max distance = 12 m



## COVERS SELECTION

Base belt, sidewalls and cleats can be provided with alternative rubber covers with reference to the specific application. Sidewalls and cleats are produced with the same compound of the base belt.

### **ABRASION SERVICE**

---

**CL (L grade ISO 10247 – Y grade DIN 22102 – RMA II grade) - Standard abrasion resistance compound:** CL is a cover rubber recommended for all ground applications and for the majority part of the materials, where resistance to abrasion is required. Flexobord belts with CL compounds are suitable to handle heavy and/or abrasive material such as gravel, stone, sand, aggregates, coal, cement, etc.

**EC (D grade ISO 10247 – W grade DIN 22102 – RMA I grade) - Extra abrasion resistance compound:** EC is superior quality cover rubber, especially designed where maximum resistance to abrasion is required. The characteristics of resistance to cut, tear and ozone cracking, together with long duration, improve the quality of this cover. EC is expressly recommended for steel works and iron mines; however, it is recommended for heavy lump ore, coke, salt, limestone too.

### **OIL SERVICE**

---

**OM (G grade DIN 22102) - Vegetable oil resistance compound:** OM is a cover rubber that guarantees a good belt resistance against the chemically aggressive effects due to the transport of materials with moderate oil presence, like corn, fertilizers and general vegetable oily materials. OM is expressly designed to resist the terpene of wooden chips and to convey solid urban waste materials.

**OH - High oil resistance compound:** OH is a premium quality cover rubber with maximum resistance to oils and characterized by low volume variations after immersion in highly aggressive mineral oils. OH is expressly realized for belts conveying materials sodden with mineral oils, as for example the mechanical manufacturing rejects.

### **FIRE RESISTANT**

---

**BS (K grade DIN 22102, class 2A EN 12882) - Self-extinguish product:** BS is a product designed to service both underground and above ground application where safety is fundamental and fire risk is high. It is recommended in particular for coal and potash applications. BS is self-extinguish and antistatic according to ISO 340 and ISO 284 or equivalent.

**AG (K+G grade DIN 22102, class 2A EN 12882) - Self-extinguish and oil resistant product:** AG is a nitrile rubber, it provides superior resistances to vegetable oils and animal fats; it is also self-extinguish and antistatic according to ISO 340 and ISO 284, or equivalent in order to guarantee high safety to the conveyor plant.

### **HEAT SERVICE**

---

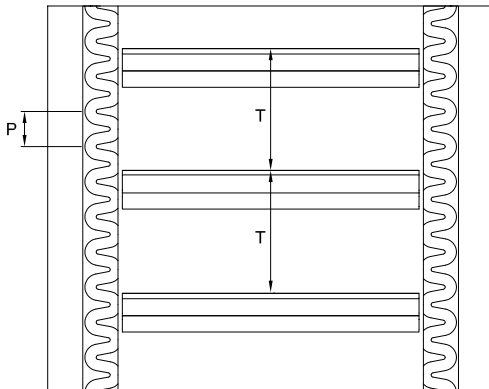
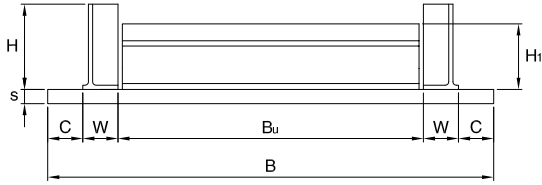
**CX – Medium temperature resistance:** CX is a rubber compound assuring a medium degree of abrasion resistance; it is formulated for continuous service with hot coarse materials at a temperature of 130°C with peaks of 150°C.

**MX – High temperature resistance:** MX is a rubber compound assuring a good abrasion resistance. It is designed for continuous service at a temperature of 150°C with peaks of 180°C.

## DATA SHEET

Our customer service is always at Your disposal to suggest the best choice for tensile strength calculation and cleat / edges geometrical selection.

In order to supply us all the necessary information for a careful calculation, please fill in the following data sheet as completely as possible.



B [mm] .....	Center distance [m] .....
S [mm] .....	Elevation [m] .....
B <sub>u</sub> [mm] .....	Max belt slope [deg] .....
C [mm] .....	Speed [m/sec] .....
W [mm] .....	Motor power [kW] .....
H [mm] .....	Capacity [Ton/h] .....
P [mm] .....	Conveyed material .....
T [mm] .....	Lump size [mm] .....
H <sub>1</sub> [mm] .....	Density [Ton/m <sup>3</sup> ] .....
	Angle of repose [deg] .....
	Tensile strength [N/mm] .....

Cleat type (page 5) D  N  C  U

Plant profile (page 3) 1  2  3  4  5  6

## DATA FOR ORDERING

To avoid errors or misunderstanding in the order, we suggest to use the following belt designation:

150 m	Flexobord	120	XR	500	/	3+2	5+3	CL	1000
									Belt width (mm)
									Cover quality
									Top + Bottom cover thickness (mm)
									Number of plies + Number transversal breakers
									Tensile strength of base belt (N/mm)
									Base belt designation
									Sidewall height (mm)
									Brand name
									Belt length (m)

Please also indicate the following information:

**Cleat pitch (mm) and type (D, N, C, U)**

**Transversal sketch (for example: 120 + 50 + 700 + 50 + 120 = 1000 mm)**

or enclose the above sketch filled in with all relevant elements.



THE MATTER OF THIS PUBLICATION IS ONLY FOR INFORMATION; THEREFORE IT CAN NOT INVOLVE S.I.G. FOR ANY CONSEQUENCE DUE TO POSSIBLE ERRORS.

S.I.G. RESERVS THE RIGHT TO INTRODUCE AT ANY TIME SUCH MODIFICATION AS COULD BE JUSTIFIED BY CONTINUOUS DEVELOPMENT AND IMPROVEMENT.

05/2018 - Rev. 3



21055 Gorla Minore (Va) Italy  
Via A. Colombo, 144  
Phone +39 0331 36.51.35  
Fax +39 0331 36.52.15  
www.sig.it - E-Mail: sig@sig.it

