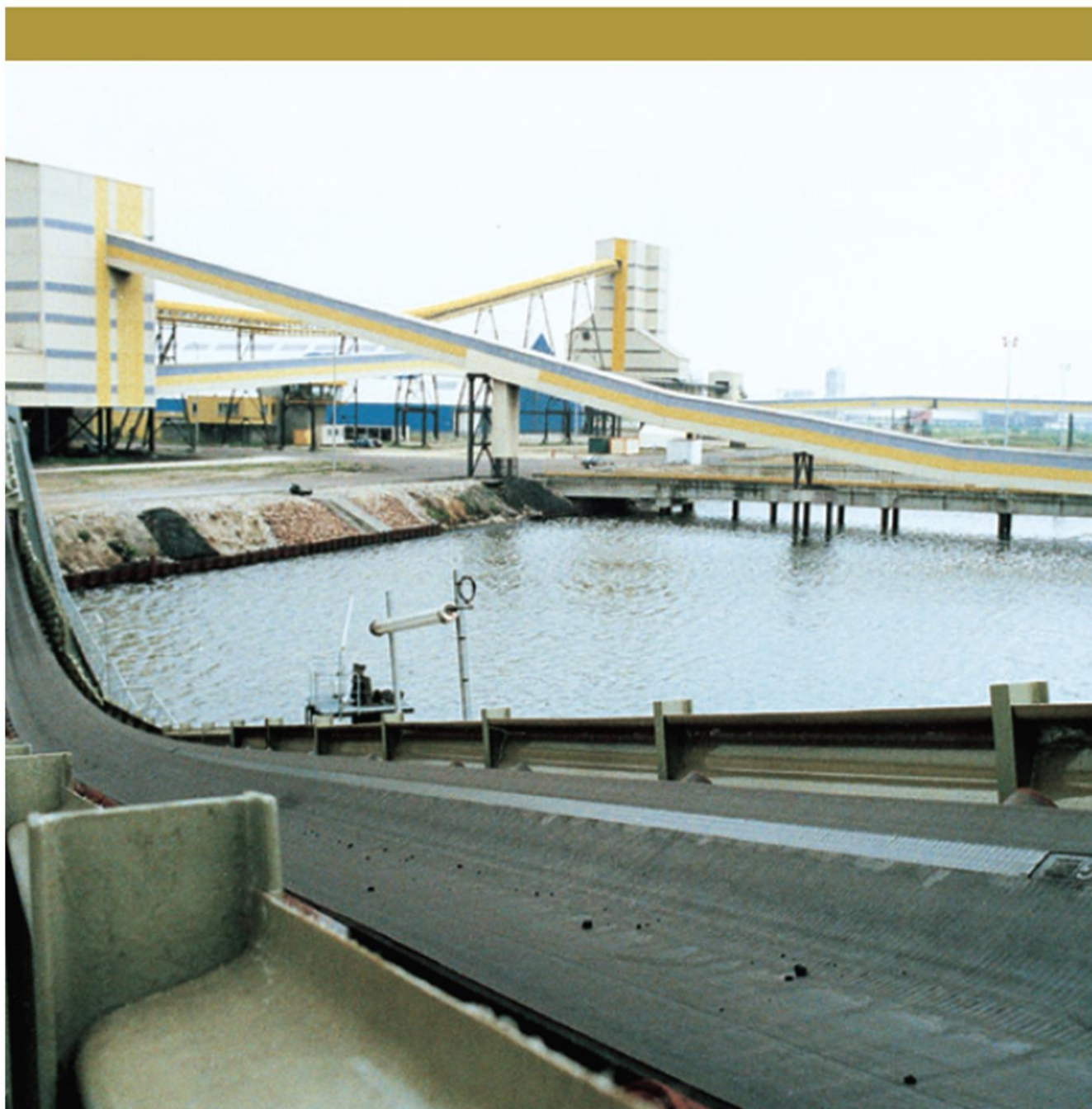


SIDERFLEX[®]



Steel carcass Conveyor belts



Discover us at www.sig.it and on our LinkedIn profile as SIG Società Italia Gomma S.p.A.



INTRODUCTION

The carcass of SIDERFLEX belts consists in a brass coated steel fabric (see picture below) with low elongation characteristics which gives to the belt a high tensile strength. The greatest advantage of the low elongation for conveyor belts with a center distance not extremely long is the possibility to replace textile belts without significant modifications of the conveyor system.

This type of carcass gives to SIDERFLEX belts special qualitative characteristics of:

- **Excellent cut and tear resistance**
- **Low elongation**
- **High tensile strength**
- **Good impact resistance**
- **Excellent longitudinal flexibility**
- **Very good troughability**

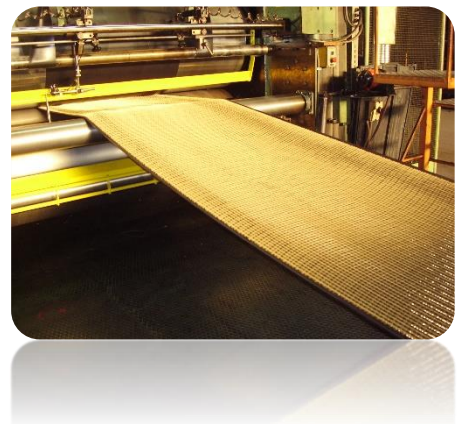


PRODUCT DESCRIPTION

WARP CHARACTERISTICS:

Warp refers to longitudinal steel cords which characteristics of resistance and elasticity define the running properties of the belt.

- **SIDERFLEX IW – HE** series, provided of open type warp cords with increased elongation, have a longitudinal elasticity bigger than the standard steel cord belts. These performances allow to SIDERFLEX belts an easy replacement both of textile and steel cord belts.
- **SIDERFLEX ID** serie realized with regular warp cords has the same carcass characteristics of steel cord belts according to (ex) DIN 22131 and



WEFT CHARACTERISTICS

Weft represents the whole set of transversal steel cables allowing to the belt specific resistance against cuts, tears and impacts and at the same time high flexibility.

- **SIDERFLEX IW – ID** fabric structures are built so that one weft layer is placed in the upper side of the carcass. Belts of these series are particularly suitable for troughing thanks to their high transversal flexibility.

- **SIDERFLEX HE** are produced with two different layers placed on both sides of the warp structure. The presence of a double weft gives to the belt moderate transversal rigidity, anyway acceptable for the most common applications. HE serie is highly recommended when exceptional values of cut and tear resistance are required.

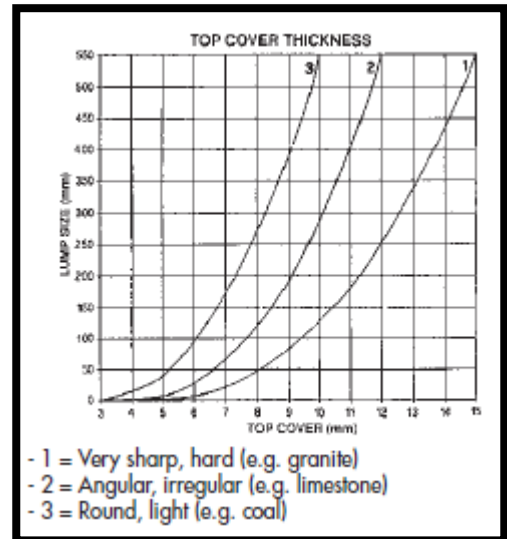
COVER SPECIFICATIONS

The main functions of rubber covers are the protection of the carcass against wear or damages during the running of the belt and the conveying of the material.

The cover thickness required for a specific belt is in function of the material conveyed and of the handling method used. Thicker covers are required if the following conditions become more severe:

- Material abrasiveness
- Lump size
- Material sharpness
- Height of drop into the belt
- Loading angle
- Belt speed and frequency of load

Here the suggested curves to estimate the correct cover thickness. Usually the bottom cover is half the top.



ABRASION SERVICE

- **CL** → Belts produced with this cover are recommended for all above ground applications where the resistance to abrasion is required. It is designed for the handling of heavy and abrasive materials such as gravel, crushed stones, sand, coal, cement, limestone, phosphate, salt, potash, etc. *Grade L ISO 10247 – Grade Y DIN 22102 - RMA 2*
- **EC** → Belts produced with this particular compound are of superior quality especially for abrasion. The characteristics of resistance against cut, tear, abrasion, ozone cracking, together with long duration, improve the quality of this cover. *Grade D ISO 10247 – Grade W DIN 22102 - RMA 1*

HEAT RESISTANT

- **CX** → This cover assures a medium degree of abrasion resistance and is formulated for continuous service of hot materials at temperature of 130 °C (270 °F) with peaks of up to 150 °C (300 °F). It is recommended for hot materials such as clinker, coke, hot scraps, fly ash, etc.

SELF-EXTINGUISH

- **BS** → This cover is designed to serve applications where safety is important and the fire risk is high. It is recommended for coal, potash, sulphure. *According to ISO 340, ISO 284, DIN 22103, DIN 22104.*
For special requirements please contact our commercial dept.

PRODUCT PROPERTIES: WHY CHOOSING SIDERFLEX

1. ELONGATION & CREEP

These mechanical properties refer to the elastic characteristics of cords and to our method of production defined to obtain the best performances of the final product. Low elongation is one of the most important points of SIDERFLEX belts; laboratory tests made on rubbercoated cords give value of elongation as shown in the following table:

SIDERFLEX serie	Elongation at reference load	Elongation at breaking load
IW-HE	0,40 %	4 %
ID	0,25 %	2 %

Reference load: 10% of nominal tensile strenght

Creep is the permanent elongation that the belt shows in the first period of life. The great advantage of SIDERFLEX in comparison with textile belts is a very reduced creep, generally negligible.

This property helps maintenance because the belt can be vulcanized just one time on original installation without need of new joint after a certain period of time.

2. LONGITUDINAL CUT & TEAR RESISTANCE

Longitudinal cuts and tears are always a cause of belt replacements both in textile and conventional steel cord belts. SIDERFLEX, with its steel weft, is more resistant against this kind of damages.

Indicative values of cut resistance in kN for SIDERFLEX IW belts compared with multiply textile belts are shown in the following table:

Cutter for S method D method		Belt range		S method		D method	
				IW	EP	IW	EP
5	5	500		2,5	0,8	4,8	2,5
		630		2,8	0,9	5,1	2,8
		800		3,4	1,0	6,5	3,4
		1000		3,6	1,2	6,7	3,9
		1250		3,8	1,3	8,0	4,2
		1600		3,8	1,5	8,0	4,6

30°
r 0,5

3. IMPACT RESISTANCE

SIDERFLEX has high impact resistance. The effect of oversized material falling on to the belt at the loading point is absorbed by the flexible steel carcass and the high quality level of rubber used.

4. CORROSION PREVENTION

Various properties of our SIDERFLEX assure a superior resistant against corrosion of steel cord:

- The adhesion between steel cord and core rubber is obtained through a chemical reaction during the curing process between special chemical compounds present in the rubber and brass (Cu/Zn alloy) covering the cords. In comparison with other coating method (typically Zn), brass assures an higher and more constant adhesion to rubber.
- The open cord construction for IW, HE carcass and the special design of regular cord used for ID carcass allow the penetration of rubber up to the center of the cords, virtually eliminating the capillary action of moisture.
- During the vulcanizing process, the combined effect of heat and pressure produces the flowing of rubber into the cord center and the top and bottom cover become “one” with the steel carcass locked in the center. In conclusion, no ply separation is allowed.

What we have just mentioned are the crucial advantages that let SIDERFLEX be the perfect choice when you need to handle heavy bulk material in difficult conveying situation. That is why our SIDERFLEX cannot but be the first choice for many societies working in quarries or steel plants, when heavy material conveying is a daily task.

SIG is a synonym of excellence, SIDERFLEX of reliability



SIDERFLEX MAIN PRODUCTION CHARACTERISTICS

When dealing with SIDERFLEX, the main topic we could face is about its carcass construction; as a matter of fact, since we can talk about three different kinds of this belt, SIDERFLEX ID – IW & HE, the cord density is the one responsible of giving specific resistance as working characteristics to the rubber conveyor belt.

In the below tables we could analyze the different carcass constructions of SIDERFLEX IW (the first one), of SIDERFLEX HE (the second one) and of SIDERFLEX ID (the last one):

SIDERFLEX IW

SINGLE STEEL WEFT

IW SERIE		800	1000	1250	1400	1600	1800	2000
Tensile strength	N/mm	800	1000	1250	1400	1600	1800	2000
Cord pitch (k)	mm	6,7	5,4	7,0	6,2	5,5	8,3	7,8
Cord density	Cords/m	150	186	142	160	182	120	128
Cord diameter (d)	mm	2,8	2,8	3,9	3,9	3,9	4,3	4,3
Weft cord diameter	mm	2,0	2,0	2,4	2,4	2,4	2,4	2,4
Weft cord pitch	mm	20,0	20,0	20,0	20,0	20,0	20,0	20,0

Minimum cover thickness 6+4 mm

SIDERFLEX HE

DOUBLE STEEL WEFT

HE SERIE		800	1000	1250	1400	1600	1800	2000	2500	2750
Tensile strength	N/mm	800	1000	1250	1400	1600	1800	2000	2500	2750
Cord pitch (k)	mm	6,7	5,4	7,0	6,3	5,5	5,0	4,7	6,3	5,7
Cord density	Cords/m	150	186	142	160	182	200	215	158	175
Cord diameter (d)	mm	2,8	2,8	3,9	3,9	3,9	3,9	3,9	4,3	4,3
Weft cord diameter	mm	1,5	1,5	2,0	2,0	2,0	2,0	2,0	2,0	2,0
Weft cord pitch	mm	12,5	12,5	15,0	15,0	15,0	12,5	12,5	12,5	12,5

Minimum cover thickness 6+3 mm

SIDERFLEX ID

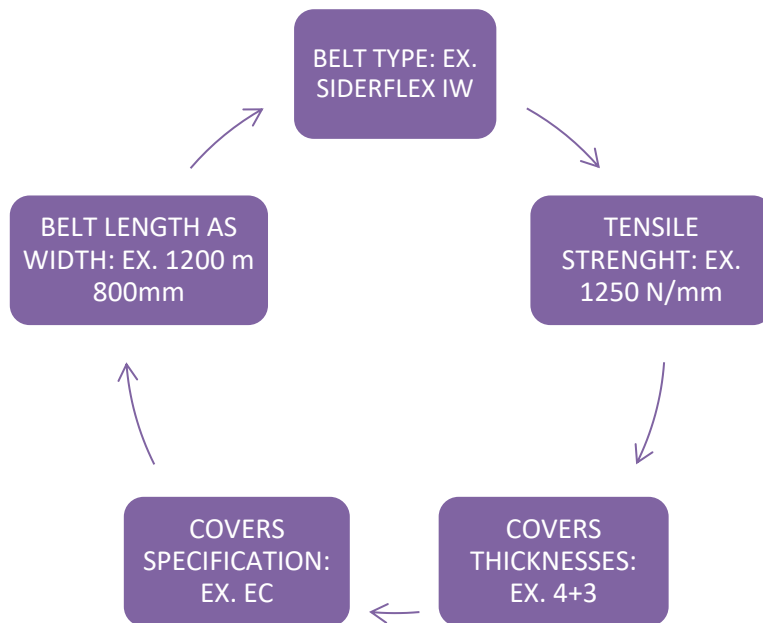
SINGLE STEEL WEFT

ID SERIE		800	1000	1250	1400	1600	1800	2000	2500	3150
Tensile strength	N/mm	800	1000	1250	1400	1600	1800	2000	2500	3150
Cord pitch (k)	mm	15	12	14	13	15	13	12	15	15
Cord density	Cords/m	67	83	71	77	67	77	83	67	67
Cord diameter (d)	mm	3,6	3,6	4,4	4,4	5,2	5,2	5,2	6,9	7,6
Weft cord diameter	mm	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0
Weft cord pitch	mm	14,0	14,0	14,0	14,0	14,0	14,0	14,0	14,0	14,0

Minimum cover thickness 8+4 mm

ELEMENTS FOR THE ORDER

Let's come to an important moment: making an order. In the aim of avoiding any kind of errors or misunderstandings, we suggest using the belt designation of these examples:



SIG deeply takes care of its clients, providing them with the best products available on the market. As a matter of facts, our technical laboratory is countinously working to improve our working processes as technologies, aiming at meeting all the international specific requests.

SIG SIDERFLEX are suitable to be working in many industrial fields: from the heavy one (steel plants), to the ones of mining as bulk and material handling. We will provide you with the best solutions, always moving towards future and innovation.





*Italian leading manufacturer, but world wide supplier: just SIG!
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