



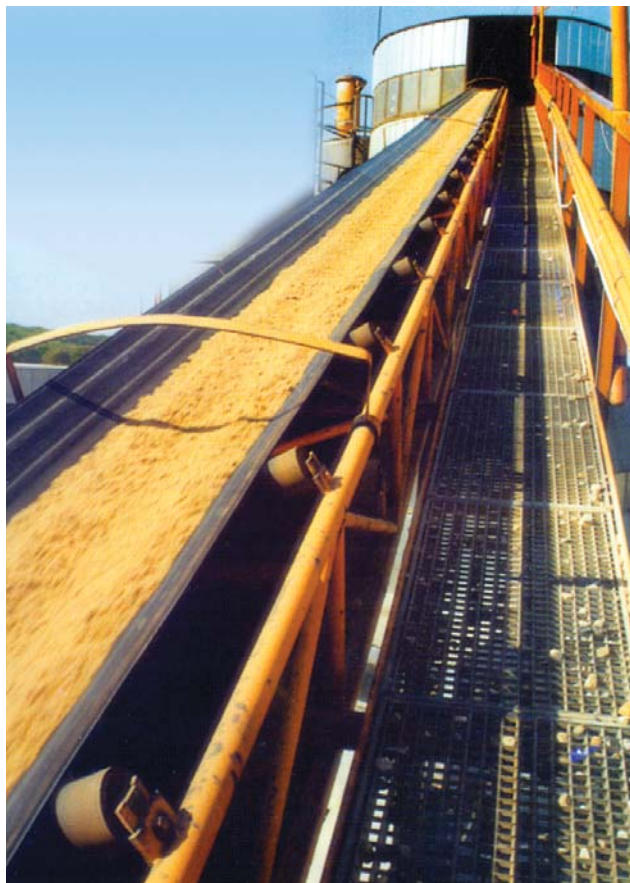
EAGLE
Conveyor Belting



EAGLE Conveyor Belting

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Company overview

Quality

Eagle belting is manufactured in accordance with ISO9002 quality standards. This ensures that from start to finish test procedures are in place to verify the physical properties of compounds used, strength rating of the fabrics used, adhesion levels between rubber and fabric, and that standard manufacturing procedures are complied with.

This commitment to quality is evidenced by the recent Certification of EAGLE Conveyor Belting to AS4606 Standards. This confirms AllRubber-Wesbelt as an accredited supplier of FRASS Conveyor Belting to the Australian Underground Coal Mining Industry. These specialised fire retarded neoprene belts have been customised to suit the rigorous requirements of what is arguably, one of the most difficult performance criterion for any conveyor belt manufacturer.

The ability to customise products to suit individual needs is further evidenced through recognition as a recognised supplier to the Australian Defence Forces. Specially formulated rubber compounds were developed and produced as ballistic lining protection for Australian Tactical Response Training Facilities.

Manufacture

High quality conveyor belt requires the following:

- 1) Selection of most suitable rubber cover compound, appropriate type of belt construction (i.e. cover thickness, number of plies and interply rubber thickness), and material reinforcing type and weave to suit the customer's application.
- 2) Stringent adhesion to procedures to ensure the quality of the compounds mixed, and the fabrics supplied are of high integrity.
- 3) Care in the calendaring and build up process to ensure that there is no air entrapment, and consequently minimal need for post-cure repairs.
- 4) Proper curing and pressing of the belt, with precure and post cure stretching. This ensures the belt is produced to a consistent thickness and does not bow or warp, or will not over stretch on the system. These properties ensure the belt will track and perform properly on the system once installed.
- 5) Post cure testing of total belt strength, fabric to rubber adhesion, and checking the physical properties of the rubber covers to verify that the belt meets the specifications as quoted to the customer.

Product Warranty

AllRubber-Wesbelt warrants that products supplied is as per



specification provided and agreed by the Client for a period of no less than 12 months from the date of arrival.

AllRubber-Wesbelt further warrants that the product shall be free of defects in both material and workmanship. Where a product is designed to meet Australian or other designated Standards, AllRubber-Wesbelt warrants that the Product has been manufactured and supplied in accordance to those Standards. If specific Standards are not available, then AllRubber-Wesbelt and the Client will agree to accept product supplied based on minimum set physical properties and tolerances.

The Product is to be supplied with Test Certification to verify the physical property attributes of the product, or such Certificate can be made available on request. The Product is routinely tested to ensure conformance to set standards and physical properties as specified in the Supplier Test Certificate.

Non-Conformance

In the event that a Product supplied does not conform with minimum requirements or Standards, AllRubber-Wesbelt will be issued with a Non-Conformance notice identifying the product and detailing the reason for non-conformance. AllRubber-Wesbelt will then conduct an internal review and provide a written response to the non-conformance, which will outline the procedure to remedy the situation. AllRubber-Wesbelt shall be given full information and opportunity to inspect the non-conforming Product.

Remedy

Should a product be found not to conform, AllRubber-Wesbelt will be required to replace the product free of charge, with a conforming Product, within a time frame acceptable to the Client but within the constraints of normal manufacturing lead times.

No other liability is assumed other than as indicated above and no other guarantees are intended or implied.

EAGLE Conveyor Belting

Company overview

AllRubber-Wesbelt has been a major supplier to the Australian Mining and Quarrying Industry for over 40 years. With inception in the intensive Mining Industry of Western Australia, a commitment to quality products and dedication to customer service, has been seen a rapid expansion as a national supplier of products and services in all facets of the Australian Mining and Quarrying Industry.

AllRubber-Wesbelt is now one of the leading suppliers of conveyor belting in Australia, covering mining and refining operations of Iron Ore, Gold, Nickel, Mineral Sands, Timber, Coal, Diamonds, Fertilizer, Grain and many others.

This commitment to quality and customer service has seen a rapid expansion internationally, with distribution and representation in nearly every continent.

With service centres scattered around Australia and with manufacturing facilities both in Australia and India, AllRubber-Wesbelt is truly unique in being able to offer a totally integrated supply chain from manufacture to install and maintenance.

Our Australian based laboratory and research centre ensures constant monitoring of performance and enable customisation to meet individual specialised needs. It is this availability on site, coupled with extensive technical knowledge and experience which allows AllRubber-Wesbelt to tailor a Belt to the best suit operational use and therefore optimise performance.

This willingness to match the correct product for the required application is what distinguishes AllRubber-Wesbelt in achieving best value solutions for the client.

Contrary to the practise of building a product to suit a budget price, AllRubber-Wesbelt do not compromise on quality. Instead preferring to offer value for money by matching the conveyor belt to suit performance criterion and supplying it at a competitive price. The result of which represents the most economical solution and best value for the client.



The philosophy of AllRubber-Wesbelt is to always act responsibly, ethically and to provide the highest quality products and service with total integrity.

Eagle conveyor belting is built up to a standard and quality. It is design engineered in Australia, to meet Australian standards and perform in some of the toughest environmental conditions.

It is built to meet the highest performance parameters, and manufactured in a joint venture and collaboration to still be competitively priced. EAGLE Conveyor Belting has for many years gained a strong presence in the Australian market, earning a reputation as a very high quality conveyor belt, yet still competitively priced.

Manufactured on All Rubber's EAGLE presses, and on hydraulic bench presses, it ensures the greatest uniformity of thickness tolerance, and exceptional rubber to fabric adhesion.



Natural and SBR Belting

Cover compounds have been specifically formulated to achieve very high physical properties of abrasion resistance, tear, cut and gouge resistance. Specific cover grades are also available for particular applications such as heat, food and chemical resistance. Talk to our chemists to discuss suitability for any particular applications.

Standard cover grades in Natural and SBR rubber includes the following:

- “N” grade - Predominantly SBR (synthetic) rubber; has good all-purpose properties.
- “M” grade - Natural rubber polymer; excellent resistance to cut and tear.
- “E” grade - Polymer blend and specially compounded to have antistatic properties.
- “SAR” grade - Polymer blend with excellent abrasion resistance.
- “XCG” grade - Polymer blend with superior resistance to cut and gouge.
- “FRAS” grade - Fire resistance and anti static in both SBR and neoprene based compounds for underground applications.

Reinforcing

Options include polyester/nylon, nylon/nylon, steel cord and PVC solid woven. The fabric reinforced belts can be woven to various strengths and in various configurations such as cross weave,

monoply tyre cord, and crow’s foot weave (Twill weave). Test certificates can be provided to verify actual belt strengths.

Polyester / Nylon Fabric (EP)

“EP” Refers to the conveyor belt reinforcing, consisting of a synthetic woven fabric, utilizing a polyester fiber for warp and a polyamid (nylon) fibre for weft, and has the following specific features:

- 1) Less stretch of belt, and high resistance to tension.
- 2) Greater resistance to moisture, mildew and rot.
- 3) Less influence under temperature.
- 4) Excellent toughness.
- 5) Excellent resistance to impact.
- 6) Very good resistance to chemicals.

Nylon / Nylon Fabric (NN)

“NN” Refers to nylon warp (along the belt) and nylon weft (across the belt) cross woven fabric reinforcing. The main characteristics of nylon/nylon reinforcing are:

- 1) Exceptional shock and impact resistance to the carrying surface.
- 2) Superior fastner holding ability.
- 3) Excellent troughability and flexibility.
- 4) Greatest resistance to water and mildew.
- 5) High strength.



EAGLE Conveyor Belting

Natural and SBR Belting

General Purpose Belt						
These belts are used for heavy duty handling of highly abrasive material in the mining and processing industries. These belts are specially designed to withstand high wear and are therefore suitable for carrying sharp and rugged materials at ambient temperature.						
Cover Type	Standard & Grade	Minimum Tensile Strength (Mpa)	Minimum Elongation At Break (%)	Maximum Abrasion Loss (mm ²)	Application Characteristics	Reference Material
General	DIN-X	25	450	120	It has high tensile strength. Suitable for conveying large lumps, sharp edged rugged materials	Iron Ore, Coal, Lignite, Copper Ore, Limestone, Blast Furnace Slag, Stone, Rock etc.
	AS-M	24	450	125		
	IS-M 24	24	450	150		
	BS-M 24	24	450	150		
	SANS-M	24	450	120		
	SANS-N	20	400	150	Suitable for conveying moderately abrasive material	Sand, Cement, Slaked Lime, Wood Chips, Pulp (Dry)
	DIN-Y	20	400	150		
	AS-N	17	400	200		
	IS-N 17	17	400	200		
	BS-N 17	17	400	150		
	RMA 1	17	450	150		
	JIS-S	18	450	200		
High & Super Abrasion Resistant	DIN-W	18	400	90	Superior resistant Belt suitable for conveying high abrasive material	Lime Stone, Metal Ore, Slag, Iron, Glass etc.
	AS-A	17	400	70		

Ordering Information				
Code	Description	Mass (kg/unit)	Measure (units)	Order (unit lots)
CBR2PN15N100315	2 Ply 1000mm PN150 3x1.5mm N	7.1	mtr	1
CBR3PN15N100515	3 Ply 1000mm PN150 5x1.5mm N	11.8	mtr	1
CBR4PN15N10062	4 Ply 1000mm PN150 6x2mm N	12.9	mtr	1
CBR5PN15N10083	5 Ply 1000mm PN150 8x3mm N	18.0	mtr	1
CBR3PN20M10083	3 Ply 1000mm PN200 8x3mm M	16.8	mtr	1
CBR4PN20M100103	4 Ply 1000mm PN200 10x3mm M	20.2	mtr	1
CBR3CF34S10083	3 Ply 1000mm CFW340 10x3mm HAR	20.2	mtr	1
CBR4CF34X100103	4 Ply 1000mm CFW340 10x3mm XCG	23.6	mtr	1

Flame Resistant FR

Flame Resistant

Used in underground mining operations where, it is very important that fire risks be eliminated. Two kinds of fire resistant belts are manufactured :

One is a specially treated SBR rubber, and the other a chloroprene conveyor belt. Nylon polyester reinforcing can be typically used for these belts.

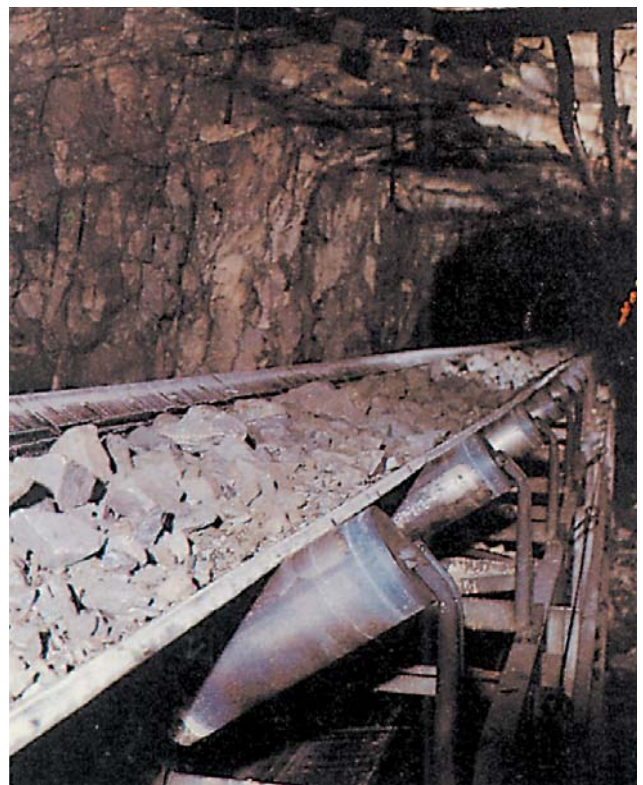
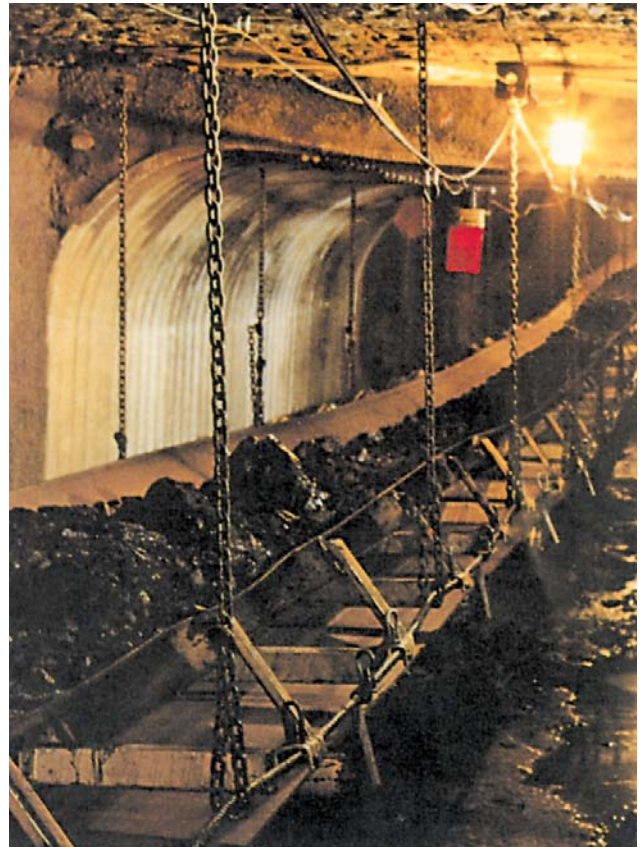
Flame resistant conveyor belt is designed for the best service conditions of coal mining industries. It is suitable for mining, power plants, electric utilities, and coal cleaning plants.

FR grade rubber is specially compounded to meet the important characteristic of being self extinguishable. Special compounds are used to ensure that FR grade covers still have good abrasion resistance properties, to ensure a long service life. These compounds meet the Australian standard requirements for FRAS S AS4606, certifying them for suitability in underground Coal Mining operations.

Electrical resistance

A common requirement in conjunction with flame resistance. Especially in areas of underground mining, electrical charge can build up in conveyor belts as a result of friction which may be generated due to running on the conveyor system. Particularly where under-ground gases are present (as is common in coal mining), and electrical discharge may ignite the gas causing an explosion.

Properties such as oil resistance and resistance to cold can also be catered for, by formulating compounds to produce special cover grades. Please consult with our chemists to select the cover compound best suited to your specific application.



EAGLE Conveyor Belting

Flame Resistant FR

Fire Resistant Belt						
These belts are recommended for use in coal and such types of mines where the ambient temperature may not be high but there is a distinct hazard of the belts being enveloped in fire. Rubber covers are fire resistant and antistatic.						
Typical Applications: Coal Handling Plants						
Cover Type	Standard & Grade	Minimum Tensile Strength (Mpa)	Minimum Elongation At Break (%)	Maximum Abrasion Loss (mm ²)	Application Characteristics	Reference Material
Fire Resistant	SANS-F	17	350	180	Excellent resistance to flame propagation and has very low burning rate	Materials with fire hazards,
	ISO-340	17	350	180		
	DIN S	17	350	180		
	DIN K	17	350	180		
	AS-F	14	300	200	Good resistance to flame propagation and has low burning rate	e.g. Coal
	CAN/CSA	17	350	200		
	Type-C	17	350	200		
	IS-FR MSHA-FR	17 17	350 350	200 200		

Ordering Information						
Code	Description	Mass (kg/unit)	Measure (units)	Order (unit lots)		
CBR3PN15F100515	3 Ply 1000mm EP150 (5 x 1.5mm covers) FRAS F-grade	11.8	mtr	1		
CBR4PN15F10062	4 Ply 1000mm EP150 (6 x 2mm covers) FRAS F-grade	12.9	mtr	1		
CBR5PN15F10083	5 Ply 1000mm EP150 (8 x 3mm covers) FRAS F-grade	18.0	mtr	1		
CBR3PN20F10083	3Ply 1000mm PN 200 (8 x 3mm covers) FRAS F-grade	16.8	mtr	1		
CBR4PN20F100103	4 Ply 1000mm PN 200 (10 x 3mm covers) FRAS F-grade	20.2	mtr	1		
CBR3CF34F10083	3 Ply 1000mm CFW 340 (8 x 3mm covers) FRAS F-grade	20.2	mtr	1		
CBR4CF34F100103	4 Ply 1000mm CFW 340 (10 x 3mm covers) FRAS F-grade	23.6	mtr	1		
CBR3PN15S100515	3 Ply 1000mm EP150 (5 x 1.5mm covers) FRAS S-grade	14.9	mtr	1		
CBR4PN15S10062	4 Ply 1000mm EP150 (6 x 2mm covers) FRAS S-grade	19.4	mtr	1		
CBR5PN15S10083	5 Ply 1000mm EP150 (8 x 3mm covers) FRAS S-grade	26.0	mtr	1		
CBR3PN20S10083	3Ply 1000mm PN 200 (8 x 3mm covers) FRAS S-grade	21.2	mtr	1		
CBR4PN20S100103	4 Ply 1000mm PN 200 (10 x 3mm covers) FRAS S-grade	26.4	mtr	1		
CBR4CF34S100103	4 Ply 1000mm CFW 340 (10 x 3mm covers) FRAS S-grade	26.4	mtr	1		

Heat Resistant HR



Heat resistant belts are required in many applications such as in cement plants, steel mills and metal refining plants. Care needs to be taken in selecting the appropriate cover grade to ensure that the rubber and the belt carcass will retain its integrity even after a long service life. The correct compound must be selected to ensure there is no cracking of the rubber surface or delamination between the plies.

There are two main rubber polymers used in this application; SBR and EPDM. Whilst EPDM rubber has generally better physical

properties of heat resistance, SBR rubber still has good overall physical properties, but at more competitive prices. Defining the operating conditions, and selecting the rubber correctly will ensure the most economical solution.

The surface temperature of heat resistant conveyor belt varies with the material type, belt speed, loading rate and particle size and shape (i.e. contact area with the belt). In order to select the proper heat resistant conveyor belt it is necessary to consider not only the material temperature to be conveyed but also the surface temperature of conveyor belt.

Features

Excellent heat resistant and abrasion resistant cover rubber compound.

Recommended to protect conveyor belt from surface cracking and hardening by heat.

Specially treated and dipped fabric to minimize carcass shrinkage by heat ageing.



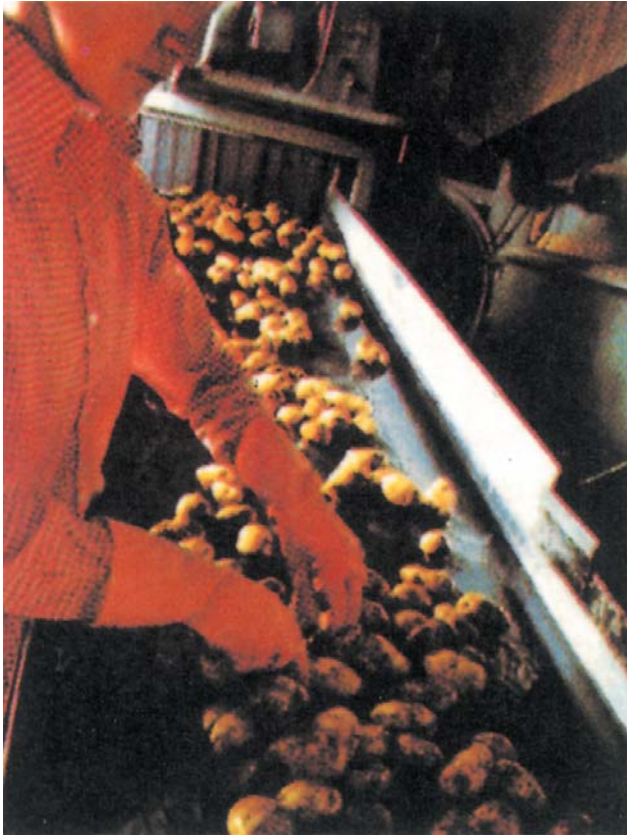
EAGLE Conveyor Belting

Heat Resistant HR

Heat Resistant Belt						
The heat resistant belt is designed to cover the increments in thermal and mechanical stresses generated by products at temperatures from 100 ^o C to 200 ^o C. The key feature of the HR belt is their operational safety and long life.						
Cover Type	Standard & Grade	Minimum Tensile Strength (Mpa)	Minimum Elongation At Break (%)	Maximum Abrasion Loss (mm ³)	Maximum Temperature	Reference Material
Heat Resistant	DIN-T IS-HR (T1)	13.0 13.0	350 350	150 150	Upto 125 ^o C for coarse material & 100 ^o C for fines	Hot coke, Foundry sand, Iron pellets, Sintered ore, Hot lime stone, Cement Clinker and Soda ash
	DIN-T IS-HR (T2)	12.5 12.5	350 350	180 180	Upto 150 ^o C for coarse material & 125 ^o C for fines	
	Oril-UHR (T3) EPDM rubber based	10.0	300	200	Upto 200 ^o C for coarse material & 180 ^o C for fines	

Ordering Information					
Code	Description	Mass (kg/unit)	Measure (units)	Order (unit lots)	
CBR2PN15T1100315	2 Ply 1000mm EP150 (3 x 1.5mm covers) HR-grade T1	7.3	1	mtr	
CBR3PN15T1100515	3 Ply 1000mm EP150 (5 x 1.5mm covers) HR-grade T1	10.7	1	mtr	
CBR4PN20T110062	4 Ply 1000mm EP200 (6 x 2.0mm covers) HR-grade T1	13.6	1	mtr	
CBR2PN15T2100315	2 Ply 1000mm EP150 (3 x 1.5mm covers) HR-grade T2	7.3	1	mtr	
CBR3PN15T2100515	3 Ply 1000mm EP150 (5 x 1.5mm covers) HR-grade T2	10.7	1	mtr	
CBR4PN20T210062	3 Ply 1000mm EP200 (6 x 2.0mm covers) HR-grade T2	13.6	1	mtr	
CBR2PN15T1100315	2 Ply 1000mm EP150 (3 x 1.5mm covers) HR-grade T1	7.3	1	mtr	
CBR3PN15T1100515	3 Ply 1000mm EP150 (5 x 1.5mm covers) HR-grade T1	10.7	1	mtr	
CBR4PN20T110062	4 Ply 1000mm EP200 (6 x 2.0mm covers) HR-grade T1	13.6	1	mtr	
CBR3PN15TC100515	3 Ply 1000mm EP150 (5 x 1.5mm covers) Heat & Chem	10.7	1	mtr	
CBR3PN15TO100515	3 Ply 1000mm EP150 (5 x 1.5mm covers) Heat & Oil	10.7	1	mtr	

Oil Resistant OR



Oil resistant belts are generally formulated using a Nitrile rubber compound. The final application will determine the ultimate rubber compound selected. Other physical requirements such as heat resistance, abrasion resistance, ozone and weather resistance will play a roll in determining the final rubber compound selected. The compound selected will optimize the blend of physical properties required.

Using standard belts in applications requiring oil resistance will result in swelling and deformation of the conveyor belt. This will produce tracking problems and product spillage as well as low service life.

In extreme cases, when poor quality or an incorrect belt is used in oil intensive applications, this may result in “reverse troughing”. In this instance the carry cover of the conveyor belt will swell when in contact with the oil, resulting in a convex configuration that will cause material to spill off the conveyor belt. Care must be taken to ensure all operational conditions are considered when choosing the appropriate grade of oil resistant belting. Factors such as high or low oil contact, as well as operting temperatures, belt speed and abrasion must all be considered to ensure the longest operational service life.

Applications for oil resistant belts include carrying parts and components coated with machine oil, heavy oil treated coal in cooking plants and electric power generating plants.

Two cover grades for belts can be specified for belts requiring moderate oil and fire resistance.

A grain and vegetable oil resistant compound is also available that is electrically conductive to dissipate static electric conditions.

HTN grade is recommended for conveying hot asphalt with temperatures up to 175 C (350 F) where both oil and heat resistance are required.

EAGLE Conveyor Belting

Oil Resistant OR

Oil Resistant Belt					
OR belts are specially designed to handle greasy material or products containing oil, animal or vegetable fats, Mineral oils, solvents, weak acids etc. at temperatures between 15° C to 100° C					
We can also supply our oil resistant belts in combination with other properties such as: OR-HR, OR-FR and HYG-OR					
Cover Type	Standard & Grade	Minimum Tensile Strength (Mpa)	Minimum Elongation At Break (%)	Maximum Swelling in Fuel B (%)	Reference Material
High Oil Resistant	Oril-HIOR	15.0	350	40	Materials like oil treated fertilisers
Oil Resistant	IS-OR	12.5	250	70	Materials with crude petroleum, Tar, Oil sand, fertilisers etc.
	AS-Z	12.5	250	70	
	DIN-G	12.5	250	70	
Moderate Oil Resistant	Oril-MOR	12.5	250	80	Materials like vegetables oils and animal greases

Ordering Information				
Code	Description	Mass (kg/unit)	Measure (units)	Order (unit lots)
CBR3PN15O31004515	3 Ply 1000mm PN150 4.5 x1.5mm High OR-grade	10.0	1	mtr
CBR3PN15O3100515	3 Ply 1000mm PN150 5 x1.5mm High OR-grade	10.8	1	mtr
CBR4PN15O310062	4 Ply 1000mm PN150 6 x2mm High OR-grade	13.6	1	mtr
CBR3PN15O2100515	3 Ply 1000mm PN150 5 x1.5mm Moderate OR-grade	10.8	1	mtr
CBR4PN15O210062	4 Ply 1000mm PN150 6 x2mm Moderate OR-grade	13.6	1	mtr
CBR3PN15O1100515	3 Ply 1000mm PN150 5 x1.5mm Low OR-grade	10.8	1	mtr
CBR4PN15O110062	4 Ply 1000mm PN150 6 x2mm Low OR-grade	13.6	1	mtr
CBR4PN20TO10062	4 Ply 1000mm PN200 6 x2mm HR OR-grade	13.6	1	mtr

Chemical Resistant CH



Chemical resistant belts are commonly used when operating under highly corrosive conditions like potash and Urea handling plants. Applications which require exposure to acids and alkalis as well as other corrosive chemicals such as peroxides, require specially formulated cover compounds.

Additional physical requirements such as abrasion resistance, flame resistance, heat resistance, oil and ozone resistance all need to be taken into account when trying to select the correct rubber compound. Many rubber polymers will offer varying degrees of chemical resistance, as well as other physical properties. Determining the correct polymer or polymer blend is essential to achieving a long service life, as well as the most cost effective belt solution.

Other additives mixed into the final compound will also help determine the final physical properties of the belt cover grade. Please consult with our chemists to help determine the most suitable rubber cover compound for your specific application.

Special features

Polyester warp and polyester filling fabric provides greatest resistance to chemicals.

Chemical Resistance of Compound

Material Carried	NR	SBR	EPDM	CR	NBR
Chlorine (Dry Gas)	F	F	E	E	G
Hydrogen Peroxide (5% 50 OC)	NR	NR	G	NR	F
Chloris Acid (5% 50 OC)	NR	NR	E	G	G
Boracic Acid	E	E	E	E	E
Slate G	G	E	F	F	F
Cullet (20% 50 OC)	F	G	E	NR	NR
Dolomite (30% 50 OC)	G	G	E	E	E
Borax (5% A Firm Name)	NR	NR	G	NR	F
Gypsum (35% A Firm Name)	E	E	E	E	E
Limestone (20% A Firm Name)	NR	NR	E	NR	E
Chrome Chloride (5% 70 OC)	NR	NR	G	NR	NR
Ammonia Water	F	F	E	F	G
Calcium Hydroxide	E	E	E	E	E
Potassium Hydroxide (5% 50 OC)/G	E	E	G	E	E
Alumina	E	E	E	E	E
Ashes G	E	-	F	NR	-
Coal G	G	-	G	G	G
Bauxite	E	-	-	G	E
Charcoal	NR	NR	-	NR	NR
Coke NR	NR	-F	G	-	-

E = Excellent
F = Fair

G = Good
NR = Not Recommended



Ordering Information

Code	Description	Mass (kg/unit)	Measure (units)	Order (unit lots)
CBR2PN15C1100315	2 Ply 1000mm EP150 (3 x 1.5mm covers) Nitrile CR-grade	7.3	1	mtr
CBR3PN15C1100515	3 Ply 1000mm EP150 (5 x 1.5mm covers) Nitrile CR-grade	10.7	1	mtr
CBR4PN15C110062	4 Ply 1000mm EP150 (6 x 2.0mm covers) Nitrile CR-grade	12.4	1	mtr
CBR2PN15C2100315	2 Ply 1000mm EP150 (3 x 1.5mm covers) Neoprene CR-grade	8.0	1	mtr
CBR3PN15C2100515	3 Ply 1000mm EP150 (5 x 1.5mm covers) Neoprene CR-grade	11.8	1	mtr
CBR4PN15C210062	4 Ply 1000mm EP150 (6 x 2.0mm covers) Neoprene CR-grade	13.6	1	mtr
CBR2PN15C3100315	2 Ply 1000mm EP150 (3 x 1.5mm covers) EPDM CR-grade	7.3	1	mtr
CBR3PN15C3100515	3 Ply 1000mm EP150 (5 x 1.5mm covers) EPDM CR-grade	10.7	1	mtr
CBR4PN15C310062	4 Ply 1000mm EP150 (6 x 2.0mm covers) EPDM CR-grade	12.4	1	mtr

EAGLE Conveyor Belting

High Impact & High Tear Resistant

EAGLE ROCK has a range of belts to address the problems faced due to high impact, high tear in certain conveying applications. Typically, belts which are used for handling rocks in primary crushers suffer from continuous loading resulting in carcass fatigue and shortened belt life. Conventional multi-ply EP/NN belts are not able to withstand such abuse.

Our R&D team has developed the EAGLE ROCK belts consisting of a specially designed fabric having high tenacity, straight warp threads and dense weft yarn construction. These belts are made in single or two ply construction and in strength rating from 315 KN/ M to 1000 KN/ M per single ply.

The unique construction of the belt and the special cushion and cover rubber ensure higher longitudinal flexibility of the belt, yet guaranteeing a very low elongation at working load when compared to normal EP/NN belts.

In several applications, EAGLE ROCK belts are sometimes a preferred alternative to steel cord belts as they provide an inherent protection against rip and tear and at the same time offering excellent impact resistance and low elongation in service.

Benefits of EAGLE ROCK

- Endures most rigorous applications with extreme impact resistance.
- Low elongation at working load results in trouble free operation
- Highest Tear resistance upto 5 times greater than conventional multi-ply belts.
- Lower belt weight compares favorably to equivalent steel cord ratings, thereby reducing installation and operating costs.
- Excellent Load support and troughability.
- Very good longitudinal flexibility - works on smaller pulleys.
- Excellent suitability to mechanical splicing.
- Energy saving due to low weight to strength ratio.

Product Characteristics

Width :	500 to 1800 mm
Ply :	One or Two ply
Carcass Variety Available :	Special Straight Warp
Belt Rating :	In one Ply Construction: SW 315/1, 400/1, 500/1, 630/1, 800/1, 1000/1 In two Ply Construction: SW 630/2, 800/2, 1000/2, 1200/2, 1600/2, 2000/2
Rubber Cover Compounds :	All Rubber-Wesbelt recommends HAR or SAR cover grades. Other grades on request.
Rubber Covers Thickness :	For 1 ply belts : 2: 1 cover ratio (minimum 3 mm bottom cover) For 2 ply belts : 3: 1 cover ratio (minimum 3 mm bottom cover)
Rubber :	Black
Surface Finish :	Smooth
Edge :	Cut Edge / Molded Edge
Minimum Pulley Diameter :	Please refer table on the next page
Splicing Method :	Mechanical splice / Hot finger splice
Packing Available in :	Single Rolls of 300 M; higher rolls on request
Belt Identification :	“SW” as a prefix after designated grade of the belt. Unique Product Identification Number (PIN) at every 10 meters.

Product Application

The EAGLE ROCK Belt is ideally suited for the following applications:

- High impact applications e.g. rocks in primary crushers.
- High fall height of material.
- High lump size upto 500 mm and higher.
- Long haul applications with low elongation.
- High speed unloading and feeder applications prone to presence of tramp material.
- Scrap recycling plants, log decks.

High Impact & High Tear Resistant

Belt Rating	No. of Plies	Nominal Carcass Thickness, mm	Nominal Carcass weight, kg/sq. mt	Tear strength, N	Rip Resistance, N	Minimum Recommended Pulley Diameter (mm)		
						Drive	Snub	Bend
SW 400	1	2.30	1.86	1800	1360	250	200	160
SW 400	2	5.30	4.70	2600	840	630	500	400
EP 400	4	4.10	5.00	450	830	500	400	315
SW 500	1	2.30	1.86	1800	1360	250	200	160
EP 500	4	4.70	5.50	500	1050	500	400	315
SW 630	1	3.14	2.14	2760	1530	400	315	250
SW 630	2	5.45	5.10	3800	1870	630	500	400
EP 630	4	5.10	6.00	680	1200	630	500	400
SW 800	1	3.85	2.90	5400	1700	500	400	315
SW 800	2	6.00	5.80	2850	1700	800	630	500
EP 800	4	5.70	6.30	1300	1300	630	500	400
SW 1000	1	4.13	3.30	1250	1050	500	400	315
SW 1000	2	6.00	5.80	2850	1700	800	630	500
EP 1000	4	6.50	7.20	1600	1970	800	630	500
SW 1200	2	7.70	6.40	6000	1920	1000	800	630
EP 1250	4	7.60	7.60	1800	1830	1000	800	630
SW 1600	2	8.50	7.95	8000	2360	1000	800	630
EP 1600	4	9.30	10.60	1950	1950	1250	1000	800
SW 2000	2	9.70	8.68	4000	2158	1250	1000	800

Belts suitable only for vulcanised joints also available on request.

EAGLE Conveyor Belting

Chevron Belt

Chevron profile belts are used in applications of transporting fine and powdery particles up steep inclines. Especially suitable for sand, fine coal, and grain. It is also suitable for carrying packages and other products up inclined conveyors.

The Chevron pattern can be supplied in a variety of profiles, with different configurations, shapes, heights and spacings. The purpose of the profiled surface is to increase traction, and therefore the quantity of material that can be transported.

Different types of rubber cover grades, and belt reinforcing can be provided.

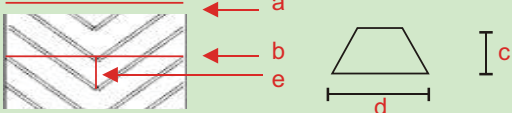
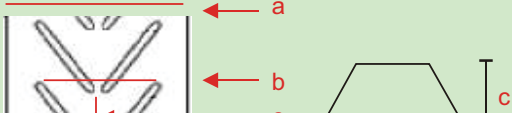
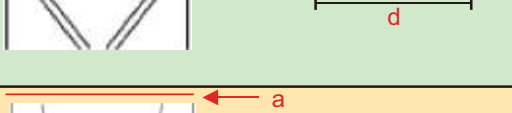

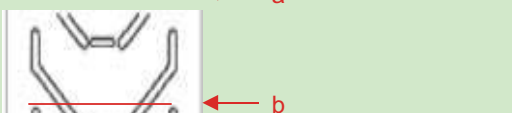
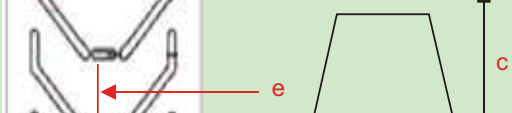
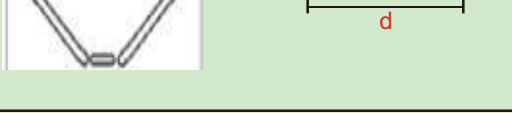
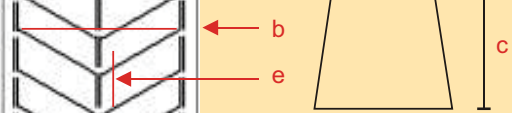


Ordering Information

Code	Description	Mass (kg/unit)	Measure (units)	Order (unit lots)
CBC122PN10N045315	2 Ply 450mm PN100 (3 x 15mm covers) chevron	4.6	1	mtr
CBC122PN10N060315	2 Ply 600mm PN100 (3 x 1.5mm covers) chevron	5.0	1	mtr

Chevron Belt

The range & types of Chevron Belts

Cleat Type	Belt Width (mm) a	Cleat Width (mm) b	Cleat Height (mm) c	Cleat Thickness (mm) d	Pitch (mm) e	Profile
FHC-6	400 450 500 600	Full Belt Width	6	12	100	
FHC15-1	600 650 700 750 800	385	15	20	250	
FHC15-2	900 1000 1050 1200	750	15	20	250	
FHYC15	600 650 700 750 800 900	575	15	20	338	
FHC25-1	600 650 700 750 800 900	450	25	25	250	
FHC-25-2	600 650 700 800 900	550	25	25	250	
FHC25-3	900 1000 1050 1200	750	25	25	330	
FHC32	800 900 1000 1050 1200	600	32	22	330	

EAGLE Conveyor Belting

Rough Top

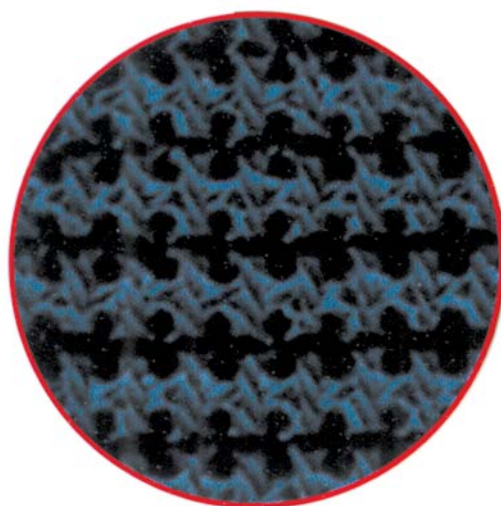


Rough Top belts provide an exceptionally high coefficient of friction. Particularly suitable for moving small or large objects up inclined belts. Especially suitable for fragile or easily deformed goods.

This belt is produced by embossing the impression of a very heavy weave fabric into the top cover of the conveyor belt. This resulting textured pattern also has a cushioning effect which absorbs vibration and shock.

The rubber cover can be provided in various compound grades, including natural, SBR and oil resistant. A variety of colours can also be supplied such as black, tan, blue and brown.

Reinforced usually with 2 or 3 plies of synthetic fabric. Most commonly can be supplied without any bottom cover (BB: Bare Back) to reduce friction with the conveyor system, particularly if moving on flat metal plates.



Ordering Information

Code	Description	Mass (kg/unit)	Measure (units)	Order (unit lots)
CBT2BPN10N100515	Rough Top 2PN100 x 5mm x 1.5mm x 1000mm	5.0	1	mtr
CBT3BPN10N1005BB	Rough Top Tan 3PN100 x 5mm x BareB x 1000mm	6.0	1	mtr

Pipe Conveyor Belts

The transport of bulk material has greatly been influenced by the growing demand of environmental protection. This has led to the development of new conveyor belt systems for the continuous transport of materials. The specially designed conveyor belt forms a pipe like structure (except at the loading and discharge end) and completely encloses the material to be conveyed over the entire length of the conveyor.

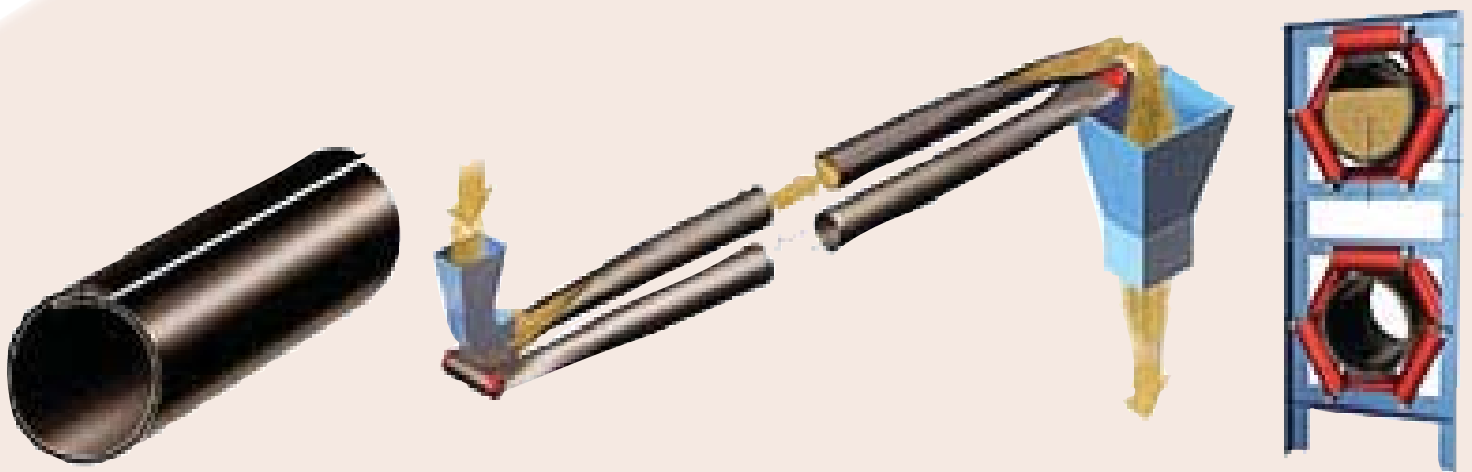
Advantages

Compared with conventional troughed belt conveyors, the new system of enclosed material transport has many advantages. These include:

Protection of the environment as well as protection of the material conveyed against external influences such as rain, dust, extreme temperatures and wind. Reduced spillage because the upper and the lower strand of the belt are closed Flexible design, with horizontal and vertical curves enable the conveyor to be routed over difficult terrain conditions, with the result that there are few transfer points.

Increased inclining capacity.

Less space required, for the same conveying capacity, than that required for conventional conveyors.



EAGLE Conveyor Belting

Solid Woven - PVC, PVG, FRAS

Solid woven belting

The belting is made of solid woven fabric dipped in liquid PVC and adding PVC or PVG covers which are bonded by vulcanizing. The belt has good flame resistant and antistatic properties, with high tensile strength in proportion to weight, good integrity and no delimitation, excellent impact and rip resistance. The belt is suited in conditions needing fire resistant and antistatic properties (FRAS) such as coal mines, power stations, chemical, and metallurgy industries. These standards are usually applied: DIN22109, AS4606, BS3289, BC158

PVC - Solid woven belt with PVC cover

Non pressed PVC type is suitable for applications in dry conditions at a slope angle of no greater than 16 degrees. The belt is non-pressed with cover no more than 0.8mm.

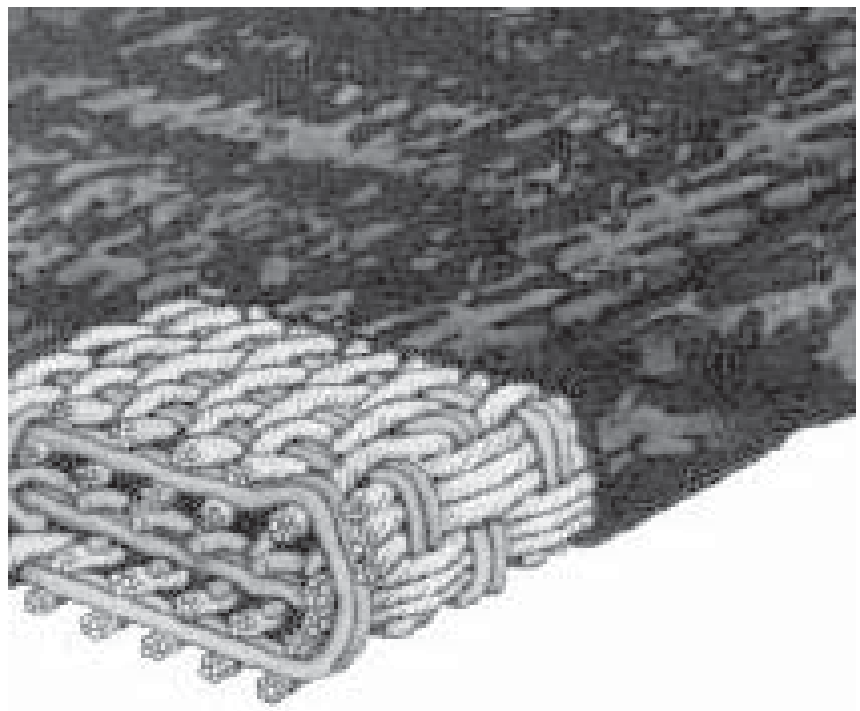
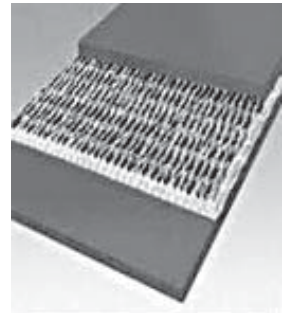
Pressed PVC type, both top and bottom covers are PVC, thickness of each side can be up to 4mm, the belt has much more advantages than non pressed PVC belt on impact resistance, water soaking, with longer service life, higher fastener holding.

- Low stretch
- Low maintenance
- Antistatic
- Flexible
- Lightweight
- Impervious to moisture, acids, oils, gases, sunlight
- Excellent fastener holding
- Excellent resistance to tearing, peeling and impact
- Endless belt splicing
- Special wear resistant edge design

PVG cover (nitrile rubber)

The covers are mainly composed of rubber, which further improves the troughability, resistance to wetness and slip, resistance to low temperature, elongation and wear resistance of the belt. Both top and bottom cover are PVG, the belt can be used to carry materials mixing some water at the slope no more than 20°, elongate life of belt.

- Anti slide caused by wetness good climbing capacity
- Low-temperature resistant
- Good elasticity, anti-impact
- Low elongation at rated load, suitable for long distance conveying
- Tear resistant, good flexing capacity
- Long service life



Solid Woven - Physical properties



Physical properties

Item	Tensile strength (min) (N/mm)		Carcass thickness (mm)	Carcass weight (Kg/m ²)	Minimum tear force (N)	Elongation at break (min) (%)		Cover grade and recommended thickness (mm)	Belt recommended thickness (mm)	Recommended width (mm)	min pulley diameter (mm)
	Warp	Weft				Warp	Weft				
680/1	680	265	6.5	8.5	1090	15	18	1.5+1.5	1.5+1.5		400
800/1	800	320	6.9	9.0	1180	15	18	1.5+1.5	1.5+1.5		500
1000/1	1000	350	7.5	9.7	1180	15	18	2+1.5	2+1.5		630
1250/1	1250	350	8.5	11.0	1540	15	18	2+2	2+1.5		750
1400/1	1400	350	9.0	11.5	1540	15	18	3+2	2.5+1.5	500-	750
1600/1	1600	450	9.5	12.3		15	18	3+2	2.5+1.5	2200	800
1800/1	1800	450	10.0	13.0		15	18	3+2	3+2		800
2000/1	2000	450	10.5	13.6		15	18	3+2	4+2		1000
2500/1	2500	450	12.5	14.5		15	18	3+2	5+3		1200
3100/1	3100	450	17.0	17.0		15	18				1500
3500/1	3500	500	20.0	19.0		15	18				

Mechanical properties

Item	Tensile strength Mpa (min)	Elongation at break % (min)	Abrasive wear mm ³ (min)
PVG	15.0	350	200
PVC	12.5	300	200

EAGLE Conveyor Belting

Steel Cord

Steel Cord conveyor belting is used in industries where strength is vital to convey materials in areas such as:

- Open cut & undergrounds mines
- Harbours
- Metallurgy
- Power stations
- Chemical plants etc.

1. Belts reinforced with Steel Cords deliver extremely high strengths.

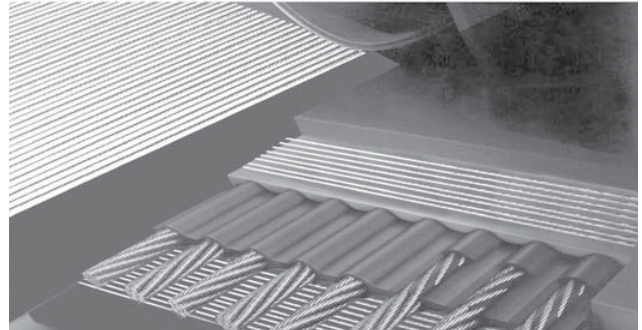
When operating tensions in excess of 200 kN/m are required, belts reinforced with Steel Cord are the only alternative and today belts are being designed for ratings up to ST 10000. However, due to its numerous advantages, Steel Cord belts are increasingly used even in ratings as low as ST 630.

2. Steel Cord Conveyor Belts have a long life expectancy.

Conveyor Belts with Steel Cord reinforcement members are virtually maintenance-free and can be supplied with increasingly thicker rubber covers for the same rating. The carcass, having a minimal risk of failure, yields very long life, sometimes even lasting for the entire duration of the project without affecting the overall design.

3. Large Centre Distances can be planned.

Steel Cord Belts have very low elongation and resultantly systems with large centre distances can be planned, without having to account for limitations of take-ups and transfer points.



4. Low Pulley Diameters can be used.

For the same rating, the thickness of the tension member in Steel Cord belts is considerably lower than that in a fabric reinforced belt (carcass thickness) and hence is able to operate with lower pulley diameters.

The superior dynamic modulus of the Steel Cords over the fabric carcass also ensures that flex fatigue sets in very slowly making the selection of lower pulley diameters technically viable.

Again the safety factor requirements for Steel Cord Belts are 6.67 against 9 – 10 for Textile Conveyor Belts, and therefore when compared with textile belts of equivalent rating the difference in pulley diameters becomes even more striking.

5. Low Elongation, high impact resistance.

The elongation of Steel Cord Belt is a function of elastic modulus of the steel and the amount of twist in the cord. The very low elongation of Steel Cords makes short take-ups a fact. Typically elongation is down to 0.25% on total belt lengths.

The geometry of a Steel Cord Belt provides for greater quantum



Steel Cord - Specifications

of rubber per unit volume compared to fabric reinforced belts permitting a more effective absorption of impact energy.

Consequently Steel Cord Belts allow discontinuous feed of heavy individual pieces without localized elongation.

6. Excellent Troughability.

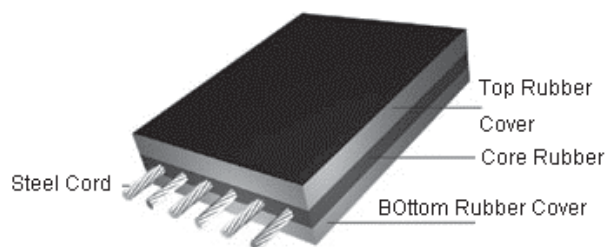
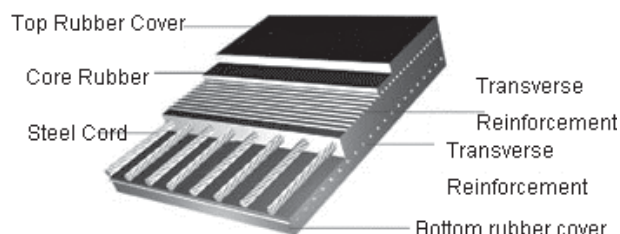
Even the strongest Steel Cord Belts trough perfectly on deep troughed idler sites. This ensures easy belt training and the realisation of superior volumetric capacity of the belt, whereby, the customer can either convey more material at the same speed or employ narrower Conveyor systems.

7. Long Splice Life and Strength.

Properly provided Belt Splices can last as long as the Belt itself. They can also achieve spliced strength equivalent to almost 100% of the strength of the Belt.

8. Easily Reconditioned and Re-juvenated.

Steel Cord Belts can be repaired with Hot or Cold vulcanization and the damaged edges can be restored to original width by hot repair. Worn out covers can be replaced with fresh rubber, durable enough to completely re-juvenate the belt, delivering yet greater economy for the customer.



CONVEYOR BELT CROSS-SECTION

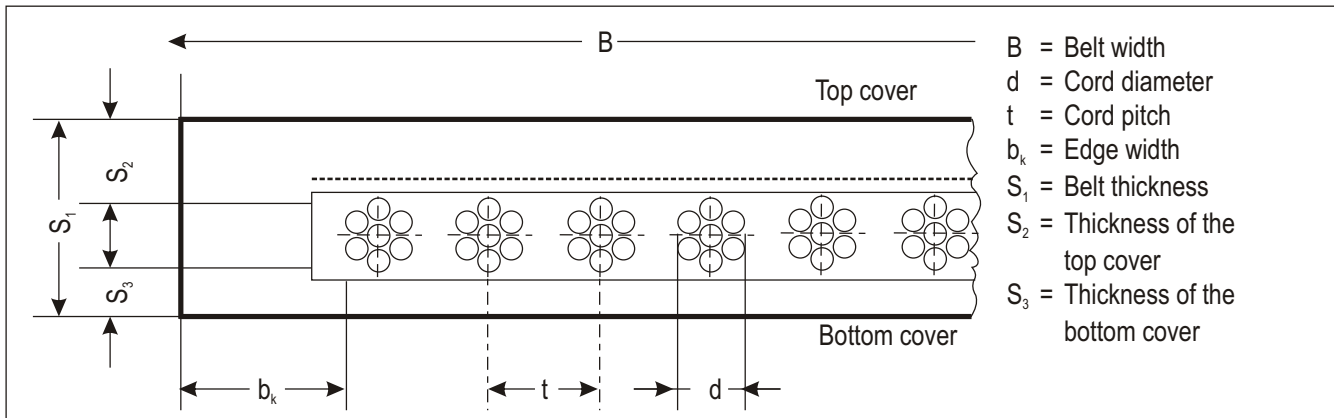
A Typical Steel Cord Conveyor belt has three distinct components, and a fourth optional protective element. These are the steel cable, the bonder layer and the top & bottom covers. To prevent longitudinal rips an optional component such as sensor loop or breaker may be incorporated.

Standard Steel Cord Range

ST Rating	Recommended Cord Dia (mm)	Pitch (mm) ±1.5	Belt Width (m m)																Minimum Reco mmended Pulley Diameter s (mm) for MAWT uti lisation > 60%		
			600	650	750	800	900	1000	1050	1200	1400	1500	1600	1800	2000	2200	2400	A	B	C	
			No. of Cord s																		
500	2.6	13.8	42	45	52	56	63	70	74	84	99	106	113	128	142	156	169	400	315	250	
560	2.8	13.8	42	45	52	56	63	70	74	84	99	106	113	128	142	156	169	500	400	300	
630	3.0	13.8	42	45	52	56	63	70	74	84	99	106	113	128	142	156	169	500	400	300	
710	3.1	13.8	42	45	52	56	63	70	74	84	99	106	113	128	142	156	169	500	400	300	
800	3.3	13.8	42	45	52	56	63	70	74	84	99	106	113	128	142	156	169	500	400	300	
900	3.8	15.3	37	40	47	50	56	63	66	76	89	96	102	115	128	141	151	630	500	400	
1000	4.0	15.3	37	40	47	50	56	63	66	76	89	96	102	115	128	141	151	630	500	400	
1120	4.3	15.3	37	40	47	50	56	63	66	76	89	96	102	115	128	141	151	630	500	400	
1250	4.5	15.3	37	40	47	50	56	63	66	76	89	96	102	115	128	141	151	800	630	500	
1400	4.8	15.3	37	40	47	50	56	63	66	76	89	96	102	115	128	141	151	800	630	500	
1600	5.5	17.3	33	36	42	45	50	56	59	67	79	85	90	102	113	124	135	800	630	500	
1800	5.9	17.3	33	36	42	45	50	56	59	67	79	85	90	102	113	124	135	1000	800	630	
2000	6.4	17.3	33	36	42	45	50	56	59	67	79	85	90	102	113	124	135	1000	800	630	
2250	6.8	17.3	33	36	42	45	50	56	59	67	79	85	90	102	113	124	135	1000	800	630	
2500	7.4	19.4	30	32	37	40	45	50	52	60	70	75	81	91	101	111	119	1250	1000	800	
2800	8.0	19.4	30	32	37	40	45	50	52	60	70	75	81	91	101	111	119	1250	1000	800	
3150	8.6	19.4	30	32	37	40	45	50	52	60	70	75	81	91	101	111	119	1250	1000	800	
3550	9.2	19.4	30	32	37	40	45	50	52	60	70	75	81	91	101	111	119	1400	1250	1000	
4000	9.8	19.4	30	32	37	40	45	50	52	60	70	75	81	91	101	111	119	1600	1400	1250	
4500	10.4	19.4	30	32	37	40	45	50	52	60	70	75	81	91	101	111	119	1600	1400	1250	
5000	11.0	19.4					45	50	52	60	70	75	81	91	101	111	119	1600	1400	1250	
5600	11.8	19.4					45	50	52	60	70	75	81	91	101	111	119	1800	1600	1400	
6300	12.8	20					43	48	50	58	68	73	78	88	98	108	116	2000	1800	1600	

Note: Data contained herein is based on EN ISO 15236 and AS 1333 wherever applicable and is not exclusive. Material can be supplied as per the customer's specifications as desired.

Steel Cord - Specifications

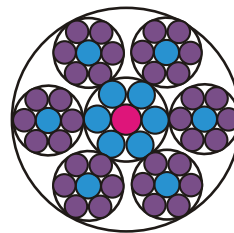


STEEL CORD

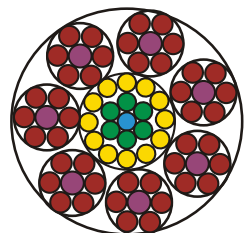
The 'building block' for the reinforcing Steel Cords are round steel wires. Such Zinc-coated high-carbon wires are laid helically with a uniform twist around a central core to form the 'Strand'. Strands so formed are, in turn, helically laid around a central strand to form the reinforcement 'Cord' of the Steel Cord belt. Forech sources Steel Cords only from globally established manufacturers and conduct periodic checks on the cords supplied to evaluate the Component Dimensions, Tensile Strength, Elongation (Static & Dynamic), Openness, Effectiveness of Zinc coating, Cord Pullout etc. Cord types 7x7 and 7x19 are most popular and can cover a large range of Steel Cord Belt ratings.

BONDER RUBBER

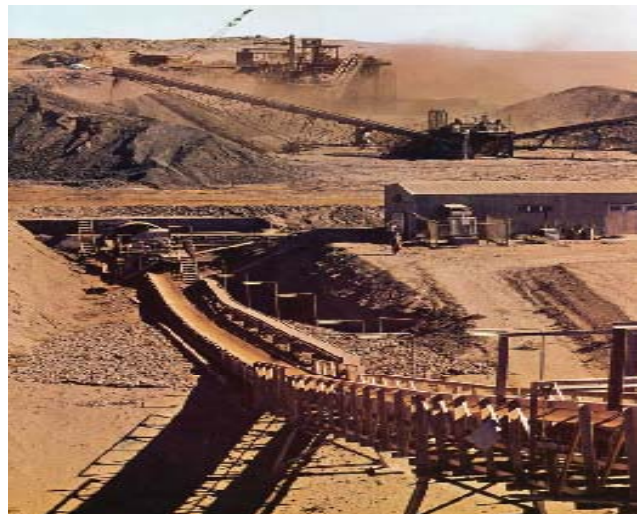
The function of the bonder rubber is to maintain a bond between the metallic cords and the rubber polymer in the Steel Cord Belt. The bonder rubber not only has to create the metal-rubber bond but – for optimal product performance – is also required to be viscous enough to flow into the air gaps/voids between individual filaments in each cord to offer additional protection against environmental threats as well as to protect adjacent filaments from chafing against each other.



7x7



7x19



Eagle Steelflex

EAGLE Steelflex belts are manufactured with a high tensile, heavy duty woven steel fabric using the proprietary Fleximat fabric. M/s Bekaert, Belgium, are the pioneers in the design and development of Fleximat fabric.

Product Applications:

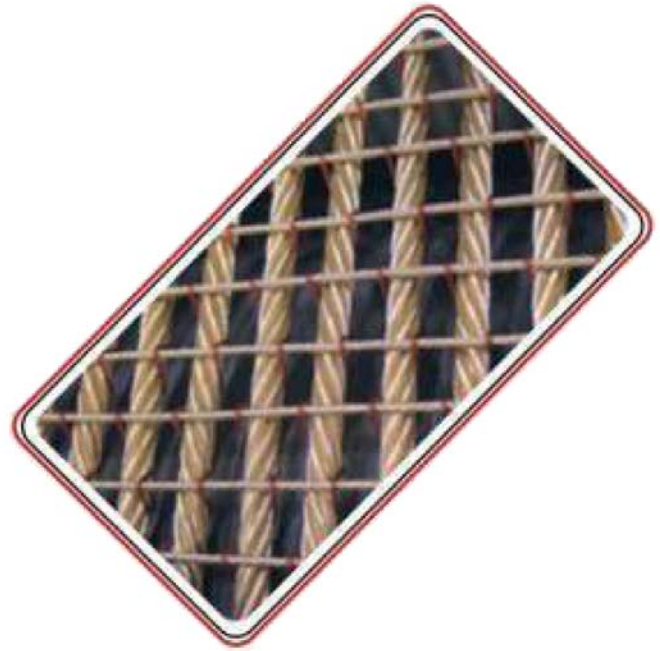
EAGLE Steelflex is designed to perform in the following applications:

- High tension conveyors
- Long haul conveyors
- Short, high speed feeder belts prone to rip and tear due to tramp material
- Heat resistant belts prone to “burn through”
- Heavyduty elevator belts

Benefits of EAGLE Steelflex:

EAGLE Steelflex belts offer the following benefits:

- Conventional Steel cord belts do not offer longitudinal rip resistance
- Lower break down costs since rip length is restricted by weft fabric
- Suitable for smaller pulley diameters as compared to Steel Cord belts
- Low elongation @ ref. load of 0.3% v/s 2.0%
- Substitute for steel cord belts



Product Characteristics:

Ratings :	350 N/mm to 3150 N/ mm
Top Covers :	5mm and above
Bottom Covers :	3mm and above
Common Widths :	upto 2000mm max
Edge :	Molded Edge only
Splicing Method :	Finger Splice as per Oriental's advice
Belt Identification :	Unique Production Identification Number (PIN) at every 10m

Specialised Belting



Flanged Conveyor Belt

This specialty Belts are used mostly for Coal Burning unit and weighted M/C in Power Station and many others are used in cogeneration plants, & cement manufacturing, etc.



Cleated Conveyor Belt

This belt is suitable for transportation of firewood, hay, glass, recycled materials, packaged goods and boxes at an inclined angle. Cleats are hot vulcanized to the base belt for a bond the full width of the cleats, making them an integral part of the belt top cover.



Elevator Belts

It is composed of rubber belt and elevator-bucket, which need the belt with high strength and low elongation in service. Buck Elevator Conveyor Belt is applicable to transport vertical loose powdery materials of usually not more than 50mm in diameter, such as, crushed limestone, sand, gravel ,cement, grain etc.

Belt Selection Chart

Belt Designation		Maximum Recommended Working Tension (Vulcanised Splice)	Nominal Carcass Thickness	Nominal Carcass Weight	Maximum Belt Width (mm) For Satisfactory Load Support (Material Density in T/Cubic Metre)			Minimum Belt Width (mm) For Satisfactory Troughing		
Type	Rating	(KN/M)	(mm)	(Kg/sq.m)	Upto 1.0	Upto 1.5	Upto 2.5	20°	30°	45°
GENERAL DUTY	250/2	25	2.2	2.4	650	600	450	400	450	500
	315/3	31	3.2	3.5	1000	800	650	400	450	500
	400/3	40	3.3	3.7	1050	900	650	500	500	500
	500/3	50	3.6	4.0	1200	900	800	500	500	500
	630/3	63	3.8	4.2	1200	1000	900	500	500	500
MEDIUM DUTY	500/4	55	4.6	5.2	1200	1050	900	500	500	650
	630/4	70	4.9	5.4	1400	1200	900	500	500	650
	800/4	90	5.6	6.1	1600	1400	1000	500	500	650
	1000/4	110	6.0	6.6	1600	1400	1200	500	650	800
	1250/4	140	6.2	7.2	1600	1600	1400	650	800	900
	1400/4	145	6.8	7.7	1600	1600	1600	650	800	900
	1250/5	140	7.1	8.0	1600	1600	1600	650	800	900
	1400/5	155	7.8	8.4	1600	1600	1600	650	800	900
HEAVY DUTY	400/3	40	3.9	4.6	1200	1050	900	500	500	600
	500/3	50	4.3	4.7	1400	1200	1000	500	500	650
	630/3	63	4.6	5.2	1400	1200	1050	500	500	650
	630/4	70	5.7	6.2	1600	1400	1200	500	650	800
	800/4	90	6.2	6.8	1600	1400	1400	650	800	900
	1000/4	110	6.8	7.5	1600	1600	1500	650	800	900
	1250/4	140	7.2	7.9	1600	1600	1600	750	900	1000
	1250/5	140	8.0	8.8	1600	1600	1600	800	1000	1200
	1400/5	155	8.2	9.5	1600	1600	1600	800	1000	1200
	1600/5	180	9.0	9.8	1600	1600	1600	800	1000	1200
	1800/5	200	9.0	10.0	1600	1600	1600	800	1000	1200
	2000/5	220	9.4	10.4	1600	1600	1600	800	1000	1200

Note

The weight of M24 and N17 grade Rubber Covers is 1.11 kg/sq.m per mm thickness.
For other special grades of Rubber Cover please contact us.

Figures indicated under nominal carcass thickness and nominal carcass weight columns are provided for basic design consideration only.

The figures in the Rating column represent the full thickness tensile strength of the Belt in KN/M width and the number of plies in the belt.

The above chart indicates our standard range of Nylon / EP Conveyor Belts. Other constructions can be designed and manufactured by us against specific requirements.

Maintenance Manual for Rubber Conveyor Belting

The life of the belts depends on various factors such as: Handling, storing, belt alignment, good loading conditions, proper cleaning, care & maintenance procedures.

Handling

Conveyor Belts are despatched on steel centres or spools. Belts should always be moved by lifting and transporting rather than rolling, due to the danger to men and possibility of damage to the belt and specially, if collapsing as a result of being rolled. Needless to emphasize, the belt edge should be protected carefully.

Storing

Unless damaged in transit, belt should be kept in an upright position until it is being commissioned. The belts are to be stored in a cool, dry covered and well-ventilated place away from direct sunlight. Other factors like exposure to sunlight, ozone in sea area, contact with all types of solvents and corrosive liquids should be avoided.

If proper warehousing is not possible then belt should be covered with black polythene, suitably fastened against wind damage. In case of belts weighing excess of 1500 kgs and not installed within two/three months and beyond, it should be supported off the ground. Belt kept as spares should definitely be stored off the ground and rotated $\frac{1}{4}$ turn every six months. Whenever lengths are cut off from the belting roll, the end should be sealed with conveyor belting repair solution to prevent ingress of moisture into the carcass.

Belt Alignment

On long Conveyor, where conditions are likely to be unfavourable, training of the belt must be taken into consideration. There are several factors, which cause the belt to run erratic. Some of the factors are listed below:

- (a) Misaligned pulleys often tend to run to low side. In such cases the training is done by shifting the axis of snub pulley.
- (b) When entire belt runs to one side along some portion of the conveyor at each cycle of operation at a particular spot, the belt can be aligned in two ways:
 - (i) By shifting one side or both sides of some of the troughing idlers in the direction of belt travel at that particular portion.



- (ii) Slight lifting of troughing idlers forwarded in the direction of belt travel by placing steel washers under the idler strand.
- (c) Improper loading conditions can cause faulty belt training.
- (d) Misalignment of structure.
- (e) Building up of materials on return idler and snub pulley will throw the return belt off centre.
- (f) During splicing it is extremely important to cut the belt ends in perfect square, otherwise it may affect the centering of the belt.

Trough training and return training idler, mounted on centre pivot are used in training the belt. Some time off centered idler and tilted idler (2 degree forward) help the system to keep the belt in central position. After having been trained and the empty belt running satisfactorily, the belt should also run centrally after being loaded. If it does not happen, design of feeding chute should be checked properly. Sometimes it may be done by introducing a deflection plate inside the chute.

Good Loading Condition

Method of loading is one of the vital factors of belt life in which cover as well as carcass may get damaged. While loading on conveyor belt, the following points should be considered.

1. Loading should be at the centre of the belt.
2. In case of abrasive materials (large), bed of small lumps may be provided by screening them inside the chute.
3. Spacing of impact idlers should be such that (usually less than troughing idler), most of the materials fall on impact idler but not between idlers.
4. Slope of chute should be such that material cannot fall directly on belt under gravity. In ideal case material at the time of touching the belt gets the same velocity as that of the belt.
5. The skirt board should have a clearance at an angle upward towards the belt travel.
6. Ensure that delivery chute is not choked.

Proper Cleaning

Any sticky materials when being conveyed may adhere after discharging portion, which may effect the following:

- (i) Excessive wear.
- (ii) Build up material on return idlers.
- (iii) Misalignment of belt.

It is therefore expected, the material should be cleaned before it reaches snub pulley or return idler.

Cleaning is done by the following ways: -

- a) Single or multiblade scrapper.
- b) Rotary belt cleaner.
- c) Water spray and wipers.
- d) V-type return belt scrapper.

Maintenance Manual for Rubber Conveyor Belting

Running Care and Maintenance Procedure:

Extensive care and proper-maintenance at regular interval of running should be carried on by every belt user, which largely extend the life of conveyor belting. The following are a few factors, which come under this trial:

- (1) Any minor cuts or gouges on cover.
- (2) Major damage.
- (3) Carcass failure.

It is advisable to repair this type of damage at once, as any belt even with any minor damage should not be used further without repairs.

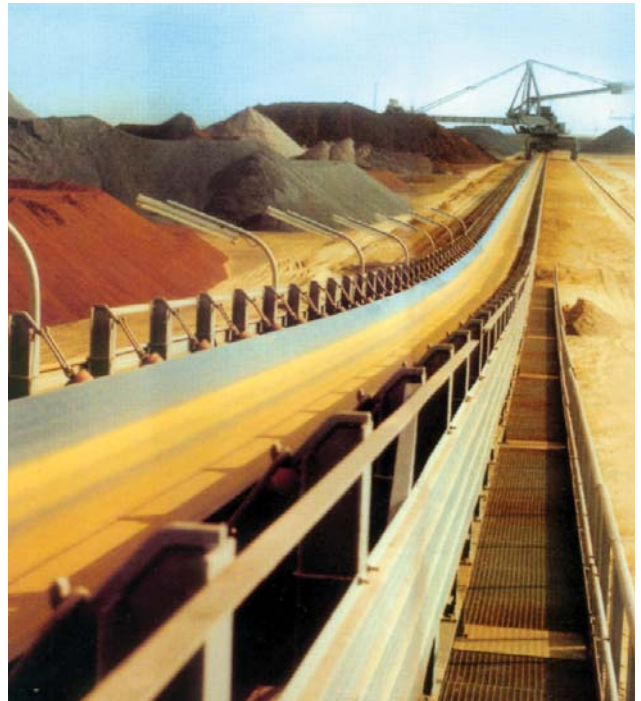
Other factors, which are also to be considered in the regular maintenance, are: -

- (a) Easy rolling of individual idler.
- (b) Training of the belt.
- (c) Take-up problem.
- (d) Deposit and trapping of materials.
- (e) Improper condition of skirt rubber, belt cleaner, etc.

If the spillage is likely, return run of the belt should be protected by decking plate otherwise it may develop local stress following failure of belt cover as well as carcass. Belt should not be allowed to rub against any stationary parts of conveyor like skirt boards metallic part, stringer support, bottom of chute etc. Skirt board rubber should have lower hardness than belt being used.

Belt Fastener and Splicing:

Basically joining of belts may be classified into two main groups: Mechanical joint and Splice joint.



Mechanical Joint:

Bolted plate and Alligator type: Bolted plate type fastener is generally used in heavy duty belt and Alligator type fasteners are used for medium and low duty belt. Care should be taken in choosing the diameter of bolt sizes in relation to belt thickness.

Splice Joint:

There are two types of splice, namely Diamond splice and bias splice. The splicing and repair details can be referred to in the splicing section in this manual

EAGLE Conveyor Belting

Conveyor Belt Troubles - Causes and Corrections

As a guide some of the common problems encountered with Conveyor Belting and the means to overcome them are listed below :

Troubles	Causes	Correction
A Excessive Edge Wear, Broken /Frayed due to rubbing	Off-Centre Loading	Adjust chute to place load on centre of belt discharge material in direction of belt travel.
	Material Spillage and build-up	Improve loading and transfer conditions, install cleaning devices, improve maintenance.
	Bowed Belt.	For new belt this condition should disappear during breaking in rare instances belt must be straightened or replaced check storage and handling of belt rolls.
	Belt hitting structure	Install training idlers on carrying and return run.
	Misaligned running	Check Conveyor alignment and realign belt.
	Inadequate edge	Clearance Minimum recommended clearance between belt edge and structure is 75 mm.
	Belt too stiff for adequate troughing	Install a more flexible belt.
B Excessive top cover wear, uniform around belt width.	Dirty, sticky or misaligned return roll.	Remove accumulations, install cleaning devices use self cleaning return rolls, improve maintenance
	Cover quality too low.	Replace with belt of heavier cover gauge or higher quality rubber.
	Material Spillage & buildup	Same as A2 above
	Off center loading	Same as A1 above.
	Excessive sag between idlers and Incorrect Idler Spacing.	Increase tension if unnecessarily low, reduce idler spacing
C Grooving, Gouging or stripping of cover.	Skirt boards improperly adjusted or of wrong material.	Adjust Skirt Board support to minimum 25 mm between metal and belt with gap increasing in direction of belt travel. use skirt board rubber (not old belt).
	Belt spanning down under load impact	Install cushion idlers.
	Material hanging up in or under chute.	Improve loading to reduce spillage, install baffles, widen chute.
	Impact of materials on belt	Reduce impact by improving chute design, install impact idlers.
	Worn or seized return idler roll.	Replace all unservicable with new ones.
D Severe Pulley cover wear	Sticking Idlers.	Free Idlers and Improve maintenance.
	Spillage on drive pulley	Increase tension, lag drive pulley, increase arc of contact.
	Material spillage and buildup	Same as A2 above
	Material trapped between belt and pulley.	Install scrappers on return run ahead of tail pulley.
	Bolt heads protruding above lagging.	Tighten bolts, replace lagging, use vulcaniser on lagging.
	Excessive forward tilt of trough rolls.	Reduce forward tilt of idlers to no more than 2 degree from vertical.
E Cover harden or crack	Heat or Chemical damage. Improper storage or handling	Use belt designed for specific condition. Refer proper storage & handling instructions.

Conveyor Belt Troubles - Causes and Corrections

Troubles	Causes	Correction
F Cover Softening/Swells in spots or streaks.	Contamination by spilled oil/grease, overlubrication of idlers.	Improve house-keeping, reduce quantity of grease used, check grease seals.
G Cover Blisters or sand blisters.	Cover cuts or very small punctures allow fines to work under cover and cut cover away from carcass.	Make spot repair with vulcanizer or self-curing repair material.
H Short breaks in carcass parallel to belt edge, start break in carcass.	Impact of material on belt.	Same as C4 above.
	Material trapped between belt and pulley.	Same as C4 above.
I Transverse breaks	Belt edges folding up on structure.	Readjust idlers in affected area, install limit switches provide more clearance.
	Improper transition between troughed belt and terminal pulley.	Adjust transition as recommended.
	Severe Convex (Hump) vertical curve.	Decrease idler spacing in curve, increase curve radius
J Lengthwise carcass break with covers intact.	Belt running off centre and folding over.	Use limit switches and determine reasons for belt running out.
K Belt breaks at or behind fasteners, fasteners pullout	Fastener plates too long for pulley size.	Replace with smaller fasteners, increase pulley size.
	Wrong type of fastener, fasteners too tight or too loose.	Use proper fasteners, set up schedule for regular fastener inspection.
	Tension too high.	Increase speed, same tonnage, reduce friction decrease tension by increase arc of contact or go to lagged pulley reduce counterweight to minimum amount.
L Ply separation	Pulley too small	Use larger diameter pulleys.
	Heat or Chemical damage.	Use belt designed for specific condition.
	Too many reverse bends.	Use more flexible belt.
	Mildew or dust penetration into carcass.	Prevent cuts etc, arrange for immediate repairs.
M Excessive Belt stretch	Excessive starting and operating tensions.	Same as K3 above. Replace with lower elongation higher strength belt.
N Belt wanders at random	Too stiff, does not conform to contour of idlers.	Use belt with more transverse flexibility.
O Particular section of belt runs to one side at all points on conveyor.	Belt not joined squarely.	Remove affected splice and resplice.
P Belt runs off at head	Pulley lagging worn.	Replace pulley lagging.
	Idlers on pulleys out of square with centre line of Belt.	Readjust idlers in affected areas.
	Material spillage and buildup	Same as A2 above.

Technical and Splicing Guide to Fabric Belts

Introduction

Wherever practicable, a hot vulcanised splice is preferred for making conveyor belting endless as against cold vulcanising and metal fasteners. Some of the advantages a hot vulcanised splice has over the other two types are:

- (a) A hot vulcanised splice lasts the longest and even when it fails, it does not fail abruptly. Indications of a joint failure are apparent well before the failure itself, giving sufficient time and warning either to repair or to re-do the splice.
- (b) It maintains a continuous smooth surface on the belt face and back, forming a smooth endless band and does not let the material seep through. It also travels well over the idlers and the pulleys without causing any additional wear on the pulleys/idlers.
- (c) It permits the use of belt cleaners, magnetic separators, ploughs and scrapers to work smoothly.
- (d) It seals the belt ends, preventing any ingress of moisture or dust.
- (e) Maintenance and cleaning of vulcanised splice joints are negligible.
- (f) When hot materials are conveyed, it performs like the other parts of the belt, unlike metal fasteners, which absorb the heat and transmit it to the belt plies, causing deterioration of the carcass.

The procedure described in the following pages for site splicing are applicable both for All-Nylon and Polyester/Nylon reinforced Rubber Conveyor Belting.

Preliminary Preparation

Before commencing on any field splicing operation the following should be considered for ensuring a good spliced joint:

- (a) Select a suitable location on the horizontal portion of the conveyor system, preferably where it is covered.
- (b) Ensure that the take up is at its minimum position.
- (c) Ascertain that the belt length to be made endless has sufficient length available for overlap and bring the two ends of the belt after installation to the location selected for splicing. Care should be taken to see to it that the carrying side is on top.
- (d) Remove at least 6 sets of idlers in the selected location and fit clamps on to the belt beyond the area to be spliced.
- (e) Tension the belt by anchoring one clamp to the structure and by pulling the other clamp with a chain block or pull lift. Anchor the belt in this position by lashing the other clamp to the idlers or the structure itself.
- (f) Ensure that the vulcaniser thermostat has been set at 144 Degrees Centigrade.
- (g) In case the belt to be made endless is a partially used belt, ensure that the belt is not wet and the ends are fit for splicing.

BELT INSTALLATION

- The conveyor belt spool should be brought to the point of

installation and mounted on a suitable shaft, so that the drum can be rotated to unroll and thread the belt on to the conveyor.

- When mounting the spool, care should be taken to ensure that the belt leads off the top of the roll if it is being pulled on to the carrying idlers, but off the bottom of the roll if it is being pulled on to the return idlers.
- If the new belt is being installed to replace the old belt, the best procedure is to use the old belt to pull in the new belt.
- When the new belt is pulled in completely the end of the old belt can now be unfastened and the new belt tensioned and spliced.
- If the belt is being installed on a new conveyor, a rope or cable should be attached by means of a clamp to the belt end. The clamp can be made from 5.0 mm or 10.0 mm thick plates, 100 mm less than the belt width. The clamp is attached to the belt end with bolts placed at 100 mm intervals about 50 mm back from the belt end. The rope or cable is then attached to this clamp by welding an eye to the plate. The rope or cable may be attached to a truck, tractor or other means of providing traction.
- When installing a new belt great care has to be taken to see that the belt does not rub or catch on sharp corners or rough edges of the steel work.

Equipments, materials & tools required for splicing

1. Portable electrically operated vulcanising press, capable of providing a minimum pressure of 7kg/cm² across the full width of the platens and suitable for the belt width to be joined.
2. Two moulding irons of sufficient length, approximately 25 mm in width, 1.0 to 2.0 mm less than the thickness of the belt to be spliced.
3. Two carpenter-joining-clamps to apply pressure on the moulding irons placed along the edges of belt.
4. A chain block or pull lift and tackle for tensioning the belt.
5. Two angle irons or wooden clamps for lashing the belt.
6. Wooden planks approximately 2 mtr long to build up a platform slightly wider than the belt and about 1 mtr longer than the splice. This is to give a firm working area under the belt to allow efficient working while making the splice.
7. Heat-resistant leather gloves to handle the vulcaniser.
8. Straight edge or ruler and steel tape about 2 mtr long.
9. Right angle steel square with at least 1.5 mtr long side.
10. Rubber cutting knife.
11. Ply cutting knife.
12. Screw driver at least 400 mm long.
13. Vee knife.
14. Wire brush.
15. Pincers.
16. Rubber cutting scissors.
17. Hand roller.

Technical and Splicing Guide to Fabric Belts

18. Serrated edge wheel.
19. Pricker or sharp pointed awl.
20. Soft hairbrush.
21. Paint brushes 50 mm wide.
22. 40 grit buffing pad on suitable slow speed electrical or pneumatic polisher.
23. Grease proof paper. Small strips of greaseproof paper are placed on the channels of the splice before curing to prevent the rubber from adhering to the press platens. If greaseproof paper is not available, Holland glazed cloth or tracing cloth may be used.

Splicing Compounds

1. Conveyor belting solution

Conveyor belting solution is available in 10 litre containers. 10 litres can cover approximately 9 sq mtr per coat and 3 coats of this solution have to be applied. The solution is applied by brush over the fabric plies/carcase after cleaning in order to replace the frictioning/dipping removed during the stripping. Shelf life of this solution is a maximum of 6 months from the date of manufacture.

2. Insulation compound

Insulation compound is available in 150 mm width and 0.35 mm/0.6 mm thickness interleaved with alkathene and packed in 1.5 kg containers. The compound is applied over and above the Conveyor Belting Solution in order to skim coat the plies, thus improving the level of adhesion. It has a shelf life of 6 months from the date of manufacture.

3. Cover Compound

This compound is required to replace cover rubber and is used to build up the face and back cover channels in splices and also for replacing damaged portions of the cover. Cover compound is available in 150 mm width and 1.6 mm thickness interleaved with alkathene and packed in 1.5 kg containers. Any thickness of cover rubber can be built up by using the requisite number of layers of this compound.

General Information on Splicing

AllRubber-Wesbelt recommends stepped biased type splicing for multi-ply all synthetic conveyor belting. The belt ends to be joined together are prepared in a series of steps, the number of steps being one less than the number of plies. The length of these steps are dependent upon the strength of the individual plies and are indicated below for all standard constructions in table 1:

Dimensions of Splice

The table below should be used in conjunction with Figure on Page 13

TABLE 1			
Belt Rating	Total Splice Length (mm)	Step Lengths (mm)	Insulation Compound (mm)
315/3	0.5W + 325	150	0.7
400/3	0.5W + 375	175	0.7
500/3	0.5W + 425	200	0.7
630/3	0.5W + 525	250	0.7
630/4	0.5W + 625	200	0.7
800/4	0.5W + 775	250	0.7
1000/4	0.5W + 925	300	1.05
1250/4	0.5W + 1165	380	1.05
1250/5	0.5W + 1225	300	1.05
1400/5	0.5W + 1545	380	1.05
1600/5	0.5W + 1825	450	1.40
1800/6	0.5W + 2275	450	1.40

W = Width of the belt in mm

The above splice lengths are based on the use of 22.5 degree bias angle. Alternatively, if the bias angle is made to correspond with a rhomboidal shape press platen angle, the bias length should be suitably modified.

While all standard constructions are covered in the above table, should you find any construction not listed here, please refer to us. For belts running on idlers, the splice should be assembled in such a way that the cover compound built on the back cover channel leads the one on the face cover. In the case of belts running on slider plates, this has to be reversed.

Preparation of the Belt for Splicing

1. Once the belt has been positioned on the conveyor structure, it must be tensioned using clamps in order to reduce the stretch in the belt after the splice has been completed and the clamps have been removed. Additional care should be taken to provide extra tension on the clamps if the splicing is done on top of the slope.
2. If the system is fitted with a gravity take-up, it will be necessary to apply tension and lift the weight to the position where it is expected to float when the belt is running empty. When the belt system is fitted with a fixed screw take-up device, the pulley must be moved to the off position so that the belt is at its shortest endless length when spliced.
3. Often it is convenient to position the bottom platen of the vulcanising press in place and assemble the splice on top of it. Once the assembly is ready, the top platen may then be placed over the splice and the splice vulcanised.
4. After cutting the belt end square, mark the true centre line of the belt to be used as a datum line for all other measurements. Belt edges should never be used for reference.

Technical and Splicing Guide to Fabric Belts

5. At right angles to the belt centre line, mark a base line to denote the limit of the splice length. To allow for subsequent trimming of the outer end of the splice, it is suggested that the base line should be drawn 50 mm further than the total splice length indicated in Table 1 and as measured from the belt end. This base x line should be marked on the face cover for the leading end and on the back cover for the trailing end.
6. Mark the bias length along the belt edge from one edge of the base line. Join this marked point to the other end of the base line to provide for the splice line. Mark a line parallel to this 25 mm inward and strip off the cover rubber in this 25 mm width. Now re-mark the splice line on the outer ply and remove another 25 mm wide strip of cover rubber outward the splice line. This will ensure that the splice line is still visible when the two strips of cover rubber have been removed. The second strip is removed to ensure the use of the single ply cutting knife.
7. Now cut through the first ply along the splice line using the single ply cutting knife. Adequate care should be taken not to cut deeper than required and destroy the fabric, which is to remain as part of the splice.
8. Remove the first ply and cover rubber outwards of the splice line, preferably in thin strips.
9. Mark bias + step length along the belt edge from the base line and draw the step line. Now cut the second ply again, taking care not to cut deeper than intended.
10. Mark the other steps from the base line in the same way.
11. Cut through the last ply and cover rubber at the end of the splice to make the last step 12 mm longer than the normal step length.
12. Remove cover rubber for a strip of 38 mm width on the reverse side of the belt.
13. Repeat the stripping down operation for the reverse side on the other end, commencing from marking the bias length along the belt edge from the base line.
14. In preparation of the steps for splice, measurements are always taken from the base line across the belt. The edge of each step must be measured from this base line and not from the edge of the previous step.
15. Using coarse emery cloth and wire brush, clean the surface of the ply steps without damaging the fabric. Care should, however, be taken that the rubber impregnation within the plies does not come off. Also buff the cover rubber adjacent to the splice to ensure satisfactory bonding. Dirty surfaces will not adhere together adequately.
16. After ensuring that the step ends are clean and dry, paint steps at both ends of the belt with three coats of Conveyor Belting Solution. Between two coats enough time should elapse to allow the first coat to dry before proceeding with the next coat.
17. Lay a layer of Insulation compound over the exposed steps on the face side, leaving a channel. Roll this down in position

with the roller avoiding any crease, overlap and trapped air. Finish by edge wheeling the insulation compound.

18. Lay out the belt end prepared with insulation and fit the other end to it. While matching the two ends it is advisable to leave the protective alkathene in place, so that the surfaces do not adhere. Make sure that the splice is properly aligned and that the fabric steps do not overlap at any point. It is equally important not to leave gaps between the fabric steps.
19. When the splice is perfectly matched, turn back one half and remove the alkathene and then roll down that half of the splice before removing and mating the other half.
20. Dig in and trim off the overlapping end of the last ply on the face and back to make a close fitting joint.
21. Apply solution to the edges of the rubber along the channel in covers. Insert a strip of 0.35 mm insulation compound in the requisite width along the channel. Apply a coat of solution and fill with Cover compound of requisite gauge.
22. Roll thoroughly and prick the whole splice area. The joints are finally edge wheeled and trimmed with the trimming knife, if necessary giving a close butt joint. Roll down the whole splice area with hand roller.
23. Remove the working surfaces from the conveyor and position the vulcanising press.

Precautions to be taken while splicing

1. Great care should be taken in the use of the ply cutting knife in order not to cut deeper than intended.
2. The buffing operation should be done carefully, so that the fabric ply and the rubber impregnation between the plies are not damaged, since it would reduce the strength of the splice considerably.
3. Blisters are sometimes formed while curing the splice. It could occur due to lack of sufficient time for the conveyor belting solution to dry or due to foreign matter/moisture. Blisters should be cut open and the area carefully examined to determine the cause of blisters. Any evidence that has caused the blisters must be removed. The area should be cleaned with Naphtha and when dry, two coats of conveyor belting solution should be applied, allowing each coat to dry thoroughly. If only the cover is blistered, this part of the cover must be removed and replaced with cover compound by building up the required thickness. If the blister is in the carcass, this area must be cut open longitudinally and dried thoroughly. After roughening up the surface with emery cloth, two coats of conveyor belting solution should be applied, allowing each coat to dry thoroughly. The opening must then be closed and the belt cured at recommended temperature and pressure.
4. The edges of the belt along the splice sometimes become porous. This happens when the moulding irons are not fitted tightly or if the pressure is insufficient during curing. In such cases the area of porosity must be removed carefully and replaced with new compound. In case the channel is found to be porous, the channel rubber must be removed and treated for repairs.

Technical and Splicing Guide to Fabric Belts

Vulcanising the Splice

1. It may sometimes be necessary to cure the full splice length in more than one charge in wide or multi-ply belts. In such cases care should be taken to see to it that the channels are vulcanised always in one single cure. Also ensure that the first and the last charge at the ends of the splice are at least 75 mm inside the platens of the vulcaniser and that an adequate overlap of 75 mm exists between two consecutive charges.
2. Place moulding irons 0.5 mm to 1.0 mm less in thickness than that of the belt along the edges of the belt and press them up against the belt just sufficiently to make contact with the belt by means of a joiner's clamp and tighten these clamps.
3. Position the top section of the press and carefully tighten the press, ensuring even pressure. It is preferable to tighten all the nuts in pairs across the press.
4. The vulcaniser should be set according to the maker's instructions and the type of machine so as to give a minimum curing pressure between the press platens on the belt surface of 7 kg/cm².
5. The following table provides the details of the recommended vulcanising temperature and vulcanising time for the various belt thicknesses.

TABLE 2

Total Belt Thickness (mm)	Vulcanising Temperature Degree 'C'	Vulcanising Time (minutes)	Temperature at Press opening Degree 'C'
0 - 6	144	25	93
6 - 12	144	30	93
12 - 20	144	35	93
20 - 25	144	45	93

Note: When splicing belts with heat resistant quality of rubber covers, the press should be opened at a temperature of 65 degree centigrade.

6. After curing one charge, open the press at the temperature recommended for press opening and position the next charge for curing, providing for 25 mm overlap on the previous one. Repeat for further charges.
7. Once the whole splicing area has been cured, remove this, examine for any defects and trim the edges for excess spew.
8. Re-install the idlers and release the belt after one hour.

Conclusion

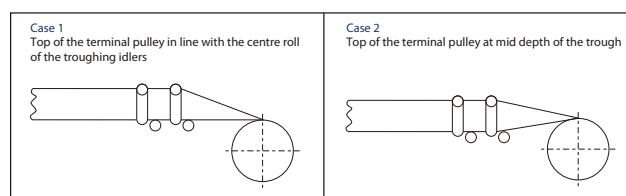
While vulcanised joints are longer lasting than metal fasteners, even a vulcanised joint cannot produce a tensile strength at the joint equivalent to the belt strength itself. While it can produce a tensile strength close to the belt strength, the normal practice adopted for calculation of the tensile strength at the joint is approximately 1 ply less i.e., for a belting of full thickness tensile strength of 630 KN/metre incorporating 4 plies, the joint strength is calculated as 472.5 KN/metre, even though the actual strength may be more than this. However, this drop in the tensile strength at the joint would not affect the belt performance, if belt selection takes into account

a minimum factor of safety of 1: 5 at the spliced joint, under maximum tensile loading (starting/stopping tension) for operating safety of multi-ply textile reinforced belting. Also, please note that the efficiency of a vulcanised joint depends a lot on the capability of the equipments used, the workmanship and the quality of the compounds used, apart from the quality of the belt itself.

TRANSITION DISTANCE

Steel Cord reinforced belts require greater transition distance at the terminal ends to offset high stress build up at the edges and are therefore not recommended for troughed Conveyors with centre to centre distance of less than 50 to 60 metres. The recommended minimum transition distance is given below.

The transition distance is dependant on the vertical position of the terminal pulley relative to the troughing idlers. The two most common configurations are:



RECOMMENDED MINIMUM TRANSITION DISTANCE

PERCENTAGE OF FULL RATED TENSION		CASE 1 TROUGHING ANGLE				CASE 2 TROUGHING ANGLE			
		20°	30°	35°	45°	20°	30°	35°	45°
Below	50	2.00w	3.30w	3.60w	4.50w	1.12w	1.60w	1.90w	2.40w
	50 — 89	2.42w	3.50w	4.06w	5.00w	1.25w	1.80w	2.20w	2.70w
	90 — 100	2.53w	3.70w	4.25w	5.20w	1.40w	2.00w	2.40w	3.00w

'w' = width of the belt

Special attention is required, so that there is no over-stressing on the edges or slackness at belt edges.

RIP PROTECTION AND SURVEILLANCE

Steel Cord Conveyor Belts do not have a weft reinforcement member and are susceptible to rip easily due to sharp foreign materials coming in contact. AllRubber-WesBelt offers Rip Stop fabric incorporated in the belting and the experience of our technology partner shows it to be an extremely successful method of protecting the belt from such rips even as it contributes to improving the dynamic performance of the belt by enhancing bond properties and Splice efficiency. Such Rip Stop rot - proof fabric can be inserted in the covers across the belt width and along the length of the roll.

- Increase in belt service life
- Increased rip and p enetration resistance
- Increased cord protection against impact damage
- Perfect troughability
- Unchanged pulley diameters
- Easily spliced or repaired using standard materials
- Rot proof synthetic 'Ripstop' fabric

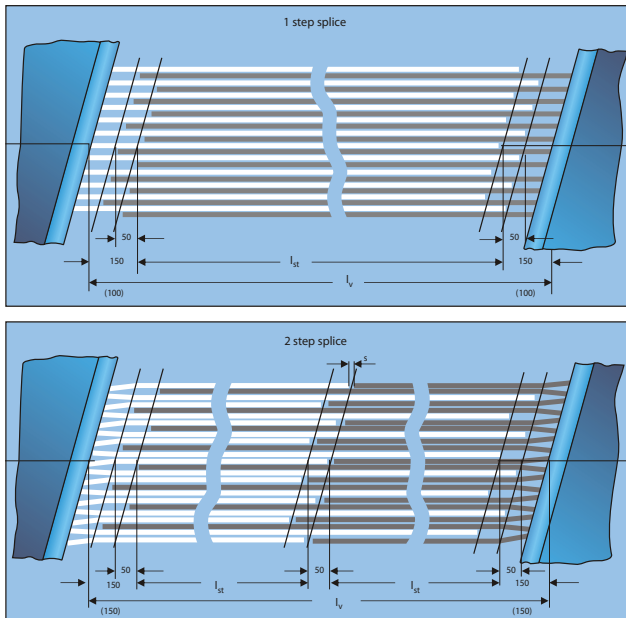
Technical and Splicing Guide to Fabric Belts

- Perfect bonding between 'Ripstop' fabric and rubber matrix.
- Superior mechanical deformation performance of 'Ripstop' fabric.

AllRubber-WesBelt also works along with leading global manufacturers like Coal Control, to provide Sensor Loops which can be retro-fitted and electronically monitored, into the belts, to suit customer requirements. Such protection systems - with appropriate site maintenance - are emerging as fail safe rip detection system for Steel Cord Belts world wide. Please refer to AllRubber-WesBelt for further details.

STEEL CORD BELT SPLICING

The most popular and effective means of splicing Steel Cord belts is with the FINGER SPLICE method where cords from the mating sections of the belt in opposing directions are brought together as shown below. Different splice making protocols are employed depending on the strength of the belt and these different types are referred to as Type I, Type II and so on up to Type V splice joints for very high strength belts.



I = splice length . I = step length . s = min.
3 x cord diameter v st

BELT TYPE Overland Conveyor Belts	SPLICE TYPE	I_{st} (mm)	I_{+} (mm)
ST-1000 and below	1	700	—
ST 1250	1	900	—
ST 1600	1	1000	—
ST 2000	2	1200	600
ST 2500	2	1500	750
ST 3150	2	1800	900

For higher belt ratings please refer to Forch for splice details.

Steel Cord belt splices do not compulsorily call for a bias splice anymore because of current technology advances. However bias splices with 22.5° bias are still popular in India with some Steel Cord Belt users.

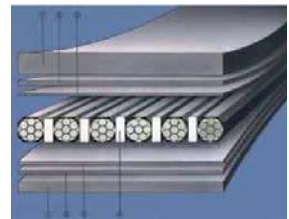
The Steel Cord splicing kit is a vital component in the splicing operations and it is usually advisable to employ splicing kits

manufactured by the supplier of the mother belt when making high strength splices or for belt splices in Fire Resistant, Heat Resistant and Oil Resistant grade belts. Again, for specialised applications such as Pipe Conveyor belts and high angle sidewall belts employing Steel Cord belting, it is always recommended that the splicing compound is procured from the belt manufacturer to ensure optimal compatibility between the belt and the splicing compounds.



A typical Steel Cord belt splicing kit comprises the following:—

- 1 : Cover sheet
- 2 : Transverse reinforcement (if required)
- 3 : Bonder rubber sheet
- 4 : Intermediate bonder rubber strips



Usually each component is cut to desired dimension and profile applicable for the specific splice joint. Adhesive and solutions as required are also provided.

BELT PACKING, TRANSPORTATION and STORAGE

Packing of Steel Cord belts demand special attention because it is not only an expensive product and hence demands the best protection from damage in transit but also because it is a product for application in high-tension Conveyors and is, therefore, best supplied in as long lengths as possible to minimise the number of splice joints.

Customers prefer packing in drums, often in steel drums where extended storage is likely. Some users insist on oblong type packing to maximise the roll length and some others specify cassette type packing.



On the other hand, there are numerous dimensional & weight constraints for material transportation – whether by marine container or inland by road. These constraints need to be weighed in conjunction with handling capabilities available at the unloading point to decide on optimal supply roll lengths.

Technical and Splicing Guide to Fabric Belts

ROLL DIAMETER CALCULATIONS AND CHART

$D = 4 \times d \times L + K^2$ (m)

L = Belt Length (m)

d = Belt Thickness (m)

D = Drum Diameter (m)

K = Reel Core Diameter (m)

(Forech Standard K = 0.5 m)

BELT LENGTH L (m)	BELT THICKNESS d (mm)															
	10	12	14	16	18	20	20	24	26	28	30	32	34	36	38	40
10	0.61	0.63	0.65	0.67	0.69	0.71	0.73	0.75	0.76	0.78	0.79	0.81	0.83	0.84	0.86	0.87
20	0.71	0.75	0.78	0.81	0.84	0.87	0.90	0.93	0.96	0.98	1.01	1.03	1.06	1.08	1.10	1.13
40	0.87	0.93	0.98	1.03	1.08	1.13	1.17	1.21	1.25	1.29	1.33	1.37	1.41	1.44	1.48	1.51
60	1.01	1.08	1.15	1.21	1.27	1.33	1.39	1.44	1.50	1.55	1.59	1.64	1.69	1.73	1.78	1.82
80	1.13	1.21	1.29	1.37	1.44	1.51	1.58	1.64	1.70	1.78	1.82	1.87	1.93	1.98	2.03	2.08
100	1.23	1.33	1.43	1.51	1.59	1.67	1.75	1.82	1.89	1.95	2.02	2.08	2.14	2.20	2.26	2.31
120	1.33	1.44	1.55	1.64	1.73	1.82	1.90	1.98	2.05	2.13	2.20	2.27	2.33	2.40	2.46	2.52
140	1.43	1.55	1.66	1.76	1.86	1.95	2.04	2.13	2.21	2.29	2.37	2.44	2.51	2.58	2.65	2.72
160	1.51	1.64	1.76	1.87	1.98	2.08	2.17	2.27	2.36	2.44	2.52	2.60	2.68	2.75	2.83	2.90
180	1.59	1.73	1.85	1.98	2.09	2.20	2.30	2.40	2.49	2.58	2.65	2.75	2.84	2.92	2.99	3.07
200	1.67	1.82	1.95	2.08	2.20	2.31	2.42	2.52	2.62	2.72	2.81	2.90	2.98	3.07	3.15	3.23
220	1.75	1.90	2.04	2.18	2.30	2.42	2.53	2.64	2.74	2.84	2.94	3.04	3.13	3.21	3.30	3.38
240	1.82	1.98	2.13	2.27	2.40	2.52	2.64	2.75	2.86	2.97	3.07	3.17	3.26	3.35	3.44	3.53
260	1.89	2.05	2.21	2.36	2.49	2.62	2.74	2.86	2.98	3.09	3.19	3.29	3.39	3.49	3.53	3.67
280	1.95	2.13	2.29	2.14	2.58	2.72	2.64	2.97	3.09	3.20	3.31	3.41	3.53	3.62	3.71	3.80
300	2.02	2.20	2.37	2.52	2.67	2.80	2.94	3.07	3.19	3.31	3.42	3.53	3.64	3.74	3.84	3.94
320	2.08	2.27	2.44	2.60	2.75	2.90	3.04	3.17	3.29	3.41	3.53	3.65	3.78	3.85	3.97	4.07
340	2.14	2.33	2.51	2.68	2.84	2.98	3.13	3.26	3.39	3.52	3.64	3.76	3.87	3.98	4.09	
360	2.20	2.40	2.58	2.75	2.92	3.07	3.21	3.35	3.49	3.62	3.74	3.86	3.98	4.09		
380	2.26	2.46	2.65	2.83	2.99	3.15	3.30	3.44	3.58	3.71	3.84	3.97	4.09			
400	2.31	2.52	2.72	2.90	3.07	3.23	3.38	3.53	3.67	3.81	3.94	4.07				
420	2.37	2.58	2.78	2.97	3.14	3/31	3.47	3.62	3.76	3.90	4.04					
440	2.42	2.64	2.84	3.04	3.21	3.38	3.55	3.70	3.85	3.99						
460	2.47	2.70	2.91	3.10	3.29	3.46	3.62	3.78	3.93	4.08						
480	2.52	2.75	2.97	3.17	3.35	3.53	3.70	3.86	4.02							

The effective durability of a Conveyor belt can be adversely affected by improper handling / storage and the user needs to consider this on priority.

Ideally, movement of the belts should be by hoisting not rolling. A transverse spreader bar is recommended for larger belt rolls in order to hold the lifting chains or cables away from the belt edges.

Smaller / lighter belts can be rolled but in the direction the belt is wound.

Careless handling with a forklift can cause damage by rubbing against the forks and hence the roll should first be placed on a pallet. This also avoids damage to the belt as a result of sagging over the edges of the forks.

If the belt is stored for a year or more, it should be kept on the supplier's reel, or hung into an A-frame, or placed on a pallet. In any case the storage ground must be even and free from stones etc. The belt should not be exposed to direct contact with stagnant water, oil, grease or any other chemicals that react with rubber.

Further protection is usually not necessary for AllRubber-WesBelt Steel Cord Belts, which are resistant to most environmental influences.





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