



www.derbyconveyor.com



Derby Conveyor Belt has been manufacturing textile reinforced rubber conveyor belts in compliance with international standards (ISO and DIN) for over 30 years. Originally founded in 1949, Derby started the production of conveyor belts in 1984. Combining the advantage of technical expertise with its innovation-driven R&D strategy has led Derby to become the exclusive supplier of many top international businesses.

Family-owned Derby is located on 75,000 square meters open area and 25,000 square meters closed area in Cerkezkoy, Tekirdag. One of the core values of Derby is constant search for higher efficiency, and production that brings results much better performing than the world standards. The experienced engineers Derby holds in its well equipped Research&Development department not only raised efficiency and thus capacity but also developed covers resistant even to the most extreme conditions.

One of the many factors that led Derby to become the industry leading company is its conveyor belt fabric-producing sister-company. The separate plant saved solely for fabric allows Derby to experiment higher durable raw materials that are of easy reach.

As the leader of the rubber industry, Derby Conveyor Belt Industry&Trade owes its success to its reliability and brand loyalty of its customers. Customer satisfaction we provide by exceeding internationally accepted results has helped Derby build its customer portfolio.

As Derby family, we continue to supply you with the goods best suiting for your needs without compromising our principles and quality..



**DERBY KONVEYÖR
BANT SAN. ve TİC. A.Ş.**







TABLE OF CONTENTS

<i>Machinery and Equipments</i>	6
<i>Production Flow Diagram</i>	7
<i>Rubber Types</i>	8
<i>EP (Polyester - Polyamid) The Sepecifications Of The Fabrics</i>	9
<i>The Extension Diagram Of The Textile Knitted Belts</i>	10
<i>Belt Selection Parameters</i>	11
<i>Recommended Belt Series For Belts With Textile Textures</i>	12
<i>Type A- Abrasion Resistant Belts</i>	13
<i>Type F- Flame Resistant Belts</i>	14
<i>Conveyor Belt Types According To The Climb Angle</i>	15
<i>Belt Templates</i>	16-17
<i>Belt Tension Distance</i>	18
<i>Convex Radius Calculations</i>	19
<i>Belt Calculations</i>	20
<i>Recommended Minimum Barrel Diameters For Belts With Textile Textures (mm)</i>	21
<i>Concave Radius Calculations</i>	22
<i>Attaching Of The Textile Belts With Hot Vulcanizing</i>	23
<i>Gluing The Textile Belts With Cold Vulcanizing</i>	24
<i>Attaching Of The Textile Belts With Cold Vulcanizing Adhesive</i>	25
<i>Winding Diameter</i>	26
<i>Belt Usage Errors</i>	27
<i>Belt Usage Errors – Solutions</i>	28-29
<i>Photo Gallery</i>	30-31
<i>Our Certificates</i>	32



MACHINERY and EQUIPMENT

MACHINERY AND EQUIPMENT

BRAND/COUNTRY

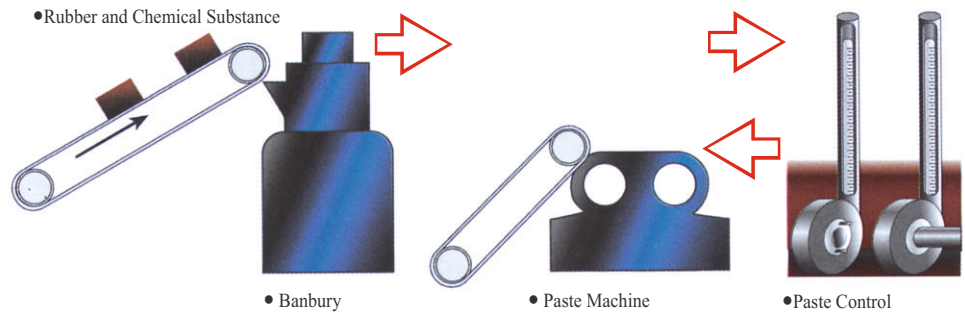
Banbury	Capacity 90 lt.			ERMAFA
Banbury	Capacity 280 lt.			
Paste Machine	With 1500 mm	Ø 600 mm	3 Unit	ASEA / İSVEÇ
	With 1000 mm	Ø 500 mm	1 Unit	TURKEY
Calender	With 1800 mm	Ø 800 mm	1 Unit	BERSTOFF / GERMANY
	With 1500 mm	Ø 650 mm	1 Unit	B.BOWERİ / SCHWEIZ
	With 1100 mm	Ø 400 mm	1 Unit	TURKEY
Confection	With 1600 mm	Height 18000 mm	1 Unit	GERMANY
	With 1800 mm	Height 5000 mm	1 Unit	TURKEY
Vulcanization Press	With 1600 mm	Height 6500 mm	1 Unit	PAGUAG / GERMANY
	With 1600 mm	Height 4000 mm	1 Unit	TURKEY
	With 1000 mm	Height 10500 mm	1 Unit	PAGUAG / GERMANY
	With 1400 mm	Height 3000 mm	1 Unit	TURKEY
	With 1000 mm	Height 2000 mm	1 Unit	TURKEY
	With 1250 mm	Height 1250 mm	1 Unit	TURKEY
	With 1800 mm	Height 350 mm	1 Unit	SIEMPELKAMP
Laboratory Devices	Dynamometer Max:	1000 kg	1 Unit	TURKEY
	Dynamometer Max:	5000 kg	1 Unit	TURKEY
	Rubber Sampling Device		1 Unit	TURKEY
	Abrasion Device		1 Unit	TURKEY
	Ash Stove	0-1200°C	1 Unit	PROTHERN
	Aging Oven	0-300°C	1 Unit	ELECTROMAG
	Rigidity Device		2 Unit	ZWICK
	Fine Scale MK	200 B		SUPER CHYO



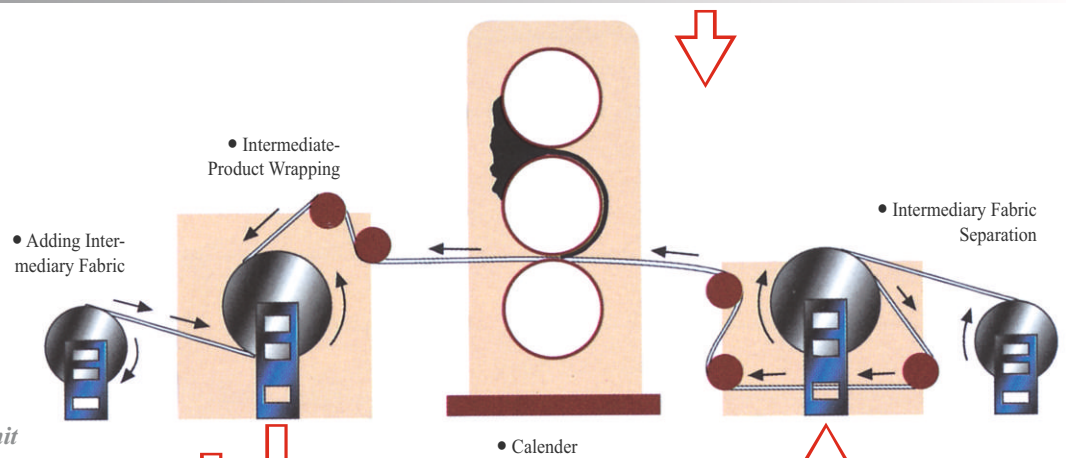


PRODUCTION DIAGRAM

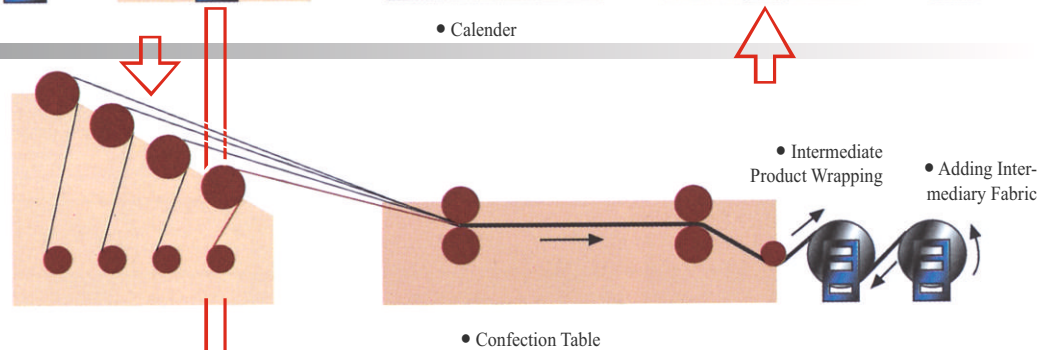
Paste Preparation Unit



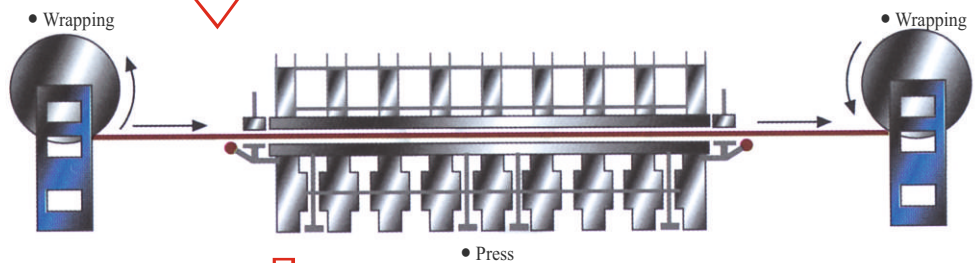
Calender Machine Unit



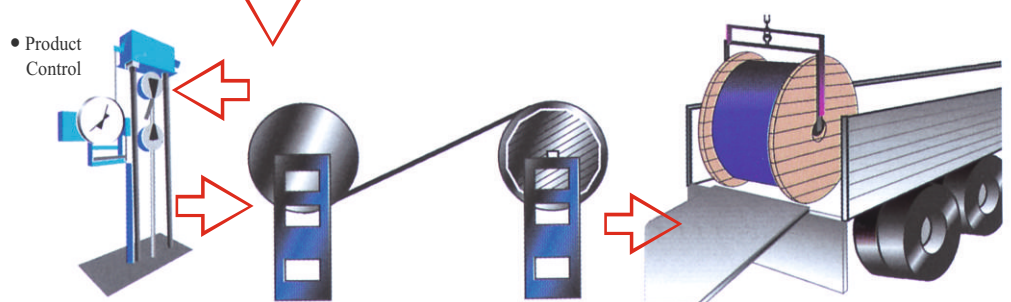
Carcass Preparation Unit



Vulcanization Unit



Packing and Shipment Unit





RUBBER TYPE

RUBBERS USED EXTENSIVELY IN BELTS

Astm D 1418-79	General Name	Composition	General Properties
NR	Tabii	Isoprene, Natural	Perfectly resistant to abrasion, cutting, and piercing. Well flexible. Non-resistant to oil.
SBR	SBR	Styrene-butadiene	Perfectly resistant to abrasion and well resistant to cutting, piercing, and heat. Non-resistant to oil.
EPDM	Ethlene - Propylene Rubber	Ethylene-propylene diene terpolymer	Perfectly resistant to aging, ozone, and heat. Very well resistant to abrasion.
CR	Neoprene	Chloroprene	Well resistant to ozone, sunbeam, and flame. Also resistant to abrasion and petroleum-based oils.
NBR	Buna N	Nitrile butaiene	Perfectly resistant to vegetable and petroleum oil and animal fat.
IR	Polysoprene	Isoprene, synthetic	Same properties as the natural rubber.
BR	Polybutadiene	Polybutadiene	Commonly used synthetic rubber. Generally used as blended with natural or styrene-butadiene rubber. Perfectly resistant to abrasion and provides great elasticity. Very elastic in low temperatures.
IIR	Butly	Isobutylene-Isoprene	Perfectly resistant to heat. Very well resistant to aging and ozone. Well resistant to abrasion.





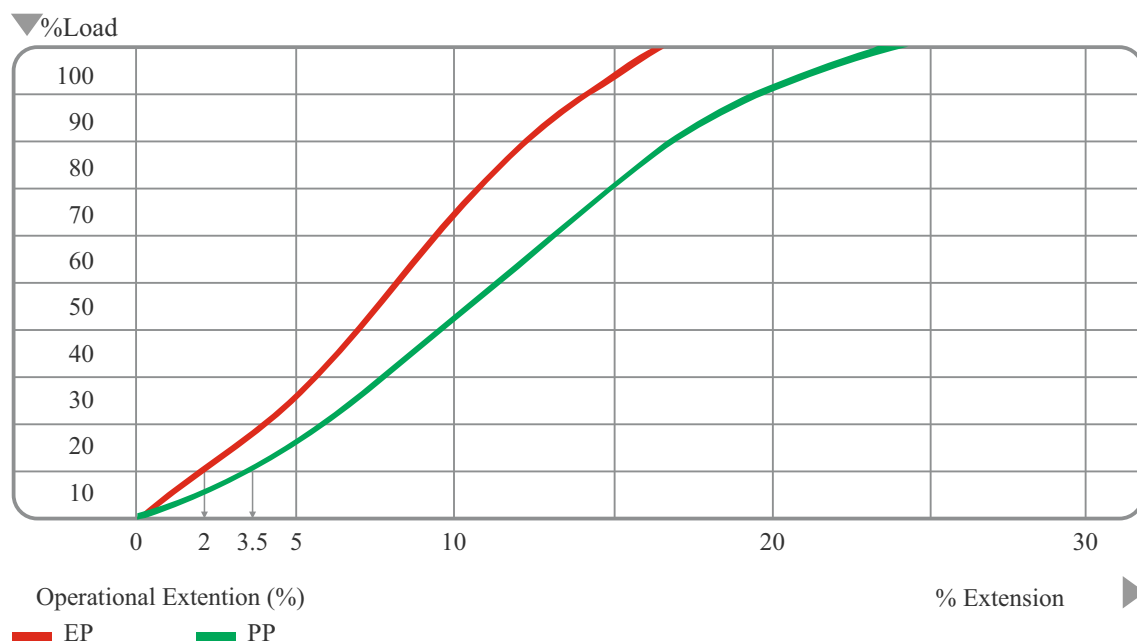
EP (Polyester - Polyamid) THE SEPECIFICATIONS OF THE FABRICS

FABRIC TYPE	EP-70	EP-100	EP-125	EP-160	EP-200	EP-250	EP-315	EP-400
FABRIC WEIGHT(g/m ²)	260	355	430	560	690	860	1050	1300
FABRIC THICKNESS(mm)	0,50	0,55	0,70	0,90	1,05	1,20	1,40	1,60
% 10 LOAD EXTENSION (%)	2	2	2	2	2	2	2	2
CRIMP (%)	2,5	3,0	3,5	3,5	3,5	3,5	3,5	3,5
WARP TIRES	TIRE TYPE	Polyester	Polyester	Polyester	Polyester	Polyester	Polyester	Polyester
	Breaking Load (Kg/cm)	85	125	165	210	250	310	480
	Rope Construction (dtex)	1100x1	1100x1	1100x2	1100x3	1100x4	1100x6	1100x6
	Twist (Tpm)	150	150	120	120	100	80	80
	Density (Ad/dm)	140	195	120	110	100	87	141
	Breaking Extension(%)	18	19	20	20	20	20	20
WEFT TIRES	TIRE TYPE	NY-66	NY-66	NY-66	NY-66	NY-66	NY-66	NY-66
	Breaking Load (Kg/cm)	44	60	65	75	100	100	100
	Rope Construction (dtex)	940x1	940x1	940x2	940x3	940x4	940x4	940x4
	Twist (Tpm)	160	160	120	120	100	100	100
	Density (Ad/dm)	72	95	58	43	40	40	40
	Breaking Extension(%)	30	30	30	30	30	30	30





THE EXTENSION DIAGRAM OF THE TEXTILE KNITTED BELTS





BELT SELECTION PARAMETERS

Top Covering Thickness Selection

T = Top Covering Thickness (mm)

M = Material Size 1,2 and 3

1 = Sharp Edging, Hard (Granit)

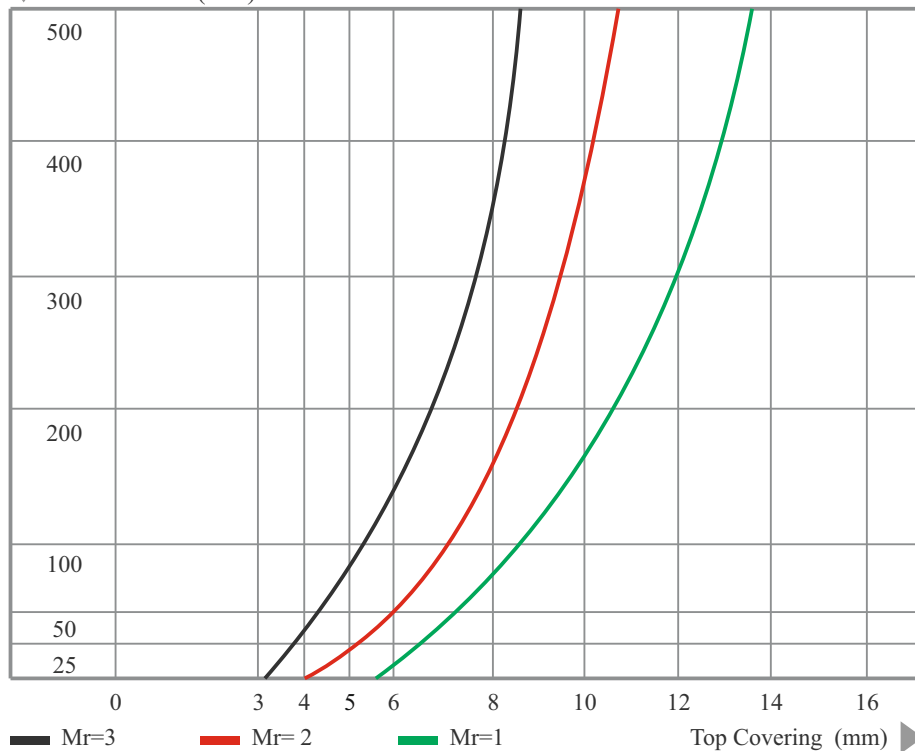
2 = Cornered, irregular (Limestone)

3 = Round, light (Coal)

L = Particle Size (mm)

$$T = (6-mr)+30(1-e^{L/250})/(Mr+2)$$

▼ Particle Size (mm)



Belt Resistance Selection Depending On Impact Strength

$$R = 200 + (1,6 \times I) / Mr$$

R = Due Belt Resistance (kg/cm)

I = Impact Strength (kg/m)

Particle Weight (kg)

x Falling Height (m)

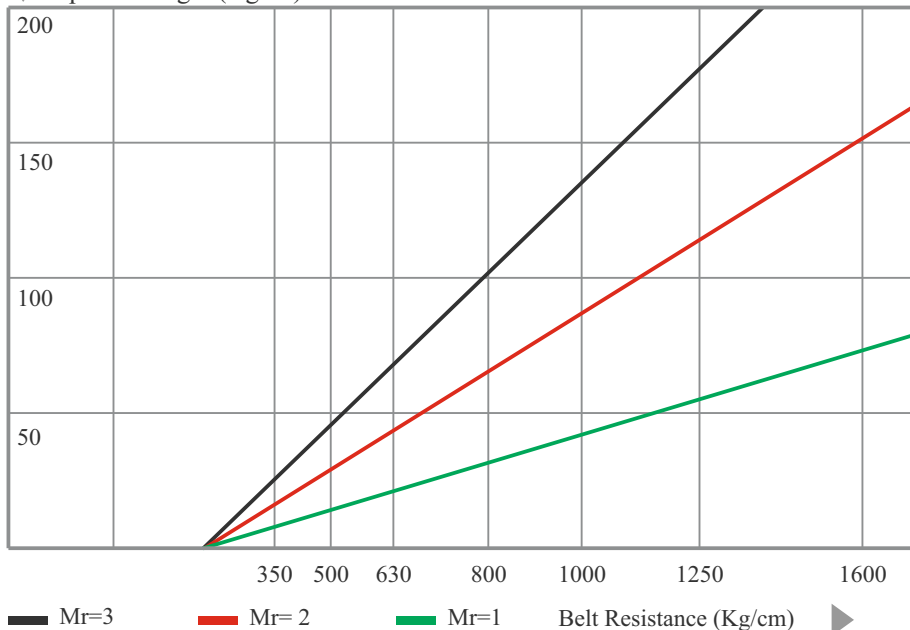
Mr = Material Size 1,2 and 3

1 = Sharp Edging, Hard (Granit)

2 = Cornered, irregular (Limestone)

3 = Round, light (Coal)

▼ Impact Strength (Kgxm)





BELT SERIES RECOMMENDED FOR TEXTILE WOVEN BELTS

BELT TYPE (kg/cm)	ALLOWED MAX. BELT ACCESS (Kg/cm)	FABRIC TYPE (kg/cm)	LAYER OQUANTITY	COVERS		BELT THICKNESS (mm)	BELT WEIGHT (kg/m ²)	BELT WIDTH (mm)												
				TOP (mm)	BOTTOM (mm)			500	600	650	750	800	1000	1200	1400	1600	1800	2000	2200	2550
EP 250	25	EP 125 EP 70	2 3	4 3	2 2	8,5 8,0	9,77 9,20	* *	* *	* *	* *	* *	*	*						
EP 315	31,5	EP 160	2	4	2	9,0	10,35	*	*	*	*	*	*							
		EP 100	3	3	2	8,0	9,20	*	*	*	*	*	*							
		EP 70	4	4	2	10,0	11,50	*	*	*	*	*	*							
EP 400	40	EP 200	2	4	2	9,5	10,92					*	*	*	*					
		EP 125	3	4	2	9,5	10,92					*	*	*	*					
		EP 100	4	4	2	10,0	11,50					*	*	*	*					
EP 500	50	EP 160	3	5	2	11,0	12,65					*	*	*	*					
		EP 125	4	4	2	10,5	12,07					*	*	*	*					
		EP 100	5	5	2	12,0	13,80					*	*	*	*					
EP 630	63	EP 200	3	5	2	11,5	13,22					*	*	*	*					
		EP 160	4	6	3	14,0	16,10					*	*	*	*					
		EP 125	5	5	3	13,5	15,52					*	*	*	*					
EP 800	80	EP 250	3	5	2	12,0	13,80					*	*	*	*					
		EP 200	4	6	2	14,0	16,10					*	*	*	*					
		EP 160	5	6	3	15,0	17,25					*	*	*	*					
EP 1000	100	EP 315	3	6	2	13,0	14,95							*	*	*	*	*		
		EP 250	4	6	3	15,0	17,25							*	*	*	*	*		
		EP 200	5	6	3	16,0	18,40							*	*	*	*	*		
EP 1250	125	EP 315	4	7	4	18,0	20,70							*	*	*	*	*	*	*
		EP 250	5	6	3	17,0	19,55							*	*	*	*	*	*	*
EP 1600	160	EP 315	5	8	4	20,0	23,00							*	*	*	*	*	*	*

* Fabric type polyamide / if asked for polyamide PP code should be used.

* Additionally, belts can be manufactured at desired layer quantity, fabric resistance and thickness sizes based on demand

* Our belts are under guarantee for 1 year against production and workmanship caused defects.

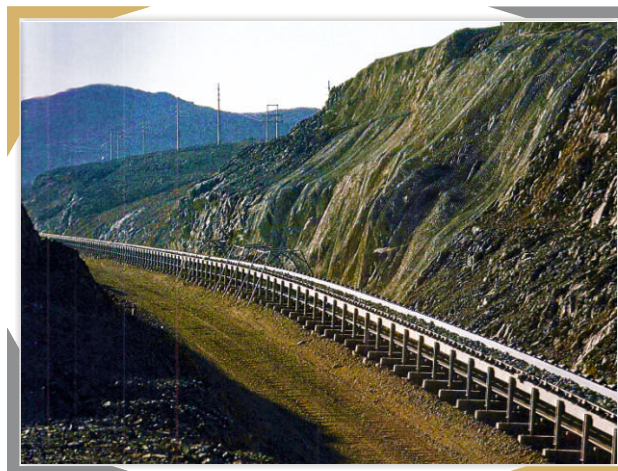
* At belt weight calculations, covering rubber intensity was taken as 1.15 kg/mm/m².



TYPE A - BELTS RESISTANT TO ABRASION

General Properties

- 1) Generally natural rubber based material,
- 2) Used for carrying large particles under heavy work conditions,
- 3) Manufactured in conformity with the international norms:
DIN22102,
TS 547
BS 490
UNI 3718,
- 4) Resistant to heavy impacts,
- 5) Resistant up to 70 C working temperature,
- 6) Has electrostatic permittivity,
- 7) Cannot be used in oil, acid, and alkali containing environments.



SPECIFICATIONS	DERBY BELT RATES			COMPARATIVE NORMS								
				TS 547			UNI 3718		DIN 22102		BS 490	
Rubbers Class	H*	D*	L*	H*	D*	L*	A*	B*	M*	N*	M24*	N17*
Breaking Strength (N/mm ²)	≥240	≥180	≥150	≥240	≥180	≥150	≥250	≥200	≥250	≥200	≥240	≥170
Breaking Stretch (%)	≥450	≥400	≥350	≥450	≥400	≥350	≥550	≥550	≥450	≥400	≥450	≥400
Abrasion Rate (mm ³)	≤120	≤100	≤200	≤120	≤100	≤200	-	-	≤150	≤200	-	-
Shore Rigidity (A)	63±5	63±5	63±5	63±5	63±5	63±5	-	-	-	-	-	-

Domain of Usage

Cement Factories:

Quarry ovens, open/storage, drying, and pre-blending

Ports:

Loading and unloading

Stone Quarries:

Primary and secondary conveyors

Roads:

Tunnel excavation and chunk carrying

Power Stations:

Pre-blending, speaker vocalization, open unloading, storing, and drying.

Sugar Factories:

Row sugar beet carrying

Paper Factories:

Turning over, filling, washing

Iron and Steel Factories:

Iron ore carrying, high oven loading, Slag collection

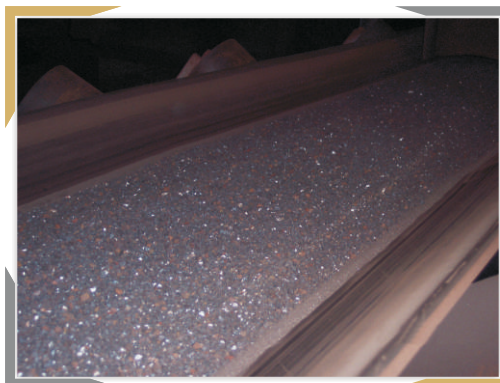




Type F - Flame Resistant Belts

SPECIFICATIONS	DERBY BELT RATES	COMPARATIVE NORMS	
		TS 547	TS 4464 F
Breaking Strength (kg/cm ²)	≥175	≥175	≥175
Breaking Stretch (%)	≥400	≥400	≥400
Abrasion Rate (mm ³)	≤225	≤225	≤225
Shore Rigidity (A)	63±5	63±5	63±5

- 1- Is Chloropne Rubber based covering and resistant to burning.
- 2- Commonly used at subterranean mines.
- 3- At most 100 C working temperature
- 4- Manufactured as per DIN 22103.
- 5- Electrostatic Conductivity as per DIN 22104 (Resistance <3x10⁸ ohm)



Application Domain:-

- * · Subterranean Coal Mines

Type T - Heat Resistant Belts

SPECIFICATIONS	DERBY BELT RATES	COMPARATIVE NORMS	
		TS 547	TS 4464 F
Breaking Strength (kg/cm ²)	≥150	≥130	≥130
Breaking Stretch 1 (%)	≥350	≥350	≥350
Abrasion Rate (mm ³)	≤250	≤250	≤250
Shore Rigidity (A)	65±5	70±5	70±5

- 1- EPDM based manufacturing.
- 2- Used in carrying hot materials.
- 3- Portable material 100 C 400 C
- 4- Belt surface temperature 60 C 200 C
- 5- Electrostatic Conductivity as per DIN 22104 (Resistance <3x10⁸ ohm)



Application Domain:-

- * · Foundry
- * · Cement Factories
- * · Iron Steel Factories
- * · Limekiln
- * · Brick Factories

Type O Oil Resistant Belts

SPECIFICATIONS	DERBY BELT RATES	COMPARATIVE NORMS	
		TS 547	TS 4464 F
Breaking Strength (kg/cm ²)	≥130	≥100	≥100
Breaking Stretch (%)	≥300	≥300	≥300
Abrasion Rate (mm ³)	≤225	≤300	≤225
Shore Rigidity (A)	63±5	70±5	70±5

- 1- Nitric rubber based.
- 2- Resistant to oil and grease and used at the conveyors operating in such matter containing conditions.
- 3- Max. 90 C working temperature
- 4- Resistant to acid, aliphatic and aromatic hydrocarbons.
- 5- Electrostatic Conductivity as per DIN 22104 (Resistance <3x10⁸ ohm)

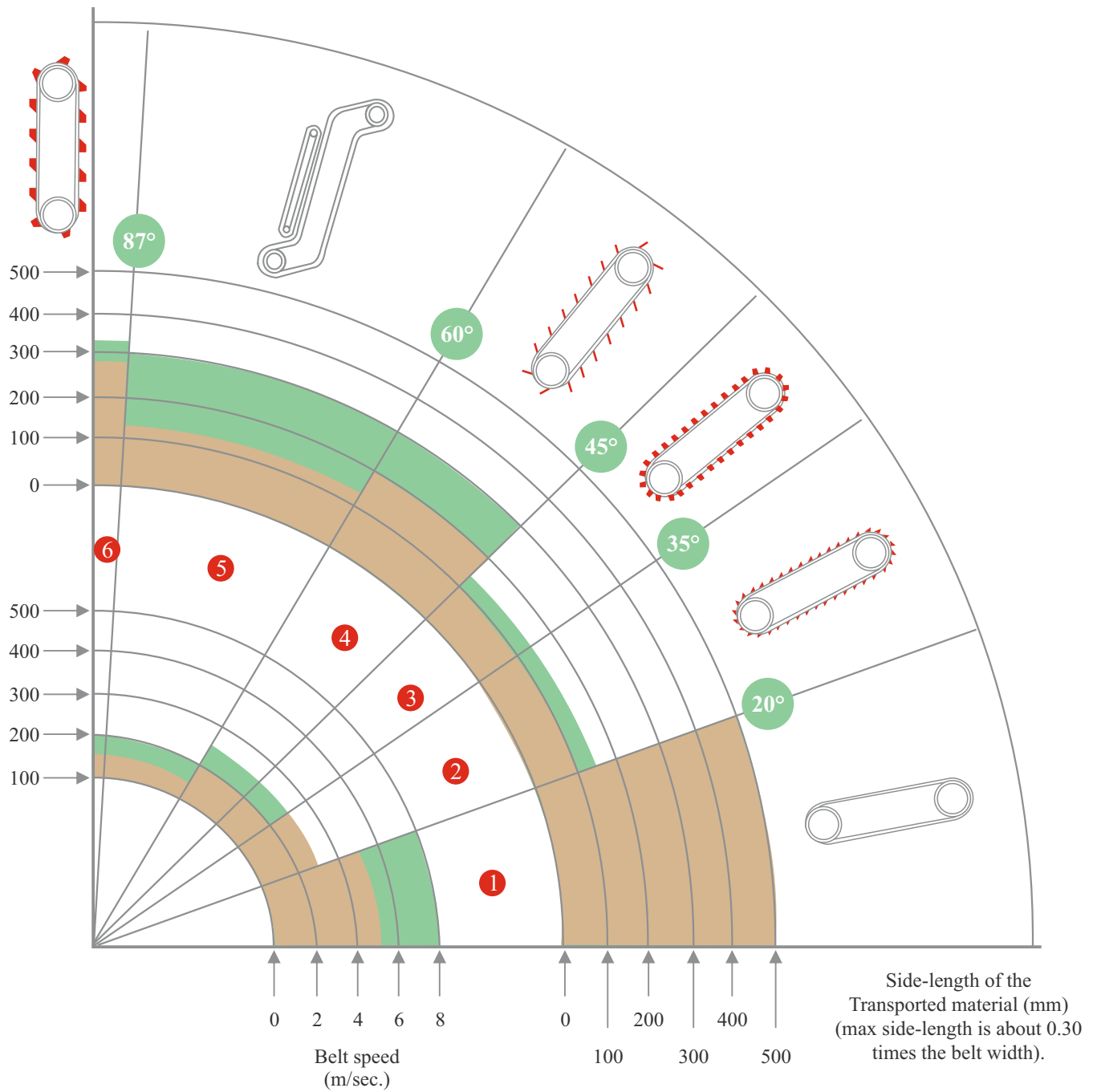


Application Domain:-

- * · Glass Factories
- * · Compost Factories
- * · Refineries
- * · Garbage Facilities



CONVEYOR BELTS TYPES ACCORDING TO ELEVATION ANGLE



ELEVATION ANGLES OF THE CONVEYOR BELTS

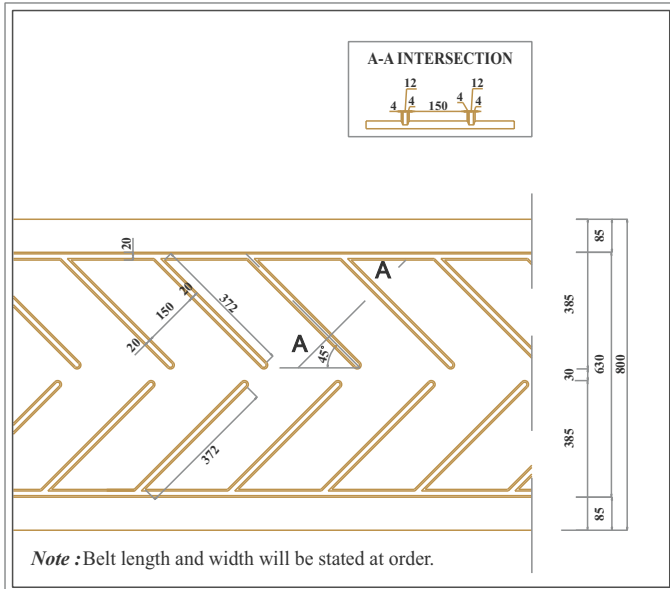
1	Flat surface conveyor belts
2	Thin profile belts
3	Cavus Profile belts,
4	Elastic edge (with bandobar) belts with palette
5	Sandwich style belts
6	Elevator belts



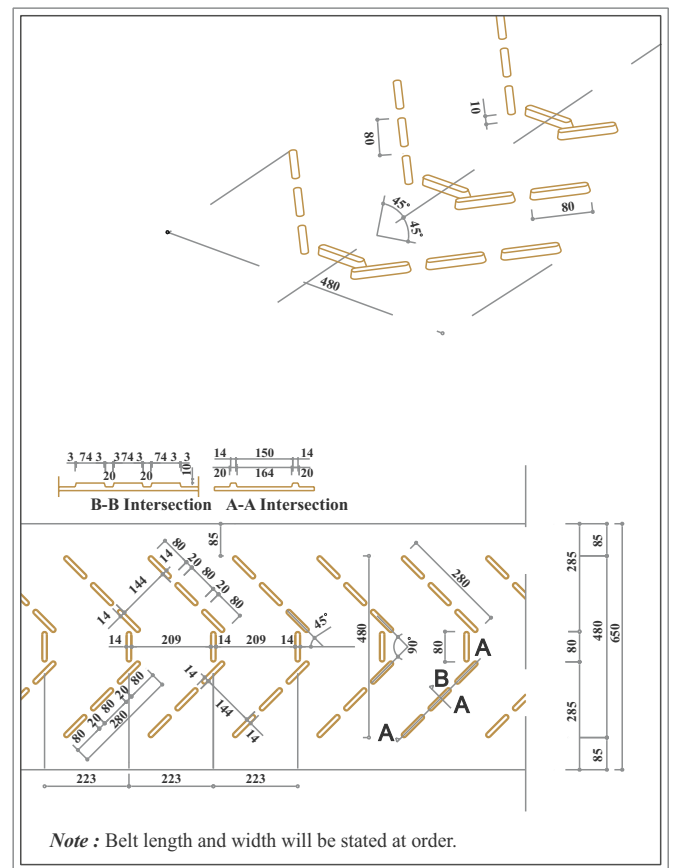


Belt Molds

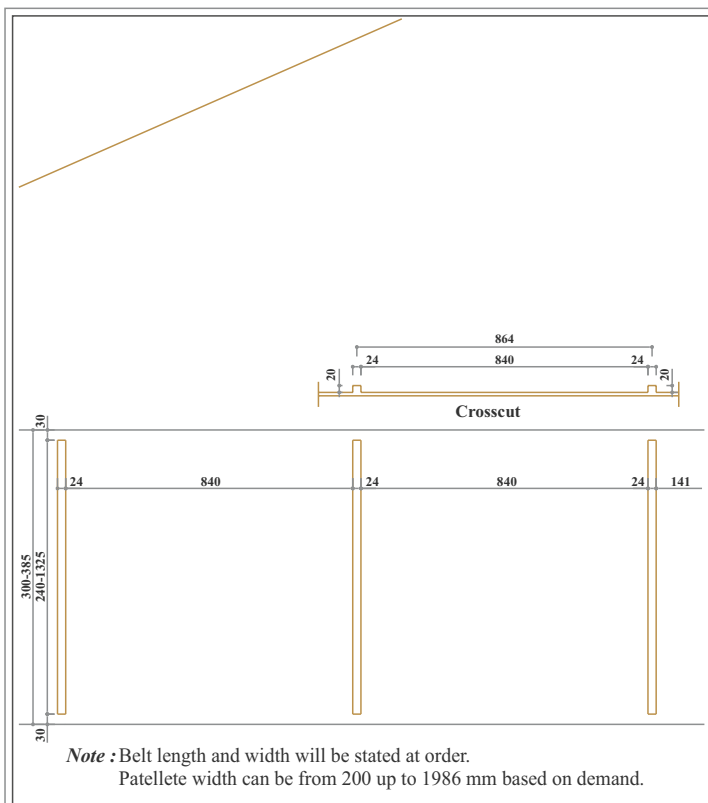
Cavus Palette belt molds



Separator Belt with Cavus Palette



Separator belt mold

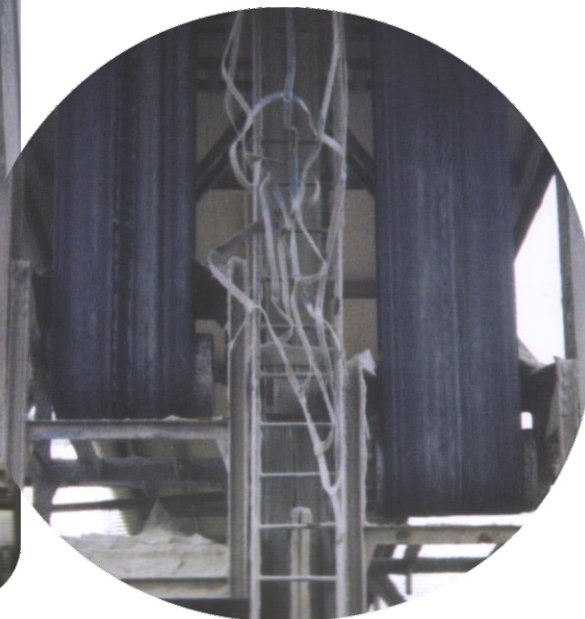




Belt Stretching Extent

Textile Woven Belt's Stretching Extent

- EP Woven Belts $t_s = \% 1.5 l_c$
- PP Woven Belts $t_s = \% 4.4 L_c$



Due Weight for Stretching

- $G_v = \frac{2 T_2}{g} \text{ (kg)}$
- G_v = Stretcher Weight (kg)
- T_2 = Stretching of loose side (N)
- g = Gravitational acceleration (m/s^2)



CONVEX RADIUS CALCULATIONS

1 - - Minimum radius to avoid bending at the center of the belt.

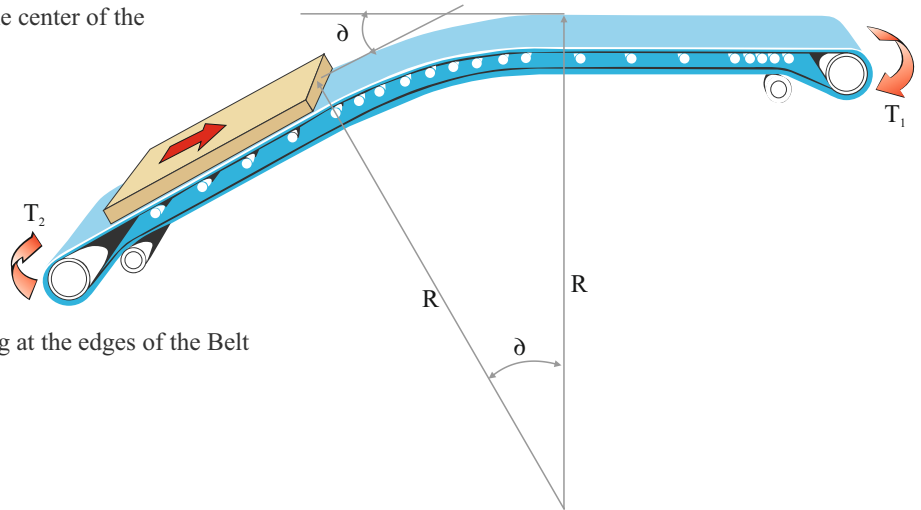
Assumption: Information for compression at the center of

Assumption : Information for compression at the center of the Tape $E_c < 0.5$ _

$$E_c = \frac{(1/3) (W/3) \sin B}{r} = \frac{W \sin B}{9r}$$

$$\frac{W \sin B}{9r} \leq 0,005$$

$$r \geq 22 W \sin B$$



2 - Minimum radius to avoid excessive stretching at the edges of the Belt

Assumption : Stretching at the edge of the belt $\leq R/8$

$$T_e = T_B + E_e.M$$

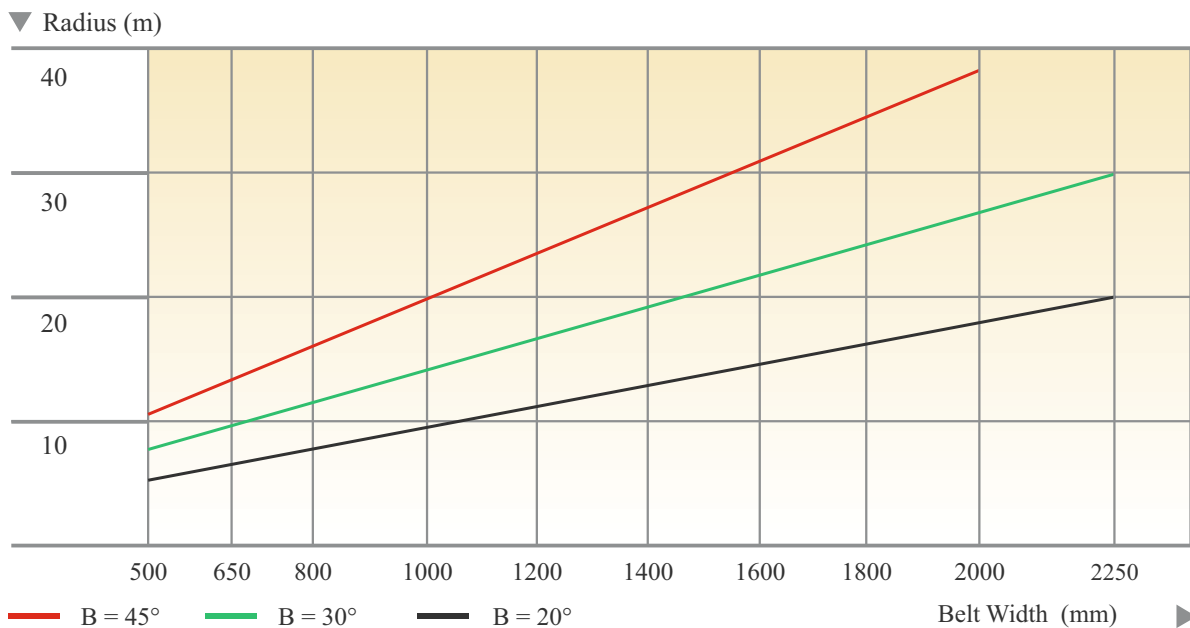
$$T_e = \frac{(2/3) \times (W/3) \sin B}{r} = \frac{2W \sin B}{9r}$$

$$M = 25 R (TW, IW, SW \text{ for belts})$$

$$T_e = T_B + \frac{2 W \sin B}{9 r} 25 R \leq R/8$$

$$r > \frac{25 R W \sin B}{4,5 (R/8 - T_g)} M.$$

For Textile Woven Belts

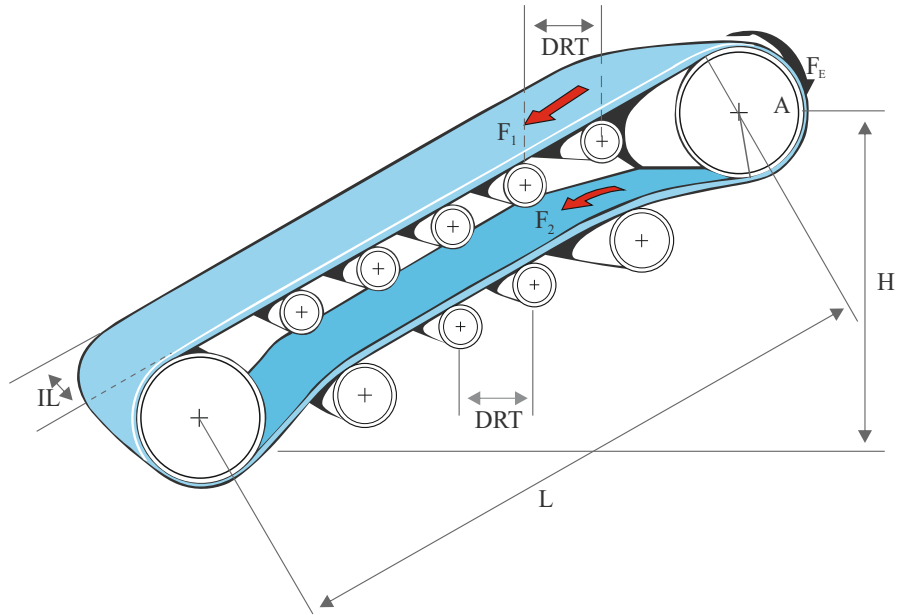




BELT CALCULATIONS

Symbol Legend

L =	Distance between Centers	(m)
H =	Carriage Height	(m)
W =	Belt Width	(mm)
V =	Belt Speed	(m/sec)
B =	Grooving Angle	(°)
S =	Safety Element	(Usually 10)
lm =	Carriage Capacity	(T/h)
a =	Belt Incitement Drum	
	Wrapping Angle	(°)
U =	Incitement Drum Belt	
	Friction Coefficient	
Cd =	Incitement Efficiency	(0.85 0.95)



Approximate Roller Weights

- Gtr = Weight of the Carriage Roller (kg)
Dtr = Weight of the Carriage Roller (m)
Gtr = Weight of the Carrier Roller at 1 m. (Gtr/dtr) (kg/m)
Grt = Rotating Roller Weight (kg)
Drt = Rotating Roller Weight (m)
Grt = Rotating roller weight at 1 m.(kg/m)
- The distance between The carrier rollers is Usually 1,2 or 1,4 m.x
 - The distance between the (dtr) Rotating rollers is 2 or 3 Times greater than the previously Said distances.

f = Roller friction element
0,017 material with very little interior friction well settled equipment.
0.02 standard value for regular material and regular conveyors.
0.023 0.027 inappropriate work conditions, Bad equipment, material with high interior friction, and dusty environment

Outer Diameter (mm)

BELT WIDTH (mm)	51		70		89		108		133		159		191		216	
	CYCLE	CARRIER	CYCLE	CARRIER	CYCLE	CARRIER	CYCLE	CARRIER	CYCLE	CARRIER	CYCLE	CARRIER	CYCLE	CARRIER	CYCLE	CARRIER
300	1,6	2,4	2,7	4,1												
400	1,9	2,7	3,2	4,6												
500	2,2	3,0	3,7	5,1												
650			4,4	5,8	6,5	9,1										
800			5,4	6,8	7,8	10,4	11,4	16,0								
1000					7,8	11,7	13,3	17,9	17,5	23,5						
1200							15,7	20,3	20,7	26,7	28,3	36,9				
1400									23,2	29,2	31,7	40,3				
1600									25,8	31,8	35,2	43,8				
1800										38,7	47,2	55,5	70,5			
2000										42,2	50,8	60,3	75,3			
2200													65,1	80,1	84,7	104,7
2400													69,9	84,9	90,9	110,9
2600													74,8	89,8	89,8	117,1

F is a function of belt speed

Belt Speed V(m/s.)	3	4	5	6
(f) Straightening factor for	-15 %	-10 %	0	-10 %

F Is a function of temperature.

t°C	+20°	+10°	0	-10°	-20°	-25°	-30°
Ct	1,0	1,1	1,4	2,0	2,7	3,2	3,8

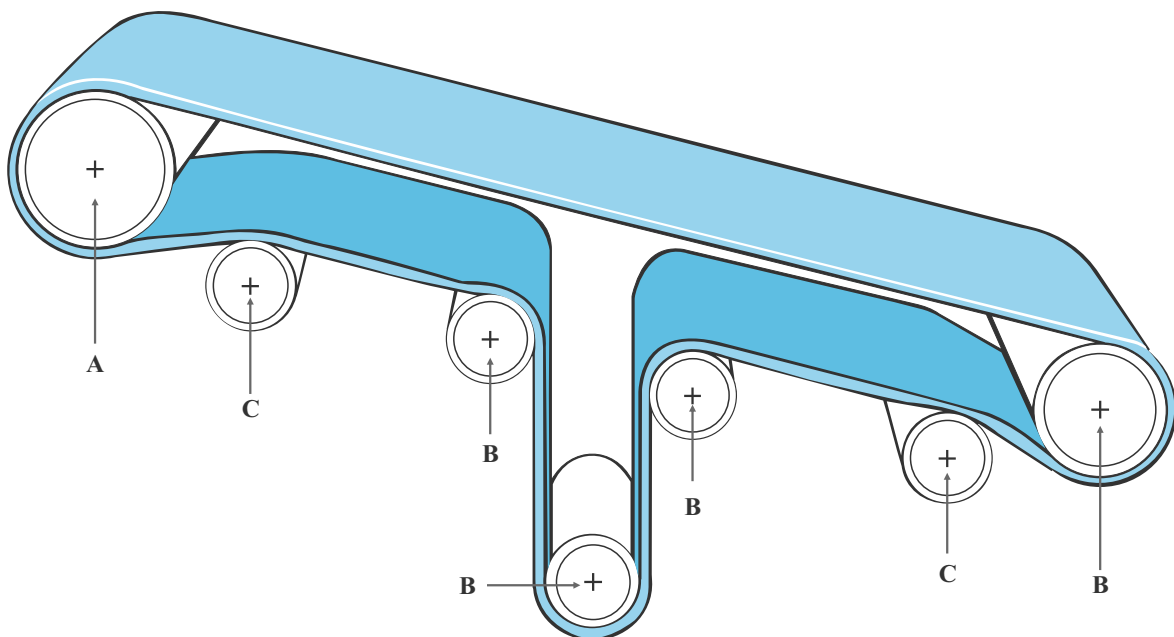
$$f_t = f \left(\frac{1}{6} C_t + \frac{5}{6} \right)$$



MINIMUM DRUM DIAMETERS RECOMMENDED FOR TEXTILE WOVEN BELTS (MM)

Textile Woven Belts / Fabric Type

Utilized Max. Load.	Co efficient	EP 100			EP 125			EP160			EP 200			EP250-315		
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
%65-100	2	160	160	125	200	160	160	250	200	160	315	250	200			
	3	200	200	160	315	250	200	400	315	250	500	400	315	630	500	400
	4	315	250	200	400	315	250	500	400	315	630	500	400	800	630	500
	5	400	315	250	500	400	315	630	500	400	800	630	500	1000	800	630
	6				630	500	400	800	630	500	1000	800	630	1250	1000	800
%30-64	2				200	160	160	200	160	160	250	200	160			
	3	160	125	125	250	200	160	315	250	200	400	315	250	500	400	315
	4	200	160	160	315	250	200	400	315	250	500	400	315	630	500	400
	5	250	200	160	400	315	250	500	400	315	630	500	400	800	630	500
	6	315	250	200	500	400	315	630	500	400	800	630	500	1000	800	630
%30	2	125	125	125	160	160	160	160	160	160	200	200	160			
	3	160	160	160	200	160	160	250	200	160	315	250	200	400	315	250
	4	200	160	160	250	200	200	315	250	200	400	315	250	500	400	315
	5	250	200	200	315	250	250	400	315	250	500	400	315	630	500	400
	6				400	315	315	500	400	315	630	500	400	800	630	500





CONCAVE RADIUS CALCULATIONS

Symbols Legend

r = Minimum Radius (m)

B = Grooving Angle($^{\circ}$)

T_0 = Belt Stretching at the point B (N/mm)

W = Belt Width (m)

R = Belt Resistance (N/mm)

G_b = Belt Weight (kg/m)

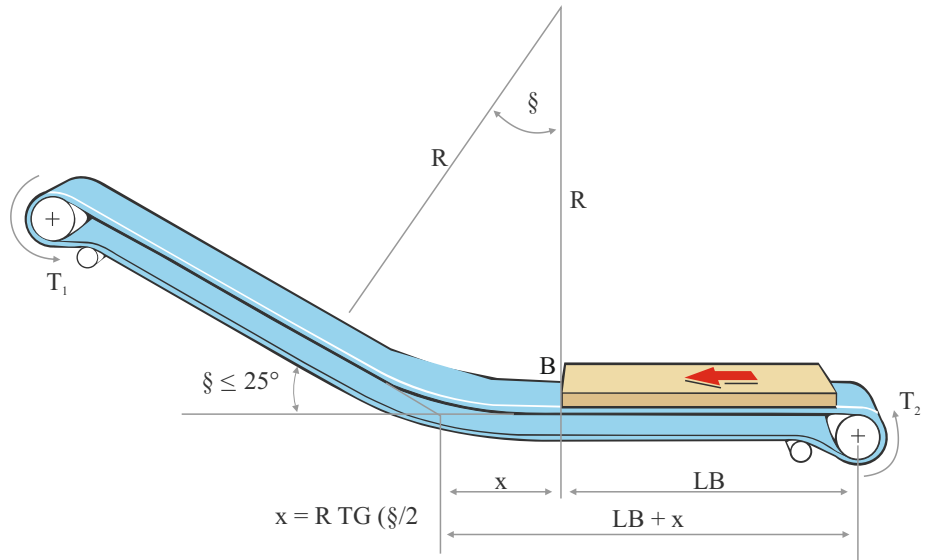
G_m = Weight of the material carried (kg/m)

M = Belt Module

For EP Belts $M = 15R$

For TW,IW,SW Belts $M = 25R$

For IW-R Belts $M = 50R$



1 - When the part from charging point to tangent point (B) is loaded the minimum radius securing contact with the grooving rollers.

$$r \geq \frac{1,11 \cdot T_B}{G_b} \text{ m.}$$

2 - Partly loaded belt's radius when elevation of the empty belt from the rollers is allowed.

$$r \geq \frac{1,11 \cdot 2T_B}{(G_b + 0,3G_b)} \text{ m.}$$

3 - The minimum radius to avoid edge twists.

$$Ec = \frac{(2/3) (W/3) \sin B}{r} = \frac{2W \sin B}{9r} \leq 0,005$$

$$r \geq 45 W \sin B \text{ m.}$$

4 - The minimum radius to avoid excessive stretching at the center of the belt.

Assumption : Stretching at the center of the belt:

$$T_c \leq R/8$$

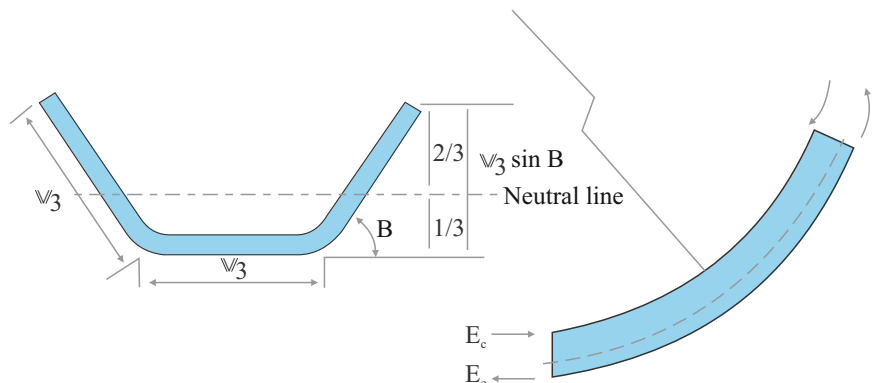
$$T_c = T_b + E_c \cdot M$$

$$E_c = \frac{(1/3)(W/3) \sin B}{r} = \frac{W \sin B}{9r}$$

$$M = 25 R \text{ (For TW, IW, SW Belts)}$$

$$T_c = T_b + \frac{W \sin B}{9r} 25R \leq \frac{R}{8}$$

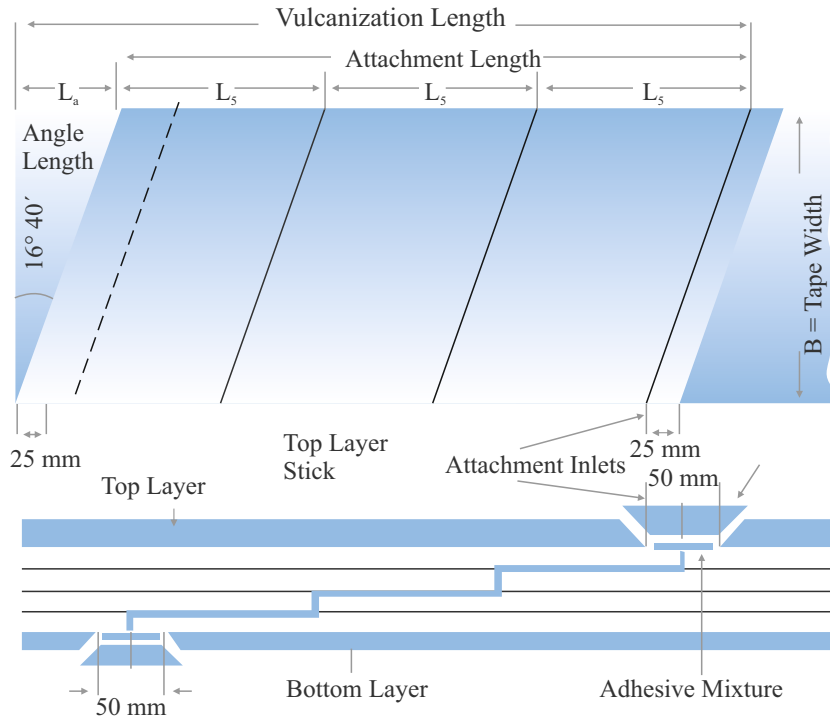
$$r = \frac{25 R W \sin B}{9 (R/8 - T_b)} \text{ m.}$$





ATTACHMENT OF TEXTILE BELTS BY HOT VULCANIZATION

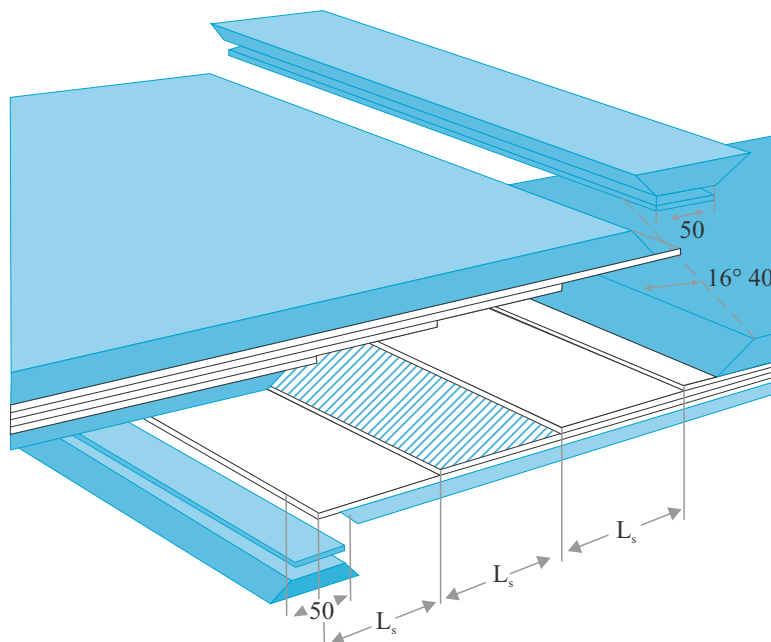
Minimum Attachment Sizes based on Fabric Resistance



Angle Length : $L_A = LA = 0.3 \times \text{Belt Width}$
 Attachment Length : $L_V = LV = (\text{Fabric Coefficient}-1) * \text{Layer Length } L_5$
 Vulcanization = Attachment Length (LV) + Angle Length (LA)

Fabric Resistance (kg/cm)	Belt Type	Length of LS Layers (mm)	LV Attachment Size
70	200/3	100	200
	250/4	100	300
100	250/3	150	300
	315/3	150	300
	315/4	150	450
	400/4	150	450
125-160	400/3	200	400
	500/3	200	400
	500/4	200	600
	630/4	200	600
200-250	800/4	250	750
	1000/4	250	750
	1000/5	250	1000
	1250/5	250	1000
315-400	1250/4	300	900
	1600/5	300	900
	1600/5	300	1200
	2000/5	300	1200

The Rules requiring attention at Vulcanization Process



- 1- Mold height should be 1mm lower than belt's thickness.
- 2- Pressure cannot be applied immediately after closing the press machine. One should keep waiting until the machine reaches 70-80°. Then first pressure can be applied.
- 3- Pressure should be increased gradually in correspondence with the increase in the heat. After the heat reaches 145 ° the vulcanization process starts.
- 4- At this temperature, one must keep the belt under pressure during the vulcanization process.

Derby Belts Vulcanization Duration

For the belts with up to 20 mm thickness;
 (Belt thickness (mm) + 10) min.
 For the belts thicker than 20 mm;
 Belt thickness (mm) + 15) min.



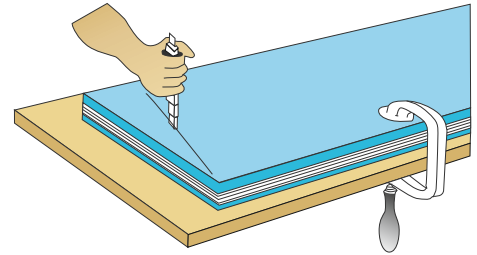
ATTACHMENT OF TEXTILE BELTS BY COLD VULCANIZATION

Fabric Resistance (kg/cm)	Layer Quantity	Length of the Layers (mm)	Attachment Size (mm)
---------------------------	----------------	---------------------------	----------------------

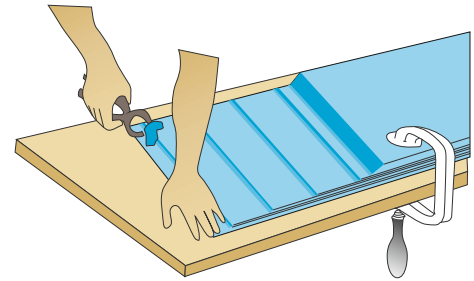
70-100	3	150	300
	4	150	450
125-160	3	200	400
	4	200	600
200-250	4	250	750
	5	250	1000
315-400	4	300	900
	5	300	1200

Attachment distances of the conveyor belts are defined in the above tableau as per the cloth type and number of layers.

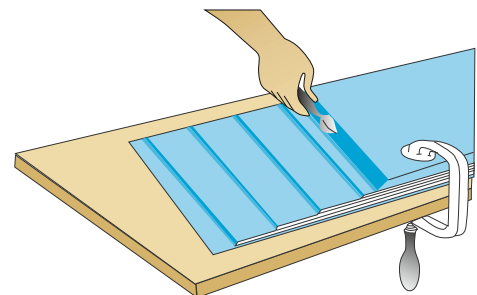
Belt ends are cut angular. The multiplication of the belt width with 0.3 results in makes 16° 40° angle. Narrower angles are recommended for the belts that go through small-sized drums.



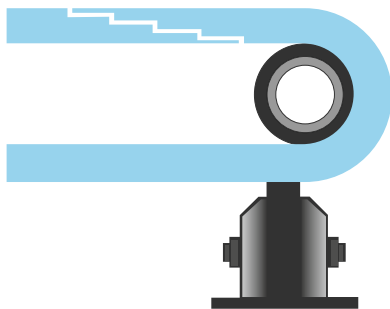
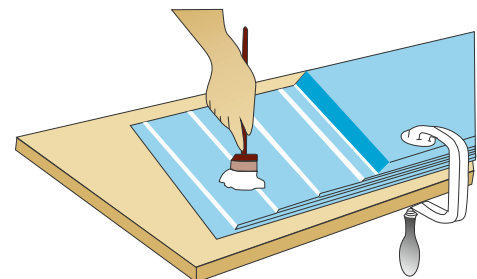
Layers, of whose sizes are indicated at the table, are opened according to fabric resistance. fabric is taken away the covering. Covering taken from the bottom fabric according to that that will leave 50 mm covering outside.



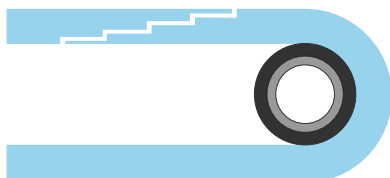
The sharp edge joining the top layer with the fabric is abraded with a wire brush or spiral stone in a way that the edge will make a 45° angle.



The both surfaces prepared for attachment are put some cold vulcanized adhesive with stiffener. It should be made sure that the adhesive gets into the textile properly. While applying the mixture, it should be applied strongly in the turning direction of the brush and it should be made sure that there is an integral layer on the joining surfaces. The mixture should be spread very well. Otherwise, the bubbles caused by improper spreading will not dry well. Wait for every layer spread dry properly. The drying time might differ due to climate. The approximate waiting time is one to two hours. During drying process, usage of light or breeze causing devices is not recommended.



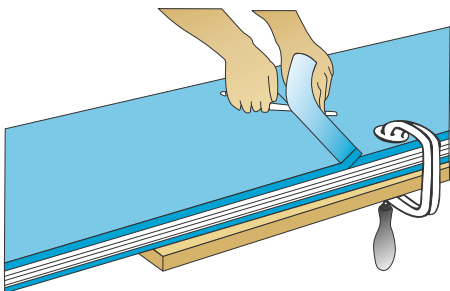
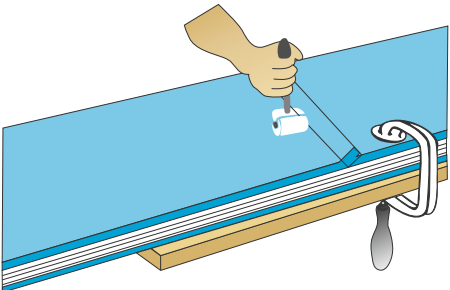
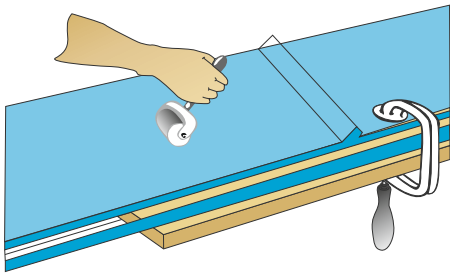
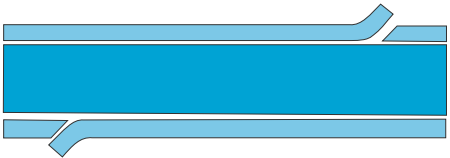
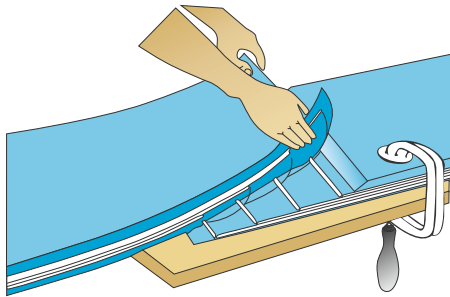
Attaching while there is a sweeper in the system.



Attaching while there is no sweeper in the system.



ATTACHMENT OF TEXTILE BELTS BY COLD VULCANIZATION



To ensure drying of the both sides, it is recommended that spreading the last layer with the help of an installer to the both sides. Rubber surfaces dry faster than the textile surfaces coated with an adhesive substance. Thus, before the last layer dries, these parts should be coated with a thin layer of the adhesive. Pay attention to that layer are spliced properly while attaching together the both sides of the joint. Attachment should be made with attention, because, unlike hot vulcanization, an afterward adjustment is not possible. This is because the sticking membrane that is very important for taping will be damaged. If for any reason the attachment could not be made properly or is needed to be taken off, spread a new thin layer and let it dry. As seen at the intersection picture, rubber bulges will occur at both the bottom and the top levels.

The joined parts should be steamrolled with a rolling pin. The direction of the rolling pin should be from center to the side (to let air leave from the sides).

Then the attachment joining part should be strongly steamrolled throughout the joining area.

Then the excess part of rubber should be peeled off with help of a sharp knife. If you observe any cavity, use the paste obtained by blending rubber powder and cold adhesive to fill the cavities. Putting a fixed and heavy weight on the joining part before using the belt will ensure a better result. The strength of the attached part will increase in time. Wait at least 2 hours before putting the belt into service. To obtain maximum productivity from the belt wait for 4-6 hours.

Instructions for Using Cold Vulcanized Adhesive

Cold vulcanization ensures the attachment of the belts without a need for heating vulcanization apparatus. It is composed of two components, namely adhesive and stiffener. Since the usage life of the adhesive decreases after blending with the stiffener, its mixture should be prepared immediately before applying. The mixture must be used in maximum 2 hours. The cold adhesives should be stored in a dry and cool place. The recommended storage life is maximum 6 months. It is advised that the adhesive be placed upside down so the lid is at the bottom because this will ensure avoiding air infiltration. The cold vulcanized adhesive provides great convenience in attaching the rubber layers of drums, covering the inner surfaces of bunkers with rubber, pasting rubber floor tiles (to wood, concrete, metal surfaces) as well as joining belts.



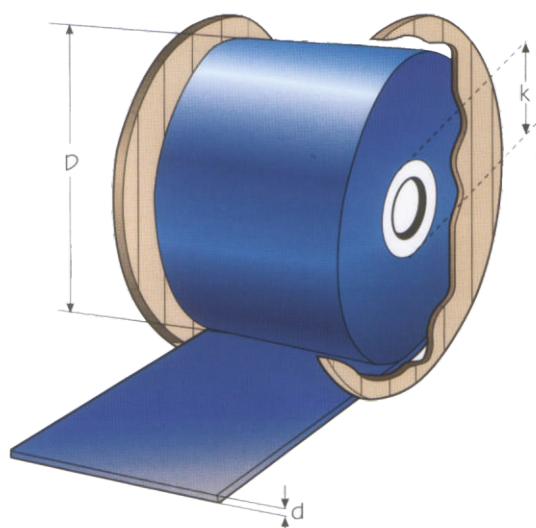
WINDING DIAMETER

Symbols Legend

Belt Length	Drum seed Ø k = 0.2 m Belt thickness d =mm					Drum seed Ø k =0.5 m / Belt thickness d =mm								
	4	6	8	10	12	14	16	18	20	22	24	26	28	30
10	0.30	0.34	0.38	0.41	0.44	0.65	0.67	0.69	0.71	0.73	0.75	0.76	0.78	0.80
20	0.38	0.44	0.49	0.54	0.59	0.78	0.81	0.84	0.87	0.90	0.93	0.96	0.9	1.01
40	0.49	0.59	0.67	0.74	0.81	0.98	1.03	1.08	1.13	1.17	1.21	1.25	1.29	1.33
60	0.59	0.71	0.81	0.90	0.98	1.15	1.21	1.27	1.33	1.39	1.44	1.49	1.54	1.59
80	0.67	0.81	0.93	1.03	1.12	1.29	1.37	1.44	1.51	1.58	1.64	1.70	1.76	1.82
100	0.74	0.90	1.03	1.15	1.25	1.42	1.51	1.59	1.67	1.75	1.81	1.89	1.95	2.02
120	0.81	0.98	1.12	1.25	1.37	1.55	1.64	1.73	1.82	1.90	1.98	2.06	2.13	2.20
140	0.87	1.05	1.21	1.35	1.48	1.66	1.76	1.86	1.95	2.04	2.13	2.21	2.29	2.37
160	0.92	1.12	1.28	1.43	1.57	1.75	1.87	1.97	2.07	2.17	2.26	2.35	2.44	2.53
180	0.98	1.19	1.37	1.53	1.67	1.86	1.98	2.09	2.20	2.30	2.40	2.49	2.58	2.67
200	1.03	1.25	1.44	1.61	1.76	1.96	2.08	2.20	2.31	2.42	2.52	2.62	2.72	2.81
220	1.08	1.31	1.51	1.69	1.84	2.04	2.18	2.30	2.42	2.53	2.64	2.74	2.84	2.94
240	1.12	1.37	1.58	1.76	1.93	2.13	2.26	2.40	2.52	2.64	2.76	2.87	2.97	3.07
260	1.17	1.42	1.64	1.83	2.00	2.21	2.35	2.49	2.62	2.75	2.86	2.98	3.09	3.20
280	1.21	1.47	1.70	1.90	2.08	2.29	2.44	2.58	2.72	2.84	2.97	3.08	3.19	3.30
300	1.25	1.53	1.76	1.97	2.15	2.37	2.52	2.67	2.81	2.94	3.07	3.19	3.31	3.42
320	1.29	1.58	1.81	2.03	2.22	2.44	2.60	2.75	2.90	3.04	3.16	3.30	3.41	3.53
340	1.33	1.62	1.87	2.09	2.29	2.51	2.68	2.84	2.99	3.12	3.26	3.39	3.52	3.64
360	1.37	1.67	1.93	2.15	2.36	2.58	2.75	2.92	3.07	3.21	3.36	3.49	3.62	3.74
380	1.41	1.72	1.98	2.21	2.42	2.65	2.83	3.00	3.15	3.30	3.45	3.58	3.72	3.84
400	1.44	1.76	2.03	2.27	2.48	2.72	2.90	3.07	3.23	3.37	3.53	3.69	3.81	3.94

Conveyor Belts' Winding Diameter

D = Winding Diameter
d = Belt Thickness
L = Belt Length
k = Drum seed caliber



Belt Storage Conditions

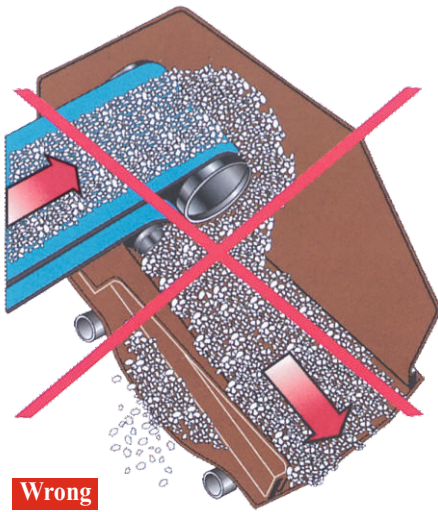
- An ideal storage should be cool, dim and free of light and humidity.
- Belts must be stored on rollers.
- Belt drums should be rotated every 15 days as to make 45 ° angle around the drum axis.
- The drums should be unloaded to ventilate for every month and some talc powder should be spread before rewinding.
- Storage for a long time will decrease the performance of the belt.

For the storage life of the backup belts, take into consideration the below table.

Storage Period		At Storage	At somewhere else	
			Places Under Daylight	Places without Daylight
	Maximum	1.5 5 year	1 week	3 months
	Standard	0.5 5 years	3 days	1 months

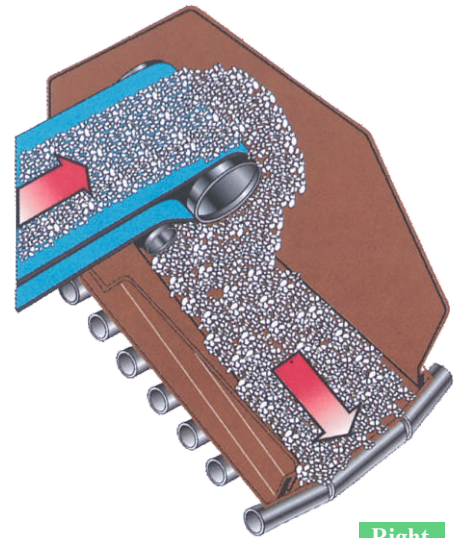


BELT USAGE ERRORS

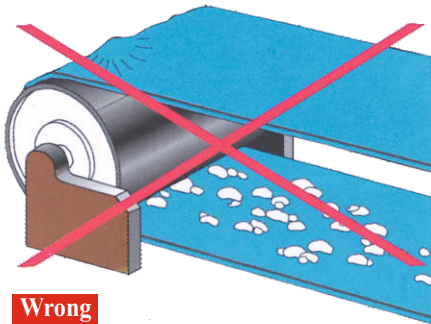


Wrong

You must use impact rollers at loading area.

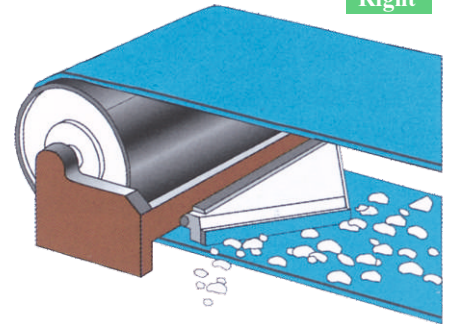


Right

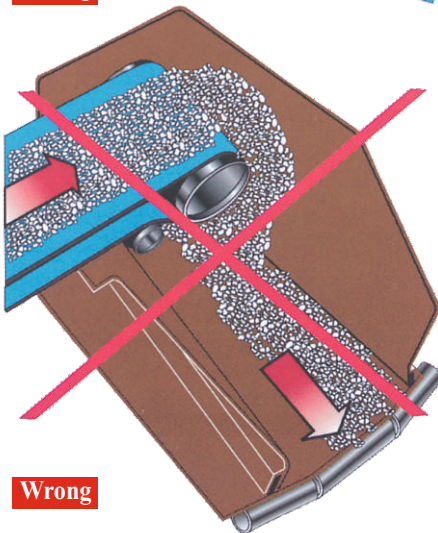


Wrong

Don't forget to use a sweeper prior to tail drum.

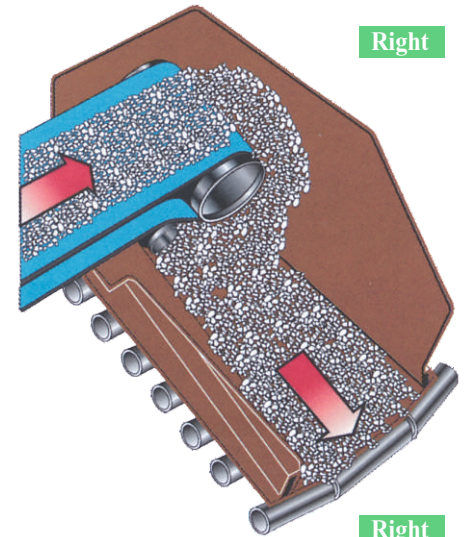


Right

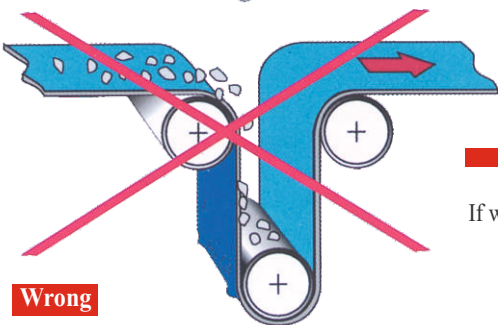


Wrong

Ensure the loading is proper and centered.

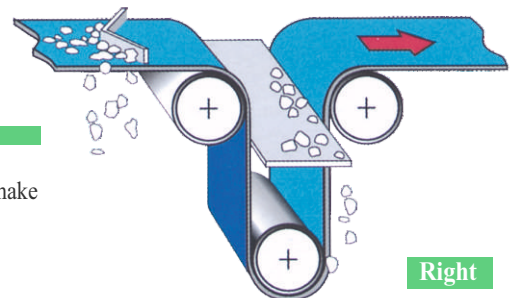


Right



Wrong

If weighted stretching drum is used in the system, make sure you use a belt erasing rubber located before the entrance to the stretching system and protect the weight drum



Right



BELT USAGE ERRORS SOLUTIONS

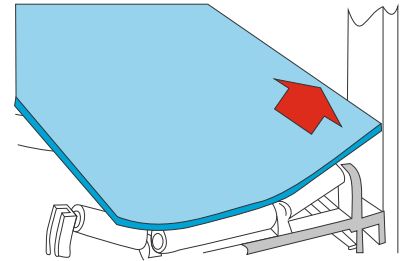
Problem: Belt gets off the course from a particular part of the conveyor

Causes

- 1- Conveyor chassis installed crookedly
- 2-One or some drum groups are not exactly perpendicular to the belt axis
- 3-Some material is wrapping around the drums.

Solutions

- 1- Measure the divergence with a rope and correct the chassis.
- 2-Slide forward the drum group at the point belt diverges in the direction of the belt movement.
- 3-Maintain the drums.If needed, install a sweeper or any other cleaner.



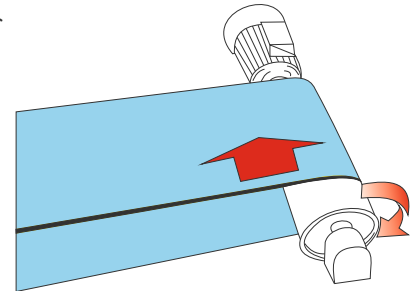
Problem: A part of the belt gets off the course throughout the conveyor.

Causes

- 1- Joining parts are not proper.
- 2- Belt might be kept in storage in an improperly wrapped condition.

Solutions

- 1- Cut the belt from the joints and reattach them properly.
- 2- a) If the belt is new it will recover in a period of time. If old, take off the crooked part.
b) Use guiding drum groups.



Problem: Belt gets off from the edge of the drawing drum.

Causes

- 1- The head drum or the drum groups immediately behind it are tuneless.

Solutions

- 1- Make sure the drum and roller axis perpendicular to the belt axis.

Problem: Belt gets off the course at a part of the conveyor.

Causes

- 1- Bad belt loading

Solutions

- 1-Ensure correct loading

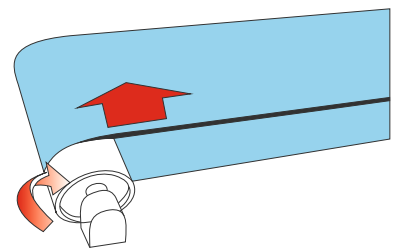
Problem: The belt skip off the edge of tail drum.

Causes

- 1- Some material is wrapping around the rotating rollers.
- 2- Rotating rollers are tuneless.
- 3- Belt loading is bad

Solutions

- 1- Clean the drums
- 2- Adjust the rotating roller axes perpendicular to the belt axis.
- 3- Ensure proper loading



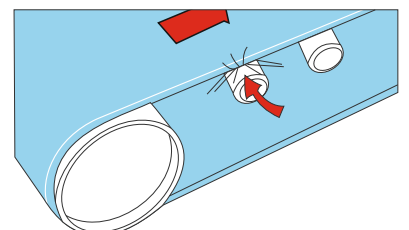
Problem: The bottom layer of the belt is being very abraded.

Causes

- 1- There is divergence between the belt and the drawing drum.
- 2- Some material infiltrates between drum and belt.

Solutions

- 1- a) Increase the stretching power.
b) Cover the drawing drum with rubber or replace the abraded layer.
c) Increase the belt wraparound angle.
- 2- Place a sweeper in front of the tail drum.





BELT USAGE ERRORS – SOLUTIONS

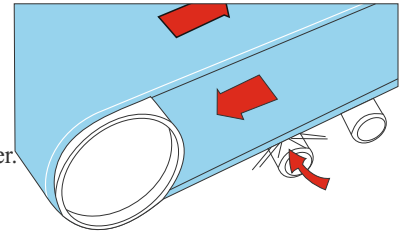
Problem: The upper layer of the belt is being very abraded.

Causes

- 1- The rotating rollers are stuck.
- 2- Due to excessive hopping the belt diverges while passing over material rollers.
- 3- The barriers abrades the belt
- 4- Bad layer quality

Solutions

- 1- a) Clean the rotating rollers.
b) Use rubber disc rotating rollers.
c) Place sweeper to the both ends.
- 2- a) Increase the stretching power.
b) Decrease the distance with the carrier roller.
- 3- Elevate barriers and use rubber without fabric. Do not use old conveyor belts for this job.
- 4- Use a belt with better rubber quality or with greater top layer.



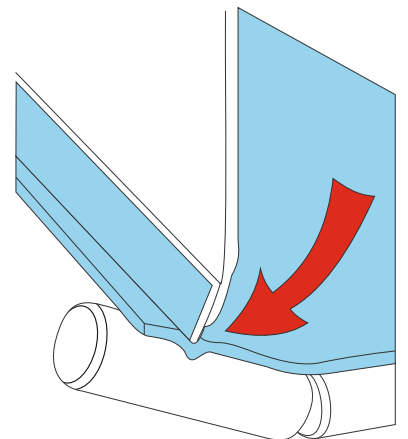
Problem: The top layer is caved or stripped.

Causes

- 1- The loading tank eraser are too stiff so makes excessive pressure on the belt.
- 2- The interval between belt and eraser is too much
- 3- The edges of loading tank is too near to the belt. Opening is constant.
- 4- The belt causes the material get stuck between the eraser and the belt through the impact causing the belt stretch at loading area
- 5- The material is quite compressing.

Solutions

- 1- Use soft eraser. Do not use the old belts as eraser
- 2- Minimize the eraser interval.
- 3- Leave at least 25 mm interval between. The belt and the metal. This interval should increase in the direction of belt movement.
- 4- Use impact rollers.
- 5- Extend in its movement direction.



Problem: The belt and carcass are tearing at the joining area of the drums.

Causes

- 1- The distance between the drum and the loading area is insufficient or the belt is not running properly.
- 2- Convex curve radius is insufficient.

Solutions

- 1- a) Keep the rollers away from the drum.
b) Use transition rollers
c) Adjust the tail drum.
- 1- a) Decrease the roller weight at the curvy part.
b) Use transition roller.
c) Increase the curviness radius.
d) Lower the high drums at the curvy part.

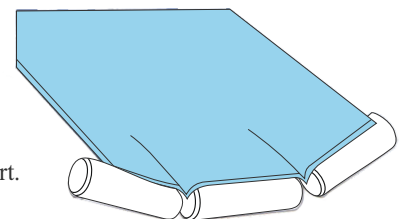




PHOTO GALLERY

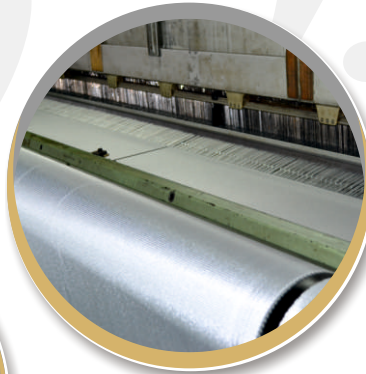
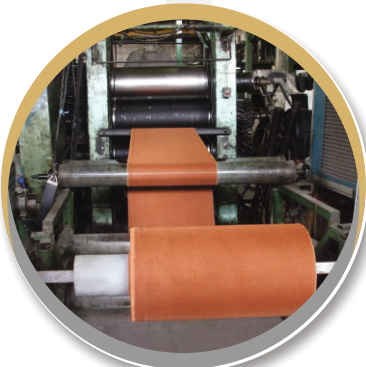
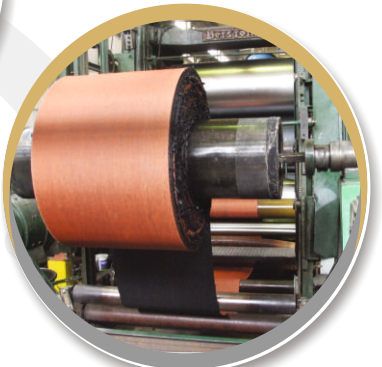




PHOTO GALLERY





OUR CERTIFICATE

