Conveyor Belt





Conveyor Belt

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DRB has been steadily growing in automotive and industrial rubber product markets after starting out with power transmission and conveyor belt production. We provides high value-added products and services to our customers, leading their diverse industry fields in the world market, based on accumulated experiences and technological capabilities. Over 65 years, DRB has been providing outstanding products and services to Korea's leading automotive, electronic and steel manufacturers who have achieved strong footholds in the world market, and consequently, DRB has formed strong business partnerships with those companies.



- 4 Steel Cord Conveyor Belt
- 6 Multi-Ply Conveyor Belt
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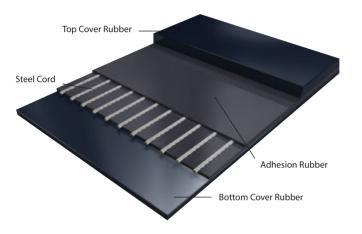
Belt Structure

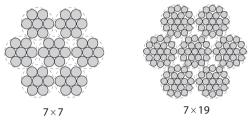
- It is ideal for long-distance, large-capacity and high tensile strength lines.
- Low elongation allows short take-up strokes.
- Small diameter pulleys may be used.

Take-up Stroke Comparison

Carcass	Take-up Stroke
Steel Cord	Over 0.35
Nylon	Over 2.1
Polyester	Over 1.4

Cord Structure

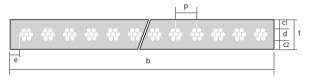




7×7 : Applied to low tension lines

 7×19 : Applied to high tension lines

General Structure



b : Belt width c1: Top cover rubber thickness c2 : Bottom cover rubber thickness

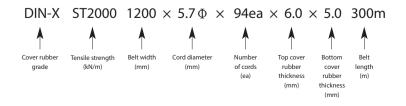
e : Edge rubber width d : Cord diameter

p : Cord pitch t: Total belt thickness

Breaker(reinforcing fabric)

- prevents length-wise tearing by foreign substances or sharp objects
- · prevents broken steel cord from protruding through cover rubber
- provides high withdrawal strength (in stationary tests)
- reduces risks for belt breakage by impact

Belt Marking Protocol



b

c1: Top cover rubber thickness

b : Belt width

c2 : Bottom cover rubber thickness

d : Cord diameter

p : Cord pitch

e : Edge rubber width t: Total belt thickness

Breaker(reinforcing fabric)

Product Information

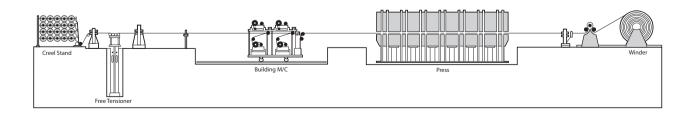
Products	Application groups
(1) Belt tensile strength: ST500~ST5000(kN/m)	(1) General Purpose
(2) Belt width: 600~2200mm	(2) Abrasion Resistance
(3) Minimum length: 100m	(3) Heat Resistance
	(4) Oil Resistance
	(5) Fire Resistance

Standard Specifications

Specification	Cord diameter(mm)	Cord pitch(mm)	Cord structure	Minimu	um pulley diamet	er(mm)
specification	Cold diameter(mm)	Cord pitch(mm)	cold structure	Drive/Head	Takeup/Tail	Snap/Bend
ST-500	2.4	10	7×7	600	500	350
ST-630	2.7	10	7×7	600	500	350
ST-800	3.1	10	7×7	650	500	400
ST-900	3.3	10	7×7	700	550	450
ST-1000	3.6	12	7×7	700	550	450
ST-1250	4.0	12	7×7	850	700	500
ST-1400	4.3	12	7×7	950	750	550
ST-1600	4.7	12	7×7	1000	800	600
ST-1800	5.0	12	7×7	1200	950	700
ST-2000	5.2	12	7×7	1200	950	700
ST-2500	6.8	15	7×19	1500	1200	900
ST-2800	7.2	15	7×19	1550	1250	950
ST-3000	7.4	15	7×19	1700	1350	1000
ST-4000	8.6	15	7×19	1850	1400	1050
ST-5000	9.6	15	7×19	2100	1700	1250

Note : Please contact your representative as specifications other than the above are available.

Production Process



Multi-Ply Conveyor Belt

Features



Material Quality

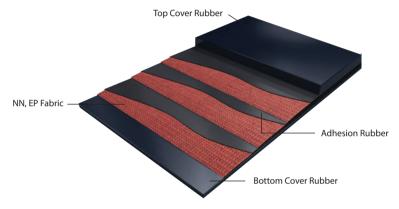
Nylon (NN)

- Highly flexible.
- Highly resistant against impact.
- Highly bendable.

Polyester (EP)

- Less elongation.
- Less deformed by heat.
- Less affected by moisture.

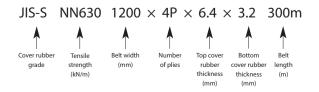
Belt Structure



Product Information

Products	Application groups					
(1) Belt tensile strength : 100~2000(kN/m)	(1) General Purpose	(7) Anti-Static				
(2) Belt width : 300~2200mm	(2) Abrasion Resistance	(8) Color				
(3) Minimum length : 50m	(3) Heat Resistance					
	(4) Oil Resistance					
	(5) Fire Resistance					
	(6) Chemical Resistance					

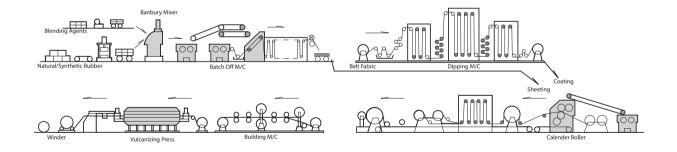
Belt Marking Protocol



Standard Specifications

Dolt strongeth		Belt specifica	ations								Belt	widtł	า				(r	nm/iı	nch)
Belt strength (kN/m)	Plies	Carcass	Cover ru	bber(mm)	300	400	500	600	700	800	900	1000	1050	1200	1400	1600	1800	2000	2200
((((), ())))	Files	type	Top rubber	Bottom rubber	12	16	20	24	28	32	36	40	42	48	56	64	72	80	88
160	2	NN, EP	3.2	1.6															
250	2~3	NN, EP	3.2	1.6															
315	2~4	NN, EP	4.8	1.6															
400	2~4	NN, EP	4.8	1.6															
500	2~4	NN, EP	4.8	1.6															
630	3~5	NN, EP	4.8	1.6															
800	3~6	NN, EP	4.8	2.4															
1000	4~6	NN, EP	4.8	2.4															
1250	4~6	NN, EP	4.8	2.4															
1500	5~6	NN, EP	6.4	3.2															
2000	5~6	NN, EP	6.4	3.2															

Production Processes



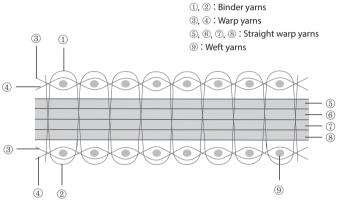


- One-ply carcass provides over 2000kN/m tension.
- Low elongation allows short take-up strokes.
- Single layer carcass structure provides optimum troughing.
- Single layer carcass structure provides high bendability, allowing small-diameter pulleys.
- High bendability, impact-resistance and thin carcass allow thick cover rubber layers, extending belt life span.

Belt Structure

Carcass Structure





Belt Marking Protocol

DIN-Y SF800 1200 × 1P × 6.0 × 3.0 300m A Å Å Bottom Cover rubber Tensile Belt width Number Top cover Belt grade strength rubber cover rubber length (mm) of plies (kN/m) thickness thickness (m) (mm) (mm)

Standard Specifications

Specification	Carcass	Cover	rubber	Minim	num pulley diamete	r(mm)
specification	thickness	Top rubber	Bottom rubber	Drive/Head	Takeup/Tail	Snap/Bend
SF-600	2.5	5	3	400	350	300
SF-800	3.3	5	3	450	400	350
SF-1000	3.5	6	3	500	450	350
SF-1200	4.3	6	3	550	500	400
SF-1500	4.9	6	4	650	550	450
SF-1800	5.5	8	4	750	650	550
SF-2000	5.8	8	4	850	750	650

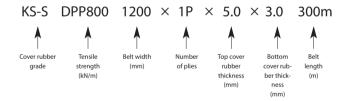
Note: Please consult us your representative for specifications other than the above.

Belt Structure

- Carcass contains an aramid ply, making this conveyor belt ideal for long, large-capacity and high-tensile strength lines.
- Straight-warp construction of carcass offers excellent impact resistance, abrasion resistance and flexibility.
- Belt is thinner and lighter than steel-cord conveyor belts but just as strong, thus requiring less power.
- Lower elongation allows for shorter take-up strokes, making this conveyor belt better for transporting goods in high-temperature environments than previous fabric conveyor belts.

Aramid fiber layer Adhesion rubber Bottom cover rubber

Belt Marking Protocol

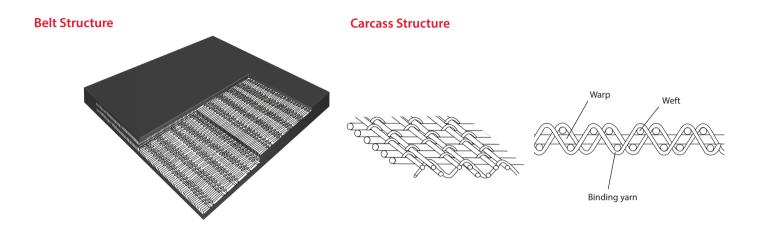


Standard Specifications

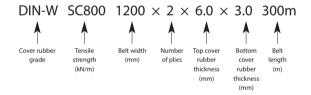
Specifications	Cover Rubber	Thickness (mm)	Minimum Pulley Diameter (mm)					
specifications	Top Cover	Bottom Cover	Drive/Head	Take-up/Tail	Snub/Bend			
DPP800	6	2	600	450	350			
DPP1000	6	2	600	450	350			
DPP1250	6	2	650	500	400			
DPP1500	8	3	700	550	450			
DPP1800	8	3	750	550	500			
DPP2000	8	3	750	550	500			

Note: Please contact us for any specifications not included in the above table.

- Straight warp ply carcass structure allows designs to provide higher tension than ordinary multi-ply belts.
- Provides high bendability and impact resistance.
- Belts can be easily joined.



Belt Marking Protocol



Standard Specifications

Specifications	Cover ru	bber(mm)	Minim	num pulley diamete	r(mm)
Specifications	Top rubber	Bottom rubber	Drive/Head	Take-up/Tail	Snap/Bend
SC-400	5	2	350	300	250
SC-600	5	2	400	350	300
SC-800	6	3	450	400	350
SC-1000	6	3	500	450	400
SC-1200	б	3	550	500	400
SC-1600	8	4	700	600	500
SC-1800	8	4	850	750	650
SC-2000	8	4	900	800	700

Note: Please consult us your representative for specifications other than the above.

JIS	

	Standard		JIS-P	JIS-G	JIS-S	JIS-A	JIS-L	JIS-D	JIS-H
	Before	Tensile Strength (MPa)	>8	>14	>18	>14	>15	>18	>24
Tensile	Aging	Elongation(%)	>300	>400	>450	>400	>350	>400	>450
test	After	Change rate of TS(%)	±40	± 30	±25	±25	±25	±25	±25
	Aging	Change rate of EL(%)	±40	±30	±25	±25	±25	±25	±25
	Abras	ion test (㎜³)	<400	<250	<200	<150	<200	<100	<120
	Oz	zone test			No Crack	No Crack			

DIN

	St	tandard	DIN-W	DIN-X	DIN-Y	DIN-Z
	Before	Tensile Strength (MPa)	>18	>25	>20	>15
Tensile	Aging	Elongation(%)	>400	>450	>400	>350
test	After	Change rate of TS(%)	±25	±25	±25	±25
	Aging	Change rate of EL(%)	±25	±25	±25	±25
	Abrasion test (mm²)		<90	<120	<150	<250

AS

	St	tandard	AS-N	AS-M	AS-A
Before	Tensile Strength (MPa)	>17	>24	>17	
Tensile	Aging	Elongation(%)	>400	>450	>400
test	After	Change rate of TS(%)	±20	±20	±20
	Aging	Change rate of EL(%)	±20	±20	±20
Abrasion test (mm²)			<200	<125	<70



BS

	S	BS-N17	BS-M24	
Before	Tensile Strength (MPa)	>17	>24	
Tensile	Aging	Elongation(%)	>400	>450
test	After	Change rate of TS(%)	±25	±25
	Aging	Change rate of EL(%)	±25	±25

RMA

	S	tandard	RMA-1	RMA-2
	Before	Tensile Strength (MPa)	>25	>18
Tensile	Aging	Elongation(%)	>450	>400
test	After Aging	Change rate of TS(%)	±25	±25
		Change rate of EL(%)	±25	±25
	Abras	sion test (㎜³)	<125	<200

Note : DRB produces conveyor belts that conform to various international specifications.

Please consult your representative for conveyor belts of non-standard specifications.

Heat Resistant Conveyor Belt



It is more economical to use a thermostable conveyor belt when transporting materials with 60° C or higher temperature. Damage to cover rubber varies depending on the temperature or shape of transported materials and it is critical to choose suitable belt materials depending on the use conditions. The relationship between the cargo and the belt surface temperature is especially noteworthy. This is because cooling is mainly achieved on the return trip as the temperature of the belt surface is different from that of the cargo, although it varies depending on the cargo shape, belt length, speed, operation environment and hours.

Grade	Features	Applications
HRS	Being a belt made of heat-hardening SBR materials, it has good abrasion resistance though somecracks are generated as cover rubber gets hardened by heat if used for a long time.	High abrasion resistance, Medium temperature
HRB	Being a belt made of heat-softening IIR materials, it has good resist- ance against cracks though its cover rubber gets softened by heat if used for a long time. It is suitable to transport cement or clinker with little abrasion.	Crack resistance, Medium high temperature
HRP	Being a belt made of EPR materials, it demonstrates outstanding performance in transporting hot materials as it has high resistance against abrasion and cracks.	High abrasion resistance, Crack resistance, High temperature
HRP (plus)	Being a new concept HRP product whose crack resistance is rein- forced, you may experience a longer life span.	High abrasion resistance, Crack resistance, High temperature

Selection of Belts by Material Type and Temperature

Grain shape	Powder materials				Lump materials						
Material handled	Cemen	it, Chemica	al, Fertilize	r, Soda asl	n, Casting	sand, Clinker	Sintered ore, Cokes, Limestone, Iron Ore, Clinker				
Maximum temperature of material handled		120	150	200	200	400		200	200	400	400
		1	1	ţ	ţ	ţ		ţ	ţ	ţ	1
Average temperature of material handled	60	80	100	120	150	180	60	100	120	150	200
Maximum temperature of belt surface	50	80	100	120	150	180	50	80	100	130	180
HRS(SBR)											
HRB(Butyl)											
HRP (EPR)/HRP (plus)											

Relation between Material and Belt Surface Temperature

Belt surface temperature varies depending on material types, shapes, sizes, belt cycle time, and trough angle. The heat-resistant belts should be selected based on their surface temperature as their life span depends on the belt surface temperature.

Material handled	Temperature of material handled(℃)	Belt surface temperature(℃)	Used grade
Sintered ore	200~350	90~150	HRP
Cokes	60~200	40~60	HRS
Clinker	200~300	100~150	HRB
Clinker	300~400	150~180	HRP
Cement	110~140	100~110	HRB
Fertilizer	80~100	60~80	HRS
Casting cast	~100	60~80	HRS
j	100~150	110~130	HRP

Fire Resistant Conveyor Belt

Features

Intended to prevent line loss while reducing flame damage to the belt by suppressing ignition, fire resistant conveyor belts are mainly used in grain processing industries, fertilizer plants, thermoelectric power plants, and mines.

Fire Resistance Testing

Item	Laboratory flame test		Drum friction test	Electric	Other Items	
Standard	Flame	Glow		resistance		
SIL	Each less than 15 sec. Total of 6 samples less than 45 sec.	None	None	None	None	
ISO	Each less than 15 sec. Total of 6 samples less than 45 sec.	None	None	Less than 3x10 ⁸ Ω	None	
DIN	Each less than 15 sec. Total of 6 samples less than 45 sec.	None	None	Less than 3x10 ⁸ Ω	None	
MSHA (USA)	Avr. less than 60 sec.	Avr. less than 180 sec.	None	Less than 3x10 ⁸ Ω	None	
AS (Australia)	Avr. less than 10 sec. Each less than 15 sec.	Avr. less than 120 sec. Each less than 180 sec.	Less than 325°C on drum surface and no glow	Less than 3x10 ⁸ Ω	Oxygen idex test in accordanc with ISO 4589 Gallery flame test	
CSA (Canada)	Avr. less than 60 sec.	Avr. less than 180 sec.	Less than 400°C on drum surface and no glow	Less than 3x10 ⁸ Ω	None	

MSHA (USA), CAN/CSA-M422 (Canada), MDA-M5010 (Australia) certified

Fire Resistant Belt Grades

Grade	Application			
FR, JIS-FR, MSHA	Suitable for lines that require general fire resistance.			
FR JIS-A, FR SAR	Suitable for lines that require fire and abrasion resistance.			
FR-NH, FR-ENH	Suitable for lines that require fire resistance in an environment where goods are handled at high temperatures (up to 150 °C).			
ORN-FR-ANTIS	Suitable for lines that require fire and oil resistance and anti-static features.			
DIN-S, AS-S	Suitable for lines transporting flammable goods in an underground environment.			
FR Cleanface	Cleanface belt with cake reduction feature and added fire resistance.			





Oil Resistant Conveyor Belt

Ordinary grade belts are damaged quickly by imbibition of oil into cover rubber, peeling of cover rubber, and reversetroughing of the belt if oily materials are transported. Therefore, oil-resistant belts should be used to transport oily materials.

Grade	Color	Key Applications
ORN	White, Green, Black	Resistant to metal, animal or vegetable oil excluding aromatic compounds (benzene, toluene etc.) halogen hydrocarbon, ketone, and ester family. Further, the cover rubber is highly resistant to abrasion.
ORN-30	White, Black	Used for slightly oily materials. It is suitable for transporting wood chips or frozen meat.
HOR	White, Black	It is suitable for animal or vegetable oil transported at a relatively high temperature (up to 100 $\ensuremath{\mathbb{C}}$)

Chemical Resistant Conveyor Belt

Used for transporting chemicals, pulp, ceramic, foodstuffs, fertilizer and materials with chemicals attached. It is necessary to select cover rubber that is resistant to acid or alkali depending on the types of transport materials or chemicals attached to the materials.



Anti-Static Conveyor Belt

Belt is made of cover rubber especially mixed to prevent static electricity. Anti-static belt is essential to transport fabrics that stick on the belt surface with static electricity or electronic products that may explode or ignite by electrification. Cover rubber electric resistance (ISO-284) : 3 x 10⁸ g or less

Color Conveyor Belt

Belt is made of white, green or yellow cover rubber to match color in workplace, or to protect workers' eyesight or safety. It inspires easy sorting of transport materials and enhances workers' safety.

Bucket elevator conveyor belts have bolt holes to fix buckets along the entire belt length, making them apt to be torn easily and receiving pulled force with the buckets' weight. They also have a withdrawal force different from that of the ordinary belts in bending in connection with pulleys. Therefore, their carcasses mainly use polyester fabric that can address such problems. Steel cord is used when a highly powerful belt is required.

o 10 11	Cover rubber	Minimum pulley diameter(mm)					
Specification	thickness	4 (ply)	5 (ply)	6 (ply)	7 (ply)		
EP 315		500					
EP 400		650	600				
EP 500	Over 1.5 × 1.5	650	750	850			
EP 630		700	800	950	1000		
EP 800		800	850	1000	1150		
EP 1000		850	1000	1000	1200		
EP 1250		900	1050	1200	1400		
EP 1500		1050	1100	1300	1400		

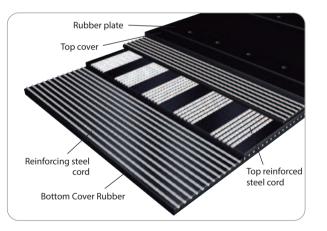




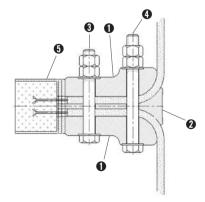
Standard Specifications (steel cord)

Belt Designation	Min. pulley diame- ter(mm)	Take-up adjustment Distance(mm)	Bucket Width	Volume streams(m ³ /h)		
ST- 500	600	250		100% Filling	75% Filling	
ST- 630	600	250	160	38	28	
ST- 800	650	250	200	55	41	
ST- 900	700	250	250	87	65	
ST- 1000	750	250	315	127	95	
ST- 1250	850	250	400	197	148	
ST- 1400	950	315	500	287	215	
ST- 1600	1000	315	630	465	349	
ST- 1800	1200	315	800	665	499	
ST- 2000	1200	315	1000	935	701	
ST- 2500	1500	500	1250	1166	874	
ST- 2800	1550	500	1400	1310	980	
ST- 3150	1700	500	1600	1443	1102	
ST- 4000	1850	500	1880	1613	1211	
ST- 5000	2100	500	2000	1808	1352	

Belt Structure



Belt Clamping



Clamping jaw (Duralumin)
 Pusher (Duralumin)
 Bolt, Nut, Washer

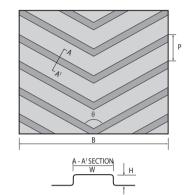
- 4. Bolt, Nut, Washer
- 5. U-shape



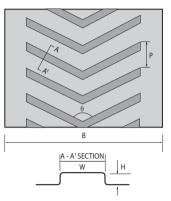


Chevron conveyor belts are highly effective for transporting sand, coal powder, grain or other powder or granular materials or materials packed in bags or boxes on incline though they can transport coal or mineral ore just like ordinary conveyor belts. They can transport powder or granular materials on 17°~28° inclines and materials packed in bags or boxes on 30°~35° inclines.





Type B



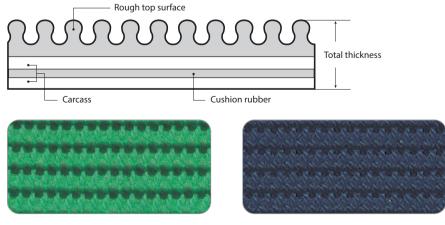
Standard Specifications

Belt width B(mm)	Cleat height H(mm)	Cleat width W(mm)	Cleat pitch P(mm)	Cleat angle θ	Туре
350	3	12	80	120	А
400	3	12	80	120	А
450	3	12	80	120	А
500	3	12	80	120	А
600	3	12	80	120	А
700	4	12	60	120	А
750	4	12	60	120	А
800	4	12	60	120	А
900	4	12	60	120	А
1000	4	12	60	120	А
1050	4	12	60	120	В
1200	4	12	60	120	В

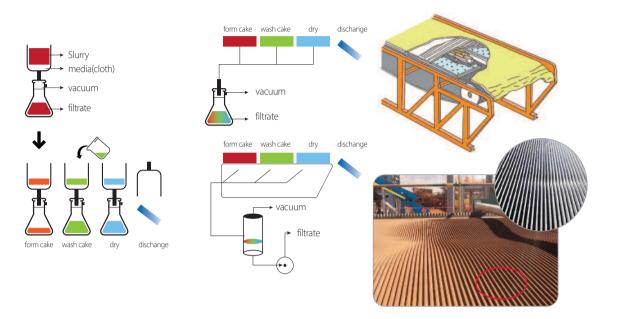
Rough Top Conveyor Belt

Uneven cover rubber surface prevents slippage while preventing vibration of, or absorbing and reducing impact to transport materials by providing a cushion effect. This belt is ideal for transporting plywood or packed items.

Basic Structure



- Filter belts are used in fields that require continual mass filtering to separate slurry into its liquid and solid components and collect the end product as needed.
- Filter belts must be installed and used according to accurate specifications and measurement limits.
- For laboratory-wide filtering (separation of liquids and solids), please follow the procedure depicted below.
- Filter belt is a system that uses filtration principles for industrial purposes.



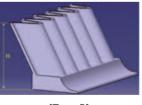
Areas of Application

	Cover material	Carcass material (Warp/Weft)	Strength (KN/M)	No. of plies	Width
	NR		500		300~2200mm
	SBR	Nylon / Nylon (NN)	630	3	without longitudinal joint
	CR(Neoprene)	Polyester / Nylon (EP)	800	4	
	llR(Butyl)	Polyester / Polyester (EE)	1000	5	2300~4200mm with
_	EPDM	· • • • • • • • • • • • • • • • • • • •	1250		vulcanized longitudinal joint

Curbing Type



[Type A]



[Type B]



[Type C]

Curbing Height

Height(H)		TYPE	
	А	В	С
65	0		
70		0	
100		0	
125			0
130		0	

Structure

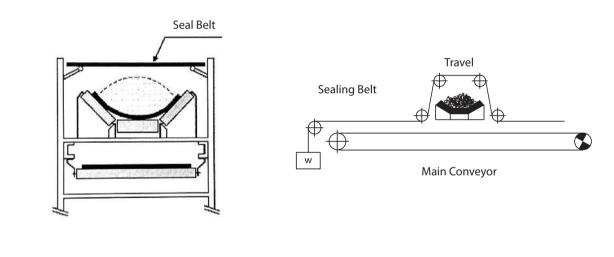
- Unlike conventional conveyor belts used for transporting goods, a seal belt is a cover-type belt that protects against wind and water penetration.
- Seal belt is an eco-friendly belt system used to prevent dust-related problems caused during the conveyor transportation process.
- Seal belts are used on lines with an unloader, reclaimer, or tripper (where there is a moving chute), where resin or metal covers cannot be used.



General type



Two-belt type



Belt Marking	SEAL	KS-S	EP-200	1200	×	2	×	3.0	×	2.0	(square iron type)
Protocol	SEAL	KS-S	EP-200	1200	×	2+3P	×	3.0	×	2.0	(file type)
		A	A					A			



- Excellent rip protection and impact resistance.Minimizes damage to belt carcass from sharp
- objects or strong impact.
 Prevents the belt from being torn lengthwise by sharp objects inserted between the belt and other equipment.

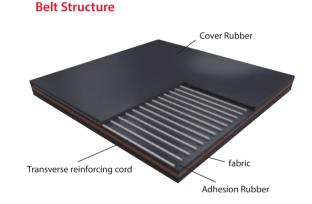
Belt Structure



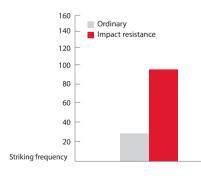
Impact / Cut Resistant Conveyor Belt

Features

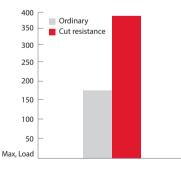
- Minimizes damages to belt carcass from sharp objects or strong impact.
- Prevents belts from being cut or broken by damage.



Impact Resistance test



Cut Resistance test

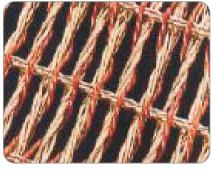


Belt type	Specification	Remark
Ordinary Conveyor belt	NN800 1200 \times 5P \times 8 \times 3	
Impact/Cut Resistant conveyor belt	NN800 1200 \times 5P+1 \times 8 \times 3	Steel cord reinforced

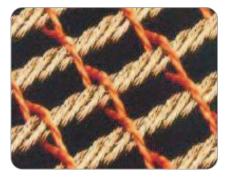
IW Steel-Cord Conveyor Belt

Features

- Unlike regular steel-cord conveyor belts with anti-tear and rip-resistant qualities, IW steel-cord conveyor belts have a carcass and weft cords woven in a special design that minimizes damage to the belt by impacts.
- Steel cords woven into a special design provide better flexibility and troughability compared to conventional steel-cord belts.



IW Cord



BF Cord

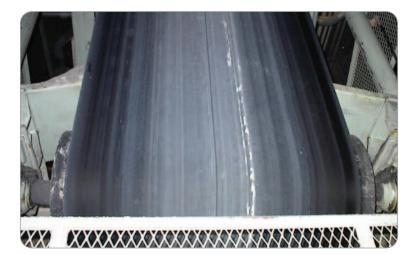
Cleanface Conveyor Belt

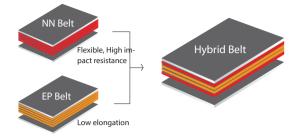
Features

- Cleanface conveyor belt has an improved belt-cleaning feature, which minimizes the caking of residue from transported materials in the return unit of the conveyor belt and thereby improves the environmental conditions of the line.
- Twice as abrasion resistant as KS-A, cleanface conveyor belts have a comparatively long lifespan.

Mounting Test Results

- Transport material: slurry
- Transport volume: 90 tons/hour
- Belt specifications: NN630 1050 x 4P x 6.4 x 3.2 86m
- Result: cake reduction of up to 57.5%
 - > Results may differ depending on the line facilities and operating conditions.





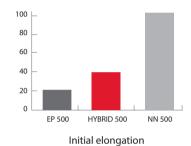
Hybrid belts combine merits of NN belt's flexibility and EP belt's low elongation.

Satisfactory improvement is confirmed on lines where belts are lengthened as sufficient take-up stroke is not secured.

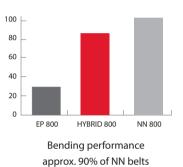
Standard Specifications

HYBRID Nomal NN400/4 HB400/4 NN500/3 NN500/4 HB500/4 NN500/5 NN630/3 NN630/4 HB630/4 NN630/5 NN630/6 NN800/4 HB800/4 NN800/5 NN800/6 NN1000/4 NN1000/5 HB1000/4 NN1000/6 NN1250/4 HB1250/4 NN1250/5 NN1250/6

Belt Performance



approx. 40% of NN belts





Energy Saving Conveyor Belt

Features

Energy Saving conveyor belt has rubber covers that minimize the elastic deformation of rubber caused by an idler. This reduces energy loss during operation and also reduces the power costs necessary for the operation of conveyor belts.

Verification of Energy Saving Conveyor Belt Performance

Result of the University of Hannover's energy saving test based on DN22123 Verified that the belt reduced power consumption by up to 29%



DIN 22123, Indentation rolling resistances test

Average power reduction rate

Conventional belt 1,988kW

Energy-saving belt 1,471kW

Line Test Results

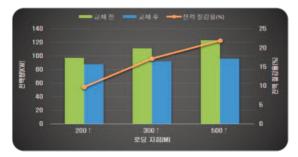
1) Installed on a long-distance line for a cement manufacturer

Customer	Cement Manufacturer	
Belt Spec	ST2000 1050mm x 5.5mm x 5.5mm	
C to C	12,854m	
Slope	-4.95。 (-111.1m)	
Material	Limestone (2,400t/h)	
Belt speed	360m/min	
Power	1,200kW X 3 (2 unit Head / 1 unit Tail)	



2) Applied short-distance yard line to power plant

Customer	Power Plant
Belt Spec	NN800 1400mm x 5mm x 3mm (Fire Resistant Energy-Saving Conveyor Belt)
C to C	652m
Slope	0.
Material	Coal (1,800t/h)
Belt speed	200m/min
Power	300kW X 1 (1 unit Head)





517kW ── 26%

Average power reduction rate

Conventional belt	
123kW	
Fire Resistant Energy-Saving Conveyor	Belt
96kW	27kW

- Prevents transport materials from flying, spilling or mixing with foreign substances as transported in a sealed pipe.
- Consumes less energy than ordinary conveyor lines.
- 3-dimension layouts are available with openings at top, bottom, left or right.
- Allows for maximum 30 degree incline transport, much steeper than ordinary conveyor belts.
- Occupies minimum installation space.
- Generates much less noise than ordinary conveyor lines.

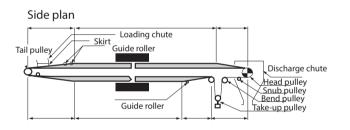
Structure

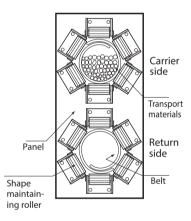
Inside diameter (mm)	Inside diameter (m²)	Belt speed (m/min)	Transport volume (m³/hr)
150	0.013	120	95
200	0.023	130	180
250	0.041	140	344
300	0.049	150	441
350	0.066	175	693
400	0.108	200	1296
500	0.155	225	2093



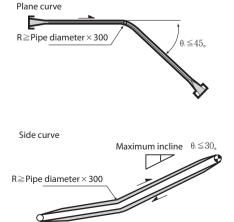
Floor plan



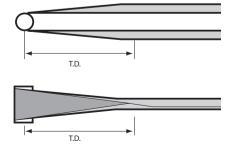




Layout Conditions of Pipe Conveyor



Trough change distance(T.D.) $(T.D.) \ge$ Pipe diameter $\times 25$



Pipe Conveyor System

Standard Specifications

Pipe diamete (mm)	Standard strength (kN/m) Belt width	200	315	500	630	800
150	600	3.0×2.0	3.0×2.0			
200	780	3.0×2.0 5.0×2.0	3.0×2.0 5.0×2.0	3.0×2.0 5.0×2.0		
250	950		3.0×2.0 5.0×2.0	3.0×2.0 5.0×2.0	3.0×2.0 5.0×2.0	
300	1100		3.0×2.0 5.0×2.0	3.0×2.0 5.0×2.0	3.0×2.0 5.0×2.0	
350	1300			5.0×2.0 5.0×2.0	5.0×2.0	5.0×2.0
400	1500				5.0×2.0	5.0×2.0
500	1850				5.0×2.0	5.0×2.0

Return Pipe Conveyor System

Features

Structure

Minimizes contamination of line environment with debris generated at the return part, as the carrier side has a general trough structure and the return omit has a pipe structure.

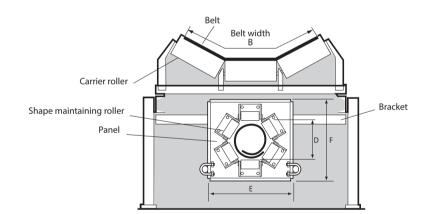


Photo of Installation



Amount of excess before return pipe conveyor applied



Cleanliness after return pipe conveyor applied

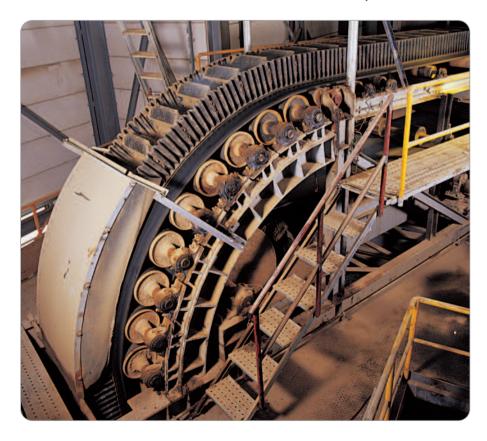
Conveyor belts equipped with special waves or cleats called corrugated sidewall on the belt provide the following features:

- Corrugated sidewall design allows for greater transport volume with increased sectional loading area, enabling a narrower conveyor design.
- Reduces foot space as steep incline or vertical transport is possible with cleats attached belt widthwise.
- No skirt board is required as transport materials spillage is prevented by high wavelike raised strips.
- Incline angle can be easily adjusted with specially strong belts and press rollers.
- Flat rollers may be used to reduce the equipment cost.

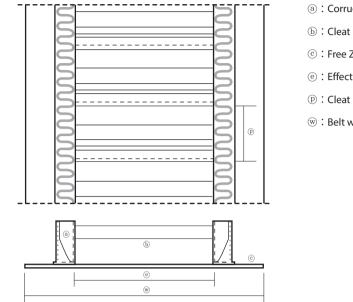


Line type

Foot space compared with that of ordinary conveyor belts



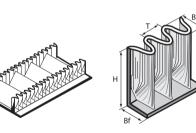
General Shape and Name of Corrugated Sidewall Conveyor Belts



(a) : Corrugated Sidewall

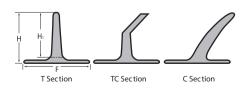
- ⓒ : Free Zone width
- (e) : Effective width
- $\textcircled{P}:\mathsf{Cleat}\:\mathsf{pitch}$
- ⊛ : Belt width

Corrugated Sidewall Dimension and Types



H(mm)	Bw(mm)	Bf(mm)	T(mm)
60	45	50	45
80	45	50	45
100	45	50	45
120	45	50	45
160	70	80	65
200	70	80	65
240	70	80	65
300	80	90	75

Dimension and Types of Cleats



H(mm)	H1(mm)	F(mm)
80	70	100
100	90	100
120	110	100
160	140	140
200	180	190
240	220	230
TC:280	260	280

Note : Advance enquiry is urged as molds should be checked depending on your desired section shapes.

Air Floating Conveyor Belt

Features

Air Floating conveyor belt operates without rollers in the midsection, as the materials are carried on a layer of air that is continually created. As a result, the conveyor can be operated in a completely sealed frame, thereby minimizing caking and dust and making operation, maintenance, and repairs easier than for conventional conveyors.



Bulk Material Pipe (Full enclosed) Belt Belt Air Film support the belt Air Hole

Main Specifications

- ME AFC FR EP1250 1800X4X6X3
- ME AFC EP1500 1000X3X5X2
- ME AFC EP1250 900X4X5X2
- ME AFC EP630 600X2X4.0X1.5

Caution

- Please fill out and forward to us the use condition details on the rear cover of the catalog for right belt selection.
- Do not use conveyor belts for transporting bulk or unpacked foodstuff.
- Advance enquiry is invited for use environment prone to cracks (on belt surface) by ozone (seashore, woods, or other places exposed to direct sunray).
- Observe the following instructions in selecting conveyor belts:

	Instructions
Ordinary Belt	Belt surface temperature should be within the range of -30 \degree ~+50 \degree . This cannot be applied to such specialty belts as heat-resistant, cold-resistant, acid-resistant, alkali-resistant, foodstuff transporting, fire-retardant, human transporting, and bucket elevator conveyor belts.
Heat-Resistant Belt	Belt life span is greatly reduced if use in a sealed space as belt temperature soon becomes the ambient temperature. Do not use belt for transporting materials above allowed temperatures as indicated on the catalog. The belt is not fully fire proof.
Oil-Resistant Belt	Please indicate the intended use conditions when ordering belts as belt life span is greatly affected by adhesion of materials on belt surface, types and amount of oil contained in materials, and temperature of materials.
Fire Resistant Belt	Flame-retardant belts may ignite into flames though they satisfy the flame retardancy standards.
Color Belt	Store belts indoors after covering. Do not leave belts idle on machines for an extended time.

Tips for Using Conveyor Belt

Routine Maintenance



Belts should be inspected as to the following checkpoints before using them. Appropriate actions should be taken for any abnormal condition. Please contact the dealer if such abnormal conditions persist.

Checkpoints	Corrective actions	
(1) Damage or wear of belt body	Repair or replacement	
(2) Peeling or damage on joining parts	Repair and rejoining	
(3) Poor roller rotation	Repair or replacement	
(4) Foreign materials attached to pulley or rollers	Removal of foreign materials	
(5) Abnormal take-up action parts	Maintenance	
(6) Skirt or cleaner damages	Maintenance	
(7) Shute damages	Maintenance	
(8) Foreign materials or substances attached	Removal	

Points to note in operation



Caution

Install a shield wall or safety cover.

Operator or others may be squeezed or drawn between the belt and equipment while under operation.

- Do not enter the area behind the shield wall.
- Do not wear a necktie and check for any loose clothing. Human body may be squeezed or drawn into the equipment.
- During operation don't step on the belt. Don't touch the belt with your hand or body.
- Don't throw in any foreign materials like cigarette butts or anything that may catch fire.
- Check power switch, emergency stop device, and escape exit before starting operation.
- Observe maximum load limit to prevent an unusual strain. It may cause the belt to break.
- Ensure transport materials are not spilt over the belt sides.
- Install a detection device on equipment for emergency stop situation.

Ex) Device to prevent reverse rotation, serpentine action detection device, emergency stop device etc.

- Immediately stop and check the line for any joint breaks or serpentine action or any other maintenance issue.
- Do not enter the space below the belt or take-up part.
- Do not remove cake or debris while the belt is in operation.

Points to note when stopped

- Turn off the switch and display "Stopped" sign on the switch to prevent a mistaken operation.
- Never step on the belt unless necessary for repair.
- Do not stop the belt with transport materials on it. Fire may result.



- Do not turn on the switch for resuming operation until the entire line safety is thoroughly checked.
- Do not step on the belt for repair with cleated shoes. The belt may be damaged.
- Ensure that harmful objects do not fall onto or attach to the belt, including oil, chemical, welding torch flames, and heavy items.

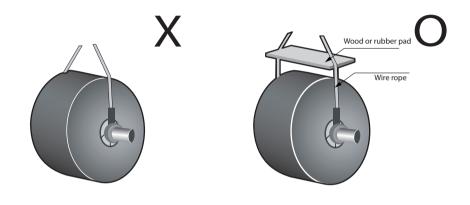
Points to note when splicing belts

- Belts should be joined on an even surface according the strict procedures to ensure safety.
- Be careful in performing work or handling tools at a high or dangerous line.
- Beware of ignition in the workplace. Fire may result.
- · Avoid direct sunlight and remove moisture or dust from the joint when joining belts. Adhesive power may be degraded.
- Ensure sufficient ventilation when rubber bond or solvent is used. They may hurt your health.
- Do not leave rubber bond or solvent or any other accelerants in the workplace. They may cause fire.
- Use only materials allowed for joining belts. Also observe the validity of the joining materials.

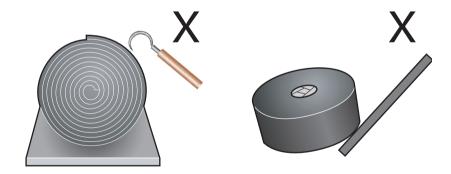
Belts are rolled on wood or steel drum and wrapped with polypropylene. Beware of the following points:



- The belt rolls should be fixed on the cargo bed of a truck. Pay special care not to damage them with forks of lift trucks.
- Do not roll them. It may hurt people in the area.
- Ensure the belt is not damaged by inserting a shaft in the roll holes as shown in the figure when you lift them by a crane.



• Do not use a hook or lever.

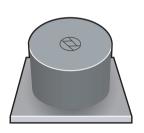


When Keeping stand-by belts or used belts, pay attention to the following points to prevent aging or damage from prolonged storage:

Acceptable storage conditions



- Keep the belts away from direct sunlight.
- Keep the belts away from wind, rain, or moisture.
- Keep them in a dry, even place.
- Keep them away from harmful objects like fire, oil, chemical or organic gas.
- Fix belt rolls to prevent them from rolling.



When laid flat

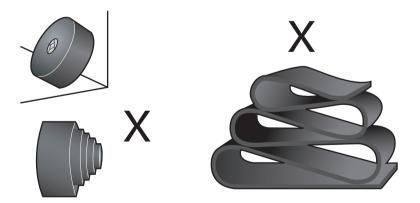


When kept upright



When hung

Inadequate storage conditions

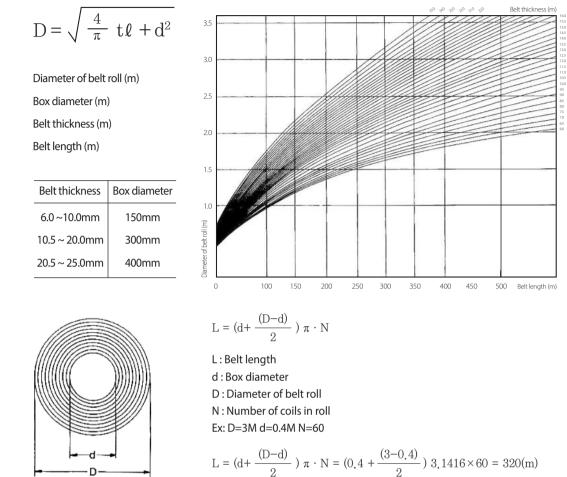


Troubleshooting Guide

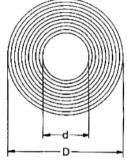
lssues	Causes	Solutions		
1. The belt runs to one side in a particular section of the conveyor.	A. Crooked conveyor frame in the affected section.B. Problem with the rollers in the affected section.C. Cake buildup on the pulleys or rollers in the affected section.D. Roller rotation problem on the conveyor.E. Problem with the pulleys.	 A. Straighten the frame in the affected section and adjust the vertical and horizontal positions. B. Adjust the horizontal and vertical angles to align with the belt's running direction. If the problem persists, tilt the roller in the affected section toward the belt's run- ning direction (less than 2 percent). C. Install or repair cake removal or cleaning devices. D. Repair or replace rollers and check stud bolts. E. Repair pulleys in the affected section. 		
2. A particular section of the belt zigzags regardless of the loca- tion on the conveyor.	A. Straightness problem in the spliced section. B. Curvature of the belt in the affected section.	A. Resplice the belt, if the affected section of the belt comes into contact with the conveyor frame. If the problem is not so severe, observe and take measurements as needed.B. Replace a section of or the entire belt if the problem is severe. Install guide rollers.		
3. The entire belt zigzags across the entire conveyor.	 A. Crooked conveyor frame in the affected section. B. Uneven (off-center) loading of the material on the belt. C. Tilted carrier or return roller. D. Edge wear resulting in exposed carcass. E. Troughability problem of the belt. 	 A. Make sure the conveyor frame is level and properly supported. Check the entire conveyor frame for straightness. B. Redesign the chute so that the load is centered on the belt. C. Adjust the horizontal and vertical angles of all rollers. D. Repair the damaged section of the edge or replace the entire belt. Address the causes of the damage. E. If the problem persists even after the break-in period, replace the belt with one with different specifications. 		
4. The top cover rubber is damaged.	 A. Mismatch between exit velocity of materials and belt speed. B. Chute located too high above the belt. C. Loading materials stuck between the skirt and belt. D. Loading materials stacked on the return side, rubbing against the belt. E. Material buildup on rollers or pulleys. F. Problems with scraping and/or skirting rubber. G. Problems with impact, return, or carrier rollers. 	 A. A significant difference between the exit velocity of materials and belt speed will cause the top cover rubber to wear down faster when loading materials onto the belt. Make sure the exit velocity of materials is matched to the belt speed. B. Install a feeder belt or bar screen. Lower the angle of the chute. Use a movable bar. C. Reduce the distance between impact rollers. Increase the take-up weight. D. Adjust the angle of the chute and repair the line. E. Check and repair the scraper. F. Using an old belt may cause the belt to wear down quickly during operation, therefore replace with skirt rubber. G. Perform regular maintenance and repairs on rollers. Replace old rollers. 		
5. There is excessive wear on the bottom cover rubber.	A. Belt slips off drive pulley. B. Rotation problems in rollers. C. Wear from loading materials jamming the conveyor.	 A. Review the take-up operation and weight. Install rubber lagging on the drive pulley. Increase the contact angle of the snap pulley. B. Perform regular maintenance and repairs on rollers. Replace old rollers. C. When materials spill over and get jammed under the tail pulley, check the status of the skirt, impact roller, and/or V-Cleaner. 		

Troubleshooting Guide

lssues	Causes	Solutions		
6. The belt carcass is damaged.	A. Loading material is too large, causing significant impact. B. Loading material trapped between a pulley and the belt.	A. Install a feeder belt or bar screen. Perform repairs and maintenance on the impact roller. B. Perform repairs and maintenance on the scraper or		
	C. Material build-up on a pulley disfigured the belt. D. Reduced safety factor due to startup overload or sig-	cleaner. C. Perform repairs and maintenance on the scraper or cleaner.		
	nificant take-up weight.	D. Check the belt specifications and take-up weight.		
	E. Belt is jammed in the carrier roller. F. Inadequate transition length between a pulley and the trough carrier.	 E. Adjust the distance between the carrier rollers. Check the total thickness of the belt and number of plies. 		
	G. Rips and tears in the belt from zigzagging and rubbing against the frame. H. Bending fatigue caused by small pulley diameter.	F. Check the trough transition length. G. Identify the causes of the zigzagging of the conveyor belt and resolve the issue.		
		H. Replace pulleys with ones with a larger diameter and review the belt specifications to make sure they match the pulley diameter.		
7. The edge side of the belt is	A. Edge wear from the belt zigzagging or running to one side. B. Tripper issue.	A. Identify the causes of the zigzagging of the conveyor belt and resolve the issue. Increase the space between the belt and conveyor frame.		
damaged.	b, inppenssue.	B. Perform regular maintenance and repairs.		
8.	A. Bad finishing.	A. Attach cover rubber and perform sanding.		
The spliced area zigzags on the conveyor belt or the spliced area	B. Bad splicing. C. Poor working conditions.	B. Inspect splicing materials and methods. Repair the spliced area or resplice the belt.		
is damaged.	 D. Splicing standards (splicing method, vulcanization time) were not followed. 	C. Remove dust or materials that create dust before op- erating the conveyor.		
	E. Belt was misaligned during splicing.	D. Resplice the belt.		
	F. Bending fatigue caused by small pulley diameter.	E. Repair or resplice the belt.		
		F. Replace pulleys with ones with a larger diameter and review the belt specifications to make sure they match the pulley diameter.		
9. The take-up touches the ground due to the size of the belt.	A. Problem with take-up length. B. Belt too elongated.	 A. Ensure suitable take-up length for the belt carcass. Cut off the elongated portion and resplice the belt. B. Review the belt's safety factor and take-up weight. Cut off the elongated portion and resplice the belt. 		
10.	A. Low safety factor.	A. Review the safety factor.		
The belt breaks while carrying materials.	 B. Instantaneous overload from loading materials becom- ing jammed between the belt and a pulley. 	B. Install a cleaner and perform inspections to remove the cause of the problem.		
materials.	C. Belt damage caused by sharp materials loaded on the belt.	C. Redesign the chute unit to dampen the impact.		
11. There is a lengthwise rip in the belt.	A. Steel sheets or other sharp objects jammed in equip- ment, such as a roller or the chute. B. Loading of sharp objects.	A. Do not load sharp objects onto the conveyor belt. In- spect the tears and perform partial repair, partial re- moval and replacement of the belt, or replacement of the entire belt.		
		B. Replace with a rip-protection belt.		
12.	A. Inadequate take-up weight.	A. Recheck the take-up weight.		
Materials spill over because of belt sag between rollers.	B. Belt load resulting from a deviation of the belt specifi- cations and thickness from the optimal standards.	B. Review belt specifications and replace with an optimal belt.		



Formula for Calculating the Length of a **Roll of Belting**





Screw Take-up



1) When mounted with an endless belt

$$L = 2\ell_1 + \frac{\pi}{2}(D_1 + D_2) + 2(\ell_T/3) + Compensation length$$

Where: l_1 : Conveyor length (m)

- D_1 : Drive pulley diameter (m⁰)
- D₂: Tail pulley diameter (m^ø)
- $\ell_{^{_{T}}}: \text{Take-up stroke (m)}$
 - l_{T} When the measurement is unknown, fabric belt …… $\ell_T/3 = 25$ mm ST belt $\cdots \ell_T/3 = 50$ mm

Compensation length:

- The following is applied
- when the contact angle
- between the pulley and belt (θ) is over 90°. Compensation length per pulley = $\theta \times \pi \times t$
- where t = conveyor belt thickness (m)

2) Onsite endless conveyor belt system

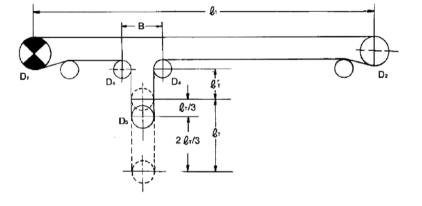
$$L = 2\ell_1 + \frac{\pi}{2}(D_1 + D_2) + 2(\ell_{\tau}/3) + \ell_1 \times n + Compensation length$$

 ℓ_1 : Length of endless belt (m)

 ${\tt n}$: Number of endless belts

Compensation length for belt sag: a length that includes the mounted belt sag between rollers; 0.3% of belt length

Gravity Take-up



1) Conveyor mounted with an endless belt

$$L = 2\ell_1 + \frac{\pi}{2}(D_1 + D_2 + D_3 + D_4) + 2\ell'_{\tau} + 2(\ell_{\tau}/3) - B$$

2) Onsite endless conveyor belt system

 $L = 2\ell_1 + \frac{\pi}{2}(D_1 + D_2 + D_3 + D_4) + 2\ell'_{\tau} + 2(\ell_{\tau}/3) - B + \ell_1 \times n + Compensation length for belt sag$

Where: D_3 : Take-up pulley diameter (m⁰)

- D_4 : Bend pulley diameter (m⁰)
- $\ell_{^{\prime}\tau}^{\prime}$: Center–to–center distance between take–up pulley and bend pulley (m)
- B: Center-to-center diameter of bend pulleys (m)

Belt Length for	• For a mounted endless conveyor belt, the belt length is expressed to the nearest 0.01 meters (rounded up).
Calculation	Ex.) A calculation result of 22.423 meters is expressed as 22.43 meters

• For an onsite endless conveyor belt system, the belt length is expressed to the nearest 0.05 meters (rounded up). Ex.) A calculation result of 22.423 meters is expressed as 22.5 meters.

Company name			Application			
Name NO.			Use conditions			
Belt width(r	nm)	*	Belt length (mm)			
Transport materials	Name	*	Take-up	Туре		
	Shape (mm)	*	specification	Space(m)	*	
	Specific gravity (t/m ³)			Weight (kg)		
	Temperature (°C)	*		Location	* Head, Tail N	Aidpoint, Around Head, Around Ta
	Attributes		Carrier	Roller	1, 2, 3, 4,	5
	Moisture Content	* Yes No	-	Trough angle(deg.)	* 0°, 10°, 20	°, 30°, 45°, 50°, 60°
Transport	Length (m)	*	-	Installed interval(m)		
specifica- tions	Incline (deg.)	*	Return	Roller	1, 2, 3	
uons	Horizontal length (m)	*		Trough angle(deg.)	0°, 10°, 20°,	30°
	Vertical length (m)	*		Installed interval(m)		
	Incline length (m)		Tripper	Yes, No	* Yes	No
	Belt speed (m/min)	*	-	Туре		
	Transport volume (t/h)	*		Quantity		
Drive spec-	Туре	Tandem, Tandem single, Single snap, Single	Pulley	Drive(mm)	*	
ification			diameter	Head(mm)		
	Location	Head, Tail, Middle, Around Head, Around Tail	-	Tail(mm)		
				Take-up(mm)		
	Pulley surface	Rubber lagging, No lagging		Tripper(mm)		
				Snap(mm)		
	Belt bending degree	* 180, 200, 210, 220, 240,	Loading	Head (m)		
	(deg.)	360, 380, 400, 420	conditions	Angle (deg.)		
	Motor (kw)			Impact roller	Yes	No
				Number of loading places		
ine sketch						
* Currently used belt	Producer name					
	Specifications					
	Damage status					
Other required information				1	1	

* Marked items are essential.

NO					I	Date :	
Company name				Application			
Name NO.				Use conditions			
Belt width(mm)	*		Belt length (mm)			
Transport	Name	*		Belt sketch			
materials	Shape (mm)	*					
	Specific gravity (t/m ³)					\bigcirc	
	Temperature (\mathbb{C})	*				0	
	Attributes						
	Moisture Content	* Yes N	0				
Belt speed	(m/min)	*				0	
Transport v	olume (t/h)	*		-			
Pulley dista	nce (m)(C to C)	*					
Incline deg	ree (deg.)	*					
Bucket	Width (W)(mm)	*		Loading met	thod	Lift up, Flow in	
dimension	Protrusion(L)(mm)			Pulley	Top pulley (mm)	*	
	Depth (D)(mm)			diameter	Bottom pulley (mm)	*	
	Weight (kg/ea)	*			Туре	Head, Tail	
	Attached interval (mm)	*		Drive	Pulley surface	Rubber lagging, No lagging	
-	Number of attachments (each)	*			Belt bending degree (deg.)		
	Size of bolts used (ea)	*			Motor output		
	Number of bolts used (ea)	*					
	Capacity (kg/ea)	*					
* Currently	Producer name						
used belt	Specifications						
	Damage status						
Other							
Other requi	ired information						

* Marked items are essential.

DRB Industrial Co., Ltd.

Headquarters DRB 28, Gongdandong-ro 55beon-gil, Geumjeong-gu, Busan, Korea Tel. +82-51-520-9114 Fax. +82-51-523-9591 Plant DRB / Busan 28, Gongdandong-ro 55beon-gil, Geumjeong-gu, Busan, Korea Tel. +82-51-520-9114 Fax. +82-51-523-9591 DRB / Yangsan 39, Sanmakgongdanbuk 2-gil, Yangsan-si, Gyeongsangnam-do, Korea Tel. +82-55-371-9000 Fax. +82-55-387-1289 DRB China East Industrial-zone, Lancun, Jimo-city Qingdao Shandong Province, China Tel. +86-532-8259-9012 Fax. +86-532-8259-6509 DRB Slovakia Robotnicka 2198, 017 01 Povazska Bystrica, Slovakia Tel. +421-42-445-0400 Fax. +421-42-426-2291 **DRB** Vietnam F-1-CN & F-7-CN, KCN My Phuoc II Industrial Park, Ben Cat District, Binh Duong Province, Vietnam Tel. +84-650-3556-070 Fax. +84-650-3556-078 DRB Russia Office1, 15A, micro-district Sverdlova-1, Vsevolozhskiy district, Leningradskaya region, Russia, 188682 Tel. +7-812-564-66-01 Sales Office DRB / Overseas Sales Team 28, Gongdandong-ro 55beon-gil, Geumjeong-gu, Busan, Korea Tel. +82-51-520-9104 Fax. +82-51-523-2537 DRB / Conveyor Business Team 26, Yeongdeungpo-ro 53-gil, Yeongdeungpo-gu, Seoul, Korea Tel. +82-2-2168-9151 Fax. +82-2-2672-6829 DRB America 16811 Knott Ave. La Mirada, CA 90638, USA Tel. +1-714-739-2922 Toll Free. +1-888-860-4450 Fax. +1-714-739-2925 159 Chestatee Industrial Park Drive, Dahlonega GA 30533, USA Tel. +1-706-525-7220 DRB Japan 7F, CR Hakata Bldg., 1-8-6, Hakataeki-minami, Hakata-ku, Fukuoka-city, 812-0016, Japan Tel. +81-92-481-7303 Fax. +81-92-481-7307 DRB China Room 806, Building A, Laiyin.hongjing Plaza, 1439 Wuzhong Rd, Minhang District, Shanghai Tel. +86-21-5422-5691/92 Fax. +86-21-5422-5697

DRB Indonesia Wisma Korindo Lt.5, Jl. MT Haryono Kav.62, Pancoran Jakarta 12780, Indonesia Tel. +62-21-797-6232 Fax. +62-21-797-5987

DRB Vietnam Tang4, No.17, 172/1 Nguyen Tuan Street, Nhan Chinh Ward, Thanh Xuan District, Hanoi, Vietnam Tel. +84-4-6285-4028 Fax. +84-4-6285-4029

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* Please be sure to check the current specifications of a product as those stated in this catalog may be changed without a prior notice.