REMA TIP TOP

// ONE BRAND // ONE SOURCE // ONE SYSTEM

// SERVICE // MATERIAL PROCESSING // SURFACE PROTECTION // AUTOMOTIVE

REMA TIP TOP

DBP Conveyor Belting Portfolio

CONTENT

REMA TIP TOP
DBP Conveyor belting portfolio

REMA TIP TOP offers a full range of conveyor belting.
All products are available through the global REMA TIP TOP network of subsidiaries and alliance-partners.

If your requirement calls for a fabric, steel cord or special carcass, with or without breaker, we can supply the right product at the right time to the required place:

- Belt construction with fabric, steel cord or aramid carcass
- Solid woven and straight warp
- Vertical and incline belts
- High abrasion, low rolling- and high impact-resistant rubber, PVC and PVG covers
- Heat-, oil- and chemical resistant
- Flame-retardant and self-extinguishing
- Pipe and tunnel belts

Standard conveyor belts starting with EP 400 up to EP 1000 are immediately available from our local stock and logistic centers.

REMA TIP TOP does not only deliver products, we also design, install, fabricate and maintain your conveying and material handling system:

With our **24 / 7 / 365** service mentality we guarantee system and process availability.

REMA TIP TOP
DBP Conveyor belting portfolio

REMA TIP TOP Portfolio of Conveyor Belting

Description	Properties	Carcass	Min. breaking strength	Cover	Further options
DBP WearTECH	Wear-resistant	EP	315 - 2500	AA*- W/D - X/H - Y	DBP AntiripTECH DBP Self-AdjustTECH DBP CrossTECH
		PP	800 - 2500		
		ST	500 - 5400		
DBP LavaTECH	Heat-resistant 150 – 200°C	EP	315 - 2500	T1-150° / T2-220°	
		ST	500 - 5400		
DBP OilTECH	Oil and grease resistant	EP	315 - 2500	G/G+/G1	
		ST	500 - 5400		
DBP FlameTECH	Flame-resistant according to ISO 340 DBP-LEVEL 1	EP	315 - 2500	K/S/G1	
		ST	500 - 5400		
	Flame-resistant /Self-extinguishing according to DIN EN 12882 surface DBP-LEVEL 2	EP	315 - 2500	Fire-resistant	
		ST	500 - 5400		
	Flame-resistant /Self-extinguishing according to DIN EN 14973 underground DBP-LEVEL 3	EP	315 - 2500	Fire-resistant	
		ST	500 - 5400		
DBP ForceTECH	Aramide fabric conveyor belts	D	400 - 3150	All categories	
	FLEX-conveyor belts	EPP	400 - 2500	All categories	
DBP LiftTECH	ELEVATOR conveyor belts	EP	315 - 2500	All categories	
		ST	500 - 5400		
DBP FlowTECH	PIPE conveyor belts	EP	315 - 2500	All categories	
		ST	500 - 5400		
DBP SlideTECH	Sliding conveyor belt	EP	315 - 2500	All categories	
DBP SolidTECH	SOLID WOVEN conveyor belts	EP/B/PB	630 - 3150	AA*- W/D - X/H - Y	
DBP ChevronTECH	Steep-incline belts	EP	400 - 1000	All categories	
DBP REMAWELL	Sidewall conveyor belts	EP	400 - 2000	All categories	
		ST	500 - 5400		

REMA TIP TOP
DBP Conveyor belting portfolio

Range of qualities

Cover	Cover classification		Temperatur range °C			Polymer basis
	Abrasion < mm³	Elongation at break min. in %	Min. ambient temperature	Constant material temperature	Max. temporary material temperature	
AA*	130	400	-30	80	90	SBR
Y	150	400	-30	80	100	SBR
X/H	120	450	-40	80	90	NR
W/D	90	400	-30	80	90	NR/SBR
T1	200	400	-20	150	170	SBR
T2	200	400	-20	200	220	EPDM
G	130	400	-20	80	90	SBR/NBR
G+	130	400	-20	80	90	NBR
G1	170	450	-20	80	90	SBR/NBR
K/S	200	350	-20	80	90	SBR
VT/V	175	350	-20	80	90	CR
PVG SBR	90	400	-10	50	60	SBR
PVG C1**	120	400	0	50	60	CR
PVG C2**	160	400	0	50	60	CR

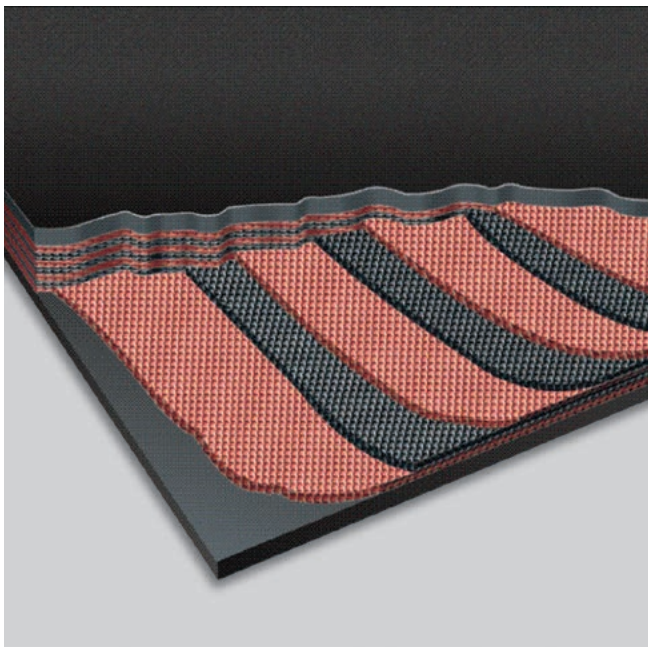
→ The development and production of the products is based on the relevant European standards
→ All listed conveyor belts are available in belt widths of 500 – 2000 / 2400 mm
→ * DBP highly wear-resistant cover quality
→ ** PVG conveyor belts correspond to the safety class according to EN-ISO 14973

All information is given to the best of our knowledge. All specifications are to be considered non-binding information. Any claim for damages of any kind is excluded. We reserve the right to change technical specifications without prior notice, provided that they ensure product improvement. The information presented is based on technical experience but does not guarantee a product's suitability for specific applications, and does not relieve the users of the responsibility to undertake their own testing, including where any third-party trademark rights are concerned. For special applications and operating conditions with regard to temperature, UV light, ozone, acids and alkaline solutions, dynamic and static forces, tensions, elongations and other influences, we recommend application-technical consultation.

POWAPLY MULTIPLY FABRIC BELTING RANGE
Wear-resistant and versatile

DBP POWAPLY conveyor belting is an all synthetic multiply construction available in a very wide range of strengths and number of plies.

High performance industrial polyester and polyamide yarns are woven together, then given a special treatment to ensure exceptional long lasting ability to bond to the interply rubber. The interply rubber is formulated to provide not only high adhesion to prevent separation even in the most arduous applications but also to impart exceptional impact absorbing properties. Polyester warp yarns and polyamide weft in the traditional EP fabrics result in low elongation, exceptional fatigue and impact resistance and the ability of the belt to be joined by either vulcanised splice or mechanical fasteners. Breaking away from tradition, many of the belt fabrics are also available in high performance, economic all polyester (EE) construction.
DBP POWAPLY can be offered with a wide range of rubber covers to suit a diverse range of applications from extreme abrasion, cutting and gouging to light duty conveying of non abrasive materials.



Fabric construction

Specifications

Belt class	Maximum Tension (kN/m)		Property	Number of Plies				
	CMMS*	Non Managed		2	3	4	5	6
200	25	20	Mass (kg/m²) Thickness (mm)	2.5 1.8	- -	- -	- -	- -
250	32	25	Mass (kg/m²) Thickness (mm)	2.6 1.9	- -	- -	- -	- -
315	40	32	Mass (kg/m²) Thickness (mm)	2.7 2.2	3.7 2.9	- -	- -	- -
400	50	40	Mass (kg/m²) Thickness (mm)	3.3 2.6	4.0 3.1	5.0 4.1	- -	- -
500	63	50	Mass (kg/m²) Thickness (mm)	3.4 2.5	4.1 3.6	5.3 4.3	6.3 5.2	- -
630	80	63	Mass (kg/m²) Thickness (mm)	3.9 3.0	4.9 4.1	5.5 4.9	6.6 5.5	7.5 6.3
800	100	80	Mass (kg/m²) Thickness (mm)	4.7 3.9	5.1 4.0	6.6 5.7	6.9 6.2	7.9 6.7
1000	125	100	Mass (kg/m²) Thickness (mm)	6.1 5.1	5.9 4.7	6.8 5.5	8.2 7.2	8.2 7.6
1250	160	125	Mass (kg/m²) Thickness (mm)	- -	7.0 5.9	7.9 6.3	8.5 7.0	10.2 8.5
1600	200	160	Mass (kg/m²) Thickness (mm)	- -	- -	7.9 6.3	9.9 8.0	11.8 9.7
2000	250	200	Mass (kg/m²) Thickness (mm)	- -	- -	9.4 7.9	11.7 9.9	14.1 11.9
2500	320	250	Mass (kg/m²) Thickness (mm)	- -	- -	12.3 10.6	15.4 13.4	16.1 12.9
3150	400	315	Mass (kg/m²) Thickness (mm)	- -	- -	- -	- -	18.4 16.1

* Computer Maintenance Management System - a unique maintenance management system that maximises system efficiency, reduces downtime and optimises availability.

POWACORD STEEL CORD CONVEYOR BELTING RANGE
High quality and extremely durable

DBP POWACORD is a steel cord reinforced conveyor belt incorporating the most current technology, many components have taken years of refinement to attain this technological precision. Every belt is guaranteed to provide maximum performance and maximum life.

DBP POWACORD with galvanised steel cord strength carrying members embedded in a matrix of high performance rubber meets all demands for high strength, low elongation conveyor belting. The bonder rubber in the core is formulated to penetrate deep into the cords providing high cohesive and adhesive bond for long lasting protection and extreme join efficiency. DBP POWACORD can be offered with a wide range of rubber covers to suit a diverse range of applications from extreme abrasion, cutting and gouging to less arduous conveying of non abrasive materials.

Steel cord construction

Specifications

Belt class	Cord Diameter (mm)	Maximum Tension (kN/m)		Minimum cover thickness (mm)
		CMMS*	Non Managed	
ST500	3.0	75	62	3.5
ST630	3.0	95	80	3.5
ST800	3.7	120	100	4.0
ST1000	4.2	50	40	4.0
ST1250	4.9	250	188	4.0
ST1600	5.0	320	240	5.0
ST1800	5.9	360	270	5.0
ST2000	5.6	400	300	5.0
ST2500	5.6	500	375	5.0
ST3150	8.1	630	472	6.0
ST3500	8.6	700	525	6.0
ST4000	8.9	800	600	6.5
ST4500	9.7	900	675	6.5
ST5000	10.9	1000	750	8.0
ST5400	11.3	1080	810	8.0

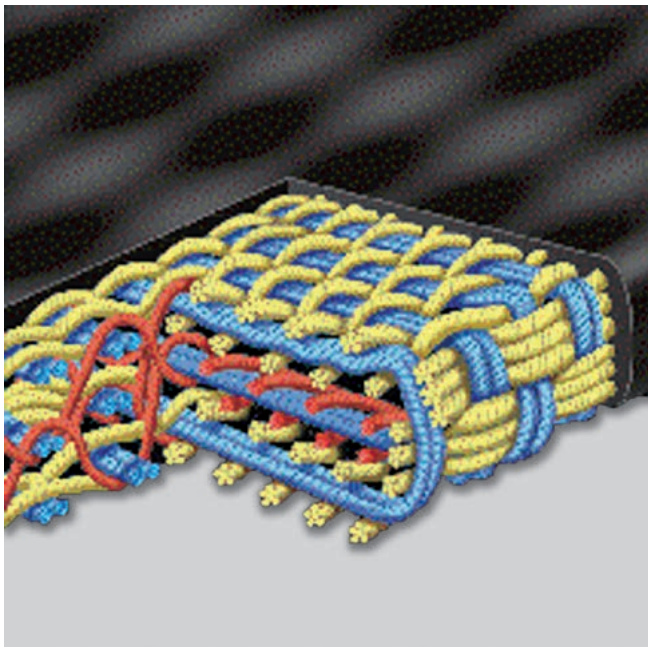
* Computer Maintenance Management System - a unique maintenance management system that maximises system efficiency, reduces downtime and optimises availability.

POWASOL SOLID WOVEN CONVEYOR BELTING RANGE
Extra-strong fabric conveyor belts

DBP POWASOL with SolidTECH technology is a solid woven construction conveyor belting having ultrafine polyester filaments combined with cotton yarn in the warp members and high strength polyester/cotton blend weft members.

The combination allows deep penetration of PVC into the carcass that ensures the belt will not burn, meeting the most stringent standards of fire safety. Also the design ensures a tough belt that has superior rip resistance, excellent fastener holding capability and good abrasion resistance. DBP POWASOL conveyor belting is offered with abrasion resistant synthetic rubber covers that are chemically cross-linked to the PVC impregnation to ensure many years of trouble free service.

The cover thickness can be varied according to customer requirements.



Specifications

					Minimum recommended pulley diameters (mm)		
Belt Class	Carcass Mass (kg/m²)	Carcass Thickness (mm)	Maximum operating tension (kN/m)	Belt Modulus (kN/m)	Head, Drive, Tripper	Tail, Take-up, HT Bend	LT Bend
630	10.5	6.2	63.0	3500	500	400	315
800	11.0	6.9	80.0	4440	500	400	315
1000	11.7	7.4	100.0	5550	630	500	400
1250	13.0	8.4	125.0	6900	800	630	500
1400	13.9	9.1	140.0	7750	800	630	500
1600	15.0	9.9	160.0	8890	1000	800	630
1400	18.0	12.4	200.0	11110	1000	800	630

* Mass of each millimetre of cover (NBR-F) 1.32 kg/m².
To obtain the total belt mass per unit of length, add the carcass mass plus mass of each cover then multiply the result by the belt width in metres.

POWASOL SOLID WOVEN CONVEYOR BELTING RANGE
Extra-strong fabric conveyor belts

Recommended maximum belt width (mm) for correct load support

	Material classification LD - Lump size (mm) x Density (t/m³)			
Belt Class	A LD 1 - 20	B LD 21 - 60	C LD 61 - 600	D LD >600
630	1400	1200	1000	800
800	1600	1400	1000	800
1000	1600	1400	1200	1000
1250	1800	1800	1600	1400
1400	1800	1800	1800	1800
1600	1800	1800	1800	1800
2000	1800	1800	1800	1800

Recommended minimum belt width (mm) for correct empty belt troughing

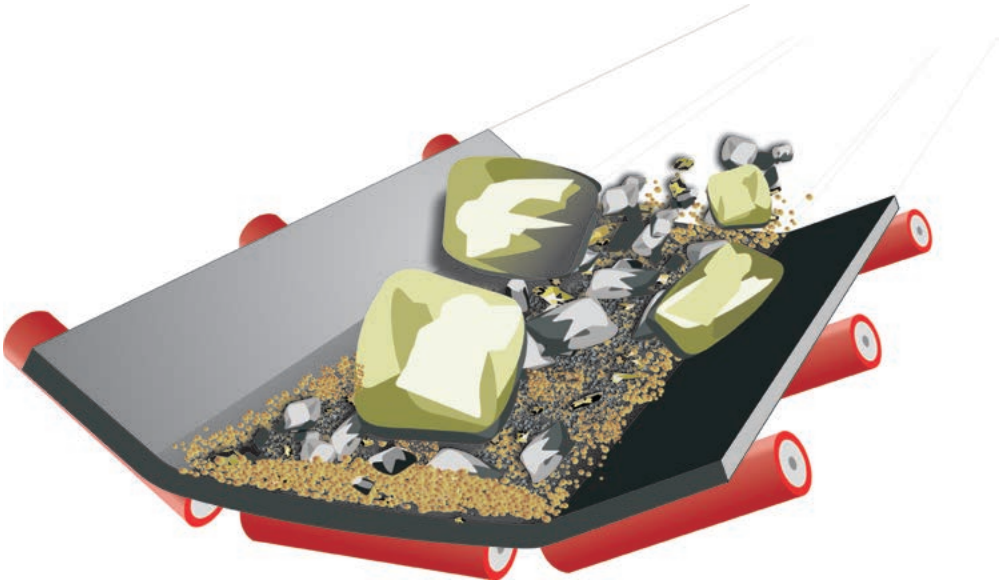
	Trough angle (degree)			
Belt Class	20	35	45	60
630	600	600	600	600
800	600	600	600	600
1000	600	800	800	800
1250	800	800	800	800
1400	800	800	800	1000
1600	800	800	800	1000
2000	1000	1000	1000	1000

DBP WEARTECH
The conveyor belt cover benchmark for wear-resistance

The combination of tensile strength, abrasion resistance and elasticity of the conveyor cover are chosen to best suit the application in a range of cover types.

DBP covers are in a league of their own when it comes to matching the life to the application. The mechanism of wear to conveyor belts is highly complex. An infinite mix of product size, sharpness and shape that strikes the belt surface at many different velocities all play a role. Also affecting rate of wear are the operating conditions.

Developing belt conveyors that perform well in all these combinations can be a challenge without the huge database of knowledge gathered from continuous real time monitoring at a micro-level of the entire belt thickness profile. The BTM Belt Thickness Monitoring System designed by REMA TIP TOP TECHNOLOGIES system is the first conveyor belt monitoring system to continuously and automatically monitor the thickness of the belt. Data captured by numerous units installed around the world is being used to monitor the performance of rubber compound. This information has led to the development of belt cover rubber compounds that uniquely fit the application.



Specifications

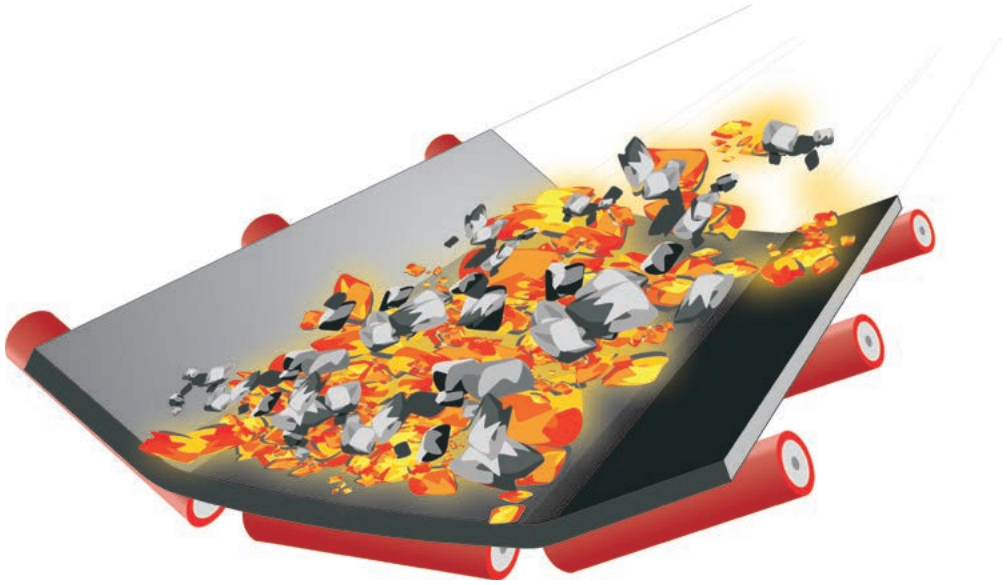
Cover	Cover classification		Temperatur range °C			Polymer basis
	Abrasion < mm³	Elongation at break min. in %	Min. ambient temperature	Constant material temperature	Max. temporary material temperature	
AA*	130	400	-30	80	90	SBR
Y	150	400	-30	80	100	SBR
X/H	120	450	-40	80	90	NR
W/D	90	400	-30	80	90	NR/SBR

DBP LAVATECH
Heat-resistant HR GRADE

Our range of DBP LavaTECH is descriptive and includes the resistance to heat and heated material conveyed.

We realize that there are not only an enormous range of different materials conveyed but also different temperature ranges that exist. First and foremost we understand that there needs to be differentiation between consistent or permanent heat and that of intermittent heat.

We have allowed for this in our temperature range and describe this in the table below. It is always important to understand this, so as to benefit from the conveyor belt.
With all of this in mind we have developed and continue to develop and test our rubber covers so as to optimize heat requirement with optimal abrasion and tensile properties.
DBP LavaTECH conveyor belting allows for permanent and intermittent temperatures from 100 to 220 degrees Celsius.



Specifications

Description	Properties	Carcass	Min. breaking strength	Cover
DBP LavaTECH	Heat-resistant 150 – 220°C	EP	315 - 2500	T1-150° / T2-220°
		ST	500 - 5400	

Cover	Cover classification		Temperatur range °C			Polymer basis
	Abrasion < mm³	Elongation at break min. in %	Min. ambient temperature	Constant material temperature	Max. temporary material temperature	
T1	200	400	-20	150	170	SBR
T2	200	400	-20	200	220	EPDM

DBP OILTECH
Oil-resistant G grade

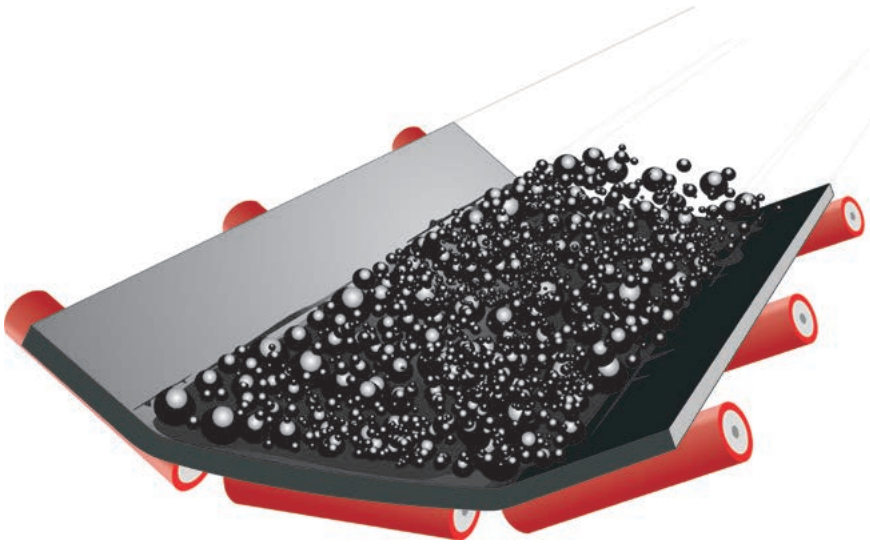
DBP OilTECH covers provide good tear, cut and abrasion resistance and also are resistant to swelling when caused by absorption of oils and grease.

The oil resistant cover is available in two grades, DBP OilTECH and DBP OilTECH +. They are used when the material transported contains oils such as fuel oil in coal or fertilizers, lubrication oils in metal recycling, foundries, steel processes, waste industries or in the case of special processes such as glass or chemical.

The presence of oil in the transported material can have detrimental effects on standard rubber covers:

- it will degrade the physical properties such as abrasion resistance, tensile strength and tear strength
- the belt covers will absorb the oil causing them to swell and loose adhesion with the carcass

The extent of degradation is dependant on the type of oil and the temperature. There is an exponential increase in rate of degradation and amount of swelling with respect to the increase in temperature.



Therefore, it is important to consider the operating temperature and types of oily substances when choosing the most suitable DBP OilTECH cover.
Oil resistance of a belt cover is evaluated by measuring the swelling of the rubber after immersion in oil. For purposes of comparison specifications of oils used for the evaluation are standardised.

The two standard oils:

- **IRM902**, a medium aggressiveness oil
- **IRM903**, is an aggressive oil containing naphthenic, aromatic and aliphatic constituents

Specifications

Cover Type	Characteristic	Cover Properties			Swelling Test	
		Tensile Strength h (MPa)	Elongation @ Break (%)	Abrasion Loss (mm^3)	% swell after immersion in IRM 302 for 28	% swell after immersion in IRM903 for 72h
DBP OilTECH G	Medium Oil resistance	16	400	130	15	
DBP OilTECH G+	Superior oil resistance	16	400	130		5
DBP OilTECH G1	Medium oil resistance & fire resitant according to DIN ISO 340	16	450	170	15	

DBP FLAMETECH
Fire retardent V grade

DBP FlameTECH conveyor belting has rubber covers that provide good tear, cut, impact and abrasion resistance and is also fire retardant.
The belt is available in a complete range of multiply strengths and also with steel cord reinforcement. Tests carried out on DBP FlameTECH conveyor belting for determining fire retarding properties.

1) Flame test - ISO 340:2013 test method
2) Electrical conductivity of the belt surface - ISO 284:2012 test method
3) Fire propagation test - EN 12881-1 test method

Safety level	Standard norm/tests	Belting name	Risk
1	ISO 340	DBP FlameTECH EP or ST Level 1	Prevention of the propagation of accidental fire from a minor fire source aboveground and the risk of explosion due to the accumulation of static electricity.
1G	ISO 340	DBP FlameTECH EP or ST G1 - Level 1	Idem safety level 1 and additionally oil-resistant.
2	DIN EN ISO 12882 according to customer specification	DBP FlameTECH EP or ST Level 2	Prevention of the propagation of accidental fire from an extensive fire source aboveground and the risk of explosion due to the accumulation of static electricity.
3	DIN EN ISO 14973 according to customer specification	DBP FlameTECH EP or ST Level 3	Prevention of the propagation of accidental fire from an minor or extensive fire source underground, the risk of explosion due to the accumulation of static electricity and the risk of belt blockage.

Specifications

Cover	Abrasion < mm³	Elongation at break min. in %	Min. ambient temperature	Constant material temperature	Max. temporary material temperature	Polymer basis
K/S	200	350	-20	80	90	SBR
VT or V	175	350	-20	80	90	CR

Fire retarding properties

Flame test - ISO 340:2013	Electrical Conductivity ISO 284: 2012	Fire propogation - EN 12881 - 1 Method C
Total of 6 samples extinguish within 45 seconds Maximum duration of flame or glow for any single sample is 15 seconds	< 300 Megaohm	**a)** the length of the test piece that remains undamaged across the whole width of the test piece shall be not less than 600 mm; or **b)** the maximum average temperature rise shall not exceed 140 °C, the length of belting consumed by mass shall not exceed 1250 mm and the length of the test piece that remains undamaged shall be not less than 50 mm across the whole width of the conveyor belt.

DBP LIFTTECH
The cover quality especifically suited for bucket elevators

The DBP LiftTECH range of belting is specifically suited to use in bucket elevators.

The tightly woven carcass is available in 4 and 5 ply constructions or as a solid woven carcass construction. The 4 and 5 ply DBP LiftTECH belts are offered with a very wide range of high performance rubber covers to suit any bucket elevator application that transports abrasive materials and/or hot materials.

DBP LiftTECH conveyor belts with a solid woven carcass construction have PVC impregnated carcass and Nitrile rubber covers. This alternative is suited to elevator buckets transporting grains, pea and duff coal, dry cement powder and similar products. For very high elevators where tensions are large, DBP LiftTECH ST is recommended.

This high strength belt has galvanised steel cord reinforcement. The cords are spaced so that bolts holding the buckets align with the space between cords thereby ensuring that the bolts are securely retained for the maximum bucket stability.

Specifications

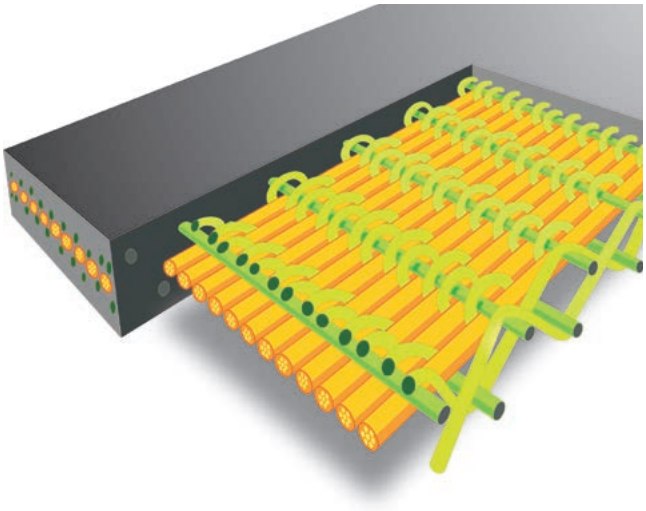
Belt class	Maximum Tension (kN/m)	Property	Number of Plies			Steel Cord Carcass	Solid Woven Carcass
			4	5	6		
500	50	Mass (kg/m²) Thickness (mm)	5.3 4.3	6.3 5.2	– –	13.8 3.6	
630	63	Mass (kg/m²) Thickness (mm)	5.3 4.3	6.6 5.5	7.5 6.3	14.3 3.6	10.5 6.2
800	80	Mass (kg/m²) Thickness (mm)	6.3 5.7	6.9 6.2	7.9 6.7	15.9 3.6	11.0 6.9
1000	100	Mass (kg/m²) Thickness (mm)	6.3 5.5	8.2 7.2	8.2 7.6	17.8 3.6	11.7 7.4
1250	125	Mass (kg/m²) Thickness (mm)	7.3 6.3	8.5 7.0	10.2 8.5	18.6 4.4	13.0 8.4
1600	160	Mass (kg/m²) Thickness (mm)				23.1 5.2	15.0 9.9
2000	200	Mass (kg/m²) Thickness (mm)				25.7 6.2	18.2 12.2
2500	250	Mass (kg/m²) Thickness (mm)				27.9 6.7	22.6 14.6

DBP FLEXTECH
Textile straight-warp belts from 400 N/mm in 1 ply to 2500 N/mm in 2 plies

DBP FlexTECH is a polyester «straight- warp» belt composed of one or two plies protected on both top and bottom sides by weft lines in polyamide.

Due to the thin carcass, DBP FlexTECH can be used with smaller pulley diameters than textile plied or steelcord belts.
Straight-warp conveyor belts are used on heavy duty conveyors where resistance to the effects of heavy impacts and resistance to tearing are important characteristics, typically seen in quarrying, open cast mining and steel industries or in applications where heavy-duty and yet narrow belts are required, such as in tunnelling.

The carcass frame thus constructed is adhered RFL and may be coated of different types of rubber cover, anti-abrasive (X , Y , etc.), oil-resistant (G, G+), heat-resistant (T150°, T200°), etc.



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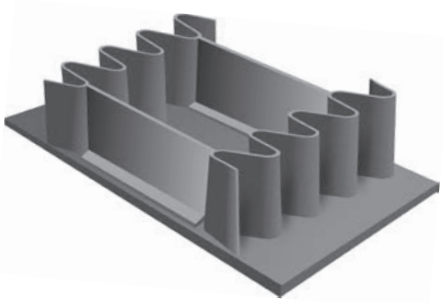
AA*	130	400	-30	80	90	SBR
Y	150	400	-30	80	100	SBR
X/H	120	450	-40	80	90	NR
W/D	90	400	-30	80	90	NR/SBR
T1	200	400	-20	150	170	SBR
T2	200	400	-20	200	220	EPDM
G	130	400	-20	80	90	SBR/NBR
G+	130	400	-20	80	90	NBR
G1	170	450	-20	80	90	SBR/NBR
K/S	200	350	-20	80	90	SBR
V/VT	175	350	-20	80	90	CR

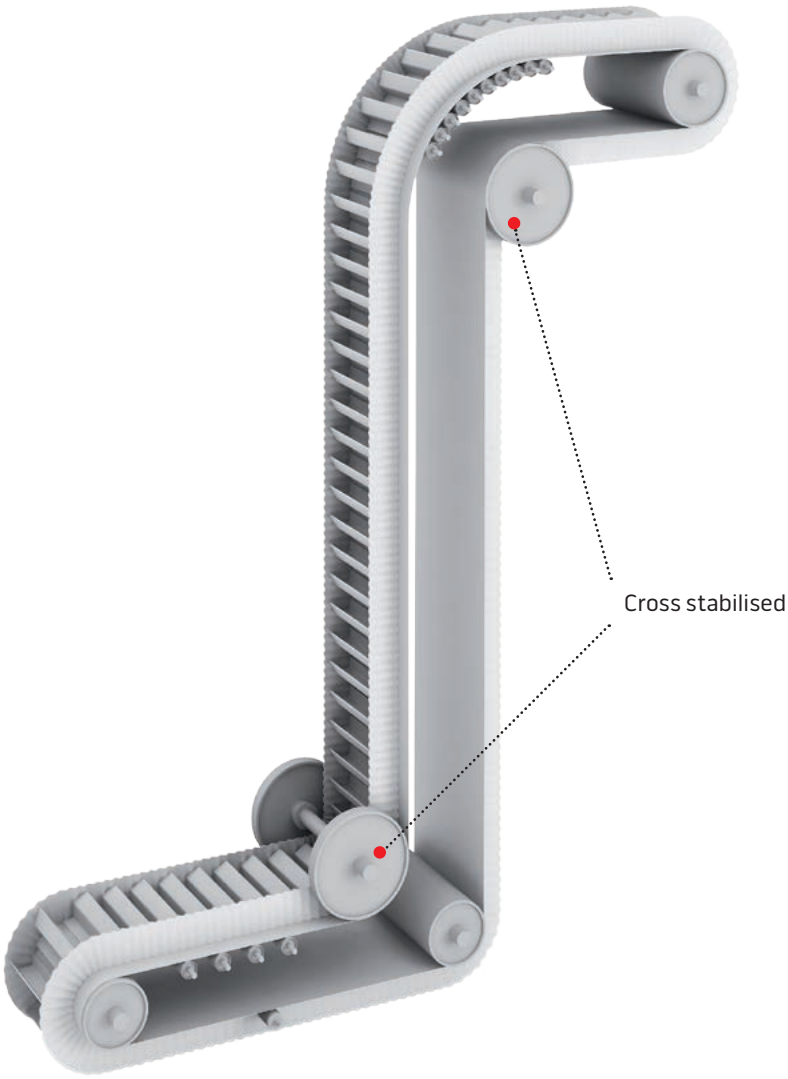
DBP REMAWELL
Sidewall conveyor belts

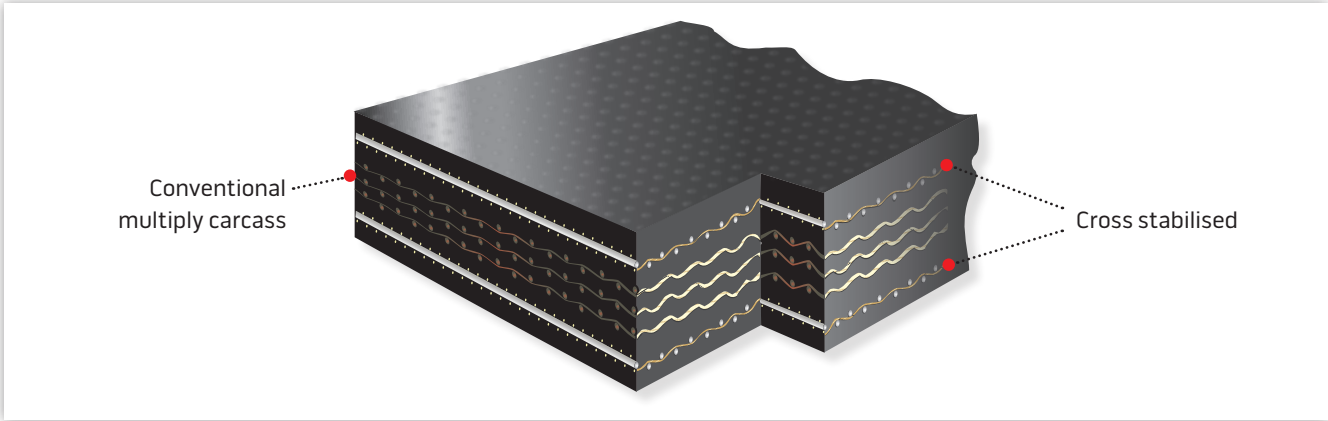
REMA TIP TOP has further extended its comprehensive portfolio for industrial applications and now offers both the design and production of REMAWELL sidewall conveyor belts from a single source.

REMAWELL special conveyor belts permit the steeply inclined or vertical transport of all kinds of bulk material. The components are: the base belt, sidewalls and cleats, which define a constant transport volume and thus ensure a reliable transport of material even if the conveyor routing is skewed.

Order-based design and manufacture, together with the REMA TIP TOP worldwide service network, forms the basis of professional original manufacturer support and includes all aspects of maintenance and overhaul services through to replacement of complete belts.







DBP REMAWELL
Sidewall conveyor belts

DBP REMAWELL belts are mainly supported at the free edge for redirection by the deflection wheels and in the area of the stub rollers in the return strand. It is therefore especially important that the belt offers a high degree of lateral rigidity.

The REMAWELL base belt therefore contains cross stabilised plies in the top and bottom cover in addition to conventional multiply carcass. Their use ensures a high lateral rigidity of the sidewall belts and thus minimum lateral sagging when running around the deflection wheels or on the stub rollers.

Due to its wear resistant properties and high resistance against ozone, the rubber cover gives the greatest possible service life.

DBP REMAWELL belts are designed and customised individually for each application. The components needed to manufacture the DBP RemaWELL belts are available ex-warehouse in many different sizes.

Specifications

Belt type	Nominal tensile strength N/mm	No. of cross rigid plies	No. of reinforcement plies	Standard cover thickness* mm/mm	Belt thickness mm	Max available widths mm
XE 250/2	250	-	2**	3/2	90	SBR
XE 400/3	400	-	3**	3/2	100	SBR
XE 500/3+2	500	2	3	5/3	90	NR
XE 630/4+2	630	2	4	5/3	90	NR/SBR
XE 800/5+2	800	2	5	5/3	170	SBR

* Effective cover thickness above the cross stabilised plies
** Cross rigid version

Other belt types and cover grades on request.

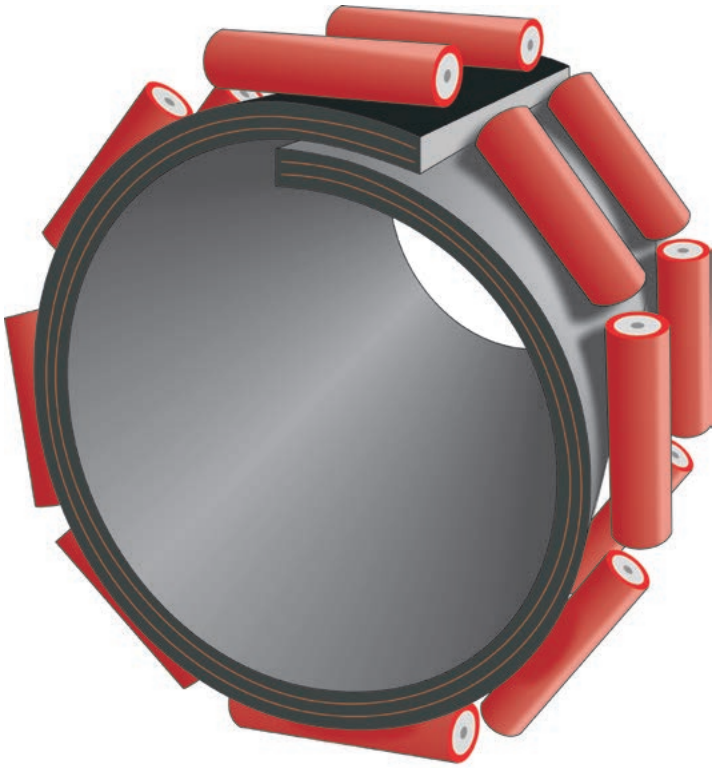
SPECIAL BELT CONSTRUCTIONS

DBP FlowTECH – Pipe conveyor belting

Pipe conveyor systems offer many advantages in terms of space utilisation. They also provide potential for a cleaner operating environment as the product is fully enclosed in the belt formed into a pipe for the length of the conveying route.

DBP FlowTECH is a special adaption of either DBP POWAPLY or DBP POWACORD conveyor belting.

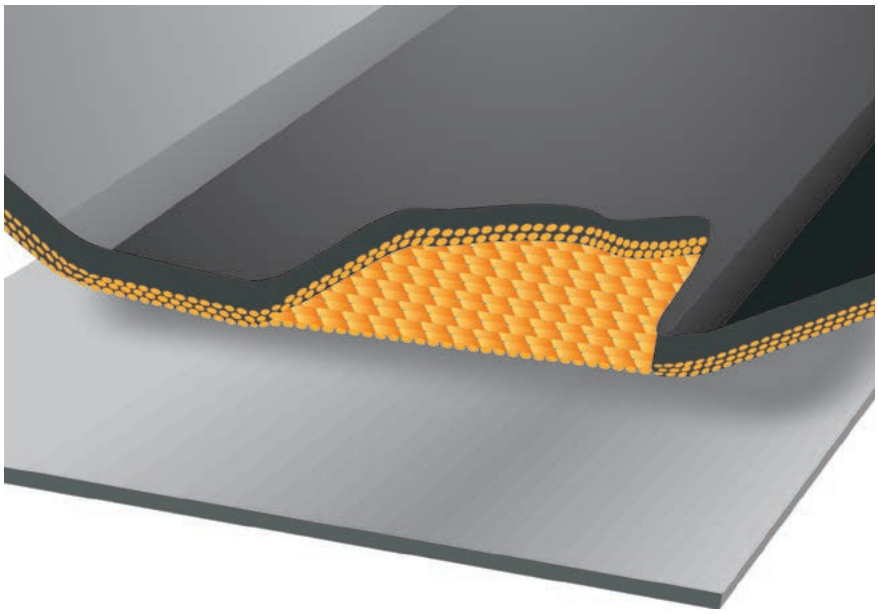
The unique carcass design, either using textile plies or, for higher strength and reduced elongation, a combination of steel cords and textile ensures that the pipe form provides optimum fill cross section throughout the service life of the belt. Also the more flexible belt edges allow tight pipe closure without increasing resistance to movement through the encircling idler rollers.



DBP SlideTECH

DBP SlideTECH incorporates a special high density fabric weave preventing rubber striking through during vulcanization. There is no rubber on the bottom.

The belt slides effortlessly across the supporting solid plate that replaces carrying idler rollers.



SPECIAL BELT CONSTRUCTIONS

DBP ChevronTECH

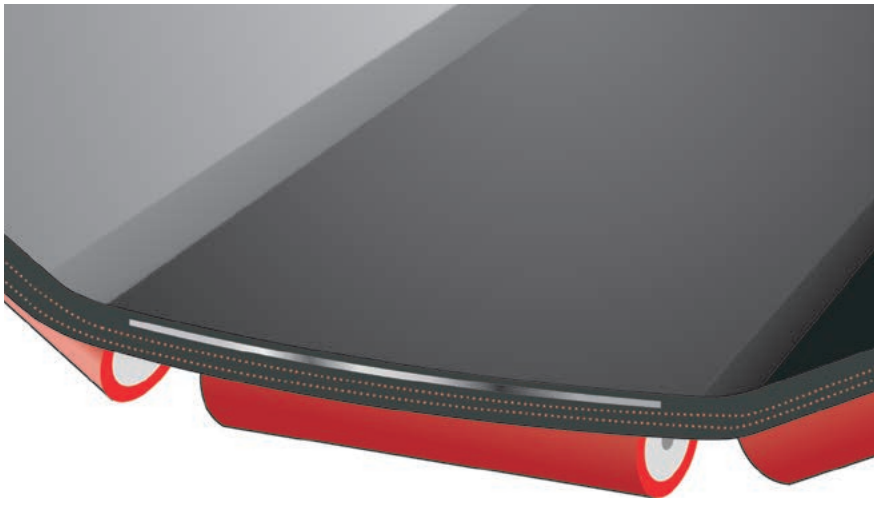
A variety of chevron patterns are moulded into the top cover to allow conveying at an angle in the range from 16° to 35°.

DBP Self-AdjustTECH

DBP Self-AdjustTECH is a belt construction used to ensure proper centring of the troughed belt.

In many instances belt tracking misalignment occurs and this invariably leads to belt edge damage, material spillage and damage to the conveyor structure.

These special belts have an additional ply of stiffened fabric extended across the centre third. A mistracking force is opposed by the correcting force as the stiff upper ply moves away from the flat centre area of the trough.

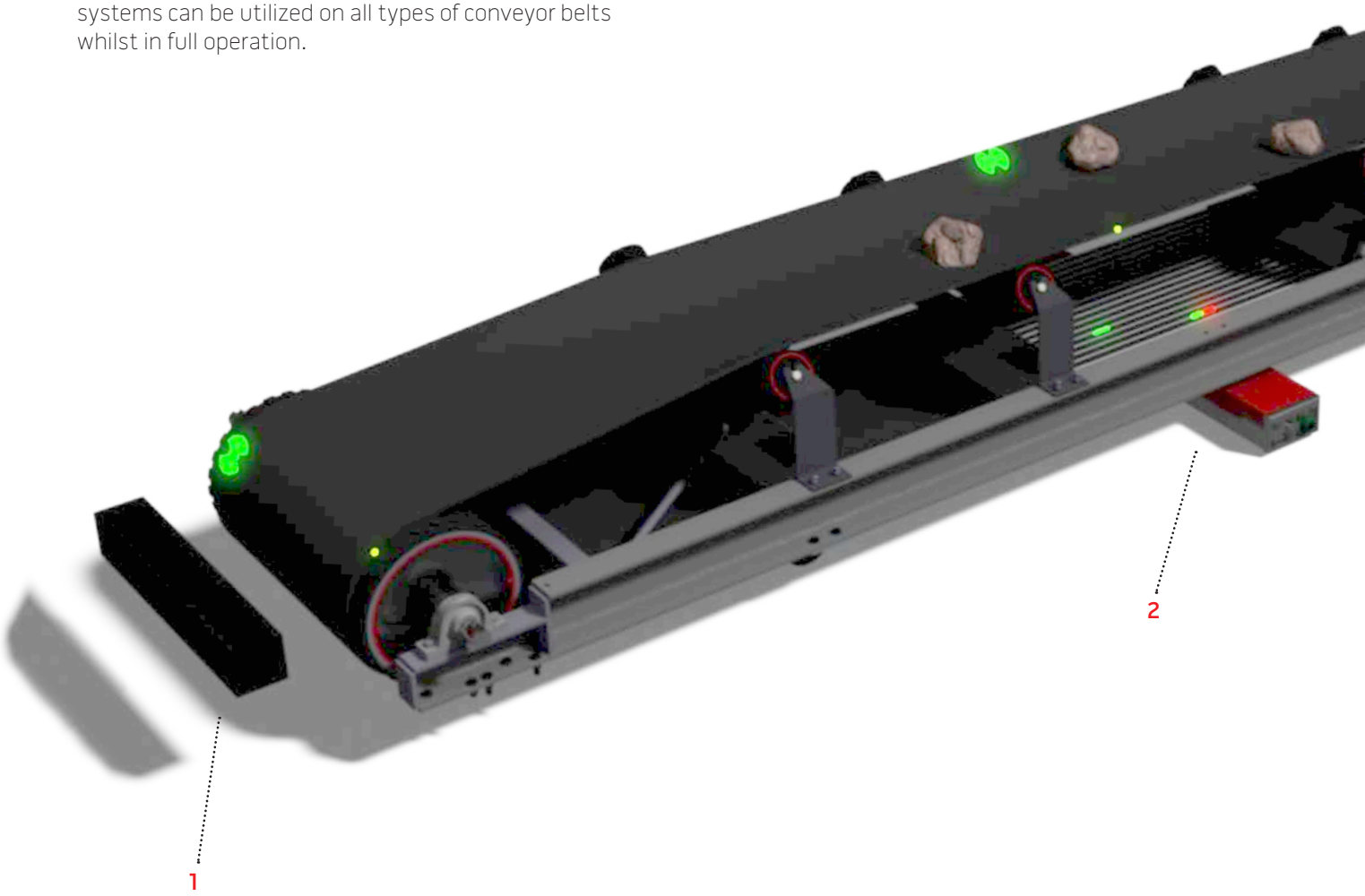


REMA TECHNOLOGIES
Maximizing the profitability and sustainability of your conveying systems

REMA TIP TOP TECHNOLOGIES focus on optimizing the use of our products and services to remain market leaders. We offer unique solutions for specific operations that focus on profitability and sustainability.

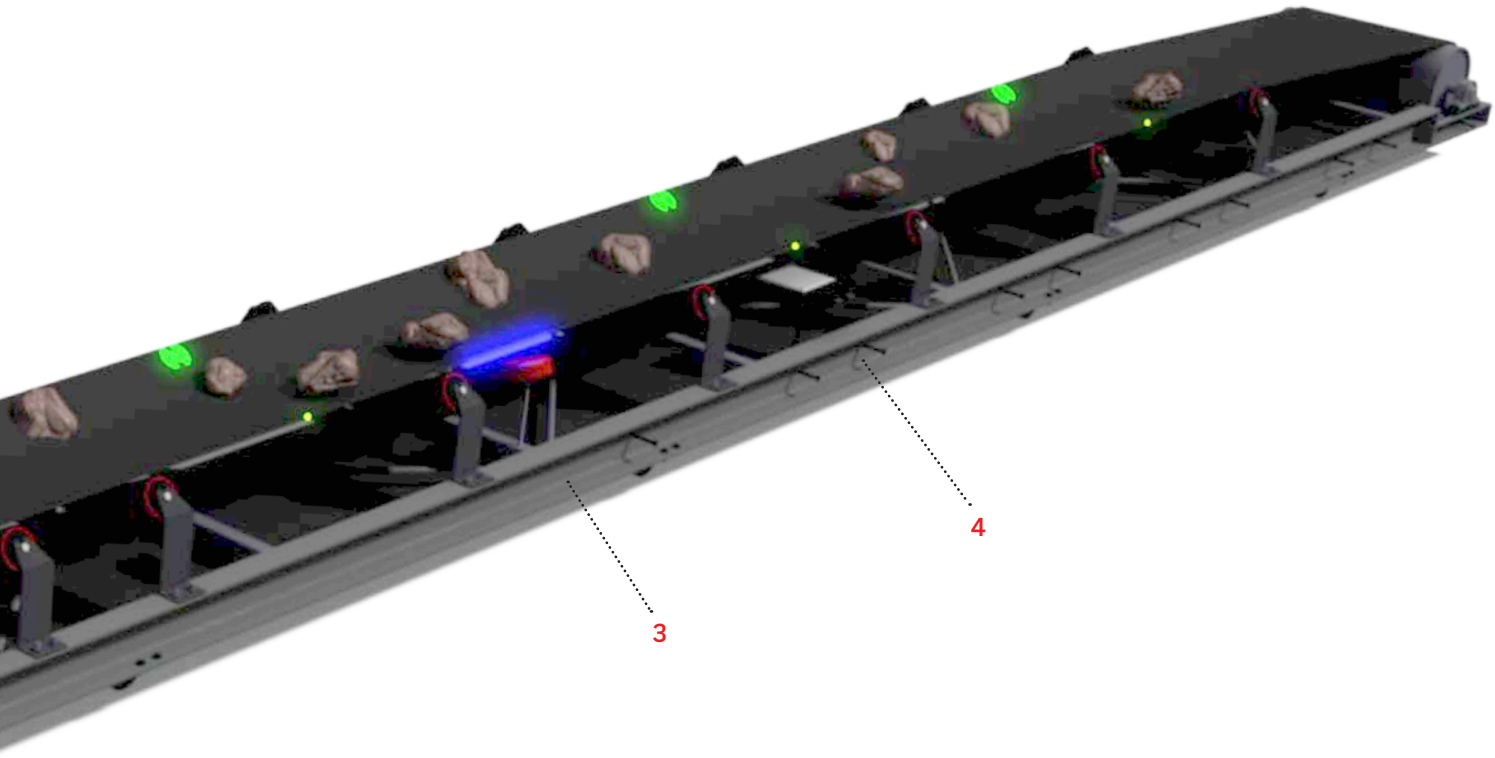
REMA TIP TOP TECHNOLOGIES constantly develop new systems that will significantly prolong the lifetime of our clients conveyor belts. As conveyor belts are the back-bone of any mine and their greatest expense, our new systems can be utilized on all types of conveyor belts whilst in full operation.

Our systems have been designed to provide our clients with greater insight into the current status of their conveyor belts by providing real time data showing any form of damage, allowing planned maintenance and shortening production downtime.



1 BTM BELT THICKNESS MONITORING
- → Shows all wear and damage to the conveyor belt
- → Accurate reporting of belt wear or damage
- → Predicts the remaining lifetime of the belt
- → Generates a belt image after the first revolution

2 STEEL CORD SCAN
- → Available as a modular or fixed installation
- → Shows all cord damage to the conveyor belt
- → Indicates the health of all splices
- → Operates continuously while the belt is in full operation



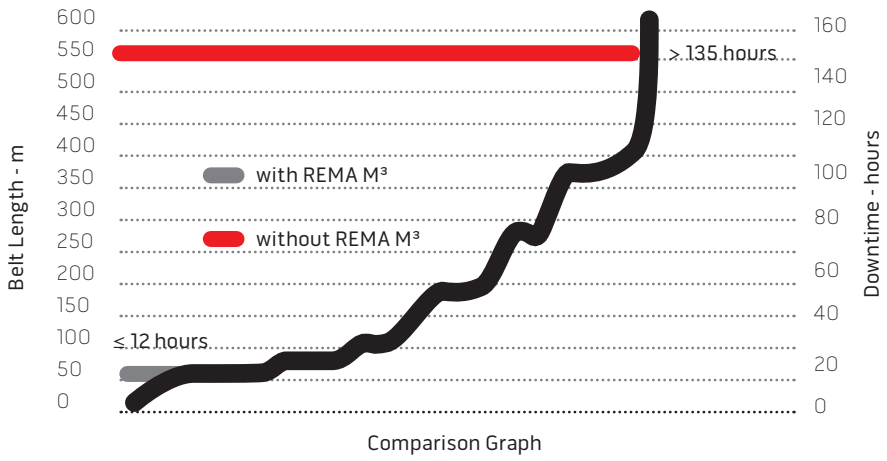
3 INDUCTIVE SENSOR LOOP DETECTION

- → Compatible with all inductive antenna sensor loops
- → Stops the belt when longitudinal rips are detected
- → Generates a belt image of embedded sensor loops after one revolution
- → Inductive sensor loops and RFID antennas are monitored simultaneously

4 RFID BELT RIP DETECTION

- → Unique RFID Antenna ID Code
- → Stops the belt when longitudinal rips are detected
- → Antennas can be detected at 15m/s
- → Antennas installed at shorter intervals to offer greater protection

Without the use of REMA M³ equipment. The possible loss of the full length of installed conveyor belt with downtime in excess of 135 hours.

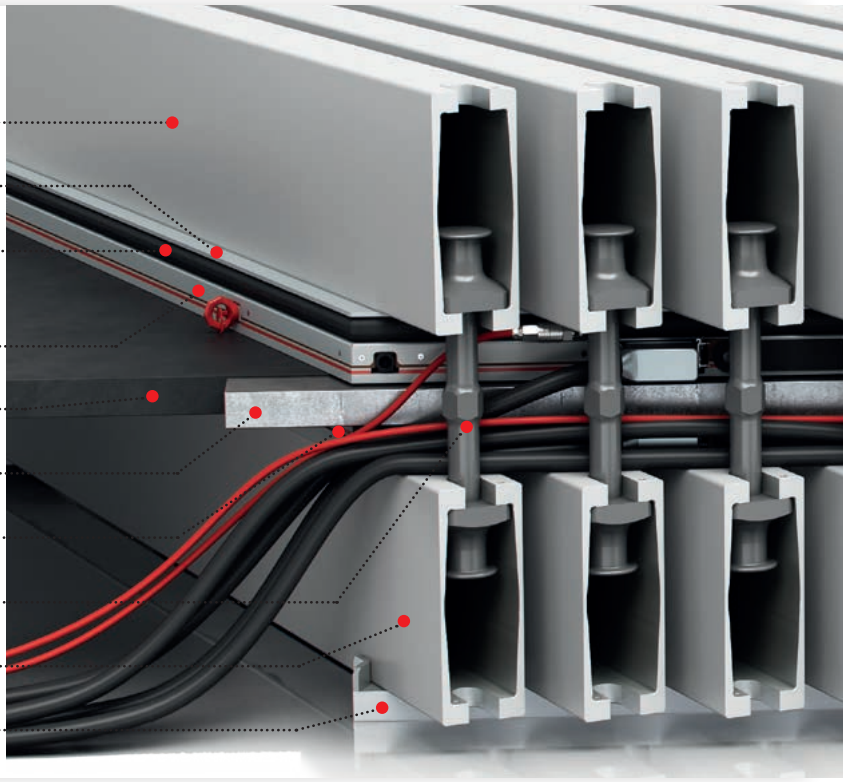


REMAPRESS IVE
State of the art conveyor belt presses

New vulcanizing presses „REMAPRESS IVE" with pressure bags, heating plates and silicone heating mats developed and marketed by REMA TIP TOP impress with highest quality features, application oriented design and certification by German TÜV.

Components

1 Crossbeams
2 Pressure distribution sheet
3 Pressure bag, certified by German TÜV
4 Heating plate
5 Conveyor belt
6 Edge rail
7 Heating plate
8 Tension bolt
9 Crossbeams
10 Rack

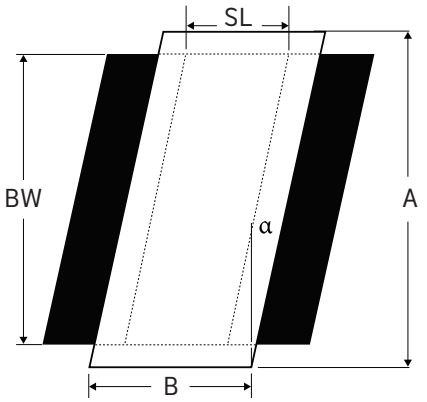


Our characteristic features

- Rotable carrying handle for crossbeams and heating plates
- **Equal surface pressure over the complete splicing due to REMA TIP TOP pressure bag certified by German TÜV**
- **Pressure bag with aramid inlays meets highest safety standards**
- 20% less deflection of crossbeams
- 20% less liquid requirement, therefore faster build-up of pressure than comparable presses from market competitors
- Tension bolt threads protected against damage
- Despite being made of high-strength steel, the tension bolts weigh 2kg less apiece than conventional steel tension bolts
- Tension bolts sealed up and that way protected against soiling
- Lightweight, high-strength pressure distribution sheet made of aluminium
- Pressure water system:
  AIR: For pressures up to 70 N/cm² (100 Psi)
  FLUID: For pressures up to 140 N/cm² (200 Psi)
- CE-, CSA- and UL-certified electronics
- **Heating plate connection, protection class IP 64 > certified by German TÜV**
- Optimized monitoring of temperature difference
- Available for voltages from 230 to 600 Volt
- Control cabinet, protection class IP 44
- Optional data recording within control cabinet, data export via USB interface
- Usable in admissable ambient temperature from -20°C to +55°C
- Distinct colours for pressure hoses (red/black) and cooling water hoses (blue/white)
- Silicone heating mat with vulcanized-on intermediate plate
- Transport-proof, plugable connection cable

TECHNICAL DATA
REMAPRESS IVE AIR/FLUID

A = Plate width
B = Plate length
BW = Belt width
SL = Splicing length
α = Rhombic 16° 42'



Technical data REMAPRESS IVE AIR

Ref. No.	Specification	Belt width BW (mm)	Plate width (A) (mm)	Splicing length (SL) (mm)	Plate length (B) (mm)	Crossbeams dimensions (mm)	Crossbeams length (mm)	No. of crossbeams (pairs)
595 9460	REMAPRESS IVE AIR 650-600	650	750	600	800	150 x 102	1.100	4
595 9470	REMAPRESS IVE AIR 800-600	800	900	600	800	150 x 102	1.250	4
595 9490	REMAPRESS IVE AIR 1000-600	1.000	1.100	600	800	150 x 102	1.450	4
595 9580	REMAPRESS IVE AIR 1200-600	1.200	1.300	600	800	200 x 102	1.650	5
595 9540	REMAPRESS IVE AIR 800-800	800	900	800	1.046	150 x 102	1.250	6
595 9560	REMAPRESS IVE AIR 1000-800	1.000	1.100	800	1.046	150 x 102	1.450	6
595 9590	REMAPRESS IVE AIR 1200-800	1.200	1.300	800	1.046	200 x 102	1.650	6
595 9610	REMAPRESS IVE AIR 1400-800	1.400	1.500	800	1.046	256 x 112	1.900	6
595 9550	REMAPRESS IVE AIR 800-1000	800	900	1.000	1.200	150 x 102	1.250	7
595 9570	REMAPRESS IVE AIR 1000-1000	1.000	1.100	1.000	1.200	150 x 102	1.450	7
595 9600	REMAPRESS IVE AIR 1200-1000	1.200	1.300	1.000	1.200	200 x 102	1.650	6
595 9620	REMAPRESS IVE AIR 1400-1000	1.400	1.500	1.000	1.200	200 x 102	1.900	7
595 9630	REMAPRESS IVE AIR 1600-1000	1.600	1.700	1.000	1.200	256 x 112	2.100	6

Other dimensions available on request.
Technical modifications reserved.

Technical data REMAPRESS IVE FLUID

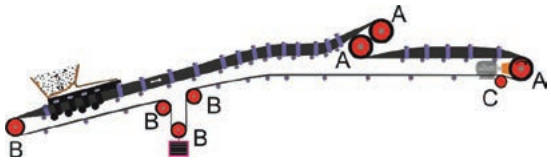
Ref. No.	Specification	Belt width BW (mm)	Plate width (A) (mm)	Splicing length (SL) (mm)	Plate length (B) (mm)	Crossbeams dimensions (mm)	Crossbeams length (mm)	No. of crossbeams (pairs)
595 9480	REMAPRESS IVE FLUID 800-600	800	900	600	800	150 x 102	1.250	5
595 9640	REMAPRESS IVE FLUID 800-800	800	900	800	1.046	150 x 102	1.250	7
595 9650	REMAPRESS IVE FLUID 1000-800	1.000	1.100	800	1.046	200 x 102	1.500	7
595 9670	REMAPRESS IVE FLUID 1200-800	1.200	1.300	800	1.046	256 x 112	1.650	7
595 9700	REMAPRESS IVE FLUID 1600-800	1.600	1.700	800	1.046	256 x 112	2.100	7
595 9660	REMAPRESS IVE FLUID 1000-1000	1.000	1.100	1.000	1.200	150 x 102	1.500	8
595 9680	REMAPRESS IVE FLUID 1200-1000	1.200	1.300	1.000	1.200	256 x 112	1.650	7
595 9690	REMAPRESS IVE FLUID 1400-1000	1.400	1.500	1.000	1.200	256 x 112	1.950	8

Other dimensions available on request.
Technical modifications reserved.

GUIDANCE FOR CONVEYOR TECHNOLOGY
Recommended minimum pulley diameter

Belt class	Pulley type	Multi-ply fabric construction No. of plies				Steel cord construction	Solid woven construction
		2	3	4	5		
200	A/B/C	200/160/125					
250	A/B/C	200/160/125					
315	A/B/C	250/200/160	400/315/250				400/315/250
400	A/B/C	315/250/200	400/315/250	500/400/315			400/315/250
500	A/B/C	315/250/200	500/400/315	500/400/315	630/500/400	500/400/315	500/400/315
630	A/B/C	400/315/250	500/400/315	500/400/315	800/630/500	500/400/315	500/400/315
800	A/B/C	500/400/315	500/400/315	630/500/400	800/630/500	500/400/315	500/400/315
1000	A/B/C	500/400/315	630/500/400	800/630/500	1000/800/630	500/400/315	630/500/400
1250	A/B/C		800/630/500	1000/800/630	1000/800/630	630/500/400	800/630/500
1400	A/B/C		800/630/500	1000/800/630	1 000/800/630	630/500/400	800/630/500
1600	A/B/C		800/630/500	1000/800/630	1250/1000/800	800/630/500	1000/800/630
2000	A/B/C				1250/1000/800	800/630/500	1000/800/630
2500	A/B/C				1400/1250/1000	1000/800/630	
3150	A/B/C					1250/1000/800	
4000	A/B/C					1250/1000/800	
5000	A/B/C					1400/1250/1000	
6300	A/B/C					1400/1250/1000	

Pulley types
A: Drive Pulley
B: Tail Pulley
C: Return Idler



GUIDANCE FOR CONVEYOR TECHNOLOGY
Carcass thickness

Carcass thickness (mm)

Add the thickness of the covers to get the total belt thickness.

Belt class	Multi-ply fabric construction No. of plies				Solid woven carcass	Steel cord construction
	2	3	4	5		
200	1.8					
250	1.9					
315	2.2	2.9			4.9	
400	2.6	3.1	4.1			
500	2.8	3.6	4.3	5.2	5.9	3.2
630	3.0	4.1	4.9	5.5	6.2	3.2
800	3.9	4.0	5.7	6.2	6.9	3.7
1000	5.1	4.7	5.5	7.2	7.4	3.7
1250		5.9	6.3	7.0	8.4	3.7
1400			6.3	8.0	9.1	
1600			7.9	9.9	9.9	5.4
2000			10.3	13.4	12.4	5.4
2500						7.0
3150						8.0
4000						9.0
5000						11.0
6300						12.0

Mass of belt carcass (kg/m²)

Belt class	Multi-ply fabric construction No. of plies				Solid woven carcass	Steel cord construction
	2	3	4	5		
200	2.5					
250	2.6					
315	2.7	3.7			9.0	
400	3.3	4.0	5.0		9.4	
500	3.4	4.1	5.3	6.3	9.7	7.5
630	3.9	4.9	5.5	6.6	10.5	7.7
800	4.7	5.1	6.6	6.9	11.0	8.2
1000	6.1	5.9	6.8	8.2	11.7	9.0
1250		7.0	7.9	8.5	13.0	9.7
1400			7.9	9.9	13.9	11.0
1600			9.4	11.7	15.0	13.4
2000			12.3	15.4	18.0	15.3
2500						18.7
3150						22.4
4000						28.4
5000						35.1
6300						38.7

Construction of steel cord conveyor belts according to EN ISO 15236-2:2004

Belt type	Unit	500	630	800	1000	1250	1400	1600	1800	2000	2250	2500	2800	3150	3500	4000	4500	5000	5400
Min. breaking force	N/mm	500	630	800	1000	1250	1400	1600	1800	2000	2250	2500	2800	3150	3500	4000	4500	5000	5400
Max. cord diameter	mm	3,0	3,0	3,7	4,2	4,9	5,0	5,6	5,6	5,6	5,6	7,2	7,2	8,1	8,6	8,9	9,7	10,9	11,3
Max. braking load of cord	kN	6,8	6,8	10,3	12,9	18,4	20,6	26,2	25,5	25,5	26,2	39,7	39,7	50,0	55,5	63,5	75,0	90,3	96,0
Cord strands	mm	12,0	10,0	12,0	12,0	14,0	14,0	15,0	13,5	12,0	11,0	15,0	13,5	15,0	15,0	15,0	16,0	17,0	17,0
Min. cover thickness	mm	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	5,0	5,0	5,5	6,0	6,5	7,0	7,5	8,0
Belt width in mm	Tole-rances in mm	Number of cords																	
500	+10/-5	33	42	39	39	34	34	31	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
650	+10/-7	44	54	51	51	45	45	41	46	52	56	41	46	41	41	41	39	36	n/a
800	+10/-8	54	68	64	63	55	55	50	57	64	69	51	57	51	51	51	48	45	45
1000	±10	68	84	80	80	68	68	63	71	80	86	63	71	63	64	63	60	56	57
1200	±10	86	110	97	97	82	82	76	85	96	104	76	85	76	76	76	72	67	68
1400	±12	96	124	114	113	97	97	90	100	112	122	89	99	89	89	89	84	79	79
1600	±12	111	142	130	130	111	111	103	114	129	140	102	114	102	102	102	96	90	90
1800	±14	125	160	147	147	125	125	116	129	145	159	116	128	116	116	116	108	102	102
2000	±14	139	177	164	163	140	139	130	144	162	177	129	143	129	129	129	121	114	114
2200	±15	153	195	180	180	154	154	143	159	179	195	142	158	142	142	142	133	126	126
2400	±15	167	213	197	197	168	168	156	174	195	213	156	173	156	156	156	146	137	137
2600	±15	181	231	214	213	182	182	170	189	212	231	169	188	169	169	169	158	149	149
2800	±15	196	249	230	230	197	197	183	203	229	249	182	202	182	182	182	171	161	161
3000	±15	210	267	247	247	211	211	196	218	245	268	196	217	196	196	196	183	173	173
3200	±15	224	286	264	263	225	225	210	233	262	286	209	232	209	209	209	196	184	184

n/a because of troughability

GUIDANCE FOR CONVEYOR TECHNOLOGY
Method for calculating conveyor belt tensions

In selecting the most suitable belt for a particular application, several factors have to be considered. One of the foremost considerations is that the tensile strength of the belt carcass must be adequate to transmit the power required in conveying the material over the distance involved.

Belt Tensions

In order to calculate the maximum belt tension and hence the strength of belt that is required, it is first necessary to calculate the effective tension. This is the force required to move the conveyor and the load it is conveying at constant speed. Since the calculation of effective tension is based on a constant speed conveyor, the forces required to move the conveyor and material are only those to overcome frictional resistance and gravitational force

Mass of Moving Parts

For the sake of simplicity the conveyor is considered to be made up of interconnected unit length components all of equal mass. The mass of each of these units is called the mass of the moving parts and is calculated by adding the total mass of the belting, the rotating mass of all the carrying and return idlers and the rotating mass of all pulleys. This total is divided by the horizontal length of the conveyor to get the mean mass of all the components. At the outset the belt idlers and pulleys have not been selected and hence no mass for these components can be determined. Therefore an estimate of the mass of the moving parts equal in magnitude to 6% of the belt width expressed in millimetres, is used.

Mass of the load per unit length

As is the case with the components the load that is conveyed is considered to be evenly distributed along the length of the conveyor. Given the peak capacity in ton per hour the mass of the load per unit length is given by:

$$Q = 0.278\ \frac{\tau}{S}$$

Effective Tension

The effective tension is made up of 4 components

- The tension to move the empty belt T_x
- The tension to move the load horizontally T_y
- The tension to raise or lower the load T_z
- The tension to overcome the resistance of accessories T_u
- The effective tension is the sum of these 4 components

$$T_e = T_x + T_y + T_z + T_u$$

$$T_x = 9.8\,G \cdot f_x \cdot L_c$$

$$T_y = 9.8\,Q \cdot f_y \cdot L_c$$

$$T_z = 9.8\,Q \cdot H$$

Various conveyor accessories that add resistance to belt movement are standard on most conveyors. The most common are skirtboards at the loading point and belt scrapers. Other accessories include movable trippers and belt plows. Tension required to overcome the resistance of skirtboards, T_{us}

$$T_{us} = \frac{9.8 f_s \cdot Q \cdot L_s}{S \cdot b^2}$$

Tension to overcome resistance of scrapers, T_{uc}

$$T_{uc} = A \cdot p \cdot f_c$$

In the case of a belt plow the additional tension required to overcome the resistance of each plow is given by the empirical formula

$$T_{up} = 1.5W$$

Moving trippers require additional pulleys in the system and therefore add tension. If the mass of the additional pulleys has been included in the mass of moving parts then no additional tension is added. However, if a separate calculation of the tension to overcome the resistance of the additional pulleys is required this can be determined for each additional pulley as follows

$$T_{ut} = 0.01\,\frac{d_0 \cdot T_1}{D_t}$$

Corrected length L_c

Short conveyors require relatively more force to overcome frictional resistance than longer conveyors and therefore an adjustment is made to the length of the conveyor used in determining the effective tension. The adjusted length is always greater than the actual horizontal length.

$$L_c = L + 70$$

The length correction factor C is

$$C = \frac{L_c}{L}$$

All conveyors require an additional tension in the belt to enable the drive pulley to transmit the effective tension into the belt without slipping. This tension, termed the slack side tension T_2, is induced by the take-up system. In the case of a simple horizontal conveyor the maximum belt tension T_1 is the sum of the effective tension T_e and the slack side tension T_2 i.e.

$$T_1 = T_e + T_2$$

T_1 is the tight side tension and T_2 the slack side tension.

For a more complex conveyor profile that is inclined, additional tensions are induced due to the mass of the belt on the slope. This tension is termed the slope tension Th and increases the total tension. Thus

$$T_1 = T_e + T_2 + T_h$$

The slack side tension is determined by consideration of two conditions that must be met in any conveyor. The first condition is that there must be sufficient tension on the slack side to prevent belt slip on the drive. The second condition is that there must be sufficient tension to prevent excessive sag between the carrying idlers.

Minimum tension to prevent slip T_m

At the point of slipping the relationship between T_1 and T_2 is

$$\frac{T_1}{T_2} = e^{\mu\theta}$$

Since $T_1 = T_e + T_2$

$$T_2 = \frac{1}{(e^{\mu\theta} - 1)} \cdot T_e$$

The expression $\frac{1}{(e^{\mu\theta}-1)}$ is termed the drive factor k. Also the value of T_2 that will be just sufficient to prevent slip is called the minimum tension to prevent slip T_m.
i.e.

$$T_m = k \cdot T_e$$

Minimum tension to limit belt sag T_s

The tension required to limit sag is dependent on the combined mass of belt and load, the spacing of the carry idlers and the amount of sag that is permissible.

$$T_s = 9.8 S_f (B + Q)\, l_d$$

The value of the slack side tension must ensure that both conditions are met and therefore T_2 must be the larger of T_m or T_s

Slope tension T_h

$$T_h = 9.8B \cdot H$$

The slope tension is the product of the belt weight and the vertical lift and has its maximum value at the highest point of the conveyor.

Unit tension T

The maximum belt tension T has as its reference width the full width of the belt. Usually this is converted to the tension per unit of belt width as this is the reference dimension for belt strengths.

Your local contact

// ONE BRAND // ONE SOURCE // ONE SYSTEM

// SERVICE
// MATERIAL PROCESSING
// SURFACE PROTECTION
// AUTOMOTIVE

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