A large industrial conveyor belt system is shown against a bright blue sky with scattered clouds. The conveyor consists of several parallel belts supported by a complex steel framework. It is positioned between two large, dark piles of granular material, likely aggregate or gravel. The perspective is from a low angle looking up at the conveyor structure.

TRANSPORT SOLUTION FOR INDUSTRIAL BULK MATERIAL

**C-FLEX
MULTI DUTY
RUBBER CONVEYOR BELT**

COVER RUBBER SELECTION

The most suitable cover rubber should be selected according to the kind and Lump size of materials transported and operating condition of the belt such as Impact height, Abrasiveness, Desired belt life:

Cover Type	Standard & Grade	Application			Physical Properties		
		Characteristics	Reference Material	Max Temp °C	Min T.S (N/mm ²)	Min Elong (%)	Max Abrasion Loss (mm ³)
General Purpose	DIN X	Not only high Tensile Strength but also, super in Abrasion, Cut & Gouge resistance. Suitable for transporting sharp & rugged materials	Iron Ore, Copper Ore, Stone, Rocks, etc.	80	25	450	120
	AS M			80	24	450	125
	IS M24			80	24	450	150
	BS M24			80	24	450	150
	SABS M			80	24	450	120
	DIN Y	Abrasion resistance is a bit inferior than M24 in cut and gouge resistance. Suitable for transporting moderate abrasive material	Sand, Cement, Fire Coal, Slack Lime, Wood chips etc.	80	20	400	150
	AS M			80	17	400	150
	IS N17			80	17	400	200
	BS N17			80	17	400	150
	SABS N			80	17	400	150
Superior Abrasion Resistance	DIN W	Super abrasion resistant. Suitable for transporting materials tending to cause fast wear on belts	Lime Stone, Slug Iron etc.	80	18	400	80
	AS A			80	18	400	80
Heat Resistance	DIN T	Suitable for transporting hot materials. Also cut & abrasion resistance	Hot coke, Foundry sand, Hot iron pellets etc.	100°C onstant Belt Surface, 125°C for material handled	13	350	250
	IS T			12.5	350	250	
	HR-T1			13			
	DIN T	Superior in heat resistance and also cut, abrasion & tear resistance	Hot Cement, Sintered Ore, Hot lime stone etc.	125°C on Belt Surface, 150°C for material handled	12.5	350	200
	IS T			12.5	350	200	
Fire Resistance	SHR-T ₂			12.5	350	200	
	DIN T	Excellent Heat resistant. Superior in cut, abrasion and tear resistance	Hot cement, sintered ore, Hot lime stone etc.	170°C onstant Belt Surface, 200°C for material handled	10	300	200
	UHR-T ₃			10	300	200	
	MEGA THERM	Unique Heat Resistance Characteristics. Crackless. High Adhesion Ensures No Delamination and Joint Failure High Abrasion Resistance	Hot Clinker, Coke, Sintered Ore, Iron Pellets Lime Stone etc.	300°C on Belt Surface, 500°C for Lump/Coarse material handled	15	500	300
Oil resistance	AS F	Rubber Cover are fire resistance and antistatic. Suitable for use in coal & such types of mines where there is a distinct possibility of fire hazard.	Coal, Shale etc.	80	14	300	200
	IS FRAS			80	17	350	200
	CAN/CSA (C)			80	17	350	200
Hygienic	ISO 340						
	IS OR	Cover rubber are highly resistance to mineral, animal & vegetable oils and fats	Oil treated coal, Fertilizers etc.	100	10	250	175
Hygienic	IS	Covers are mainly white in colour, odourless, & do not stain the materials to be conveyed. Suitable for transporting materials in food processing and pharmaceutical industries	Tea processing Plants, Coffee Processing Plants etc	70	10	350	

Note : Belts of any other grade and standards can be made on request

C-FLEX Conveyor Belt



Types of C-FLEX conveyor belts for each use & application

- General Conveyor Belt
- Nylon/Nylon Conveyor Belt (NN)
- Polyester/Nylon Conveyor Belt (EP)
- Super Abrasion Resistant Conveyor Belt (SAR)
- Heat Resistant Conveyor Belt (HR/SHR/UHR)
- Chemical Resistant Conveyor Belt (CR)
- Oil Resistant Conveyor Belt (OR)
- Heat & Oil Resistant Conveyor Belt (ORHR)
- Flame Resistant Conveyor Belt (FR)
- Pipe Conveyor Belt
- Rough Top Conveyor Belt
- Inclined (Chevron Cleated) Conveyor Belt
- Steel-Mesh Conveyor Belt (IW/SW/IWR)
- Steel Cord Conveyor Belt (ST)

Conveyor Belt Construction

C-FLEX Heavy Duty conveyor and Elevator Belts.

Various kinds of fabric carcass and wide ranges of tension rating make it possible to select the best conveyor belt for the intended application.



Bottom Cover

Excellent in abrasion and flexibility, provides wearing surface against pulleys and idlers.

Skim Coat
Compounded for excellent adhesion between plies for protecting against ply separation.

Top Cover

Designed to protect the carcass from service conditions like oil, heat, abrasion etc.

Carcass

Extremely low stretch characteristics of fabric and good troughability.



COMPARATIVE STUDY OF VARIOUS GRADES OF HEAT RESISTANT BELT

						REMARKS	
						MEGA THERM ADVANTAGES OF MEGA THERM OVER OTHER HR GRADE BELTS	
GRADE SPECIFICATION	HR-T1 IS:1891	HR-T2 IS:1891	HR-T3 ISO:4195	HR-T4 GBT:20021	HR-T4(+) GBT:20021		
COMPOUND CARCASS	SBR/ SBR	NR/ NR-SBR	NR-SBR or EPDM	EPDM SPECIALY COMPOUNDED	EPDM SPECIALY COMPD.		
TEMPERATURE RESISTIVITY	NN/ EP	NN / EP	EP	EP (High Modulus)	EP (High Modulus)	BETTER FABRIC STRUCTURE WITH SPECIAL CHEMICAL TREATMENT	
LUMP PEAK CONSTANT °C	125	150	220	500	500	BETTER HEAT RESISTANCE. DELAYED/ LESSER CRACKENING AND HARDENING,	
POWDER PEAK CONSTANT °C	100	125	200	350	350	BLISTERING, BURN THROUGH HOLES ALSO ANTI FLAME CHARACTERISTICS.	
BELT ELONGATION @10% LOAD	% MAX. ≤ 4.0		≤ 4.0	≤ 3.0	≤ 1.0	≤ 1.0	LESSER TAKE UP DISTANCE.
Cover Properties							
Tensile Strength	Mpa	≥ 12.5	≥ 12.5	≥ 14.0	≥ 15.0		LESSER CUTTING & GOUGING
Elongation @ Break	% min.	350	350	350	400		
HARDNESS	Shore °A	65 ± 5	65 ± 5	65 ± 5	65 ± 5		
AGEING CONDITION	HRS./TEMP.	72 hrs/100°C	72 hrs/125°C	168 hrs/150°C	168 hrs/170°C	168 hrs/170°C	
% Change in Tensile Strength After Ageing	%	-25	-35	-40	-40	-40(12 min)	BETTER AGEING PROPERTIES
% Change in Elong. @Break After Ageing	%	-40	-50	-55 (180 MIN.)	-55 (180 MIN.)	-55 (200 min.)	ENSURES HIGHER LIFE.
HARDNESS	Shore °A	85 max.	85 max.	85 max.	85 max.	85 max.	ENSURES LONGER LIFE/USAGE.
Abrasion Loss	mm ³	250	250	180	150	150	BETTER WEAR RESISTANT EVEN AFTER PROLONGED USE
4. Adhesion (KN/m Width)							
Cover to Ply (≥1.5 mm Cover)	kN/mtr.	3.5	3.5	3.5	12.0	12.0	DELAMINATION OF COVER TO PLY AND PLY TO PLY ALMOST ELIMINATED
Cover to Ply (<1.5 mm Cover)	kN/mtr.	3.0	3.0	3.0	12.0	12.0	
Ply to Ply (Average)	kN/mtr.	4.5	4.5	4.5	12.0	12.0	
ADHESION AFTER AGEING							
Cover to Ply (≥1.5 mm Cover)	% Change	-50% max.	-50% max.	-50% max.	-50% max.	-50% max.	SPICE/JOINT FAILURE ELIMINATED AND DELAMINATION MINIMISED
Cover to Ply (<1.5 mm Cover)	% Change	-50% max.	-50% max.	-50% max.	-50% max.	-50% max.	DUE TO HIGHER ADHESION VALUE EVEN AFTER PROLONGED USE
Ply to Ply (Average)	% Change	-50% max.	-50% max.	-50% max.	-50% max.	-50% max.	

MEGA THERM (300°C-500°C)



MEGA THERM High Temperature Material/Heat Resistant Conveyor Belting, suitable to withstand Material Temperature between 300°C-500°C(Peak/Lump/Sporadic) and Fines/Powdery material under 300°C is made of Cover Rubber with EPDM(Ethylene Propylene Dine Monomer), a polymer, best known for Heat Resistant characteristics. Molecular structure, Chemical Bonding and composition of EPDM are responsible for better Heat Resistivity character as compared to SBR/NR-SBR compounds used for HRT1/HRT2/SHR & HR T3/UHR belts.

Special variety and correct phr of Anti Oxidant & Anti Ozonant chemicals incorporated in the compound, ensures No Cracking or Delayed Cracking of MEGA THERM Covers upon prolonged usage and exposure to high temperature. Anti Flame characteristics also reduces the incidents of Burn through holes.

Most significant feature of **MEGA THERM** belt is it's High Adhesion Value of 12/12 as against 3.5/4.5(kN/m width) of T1, T2 & T3 belts. This Higher Adhesion Characteristics both before and after ageing thus eliminates the possibility of Cover to Ply and Ply to Ply de-lamination. It also eliminates the possibility of Splice/Joint failure. **MEGA THERM** are produced and tested as per International Standard GB/T20021(HRT4).

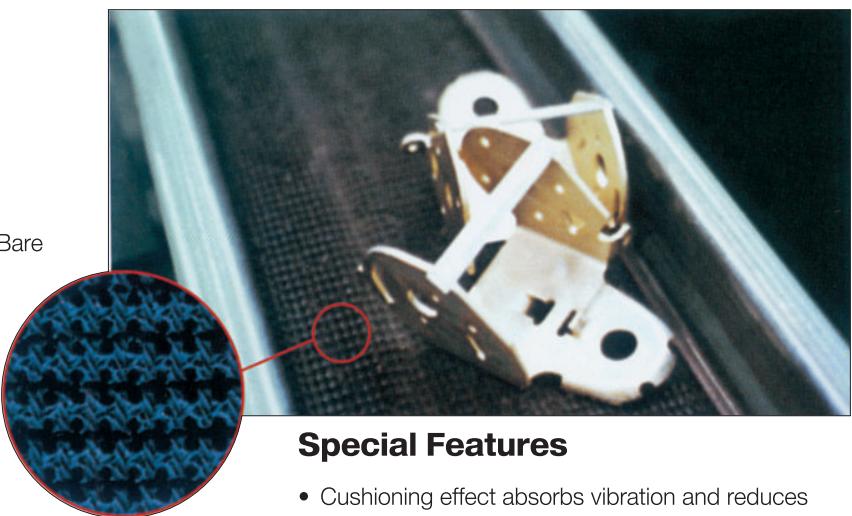
CHEVRON CLEATED INCLINED & ROUGH TOP CONVEYOR BELT



Type of Rough Top Belt

- 2ply Black roughtop x Bare
- 2ply Tan roughtop x Bare
- 3ply Black roughtop x Bare
- 3ply Tan roughtop x Bare
- 3ply Blown Nitrile roughtop x Bare

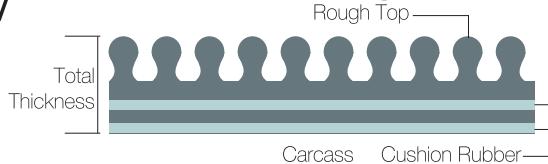
This belt was designed for transporting fragile or easily deformed goods such as glass, paper bags, carton box etc. The slip resisting surface is ideal for steep oncline/decline applications.



Special Features

- Cushioning effect absorbs vibration and reduces slippage.
- Usable at the angle of 25~35 degrees, depending on goods to be carried.
- Low friction coefficient with bare back bottom.
- Two or three plies of synthetic fabrics provide high strength and flexibility.
- Various colored cover rubbers are available.

Structure of Rough Top



Incline (Chevron-Cleated) conveyor belt is used to carry coal and mineral core, powdery such as sand, fine coal and grain materials up steep inclines. Chevron-Cleats increase the quantity of granular materials in heavy duty incline applications.



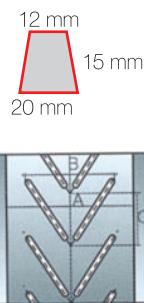
Special Features

- High quality fabric with low stretch.
- Cleat angle and pitch are designed for smooth travel over return idlers.
- Higher angle of 17~30 degree of incline.
- Wear resistant and oil resistant black rubber quality is available.

Steep Incline Belt (C15 Type)

A Belt Width	B Pattern Width	C Pitch
500	385	250
600	385	250
650	385	250
750	600	370
900	600	370
1,000	600	370

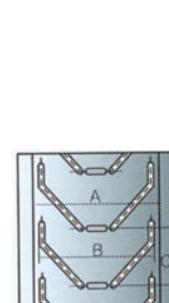
(Unit : mm)



Steep Incline Belt (C25 Type)

A Belt Width	B Pattern Width	C Pitch
650	550	250
650	550	250
750	550	250
800	550	250
900	750	330
1,000	750	330
1,050	750	330
1,200	750	330

(Unit : mm)



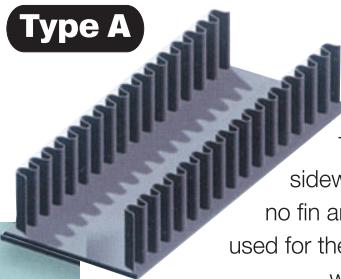
Side wall Conveyor Belt



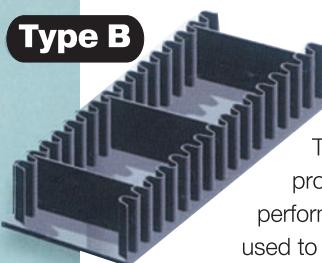
This belt is designed with two corrugated sidewalls molded to cross-rigid base belt. This belt is developed in order to meet larger capacities with considerable stability and strength.

Cross Rigid Base Belt

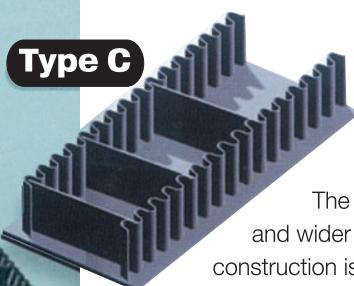
In order to give maximum stability in the transverse direction this basebelt is reinforced with specially designed filament fabrics which provides better returnside support, no wear and tear of cleats and cover rubber is available with various compounds like abrasion resistance, oil heat, flame resistance.



This type of sidewall belt has no fin and normally used for the inclination within 0~16°



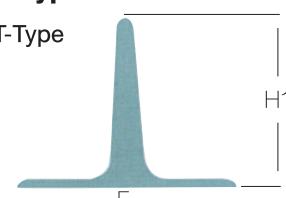
The cross-fin provides better performance to be used to high degree of inclination up to 15~60°



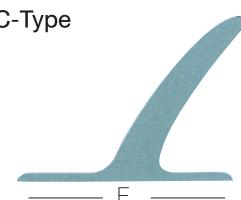
The cross-fin and wider basebelt construction is suitable for the application up to more than 60°

Fin Type

- T-Type



- C-Type



Special Features

- Increase the transporting capacity to 4 times compared to standard conveyor belt.
- Save installation space due to the possibility of increasing the angle of inclination up to 90°.
- Protect the material from friction by solid cleats mounted on the belt.

Comparison of Cross Section Area

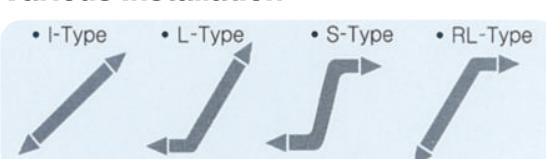
- Cross Rigid Base Belt



- Standard Conveyor Belt



Various Installation



Constructional Elements C-Flex Steel Cord Belt

Steel Cord

The cord used in C FLEX is made of specially developed High Carbon Steel. While manufacturing the belt, this high tensile strength cord is held longitudinally in a single layer under pre-detemined tension to ensure proper alignment. The standard constructions of steel cord used are 7x7, 7x19. The cords are coated suitably with zinc to protect the same from corrosion as well as to ensure superior bonding between cord and rubber. C-Flex has high strength to cross section ratio which ensures higher modulus.

Filaments constituting the cord have lower elongation and higher flexibility.

Ratio of diameter of core to outer strand are so designed that penetration of Rubber into the Cord interstices is maximised.

The penetration has multifold effect e.g. notching effect of the wire against one another is prevented, corrosion resistance is increased, strength is increased, elongation is reduced.

Alternate application of S & Z lay cord eliminates the accumulation of residual torsion.

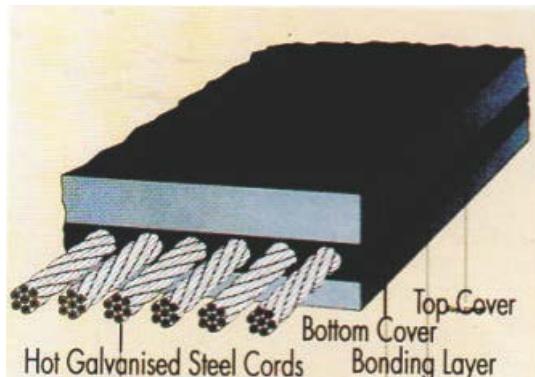
Bonder Rubber

Bonder Rubber ensures permanent bond between rubber and cord. It is designed to ensure adequate penetration inside the cord, to prevent corrosion, to impart greater pull out strength and elevated dynamic efficiency. Also, it has inherent resistance to thermal degradation, a feature which facilitates splicing.

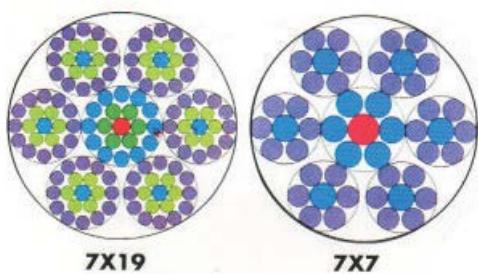
The bonder compound is designed to help synchronised fusion.

Rubber Cover

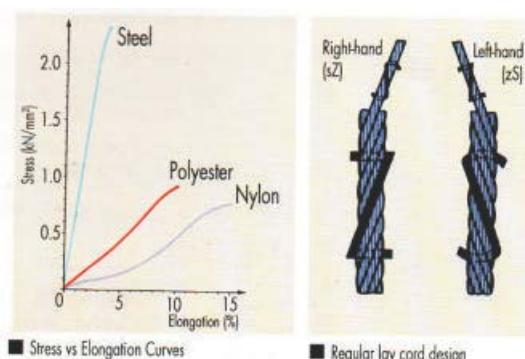
The premium quality rubber cover of C-Flex has high tensile strength, high elongation, high resistance to abrasion and may conform to any national/international standard as desired by the customer. In addition, C-Flex also available with Oil, Heat and Fire Resistant grades to meet specific service requirements.



Structual elements of C-Flex Belt



Typical Configurations of Steel Cord

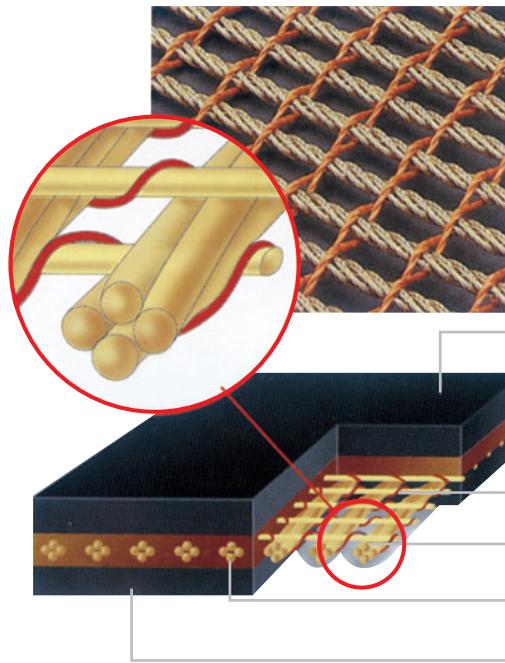


Steel Mesh Conveyor Belt



Special Features

- The smaller elongation for steel mesh belt reduces the length of take-up.
- Excellent adhesion between steel mesh and cover rubber to resist flex fatigue and impact.
- Single carcass reinforcement has much better flexibility.
- Steel mesh belt offers superior resistance to the repeated impacts.



The special design of steel mesh conveyor belt consists of brass-coated steel cords in both warp and filling directions. This steel mesh conveyor belt was developed to solve the problem with longitudinal cutting, tearing in conventional steel cord belt.

Structure of Belt

Cover Rubber

Designed to meet particular services.

Binder Yarn

Steel Cord(Weft)

Steel Cord(Warp)

Bottom Rubber

Steel Mesh Grade (IW-Type)

Grade	IW350	IW500	IW630	IW800	IW1000	IW1250	IW1600
Tensile Strength (Warp)	kg/cm	350	500	630	800	1000	1250
Tension Rating	kg/cm	35	50	63	80	100	125
Tensile Strength (Weft)	kg/cm	90	90	90	125	125	175
Carcass Thickness	mm	3.2	3.2	3.2	4.5	4.5	6.0
Weight	kg/m ²	1.85	2.45	2.95	4.15	5.00	6.35
Pulley Diameter	mm	350	350	350	400	500	600

Steel Mesh Grade (IWR-Type)

Grade	IW630R	IW800R	IW1000R	IW1250R	IW1400R	IW1600R	IW1800R	IW2000R
Tensile Strength (Warp)	kg/cm	630	800	1000	1250	1400	1600	1800
Tension Rating	kg/cm	63	80	100	125	140	160	180
Tensile Strength (Weft)	kg/cm	200	200	200	200	200	200	200
Carcass Thickness	mm	5.0	5.6	5.6	6.4	6.4	7.2	7.2
Weight	kg/m ²	3.45	4.35	5.20	6.40	6.90	7.90	9.10

THE STEEL CARCASS CONSTRUCTION

The C-FLEX Elevator Belts are constructed with specially designed straight warp "open type" steel cords with built-in elasticity, E-cords, in the warp direction onto which rigidity improving weft cords are tied using a special weaving techniques.

This special structure means that neither the warp nor the weft cables are deformed in any way, but they lay perfectly straight all over the belt length, resulting in maximum strength performance and high resistance to damage.

The open steel E-cords allow maximum rubber penetration, minimizing corrosion penetration in case of belt damage and resulting in very high rubber to steel adhesion.

The rubber penetration deep into the warp cables functions as lubricant for the twined steel wires forming the cords increasing the elasticity of the E-cords.



C-FLEX Steel Carcass

Low Elongation

C-FLEX elevator belts display only 0.3% permanent elongation at maximum recommended working load (safety factor 10), ensuring consultant belt tension, even at long centre distances.

As a unique feature the steel carcass displays an elastic elongation of 0.15%, increasing shock resistance and allowing the belts to run over slightly crowned pulleys, thus further greatly improving the straight tracking ability of this belt quality. The elastic elongation is the variation in belt length when subjected to a load variation between 20% and 100% of the maximum recommended load at 10-fold safety factor.

Standard Belt construction

Strength/construction	Belt thickness
SW 630 3+3	mm 11 mm
SW 800 3+3	mm 12 mm
SW 1000 3+3	mm 12 mm
SW 1250 4+4	mm 15 mm
SW 1400 4+4	mm 15 mm
SW 1600 4+4	mm 15 mm
SW 1800 4+4	mm 15 mm
SW 2000 4+4	mm 15 mm

Recommended minimum covers.

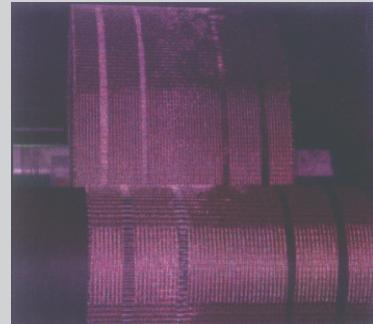
Other combinations to order.

Belt Carcass Construction

Type	Warp cords diam.	Pitch
SW 630	2.00 mm	4.63 mm
SW 800	2.85 mm	6.67 mm
SW 1000	2.85 mm	5.38 mm
SW 1250	3.90 mm	7.04 mm
SW 1400	3.90 mm	6.25 mm
SW 1600	3.90 mm	5.00 mm
SW 1800	3.90 mm	5.50 mm
SW 2000	3.90 mm	4.65 mm

Weft Cords

standard diameter	1.29 mm
pitch	6.67 mm



Carcass of C-FLEX belt with cable free zones during production

C-FLEX STEEL CORD BELT FOR BUCKET ELEVATOR

The C-FLEX belt for bucket elevators is a steel carcass rubber covered elevator belt constructed with special quality, low elongation yet high elasticity steel cords in the length and cross rigid cables in the width. Their construction and characteristics differ from those of traditional steel cable belts.

They are destined for heavy duty industrial applications with long centre distances, requiring stable running and reliable belts with high safety factor.

C-FLEX Elevator Belts consist of a steel carcass in a solid rubber mass that cannot delaminate. The built-in elasticity allows running over slightly crowned pulleys while the cross rigid weft construction results in excellent straight tracking characteristics.

The C-FLEX Elevator Belt program offers a choice of very high abrasion resistant rubber covers or excellent high-heat resistant qualities.

Qualities

C-FLEX belts are available in four different qualities :

- 1) Type T60, a high abrasion resistant quality on SBR basis
- 2) Type T100, a heat resistant quality on modified SBR basis
- 3) Type T130, a high-heat resistance quality on EPDM basis
- 4) Type CR, an oil resistant quality on Neoprene basis.

Cover thickness on pulley face and bucket face as per customer specification or standard arrangement.

Type T100 and T130 are destined for use in ambient temperatures of respectively 100°C and 130°C maximum with short duration peak temperatures of respectively 100°C and 150°C.

Type T130 is successfully in use in various plants handling product with temperatures up to 165°C. Although the belt life in such operational conditions is shorter than achieved at the recommended maximum temperature of 130°C, the life in these conditions is still very acceptable and the belts give a satisfactory economic life.

The deciding factor is the reigning ambient temperature inside the elevator casing.

Manufacturing norms

All belt types are manufactured in accordance with DIN 22102 and ISO norms.

Fields of application

- cement factories
- fly ash elevators in power plants
- fertilizer plants
- foundries
- concrete mixing plants
- glass factories
- grain elevators in port silos

Belt qualities

Type T60	highly abrasion resistant max. ambient temp. 60°C cover hardness 60°A shore
Type T100	highly abrasion resistant max. ambient temp. up to 100°C continuous, short peaks 110°C cover hardness 64°A shore
Type T130	good abrasion resistant max. ambient temp. up to 130°C continuous, short peaks 150°C cover hardness 66°A shore
Type CR	oil and fat resistant anti-static ISO 284 flame retardant ISO 340 cover hardness 70°A shore

For high temperature applications consult our technical department.



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