2026

WORLD PRIME SERVICES

Rubber Conveyor Belt

INDEX

ABOUT OUR BUSINESS

We are an innovative company since 1996, began doing consulting and support services for businesses that need assistance in the area of foreign trade, investment, and developing new business.

In this period of experience, we have been devoting to the business of rubber, especially rubber conveyor belts since 2001 until today we are always innovating, learning and always trying to develop new types of belt use for the best and most suitable adaptability to the various requirements of customers.

In 2014 we start to invest to new business in many countries in Latin America, we know about maquila in Paraguay and Mercosur market.

We are a partnership between client, suppliers, Investor and a team of support for businesses, today the world are globalized, then we can be your better partner and choice for both parties, which may arise in a long lasting partnership.

Our services stand out for our personalized attention in all cases, with professionals of outstanding capacity and, especially, for the attention.

We have a full professional staff, specializing in Business Administration and Business Societies, and can advise you on various matters.

OUR MISSION TO FACILITATE AND TO APPROACH YOURS NEEDS.

We represent five Chinese company, they manufacturing rubber conveyor belt, they have different kind of belts and standard, RMA, DIN and others, according the countries and needs, we hope to be able to have one chance to have a contact and an opportunity of business with your company. We have worked with conveyor belt more than fifteen years; help the manufacturer to selling annually more than ten million dollars in conveyor belts and rubbers products for Latin America.

We are defending the loyalty and trust, we have good reference with many companies, we are not trading, we are representing companies and we are consulting company too.

We are working also with Rubber Sheet, PVC Belt, V belt and transmission belts.

A conveyor belt is the carrying medium of a belt conveyor system (often shortened to belt conveyor). A belt conveyor system is one of many types of conveyor systems. A belt conveyor system consists of two or more pulleys (sometimes referred to as drums), with an endless loop of carrying medium—the conveyor belt—that rotates about them. One or both of the pulleys are powered, moving the belt and the material on the belt forward. The powered pulley is called the drive pulley while the unpowered pulley is called the idler pulley. There are two main industrial classes of belt conveyors; Those in general material handling such as those moving boxes along inside a factory and bulk material handling such as those used to transport large volumes of resources and agricultural materials, such as grain, salt, coal, ore, sand, overburden and more.

Today there are different types of conveyor belts that have been created for conveying different kinds of material available in PVC and rubber materials.

The belt consists of one or more layers of material. Many belts in general material handling have two layers. An under layer of material to provide linear strength and shape called a carcass and an over layer called the cover. The carcass is often a woven fabric having a warp & weft. The most common carcass materials are polyester, nylon and cotton. The cover is often various rubber or plastic compounds specified by use of the belt. Covers can be made from more exotic materials for unusual applications such as silicone for heat or gum rubber when traction is essential.

A conveyor belt can be a slide and be controlled by the force of gravity.

Material flowing over the belt may be weighed in transit using a belt weigher. Belts with regularly spaced partitions, known as elevator belts, are used for transporting loose materials up steep inclines. Belt Conveyors are used in self-unloading bulk freighters and in live bottom trucks. Belt conveyor technology is also used in conveyor transport such as moving sidewalks or escalators, as well as on many manufacturing assemblies' lines. Stores often have conveyor belts at the check-out counter to move shopping items. Ski areas also use conveyor belts to transport skiers up the hill.

Belt conveyor systems

Conveyors are durable and reliable components used in automated distribution and warehousing. In combination with computer controlled pallet handling equipment this allows for more efficient retail, wholesale, and manufacturing distribution. It is considered a labor saving system that allows large volumes to move rapidly through a process, allowing companies to ship or receive higher volumes with smaller storage space and with less labor expense.

Rubber conveyor belts are commonly used to convey items with irregular bottom surfaces, small items that would fall in between rollers (e.g. a sushi conveyor bar), or bags of product that would sag between rollers. Belt conveyors are generally fairly similar in construction consisting of a metal frame with rollers at either end of a flat metal bed. The belt is looped around each of the rollers and when one of the rollers is powered (by an electrical motor) the belting slides across the solid metal frame bed, moving the product. In heavy use applications the beds which the belting is pulled over are replaced with rollers. The rollers allow weight to be conveyed as they reduce the amount of friction generated from the heavier loading on the belting.

Belt conveyors can now be manufactured with curved sections which use tapered rollers and curved belting to convey products around a corner. These conveyor systems are commonly used in postal sorting offices and airport baggage handling systems. A sandwich belt conveyor uses two conveyor belts, face-to-face, to firmly contain the item being carried, making steep incline and even vertical-lift runs achievable.

Belt conveyors are the most commonly used powered conveyors because they are the most versatile and the least expensive. Product is conveyed directly on the belt so both regular and irregular shaped objects, large or small, light and heavy, can be transported successfully. These conveyors should use only the highest quality premium belting products, which reduces belt stretch and results in less maintenance for tension adjustments. Belt conveyors can be used to transport product in a straight line or through changes in elevation or direction. In certain applications they can also be used for static accumulation or cartons.

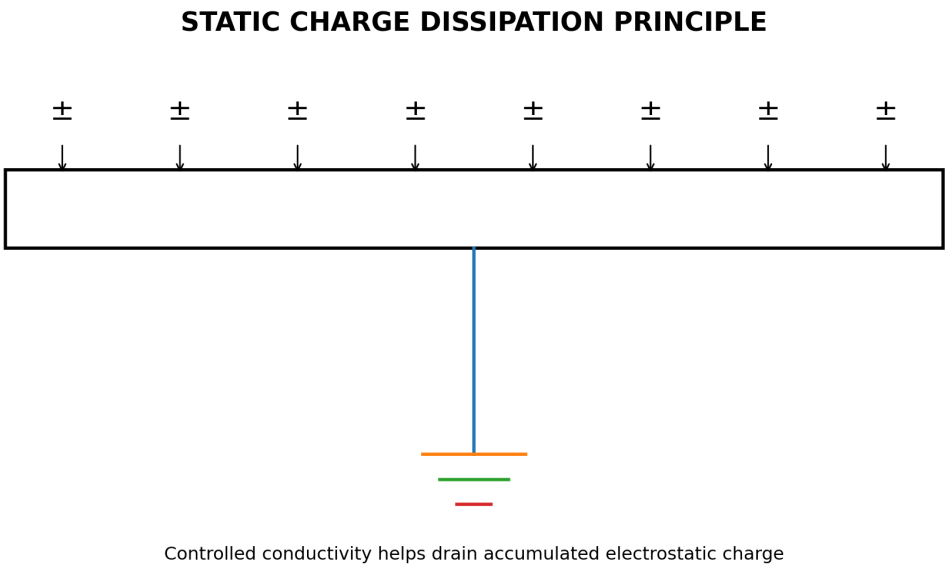
Conveyors used in industrial settings include tripping mechanisms such as trip cords along the length of the conveyor. This allows for workers to immediately shut down the conveyor when a problem arises. Warning alarms are included to notify employees that a conveyor is about to turn on. In the United States, the Occupational Safety and Health Administration has issued regulations for conveyor safety, as OSHA 1926.555.

History

Primitive conveyor belts were used since the 19th century. In 1892, Thomas Robins began a series of inventions which led to the development of a conveyor belt used for carrying coal, ores and other products. In 1901, Sandvik invented and started the production of steel conveyor belts. In 1905 Richard Sutcliffe invented the first conveyor belts for use in coal mines which revolutionized the mining industry. In 1913, Henry Ford introduced conveyor-belt assembly lines at Ford Motor Company's Highland Park, Michigan factory. In 1972, the French society REI created in New Caledonia the longest straight-belt conveyor in the world, at a length of 13.8 km. Hyacynthe Marcel Bocchetti was the concept designer. [citation needed] In 1957, the B. F. Goodrich Company patented a conveyor belt that it went on to produce as the Turnover Conveyor Belt System. Incorporating a half-twist, it had the advantage over conventional belts of a longer life because it could expose all of its surface area to wear and tear. Möbius strip belts are no longer manufactured because untwisted modern belts can be made more durable by constructing them from several layers of different materials. In 1970, Intralox, a Louisiana-based company, registered the first patent for all plastic, modular belting.

ANTISTATIC CONVEYOR BELT

Electrical Conductivity • Static Charge Dissipation • Heavy-Duty Rubber Belting



PRODUCT CONTENTS

1. PRODUCT OVERVIEW

World Prime Services Antistatic Conveyor Belt is engineered for industrial conveying systems where controlled dissipation of electrostatic charge is required. The belt uses electrically conductive or static-dissipative rubber compounds and a compatible carcass construction to reduce the accumulation of static electricity generated by belt movement, conveyed material friction and contact with conveyor components.

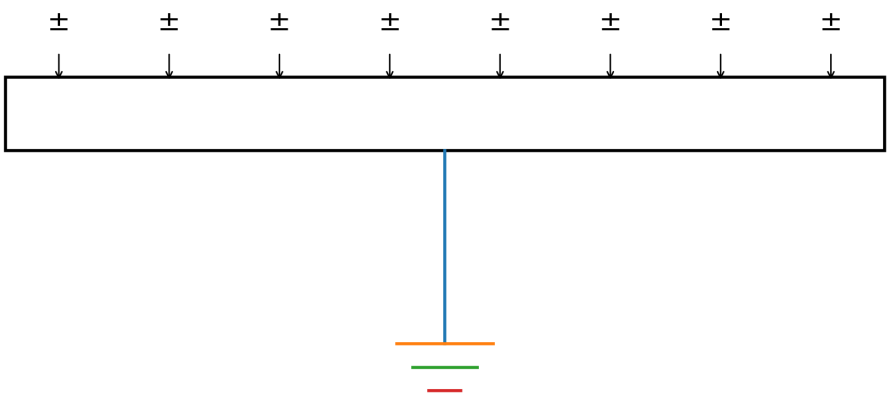
The product platform is intended for coal handling, power generation, ports, cement, mineral processing, chemical handling, recycling and other industrial bulk-material applications. Antistatic performance may be combined with abrasion, impact, oil, heat or flame resistance when required by the duty.

Engineering Objective	Operational Benefit
Controlled electrical resistance	Helps dissipate electrostatic charge developed during operation
Conductive rubber cover system	Reduces static-charge accumulation on the belt surface
Stable carcass construction	Supports load carrying, tracking and dimensional stability
Application-specific compounds	Combines antistatic performance with other required properties
International test compatibility	Can be specified and tested to recognized conductivity requirements

2. ANTISTATIC PERFORMANCE PRINCIPLE

Friction between the belt, pulleys, idlers and conveyed material can generate electrostatic charge. An antistatic belt is formulated so accumulated charge can dissipate through a controlled conductive path instead of remaining concentrated on the belt surface.

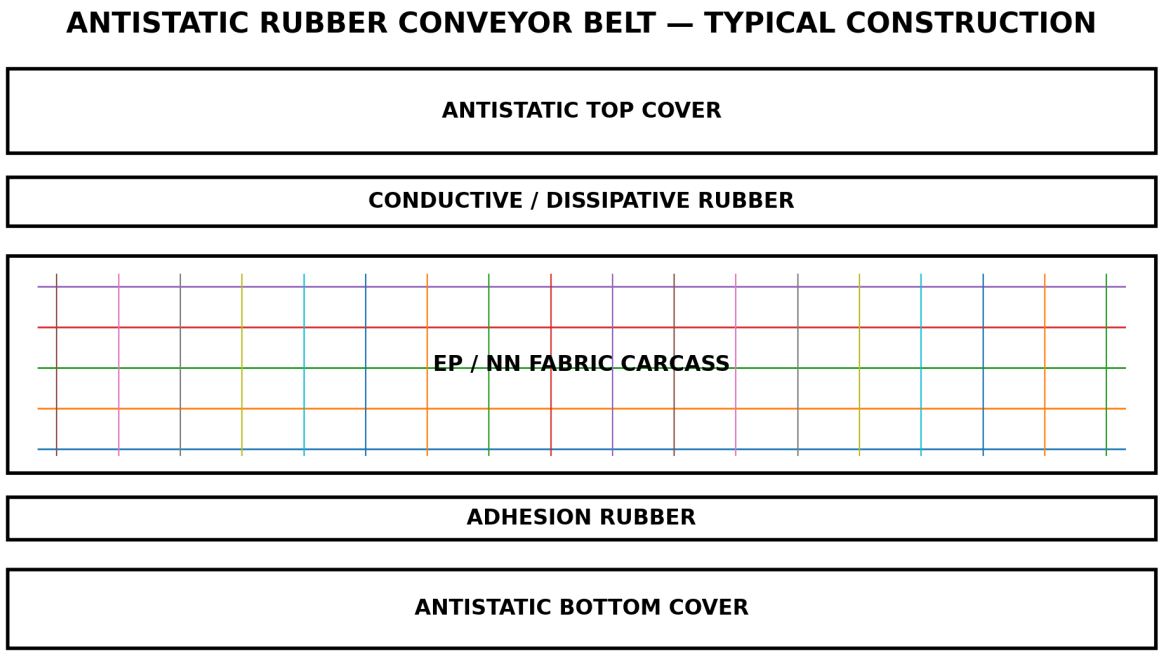
STATIC CHARGE DISSIPATION PRINCIPLE



Controlled conductivity helps drain accumulated electrostatic charge

ISO 284:2025 specifies the maximum electrical resistance of a conveyor belt and the corresponding test method, with the objective of ensuring that the belt is sufficiently conductive to avoid electrostatic charge accumulation during service. A commonly referenced antistatic criterion for industrial conveyor belting is electrical resistance $\leq 3 \times 10^8\ \Omega$ when tested to the applicable ISO 284 procedure. Final acceptance criteria shall be defined in the purchase specification.

3. BELT CONSTRUCTION



Component	Function	Typical Options
Antistatic top cover	Primary conveying surface with static-dissipative behavior	Abrasion-, heat-, oil- or flame-resistant variants
Conductive / dissipative rubber	Supports charge dissipation through the belt body	Compound formulated to target conductivity
Tension carcass	Carries longitudinal operating tension	EP fabric, NN fabric or steel cord
Adhesion rubber	Bonds carcass and cover layers	High-adhesion skim compound
Antistatic bottom cover	Pulley-side protection and static-dissipative continuity	Standard or special-duty compound

4. PRODUCT RANGE

AS-EP Series — Antistatic EP Fabric Conveyor Belt

Low-elongation polyester/nylon fabric construction for general and heavy-duty industrial conveying.

AS-NN Series — Antistatic Nylon Fabric Conveyor Belt

Flexible, impact-tolerant fabric construction for shorter and medium-distance conveyor systems.

AS-ST Series — Antistatic Steel Cord Conveyor Belt

High-tensile, low-elongation construction for long-distance, high-capacity and high-tension applications.

AS-MP Series — Multi-Purpose Antistatic Belt

Antistatic performance combined with abrasion, oil, heat or weather resistance.

AS-FR Series — Antistatic Flame-Resistant Belt

Specialized construction for duties requiring both static-charge dissipation and flame resistance, subject to the governing safety standard.

5. COVER COMPOUND TECHNOLOGY

Antistatic performance is achieved through the rubber formulation rather than only a surface treatment. Conductive ingredients are incorporated into the compound to provide controlled electrical resistance while maintaining the mechanical properties required for conveyor service.

Compound Family	Primary Duty	Typical Application	Engineering Note
AS-A	Antistatic + abrasion resistance	Coal, minerals, aggregates, cement	General heavy-duty antistatic service
AS-O	Antistatic + oil resistance	Oily bulk materials, recycling	Oil type and concentration to be specified
AS-H	Antistatic + heat resistance	Hot bulk materials	Material and surface temperatures required
AS-FR	Antistatic + flame resistance	Selected regulated environments	Project-specific safety standard required
AS-W	Antistatic + weather resistance	Outdoor terminals and exposed conveyors	For UV, ozone and climate exposure

6. CARCASS OPTIONS

Carcass	Main Characteristics	Typical Use	Selection Consideration
EP Fabric	Low elongation, dimensional stability, strong adhesion	General heavy-duty industrial conveyors	Versatile standard construction
NN Fabric	High flexibility and good impact absorption	Impact-oriented or shorter systems	Higher elongation than EP
Steel Cord	Very high tensile strength and very low elongation	Long-distance and high-capacity conveying	Engineered pulley and splice design
Project-Specific Hybrid	Combined characteristics	Special severe-duty conveyors	Built to technical specification

7. TECHNICAL SPECIFICATION RANGE

Parameter	Catalogue Range / Option	Remarks
Belt width	300–3,200 mm	Project-dependent manufacturing range
Fabric strength	EP / NN classes selected to duty	Ply count based on operating tension
Steel cord strength	Project-specific ST classes	For long-distance or high-tension applications
Top cover thickness	Typically 3–20+ mm	Selected for abrasion, impact and duty
Bottom cover thickness	Typically 1.5–10+ mm	Selected for pulley-side wear
Electrical resistance	Antistatic grade to project specification	Commonly specified to ISO 284
Typical antistatic criterion	$\leq 3 \times 10^8\ \Omega$	Subject to standard edition and purchase specification
Edge construction	Cut edge / moulded edge	According to belt type
Splice method	Hot vulcanized preferred for critical service	Depends on carcass construction
Temperature range	Compound dependent	Must be stated at inquiry stage

8. ELECTRICAL CONDUCTIVITY & TEST REQUIREMENTS

Electrical resistance should be verified on representative belt samples using the procedure required by the applicable standard or customer specification. ISO 284:2025 is the current international standard covering conveyor-belt electrical conductivity and its test method.

Test / Requirement	Purpose	Catalogue Recommendation
Electrical resistance test	Verify antistatic performance	Specify ISO 284 or approved equivalent
Sample conditioning	Control test repeatability	Follow governing standard
Production traceability	Link results to manufacturing batch	Maintain batch identification
Retest after compound changes	Confirm conductivity remains within specification	Recommended for engineered variants
Site verification	Assess installed system behavior	Inspect grounding and conveyor hardware

Important: An antistatic belt is only one element of electrostatic-risk control. Conveyor structures, pulleys, idlers, bearings, grounding/bonding, material properties, dust concentration, humidity and local safety regulations must also be considered.

9. APPLICATION INDUSTRIES

Industry	Typical Materials	Why Antistatic Performance Matters
Coal Handling & Power	Coal and dry fuel materials	Dry dust and friction can contribute to charge accumulation
Ports & Terminals	Coal, ore, minerals, dry bulk cargo	High speeds and continuous operation require controlled static behavior
Cement	Limestone, clinker, dry powders	Dry particulate handling can generate static charge
Chemical Industry	Selected dry bulk materials	Static control may be required depending on material and process
Grain & Biomass	Dry grain, biomass, agricultural materials	Dust-sensitive environments require electrostatic-risk assessment
Mining & Minerals	Ore, coal and processed minerals	Heavy-duty conveying combined with static-control requirements
Recycling	Mixed dry industrial materials	Variable materials and friction can create charge buildup

10. BELT SELECTION GUIDE

- Conveyed material and bulk density
- Maximum lump size and particle characteristics
- Belt width, speed, center distance and inclination
- Required tensile strength and operating tension
- Ambient and material temperature
- Presence of oil, chemicals, heat, flame or dust hazards
- Required electrical-resistance limit and governing standard
- Grounding and bonding arrangement
- Local hazardous-area or fire-safety requirements where applicable

11. INSTALLATION, SPLICING & GROUNDING CONSIDERATIONS

Correct installation is essential to preserve mechanical performance and electrical continuity. The conveyor system should be inspected for grounding/bonding, pulley and idler condition, belt tracking and splice integrity before commissioning.

Splicing

• Use an approved splice design for the selected carcass.

• Use splice materials compatible with the antistatic compound.

• Verify electrical behavior when required by the project specification.

System Grounding

• Verify conductive continuity of the conveyor structure according to site procedures.

• Inspect grounding connections and bonding jumpers.

• Prevent contamination, paint or corrosion from compromising intended grounding paths.

Commissioning

• Confirm belt tension and tracking.

• Check cleaners and skirts.

• Record baseline electrical and mechanical inspection data when required.

12. INSPECTION & MAINTENANCE

Inspection Item	Recommended Check	Reason
Belt cover condition	Inspect wear, cracking, contamination and deep damage	Severe degradation can affect operation
Splices	Check separation, lifting or mechanical damage	Maintains structural and electrical continuity
Pulleys and idlers	Check rotation, buildup and alignment	Reduces abnormal friction and heating
Grounding / bonding	Inspect to site electrical procedure	Supports controlled dissipation
Material buildup	Remove excessive insulating deposits	Deposits may affect operation and conductivity
Electrical resistance	Periodic testing where required	Confirms continued compliance

13. QUALITY CONTROL & TESTING

Control Item	Purpose	Typical Stage
Belt width and thickness	Confirm dimensional conformity	Final inspection
Cover thickness	Verify ordered construction	Production / final
Carcass identification	Confirm fabric or steel-cord construction	Production
Adhesion properties	Verify layer integrity	Laboratory control
Cover physical properties	Confirm compound performance	Laboratory control
Electrical resistance	Verify antistatic performance	Laboratory / final acceptance
Visual inspection	Detect visible defects	Final inspection
Roll marking and traceability	Product identification and batch control	Dispatch

Reference Standards

Specifications may be developed with reference to ISO 284:2025 for electrical conductivity, together with applicable construction standards such as ISO 14890 for textile conveyor belts and ISO 15236 for steel-cord conveyor belts. Where flame resistance, underground mining or potentially explosive atmospheres are involved, the project specification must also define the applicable local and international safety requirements.

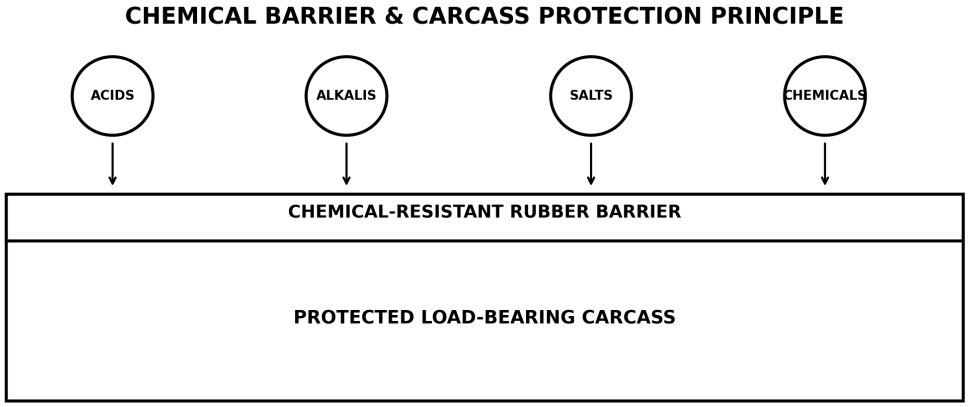
14. ORDERING DATA SHEET

Project / Site	
Conveyed Material	
Bulk Density	
Maximum Lump Size	
Capacity (t/h)	
Belt Width (mm)	
Belt Speed (m/s)	
Center Distance (m)	
Inclination (°)	
Required Carcass / Strength	
Top / Bottom Cover (mm)	
Required Electrical Resistance	
Required Standard	
Special Compound Requirement	
Hazardous-Area / Fire Requirement	
Splice Requirement	
Ambient / Material Temperature	
Additional Operating Notes	


UNDERGROUND
CONVEYOR SYSTEM
MAIN HAULAGE
CAUTION
ELECTROSTATIC
HAZARD
ANTISTATIC RUBBER
CONVEYOR BELT

CHEMICAL RESISTANT CONVEYOR BELT

Heavy-Duty Rubber Belting for Chemically Aggressive Bulk-Material Handling



Correct compound selection depends on chemical type, concentration, temperature and exposure time

PRODUCT CONTENTS

1. PRODUCT OVERVIEW

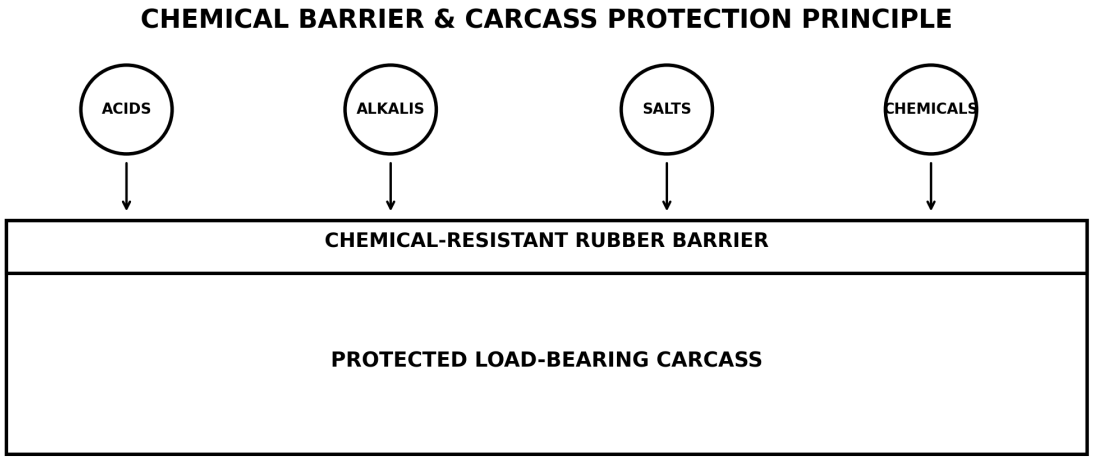
World Prime Services Chemical Resistant Conveyor Belt is engineered for continuous bulk-material conveying where acids, alkalis, salts, fertilizers, process chemicals or chemically contaminated materials may cause premature degradation of conventional rubber belting.

The product concept combines a chemically resistant cover compound with a compatible adhesion system and a high-strength textile or steel-cord carcass. The principal objective is to reduce swelling, softening, hardening, cracking, blistering, loss of adhesion and chemical ingress while maintaining the mechanical properties required for industrial conveying.

2. CHEMICAL RESISTANCE ENGINEERING PRINCIPLE

Chemical resistance is governed by the interaction between the elastomer, the chemical medium and the operating conditions. Chemical identity alone is insufficient for belt selection: concentration, temperature, exposure duration, wet or dry contact, mixture composition and mechanical abrasion must all be evaluated.

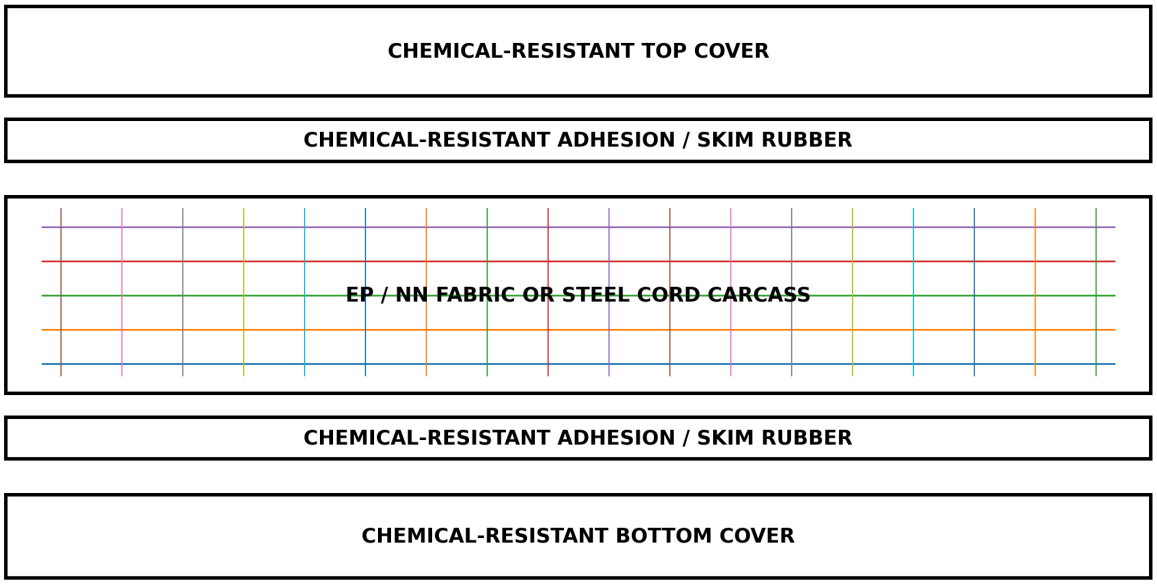
No single rubber compound is universally resistant to all acids, alkalis, oils, solvents and oxidizing agents. Final selection should therefore be based on actual service data and, for severe or unfamiliar media, laboratory compatibility testing.



Correct compound selection depends on chemical type, concentration, temperature and exposure time

3. BELT CONSTRUCTION

TYPICAL CHEMICAL-RESISTANT BELT CONSTRUCTION



Component	Engineering Function	Typical Options
Top cover	Primary chemical barrier and conveying surface	EPDM-, NBR-, CR- or specialty chemical-resistant formulation
Adhesion / skim rubber	Maintains bond between cover and tension member	Chemically compatible high-adhesion compound
Tension carcass	Carries longitudinal operating tension	EP fabric, NN fabric or steel cord
Bottom cover	Protects pulley-side carcass from environment and chemical contamination	Chemical-resistant or combined-duty compound
Edges	Reduces side ingress into reinforcement	Moulded edge preferred for severe wet chemical exposure

4. PRODUCT FAMILIES

CR-EP Series — Chemical Resistant EP Fabric Belt

Low-elongation polyester/nylon fabric carcass for general and heavy-duty chemical processing, fertilizer, mineral and industrial applications.

CR-NN Series — Chemical Resistant Nylon Fabric Belt

Flexible, impact-tolerant construction for shorter and medium-distance conveyors handling chemically aggressive bulk materials.

CR-ST Series — Chemical Resistant Steel Cord Belt

High-tensile, low-elongation construction for long-distance, high-capacity and high-tension systems. Cover chemistry and cord protection are engineered to the service environment.

CR-DUAL Series — Dual-Property Chemical Resistant Belt

Chemical resistance combined with abrasion, heat, oil, antistatic or flame-resistant properties where technically compatible.

CR-X Series — Engineered Severe Chemical Duty

Application-specific construction for severe concentration, elevated temperature, prolonged wet exposure or mixed chemical environments.

5. CHEMICAL-RESISTANT RUBBER COMPOUND FAMILIES

Compound Family	Typical Performance Profile	Representative Service	Important Limitation
EPDM-based	Strong resistance to many acids, alkalis, hot water, ozone and weathering	Chemical processing, fertilizer, pulp & paper	Generally unsuitable for petroleum oils and many hydrocarbons
NBR-based	Strong resistance to oils and many hydrocarbon-containing media	Oily chemicals, contaminated recycling streams	Compatibility with strong acids/oxidizers must be checked
CR / Chloroprene-based	Balanced weathering, ozone and moderate chemical resistance	General industrial chemical duty	Not universal for strong solvents or concentrated aggressive chemicals
Specialty CSM-type / engineered systems	Broad chemical and weather resistance depending on formulation	Aggressive industrial environments	Availability and compatibility are formulation-specific
Custom engineered compound	Optimized to a defined chemical-temperature combination	Critical severe-duty applications	Requires complete service data and technical validation

6. CARCASS & REINFORCEMENT OPTIONS

Carcass	Characteristics	Best Fit	Engineering Consideration
EP Fabric	Low elongation, dimensional stability, good troughability	General chemical-duty conveying	Versatile textile construction
NN Fabric	High flexibility and impact absorption	Impact-loaded shorter conveyors	Higher elongation than EP
Steel Cord	Very high tensile strength and very low elongation	Long-distance and high-capacity conveyors	Requires engineered splice and pulley design
Hybrid / Reinforced	Project-specific protection architecture	Chemical + impact/rip severe duty	Designed to application

7. TECHNICAL SPECIFICATION RANGE

The values below are an engineering catalogue envelope. Final dimensions, carcass strength, cover thickness and compound are confirmed in the approved technical quotation.

Parameter	Catalogue Option / Range	Selection Basis
Belt width	400–3,200 mm	Conveyor design and manufacturing feasibility
Textile construction	EP / NN multi-ply	Operating tension and dynamic load
Steel cord construction	Project-specific ST classes	Long-distance / high-tension requirements
Top cover	Typically 4–20+ mm	Chemical severity, abrasion and impact
Bottom cover	Typically 2–10+ mm	Pulley-side environment
Edge construction	Moulded or cut edge	Moulded edge preferred for aggressive wet service
Compound	EPDM / NBR / CR / specialty engineered systems	Chemical compatibility
Splice	Hot vulcanized preferred for critical service	Carcass and chemical environment
Operating temperature	Compound-specific	Must be evaluated together with chemical concentration

8. CHEMICAL COMPATIBILITY GUIDE

Chemical Environment	Initial Compound Family for Evaluation	Compatibility Note
Dilute acids	EPDM / CR / engineered compound	Confirm acid identity, concentration and temperature
Strong or oxidizing acids	Specialty engineered compound	Laboratory validation strongly recommended
Dilute alkalis	EPDM / selected CR systems	Check temperature and concentration
Hot / concentrated alkalis	EPDM or engineered system	Elevated temperature materially affects service life
Oils and hydrocarbon contamination	NBR-based	Check aromatic content and mixed chemicals
Salts / fertilizers	EPDM / CR / engineered compound	Consider hygroscopic and abrasive effects
Solvents	Chemical-specific specialty compound	No universal solvent-resistant rubber; validation required
Mixed / proprietary chemicals	Engineered compound	SDS and full mixture composition required

Required Chemical Data

- Exact chemical name and mixture composition
- Minimum, normal and maximum concentration
- Continuous and peak temperature

• Dry, damp, wet, slurry or immersion-like contact

• Contact duration and frequency

• Presence of oil, solvent or oxidizer

• Cleaning chemicals used on the conveyor

• Safety Data Sheet (SDS) for proprietary mixtures

9. TYPICAL APPLICATION INDUSTRIES

Industry	Typical Materials / Exposure	Primary Belt Requirement
Chemical Processing	Acidic, alkaline and salt-bearing solids	Chemical barrier and adhesion retention
Fertilizer	Phosphate, potash and fertilizer products	Chemical + abrasion resistance
Pulp & Paper	Process chemicals and residues	Wet acid/alkali resistance
Mining & Mineral Processing	Chemically treated ores and process solids	High strength + chemical resistance
Ports & Terminals	Corrosive bulk cargo	Chemical + weather resistance
Wastewater Treatment	Treatment residues and contaminated solids	Wet chemical durability
Recycling	Chemically/oil-contaminated materials	Multi-purpose compound selection

10. BELT SELECTION METHODOLOGY

1. Identify the exact chemical or chemical mixture.

2. Define concentration and operating temperature.

3. Establish exposure mode and contact duration.

4. Evaluate abrasion, impact and lump size independently from chemical resistance.

5. Calculate required carcass tensile strength from conveyor design.

6. Select top and bottom cover thickness based on mechanical and chemical exposure.

7. Define edge protection and splice system.

8. Validate severe or unfamiliar chemical combinations by laboratory testing.

11. SPECIAL COMBINED PROPERTIES

Combined Requirement	Engineering Approach	Typical Use
Chemical + Abrasion Resistant	Chemical-resistant elastomer optimized for wear	Fertilizers, minerals, corrosive granules
Chemical + Oil Resistant	NBR-based or engineered compound	Oily contaminated chemical streams
Chemical + Heat Resistant	High-temperature chemical-resistant compound	Hot process materials
Chemical + Antistatic	Conductive chemical-resistant formulation where feasible	Selected process industries
Chemical + Flame Resistant	Specially qualified compound system	Regulated applications; standard must be specified
Chemical + Anti-Rip	Transverse reinforcement with compatible covers	Sharp chemically aggressive materials

12. SPLICING & INSTALLATION

Splicing

- Hot-vulcanized splicing is preferred for critical chemical-duty service.
- Splice rubber and cement systems must be chemically compatible with the conveyed medium.
- Steel-cord splice geometry must follow the approved belt-strength design.
- Splice edges should be fully sealed against chemical ingress.

Installation

- Inspect pulley alignment and idler rotation before commissioning.
- Prevent belt damage during pulling and handling.
- Use chemically compatible skirting and cleaning systems.
- Avoid unapproved solvents or cleaners during maintenance.

13. INSPECTION & PREVENTIVE MAINTENANCE

Inspection Point	Look For	Recommended Response
Top cover	Swelling, softening, cracking, hardening, blistering	Review chemical compatibility and repair damaged zones
Edges	Cuts, separation, exposed reinforcement	Seal or repair before chemical ingress progresses
Splices	Lifting, cracking, bond degradation	Repair according to approved splice procedure
Bottom cover	Chemical contamination or pulley damage	Correct leakage and inspect carcass
Carcass	Exposed fabric or steel cords	Immediate engineered repair
Cleaning system	Chemical incompatibility or excessive pressure	Use compatible cleaning materials and settings

14. QUALITY CONTROL & TESTING

Control	Purpose	Stage
Dimensional inspection	Verify width and cover thickness	Final inspection
Carcass identification	Confirm ordered reinforcement	Production
Cover physical properties	Confirm compound consistency	Laboratory control
Adhesion testing	Verify layer integrity	Laboratory control
Chemical compatibility / immersion test	Evaluate property retention after exposure	Project-specific
Visual inspection	Detect manufacturing defects	Final inspection
Roll traceability	Link product to manufacturing batch	Dispatch

For severe applications, compatibility programs may compare mass or volume change, hardness, tensile strength, elongation and visual condition before and after controlled chemical exposure.

15. APPLICABLE INTERNATIONAL STANDARDS

Reference	Relevance
ISO 14890:2026	Rubber- or plastics-covered conveyor belts of textile construction for general use
ISO 15236-1:2016	Steel cord conveyor belts — design, dimensions and mechanical requirements for general use
Project-specific chemical compatibility protocol	Evaluation of the selected cover compound against the actual service medium

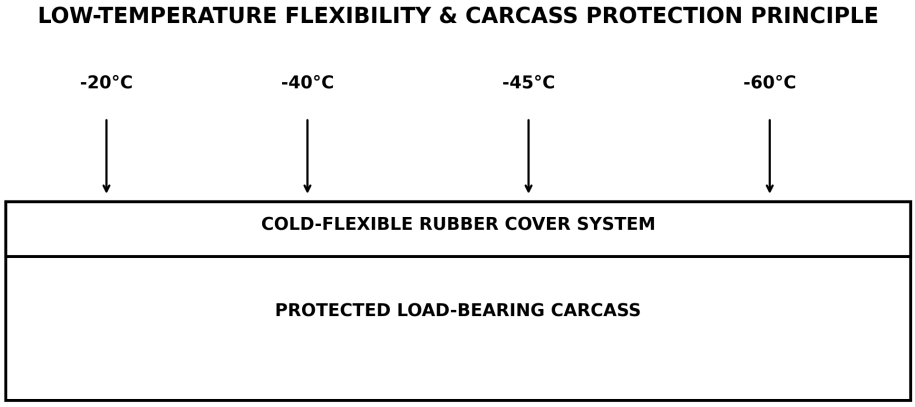
The general conveyor-belt construction standard does not by itself certify compatibility with a specific chemical. Chemical resistance must be defined by the selected compound and validated against the actual operating medium.

16. TECHNICAL ORDERING DATA SHEET

Project / Site	
Industry	
Conveyed Material	
Exact Chemical / Mixture	
Chemical Concentration	
Safety Data Sheet Available	
Material Temperature	
Ambient Temperature	
Exposure: Dry / Wet / Slurry	
Bulk Density	
Maximum Lump Size	
Capacity (t/h)	
Belt Width (mm)	
Belt Speed (m/s)	
Center Distance (m)	
Inclination (°)	
Required Carcass / Strength	
Top / Bottom Cover (mm)	
Preferred Edge Type	
Splice Requirement	
Combined Property Requirement	
Applicable Standard	
Additional Notes	

COLD RESISTANT CONVEYOR BELT

Low-Temperature Rubber Belting for Freezing, Arctic & Cold-Storage Applications



Specialized elastomer blends are engineered to retain flexibility, impact resistance and cover integrity in freezing service

PRODUCT CONTENTS

1. PRODUCT OVERVIEW

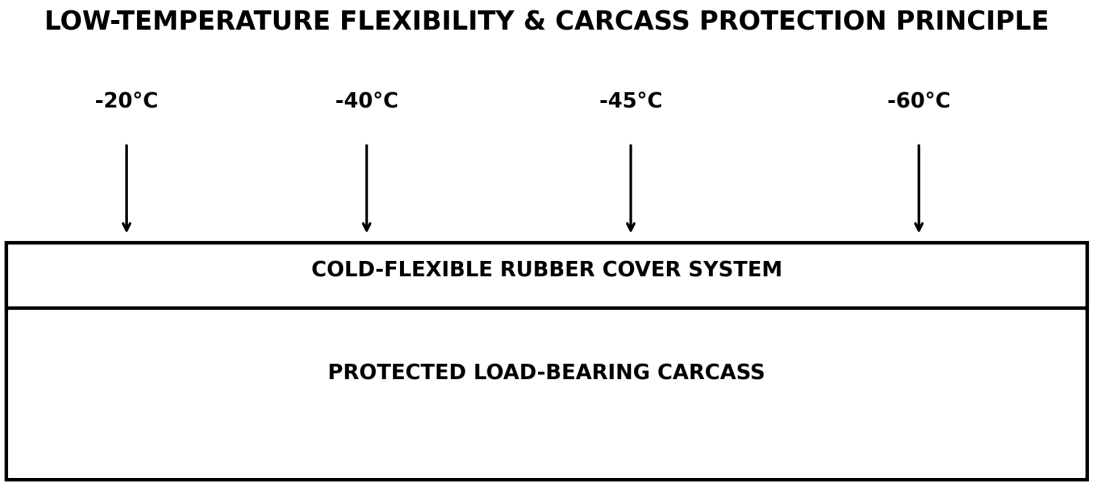
World Prime Services Cold Resistant Conveyor Belt is engineered for bulk-material conveying in sub-zero environments where conventional rubber compounds may stiffen, lose elasticity, crack or become vulnerable to impact damage. The product platform uses specially formulated low-temperature rubber covers combined with textile or steel-cord carcasses selected for the required tension, distance and duty.

Typical applications include outdoor conveyors in freezing climates, open-pit mines, coal handling systems, winter ports and terminals, power plants, cold storage facilities, quarries and long-distance bulk-material systems operating under severe low-temperature exposure.

Engineering Objective	Operational Benefit
Retain cover flexibility at low temperature	Reduces risk of cracking and brittle surface failure
Maintain impact resistance	Supports reliable loading-point performance in freezing conditions
Protect the load-bearing carcass	Helps prevent cold-related cover failure from exposing reinforcement
Low-temperature adhesion system	Supports layer integrity during repeated flexing over pulleys
Fabric and steel-cord configurations	Allows selection for medium-duty through long-distance high-tension conveyors

2. LOW-TEMPERATURE PERFORMANCE PRINCIPLE

Rubber becomes progressively stiffer as temperature falls. In severe cold, an unsuitable conveyor-belt cover can lose flexibility, develop surface cracking and transfer higher dynamic stress into the carcass and splice. Cold-resistant belting uses elastomer systems selected to retain elasticity and impact behavior at reduced temperatures.

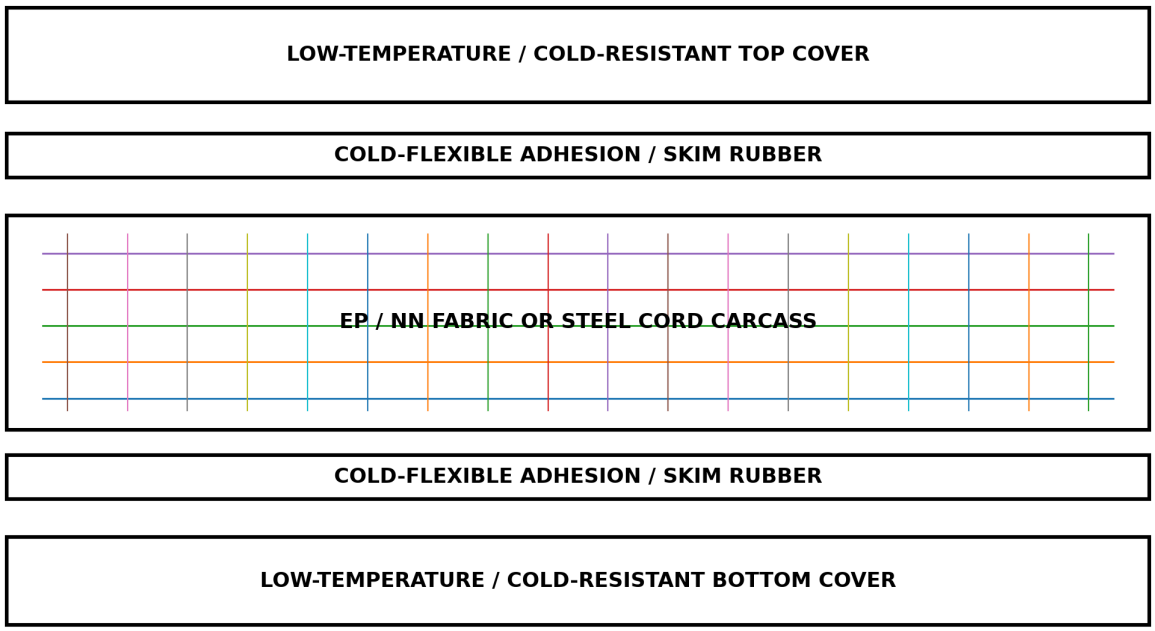


Specialized elastomer blends are engineered to retain flexibility, impact resistance and cover integrity in freezing service

Industry references commonly describe cold-resistant covers using natural-rubber (NR) and butadiene-rubber (BR) based blends because of their low-temperature flexibility and impact characteristics. Extreme-duty products are often divided into cold-service classes around -45°C and -60°C. Final suitability depends on the actual belt temperature, ambient conditions, wind exposure, material temperature, idle periods and startup method.

3. BELT CONSTRUCTION

COLD-RESISTANT CONVEYOR BELT — TYPICAL MULTI-LAYER CONSTRUCTION



Component	Engineering Function	Typical Options
Cold-resistant top cover	Primary wear and impact surface engineered to remain flexible in low temperatures	NR/BR-based or engineered low-temperature compound
Cold-flexible adhesion / skim rubber	Maintains bonding under repeated flexing in freezing service	Low-temperature compatible adhesion system
Tension carcass	Carries longitudinal operating tension	EP fabric, NN fabric or steel cord
Cold-resistant bottom cover	Protects pulley-side carcass and supports repeated low-temperature flexing	Cold-resistant or combined-duty compound
Edges	Protect reinforcement against weather and moisture ingress	Moulded or cut edge according to construction

4. PRODUCT FAMILIES

CR-C1-EP Series — Cold Resistant EP Fabric Belt

Low-elongation EP fabric construction for general severe winter duty, typically selected for outdoor conveying, mines, terminals, quarries and power plants.

CR-C2-EP Series — Extreme Cold EP Fabric Belt

Enhanced low-temperature cover and adhesion system for very severe freezing environments and refrigerated applications.

CR-NN Series — Cold Resistant Nylon Fabric Belt

Flexible, impact-tolerant construction for shorter and medium-distance conveyors exposed to low-temperature loading impact.

CR-ST Series — Cold Resistant Steel Cord Belt

High-tensile, low-elongation construction for long-distance, high-capacity and high-tension systems in freezing climates.

CR-DUAL Series — Multi-Property Cold Resistant Belt

Low-temperature performance combined with abrasion, oil, antistatic, flame-resistant or anti-rip properties where technically compatible.

5. COLD-RESISTANT RUBBER COMPOUND TECHNOLOGY

Cold-resistant conveyor-belt compounds are formulated to reduce low-temperature hardening and preserve the dynamic properties needed for troughing, pulley flexing, impact absorption and splice reliability. Compound selection must balance cold flexibility with abrasion resistance, tensile properties, aging resistance and the actual conveyed material.

Compound Family	Primary Performance	Typical Use	Selection Note
C1 Cold Service	Severe winter flexibility and impact resistance	Outdoor conveyors in cold regions	Typical application envelope around -45°C class
C2 Extreme Cold Service	Maximum low-temperature flexibility	Arctic, freezer and extreme winter duty	Typical application envelope around -60°C class
Cold + Abrasion Resistant	Low-temperature flexibility with enhanced wear resistance	Mining, aggregate, ore and coal	For abrasive bulk materials
Cold + Oil Resistant	Low-temperature flexibility with oil resistance	Oily bulk materials in cold climates	Requires hydrocarbon-specific formulation
Cold + Flame Resistant	Low-temperature flexibility plus flame requirements	Selected regulated coal/mining applications	Applicable safety standard must be specified
Cold + Anti-Rip	Cold-resistant covers with transverse reinforcement	Sharp materials in freezing service	Project-specific reinforced construction

6. CARCASS & REINFORCEMENT OPTIONS

Carcass	Characteristics	Typical Application	Engineering Consideration
EP Fabric	Low elongation, good dimensional stability and troughability	General heavy-duty cold-climate conveying	Versatile standard textile option
NN Fabric	High flexibility and impact absorption	Shorter conveyors and high-impact loading	Higher elongation than EP
Steel Cord	Very high tensile strength and very low elongation	Long-distance, high-capacity, high-tension systems	Requires engineered pulleys and splice
Hybrid / Anti-Rip Reinforced	Additional transverse reinforcement	Sharp or piercing materials in cold environments	Project-specific design

7. TEMPERATURE CLASSES & SERVICE ENVELOPE

APPLICATION-BASED COLD-RESISTANT BELT SELECTION GUIDE

Service Severity	Typical Ambient Range	Recommended Cover System	Typical Carcass
Cool / seasonal cold	0°C to -20°C	Standard cold-resistant compound	EP / NN fabric
Severe winter	-20°C to -40°C	Enhanced low-temperature compound	EP / NN / Steel Cord
Extreme cold	-40°C to -45°C	C1-type severe cold service	EP / NN / Steel Cord
Arctic / freezer duty	Below -45°C to approx. -60°C	C2-type extreme cold service	Engineered EP / NN / Steel Cord

Service Class	Indicative Ambient Temperature	Typical Application	Important Note
Standard Cold Duty	0°C to -20°C	Seasonal winter operation	Confirm startup and idle-period conditions
Severe Cold Duty	-20°C to -40°C	Northern mining, terminals and stockyards	Low-temperature compound recommended
C1-Type Service	Down to approx. -45°C	Severe freezing environments	Common industry cold-resistance class
C2-Type Service	Down to approx. -60°C	Extreme cold / Arctic / freezer duty	Requires extreme low-temperature compound and full project review

Temperature classes are indicative engineering categories. The minimum acceptable service temperature must be confirmed in the technical quotation. Belt surface temperature can differ from ambient temperature due to material temperature, friction, solar exposure, wind chill and shutdown duration.

8. TECHNICAL SPECIFICATION RANGE

Parameter	Catalogue Option / Range	Selection Basis
Belt width	400–3,200 mm	Conveyor design and manufacturing feasibility
Textile carcass	EP / NN multi-ply	Operating tension and dynamic load
Steel cord carcass	Project-specific ST classes	Long-distance or high-tension duty
Top cover thickness	Typically 4–20+ mm	Abrasion, impact and minimum temperature
Bottom cover thickness	Typically 2–10+ mm	Pulley-side wear and low-temperature flexing
Cover system	C1 / C2 / engineered cold-resistant	Minimum service temperature
Edge construction	Moulded or cut edge	Weather and moisture exposure
Splice method	Hot vulcanized preferred for critical service	Carcass and minimum temperature
Combined properties	Abrasion / oil / flame / antistatic / anti-rip	Project-specific compatibility review

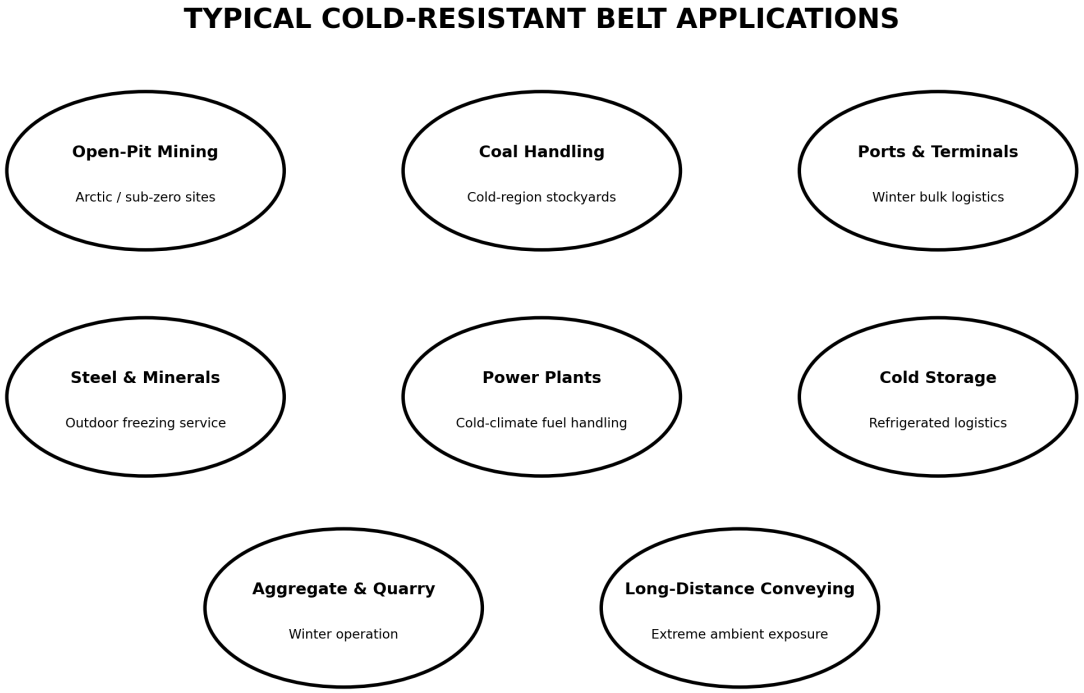
9. TYPICAL PHYSICAL PROPERTIES

The following values are representative industry reference values for cold-resistant cover compounds and are included as an engineering guide only. Final guaranteed properties shall be stated in the approved product specification.

Property	Representative Reference	Engineering Meaning
Tensile strength	≥ 14 MPa for general cold-resistant grades; higher-duty grades may be specified	Mechanical strength of cover compound
Elongation at break	≥ 350% typical reference	Ability to deform before rupture
Abrasion loss	≤ 250 mm³ typical reference; lower values available for abrasion-duty grades	Wear resistance
Hardness	Approx. 60 ± 5 Shore A typical reference	Balance of flexibility and wear resistance
C1 service class	Approx. -45°C lower-temperature class	Severe cold service
C2 service class	Approx. -60°C lower-temperature class	Extreme cold service

Specific values vary by cover grade and standard. For abrasive cold-service applications, stronger H- or D-type cover performance may be specified separately from the low-temperature requirement.

10. APPLICATION INDUSTRIES



Industry	Typical Materials	Cold-Service Requirement
Mining	Ore, overburden, coal	Flexibility and impact resistance during sub-zero operation
Coal Handling	Coal and fuel materials	Reliable winter stockyard and transfer-point performance
Ports & Terminals	Ore, coal and bulk cargo	Outdoor operation under frost, snow and wind exposure
Power Generation	Coal and biomass	Cold-climate fuel-handling reliability
Aggregate & Quarry	Crushed stone and aggregate	Abrasion + cold flexibility
Cold Storage / Refrigeration	Packaged or bulk materials	Very low ambient temperature performance
Long-Distance Conveying	Minerals and bulk solids	Low elongation and cold resistance over extended routes

11. BELT SELECTION GUIDE

1. Define minimum ambient temperature and minimum expected belt temperature.
2. Identify whether the conveyor starts after prolonged cold shutdown.
3. Record conveyed material temperature and whether frozen lumps may be present.
4. Calculate belt tension and select EP, NN or steel-cord carcass.
5. Define abrasion, impact, oil, flame or anti-rip requirements independently.
6. Select top and bottom cover thickness based on wear and impact duty.
7. Verify minimum pulley diameters and transition geometry for the selected carcass.

8. Specify low-temperature-compatible splice materials and vulcanizing procedure.

9. Confirm conveyor startup torque, take-up behavior and idler condition for extreme cold service.

12. COLD-WEATHER DESIGN CONSIDERATIONS

Design Factor	Cold-Weather Risk	Engineering Response
Startup after shutdown	Belt and lubricants may be at minimum ambient temperature	Use suitable belt compound and verify drive startup torque
Pulley flexing	Stiffened rubber increases bending stress	Confirm pulley diameters and low-temperature flexibility
Frozen material buildup	Can cause tracking and impact problems	Use appropriate cleaners, covers and housekeeping
Ice on idlers	May cause seizure or abnormal belt loading	Use winterized idlers and inspection program
Splice behavior	Low temperature can increase local stress	Use approved cold-service splice materials
Wind exposure	May reduce belt temperature below nominal ambient	Consider open-conveyor exposure in minimum-temperature design
Moisture ingress	Freeze/thaw cycles may damage edges or carcass	Maintain cover and edge integrity

13. SPLICING & INSTALLATION

Splicing

• Hot-vulcanized splicing is recommended for critical cold-duty and steel-cord applications.

• Splice compounds shall be compatible with the minimum operating temperature.

• Vulcanizing conditions must follow the approved procedure and compensate for low ambient installation temperatures where necessary.

• Steel-cord splice geometry must match the selected belt strength and cord arrangement.

Installation & Commissioning

• Store belt rolls in accordance with approved low-temperature handling procedures.

• Avoid sharp bending or impact to extremely cold belt rolls before installation.

• Verify that idlers rotate freely and pulley surfaces are free of ice.

• Commission at controlled load where practical and confirm tracking before full capacity.

14. INSPECTION & MAINTENANCE

Inspection Point	Look For	Recommended Action

Top cover	Cold cracking, cuts, brittle zones	Repair early and review temperature suitability
Edges	Freeze/thaw damage, separation, exposed reinforcement	Seal and repair before carcass exposure progresses
Splices	Cracking, lifting or bond separation	Repair using approved cold-service procedure
Idlers	Frozen or seized rollers	Replace immediately to prevent friction damage
Pulleys	Ice buildup and abnormal slip	Clean and inspect lagging
Take-up system	Restricted movement due to freezing	Maintain free operation and correct belt tension

15. QUALITY CONTROL & TESTING

Control Item	Purpose	Typical Stage
Dimensional inspection	Verify width and cover thickness	Final inspection
Carcass identification	Confirm ordered reinforcement	Production
Cover tensile / elongation	Verify mechanical properties	Laboratory control
Abrasion testing	Verify wear performance where specified	Laboratory control
Low-temperature flexibility / cold-resistance evaluation	Verify performance at specified class	Laboratory / qualification
Adhesion testing	Confirm cover-to-carcass bond	Laboratory control
Visual inspection and traceability	Detect defects and identify production batch	Final inspection / dispatch

16. REFERENCE STANDARDS

Belt construction and acceptance can be specified against internationally recognized conveyor-belt standards together with project-specific low-temperature requirements. The governing standard and edition shall be stated in the purchase specification.

Reference	Relevance
ISO 14890	Textile conveyor belts for general use — construction and mechanical requirements
ISO 15236 series	Steel-cord conveyor belts — design, dimensions and mechanical requirements
ISO 37	Rubber tensile stress-strain properties
ISO 4649	Rubber abrasion resistance by rotating cylindrical drum method
Project-specific cold-resistance test protocol	Low-temperature flexibility and retained mechanical performance

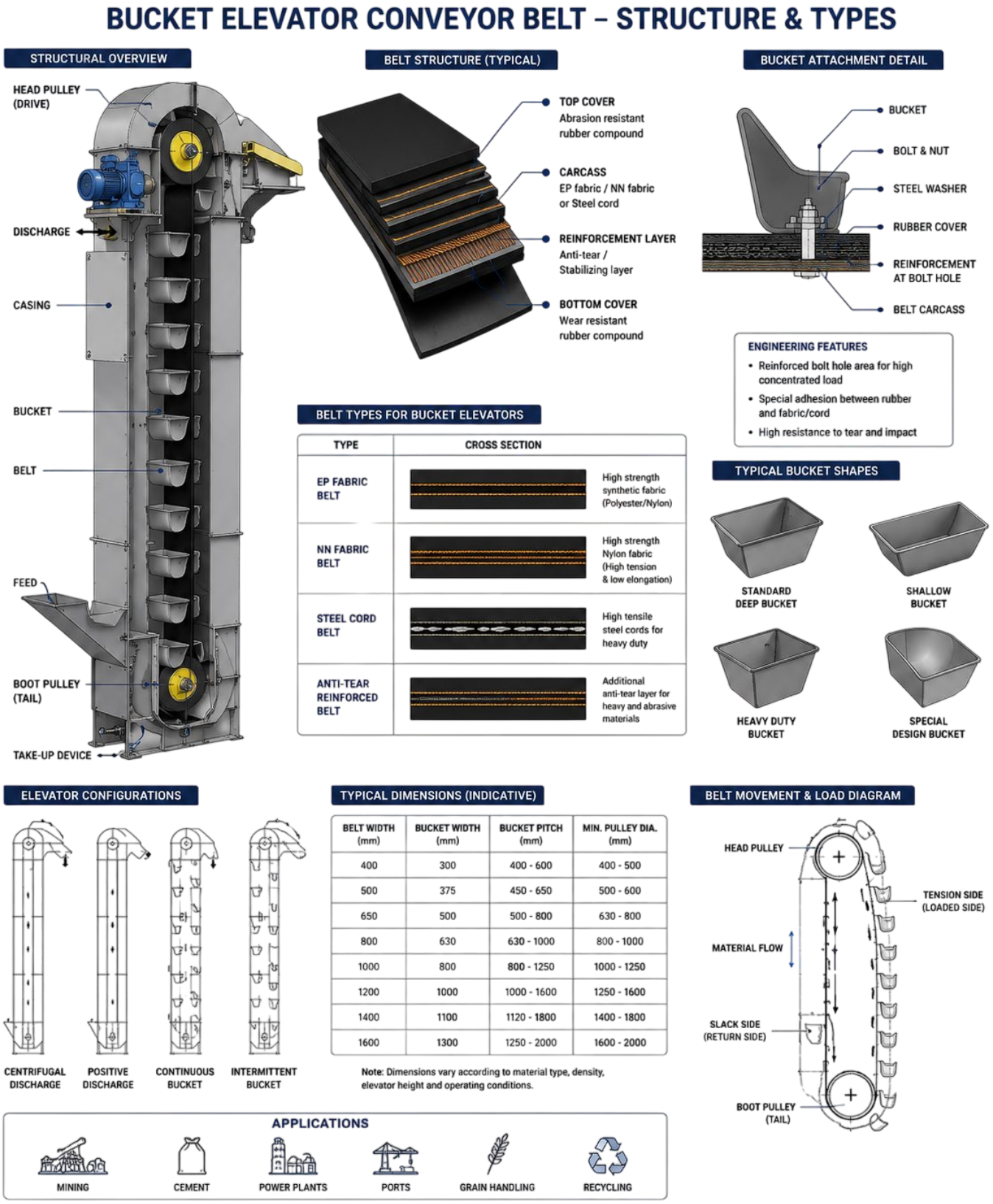
A general conveyor-belt construction standard does not, by itself, guarantee suitability at -45°C or -60°C. The minimum operating temperature and required cold-service class must be included explicitly in the technical purchase specification.

17. TECHNICAL ORDERING DATA SHEET

Project / Site	
Industry	
Conveyed Material	
Minimum Ambient Temperature	
Minimum Belt Temperature	
Material Temperature	
Maximum Lump Size	
Bulk Density	
Capacity (t/h)	
Belt Width (mm)	
Belt Speed (m/s)	
Center Distance (m)	
Inclination (°)	
Required Carcass / Strength	
Top / Bottom Cover (mm)	
Required Cold Service Class	
Abrasion Requirement	
Oil Resistance Requirement	
Flame Resistance Requirement	
Antistatic Requirement	
Anti-Rip Requirement	
Splice Requirement	
Startup After Long Cold Shutdown?	
Applicable Standard	
Additional Operating Notes	

BUCKET ELEVATOR CONVEYOR BELT

High-Strength Vertical Conveying Belting for Bucket Elevator Systems



PRODUCT CONTENTS

1. PRODUCT OVERVIEW

World Prime Services Bucket Elevator Conveyor Belt is engineered for continuous vertical and steep-incline material lifting where buckets are mechanically fastened to the belt. The belt is designed to withstand continuous vertical tensile load, repetitive pulley bending, concentrated stresses around bucket bolt holes, dynamic loading and the combined suspended mass of the belt, buckets and conveyed material.

The product range includes reinforced EP and NN fabric constructions as well as steel cord elevator belts for high-lift, high-capacity and low-elongation duties. Depending on the application, the construction can incorporate anti-tear reinforcement, reinforced bucket-mounting zones and special abrasion-, heat-, oil-, flame- or antistatic cover compounds.

Engineering Objective	Operational Benefit
High longitudinal tensile strength	Supports vertical load from buckets and bulk material
Low elongation	Improves bucket alignment, tracking and take-up stability
High bolt pull-out resistance	Reduces local damage around bucket mounting holes
High cover-to-carcass adhesion	Maintains structural integrity under repeated flexing
Anti-tear reinforcement	Helps limit damage propagation from mounting holes
Fabric and steel cord options	Covers moderate through extreme lift and tension requirements

2. OPERATING PRINCIPLE

Buckets are fixed to the elevator belt at defined pitches. Bulk material is loaded at the boot section, captured by the buckets and lifted vertically to the head pulley, where it is discharged by centrifugal or gravity action depending on the elevator design.

Unlike a conventional horizontal belt, a bucket elevator belt continuously carries the suspended weight of the belt, buckets and material. The belt is also subjected to concentrated fastening forces, repeated bending at the head and boot pulleys and dynamic tension variations. Carcass selection, pulley diameter, bucket pitch and take-up design are therefore critical.

3. BELT CONSTRUCTION

Component	Engineering Function	Typical Options
Top cover	Bucket mounting side and primary carcass protection	Abrasion-, heat-, oil- or flame-resistant rubber
High-adhesion skim rubber	Transfers load between cover and reinforcement	High-bond rubber system
Primary tension carcass	Carries vertical operating tension	EP fabric, NN fabric or steel cord
Anti-tear reinforcement	Improves tear resistance at bolt holes and damaged zones	Textile breaker or transverse steel/textile reinforcement
Bottom cover	Protects pulley-side reinforcement	Abrasion-resistant or special-purpose compound
Bucket mounting zone	Localized fastening region	Drilled or punched to approved hole pattern

4. PRODUCT FAMILIES

BE-EP Series — EP Fabric Bucket Elevator Belt

Low-elongation polyester/nylon multi-ply construction for grain, fertilizer, cement, minerals and general vertical conveying.

BE-NN Series — Nylon Fabric Bucket Elevator Belt

Flexible and impact-tolerant construction for medium-duty systems requiring good fatigue performance.

BE-ST Series — Steel Cord Bucket Elevator Belt

High-tensile, very low-elongation construction for tall elevators, heavy buckets, dense bulk materials and high-capacity systems.

BE-AR Series — Anti-Tear Reinforced Elevator Belt

Fabric or steel cord construction with additional transverse reinforcement to reduce tear propagation from bucket holes and localized damage.

BE-X Series — Engineered Severe-Duty Elevator Belt

Custom construction for extreme lift height, hot clinker, sharp minerals or critical continuous-process duty.

5. FABRIC CARCASS ELEVATOR BELTS

EP fabric is widely used in bucket elevator belts because it combines relatively low elongation with good dimensional stability, fatigue resistance and rubber adhesion. Multi-ply constructions distribute bucket loads and provide good resistance to repeated pulley flexing.

Fabric Construction	Typical Strength Class	Characteristics	Typical Use
EP 315–500	Moderate vertical load	Flexible, stable and cost-effective	General industrial elevators
EP 630–1000	Heavy vertical load	Higher tensile capacity and reduced stretch	Cement, fertilizer and minerals
EP 1250–1500+	Very heavy fabric duty	High tensile support around bucket zones	Large-capacity elevators
NN / reinforced fabric	Impact-oriented duty	High flexibility and fatigue resistance	Selected medium-duty systems

6. STEEL CORD ELEVATOR BELTS

Steel cord bucket elevator belts are selected when lift height, bucket weight or material density generates tensile loads beyond practical fabric constructions. Steel cords provide very high tensile strength and low elongation, improving bucket pitch consistency and limiting take-up travel.

Steel Cord Class	Indicative Minimum Pulley Diameter*	Typical Duty
ST 500–630	Approx. 600 mm	Entry-level steel cord elevator duty
ST 800–1000	Approx. 650–750 mm	Medium/high lift
ST 1250–1600	Approx. 850–1,000 mm	Heavy-duty vertical conveying
ST 1800–2500	Approx. 1,200–1,500 mm	High-tension, high-capacity systems
ST 2800–3150	Approx. 1,550–1,700 mm	Very high lift and dense materials
ST 4000–5000	Approx. 1,850–2,100 mm	Extreme high-tension engineered systems

*Indicative industry reference values. Final pulley diameter must be confirmed against the approved belt construction and elevator design.

7. ANTI-TEAR & BUCKET-FASTENING REINFORCEMENT

• Bucket bolt holes create local stress concentrations and can initiate tearing if the belt is overloaded, misaligned or damaged.

• Reinforced bolt-hole zones improve local load distribution.

• Transverse textile or steel reinforcement can help limit longitudinal tear propagation.

• High-adhesion skim rubber improves load transfer between reinforcement layers.

• Bucket bolt diameter, washer area, hole pitch and edge distance must match the approved belt and bucket design.

8. TECHNICAL SPECIFICATION RANGE

Parameter	Catalogue Option / Range	Remarks
Belt width	Approx. 300–2,200+ mm	Final width to elevator and bucket design
Fabric carcass	EP / NN multi-ply	Strength selected from total vertical tension
Fabric tensile class	Approx. EP 315 to EP 1500+	Higher engineered grades available
Steel cord carcass	Approx. ST 500 to ST 5000	High-lift and high-tension applications
Top cover thickness	Typically 3–10+ mm	Bucket mounting side
Bottom cover thickness	Typically 2–8+ mm	Pulley side
Anti-tear reinforcement	Optional textile / steel transverse system	Recommended for severe fastening duty
Edge construction	Cut edge / moulded edge	Project-specific
Bucket holes	Factory-drilled / field-punched to approved pattern	Hole layout must be engineered
Special properties	Abrasion, heat, oil, flame, antistatic	Application-dependent

9. PULLEY DIAMETER & TAKE-UP CONSIDERATIONS

Design Factor	Engineering Impact
Head pulley diameter	Controls bending stress at discharge pulley
Boot pulley diameter	Influences reverse bending and fatigue
Take-up travel	Compensates elastic stretch and operating movement
Pulley lagging	Supports traction and reduces slip
Belt speed	Affects centrifugal discharge and dynamic load
Bucket pitch	Influences load distribution and throughput

10. BUCKET MOUNTING & BOLT-HOLE ENGINEERING

Parameter	Engineering Requirement
Hole diameter	Match bucket bolt specification with controlled clearance
Hole spacing	Maintain consistent bucket pitch and alignment
Edge distance	Provide adequate material between holes and belt edge
Row spacing	Distribute load without excessive stress concentration
Reinforcement location	Align reinforcement with bucket fastening zone
Bolt torque	Prevent loosening without crushing the belt carcass
Washer / clamping plate	Use sufficient bearing area to distribute fastening load

11. CAPACITY & THROUGHPUT CONSIDERATIONS

Elevator capacity depends on bucket width, bucket volume, bucket pitch, belt speed, filling ratio and discharge efficiency. Belt strength must be selected from maximum operating tension rather than throughput alone.

Bucket Width (mm)	Indicative Flow at 100% Fill (m^3/h)*	Indicative Flow at 75% Fill (m^3/h)*
160	38	28
200	55	41
250	87	65
315	127	95
400	197	148
500	287	215
630	465	349
800	665	499
1000	935	701
1250	1166	874
1400	1310	980
1600	1443	1102
1880	1613	1211
2000	1808	1352

*Industry reference figures for comparative engineering only. Actual flow depends on bucket geometry, pitch, belt speed, material density and filling behavior.

12. TYPICAL APPLICATION INDUSTRIES

Industry	Typical Materials	Primary Requirement
Cement	Cement, clinker, limestone	High tensile strength, heat and abrasion resistance
Mining & Minerals	Ore, concentrate, aggregate	Heavy-duty load carrying and anti-tear protection
Fertilizer	Potash, phosphate, granular fertilizer	Chemical and abrasion resistance
Grain & Food Processing	Grain, seeds, sugar	Stable bucket alignment and clean handling
Power Plants	Coal, biomass, ash	Continuous-duty reliability
Ports & Terminals	Bulk minerals and commodities	High capacity and durability
Recycling	Industrial solids and processed materials	Impact and tear resistance

13. BELT SELECTION GUIDE

- Determine elevator height and center distance.
- Calculate suspended mass of belt, buckets and material.
- Define maximum operating tension and safety factor.
- Select EP/NN fabric or steel cord carcass.
- Confirm minimum head and boot pulley diameters.
- Specify bucket size, pitch, row arrangement and bolt pattern.
- Assess heat, oil, chemical, flame, antistatic and abrasion requirements.
- Evaluate tear risk around bucket mounting zones.
- Define splice or endless joining method.

14. COVER COMPOUND OPTIONS

Cover Family	Primary Duty	Typical Application
BE-AR	Abrasion resistant	Cement, aggregate and minerals
BE-HR	Heat resistant	Clinker and hot bulk materials
BE-OR	Oil resistant	Oily materials and selected industrial products
BE-FR	Flame resistant	Selected coal and regulated applications
BE-AS	Antistatic	Dust-sensitive industrial environments
BE-CR	Chemical resistant	Fertilizer and chemically aggressive materials

15. SPLICING & ENDLESS JOINING

• Hot-vulcanized endless splicing is preferred where maximum belt continuity is required.

• Mechanical clamping systems must distribute load across the full belt width.

• Steel cord elevator splices require approved cord arrangement and clamping/vulcanizing design.

• Bucket hole patterns should not interfere with splice reinforcement.

• Critical elevators require frequent splice inspection.

16. INSTALLATION & COMMISSIONING

• Verify head and boot pulley alignment before belt installation.

• Confirm elevator casing clearances and bucket trajectory.

• Install buckets using the approved bolt pattern and torque.

• Set take-up tension according to the engineered specification.

• Rotate the system manually or at low speed before loaded commissioning.

• Check tracking, bucket clearance, splice condition and pulley traction.

• Increase load progressively while monitoring temperature, vibration and tension.

17. INSPECTION & MAINTENANCE

Inspection Point	Look For	Recommended Action
Bucket holes	Cracking, elongation or tear initiation	Repair or replace before propagation
Buckets and bolts	Loose fasteners, deformation, missing hardware	Retorque or replace
Belt edges	Fraying, delamination or casing contact	Correct tracking and repair
Splice / clamp	Movement, cracking or separation	Immediate engineered inspection
Head / boot pulleys	Lagging wear, slip or misalignment	Correct promptly
Take-up	Insufficient travel or uneven tension	Restore correct operating tension
Carcass	Exposed fabric or steel cords	Immediate repair or replacement

18. QUALITY CONTROL & TESTING

Control Item	Purpose	Typical Stage
Belt width and thickness	Dimensional compliance	Final inspection
Carcass verification	Confirm EP/NN/ST construction	Production
Cover tensile / elongation	Verify compound properties	Laboratory
Adhesion testing	Confirm cover-to-carcass bond	Laboratory
Steel cord adhesion	Verify cord bonding where applicable	Laboratory
Bolt-hole / tear resistance evaluation	Assess mounting-zone integrity	Project-specific
Visual inspection and traceability	Detect defects and identify production batch	Final / dispatch

19. REFERENCE STANDARDS

Reference	Relevance
ISO 14890	Textile conveyor belts for general-use construction and mechanical properties
ISO 15236 series	Steel cord conveyor belts — design and mechanical requirements
DIN / EN / customer-specific bucket elevator design requirements	Pulley, belt, bucket and elevator system engineering
Project-specific bolt-hole and splice qualification	Fastening-zone and vertical-tension performance

Bucket elevator belts should be engineered as part of the complete elevator system because concentrated fastening loads and continuous vertical tension cannot be assessed from nominal belt tensile strength alone.

20. TECHNICAL ORDERING DATA SHEET

Project / Site	
Industry	
Conveyed Material	
Material Temperature	
Bulk Density	
Capacity (t/h)	
Elevator Height (m)	
Center Distance (m)	
Belt Width (mm)	
Belt Speed (m/s)	
Bucket Width / Volume	
Bucket Pitch	
Number of Bucket Rows	
Bucket Material / Weight	
Bolt Diameter	
Bolt Hole Pattern	
Required Carcass Type	
Required Belt Strength	
Top / Bottom Cover (mm)	
Head Pulley Diameter	
Boot Pulley Diameter	
Take-Up Travel	
Splice / Clamping Requirement	
Anti-Tear Reinforcement Required?	
Heat Resistance Required?	
Oil Resistance Required?	
Chemical Resistance Required?	
Flame Resistance Required?	
Antistatic Requirement	
Applicable Standard	
Additional Operating Notes	

ENDLESS CONVEYOR BELT

Factory-Made Continuous Rubber Belting for Reliable, Joint-Free Conveyor Operation

FACTORY-MADE ENDLESS LOOP — CONTINUOUS BELT PATH

No field splice joint in the finished belt loop when supplied as truly endless construction

PRODUCT CONTENTS

1. PRODUCT OVERVIEW

World Prime Services Endless Conveyor Belt is supplied as a continuous closed-loop rubber conveyor belt, eliminating the need for a field splice in the finished belt loop. This construction is intended for conveyor systems where reduced splice-related maintenance, smooth running, dimensional consistency and reliable continuous service are priorities.

Endless conveyor belts can be manufactured in EP or NN textile constructions and may be supplied with smooth, patterned, chevron or application-specific covers. Special compounds can be selected for abrasion, heat, oil, chemical, cold, antistatic or flame-resistant duty.

Engineering Objective	Operational Benefit
Factory-made continuous loop	Eliminates a conventional field splice joint in the finished loop
Uniform carcass continuity	Supports smooth tracking and consistent load transfer
Controlled endless length	Improves fit-up and take-up setup
Application-specific cover compounds	Allows adaptation to wear, heat, oil, chemical or low-temperature service
Smooth or profiled surfaces	Supports horizontal or inclined conveying
Textile carcass options	Provides flexibility for light through heavy industrial duty

2. ENDLESS BELT DESIGN PRINCIPLE

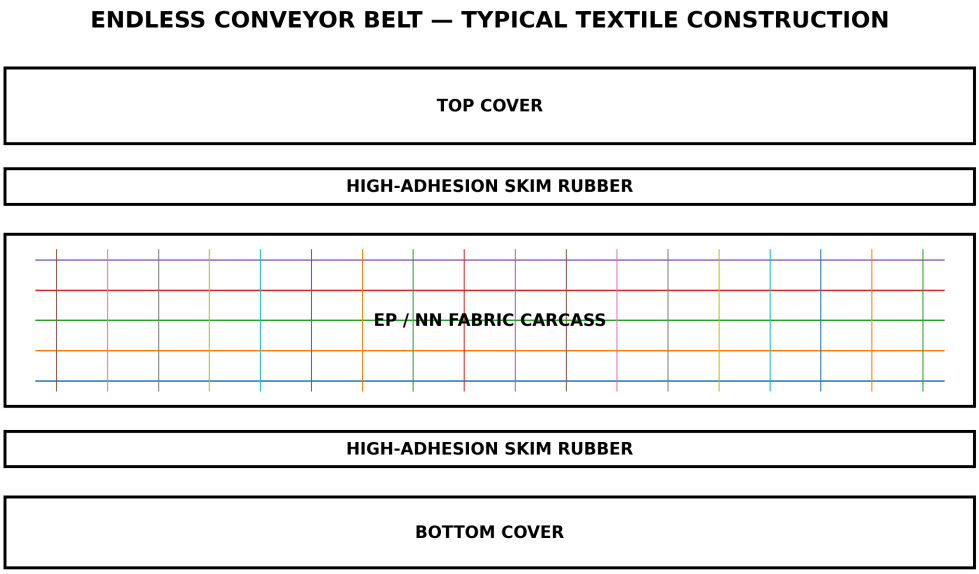
FACTORY-MADE ENDLESS LOOP — CONTINUOUS BELT PATH

No field splice joint in the finished belt loop when supplied as truly endless construction

A true endless conveyor belt is manufactured or vulcanized into a closed loop to the specified net endless length. Because the belt is delivered as a continuous loop, installation requires access around the conveyor pulleys or a machine design that permits belt fitting without cutting the belt.

For textile endless belts, net length determination can be specified in accordance with ISO 16851:2012, which defines a method for determining the net length of an endless spliced textile conveyor belt. This standard does not apply to steel-cord belts.

3. BELT CONSTRUCTION



Component	Engineering Function	Typical Options
Top cover	Primary conveying and wear surface	Smooth, abrasion-resistant, heat-resistant, oil-resistant, chemical-resistant or profiled
High-adhesion skim rubber	Bonds cover to carcass and transfers dynamic load	Application-specific adhesion system
Textile carcass	Carries longitudinal operating tension	EP polyester/nylon or NN nylon fabric
Bottom cover	Protects pulley-side carcass	Standard or special-purpose rubber
Edge construction	Protects belt sides and reinforcement	Cut edge or moulded edge
Endless joint zone	Factory-controlled loop closure where applicable	Vulcanized endless construction

4. PRODUCT FAMILIES

EL-EP Series — EP Fabric Endless Conveyor Belt

Low-elongation polyester/nylon construction for general and heavy-duty endless conveyor applications.

EL-NN Series — Nylon Fabric Endless Conveyor Belt

Flexible construction for applications requiring impact tolerance and repeated pulley flexing.

EL-AR Series — Abrasion Resistant Endless Belt

Heavy-duty cover compound for minerals, aggregate, recycling and industrial bulk material.

EL-CH Series — Endless Chevron / Profile Belt

Continuous endless belt with moulded profiles for inclined conveying.

EL-SP Series — Special Compound Endless Belt

Engineered endless construction for heat, oil, chemical, cold, antistatic or flame-resistant applications.

5. TEXTILE CARCASS OPTIONS

Carcass	Characteristics	Typical Use	Selection Consideration
EP Fabric	Low elongation, good dimensional stability and adhesion	General industrial and heavy-duty endless belts	Preferred where stable length is important
NN Fabric	High flexibility and good impact absorption	Shorter conveyors and repeated flexing duty	Higher elongation than EP
High-Strength EP	Higher tensile capacity with low elongation	Heavy bulk material and longer endless loops	Requires appropriate pulley diameter
Special Reinforced Textile	Application-specific architecture	Severe impact or anti-tear applications	Project-specific design

6. COVER COMPOUND OPTIONS

Cover Family	Primary Duty	Typical Application
EL-GP	General purpose	Packaging, process and light/medium industrial handling
EL-AR	Abrasion resistant	Minerals, aggregate, quarry, recycling
EL-HR	Heat resistant	Hot bulk materials
EL-OR	Oil resistant	Oily products and hydrocarbon-contaminated materials
EL-CR	Chemical resistant	Chemically aggressive bulk materials
EL-CRD	Cold resistant	Sub-zero and refrigerated environments
EL-AS	Antistatic	Static-control applications
EL-FR	Flame resistant	Selected regulated industrial environments

7. TECHNICAL SPECIFICATION RANGE

Parameter	Catalogue Option / Range	Remarks
Belt width	Approx. 200–2,200+ mm	Project-dependent
Endless net length	Manufactured to approved conveyor circumference	Measured according to agreed method
Textile carcass	EP / NN multi-ply	Strength selected by conveyor tension
Tensile class	Project-specific textile strength classes	Based on operating load and safety factor
Top cover thickness	Typically 2–15+ mm	Selected by wear and application
Bottom cover thickness	Typically 1.5–8+ mm	Selected by pulley-side duty
Surface	Smooth / rough top / patterned / chevron	Application-specific
Edge	Cut edge / moulded edge	Project-specific
Special compounds	Heat / oil / chemical / cold / antistatic / flame	Subject to technical compatibility

8. ENDLESS LENGTH & MANUFACTURING TOLERANCE

Accurate net endless length is critical because the belt must fit the conveyor geometry and remain within the available take-up range. The purchase specification should define the required net length, measurement method, belt tension condition during measurement and acceptable tolerance.

Control Item	Purpose
Net endless length	Ensures correct fit on conveyor
Width tolerance	Supports tracking and pulley alignment
Total thickness	Confirms compatibility with pulley and system design
Squareness / loop geometry	Supports smooth tracking
Cover thickness	Confirms mechanical protection
Carcass continuity	Maintains uniform tensile behavior around the loop

9. ADVANTAGES OF FACTORY-MADE ENDLESS CONSTRUCTION

• Reduced reliance on field splicing quality.

• Smooth passage over pulleys and idlers.

• Lower risk of splice opening in properly selected applications.

• Consistent belt geometry and continuous carcass behavior.

• Suitable for compact machines where a permanent endless loop is preferred.

• Useful for specialized conveyor equipment, feeders, mobile units and process machinery.

Important: a truly endless belt can be more difficult to install on conveyors that cannot be opened or disassembled. Installation access must be evaluated before ordering.

10. APPLICATION INDUSTRIES

Industry / Application	Typical Materials	Primary Requirement
Packaging & Manufacturing	Boxes, bags, components	Smooth and reliable continuous operation
Mining & Quarrying	Ore, aggregate, crushed material	Abrasion resistance and strength
Cement	Limestone, cement products	Wear resistance
Recycling	Processed industrial materials	Impact and abrasion resistance
Agriculture & Grain	Grain, seed, bagged materials	Clean tracking and reliable endless operation
Mobile & Compact Conveyors	Various bulk materials	Easy continuous loop operation where designed for endless fitting
Inclined Conveying	Granular and packaged materials	Chevron / profile endless construction

11. BELT SELECTION GUIDE

APPLICATION-BASED ENDLESS BELT SELECTION GUIDE

Duty	Typical Application	Recommended Construction	Typical Cover
Light / moderate duty	Packaging, process handling	EP / NN endless belt	General-purpose cover
Heavy duty	Minerals, aggregate, industrial bulk	High-strength EP / NN	Abrasion-resistant cover
Inclined conveying	Bagged / granular material	Endless chevron / profile belt	Moulded profile option
Special environment	Heat, oil, chemicals, static-control	Engineered endless belt	Special compound system

- Define exact conveyor pulley center distance and take-up range.
- Specify net endless length and measurement method.
- Calculate operating tension and select carcass strength.
- Confirm minimum pulley diameters for the selected textile construction.
- Select smooth or profiled top surface.
- Specify abrasion, heat, oil, chemical, cold, antistatic or flame requirements.
- Confirm whether the conveyor can physically accept a closed-loop belt during installation.

12. PULLEY & CONVEYOR DESIGN CONSIDERATIONS

Design Factor	Engineering Impact
Minimum pulley diameter	Controls carcass bending fatigue
Take-up range	Must accommodate belt fit and operating stretch
Pulley alignment	Critical to endless belt tracking
Drive traction	Depends on belt tension and pulley lagging
Belt speed	Influences dynamic load and cover wear
Conveyor access	Determines whether a closed-loop belt can be installed without cutting

13. INSTALLATION & TENSIONING

• Verify conveyor access before removing the existing belt.

• Inspect pulleys, idlers and structure alignment.

• Fit the endless loop without sharp folding or twisting.

• Set initial tension within the approved operating range.

• Rotate the conveyor manually or at low speed before full commissioning.

• Increase load progressively while checking tracking and take-up position.

14. TRACKING & ALIGNMENT

• Ensure head and tail pulleys are square to the conveyor centerline.

• Replace seized or misaligned idlers.

• Keep loading centered on the belt.

• Avoid over-tensioning as a substitute for correcting tracking problems.

• Check pulley lagging condition and material buildup.

• Record take-up position after commissioning for future inspection.

15. INSPECTION & MAINTENANCE

Inspection Point	Look For	Recommended Action
Covers	Cuts, abrasion, cracking or contamination	Repair before carcass exposure
Edges	Fraying, delamination or tracking damage	Correct alignment and repair
Loop closure / joint zone	Surface separation or localized fatigue where applicable	Inspect and repair according to approved procedure
Pulleys	Lagging wear or buildup	Clean and maintain traction
Take-up	Insufficient travel or excessive tension	Restore correct tension
Carcass	Exposed textile reinforcement	Immediate repair or replacement

16. QUALITY CONTROL & TESTING

Control Item	Purpose	Typical Stage
Net endless length	Confirm fit to conveyor	Final inspection
Width / thickness	Dimensional compliance	Final inspection
Carcass verification	Confirm EP/NN construction	Production
Full-thickness tensile testing	Verify tensile performance	Laboratory
Elongation testing	Verify deformation behavior	Laboratory
Adhesion testing	Confirm cover-to-carcass bonding	Laboratory
Visual inspection / traceability	Detect defects and identify manufacturing batch	Final / dispatch

17. REFERENCE STANDARDS

Reference	Relevance
ISO 16851:2012	Determination of net length of an endless (spliced) textile conveyor belt
ISO 14890:2026	Rubber- or plastics-covered textile conveyor belts for general use
ISO 283:2023	Full-thickness tensile strength and elongation test method for textile conveyor belts

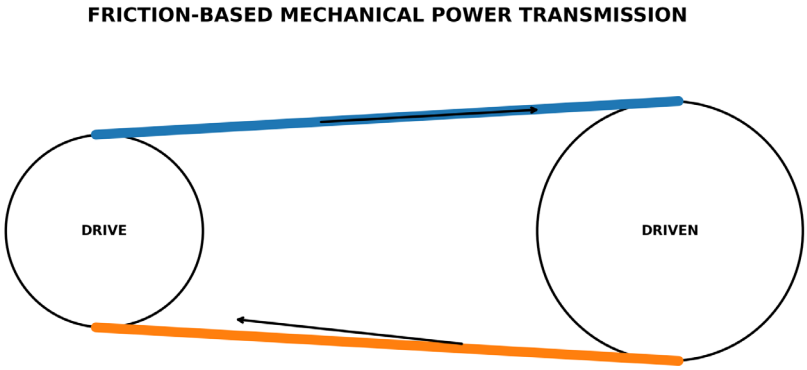
ISO 16851 applies to endless textile conveyor belts and excludes steel-cord constructions. Final belt construction and acceptance criteria should be defined in the approved purchase specification.

18. TECHNICAL ORDERING DATA SHEET

Project / Site	
Industry	
Conveyed Material	
Belt Width (mm)	
Required Net Endless Length (mm)	
Length Measurement Method	
Take-Up Range (mm)	
Pulley Center Distance (mm)	
Drive Pulley Diameter	
Tail Pulley Diameter	
Belt Speed (m/s)	
Capacity (t/h)	
Required Carcass Type	
Required Belt Strength	
Top / Bottom Cover (mm)	
Surface: Smooth / Rough / Patterned / Chevron	
Edge Type	
Abrasion Resistance Required?	
Heat Resistance Required?	
Oil Resistance Required?	
Chemical Resistance Required?	
Cold Resistance Required?	
Antistatic Requirement	
Flame Resistance Requirement	
Applicable Standard	
Additional Operating Notes	

TRANSMISSION BELT

Industrial Rubber-Textile Flat Belting for Mechanical Power Transmission



PRODUCT CONTENTS

1. PRODUCT OVERVIEW

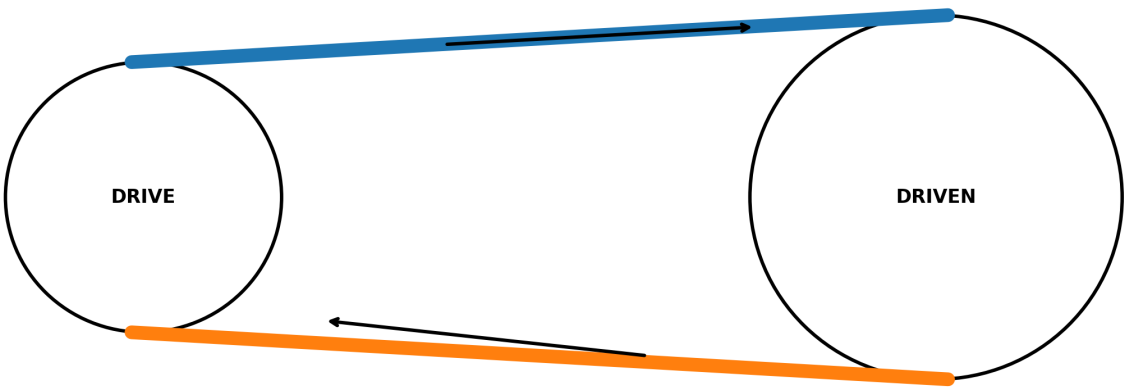
World Prime Services Transmission Belt is a heavy-duty rubber-textile flat belt designed for friction-based mechanical power transmission between rotating pulleys. The belt transfers torque from a drive pulley to a driven pulley through controlled belt tension, wrap angle and friction at the pulley interface.

The construction uses high-strength textile reinforcement bonded with durable rubber compounds to provide flexibility, dimensional stability, fatigue resistance and reliable frictional grip. The product is suitable for industrial equipment such as fans, blowers, pumps, agricultural machinery, workshop machinery, process drives and selected heavy-duty power transmission systems.

Engineering Objective	Operational Benefit
High tensile strength	Supports transmission of mechanical power under sustained belt tension
Controlled elongation	Improves speed stability and reduces re-tensioning frequency
High flex-fatigue resistance	Supports repeated bending over drive and driven pulleys
High-friction pulley surface	Improves torque transfer and reduces slip
Strong ply adhesion	Maintains construction integrity under cyclic tension
Custom width and thickness	Allows matching to pulley geometry and transmitted load

2. MECHANICAL POWER TRANSMISSION PRINCIPLE

FRICTION-BASED MECHANICAL POWER TRANSMISSION



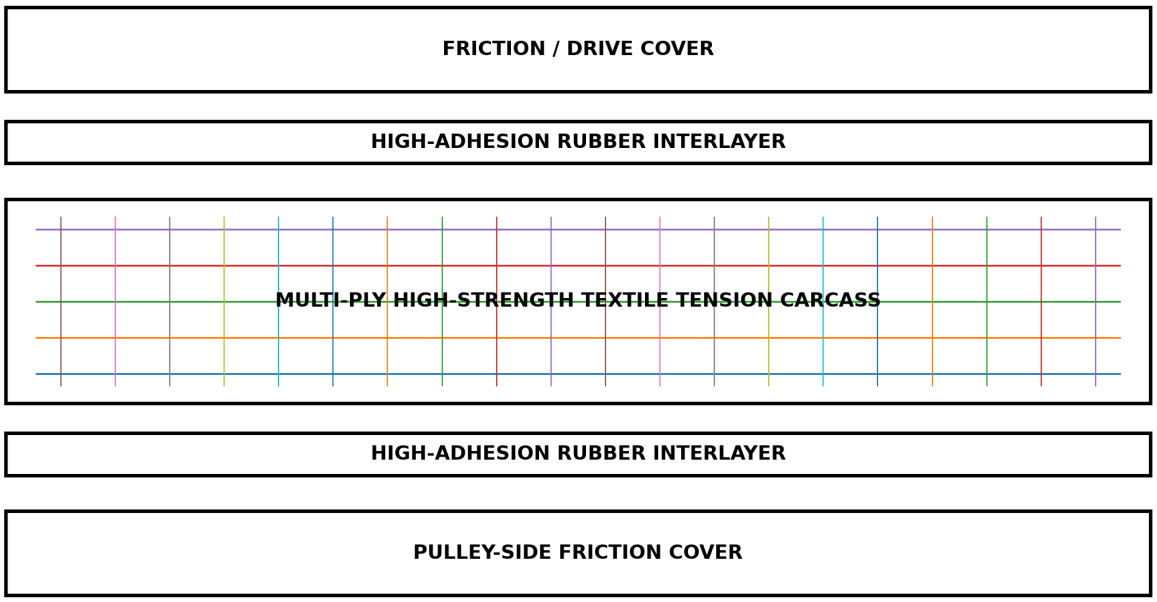
Torque is transferred through belt tension and friction between belt and pulley surfaces

Flat transmission belts operate by friction between the belt and pulley surfaces. The difference between tight-side tension and slack-side tension produces the effective tangential force that transmits mechanical power. System capacity is influenced by belt speed, pulley diameter, wrap angle, coefficient of friction, pre-tension and allowable belt stress.

Correct pulley alignment and appropriate tension are essential. Excessive tension increases bearing loads and belt fatigue, while insufficient tension can cause slip, heat generation, polishing of the pulley surface and unstable speed transmission.

3. BELT CONSTRUCTION

FLAT TRANSMISSION BELT — TYPICAL RUBBER-TEXTILE CONSTRUCTION



Component	Engineering Function	Typical Options
Drive / friction cover	Provides frictional contact with pulley	High-friction rubber, wear-resistant rubber, fabric impression
Adhesion interlayer	Transfers cyclic tension between cover and carcass	High-adhesion rubber system
Tension carcass	Carries operating tension and transmitted load	EP, NN or high-strength woven textile
Pulley-side cover	Provides grip and protects carcass	Rubber friction surface or fabric-backed option
Edge construction	Protects belt plies	Cut edge or wrapped / moulded edge

4. PRODUCT FAMILIES

TB-EP Series — EP Fabric Transmission Belt
Low-elongation polyester/nylon textile construction for industrial drives requiring stable length and reliable tension retention.

TB-NN Series — Nylon Fabric Transmission Belt
Flexible, fatigue-resistant construction for applications involving frequent bending and moderate shock loading.

TB-WR Series — Wrapped Edge Transmission Belt
Multi-ply textile construction with protected wrapped edges for improved edge durability and traditional flat-belt drive systems.

TB-CE Series — Cut Edge Transmission Belt
Precisely cut belt edges with rubber-sealed sides for dimensional control and standard industrial transmission systems.

TB-HD Series — Heavy-Duty High-Tension Transmission Belt
Reinforced textile construction for crushers, heavy blowers, process machinery and large industrial drives.

TB-SP Series — Special Compound Transmission Belt
Engineered covers for oil, heat, antistatic, weather or other special operating environments.

5. TEXTILE CARCASS TECHNOLOGY

Carcass Type	Main Characteristics	Best Fit	Engineering Note
EP Fabric	Low elongation, strong dimensional stability	Industrial drives and longer center distances	Preferred for stable running length
NN Fabric	High flexibility and fatigue resistance	Frequent flexing and smaller pulley systems	Higher elongation than EP
High-Strength Woven Textile	High tensile density	Heavy-duty transmission systems	Project-specific construction
Multi-Ply Reinforced Textile	Load distribution across several plies	Traditional flat-belt drives	Thickness and pulley diameter must be matched

6. FRICTION COVER & SURFACE OPTIONS

Surface Type	Primary Function	Typical Use
Smooth Rubber Friction Surface	Balanced grip and wear resistance	General industrial pulleys
High-Friction Rubber	Improved traction and reduced slip	High torque or variable load
Fabric Impression Surface	Controlled friction and stable pulley contact	Traditional flat-belt applications
Rubber/Fabric Combination	Flexibility with controlled pulley interface	Special machine drives
Wear-Resistant Cover	Improved service life in dusty environments	Cement, mining support machinery, processing plants

7. TECHNICAL SPECIFICATION RANGE

The following values represent an engineering catalogue envelope. Final belt width, thickness, carcass strength and cover construction are confirmed against pulley geometry, required power and operating speed.

Parameter	Catalogue Option / Range	Remarks
Belt width	Approx. 20–1,500+ mm	Project-specific industrial widths
Total thickness	Approx. 3–20+ mm	Depends on ply count and cover system
Carcass	EP / NN / high-strength textile	Selected by tension and flexing duty
Ply construction	Multi-ply textile	Project-specific
Edge type	Cut edge / wrapped edge	According to application
Surface	Smooth rubber / high-friction / fabric impression	Selected by pulley interface
Operating temperature	Compound-dependent	Heat-resistant grades available
Special properties	Oil / antistatic / heat / weather resistant	Project-specific

8. BELT SPEED, PULLEY & CENTER-DISTANCE CONSIDERATIONS

Design Factor	Engineering Effect
Pulley diameter	Controls belt bending stress and carcass fatigue
Belt speed	Affects transmitted power, centrifugal forces and heat generation
Center distance	Influences belt length, vibration and take-up requirement
Wrap angle	Controls available frictional traction
Pulley crown	Supports flat-belt tracking where applicable
Pulley surface condition	Affects coefficient of friction and slip
Shaft alignment	Critical to tracking and edge life

9. POWER TRANSMISSION & TENSION CONSIDERATIONS

The transmitted power of a flat belt system depends on effective tension difference and belt speed. The final belt design should be selected from actual drive power, pulley diameters, rotational speed, center distance, service factor and starting load.

Input Data	Why It Is Required
Motor / drive power (kW)	Determines required transmitted power
Drive pulley rpm	Defines belt speed with pulley diameter
Drive pulley diameter	Influences bending stress and belt velocity
Driven pulley diameter	Defines speed ratio
Center distance	Controls belt length and dynamic behavior
Starting torque	Determines peak belt tension
Operating hours / duty cycle	Influences fatigue life
Environment	Determines special compound requirement

10. APPLICATION INDUSTRIES

Industry / Equipment	Typical Drive	Primary Belt Requirement
Fans & Blowers	Motor-to-fan drive	High flexibility and stable friction
Pumps	Industrial pump drive	Reliable continuous torque transfer
Agricultural Machinery	Threshers, processors and auxiliary drives	Durability and flexible operation
Workshop Machinery	Lathes, presses and machine tools	Smooth running and stable tracking
Process Plants	Mechanical auxiliary equipment	Continuous duty and wear resistance
Cement & Mining Support Equipment	Fans, crushers and ancillary machinery	Heavy-duty tensile strength
General Manufacturing	Production machinery drives	Low maintenance and dimensional stability

11. BELT SELECTION GUIDE

APPLICATION-BASED TRANSMISSION BELT SELECTION GUIDE

Duty	Typical Equipment	Recommended Construction	Surface / Cover
Light / moderate power	Fans, blowers, workshop machinery	Multi-ply textile belt	General friction cover
Heavy industrial drive	Pumps, crushers, process equipment	High-strength EP/NN textile belt	High-friction / wear-resistant cover
Long center distance	Large industrial drive systems	Low-elongation high-strength belt	Stable tracking construction
Special environment	Heat, oil, static-sensitive service	Engineered transmission belt	Special-purpose compound

- Define motor power and maximum transmitted load.
- Record drive and driven pulley diameters.
- Record pulley rotational speeds and required speed ratio.
- Measure center distance and available take-up adjustment.
- Confirm pulley face width and preferred belt width.
- Select EP, NN or reinforced textile carcass.
- Define required friction surface and edge construction.
- Specify operating temperature, oil exposure, dust and static-control requirements.

12. INSTALLATION & ALIGNMENT

- Verify that drive and driven shafts are parallel.
- Ensure pulley faces are clean, smooth and free of damaging burrs.
- Install the belt without twisting or sharp folding.
- Align pulleys before applying final tension.
- Check that belt width is compatible with pulley face width.
- Run the drive unloaded at low speed and confirm stable tracking before full load.

13. TENSIONING & TRACKING

- Apply only the pre-tension required to prevent slip under maximum operating load.
- Do not over-tension the belt to correct pulley misalignment.
- Use pulley crown and alignment practices appropriate to flat-belt drives.
- Recheck belt tension after initial run-in.
- Monitor bearing temperature after tension adjustment.
- Correct oil contamination or pulley polishing if slip develops.

14. MAINTENANCE & INSPECTION

Inspection Point	Look For	Recommended Action
Belt surface	Glazing, cracking, wear or contamination	Clean or replace as required
Edges	Fraying or edge contact	Correct alignment
Pulleys	Wear, contamination or damaged crown	Repair / clean
Tension	Slip or excessive bearing load	Adjust to approved level
Carcass	Ply separation or exposed textile	Replace belt
Drive vibration	Misalignment or unstable tension	Inspect full drive geometry

15. QUALITY CONTROL & TESTING

Control Item	Purpose	Typical Stage
Width and thickness	Confirm dimensional compliance	Final inspection
Carcass identification	Verify textile construction	Production
Tensile strength	Confirm load-carrying capability	Laboratory
Elongation	Assess dimensional stability	Laboratory
Ply adhesion	Verify structural integrity	Laboratory
Surface / friction consistency	Confirm pulley-contact behavior	Production / final
Visual inspection and traceability	Detect defects and identify batch	Final / dispatch

16. SPECIAL COMPOUND OPTIONS

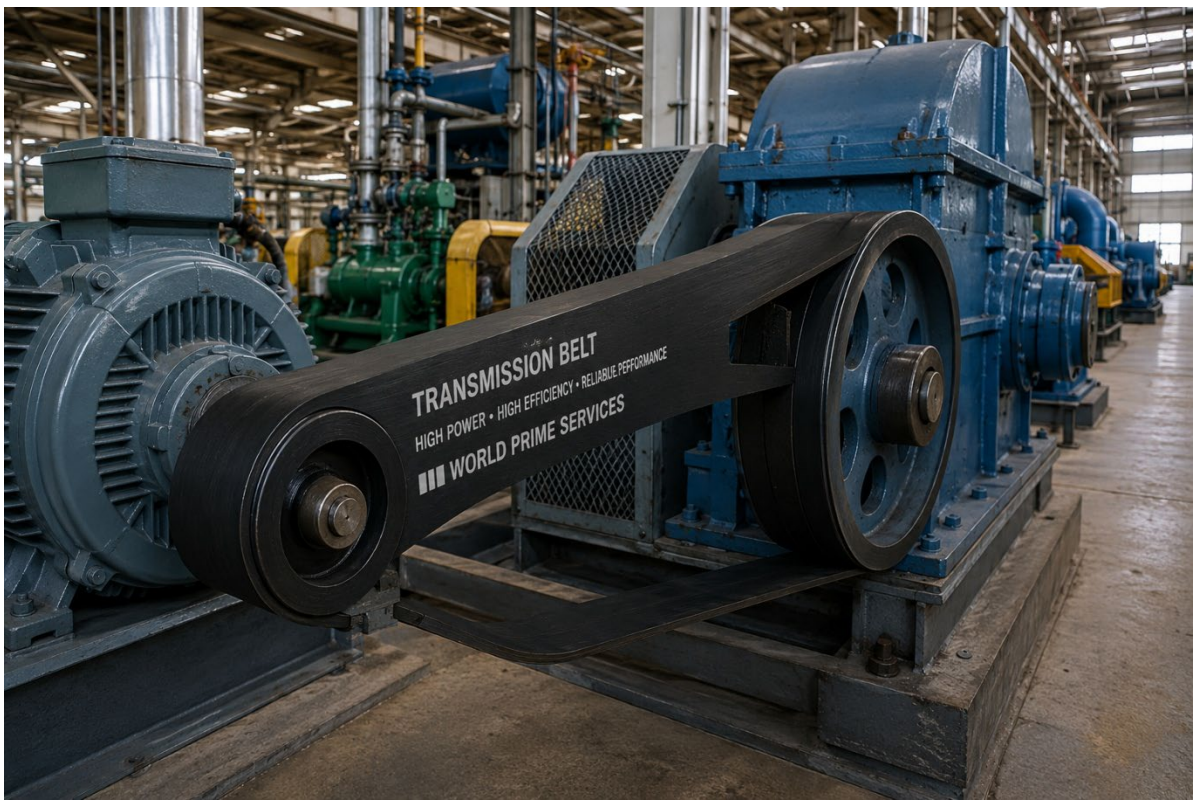
Special Grade	Primary Function	Typical Application
TB-HR	Heat resistance	Hot process areas and elevated ambient temperature
TB-OR	Oil resistance	Oil-contaminated industrial environments
TB-AS	Antistatic	Static-sensitive machinery and dry process plants
TB-WR	Weather resistance	Outdoor drive systems
TB-AR	Abrasion resistance	Dusty and abrasive industrial environments

17. REFERENCE STANDARDS

Transmission belt projects may reference international pulley-and-belt standards where applicable. Because many legacy flat-belt dimensional standards have been withdrawn, final design dimensions should be agreed directly between purchaser and supplier and validated against the actual drive system.

Reference	Relevance
ISO/TC 41 / SC 1	International standards committee for friction belt drives
ISO 14890:2026	Reference for rubber/plastics-covered textile conveyor belting where conveyor-style textile construction is used
Project-specific drive calculation	Required for pulley diameter, speed, tension, power and service factor
Customer / machinery OEM specification	Final dimensional and operating requirements

The current ISO catalogue shows several historic flat transmission-belt dimensional standards, including ISO 22, ISO 63, ISO 99 and ISO 100, as withdrawn. Therefore, this catalogue treats dimensions as project-specific engineering data rather than presenting obsolete ISO dimensional limits as current requirements.



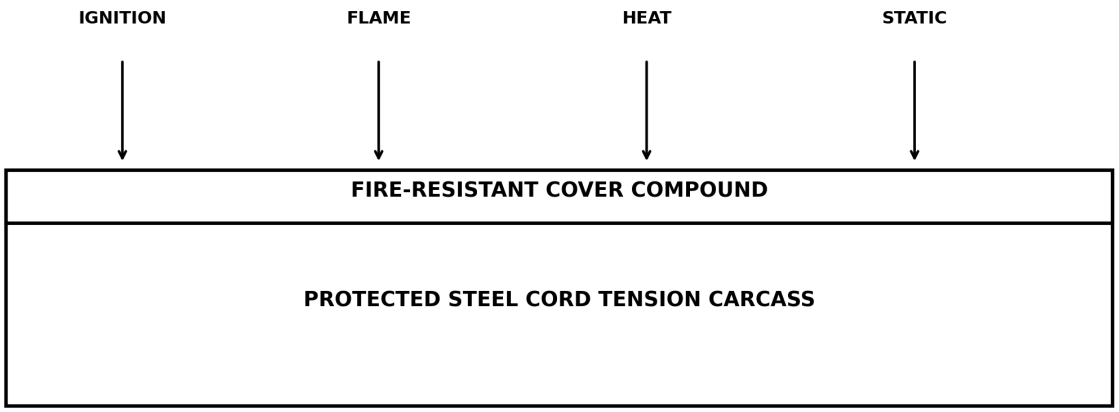
18. TECHNICAL ORDERING DATA SHEET

Project / Site	
Industry	
Driven Equipment	
Motor / Drive Power (kW)	
Starting Torque / Service Factor	
Drive Pulley Diameter (mm)	
Driven Pulley Diameter (mm)	
Drive Pulley Speed (rpm)	
Required Driven Speed (rpm)	
Center Distance (mm)	
Pulley Face Width (mm)	
Required Belt Width (mm)	
Preferred Belt Thickness (mm)	
Required Carcass Type	
Required Edge Type	
Surface / Friction Requirement	
Operating Temperature	
Oil Exposure	
Antistatic Requirement	
Outdoor / Weather Exposure	
Operating Hours per Day	
Applicable OEM / Customer Standard	
Additional Operating Notes	

FIRE-RESISTANT STEEL CORD CONVEYOR BELT

High-Tensile Flame-Resistant Belting for Long-Distance, Heavy-Load & Safety-Critical Bulk Handling

FIRE-RESISTANCE & STATIC-CONTROL SAFETY CONCEPT



Fire-resistant compounds are engineered to reduce flame propagation and support safer operation in defined industrial environments

PRODUCT CONTENTS

1. PRODUCT OVERVIEW

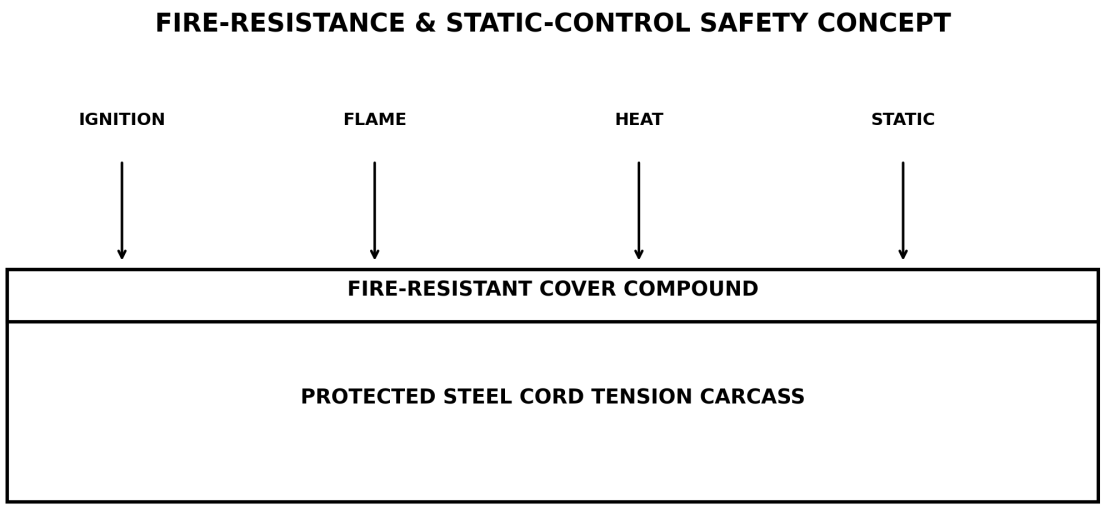
World Prime Services Fire-Resistant Steel Cord Conveyor Belt is engineered for high-tension, long-distance and heavy-load bulk-material conveying where fire performance and operational safety are critical design requirements.

The belt combines longitudinal high-tensile steel cords with fire-resistant rubber cover compounds and a high-adhesion skim system. Depending on the application, the construction may also incorporate antistatic properties, transverse breakers, rip-protection layers and special safety-qualified rubber systems for underground or other regulated installations.

Engineering Objective	Operational Benefit
High tensile strength	Supports long-distance and heavy-load conveying with low elongation
Fire-resistant cover system	Helps reduce flame propagation under defined test conditions
Low elongation steel cord carcass	Improves tracking, take-up stability and dynamic control
High steel-cord adhesion	Supports load transfer and structural integrity
Optional antistatic performance	Supports dissipation of electrostatic charge where specified
Optional anti-rip reinforcement	Improves resistance to longitudinal tear propagation

2. FIRE-RESISTANCE ENGINEERING PRINCIPLE

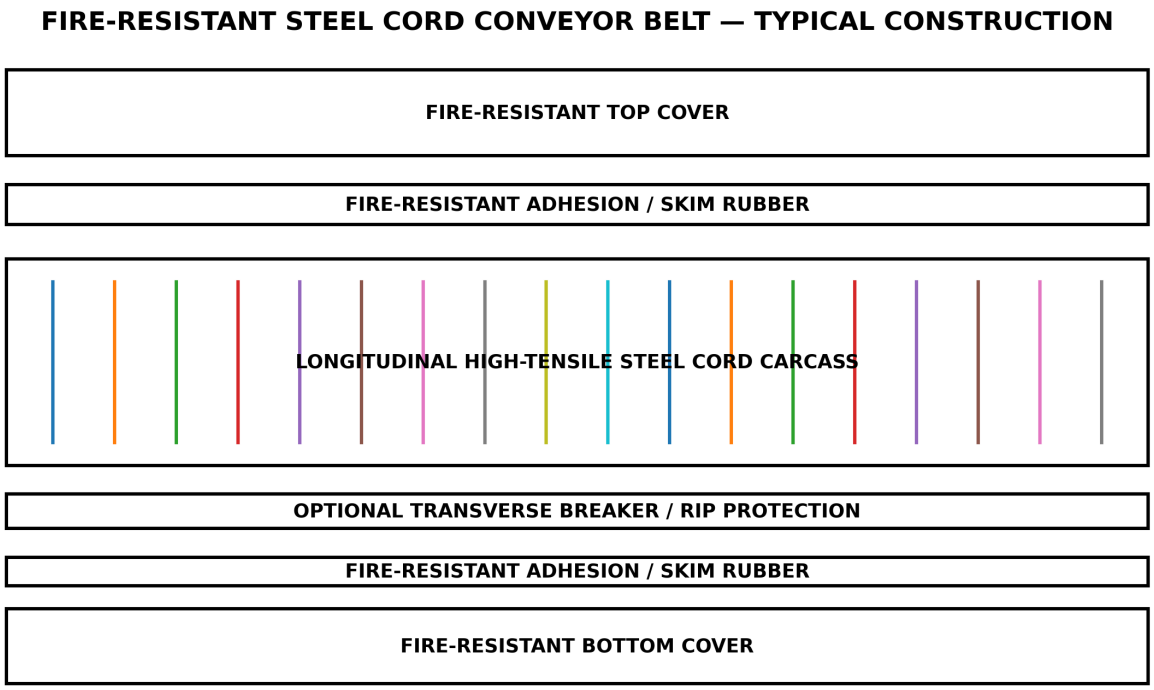
Fire-resistant steel cord belting is designed to combine the mechanical advantages of a steel cord tension member with cover and skim compounds formulated for reduced flammability. Fire behavior must be evaluated using the governing standard and the exact service category.



Fire-resistant compounds are engineered to reduce flame propagation and support safer operation in defined industrial environments

Fire resistance does not mean that the belt is non-combustible. It means the belt is engineered to meet defined flame-test, flame-propagation or related safety requirements. Where dust, coal, combustible material or underground operation is involved, antistatic and other safety properties may also be mandatory.

3. BELT CONSTRUCTION



Component	Engineering Function	Typical Options
Fire-resistant top cover	Primary conveying surface and fire-protection layer	FR / FRAS / underground-qualified compound
Fire-resistant adhesion / skim rubber	Bonds steel cords to covers and transfers dynamic load	High-adhesion flame-resistant system
Longitudinal steel cord carcass	Carries operating tension	ST-class steel cords
Transverse breaker / rip protection	Improves impact and tear resistance	Textile breaker / transverse steel or synthetic cords
Fire-resistant bottom cover	Protects pulley-side carcass	FR or FRAS compound
Edge construction	Protects reinforcement from environmental ingress	Moulded or engineered edge

4. PRODUCT FAMILIES

FR-ST-G Series — Flame-Resistant Steel Cord Belt for General Use

Designed for aboveground coal washeries, power plants, bulk terminals and selected non-coal underground or industrial applications where fire-resistant performance is required by the project specification.

FR-ST-U Series — Flame-Resistant Steel Cord Belt for Underground Use

Special safety-oriented construction for underground installations where applicable regulations require flame-resistant and related safety properties.

FRAS-ST Series — Fire-Resistant & Antistatic Steel Cord Belt

Combines flame-resistant rubber with controlled electrical resistance for static-charge dissipation.

FR-AR-ST Series — Fire-Resistant Anti-Rip Steel Cord Belt

Adds transverse breaker or anti-rip reinforcement for sharp, heavy or penetrating materials.

FR-X Series — Engineered Safety-Critical Steel Cord Belt

Project-specific configuration combining fire resistance with high tension, special cover thickness, rip protection, monitoring systems or other site requirements.

5. STEEL CORD CARCASS TECHNOLOGY

Steel cord reinforcement provides very high tensile strength with low operational elongation, making it suitable for long center distances, high capacities and high belt tensions. Cord diameter, pitch, construction and adhesion system are selected from the required nominal belt strength and splice design.

Design Element	Function	Engineering Consideration
Steel cord diameter	Defines individual cord strength	Matched to nominal belt strength
Cord pitch	Controls cord density across belt width	Affects strength distribution and splice layout
Galvanized cord surface	Supports rubber-to-steel adhesion and corrosion protection	Requires compatible skim compound
Skim rubber	Encapsulates cords and transfers load	Critical for adhesion and fatigue resistance
Low elongation	Maintains dimensional stability	Reduces take-up movement compared with textile carcass

6. FIRE-RESISTANT & FRAS COVER TECHNOLOGY

Cover System	Primary Property	Typical Application
FR	Flame-resistant	General industrial fire-risk environments
FRAS	Flame-resistant + antistatic	Coal handling and dust-sensitive bulk systems
Underground FR	Special flame and safety performance	Approved underground installations
FR + Abrasion	Fire resistance + high wear resistance	Coal, minerals and abrasive bulk materials
FR + Anti-Rip	Fire resistance + tear propagation control	Sharp or penetrating materials

Compound selection must consider flame performance together with abrasion, temperature, oil contamination, weather exposure and electrical-resistance requirements.

7. UNDERGROUND VS GENERAL-USE CONFIGURATIONS

Configuration	Typical Environment	Key Engineering Focus
General-use flame-resistant steel cord belt	Aboveground coal washeries, power plants, bulk handling	Fire-resistant cover performance and high tensile strength
FRAS general-use steel cord belt	Coal and dust-sensitive industrial systems	Fire resistance plus electrical conductivity
Underground flame-resistant steel cord belt	Regulated underground installations	Special safety requirements, flame behavior and statutory compliance
Anti-rip flame-resistant belt	Mines and heavy bulk handling with piercing risk	Fire performance plus transverse rip protection

Underground use should never be inferred from a general FR designation alone. The exact underground approval, standard and local regulatory requirement must be stated in the purchase specification.

8. TECHNICAL SPECIFICATION RANGE

Parameter	Catalogue Option / Range	Remarks
Belt width	Approx. 600–3,200+ mm	Project-dependent
Nominal belt strength	Approx. ST 500 to ST 7500 engineering range	Final class by conveyor calculation
Top cover thickness	Typically 6–15+ mm	Selected by wear, impact and fire requirements
Bottom cover thickness	Typically 4–10+ mm	Selected by pulley-side duty
Cover system	FR / FRAS / underground FR / engineered	Project-specific safety class
Electrical resistance	Antistatic option available	Project acceptance criterion required
Rip protection	Optional breaker / transverse reinforcement	Recommended for severe-duty service
Splice method	Hot vulcanized	Designed to steel cord class and standard
Monitoring	Optional rip-detection / cord-monitoring compatibility	Project-specific

9. STEEL CORD STRENGTH CLASSES

Indicative Class	Typical Duty	General Engineering Characteristic
ST 500–1000	Moderate steel-cord duty	Lower tension, shorter long-distance systems
ST 1250–2000	Heavy industrial duty	Coal, power and mining applications
ST 2500–3500	High-tension long-distance duty	High capacity and extended center distance
ST 4000–5000	Very high-tension duty	Critical long overland systems
ST 5400–7500	Extreme engineered duty	Project-specific high-strength applications

Actual preferred classes and dimensional requirements should be selected according to the applicable ISO 15236 series or customer-approved design specification.

10. FIRE & ELECTRICAL SAFETY REQUIREMENTS

Property / Test	Purpose	Typical Reference
Flame resistance	Assess flame persistence / propagation behavior	ISO 340 or applicable local requirement
Electrical conductivity	Assess static-charge dissipation	ISO 284
Steel cord belt safety	Underground-specific requirements where applicable	ISO 15236-3
Mechanical construction	Dimensions and mechanical requirements	ISO 15236-1
Vulcanized joints	Splice design and performance	ISO 15236-4

A current industrial tender example for an ST 1600 FRAS steel cord belt specified 10 mm top cover, 5 mm bottom cover, electrical surface resistance not exceeding 300 megaohms and compliance references to DIN 22131 / ISO 15236. Such values are application-specific examples and should not be treated as universal catalogue guarantees.

11. ANTI-RIP / BREAKER REINFORCEMENT OPTIONS

Reinforcement	Function	Best Fit
Textile breaker	Improves impact distribution and local damage control	General heavy-duty FR service
Transverse synthetic cord	Improves longitudinal rip resistance	Sharp bulk materials
Transverse steel cord	High-strength rip protection	Severe piercing risk
Periodic rip-stop zones	Localized damage arrest strategy	Critical long-distance systems
Electronic rip detection compatibility	Supports early damage detection	High-value conveyor systems

12. APPLICATION INDUSTRIES

Industry	Typical Materials	Primary Requirement
Coal Handling	Coal and fuel materials	FR / FRAS performance and heavy-duty strength
Power Plants	Coal, biomass and fuel handling	Long-distance reliability and fire safety
Mining	Ore, coal and bulk minerals	High tension, abrasion and rip resistance
Coal Washeries	Processed coal	Fire-resistant general-use steel cord belt
Ports & Terminals	Coal and bulk commodities	High capacity and continuous duty
Non-Coal Underground Mining	Minerals and ore	Safety-class belt as required by regulation
Metallurgy	Raw materials and bulk solids	Heavy-duty steel cord construction

13. BELT SELECTION GUIDE

APPLICATION-BASED FIRE-RESISTANT STEEL CORD BELT SELECTION GUIDE

Service Class	Typical Application	Recommended Belt	Typical Construction
Aboveground FR duty	Coal washeries, power plants	FR steel cord	Fire-resistant cover + high tensile steel cords
FRAS duty	Dust-sensitive bulk handling	FR + antistatic steel cord	Fire-resistant / antistatic cover system
Underground duty	Approved underground installations	Underground flame-resistant steel cord	Special safety-qualified construction
Severe tear risk	Mines, sharp bulk materials	FR + anti-rip steel cord	Transverse breaker / rip protection

• Define whether the conveyor is aboveground, underground or in another regulated environment.

• Specify the required fire-resistance and antistatic standards.

• Calculate maximum operating tension and select ST strength class.

• Define belt width, speed, center distance and drive arrangement.

• Specify top and bottom cover thickness.

• Assess abrasion, impact and rip risk.

• Define whether transverse breaker or rip-stop reinforcement is required.

• Confirm pulley diameters, take-up travel and splice design.

• State all required statutory approvals before manufacture.

14. PULLEY, TAKE-UP & CONVEYOR DESIGN CONSIDERATIONS

Design Factor	**Engineering Impact**
Drive pulley diameter	Controls steel cord bending fatigue
Tail / bend pulley diameter	Influences reverse bending and carcass life
Take-up travel	Accommodates elastic stretch and operational movement
Drive traction	Depends on belt tension and pulley lagging
Belt speed	Influences dynamic load and heat generation
Transition distance	Controls edge and cord stress
Fire-risk zoning	Influences cover and safety-system selection

15. SPLICING & VULCANIZED JOINTS

Steel cord flame-resistant conveyor belts require engineered hot-vulcanized splices. Splice length, step arrangement, cord layout and splice materials depend on the belt strength class and the applicable standard.

- Use flame-resistant splice compounds compatible with the parent belt.
- Maintain the approved steel cord stagger and overlap geometry.
- Control vulcanizing temperature, pressure and cure time.
- Perform splice inspection before commissioning.
- Use periodic splice monitoring on critical long-distance conveyors.

16. INSTALLATION & COMMISSIONING

- Verify pulley alignment and conveyor structure before belt installation.
- Protect the belt from sharp structural damage during pulling.
- Use approved handling methods for large steel cord belt rolls.
- Set take-up tension to the engineered value.
- Commission unloaded or at reduced load where practical.
- Check tracking, drive traction, splice condition and safety devices.
- Verify antistatic grounding and site fire-protection systems where applicable.

17. INSPECTION & PREVENTIVE MAINTENANCE

Inspection Point	Look For	Recommended Action
Top cover	Cuts, burning, glazing, cracking or severe wear	Repair and investigate source
Edges	Cord exposure or delamination	Immediate repair
Splices	Cracking, separation or cord movement	Engineered inspection
Pulley lagging	Slip or heat generation	Restore traction
Rip-protection system	Damage or detector malfunction	Repair / test system
Grounding / conductivity path	Loose bonding or contamination	Restore electrical continuity
Carcass monitoring	Cord damage where monitoring is installed	Trend and act on alarms

18. QUALITY CONTROL & TESTING

Control Item	Purpose	Typical Stage
Belt width / thickness	Dimensional compliance	Final inspection
Steel cord layout	Verify cord pitch and construction	Production
Cover physical properties	Confirm compound consistency	Laboratory
Cord adhesion / pull-out	Verify steel-rubber bonding	Laboratory
Flame-resistance testing	Verify specified fire performance	Qualification / acceptance
Electrical resistance testing	Verify antistatic performance where specified	Qualification / acceptance
Splice qualification	Confirm joint performance	Project-specific
Traceability	Identify production batch and roll	Dispatch

19. REFERENCE STANDARDS

Reference	Relevance
ISO 15236-1	Steel cord conveyor belts — design, dimensions and mechanical requirements for general use
ISO 15236-2	Preferred steel cord belt types
ISO 15236-3	Special safety requirements for steel cord conveyor belts used underground
ISO 15236-4	Vulcanized steel cord belt joints
ISO 340	Flame resistance — requirements and test method
ISO 284	Electrical conductivity / antistatic test method
DIN 22103	Historic German flame-resistant steel cord belt standard; current project use should verify status and replacement references

Project specifications should identify the exact standard edition and any local mining, underground or fire-safety approval. General-use FR belts and underground-approved belts are not automatically interchangeable.

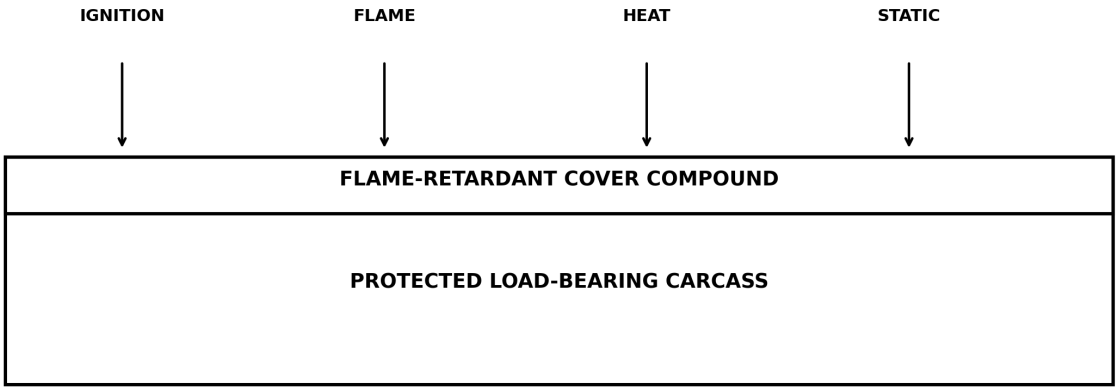
20. TECHNICAL ORDERING DATA SHEET

Project / Site	
Industry	
Aboveground / Underground	
Conveyed Material	
Capacity (t/h)	
Bulk Density	
Maximum Lump Size	
Belt Width (mm)	
Belt Speed (m/s)	
Center Distance (m)	
Inclination (°)	
Required ST Strength Class	
Top / Bottom Cover (mm)	
Required Fire Standard	
Required Antistatic Standard	
Electrical Resistance Criterion	
Underground Approval Required?	
Anti-Rip Reinforcement Required?	
Rip Detection / Monitoring Required?	
Drive Pulley Diameter	
Tail Pulley Diameter	
Take-Up Travel	
Splice Standard / Requirement	
Ambient Temperature	
Material Temperature	
Applicable Regulation / Standard	
Additional Operating Notes	

FLAME-RETARDANT CONVEYOR BELT

Safety-Oriented Rubber Conveyor Belting for Fire-Risk, Coal, Mining & Industrial Bulk Handling

FLAME-RETARDANCE & STATIC-CONTROL SAFETY CONCEPT



Designed to limit flame persistence and propagation under specified laboratory test conditions

PRODUCT CONTENTS

1. PRODUCT OVERVIEW

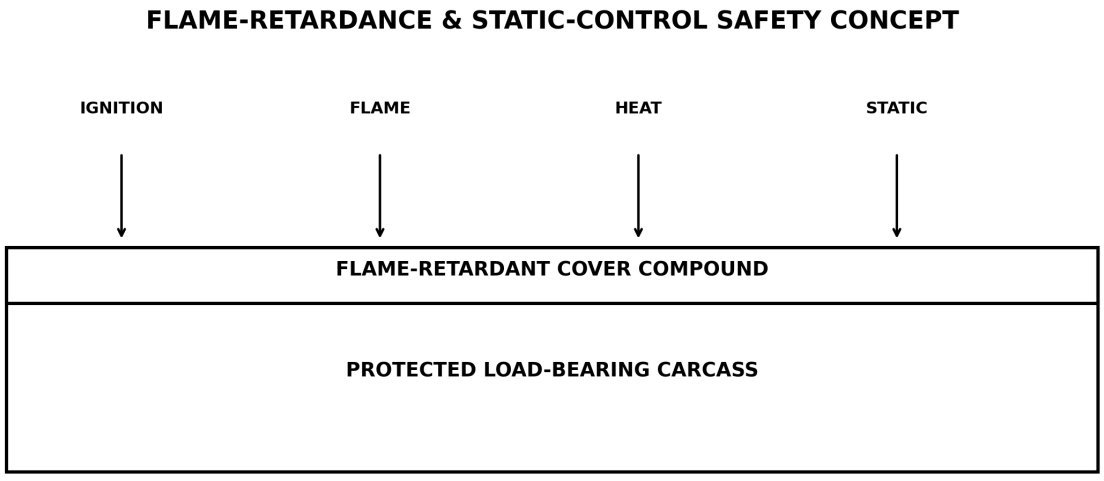
World Prime Services Flame-Retardant Conveyor Belt is engineered for bulk-material handling systems where reduced flammability, controlled flame behavior and operational fire safety are critical design requirements.

The product range includes textile-reinforced constructions for general industrial service and project-specific configurations for mining, coal, power generation, ports and other environments where flame-retardant or flame-retardant-antistatic performance is specified. Depending on the duty, the belt may also incorporate abrasion resistance, impact resistance, antistatic performance and transverse anti-rip reinforcement.

Engineering Objective	Operational Benefit
Reduced flame propagation	Supports safer operation under defined fire-test requirements
High carcass strength	Provides reliable load carrying in heavy-duty service
Strong cover-to-carcass adhesion	Maintains belt integrity under repeated flexing
Optional antistatic performance	Helps dissipate static charge where specified
Optional anti-rip reinforcement	Improves resistance to tear propagation
Application-specific compound design	Allows fire performance to be combined with abrasion and environmental requirements

2. FLAME-RETARDANCE ENGINEERING PRINCIPLE

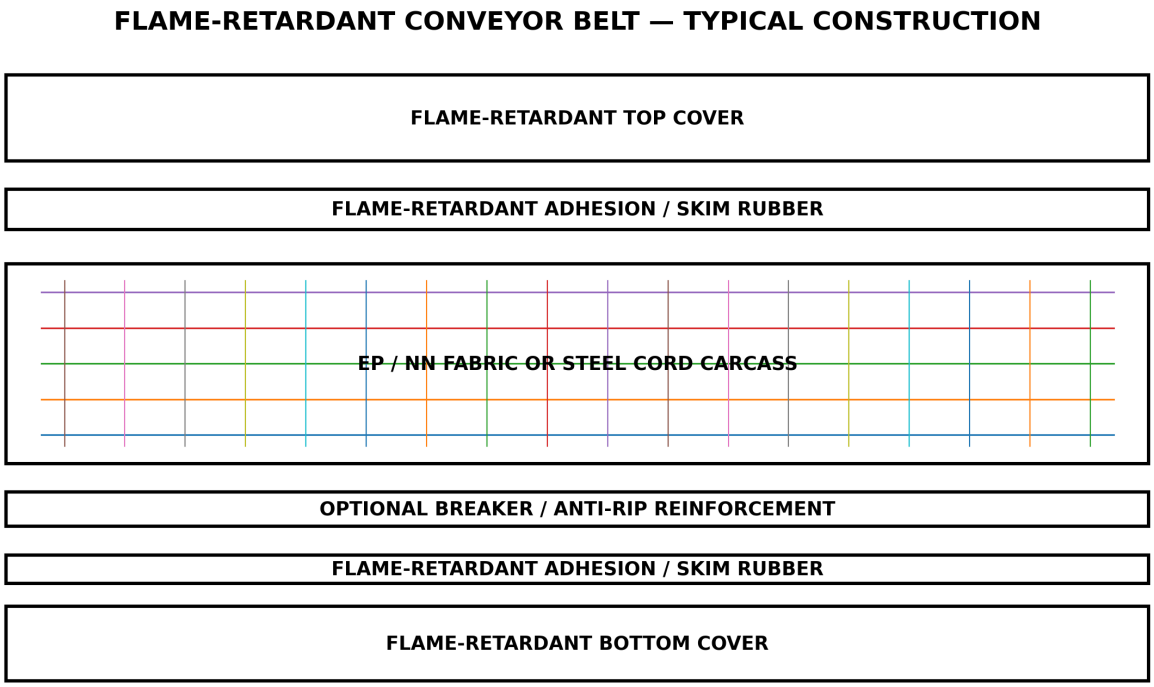
Flame-retardant conveyor belting uses specially formulated rubber compounds designed to reduce flame persistence and propagation after exposure to a defined ignition source. Performance must be verified using the applicable standard and test method.



Designed to limit flame persistence and propagation under specified laboratory test conditions

Flame retardance does not mean that the belt is non-combustible. It means the belt is engineered to satisfy defined laboratory-scale flammability requirements. In coal, dust-sensitive or other hazardous environments, electrical conductivity and static-charge control may also form part of the safety specification.

3. BELT CONSTRUCTION



Component	Engineering Function	Typical Options
Flame-retardant top cover	Primary conveying surface and fire-performance layer	FR / FRAS / special safety-qualified compound
Flame-retardant adhesion / skim rubber	Bonds cover to carcass and transfers dynamic load	High-adhesion flame-retardant system
Load-bearing carcass	Carries operating tension	EP fabric, NN fabric or project-specific steel cord
Breaker / anti-rip reinforcement	Improves impact and tear resistance	Textile breaker / transverse synthetic or steel reinforcement
Flame-retardant bottom cover	Protects pulley-side carcass	FR or FRAS compound
Edge construction	Protects reinforcement	Cut edge / moulded edge / engineered edge

4. PRODUCT FAMILIES

FR-EP Series — Flame-Retardant EP Fabric Conveyor Belt

Low-elongation EP fabric construction for heavy-duty general industrial conveying where flame-retardant performance is specified.

FR-NN Series — Flame-Retardant Nylon Fabric Conveyor Belt

Flexible textile construction for impact-oriented applications requiring flame-retardant cover properties.

FRAS Series — Flame-Retardant & Antistatic Conveyor Belt

Combines controlled flammability with electrical conductivity for static-charge dissipation.

FR-AR Series — Flame-Retardant Anti-Rip Conveyor Belt

Adds breaker or transverse reinforcement for sharp, heavy or penetrating materials.

FR-X Series — Engineered Safety-Critical Conveyor Belt

Project-specific configuration for regulated, underground or special fire-risk environments requiring defined certification or statutory approval.

5. TEXTILE CARCASS TECHNOLOGY

Carcass	Characteristics	Typical Application	Engineering Note
EP Fabric	Low elongation, good dimensional stability and adhesion	General heavy-duty FR conveying	Versatile standard textile option
NN Fabric	High flexibility and impact absorption	Shorter conveyors and impact duty	Higher elongation than EP
High-Strength EP	Higher tensile capacity with low elongation	Longer and heavier FR conveyors	Requires suitable pulley diameters
Steel Cord Option	Very high tensile strength and low elongation	High-tension project-specific duty	Separate steel-cord engineering required

6. FLAME-RETARDANT & FRAS COVER TECHNOLOGY

Cover System	Primary Property	Typical Application
FR	Flame-retardant	General industrial fire-risk environments
FRAS	Flame-retardant + antistatic	Coal handling and dust-sensitive bulk systems
Underground / Regulated FR	Special flame and safety performance	Approved underground or regulated installations
FR + Abrasion	Fire performance + high wear resistance	Coal, minerals and abrasive bulk materials
FR + Anti-Rip	Fire performance + tear propagation control	Sharp or penetrating materials

Compound selection must evaluate flame performance together with abrasion, temperature, oil contamination, weather exposure and electrical-resistance requirements.

7. GENERAL-USE VS UNDERGROUND / REGULATED CONFIGURATIONS

Configuration	Typical Environment	Key Engineering Focus
General-use flame-retardant belt	Power plants, coal washeries, ports and surface bulk handling	Flame-retardant cover performance and mechanical strength
FRAS general-use belt	Coal and dust-sensitive industrial systems	Flame resistance plus electrical conductivity
Underground / regulated flame-retardant belt	Mining or statutory controlled environments	Special fire, antistatic and approval requirements
Anti-rip flame-retardant belt	Heavy-duty conveying with piercing risk	Fire performance plus transverse rip protection

Underground suitability should never be inferred from a general FR designation alone. The exact regulatory approval, test standard and local statutory requirement must be stated in the purchase specification.

8. TECHNICAL SPECIFICATION RANGE

Parameter	Catalogue Option / Range	Remarks
Belt width	Approx. 400–3,200+ mm	Project-dependent
Textile carcass	EP / NN multi-ply	Selected by operating tension
Steel cord option	Project-specific ST classes	For high-tension applications
Top cover thickness	Typically 4–15+ mm	Selected by wear, impact and fire requirements
Bottom cover thickness	Typically 2–8+ mm	Selected by pulley-side duty
Cover system	FR / FRAS / regulated FR / engineered	Project-specific safety class
Electrical resistance	Antistatic option available	Acceptance criterion must be specified
Rip protection	Optional breaker / transverse reinforcement	Recommended for severe mechanical duty
Splice method	Hot vulcanized preferred	Matched to carcass construction

9. TYPICAL PHYSICAL & SAFETY PROPERTIES

Property	Typical Engineering Requirement	Remarks
Cover tensile strength	Project-specific FR compound value	Defined in approved specification
Elongation at break	Project-specific	Must remain compatible with dynamic flexing
Abrasion resistance	Application-specific	Higher wear resistance for coal/mineral duty
Adhesion strength	High cover-to-ply / ply-to-ply bond	Critical to service life
Flame behavior	Must meet specified test method and acceptance limit	ISO 340:2022 or project standard
Electrical conductivity	Specified for FRAS applications	ISO 284:2025 or approved equivalent

10. FLAME & ELECTRICAL SAFETY REQUIREMENTS

Property / Test	Purpose	Current Reference
Laboratory-scale flammability	Assess reaction to an ignition flame source	ISO 340:2022
Electrical conductivity	Assess static-charge dissipation	ISO 284:2025
Textile belt construction	General construction requirements for textile conveyor belts	ISO 14890:2026
Project-specific underground / mining safety	Define statutory approval and fire-performance criteria	Applicable local regulation / customer specification

ISO 340:2022 applies to conveyor belts with textile carcasses as well as steel cord conveyor belts and specifies a laboratory-scale method for assessing reaction to an ignition flame source. ISO 284:2025 specifies maximum electrical resistance and the corresponding test method for conductivity.

11. ANTI-RIP / BREAKER REINFORCEMENT OPTIONS

Reinforcement	Function	Best Fit
Textile breaker	Improves impact distribution and local damage control	General heavy-duty FR service
Transverse synthetic cord	Improves longitudinal rip resistance	Sharp bulk materials
Transverse steel cord	High-strength rip protection	Severe piercing risk
Periodic rip-stop zones	Localized damage arrest strategy	Critical long conveyors
Electronic rip detection compatibility	Supports early damage detection	High-value conveyor systems

12. APPLICATION INDUSTRIES

Industry	Typical Materials	Primary Requirement
Coal Handling	Coal and fuel materials	FR / FRAS performance and heavy-duty strength
Power Plants	Coal, biomass and fuel handling	Reliable fire-risk control and continuous duty
Mining	Ore, coal and bulk minerals	High strength, abrasion and tear resistance
Coal Washeries	Processed coal	Flame-retardant general-use textile belt
Ports & Terminals	Coal and bulk commodities	High capacity and continuous operation
Cement & Minerals	Bulk mineral products	FR + abrasion resistance where required
Metallurgy	Raw materials and bulk solids	Heavy-duty flame-retardant conveying

13. BELT SELECTION GUIDE

APPLICATION-BASED FLAME-RETARDANT BELT SELECTION GUIDE

Service Class	Typical Application	Recommended Belt	Typical Construction
General industrial FR	Power plants, coal handling, terminals	FR textile belt	Flame-retardant cover system
FRAS duty	Dust-sensitive bulk handling	FR + antistatic textile belt	Flame-retardant + conductive compound
Underground / regulated duty	Approved mining applications	Safety-qualified flame-retardant belt	Project-specific certified construction
Severe mechanical duty	Sharp or high-impact materials	FR + anti-rip reinforced belt	Breaker / transverse reinforcement

• Define whether the conveyor is surface, underground or otherwise regulated.

• Specify the required flame-retardance and antistatic standards.

• Calculate operating tension and select EP, NN or steel-cord carcass.

• Define belt width, speed, center distance and drive arrangement.

• Specify top and bottom cover thickness.

• Assess abrasion, impact and rip risk.

• Define whether breaker or anti-rip reinforcement is required.

• Confirm pulley diameters, take-up travel and splice design.

• State all required statutory approvals before manufacture.

14. PULLEY, TAKE-UP & CONVEYOR DESIGN CONSIDERATIONS

Design Factor	Engineering Impact
Drive pulley diameter	Controls carcass bending fatigue
Tail / bend pulley diameter	Influences reverse bending and belt life
Take-up travel	Accommodates elastic stretch and operational movement
Drive traction	Depends on belt tension and pulley lagging
Belt speed	Influences dynamic load and heat generation
Transition distance	Controls edge and carcass stress
Fire-risk zoning	Influences cover and safety-system selection

15. SPLICING & VULCANIZED JOINTS

Flame-retardant conveyor belts should use splice materials compatible with the parent belt and the required fire-performance class. Hot-vulcanized splicing is generally preferred for critical industrial service.

• Use flame-retardant splice compounds where required.

• Follow the approved step or finger-splice design for the carcass type.

• Control vulcanizing temperature, pressure and cure time.

• Seal splice edges against contamination and moisture.

• Inspect the splice before commissioning and at defined maintenance intervals.

16. INSTALLATION & COMMISSIONING

• Verify pulley and structure alignment before belt installation.

• Protect the belt from sharp structural damage during pulling.

• Set take-up tension to the engineered value.

• Commission unloaded or at reduced load where practical.

• Check tracking, drive traction, splice condition and safety devices.

• Verify antistatic grounding and fire-protection systems where applicable.

17. INSPECTION & PREVENTIVE MAINTENANCE

Inspection Point	Look For	Recommended Action
Top cover	Cuts, burning, glazing, cracking or severe wear	Repair and investigate source
Edges	Exposed reinforcement or delamination	Immediate repair
Splices	Cracking, separation or movement	Engineered inspection
Pulley lagging	Slip or heat generation	Restore traction
Rip-protection system	Damage or detector malfunction	Repair / test system
Grounding / conductivity path	Loose bonding or contamination	Restore electrical continuity
Carcass	Exposed fabric or steel reinforcement	Repair or replace

18. QUALITY CONTROL & TESTING

Control Item	Purpose	Typical Stage
Belt width / thickness	Dimensional compliance	Final inspection
Carcass verification	Confirm EP / NN / steel cord construction	Production
Cover physical properties	Confirm compound consistency	Laboratory
Adhesion testing	Verify cover-to-carcass bonding	Laboratory
Flammability testing	Verify specified flame performance	Qualification / acceptance
Electrical resistance testing	Verify antistatic performance where specified	Qualification / acceptance
Visual inspection and traceability	Detect defects and identify production batch	Final / dispatch

19. REFERENCE STANDARDS

Reference	Relevance
ISO 340:2022	Conveyor belts — laboratory-scale flammability characteristics — requirements and test method
ISO 284:2025	Conveyor belts — electrical conductivity — specification and test method
ISO 14890:2026	Textile conveyor belts — specification for rubber- or plastics-covered belts for general use
ISO 15236 series	Steel cord conveyor belts where steel-cord carcass construction is specified
Project / statutory standard	Underground mining, local fire-safety or customer-specific requirements

The exact standard edition and any local mining or fire-safety approval must be stated in the project specification. General-use flame-retardant belts and underground-approved belts are not automatically interchangeable.

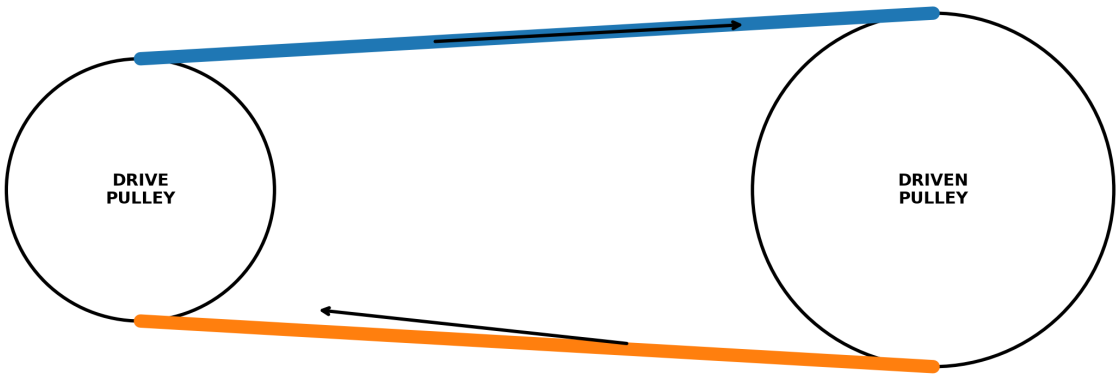
20. TECHNICAL ORDERING DATA SHEET

Project / Site	
Industry	
Aboveground / Underground / Regulated	
Conveyed Material	
Capacity (t/h)	
Bulk Density	
Maximum Lump Size	
Belt Width (mm)	
Belt Speed (m/s)	
Center Distance (m)	
Inclination (°)	
Required Carcass Type	
Required Belt Strength	
Top / Bottom Cover (mm)	
Required Flame Standard	
Antistatic Requirement	
Electrical Resistance Criterion	
Underground Approval Required?	
Anti-Rip Reinforcement Required?	
Rip Detection / Monitoring Required?	
Drive Pulley Diameter	
Tail Pulley Diameter	
Take-Up Travel	
Splice Requirement	
Ambient Temperature	
Material Temperature	
Applicable Regulation / Standard	
Additional Operating Notes	

FLAT RUBBER-CANVAS TRANSMISSION BELT

Industrial Multi-Ply Rubberized Canvas Belting for Mechanical Power Transmission

FRICTION-BASED FLAT BELT POWER TRANSMISSION



Torque is transmitted through belt tension, pulley wrap and friction at the belt-pulley interface

GLOBAL PRODUCT CATALOGUE | INDUSTRIAL POWER TRANSMISSION BELTING

PRODUCT CONTENTS

1. PRODUCT OVERVIEW

World Prime Services Flat Rubber-Canvas Transmission Belt is a traditional multi-ply flat power-transmission belt designed to transfer mechanical power between rotating pulleys through controlled friction and belt tension.

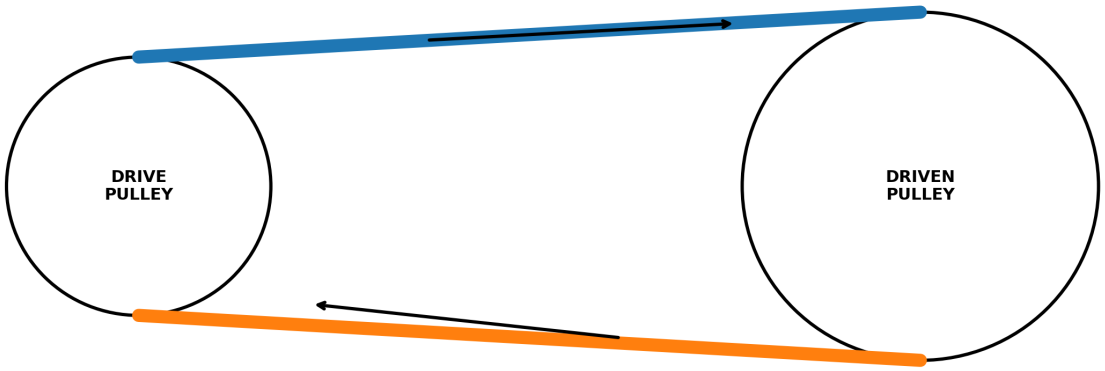
The construction combines multiple layers of rubberized canvas with friction covers and high-adhesion bonding rubber. This architecture provides a balance of tensile strength, flexibility, fatigue resistance, dimensional stability and pulley grip for industrial power-transmission systems.

Typical uses include fans, blowers, pumps, machine tools, agricultural machinery, process equipment, workshops and other mechanical drive systems where a flat friction belt is preferred.

Engineering Objective	Operational Benefit
High longitudinal tensile strength	Supports sustained mechanical power transmission
Multi-ply canvas reinforcement	Distributes load through several tension-carrying layers
Controlled elongation	Improves speed stability and reduces frequent re-tensioning
High-friction rubber surfaces	Improves grip on drive and driven pulleys
High inter-ply adhesion	Supports resistance to delamination under cyclic flexing
Flexible flat-belt geometry	Suitable for long center distances and traditional industrial drives

2. POWER TRANSMISSION PRINCIPLE

FRICTION-BASED FLAT BELT POWER TRANSMISSION

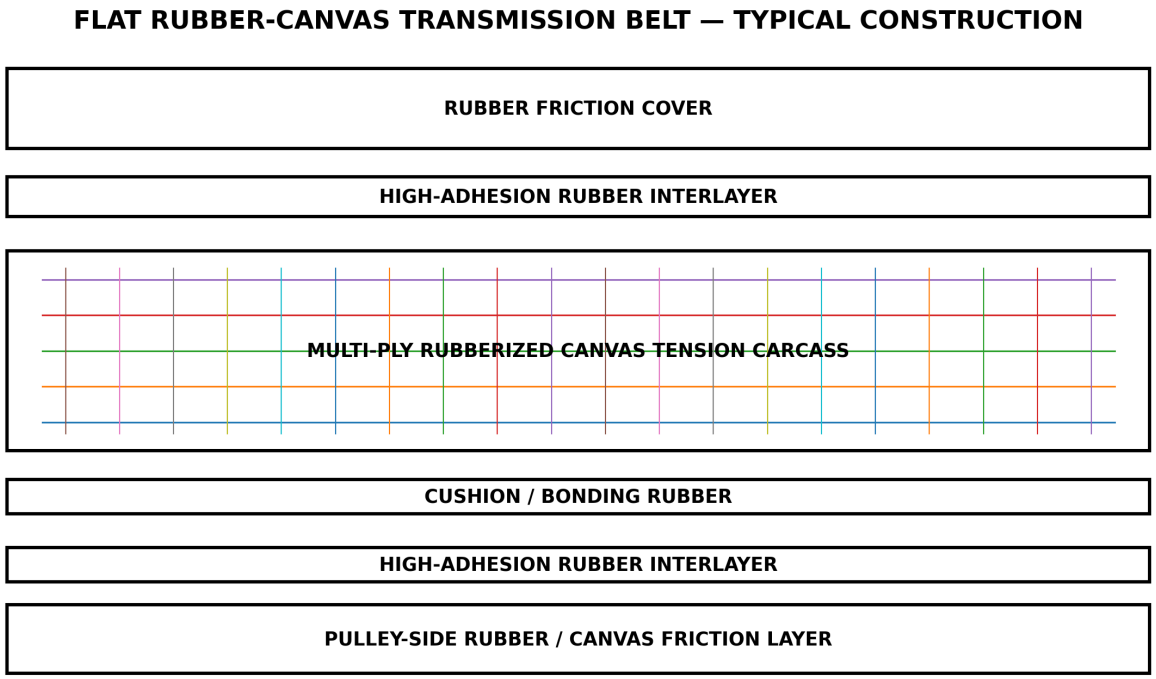


Torque is transmitted through belt tension, pulley wrap and friction at the belt-pulley interface

Flat transmission belts transfer torque by friction between the belt and pulley surfaces. The difference between tight-side and slack-side tension creates the effective tangential force that transmits power from the drive pulley to the driven pulley.

Transmission capacity depends on belt speed, pulley diameter, wrap angle, coefficient of friction, pre-tension, center distance and allowable working stress. Excessive tension increases shaft and bearing loads, while insufficient tension can cause slip, heat generation and unstable speed transmission.

3. BELT CONSTRUCTION



Component	Engineering Function	Typical Options
Rubber friction cover	Provides frictional contact and wear protection	Smooth rubber / high-friction rubber
High-adhesion interlayer	Bonds cover and carcass	Rubber bonding compound
Rubberized canvas tension carcass	Carries tensile load	Cotton canvas / synthetic canvas / blended high-strength fabric
Cushion rubber	Distributes stress between carcass layers	Application-specific formulation
Pulley-side friction layer	Provides grip and protects lower plies	Rubber or rubberized canvas surface
Edge construction	Protects carcass plies	Cut edge / wrapped edge

4. PRODUCT FAMILIES

RC-TB Standard Series — General-Purpose Rubber-Canvas Transmission Belt

Multi-ply rubberized canvas construction for conventional workshop, agricultural and industrial machinery drives.

RC-TB EP Series — Synthetic-Reinforced Rubber-Canvas Belt

Enhanced low-elongation textile construction for more stable running length and higher mechanical duty.

RC-TB Wrapped Edge Series

Traditional flat transmission belt with protected wrapped edges for improved resistance to edge wear.

RC-TB Cut Edge Series

Precisely cut and sealed belt edges for dimensional control and standard industrial pulley systems.

RC-TB Heavy-Duty Series

High-strength multi-ply construction for large fans, blowers, crushers, pumps and process machinery.

RC-TB Special Compound Series

Engineered rubber-canvas belts for oil, heat, antistatic, weather or other special operating conditions.

5. RUBBERIZED CANVAS CARCASS TECHNOLOGY

The load-bearing section of the belt consists of multiple canvas plies impregnated and bonded with rubber. Each ply contributes tensile capacity while the rubber matrix transfers stress between layers and permits repeated flexing around pulleys.

Carcass Type	Main Characteristics	Typical Use	Engineering Note
Cotton Canvas	Traditional friction-belt construction with good grip and flexibility	Legacy and moderate-duty machinery	Higher elongation than modern synthetic fabrics
Synthetic Canvas	Improved tensile strength and dimensional stability	Modern industrial flat-belt drives	Better stability at higher loads
EP Reinforced Canvas	Low elongation and strong dimensional stability	Longer center distances and heavy duty	Preferred for stable running length
NN Reinforced Canvas	High flexibility and fatigue resistance	Frequent flexing and shock duty	Higher elongation than EP

6. FRICTION COVER & SURFACE OPTIONS

Surface Type	Primary Function	Typical Use
Smooth Rubber Friction Surface	Balanced grip and wear resistance	General industrial pulleys
High-Friction Rubber	Improved traction and reduced slip	Higher torque transmission
Rubberized Canvas Surface	Traditional controlled-friction interface	Conventional flat-belt drives
Wrapped Canvas Surface	Improved edge and surface durability	Traditional heavy-duty applications
Wear-Resistant Rubber	Extended life in dusty environments	Cement, mining support equipment and process plants

7. TECHNICAL SPECIFICATION RANGE

The following values represent a general engineering envelope. Final dimensions and construction must be selected from actual pulley geometry, transmitted power and operating conditions.

Parameter	Catalogue Option / Range	Remarks
Belt width	Approx. 20–1,500+ mm	Project-specific industrial widths
Total thickness	Approx. 3–25+ mm	Depends on ply count and cover construction
Number of plies	Multi-ply canvas construction	Selected from load and flexibility requirements
Carcass	Cotton / synthetic / EP / NN reinforced canvas	Project-specific
Edge type	Cut edge / wrapped edge	Application-dependent
Surface	Smooth rubber / high-friction / canvas impression	Selected by pulley interface
Operating temperature	Compound-dependent	Heat-resistant grades available
Special properties	Oil / heat / antistatic / weather resistance	Project-specific

8. DIMENSIONS, WIDTHS & TOLERANCES

Current ISO 22:1991 specifies principal dimensions and tolerances for flat transmission belts and corresponding pulleys. The standard remains current and was confirmed in 2025.

Control Item	Purpose
Belt width	Ensures compatibility with pulley face width
Belt length	Controls fit and center adjustment
Total thickness	Influences flexibility and minimum pulley diameter
Width tolerance	Supports tracking and pulley fit
Length tolerance	Supports correct take-up and center-distance adjustment
Edge quality	Reduces tracking disturbance and premature edge wear

9. PULLEY GEOMETRY & CROWN

Flat belts require correct pulley geometry for stable running. Depending on the drive layout, a crowned pulley may be used to assist tracking. Pulley surface condition, finish and balance directly influence belt life, slip and vibration.

Design Factor	Engineering Impact
Pulley diameter	Controls carcass bending fatigue
Pulley face width	Must provide adequate support across belt width
Pulley crown	Can assist flat-belt tracking
Pulley finish	Influences friction and belt wear
Pulley balance	Important at higher rotational speeds
Shaft alignment	Critical to tracking and edge life

10. BELT SPEED, POWER & TENSION CONSIDERATIONS

The final belt must be selected from actual transmitted power, speed and service factor rather than width alone. High speed increases centrifugal effects and may reduce effective pulley pressure, while low speed requires greater effective tension for the same transmitted power.

Required Input	Why It Matters
Motor power (kW)	Defines required transmitted power
Drive pulley diameter	Defines belt velocity and bending stress
Drive pulley rpm	Determines belt speed
Driven pulley diameter	Defines speed ratio
Starting torque	Determines peak tension demand
Service factor	Accounts for shock, duty cycle and operating severity
Operating hours	Influences fatigue-life requirement

11. CENTER DISTANCE & TAKE-UP ADJUSTMENT

Center distance influences belt length, wrap angle, vibration characteristics and available adjustment. ISO 155:2019 provides limiting values for adjustment of centers for belt drives, while ISO 22:1991 covers principal flat-belt and pulley dimensions.

Design Element	Engineering Requirement
Center distance	Must suit pulley diameters and belt geometry
Adjustment range	Must allow installation and re-tensioning
Take-up method	Manual screw, sliding motor base or engineered tensioning system
Initial pre-tension	Sufficient to prevent slip at design load
Run-in allowance	Permits controlled re-tensioning after initial operation

12. APPLICATION INDUSTRIES

Industry / Equipment	Typical Drive	Primary Belt Requirement
Fans & Blowers	Motor-to-fan drive	Stable friction and flexible operation
Pumps	Industrial pump drive	Reliable continuous torque transfer
Agricultural Machinery	Threshers, mills and processors	Durability and shock tolerance
Workshop Machinery	Lathes, presses and line shafts	Smooth running and tracking stability
Process Plants	Auxiliary rotating equipment	Continuous duty and dimensional stability
Cement & Mining Support Equipment	Fans, crushers and ancillary machinery	Heavy-duty tensile capacity
General Manufacturing	Production machinery drives	Low maintenance and reliable power transfer

13. BELT SELECTION GUIDE

APPLICATION-BASED FLAT RUBBER-CANVAS BELT SELECTION GUIDE

Duty	Typical Equipment	Recommended Construction	Surface / Cover
Light industrial drive	Fans, workshops, agricultural machinery	Standard rubber-canvas flat belt	General friction cover
Medium / heavy drive	Blowers, pumps, process equipment	Multi-ply high-strength canvas belt	High-friction rubber cover
Long center distance	Large pulley systems	Low-elongation reinforced canvas belt	Stable tracking construction
Special environment	Oil, heat, weather or static-sensitive duty	Engineered rubber-canvas belt	Special-purpose compound

- Define drive motor power and service factor.
- Record drive and driven pulley diameters.
- Record pulley rotational speeds and required speed ratio.
- Measure center distance and available center-adjustment range.
- Confirm pulley face width and required belt width.
- Select carcass type and number of plies.
- Define friction surface and edge construction.
- Specify operating temperature, oil exposure, dust and static-control requirements.

14. INSTALLATION & ALIGNMENT

- Verify that drive and driven shafts are parallel.
- Ensure pulleys are clean, properly balanced and free of damaging burrs.
- Install the belt without twisting or sharp folding.
- Align pulleys before applying final operating tension.
- Confirm that belt width is compatible with pulley face width.
- Run unloaded at low speed and confirm stable tracking before full load.

15. TENSIONING & TRACKING

- Apply only the pre-tension required to prevent slip under maximum load.
- Do not use excessive tension to compensate for misalignment.
- Use correct pulley crown and alignment practices for flat-belt drives.
- Recheck tension after initial run-in.
- Monitor bearing temperature after tension adjustment.
- Correct oil contamination or pulley polishing if slip develops.

16. MAINTENANCE & INSPECTION

Inspection Point	Look For	Recommended Action
Belt surface	Glazing, cracking, wear or contamination	Clean or replace as required
Edges	Fraying or edge contact	Correct alignment
Pulleys	Wear, contamination or crown damage	Repair or clean
Tension	Slip or excessive bearing load	Adjust to approved level
Carcass	Ply separation or exposed canvas	Replace belt
Drive vibration	Misalignment or unstable tension	Inspect full drive geometry

17. QUALITY CONTROL & TESTING

Control Item	Purpose	Typical Stage
Width and thickness	Dimensional compliance	Final inspection
Ply count / carcass verification	Confirm construction	Production
Tensile strength	Verify load-carrying capability	Laboratory
Elongation	Assess dimensional stability	Laboratory
Ply adhesion	Verify structural integrity	Laboratory
Surface consistency	Confirm friction interface	Production / final
Visual inspection and traceability	Detect defects and identify manufacturing batch	Final / dispatch

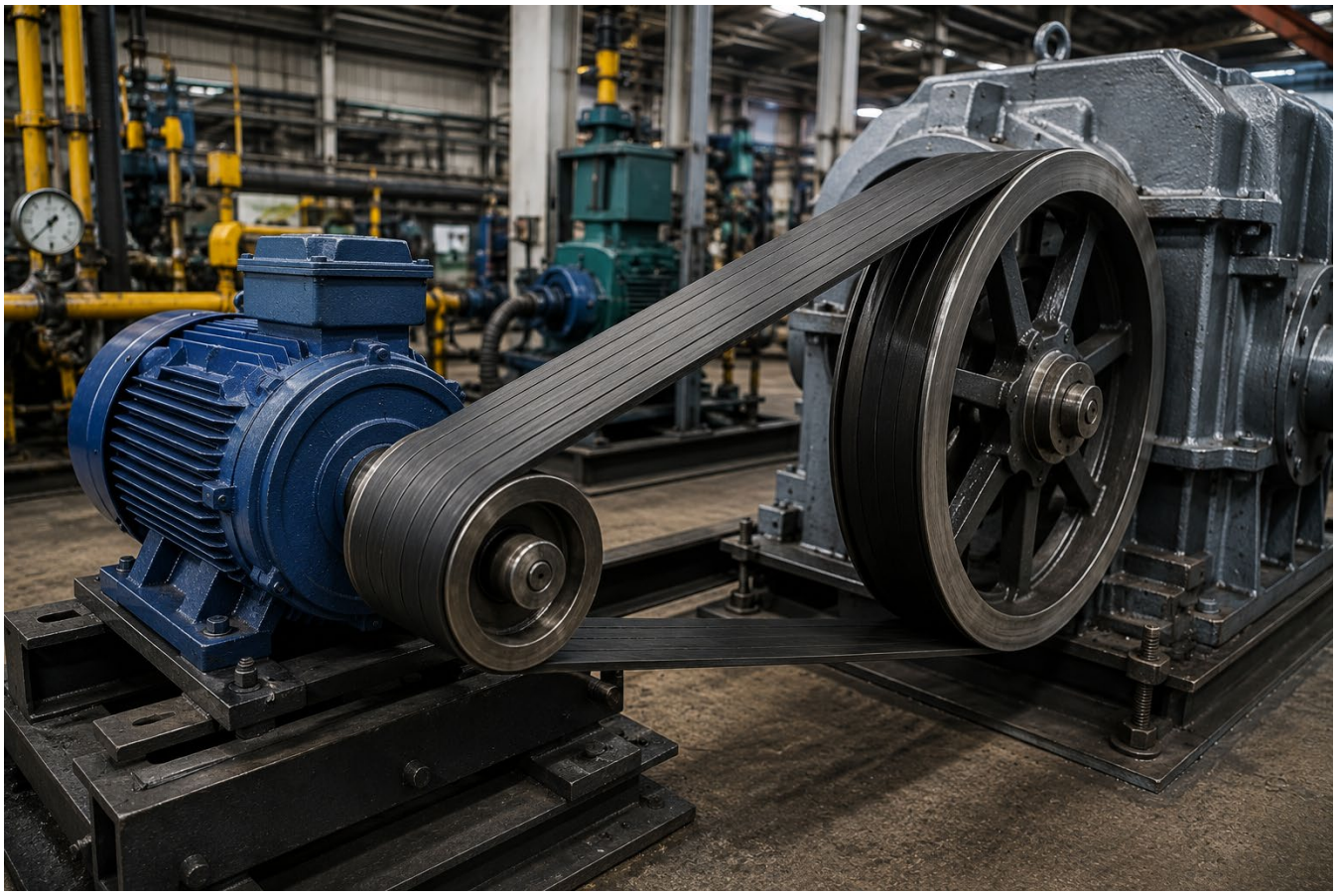
18. SPECIAL COMPOUND OPTIONS

Special Grade	Primary Function	Typical Application
RC-HR	Heat resistance	Hot process areas
RC-OR	Oil resistance	Oil-contaminated environments
RC-AS	Antistatic	Static-sensitive machinery
RC-WR	Weather resistance	Outdoor transmission systems
RC-AR	Abrasion resistance	Dusty and abrasive environments

19. REFERENCE STANDARDS

Reference	Relevance
ISO 22:1991	Flat transmission belts and corresponding pulleys — dimensions and tolerances
ISO 155:2019	Belt drives — pulleys — limiting values for adjustment of centers
ISO 254:2011	Belt drives — pulleys — quality, finish and balance
ISO/TC 41/SC 1	International standards committee responsible for friction belt drives
Customer / Machinery OEM Specification	Final drive-specific dimensions and operating requirements

ISO 22:1991 remains current and was confirmed in 2025. Earlier standalone standards for flat-belt widths, lengths, pulley diameters and pulley crowns were withdrawn and consolidated into ISO 22:1991.

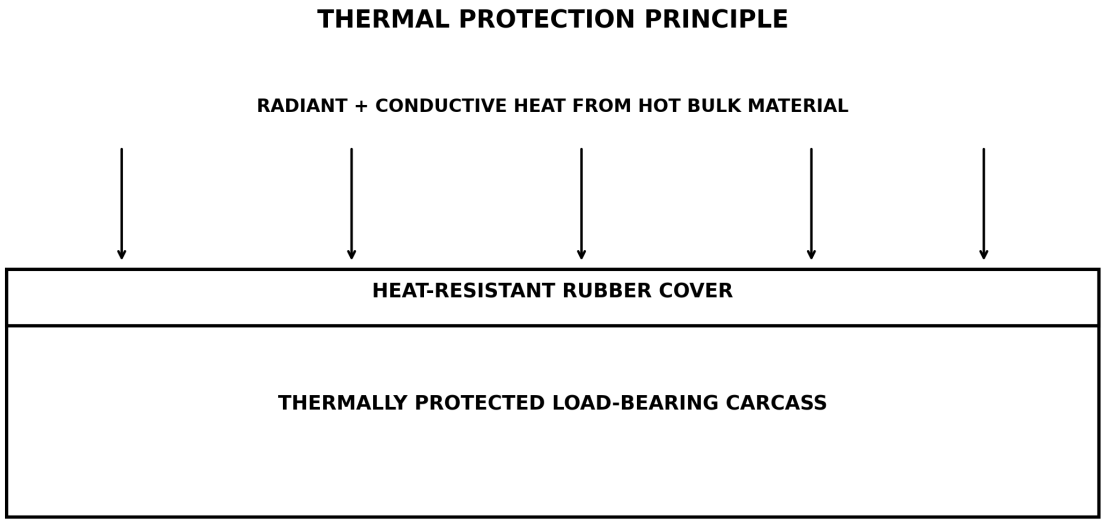


20. TECHNICAL ORDERING DATA SHEET

Project / Site	
Industry	
Driven Equipment	
Motor / Drive Power (kW)	
Starting Torque / Service Factor	
Drive Pulley Diameter (mm)	
Driven Pulley Diameter (mm)	
Drive Pulley Speed (rpm)	
Required Driven Speed (rpm)	
Center Distance (mm)	
Available Center Adjustment (mm)	
Pulley Face Width (mm)	
Required Belt Width (mm)	
Preferred Belt Thickness (mm)	
Required Carcass Type	
Required Number of Plies	
Required Edge Type	
Surface / Friction Requirement	
Operating Temperature	
Oil Exposure	
Antistatic Requirement	
Outdoor / Weather Exposure	
Operating Hours per Day	
Applicable OEM / Customer Standard	
Additional Operating Notes	

HEAT-RESISTANT CONVEYOR BELT

High-Temperature Rubber Conveyor Belting for Cement, Clinker, Sinter, Coke, Foundry and Metallurgical Applications



Cover formulation, cover thickness, carcass selection and cooling intervals determine service suitability

1. PRODUCT OVERVIEW

World Prime Services Heat-Resistant Conveyor Belt is engineered for continuous and intermittent conveying of hot bulk materials where conventional rubber covers may harden, crack, soften, blister or lose adhesion under thermal exposure.

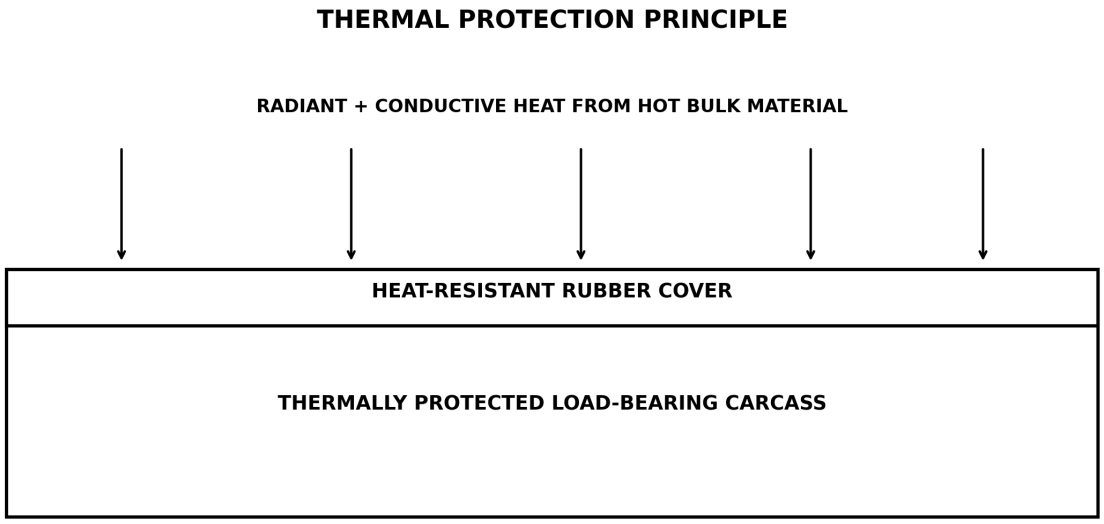
The belt combines heat-resistant rubber compounds with a thermally stable adhesion system and a selected textile or steel-cord tension member. Typical conveyed materials include cement clinker, sintered ore, coke, foundry sand, hot ash, fertilizer products and other elevated-temperature bulk solids.

Selection must consider material temperature, peak temperature, particle size, contact duration, belt speed, loading profile, ambient conditions and cooling between loading cycles.

2. THERMAL PROTECTION PRINCIPLE

Heat reaches the belt through conduction from the conveyed material and through radiant heat from the process environment. The top cover is the first thermal barrier; its compound and thickness are therefore critical to carcass protection and belt life.

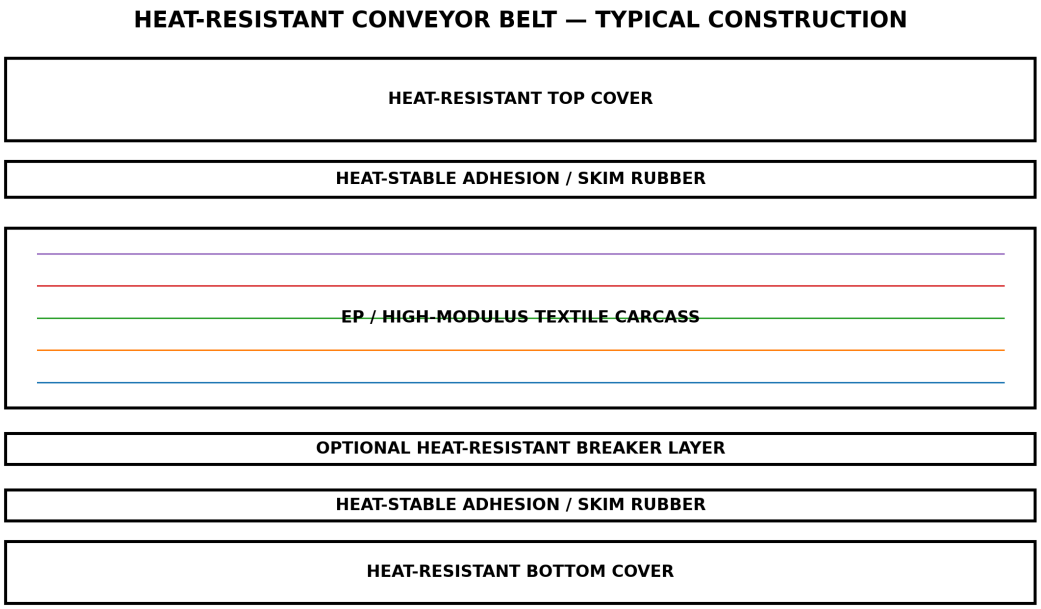
Heat-resistant belting should be selected from the real thermal duty rather than nominal material temperature alone. Large hot lumps, slow belt speed and continuous contact can create more severe cover temperatures than fine material conveyed at higher speed.



Cover formulation, cover thickness, carcass selection and cooling intervals determine service suitability

3. BELT CONSTRUCTION

Typical construction uses a heat-resistant top cover, heat-stable skim rubber, a load-bearing carcass, optional breaker reinforcement and a heat-resistant bottom cover.



Component	Engineering Function	Typical Option
Heat-resistant top cover	Primary thermal and wear barrier	Heat-resistant / high-temperature compound
Heat-stable skim rubber	Transfers load and protects adhesion under heat	Thermally stable bonding system
Load-bearing carcass	Carries operating tension	EP fabric / high-strength textile / steel cord
Optional breaker	Improves impact and tear resistance	Textile / transverse reinforcement
Bottom cover	Protects pulley-side carcass	Heat-resistant rubber

4. PRODUCT FAMILIES

HR-1 Series — Heat-resistant fabric belt for moderate elevated-temperature bulk handling.

HR-2 Series — Higher thermal-duty construction for clinker, coke, sinter and similar materials.

HR-3 Series — Severe thermal-duty belt using premium heat-resistant cover and adhesion compounds.

HT Series — Engineered high-temperature belt for severe or intermittent peak-temperature exposure.

HR-ST Series — Heat-resistant steel cord construction for long-distance, high-tension and heavy-load hot-material conveying.

HR-AR Series — Heat-resistant anti-rip construction with optional breaker or transverse reinforcement.

5. HEAT-RESISTANT RUBBER TECHNOLOGY

Heat-resistant cover compounds are formulated to retain useful mechanical properties after thermal ageing. Compound selection targets resistance to hardening, cracking, softening, swelling and premature loss of tensile strength or elongation.

Premium formulations may use heat-stable elastomer systems selected according to required temperature resistance and service conditions. Final compound chemistry is application-specific.

6. CARCASS OPTIONS

EP fabric is widely suited to heat-resistant conveyor belts because of its dimensional stability, low elongation and good load-carrying performance. High-strength textile constructions are available for heavier service, while steel cord carcasses may be used for high-tension long-distance systems.

Carcass	Key Characteristic	Typical Duty
EP Fabric	Low elongation and good dimensional stability	General and heavy heat-resistant service
High-Strength EP	Higher tensile capacity	Longer or higher-load systems
NN Fabric	High flexibility and impact tolerance	Selected hot-material duties
Steel Cord	Very high strength and low elongation	Long-distance high-tension hot-material conveying

7. APPLICATION INDUSTRIES

Primary applications include cement plants, clinker handling, steel mills, sinter plants, coke plants, foundries, metallurgical facilities, fertilizer plants, power generation and other industrial processes handling hot bulk solids.

Industry	Typical Hot Material	Engineering Focus
Cement	Clinker	Heat, abrasion and impact resistance
Steel / Sintering	Sintered ore	Severe thermal and mechanical duty
Coke Plants	Coke	Heat and abrasion resistance
Foundries	Foundry sand / cast process materials	Thermal cycling
Metallurgy	Hot minerals and process solids	High-temperature reliability
Power Generation	Hot ash and process residues	Heat and continuous-duty resistance

8. TEMPERATURE SELECTION ENGINEERING

Temperature ratings must be treated as project-specific engineering values. Continuous material temperature, intermittent peak temperature and actual belt-surface temperature are different parameters and should not be used interchangeably.

Where material exceeds the selected belt capability, engineering controls such as cooling, shorter contact time, reduced lump size, improved loading distribution or alternative belt technology should be evaluated.

Duty Band	Indicative Service Concept	Selection Note
Moderate Heat	Elevated-temperature material	Confirm actual belt-surface temperature
High Heat	Hot clinker, coke or sinter duty	Use enhanced heat-resistant compound
Severe Heat	High continuous thermal load	Premium heat-stable construction required
Extreme / Peak Heat	Intermittent severe peaks	Project-specific engineering and validation required

9. DESIGN CONSIDERATIONS

Cover thickness, carcass construction, pulley diameter, transition geometry, belt speed and take-up design must be coordinated. Thermal ageing can reduce cover flexibility and adhesion, making correct pulley sizing and maintenance especially important.

10. SPLICING

Hot-vulcanized splicing is generally preferred for critical heat-resistant belt service. Splice compounds must be thermally compatible with the parent belt. Cure parameters and splice geometry must follow the approved belt construction and project specification.

11. INSTALLATION & COMMISSIONING

Conveyor alignment, pulley condition, loading-zone geometry and take-up setting should be verified before commissioning. Initial operation should include monitoring of tracking, belt-surface temperature, splice condition and localized hot spots.

12. MAINTENANCE & INSPECTION

Routine inspection should focus on cover hardening, cracking, blistering, delamination, carcass exposure, splice degradation and localized thermal damage. Infrared temperature monitoring can support identification of abnormal thermal zones.

Inspection Point	Typical Symptom	Action
Top cover	Hardening / cracking	Review temperature and compound suitability
Cover surface	Blistering / softening	Check peak temperature and trapped heat
Carcass adhesion	Delamination	Repair or replace affected section
Splice	Cracking / separation	Immediate engineered inspection
Loading zone	Localized burn marks	Improve loading and cooling control
Pulley side	Heat damage / glazing	Inspect return-side heat exposure

13. QUALITY CONTROL & TESTING

Quality control should include dimensional inspection, carcass verification, cover physical-property testing, adhesion testing, thermal-ageing evaluation and production traceability.

Control Item	Purpose
Cover tensile strength	Verify compound mechanical performance
Elongation at break	Evaluate flexibility retention
Hardness after heat ageing	Evaluate thermal ageing behavior
Cover-to-ply adhesion	Verify structural integrity
Ply-to-ply adhesion	Verify carcass bonding
Dimensional inspection	Confirm width and thickness
Traceability	Identify production batch and construction

14. REFERENCE STANDARD

ISO 4195:2012 specifies requirements and test methods for the relative heat resistance of rubber conveyor-belt covers, including permissible changes in hardness, elongation at break and tensile strength after heat exposure. It applies to belts with cover thickness of at least 4 mm. A third edition is under publication in 2026 and is intended to replace the 2012 edition.

15. TECHNICAL SPECIFICATION RANGE

Parameter	Catalogue Option / Engineering Range	Remarks
Belt width	Approx. 400–3,200+ mm	Project-dependent
Carcass	EP / NN / high-strength textile / steel cord	Selected by tension and distance
Top cover	Typically 4–15+ mm	Thermal and wear duty dependent
Bottom cover	Typically 2–8+ mm	Project-dependent
Heat grade	HR / severe HR / high-temperature engineered	Final rating by application
Breaker reinforcement	Optional	Recommended for severe impact / lump duty
Edge construction	Cut edge / moulded edge	Construction-dependent
Splicing	Hot vulcanized preferred	Heat-compatible splice materials

16. APPLICATION-BASED BELT SELECTION GUIDE

Application Severity	Material Profile	Recommended Protection	Typical Construction
Moderate	Warm to hot bulk solids	Heat-resistant cover	EP fabric carcass
High	Clinker, coke, hot minerals	Enhanced heat-resistant compound	High-strength EP + thicker top cover
Very High	Sinter and severe continuous heat	Premium thermal protection	Engineered textile or steel cord
Extreme	Severe intermittent peak exposure	Project-specific high-temperature system	Engineered carcass + premium cover package

17. TECHNICAL ORDERING DATA SHEET

Project / Site	
Industry	
Conveyed Material	
Normal Material Temperature (°C)	
Maximum / Peak Material Temperature (°C)	
Estimated Belt Surface Temperature (°C)	
Continuous or Intermittent Exposure	
Maximum Lump Size	
Capacity (t/h)	
Bulk Density	
Belt Width (mm)	
Belt Speed (m/s)	
Center Distance (m)	
Inclination (°)	
Required Carcass Type	
Required Belt Strength	
Top Cover (mm)	
Bottom Cover (mm)	
Required Heat Grade	
Breaker / Anti-Rip Requirement	
Drive Pulley Diameter	
Tail Pulley Diameter	
Take-Up Type	
Splice Requirement	
Ambient Temperature	
Cooling Available?	
Applicable Standard / Customer Specification	
Additional Notes	

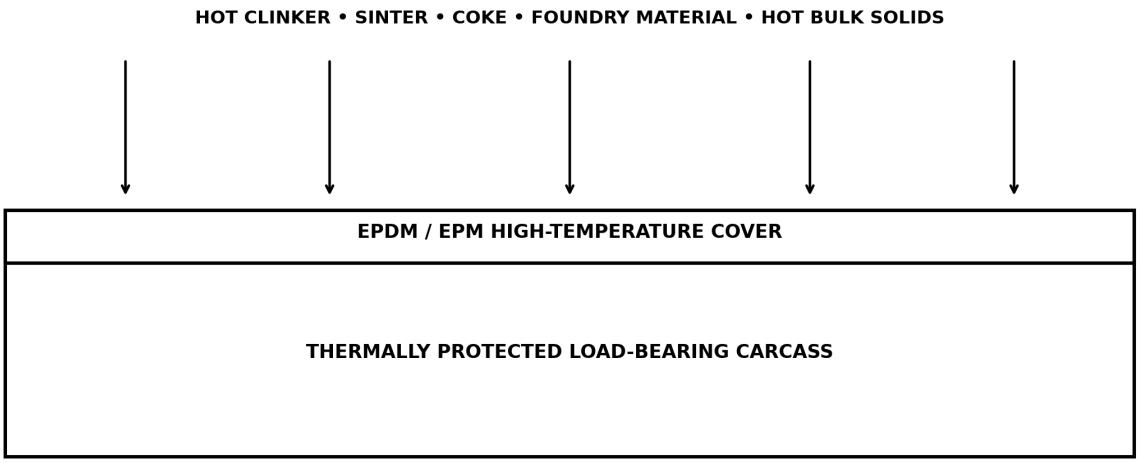
18. PRODUCT POSITIONING SUMMARY

Product Attribute	World Prime Services Heat-Resistant Conveyor Belt
Primary Function	Conveying hot bulk solids under elevated thermal exposure
Core Protection	Heat-resistant rubber covers and thermally stable adhesion system
Carcass Options	EP / NN / high-strength textile / steel cord
Key Industries	Cement, steel, sinter, coke, foundry, metallurgy and power
Optional Protection	Breaker, anti-rip and project-specific reinforcement
Engineering Basis	Temperature, contact time, particle size, belt speed, load and conveyor geometry

HIGH-TEMPERATURE RESISTANT CONVEYOR BELT

EPDM & EPM High-Temperature Rubber Belting for Clinker, Sinter, Coke, Foundry and Metallurgical Service

THERMAL DUTY ENGINEERING CONCEPT



Peak conveyed-material temperature is not the same as continuous rubber-cover operating temperature

GLOBAL PRODUCT CATALOGUE | INDUSTRIAL RUBBER CONVEYOR BELTING

PRODUCT CONTENTS

1. PRODUCT OVERVIEW

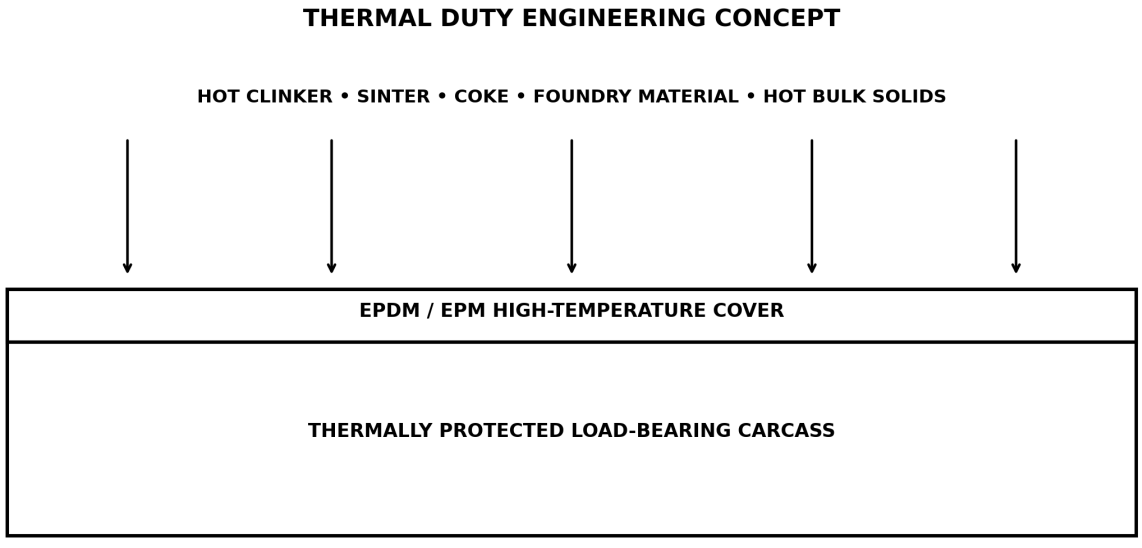
World Prime Services High-Temperature Resistant Conveyor Belt is engineered for conveying hot bulk materials under thermal conditions that exceed the practical capability of conventional general-purpose rubber belting.

The product family uses high-temperature-resistant EPDM or EPM-based cover systems, thermally stable adhesion compounds and selected load-bearing carcasses. The belt is intended for demanding applications including cement clinker, sintered ore, coke, foundry materials, hot ash, metallurgical products and other elevated-temperature bulk solids.

The final belt specification must be based on actual material temperature, belt-surface temperature, contact duration, particle size, loading frequency, belt speed, cooling interval, ambient temperature and mechanical duty.

Design Objective	Engineering Benefit
High-temperature cover compound	Improved resistance to thermal hardening, cracking and ageing
Thermally stable adhesion system	Helps preserve cover-to-carcass integrity
Heat-stabilized carcass	Supports dimensional stability under repeated thermal cycles
Optimized cover thickness	Provides additional thermal protection to the carcass
Optional breaker reinforcement	Improves resistance to hot-lump impact and penetration
Project-specific temperature grade	Matches compound system to real thermal exposure

2. HIGH-TEMPERATURE DUTY PHILOSOPHY



Peak conveyed-material temperature is not the same as continuous rubber-cover operating temperature

High-temperature belt selection must distinguish between continuous conveyed-material temperature, short-duration peak material temperature and the actual temperature reached by the rubber cover. These values are not interchangeable.

A belt may encounter very hot particles or lumps for a limited period while the moving belt, material bed depth, ambient airflow and return run allow partial cooling. Therefore, a stated peak material temperature of up to 400°C must not be interpreted as a claim that EPDM or EPM rubber can operate continuously at 400°C.

3. EPDM COVER TECHNOLOGY

EPDM — ethylene propylene diene monomer — is widely used in heat-resistant conveyor-belt compounds because of its strong resistance to heat ageing, ozone, weathering and many polar media. In conveyor-belt service, the practical temperature capability depends on the complete compound formulation, curing system, cover thickness and duty cycle.

EPDM Thermal Duty	Indicative Engineering Range	Catalogue Interpretation
Continuous high-temperature duty	Typically engineered around approximately 150–180°C material-service classes	Final limit depends on compound and belt design
Enhanced / ultra-high thermal duty	Specialized systems may be specified around approximately 180–200°C continuous material duty	Requires premium compound and validated application data
Short-duration hot exposure	Approximately 200°C or above may be tolerated by selected constructions for limited exposure	Not equivalent to continuous operation
Extreme conveyed-material peak	Up to approximately 400°C may be considered only as brief peak material exposure in specially engineered systems	Requires thermal-duty analysis; not continuous rubber temperature

4. EPM COVER TECHNOLOGY

EPM — ethylene propylene rubber without the diene termonomer used in EPDM — belongs to the ethylene-propylene elastomer family and is valued for heat, ozone and weather resistance. Because EPM has a saturated polymer backbone, its curing chemistry and compound design differ from EPDM.

For high-temperature conveyor belting, EPM-based formulations should be treated as engineered compounds rather than assigned a universal temperature limit. Depending on formulation and validation, EPM systems can be positioned for severe continuous thermal duty, with short-duration material peaks substantially above the normal continuous service range.

EPM Thermal Duty	Indicative Engineering Range	Catalogue Interpretation
Continuous high-temperature duty	Typically engineered in approximately 150–180°C material-service territory	Compound-specific validation required
Severe continuous duty	Specialized formulations may target approximately 180–200°C material duty	Application engineering required
Short-duration exposure	Selected systems may tolerate brief higher-temperature contact	Duration and cooling cycle are critical
Extreme conveyed-material peak	Peak material temperatures approaching 400°C may be considered only for specially engineered intermittent exposure	Not a continuous EPM rubber-cover temperature rating

5. EPDM VS EPM ENGINEERING COMPARISON

Property	EPDM	EPM
Polymer family	Ethylene-propylene-diene elastomer	Ethylene-propylene copolymer elastomer
Heat ageing resistance	Excellent when correctly compounded	Excellent when correctly compounded
Ozone / weather resistance	Excellent	Excellent
Cure flexibility	Diene sites permit conventional sulfur or peroxide systems depending on formulation	Typically requires cure systems suited to saturated backbone
High-temperature belt use	Widely established in heat-resistant conveyor-belt cover compounds	Used in specialized heat-resistant compound systems
Typical catalogue positioning	High to ultra-high thermal duty	High to severe thermal duty, formulation-dependent
400°C statement	Only brief peak conveyed-material exposure in engineered systems	Only brief peak conveyed-material exposure in engineered systems

6. TEMPERATURE GRADE ARCHITECTURE

The following World Prime Services grade architecture is an engineering selection framework rather than a universal polymer limit. Final acceptance temperatures must be confirmed against approved compound data and operating conditions.

Grade	Cover System	Indicative Continuous Material Duty	Indicative Peak Material Exposure	Typical Application
HT-150	EPDM / EPM engineered compound	Up to approximately 150°C	Short peaks above continuous duty	Hot bulk solids, moderate clinker duty
HT-180	Premium EPDM / EPM	Up to approximately 180°C	Approximately 200°C short-duration territory	Clinker, coke, hot minerals
HT-200	Ultra-high-temperature engineered compound	Up to approximately 200°C in validated applications	Higher intermittent peaks	Severe cement and metallurgical duty
HT-400 PEAK	Special project-engineered EPDM / EPM-based belt system	Continuous duty must remain within validated belt limit	Peak conveyed-material exposure up to 400°C, brief/intermittent only	Extreme hot-lump or transient process conditions

7. UNDERSTANDING 400°C PEAK EXPOSURE

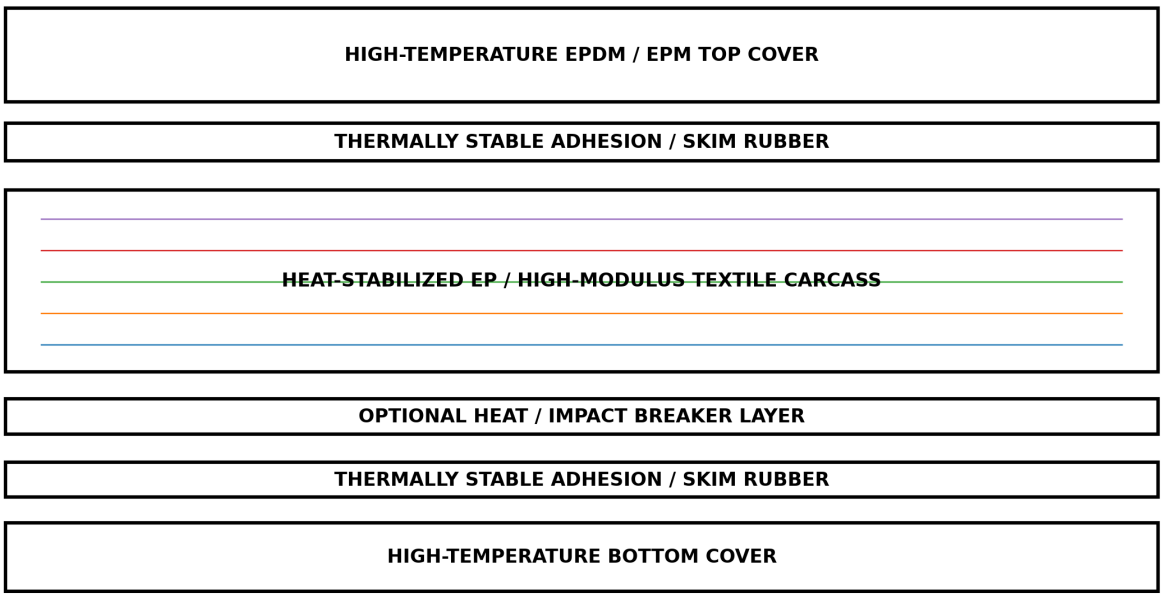
The 400°C figure in this catalogue refers exclusively to possible peak temperature of the conveyed material in a specially engineered, intermittent exposure scenario. It is not a 400°C continuous operating temperature for the rubber cover.

Suitability for such peaks depends on contact time, particle size, material bed depth, belt speed, loading pattern, top-cover thickness, thermal conductivity, cooling interval and carcass temperature. Direct continuous contact with material at 400°C can rapidly damage organic elastomers and must not be specified without project-specific thermal validation.

Thermal Variable	Why It Matters
Peak material temperature	Defines the maximum transient thermal input
Continuous material temperature	Controls long-term thermal ageing
Belt-surface temperature	More directly reflects rubber thermal stress
Contact duration	Longer contact increases heat penetration
Particle / lump size	Large hot lumps create concentrated thermal loading
Belt speed	Influences contact time and cooling cycle
Cover thickness	Provides thermal mass and carcass protection
Return-run cooling	Controls temperature recovery before reloading

8. BELT CONSTRUCTION

HIGH-TEMPERATURE RESISTANT CONVEYOR BELT — TYPICAL CONSTRUCTION



Component	Engineering Function	Typical Option
High-temperature top cover	Primary heat and wear barrier	EPDM / EPM high-temperature compound
Thermally stable skim rubber	Maintains cover-to-carcass bonding	High-temperature adhesion system
Load-bearing carcass	Carries operating tension	EP / high-modulus textile / project-specific steel cord
Optional breaker	Distributes impact and limits local damage	Textile or transverse reinforcement
Bottom cover	Protects pulley-side carcass	Heat-resistant compound
Edge construction	Protects reinforcement	Cut edge / moulded edge

9. CARCASS ENGINEERING

EP fabric is a preferred textile carcass option for high-temperature conveyor belts because of its low elongation and dimensional stability. High-strength EP constructions may be used for heavier duty. Steel cord construction can be engineered for long-distance, high-tension systems where the thermal package is compatible with the carcass and splice design.

10. COVER & ADHESION SYSTEM

The top cover must provide both thermal resistance and mechanical durability. High-temperature cover performance is only effective if the skim and adhesion system also retains bond strength under thermal cycling. Cover thickness should therefore be selected as part of the complete thermal barrier.

11. PRODUCT FAMILIES

HT-EPDM Series — High-temperature belt using EPDM-based cover compounds.

HT-EPM Series — Specialized high-temperature belt using EPM-based cover technology.

HT-EPDM AR Series — EPDM heat-resistant belt with optional anti-rip or breaker reinforcement.

HT-EPM Severe Duty Series — EPM-based system for demanding thermal cycling.

HT-ST Series — High-temperature steel cord belt for high-tension project-specific service.

HT-400 PEAK Series — Specially engineered belt package for brief conveyed-material temperature peaks approaching 400°C, subject to thermal validation.

12. TYPICAL TECHNICAL SPECIFICATION RANGE

Parameter	Catalogue Option / Range	Remarks
Belt width	Approx. 400–3,200+ mm	Project-dependent
Carcass	EP / high-strength textile / steel cord	Selected by tension and distance
Top cover	Typically 4–20+ mm	Thermal and impact duty dependent
Bottom cover	Typically 2–8+ mm	Project-dependent
Cover polymer	EPDM / EPM engineered compound	Grade-dependent
Continuous thermal grade	HT-150 / HT-180 / HT-200 engineered classes	Subject to compound validation
Extreme peak grade	HT-400 PEAK	Brief conveyed-material peak only
Breaker reinforcement	Optional	For impact / penetration risk
Splice	Hot vulcanized preferred	Thermally compatible materials required

13. APPLICATION INDUSTRIES

Industry	Typical Hot Material	Primary Requirement
Cement	Clinker	Heat, abrasion and impact resistance
Iron & Steel	Sintered ore / hot process materials	Severe thermal duty
Coke Plants	Hot coke	Heat ageing and abrasion resistance
Foundries	Foundry sand / hot cast process materials	Thermal cycling resistance
Metallurgy	Hot minerals and bulk solids	Continuous high-temperature reliability
Power / Waste	Hot ash and residues	Heat and ageing resistance

14. MATERIAL TEMPERATURE & BELT SURFACE TEMPERATURE

Material temperature should not be used as the sole belt-selection criterion. The rubber cover may run cooler than the conveyed material when contact is brief and cooling is effective, or it may accumulate damaging heat when exposure is continuous. Surface-temperature measurement during trial operation is strongly recommended for severe applications.

15. HEAT AGEING & SERVICE-LIFE FACTORS

Thermal ageing can increase hardness, reduce elongation, reduce tensile properties and weaken adhesion. Belt life is influenced by thermal cycling as well as mechanical wear. Monitoring changes in cover hardness, cracking and splice condition provides useful evidence of ageing severity.

16. IMPACT, LUMP SIZE & LOADING ZONE ENGINEERING

Large hot lumps combine thermal shock with mechanical impact. Loading-zone design should minimize drop height, control impact energy and distribute material across the belt. Breaker reinforcement may be specified where hot sharp lumps create penetration or rip risk.

17. PULLEY, TRANSITION & TAKE-UP CONSIDERATIONS

Minimum pulley diameter, transition distance and take-up design must match carcass construction and belt thickness. Heat ageing can reduce flexibility, making correct pulley sizing particularly important for long-term belt integrity.

18. SPLICING & VULCANIZATION

Hot-vulcanized splicing is generally preferred for critical high-temperature service. Splice rubber, skim compounds and cover compounds must be thermally compatible with the parent belt. The splice design and cure parameters must follow the approved belt construction.

19. INSTALLATION & COMMISSIONING

Verify conveyor alignment, pulley condition, loading-zone geometry and take-up settings before commissioning. During initial hot operation, monitor belt tracking, splice condition, belt-surface temperature and localized thermal hot spots.

20. INSPECTION & PREVENTIVE MAINTENANCE

Inspection Point	Typical Symptom	Recommended Action
Top cover	Hardening / cracking	Review temperature and grade suitability
Cover surface	Blistering / softening	Check peak exposure and cooling
Adhesion	Delamination	Repair or replace affected section
Splice	Cracking / separation	Immediate engineered inspection
Loading zone	Localized burns	Improve loading distribution / cooling
Carcass	Exposure or thermal damage	Remove from service if integrity is compromised

21. QUALITY CONTROL & HEAT-RESISTANCE TESTING

Control Item	Purpose
Cover tensile strength	Verify mechanical performance
Elongation at break	Evaluate flexibility retention
Hardness after heat ageing	Evaluate thermal ageing behavior
Cover-to-ply adhesion	Verify structural integrity
Ply-to-ply adhesion	Verify carcass bonding
Dimensional inspection	Confirm width and cover thickness
Batch traceability	Identify production and compound system

22. INTERNATIONAL REFERENCE STANDARDS

ISO 4195:2012 remains the published ISO reference for conveyor belts with heat-resistant rubber covers, specifying requirements and test methods based on changes in properties after heat exposure. A technically revised third edition was in the final-draft / under-development process in 2026, including a proposed Class 4 test level at 175°C.

23. APPLICATION-BASED SELECTION GUIDE

Thermal Severity	Indicative Material Duty	Recommended System	Engineering Note
High	Up to ~150°C continuous material duty	HT-150 EPDM / EPM	Confirm belt-surface temperature
Very High	Up to ~180°C continuous material duty	HT-180 Premium EPDM / EPM	Enhanced thermal compound
Ultra High	Up to ~200°C in validated applications	HT-200 engineered system	Application-specific validation
Extreme Transient	Brief peaks approaching 400°C	HT-400 PEAK engineered system	Not continuous rubber temperature; thermal study mandatory

24. TECHNICAL ORDERING DATA SHEET

Project / Site	
Industry	
Conveyed Material	
Normal Material Temperature (°C)	
Maximum Continuous Material Temperature (°C)	
Maximum Peak Material Temperature (°C)	
Peak Duration (seconds / minutes)	
Estimated Belt Surface Temperature (°C)	
Material Lump Size	
Capacity (t/h)	
Bulk Density	
Belt Width (mm)	
Belt Speed (m/s)	
Center Distance (m)	
Inclination (°)	
Preferred Cover Polymer (EPDM / EPM)	
Required Carcass Type	
Required Belt Strength	
Top Cover (mm)	
Bottom Cover (mm)	
Breaker / Anti-Rip Requirement	
Drive Pulley Diameter	
Tail Pulley Diameter	
Take-Up Type	
Splice Requirement	
Ambient Temperature	
Cooling Interval / Method	
Applicable Standard / Customer Specification	
Additional Operating Notes	

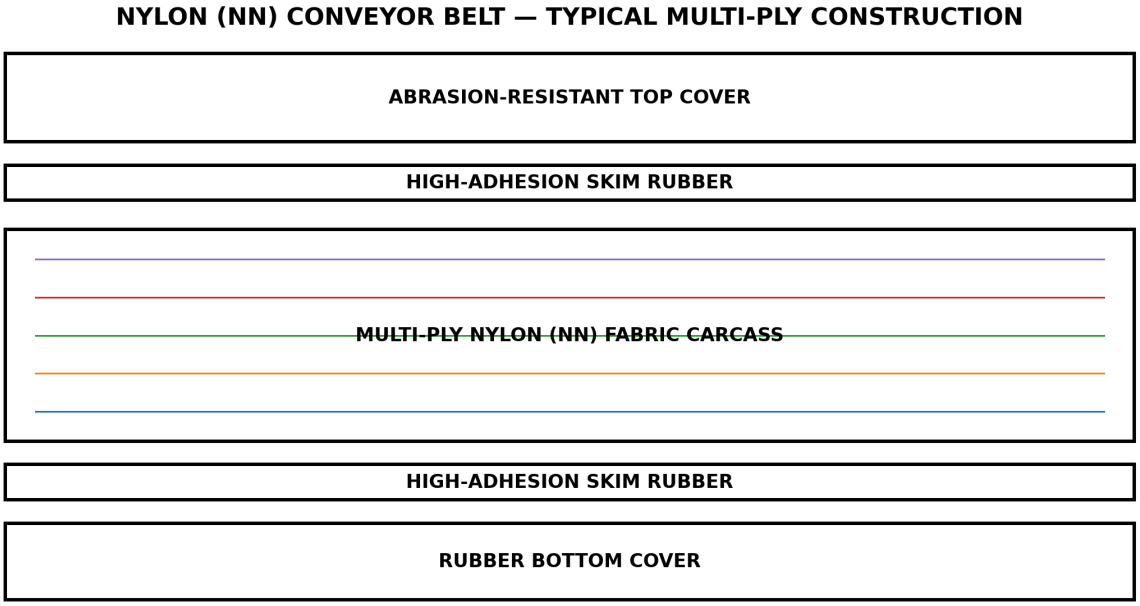
TECHNICAL NOTE — TEMPERATURE CLAIMS

EPDM and EPM temperature capability is compound-specific. The catalogue ranges are engineering selection bands based on published conveyor-belt industry practice and must not be interpreted as universal polymer ratings. Any reference to 400°C means a brief peak temperature of conveyed material under specially engineered intermittent conditions; it does not mean continuous EPDM or EPM rubber operation at 400°C.

Final belt approval must be based on validated compound data, applicable heat-ageing tests, conveyor operating conditions and the customer's approved technical specification.

NYLON (NN) CONVEYOR BELT

High-Flexibility Multi-Ply Rubber Conveyor Belting for Heavy-Duty Bulk Material Handling



1. PRODUCT OVERVIEW

World Prime Services Nylon (NN) Conveyor Belt is a multi-ply rubber conveyor belt using nylon fabric as the principal tension-bearing carcass. The construction is designed for applications requiring high flexibility, strong impact absorption, good troughability and resistance to repeated dynamic flexing.

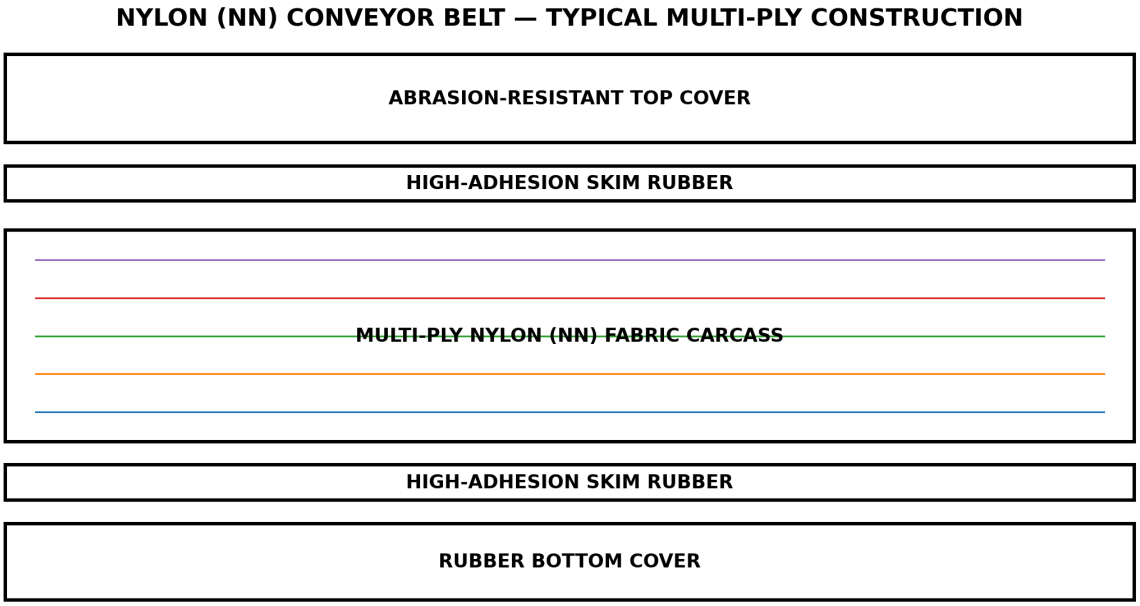
NN belting is particularly suitable for medium- to heavy-duty bulk handling where impact loading, shorter pulley transitions and frequent bending cycles are important design considerations. Typical applications include mining, quarries, aggregates, cement, ports, metallurgy, power generation and general industrial conveying.

2. NYLON (NN) CARCASS TECHNOLOGY

NN denotes a nylon/nylon textile carcass in which nylon yarns are used in both warp and weft directions. The carcass provides high flexibility and strong resistance to shock and impact. Compared with polyester-based EP carcasses, nylon constructions generally exhibit higher elastic elongation and therefore require adequate take-up allowance.

3. BELT CONSTRUCTION

The standard construction combines a wear-resistant top cover, high-adhesion skim rubber, multiple NN fabric plies and a rubber bottom cover. Cover compounds can be selected for abrasion, oil, heat, flame, cold or other project-specific service conditions.



Component	Engineering Function	Typical Option
Top Cover	Wear and impact protection	Abrasion-resistant / special compound
Skim Rubber	Inter-ply bonding and stress transfer	High-adhesion rubber
NN Fabric Carcass	Primary tension member	Multi-ply nylon/nylon fabric
Bottom Cover	Pulley-side carcass protection	Rubber cover
Edge Construction	Carcass edge protection	Cut edge / moulded edge

4. PRODUCT STRENGTH CLASSES

Common industry NN fabric designations include NN100, NN150, NN200, NN250, NN300 and NN400. These designations are used as carcass strength identifiers in the conveyor-belt market. Final rated belt strength depends on the fabric class, number of plies and approved construction.

5. NN100–NN400 SERIES

Carcass Designation	Relative Strength Class	Typical Positioning	Engineering Note
NN100	Light / medium	General bulk handling	Ply count selected by required belt rating
NN150	Medium	Aggregates and industrial duty	Flexible multi-ply construction
NN200	Medium / heavy	Mining, quarry and cement	Common heavy-duty class
NN250	Heavy	High-load bulk handling	Enhanced tension capacity
NN300	Heavy / severe	Mining and demanding industrial systems	Project-specific pulley and take-up design
NN400	Very heavy	High-strength multi-ply applications	Engineering validation required

6. KEY PERFORMANCE CHARACTERISTICS

High flexibility supports repeated bending around pulleys. Strong impact absorption makes NN belts suitable for lump materials and demanding loading zones. Good troughability supports stable bulk-material containment on troughed idlers. High inter-ply adhesion is essential for dynamic durability.

7. NN VS EP CARCASS SELECTION

NN and EP belts should be selected according to conveyor geometry and operating duty. NN is attractive where flexibility and impact resistance are priorities; EP is generally preferred where lower longitudinal elongation and greater dimensional stability are required.

Characteristic	NN (Nylon/Nylon)	EP (Polyester/Nylon)
Flexibility	Very high	High
Impact absorption	Excellent	Very good
Longitudinal elongation	Higher	Lower
Dimensional stability	Good	Very good
Take-up requirement	Generally greater	Generally lower
Typical selection driver	Impact and flexing duty	Low elongation and stable length

8. COVER COMPOUND OPTIONS

Cover Grade	Primary Property	Typical Application
AR	Abrasion resistance	Mining, quarry, aggregates
HR	Heat resistance	Hot bulk materials
OR	Oil resistance	Oil-contaminated materials
FR	Flame retardance	Fire-risk industrial duty
FRAS	Flame retardant + antistatic	Coal and specified safety duty
CR	Cold resistance	Low-temperature environments
CR-CHEM	Chemical resistance	Selected chemical bulk handling

9. TYPICAL TECHNICAL SPECIFICATION RANGE

Parameter	Catalogue Option / Range	Remarks
Carcass	NN100 / NN150 / NN200 / NN250 / NN300 / NN400	Industry carcass designations
Ply construction	Multi-ply	Selected by required belt strength
Belt width	Approx. 300–3,200+ mm	Project-dependent
Top cover	Typically 3–15+ mm	Duty-dependent
Bottom cover	Typically 1.5–8+ mm	Duty-dependent
Edge	Cut / moulded	Construction-dependent
Surface	Smooth standard	Special surfaces by project
Splice	Hot vulcanized preferred	Matched to carcass construction

10. APPLICATION INDUSTRIES

Industry	Typical Material	Primary Requirement
Mining	Ore and overburden	Impact, abrasion and flexibility
Quarry & Aggregate	Stone and crushed rock	Impact and wear resistance
Cement	Limestone and raw materials	Continuous heavy-duty service
Ports & Terminals	Coal, ore and bulk commodities	High capacity and reliability
Metallurgy	Minerals and raw materials	Heavy-duty conveying
Power Generation	Coal and bulk fuel	Reliable continuous operation

11. APPLICATION-BASED SELECTION GUIDE

Duty	Material Profile	Suggested Carcass Positioning	Protection
Moderate	Fine / granular bulk	NN100–NN150 class	Standard abrasion cover
Heavy	Lump aggregate / ore	NN200–NN250 class	Heavy-duty abrasion cover
Very Heavy	Large lumps / high impact	NN300–NN400 class	Thick cover + optional breaker
Special	Heat, oil, fire or cold exposure	Engineered NN construction	Application-specific compound

12. IMPACT & LOADING ZONE ENGINEERING

Loading-zone design should minimize uncontrolled drop height and concentrated impact. For sharp or heavy lumps, additional breaker or anti-rip reinforcement may be specified. Skirt-board adjustment and impact-bed condition should be maintained to prevent cover cutting and carcass damage.

13. TROUGHABILITY & TRACKING

Correct troughability depends on belt width, carcass stiffness, ply count and idler trough angle. Conveyor alignment, idler condition and centered loading are critical to stable tracking. Excessive edge tension or poor transition design can shorten carcass life.

14. PULLEY & TAKE-UP DESIGN

Minimum pulley diameter must be selected for the actual belt construction and tension rating. Because nylon carcasses typically have greater elastic elongation than EP carcasses, sufficient take-up travel should be incorporated into the conveyor design.

15. SPLICING & VULCANIZATION

Hot-vulcanized splicing is generally preferred for critical heavy-duty service. Splice geometry, step length, cover rubber and skim materials must match the belt construction. Mechanical fasteners may be used only where permitted by the application and operating conditions.

16. INSTALLATION & COMMISSIONING

Before installation, verify conveyor alignment, pulley condition, idler rotation and loading-zone geometry. Commission the belt under controlled conditions, check tracking and take-up position, then progressively introduce operating load.

17. INSPECTION & PREVENTIVE MAINTENANCE

Inspection Point	Look For	Recommended Action
Top cover	Cuts, gouges and wear	Repair before carcass exposure
Edges	Fraying or edge contact	Correct tracking and structure
Splices	Cracks or separation	Engineered inspection / repair
Take-up	Insufficient travel	Re-tension or review elongation
Idlers	Seized or contaminated rollers	Replace / clean
Loading zone	Impact or trapped material	Correct chute and skirt system

18. QUALITY CONTROL & TESTING

Control Item	Purpose
Belt width / thickness	Dimensional compliance
Carcass verification	Confirm NN grade and ply construction
Tensile properties	Verify strength performance
Elongation	Assess carcass behavior
Cover-to-ply adhesion	Verify structural integrity
Ply-to-ply adhesion	Verify inter-ply bonding
Cover physical properties	Confirm selected compound grade
Traceability	Identify production batch

19. INTERNATIONAL REFERENCE STANDARDS

ISO 14890:2026 is the current international reference for rubber- or plastics-covered conveyor belting of textile construction for general surface use on flat or troughed idlers. The 2026 edition supersedes ISO 14890:2013.

Project specifications may additionally reference applicable DIN, EN, RMA, AS or customer-specific requirements. The exact standard, cover grade and acceptance criteria should be stated at enquiry and purchase-order stage.

20. TECHNICAL ORDERING DATA SHEET

Project / Site	
Industry	
Conveyed Material	
Capacity (t/h)	
Bulk Density	
Maximum Lump Size	
Belt Width (mm)	
Belt Speed (m/s)	
Center Distance (m)	
Inclination (°)	
Required NN Grade	
Required Belt Rating	
Number of Plies	
Top Cover (mm)	
Bottom Cover (mm)	
Required Cover Grade	
Edge Type	
Breaker / Anti-Rip Requirement	
Drive Pulley Diameter	
Tail Pulley Diameter	
Take-Up Type	
Available Take-Up Travel	
Splice Requirement	
Ambient Temperature	
Material Temperature	
Applicable Standard	
Additional Operating Notes	

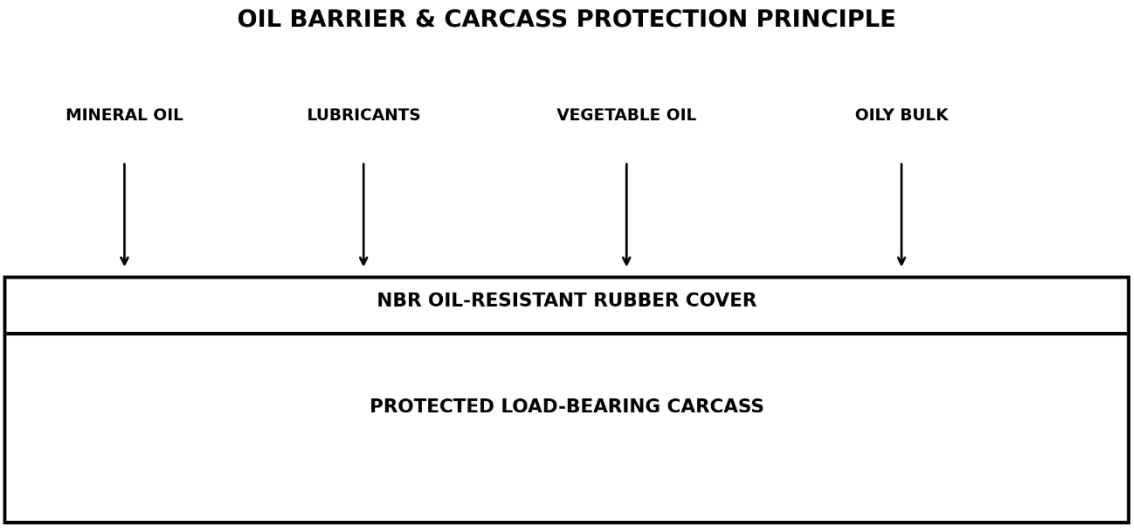
PRODUCT POSITIONING SUMMARY

Product Attribute	**World Prime Services Nylon (NN) Conveyor Belt**
Carcass	Multi-ply Nylon/Nylon textile reinforcement
Core Strength	High flexibility and impact absorption
Typical Classes	NN100, NN150, NN200, NN250, NN300, NN400
Key Industries	Mining, quarry, cement, ports, metallurgy and power
Cover Options	Abrasion, heat, oil, flame, cold and chemical-resistant systems
Primary Selection Factors	Operating tension, impact, elongation, pulley diameter, take-up and cover duty


TOP COVER
(ABRASION RESISTANT)
ADHESION RUBBER
NYLON FABRIC
PLY (NN)
ADHESION RUBBER
NYLON FABRIC
PLY (NN)
ADHESION RUBBER
BOTTOM COVER
(ABRASION RESISTANT)
NYLON (NN) CONVEYOR BELT – KEY FEATURES
• High tensile strength
• Excellent impact resistance
• Superior troughability
• Low elongation
• Good fatigue resistance
• Suitable for heavy duty applications

OIL-RESISTANT CONVEYOR BELT

NBR-Based Industrial Rubber Belting for Oily, Greasy & Hydrocarbon-Contaminated Bulk Material Handling



Compound selection depends on oil type, concentration, temperature, contact time and mechanical duty

PRODUCT CONTENTS

1. PRODUCT OVERVIEW

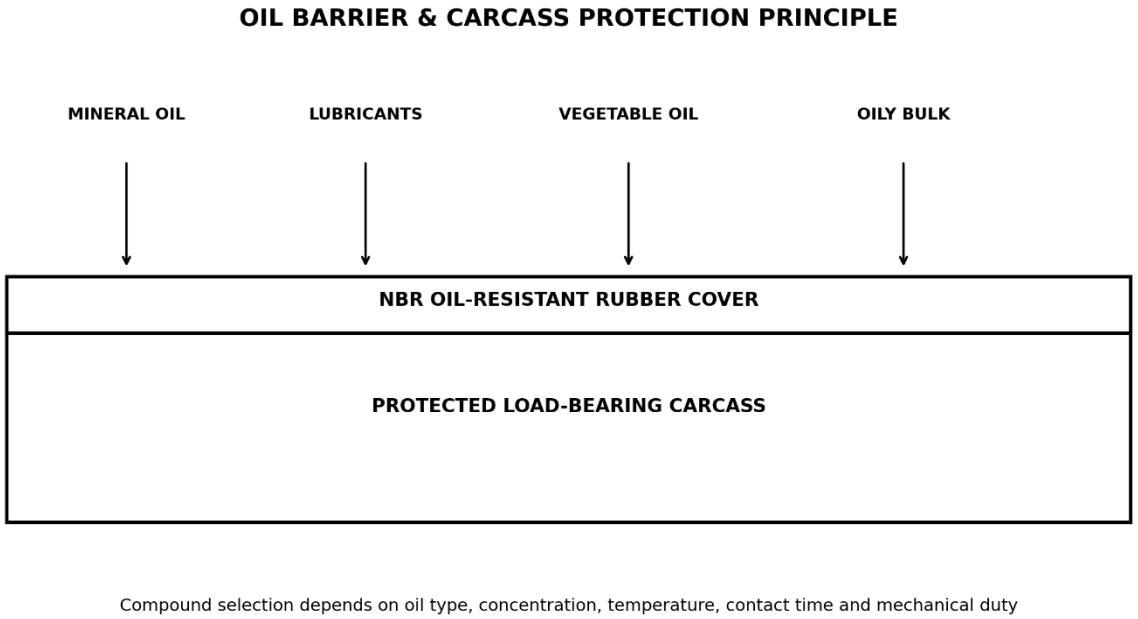
World Prime Services Oil-Resistant Conveyor Belt is engineered for conveying bulk materials containing mineral oils, lubricants, greases, vegetable oils, animal fats and selected hydrocarbon contaminants that can prematurely degrade conventional rubber conveyor-belt covers.

The product family uses nitrile-butadiene rubber (NBR) or engineered oil-resistant rubber compounds as the primary cover system. The objective is to reduce oil-induced swelling, softening, loss of tensile properties, surface tackiness, cover cracking and deterioration of cover-to-carcass adhesion.

The range can be engineered in EP or NN fabric constructions for general industrial service and in steel cord construction for long-distance, high-tension or high-capacity systems.

Engineering Objective	Operational Benefit
Resistance to oil-induced swelling	Helps maintain belt geometry and cover thickness
Controlled compound softening	Supports stable tracking and cleaner performance
High cover-to-carcass adhesion	Reduces risk of delamination in oily environments
NBR-based cover chemistry	Provides improved resistance to mineral oils and hydrocarbons
Fabric and steel cord options	Supports medium-duty through high-tension conveying

2. OIL-RESISTANCE ENGINEERING PRINCIPLE



Compound selection depends on oil type, concentration, temperature, contact time and mechanical duty

Oils and hydrocarbon liquids can diffuse into conventional rubber compounds, causing volume increase, loss of hardness, surface softening and reduced mechanical strength. In severe cases, oil can also affect adhesion between the cover and reinforcement.

Oil-resistant conveyor belts use specially selected elastomers and compounding systems that limit absorption and preserve useful physical properties under defined exposure conditions. NBR is widely used because of its strong resistance to many mineral oils, lubricants and hydrocarbon-based products.

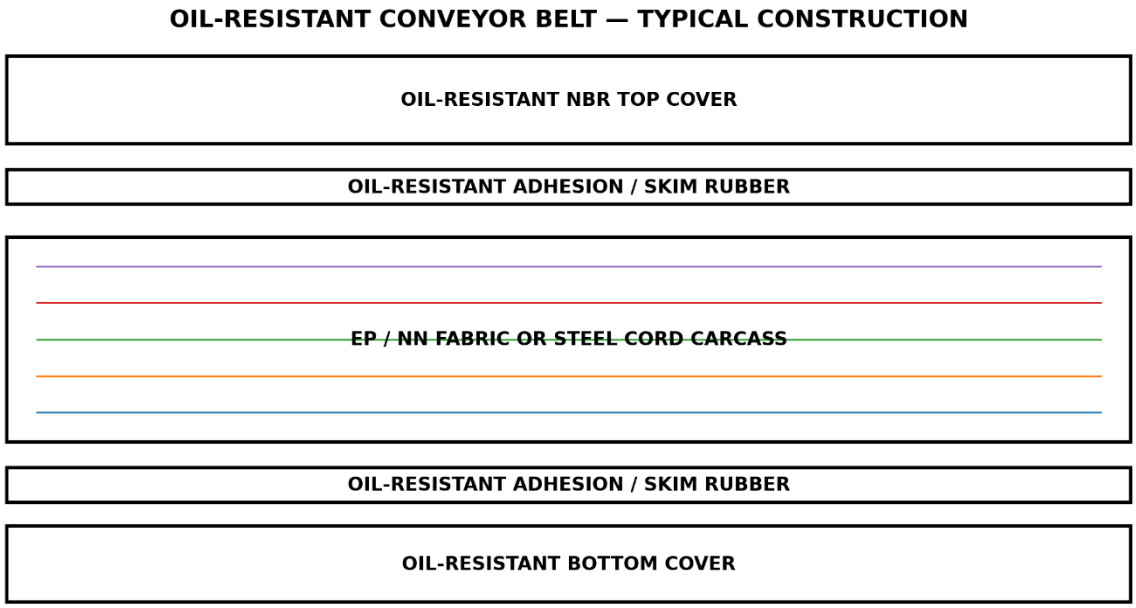
No single oil-resistant compound is universally compatible with all oils, fuels, solvents or chemicals. Final selection must consider the exact oil type, aromatic content, concentration, temperature and contact duration.

3. NBR COVER TECHNOLOGY

NBR — nitrile-butadiene rubber — is the principal elastomer family used for many industrial oil-resistant conveyor-belt covers. The acrylonitrile content and complete compound formulation influence oil resistance, flexibility, low-temperature behavior, abrasion resistance and processing characteristics.

NBR Engineering Characteristic	Effect on Conveyor Belt Performance
Oil and fuel resistance	Reduces swelling and softening caused by many petroleum-based oils
Good abrasion potential	Supports use with oily abrasive bulk materials
Strong mechanical properties	Maintains cover integrity under dynamic belt flexing
Compound flexibility	Allows optimization for different oil and temperature conditions
Compatibility with fabric / steel cord carcasses	Supports a wide range of belt constructions

4. BELT CONSTRUCTION



Component	Engineering Function	Typical Option
Oil-resistant top cover	Primary barrier against oil-contaminated conveyed material	NBR / engineered oil-resistant compound
Oil-resistant skim rubber	Supports adhesion and limits oil migration toward carcass	Compatible high-adhesion compound
Load-bearing carcass	Carries operating tension	EP fabric / NN fabric / steel cord
Oil-resistant bottom cover	Protects pulley-side reinforcement	NBR or engineered compound
Edge construction	Protects reinforcement from side ingress	Cut edge / moulded edge

5. PRODUCT FAMILIES

OR-EP Series — Oil-Resistant EP Fabric Conveyor Belt: low-elongation EP carcass for general and heavy-duty oily bulk-material conveying.

OR-NN Series — Oil-Resistant Nylon Fabric Conveyor Belt: flexible, impact-tolerant construction for medium-duty and impact-oriented service.

OR-ST Series — Oil-Resistant Steel Cord Conveyor Belt: high-tensile, low-elongation belt for long-distance and high-capacity applications.

OR-AR Series — Oil & Abrasion Resistant Belt: optimized for oily materials that are also abrasive.

OR-H Series — Oil & Moderate Heat Resistant Belt: engineered for applications combining oil exposure with elevated temperature.

OR-X Series — Engineered Severe Oil Duty: project-specific compound selection for high oil concentration, elevated temperature or prolonged contact.

6. FABRIC CARCASS OPTIONS

Carcass	Key Characteristics	Typical Use	Engineering Note
EP Fabric	Low elongation and good dimensional stability	General industrial and heavy-duty oil service	Preferred for stable running length
NN Fabric	High flexibility and impact absorption	Shorter conveyors and impact-oriented duty	Higher elongation than EP
High-Strength EP	Higher tensile capacity	Longer and heavier fabric-belt systems	Requires adequate pulley diameter
Reinforced Textile	Special multi-layer construction	Severe impact or anti-rip service	Project-specific

7. STEEL CORD OPTIONS

Oil-resistant steel cord conveyor belts combine NBR-based or engineered oil-resistant covers with a galvanized steel cord tension carcass. This construction is selected where high tensile strength, low elongation and long-distance conveying are required.

Design Element	Engineering Function
Longitudinal steel cords	Provide high tensile strength and low elongation
Oil-resistant top cover	Protects belt against oily conveyed material
Oil-resistant skim rubber	Supports cord adhesion and limits oil penetration
Oil-resistant bottom cover	Protects pulley-side belt structure
Optional rip protection	Provides additional protection against longitudinal tearing

8. OIL EXPOSURE CATEGORIES

Exposure Category	Typical Material / Contaminant	Selection Focus
Light Oil Exposure	Occasional lubricant contamination	General oil-resistant cover
Moderate Oil Exposure	Oily grains, recycling materials, machine residues	NBR cover with good abrasion resistance
Heavy Mineral Oil Exposure	Petroleum-based oils and lubricants	High oil-resistance NBR compound
Vegetable / Animal Oils	Oilseed products and food-processing by-products	Application-specific oil-resistant compound
Oil + Abrasion	Oily scrap, recycling and mineral materials	Oil-resistant + abrasion-resistant cover
Oil + Heat	Warm oily bulk materials	Dual-property oil/heat-resistant engineered compound

9. OIL COMPATIBILITY ENGINEERING

Oil resistance must be evaluated against the actual service medium. Mineral oil, hydraulic oil, lubricants, vegetable oils and animal fats can affect rubber differently. Aromatic hydrocarbon content and elevated temperature can significantly increase rubber swelling.

Required Application Data	Why It Matters
Exact oil or grease type	Determines compound compatibility
Oil concentration	Defines severity of exposure
Aromatic content	Can strongly influence swelling behavior
Material temperature	Higher temperature accelerates oil diffusion
Contact duration	Long exposure increases absorption
Bulk material abrasiveness	Determines simultaneous wear requirement
Cleaning agents / solvents	May introduce secondary chemical attack

10. TECHNICAL SPECIFICATION RANGE

Parameter	Catalogue Option / Range	Remarks
Belt width	Approx. 300–3,200+ mm	Project-dependent
Fabric carcass	EP / NN multi-ply	Selected by operating tension
Steel cord carcass	Project-specific ST classes	For long-distance / high-tension duty
Top cover thickness	Typically 3–20+ mm	Oil severity, abrasion and impact dependent
Bottom cover thickness	Typically 1.5–10+ mm	Pulley-side duty dependent
Cover compound	NBR / engineered oil-resistant blend	Application-specific
Edge construction	Cut edge / moulded edge	Project-specific
Splice method	Hot vulcanized preferred	Use compatible oil-resistant splice materials

11. COVER COMPOUND SELECTION

Cover Family	Primary Duty	Typical Application
OR-G	General oil resistance	Light to moderate oil exposure
OR-M	Mineral oil resistance	Lubricants and oily industrial bulk materials
OR-AR	Oil + abrasion resistance	Recycling, oily minerals and contaminated bulk
OR-V	Vegetable / animal oil service	Oilseed, food and agricultural by-products
OR-H	Oil + moderate heat resistance	Warm oily materials
OR-X	Severe engineered oil duty	High concentration or prolonged oil exposure

12. APPLICATION INDUSTRIES

Industry	Typical Material	Primary Requirement
Recycling	Oil-contaminated scrap and processed materials	Oil + abrasion resistance
Metal Processing	Oily metal parts, chips and residues	Mineral oil resistance and durability
Automotive / Manufacturing	Lubricated components and industrial residues	Stable performance under oil contamination
Agriculture / Oilseed	Oil-rich seeds and by-products	Vegetable-oil-resistant compound
Ports & Bulk Terminals	Oily bulk cargo	Continuous-duty oil-resistant belting
Chemical / Process Industry	Selected oil-containing bulk materials	Application-specific compatibility

13. APPLICATION-BASED SELECTION GUIDE

Duty	Oil Exposure	Recommended Belt	Typical Construction
Moderate	Occasional oil contamination	OR-G EP / NN	General NBR cover
High	Continuous mineral-oil contact	OR-M EP / NN	Enhanced NBR cover
Severe	Oil + abrasion / impact	OR-AR	Thicker oil/abrasion-resistant top cover
High Tension	Oil exposure + long distance	OR-ST	Steel cord + oil-resistant cover system
Special	Oil + heat / special chemistry	OR-H / OR-X	Project-specific engineered compound

14. TEMPERATURE & OIL INTERACTION

Elevated temperature can accelerate oil absorption and increase compound swelling. A belt that performs well with a particular oil at ambient temperature may require a different compound when the conveyed material is warm or hot.

For this reason, both oil type and temperature must be declared during belt selection. Dual-property oil-and-heat-resistant constructions should be validated against the actual operating temperature and oil chemistry.

15. SWELLING, SOFTENING & ADHESION CONTROL

Failure Mode	Typical Cause	Engineering Response
Cover swelling	Oil absorption	Use compatible NBR-based compound
Softening / tackiness	Incompatible oil or excessive exposure	Increase oil-resistance grade
Hardening / cracking	Aging, heat or incompatible chemistry	Review compound and temperature
Cover delamination	Oil migration into adhesion system	Use compatible skim and splice materials
Edge attack	Side ingress of oil	Consider moulded-edge construction
Tracking instability	Uneven swelling or softening	Correct contamination and compound selection

16. PULLEY, TRACKING & TAKE-UP CONSIDERATIONS

Pulley diameter must match the selected carcass construction. Belt tracking can be affected if oil contamination reaches pulley surfaces, idlers or the return side. Conveyor housekeeping and oil containment are therefore important parts of reliable operation.

Design Factor	Engineering Impact
Pulley contamination	Can reduce traction and increase slip
Idler contamination	Can affect tracking and surface wear
Take-up system	Maintains operating tension
Cleaner compatibility	Must not damage oil-resistant cover
Skirt material	Should be compatible with oily service
Return-side oil control	Reduces pulley-side contamination

17. SPLICING & VULCANIZATION

Hot-vulcanized splicing is generally preferred for critical oil-resistant conveyor-belt service. Splice rubber, cover rubber, bonding cements and repair materials must be compatible with the parent belt and expected oil exposure.

- Use approved oil-resistant splice compounds.
- Protect splice edges against oil penetration.
- Follow the specified cure temperature, pressure and time.
- Do not substitute standard general-purpose splice materials in severe oil service.
- Inspect splice areas frequently where oil contact is continuous.

18. INSTALLATION & COMMISSIONING

• Inspect conveyor structure, pulleys and idlers before installation.

• Remove accumulated oil from pulley and idler surfaces.

• Set take-up tension to the approved engineering value.

• Verify cleaner and skirt compatibility.

• Commission initially at reduced load where practical.

• Check tracking, slip, splice condition and signs of localized oil swelling.

19. INSPECTION & PREVENTIVE MAINTENANCE

Inspection Point	Look For	Recommended Action
Top cover	Swelling, softening, cracking or tackiness	Review oil compatibility and repair
Edges	Delamination or oil ingress	Seal / repair before carcass exposure
Splices	Softening, lifting or bond loss	Immediate engineered inspection
Pulleys	Oil film and slip	Clean and correct contamination source
Idlers	Oil buildup or seized rollers	Clean / replace
Carcass	Exposed fabric or steel cords	Immediate repair or replacement

20. QUALITY CONTROL & TESTING

Control Item	Purpose
Dimensional inspection	Confirm width and cover thickness
Carcass verification	Confirm EP / NN / steel cord construction
Cover tensile properties	Verify compound mechanical performance
Elongation at break	Assess cover flexibility
Adhesion testing	Verify cover-to-carcass integrity
Oil immersion / swelling evaluation	Assess property change after oil exposure
Hardness change after exposure	Assess compound stability
Traceability	Identify production batch and cover system

21. INTERNATIONAL REFERENCE STANDARDS

Oil-resistant conveyor belts are commonly specified within the general framework of textile or steel cord conveyor-belt standards, while actual oil-resistance performance must be defined by the cover compound and the agreed oil-compatibility test protocol.

Reference	Relevance
ISO 14890:2026	Textile conveyor belts for general surface use
ISO 15236 series	Steel cord conveyor belts — design and mechanical requirements
ISO 1817	Rubber — determination of the effect of liquids; useful basis for oil-compatibility testing
Customer / laboratory immersion protocol	Project-specific assessment of swelling and retained physical properties

Public product information for this product category identifies both oil-resistant fabric and steel cord constructions and specifies NBR as the preferred oil-resistant cover elastomer. Final specifications should define the exact oil medium and project acceptance criteria.

22. TECHNICAL ORDERING DATA SHEET

Project / Site	
Industry	
Conveyed Material	
Oil / Grease Type	
Oil Concentration / Contamination Level	
Mineral / Vegetable / Animal Oil	
Aromatic Hydrocarbon Content (if known)	
Material Temperature	
Ambient Temperature	
Bulk Density	
Maximum Lump Size	
Capacity (t/h)	
Belt Width (mm)	
Belt Speed (m/s)	
Center Distance (m)	
Inclination (°)	
Required Carcass Type	
Required Belt Strength	
Top Cover (mm)	
Bottom Cover (mm)	
Required Oil-Resistance Grade	
Abrasion Requirement	
Heat Resistance Requirement	
Antistatic Requirement	
Anti-Rip Requirement	
Edge Type	
Splice Requirement	
Applicable Standard / Test Protocol	
Additional Operating Notes	

PRODUCT POSITIONING SUMMARY

Product Attribute	World Prime Services Oil-Resistant Conveyor Belt
Primary Cover Technology	NBR-based / engineered oil-resistant rubber
Carcass Options	EP, NN and steel cord
Main Protection	Resistance to oil-induced swelling, softening and adhesion loss
Typical Applications	Recycling, metal processing, manufacturing, oilseed and industrial bulk handling
Combined Properties	Oil + abrasion / heat / antistatic / anti-rip
Selection Basis	Oil type, concentration, aromatic content, temperature, contact time and mechanical duty

PATTERNED (CHEVRON) CONVEYOR BELT

This revised catalogue specification replaces operating-installation illustrations with frontal or near-frontal product photographs of the actual rubber belt surface and moulded profile. The objective is to allow direct visual comparison of each pattern geometry.**PHOTO PRESENTATION STANDARD**

Requirement	Catalogue Standard
Image type	Real product photograph wherever a technically matching source image is available
View	Frontal / top-facing view of the belt carrying surface
Background	Neutral factory, warehouse or plain background preferred
Excluded views	No conveyor-in-operation photographs in the pattern model pages
Branding	Third-party logos and watermarks are not presented as World Prime Services branding
Purpose	Clear comparison of rib geometry, profile arrangement and open/closed pattern design

EXPANDED PATTERN MODEL RANGE

Pattern Model	Technical Description
Open V Chevron	Open V-shaped moulded ribs; suitable for free-flowing and selected wet materials.
Closed V Chevron	Continuous V geometry for stronger material retention.
Low Chevron 16 mm	Lower profile for smaller lump sizes and moderate incline applications.
High Chevron 32 mm	Higher profile for larger lump sizes and demanding inclined conveying.
Herringbone / Fishbone	Alternating fishbone-type grip profile for bulk or selected packaged goods.
Multi-Chevron / Multiprof	Multiple low-profile gripping sections for packages and selected bulk materials.
U-Top / U Profile	U-shaped moulded cleat configuration for material containment.
Y-Top / Y Profile	Y-shaped cleat geometry for directional retention.
C-Top / C Profile	C-shaped moulded profile for free-flowing material elevation.
V-Top	V-shaped cleat configuration for inclined conveying.
Mini-Bucket Profile	Pocket-forming moulded pattern for aggressive elevation of free-flowing material.
B-Top	Special moulded top profile for application-specific elevation.
F-18 / F-36 Profile	Specialized moulded profile family for free-flowing material handling.
Chevron 24 / 42	Chevron profile family for aggressive inclined transfer.
Wave Grip	Wave-form grip profile retained as a World Prime Services catalogue option.
Truck Tyre Model — Staggered Chevron	Alternating diagonal tread-style ribs based on the supplied physical product reference.

MODEL PHOTO INSERTION MATRIX

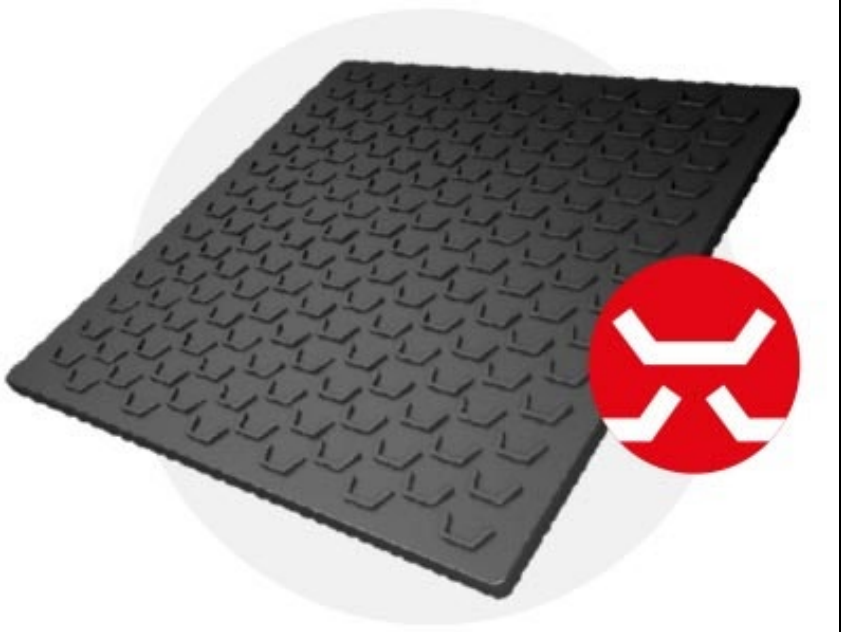
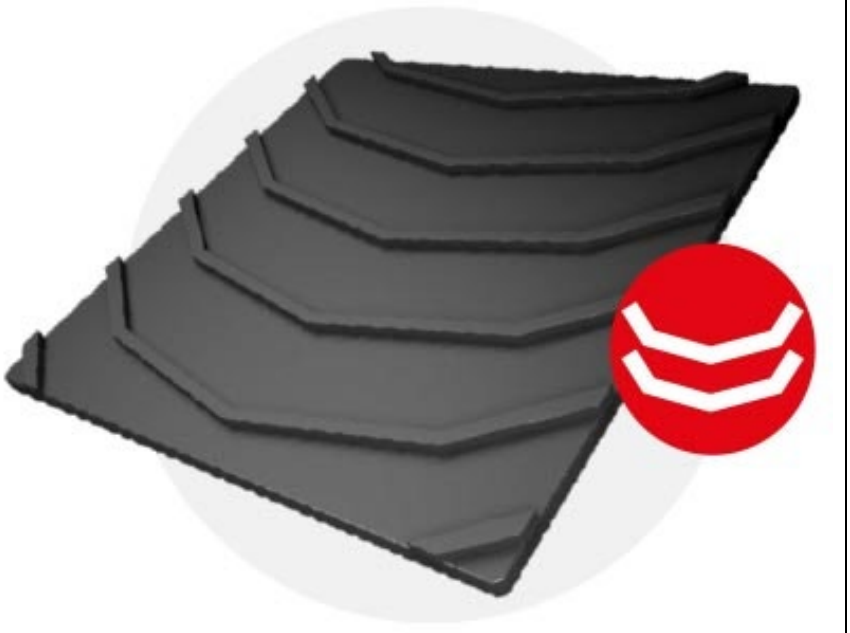
Pattern Model	Photo Requirement / Status
Open V Chevron	
Closed V Chevron	

Low Chevron 16 mm	
High Chevron 32 mm	

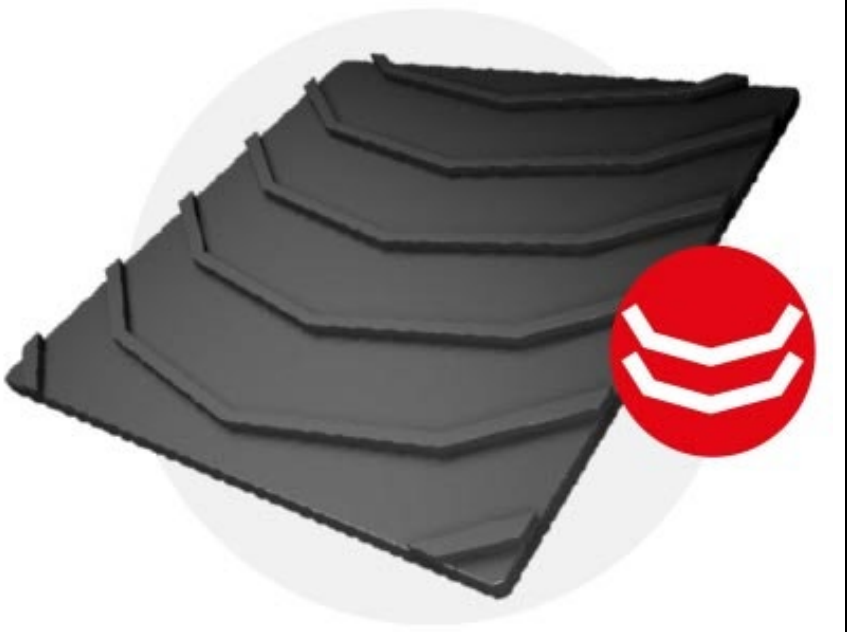
Herringbone / Fishbone **Open V Type**	
Multi-Chevron / **Multiprof**	

U-Top / U Profile	
Y-Top / Y Profile	

C-Top / C Profile	
V-Top	

Mini-Bucket Profile	
B-Top	

F-18 / F-36 Profile	
Chevron 24 / 42	

Wave Grip	

TECHNICAL SELECTION NOTES

Chevron and profiled belts are primarily selected when conveyor inclination is too steep for a smooth conventional belt. Integrally moulded profiles help prevent material rollback. Profile selection must consider material type, moisture, lump size, belt speed, incline angle, loading conditions and return-side support.

Industry references include low and high chevron constructions, as well as specialized U-Top, Y-Top, Mini-Bucket, Chevron, C-Top, V-Top, F-series and B-Top moulded profiles. Low-profile families such as Multiprof and Fishbone are also used for packaged goods and selected bulk materials.

PROFILE HEIGHT ENGINEERING

Profile Family	Indicative / Published Industry Reference	Typical Selection Basis
Very Low / Low Profile	Approximately 5 mm or less in some low-profile designs	Packages, bags, agricultural products, woodchips, wet sand
Low Chevron	16 mm reference profile	Smaller lump sizes and moderate inclines
High Chevron	32 mm reference profile	Larger lump sizes and steeper/demanding applications
Special Recycling Chevron	16, 20, 30, 40 or 50 mm examples	Recycling systems and special return-side arrangements
Custom Moulded Profile	Project-specific	Material and conveyor geometry

APPLICATION ENGINEERING

Application	Recommended Pattern Families
Aggregate / Gravel	Open V, High Chevron, Truck Tyre Model, Chevron 24/42
Coal / Ore	Closed V, High Chevron, Herringbone
Sand / Wet Sand	Open V, Fishbone, Truck Tyre Model
Recycling	High Chevron, Herringbone, Truck Tyre Model, special recycling profiles
Packages / Bags / Bales	Multiprof, Multi-Chevron, low-profile patterns
Agricultural Bulk	Open V, U, Y, Fishbone / Multiprof
Free-Flowing Materials	U-Top, Y-Top, Mini-Bucket, C-Top, V-Top and specialized cleat profiles

CATALOGUE PRODUCTION NOTE

The final commercial Word catalogue should use one dedicated model section per pattern, with a large frontal/top-facing real product photograph followed by the model name, profile geometry, typical profile height, suitable material, recommended inclination concept, carcass options, cover grades and ordering parameters. Images must visually match the stated pattern; generic operating photographs should not be substituted for product-detail photographs.

PHOTO REFERENCE NOTE

The photo gallery is included for technical visual comparison of the pattern geometries. Final rib height, pitch, pattern width, edge recess and carcass construction must follow the approved product drawing and purchase specification.

GLOBAL PRODUCT ENGINEERING OVERVIEW

World Prime Services Patterned (Chevron) Conveyor Belts are engineered for inclined transport where smooth rubber belting may permit rollback or unstable load retention. The catalogue range combines integrally moulded profile geometries with textile carcass constructions selected according to operating tension, material characteristics, conveyor gradient, belt speed and duty.

Pattern selection is application-specific. Open profiles favor drainage and release; closed and high profiles increase retention; low-profile grip surfaces suit packages and selected bulk products; specialized cleat geometries create pockets or directional restraint.

CONSOLIDATED MODEL PORTFOLIO

Pattern Model	Profile Geometry	Typical Materials / Loads	Primary Engineering Function
Open V Chevron	Open center V ribs	Wet fines, sand, gravel, aggregate	Open drainage and rollback control
Closed V Chevron	Continuous V ribs	Dry granules, ore, aggregate	Higher material retention
Low Chevron 16 mm	Integral 16 mm chevron	Small-to-medium lumps	Moderate incline and compact pulley design
High Chevron 32 mm	Integral 32 mm chevron	Coarse bulk and larger lumps	Aggressive retention for demanding incline duty
Herringbone / Fishbone	Directional fishbone grip	Packages and selected bulk	High-grip surface

Rufftop Type	Textured high-friction surface	Boxes, bags, baggage	Anti-slip package conveying
Multiprof / Multi-Chevron	Multi-purpose low profile	Agriculture, oily material, woodchips, wet sand, packages	Drainage, quiet running and cleaning
U-Top / U Profile	U-shaped moulded cleats	Free-flowing bulk	Pocket-forming retention
Y-Top / Y Profile	Y-shaped cleats	Granules and selected bulk	Directional retention
C-Top / C Profile	Curved C profile	Free-flowing materials	Repeated retaining zones
V-Top	Repeated V cleats	Inclined bulk	General-purpose grip
Mini-Bucket Profile	Bucket-like moulded pockets	Fine/free-flowing materials	Aggressive elevation
B-Top	Special raised profile	Application-specific bulk	Enhanced surface grip
F-18 / F-36	Directional moulded ribs	Selected free-flowing materials	Profile-specific grip
Chevron 24 / 42	Heavy chevron family	Aggregate and coarse bulk	Higher-capacity incline duty
Wave Grip	Wave-form profile	Wet/slip-prone material	Continuous grip
Truck Tyre Model	Staggered diagonal tread-style ribs	Aggregate, gravel, crushed stone, recycling	Open staggered grip and rollback control

PROFILE HEIGHT AND INCLINATION SELECTION

Profile Class	Typical Reference Height	Typical Duty	Engineering Note
Very Low / Grip Surface	Low profile	Packages and anti-slip duty	Selected by surface friction requirement
Low Chevron	16 mm	Smaller lumps and moderate-to-steep incline	Industry-established low-chevron class
Medium Profile	Approx. 17–25 mm	General bulk	Material-dependent
High Chevron	32 mm	Larger lumps and demanding incline	Industry-established high-chevron class
Custom / Severe Duty	Project-specific	Special recycling, coarse bulk or unusual geometry	Manufacturing drawing required

Incline capability is not determined by profile height alone. Material friction, moisture, lump size, loading stability, belt speed and profile pitch must be considered. Published industry ranges for profiled belts include applications around 30° for multi-purpose low-profile designs and up to approximately 40–45° for suitable chevron systems, subject to complete conveyor engineering.

CARCASS CONSTRUCTION

Carcass Option	Characteristics	Typical Application
EP Fabric	Polyester warp / nylon weft; low elongation, high tensile strength and moisture resistance	General and heavy-duty patterned belts
NN Fabric	Nylon reinforcement with flexibility and impact absorption	Shorter conveyors and impact-oriented service
High-Strength Multi-Ply EP	Higher tensile rating with dimensional stability	Longer or higher-load incline conveyors
Engineered Reinforcement	Project-specific construction	Special profile, width or operating tension

COVER COMPOUND OPTIONS

Cover Type	Primary Property	Typical Duty
Abrasion Resistant	Resistance to wear from mineral bulk	Mining, quarry, aggregate
Oil Resistant	Resistance to mineral/vegetable oil exposure	Recycling and oily bulk
Heat Resistant	Resistance to elevated material temperature	Hot bulk handling
Cold Resistant	Flexibility at low ambient temperature	Cold climate and storage
Antistatic	Controlled electrical resistance	Static-sensitive environments
Flame Retardant	Reduced flame propagation	Specified fire-risk applications
Ozone / UV Resistant	Resistance to environmental cracking	Outdoor conveyor service

TECHNICAL DESIGN RANGE

Parameter	Catalogue Range / Option	Selection Basis
Belt Width	Approx. 400–1,600 mm standard profiled ranges; wider project-specific options possible	Conveyor and profile tooling
Pattern Height	Low profile through 32+ mm; custom profiles project-specific	Material and incline
Carcass	EP / NN / engineered reinforcement	Operating tension
Cover Grade	AR / OR / HR / CR / AS / FR and project-specific	Environment and material
Pattern Width	Project-specific with edge recess	Skirting arrangement
Pattern Pitch	Project-specific	Lump size and return support
Splice	Hot vulcanized, factory endless or approved mechanical	Construction and duty
Edge	Moulded or engineered edge	Manufacturing specification

APPLICATION-BASED PATTERN SELECTION GUIDE

Application	Preferred Pattern Families	Key Selection Driver
Mining / Quarry	Open V, Closed V, High Chevron, Truck Tyre Model	Lump size, abrasion and incline
Sand / Gravel	Open V, Fishbone, Truck Tyre Model	Drainage and rollback
Agriculture	Multiprof, Open V, U, Y	Gentle handling and drainage
Packages / Bags / Baggage	Fishbone, Rufftop Type, Multiprof	Surface grip
Recycling	High Chevron, Herringbone, Truck Tyre Model	Irregular material and incline
Woodchips / Biomass	Multiprof, Chevron, U Profile	Bulk retention
Oily Materials	Multiprof with oil-resistant cover	Oil exposure and grip
Wet Bulk	Open V, Multiprof, Wave Grip	Drainage and anti-slip performance

ENGINEERING, INSTALLATION AND MAINTENANCE

Item	Requirement
Pattern Orientation	Install according to approved conveying direction and pattern drawing
Loading	Center the load and minimize uncontrolled impact
Skirting	Maintain adequate smooth edge recess around raised profiles
Return Idlers	Use profile-compatible support arrangement
Pulley Diameter	Select according to carcass, splice and profile flexibility
Cleaning	Use cleaners designed for profiled carrying surfaces
Tracking	Correct structural alignment before increasing belt tension
Inspection	Monitor profile cracking, tearing, separation and abnormal wear
Splicing	Hot vulcanization preferred for critical heavy-duty service

QUALITY CONTROL AND ORDERING DATA

Quality Control Item	Verification
Pattern Geometry	Profile type, height, pitch and orientation
Dimensions	Belt width, total thickness and edge recess
Carcass	Construction and tensile rating
Cover	Compound grade and physical properties
Profile Integrity	Moulding quality and profile-to-cover bond
Adhesion	Cover-to-ply bonding
Traceability	Production batch and inspection record

Ordering data should include: conveyed material, bulk density, moisture, maximum lump size, required capacity, conveyor inclination, belt speed, center distance, belt width, carcass rating, top and bottom cover thickness, preferred pattern, profile height, pattern pitch, edge recess, pulley diameters, return-idler arrangement, splice method and required cover grade.

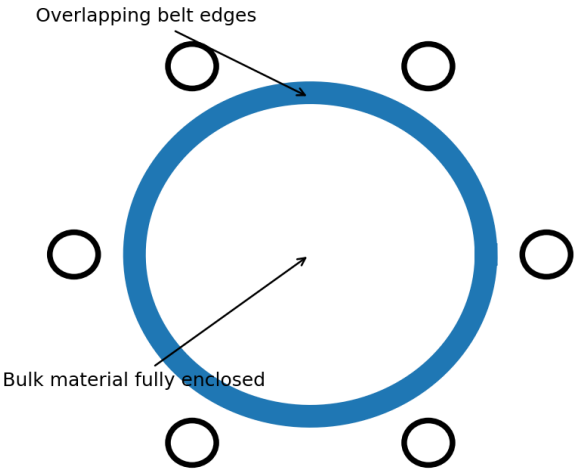
TECHNICAL DISCLAIMER

All dimensions, inclination capabilities and profile selections in this catalogue are engineering guidance. Final belt construction must be confirmed against the actual conveyor system and an approved manufacturing specification. Commercial model names used in this catalogue identify World Prime Services product configurations; third-party company names are intentionally excluded from the product presentation.

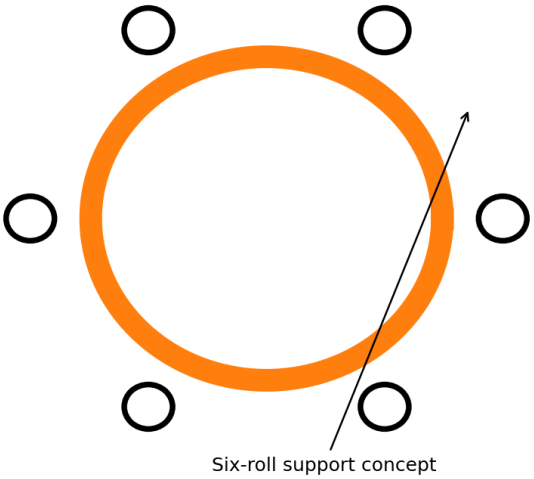
PIPE CONVEYOR BELT

Enclosed Rubber Conveyor Belting for Environmentally Controlled, Curved and Long-Distance Bulk Material Transport

ENCLOSED PIPE FORM



HEXAGONAL IDLER SUPPORT



1. PRODUCT OVERVIEW

World Prime Services Pipe Conveyor Belt is designed to transform from a conventional flat belt at the loading and discharge zones into an enclosed tubular cross-section along the conveying route. The overlapping belt edges encapsulate the conveyed material, reducing spillage, dust dispersion and external contamination.

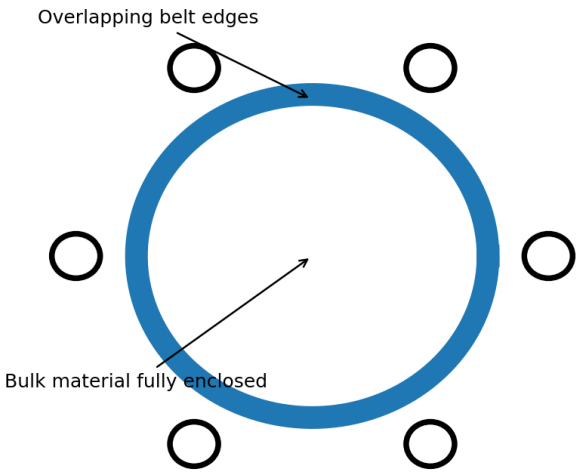
The construction is engineered to combine longitudinal tensile strength with controlled transverse flexibility and sufficient restoring force to maintain stable pipe formation through multi-roll idler stations.

Design Objective	Operational Benefit
Enclosed transport	Reduces dust emission, spillage and material exposure
Pipe-forming flexibility	Allows belt closure around conveyed bulk
Curved routing capability	Supports complex horizontal and vertical alignment
Compact conveyor corridor	Can reduce transfer points and land requirements
Two-way environmental isolation	Protects surroundings from material and material from surroundings

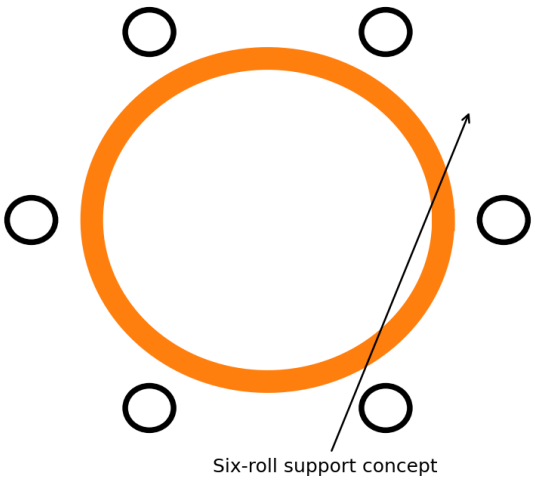
2. OPERATING PRINCIPLE

At the loading zone the belt runs in an open trough configuration. After loading, transition idlers progressively wrap the belt into a pipe, with the belt edges overlapping above the material. The closed belt is supported by multiple idlers arranged around the circumference. Before discharge, the belt is progressively opened and flattened.

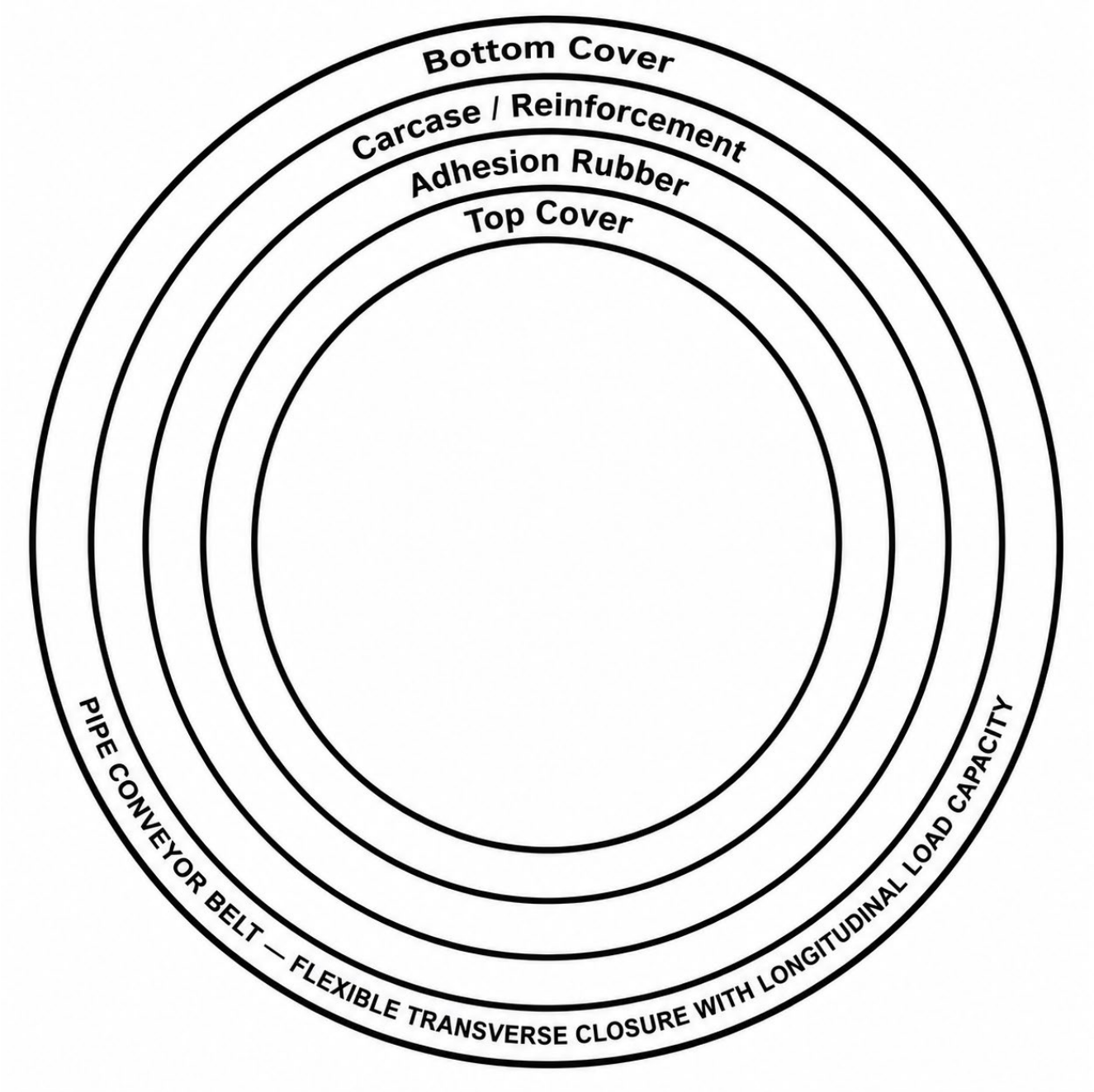
ENCLOSED PIPE FORM



HEXAGONAL IDLER SUPPORT



3. PRODUCT CONSTRUCTION



Component	Function	Engineering Requirement
Top Cover	Material-side wear and environmental protection	Selected for abrasion, oil, heat or chemical exposure
Adhesion Rubber	Bonding and load transfer	High adhesion and fatigue resistance
Carcass	Longitudinal tensile load capacity	EP/NN fabric or steel cord
Transverse Reinforcement	Supports pipe shape and overlap stability	Construction-specific
Bottom Cover	Idler-side protection	Wear and flex-fatigue resistance
Belt Edges	Create overlap seal in pipe form	Dimensional stability and flexibility

4. FABRIC PIPE CONVEYOR BELT

Fabric Pipe Conveyor Belt uses textile reinforcement, typically EP or NN construction, combined with high-elasticity and abrasion-resistant rubber compounds. It is suited to applications requiring flexible pipe formation and moderate-to-high operating tension.

Carcass Option	Primary Characteristic	Typical Duty
EP Fabric	Low longitudinal elongation and dimensional stability	General industrial pipe conveyors
NN Fabric	High flexibility and impact absorption	Impact-oriented or shorter systems
High-Strength EP Multi-Ply	Higher tensile capacity	Longer and higher-load applications

5. STEEL CORD PIPE CONVEYOR BELT

Steel Cord Pipe Conveyor Belt uses longitudinal steel cords as the primary tensile member and specially engineered rubber and transverse reinforcement to provide the flexibility required for pipe formation. It is intended for high-strength, long-distance and high-capacity systems.

Characteristic	Engineering Benefit
High tensile strength	Suitable for high operating tensions
Low elongation	Supports long-distance conveyor control
Steel cord carcass	High longitudinal load capacity
Engineered transverse flexibility	Allows repeated pipe opening and closing
Special cover compounds	Supports demanding bulk-material applications

6. APPLICATION INDUSTRIES

Industry	Typical Materials	Pipe Belt Benefit
Mining	Ore, concentrates, coal	Contained long-distance transport
Ports & Terminals	Coal, ore, concentrates, bulk commodities	Reduced spillage and dust
Power Generation	Coal, biomass, ash	Environmental containment
Cement	Clinker, limestone, raw materials	Curved enclosed routing
Metallurgy	Ore, coke and process materials	Protected bulk transfer
Chemical Industry	Selected compatible bulk chemicals	Reduced environmental exposure
Urban / Sensitive Areas	Dust-generating bulk materials	Compact enclosed transport corridor

7. COVER COMPOUND OPTIONS

Cover Grade	Primary Property	Typical Application
Abrasion Resistant	Wear resistance	Ore, coal, aggregate
Heat Resistant	Elevated material temperature resistance	Clinker and hot bulk
Oil Resistant	Resistance to oils and fats	Oil-contaminated material
Cold Resistant	Low-temperature flexibility	Cold climates
Chemical Resistant	Resistance to selected corrosive exposure	Chemical bulk materials
Flame Retardant	Reduced flame propagation	Specified fire-risk duty
Antistatic	Controlled electrical resistance	Static-sensitive applications

8. SYSTEM ENGINEERING PARAMETERS

Parameter	Required Project Data	Engineering Purpose
Pipe Diameter	Project-specific	Defines enclosed carrying section
Belt Width	Matched to pipe diameter and overlap	Ensures stable closure
Capacity	t/h or m³/h	Defines cross-section and speed
Belt Speed	m/s	Capacity and dynamic behavior
Center Distance	m	Tension and drive design
Horizontal Curves	Radius / geometry	Pipe stability and belt stress
Vertical Curves	Radius / geometry	Transition and tension control
Material Bulk Density	kg/m³	Capacity calculation
Maximum Lump Size	mm	Pipe diameter and loading design
Moisture / Temperature	Operating range	Cover compound selection

9. DESIGN ADVANTAGES

Feature	Value
Fully enclosed conveying section	Improved environmental control
Reduced transfer points	Potential simplification of routing
Horizontal and vertical curves	Greater layout flexibility
Protection from weather	Reduced rain and wind exposure
Reduced dust and spillage	Cleaner conveyor corridor
Compact route potential	Useful where conventional layouts are constrained

10. TRANSITION ZONE ENGINEERING

The transition between flat, troughed and pipe form is a critical design area. Transition length, idler arrangement, overlap orientation and belt stiffness must be engineered to avoid excessive edge stress, buckling, twisting or loss of pipe shape.

Design Item	Requirement
Transition Length	Matched to belt width, pipe diameter and stiffness
Overlap Position	Maintained consistently through the route
Idler Alignment	Precise multi-roll support geometry
Belt Rotation Control	Monitoring recommended on critical systems
Loading Centralization	Material centered before pipe closure

11. PIPE BELT MONITORING

Critical long-distance pipe conveyor systems may incorporate rip detection, steel-cord monitoring, splice monitoring and pipe-belt orientation or rotation monitoring. Monitoring strategy is selected according to carcass type, route complexity and operational criticality.

12. SPLICE ENGINEERING

Hot-vulcanized splicing is normally preferred for high-duty pipe conveyor belts. The splice must reproduce longitudinal tensile performance while preserving transverse flexibility and uniform thickness to ensure stable passage through pipe-forming idlers.

Splice Aspect	Requirement
Strength	Matched to belt rating
Flexibility	Compatible with repeated pipe formation
Thickness Uniformity	Avoid local stiffness discontinuity
Alignment	Prevent rotation and tracking instability
Inspection	Periodic visual and condition monitoring

13. INSTALLATION & COMMISSIONING

• Verify conveyor structure, idler alignment and transition geometry.

• Confirm belt orientation and designated overlap direction.

• Center the material loading stream before the closure transition.

• Commission initially at reduced load and monitor pipe formation.

• Check belt rotation, overlap position, tracking and return-side behavior.

• Increase operating load progressively after stable pipe formation is confirmed.

14. INSPECTION & MAINTENANCE

Inspection Point	Condition to Monitor	Recommended Action
Belt Edges	Wear, cracking or overlap damage	Repair and investigate alignment
Covers	Abrasion, cuts and fatigue	Repair according to belt procedure
Splices	Separation or abnormal stiffness	Immediate engineered assessment
Idlers	Seizure, wear or misalignment	Replace / realign
Pipe Rotation	Persistent twist or overlap migration	Correct alignment and loading
Transitions	Buckling or edge stress	Review geometry and tension

15. QUALITY CONTROL

Control Item	Verification
Belt Width / Thickness	Dimensional compliance
Carcass Construction	EP, NN or steel cord rating
Cover Physical Properties	Compound specification
Adhesion	Cover-to-carcass bond
Transverse Stiffness	Pipe-forming suitability
Steel Cord Integrity	Cord arrangement and condition where applicable
Visual Inspection	Surface and edge quality
Traceability	Production batch identification

16. TECHNICAL ORDERING DATA SHEET

Project / Site	
Industry	
Conveyed Material	
Bulk Density	
Moisture	
Material Temperature	
Maximum Lump Size	
Required Capacity (t/h)	
Pipe Diameter (mm)	
Belt Width (mm)	
Belt Speed (m/s)	
Center Distance (m)	
Lift / Descent (m)	
Horizontal Curve Data	
Vertical Curve Data	
Carcass Type (EP / NN / Steel Cord)	
Required Belt Rating	
Top Cover (mm)	
Bottom Cover (mm)	
Cover Compound	
Operating Ambient Temperature	
Required Safety Grade	
Splice Requirement	
Monitoring Requirement	
Applicable Standard / Customer Specification	
Additional Notes	

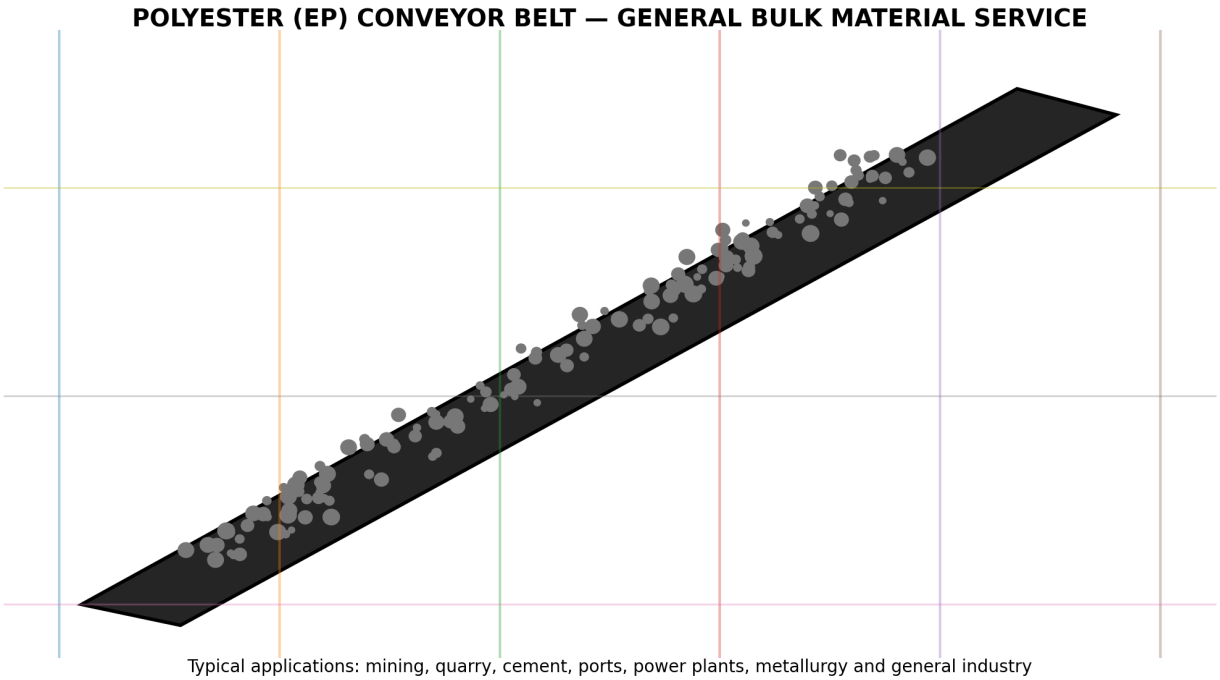
17. TECHNICAL REFERENCE NOTE

Pipe conveyor belt design is system-specific. Final belt width, pipe diameter, tensile rating, transverse stiffness, transition length, overlap behavior, cover grade and splice construction must be confirmed from the complete conveyor geometry and operating data.

The product catalogue intentionally presents the product under the World Prime Services name only and does not reproduce third-party brand names as product branding.

POLYESTER (EP) CONVEYOR BELT

High-Strength Low-Elongation Multi-Ply Rubber Conveyor Belting for Medium- and Long-Distance Bulk Material Handling



Typical applications: mining, quarry, cement, ports, power plants, metallurgy and general industry

PRODUCT CONTENTS

1. PRODUCT OVERVIEW

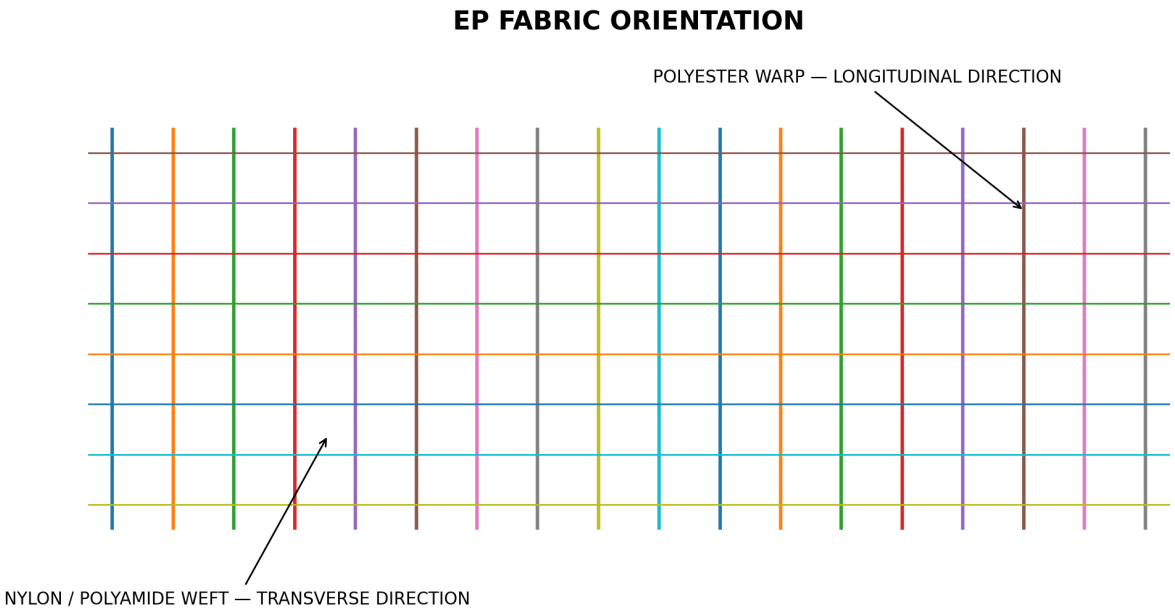
World Prime Services Polyester (EP) Conveyor Belt is a multi-ply rubber conveyor belt designed for medium- and long-distance transportation of bulk materials under moderate to heavy operating loads.

The carcass uses EP fabric, in which polyester yarns provide the longitudinal warp reinforcement and nylon/polyamide yarns provide the transverse weft reinforcement. This combination delivers low longitudinal elongation, good dimensional stability, strong troughability and reliable resistance to moisture and repeated flexing.

The belt can be supplied with general-purpose, abrasion-resistant, heat-resistant, oil-resistant, cold-resistant, antistatic, flame-retardant and other special-purpose cover compounds.

Engineering Objective	Operational Benefit
Low longitudinal elongation	Reduces take-up travel and improves belt-length stability
High tensile strength	Supports medium- and long-distance conveying
Good troughability	Supports stable material containment on troughed idlers
Moisture-resistant carcass	Suitable for outdoor and humid bulk-handling environments
Strong ply adhesion	Supports durability under dynamic flexing
Multiple cover grades	Allows adaptation to different conveyed materials and environments

2. EP FABRIC TECHNOLOGY



In standard conveyor-belt terminology, EP typically denotes a polyester/nylon fabric construction: polyester in the warp direction and nylon (polyamide) in the weft direction.

The polyester warp provides tensile strength and low elongation in the direction of belt travel. The nylon weft provides transverse flexibility, impact tolerance and trough-forming capability.

Fabric Direction	Typical Fiber	Primary Function
Warp — longitudinal	Polyester	Carries operating tension and limits elongation
Weft — transverse	Nylon / polyamide	Provides flexibility, impact absorption and troughability
Multi-ply carcass	EP fabric layers	Builds required rated belt strength

3. POLYESTER VS. NYLON CARCASS TERMINOLOGY

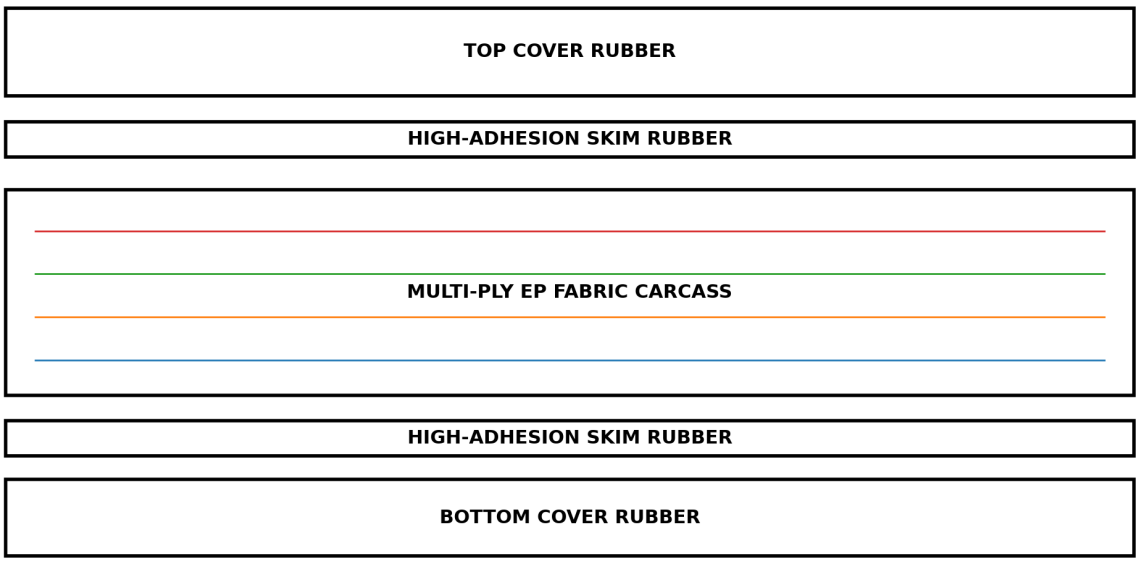
A professional EP conveyor-belt specification should distinguish genuine EP fabric from all-polyester EE constructions. EP means polyester warp combined with nylon/polyamide weft. An all-polyester carcass is a different textile architecture and can behave differently in elongation, impact response, rip resistance and transition performance.

For procurement and quality control, the purchase specification should explicitly state EP fabric construction and require carcass verification rather than relying only on a general 'polyester conveyor belt' description.

Term	Typical Meaning	Engineering Note
EP	Polyester warp / Nylon (polyamide) weft	Standard low-elongation conveyor-belt fabric
NN	Nylon warp / Nylon weft	Higher flexibility and elongation
EE	Polyester warp / Polyester weft	Different carcass behavior; not equivalent to EP
Fabric Conveyor Belt	Generic category	Carcass composition must be specified

4. BELT CONSTRUCTION

POLYESTER (EP) CONVEYOR BELT — TYPICAL MULTI-PLY CONSTRUCTION



Component	Engineering Function	Typical Option
Top Cover	Protects carcass from wear and conveyed material	General, abrasion, heat, oil, cold or special compound
Skim Rubber	Bonds plies and transfers dynamic load	High-adhesion rubber system
EP Fabric Carcass	Primary tension member	Multi-ply polyester/nylon fabric
Bottom Cover	Protects pulley-side carcass	Standard or special-purpose rubber
Edge Construction	Protects carcass edges	Cut edge or moulded edge

5. PRODUCT FAMILIES

EP-GP Series — General-Purpose Polyester Conveyor Belt: standard multi-ply construction for general industrial bulk handling.

EP-AR Series — Abrasion-Resistant Polyester Conveyor Belt: enhanced wear protection for ore, aggregate and abrasive bulk.

EP-HR Series — Heat-Resistant Polyester Conveyor Belt: application-specific heat-resistant cover for elevated-temperature materials.

EP-OR Series — Oil-Resistant Polyester Conveyor Belt: oil-resistant cover for oily or grease-contaminated materials.

EP-CR Series — Cold-Resistant Polyester Conveyor Belt: low-temperature compound for cold climates and storage.

EP-FR Series — Flame-Retardant Polyester Conveyor Belt: reduced-flammability construction for specified industrial environments.

EP-AS Series — Antistatic Polyester Conveyor Belt: controlled electrical resistance for static-sensitive applications.

EP-ARX Series — Heavy-Duty Reinforced Polyester Belt: engineered high-strength fabric construction for severe service.

6. EP CARCASS STRENGTH CLASSES

Indicative EP Fabric Class	Relative Positioning	Typical Application
EP 80 / EP 100	Light to moderate duty	General industrial conveying
EP 125 / EP 150	Moderate duty	Agriculture, light aggregate, process industries
EP 200	Medium / heavy duty	Quarry, cement and industrial bulk
EP 250	Heavy duty	Mining and high-capacity general service
EP 300	Heavy / severe duty	High-load industrial conveyors
EP 400	Very heavy fabric-belt duty	High-strength multi-ply applications

Final rated belt strength depends on fabric class, number of plies and approved construction. Fabric designation alone must not be treated as the complete belt rating.

7. KEY PERFORMANCE CHARACTERISTICS

Characteristic	EP Conveyor Belt Performance
Longitudinal elongation	Low compared with nylon/nylon carcass
Dimensional stability	High
Troughability	Good to very good, depending on ply count and thickness
Moisture resistance	Good
Impact resistance	Very good
Flex-fatigue resistance	Suitable for continuous industrial service
Take-up demand	Generally lower than NN belts
Application range	Medium- to long-distance bulk conveying

8. EP VS. NN SELECTION

Characteristic	EP Fabric	NN Fabric
Warp material	Polyester	Nylon
Weft material	Nylon / polyamide	Nylon
Longitudinal elongation	Lower	Higher
Dimensional stability	Very good	Good
Impact absorption	Very good	Excellent
Flexibility	High	Very high
Typical selection driver	Stable length and lower take-up requirement	Impact and repeated flexing

9. COVER COMPOUND OPTIONS

Cover Grade	Primary Property	Typical Application
GP	General purpose	Standard industrial bulk handling
AR	Abrasion resistance	Mining, quarry, aggregate
HR	Heat resistance	Hot bulk material
OR	Oil resistance	Oily industrial and agricultural materials
CR	Cold resistance	Low-temperature service
FR	Flame retardance	Specified fire-risk environments
AS	Antistatic	Static-sensitive duty
CHEM	Chemical resistance	Selected compatible chemical bulk

10. TECHNICAL SPECIFICATION RANGE

Parameter	Catalogue Option / Range	Remarks
Belt width	Approx. 300–3,200+ mm	Project-dependent
Carcass	EP multi-ply fabric	Polyester warp / nylon weft
Fabric class	EP 80 to EP 400+ engineering classes	Project-specific
Number of plies	Multi-ply construction	Selected by required belt rating
Top cover	Typically 3–20+ mm	Duty-dependent
Bottom cover	Typically 1.5–10+ mm	Duty-dependent
Edge	Cut edge / moulded edge	Project-dependent
Surface	Smooth standard; special profiles available	Application-specific
Splice	Hot vulcanized preferred	Matched to carcass construction

11. BELT STRENGTH & PLY ENGINEERING

The required belt strength is determined from operating tension, conveyor length, lift, drive configuration, capacity, starting conditions and safety factors. Ply count must be selected together with pulley diameter and troughability requirements.

Input Data	Engineering Purpose
Maximum operating tension	Defines minimum belt tensile rating
Conveyor length and lift	Influences tension and take-up
Drive arrangement	Defines traction and starting tension
Pulley diameter	Must suit carcass thickness and flexing
Trough angle	Requires adequate transverse flexibility
Impact severity	May require thicker covers or breaker reinforcement

12. APPLICATION INDUSTRIES

Industry	Typical Material	Primary Requirement
Mining	Ore and mineral bulk	Strength, abrasion resistance and long-distance reliability
Quarry & Aggregate	Crushed stone, sand and gravel	Wear resistance and impact tolerance
Cement	Limestone, raw meal and cement materials	Continuous heavy-duty service
Ports & Terminals	Coal, ore and bulk commodities	High capacity and durability
Power Generation	Coal and biomass	Reliable continuous conveying
Metallurgy	Raw materials and minerals	Heavy-duty construction
Agriculture	Grain and fertilizer	Flexible general-purpose handling
General Industry	Industrial bulk materials	Versatile EP carcass performance

13. APPLICATION-BASED SELECTION GUIDE

Duty	Typical Material	Recommended Construction	Cover Selection
Moderate	Fine / granular bulk	EP 100–150 class multi-ply	GP / light AR
Heavy	Aggregate, limestone, ore	EP 200–250 class	AR
Very Heavy	Large lumps and high capacity	EP 300–400 class	Heavy AR / optional breaker
Hot Service	Clinker and hot bulk	Engineered EP carcass	HR
Oily Service	Oil-contaminated material	Engineered EP carcass	OR
Cold Service	Outdoor winter bulk	EP carcass	CR

14. TROUGHABILITY & TRANSITION DESIGN

Troughability depends on belt width, carcass stiffness, total thickness, number of plies and idler trough angle. Transition zones must allow the belt to move gradually between flat pulley contact and full trough shape.

A carcass that is excessively stiff for the selected conveyor can create edge tension, center buckling or unstable tracking. Final transition distance should be engineered from the approved belt construction and conveyor geometry.

15. PULLEY DIAMETER & TAKE-UP CONSIDERATIONS

Design Factor	Engineering Impact
Drive pulley diameter	Controls bending stress in the carcass
Tail / bend pulley diameter	Influences flex-fatigue life
Take-up travel	Must accommodate elastic and permanent elongation
Pulley alignment	Critical to tracking and edge life
Belt tension	Should be sufficient for traction without overloading the carcass

16. SPLICING & VULCANIZATION

Hot-vulcanized splicing is generally preferred for critical EP conveyor-belt service. Splice geometry, step length and materials must match the belt rating, ply count and cover compound.

- Use approved cover and skim materials compatible with the parent belt.
- Control vulcanizing temperature, pressure and cure time.
- Maintain accurate splice alignment.
- Seal splice edges against contamination and moisture.
- Inspect the splice before commissioning and at scheduled intervals.

17. INSTALLATION & COMMISSIONING

- Verify conveyor structure and pulley alignment before belt installation.
- Check all idlers for free rotation and correct positioning.
- Set initial take-up tension within the engineered range.
- Run the belt unloaded and correct tracking before introducing material.
- Load progressively while monitoring tracking, splice condition and take-up position.
- Recheck tension after the initial run-in period.

18. INSPECTION & PREVENTIVE MAINTENANCE

Inspection Point	Look For	Recommended Action
Top cover	Cuts, gouges, wear or cracking	Repair before carcass exposure
Edges	Fraying or structure contact	Correct tracking / alignment
Splices	Cracks, lifting or separation	Immediate engineered inspection
Take-up	Insufficient travel or excessive tension	Correct tension setting
Idlers	Seized or contaminated rollers	Replace / clean
Loading zone	Impact or trapped material	Correct chute and skirt system

19. QUALITY CONTROL & TESTING

Control Item	Purpose
Carcass identification	Confirm EP fabric construction
Belt width / thickness	Dimensional compliance
Tensile strength	Verify load-carrying capability
Elongation	Assess dimensional stability
Cover tensile properties	Verify selected compound
Cover-to-ply adhesion	Confirm structural integrity
Ply-to-ply adhesion	Verify carcass bonding
Abrasion / special property tests	Verify cover grade
Traceability	Identify production batch

20. INTERNATIONAL REFERENCE STANDARDS

Reference	Relevance
ISO 14890:2026	Rubber- or plastics-covered textile conveyor belts for general surface use
ISO 283:2023	Full-thickness tensile strength and elongation test method for textile conveyor belts
ISO 252	Adhesion between constitutive elements of conveyor belts
ISO 10247	Conveyor-belt cover characteristics classification
Customer / Conveyor OEM Specification	Final belt construction and acceptance criteria

ISO 14890:2026 is the current published international specification for rubber- or plastics-covered conveyor belting of textile construction for general surface use on flat or troughed idlers.

21. TECHNICAL ORDERING DATA SHEET

Project / Site	
Industry	
Conveyed Material	
Capacity (t/h)	
Bulk Density	
Maximum Lump Size	
Belt Width (mm)	
Belt Speed (m/s)	
Center Distance (m)	
Lift / Descent (m)	
Inclination (°)	
Required EP Fabric Class	
Required Belt Rating	
Number of Plies	
Top Cover (mm)	
Bottom Cover (mm)	
Required Cover Grade	
Edge Type	
Drive Pulley Diameter	
Tail Pulley Diameter	
Take-Up Type	
Available Take-Up Travel	
Operating Temperature	
Material Temperature	
Splice Requirement	
Applicable Standard / Customer Specification	
Additional Operating Notes	

PRODUCT POSITIONING SUMMARY

Product Attribute	World Prime Services Polyester (EP) Conveyor Belt
Carcass	Polyester warp / Nylon (polyamide) weft multi-ply fabric
Primary Strength	Low elongation and high dimensional stability
Typical Classes	EP 80, EP 100, EP 125, EP 150, EP 200, EP 250, EP 300, EP 400
Key Industries	Mining, quarry, cement, ports, power, metallurgy and general industry
Cover Options	General, abrasion, heat, oil, cold, flame-retardant, antistatic and chemical-resistant
Selection Basis	Operating tension, belt length, impact, pulley diameter, troughability and cover duty

POLYESTER-COTTON (TC) CONVEYOR BELT

Lightweight Multi-Ply Rubber Conveyor Belting for Short- to Medium-Distance and Medium-Load Material Handling

RELIABLE PERFORMANCE. PROVEN VALUE.

Polyester Cotton (PC) conveyor belts are engineered for general purpose applications where a balance of strength, flexibility and economy is required.

Constructed with a combination of polyester and cotton fabric plies, these belts deliver dependable performance in material handling across a wide range of industries and operating conditions.

CONSTRUCTION

1. **Top Cover Rubber**
   Engineered to resist abrasion, impact and material degradation.
2. **Adhesion Rubber**
   Promotes strong bonding between rubber covers and fabric plies.
3. **Polyester Cotton Fabric Ply**
   Combination of polyester warp (longitudinal) for strength and cotton weft (transverse) for flexibility and excellent troughability.
4. **Adhesion Rubber**
   Ensures cohesion between individual fabric plies.
5. **Polyester Cotton Fabric Ply**
   Additional plies may be added to achieve higher strength and required belt rating.
6. **Adhesion Rubber**
   Bonds the carcass to the bottom cover.
7. **Bottom Cover Rubber**
   Protects the belt on the pulley and return side from wear, impacts and environmental factors.

FEATURES & BENEFITS

- Good tensile strength with excellent troughability
- Low elongation in service
- Superior impact resistance
- Good wear and abrasion resistance
- Suitable for medium to long distance conveyors
- Cost effective solution for general applications
- Easy to splice and install

APPLICATIONS

- Cement Plants
- Power Plants
- Steel Plants
- Mining & Minerals
- Quarrying & Aggregates
- Ports & Terminals
- Fertilizer Industry
- General Material Handling

TECHNICAL SPECIFICATION RANGE

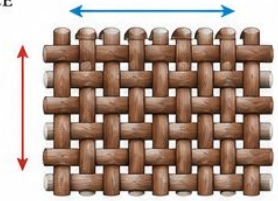
PROPERTY	SPECIFICATION
Belt Construction	Polyester (Warp) / Cotton (Weft)
Fabric Type	Polyester Cotton (PC)
Number of Plies	2 to 8 Plies
Belt Width	400 mm to 2200 mm
Belt Thickness	6 mm to 32 mm
Tensile Strength	EP 100 to EP 400
Cover Grade (Top/Bottom)	DIN-X, DIN-Y, DIN-Z, DIN-W
Cover Thickness	1.5 mm to 12 mm
Operating Temperature	-20°C to +80°C
Standard	ISO 14890 / DIN 22102 / JIS K 6322

COVER GRADE OPTIONS

GRADE	ABRASION	IMPACT	OIL	HEAT	FEATURES
DIN-X	Good	Good	Fair	Up to 60°C	General purpose
DIN-Y	Very Good	Good	Fair	Up to 70°C	High abrasion
DIN-Z	Excellent	Good	Good	Up to 80°C	High abrasion & oil resistant
DIN-W	Excellent	Very Good	Good	Up to 80°C	High impact & abrasion resistant

TYPICAL LAYER SEQUENCE

1. Top Cover Rubber
2. Adhesion Rubber
3. Polyester Cotton Fabric Ply
4. Adhesion Rubber
5. Polyester Cotton Fabric Ply
6. Adhesion Rubber
7. Bottom Cover Rubber



Polyester Warp (Longitudinal Direction)
Cotton Weft (Transverse Direction)

SPLICING METHOD

Hot Vulcanized Splice

Mechanical Fastener Splice

Note: The technical data listed above are typical values based on laboratory tests and field experience. Actual performance may vary depending on operating conditions.

HIGH STRENGTH · FLEXIBILITY · WEAR RESISTANCE · IMPACT RESISTANCE · COST EFFECTIVE

PRODUCT CONTENTS

1. PRODUCT OVERVIEW

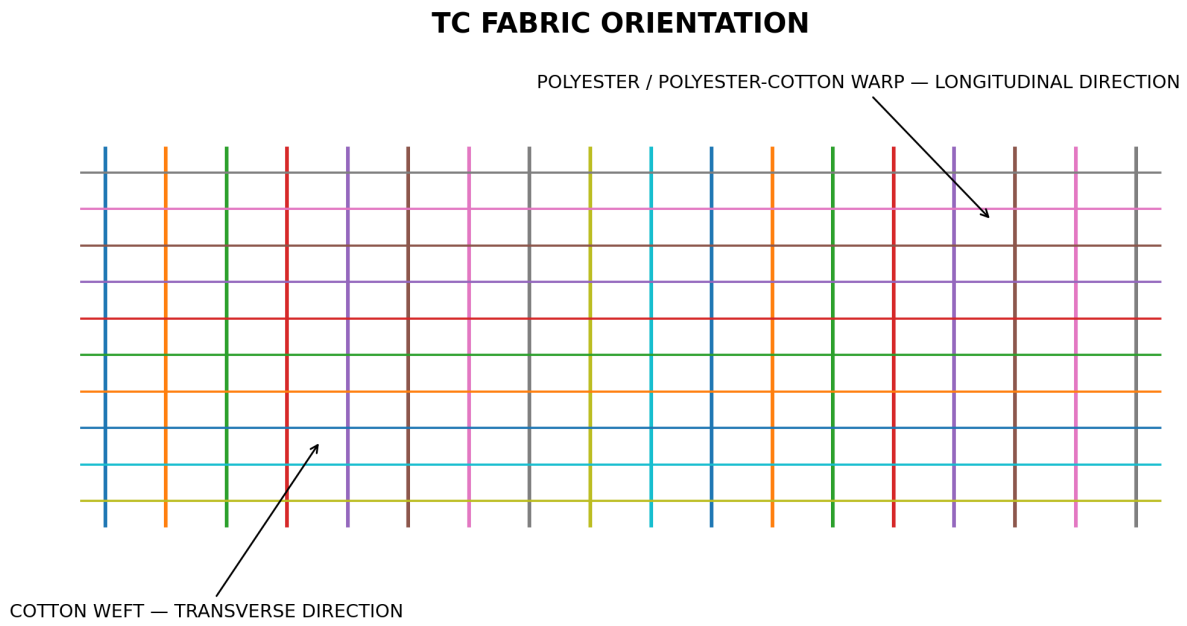
World Prime Services Polyester-Cotton (TC) Conveyor Belt is a multi-ply rubber conveyor belt designed for short- to medium-distance transportation and medium-load bulk-material handling.

The tension-bearing carcass uses a polyester-cotton textile construction in the warp direction together with cotton in the weft direction. Compared with conventional cotton-canvas belts, TC construction provides improved mechanical performance, a thinner and lighter carcass, better impact resistance, and reduced material and energy consumption in suitable applications.

The product is intended for general-purpose industrial service where moderate tensile demand, reliable flexing, good rubber adhesion and economical operation are required.

Engineering Objective	Operational Benefit
Polyester-cotton reinforced warp	Improved longitudinal strength compared with conventional cotton canvas
Cotton weft	Good transverse flexibility and troughability
Thinner, lighter carcass	Reduced rotating mass and potential energy savings
Good shock resistance	Improved durability under moderate impact
Strong rubber adhesion	Supports stable multi-ply carcass integrity
General-purpose construction	Cost-effective for medium-load, short- to medium-distance conveying

2. POLYESTER-COTTON (TC) FABRIC TECHNOLOGY



In TC conveyor-belt terminology, the carcass is based on a polyester-cotton reinforced warp combined with cotton weft. The warp direction carries the principal longitudinal load, while the cotton weft provides transverse flexibility and helps the belt conform to troughed idler systems.

TC fabric is positioned between traditional cotton-canvas (CC) construction and higher-strength synthetic carcasses such as EP or NN. It is particularly suited to applications where the full tensile capability of EP or NN is not required.

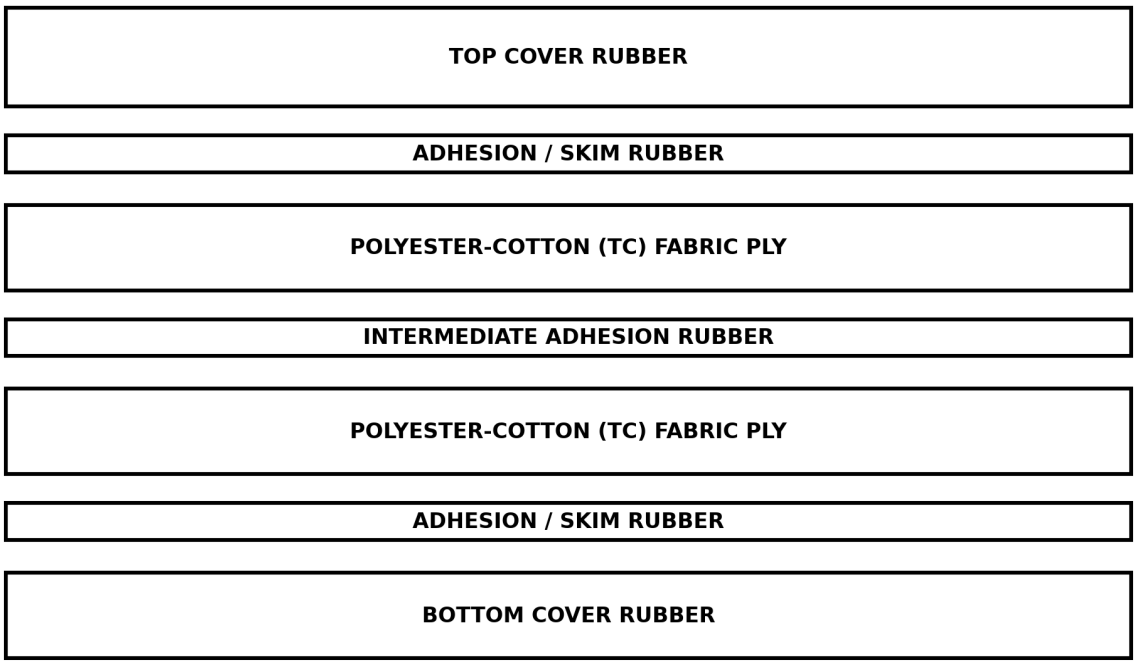
Fabric Direction	Typical Fiber System	Primary Function
Warp — longitudinal	Polyester-cotton reinforced yarn system	Tensile load capacity and dimensional stability
Weft — transverse	Cotton	Flexibility, troughability and carcass formability
Multi-ply carcass	TC fabric layers	Builds the required belt rating and impact capability

3. TC VS. CC VS. EP VS. NN

Carcass Type	Typical Construction	Relative Strength	Elongation / Stability	Typical Positioning
CC	Cotton warp / cotton weft	Low to moderate	Moderate elongation	Short-distance, light-load service
TC	Polyester-cotton warp / cotton weft	Moderate	Improved stability over CC	Short- to medium-distance, medium-load service
EP	Polyester warp / nylon weft	Medium to very high	Low elongation	Medium- to long-distance heavy-duty conveying
NN	Nylon warp / nylon weft	Medium to very high	Higher elongation, very flexible	Impact-oriented and dynamic-duty conveying

4. BELT CONSTRUCTION

POLYESTER-COTTON (TC) CONVEYOR BELT — TYPICAL MULTI-PLY CONSTRUCTION



Component	Engineering Function	Typical Option
Top Cover Rubber	Protects the carcass from wear and conveyed material	General-purpose / abrasion-resistant / special compound
Adhesion / Skim Rubber	Bonds the cover to the carcass	High-adhesion rubber
TC Fabric Ply	Primary tension-bearing reinforcement	Polyester-cotton warp / cotton weft
Intermediate Adhesion Rubber	Bonds individual fabric plies	High-flex fatigue bonding compound
Additional TC Fabric Plies	Builds required belt rating	Multi-ply construction
Bottom Cover Rubber	Protects pulley-side carcass	General-purpose or special-purpose rubber

5. PRODUCT FAMILIES

TC-GP Series — General-Purpose Polyester-Cotton Conveyor Belt for standard industrial bulk handling.

TC-AR Series — Abrasion-Resistant Polyester-Cotton Conveyor Belt for moderate abrasive service.

TC-HR Series — Heat-Resistant Polyester-Cotton Conveyor Belt for suitable elevated-temperature applications.

TC-OR Series — Oil-Resistant Polyester-Cotton Conveyor Belt for compatible oily or grease-contaminated materials.

TC-CR Series — Cold-Resistant Polyester-Cotton Conveyor Belt for low-temperature service.

TC-AS Series — Antistatic Polyester-Cotton Conveyor Belt for applications requiring controlled electrical resistance.

6. TC FABRIC STRENGTH CLASS

Fabric Class	Single-Ply Reference Strength	Indicative Ply Thickness	Typical Positioning
TC-70	Approx. 70 N/mm per ply	Approx. 1.00 mm/ply	General TC construction for medium-load service

Typical market data for TC-70 belts shows 2- to 6-ply constructions and a nominal single-ply strength around 70 N/mm. Final rated belt strength is determined by the approved ply count and complete belt construction.

7. KEY PERFORMANCE CHARACTERISTICS

Characteristic	TC Conveyor Belt Performance
Weight	Lighter than comparable conventional cotton-canvas construction
Carcass thickness	Relatively thin
Impact resistance	Improved compared with basic cotton belt
Troughability	Good
Rubber adhesion	Good
Longitudinal strength	Moderate
Take-up demand	Suitable for short- to medium-distance systems
Primary economic advantage	Cost-effective general-purpose solution

8. TECHNICAL SPECIFICATION RANGE

Parameter	Catalogue Option / Typical Range	Remarks
Fabric type	TC-70	Polyester-cotton warp / cotton weft
Number of plies	Typically 2–6; project-specific higher ply counts possible	Selected by required belt rating
Single-ply reference strength	Approx. 70 N/mm	Typical industry reference
Ply thickness	Approx. 1.00 mm/ply	Typical reference
Belt width	Approx. 400–2,200+ mm	Manufacturing and project dependent
Top cover thickness	Approx. 1.5–8 mm typical	Duty dependent
Bottom cover thickness	Approx. 0–4.5 mm typical	Duty dependent
Roll length	Up to approx. 300 m in common market references	Width and handling dependent
Edge construction	Cut edge / moulded edge	Application dependent
Splice	Hot vulcanized / approved mechanical	Project dependent

9. COVER COMPOUND OPTIONS

Cover Grade	Primary Property	Typical Application
GP	General purpose	Standard industrial bulk materials
AR	Abrasion resistance	Moderately abrasive bulk
HR	Heat resistance	Suitable hot-material applications
OR	Oil resistance	Oil-contaminated materials
CR	Cold resistance	Low-temperature service
AS	Antistatic	Static-sensitive service

10. APPLICATION INDUSTRIES

Industry	Typical Material	Primary Requirement
Agriculture	Grain, seed and fertilizer	Cost-effective medium-load conveying
Cement & Building Materials	Limestone, additives and light raw materials	General-purpose durability
Power & Utilities	Selected coal or biomass duties	Moderate-load conveying
Warehousing & Terminals	General bulk commodities	Reliable short- to medium-distance handling
Manufacturing	Industrial raw materials	Versatile general-purpose service
Quarry Support Applications	Selected aggregates and fines	Moderate abrasion resistance

11. APPLICATION-BASED SELECTION GUIDE

Duty	Material Profile	Recommended Construction	Cover Selection
Light	Fine / granular material	2–3 ply TC	GP
Moderate	General bulk material	3–4 ply TC	GP / AR
Medium Load	Selected aggregate, fertilizer, industrial bulk	4–6 ply TC	AR / project-specific
Warm Material	Compatible elevated-temperature bulk	Engineered TC construction	HR
Oily Material	Compatible oil-contaminated bulk	Engineered TC construction	OR

12. BELT STRENGTH & PLY ENGINEERING

The correct number of TC fabric plies is selected from operating tension, conveyor length, capacity, lift, starting conditions, pulley diameter and service factor.

Design Input	Engineering Purpose
Operating tension	Determines minimum belt rating
Conveyor length	Influences elongation and take-up requirement
Conveyed load	Determines carcass strength requirement
Pulley diameter	Must suit total carcass thickness
Trough angle	Requires sufficient transverse flexibility
Impact severity	May require thicker covers or additional plies

13. PULLEY DIAMETER, TROUGHABILITY & TAKE-UP

TC belts should be matched to suitable pulley diameters to avoid excessive bending stress. The cotton-containing transverse structure provides good flexibility, but final minimum pulley diameter must be confirmed from total belt thickness, ply count and splice construction.

Take-up travel should be sufficient for the elastic and permanent elongation expected in the selected TC carcass. Accurate alignment is important for preventing edge wear and premature carcass damage.

14. SPLICING & JOINING

Hot-vulcanized splicing is preferred for critical continuous-duty installations. Mechanical fasteners may be used where permitted by the application.

- Use splice rubber compatible with the belt cover and carcass.
- Match splice step geometry to the approved ply count.
- Maintain accurate belt alignment during splicing.
- Control cure temperature, pressure and time.
- Inspect the splice before full-load operation.

15. INSTALLATION & COMMISSIONING

- Inspect pulleys, idlers and conveyor alignment before installation.
- Verify that all idlers rotate freely.
- Set initial take-up within the recommended engineering range.
- Run the belt unloaded and correct tracking.
- Introduce load progressively while observing take-up position and splice behavior.
- Recheck tension after the initial run-in period.

16. INSPECTION & PREVENTIVE MAINTENANCE

Inspection Point	Look For	Recommended Action
Top cover	Cuts, wear or cracking	Repair before carcass exposure
Edges	Fraying or structure contact	Correct tracking and alignment
Splices	Lifting, cracking or separation	Immediate inspection
Take-up	Insufficient travel or excessive tension	Adjust according to engineering data
Idlers	Seizure or contamination	Clean / replace
Loading zone	Impact or trapped material	Correct chute and skirt conditions

17. QUALITY CONTROL & TESTING

Control Item	Purpose
Fabric identification	Confirm TC carcass construction
Belt width / thickness	Dimensional compliance
Tensile strength	Verify carcass performance
Elongation	Assess dimensional stability
Cover physical properties	Verify selected cover compound
Cover-to-ply adhesion	Confirm structural integrity
Ply-to-ply adhesion	Verify inter-ply bond
Traceability	Identify production batch

18. INTERNATIONAL REFERENCE STANDARDS

Reference	Relevance
ISO 14890	Rubber- or plastics-covered textile conveyor belts for general surface use
ISO 283	Full-thickness tensile strength and elongation test method
ISO 252	Adhesion between conveyor-belt constitutive elements
ISO 10247	Classification of conveyor-belt cover characteristics
Customer / Conveyor OEM Specification	Final belt construction and acceptance criteria

19. TECHNICAL ORDERING DATA SHEET

Project / Site	
Industry	
Conveyed Material	
Capacity (t/h)	
Bulk Density	
Maximum Lump Size	
Belt Width (mm)	
Belt Speed (m/s)	
Center Distance (m)	
Inclination (°)	
Required TC Fabric Class	
Required Belt Rating	
Number of Plies	
Top Cover (mm)	
Bottom Cover (mm)	
Required Cover Grade	
Edge Type	
Drive Pulley Diameter	
Tail Pulley Diameter	
Take-Up Type	
Available Take-Up Travel	
Operating Temperature	
Material Temperature	
Splice Requirement	
Applicable Standard / Customer Specification	
Additional Operating Notes	

PRODUCT POSITIONING SUMMARY

Product Attribute	World Prime Services Polyester-Cotton (TC) Conveyor Belt
Carcass	Polyester-cotton reinforced warp / cotton weft
Reference Fabric Class	TC-70
Primary Positioning	Short- to medium-distance, medium-load conveying
Key Benefits	Lighter carcass, improved shock resistance, good troughability and economical service
Typical Industries	Agriculture, building materials, utilities, terminals and general manufacturing
Cover Options	General purpose, abrasion, heat, oil, cold and antistatic
Selection Basis	Operating tension, ply count, conveyor length, pulley diameter and cover duty

ROUGH TOP CONVEYOR BELT (PATTERNED)

Industrial Rubber Conveyor Belting • High-Grip Surface • Inclined Unit Handling

ROUGH TOP CONVEYOR BELT (PATTERNED)

MAXIMUM GRIP. SUPERIOR PERFORMANCE.

WORLD PRIME SERVICES

PRODUCT DESCRIPTION

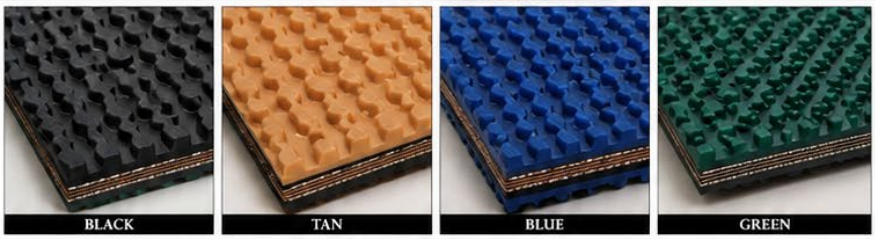
Rough Top (Patterned) Conveyor Belts are engineered with a patterned surface that provides exceptional grip and superior material handling performance, even on steep inclines and in wet or muddy conditions.

The raised pattern on the top cover increases friction between the belt and the conveyed material, preventing slippage and ensuring stable, efficient, and continuous operation.

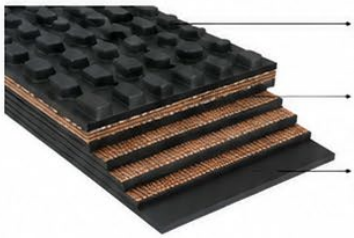
These belts are ideal for industries that require reliable conveying solutions for bulk materials on inclined conveyors.

APPLICATIONS

- Mining and quarrying
- Cement and aggregates
- Sand and gravel
- Coal and power plants
- Recycling and waste management
- Agriculture and grain handling
- Ports and terminals



CONSTRUCTIONS

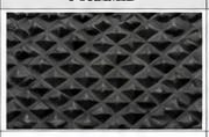


- **Patterned Top Cover** — Provides superior grip and prevents material slippage.
- **Carcass** — High strength fabric (EP or NN) for maximum durability and flexibility.
- **Bottom Cover** — Abrasion and impact resistant for long service life.

TECHNICAL SPECIFICATIONS

PROPERTIES	UNIT	SPECIFICATION	
		EP	NN
Number of Plies	-	2 to 8	2 to 6
Fabric Type	-	EP	NN
Top Cover Thickness	mm	3 – 6	3 – 6
Bottom Cover Thickness	mm	1.5 – 3	1.5 – 3
Total Thickness	mm	6 – 20	6 – 18
Belt Width	mm	400 – 2400	400 – 2000
Tensile Strength	N/mm	125 – 2000	100 – 1000
Working Temperature	°C	-20 to +80	-20 to +80

PATTERN OPTIONS

PATTERN TYPE	CLOSED WAVE	DIAMOND	RECTANGULAR	PYRAMID	SQUARE NUB
SURFACE APPEARANCE					
FEATURES	Excellent for wet and muddy conditions. High grip and self-cleaning.	Balanced grip and wear resistance. Good for inclined conveying.	High stability for steep incline applications.	Strong grip and puncture resistance. Suitable for heavy materials.	Maximum grip for high angle conveying.

RUBBER COVER OPTIONS

COVER TYPE	CHARACTERISTICS	APPLICATION
Standard Rubber (NR / SBR)	Good abrasion resistance and general purpose use.	Common applications in various industries.
Wear Resistant (SBR / BR)	High abrasion resistance for heavy duty service.	Mining, quarrying, aggregates.
Heat Resistant (EPDM)	Resistant to heat up to 120°C.	Cement plants, hot materials.
Oil & Chemical Resistant (NBR)	Resistant to oil, grease and chemicals.	Industrial, ports, chemical plants.

BELT STRUCTURE OPTIONS

EP (Polyester)	NN (Nylon)
	
High tensile strength, low elongation, excellent impact and tear resistance.	High elasticity, excellent troughability and shock resistance.

INCLINE GUIDELINE

MATERIAL TYPE	MAX. INCLINE (ROUGH TOP)
Dry Materials	Up to 35°
Wet / Damp Materials	Up to 30°
Fine Materials	Up to 25°
Large Lump Materials	Up to 40°

SPLICING METHOD

Hot vulcanized splicing is recommended to ensure maximum belt strength and long service life. Mechanical fasteners may be used for emergency or temporary applications.

INSTALLATION & MAINTENANCE

- Ensure correct belt tension and alignment.
- Use suitable pulleys with proper lagging.
- Regularly clean the belt surface to maintain grip.
- Avoid overloading and impact at loading points.

TECHNICAL DATA FOR ORDER

Belt Width (mm): _____
Total Length (m): _____
Number of Plies: _____
Top Cover Thickness (mm): _____
Bottom Cover Thickness (mm): _____
Cover Type: _____
Pattern Type: _____
Working Conditions: _____

Rough Top Conveyor Belt (Patterned) – Built for Maximum Grip and Long-Lasting Performance.

Professional product catalogue for the selection and specification of rough-top patterned rubber conveyor belting for packaged goods, bags, cartons, parcels and other unit loads requiring enhanced surface grip.

PRODUCT FAMILY AT A GLANCE	
Product Type	Rough Top / Patterned Rubber Conveyor Belt
Carcass Options	EP (Polyester–Nylon), NN (Nylon–Nylon), application-dependent textile constructions
Top Surface	Moulded or embossed high-friction rough-top pattern
Bottom Construction	Rubber-covered bottom or bare-back / fabric-back
Typical Uses	Inclined conveying, packaging, warehousing, bag handling, baggage, wood and paper products
Color Options	Black, tan, blue, green and other compounds/colors subject to production availability

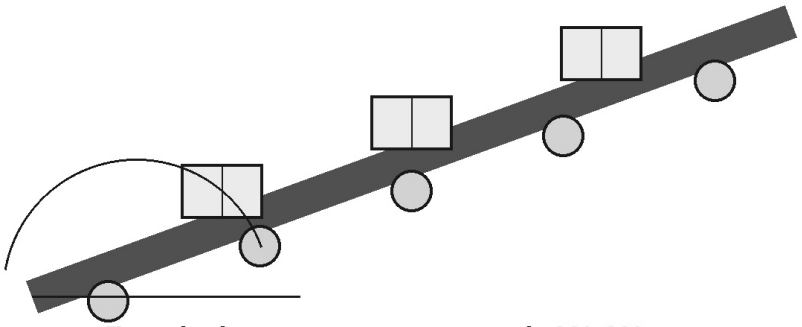
Technical note: values shown in this catalogue are industry-typical selection ranges compiled for product definition and quotation. Final belt construction, cover grade, dimensions, pulley requirements and allowable operating angle shall be confirmed against the actual conveyor and duty conditions.

1. PRODUCT DESCRIPTION

World Prime Services Rough Top Conveyor Belt is a high-friction textile-reinforced rubber conveyor belt designed to improve load stability on flat and inclined conveyor systems. The moulded or embossed top surface provides enhanced grip to reduce sliding, rollback and load displacement, while the elastic rubber profile contributes cushioning and vibration absorption during transport.

The product is especially suited to unit loads and packaged materials where a smooth belt may not provide sufficient friction. Typical conveyed products include paper and polymer sacks, cartons, parcels, boxes, luggage, lightweight industrial components, timber products, glass packages and other fragile or deformable goods.

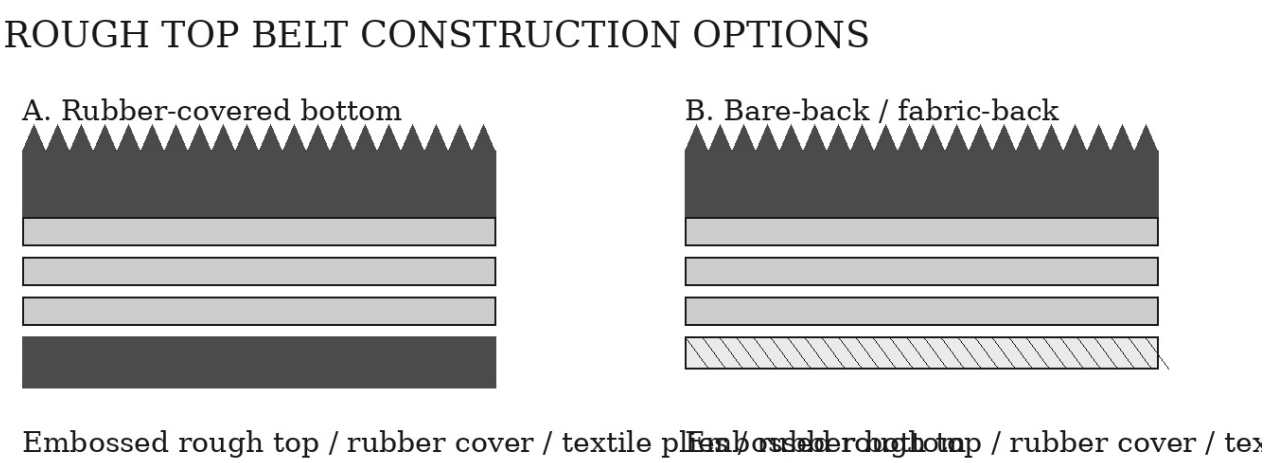
TYPICAL INCLINED CONVEYING APPLICATION



Typical selection range: approximately 20°–30°,
subject to load, profile, speed and operating conditions.

KEY PERFORMANCE CHARACTERISTICS	
Feature	Technical Benefit
High-friction rough-top profile	Improves contact and load retention on inclined or accelerating conveyors
Resilient rubber surface	Cushions conveyed products and helps absorb vibration and impact
Textile carcass	Provides tensile strength, flexibility and controlled elongation
Rubber-back option	Suitable for conventional pulley/idler conveyor arrangements
Bare-back / fabric-back option	Suitable for slider-bed systems where lower underside friction is preferred
Multiple colors	Supports application differentiation and selected industrial handling requirements

2. BELT CONSTRUCTION

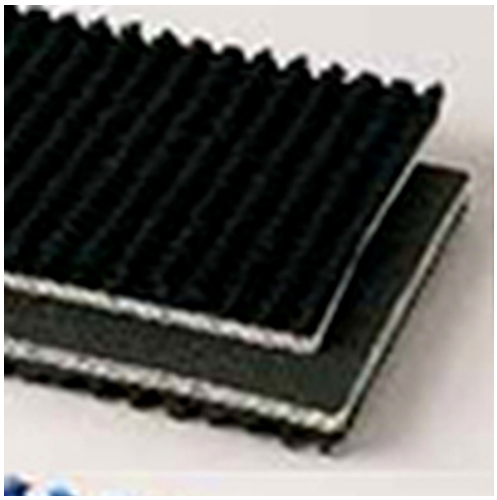


Two principal underside constructions are available. The rubber-covered bottom configuration provides a conventional protected lower cover for pulley and idler contact. The bare-back or fabric-back configuration leaves the textile surface exposed on the underside and is commonly selected for slider-bed conveyors or applications requiring reduced underside drag.

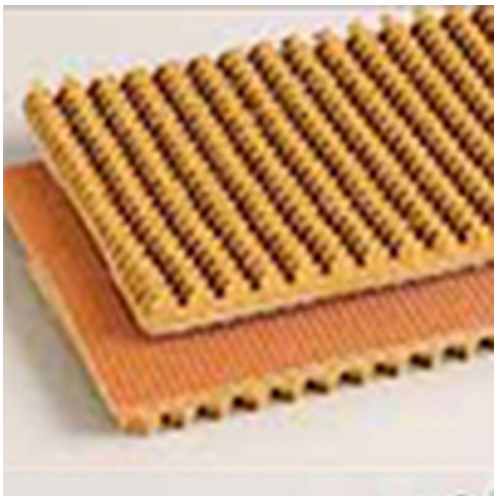
CONSTRUCTION OPTIONS		
Component	Available Configuration	Function
Top profile	Rough-top embossed / moulded rubber pattern	High grip and anti-slip load contact
Top cover	Wear-resistant rubber compound; special compounds by application	Protects carcass and provides resilient load support
Carcass	EP or NN textile plies	Tensile strength, load support and flexibility
Inter-ply skim	Rubber bonding layers	Maintains ply adhesion and structural integrity
Bottom side	Rubber cover or bare fabric	Selected according to pulley/idler or slider-bed conveyor design
Edge	Cut edge or moulded edge	Selected according to belt construction and operating environment

3. SURFACE PATTERN AND COLOR OPTIONS

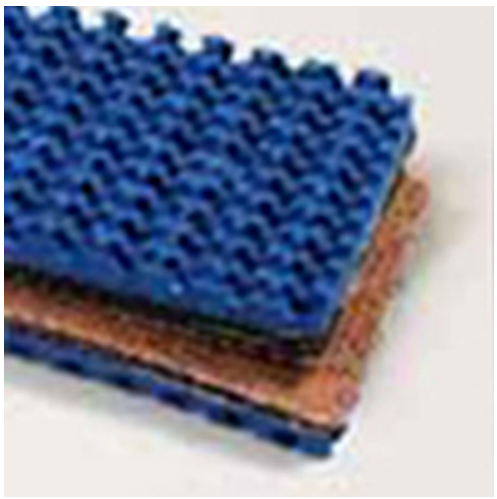
The rough-top profile is formed to generate a large number of flexible contact points. This textured surface increases friction between the belt and the conveyed item, improving stability where the product is subject to incline, deceleration, acceleration or vibration.



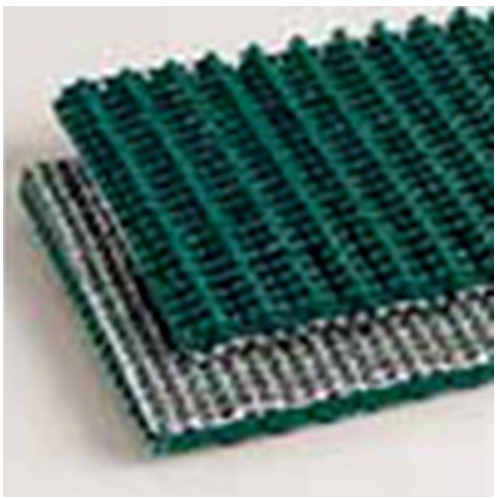
BLACK ROUGH-TOP OPTION



TAN ROUGH-TOP OPTION



BLUE ROUGH-TOP OPTION



GREEN ROUGH-TOP OPTION

Color selection is subject to rubber compound, application, minimum production quantity and manufacturing availability. Color is not, by itself, an indication of oil resistance, heat resistance, flame resistance, food suitability or antistatic performance. Any special property must be specified separately and technically confirmed.

SURFACE / COLOR CONFIGURATION GUIDE	
Configuration	Typical Selection Consideration
Black rough top	General industrial conveying and packaged goods
Tan rough top	Visual contrast and selected packaging/handling duties
Blue rough top	Application differentiation and selected handling environments
Green rough top	Application differentiation and selected handling environments
Special color	Subject to compound feasibility, quantity and technical approval

4. TYPICAL TECHNICAL RANGE

The following table defines a practical global selection envelope for rough-top rubber conveyor belting. Exact values depend on belt rating, carcass type, cover grade, overall thickness, pulley diameters and manufacturing program.

GENERAL TECHNICAL SPECIFICATION	
Parameter	Typical / Available Range
Belt width	Approx. 400–1,600 mm standard industrial range; wider constructions may be available on request
Number of plies	Typically 2–4 plies; special constructions subject to design
Carcass	EP (Polyester–Nylon) or NN (Nylon–Nylon)
Common belt rating	Approx. 200–800 kN/m; higher/lower ratings subject to construction
Top cover	Rough-top patterned rubber, typically from about 3 mm depending on profile and duty
Bottom cover	Rubber-covered or bare-back / fabric-back
Overall thickness	Construction-dependent; commonly within approx. 6–12 mm for standard rough-top unit-handling belts
Edge	Cut edge or moulded edge
Roll length	To order, subject to belt thickness, width, roll diameter and transport limits
Splicing	Hot vulcanized, cold bonded or mechanical, subject to carcass and application

Because rough-top belt selection is strongly application-dependent, the final specification should be based on the conveyor geometry, belt speed, drive arrangement, pulley diameters, take-up, load type, unit weight, contact surface, operating temperature, contaminants and required incline.

5. TEXTILE CARCASS OPTIONS

CARCASS SELECTION		
Carcass Type	General Characteristics	Typical Use
EP (Polyester–Nylon)	High dimensional stability, good strength-to-weight ratio, relatively low longitudinal elongation	General-purpose rough-top belts and inclined unit handling
NN (Nylon–Nylon)	High flexibility, good impact resistance and fatigue performance	Applications where flexibility and dynamic resistance are prioritized

Carcass rating and number of plies shall be selected to provide adequate working tension while maintaining compatibility with conveyor pulley diameters. Excessive belt rating or excessive ply count can reduce flexibility and increase minimum pulley diameter requirements.

ILLUSTRATIVE BELT DESIGNATIONS	
Designation Example	Interpretation
EP 200/2	EP textile carcass, nominal total tensile rating 200 kN/m, 2 plies
EP 315/3	EP textile carcass, nominal total tensile rating 315 kN/m, 3 plies
EP 400/3	EP textile carcass, nominal total tensile rating 400 kN/m, 3 plies
NN 400/3	NN textile carcass, nominal total tensile rating 400 kN/m, 3 plies

Designation conventions may vary by manufacturing standard. The approved technical data sheet and purchase order shall govern the supplied belt.

6. BOTTOM-SIDE OPTIONS

RUBBER BACK VS. BARE BACK		
Selection Item	Rubber-Covered Bottom	Bare-Back / Fabric-Back
Underside surface	Rubber	Exposed textile / treated fabric
Typical support	Idlers and pulleys	Slider bed and selected pulleys
Underside friction	Conventional rubber contact	Lower sliding resistance on suitable beds
Carcass protection	Higher underside environmental protection	Fabric surface exposed; application compatibility required
Selection priority	General conveyor service	Compact unit-handling and slider-bed systems

Bare-back belts should only be applied where the conveyor bed material, cleanliness, alignment and underside wear conditions are suitable. Rubber-backed belts are generally preferred where the underside is exposed to contamination, impact or aggressive idler contact.

For both constructions, pulley diameter, transition geometry and take-up arrangement must be compatible with the selected carcass and belt thickness.

7. APPLICATIONS

RECOMMENDED APPLICATION AREAS	
Industry / Process	Typical Conveyed Product
Packaging and distribution	Cartons, parcels, boxes, packaged consumer goods
Bagging plants	Paper sacks, woven bags, polymer sacks
Warehousing and logistics	Unit loads and parcels on transfer or incline conveyors
Airports and terminals	Baggage and luggage handling
Paper and corrugated products	Cartons, board packs and converted paper products
Wood products	Boards, panels and selected timber products
Glass and fragile goods	Packaged or supported fragile units requiring cushioning
Industrial assembly	Components and containers requiring stable transfer

The belt is intended primarily for unit handling and packaged goods. Where loose bulk materials are conveyed at steep angles, a chevron, cleated, sidewall or other purpose-designed patterned belt may be more appropriate.

8. INCLINATION GUIDANCE

Rough-top belting is commonly used where smooth-top belts experience rollback or slipping. Industry references frequently indicate practical inclination ranges around 20° to 30° for many packaged goods applications, with some installations achieving higher values under favorable conditions. The actual allowable angle must be established from the coefficient of friction, unit geometry, center of gravity, belt speed, vibration, acceleration and surface contamination.

INCLINE SELECTION FACTORS	
Factor	Effect on Allowable Incline
Dry, clean contact surface	Generally improves grip
Dust, oil, moisture or product fines	May significantly reduce grip
Soft or conformable package base	May increase contact area and stability
Rigid smooth package base	May reduce friction depending on material
Higher acceleration/deceleration	May increase tendency for slip
High vibration	May reduce load stability

9. COVER COMPOUNDS AND SPECIAL DUTIES

Standard rough-top belts are generally specified with abrasion-resistant, wear-resistant rubber suitable for unit handling. Special compounds can be engineered where the operating environment requires additional resistance; however, the rough-top profile and the required special property must be mutually compatible.

SPECIAL COMPOUND OPTIONS	
Compound Requirement	Application Note
Abrasion resistant	For repeated contact and higher wear conditions
Oil resistant	For exposure to mineral oils, greases or oily products; exact medium must be declared
Heat resistant	For elevated-temperature conveyed products or ambient conditions; temperature profile required
Flame resistant	For applications subject to specified fire-safety requirements
Cold resistant	For low-temperature environments requiring flexibility retention
Antistatic / conductive	Where electrical resistance limits are specified by application or regulation

Special properties are not assumed from belt color. Each requirement must be explicitly stated in the inquiry and supported by an agreed test standard or technical acceptance criterion.

10. SPLICING AND ENDLESSING

Splice selection should preserve belt flexibility, tensile capability and surface continuity while fitting the conveyor maintenance strategy. The preferred method depends on carcass construction, belt rating, pulley diameters, operating tension, required hygiene, downtime and available site equipment.

SPLICE OPTIONS	
Method	General Use Consideration
Hot vulcanized splice	Preferred for durable permanent joints where vulcanizing equipment and controlled procedures are available
Cold bonded splice	Used in selected textile belt applications subject to adhesive system and service conditions
Mechanical fastener	Useful for rapid installation or frequent belt removal; fastener type must match belt thickness and pulley diameter
Factory endless	Available for selected dimensions and transportable endless lengths

Splicing procedures should be performed by qualified personnel using materials compatible with the belt construction. Rough-top surface preparation must avoid unnecessary damage to the profile outside the splice area.

11. INSTALLATION AND OPERATING RECOMMENDATIONS

- Confirm the belt travel direction, rough-top surface orientation and underside construction before installation.
- Verify pulley diameters against the approved belt construction and splice method.
- Align pulleys, idlers and slider beds to minimize mistracking and edge damage.
- Set take-up tension only high enough to prevent drive slip and maintain stable tracking.
- Avoid contamination of the rough-top surface with oils, release agents or other substances that can reduce friction.
- Prevent product or debris from becoming trapped between the belt and pulleys or slider bed.
- Inspect the rough-top profile for cuts, chunking, localized wear or hardening.
- Repair localized damage promptly before it propagates into the textile carcass.
- Do not assume the same allowable incline after a change in package material, belt speed or operating environment.

ROUTINE INSPECTION POINTS	
Inspection Item	Recommended Check
Tracking	Belt runs centrally without persistent edge contact
Surface profile	No abnormal flattening, tearing, chunking or contamination
Splice	No opening, lifting, fastener damage or localized cracking
Edges	No progressive fraying or carcass exposure
Underside	No abnormal glazing, abrasion or fabric damage
Pulleys / idlers	Clean, rotating freely and correctly aligned

12. BELT SELECTION WORKSHEET

For accurate technical selection and quotation, provide the following information:

MINIMUM APPLICATION DATA	
Required Data	Customer / Project Information
Conveyor type	Flat / inclined / declined / slider bed / idler supported
Conveyor center distance	_____ m
Belt width	_____ mm
Required belt length	_____ m
Inclination angle	_____ degrees
Belt speed	_____ m/s
Drive pulley diameter	_____ mm
Tail / bend pulley diameter	_____ mm

Take-up type and travel	_____
Conveyed product	_____
Unit dimensions and weight	_____
Product contact surface	Paper / polymer / cardboard / wood / other
Operating temperature	_____ °C
Contaminants	Dry / wet / dusty / oil / grease / chemical exposure
Preferred underside	Rubber-backed / bare-back / to be recommended
Preferred color	Black / tan / blue / green / special
Required splice	Hot / cold / mechanical / factory endless / to be recommended

13. ORDERING DESIGNATION

A complete purchase description should clearly identify the belt construction and intended duty. The following format is recommended:

ORDERING FORMAT	
Field	Example
Product	Rough Top Conveyor Belt (Patterned)
Carcass	EP 315/3
Width	1,000 mm
Top	Rough-top patterned rubber
Bottom	Bare-back / fabric-back
Color	Black
Edge	Cut edge
Length	100 m roll
Splice	Open length for site hot splice
Special requirement	Oil-resistant compound, if technically approved

Example designation: ROUGH TOP – EP 315/3 – 1000 mm – BLACK – BARE BACK – CUT EDGE – 100 m.

All non-standard performance requirements, including oil resistance, heat resistance, flame resistance, antistatic properties or specific test standards, must be stated in the purchase specification.

14. TECHNICAL COMPLIANCE AND QUALITY DOCUMENTATION

Product supply may be specified against applicable customer requirements and recognized conveyor belting standards, subject to the selected construction and agreed manufacturing scope. Where required, inspection documentation can define dimensional checks, tensile properties, adhesion, cover properties and other agreed acceptance criteria.

DOCUMENTATION THAT MAY BE SPECIFIED	
Document / Record	Purpose
Technical data sheet	Defines ordered belt construction and nominal characteristics
Dimensional inspection record	Confirms width, length and thickness where specified
Physical property test report	Reports agreed rubber and/or carcass test parameters
Certificate of conformity	Confirms supply against the agreed purchase specification
Packing list / roll identification	Supports logistics and product traceability

Final compliance shall be based on the standards and acceptance criteria stated in the confirmed purchase order. Standard references must be matched to the actual belt category; requirements applicable to general rubber conveyor belting do not automatically define every special rough-top profile.

15. PRODUCT LIMITATIONS AND ENGINEERING NOTES

- Rough-top belts are designed primarily to increase friction; they are not a substitute for cleats or sidewalls when positive material containment is required.
- Maximum incline cannot be guaranteed from belt profile alone and must be validated under actual load and environmental conditions.
- Bare-back constructions require a conveyor support surface compatible with exposed fabric operation.
- Very small pulley diameters may cause excessive flexing, splice fatigue or carcass damage.
- High-temperature, oil-contaminated or chemically aggressive service requires a specifically selected compound.
- Color variations can occur between production batches and should not be used as the sole acceptance criterion unless explicitly agreed.

16. PRODUCT IDENTIFICATION

CATALOGUE PRODUCT	
Brand	World Prime Services
Product Name	Rough Top Conveyor Belt (Patterned)
Category	Specialty Textile-Reinforced Rubber Conveyor Belting
Primary Function	High-grip conveying of packaged and unit loads on flat or inclined systems
Available Backing	Rubber-covered bottom or bare-back / fabric-back
Available Colors	Black, tan, blue, green and special colors subject to confirmation

SIDEWALL CONVEYOR BELT

Corrugated Sidewall & Cleated High-Angle Conveyor Belting

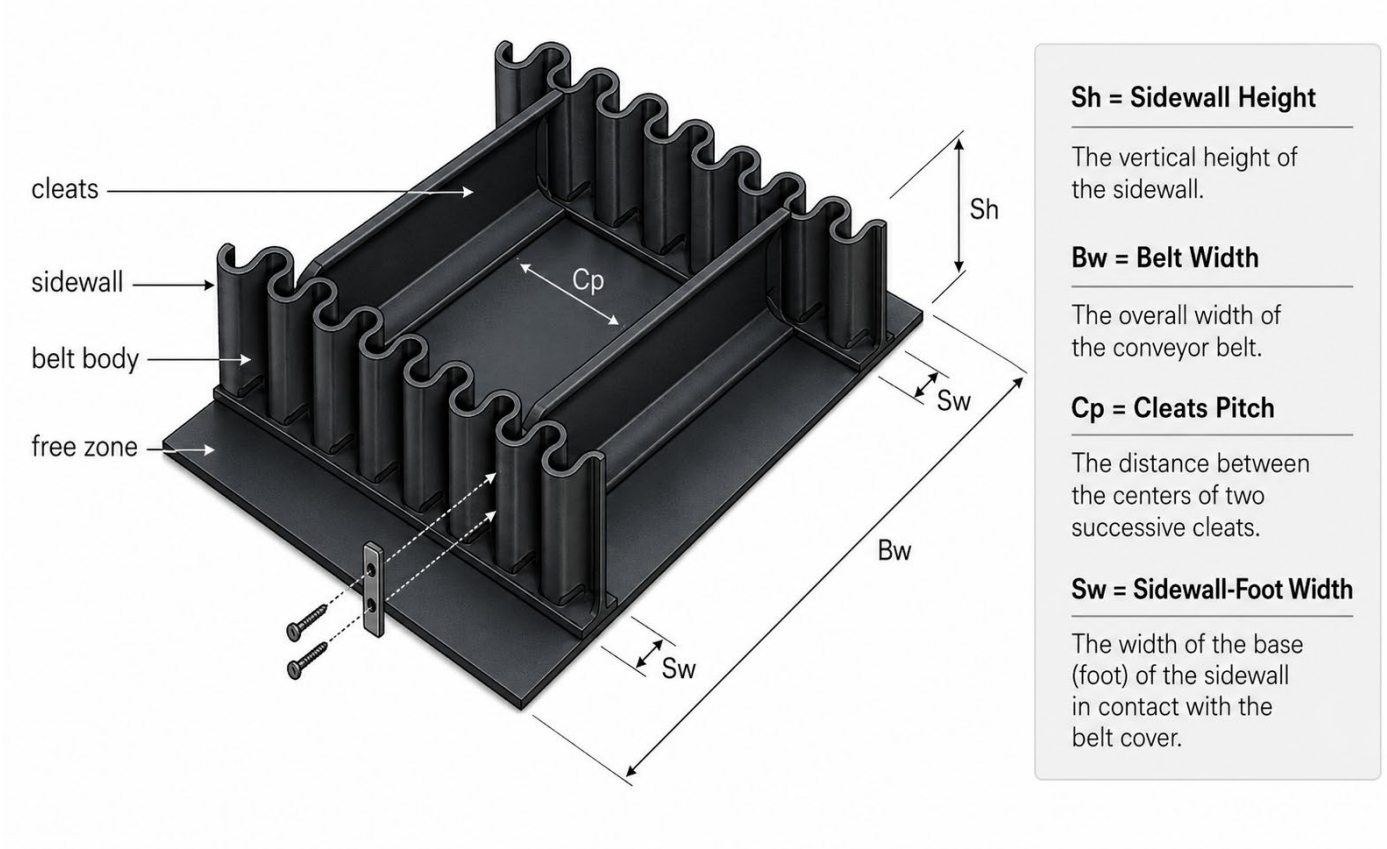
Complete sidewall and transverse-cleat belt construction

PRODUCT OVERVIEW

Word Prime Services Sidewall Conveyor Belt is engineered for continuous bulk-material conveying on horizontal, inclined, steep-angle and vertical routes. The system integrates a cross-rigid base belt, flexible corrugated sidewalls and application-selected transverse cleats to create stable material pockets, maximize lift within restricted plant space and reduce intermediate transfer points.

- Conveying geometry from horizontal service to vertical lifting, subject to material and system design.
- High material containment through flexible corrugated sidewalls.
- Optimized pocket capacity through coordinated sidewall height, cleat height and cleat pitch.
- Cross-rigid base-belt construction for transverse stability under loaded conditions.
- Application-specific rubber compounds for abrasion, heat, oil, flame, cold and chemical exposure.

BELT SYSTEM NOMENCLATURE



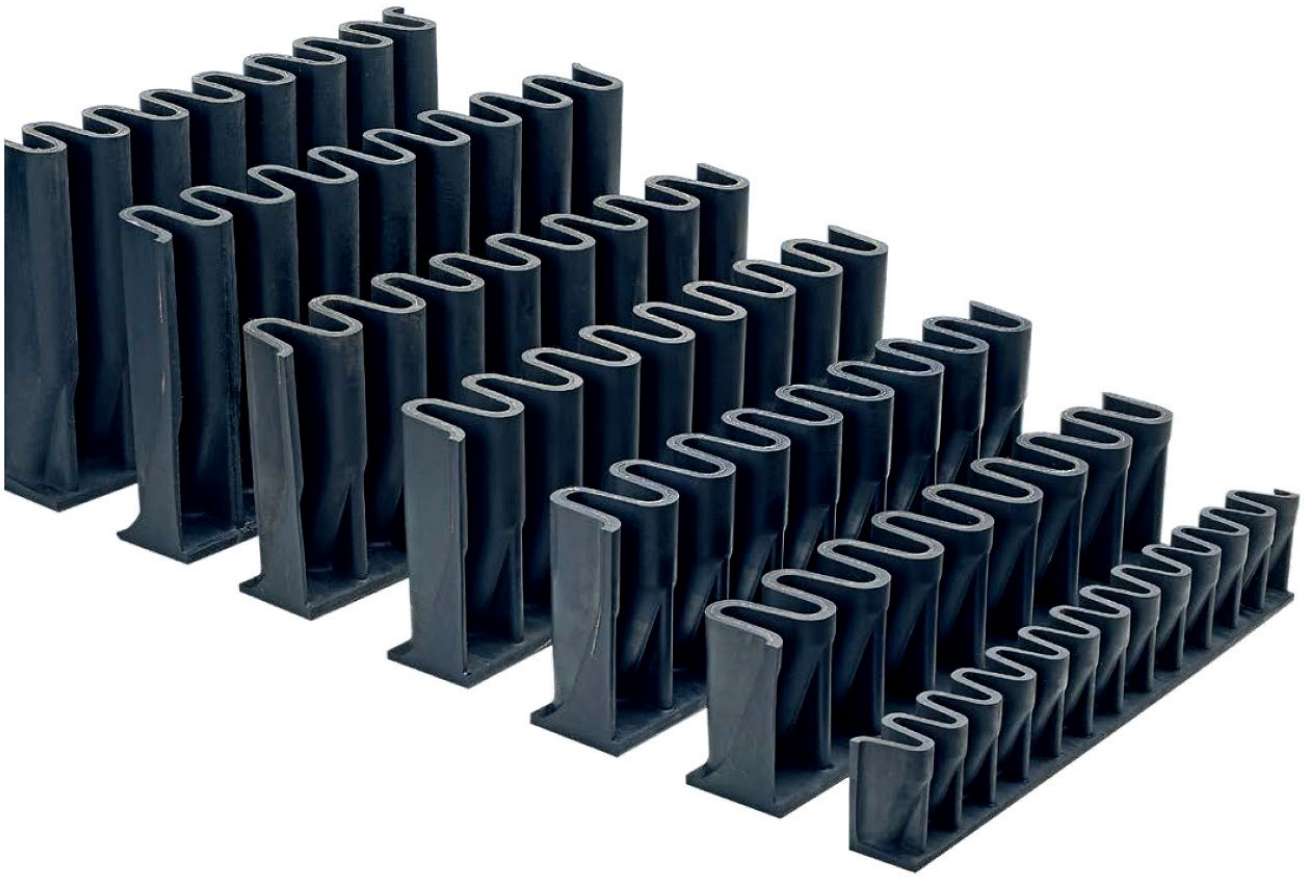
Dimensional and component nomenclature

DIMENSIONAL REFERENCES

Symbol	Definition
Bw	Total base-belt width.
Sh	Corrugated sidewall height.
Sw	Sidewall foot width.
Cp	Cleat pitch, measured center-to-center.
Ch	Cleat height.
Cw	Effective cleat width between sidewalls.
Fs	Free edge zone between sidewall foot and belt edge.

DIMENSIONAL REFERENCES CORRUGATED SIDEWALL TYPES

Sidewall selection is governed by required pocket volume, belt width, loading severity, pulley geometry and repeated flexing duty. The product range is organized into N, S and ES duty classes, with special profiles available for engineered applications.



Representative corrugated sidewall height range

SIDEWALL CLASSIFICATION

Type	Duty	Typical Height Range	Application
N	Light Duty	40–120 mm	Compact systems and moderate material loading.
S	Medium Duty	120–300 mm	General industrial steep-angle conveying.
ES	Heavy / Extra Strong	300–630 mm	High-capacity, high-lift and severe-duty conveying.

Typical molded sidewall profile showing corrugation and reinforced foot

STANDARD SIDEWALL HEIGHT SERIES

Sidewall Type	Typical Heights (mm)
N	40, 60, 80, 100, 120
S	120, 160, 200, 240, 300
ES	300, 400, 500, 630
Special	S136, S220, S270, S360 and project-specific profiles.

TRANSVERSE CLEAT TYPES

Cleats support the material column and define the carrying pocket. Profile selection is matched to conveyor inclination, material flow behavior, lump size, abrasion, impact and required discharge characteristics.

T Type — straight transverse profile for general inclined conveying

C Type — inclined or curved retaining profile for improved material retention

TC Type — high-retention profile for steep-angle and vertical conveying

TCS

TS

CLEAT PROFILE RANGE

Type	Duty	Typical Use
T	General Duty	Moderate-angle conveying and free-flowing bulk materials.
TS	Reinforced T	Higher abrasion and mechanical loading.
C	Retention Profile	Controlled pocketing and reduced rollback.
TC	High-Retention	Steep-angle and vertical conveying.
TCS	Reinforced High-Retention	Severe abrasive, high-angle and high-load service.

TYPICAL CLEAT HEIGHT SERIES

Type	Typical Heights (mm)
T	35, 55, 75, 90, 110, 140, 180, 220, 280, 360, 460, 580
TS	110, 140, 180, 220, 280, 360, 460, 580
C	55, 75, 90, 110, 140
TC	35, 55, 75, 90, 110, 140, 180, 220, 280
TCS	180, 220, 280, 360, 460, 580

SIDEWALL AND CLEAT SELECTION MATRIX

Sidewall and Cleats (mm)		 T	 TS	 C	 TC	 TCS
Name Type		N		S		ES
Sidewall						
Height	40	60	80	100	120	120	160	200	240	300	400	500	630
Structure													
Type		TC		TC		TC							
Height	35	55	75	90	110	110	140	180	220		280		
Structure													
Type		T		T		TS				TS			
Height	35	55	75	90	110	110	140	180	220	280	360	460	580
Structure													
Type		C		C		TCS				TCS			
Height		55	75	90	110	110		180	220	280	360	460	580
Non-Standard of Sidewall: S136 S220 S270 S360													

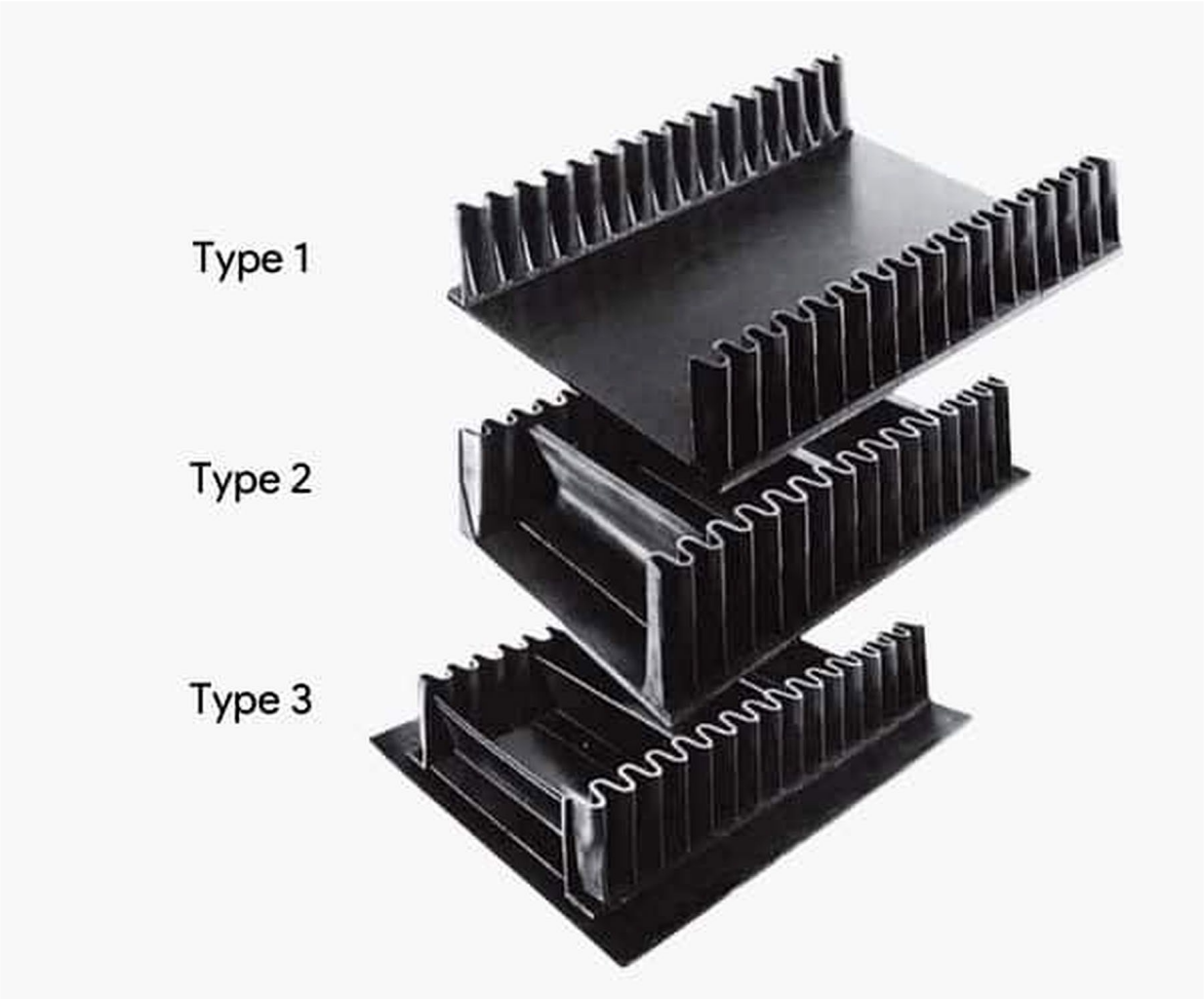
Reference relationship between sidewall classes, profile heights and cleat families

GENERAL SELECTION BY INCLINATION

Inclination	Typical Cleat Family	Engineering Consideration
0°–20°	T / C	Containment and controlled feeding.
20°–40°	T / TS / C	Selection according to bulk density, lump size and flowability.
40°–60°	TC / TCS	High-retention pocket geometry generally preferred.
60°–90°	TC / TCS	Deep-pocket system requiring coordinated sidewall height and cleat pitch.

SIDEWALL-ONLY CONFIGURATION

For horizontal and low-angle duties where lateral containment is required without transverse material support, the belt may be supplied with corrugated sidewalls only. This arrangement preserves edge containment while maintaining an open carrying surface.



Sidewall-only belt configuration

BASE BELT CONSTRUCTION

BASE BELT OPTIONS

Construction	Typical Duty	Characteristics
EP Textile	General industrial / heavy duty	Low elongation and good dimensional stability.
NN Textile	Impact and flexing duty	High flexibility and fatigue resistance.
CC Textile	Moderate duty	General-purpose textile construction.
Cross-Rigid Textile	High-angle sidewall service	Enhanced transverse stiffness and pocket support.
Steel Cord / Steel Reinforced	High lift / high tension	Long centers and severe high-tension applications.

RUBBER COMPOUND OPTIONS

COVER COMPOUND SELECTION

Compound	Typical Service
Abrasion Resistant	Ore, aggregate, clinker, coal and abrasive solids.
Heat Resistant	Elevated-temperature bulk materials.
Oil Resistant	Oily or hydrocarbon-contaminated materials.
Flame Resistant	Applications requiring specified flame behavior.
Cold Resistant	Low-temperature environments.
Acid / Alkali Resistant	Compatible fertilizer and chemical duties.

TYPICAL DIMENSIONAL COMBINATIONS

BELT / SIDEWALL / CLEAT REFERENCE

Bw (mm)	Sh (mm)	Ch (mm)	Typical Effective Carrying Width
300	40 / 60 / 80	35 / 55 / 75	120–180 mm
400	60 / 80 / 100	55 / 75 / 90	Approx. 180 mm
500	80 / 100 / 120	75 / 90 / 110	Approx. 250 mm
650	100 / 120 / 160	90 / 110 / 140	300–350 mm
800	120 / 160 / 200	110 / 140 / 180	410–460 mm
1000	160 / 200 / 240	140 / 180 / 220	Approx. 550 mm
1200	160 / 200 / 240 / 300	140 / 180 / 220 / 280	630–690 mm
1400	200 / 240 / 300 / 400	180 / 220 / 280 / 360	770–830 mm
1600	200 / 240 / 300 / 400	180 / 220 / 280 / 360	910–970 mm
1800	240 / 300 / 400 / 500	220 / 280 / 360 / 460	1010–1110 mm

ENGINEERING DATA REQUIRED FOR SELECTION

APPLICATION DATA

Parameter	Required Information
Material	Name, bulk density, moisture, abrasiveness and temperature.
Capacity	Normal and peak t/h and/or m³/h.
Particle Size	Maximum lump size and size distribution.
Geometry	Horizontal run, vertical lift, inclination and transitions.
Belt	Width, speed, tensile rating and length.
Sidewall	Type N / S / ES and required Sh.
Cleat	Type T / TS / C / TC / TCS, Ch and Cp.
Mechanical	Pulley diameters, drive arrangement and take-up.
Environment	Temperature, oil, flame, chemicals and outdoor exposure.
Splicing	Open, endless, hot-vulcanized or site-splice requirement.

APPLICATION RANGE

INDUSTRIES AND MATERIALS

Industry	Typical Materials
Mining & Minerals	Iron ore, copper ore, coal, concentrate and crushed rock.
Cement & Aggregates	Limestone, clinker, gypsum, sand and gravel.
Steel & Metallurgy	Coke, sinter, pellets, fluxes and process materials.
Ports & Terminals	Compact high-angle loading and transfer systems.
Power Generation	Coal, biomass and selected fuel materials.
Fertilizer & Chemical	Granules, salts and compatible bulk solids.
Recycling	Shredded products, glass and industrial residues.

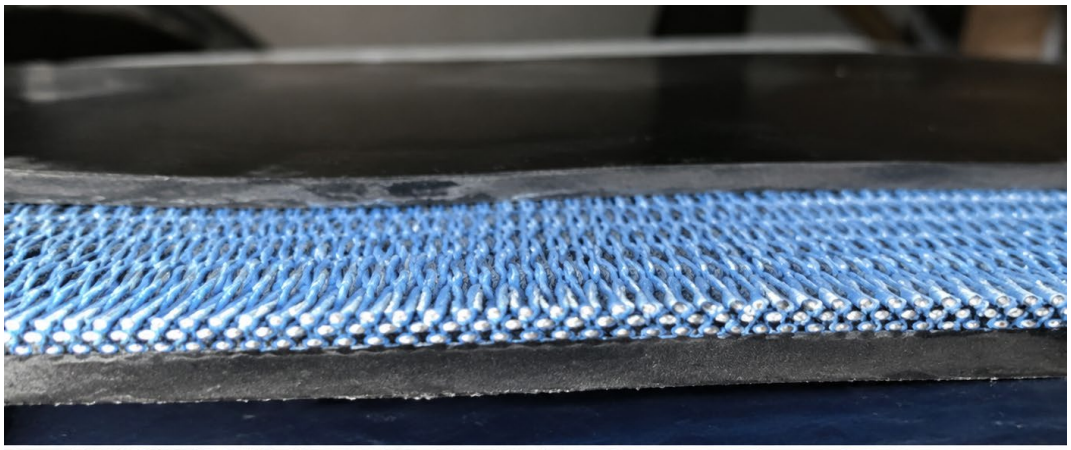
TECHNICAL NOTE

Dimensions and combinations shown are typical engineering references. Final belt construction, sidewall profile, cleat profile, rubber compound, pulley diameter and operating limits shall be confirmed by application-specific engineering review before manufacture.

Sidewall and Cleat					
Belt Width (mm)	Sidewall Height H (mm)	Cleat Height Ch (mm)	Sw (mm)	Cw (mm)	Fs (mm)
300	40	35	35	180	35
	60	55	50	120	40
	80	75			
400	60	55	50	180	60
	80	75			
	100	90			
500	80	75	50	250	75
	100	90			
	120	110			
650	100	90	50	250	100
	120	110			
	160	140	75	300	
800	120	110	50	460	120
	160	140	75	410	
	200	180			
1000	160	140	75	550	150
	200	180			
	240	220			
1200	160	140	75	690	180
	200	180			
	240	220			
	300	280	105	630	
1400	200	180	75	830	210
	240	220			
	300	280	105	770	
	400	360			
1600	200	180	75	970	240
	240	220			
	300	280	105	910	
	400	360			
1800	240	220	75	1110	270
	300	280	105	1050	
	400	360			
	500	460	125	1010	

SOLID WOVEN CONVEYOR BELT

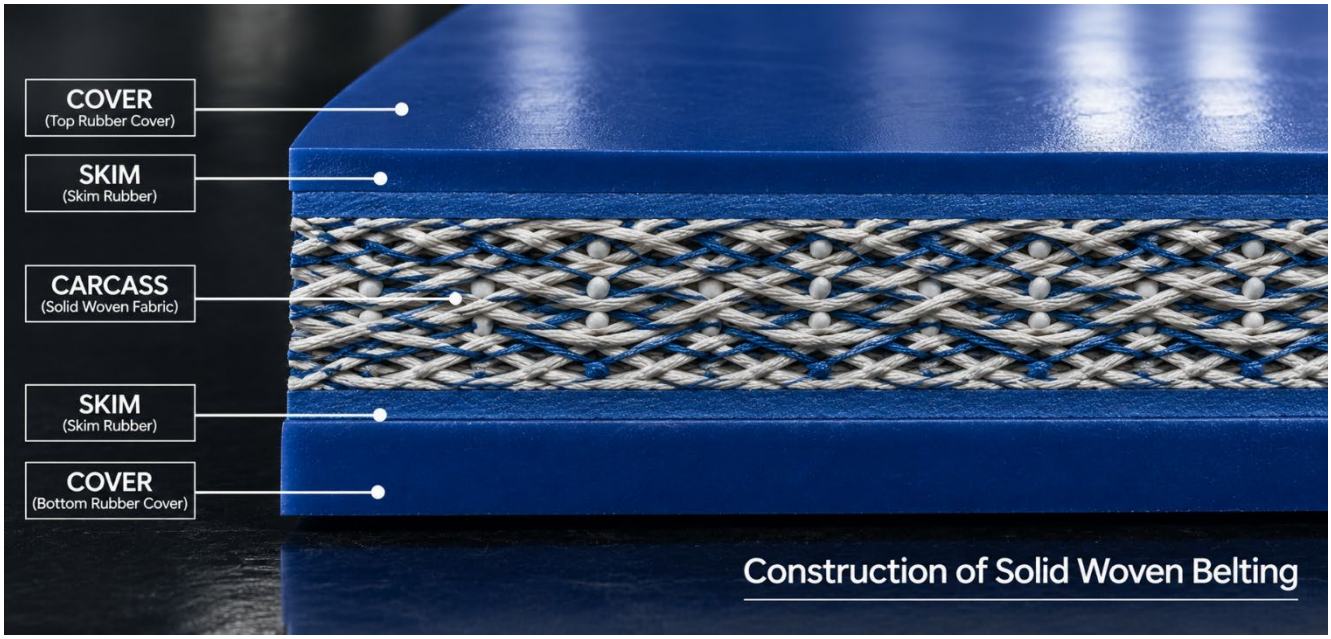
PVC & PVG FIRE-RESISTANT / ANTISTATIC CONVEYOR BELTING



PRODUCT OVERVIEW

World Prime Services Solid Woven Conveyor Belt is engineered for demanding bulk-material conveying where high tensile strength, low elongation, carcass integrity, impact resistance and controlled safety performance are required. The integral solid-woven carcass is impregnated with PVC compound, creating a compact structure with excellent resistance to moisture penetration, edge damage and ply separation.

The product range is available in PVC and PVG constructions. PVC belts use PVC-impregnated solid-woven carcass technology with PVC surface covers. PVG belts combine the solid-woven carcass with rubber-based or nitrile/PVC covers for enhanced abrasion, impact, moisture and traction performance.



KEY FEATURES

- Integral solid-woven carcass with high longitudinal tensile strength.
- Low operational elongation and excellent dimensional stability.
- Strong resistance to impact, tearing, edge damage and carcass delamination.
- Good flexibility and troughability for demanding conveyor routes.
- PVC and PVG constructions for application-specific service.
- Fire-resistant and antistatic constructions available to specified standards.
- Suitable for underground mining and severe continuous-duty bulk handling.

BELT CONSTRUCTION

Component	Construction	Function
Top Cover	PVC or PVG rubber-based compound	Wear, impact and environmental protection.
Solid Woven Carcass	Integral interwoven warp/weft reinforcement impregnated with PVC	Carries tension and distributes impact without conventional ply separation.
Carcass Impregnation	PVC compound throughout woven reinforcement	Improves bonding, moisture resistance and structural integrity.
Bottom Cover	PVC or PVG compound	Pulley-side protection and friction performance.
Integrated Edge	Impregnated solid-woven edge	Reduces moisture ingress and edge separation.

PVC SOLID WOVEN CONVEYOR BELT

PVC Solid Woven Conveyor Belt is intended principally for dry or controlled environments requiring a compact, flexible and safety-oriented belt. Typical applications include underground coal conveying, power generation and selected industrial material-handling systems requiring specified flame-resistant and antistatic performance.

PVC CHARACTERISTICS

Parameter	Typical Description
Cover System	PVC top and bottom covers
Typical Cover Reference	0.8 + 0.8 mm for common strength classes
Typical Inclination Guide	Up to approximately 16°, subject to material and conveyor design
Key Benefits	Low elongation, good troughability, moisture resistance, integral carcass
Primary Duty	Underground coal and safety-sensitive bulk handling

PVG SOLID WOVEN CONVEYOR BELT

PVG Solid Woven Conveyor Belt uses an integral PVC-impregnated solid-woven carcass with enhanced rubber-based or nitrile/PVC covers. This construction provides improved abrasion resistance, impact performance, wet-service traction and durability in more severe operating conditions.

PVG CHARACTERISTICS

Parameter	Typical Description
Cover System	Rubber-based / nitrile-PVC top and bottom covers
Typical Cover Reference	1.5 + 1.5 mm; 2.0 + 2.0 mm for higher classes
Typical Inclination Guide	Up to approximately 20°, subject to material and conveyor design
Key Benefits	Enhanced abrasion, impact, moisture and slip resistance
Primary Duty	Mining and severe industrial bulk-material conveying

STANDARD STRENGTH CLASSES

Class	Warp / Weft Strength (N/mm)	PVC Cover (mm)	PVG Cover (mm)	Typical Width (mm)	Min. Pulley Dia. (mm)
680S	680 / 265	0.8 + 0.8	1.5 + 1.5	650–1600	320
800S	800 / 280	0.8 + 0.8	1.5 + 1.5	650–1600	400
1000S	1000 / 300	0.8 + 0.8	1.5 + 1.5	650–1600	500
1250S	1250 / 350	0.8 + 0.8	1.5 + 1.5	650–1600	500
1400S	1400 / 350	0.8 + 0.8	1.5 + 1.5	650–1600	630
1600S	1600 / 400	0.8 + 0.8	2.0 + 2.0	650–1600	750
1800S	1800 / 400	0.8 + 0.8	2.0 + 2.0	650–1600	800
2000S	2000 / 400	0.8 + 0.8	2.0 + 2.0	650–1600	800
2240S	2240 / 450	0.8 + 0.8	2.0 + 2.0	650–1600	1000
2500S	2500 / 450	Project Specific	Project Specific	Project Specific	1000

FIRE-RESISTANT AND ANTISTATIC PERFORMANCE

Solid woven belting is widely used in underground mining because the integral carcass can be combined with specially formulated impregnation and cover compounds to satisfy defined fire-resistance and antistatic requirements. Compliance, certification and test methods must be specified for the destination market and confirmed for the exact supplied belt construction.

COMMON SAFETY REFERENCES

Region / Market	Commonly Referenced Standard
Germany	DIN 22109 series
Australia	AS 4606
Canada	CSA M422
United States	Applicable MSHA / Title 30 requirements
China	MT 914 series
Other Markets	Applicable national mining and fire-safety standards

APPLICATION RANGE

Industry	Typical Service
Underground Coal Mining	Coal and run-of-mine material conveying.
Mining & Minerals	Selected ores and mineral products.
Potash Mining	Potash ore and mineral handling.
Power Generation	Coal and fuel-handling systems.
Metallurgy	Selected raw materials and process feed.
Industrial Bulk Handling	Continuous conveying requiring low elongation and carcass integrity.

SPLICING

Solid woven belts may be joined using approved mechanical fastening or engineered hot finger-splice / vulcanized splice systems, depending on belt type, strength class, conveyor duty and safety requirements. Splice geometry, materials and procedures must be compatible with the selected PVC or PVG construction.

ENGINEERING DATA REQUIRED FOR SELECTION

Parameter	Required Information
Material	Name, bulk density, moisture, abrasiveness and temperature.
Capacity	Normal and peak capacity in t/h or m³/h.
Conveyor Geometry	Center distance, vertical lift and inclination.
Belt	Width, speed and calculated operating tension.
Pulley System	Drive, tail, bend and take-up pulley diameters.
Environment	Underground/surface, wet/dry and ambient conditions.
Safety	Required flame-resistant, antistatic or mine-approval standard.
Construction	PVC or PVG, strength class and cover thickness.
Splice	Mechanical or vulcanized/finger-splice requirement.

ORDERING DESIGNATION

‚OLID WOVEN – [PVC/PVG] – [BELT CLASS] – [BELT WIDTH] – [TOP/BOTTOM COVER] – [SAFETY STANDARD] – [SPLICE REQUIREMENT]

Example Ordering Designations

SOLID WOVEN – PVC – 1000S – 1000 mm – 0.8/0.8 mm – FR/AS – MECHANICAL SPLICE

SOLID WOVEN – PVG – 1250S – 1200 mm – 1.5/1.5 mm – FR/AS – HOT FINGER SPLICE

SOLID WOVEN – PVG – 1600S – 1400 mm – 2.0/2.0 mm – AS 4606 – VULCANIZED SPLICE

Designation Field	Description
PVC / PVG	Belt cover and construction type
Belt Class	Nominal tensile strength class, e.g. 680S, 800S, 1000S, 1250S, 1400S, 1600S, 1800S, 2000S, 2240S or 2500S
Belt Width	Nominal belt width in millimeters
Top / Bottom Cover	Specified top and bottom cover thickness
Safety Standard	Required fire-resistant, flame-retardant and/or antistatic standard
Splice Requirement	Mechanical, hot finger, vulcanized or project-specific splice system

TECHNICAL NOTE

All dimensions and performance values shown are typical engineering reference values. Final belt class, cover construction, width, pulley diameter, splice design and operating limits shall be confirmed by application-specific engineering review and the applicable safety or regulatory requirements before manufacture.

STEEL CORD CONVEYOR BELT

High-Tension • Low Elongation • Long-Distance • Heavy-Duty Bulk Material Conveying

PRODUCT OVERVIEW

World Prime Services Steel Cord Conveyor Belts are engineered for demanding bulk-material handling systems requiring high longitudinal tensile strength, low operating elongation, high dynamic splice performance and long service life. The tensile carcass consists of longitudinal high-strength steel cords embedded in specially formulated adhesion rubber and protected by application-specific top and bottom rubber covers.

Typical applications include mining, iron ore, copper, coal, aggregates, cement, steelworks, power generation, ports, terminals, overland conveyors, high-lift conveyors and other high-capacity continuous conveying installations.

TYPICAL CONSTRUCTION

Component	Technical Function
Carry-Side / Top Cover	Protects the tensile carcass against abrasion, cutting, gouging, impact, heat and environmental exposure.
Core / Adhesion Rubber	Encapsulates the steel cords and provides high dynamic cord-to-rubber adhesion and corrosion protection.
Steel Cord Carcass	Longitudinal high-tensile steel cords providing the principal load-carrying tensile strength.
Transverse Reinforcement	Optional special fabric, textile or steel reinforcement designed to improve puncture, impact and longitudinal rip resistance.
Edge Rubber	Protects the belt edges and internal carcass against mechanical and environmental damage.
Pulley-Side / Bottom Cover	Protects the carcass on the return side and provides suitable pulley contact and flexing performance.

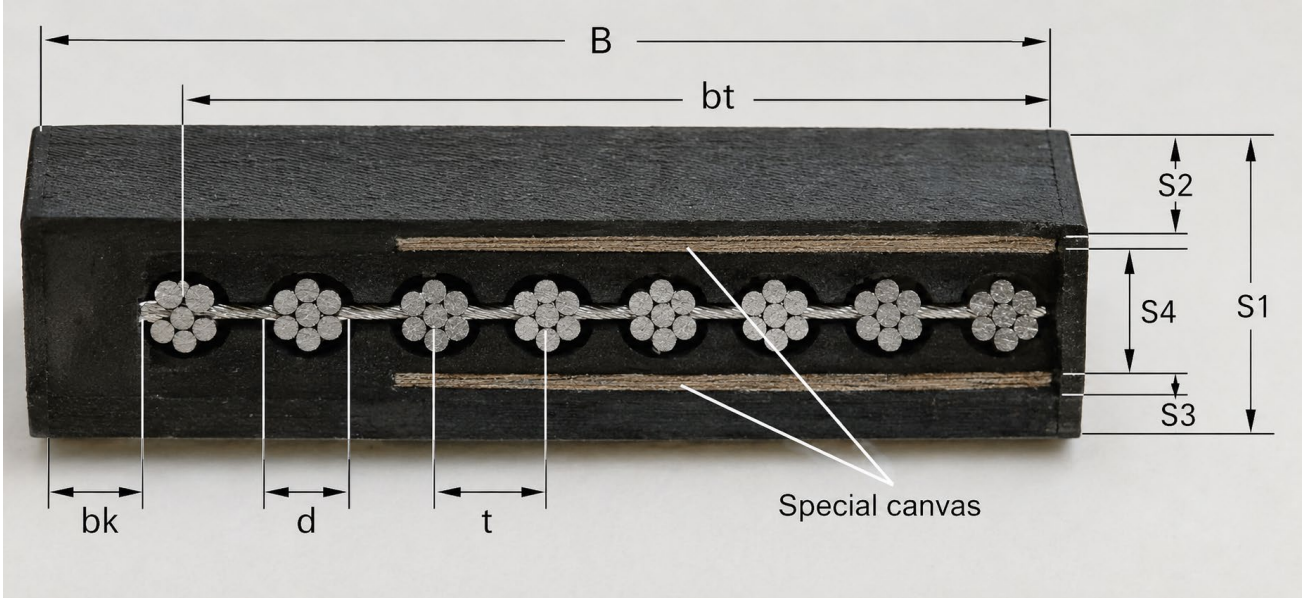
TRANSVERSE REINFORCEMENT CONSTRUCTION

Cross-Section of Steel Cord Conveyor Belt with Special Transverse Fabric Reinforcement

The special construction incorporates transverse reinforcement positioned between the rubber cover and the longitudinal steel cord carcass. The reinforcement is oriented approximately perpendicular to the main longitudinal steel cords and is engineered to improve resistance to puncture, impact loading and longitudinal tear propagation.

Depending on the required protection level, special transverse fabric reinforcement may be installed on the carrying side only or on both the carrying and pulley sides. Severe-duty constructions may alternatively employ transverse steel cords or steel breaker reinforcement.

Realistic technical visualization of steel cord belt construction and transverse reinforcement.



Dimensional reference for transverse reinforcement construction.

CONSTRUCTION IDENTIFICATION

Symbol	Description
B	Total belt width
bt	Effective / used belt width
d	Steel cord diameter
bk	Belt edge width
t	Longitudinal steel cord pitch
S1	Overall belt thickness
S2	Top cover rubber thickness
S3	Bottom cover rubber thickness
S4	Vertical distance / spacing between the longitudinal steel cord plane and special transverse reinforcement

STEEL CORD DESIGN

The longitudinal tensile member is formed by high-strength steel cords selected for tensile capacity, flexibility, fatigue resistance and adhesion performance. Steel wires are normally zinc coated to promote bonding and improve protection against corrosion. Cord construction and rubber penetration are critical to dynamic performance.

Alternating left-hand and right-hand cord twist constructions may be used to support balanced belt behavior. Cord diameter, cord pitch and cord count are selected according to nominal belt strength, belt width and manufacturing design.

STANDARD STRENGTH CLASSES

Belt Class	Nominal Minimum Breaking Strength
ST 500	500 N/mm
ST 630	630 N/mm
ST 800	800 N/mm
ST 1000	1000 N/mm
ST 1250	1250 N/mm
ST 1400	1400 N/mm
ST 1600	1600 N/mm
ST 1800	1800 N/mm
ST 2000	2000 N/mm
ST 2250	2250 N/mm
ST 2500	2500 N/mm
ST 2800	2800 N/mm
ST 3150	3150 N/mm
ST 3500	3500 N/mm
ST 4000	4000 N/mm
ST 4500	4500 N/mm
ST 5000	5000 N/mm
ST 5400	5400 N/mm
ST 6300	6300 N/mm
ST 7500	7500 N/mm
ST 8000	8000 N/mm
ST 10000	10000 N/mm

REFERENCE TECHNICAL DATA

Class	Typical Cord Diameter d (mm)	Typical Cord Pitch t (mm)	Typical Top Cover S2 (mm)	Typical Bottom Cover S3 (mm)
ST500	3.0	10–12	6–10	4–6
ST630	3.0–3.5	10–12	6–10	4–6
ST800	3.7–4.0	10–12	6–10	4–6
ST1000	4.0–4.5	10–12	6–10	4–6
ST1250	4.5–5.0	12–14	6–10	4–6
ST1600	5.0–5.6	12–15	6–10	4–6
ST2000	5.6–6.5	12–15	6–12	4–6
ST2500	6.5–7.2	15–17	6–12	4–6
ST3150	7.5–8.1	15–18	6–12	4–6
ST4000	8.5–9.0	15–20	6–15	4–8
ST5000	9.5–11.0	17–20	8–15	5–8
ST5400	10.5–11.5	17–20	8–15	5–8
ST6300	Project Engineered	Project Engineered	Project Engineered	Project Engineered
ST8000	Project Engineered	Project Engineered	Project Engineered	Project Engineered
ST10000	Project Engineered	Project Engineered	Project Engineered	Project Engineered

Reference values are indicative. Exact cord construction, diameter, pitch, cover thickness, overall thickness and belt mass shall be confirmed in the approved technical data sheet for each project.

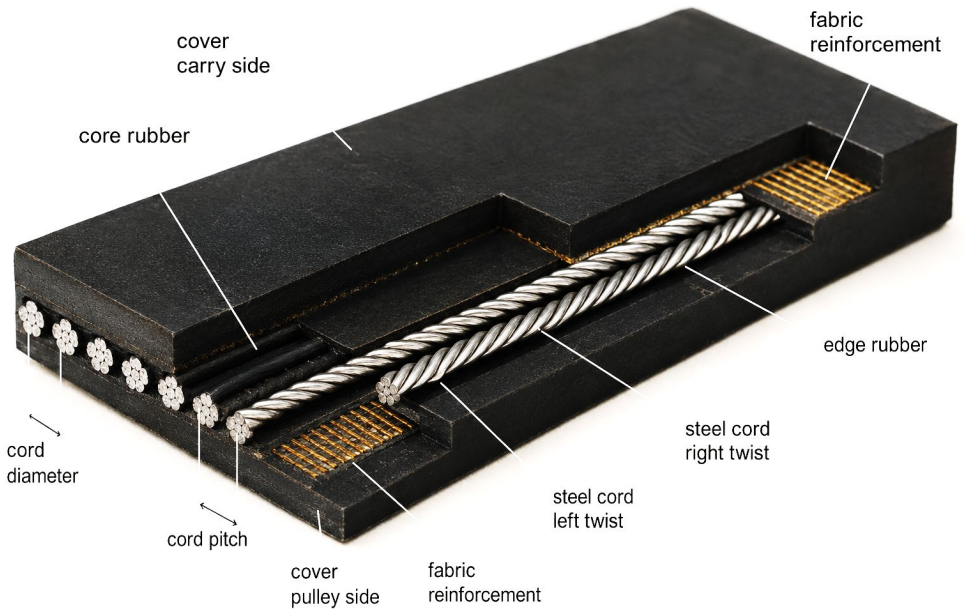
SPECIAL STEEL CORD CONVEYOR BELTS

Product Type	Technical Application
Anti-Tear Steel Cord Conveyor Belt	Specially reinforced construction for severe impact, sharp-edged materials and applications with elevated longitudinal rip risk.
Steel Cord Belt with Special Transverse Fabric Reinforcement	Fabric reinforcement arranged transversely to the main longitudinal steel cords for improved puncture and tear propagation resistance.
Steel Cord Belt with Steel Breaker	Steel transverse reinforcement for severe-duty mining, high impact and sharp lump material applications.
Cold-Resistant Steel Cord Conveyor Belt	Special rubber compounds engineered to retain flexibility and mechanical performance in low-temperature environments.
Steel Cord Elevator Belt	Specialized high-strength construction for vertical or steep-elevation bulk-material handling systems.
Heat-Resistant Steel Cord Conveyor Belt	Special cover and core compounds for elevated-temperature conveyed materials.
Flame-Resistant Steel Cord Conveyor Belt	Safety-engineered compounds for applications requiring controlled flame propagation characteristics.
Oil-Resistant Steel Cord Conveyor Belt	Compound system designed for materials containing oils and greases.
Low Rolling Resistance Steel Cord Belt	Pulley-side compound engineered to reduce indentation rolling resistance in long overland conveyors.

ANTI-TEAR STEEL CORD CONVEYOR BELT

Anti-Tear Steel Cord Conveyor Belts are engineered for heavy-duty conveying where large lumps, sharp-edged material, foreign objects or severe loading impact can create a risk of belt penetration and longitudinal ripping. A transverse reinforcement layer distributes localized impact forces and helps restrict the propagation of a longitudinal tear.

Typical applications include hard-rock mining, iron ore, copper ore, coal, limestone, aggregates, ports, steelworks and severe loading points.



COLD-RESISTANT STEEL CORD CONVEYOR BELT

Cold-Resistant Steel Cord Conveyor Belts combine a high-strength steel cord carcass with specially formulated low-temperature rubber compounds. The construction is intended to retain flexibility, impact resistance and cover integrity under freezing ambient conditions. The minimum operating temperature must be selected according to the specified compound and actual project conditions.

STEEL CORD ELEVATOR BELT

Steel Cord Elevator Belts are specialized high-strength constructions for vertical and steep-elevation bulk handling. The design must account for bucket loads, fastener loads, dynamic tension, vertical lift, pulley diameters and operating speed. Transverse reinforcement may be incorporated to improve load distribution and resistance to tearing around bucket attachment zones.

COVER COMPOUND OPTIONS

Cover Category	Typical Service
Abrasion Resistant	General mining, ore, coal, aggregates and bulk handling.
Super Abrasion / Cut & Gouge Resistant	Sharp hard rock and severe mining service.
Heat Resistant	Hot clinker, coke and elevated-temperature materials.
Oil Resistant	Oily and greasy conveyed materials.
Flame Resistant	Applications requiring defined flame resistance.
Cold Resistant	Low-temperature outdoor and industrial conveying.
Acid / Alkali Resistant	Selected chemical handling duties.
Low Rolling Resistance	Energy-efficient long-distance overland conveying.

SPLICING

Steel cord conveyor belts are normally joined using engineered hot-vulcanized splices. Splice geometry, cord arrangement, splice length, materials, curing pressure, temperature and time shall be defined for the specific belt class and construction. Correct cord alignment, controlled preparation and documented vulcanizing procedures are essential for high dynamic splice performance.

PULLEY AND TRANSITION ENGINEERING

Minimum pulley diameters depend on belt class, cord diameter, splice construction, cover thickness, pulley function and operating tension. Drive, high-tension, low-tension, bend and snub pulleys may require different minimum diameters. Transition lengths must be engineered to control edge tension and carcass deformation between flat and troughed belt sections.

CONDITION MONITORING AND RIP PROTECTION

Steel cord belts can be integrated with magnetic cord monitoring systems for detection of cord breaks, internal anomalies and splice condition changes. Depending on conveyor risk, additional

systems may include embedded rip-detection loops, longitudinal rip monitoring, surface scanning, belt drift detection, chute blockage monitoring and metal detection.

QUALITY CONTROL AND TESTING

Inspection / Test	Purpose
Dimensional Inspection	Verification of belt width, thickness and cover gauges.
Steel Cord Geometry	Verification of cord diameter, pitch, count and positioning.
Tensile / Breaking Strength	Verification of specified carcass strength.
Cord-to-Rubber Adhesion	Assessment of bonding and pull-out performance.
Cover Physical Properties	Tensile strength, elongation and hardness where specified.
Abrasion Resistance	Assessment of cover wear performance.
Ageing Performance	Evaluation of retained properties after accelerated ageing.
Flame / Electrical Tests	Applicable to designated safety grades.
Internal Inspection	Magnetic, X-ray or other inspection where contractually required.

APPLICABLE STANDARDS

Standard	Reference Scope
ISO 15236 Series	Steel cord conveyor belts — design, dimensions, requirements, preferred types, safety requirements and vulcanized joints.
DIN 22131 Series	Steel cord conveyor belt requirements widely referenced in heavy-duty conveyor engineering.
Project / Owner Specification	Mine, EPC, OEM and end-user specifications governing final belt supply and acceptance.

INFORMATION REQUIRED FOR BELT SELECTION

Parameter	Required Data
Conveyor Geometry	Center distance, lift/drop, inclination and curves.
Capacity	Design and peak throughput.
Material	Density, lump size, abrasiveness, sharpness, moisture and temperature.
Belt Speed	Nominal and maximum operating speed.
Tensions	Running, starting and braking tensions.
Pulleys	Diameter, function, lagging and wrap.
Idlers	Trough angle, diameter and spacing.
Environment	Ambient temperature and exposure conditions.
Special Protection	Breaker, rip detection and monitoring requirements.
Splice	Required splice class and installation constraints.

ORDERING DESIGNATION

Field	Designation
Product	STEEL CORD CONVEYOR BELT
Strength Class	ST [N/mm]
Width	[mm]
Top Cover	[mm]
Bottom Cover	[mm]
Cover Grade	[Compound / Standard]
Transverse Reinforcement	[None / Special Fabric / Textile / Steel Breaker]
Edge	[Moulded / Cut, where applicable]
Special Features	[Rip Detection / Monitoring / Low Rolling Resistance / Other]
Standard	[ISO 15236 / DIN 22131 / Project Specification]

Example: STEEL CORD CONVEYOR BELT – ST2500 – 1600 mm – 8+6 mm – HIGH ABRASION RESISTANT – SPECIAL TRANSVERSE STEEL BREAKER – MOULDED EDGE – ISO 15236 / PROJECT SPECIFICATION

TECHNICAL NOTE

All values shown in this catalogue are intended for preliminary product selection and specification development. Final belt design must be confirmed against calculated conveyor tensions, safety factors, dynamic analysis where required, pulley diameters, transition lengths, splice efficiency, conveyed material characteristics, environmental exposure and project-specific operating conditions.

HIGH-STRENGTH SUPER-WIDE RUBBER CONVEYOR BELT

Professional Product Catalogue | Heavy-Duty Bulk Material Handling

Engineered for high-capacity conveying systems requiring exceptional belt width, dimensional stability, tensile performance and dependable service under demanding industrial operating conditions.

PRODUCT OVERVIEW

World Prime Services High-Strength Super-Wide Rubber Conveyor Belts are specified for large-capacity bulk handling installations where conventional belt widths are insufficient. The product platform combines high-strength textile reinforcement, engineered rubber compounds and controlled wide-format vulcanization to provide stable tracking, flexing endurance, low operational elongation and reliable load support.

Typical applications include mining, ports and terminals, stockyard systems, metallurgy, power generation, aggregate handling, fertilizer, chemical processing and other high-throughput conveying duties. Belt construction, width, tensile rating, cover grade and cover thickness are selected according to the conveyor geometry, material characteristics and operating environment.

KEY PRODUCT ADVANTAGES

• Super-wide construction for high volumetric conveying capacity and reduced material surcharge height.

• High tensile strength with low elongation carcass options for stable operation under demanding tension conditions.

• Excellent transverse stability and load-support capability for wide conveyor structures.

• High flexing resistance for continuous operation over properly selected pulleys and idler systems.

• Smooth, uniform rubber surface produced for consistent belt geometry and reliable tracking.

• Custom cover compounds available for abrasion, heat, oil, acid/alkali, cold and flame-resistant duties, subject to application review.

• Customized belt width, total thickness, carcass rating, ply configuration and cover gauge.

STANDARD CONSTRUCTION

Component	Technical Description
Top Cover	Engineered rubber compound selected for the conveyed material, abrasion severity and environmental exposure.
Carcass	High-strength multi-ply EP textile reinforcement; alternative reinforcement systems may be engineered for specific duty.
Skim / Adhesion Rubber	High-adhesion rubber between reinforcement layers to promote carcass integrity and fatigue resistance.
Bottom Cover	Rubber compound designed for pulley contact, flexing performance and service environment.
Edges	Moulded or cut-edge construction subject to belt design and manufacturing specification.

SUPER-WIDE PRODUCT RANGE

Parameter	Typical / Available Range	Engineering Note
Belt Width	1,800–5,500 mm	Super-wide category; final manufacturable width subject to construction and project specification.
Total Belt Thickness	12–42 mm	Selected according to carcass, cover gauges and service duty.
Fabric Ply Count	Typically 2–6 plies	Higher-duty constructions subject to engineering review.
Top Cover Thickness	Typically 2–12 mm	Customized for wear, impact and service life requirements.
Bottom Cover Thickness	Typically 1.5–6 mm	Customized according to pulley-side duty.
Belt Length	Project-specific	Manufacturing and shipping lengths subject to belt size and logistics.

EP TEXTILE CARCASS RATINGS

Fabric Type	Approx. Ply Thickness (mm)	2-Ply (N/mm)	3-Ply	4-Ply	5-Ply	6-Ply
EP100	0.85	200	300	400	500	600
EP125	0.90	250	375	500	625	750
EP150	0.90	300	450	600	750	900
EP200	1.10	400	600	800	1,000	1,200
EP250	1.25	500	750	1,000	1,250	1,500
EP300	1.45	600	900	1,200	1,500	1,800
EP350	1.65	700	1,050	1,400	1,750	2,100
EP400	1.75	800	1,200	1,600	2,000	2,400
EP500	2.55	1,000	1,500	2,000	2,500	3,000

COVER COMPOUND OPTIONS

Service Type	Recommended Application
General / Abrasion Resistant	Bulk materials under normal to severe abrasive service.
Heat Resistant	Hot conveyed materials; compound and temperature class selected by continuous and peak material temperature.
High-Temperature Resistant	Specialized elevated-temperature service requiring enhanced thermal ageing resistance.
Oil Resistant	Materials containing mineral or vegetable oils and greases, subject to compatibility review.
Acid & Alkali Resistant	Chemical handling where controlled resistance to specified acidic or alkaline exposure is required.
Cold Resistant	Low-temperature environments requiring improved flexibility and resistance to cold cracking.
Flame Resistant	Applications requiring flame-performance characteristics in accordance with the specified project standard.

PERFORMANCE CHARACTERISTICS

Characteristic	Design Objective
Longitudinal Strength	High load-carrying capability for heavy-duty and long conveyor installations.
Operational Elongation	Controlled elongation for improved take-up management and dimensional stability.
Transverse Rigidity	Stable belt profile across very large widths while maintaining required troughability.
Adhesion	Strong inter-ply and cover-to-carcass bonding for fatigue and separation resistance.
Flex Life	Designed for repeated bending cycles when pulley diameters are correctly selected.
Tracking Stability	Uniform construction and dimensional control to support stable running on correctly aligned systems.
Impact / Wear Resistance	Cover and carcass combinations selected according to lump size, drop height and loading conditions.

TYPICAL INDUSTRIAL APPLICATIONS

Mining and mineral processing • Coal handling • Iron ore and bulk terminals • Ports and ship-loading systems • Metallurgical plants • Power stations • Aggregate and quarry operations • Fertilizer plants • Chemical industry • Large stockyards • High-capacity overland and plant conveyors.

ENGINEERING SELECTION DATA

For correct belt selection, the following project data should be reviewed: required belt width; center distance; lift or decline; conveyor profile; belt speed; design capacity; bulk density; maximum lump size; material temperature; ambient temperature; moisture; oil or chemical exposure; loading impact; idler configuration; trough angle; pulley diameters; drive arrangement; take-up system; calculated operating tension; starting and braking conditions; splice method; applicable safety and fire requirements.

QUALITY & INSPECTION PARAMETERS

Inspection Item	Typical Control
Overall Width	Verified against agreed manufacturing tolerance.
Overall Thickness	Measured across representative belt locations.
Cover Thickness	Top and bottom cover gauges checked against specification.
Tensile Strength	Verified according to specified carcass rating and applicable test method.
Elongation	Evaluated according to applicable standard / agreed specification.
Adhesion Strength	Cover-to-ply and inter-ply adhesion evaluated where applicable.
Abrasion Resistance	Tested when required by selected cover grade.
Visual Surface Quality	Inspection for uniformity, surface condition and manufacturing defects.
Dimensional Stability	Controlled for wide-format belt geometry and consistent construction.

APPLICABLE STANDARDS

Product design and testing may be specified to internationally recognized conveyor-belt standards such as ISO, DIN, EN, AS, RMA/ARPM, GB or other customer/project standards, depending on the belt construction and destination market. The exact standard, cover grade and acceptance criteria shall be stated in the purchase specification.

ORDERING DESIGNATION

HIGH-STRENGTH SUPER-WIDE – [CARCASS TYPE/RATING] – [PLY COUNT] – [BELT WIDTH] – [TOP COVER + BOTTOM COVER] – [COVER GRADE] – [STANDARD]

Example: HIGH-STRENGTH SUPER-WIDE – EP400 – 5 PLY – 3200 mm – 8+4 mm – ABRASION RESISTANT – PROJECT STANDARD

TECHNICAL NOTES

All dimensions and performance values in this catalogue are product-platform reference data and shall be confirmed for each order. Very wide belts require careful conveyor structural alignment, idler geometry, loading-zone design, transition length, pulley sizing and tension analysis. Final belt construction must be engineered for the actual conveyor duty. Special widths, constructions and compounds are available subject to technical evaluation and manufacturing feasibility.

PRODUCT IDENTIFICATION

Product	World Prime Services High-Strength Super-Wide Rubber Conveyor Belt
Primary Construction	High-strength EP textile carcass with engineered rubber covers
Width Class	Super-wide, project-specific
Duty	High-capacity, heavy-duty bulk material conveying
Customization	Width, tensile rating, plies, cover thickness and rubber compound

PRODUCT VISUAL REFERENCE – HIGH-STRENGTH SUPER-WIDE CONVEYOR BELT

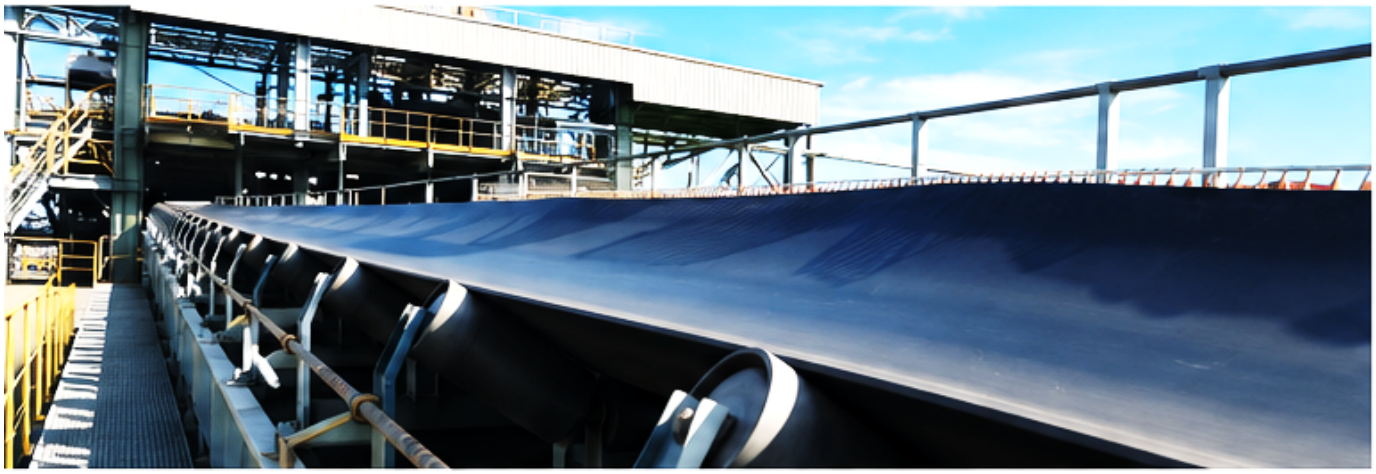
The following visual reference illustrates representative super-wide heavy-duty rubber conveyor belt configurations, including installed conveying systems, wide-format belt production rolls and multi-ply EP carcass construction. Images are illustrative product representations for technical catalogue use.

Visual Configuration	Product Indication	Typical Application
Installed Super-Wide Belt	High-width rubber conveyor belt operating on heavy-duty idler sets.	Mining, terminals, stockyards and high-capacity bulk handling.
Wide Belt Roll	Large-width finished conveyor belt supplied in project-specific production and shipping lengths.	New conveyor installation, replacement and expansion projects.
EP Multi-Ply Construction	Rubber covers with high-strength polyester/nylon fabric reinforcement and adhesion skim layers.	Heavy-duty conveying requiring strength, flexibility and dimensional stability.

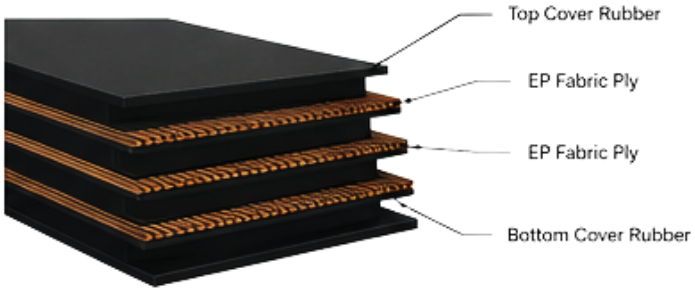
STRENGTH CONVEYOR BELT

HIGH & SUPER WIDE BELT

Engineered for maximum strength, high load capacity and superior durability. Suitable for long distance, heavy duty material handling in mining, port, power, steel, cement, and bulk material industries.



CONSTRUCTION



KEY FEATURES

- High tensile strength and low elongation
- Excellent impact resistance
- Superior troughability
- High adhesion between plies and covers
- Good resistance to wear, heat, ozone and aging
- Suitable for long distance and high capacity conveying

APPLICATIONS

Mining | Port & Shipping | Power Plant | Cement | Steel Industry

TECHNICAL SPECIFICATIONS

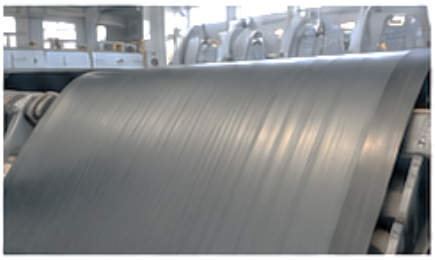
Property	Test Method	Unit	Standard Value
Tensile Strength (Warp/Weft)	ISO 252	N/mm	≥ 24
Elongation at Break (Warp/Weft)	ISO 252	%	≤ 4.0
Adhesion between Plies	ISO 252	N/mm	≥ 4.5
Cover Rubber Thickness	ISO 252	mm	6 – 10
Abrasion Resistance	ISO 4649	mm^3	≤ 200
Ozone Resistance	ISO 1431-1	-	No cracks
Heat Aging (70°C x 168h)	ISO 188	-	Tensile change ≤ ±25% Elongation change ≤ ±25%

STANDARD WIDTH & LENGTH

Belt Width (mm)	Ply Rating (EP)	Cover Thickness (mm)		Belt Length (m)
		Top	Bottom	
1800 – 2400	EP 315 – EP 800	6 – 10	3 – 6	100 – 400
2400 – 3200	EP 400 – EP 1000	6 – 10	3 – 6	100 – 400
3200 – 4200	EP 500 – EP 1250	6 – 10	3 – 6	100 – 400
4200 – 5500	EP 630 – EP 1600	6 – 10	3 – 6	100 – 400

PLY RATING & TENSILE STRENGTH

Ply Rating (EP)	Tensile Strength (N/mm)	
	Warp	Weft
EP 315	≥ 31.5	≥ 31.5
EP 400	≥ 40.0	≥ 40.0
EP 500	≥ 50.0	≥ 50.0
EP 630	≥ 63.0	≥ 63.0
EP 800	≥ 80.0	≥ 80.0
EP 1000	≥ 100.0	≥ 100.0
EP 1250	≥ 125.0	≥ 125.0
EP 1600	≥ 160.0	≥ 160.0



COMPLETE CONVEYOR BELT RUBBER COVER RESISTANCE TABLES

DIN • ISO • RMA / ARPM • AS • JIS • Special-Service Rubber Compounds

TABLE 1 – GLOBAL GENERAL-PURPOSE RUBBER COVER GRADES

Grade	Standard	Region	Properties	Breaking Strength (MPa, min.)	Elongation at Break (%, min.)	Abrasion (mm^3, max.)	Typical Application
DIN W	DIN 22102	Germany / International use	Very high abrasion resistance; severe abrasive service.	18	400	90	Highly abrasive fines, ore, sand, sharp mineral products
DIN X	DIN 22102	Germany / International use	High tensile strength; strong cut, gouge and impact resistance.	25	450	120	Sharp rock, heavy ore, large lumps, severe-duty mining
DIN Y	DIN 22102	Germany / International use	High-quality general-purpose abrasion-resistant cover.	20	400	150	Ore, coal, limestone, aggregates, cement, general mining
DIN Z	DIN 22102	Germany / International use	Standard-duty cover for moderately abrasive materials.	15	350	250	Less severe bulk handling, moderate abrasion
ISO H	ISO 14890 / legacy ISO 10247 classification	International	Heavy-duty cover emphasizing tensile strength and severe mechanical duty.	24	450	120	Sharp, heavy and abrasive materials
ISO D	ISO 14890 / legacy ISO 10247 classification	International	High abrasion-resistant cover with low volumetric wear.	18	400	100	Highly abrasive bulk materials
ISO L	ISO 14890 / legacy ISO 10247 classification	International	General-purpose cover for moderate abrasion.	15	350	200	General bulk-material handling

Grade	Standard	Region	Properties	Breaking Strength (MPa, min.)	Elongation at Break (%, min.)	Abrasion (mm³, max.)	Typical Application
RMA Grade I	Legacy RMA designation	USA	Premium heavy-duty cover; high cut, gouge and abrasion resistance.	17	400	150	Sharp and abrasive materials, severe service
RMA Grade II	Legacy RMA designation	USA	General-purpose abrasion-resistant cover.	14	400	200	Common abrasive bulk materials
ARPM Grade 1	ARPM Heavyweight Conveyor Belt guidance	USA	High cut, gouge and tear resistance plus very good-to-excellent abrasion resistance.	17	400	125	Severe impact, sharp rock, heavy mining
ARPM Grade 2	ARPM Heavyweight Conveyor Belt guidance	USA	Good-to-excellent abrasion resistance with less cut/gouge emphasis than Grade 1.	14	400	175	General abrasive materials
AS A	AS 1332	Australia	Very high abrasion resistance.	17	400	70	Extremely abrasive service
AS M	AS 1332	Australia	Heavy-duty high-strength cover.	24	450	125	Severe mining and heavy mechanical duty
AS N	AS 1332	Australia	General-purpose abrasion-resistant cover.	17	400	200	Normal abrasive bulk materials
JIS H	JIS industry cross-reference*	Japan	Heavy-duty high-strength cover.	24	450	120	Severe mechanical duty
JIS D	JIS industry cross-reference*	Japan	High abrasion-resistant cover.	18	400	100	Highly abrasive materials
JIS L	JIS industry cross-reference*	Japan	General-purpose cover.	15	350	200	Normal bulk-material handling
JIS G	JIS industry cross-reference*	Japan	General-duty cover found in industry comparison tables.	14	400	250	Moderate duty

TABLE 2 – COMPLETE RUBBER RESISTANCE / SPECIAL-SERVICE COMPOUND CATEGORIES

Resistance / Compound Type	Primary Resistance	Typical Standard / Reference	Key Performance Criteria	Typical Applications
Abrasion Resistant (AR)	Resistance to surface wear caused by repeated sliding and contact with bulk material.	DIN W/Y/Z; ISO D/L; RMA/ARPM; AS; JIS	Abrasion loss, tensile strength, elongation; cut/gouge performance may also be specified.	Ore, coal, sand, aggregates, limestone, cement raw materials.
Super Abrasion Resistant (SAR)	Enhanced wear resistance for exceptionally abrasive service.	Usually manufacturer/project specification; may be benchmarked against DIN W or AS A.	Very low abrasion loss; compound values agreed contractually.	High-silica ore, hard rock fines, highly abrasive mineral products.
Cut & Gouge Resistant	Resists cutting, chunking and deep mechanical damage from sharp heavy lumps.	DIN X; ISO H; RMA/ARPM Grade 1; AS M are common reference grades.	High tensile and elongation plus tear/cut/gouge resistance.	Sharp blasted rock, large ore lumps, scrap, severe impact zones.
Impact Resistant	Absorbs impact energy and reduces cover/carcass damage.	Usually project-specific; often combined with high-strength cover and breakers.	Dynamic impact, tear, puncture, adhesion and carcass protection.	Primary crushers, loading points, large lump material.
Tear / Rip Resistant	Limits propagation of longitudinal or transverse damage.	Belt construction requirement; not defined by cover rubber alone.	Tear strength, breaker reinforcement, rip-stop steel/textile systems.	Sharp foreign objects, trapped material, severe mining.
Heat Resistant – Class 1	Heat-aged rubber cover for moderate elevated temperature.	ISO 4195 historical classification: Class 1 up to 100°C test exposure.	Change in hardness, tensile strength and elongation after heat ageing.	Warm clinker, foundry sand, moderate-temperature bulk solids.
Heat Resistant – Class 2	Higher heat resistance than Class 1.	ISO 4195 historical classification: Class 2 up to 125°C test exposure.	Heat ageing retention of physical properties.	Hot cement, coke, sinter, industrial hot material.
Heat Resistant – Class 3	High heat resistance under ISO historical classification.	ISO 4195 historical classification: Class 3 up to 150°C test exposure.	Heat ageing retention of hardness, tensile and elongation.	Hot clinker, sinter and selected high-temperature solids.
High / Extreme Heat Resistant	Special EPDM/EPR or other heat-resistant formulation for temperatures beyond ordinary grades.	Manufacturer/project specification; verify actual continuous and peak material temperature separately from ISO test class.	Thermal ageing, cover cracking, hardening, adhesion retention.	Cement clinker, coke, foundry, steel and sinter applications.
Oil Resistant – MOR	Moderate oil resistance for materials with limited oil content.	Common industry/manufacturer designation; exact limits are project-specific.	Volume swell, tensile/elongation retention after oil exposure.	Recycling, fertilizer, wood products, oily materials.
Oil Resistant – OR	Standard/high oil resistance for mineral, animal or vegetable oils.	Manufacturer/project specification; test medium and exposure must be agreed.	Oil swell, hardness and mechanical-property retention.	Oily sand, metal parts, grain/oilseed, industrial materials.

Resistance / Compound Type	Primary Resistance	Typical Standard / Reference	Key Performance Criteria	Typical Applications
Highly Oil Resistant – HOR	Enhanced resistance for severe oil/grease exposure.	Manufacturer/project specification.	Low swelling and good retention after defined oil immersion.	High-oil-content materials and severe oily environments.
Flame Resistant	Reduces flame propagation when the ignition source is removed.	ISO 340:2022 for laboratory-scale flammability characteristics.	Flame duration / propagation performance according to applicable test.	Power plants, tunnels, enclosed or higher fire-risk surface conveyors.
Fire Resistant + Anti-Static	Combines flame resistance with electrical conductivity to dissipate static charge.	ISO 340:2022 + ISO 284:2025; additional mine regulations may apply.	Flammability plus maximum electrical resistance.	Coal handling, explosive dust risk, selected mining applications.
Underground Flame Resistant	Designed for underground mines under jurisdiction-specific safety requirements.	Applicable mining regulations plus ISO/EN/DIN or national standards as specified.	Flame, drum friction, electrical resistance and possibly toxicity/smoke criteria.	Underground coal and mineral mines.
Drum-Friction Resistant	Reduces tendency to generate dangerous heat, flame or glow when belt slips against a driven drum.	ISO 20238:2018 test method.	Heat, flame or glow behavior during drum-friction testing.	Fire-critical conveyor systems.
Anti-Static / Electrically Conductive	Dissipates electrostatic charge accumulated during belt operation.	ISO 284:2025.	Maximum electrical resistance according to the standard/test requirement.	Dusty, dry or potentially explosive environments.
Cold Resistant	Maintains flexibility and crack resistance at low ambient/material temperatures.	Usually project/manufacturer specification; select based on minimum service temperature.	Low-temperature flexibility, brittleness/crack resistance, dynamic performance.	Arctic mines, cold storage, winter outdoor conveying.
Acid Resistant	Resists degradation from acidic conveyed materials or chemical exposure.	Project/manufacturer specification; concentration and temperature must be defined.	Change in mass/volume, tensile, elongation, hardness after chemical exposure.	Fertilizer, chemical plants, mineral processing.
Alkali Resistant	Resists alkaline materials and solutions.	Project/manufacturer specification.	Chemical ageing and property retention.	Cement, lime, chemical processing.
Acid & Alkali Resistant	Compound selected for combined chemical resistance.	Project/manufacturer specification.	Chemical compatibility depends on medium, concentration and temperature.	Chemical processing and corrosive bulk handling.
Ozone Resistant	Resists cracking caused by ozone attack.	Rubber compound specification; relevant rubber ozone test methods may be used.	Ozone-crack resistance under defined strain/concentration.	Outdoor installations and ozone-rich environments.
Weather / UV Resistant	Improves resistance to sunlight, oxidation and outdoor ageing.	Project/manufacturer specification.	Accelerated weathering / ageing property retention.	Outdoor overland conveyors, ports, stockyards.

Resistance / Compound Type	Primary Resistance	Typical Standard / Reference	Key Performance Criteria	Typical Applications
Low Rolling Resistance (LRR)	Reduces indentation rolling losses on the pulley-side cover.	ISO 23586:2022 provides width-related indentation rolling resistance test requirements.	Indentation rolling resistance; energy performance.	Long overland and high-power conveyor systems.
Energy-Saving / XLLR	Advanced low-hysteresis bottom-cover compounds for reduced power demand.	Manufacturer/project specification; may be evaluated with ISO 23586 methods.	Dynamic loss / rolling resistance and temperature-dependent performance.	Very long overland conveyors and high-energy installations.
High Friction	Provides increased coefficient of friction where traction or inclination demands it.	Project/manufacturer specification.	Coefficient of friction, wear and heat build-up.	Inclined conveyors, special drive/contact requirements.
Low Friction	Reduces sliding drag in selected belt/support arrangements.	Project/manufacturer specification.	Coefficient of friction and wear.	Slider beds and special conveyor designs.
Food Grade	Rubber/polymer cover formulated for contact with food where applicable.	Applicable food-contact regulation depends on market and material.	Migration/contact compliance plus mechanical properties.	Food, grain and packaged-food handling.
Non-Toxic / Hygienic	Special compound for applications requiring controlled composition and cleanliness.	Application-specific regulation/specification.	Chemical composition and migration requirements.	Food, pharmaceutical or special industrial handling.

TABLE 3 – HEAT-RESISTANCE SELECTION GUIDE

Heat Grade / Reference	Temperature Reference	Resistance Level	Typical Materials	Engineering Note
Class 1 / T1-type reference	Approx. 100°C laboratory/test-class reference	Moderate heat	Warm clinker, foundry sand, moderately hot bulk solids	Confirm actual material temperature, belt-surface temperature and peak exposure.
Class 2 / T2-type reference	Approx. 125°C laboratory/test-class reference	Medium-high heat	Hot cement, coke, industrial solids	Thermal ageing and adhesion are critical.
Class 3 / T3-type reference	Approx. 150°C laboratory/test-class reference	High heat	Clinker, sinter, hot industrial bulk material	Use ISO 4195 requirements/test approach where contractually applicable.
Extreme heat compound	Project-specific; may exceed standard classes	Very high / intermittent peak heat	Red-hot or very hot clinker/sinter applications	Requires dedicated compound and application engineering; temperature claims are manufacturer-specific.

TABLE 4 – FIRE, FLAME AND ELECTRICAL SAFETY

Safety Property	Standard / Reference	What It Evaluates	Selection Note
Flame Retardant	ISO 340:2022	Laboratory-scale flammability characteristics; limits flame persistence/propagation.	Specify where surface conveyor fire risk exists.
Anti-Static / Conductive	ISO 284:2025	Sets maximum electrical resistance and corresponding test method to avoid static-charge accumulation.	Often combined with flame-resistant compounds.
Drum Friction	ISO 20238:2018	Evaluates propensity to generate heat, flame or glow when a stationary belt contacts a rotating steel drum.	Important in fire-risk and mining duty.
Underground Safety	National mine regulation + applicable ISO/EN/DIN requirements	May combine flame, anti-static, drum friction and other safety criteria.	Must be specified according to jurisdiction and mine authority.

TABLE 5 – RESISTANCE TYPE SELECTION BY CONVEYED MATERIAL

Material / Duty	Primary Rubber Resistance	Typical Grade / Reference	Additional Engineering Consideration
Iron Ore / Copper Ore / Hard Rock	High abrasion + cut/gouge + impact	DIN X, DIN W, ISO H/D, ARPM Grade 1, AS M/A	Consider steel/textile breakers for large sharp lumps.
Coal	Abrasion + flame/anti-static where required	DIN Y / ISO L-D plus ISO 340 and ISO 284 where specified	Underground use requires jurisdiction-specific fire-safety approval.
Cement / Limestone	Abrasion; heat if hot material	DIN Y/W, ISO D/L; ISO 4195 for heat-resistant cover	Clinker normally requires dedicated heat-resistant compound.
Clinker / Sinter / Coke	Heat + abrasion	Heat-resistant compound + abrasion specification	Define continuous and peak temperatures.
Aggregates / Quarry Rock	Abrasion + cut/gouge	DIN X/Y/W, ISO H/D, ARPM Grade 1/2	Lump size and loading height affect required cover thickness.
Oily Material / Recycling	Oil resistance + abrasion	MOR / OR / HOR project-specific	Define oil type, concentration and exposure duration.
Fertilizer / Chemicals	Chemical + oil/acid/alkali as relevant	Project-specific chemical-resistant compound	Provide exact chemical composition, concentration and temperature.
Overland Long Distance	Abrasion + low rolling resistance	Application cover grade + ISO 23586 assessment	Bottom-cover compound can materially affect energy demand.
Cold Climate Mining	Cold + abrasion/cut	Cold-resistant compound combined with required wear grade	Specify minimum ambient and start-up temperature.
Ports / Terminals	Weather/ozone + abrasion	Outdoor ageing-resistant compound with required wear grade	Salt, UV, humidity and long storage periods should be considered.

TABLE 6 – TECHNICAL PROPERTIES TO SPECIFY IN A PURCHASE DATA SHEET

Property	Typical Unit	Purpose / Specification Note
Tensile Strength	MPa	Minimum value according to selected cover class or project specification.
Elongation at Break	%	Minimum value according to selected cover class.
Abrasion Loss	mm^3	Maximum allowed volume loss; lower value generally indicates better laboratory abrasion resistance.
Tear Strength	N/mm or specified method	Important for sharp materials and cut/gouge service.
Hardness	Shore A / IRHD	Controls deformation, wear response and application behavior.
Cover-to-Carcass Adhesion	N/mm	Critical to prevent delamination.
Heat Ageing Retention	% change	Required for heat-resistant covers; tensile, elongation and hardness changes should be controlled.
Oil Swell / Property Retention	% change	Required for oil-resistant grades; test oil and exposure conditions must be defined.
Electrical Resistance	Ω	For anti-static/conductive belts per applicable standard.
Flammability	Time / test result	For flame-resistant grades per applicable standard.
Indentation Rolling Resistance	Width-related result / test output	For low rolling resistance and energy-efficient overland belt designs.
Ozone / Weathering Resistance	Test-specific result	For outdoor ageing and crack resistance where specified.

IMPORTANT TECHNICAL NOTES

1. General-purpose grades such as DIN W/X/Y/Z, ISO H/D/L, RMA/ARPM grades, AS grades and JIS cross-referenced grades are not automatically interchangeable even when numerical tensile, elongation or abrasion values appear similar.

2. Special-service properties such as heat, oil, chemical, flame, cold, ozone and low rolling resistance are frequently specified independently from the basic abrasion cover class. A belt may therefore require a combined specification, for example: high-abrasion + heat-resistant, or flame-resistant + anti-static.

3. ISO 14890:2026 is the current international specification for rubber- or plastics-covered textile conveyor belts for general surface use. ISO 4195 addresses heat-resistant rubber covers; ISO 340:2022 addresses laboratory-scale flammability characteristics; ISO 284:2025 addresses electrical conductivity; ISO 20238:2018 addresses drum-friction testing; and ISO 23586:2022 addresses width-related indentation rolling resistance.

4. Temperature ranges shown as Class 1/2/3 references derive from historical ISO 4195 classification practice and should not be treated as universal continuous material-temperature guarantees. Final continuous and peak temperature limits depend on compound, cover thickness, cooling time, belt speed and application.

5. Oil, acid, alkali, cold, ozone and certain special cover designations are often manufacturer- or project-specific. Final test media, exposure time, concentration, temperature and acceptance criteria must be agreed in the purchase specification.

6. For critical steel cord or long-distance conveyors, cover selection should be integrated with carcass design, splice engineering, pulley diameters, transition distances, dynamic analysis, loading impact and monitoring strategy.

CALCULATION OF DRIVING PULLEY

Carcass Thickness, tc = _____ mm

GENERAL FORMULA

Dmin = K × tc

Where: Dmin = Minimum Driving Pulley Diameter (mm); K = Carcass Material Factor; tc = Carcass Thickness (mm).

Carcass Type	Material / Construction	Factor K	Calculation Formula	Minimum Driving Pulley Diameter
NN	Nylon / Nylon	90	Dmin = 90 × tc	_____ mm MINIMUM
EP	Polyester / Nylon	108	Dmin = 108 × tc	_____ mm MINIMUM
EE	Polyester / Polyester	108	Dmin = 108 × tc	_____ mm MINIMUM
ST	Steel Cord	145	Dmin = 145 × tc	_____ mm MINIMUM

EXAMPLE CALCULATION

Carcass Type	Example Carcass Thickness	Formula	Calculated Dmin
NN	5.0 mm	90 × 5.0	450 mm
EP	5.0 mm	108 × 5.0	540 mm
EE	5.0 mm	108 × 5.0	540 mm
ST	5.0 mm	145 × 5.0	725 mm

TECHNICAL NOTE: The calculated value should be treated as a preliminary minimum pulley diameter based on carcass thickness and the selected material factor. The final pulley diameter must also be checked against belt manufacturer recommendations, belt rating, carcass construction, splice type, belt tension, pulley function, wrap angle and applicable project or international standard requirements. For steel cord belts in particular, the approved belt data sheet and splice design should govern the final minimum pulley diameter.

PIW AND N/mm CALCULATION

1. UNIT CONVERSION FORMULAS

Conversion	Formula	Conversion Factor
kgf/cm → PIW	PIW = (kgf/cm) × 5.5997	1 kgf/cm = 5.5997 PIW
PIW → kgf/cm	kgf/cm = PIW ÷ 5.5997	1 PIW = 0.17858 kgf/cm
PIW → N/mm	N/mm = PIW × 0.17513	1 PIW = 0.17513 N/mm
N/mm → PIW	PIW = (N/mm) × 5.71015	1 N/mm = 5.71015 PIW
kgf/cm → N/mm	N/mm = (kgf/cm) × 0.980665	1 kgf/cm = 0.980665 N/mm
N/mm → kgf/cm	kgf/cm = (N/mm) × 1.01972	1 N/mm = 1.01972 kgf/cm

2. CALCULATION TEMPLATE

Item	Input / Formula	Result
Input Belt Strength	_____ kgf/cm	
Convert kgf/cm to PIW	PIW = kgf/cm × 5.5997	_____ PIW
Convert PIW to N/mm	N/mm = PIW × 0.17513	_____ N/mm
Direct kgf/cm to N/mm	N/mm = kgf/cm × 0.980665	_____ N/mm
Input N/mm	_____ N/mm	
Convert N/mm to PIW	PIW = N/mm × 5.71015	_____ PIW
Working Tension	_____ PIW	
Number of Plies	_____ PLY	

3. WORKING TENSION CALCULATION

When the belt rating is expressed as total PIW and a design safety factor (SF) is used:

Working Tension (PIW) = Rated Belt Strength (PIW) ÷ Safety Factor (SF)

When the allowable working tension is already supplied by the belt manufacturer, use the manufacturer's published working-tension value instead of recalculating it from nominal breaking strength.

4. FABRIC / PLY SELECTION FORMULAS

Calculation	Formula	Purpose
Required Strength per Ply	Required PIW per Ply = Required Total PIW ÷ Number of Plies	Determines the minimum nominal fabric strength required for each ply.
Total Belt Rating	Total PIW = Fabric PIW per Ply × Number of Plies	Calculates approximate total carcass rating from fabric rating and ply count.
Required Ply Number	PLY No. = Required Total PIW ÷ Fabric PIW per Ply	Round upward to the next whole ply, subject to manufacturer design limits.
Suggested EP Fabric	Select next standard EP fabric rating ≥ Required PIW per Ply	Selects an individual fabric type; the complete belt strength depends on the number of plies.

5. SUGGESTED EP FABRIC SELECTION TEMPLATE

Parameter	Formula / Entry	Example Output Format
Required Total Belt Strength	Input = _____ PIW	e.g. 600 PIW
PLY No.	Input = _____	e.g. 4 PLY
Required Strength per Ply	Total PIW ÷ PLY No.	600 ÷ 4 = 150 PIW/ply
Suggested Fabric Type	Next available EP fabric ≥ required per-ply strength	Select from manufacturer's EP fabric range
Belt Type	Suggested EP Fabric / PLY No.	EP ___ / 4

6. BELT TYPE DESIGNATION

Recommended general designation:

BELT TYPE = EP [FABRIC RATING] / [NUMBER OF PLIES]

Important: An EP fabric designation identifies the selected carcass fabric specification according to the manufacturer's construction system. It should not automatically be assumed that the numeric EP designation multiplied by the ply count equals the finished belt's certified breaking strength unless that relationship is explicitly defined in the manufacturer's technical data.

7. EXAMPLE UNIT CONVERSION

Input	Calculation	Result
100 kgf/cm	100 × 5.5997	559.97 PIW
559.97 PIW	559.97 × 0.17513	≈ 98.07 N/mm
100 kgf/cm	100 × 0.980665	98.0665 N/mm
100 N/mm	100 × 5.71015	571.015 PIW

8. EXCEL FORMULA EXAMPLES

Calculation	Excel Formula (Example Input Cell A2)
kgf/cm → PIW	=A2*5.5997
PIW → N/mm	=A2*0.17513
N/mm → PIW	=A2*5.71015
kgf/cm → N/mm	=A2*0.980665
Required PIW per Ply	=Total_PIW/PLY_No
Required Ply Number (Rounded Up)	=ROUNDUP(Required_Total_PIW/Fabric_PIW_Per_Ply,0)

TECHNICAL NOTE

PIW means pounds per inch of belt width (lb/in) and N/mm means newtons per millimetre of belt width. These are force-per-unit-width quantities and are directly convertible. kgf/cm is also force per unit width. Final conveyor-belt selection must distinguish nominal breaking strength from allowable working tension and must follow the belt manufacturer's certified carcass rating, recommended safety factor, splice efficiency, pulley requirements and application conditions.