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Mfrs. & Exporters: CONVEYER BELTS, BELTINGS, RUBBER SHEETS



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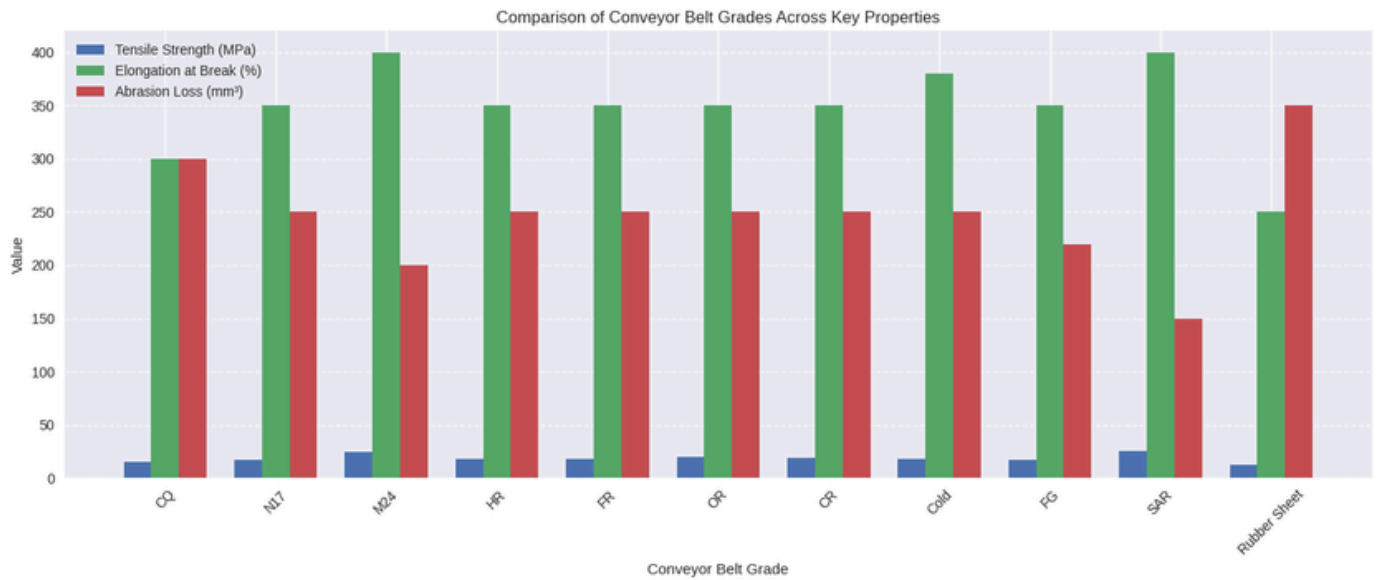
# CONVEYOR BELT GRADES GUIDE

Conveyor belt grades are standardized classifications that define the performance, durability, and compliance of belts used across industries.

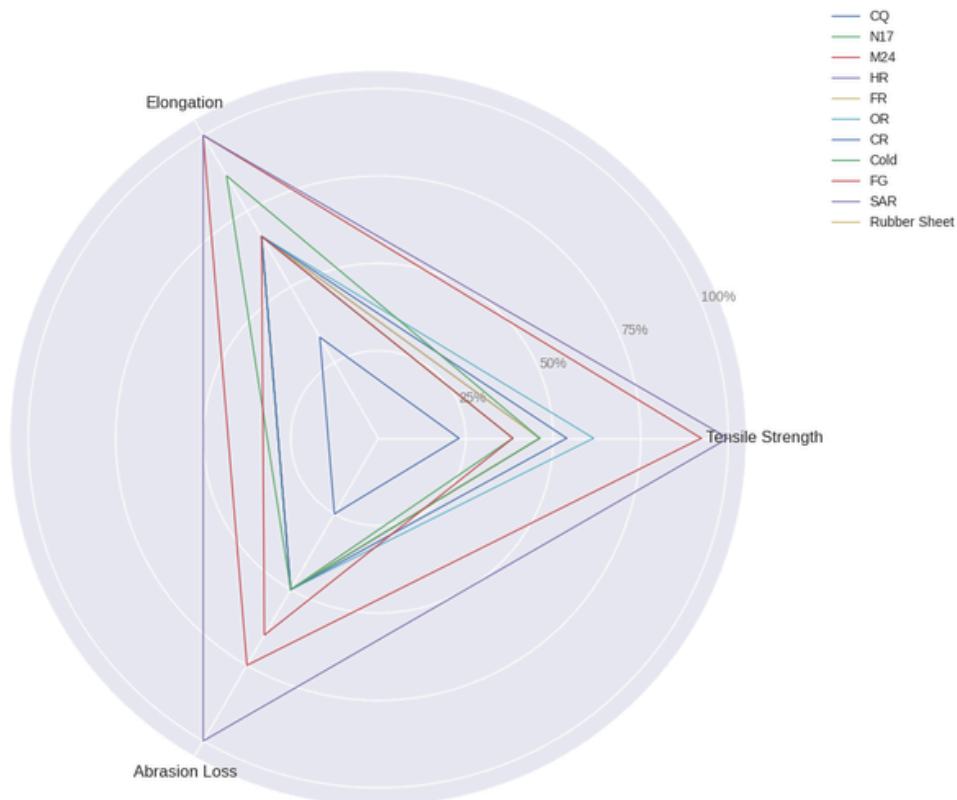
Each grade is engineered with specific rubber compounds and reinforcement fabrics to meet operational demands such as abrasion resistance, heat tolerance, flame safety, oil and chemical compatibility, cold flexibility, and food contact compliance. This document provides a structured overview of the recognized grades, highlighting their key properties and applications. Detailed technical specifications and test data are included in subsequent sections for reference.

**Commercial Quality Conveyor Belt (CQ)**  
**General Duty Conveyor Belt (N17)**  
**Abrasion Resistant Conveyor Belt (M24)**  
**Heat Resistant Conveyor Belt (HR)**  
**Fire Resistant Conveyor Belt (FR)**  
**Oil Resistant Conveyor Belt (OR)**  
**Chemical Resistant Conveyor Belt (CR)**  
**Cold Resistant Conveyor Belt**  
**Food Grade Conveyor Belt (FG)**  
**Super Abrasion Resistant Conveyor Belt (SAR)**  
**Commercial Rubber Sheet**

Grade	Tensile Strength (MPa)	Elongation at Break (%)	Abrasion Loss (mm <sup>3</sup> )	Special Property / Resistance
CQ (Commercial Quality)	≥15	≥300	≤300	General duty, economical
N17 (General Duty)	≥17	≥350	≤250	Balanced strength for moderate duty
M24 (Abrasion Resistant)	≥24	≥400	≤200	High abrasion resistance
HR (Heat Resistant)	≥18	≥350	≤250	Withstands 100–150 °C continuous heat
FR (Fire Resistant)	≥18	≥350	≤250	Self-extinguishing, flame spread ≤150 mm
OR (Oil Resistant)	≥20	≥350	≤250	Resists swelling/softening in oils
CR (Chemical Resistant)	≥19	≥350	≤250	Resists acids, alkalis, corrosives
Cold Resistant	≥18	≥380	≤250	Flexible at –40 °C, crack-free
FG (Food Grade)	≥17	≥350	≤220	FDA/ISI compliant, hygienic handling
SAR (Super Abrasion Resistant)	≥25	≥400	≤150	Extreme abrasion resistance
Rubber Sheet	≥12	≥250	≤350	General industrial use, sealing/padding



Conveyor Belt Grades Comparison (Normalized)



## CONVEYOR BELT SELECTION CHART (Boston Rubbers)

	Cover Type	Tensile Strength (p)	Elongation at Break (% Min)	Abrasion Loss (mm <sup>2</sup> Max)	General Applications	Reference Standards
General Purpose	M-24	24	400–450	200	Rugged service for conveying metallic o	Rugged service for conveying metallic ores, lime, coal, cement
Abrasion Resistant	N-17	25	400–400	150	General duty. medium load conveyors	Rugged service for conveying metallic ores, lime, cement
Heat Resistant	HR-T1	18	350	250		Very high abrasive materials like limestone, slag, iron ore, glass
	HR-T2	18	400	200	Hot material up to 100–125 °C	Hot material up to 100–125 °C
Fire Resistant	HR-T3	20	450	180	Hot material up to 200 °C	Hot material up to 150–180 °C
Fire Resistant	FR-C	17	350	200	Surface coal mines, fire hazard zones, anti-static, low burning rate	Surface coal mines, fire hazard zones anti-static, low burning rate
	OR	20	350	175		High resistance to mineral, vegetable, and animal oils/fats
Food Grade	FG	17	350	220	Non-toxic, hygienic belts for food industry	Flexible at low temperatures, suitable for cold storage and outdoor conveyors
Cold Resistant	CR	19	380	250	Flexible at low temperatures, suitable for cold storage and outdoor conveyors	

# 1. COMMERCIAL QUALITY (CQ)

Commercial Quality belts are designed for general purpose conveying under ambient conditions. They provide balanced tensile strength, elongation, and abrasion resistance suitable for light to medium duty applications. CQ belts are widely used in industries where cost efficiency and reliable performance are required without exposure to heat, oil, flame, or chemicals.

Attribute	Value
Grade Name	Commercial Quality Conveyor Belt
Density (kg/m <sup>3</sup> )	1200
Strength per ply (kN/m)	20.0
Cover Grade	Commercial Quality Conveyor Belt
Edge Options	Cut Edge, Moulded Edge, Sealed Edge
Temperature Class	General (ambient)
Flame Class	N/A
Oil Resistance Class	N/A
Chemical Resistance Class	N/A
Food Compliance Class	N/A
Abrasion Class	General Duty
Reference	ISI 1891 Part I – General Purpose Conveyor Belts



# TECHNICAL DATA

Property	Unit	Value	Requirement
Ply to Top Cover Adhesion	kN/m	2.0	Min.
Ply to Bottom Cover Adhesion	kN/m	2.0	Min.
Ply to Ply Adhesion	kN/m	3.0	Min.
Tensile Strength (Before Ageing)	MPa	15.0	Min.
Elongation at Break (Before Ageing)	%	300	Min.
Abrasion Loss (Before Ageing)	mm <sup>3</sup>	300	Max.
Hardness (Before Ageing)	Shore A	65	±5
% Change in Tensile Strength (After Ageing)	%	-40	Max.
% Change in Elongation at Break (After Ageing)	%	-55	Max.
Adhesion (Top/Bottom/Ply After Ageing)	%	-50	Max.
Tensile Strength Warp Direction	kN/m	140	Min.
Tensile Strength Weft Direction	kN/m	100	Min.
Elongation at 10% Reference Load	%	2.0	Max.

## 2. GENERAL DUTY CONVEYOR BELT (N17)

The N17 grade is a general-purpose conveyor belt designed for ambient service conditions, offering improved tensile strength and elongation compared to Commercial Quality. With a density of 1200 kg/m<sup>3</sup> and a ply strength of 25 kN/m, N17 belts are suitable for industries that require a balance of durability and cost efficiency. Edge options include cut, moulded, and sealed edges, making them adaptable to different installation requirements. This grade is standardized under ISI 1891 Part I – General Duty N17 specification.

Attribute	Value
Grade Name	General Duty Conveyor Belt (N17)
Density (kg/m <sup>3</sup> )	1200
Strength per ply (kN/m)	25.0
Cover Grade	General Duty Conveyor Belt (N17)
Edge Options	Cut Edge, Moulded Edge, Sealed Edge
Temperature Class	General (ambient)
Flame Class	N/A
Oil Resistance Class	N/A
Chemical Resistance Class	N/A
Food Compliance Class	N/A
Abrasion Class	N17
Reference	ISI 1891 Part I – General Duty N17 specification



# TECHNICAL DATA

Property	Unit	Value / Requirement
Tensile Strength (Before Ageing)	MPa	$\geq 17$
Elongation at Break (Before Ageing)	%	$\geq 350$
Abrasion Loss (Before Ageing)	mm <sup>3</sup>	$\leq 250$
Hardness	Shore A	65 $\pm$ 5
Ply to Top Cover Adhesion	kN/m	$\geq 2.5$
Ply to Bottom Cover Adhesion	kN/m	$\geq 2.5$
Ply to Ply Adhesion	kN/m	$\geq 3.5$
Ageing Change – Tensile Strength	%	$\leq -35$
Ageing Change – Elongation	%	$\leq -50$
Adhesion after Ageing	%	$\leq -50$
Tensile Strength Warp Direction	kN/m	$\geq 160$
Tensile Strength Weft Direction	kN/m	$\geq 120$
Elongation at 10% Reference Load	%	$\leq 2.0$

### 3. ABRASION RESISTANT CONVEYOR BELT (M24)

The M24 grade is the industry benchmark for abrasion resistance, designed for heavy-duty applications such as mining, cement, stone crushing, and bulk material handling. With a density of 1200 kg/m<sup>3</sup> and a ply strength of 30 kN/m, M24 belts deliver superior durability under continuous wear. Edge options include cut, moulded, and sealed edges, ensuring flexibility in installation. This grade is standardized under ISI 1891 Part I – Abrasion Resistant M24 specification.

Attribute	Value
Grade Name	Abrasion Resistant Conveyor Belt (M24)
Density (kg/m <sup>3</sup> )	1200
Strength per ply (kN/m)	30.0
Cover Grade	Abrasion Resistant Conveyor Belt (M24)
Edge Options	Cut Edge, Moulded Edge, Sealed Edge
Temperature Class	General (ambient)
Flame Class	N/A
Oil Resistance Class	N/A
Chemical Resistance Class	N/A
Food Compliance Class	N/A
Abrasion Class	M24
Reference	ISI 1891 Part I – Abrasion Resistant M24 specification

# TECHNICAL DATA

Property	Unit	Value / Requirement
Tensile Strength (Before Ageing)	MPa	$\geq 24$
Elongation at Break (Before Ageing)	%	$\geq 400$
Abrasion Loss (Before Ageing)	mm <sup>3</sup>	$\leq 200$
Hardness	Shore A	65 $\pm$ 5
Ply to Top Cover Adhesion	kN/m	$\geq 3.0$
Ply to Bottom Cover Adhesion	kN/m	$\geq 3.0$
Ply to Ply Adhesion	kN/m	$\geq 4.0$
Ageing Change – Tensile Strength	%	$\leq -25$
Ageing Change – Elongation	%	$\leq -40$
Adhesion after Ageing	%	$\leq -40$
Tensile Strength Warp Direction	kN/m	$\geq 180$
Tensile Strength Weft Direction	kN/m	$\geq 130$
Elongation at 10% Reference Load	%	$\leq 1.5$

## 4. HEAT RESISTANT CONVEYOR BELT (HR)

Heat Resistant belts are designed for industries where materials are conveyed at elevated temperatures, such as cement plants, foundries, and steel mills. With a density of 1200 kg/m<sup>3</sup> and a ply strength of 24 kN/m, HR belts maintain mechanical integrity under continuous thermal stress. They are available with cut, moulded, and sealed edge options, and are classified into HR, SHR (Super Heat Resistant), and UHR (Ultra Heat Resistant) tiers depending on the severity of heat exposure. This grade is standardized under ISI 1891 Part II – Heat Resistant Conveyor Belts.

Attribute	Value
Grade Name	Heat Resistant Conveyor Belt (HR)
Density (kg/m <sup>3</sup> )	1200
Strength per ply (kN/m)	24.0
Cover Grade	Heat Resistant Conveyor Belt (HR)
Edge Options	Cut Edge, Moulded Edge, Sealed Edge
Temperature Class	HR / SHR / UHR tiers
Flame Class	N/A
Oil Resistance Class	N/A
Chemical Resistance Class	N/A
Food Compliance Class	N/A
Abrasion Class	HR-grade
Reference	ISI 1891 Part II – Heat Resistant Conveyor Belts

# TECHNICAL DATA

Property	Unit	Value / Requirement
Continuous Service Temperature	°C	HR: up to 125 (coarse), 100 (fines)
Peak Temperature	°C	up to 150
Tensile Strength (Before Ageing)	MPa	≥18
Elongation at Break (Before Ageing)	%	≥350
Abrasion Loss (Before Ageing)	mm <sup>3</sup>	≤250
Hardness	Shore A	65 ±5
Adhesion (Top/Bottom/Ply)	kN/m	≥3.0 / 3.0 / 4.0
Ageing Change – Tensile Strength	%	≤ -30
Ageing Change – Elongation	%	≤ -45
Adhesion after Ageing	%	≤ -40
Tensile Strength Warp Direction	kN/m	≥160
Tensile Strength Weft Direction	kN/m	≥120
Elongation at 10% Reference Load	%	≤2.0

## 5. FIRE RESISTANT CONVEYOR BELT (FR)

Fire Resistant belts are engineered for environments where safety against fire hazards is critical, such as power plants, underground mines, and thermal stations.

These belts are formulated with self-extinguishing rubber compounds that prevent flame propagation and minimize afterglow. With a density of 1200 kg/m<sup>3</sup> and a ply strength of 22 kN/m, FR belts maintain mechanical integrity while offering enhanced flame resistance. Edge options include cut, moulded, and sealed edges. This grade is standardized under ISI 1891 Part V – Fire Resistant Conveyor Belts.

Attribute	Value
Grade Name	Fire Resistant Conveyor Belt (FR)
Density (kg/m <sup>3</sup> )	1200
Strength per ply (kN/m)	22.0
Cover Grade	Fire Resistant Conveyor Belt (FR)
Edge Options	Cut Edge, Moulded Edge, Sealed Edge
Temperature Class	General (ambient)
Flame Class	Fire Resistant
Oil Resistance Class	N/A
Chemical Resistance Class	N/A
Food Compliance Class	N/A
Abrasion Class	FR-grade
Reference	ISI 1891 Part V – Fire Resistant Conveyor Belts



# TECHNICAL DATA

Property	Unit	Value / Requirement
Flame Spread	mm	≤150
Afterglow Duration	sec	≤45
Tensile Strength (Before Ageing)	MPa	≥18
Elongation at Break (Before Ageing)	%	≥350
Abrasion Loss (Before Ageing)	mm <sup>3</sup>	≤250
Hardness	Shore A	65 ±5
Ply to Top Cover Adhesion	kN/m	≥2.5
Ply to Bottom Cover Adhesion	kN/m	≥2.5
Ply to Ply Adhesion	kN/m	≥3.5
Ageing Change – Tensile Strength	%	≤ -30
Ageing Change – Elongation	%	≤ -45
Adhesion after Ageing	%	≤ -40
Tensile Strength Warp Direction	kN/m	≥160
Tensile Strength Weft Direction	kN/m	≥120
Elongation at 10% Reference Load	%	≤2.0

## 6. OIL RESISTANT CONVEYOR BELT (OR)

Oil Resistant belts are designed for industries where materials contain oils, fats, or hydrocarbons that can degrade standard rubber compounds. Typical applications include fertilizer plants, chemical industries, recycling facilities, and food processing units. With a density of 1200 kg/m<sup>3</sup> and a ply strength of 22 kN/m, OR belts maintain mechanical strength while resisting swelling and softening caused by oil exposure. Edge options include cut, moulded, and sealed edges. This grade is standardized under ISI 1891 Part III – Oil Resistant Conveyor Belts.

Attribute	Value
Grade Name	Oil Resistant Conveyor Belt (OR)
Density (kg/m <sup>3</sup> )	1200
Strength per ply (kN/m)	22.0
Cover Grade	Oil Resistant Conveyor Belt (OR)
Edge Options	Cut Edge, Moulded Edge, Sealed Edge
Temperature Class	General (ambient)
Flame Class	N/A
Oil Resistance Class	OR-grade
Chemical Resistance Class	Limited
Food Compliance Class	N/A
Abrasion Class	OR-grade
Reference	ISI 1891 Part III – Oil Resistant Conveyor Belts

# TECHNICAL DATA

Property	Unit	Value / Requirement
Volume Change after Oil Immersion	%	≤65
Tensile Strength (Before Ageing)	MPa	≥20
Elongation at Break (Before Ageing)	%	≥350
Abrasion Loss (Before Ageing)	mm <sup>3</sup>	≤250
Hardness	Shore A	65 ±5
Ply to Top Cover Adhesion	kN/m	≥2.5
Ply to Bottom Cover Adhesion	kN/m	≥2.5
Ply to Ply Adhesion	kN/m	≥3.5
Ageing Change – Tensile Strength	%	≤ -30
Ageing Change – Elongation	%	≤ -45
Adhesion after Ageing	%	≤ -40
Tensile Strength Warp Direction	kN/m	≥160
Tensile Strength Weft Direction	kN/m	≥120
Elongation at 10% Reference Load	%	≤2.0

## 7. CHEMICAL RESISTANT CONVEYOR BELT (CR)

Chemical Resistant belts are designed for industries where materials contain acids, alkalis, or other corrosive chemicals that can damage standard rubber compounds. Typical applications include chemical processing plants, fertilizer industries, and waste treatment facilities. With a density of 1200 kg/m<sup>3</sup> and a ply strength of 22 kN/m, CR belts maintain mechanical strength while resisting swelling, cracking, or degradation caused by chemical exposure. Edge options include cut, moulded, and sealed edges. This grade is standardized under ISI 1891 Part IV – Chemical Resistant Conveyor Belts.

Attribute	Value
Grade Name	Chemical Resistant Conveyor Belt (CR)
Density (kg/m <sup>3</sup> )	1200
Strength per ply (kN/m)	22.0
Cover Grade	Chemical Resistant Conveyor Belt (CR)
Edge Options	Cut Edge, Moulded Edge, Sealed Edge
Temperature Class	General (ambient)
Flame Class	N/A
Oil Resistance Class	Limited
Chemical Resistance Class	CR-grade
Food Compliance Class	N/A
Abrasion Class	CR-grade
Reference	ISI 1891 Part IV – Chemical Resistant Conveyor Belts

# TECHNICAL DATA

Property	Unit	Value / Requirement
Tensile Strength (Before Ageing)	MPa	$\geq 17$
Elongation at Break (Before Ageing)	%	$\geq 350$
Abrasion Loss (Before Ageing)	mm <sup>3</sup>	$\leq 220$
Hardness	Shore A	65 $\pm$ 5
Ply to Top Cover Adhesion	kN/m	$\geq 2.0$
Ply to Bottom Cover Adhesion	kN/m	$\geq 2.0$
Ply to Ply Adhesion	kN/m	$\geq 3.0$
Ageing Change – Tensile Strength	%	$\leq -30$
Ageing Change – Elongation	%	$\leq -45$
Adhesion after Ageing	%	$\leq -40$
Tensile Strength Warp Direction	kN/m	$\geq 140$
Tensile Strength Weft Direction	kN/m	$\geq 100$
Elongation at 10% Reference Load	%	$\leq 2.0$

## 8. COLD RESISTANT CONVEYOR BELT

Cold Resistant belts are designed for industries where materials are conveyed in extremely low-temperature environments such as cold storage, outdoor installations in polar regions, and handling of frozen goods. These belts are formulated to remain flexible and crack-free even at  $-40^{\circ}\text{C}$ , ensuring reliable performance under freezing conditions. With a density of  $1200\text{ kg/m}^3$  and a ply strength of  $22\text{ kN/m}$ , Cold Resistant belts maintain mechanical strength while resisting brittleness. Edge options include cut, moulded, and sealed edges. This grade is standardized under ISI 1891 Part VI – Cold Resistant Conveyor Belts.

Attribute	Value
Grade Name	Cold Resistant Conveyor Belt
Density ( $\text{kg/m}^3$ )	1200
Strength per ply ( $\text{kN/m}$ )	22.0
Cover Grade	Cold Resistant Conveyor Belt
Edge Options	Cut Edge, Moulded Edge, Sealed Edge
Temperature Class	Cold Resistant ( $-40^{\circ}\text{C}$ )
Flame Class	N/A
Oil Resistance Class	N/A
Chemical Resistance Class	Limited
Food Compliance Class	N/A
Abrasion Class	Cold Resistant
Reference	ISI 1891 Part VI – Cold Resistant Conveyor Belts



# TECHNICAL DATA

Property	Unit	Value / Requirement
Brittleness Temperature Limit	°C	≤ -40
Tensile Strength (Before Ageing)	MPa	≥18
Elongation at Break (Before Ageing)	%	≥380
Abrasion Loss (Before Ageing)	mm <sup>3</sup>	≤250
Hardness	Shore A	65 ±5
Ply to Top Cover Adhesion	kN/m	≥2.5
Ply to Bottom Cover Adhesion	kN/m	≥2.5
Ply to Ply Adhesion	kN/m	≥3.5
Ageing Change – Tensile Strength	%	≤ -30
Ageing Change – Elongation	%	≤ -45
Adhesion after Ageing	%	≤ -40
Tensile Strength Warp Direction	kN/m	≥160
Tensile Strength Weft Direction	kN/m	≥120
Elongation at 10% Reference Load	%	≤2.0

## 9. FOOD GRADE CONVEYOR BELT (FG)

Food Grade belts are specially formulated for industries where hygiene, safety, and compliance with food handling standards are critical. These belts are manufactured using non-toxic, odorless, and tasteless rubber compounds that prevent contamination of food products. Typical applications include sugar mills, bakeries, grain handling, and food processing plants. With a density of 1200 kg/m<sup>3</sup> and a ply strength of 20 kN/m, FG belts combine mechanical strength with compliance to FDA and ISI standards. Edge options include cut, moulded, and sealed edges.

Attribute	Value
Grade Name	Food Grade Conveyor Belt (FG)
Density (kg/m <sup>3</sup> )	1200
Strength per ply (kN/m)	20.0
Cover Grade	Food Grade Conveyor Belt (FG)
Edge Options	Cut Edge, Moulded Edge, Sealed Edge
Temperature Class	General (ambient)
Flame Class	N/A
Oil Resistance Class	Limited
Chemical Resistance Class	Limited
Food Compliance Class	FDA / ISI compliant
Abrasion Class	FG-grade
Reference	ISI 1891 Part VII – Food Grade Conveyor Belts

# TECHNICAL DATA

Property	Unit	Value / Requirement
Volume Change after Chemical Immersion	%	≤40
Tensile Strength (Before Ageing)	MPa	≥19
Elongation at Break (Before Ageing)	%	≥350
Abrasion Loss (Before Ageing)	mm <sup>3</sup>	≤250
Hardness	Shore A	65 ±5
Ply to Top Cover Adhesion	kN/m	≥2.5
Ply to Bottom Cover Adhesion	kN/m	≥2.5
Ply to Ply Adhesion	kN/m	≥3.5
Ageing Change – Tensile Strength	%	≤ -30
Ageing Change – Elongation	%	≤ -45
Adhesion after Ageing	%	≤ -40
Tensile Strength Warp Direction	kN/m	≥160
Tensile Strength Weft Direction	kN/m	≥120
Elongation at 10% Reference Load	%	≤2.0

## 10. SUPER ABRASION RESISTANT CONVEYOR BELT (SAR)

Super Abrasion Resistant belts are engineered for the most demanding bulk handling applications where materials are extremely sharp, heavy, or highly abrasive. Industries such as mining, stone crushing, and iron ore handling rely on SAR belts for their exceptional wear resistance and extended service life. With a density of 1200 kg/m<sup>3</sup> and a ply strength of 32 kN/m, SAR belts deliver maximum durability under continuous heavy load. Edge options include cut, moulded, and sealed edges. This grade is standardized under ISI 1891 Part I – Super Abrasion Resistant specification.

Attribute	Value
Grade Name	Super Abrasion Resistant Conveyor Belt (SAR)
Density (kg/m <sup>3</sup> )	1200
Strength per ply (kN/m)	32.0
Cover Grade	Super Abrasion Resistant Conveyor Belt (SAR)
Edge Options	Cut Edge, Moulded Edge, Sealed Edge
Temperature Class	General (ambient)
Flame Class	N/A
Oil Resistance Class	N/A
Chemical Resistance Class	N/A
Food Compliance Class	N/A
Abrasion Class	SAR-grade
Reference	ISI 1891 Part I – Super Abrasion Resistant Belts

# TECHNICAL DATA

Property	Unit	Value / Requirement
Tensile Strength (Before Ageing)	MPa	≥25
Elongation at Break (Before Ageing)	%	≥400
Abrasion Loss (Before Ageing)	mm <sup>3</sup>	≤150
Hardness	Shore A	65 ±5
Ply to Top Cover Adhesion	kN/m	≥3.0
Ply to Bottom Cover Adhesion	kN/m	≥3.0
Ply to Ply Adhesion	kN/m	≥4.0
Ageing Change – Tensile Strength	%	≤ -25
Ageing Change – Elongation	%	≤ -40
Adhesion after Ageing	%	≤ -40
Tensile Strength Warp Direction	kN/m	≥200
Tensile Strength Weft Direction	kN/m	≥150
Elongation at 10% Reference Load	%	≤1.5

## 11. COMMERCIAL RUBBER SHEET

Commercial Rubber Sheets are versatile products used across industries for flooring, sealing, padding, and general industrial applications. Unlike conveyor belts, these sheets are supplied in flat form without fabric reinforcement, making them suitable for cutting into gaskets, lining surfaces, or providing cushioning.

They are manufactured from general-purpose rubber compounds, offering balanced mechanical properties at economical cost. Typical applications include workshops, packing areas, and general engineering use.

Attribute	Value
Grade Name	Commercial Rubber Sheet
Density (kg/m <sup>3</sup> )	1200
Thickness Range	2 mm – 25 mm
Surface Finish	Smooth / Fabric Impression
Edge Options	Cut Edge
Temperature Class	General (ambient)
Flame Class	N/A
Oil Resistance Class	Limited
Chemical Resistance Class	Limited
Food Compliance Class	N/A
Abrasion Class	General Duty
Reference	ISI 1891 Part I – General Purpose Rubber Sheets



# TECHNICAL DATA

Property	Unit	Value / Requirement
Tensile Strength	MPa	≥12
Elongation at Break	%	≥250
Hardness	Shore A	65 ±5
Abrasion Loss	mm <sup>3</sup>	≤350
Tear Strength	kN/m	≥20
Compression Set	%	≤25

# FABRIC TYPES GUIDE

Conveyor belts are not just rubber covers – their strength and performance come from the fabric carcass inside. The carcass acts as the backbone of the belt, defining its tensile strength, flexibility, elongation, and resistance to impact or environmental conditions. Different fabrics are chosen depending on the duty, environment, and material being conveyed.

## Key Roles of Fabric in Belts

- **Tensile Strength** → Determines how much load the belt can carry without breaking.
- **Elongation & Flexibility** → Impacts how the belt bends around pulleys and absorbs shocks.
- **Dimensional Stability** → Ensures the belt doesn't stretch excessively during operation.
- **Resistance Properties** → Fabrics can be tailored to resist moisture, heat, chemicals, or abrasion.
- **Service Life** → The right fabric extends belt life and reduces downtime.

# FABRIC TYPES

1. **Cotton (CN)** → Economical, flexible, light duty.
2. **Nylon (NN)** → High strength, impact resistant, widely used.
3. **Polyester (EP)** → Low stretch, stable, chemical resistant.
4. **Nylon-Polyester Hybrid (EP/NN)** → Balanced flexibility and stability.
5. **Kevlar / Aramid** → Extreme strength, cut resistant, specialized belts.
6. **Steel Cord** → Maximum tensile strength, minimal elongation  
long-distance conveyors.

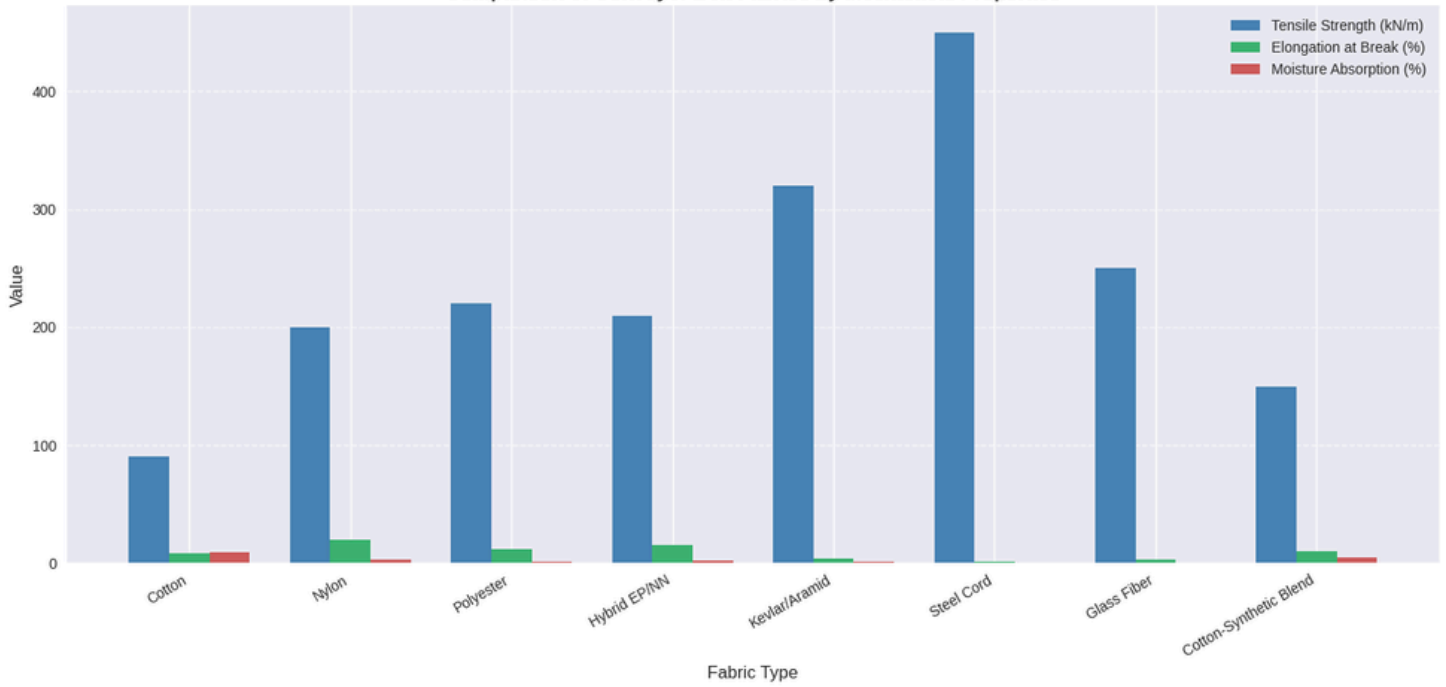
## SELECTION CHART FOR NN (NYLON-NYLON)

Belt Designation		Full Belt Tensile Strength	Maximum Recommended Working Tension		Nominal Carcass Thickness	Nominal Carcass Weight	Maximum Belt Width (mm) for adequate Load Support Bulk Density (T/M <sup>3</sup> )			Maximum Belt Width (mm) for Adequate Troughing		
Type	Rating	Kn / m Splice	Vulcanized fasteners Kn / m	Mechanical	( mm )	Kg/m <sup>2</sup>	upto 1.0	upto 1.5	upto 2.5 Idlers	20 Deg	30 Deg Idlers	45 Deg Idlers
General Duty ( GD )	200/2	200	20	20	2.4	2.850	650	500	-	300	400	500
	250/2	250	25	25	2.5	3.000	650	600	-	300	400	500
	315/2	315	31	31	2.7	3.250	800	650	500	300	400	500
	315/3	315	31	31	3.0	3.600	1000	800	650	400	500	500
	400/3	400	40	40	3.3	3.950	1200	900	650	500	500	500
	400/4	400	40	40	4.1	4.900	1200	900	650	500	500	500
	500/3	500	50	-	3.6	4.300	1200	900	650	500	500	500
	500/4	500	50	-	4.3	5.200	1200	900	650	500	500	500
	630/3	630	63	-	4.1	4.900	1200	1000	800	500	500	500
Heavy Duty ( HD )	630/4	630	63	-	5.0	6.000	1200	1000	800	500	500	500
	200/2	200	20	20	2.5	3.000	800	650	500	400	400	500
	250/2	250	25	25	2.8	3.350	800	650	500	400	400	500
	315/2	315	31	31	3.0	3.600	1000	800	650	400	500	500
	315/3	315	31	31	3.3	3.950	1200	1000	650	500	500	500
	400/2	400	40	40	3.2	3.800	1200	1000	800	500	500	500
	400/3	400	40	40	3.5	4.200	1200	1000	800	500	500	650
	400/4	400	44	40	4.3	5.150	1200	1000	800	500	500	695
	500/3	500	50	-	3.9	4.700	1400	1000	800	500	500	695
	500/4	500	55	-	4.5	5.400	1400	1200	900	500	650	695
	630/3	630	63	-	4.1	4.900	1600	1400	1200	650	800	800
	630/4	630	70	-	5.4	6.450	1600	1600	1400	650	900	900
	800/4	800	90	-	5.9	7.050	1600	1600	1400	650	800	900
	1000/4	1000	110	-	6.0	7.200	1800	1800	1800	800	900	1000
	1000/5	1000	110	-	7.0	8.400	1800	1800	1800	800	900	1000
	1250/4	1250	140	-	6.5	7.800	1800	1800	1800	800	900	1000
	1250/5	1250	140	-	7.4	8.850	1800	1800	1800	900	900	1000
	1400/4	1400	154	-	7.0	8.400	2000	1800	1600	750	800	1000
	1400/5	1400	154	-	8.0	9.600	2000	1800	1800	800	900	1200
	1600/4	1600	180	-	8.0	9.600	2000	2000	2000	800	900	1000
	1600/5	1600	180	-	9.0	10.800	2000	2000	2000	800	900	1200
Extra Heavy Duty ( EHD )	1800/5	1800	200	-	9.5	11.400	2400	2400	2400	800	1000	1200
	2000/5	2000	220	-	10.0	12.000	2400	2400	2400	800	1000	1200
	2000/8	2000	220	-	11.5	13.800	2400	2400	2400	800	1000	1200
	400/4	400	44	-	4.8	5.750	1200	1000	800	500	500	500
	500/4	500	55	-	5.0	6.000	1400	1000	900	500	500	500
	630/4	630	70	-	5.8	6.950	1400	1200	1000	500	500	500
	800/4	800	90	-	6.5	7.800	1600	1400	1050	500	500	650
	800/5	800	90	-	7.2	8.650	1600	1600	1200	600	650	800
	1000/4	1000	110	-	6.0	7.200	1800	1400	1200	600	750	900
	1000/5	1000	110	-	7.5	9.000	1800	1600	1400	750	900	1000
	1250/4	1250	140	-	7.0	8.400	1800	1600	1400	750	800	900
	1250/5	1250	140	-	8.0	9.600	1800	1800	1600	800	900	1000
	1400/4	1400	154	-	7.5	9.000	2000	1800	1600	750	800	1000
	1400/5	1400	154	-	8.5	10.200	2000	1800	1800	800	900	1200
	1600/4	1600	180	-	8.5	10.200	2000	2000	2000	800	900	1000
	1600/5	1600	180	-	9.5	11.400	2000	2000	2000	800	900	1200
	1800/5	1800	200	-	10.0	12.000	2400	2400	2400	800	1000	1200
	2000/5	2000	220	-	11.0	13.200	2400	2400	2400	800	1000	1200
	2000/8	2000	220	-	12.5	15.000	2400	2400	2400	800	1000	1200

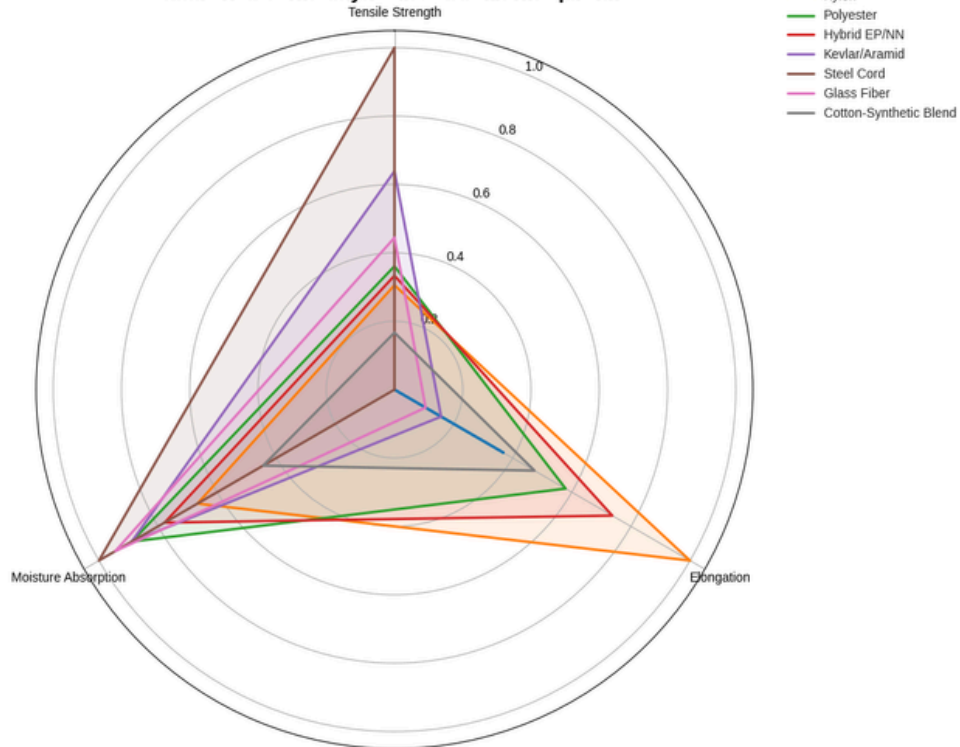
## SELECTION CHART FOR EP (POLYESTER-NYLON)

Belt Designation		Full Belt Tensile Strength	Maximum Recommended Working Tension	Nominal Carcass Thickness	Nominal Carcass Weight	Maximum Belt Width (mm) for adequate Load Support Bulk Density (T/M <sup>3</sup> )			Maximum Belt Width (mm) for Adequate Troughing		
Type	Rating	Kn / m Spice	Vulcanized fasteners Kn/m	( mm )	Kg./m <sup>2</sup>	upto 1.0	upto 1.5	upto 2.5 idlers	20 Deg	30 Deg idlers	45 Deg idlers
General Duty (GD)	315/3	315	31.5	3.3	3.950	1200	1000	800	500	500	500
	400/3	400	40	3.5	4.200	1200	1000	800	500	500	650
	400/4	400	40	4.4	5.300	1200	1000	800	500	500	650
	500/3	500	55	3.8	4.500	1400	1000	800	500	500	650
	500/4	500	55	4.8	5.500	1400	1200	900	500	650	650
	630/3	630	70	4.5	5.400	1600	1400	1200	650	800	800
	630/4	630	70	5.3	6.350	1600	1600	1400	650	800	900
	800/4	800	90	6.0	7.200	1600	1600	1400	650	800	900
Heavy Duty (HD)	315/3	315	31.5	3.6	4.300	1200	1000	800	500	500	500
	400/3	400	40	3.8	4.500	1200	1000	800	500	500	500
	400/4	400	40	4.6	5.500	1200	1000	800	500	500	500
	500/3	500	55	4.2	4.000	1400	1000	800	500	500	500
	500/4	500	55	5.0	6.000	1400	1000	900	500	500	500
	630/3	630	70	4.8	5.750	1400	1200	1000	500	500	500
	630/4	630	70	5.8	6.950	1400	1200	1000	500	500	500
	800/4	800	90	6.4	7.680	1600	1400	1050	500	500	650
	800/5	800	90	7.0	8.400	1600	1600	1200	600	650	800
	1000/4	1000	110	6.5	7.800	1800	1400	1200	600	750	900
	1000/5	1000	110	7.4	8.850	1800	1600	1400	750	900	1000
	1250/4	1250	140	7.0	8.400	1800	1600	1400	750	800	900
	1250/5	1250	140	8.0	9.600	1800	1800	1600	800	900	1000
	1400/4	1400	145	7.5	9.000	2000	1800	1600	750	800	1000
	1400/5	1400	145	8.5	10.200	2000	1800	1800	800	900	2000
	1600/4	1600	180	8.5	10.200	2000	2000	2000	800	900	1000
	1600/5	1600	180	9.5	11.400	2000	2000	2000	800	900	1200
	1800/5	1800	200	10.0	12.000	2400	2400	2400	800	1000	1200
	2000/5	2000	220	10.5	12.600	2400	2400	2400	800	1000	1200
	2000/6	2000	220	12.0	14.400	2400	2400	2400	800	1000	1200
Extra Heavy Duty (EHD)	1000/4	1000	110	7.0	8.400	1800	1400	1200	600	750	900
	1000/5	1000	110	8.0	9.600	1800	1600	1400	750	900	1000
	1250/4	1250	140	7.5	9.000	1800	1600	1400	750	800	900
	1250/5	1250	140	8.5	10.200	1800	1800	1600	800	900	1000
	1400/4	1400	154	8.0	9.600	2000	1800	1600	750	800	1000
	1400/5	1400	154	9.0	10.800	2000	1800	1800	800	900	1200
	1600/4	1600	180	9.0	10.800	2000	2000	2000	800	900	1000
	1600/5	1600	180	10.0	12.000	2400	2400	2400	800	900	1200
	1800/5	1800	200	10.5	12.600	2400	2400	2400	800	1000	1200
	2000/5	2000	220	11.5	13.800	2400	2400	2400	800	1000	1200
	2000/6	2000	220	13.0	15.600	2400	2400	2400	800	1000	1200

Comparison of Conveyor Belt Fabrics by Mechanical Properties



Radar Chart: Conveyor Belt Fabrics Comparison





## 1. Cotton (CN)

Field Name	Value / Rating
Fabric Type	Cotton (CN)
Tensile Strength (kN/m)	Low ( $\approx$ 80–100)
Elongation at Break (%)	6–10%
Modulus / Elasticity	Low (soft, flexible)
Impact Resistance	Low
Moisture Absorption (%)	High ( $\approx$ 8–10%)
Temperature Resistance ( $^{\circ}\text{C}$ )	–10 to +80
Chemical Resistance	Poor (weak against acids/alkalis)
Abrasion Resistance	Low
Cost Rating	Low
Typical Applications	Light duty belts, packaging, agriculture, short conveyors

## 2. Nylon (NN)

Field Name	Value / Rating
Fabric Type	Nylon (NN / Polyamide)
Tensile Strength (kN/m)	Medium–High (≈ 180–220)
Elongation at Break (%)	18–25%
Modulus / Elasticity	Medium (flexible, good recovery)
Impact Resistance	High
Moisture Absorption (%)	Low (≈ 3–4%)
Temperature Resistance (°C)	–20 to +100
Chemical Resistance	Moderate (resists alkalis, weak against strong acids)
Abrasion Resistance	High
Cost Rating	Medium
Typical Applications	General duty belts, mining, cement, steel, medium to heavy conveyors

### 3. Polyester (EP)

Field Name	Value / Rating
Fabric Type	Polyester (EP)
Tensile Strength (kN/m)	High ( $\approx$ 200–250)
Elongation at Break (%)	10–15%
Modulus / Elasticity	High (stiff, low stretch)
Impact Resistance	Medium
Moisture Absorption (%)	Very Low ( $\approx$ 0.5–1%)
Temperature Resistance (°C)	–20 to +120
Chemical Resistance	Good (resistant to most acids, alkalis, and moisture)
Abrasion Resistance	High
Cost Rating	Medium
Typical Applications	General duty belts, cement, steel, ports, long conveyors needing dimensional stability

## 4. Nylon–Polyester Hybrid (EP/NN)

Field Name	Value / Rating
Fabric Type	Nylon–Polyester Hybrid (EP/NN)
Tensile Strength (kN/m)	High ( $\approx$ 200–230)
Elongation at Break (%)	12–18%
Modulus / Elasticity	Medium–High (balanced stiffness and flexibility)
Impact Resistance	High
Moisture Absorption (%)	Low ( $\approx$ 2–3%)
Temperature Resistance (°C)	–20 to +110
Chemical Resistance	Good (resists alkalis, moderate acids, moisture stable)
Abrasion Resistance	High
Cost Rating	Medium
Typical Applications	Heavy duty conveyors, mining, ports, steel plants, where both flexibility and stability are needed

## 5. Kevlar / Aramid

Field Name	Value / Rating
Fabric Type	Kevlar / Aramid
Tensile Strength (kN/m)	Very High ( $\approx 300\text{--}350$ )
Elongation at Break (%)	3–5% (very low stretch)
Modulus / Elasticity	Very High (extremely stiff, minimal elongation)
Impact Resistance	Very High
Moisture Absorption (%)	Very Low ( $\approx 0.5\text{--}1\%$ )
Temperature Resistance (°C)	–40 to +180
Chemical Resistance	Excellent (resistant to most acids, alkalis, hydrocarbons)
Abrasion Resistance	Very High
Cost Rating	High
Typical Applications	Heavy mining, steel plants, high-temperature conveyors, cut-resistant and impact-critical belts

## 6. Steel Cord

Field Name	Value / Rating
Fabric Type	Steel Cord
Tensile Strength (kN/m)	Very High ( $\approx$ 400–500)
Elongation at Break (%)	$\leq 1\%$ (extremely low stretch)
Modulus / Elasticity	Extremely High (rigid, no flex)
Impact Resistance	Very High
Moisture Absorption (%)	None
Temperature Resistance (°C)	–40 to +200
Chemical Resistance	Good (resists most chemicals, but vulnerable to corrosion if unprotected)
Abrasion Resistance	Very High
Cost Rating	High
Typical Applications	Long-distance conveyors, mining, ports, steel plants, heavy load and high-tension belts



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