METALTRANS™

UNIQUE STEEL CARCASS CONSTRUCTION FOR ENHANCED IMPACT AND TEAR RESISTANCE

PRODUCT SHEET

HIGHLIGHTS

- Unique belt construction for high performance applications
- Metal carcass with two layers of rubber embedded cords
- Two types of constructions in warp direction: M-cords for highest elasticity and E-cords for long centre distance applications

Metaltrans™ is a metal shield which combines the flexibility of a fabric belt with the resistance of a steel cord belt.

THE CONCEPT

Metaltrans conveyor belts consist of an assembly of two layers of rubber embedded cords. Two different constructions are available, both offering unique properties perfectly suited for your application.

BENEFITS OF METALTRANS

- Low elastic modulus allows the belt to adapt to curved conveyors
- Increased impact protection due to super high elongation weft cables
- High resistance to penetration limiting longitudinal cuts and tears
- Excellent cord/rubber adhesion under tough working conditions

Direct advantages on your conveying operations

- Longer conveyor belt service life
- Savings on maintenance costs
- Better stability
- Increased productivity

APPLICATIONS

- Lignite and hard rock mining
- Cement industry
- Steel industry
- Aggregates
  Grain and sugar industries
  Salt industry
  Mineral processing plants
- Overland conveyors
  Port operations
  Power and heating plants

COVERS

- Transdura (anti-abrasive)
- Transflam (flame retardant)
- Transoil (oil resistant)
- Transtherm (heat resistant)
- TransEvo (energy saving)
- Transcold (cold resistant)

PRODUCT FEATURES

Metaltrans™ conveyor belts consist of an assembly of two layers of rubber embedded cords. Two different constructions are available, both offering unique properties perfectly suited for your application.

Metaltrans with M-cords in the warp direction provides the highest elasticity. This allows the belt to go around the tightest curves or smallest pulley diameters.

Metaltrans with E-cords in the warp direction provides low elongation for applications with long centre distances.

Both carcass types are equipped with the super elastic cord in the weft direction. These special weft cords are located above and below the cords in the running direction. This provides exceptional impact and tear resistance.

Metaltrans complies with the ISO 15236.

TECHNICAL DETAILS

The unique carcass type provided by Metaltrans can be produced with two kinds of warp cords: M and E. The highly elastic M-cords allow for transportation around tight horizontal and vertical curves and short transition lengths, whereas the E-cords provide lower elongation. The weft cords, which are used in cross direction, protect the warp cords and are resistant to strong impact due to their super high elasticity.

Metaltrans with the highly elastic M warp cords

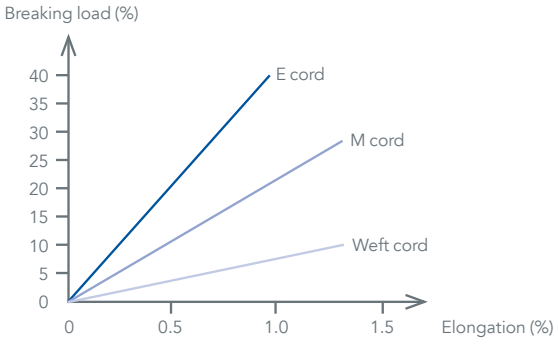
With a 4x7 design it offers a low elastic modulus and strong impact resistance and is particularly suitable for:

- Installations with highly dynamic specifications
- Short installations with repeated impacts and risk of cuts
- Small pulley diameters
- Very small radii for horizontal and vertical curves
- Crowned pulleys for centring on short conveyors

Metaltrans with the low elongation E warp cord

With a 7x7 design it provides high breaking strength and is particularly suitable for:

- Long centre distances with repeated impacts and high risk of cuts and tears
- Installations where low belt elongation is requested



Comparison of elongation of weft reinforcement and M- as well as E-cords at certain percentages of breaking load

DATA

Metaltrans™ standard range (other strengths and dimensions are available on request)

	Metaltrans M with one steel weft								
	Warp cord 4x7 - elongation under reference load 0.4 to 0.6%								
Nominal belt strength (N/mm)	500	630	800	1000	1250	1400	1600	1800	2000
Diameter of warp cord (mm)	2.85	2.85	2.85	2.85	2.85	2.85	2.85	3.8	3.8
Carcass thickness (mm)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.8	5.8
Carcass weight (kg/m²)	5.7	6.0	6.6	7.5	8.3	9.0	10.1	13.8	14.3

	Metaltrans E with one steel weft												
	Warp cord 7x7 - elongation under reference load 0.2 to 0.3%												
Nominal belt strength (N/mm)	800	1000	1250	1400	1600	1800	2000	2250	2500	2800	3150	3500	4000
Diameter of warp cord (mm)	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1			3.7 to 8.6		
Carcass thickness (mm)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	6.5	7.5	8.5	9.4	10.4
Carcass weight (kg/m²)	9.6	9.7	10.1	10.6	11.3	12	12.8	13.6	16.6	19.1	21.2	24	27.1

Metaltrans belts are produced in Bełchatów, Poland. Sempertrans Bełchatów is the largest conveyor belt production site in Europe and specialises in producing textile and heavy steel cord belts and technically complex belts for special use.

Sempertrans has its own unique process for producing Metaltrans specialty belts. It is based on continuous dedication to supplying high quality products to customers. Through the integration of rigorous controls at all stages of development and manufacturing, we ensure that only products that have undergone extensive testing are delivered to our customers.

Sempertrans is the only conveyor belt manufacturer in the world producing customised and engineered belts Metaltrans with M or E cords with special steel carcass constructions.

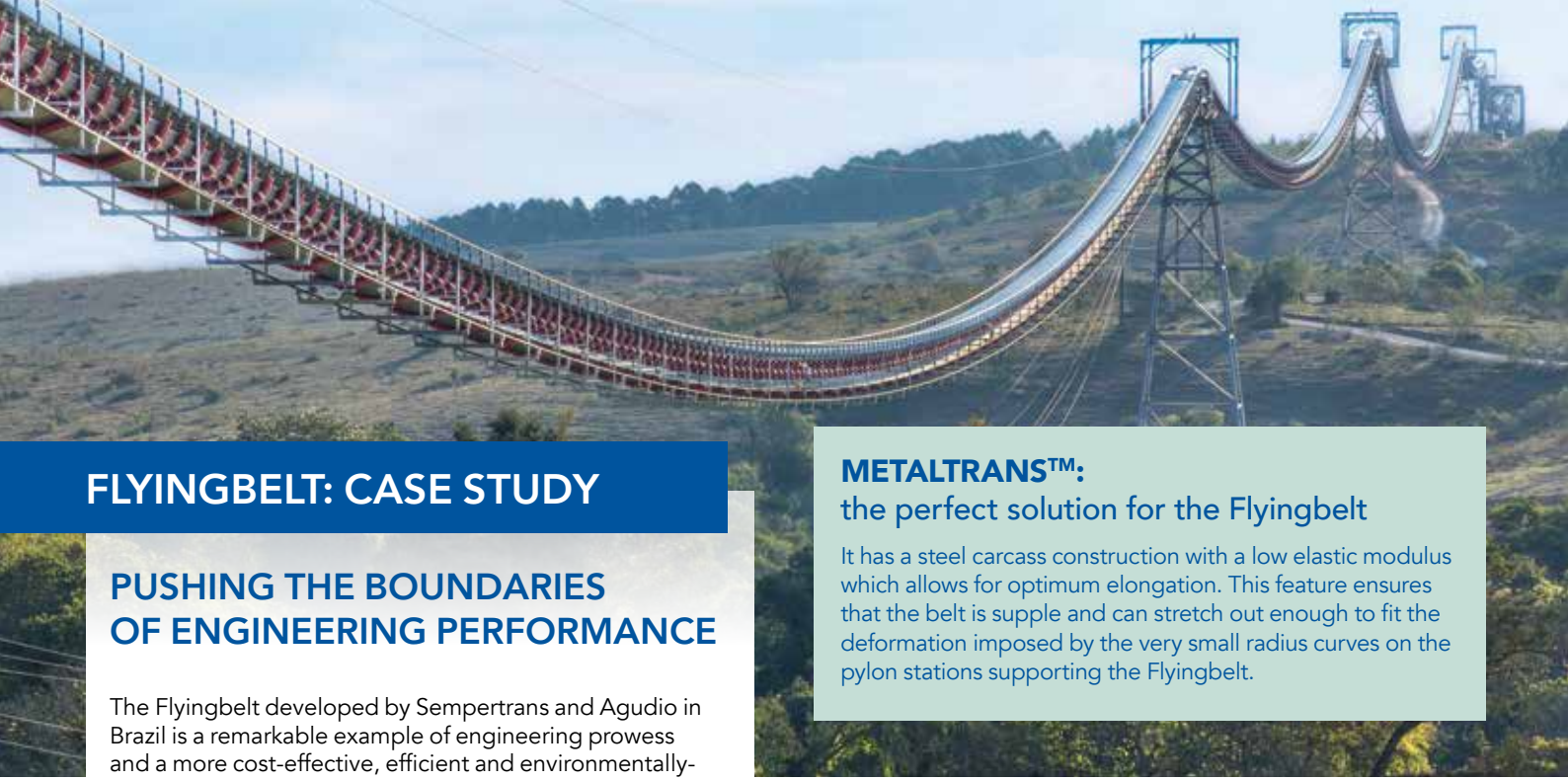
METALTRANS BELTS ARE RECOMMENDED FOR CONVEYORS WITH:

- High drop height and impact issues
- Tight vertical and horizontal curves
- Small pulley diameter
- Higher risk of longitudinal rips

TAILORED TECHNICAL CONSULTANCY

Sempertrans' Global Application Engineering team will support in selecting the right carcass construction in combination with the right cover grade to fulfill the requirements of each application.

These expert technicians and professionals will cater to your needs at all stages of your project. Their mission is to provide the right technical solution for your specific conveying belting applications – from consulting services such as the tailored design and configuration of your conveyor belts, to local engineering support functions in case of technical conveyor issues. Whether your business requires a brand new conveyor belt or process improvements the Sempertrans Global Application Engineering team is there to support you.



FLYINGBELT: CASE STUDY

PUSHING THE BOUNDARIES OF ENGINEERING PERFORMANCE

The Flyingbelt developed by Sempertrans and Agudio in Brazil is a remarkable example of engineering prowess and a more cost-effective, efficient and environmentally-friendly conveying solution compared to conventional truck transportation.

BARROSO PROJECT IN NUMBERS

Client: LafargeHolcim
Location: Minas Gerais, Brazil
Year: 2016

Transported material	Crushed limestone / Clay
Horizontal installation length	7.2 km from limestone quarry to cement works
Installation height	Up to 36 m above ground level
Conveyor belt length	Approx. 15 km
Conveyor belt width	1,200 mm
Transport capacity	1,500 tph
Number of towers	18
Number of intermediate anchors	3
Motors nominal power (belt)	3 x 615 kW
Motors nominal power (maint)	4x30 kW
Speed of belt	4.00 m/s

METALTRANS™: the perfect solution for the Flyingbelt

It has a steel carcass construction with a low elastic modulus which allows for optimum elongation. This feature ensures that the belt is supple and can stretch out enough to fit the deformation imposed by the very small radius curves on the pylon stations supporting the Flyingbelt.

FLYINGBELT: THE CONCEPT

Fly with a conveyor belt over any obstacle by combining the advantages of a conveyor belt system and a material ropeway construction

- Belt conveyor suspended on four track ropes
- Easy installation and low operation costs of a belt conveyor
- High versatility to overcome the most difficult surroundings
- Possibility for partial coverage of top part to protect material from rain or full coverage on top and side parts to avoid material spillage
- Maintenance with special vehicle, designed according to best ropeway engineering guidelines

SEMPERTRANS SUPPLIED:

- Tailored belt design requiring elaborate, structural engineering calculations and planning to fit unique Flyingbelt construction
- Production of 15 km of specialty Metaltrans conveyor belt with a low elastic modulus which allows for optimum elongation
- Installation and positioning of several bits of belt in a record 75 days and 22 splices by six Sempertrans Service technicians 30 m above ground

BENEFITS OF FLYINGBELT

Compared to traditional conveyor system or standalone ropeway installation

- INCREASED PRODUCTIVITY
- LOW ENVIRONMENTAL IMPACT
- FLEXIBLE ROUTE DESIGN
- REDUCED CAPEX

Compared to truck transportation

- INCREASED EFFICIENCY
- LOWER OPERATING & MAINTENANCE COSTS
- HIGHLY SAFE
- CO_2 REDUCTION
- LOWER NOISE IMPACT

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