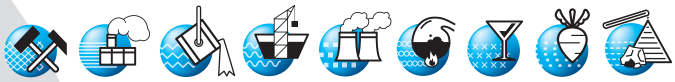
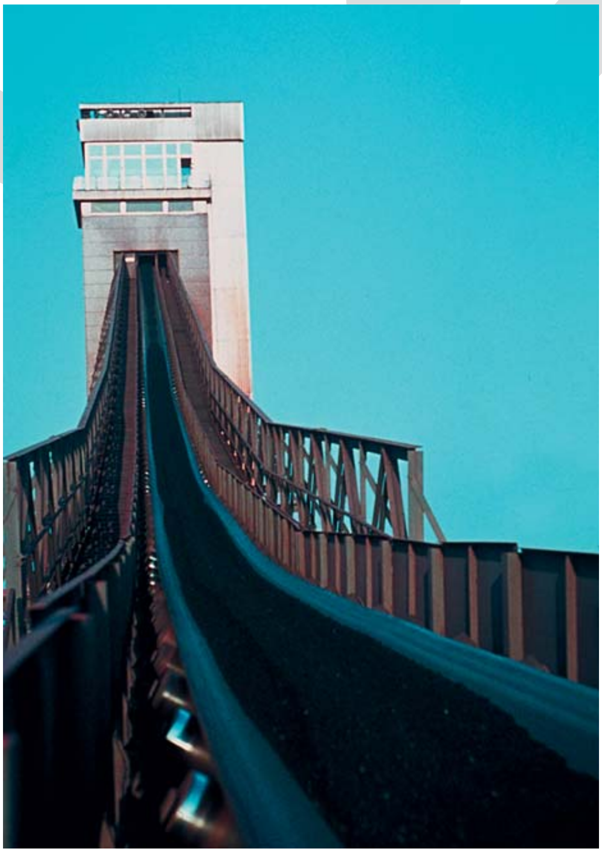
AUTOSTABLE

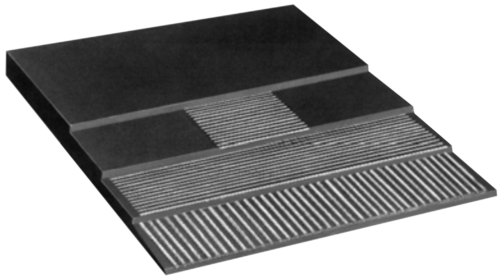


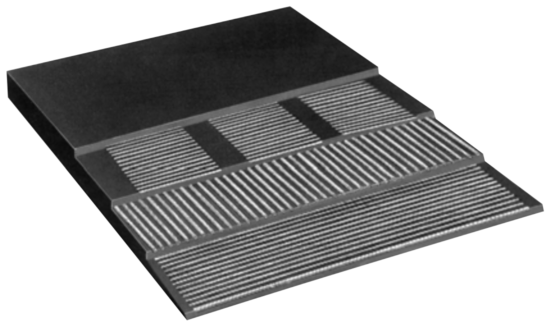
INSTANTANEOUS SELF-CENTRING

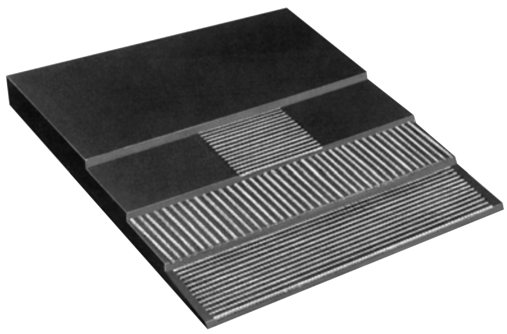
The patented construction principle of the AUTOSTABLE belt ensures instantaneous self-centring. This self-centring effect without the use of accessories or modifications of the installation offers numerous advantages:
• Stability of the belt along its whole length, thus no risk of off-centring and therefore no deterioration of the moulded edges.
• Elimination of systematic pinching, hence less wear and lower friction (reduction of power consumed).
• Increase in output owing to stabilisation of the vein and the slope of the product and the possibility of increasing the trough angle.



Areas of application
• Reversible installations
• Installations with poorly centred load (e.g. bucket wheel)
• Port installations (ores, coal, phosphates)
• Mines / Iron and Steel Industry (ores, cokes, added materials)
• Thermal power plants (coal, ash)
• Cement works (quarry materials, added materials, cold clinker)
• Quarries / Sand pits (grain size < 400 mm)
• Paper mills (wood, edgings)
• Fertiliser factories / Chemical plants (non chemically aggressive materials)
• Salt marshes / salt works
• Sugar factories (sugar beet, cane, sugar beet chips)
• Glassworks (raw materials, cullet, recycling)







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INSTANTANEOUS SELF-CENTRING

One of the main problems encountered in the use of conveyor belts is off-centring.
This phenomenon resulting from various causes leads to clogging of installations, reductions in output, deterioration of the moulded edges and a noticeable shortening of the service life of the belt itself.

The patented construction principle of the AUTOSTABLE METAL belt is based on the qualities of METALCORD belts. In particular, this belt offers the qualities and performance associated with the use of cords of various elasticities. Its originality lies in the incorporation of a double metal stiffening layer. One narrower layer is centred on the centre line of the belt, creating a "beam effect" in the central part.

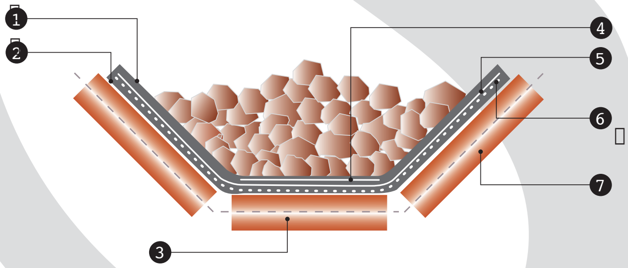
The difference in flexibility between this central area and the side areas, which are more flexible in comparison, favours the self-centring of the belt. As the rigid central part cannot adapt to the angle formed by the idler rollers, the belt tends to return to its natural trough, thus favouring its stability along its whole length.

- Self-centring

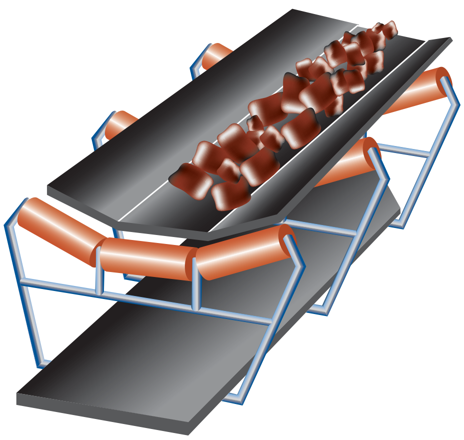
The AUTOSTABLE belt centres itself of its own accord on the conveyor.

- Increased service life

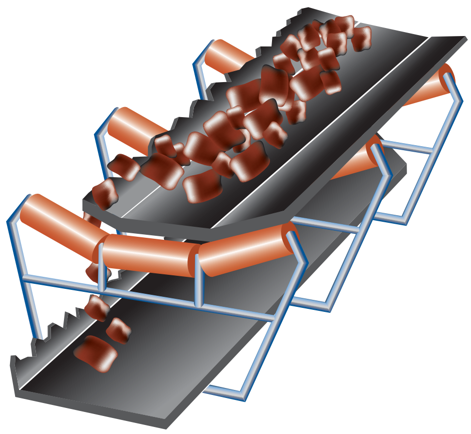
Reduction of the risks of off-centring and therefore of deterioration of the moulded edges. Elimination of pinching and therefore less wear and lower friction.



1 – Top cover
2 – Bottom cover
3 – Idler roller (length of generatrix to be specified at time or order)
4 – Variable weft (of a width roughly equal to the generatrix of the centre roller)
5 – Normal weft
6 – Warp
7 - Side idler rollers



NEVER AGAIN!



IMPORTANT NOTICE: This brochure has been prepared carefully, to advise our customers. The information stated therein is state of the art and the results of different tests carried out over several years. Individual operating conditions affect any product, which means that a product can only offer the safety that can be expected on the basis of the data provided in our product information. In the event that the product is used otherwise than in conformity with the specifications, such safety may not be assumed. Our responsibility is limited exclusively to delivery of the conveyor belt in accordance with the specifications.

The figures stated in our documents are mean approximate values for information but no specified or warranted values.

Please note: Before using the product in new areas of application which are not covered by the product information a Sempertrans engineer MUST be asked for advice.
Stocking, care and maintenance of all our products must be performed according to our stocking, care and maintenance guidelines and according to ISO 5285 standard ;

Subject to errors and printing errors.

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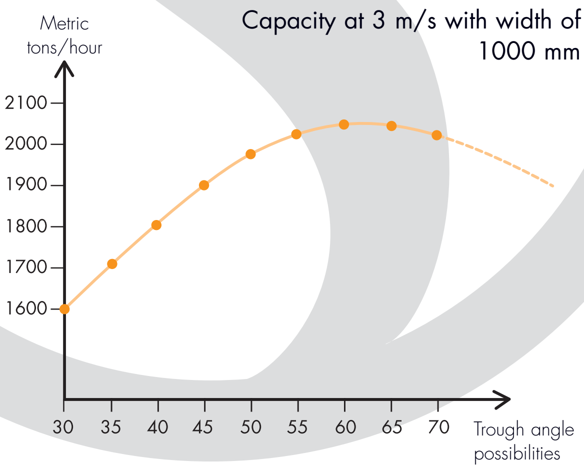
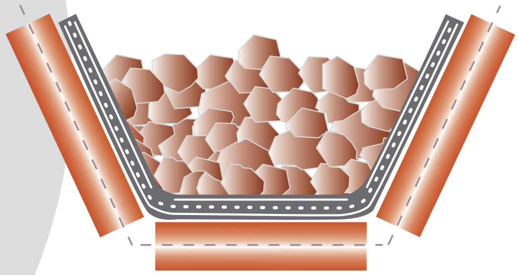
AUTOSTABLE

INCREASED OUTPUT

As the construction with different faces allows more marked lifting of the edges, the conveying capacity is increased and the output improved.



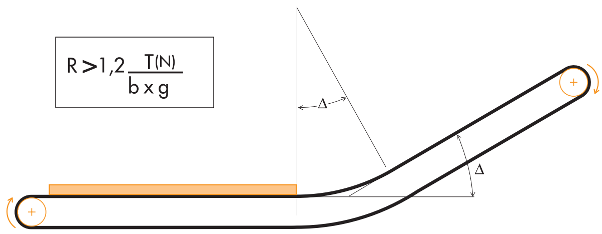


Trough angle in degrees
45°
55°
65°
90°

AUTOSTABLE M1000 38° / 950 mm
with 65° trough angle - SFBT FRANCE

RADIUS CENTRED AT TOP

Owing to its greater weight at the centre, which does not affect the troughability, and the partial retention of its shape, the **AUTOSTABLE** belt enables the position of the belt in the curve to be corrected or improved.



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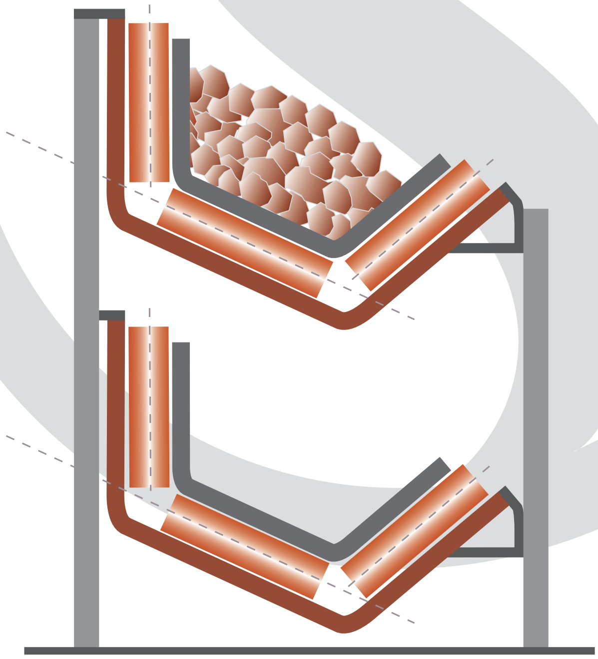
SPECIFIC USES

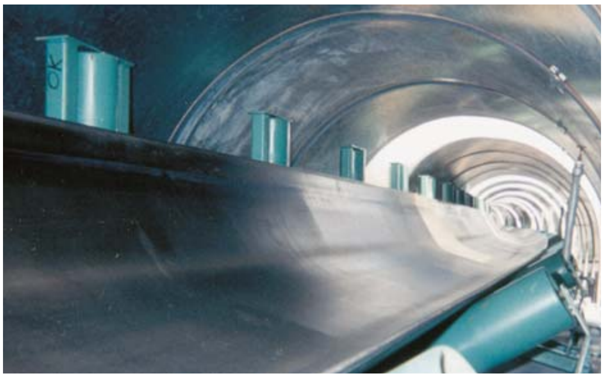
• Conveyors with curves in the horizontal plane

This configuration enables the belt to be kept stable in the curve by opposing the natural movement of the belt in a curve on its support. The acceptable force limits must be calculated on a case-by-case basis in accordance with the outputs and tensions required. Our design office is at your disposal.



Belt position almost identical when loaded and when empty

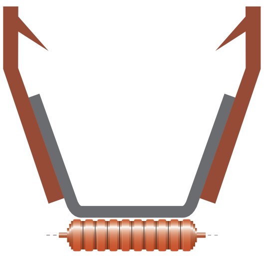
•Advantages
- safety
- compactness
- control
- capacity



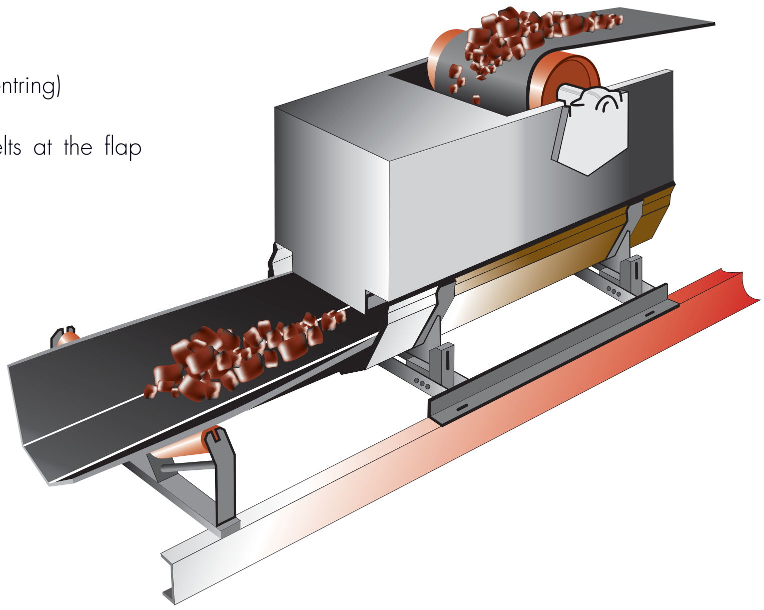
SPECIAL APPLICATIONS

• Advantages
- automatic load centring (elimination of off-centring)
- elimination of dust and pollution
- elimination of flaps and grooves in the belts at the flap positions

Self-sealed loading without maintenance



Note: The rigid part at the centre can be sized on request to obtain specific configurations.



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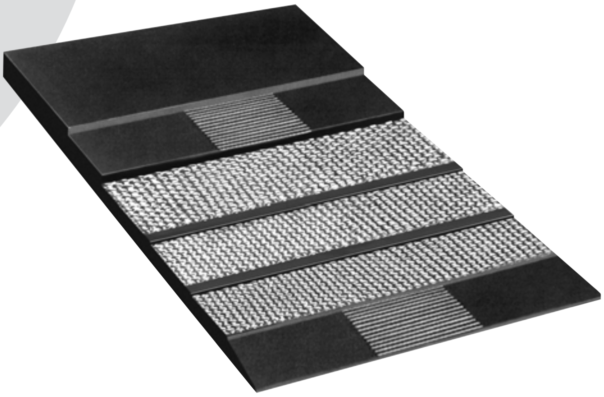
AUTOSTABLE

BASIC CONSTRUCTION

Multi-weft structure consisting of rubber core impregnated metal cords:

- in the warp direction: 1 layer of elastic cords
- in the weft direction: 2 layers of high-rigidity cords located above or on either side of the warp layer
  - 1 full width layer
  - 1 layer of a width adapted to the length of the centre roller of the trough



TEXTILE VARIANT

Mixed textile /metal structure consisting of

- in the warp direction: 1 EP type two-ply or multiply carcass
- in the weft direction: 2 layers of high-rigidity cords located on either side of the textile carcass

RANGE

On request, manufacturing is possible:

- in all metal types from M 500 to E 4000
- in all textile types from 400/2 to 1000/2 and 500/3 to 1600/4
- in all widths from 800 to 1800 mm (consult us for larger widths)
- in most of the cover grades specified on pages 66/67 (anti-abrasive, fireproof, heat, oil, etc.)
- in all cover thicknesses
- manufacturing minimum: 200 m^2

TECHNICAL SPECIFICATIONS (see page 66)

- Cover grade / resistance of covers to products conveyed
- Pulley diameter
- Tension travel
- Trough transition lengths
- Radius of curvature
- Turnover
- Station spacing
- Roller skirt clearance
- Splicing

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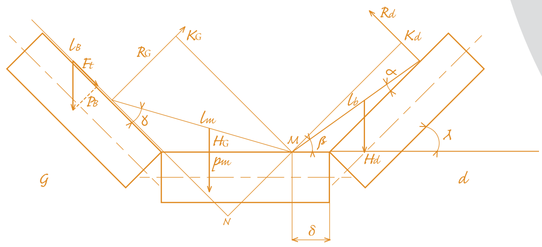
COMPARISON OF CENTRING FORCES

Application to a belt of width 1000 mm with 50 mm offset

	AUTOSTABLE	NORMAL BELT
30° trough	6.07 daN	1.27 daN
45° trough	10.51 daN	1.76 daN

It can be noted that the centring force given by an AUTOSTABLE belt is 4.7 to 7.2 times greater than that given by a normal belt.



A) Centring force of belt with rigid edges

$$b = l_m + 2l_B \qquad p_m = b.g.\frac{l_m}{b}e \qquad p_B = b.g.\frac{l_B}{b}e$$

$$\frac{\delta}{\sin\alpha} = \frac{l_B}{\sin\lambda} \Rightarrow \alpha = \mathrm{Arcsin}\left[\frac{\delta}{l_B}\sin\lambda\right]$$

$$\frac{l_m-\delta}{\sin\gamma} = \frac{l_m}{\sin\lambda} \Rightarrow \gamma = \mathrm{Arcsin}\left[\left(1-\frac{\delta}{l_m}\right)\sin\lambda\right]$$

Centring force: algebraic sum of the reactions projected on the horizontal line

$$F_c(\delta) = |R_G|\sin\lambda + |F_t|\cos\lambda - |R_d|\sin\lambda$$

Calculation of reactions RG and Rd of the edge rollers on the belt assuming the hinges are perfectly flexible

$$M_M^t \qquad R_d \times MK_d \times P_B \times MH_d = 0$$

$$R_d \times l_B\cos\alpha + P_B \times \frac{l_B}{2}\cos(\lambda-\alpha) = 0 \qquad \beta = \lambda - \alpha$$

$$R_d = \frac{P_B\cos(\lambda-\alpha)}{2\cos\alpha}$$

$$R_G \times \overline{MK_G} + F_t \times \overline{MN} + p_m \times \overline{MH_G} = 0$$

$$R_G \times l_m\cos\gamma + p_B\sin\lambda\, l_m\sin\gamma + p_m\frac{l_m}{2}\cos(\lambda-\gamma)$$

$$R_G = -\frac{2p_B\sin\lambda\sin\gamma + p_m\cos(\lambda-\gamma)}{2\cos\gamma}$$

Centring force

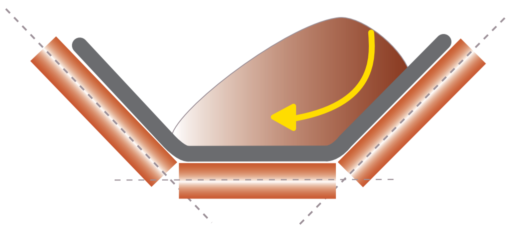
$$F_c(\delta) = |R_G|\sin\lambda + |F_t|\cos\lambda - |R_d|\sin\lambda$$

$$\boxed{F_c(\delta) \quad \left[\frac{2p_B\sin\lambda\sin\gamma + p_m\cos(\lambda-\gamma)}{2\cos\gamma} + p_B\cos\lambda - p_B\frac{\cos(\lambda-\alpha)}{2\cos\alpha}\right]\sin\lambda}$$

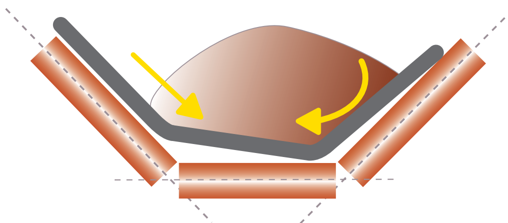
B) Normal belt centring force

$$F_c(\delta) = p_B\frac{l_B+\delta}{l_B}\sin\lambda\cos\lambda - p_B\frac{l_B-\delta}{l_B}\sin\lambda\cos\lambda$$

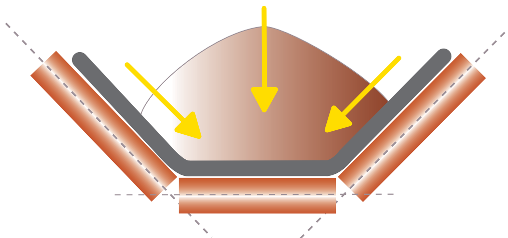
$$\boxed{F_c(\delta) = \frac{2p_B\delta}{l_B}\sin\lambda\cos\lambda}$$



- a force of any type (lateral loading, for example) off-centres the belt



- the autostable belt is off-centred under the stress but cannot stabilise itself in offset



- the centring force is exerted all along the conveyor to enable the belt to return to its original trough

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