



SAVE UP
TO 50% IN
ENERGY
AND CO₂

AMP MISER™ 2.0

THE NEW GENERATION OF
ENERGY-SAVING CONVEYOR BELTS

AMP MISER™ 2.0 – THE NEW GENERATION

50 % ENERGY SAVINGS AT NO EXTRA COST

One of Forbo's key corporate objectives is to maximize environmental friendliness and to enhance product value at the same time. On this basis, we successfully conduct research and development by closely liaising with OEMs and end users. The new generation of energy-saving conveyor belts is another prime example of our approach. The Amp Miser™ 2.0 belts now allow you to save up to 50% of the energy required for power transmission. And they don't cost any more than conventional belts.

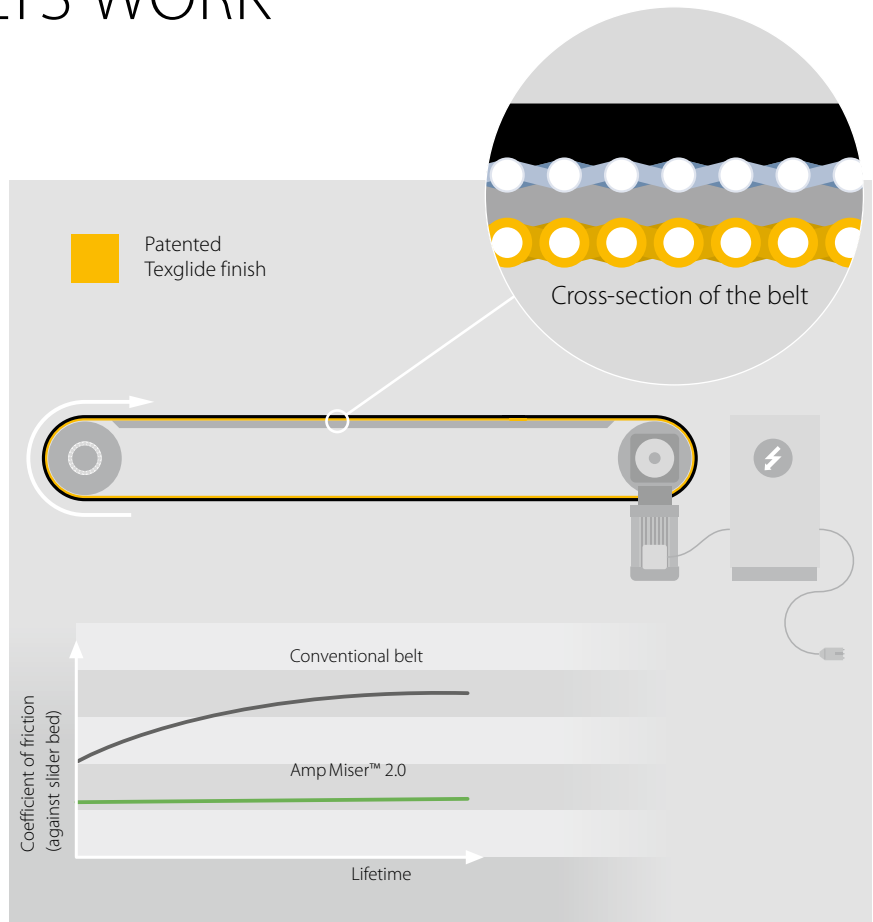
- > Lower power consumption
- > Substantially reduced energy costs
- > Fewer CO₂ emissions

HOW AMP MISER™ 2.0 CONVEYOR BELTS WORK

Due to a significantly reduced coefficient of friction, Amp Miser™ 2.0 belts make an impact where energy losses in a conveyor are usually the greatest: in the friction between the bottom of the belt and slider bed. By adding patented Texglide to the underside fabric, a smooth layer is created that permanently acts like a dry lubricant and therefore minimizes energy consumption.

Amp Miser™ 2.0 conveyor belts excel in areas where items are constantly conveyed and where many belts are in use, for example at airports and in logistics or distribution centers. Total energy savings of up to 50% have been measured in these types of applications.

Except where unpackaged food is concerned, the Amp Miser™ 2.0 series is ideal for virtually any unit goods applications.



Further advantages are the resistance to chemical influences like kerosene vapors and the reduction of CO₂ emissions due to lower energy consumption.

The properties

The advantages

| | | |
|--|---|---|
| ideal coefficient of friction for steel and zinc slider beds | ▶ | energy efficient, eco-friendly, lower operating costs |
| lower coefficient of friction on the underside | ▶ | less power required, longer conveyors possible with one drive |
| underside protected | ▶ | cleanliness, long service life |

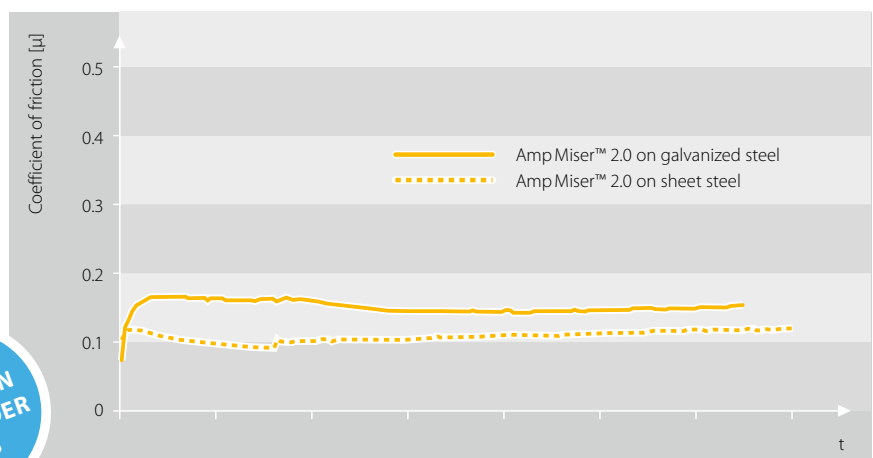
AMP MISER™ 2.0 SETS NEW STANDARDS

Our energy-saving Amp Miser™ belts have an excellent track record under the tough conditions in logistics centers and on baggage conveyors*. The new Amp Miser™ 2.0 generation with enhanced tension members and new Texglide technology now produces even lower coefficients of friction between the underside of the belt and slider bed – even when slider beds are galvanized. No other changes to the conveyor are required.

Best choice on galvanized slider beds

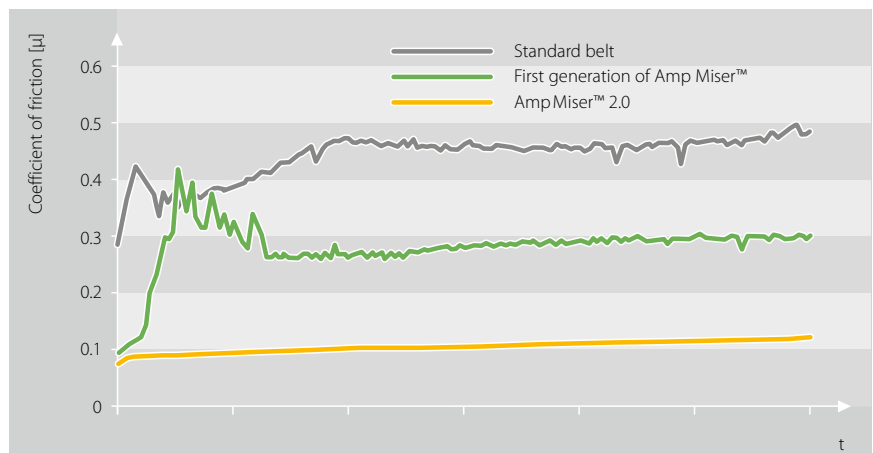
The second generation of Amp Miser™ types are also perfect on otherwise tricky galvanized slider beds. Compared with the previous belts, the coefficient of friction of this generation has been halved to $\mu < 0.17$. And it's just $\mu < 0.13$ on non-galvanized steel.

BEST CHOICE ON ZINC SLIDER BEDS



Extremely economical consumption

Compared with standard types, in typical applications with long conveyors and heavy loads, **up to 50% energy savings are now possible.**



* For more than 10 years, Amp Miser™ conveyor belts have had a good track record in the following companies:

- | | |
|---------------------------------------|---------------------------------------|
| AUS Sydney Airport | NL Schiphol Airport, Amsterdam |
| CN Hong Kong Airport | USA Fort Worth Airport, Dallas |
| D DHL, various sites | Atlanta Airport |
| | San Francisco Airport |
| DK Kastrup Airport, Copenhagen | UPS, various sites |
| MO Macao Airport | |

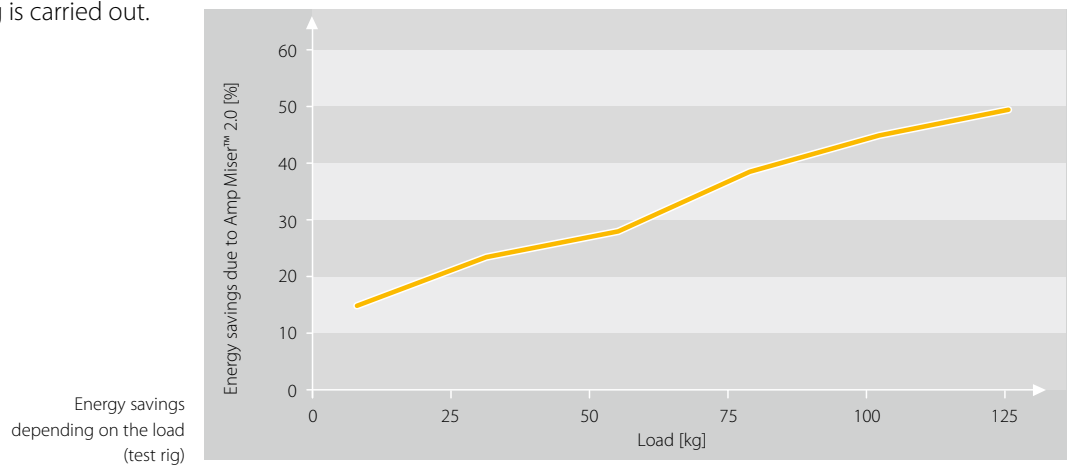
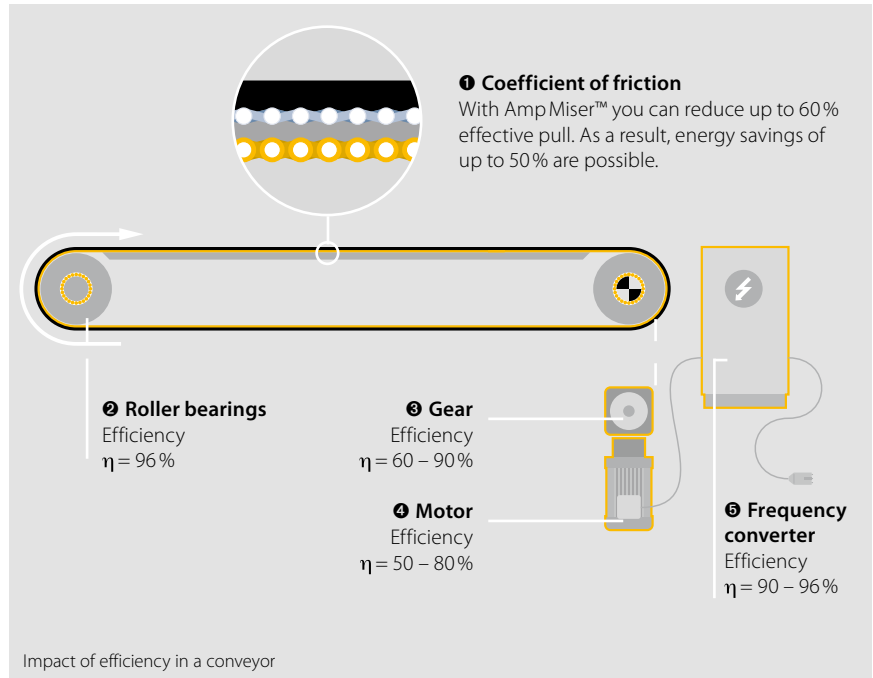
THE KEY SAVINGS POTENTIALS IN THE ENERGY REQUIREMENT OVERALL

The quality, design and condition of all other mechanical and electrical components also play a major role in energy consumption as a whole. Small drives for example are usually not very efficient because a lot of the energy is required to drive the conveyor's moveable parts alone.

Even with a low coefficient of friction, by using Amp Miser™ 2.0 conveyor belts you can save up to 50% of the conveyor's energy costs.

Significant savings can be made where:

- conveyors are long;
- loads are heavy (see graph below);
- slider beds are made of steel, galvanized steel or wood;
- speeds are high and constant;
- horizontal conveying is carried out.



Calculate savings potential online now

Work it out for yourself

You can calculate your conveyor's savings potential online now at www.ampmiser.com without any obligation. The savings can be enormous, especially where large conveyors are concerned.



FAQS

What does Amp Miser™ mean?

Amp Miser™ is an abbreviation of "Ampere Miser". The name emphasizes that installing an Amp Miser™ belt saves energy and improves your eco footprint as a whole. Our Amp Miser™ products are patented in Europe and the US. Patents have been submitted in many other countries too.

What does Texglide™ (TXGD) mean?

Texglide™ (TXGD) is a compound embedded in the underside of the fabric. Texglide™ isn't just an add-on, or a coating, but a permanent feature of the bottom of the fabric throughout the belt's life cycle. Texglide™ guarantees low friction between the belt and the slider bed.

What material is recommended for slider beds?

Amp Miser™ belts can be used on slider beds of all types (such as wood, steel or galvanized steel). In the case of galvanized steel, the new Amp Miser™ 2.0 types cut the coefficient of friction to under 0.17, as regards steel to 0.13 and to less than 0.06 in plywood.

What problems arise on galvanized slider beds?

There are zinc coatings on the market that exhibit the same behavior as normal steel. Others are soft and produce zinc dust when abrasion occurs. This leads to black deposits on the bottom of the belt and a steep rise in coefficients of friction in standard belts.

Can Amp Miser™ belts be used on any type of conveyor?

Yes, but they're not appropriate on every conveyor.

- On short conveyors (< 2 meters) the effect is negligible. The motor requires more energy for itself and the drive than for the load.
- If the belt has rolling support and doesn't operate over a slider bed, the coefficient of friction is low anyway. Amp Miser™ has no impact.
- In the case of inclined conveying, Amp Miser™ only achieves energy savings when the type of conveying is horizontal.
Vertically there's no impact on the coefficient of friction.
- The same goes for acceleration. Acceleration and coefficients of friction don't depend on one another.

The following parameters are ideal for Amp Miser™ belts:

- Length > 2 meters – speed > 0.3 m/s
- Load ≥ 5 kg/meters – slider bed material: any

Amp Miser™ doesn't require you to adapt the conveyor. Just fit the belt and you can start saving immediately.

What are the best arguments in favor of fitting Amp Miser™?

End users reap the biggest benefits from installing Amp Miser™ belts. They operate their conveyors for many years and directly and sustainably save energy and running costs.

The benefit to OEMs lies in lower system costs due to design changes. Amp Miser™ belts that require 50 % less energy entail the following benefits:

- small motors are possible if the conveyor's length is the same;
- longer conveyors can be built and the drive power is identical;
by using one long instead of two short conveyors, the number of motors in the system can be reduced;
- total energy consumption is decreased, cutting complexity and costs;
- high-quality belts with significant added value are used for the same price as standard belts.

Low coefficients of friction against slider beds are good. But what happens in the drive drum?

Drive power always depends on the effective pull that the motor has to transmit.

$F_u = m \times g \times \mu$ (mass x acceleration of gravity x coefficient of friction). We can't influence mass and acceleration of gravity. Reducing the coefficient of friction by 60 % on a steel slider bed also decreases the effective pull F_u by 60 %. When elongation at fitting is the same, the grip on the drive drum is sufficient to ensure the belt is driven without creep. No changes are required on the conveyor.

How do I measure energy savings?

A proper comparative measurement can only be made by looking at consumption with a traditional electricity meter (effective efficiency in the three phases). All Forbo Siegling measurement results are based on this method.

Do Amp Miser™ 2.0 belts cost more than conventional ones?

There are no extra costs compared with conventional belts. In typical applications, the energy savings mean that the belt has paid for itself after less than three years already.



Product range AmpMiser™ 2.0

| | Color | Article number | Total thickness approx. [mm] | Weight approx. [kg/m ²] | Effective pull at 1% elongation (k _{1%} relaxed) [N/mm width]* | d _{min} approx. [mm]** | Permissible operating temperature [°C] | Horizontal conveying | Inclined conveying | Accumulation conveying | Flame retardant SE according to EN340 | Flame retardant FR according to ASTM D-378 |
|----------------------------|-------|----------------|------------------------------|-------------------------------------|---|---------------------------------|--|----------------------|--------------------|------------------------|---------------------------------------|--|
| E 10/2 TX0/V5H MT-AMP | black | 906807 | 1.9 | 2.1 | 9.5 | 40 | -10/+50 | ● | | | | |
| E 10/2 TX0/V15 LG-AMP | black | 906808 | 2.7 | 2.9 | 9.5 | 40 | -10/+50 | | ● | | | |
| E 10/2 TX0/V5H MT-SE-AMP | black | 906809 | 2.2 | 2.4 | 9.5 | 40 | -10/+50 | ● | | | ● | |
| E 10/2 TX0/V15 LG-SE-AMP | black | 906810 | 2.7 | 2.9 | 9.5 | 40 | -10/+50 | | ● | | ● | |
| E 12/3 TX0/TX0 FR-AMP | gray | 907206 | 3.8 | 4.6 | 9.0 | 60 | -10/+50 | ● | | ● | | ● |
| E 12/2 TX0/V2 MT-M-FR-AMP | black | 907224 | 3.0 | 3.6 | 6.0 | 60 | -10/+70 | ● | | | | ● |
| E 12/2 TX0/V1 M-FR-AMP | black | 907230 | 2.95 | 3.3 | 6.0 | 60 | -10/+70 | | ● | | | ● |
| E 12/2 TX0/V10 LG-M-FR-AMP | black | 907229 | 3.9 | 4.5 | 6.0 | 60 | -10/+70 | ● | | ● | | ● |

Supplied as

- endless
- prepared for endless splicing on site
- with mechanical fasteners

Legend

| | | |
|-------|---|-----------------------------|
| AMP | = | AmpMiser™ |
| E | = | Polyester |
| FR | = | Flame retardant, ASTM D-378 |
| LG | = | Longitudinal groove |
| MT | = | Matte |
| SE | = | Flame retardant, EN340 |
| TX | = | Texslide™ |
| V | = | Polyvinyl chloride |
| V...H | = | Polyvinyl chloride hard |

- * Established in line with ISO 21181:2005
- ** Minimum drum diameter was determined at room temperature and does not apply to conveyor belts with mechanical fasteners. Lower temperatures require larger drum diameters.

Splice types

Z-splice

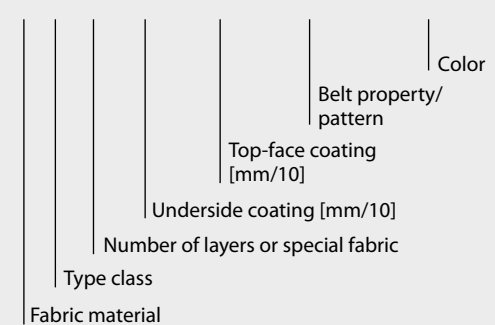
Fulfills stringent requirements for equal thickness. Very flexible splice. Standard splice for double-layer belt types.

Mechanical fasteners

For quick fitting and removal of the belt without dismantling parts of the conveyor.

Type designation for Siegling Transilon

E 10 / 2 TX0 / V15 LG-AMP black



Siegling – total belting solutions

Committed staff, quality oriented organization and production processes ensure the constantly high standards of our products and services.

Forbo Movement Systems complies with total quality management principles. Our quality management system has ISO 9001 certification at all production and fabrication sites. What's more, many sites have ISO 14001 environmental management certification.



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Forbo Siegling service – anytime, anywhere

The Forbo Siegling Group employs around 2,400 people. Our products are manufactured in ten production facilities across the world. You can find companies and agencies with warehouses and workshops in over 80 countries. Forbo Siegling service points are located in more than 300 places worldwide.

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MOVEMENT SYSTEMS