STANDARD RANGE

Construction

BRECO- and BRECOFLEX timing belts are constructed from an extremely wear resistant polyurethane and a high tensile braided steel tension member. The combination of both high grade materials forms the basis for the extremely accurate and reliable BRECO and BRECOFLEX timing belts. An additional nylon tooth facing produces an extremely quiet timing belt with a high efficiency.

Properties

All our timing belts have a temperature range of -30°C to +80°C, are oil and petrol resistant, and are up to 98% efficient. Even in continuous operation no permanent post-elongation of the tension members will occur. Polyurethane is hydrolysis, ozone and sunlight resistant and does not harden with age.

The superior performance characteristics are especially evident in drives with frequent directional changes and where varying acceleration and breaking conditions prevail. All of our timing belts have a low mass to power ratio. The combination of polyurethane timing belts and metal pulleys virtually eliminate any chance of tooth jumping due to positive engagement of the teeth. The proof of a BRECO or BRECOFLEX timing belt can be found in its exceptional performance in the harshest of environments.

Tooth Profiles

Three tooth profiles are available in our Standard Range (please refer to catalog).

AT Series

Available in AT5, AT10 and AT20 metric pitches.

High performance timing belts with optimized tooth form, stronger tension member and large tooth cross section. For further information see page 6.

These timing belts should be employed in new drives whenever possible. They are especially recommended for drives with high performance, high torque and low noise requirements.

T Series

Available in both single and double-sided form in T5, T10 and T20 metric pitches to DIN 7721.

Standard timing belts with a trapezoidal tooth form. These belts are designed for use in standard applications and for multi-shaft drives where a double-sided belt needs to be employed.

Imperial Pitch Series

Available in XL (5.08 mm), L (9.525 mm), H (12.7 mm) and XH (22.225 mm) Imperial pitches to DIN/ISO 5296.

Standard timing belts with a trapezoidal tooth form. These belts are recommended for use as replacements on original drives with imperial pitches.

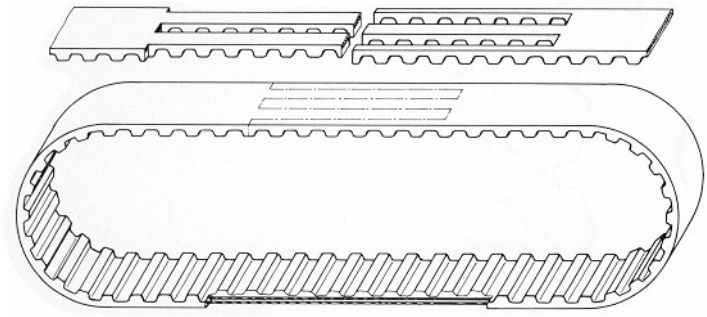
AT, T and Imperial pitch timing belts are all produced as continuous belts or as open lengths.

BRECO®-Timing Belts

BRECO M: Open length belting
BRECO V: Joined belting

BRECO M: The BRECO timing belt is produced in open lengths with the tension members lying parallel to the belt edge. A common application of open length belting is in linear drives. All loads are shared equally across the tension members.

BRECO V: By joining open lengths of belting, it is possible to obtain any length of BRECO timing belt. The belt strength at the join is derived from only half the number of tension members. Joined BRECO-timing belts are recommended for use in conveying applications over large center distances.



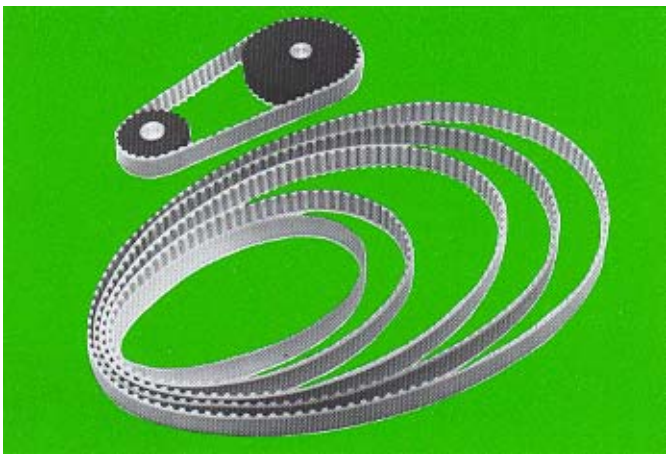
Where Used

Open Lengths in Linear Drives
In linear drives rotational motion is converted into linear movement. We recommend that the BRECO open length belt be clamped to the component of the machine to be moved. For application examples see page 37.

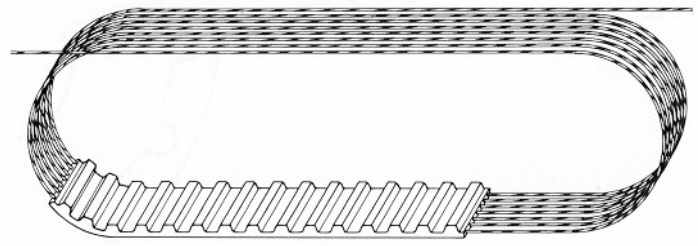
Joined Belts For Conveying Applications
There is no maximum length restriction for joined timing belts. For special conveying applications the timing belt can have a back covering or profiles welded to it. Refer to page 32 for application examples.

BRECOFLEX®-Timing Belts

Endless timing belts with continuous helically wound tension members.



BRECOFLEX: The BRECOFLEX timing belt is produced in endless lengths with a continuous tension member. The tension member is helically wound. BRECOFLEX timing belts are suitable for all drive applications up to 10,000 rpm.



Where Used

Endless timing belts for high power applications
BRECOFLEX timing belts with endlessly wound tension members are recommended for all high power drive applications. They are equally suited to drives with high duty cycles or stop/start applications up to a maximum 10,000 rpm.

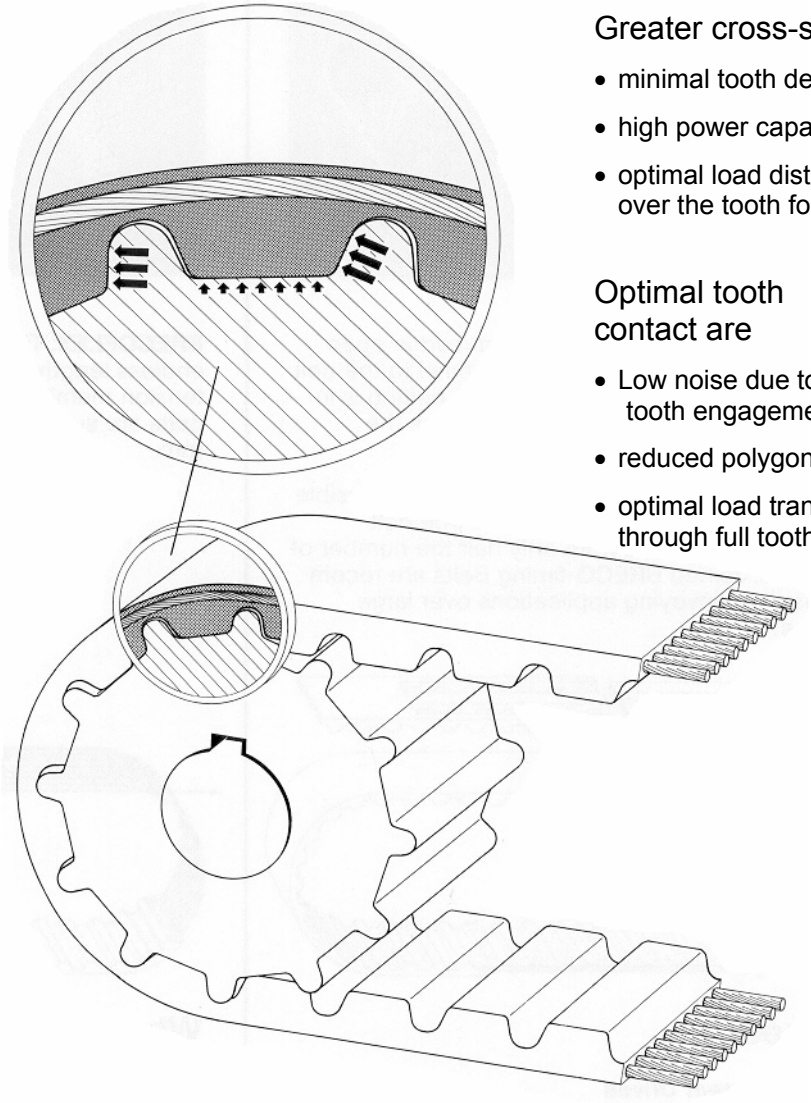
Endless timing belts are supplied in standard lengths (see Standard Range Catalog). Additionally, we can supply intermediate and longer pitch lengths up to a maximum of 22 meters.

AT-Timing Belts

AT5, AT10 and AT20 metric pitches.

BRECO AT timing belts for high power drives. Continuous development has produced a belt capable of transmitting 30% more power than standard types. The AT tooth form gives optimum load, torque and power transmission capabilities whilst at the same time minimizing tooth deformation and belt elongation.

This results in reliable and maintenance-free drives where abgular and postional accuracy is maintained even over very long duty cycles, thus offering the designer the highest quality drive belt possible.



Greater cross-section

- minimal tooth deformation
- high power capabilities
- optimal load distribution over the tooth form.

Optimal tooth contact are

- Low noise due to optimal tooth engagement
- reduced polygonal effect
- optimal load transfer through full tooth contact

Stronger tension member

- high periferal force
- low elongation
- equal load distribution on each tooth in mesh

AT 5

Grinding machines

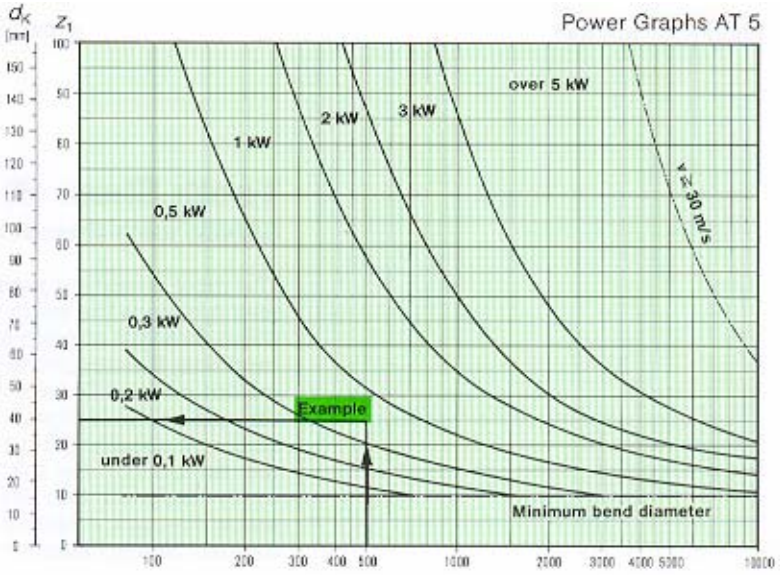
Small woodworking machinery

Control, regulating and positioning drives

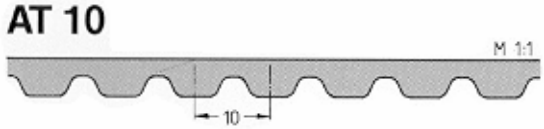
Linear drives for plotters

Light conveying applications

Example: To design a linear drive for a drafting machine. Power P=0.5 kW at a speed of N=500 rpm. Recommended drive = BRECO AT5 timing belt and timing pulley z_1=25. For precise data see pages 10 – 11.



AT 10



Construction machinery (main and auxiliary drives)

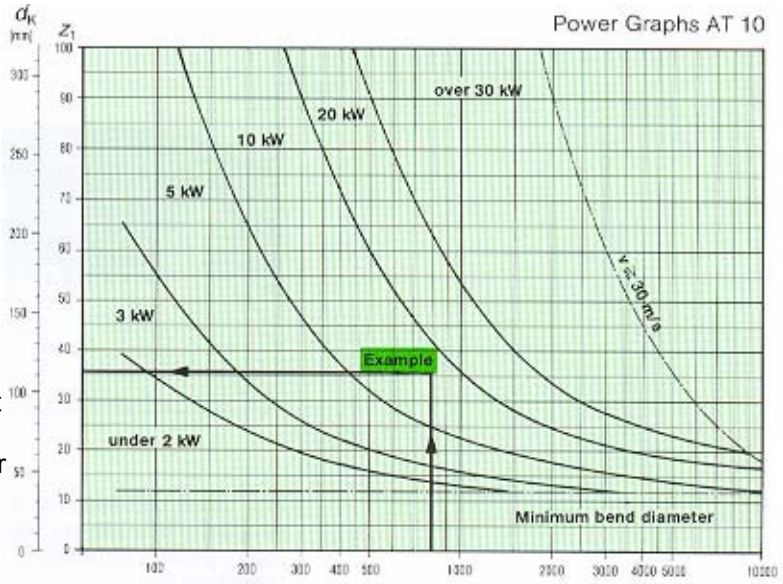
Printing and textile machinery

Woodworking machinery

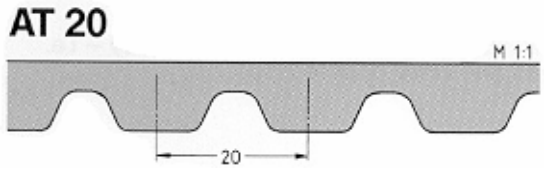
Traversing and linear drives in industrial robotics

Indexing and synchronous conveyors

Example: To design a roll table drive. Power P=10 kW at a speed of n=800 rpm. Recommended drive = BRECO-FLEX AT10 timing belt and timing pulley z_1=36 teeth. For precise data see pages 12 – 13.



AT 20



High power drives

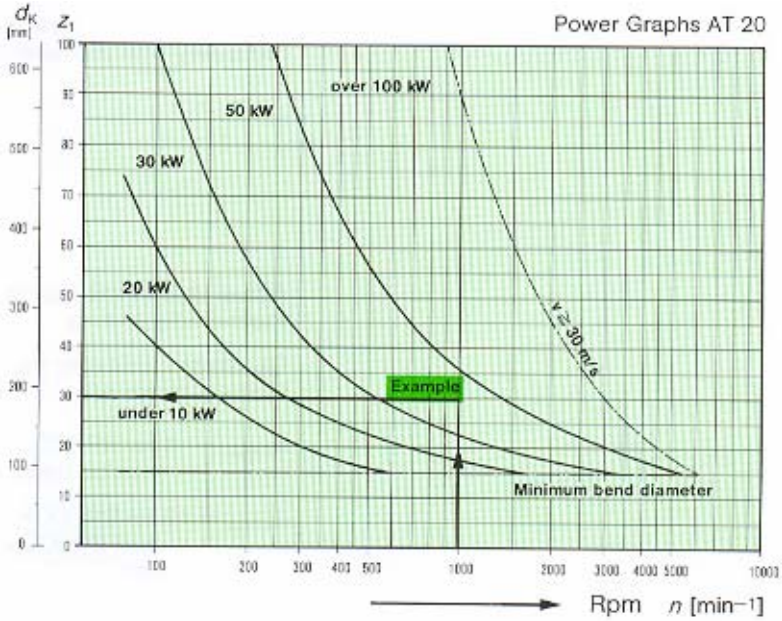
Paper making machinery

Pumps and compressors

Roll table drives

Linear and synchronous conveyors

Example: To design a compressor drive. Power P=50 kW at a speed of n=1000 rpm. Recommended drive= BRECOFLEX AT20 timing belt and timing pulley z_1=30. For precise data see pages 14 – 15.

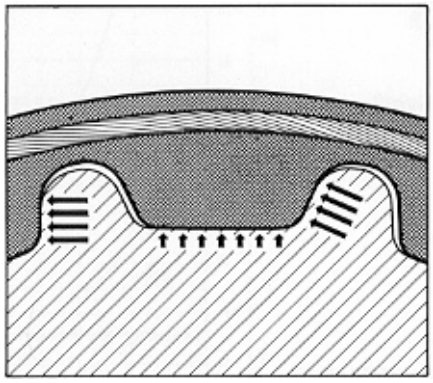


Providing that the following conditions of tooth shear strength (1), tension member tensile strength (2) and flexibility (3) conditions are met, then a maintenance-free timing belt drive can be expected. A calculation example appears on page 27.

Tooth Shear Strength

Specific tooth shear strength

The most important parameter to consider when sizing BRECO and BRECOFLEX timing belts is the tooth shear strength. The calculation is based on the specific shear strength of each tooth in mesh per cm belt width. By using the relevant formulae, the peripheral force, torque and power can all be determined. The maximum specific tooth shear strength must not be exceeded. This figure is defined as the marginal load which the belt can withstand without damage under all operating conditions. These values, which are related to the drive rpm, can be found in the following tables, charts and diagrams. A belt drive is correctly designed, that when under load, that load does not exceed the specific shear strength. A special safety factor is normally not required – see section headed Safety Factors on page 26.



The high specific tooth strength is achieved through a large cross-section and full tooth engagement.

The more belt teeth in mesh attainable, the better the load is spread. For simplicity it is always assumed that each tooth in mesh (z_e) will transmit the same power, in reality the force varies – see accompanying diagram – and therefore the value of z_e has a top limit as below.

As a rule the tooth shear strength calculation is based on the small pulley – i.e. the pulley with the least teeth in mesh and worst load factors.

Actual load distribution over the tooth-in-mesh-area.

Calculated load over the tooth-in-mesh-area

$z_{e\ max}$= 6 for BRECO Joined belts

$z_{e\ max}$= 12 for BRECOFLEX belts and BRECO open length belting