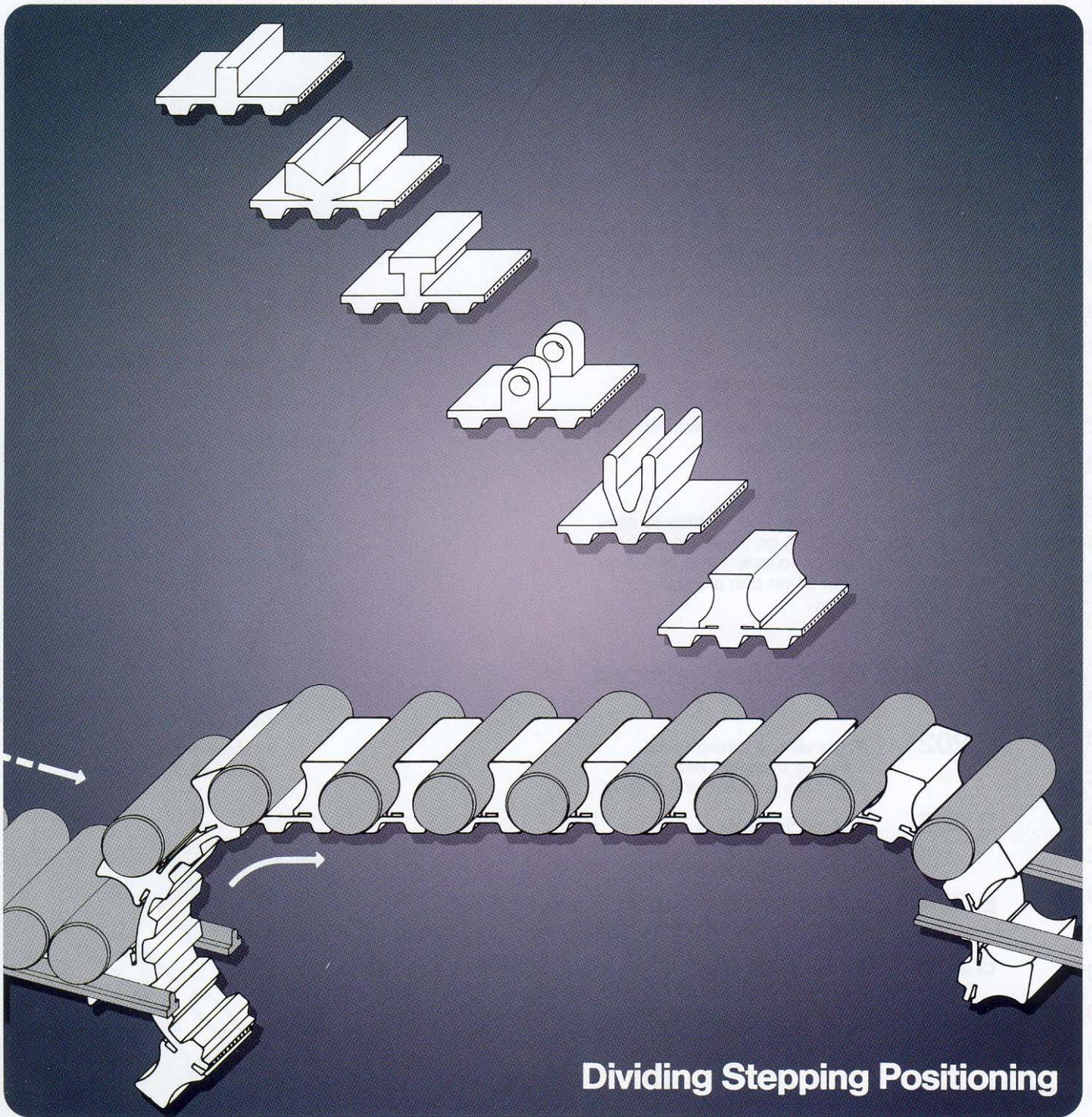


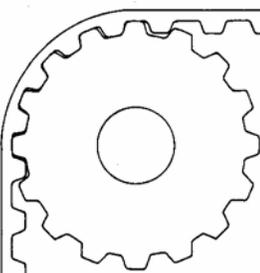
BRECO *flex* CO., L.L.C.

High Precision Drive Components



Dividing Stepping Positioning

DIVIDING STEPPING POSITIONING



This catalog is intended for you, the design engineer. Herein you will find application examples and design guidelines for creating your own timing belts with weld-on profiles.

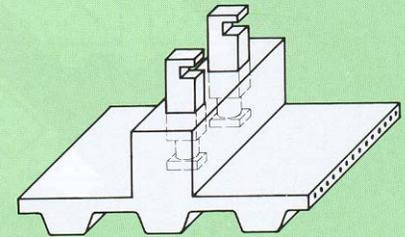
BRECO & BRECOFLEX timing belts have been used extensively as reliable profiled timing belts. The requirements in automation and material handling are diverse. Often, the designer is challenged to come up with innovative concepts to solve differing requirements depending on the product to be conveyed and function to be solved.

We offer an extensive line of toothed timing belts and a wide selection of stock profiles. It allows for innovative design solutions for dividing, stepping and positioning.

When you are confronted with a drive or conveying problem, just call on us. A quick phone call can often allow us to assist you in finding the desired solution or we can provide you with our suggestions.

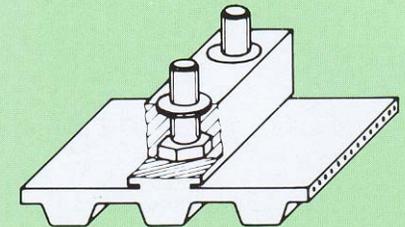
Available BRECOflex catalogs

- B 212** Polyurethane timing belts covering available belt types with sizes for belts and pulleys
- B 203** Profiled timing belts design considerations with drawings of stock profiles
- B 204** Sizing of BRECO and BRECOFLEX belts Power-Torque-Peripheral force
- B 205** Accessory Items for Polyurethane Timing Belts
- B 206** Polyurethane timing belts ARC-POWER BAT10
- B 207** SM3 Tension Meter
- B 208** Timing belt backings
- B 209** ATN-Convertible timing belt system



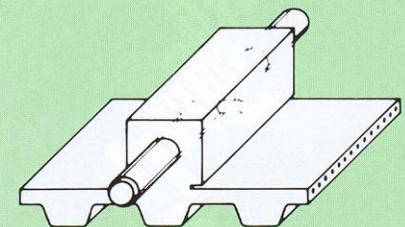
Profile with insert

Metal inserts to be supplied by customer



Profile with insert

Metal inserts to be supplied by customer



Profile with insert

Metal inserts to be supplied by customer

Table of contents

Application examples	pages 4 - 6
Design considerations	pages 7 - 10
Drawings of profiles	pages 11 -14

The timing belt

BRECO & BRECOFLEX toothed timing belts are constructed of extremely wear resistant polyurethane and high tensile steel cable or Kevlar® tension members. A low coefficient of friction is achieved through polyamide facing on the tooth side in conjunction with slider beds or support rails made of cold rolled steel. BRECO timing belts are available in any lengths and can be specified in one tooth increments.

Specifications for BRECO & BRECOFLEX timing belts are contained in our catalog B212 **Polyurethane Timing Belts**. Also, self-tracking timing belts and timing belt pulleys are covered.

The Profile

Profiles are manufactured of the same highly abrasion resistant urethane as the timing belts. Drawings of some of the many available stock profiles are shown in this catalog.

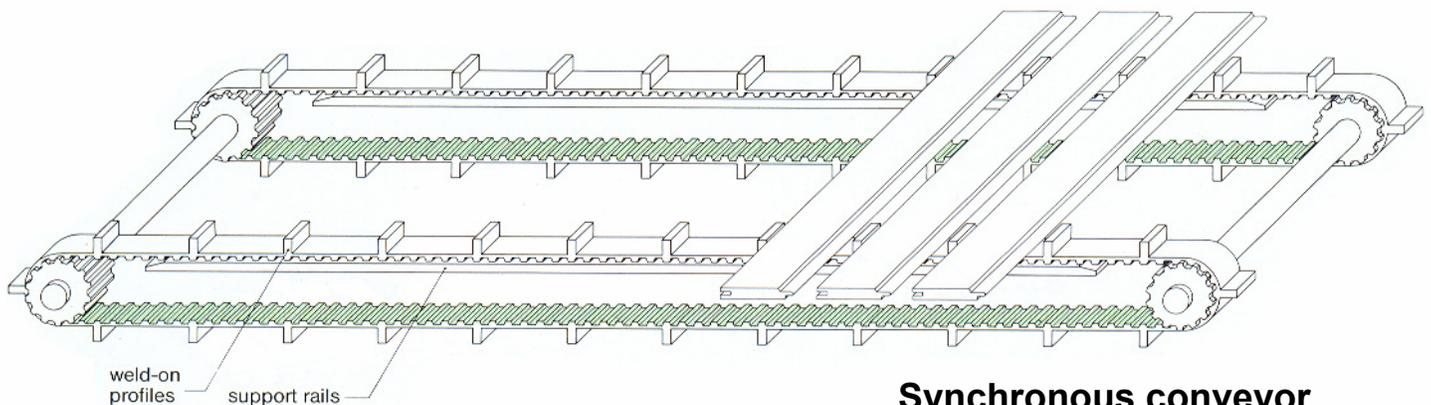
We also offer special profiles. The configurations of profiles can be adapted to your requirements based on the product to be conveyed and the function to be solved.

Over 3000 stock profiles available.

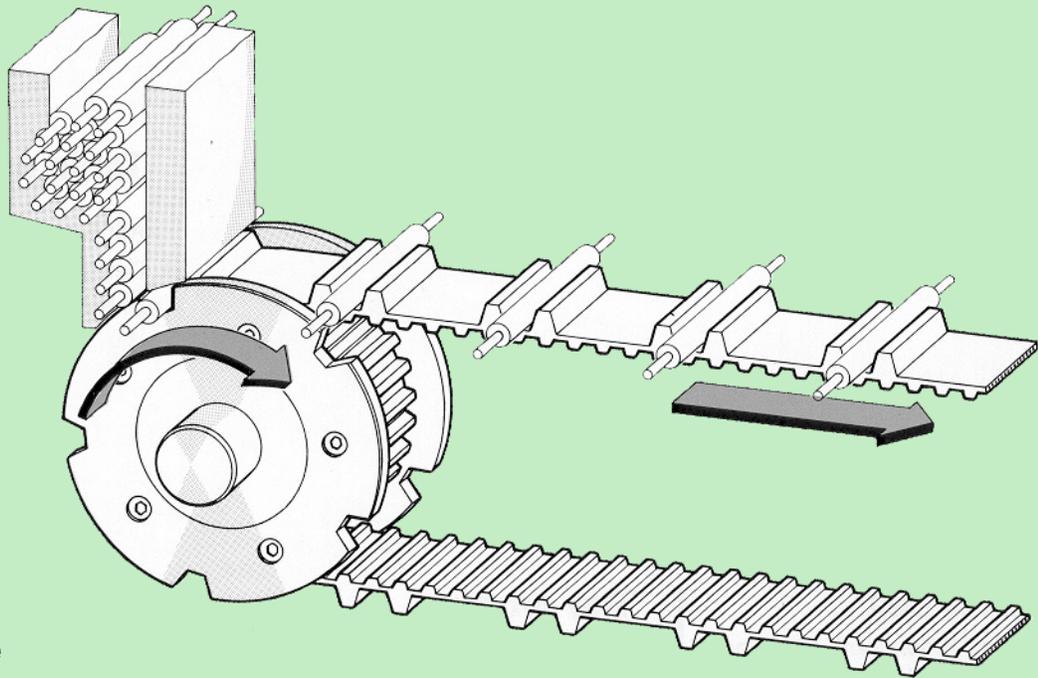
The profiled belt

For whatever conveying purposes the profiled timing belt may be used, weld-on profiles can be attached to the belt back in any desired number and sequence. When specifying your own profiled belt, please follow the guidelines provided on pages 7 to 10 **Design considerations**.

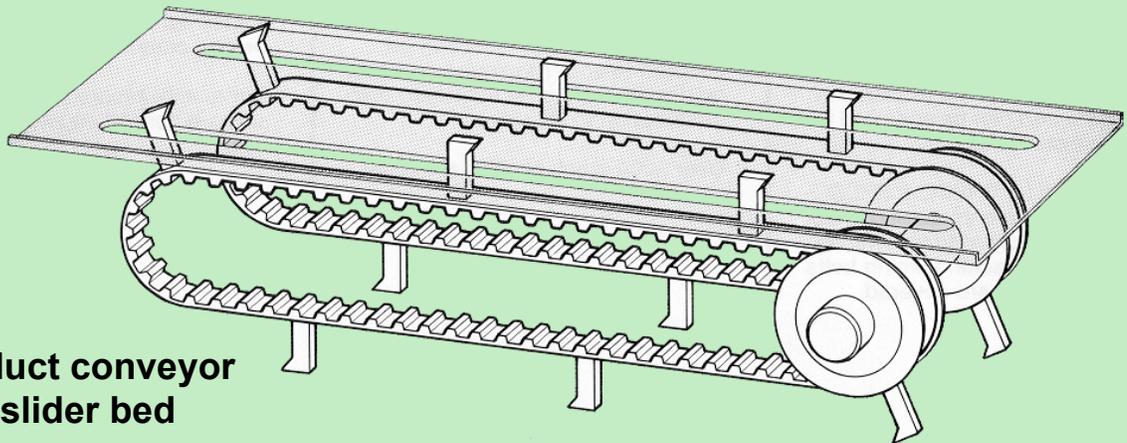
Our quality assurance program guarantees a consistent and high level of quality.



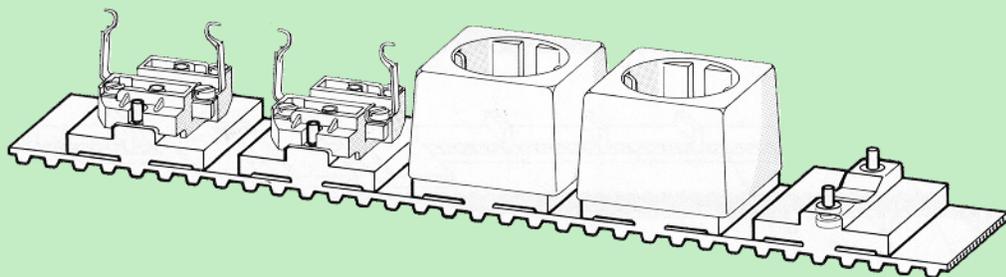
APPLICATION EXAMPLES



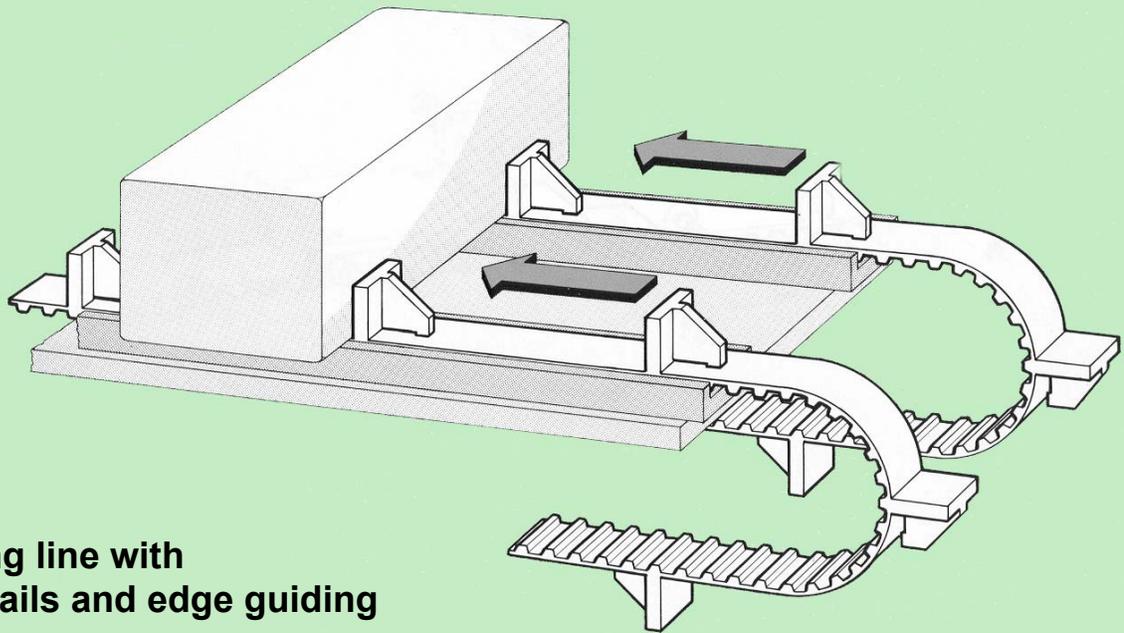
Dividing line



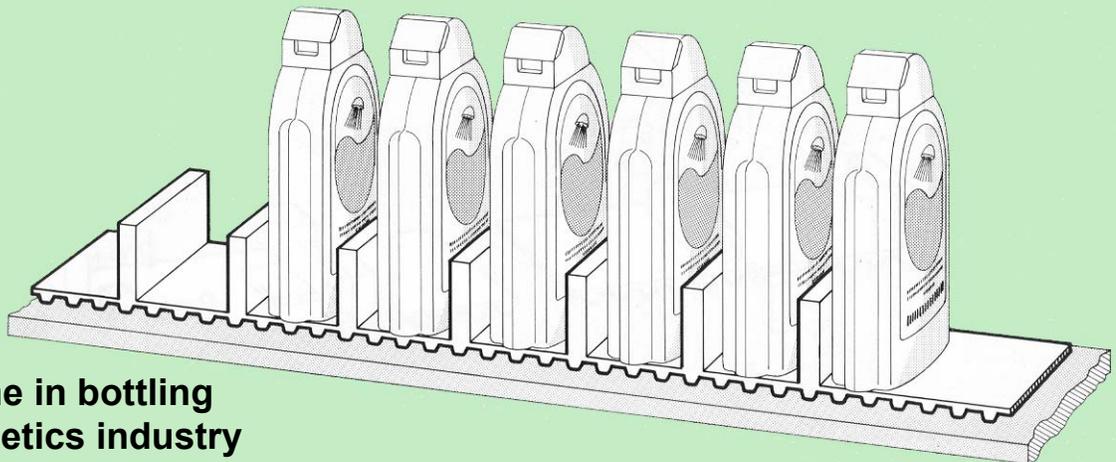
**Light product conveyor
with steel slider bed**



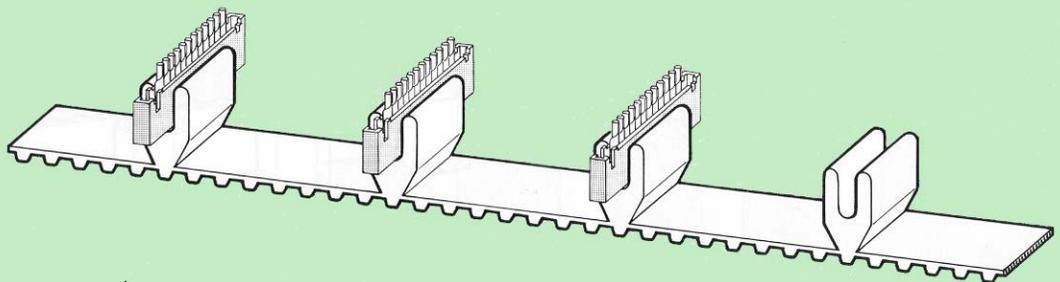
**Indexing line
in electronics industry**



Conveying line with support rails and edge guiding

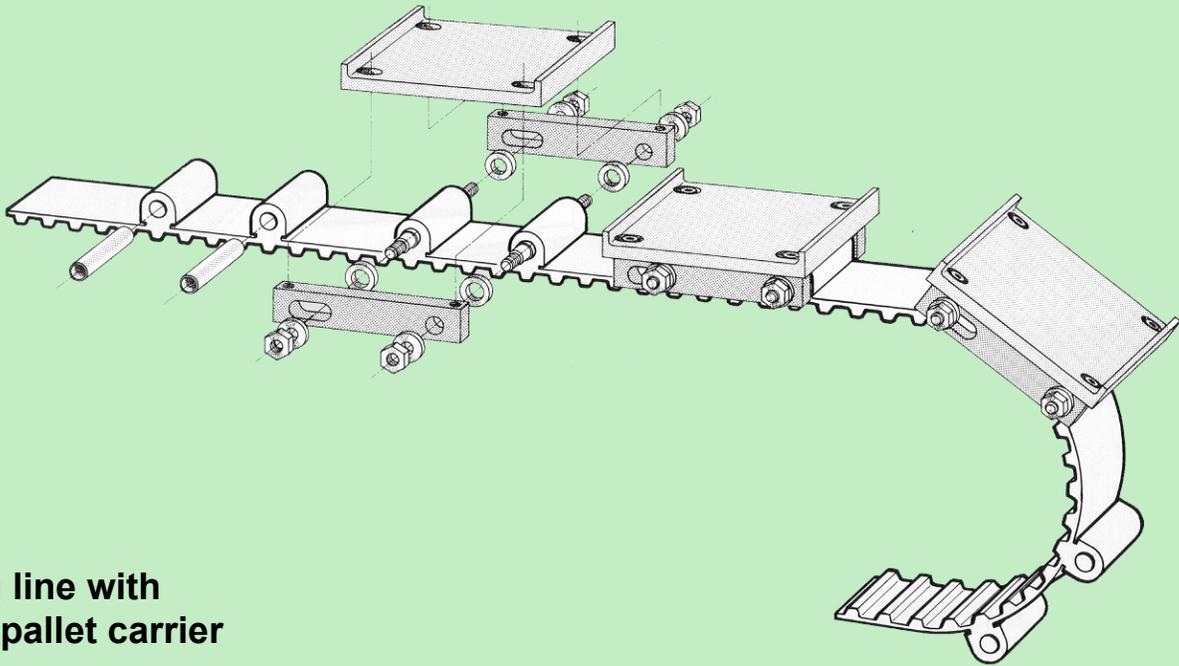


Feeder line in bottling and cosmetics industry

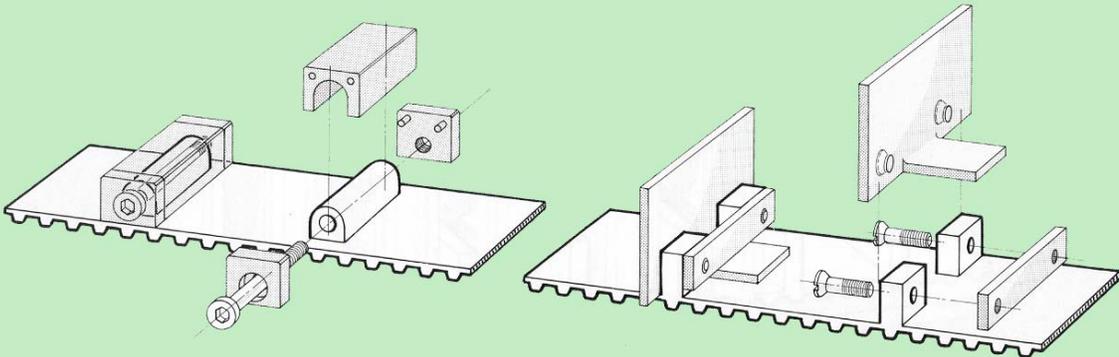


Indexing line for modular connectors

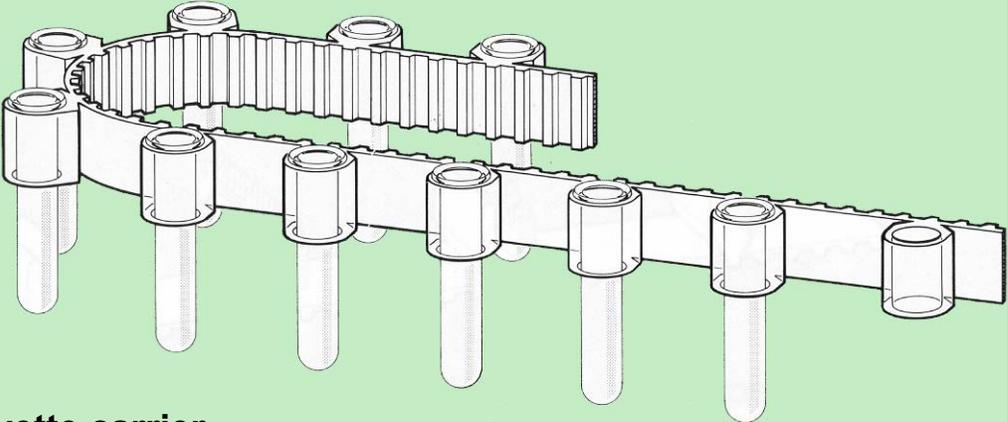
APPLICATIONS EXAMPLES



Indexing line with Product pallet carrier



Examples of attachments



Recirculating cuvette carrier

How to proceed

The surrounding construction will determine the selection of the belt type, belt length, and will also influence the appropriate pulleys.

All of our belt types can be supplied with weld-on profiles. For conveying applications BRECO timing belts with PAZ (polyamide facing on tooth side) are recommended. The polyamide facing is abrasion resistant and at the same time provides for a low coefficient of friction. In combination with steel slider beds, light torque conveying is achieved.

Selecting the profile

The selection of the profile is dictated by the type of product to be conveyed and the conveying function. The following profile types are offered for your consideration:

Stock profiles

Injection molded profiles in urethane. Starting on page 11, drawings of stock profiles are shown. These should be your first consideration.

Stock profiles can be mechanically modified to your needs (drilling, milling, grinding, etc.). Please provide us with a drawing for your modified profile configuration.

Profiles from flat stock

Depending on the quantity of profiles needed, profiles may be cut from flat urethane stock material. The following thicknesses are commonly available: 1.5, 2, 3, 4, 5, 6, 8, 10, 11, 15 and 20 mm.

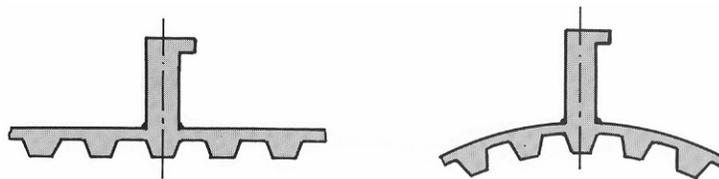
Custom tooled profiles

To meet new and unusual profile requirements, we offer custom tooled profiles in almost any configuration. Tooling costs must be considered.

Profile material

Polyurethane 92 Shore A; the same material as used for BRECO & BRECOFLEX timing belts.

Weld-on position “opposite tooth”



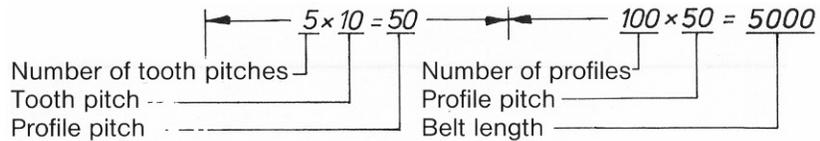
The flexibility of timing belts is primarily achieved in the area of the root of the tooth. In order not to impede the flexibility of the timing belt around the pulleys, the weld-on position of profiles “opposite tooth” is preferred.

DESIGN CONSIDERATIONS

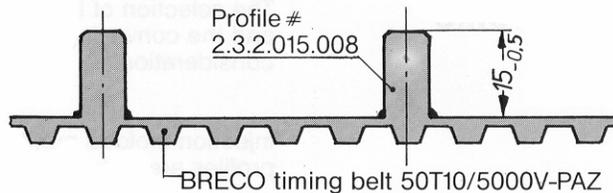
Profile pitch Tooth pitch

It is recommended that profile pitches be based on a full number of teeth. Non-matching profile pitches are possible; however, in this case, the weld-on tolerances are cumulative for the entire belt.

Ordering example



Specification



The attachment of profiles is commonly done in multiples of tooth pitches, i.e. the weld-on profile position follows exactly the tooth pitches of the belt. No error in sum total between profile pitch and tooth pitch will occur.

Tolerances

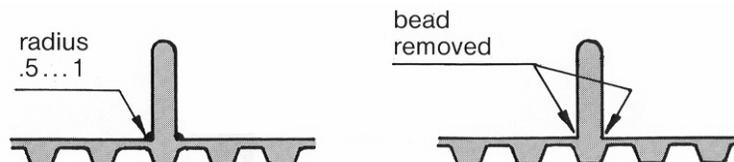
The weld-on accuracy is $\pm 0.5\text{mm}$ ($\pm 0.020''$) for each profile, non-cumulative. Profile height tolerance is -0.5mm ($-0.020''$).

Ordering

For profiled belts, it is recommended that a drawing with exact measurements be submitted.

The desired profiled belts can also be specified in writing and submitted to us. Example: BRECO timing belt 50T10/5000V-PAZ with weld-on profiles, profile # 2.3.2.015.008, number of profiles 100, profile pitch 50 mm, weld-on position opposite tooth.

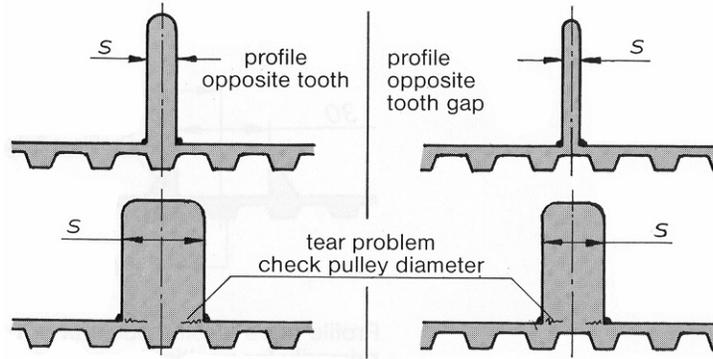
Welding bead



Due to the welding process a bead develops between profile and belt back. The polyurethane bead may reach a radius of .5 to 1 mm ($.020''$ to $.040''$).

Should the bead impede your operation, please specify "bead removed".

Profile thickness 's'



The flexibility of the toothed timing belt may be reduced by the weld-on profiles. As a general rule, the profile thickness should be selected as small as possible. In the table below the recommended maximum profile thickness 's' is given in mm; in each case, in relation to the number of teeth of the pulley.

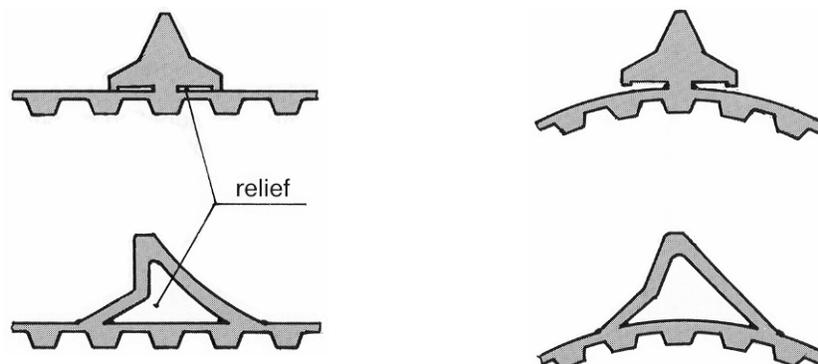
pitch	number of teeth of pulley						
	20	25	30	40	50	60	100
T5	5 (2)	6 (2)	6 (3)	8 (4)	9 (6)	10 (8)	12 (10)
T10	8 (3)	9 (4)	10 (4)	12 (6)	14 (9)	15 (12)	20 (20)
T20	12 (5)	13 (5)	15 (6)	18 (8)	20 (12)	23 (20)	30 (30)
AT5	5 (2)	6 (2)	6 (3)	8 (4)	9 (6)	10 (8)	12 (10)
AT10	8 (3)	9 (4)	10 (4)	12 (6)	14 (9)	15 (12)	20 (20)
AT20	12 (5)	13 (5)	15 (6)	18 (6)	20 (12)	23 (20)	30 (30)
XL	5 (2)	6 (2)	6 (3)	8 (4)	9 (6)	10 (8)	12 (10)
L	6 (3)	7 (3)	8 (4)	10 (5)	12 (7)	13 (10)	16 (16)
H	8 (4)	9 (5)	10 (6)	12 (7)	14 (10)	15 (12)	20 (20)
XH	13 (5)	14 (5)	15 (6)	18 (8)	20 (12)	23 (20)	30 (30)

Example for determining the profile thickness 's' for a BRECO timing belt with belt pitch H in conjunction with a 20 tooth timing pulley:

- Weld-on position "opposite tooth": Profile thickness 's' ≤ 8 mm
- Weld-on position "opposite tooth gap": Profile thickness 's' ≤ 4 mm

Note: For in-between pulley sizes (i.e. 22 teeth) it is recommended to select the next lower maximum profile thickness.

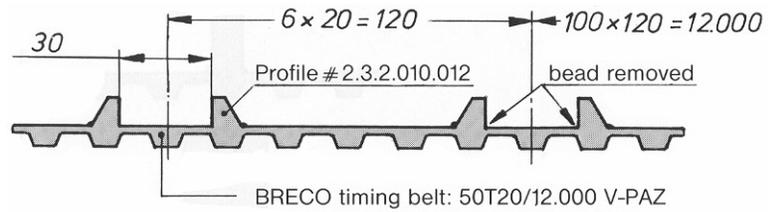
Profiles with relief



The flexibility of the timing belt can be retained when appropriate reliefs are incorporated into the profile design.

DESIGN CONSIDERATIONS

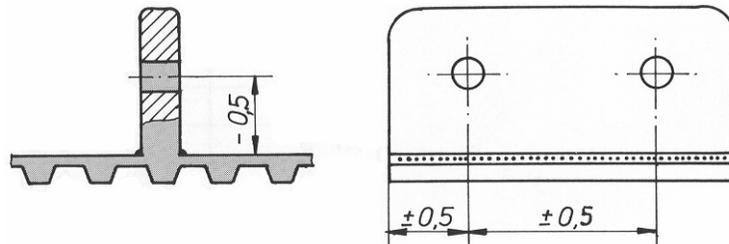
Profile pairs



Profile pairs (profile pockets or brackets) are used in transport applications primarily for positioning of parts and for feeder insert operations. The manufacturing tolerance for the 'clear' measurement between a profile pair is $\pm .5 \text{ mm}$ ($\pm .020''$).

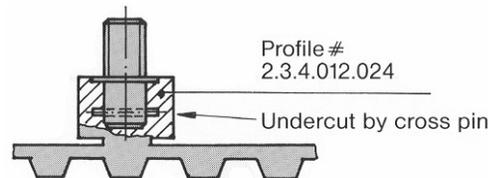
A reduced tolerance of $\pm .2 \text{ mm}$ ($\pm .008''$) is possible but may require special set-up or tooling. Please request quote.

Profiles with bores



Profiles with bores can be provided for special attachments. Please note that profiles are drilled before being attached to the belt and that certain tolerances must be considered.

Profiles with inserts (to be provided by customer)



For special requirements, profiles can be supplied with inserts which are molded into urethane. Metal inserts (steel, aluminum, etc.) must be undercut. Inserts must be supplied by customer in adequate quantities, allowing for an overage of approximately 5% for sampling, etc.

Welding

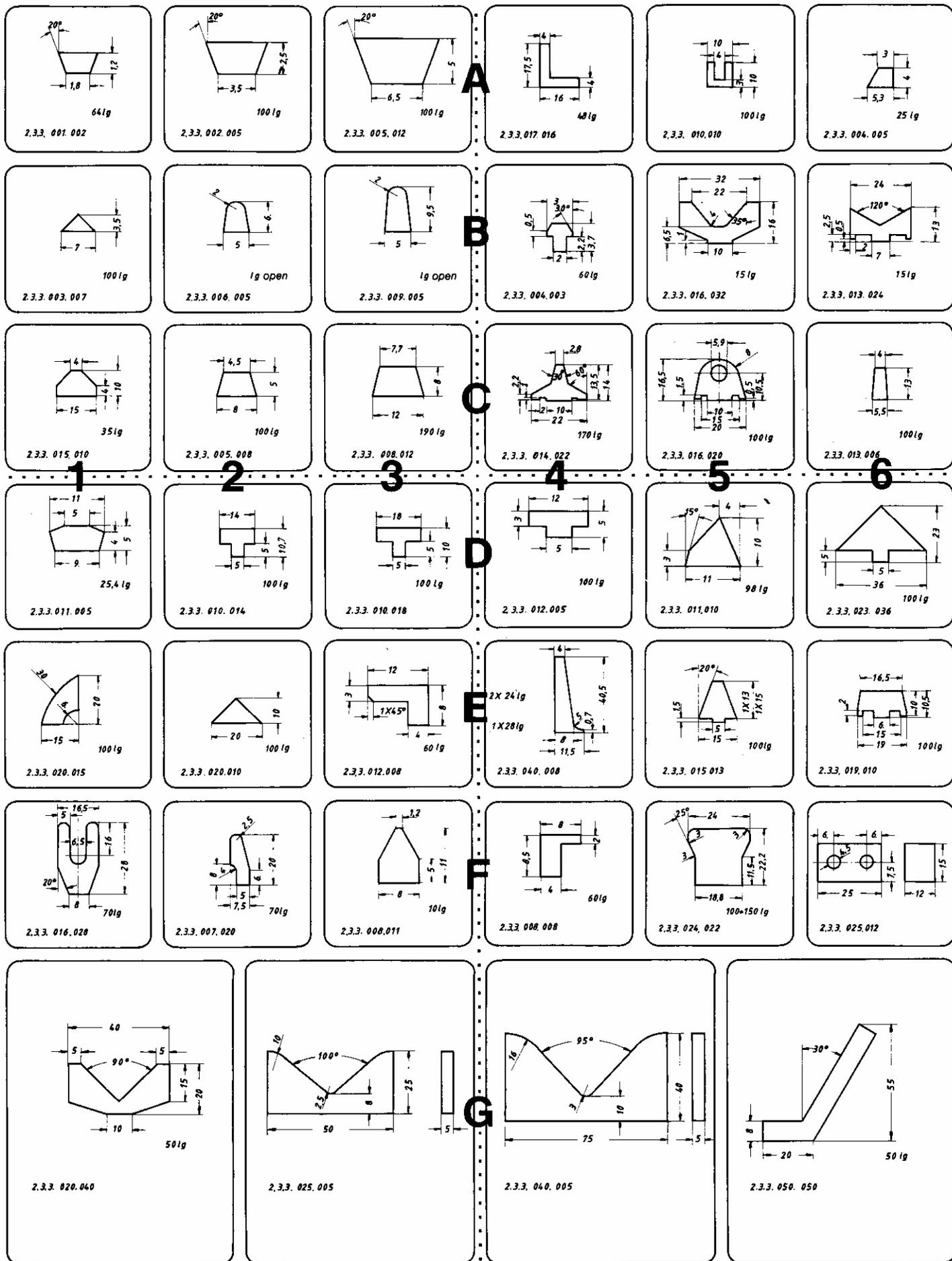
The welding process provides for complete bonding of the profile foot to the belt back. Urethane is floated for superior shear strength. Welding is done in our own factory and must meet the high standards of a strict quality assurance program.

STOCK PROFILES

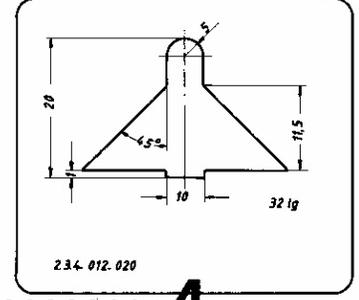
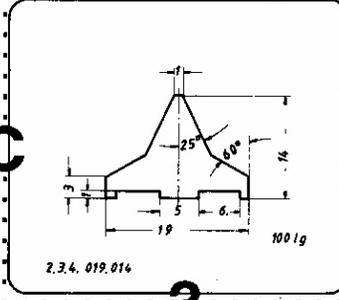
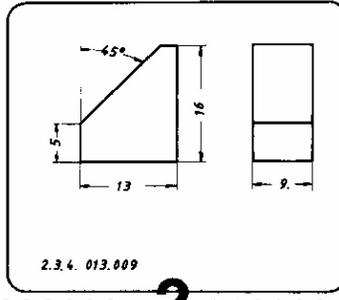
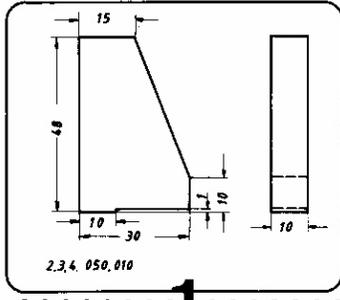
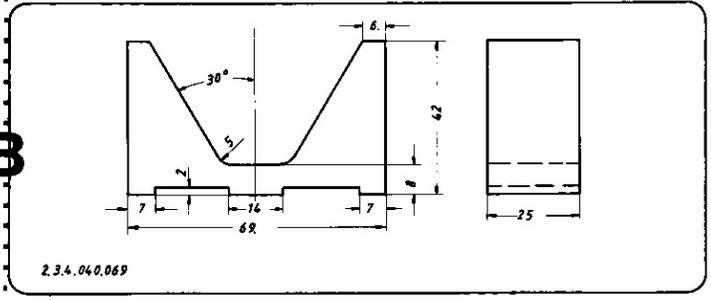
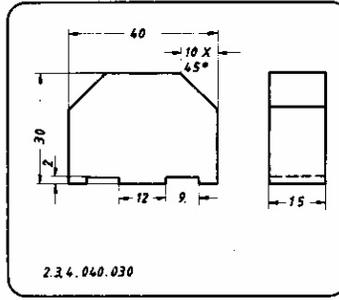
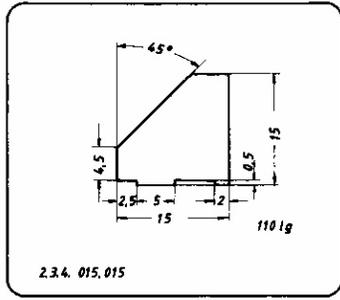
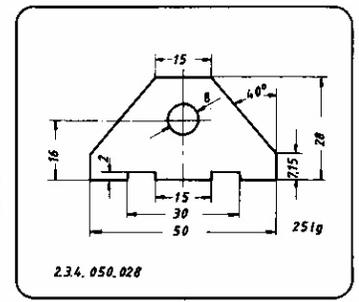
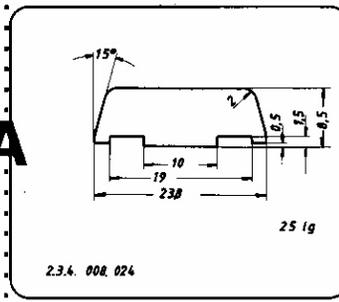
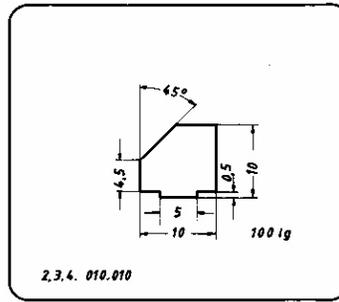
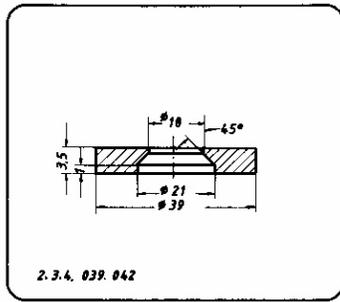
 100lg 2.3.1.008.004	 90lg 2.3.1.008.010	 50lg 2.3.1.015.020	A	 140lg 2.3.2.006.006	 130lg 2.3.1.008.008	 130lg 2.3.1.053.063
 100lg 2.3.2.008.010	 64+100lg 2.3.2.009.014	 26lg 2.3.2.015.010	B	 30+100lg 2.3.2.018.010	 103lg 2.3.2.015.008	 60lg 2.3.2.010.005
 195lg 2.3.2.015.005	 100lg 2.3.2.020.005	 20lg 2.3.2.022.012	C	 64lg 2.3.2.019.005	 100lg 2.3.2.009.006	
 105lg 2.3.2.016.012	 100lg 2.3.2.010.020	 110lg 2.3.2.015.015	D	 50lg 2.3.2.012.012	 105lg 2.3.2.018.020	 105lg 2.3.2.032.003
1	2	3	4	5	6	
 lg open 2.3.2.012.010	 130lg 2.3.2.010.012	 100lg 2.3.2.008.020	E	 100lg 2.3.2.030.005	 60lg 2.3.2.040.004	 110lg 2.3.2.050.008
 101,6lg 2.3.2.004.004	 100lg 2.3.2.005.007	 64lg 2.3.2.001.002	F	 100lg 2.3.2.050.010	 60lg 2.3.2.050.015	 100lg 2.3.2.100.005
 47,5lg 2.3.2.010.015	 50lg 2.3.2.025.027	 6lg 2.3.2.016.018	G	 6lg 2.3.2.050.006	 2lg 2.3.2.050.002	 50lg 2.3.2.012.012 b

The weld-on profiles shown represent only a small cross section of the more than 2000 available stock profiles.

STOCK PROFILES



STOCK PROFILES

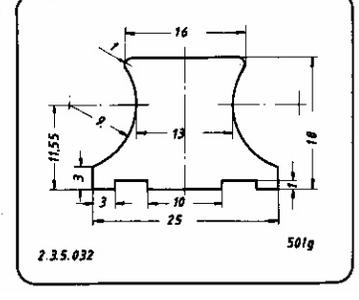
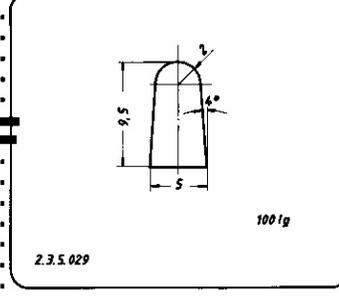
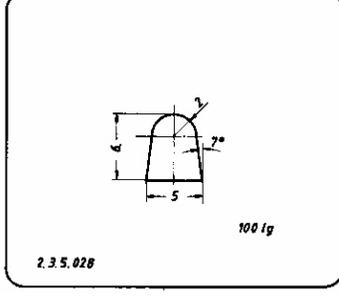
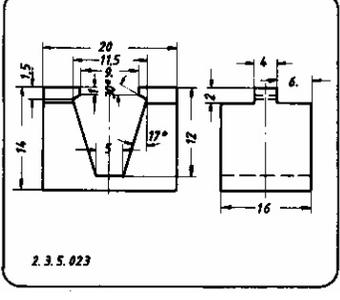
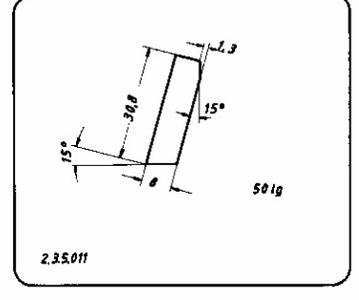
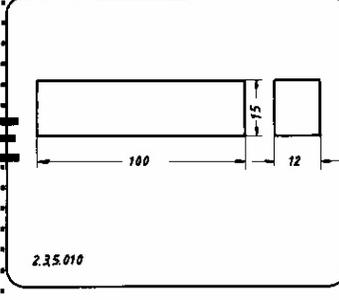
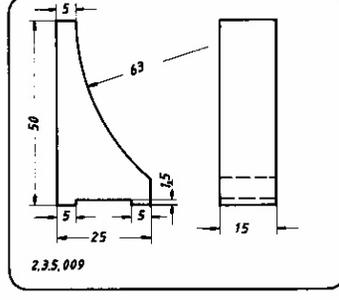
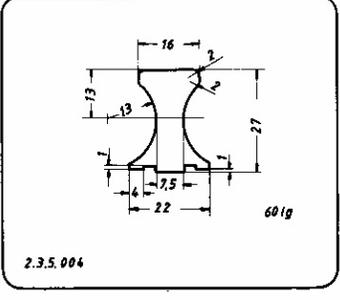
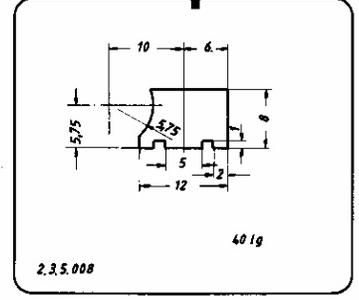
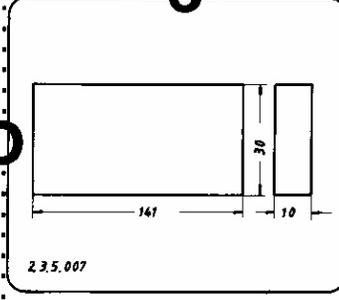
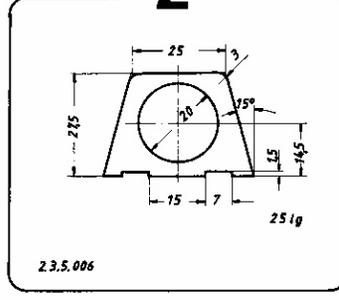
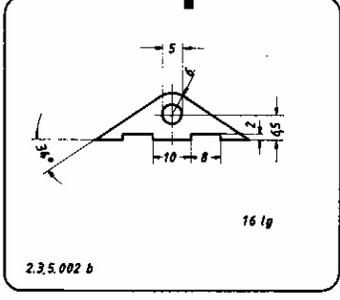


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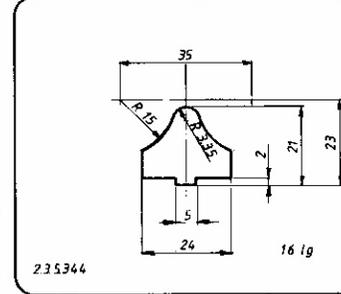
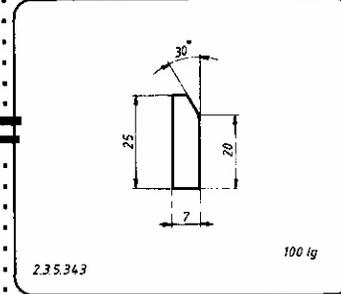
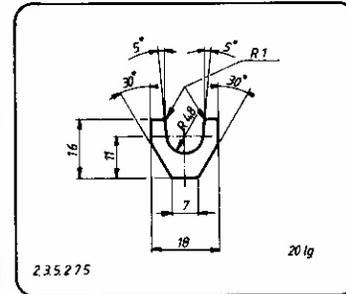
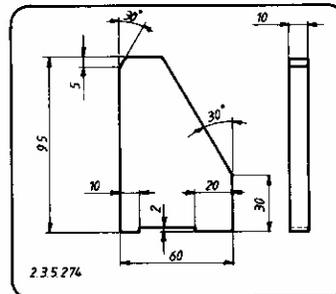
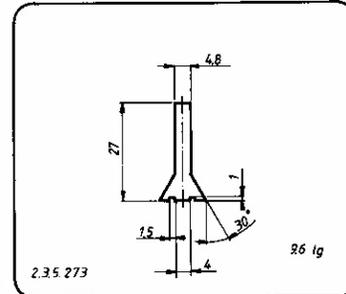
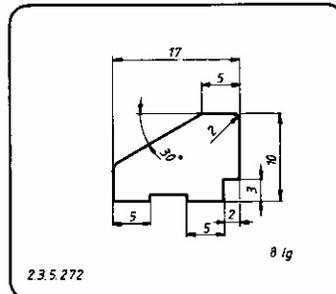
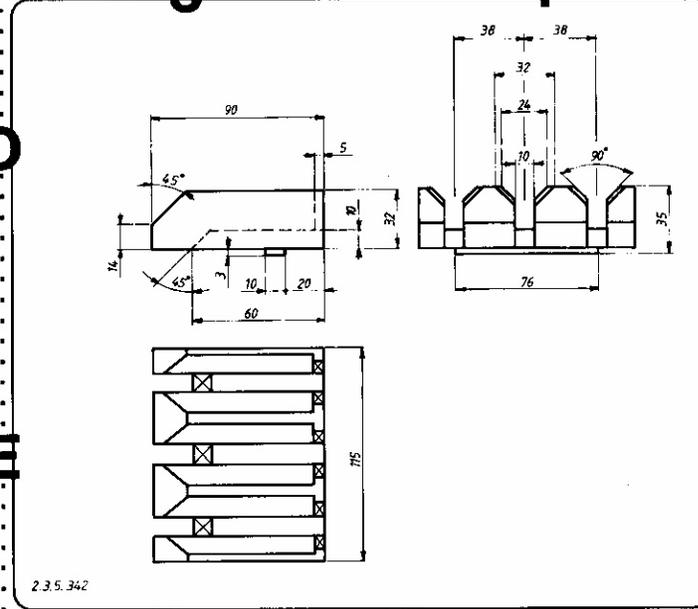
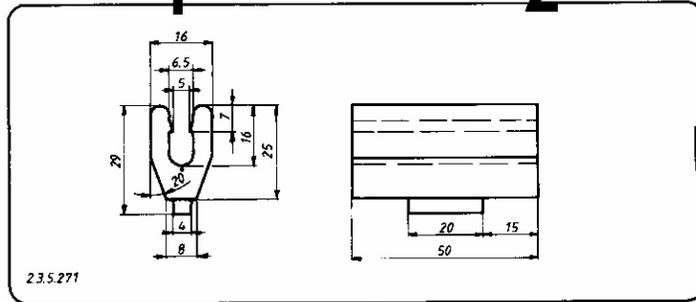
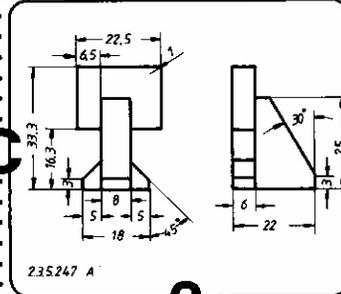
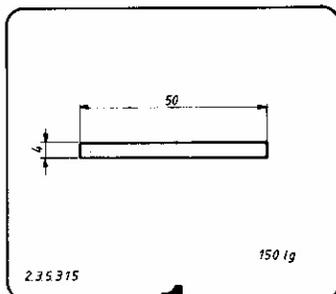
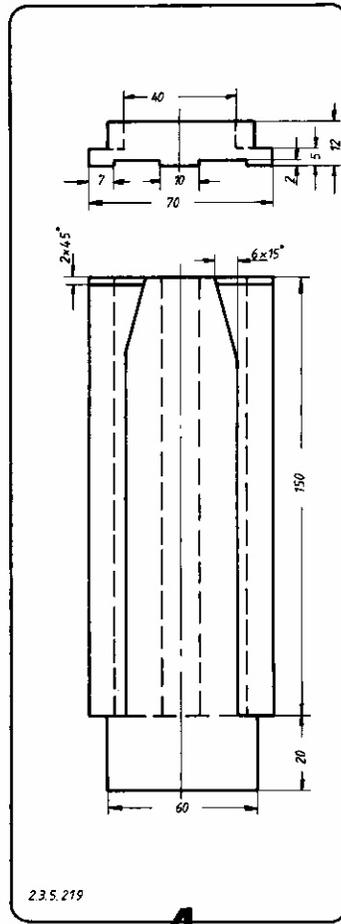
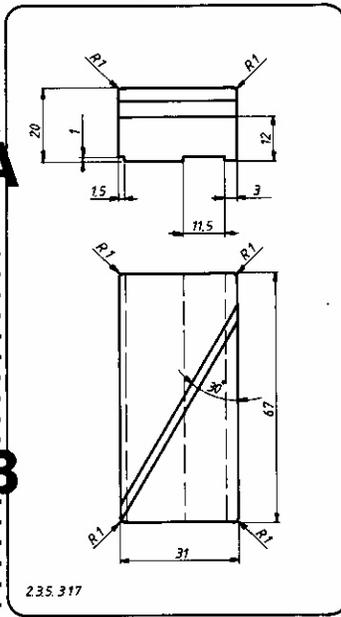
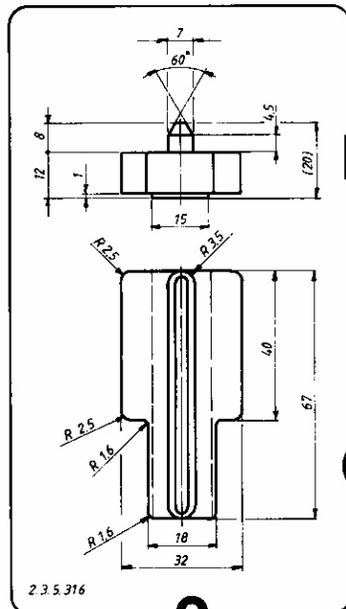
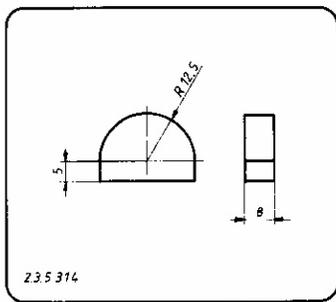
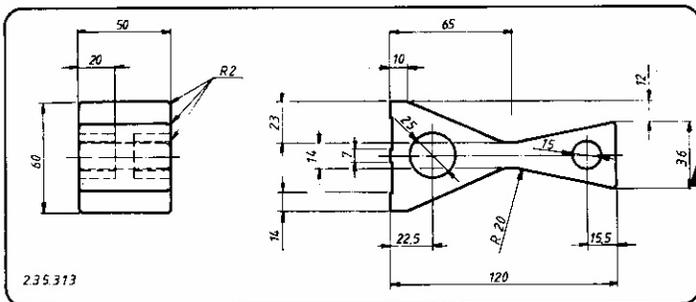
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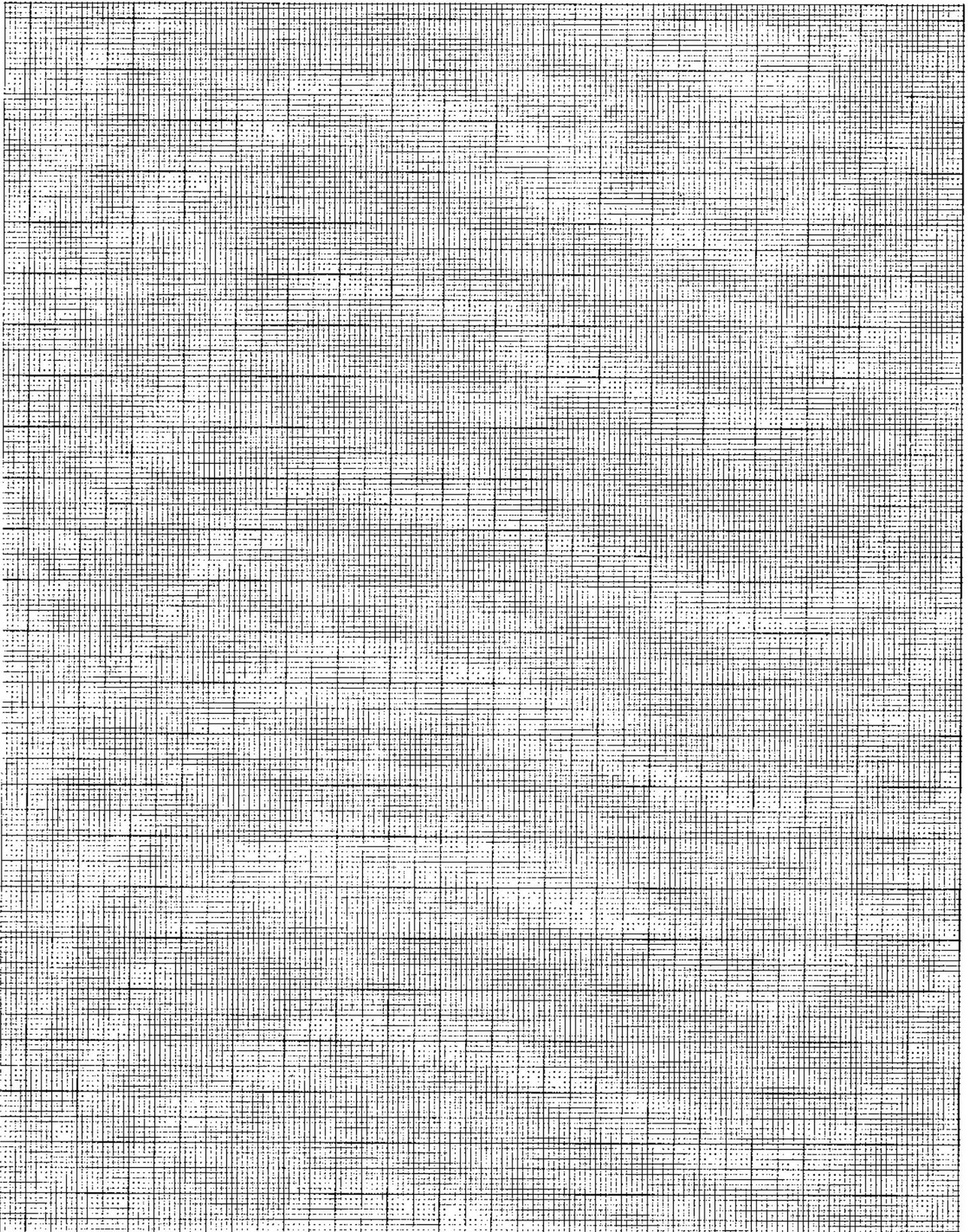
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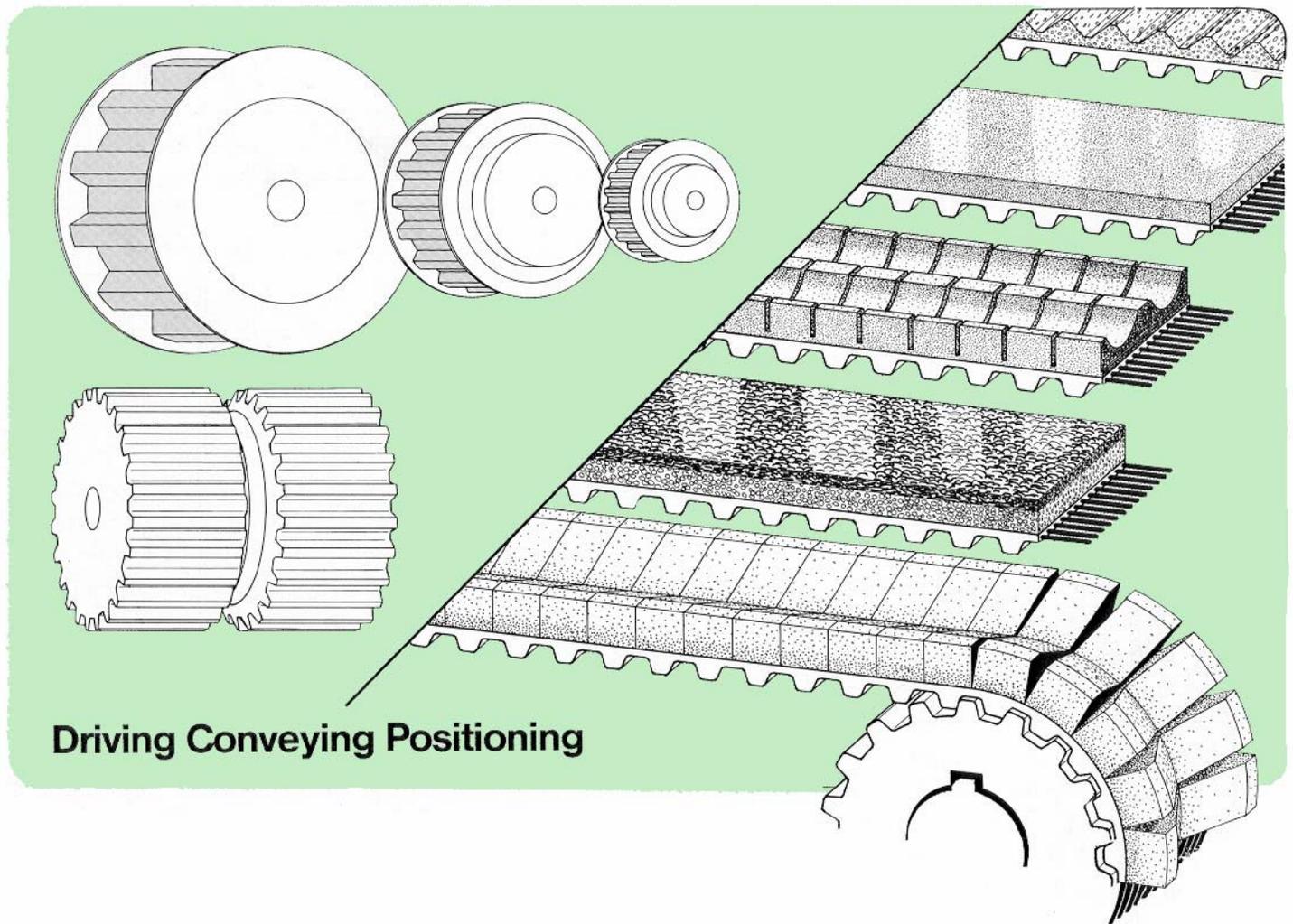


lg = long

STOCK PROFILES







Driving Conveying Positioning

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