item

Timing-Belt Reverse Unit 8 40 R25 with bore D15

Notes on Use and Installation

Content

Symbols, safety

Warning, important, safety information, recommendation

General safety information

The data and the information contained in the Notes on Use and Installation are intended exclusively for product description and assembly. The information does not release the user from conducting their own assessments and checks. It should be noted that our products are subject to natural wear and tear as well as an aging process.
These Notes on Installation and Useinclude important information for the safe and appropriate use of the product. In the case of a sale, rent or other transmission of the product, the latter must be accompanied by the Notes on Use and Installation.
During the assembly, operation and maintenance of the driven linear unit, it must be ensured that all moving parts are secured against accidental switch-on or moving. Rotating and moving parts can lead to serious injury! Please make sure to read and observe the following safety precautions.

- Any work with or close to the driven linear unit must be performed under the motto “safety first”.
- Switch the drive unit off before you begin a task close to the driven linear unit.
- Secure the drive unit against accidental switch-on, e.g. by installing signs near the switch or remove the fuse from the power supply.
- Do not reach into the working area of the moving parts of the driven linear unit while it is operating.
- Secure the moving parts of the driven linear unit against accidental contact by installing protective devices and enclosures.
- Please take note of the applicable regulations for accident prevention and environmental protection in the country of use and the workplace.
- Use item products only in technically perfect condition.
- Non-use of original spare parts leads to the expiry of the warranty!
- Check if the product has obvious defects.
- Use the product exclusively within the range of performance described in the technical data.
- Make sure all the safety devices belonging to the product are available, suitably installed and fully functional.
- You are not allowed to change the position of, avoid or disable safety devices.

The driven linear unit described here corresponds to the state-of-the-art and respects the general principles of safety at the date of printing of the present Notes on Use and Installation. Nonetheless, the hazard for personal injury and damage to property remains when the fundamental safety instructions and warning notices mentioned in the present Notes on Use and

Installation are not observed.We accept no liability for any damage that may arise from them. In the interest of further development, we reserve ourselves the right to technical changes. Keep the present Notes on Use and Installation readily accessible to all users. Please take notice of the superordinate instructions for use of the complete machinery or equipment.The general hazard warning refers to the whole life cycle of the partly completed machinery.

1. Transport

Please note the transport instructions on the packaging. Make sure to leave the product in the original packaging and protect it from humidity and damage until assembly. Please note that moving parts are fixed and can cause no damage during transport.

2. Assembly

Always switch the relevant system component off-circuit before you assemble the product or plug/unplug it. Secure the system against re-starting. Lay the cables and conducts so that they cannot be damaged and nobody can trip over them. Avoid places with risk of slipping, tripping or falling.

3. Putting into service

Let the product acclimatise for some hours before putting it into service.Make sure the partly completed machinery is tightly and safely integrated to the complete machinery. Only put fully installed products into service.

4. During operation

Allow the access to the direct operational area of the system only to people authorised by the operator. This also applies for downtimes of the system. Moving parts must not be accidentally actuated. In case of emergency, error or other irregularities, switch off the system and secure it against restarting. Make sure people cannot be shut in the system's danger zone.

5. Cleaning

Close all openings with appropriate protective devices so that no detergent can enter the system. Use no aggressive detergents. Do not use a high-pressure cleaner for the cleaning.

6. Putting into service and maintenance

Perform the required maintenance work in the time intervals described in the operating instructions. Make sure no connection line, connection or component is released until the system is under pressure and tension. Secure the system against restarting.

7. Disposal

Dispose of the product according to the national and international provisions of your country.

Correct use

A timing belt reverser is a component used in the construction of driven linear axes. The driven linear unit is a product in accordance with the Machinery Directive 2006/42/EC (partly completed machinery). The driven linear unit can only be used in accordance with the technical data and safety regulations of the present documentation. The internal rules and guidelines of the country of use must be respected. Unauthorised structural changes to the driven linear unit are not permitted. We accept no liability for any damage that may arise from them.

You are authorised to assemble, operate and maintain the drive linear unit only if:

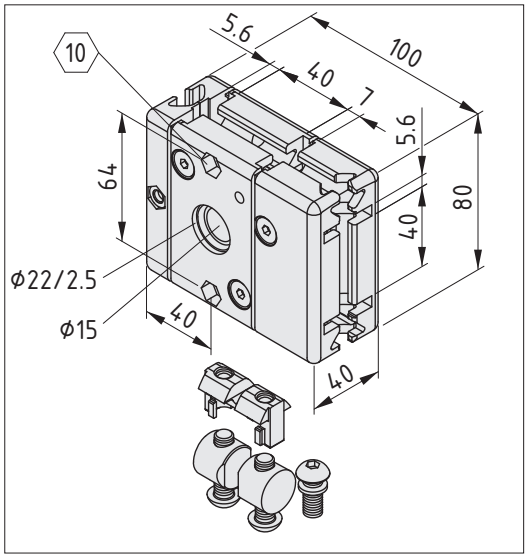
- The driven linear unit has been integrated to the complete machinery according to the intended applications and safety requirements.
- You have read the Notes on Use and Installation carefully and understood them.
- You are qualified.
- You have the authorisation of your company.
- You exclusively use the original accessories of the manufacturer.

In case of unsafe and inappropriate operation of the driven linear unit, there is a danger of serious injury from crush and shear points.

Improper Use

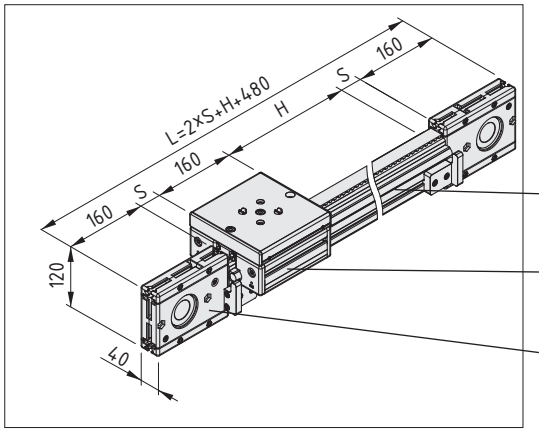
The improper use refers to applications differing from the use authorised by the Notes on Use and Installation and the appropriate use. We accept no liability for any damage that may arise.

Technical Data/Scope of Supply



Timing-Belt Reverse Unit, die-cast, black
Ball-bearing timing pulley with ∅ 15 H7
Hub length: 30 mm
One revolution equivalent to 150 mm
Effective radius r_e = 23,9 mm
Frictional torque at 1‰ pretension of the timing belt:
T_F = 0,30 Nm
Max. load: T_D = 20 Nm
Belt length inside Reverse Unit in case of
90° reversal: 140 mm
180° reversal: (emerging at 100 mm side): 160 mm
180° reversal: (emerging at 80 mm side): 200 mm
2 Universal Fasteners 8
2 Button-Head Screws ISO 7380-M8x30, St, zinc-plated
1 special T-slot Nut G-St M8
1 Button-Head Screw ISO 7380-M8x20, St, zinc-plated
1 Washer DIN 125-8,4, St, zinc-plated
Pitch p = 10 mm
Number of teeth n = 15
m = 1,1 kg

Application options



Support profile,
e.g.: Profile 8 80x40

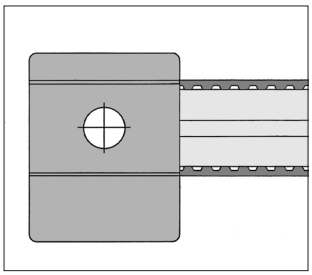
Guide,
e.g.: Roller guide D14

Drive,
e.g.: Timing Belt R25 T10 and
Timing-Belt Reverse Unit 8 80 R25 with Bore D15

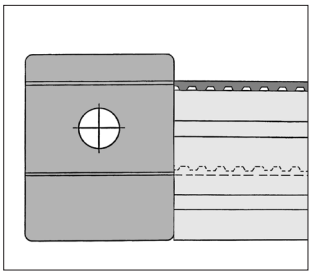
Fundamentally, a Linear Unit converts a rotary motion into a translational motion.
A Linear Unit is made up of:

- Guide
- Drive
- Support profile

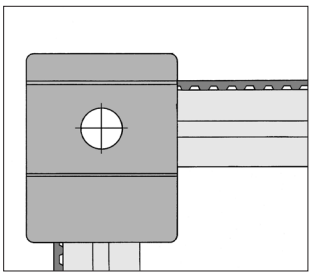
These components are picked for assembly and assembled in part or in full, depending on customer wishes.



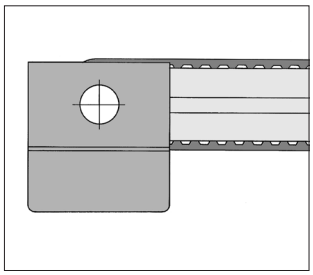
Timing belt turned around 180° on Line 8 profiles (height 40 mm). The timing belt is returned outside the profile.

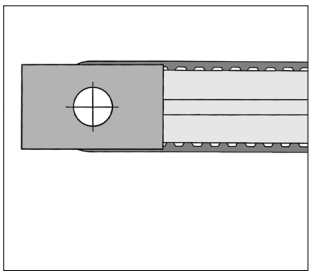


Timing belt turned through 180° on Line 8 profiles (height 80 mm and above). The timing belt is returned in the profile cavity.



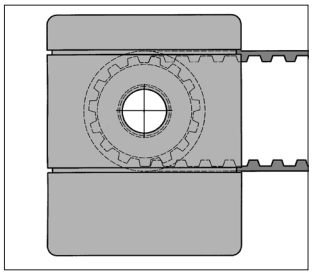
Timing belt turned through 90°.





The upper and lower belt covers can be removed for applications with very limited space.

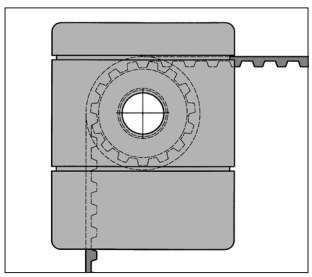
Fitting the Timing Belt

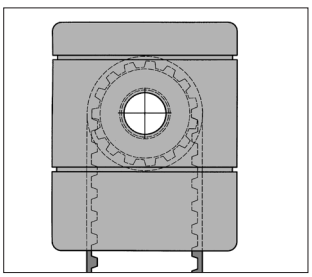


To fit the Timing Belt into the Reverse Unit 8 40 R25, the latter must be opened by removing all screws.

When opening the Reverse Unit 8 40 R25, screwdrivers or similar tools must under no circumstances be used to lever up the two halves of the housing at the joints, since this may inadvertently break off the belt covers.

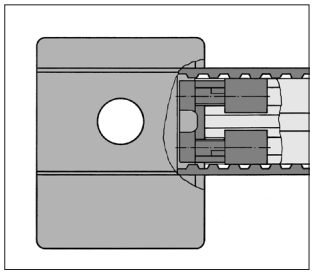
The two halves of the housing can be separated by gently tapping the hub of the timing pulley (using plastic punch). The Timing Belt can now be threaded through in the required manner and the Timing Belt Reverse Unit 8 40 R25 closed again.



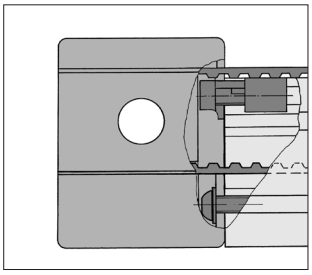


With these applications, the screws located in the timing-belt guide channel must be removed.

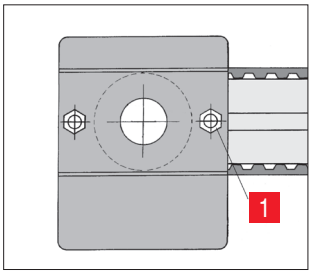
Fastening Options



Connection of Timing-Belt Reverse Unit 8 40 R25 to Line 8 Profiles (height 40 mm).

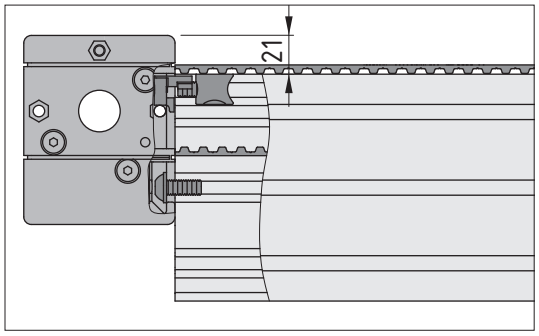


Connection of Timing-Belt Reverse Unit 8 40 R25 to Line 8 Profiles (height 80 mm and above).
Disconnection of the special T-slot nut at the specified break point.



Function of bores:

1 Housing bores for securing the drive units, adapter flange, bevel gear box and ball screw units and/or for interconnecting Timing-Belt Reverse Units.

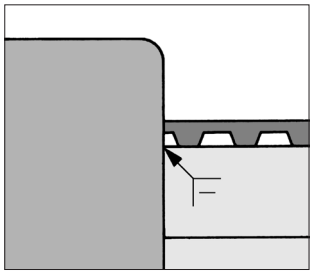


WARNING!

- Connecting Timing Belt Reverse Unit 8 40 R25 to Line 8 profiles (construction height 80 mm and over).
  Separating the special T-Slot Nut at the pre-determined breaking point.

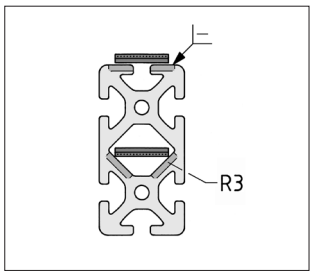
- Fastening arrangement of Timing Belt Reverse Unit 8 40 R25 on different profiles depending on the position of the Timing Belt when fed back through.

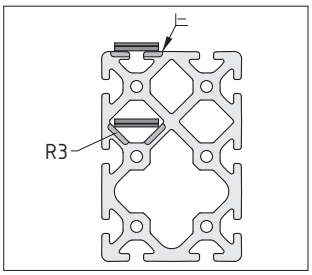
Rounding the Profile Edges

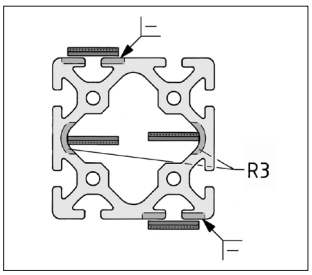


All cut profile edges facing the timing belt must be chamfered in order to prevent the belt from being damaged or sticking and running out of line.

When running the belt back through the inside of profiles,

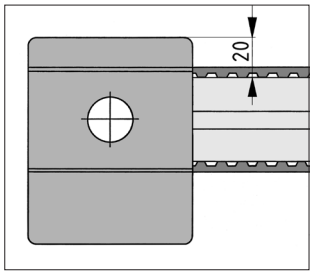


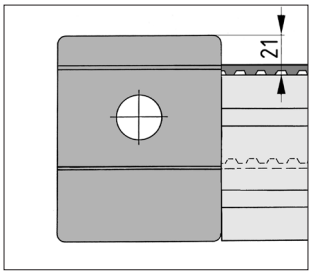




the profile edge facing the back of the belt must be rounded.

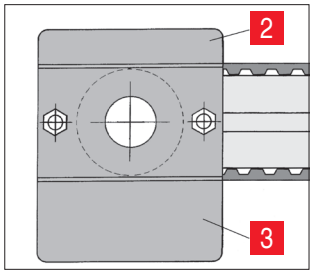
Alignment of Timing-Belt Reverse Unit to the Profile





Fastening location of Timing-Belt Reverse Unit 8 40 R25 to different profiles, depending on the position of the return timing belt.

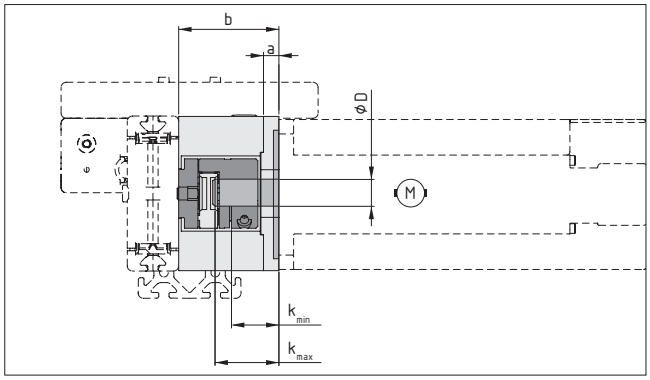
Removing the Belt Cover



Timing-Belt Reverse Unit 8 40 R25 must first be opened as described in section “Fitting the Timing Belt”. The belt covers 2 and 3 can then be broken off at the specified break points.

Connecting Drive Set 8 40 D40/D15 – 0.0.668.02

Drive Set 8 40 D40/D15 is used to connect any drive to Linear Unit LRE 8 D14 ZU 40 R25.
The prepared coupling fits the drive shaft and transmits drive torque without backlash.



[mm]	8 40 D40/D15
∅ D	6-24
a	10
b	64
k min	31,7
k max	40

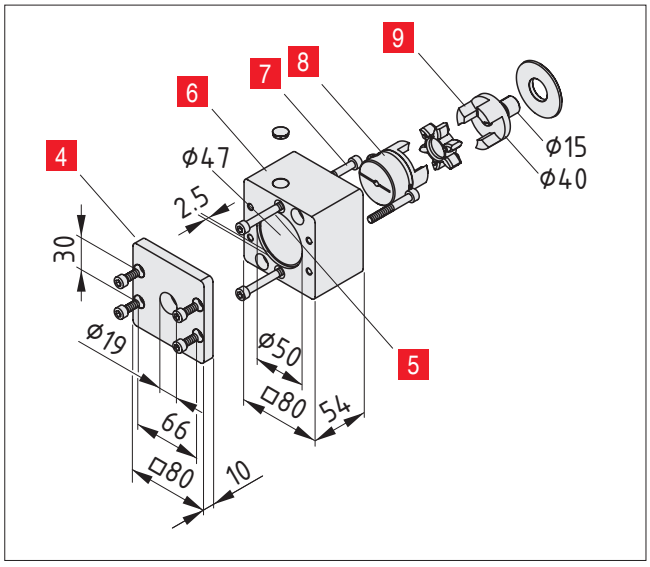
Hexagon Socket Head Cap Screws DIN 912 M6x60 are supplied with the Drive Set for this purpose and are screwed through the housing of the Drive Unit and into the Coupling Housing of the Drive Set.

Tightening torque: T = 14 Nm

Machine the drive casing or Adapter Plate according to the requirements of the motor or gearbox you are using and then screw it to the motor or gearbox. Take the coupling half that is to be connected to the drive shaft and drill a hole in it to match the drive shaft then connect the coupling half and the shaft.

The torques transferred by the clamp connection factor in the maximum mating play for shaft fits: Shaft k6 / hole H7.

Force is transferred from the Coupling to the drive shaft by means of frictional resistance. The Shaft and the hole in the coupling hub must be degreased and cleaned to ensure the frictional resistance is effective. Hexagon Socket Head Cap Screws must be secured against working loose.



4 Adapter plate, for connecting a motor

5 Hexagon Socket Head Cap Screw DIN 912 M6x60 for connecting to a chain reverse unit

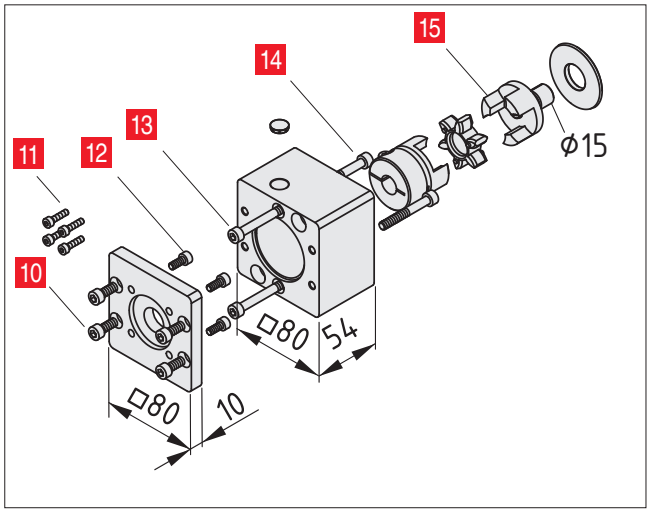
6 Coupling Housing with hole (that can be sealed) to allow an Allen key through to generate the necessary clamping force on the drive shaft

7 Hexagon Socket Head Cap Screw DIN 912 M6x45 for connecting to a Timing-Belt Reverse Unit

8 Coupling half for holding the drive shaft

9 Expanding hub coupling D40/D15

Connecting Drive Set 8 D40/D15 AP/WP 60 – 0.0.672.73



10 Hexagon Socket Head Cap Screw DIN 912 M6x16
11 Hexagon Socket Head Cap Screw DIN 912 M4x16
for connecting a motor
12 Hexagon Socket Head Cap Screw DIN 912 M5x12
for connecting a gearbox
13 Hexagon Socket Head Cap Screw DIN 912 M6x60
for connecting to a chain reverse unit
14 Hexagon Socket Head Cap Screw DIN 912 M6x45
for connecting to a Timing-Belt Reverse Unit
15 Expanding hub coupling D40/D15

Drive Set 8 D40/D15 AP/WP 60 (0.0.672.73) is used solely to connect item drives to Linear Unit LRE 8 D14 ZU 40 R25. The Drive Set is fully prepared for installation on the corresponding Linear Unit. The drive shaft transfers drive torque without backlash. Hexagon Socket Head Cap Screws DIN 912 M6x60 are supplied with the Drive Set for this purpose and are screwed through the housing of the Drive Unit and into the Coupling Housing of the Drive Set. Tightening torque: T = 14 Nm

The torques transferred by the clamp connection factor in the maximum mating play for the shaft fits: Shaft k6 / hole H7.

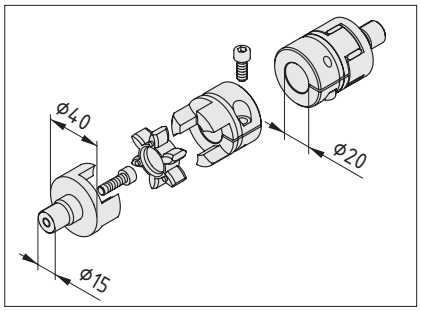
Force is transferred from the Coupling to the drive shaft by means of frictional resistance. The Shaft and the hole in the coupling hub must be degreased and cleaned to ensure the frictional resistance is effective. Hexagon Socket Head Cap Screws must be secured against working loose.

Next, use the Gearbox Centring Piece to fasten the Gearbox flush on the Adapter Plate of the Drive Set. Use Hexagon Socket Head Cap Screws DIN 912 M5x12 for this purpose. Hexagon Socket Head Cap Screws DIN 912 M4x16 are included in the Drive Set for the purpose of fastening the Motor to the Gearbox.

Synchronising LRE 8 D14 ZU 40 R25

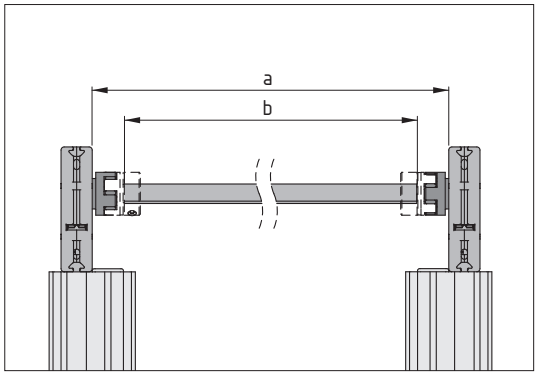
Synchronising Sets are used when two Linear Units are to be run in parallel. item Synchronising Sets comprise couplings that are fitted between two Linear Units and are connected by a Synchroniser Shaft that has been manufactured in the appropriate length. This ensures that the end result is a highly customised and flexible design.

Synchronising Sets from item can be used to operate two Linear Units in parallel with just one motor. They comprise shaft Couplings that are tailored to the relevant Linear Unit and designed to compensate for slight misalignments and withstand the stated torque over long-term use. The Couplings are pre-prepared to accommodate a Synchroniser Shaft. Besides featuring a compact design, expanding hub couplings are also easy to use. The friction-based connection is created by tightening the central screw with the specified tightening torque. An integrated pull-off thread makes them easy to dismantle. First, the central screw is removed, then a longer screw is driven into the same position to effortlessly relieve tension in the Coupling. How long a Synchroniser Shaft can be depends on its operating speed. To determine the maximum length for a given speed or the maximum speed for a given length, please consult the information contained in the diagrams.



Synchronisationssatz D40/D15 – 0.0.662.50

2 Coupling Halves D40/D20, Al
2 expanding hub coupling halves D40/D15, St and Al
2 Coupling Inserts D40, PU, green
Tightening torque, expanding hub screw: 9,6 Nm
Tightening torque, clamping hub screw: 9,6 Nm
m = 198,0 g



A suitable Tube St (sawn to length) turns the Synchronising Set into a complete Synchroniser Shaft.

Synchronising Set	Tube D20x3 St	
	b	a
D40/D15	a -50 mm	Distance between Linear Units

Maintenance

Suitable for use in dry conditions and over the temperature range -20°C to +70°C.

If operating conditions are unusual - e.g. special type of installation, dust, short stroke, influence of solvents etc. the lubrication intervals must be adapted accordingly.

This information does not discharge the user from the obligation to carry out his own assessments and checks.

It is important to bear in mind that our products are subject to a natural process of wear and ageing.

The rollers of the guide are maintenance-free.

After a running-in phase, the timing belt tension is checked.

We recommend regular checks for damage and wear. These checks should be carried out weekly at first and then adjusted to account for environmental and operational conditions.

The Timing Belt may need to be replaced.

Ideal operating conditions:
Ambient temperature: 10°C ... 40°C
Load: < 5%

Product development and documentation

A process of continuous product development ensures that products from item Industrietechnik GmbH always exhibit a high standard of innovation. Consequently, there could be inconsistencies between this guide and the product you have acquired. item Industrietechnik GmbH can also not exclude the possibility of errors.

We therefore ask for your understanding that the information, illustrations and descriptions provided here cannot constitute an entitlement to any claims. You can find the latest version of this guide at www.item24.com.

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