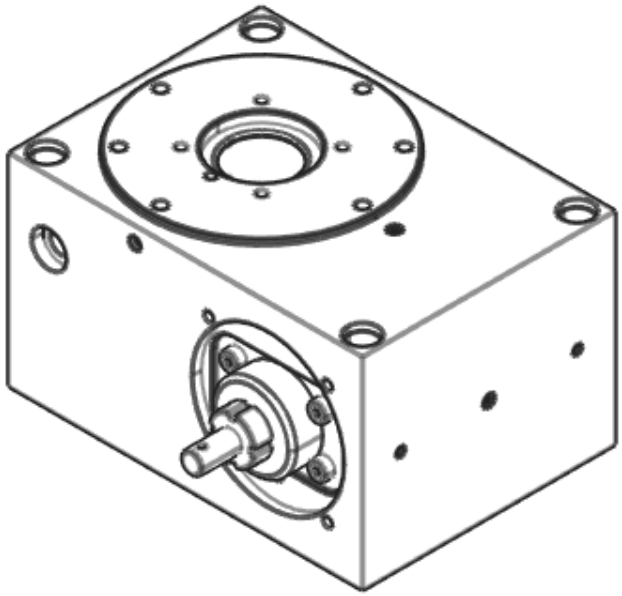
Assembly instructions (translation)



Manual rotary adjuster
MDV 100/140
1605488

Version 01

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1 About this manual

1.1 General information

This manual is part of the machine/product and provides information concerning safe handling. The manual must therefore be kept on hand for the entire life cycle and must be accessible at all times.

The manual must be read, understood and complied with in all respects by all persons who work on and with the machine/product and who are responsible for the machine/product.

The illustrations are intended to clarify the content and may therefore deviate from reality.

1.2 Customer service department

In case of questions or problems, please contact our customer service:

IEF-Werner GmbH

Wendelhofstr. 6, 78120 Furtwangen, Germany

Telephone: +49 7723 / 925 - 222**,** E-mail: service@ief-werner.de

1.3 Change history

Version	Changes
1	First edition

1.4 Other applicable documents

Important documents can be downloaded from our homepage:

https://www.ief.de/produkte/komponenten/manuelle-versteller/drehversteller/drehversteller-hohlwelle.

In addition to this document, the following apply:

- the specific spare and wear parts list enclosed with the product.
- the models, parts lists and drawings (see homepage).
- the documentation of the installed supplier components.

2 Description

2.1 Overview

Function The rotary table is used for the rotary positioning of workpieces and devices around a fixed centre point. The rotary table is adjusted manually.

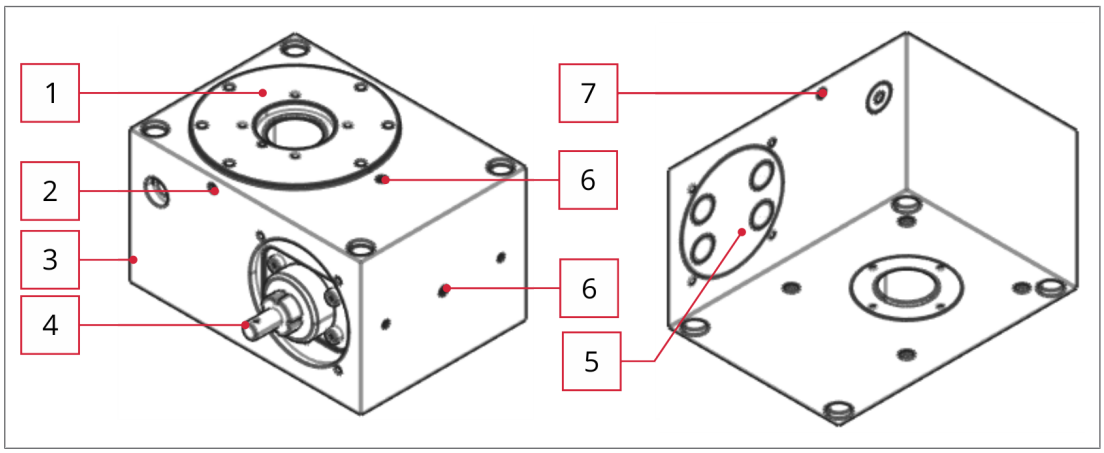
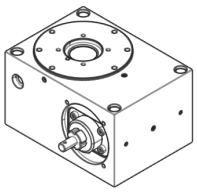


Fig. 1: Overview: rotary table

1 Rotary plate	2 Reference switch connection option
3 Housing	4 Drive shaft
5 Bearing support Floating bearing	6 Funnel-type lubrication nipple

2.2 Technical data and ambient conditions

A type plate with (further) data is located on the machine / product.



Technical data of rotary table

Turning range	0° - infinite
Ratio	48:1
Max. input torque [Nm]	2
Max. output torque [Nm]	40
Radial run-out accuracy [mm]	± 0.02
Axial run-out accuracy [mm]	± 0.02
Backlash [°]	± 0.05
Max. tilting moment [Nm]	100
Max. centric force absorption at standstill [N]	5000
Necessary breakaway torque [Nm]	0.05
Weight (without accessories) [kg]	4.2

Tab. 1: Technical data of rotary table

Environmental conditions

Operating temperature	0–60°C
Change in temperature	maximum 10°C / h
Relative humidity	15–80% indoor, no condensation
Air pressure	(860...1060) hPa
Storage temperature	-20 to + 60°C

Tab. 2: Environmental conditions

2.3 Type plate / identification of the product

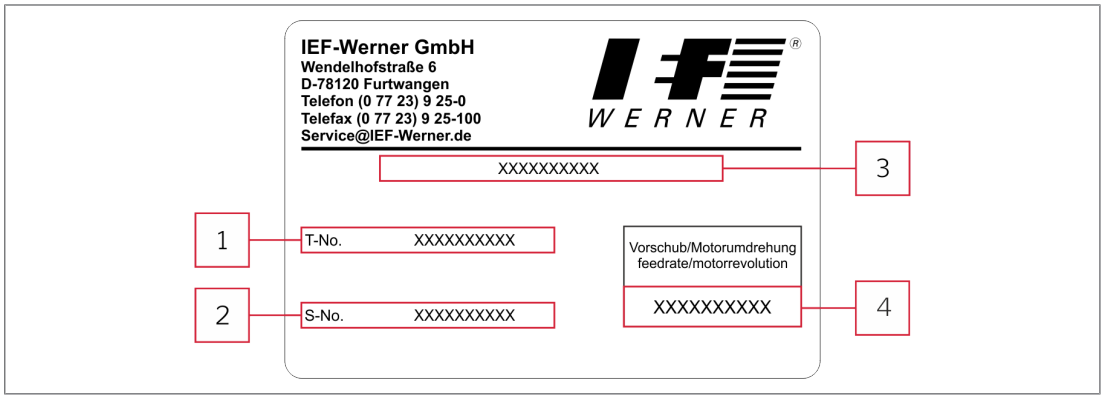


Fig. 2: Type plate (fig. is an example)

1 Part number	2 Serial number
3 Product designation	4 Ratio

2.4 Scope of delivery and accessories

Scope of delivery	Required accessories	Optional accessories
■ MDV 100/140 depending on the order with ▪ Handwheel ▪ Handwheel with digital display		■ Clamping lever

Tab. 3: Scope of delivery and accessories

2.5 Handwheel / rotary knob with digital display

The digital display enables easy and clearly visible reading of the position.

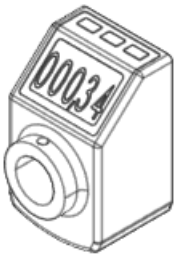


Fig. 3: Handwheel with digital display

Display / resolution [degrees]	0.1
Absolute position	Battery-buffered
Display accuracy	1 decimal place
Battery type	CR2032 Lithium 3 V
Battery life [years]	2
Protection class	IP51

2.5.1 Operating the digital position indicator

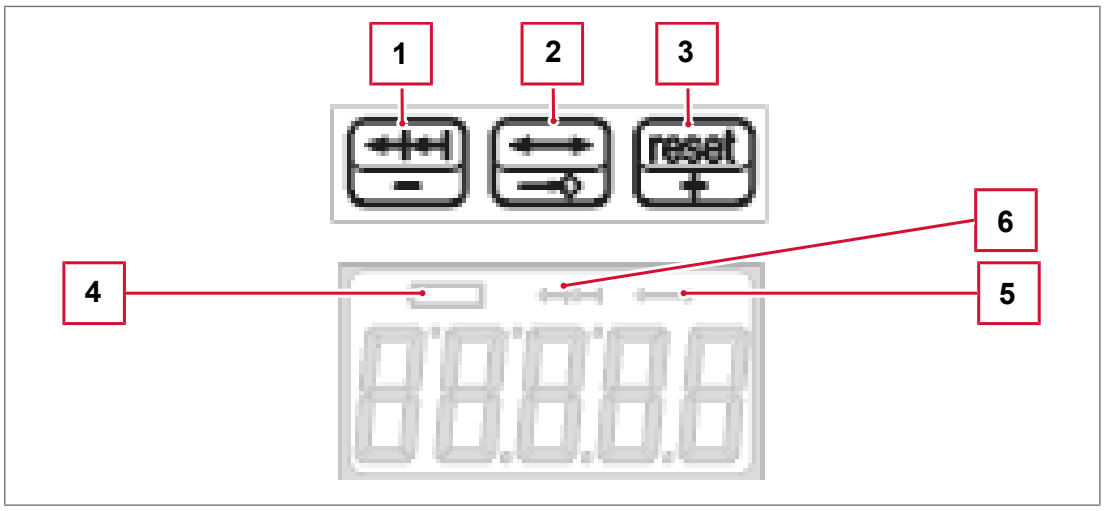


Fig. 4: Digital position indicator

The buttons are assigned twice and have the following functions depending on the version:

	Basic functions	Calibration value input mode
1	Incremental dimension button	Reduce value
2	Switch to calibration value input mode	Save and return to the basic function
3	Reset button	Increase value
4		Battery symbol -> Change battery
5		Incremental dimension symbol, lights up when incremental dimension is active
6		Calibration value input symbol, lights up when calibration values are entered

Set calibration value

- ▶ Press and hold key [2].
  - ⇨ The calibration value input symbol [6] lights up.
  - ⇨ The display shows the current calibration value.
- ▶ To exit the calibration values menu without making any changes: Press and hold key [2].
- ▶ To reduce the calibration value: Press key [1].
- ▶ To increase the calibration value: Press key [3].
- ▶ To save the calibration value and return to the basic functions: Press key [2].
  - ⇨ The calibration value input symbol [6] disappears.
  - ⇨ The new calibration value is set.

Zeroing / calibration

The position value can be set to the programmed calibration value in order to adjust the absolute position value to the mechanical dimension.

- ▶ Press and hold key [3].
- ⇨ The position value is set to the programmed calibration value.

Activating incremental dimension

With the incremental dimension function, it is possible to display relative and absolute dimensions. If the incremental dimension function is active, the absolute value continues to be recorded in the background.

- ▶ Press key [1] briefly.
  - ⇨ The incremental dimension symbol [5] lights up.
  - ⇨ The display shows 0.
- ▶ Setting relative dimension:
- ▶ Press key [1] briefly.
  - ⇨ The incremental dimension symbol [5] goes out.
  - ⇨ The display shows the absolute values.

3 Transport

Important notes regarding transport

- Wear suitable protective clothing such as a protective gloves and safety shoes.

Unpacking

- ▶ Immediately after delivery, check the machine/product for transport damage.
- ▶ Notify the shipping company, insurance company and manufacturer immediately of any transport damage.
- ▶ Leave machine/product unpackaged at room temperature for 24 hours after delivery. This ensures that any condensation present evaporates and all components are at a temperature appropriate for operation.
- ▶ Dispose of packaging in accordance with the requirements applicable nationally.

Storage

Observe ambient conditions, see Technical data and ambient conditions [▶ 5].

4 Installation

4.1 Installation

The following points must be complied with during assembly:

Installation position	Any position (horizontal and vertical) possible.
Flatness of the mounting surface	0.1 mm/m²
Further points	■ Do not drill any additional holes. ■ The component must be mounted without distortion and bending.

⚠ WARNING

Risk of injury (crushing, impact)
In the case of vertical/inclined installation position, moving parts can move/fall, in an uncontrolled manner, to the final position in the de-energised state.

▶ For vertical installation position, use additional brake and weight compensation if necessary.

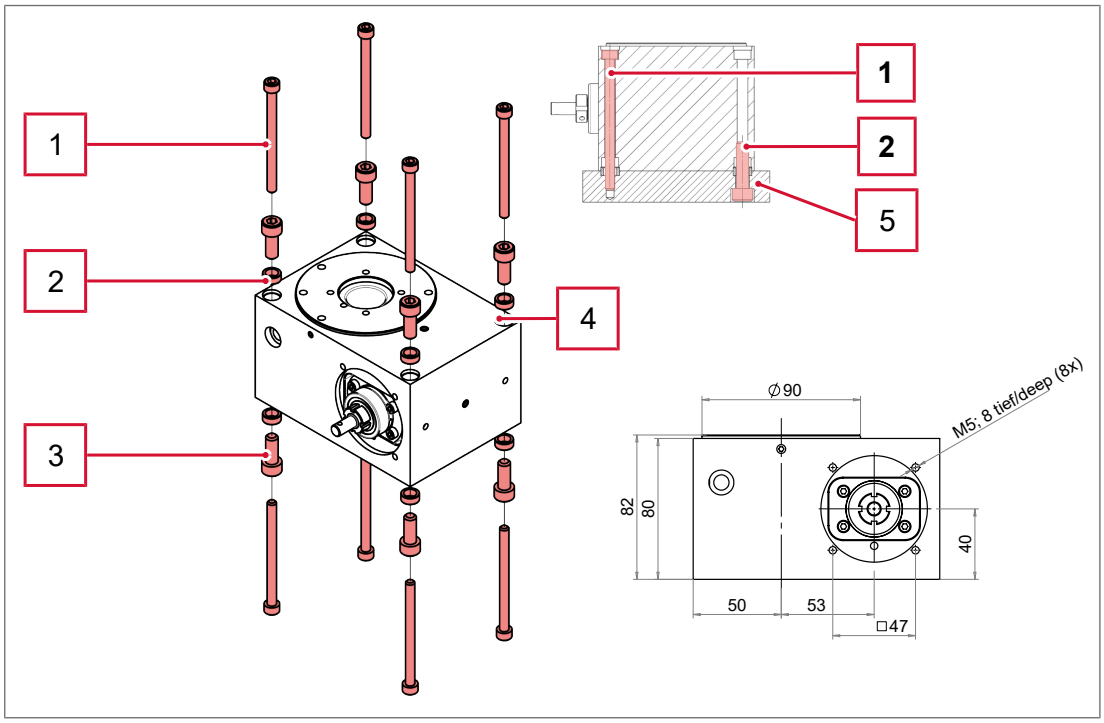


Fig. 5: Fastening the rotary table

1 Screw, long (M6)	2 Centring ring
3 Screw, short (M8)	4 Centrings/countersinks in the housing
5 Mounting surface	

- Fasten the rotary table to a mounting surface from above or below using four cheese head screws (M6 or M8).

Mounting the payload on the rotary table

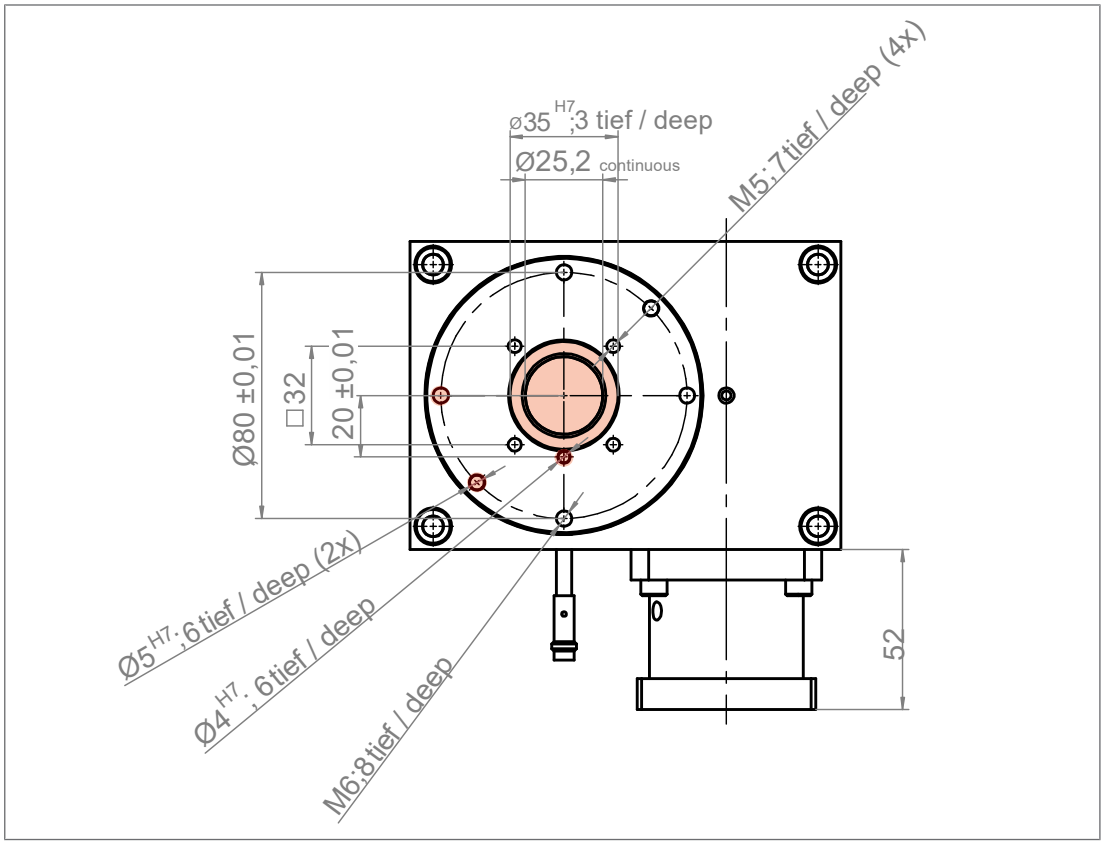


Fig. 6: Drilling pattern

- Attach payloads to the rotary table according to the holes in the drilling pattern.

4.2 Installation accessories (optional)

If the component was ordered with accessories, all accessories are fitted on delivery.

4.2.1 Clamping lever

The set position can be fixed using the clamping lever.

The clamping lever can also be mounted mirror-inverted.

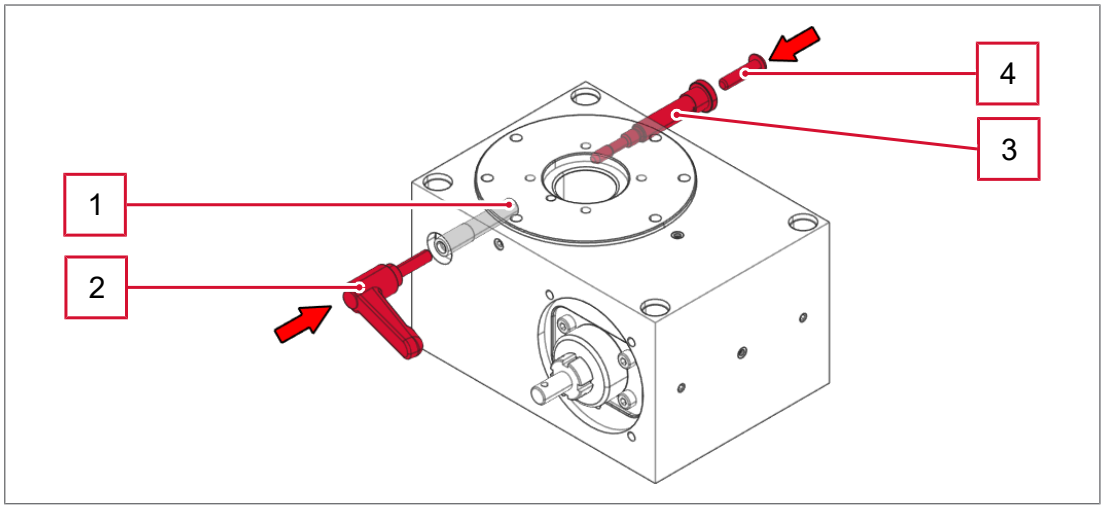


Fig. 7: Mounting clamping lever

1 Clamping sleeve	2 Clamping lever
3 Clamping block	4 Screw (M5 x 20)

- ▶ Mount the elements in the rotary adjuster as shown in the figure.
- ▶ Fix the rotary adjuster by turning the clamping lever clockwise.

5 Maintenance

5.1 Spare parts and wear parts

Only use faultless, suitable tools and original spare parts or series production parts expressly approved by the manufacturer for repairs. See the supplied lists of spare/replacement parts for information and provision these parts according to requirements and experience.

If necessary, contact our customer service:

IEF-Werner GmbH

Telephone: +49 7723 / 925 - 222, E-mail: service@ief-werner.de

5.2 Lubricating

NOTE

Danger of material damage!

The maintenance intervals are recommendations that can be shortened by the operating company based on experience gained from maintenance tasks and local conditions.

▶ Shorten maintenance intervals if necessary.

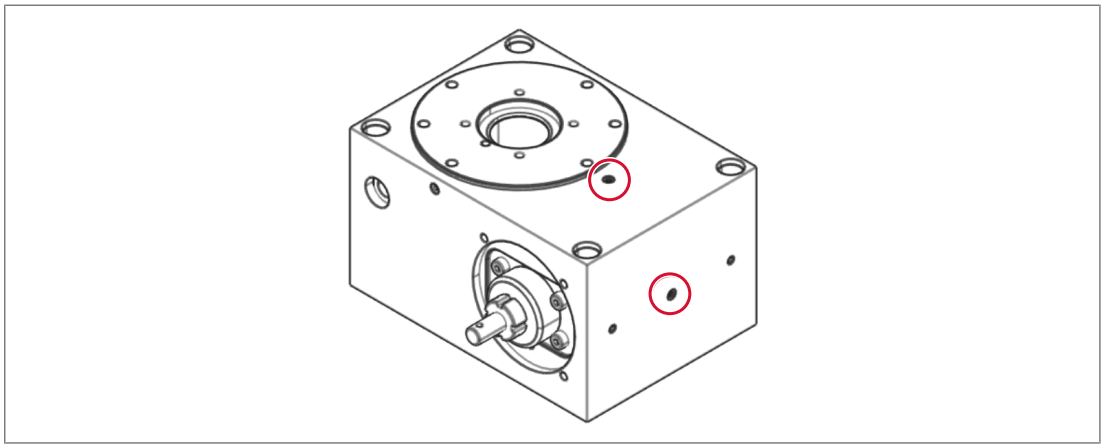


Fig. 8: Lubricating nipple DT 100/140

Module	Lubrication interval	Lubrication quantity per nipple [cm³]	Lubricants and tools *	Lubrication
DT 100/140	400 h	2.5 cm³ (7 strokes)	Grease gun – Dynalub 510 (part no.: 1315984), refill cartridge 400 g (part no.: 1055014)	Grease one of the grease nipples.

*** For special requirements:** Observe the label with information on the lubricant on the component. E.g. for food and medical technology: Grease gun – BERULUB FG-H 2SL (part no.: 1315987)

5.3 Adjusting the play of the worm gear

The play adjustment is carried out at the factory. Adjustment may be necessary due to wear of the worm gearing.

The drive shaft (worm) is supported by an axial bearing (fixed bearing) and a ball bearing (bearing support, floating bearing).

With setting aid

✓ Setting aid (article no.:1132330) is available.

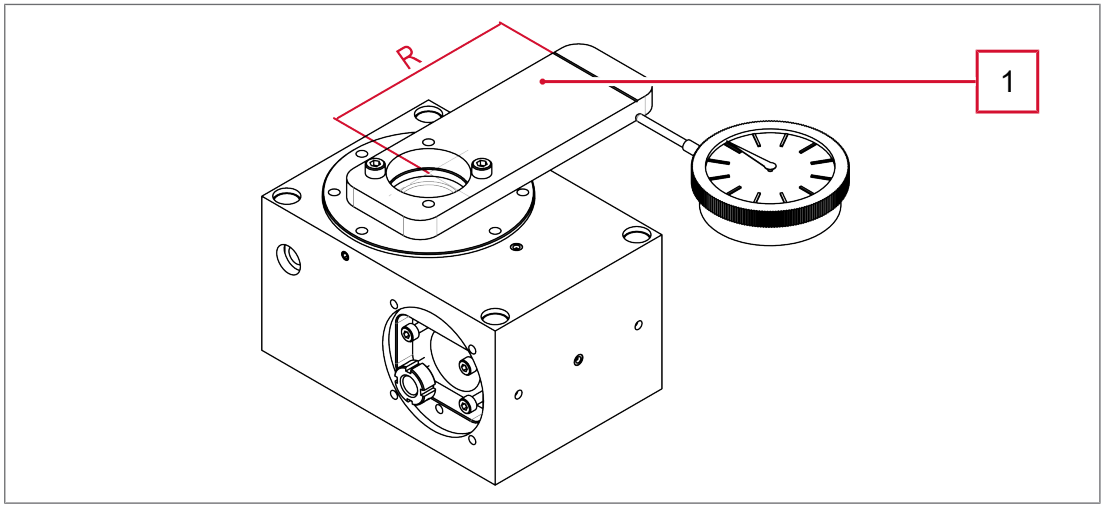


Fig. 9: Backlash adjustment: Setting aid

1 Setting aid

▶ Set the backlash of the worm gear using the setting aid: The guide value [R] for the backlash/play in the worm gearing is 0.1 mm on a radius of 100 mm (corresponds to 0.057°).

Without setting aid

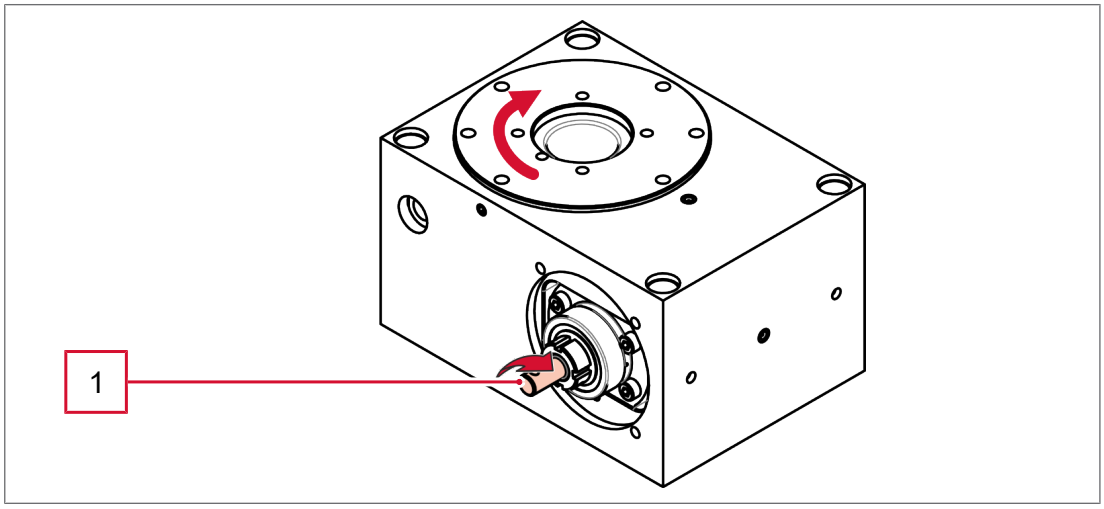


Fig. 10: Backlash: Drive shaft

1 Drive shaft

▶ Check the current backlash. It serves as a reference.

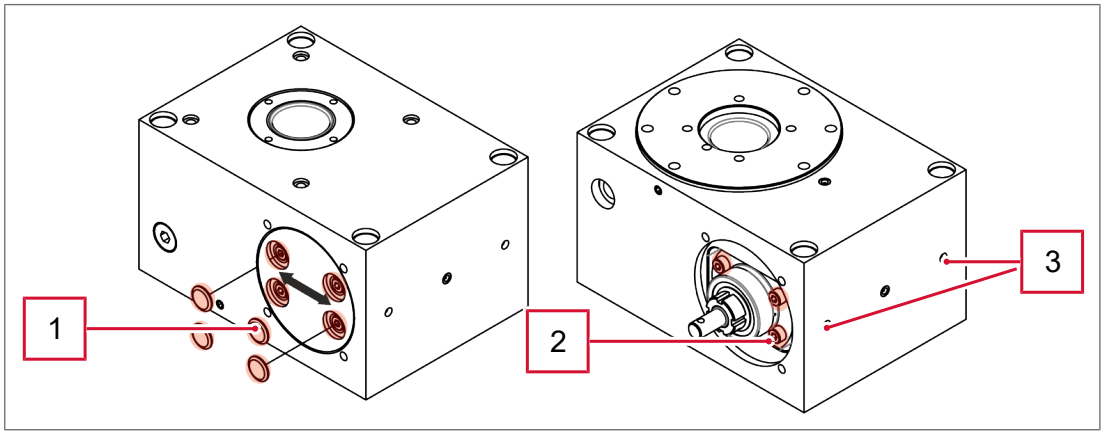


Fig. 11: Backlash: Loosen screws

1 Cover caps for the screws on the bearing mount (floating bearing)	2 Screws on the axial bearing
3 Adjusting screws	

- ▶ Slightly loosen the screws of the bearing holder and the screws of the axial bearing.
- ▶ Lightly tighten the screws of the axial bearing again.
- ▶ Adjust the backlash only on the locating bearing, on the non-locating bearing side: only tighten the screw.
  Reduce the backlash: Use a hexagon spanner (AF 3) to turn the adjusting screws evenly and only 1/10 of a turn clockwise.
  Increase the backlash: Turn the adjusting screws with a hexagon spanner (AF 3) evenly and only 1/10 of a turn anti-clockwise.
- ▶ Check the backlash several times: the rotary plate should rotate smoothly at least one complete revolution.
- ▶ If the worm gear is jammed:
  Slightly loosen the screws of the axial bearing.
  Turn the adjusting screws anti-clockwise.
  Move the drive shaft.
- ▶ If the backlash is set correctly (minimum): Tighten the screws of the axial bearing and then tighten the screws of the bearing mount.
- ▶ Check that the worm gear runs smoothly for one complete turn of the rotary table.

5.4 Changing the battery (only for the digital position indicator)

The lit up battery symbol indicates that the battery needs to be replaced. The battery life of the battery (CR2032 Lithium 3V) is approx. 2 years (depending on operating times and ambient conditions).

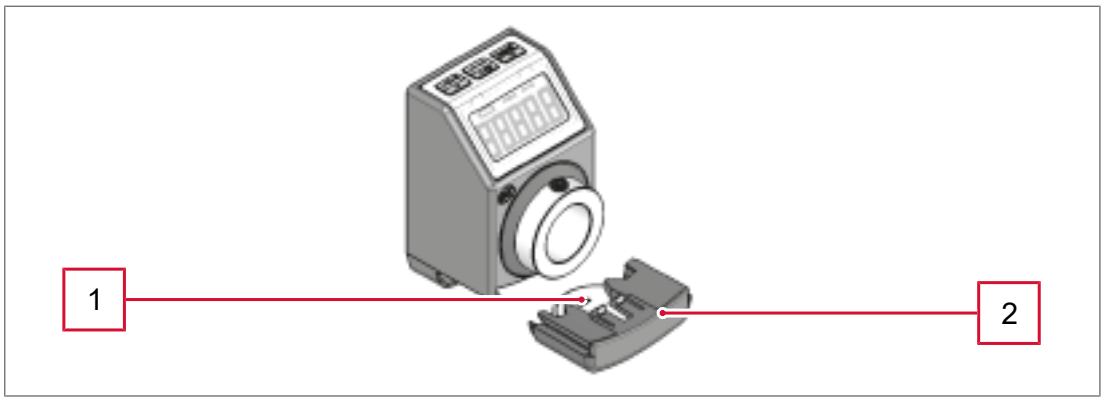


Fig. 12: Changing battery

1 Battery (- top / + bottom)	2 Battery compartment

- ▶ Pull out the battery compartment, remove the old battery and dispose of it in an environmentally friendly manner, see Dismantling and disposal [▷ 18].
- ▶ Insert a new battery, ensure correct polarity.
- ▶ Close the battery compartment.
- ▶ Redefine calibration value, see Operating the digital position indicator [▷ 7].

6 Fault rectification

The troubleshooting measures described here are only intended to provide assistance to qualified specialists. Contact the manufacturer's service department, if necessary.

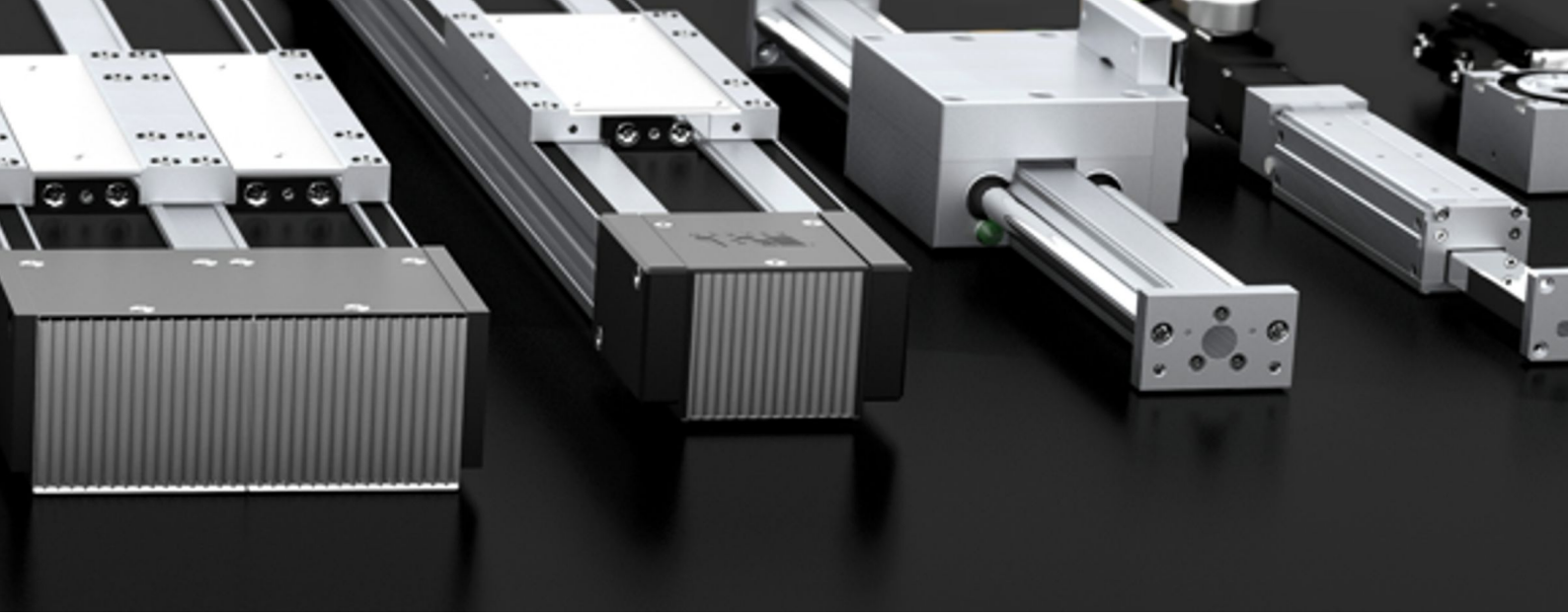
Exploded-view drawings and parts lists can be downloaded from the homepage.

Backlash / position loss		
Assembly	**Reason**	**Fault rectification**
Worm gear	Backlash setting of the worm gear too large	Adjust the play of the worm gear.
Storage unit	not tightened	Tighten the screws.
	Defective	Replace the bearing unit.

7 Dismantling and disposal

Disposal

The disposal of all replacement parts and in particular the operating materials used, such as lubricants or other environmentally hazardous substances, such as electronic scrap or batteries, must be carried out by specialist companies in accordance with the applicable statutory regulations.
The product and packaging must be recycled in an environmentally friendly manner in accordance with the applicable regulations.



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