HEIDENHAIN

ERP 1080 Dplus

Mounting Instructions

Contents

Contents

1   Basic information

This chapter contains information about the product and the Mounting Instructions.

1.1   Validity of the documentation

These Mounting Instructions apply to encoders of the ERP 1080 Dplus series.

▶ Prior to using the documentation, check whether the documentation and encoder model match

The encoder designation is printed on the ID label.

ID label
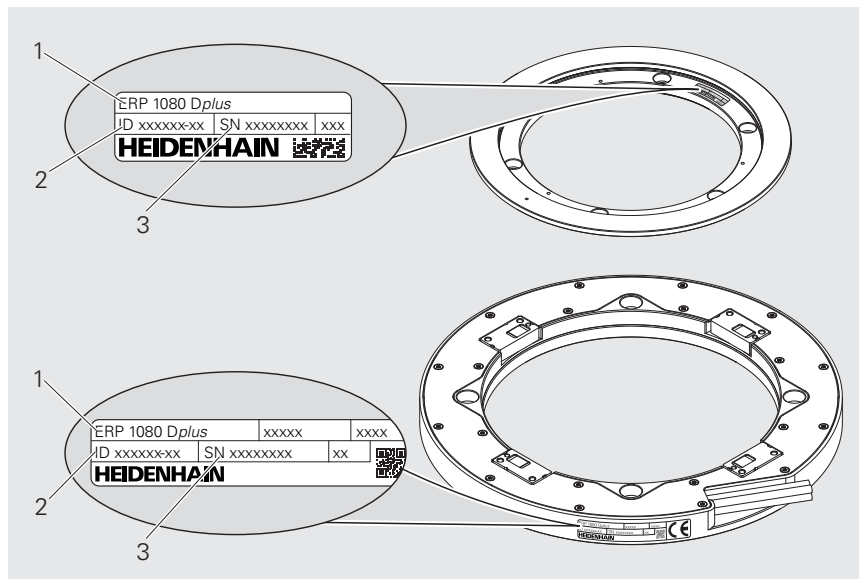
ID label with legend

1 Product name
2 Part number (ID)
3 Serial number (SN)

1.2   Target groups of the Mounting Instructions

The Mounting Instructions must be read and observed by every person who performs any of the following tasks:

- ◼ Design
- ◼ Mounting
- ◼ Removal

1.3 Notes on reading the documentation

> **⚠ WARNING**
>
> **Fatal accidents, personal injury or property damage caused by non-compliance with the documentation!**
>
> Failure to comply with the documentation may result in fatal accidents, personal injury or property damage.
>
> ▶ Read the documentation carefully from beginning to end
> ▶ Keep the documentation for future reference

The following table lists the various parts of the documentation in their order of reading priority.

Document type	Description
Addendum	An addendum supplements or supersedes the corresponding contents of the Operating Instructions and, if applicable, of the Mounting Instructions.
	If an addendum is included in the shipment, it has the highest priority for reading. All other documentation content retains its validity.
Operating Instructions	The Operating Instructions contain all of the information and safety instructions for the proper and intended operation of the device. The Operating Instructions (English language version) are included in delivery and can also be downloaded in other languages from **www.heidenhain.com/documentation**. The Operating Instructions must be read prior to commissioning the product.
	The Operating Instructions have the second highest priority for reading.
Mounting Instructions	The Mounting Instructions contain all the information and safety precautions needed for the proper mounting and installation of a product. The Mounting Instructions are not included in delivery and must be downloaded from **www.heidenhain.com/documentation**.
	The Mounting Instructions have the third highest priority for reading.

Have you found any errors or would you like to suggest changes?

We are continuously striving to improve our documentation for you. Please help us by sending your suggestions to the following e-mail address:

userdoc@heidenhain.de

1.4 Symbols and fonts used for marking text

In these instructions the following symbols and fonts are used for marking text:

Format	Meaning
▶ ...	Identifies an action and the result of this action
> ...	Example:
	▶ Tilt the shipping brace to remove it **(c)**
	> The shipping brace has been removed now
▪ ...	Identifies an item of a list
▪ ...	Example:
	▪ Solid contaminants: class 3
	▪ Max. pressure dew point: class 4

Format	Meaning
Bold	Identifies elements in figures and illustrations, such as positions, dimensions and worksteps
	Example:
	S marks the beginning of the measuring length **(ML)**.

1.5   Notes in this documentation

Safety precautions

Precautionary statements warn of hazards in handling the device and provide information on their prevention. Precautionary statements are classified by hazard severity and divided into the following groups:

> ⚠ **DANGER**
>
> **Danger** indicates hazards for persons. If you do not follow the avoidance instructions, the hazard **will result in death or severe injury.**

> ⚠ **WARNING**
>
> **Warning** indicates hazards for persons. If you do not follow the avoidance instructions, the hazard **could result in death or serious injury**.

> ⚠ **CAUTION**
>
> **Caution** indicates hazards for persons. If you do not follow the avoidance instructions, the hazard **could result in minor or moderate injury.**

> *NOTICE*
>
> **Notice** indicates danger to material or data. If you do not follow the avoidance instructions, the hazard **could result in property damage**.

Informational notes

Informational notes ensure reliable and efficient operation of the device. Informational notes are divided into the following groups:

> ℹ The information symbol indicates a **tip**.
>
> A tip provides important additional or supplementary information.

> 📖 The book symbol indicates a **cross reference**.
>
> A cross reference leads to external documentation, for example: further documentation from HEIDENHAIN or another supplier.

1.6 Units and tolerances

Unless otherwise specified, the dimensions stated in these Mounting Instructions are given in millimeters.

Unless otherwise specified, the tolerances stated in these Mounting Instructions correspond to ISO 8015 and ISO 2768 standards.

mm

Tolerancing ISO 8015
ISO 2768:1989-mH
≤ 6 mm: ±0.2 mm

2   Safety

This chapter provides important safety information needed for the proper mounting and installation of the product.

2.1   Personnel qualification

Mounting, initial configuration and removal must be conducted by a qualified specialist under compliance with local safety regulations.

2.2   General safety precautions

⚠ WARNING

Danger of electric shock due to connection to unsuitable downstream electronics!

If you connect unsuitable downstream electronics to the encoder, fatal accidents or severe personal injuries can occur.

▶ Connect the encoder only to downstream electronics whose supply voltage comes from PELV systems

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⚠ WARNING

Live plug connections

If you disengage plug connections while the equipment is under power, this may result in fatal accidents or severe personal injury.

▶ Do not engage or disengage any connecting elements while the product is under power

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⚠ WARNING

Risk of injury from damaged or worn components!

Safety functions can fail if damaged or worn components are installed. Failed safety functions can result in death or serious injury.

▶ Do not use any damaged or worn components
▶ In case of replacement, repair the thread
▶ In case of replacement, use new screws, spring pins and nuts
▶ Secure screws and nuts with suitable material-bonding anti-rotation lock

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NOTICE

Property damage due to mechanical stress

▶ Do not drop the encoder or subject it to major vibration
▶ Do not expose the encoder to mechanical stress

NOTICE

Property damage due to electrical stress

▶ Do not engage or disengage any connecting elements while the product is under power
▶ Do not touch the contacts of the plug connections

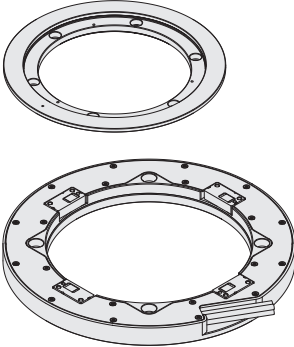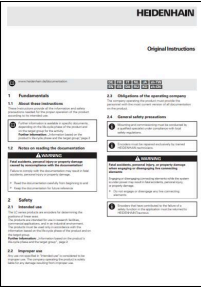| *NOTICE* |
|---|
| **Electrostatic discharge (ESD)!** |
| This device contains electrostatic-sensitive components that can be destroyed by electrostatic discharge (ESD). |
| ▶ It is essential to observe the safety precautions for handling ESD-sensitive components |
| ▶ Never touch connector pins without ensuring proper grounding |
| ▶ Wear a grounded ESD wristband when handling device connections |

3 Items supplied and accessories

This chapter contains information on the items supplied and the available accessories of the encoder.

3.1 Items supplied

Component	Figure
Encoder ■ Disk/hub assembly ■ Scanning unit	
Operating Instructions	
Quality Inspection Document	

4 Mounting

This chapter describes the mounting prerequisites, different mounting variants, and all other tasks necessary when mounting.

4.1 Prerequisites and notes

NOTICE
Property damage due to inappropriate tools
Using inappropriate tools for mounting or removal of the encoder may cause damage to the encoder.
▶ Do not use hammers
▶ Do not use pointed or sharp-edged tools

NOTICE
Property damage due to unsuitable cleaning agents
▶ Use only isopropyl alcohol to clean the encoder
▶ Clean the encoder with a lint-free cloth

> **ⓘ** The Mounting surfaces must be clean and free of burrs.

When cleaning the product, take care to wipe the scanning window only in the specified direction.
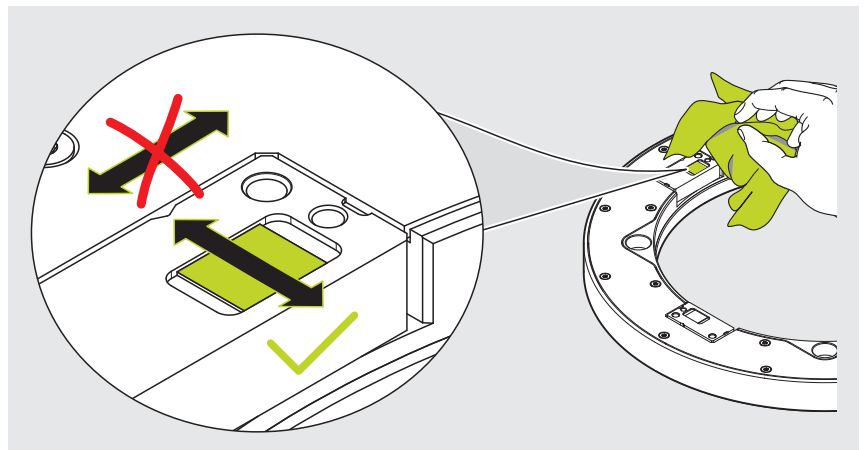
To avoid contamination, please note the following:

- Wear gloves when unpacking and mounting the graduated disk
- Touch graduated disk on the sides only
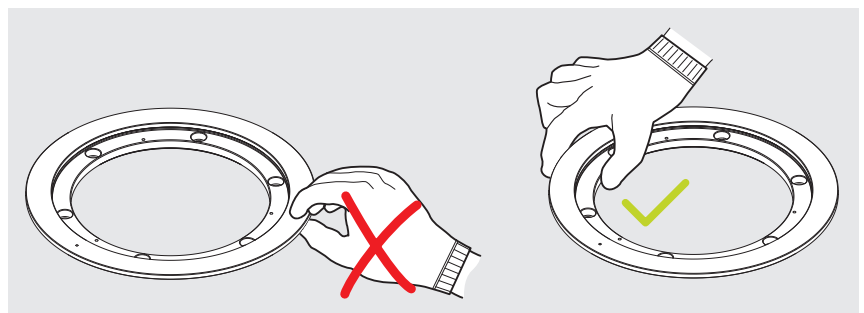
4.2 Mounting variants
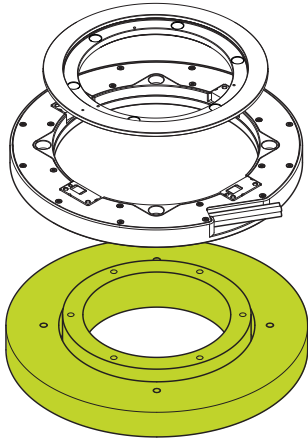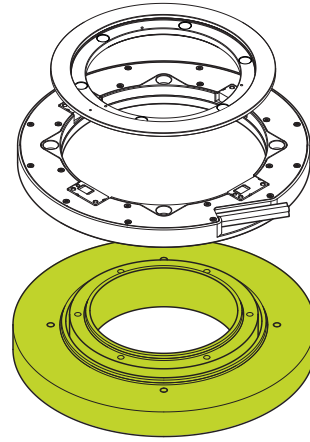
Mounting without centering collar	Mounting with centering collar
Page 13	**Page 16**

4.2.1 Variant: Mounting without centering collar

Notes on mounting without centering collar

Pay attention to the mounting dimensions. Deviations from the mounting dimensions lead to imprecise measurement results during operation.

Materials and tools

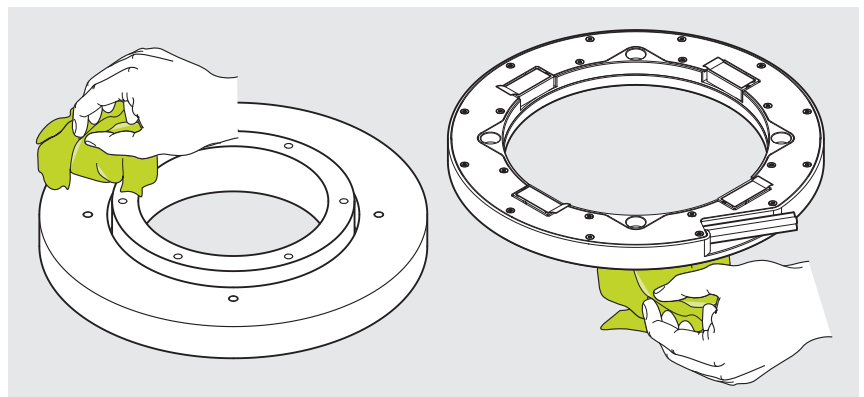For this task, the following materials and tools are needed:

Included in delivery	To be provided separately
	■ Dial gage
	■ Suitable materially bonding anti-rotation lock
	■ 4 × ISO 4762 – M5×16 – 8.8 screws
	■ 6 × ISO 4762 – M4×12 – 8.8 screws
	■ Torque wrench (hexagon socket for 3 mm)
	■ Torque wrench (hexagon socket for 4 mm)

Mounting the encoder

Mounting the scanning unit

▶ Clean the mounting surfaces with a lint-free cloth and isopropyl alcohol

▶ Slide the scanning unit onto the mounting surface
▶ Apply material bonding anti-rotation lock to the screws
▶ Insert the screws
▶ Tighten the screws only lightly with the specified torque
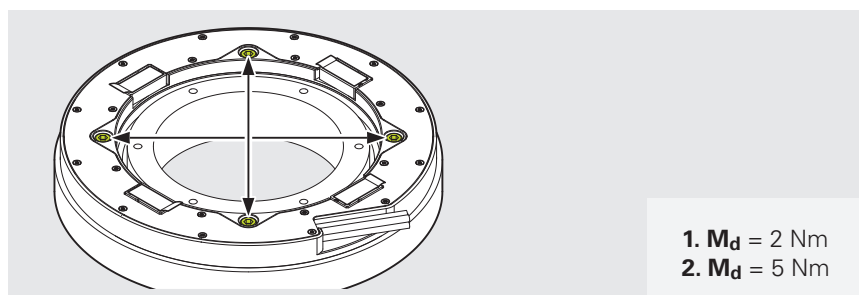

4×
ISO 4762 – M5 × 16 – 8.8
M_d = 0.02 Nm

Requirement: The dial gage must be mounted to the rotor.
▶ Check the radial runout on the inner centering collar of the scanning unit
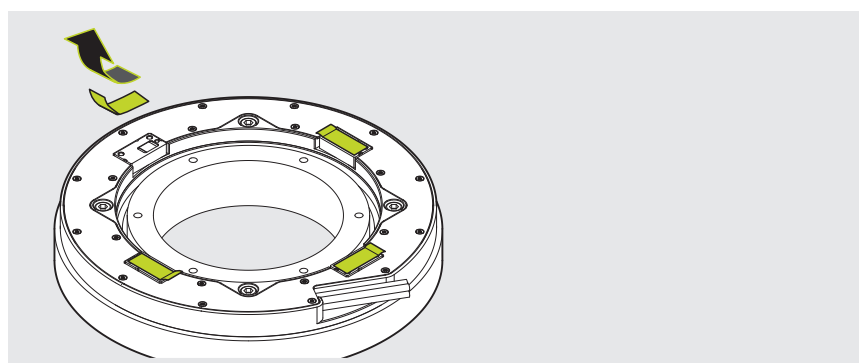▶ If necessary, adjust the radial runout until the specified value has been reached

0.15 | A

▶ Tighten the screws crosswise in two steps with the specified torque

1. M_d = 2 Nm
2. M_d = 5 Nm

Mounting the disk/hub assembly
▶ Peel off the protective films of the scanning heads

If necessary, clean the scanning window with a lint-free cloth and isopropyl alcohol.

When cleaning the product, take care to wipe the scanning window only in the specified direction.
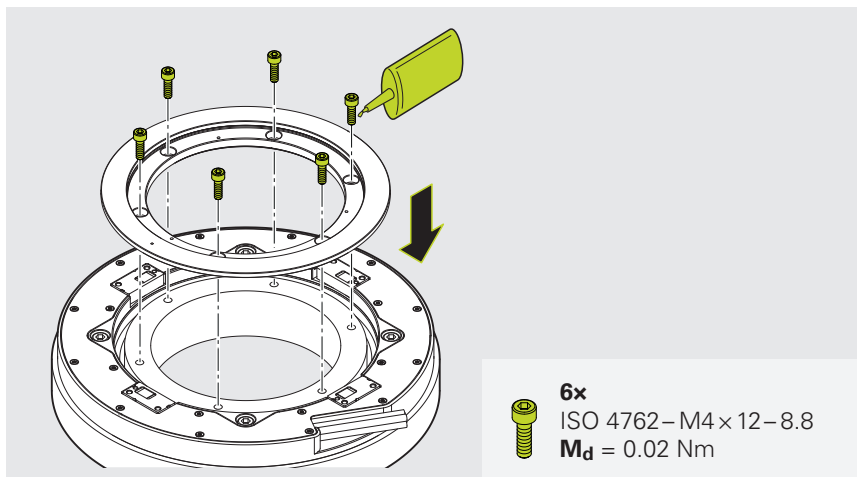

If necessary, clean the graduation and the mounting surfaces with a lint-free cloth and isopropyl alcohol.
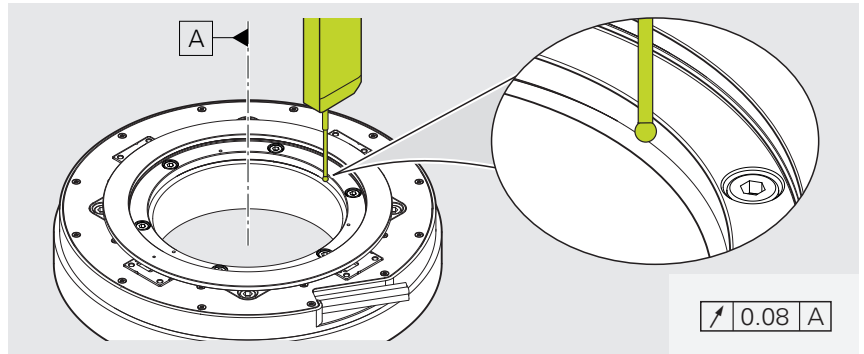
When cleaning the products, take care to wipe only the specified areas.
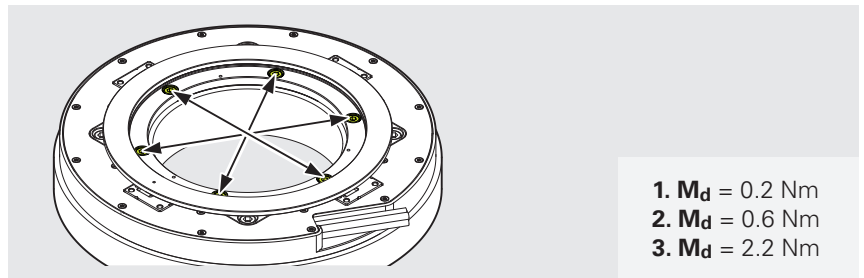

▶ Slide the disk/hub assembly onto the mounting surface

▶ Apply material bonding anti-rotation lock to the screws

▶ Insert the screws

▶ Tighten the screws only lightly with the specified torque

6×
ISO 4762 – M4 × 12 – 8.8
M_d = 0.02 Nm

▶ Check the radial runout on the inner centering collar of the hub

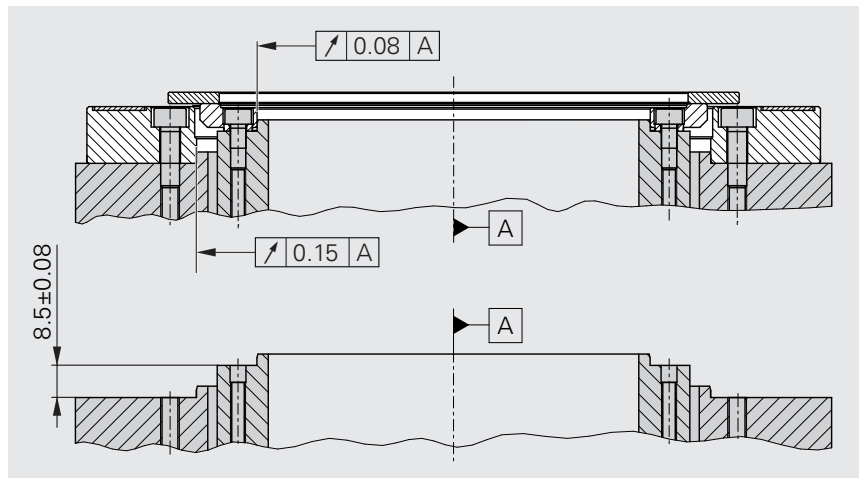▶ If necessary, adjust the radial runout until the specified value has been reached

▶ Tighten the screws crosswise in three steps with the specified torque

1. M_d = 0.2 Nm
2. M_d = 0.6 Nm
3. M_d = 2.2 Nm

4.2.2 Variant: Mounting without centering collar

Notes on mounting with centering collar

Pay attention to the mounting dimensions. Deviations from the mounting dimensions lead to imprecise measurement results during operation.

Materials and tools

For this task, the following materials and tools are needed:
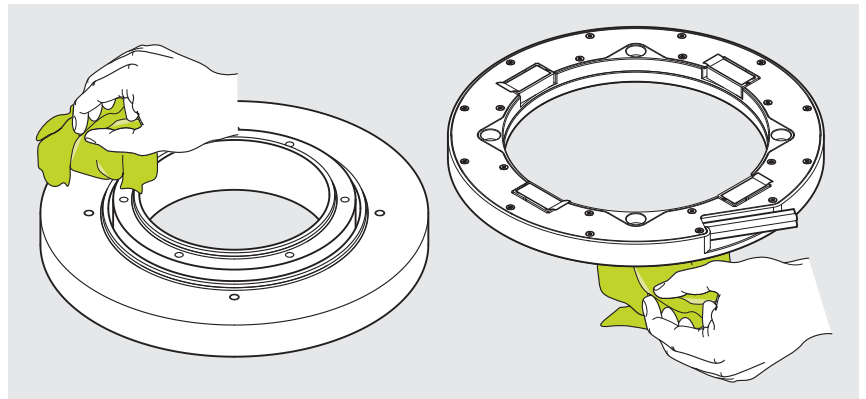
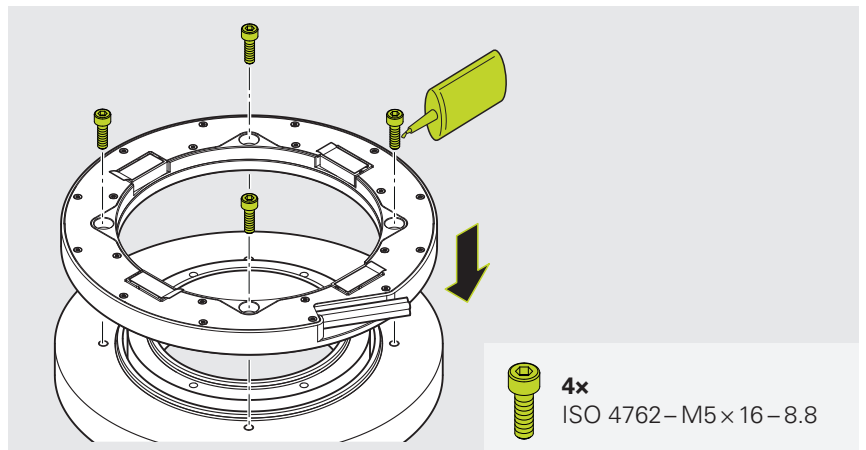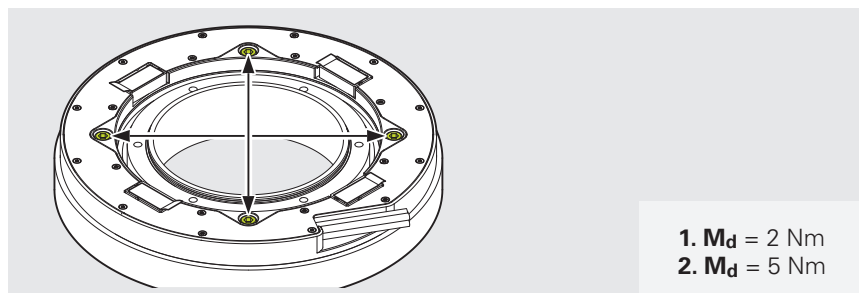| Included in delivery	To be provided separately
	■ Dial gage
	■ Suitable materially bonding anti-rotation lock
	■ 4 × ISO 4762 – M5×16 – 8.8 screws
	■ 6 × ISO 4762 – M4×12 – 8.8 screws
	■ Torque wrench (hexagon socket for 3 mm)
	■ Torque wrench (hexagon socket for 4 mm)

Mounting the encoder

Mounting the scanning unit

▶ Clean the mounting surfaces with a lint-free cloth and isopropyl alcohol

▶ Slide the scanning unit onto the mounting surface

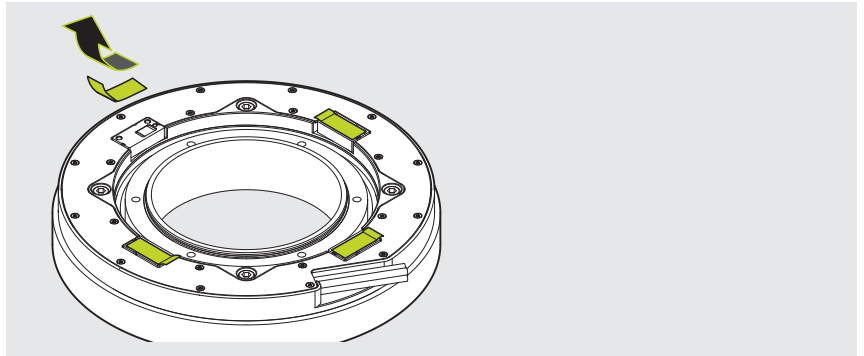▶ Apply material bonding anti-rotation lock to the screws

▶ Insert the screws

4×
ISO 4762 – M5 × 16 – 8.8

▶ Tighten the screws crosswise in two steps with the specified torque
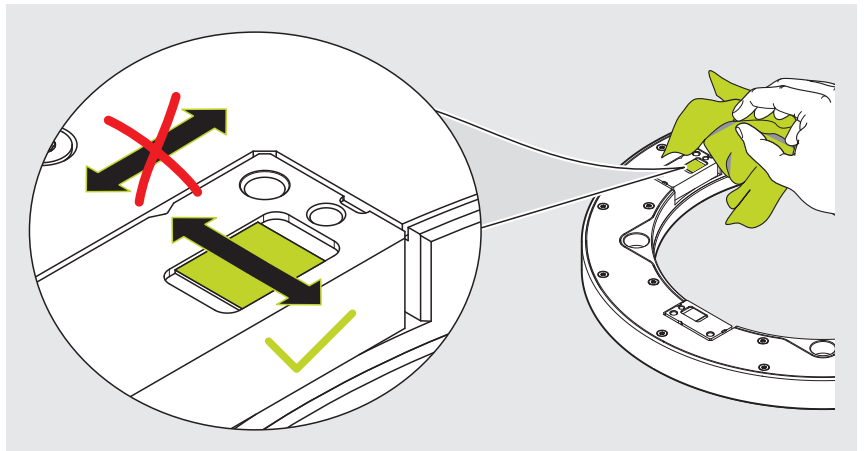

1. M_d = 2 Nm
2. M_d = 5 Nm

Mounting the disk/hub assembly

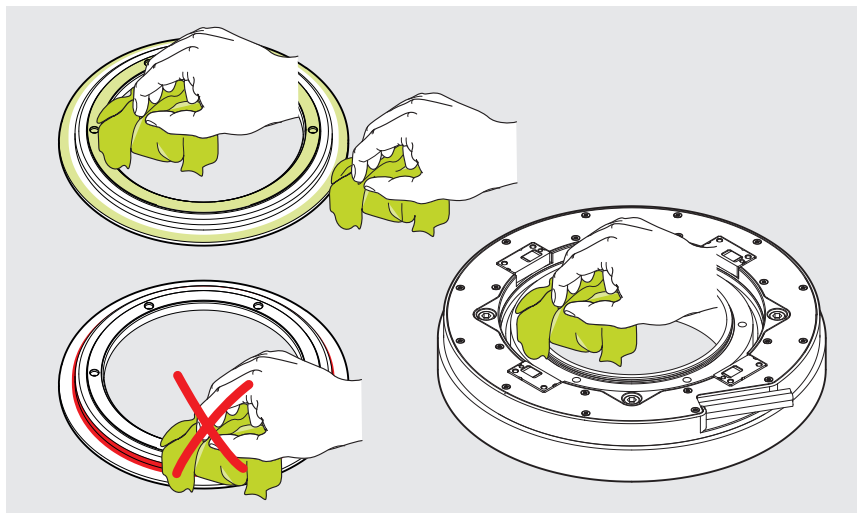▶ Peel off the protective films of the scanning heads

If necessary, clean the scanning window with a lint-free cloth and isopropyl alcohol.

When cleaning the product, take care to wipe the scanning window only in the specified direction.
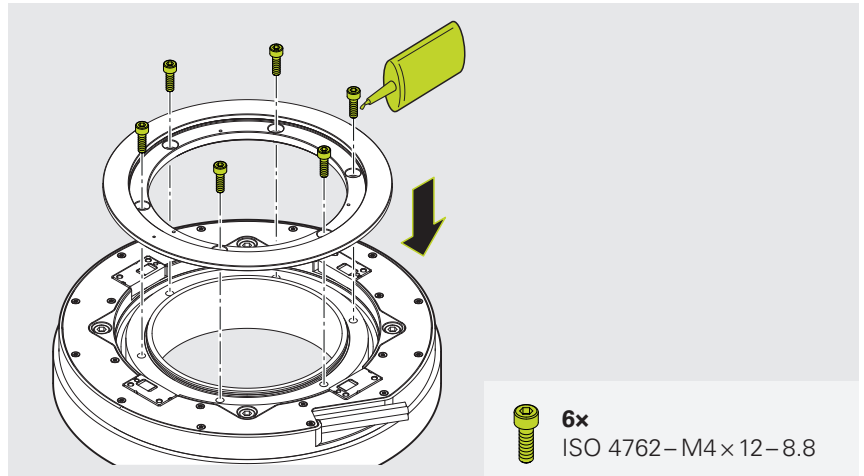

If necessary, clean the graduation and the mounting surfaces with a lint-free cloth and isopropyl alcohol.

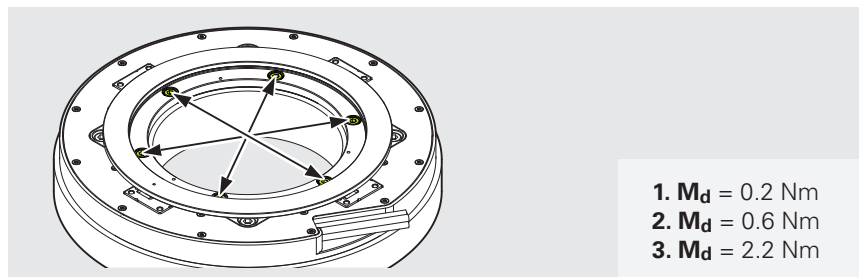When cleaning the products, take care to wipe only the specified areas.

▶ Slide the disk/hub assembly onto the mounting surface

▶ Apply material bonding anti-rotation lock to the screws

▶ Insert the screws

6×
ISO 4762 – M4 × 12 – 8.8

▶ Tighten the screws crosswise in three steps with the specified torque

1. M_d = 0.2 Nm
2. M_d = 0.6 Nm
3. M_d = 2.2 Nm

5 Removal

This chapter describes the disassembly of the product.

5.1 Safety precautions regarding removal

> ⚠️ **WARNING**
>
> **Live plug connections**
>
> If you disengage plug connections while the equipment is under power, this may result in fatal accidents or severe personal injury.
>
> ▶ Do not engage or disengage any connecting elements while the product is under power

> ⚠️ **WARNING**
>
> **Moving machine parts**
>
> Risk of injury due to moving machine parts depending on the installation location and the application
>
> ▶ Observe all of the machine manufacturer's notes on working on the machine, e.g., always disconnect the machine from the power supply

5.2 Removing the encoder

▶ Remove the encoder in the reversed sequence of mounting.
Further information: "Mounting", Page 11

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