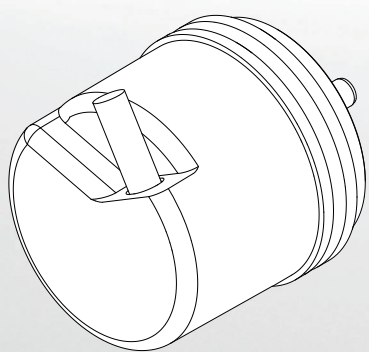




HEIDENHAIN



ROC 10xx

ROQ 10xx

ROD 10xx

Mounting Instructions

WELLA1: 01L

FLANA1: 14

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1 Basic information

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

1.1 Applicability of the documentation

These Mounting Instructions are valid for the ROC/ROQ/ROD 10xx.

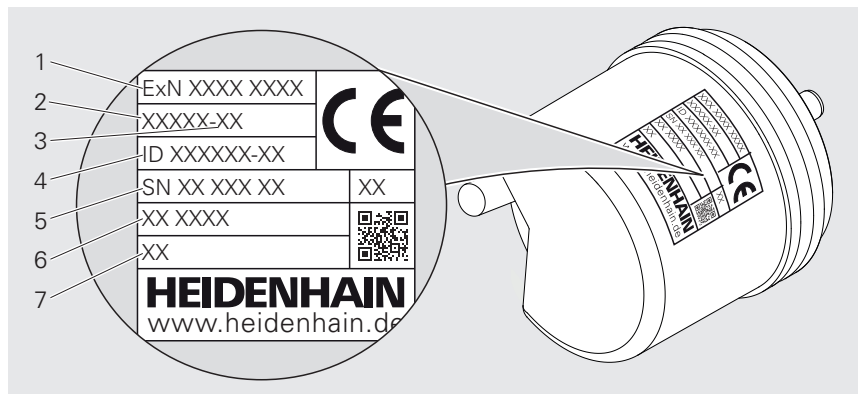
Prior to using the documentation, check whether the documentation and product match. To do so, compare these Mounting Instructions with the document assigned to the product on the HEIDENHAIN Corporate Website.

- ▶ **www.heidenhain.com/documentation**
- ▶ Enter the product ID (the product ID is indicated on the ID label)
- ▶ Select the product
- ▶ Select the **Mounting Instructions** category and open the PDF file
- ▶ Compare the document IDs given in these Mounting Instructions and in the PDF file



The document ID given in these Mounting Instructions and the document ID on the last page of the PDF file must be identical.

ID label



ID label with legend

- 1** Product name and line count
- 2** Electrical connection
- 3** Assignment
- 4** Product ID / Part number (ID)
- 5** Serial number (SN)
- 6** Supply voltage
- 7** Interface

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 initial operation of 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.

Would you like any changes, or have you found any errors?

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

1.5 Notes in this documentation

Safety precautions

Precautionary statements warn of hazards in handling the product 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 things other than personal injury, such as property damage**.

Informational notes

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



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.



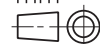
The globe symbol represents a **cross reference** to a source on the Internet, e.g. www.heidenhain.com

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 conform 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 setup 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 product, fatal accidents or severe personal injuries can occur.

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

WARNING

Risk of injury due to plug connections under voltage!

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

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, use new screws, spring pins and nuts

WARNING

Risk of injury due to improper assembly work!

Safety functions can fail if assembly is performed incorrectly. Failed safety functions can result in death or serious injury.

- ▶ Further assembly requirements must be defined by the machine manufacturer
- ▶ Note the machine manufacturer's assembly requirements
- ▶ After assembly, perform an acceptance test according to the machine manufacturer's requirements

⚠ WARNING**Risk of injury due to moving machine parts!**

Depending on the installation location and the application, there is a high risk of injury due to moving machine parts.

- ▶ Observe all of the machine manufacturer's notes on working on the machine (e.g., always disconnect the machine from the power supply)

⚠ WARNING**Hot surface due to high operating temperatures!**

Serious burns and skin injuries can be caused by touching the surface of the encoder.

- ▶ Never touch the encoder, unless it has cooled down completely

NOTICE**Property damage due to mechanical stress!**

Exposing the product to mechanical stress can cause damage to the product.

- ▶ Do not drop the product or subject it to major vibration
- ▶ Do not expose the product to mechanical stress
- ▶ Do not change the physical structure of the product

NOTICE**Property damage due to electrical stress!**

Improper handling of the connecting element can cause damage to the product.

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

NOTICE**Property damage due to electrostatic discharge (ESD)!**

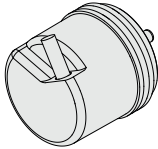
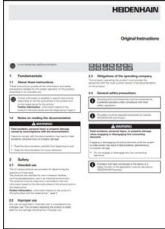
This product contains electrostatically sensitive components that can be destroyed by electrostatic discharge (ESD).

- ▶ 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 the connections of the product

3 Items supplied and accessories

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

3.1 Items supplied

Component	Figure
Encoder	
Operating Instructions	

3.2 Mounting accessories

Accessories can be ordered separately from HEIDENHAIN.



For more information, refer to the **Rotary Encoders** brochure

- ▶ www.heidenhain.com/documentation
- ▶ Enter the brochure ID **349529**
- ▶ Open the brochure
- ▶ In the brochure, open the "Mechanical design types and mounting" section

4 Mounting

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

4.1 Requirements and notes

The mounting surfaces and the surface of the encoder must be clean and free of grease.



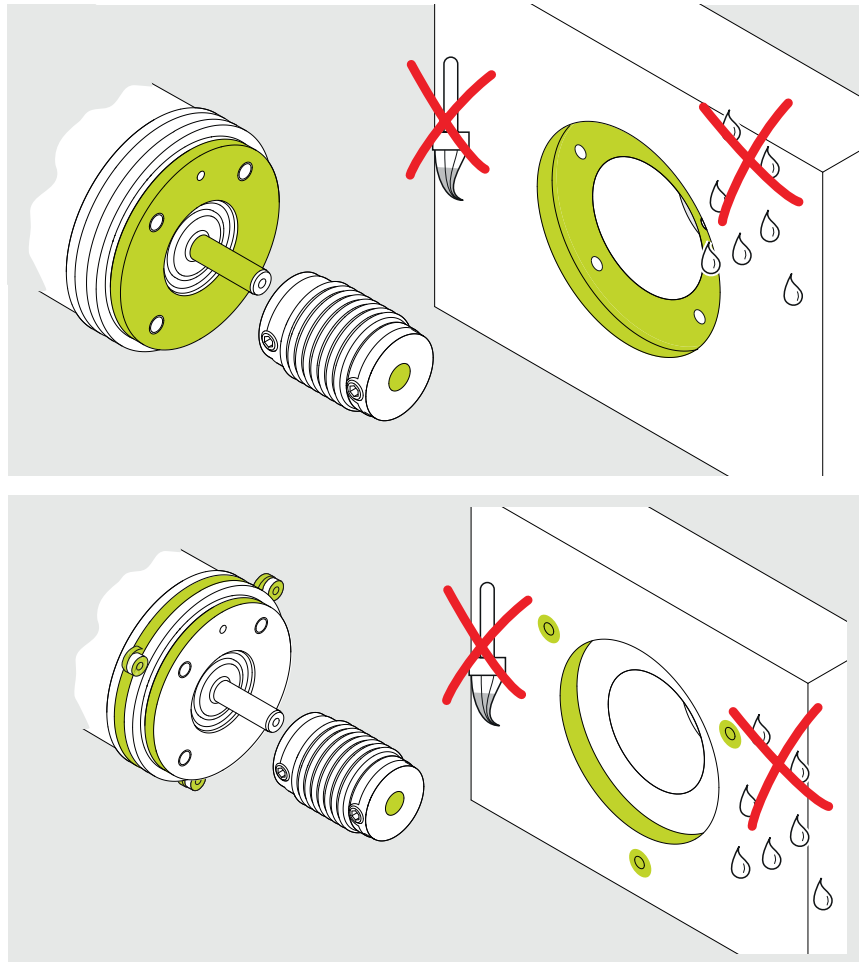
For more information, refer to the **Rotary Encoders** brochure

► www.heidenhain.com/documentation

► Enter the brochure ID **349529**

► Open the brochure

► In the brochure, open the "General Mechanical Information" section



NOTICE

Property damage due to inappropriate tools!

Using inappropriate tools for mounting or removal of the encoder causes damage to the encoder.

- Do not use hammers
- Do not use pointed or sharp-edged tools

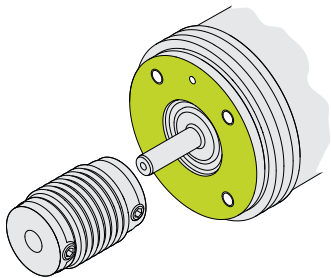
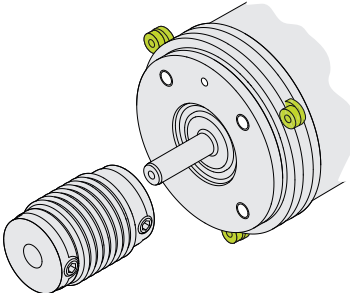
NOTICE

Property damage due to unsuitable cleaning agents!

The use of inappropriate cleaning agents causes damage to the encoder.

- Do not clean the encoder with organic solvents such as thinners, alcohol, or mineral spirits

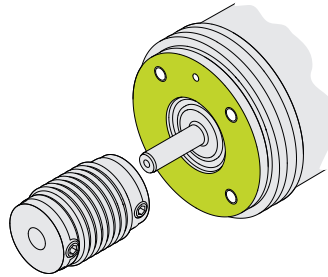
4.2 Choosing the mounting variant

Mounting variants	
I. Mounting with synchro flange	II. Mounting with fixing clamps
	
Page 13	Page 15

4.3 Mounting variant I: Mounting with synchro flange

This chapter describes how the product is mounted with a synchro flange.

An overview of the mounting variants is provided on Page 12.



4.3.1 Materials and tools



For more information, refer to the **Rotary Encoders** brochure

- ▶ www.heidenhain.com/documentation
- ▶ Enter the brochure ID **349529**
- ▶ Open the brochure
- ▶ In the brochure, open the "Mechanical design types and mounting" section

4.3.2 Mounting the encoder



For more information on mounting, refer to the **Mating Dimensions** document.

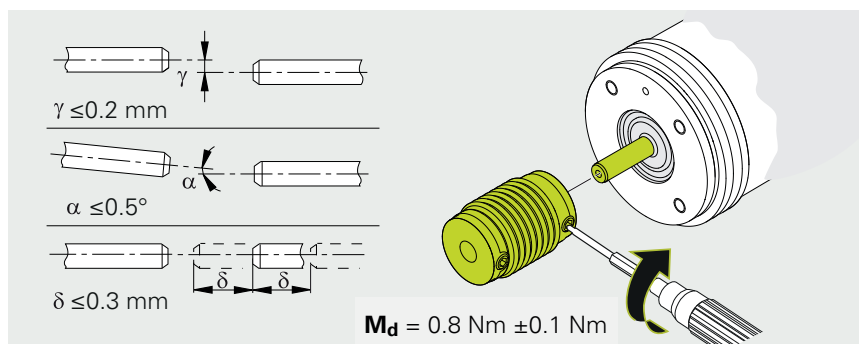
- ▶ www.heidenhain.com/documentation
- ▶ Enter the product ID
- ▶ Open the product
- ▶ Open **Mating Dimensions**



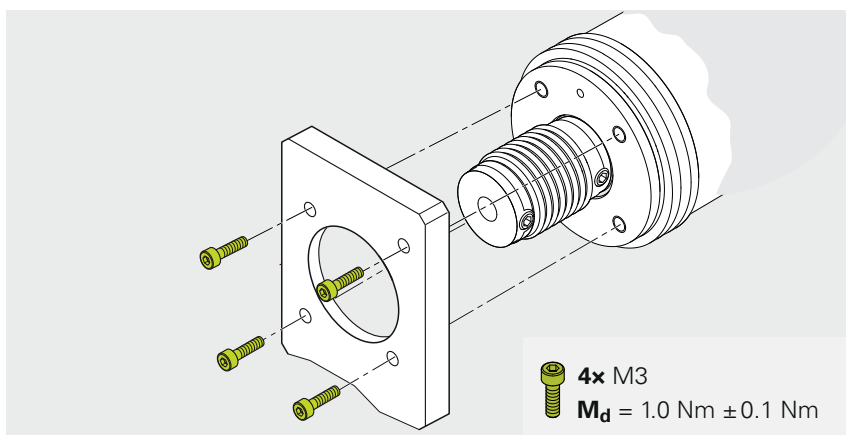
For information and specifications on the shaft couplings, refer to the **Rotary Encoders** brochure.

- ▶ www.heidenhain.com/documentation
- ▶ Enter the document ID **349529**
- ▶ Open the brochure
- ▶ In the brochure, open the "Shaft couplings" section

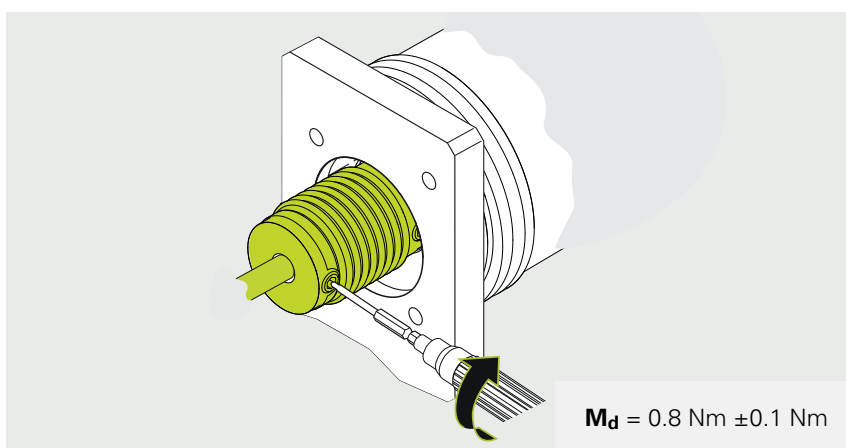
- ▶ Check the product shaft and the machine shaft for misalignment
- ▶ Slide the metal bellows coupling onto the product shaft
- ▶ Tighten the clamping screw on the metal bellows coupling using the specified tightening torque



- Place the product with the metal bellows coupling onto the machine shaft
- Fasten the product to the machine using four screws; apply the specified tightening torque



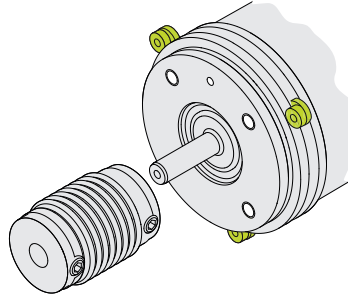
- Tighten the clamping screw on the metal bellows coupling using the specified tightening torque



Next step: "Final steps", Page 17

4.4 Mounting variant II: Mounting with fixing clamps

This chapter describes how the product is mounted with fixing clamps.
An overview of the mounting variants is provided on Page 12.



4.4.1 Materials and tools



For more information, refer to the **Rotary Encoders** brochure

- ▶ www.heidenhain.com/documentation
- ▶ Enter the brochure ID **349529**
- ▶ Open the brochure
- ▶ In the brochure, open the "Mechanical design types and mounting" section

4.4.2 Mounting the encoder



For more information on mounting, refer to the **Mating Dimensions** document.

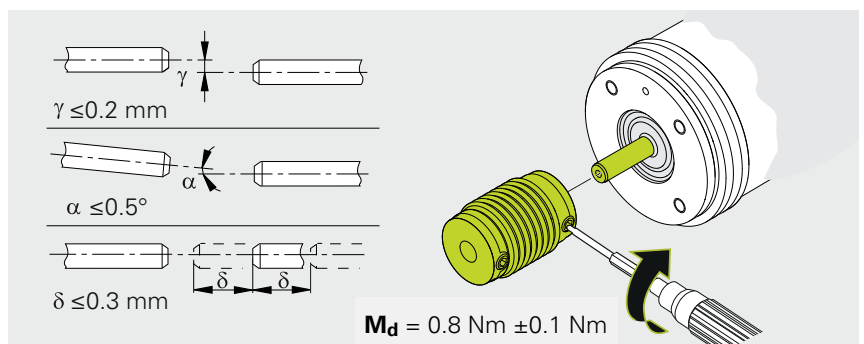
- ▶ www.heidenhain.com/documentation
- ▶ Enter the product ID
- ▶ Open the product
- ▶ Open **Mating Dimensions**



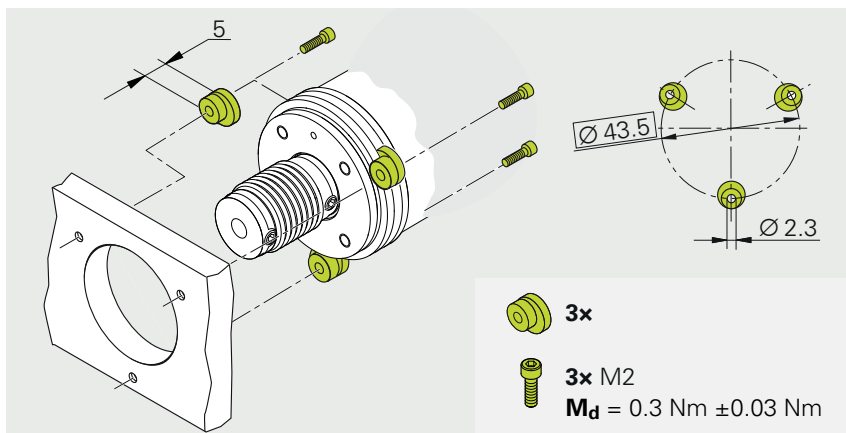
For information and specifications on the shaft couplings, refer to the **Rotary Encoders** brochure.

- ▶ www.heidenhain.com/documentation
- ▶ Enter the document ID **349529**
- ▶ Open the brochure
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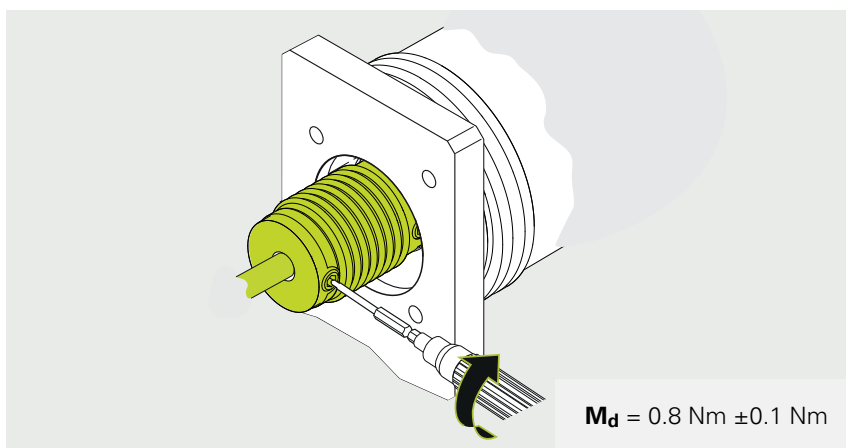
- ▶ Check the product shaft and the machine shaft for misalignment
- ▶ Slide the metal bellows coupling onto the product shaft
- ▶ Tighten the clamping screw on the metal bellows coupling using the specified tightening torque



- Place the product with the metal bellows coupling onto the machine shaft
- Position the fixing clamps
- Fasten the product to the machine using three screws



- Tighten the clamping screw on the metal bellows coupling using the specified tightening torque



Next step: "Final steps", Page 17

5 Final steps

This chapter describes the necessary final steps.

5.1 Connecting the encoder

WARNING

Danger of electric shock due to plug connections under power!

Connecting and disconnecting live cables and connecting elements in the equipment can result in death or serious injury.

- ▶ Do not connect or disconnect any cable or connecting element when they are under power
- ▶ Disconnect the downstream electronics from power before connecting the product
- ▶ For cables without connectors, pay attention to the pin layout

- ▶ Connect the encoder to the downstream electronics

NOTICE

Property damage resulting from incorrect routing of the connecting cable!

Connecting cables may become damaged as a result of incorrect routing.

- ▶ Observe the maximum permissible bend radii
- ▶ Do not cross connecting cables in drag chains
- ▶ Route connecting cables professionally

5.2 Electrical connection, cable and connector



For more information, refer to the **Cables and Connectors** brochure.

- ▶ www.heidenhain.com/documentation
- ▶ Enter the document ID **1206103**
- ▶ Open the brochure
- ▶ In the brochure, open the "**General information**" section



For more information on sources of interference, refer to the **Interfaces of HEIDENHAIN Encoders** brochure.

- ▶ www.heidenhain.com/documentation
- ▶ Enter the document ID **1078628**

6 Removal

This chapter describes the disassembly of the product.

6.1 Safety precautions regarding removal

WARNING

Risk of injury due to plug connections under voltage!

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

Risk of injury due to moving machine parts!

Depending on the installation location and the application, there is a high risk of injury due to moving machine parts.

- ▶ Observe all of the machine manufacturer's notes on working on the machine (e.g., always disconnect the machine from the power supply)

WARNING

Hot surface due to high operating temperatures!

Serious burns and skin injuries can be caused by touching the surface of the encoder.

- ▶ Never touch the encoder, unless it has cooled down completely

6.2 Removing the encoder

- ▶ Disconnect the encoder from the downstream electronics
- ▶ Remove the encoder in the reversed sequence of mounting.
Further information: "Mounting", Page 11

HEIDENHAIN

DR. JOHANNES HEIDENHAIN GmbH

Dr.-Johannes-Heidenhain-Straße 5

83301 Traunreut, Germany

☎ +49 8669 31-0

☎ +49 8669 32-5061

info@heidenhain.de

Technical support ☎ +49 8669 32-1000

Measuring systems ☎ +49 8669 31-3104

service.ms-support@heidenhain.de

NC support ☎ +49 8669 31-3101

service.nc-support@heidenhain.de

NC programming ☎ +49 8669 31-3103

service.nc-pgm@heidenhain.de

PLC programming ☎ +49 8669 31-3102

service.plc@heidenhain.de

APP programming ☎ +49 8669 31-3106

service.app@heidenhain.de

www.heidenhain.com