

English



## Operating and assembly instructions

### UOL 40 or UOLH 40 Standard basic units

### U-ONE®-LWL

## Universal encoder system – Generation II

Read the operating and assembly manual before carrying out assembly, starting installation, or completing other work.  
Store the manual for future use.

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Further current information on this product series is available online in our Service Point.

Just scan the QR code and open the link in the browser.



These instructions and the enclosed declaration of conformity can also be accessed via our Service Point. For this purpose, the QR code on the type plate of the corresponding device must be scanned.

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## 1 General information

### 1.1 Information on the Operating and assembly manual

This operating and assembly manual provides important information on how to use the U-ONE-LWL standard basic unit. It must be read carefully before beginning any work and observed. The U-ONE-LWL standard basic unit is called UOL 40 in the following documentation.

Furthermore, local accident prevention regulations and general safety regulations applicable in the area where the device is used must be observed.

### 1.2 Scope of delivery

The scope of delivery for the UOL 40 includes fastening screws and washers as well as the operating and assembly manual.

### 1.3 Explanation of symbols

Warning information is designated using symbols. Information is preceded by signal words which express the extent of the danger involved. Always comply with these notices, and use caution to avoid accidents, personal injury and property damage.



**WARNING!**

Indicates a potentially hazardous situation that could lead to death or severe injury if it is not avoided.



**CAUTION!**

Indicates a potentially hazardous situation that could lead to minor or slight injuries if it is not avoided.



**CAUTION!**

Indicates a potentially hazardous situation that could lead to property damage if it is not avoided.



**NOTE!**

Emphasises useful tips and recommendations, and provides information useful for efficient, smooth operation.



**NOTE!**

Using a hammer or similar tools during installation is not permitted, due to the danger of damage to the ball bearings and couplings.

### 1.4 Warranty and liability

Only the “General Terms and Conditions” of Johannes Hübner Fabrik elektrischer Maschinen GmbH apply. These will be provided to the operator at the latest when the order is confirmed or when the contract is concluded. All warranty and liability claims for personal injury and property damage are excluded, and the operator's operating permit will be null and void if one or more of the following apply:

- Failure to observe the operating and assembly manual.
- Improper use of the UOL 40
- Improper assembly, installation, commissioning and programming of the UOL 40.
- Improper work completed on the UOL 40
- Operating the UOL 40 despite technical defects.
- Independently carrying out mechanical or electrical modifications to the UOL 40.
- Independently carrying out repairs.
- Catastrophes due to external interference or force majeure.
- Use of non-qualified personnel.
- Opening the UOL 40 (except for the junction box) or completing conversions.

### 1.5 Organisational measures

- The operating and assembly manual must always be stored easily within reach in the area where the UOL 40 is used.
- In addition to the operating and assembly manual, general statutory and other binding regulations on accident prevention and environmental protection must be observed. Operators must be trained on these regulations.
- Applicable national, local, and system-specific provisions and requirements must be observed.
- The operator is obligated to inform personnel of special operating considerations and requirements.
- Personnel commissioned to complete work on the UOL 40 must read and familiarise themselves with the operating and assembly manual before beginning work, in particular section 2.
- The type plate and any prohibitions or notice signs adhered to the UOL 40 must always be legible.
- Do not carry out mechanical or electrical modifications to the UOL 40, except for those expressly described in this operating and assembly manual.

Repairs may only be carried out by the manufacturer, or by an agency or individual authorised by the manufacturer.

### 1.6 Copyright protection

	<p><b>NOTE!</b></p> <p>Content information, texts, drawings, images, and other illustrations are copyright protected and subject to industrial property rights. Copying of any kind not associated with use of the UOL 40 is prohibited without a written declaration from the manufacturer. Violations will result in claims for damages.</p>
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### 1.7 Warranty provisions

Warranty provisions are outlined in the manufacturer's General Delivery Conditions.

### 1.8 Customer service

Contact persons are available by phone, fax, or e-mail for technical questions. See the manufacturer's address on page 2.

## 2 Basic safety information



### **DANGER!**

This section provides an overview of all significant safety aspects necessary to protect personnel and ensure safe, fault-free operation of the UOL 40. Failure to observe this information may result in significant danger.

### 2.1 Responsibility of the operator

The UOL 40 is used in commercial areas. The operator of the UOL 40, therefore, is subject to statutory occupational safety requirements and the safety, accident prevention and environmental regulations applicable to the areas in which the UOL 40 is used.

### 2.2 Selecting and qualifying personnel; basic obligations

- All work on the UOL 40 may be carried out only by qualified personnel. Qualified personnel are personnel with the training, experience, and instruction, as well as expertise on relevant standards, specifications, accident prevention regulations and operating circumstances necessary to carry out the required work, and who have been authorised to do so by the persons responsible for the safety of the system. They are able to identify and avoid potential hazards.
- In addition, please see standards VDE 0105-100 and IEC 364 for the definition of "qualified personnel" (reference, e.g. Beuth Verlag GmbH, VDE-Verlag GmbH)
- Responsibilities for assembly, installation, commissioning and operation must be clearly defined. Personnel who are receiving instruction or training must be supervised.

### 2.3 Proper use

The UOL 40 can only be used in conjunction with the UO-ECU function module and other function modules,

- To record angular movements (with UO-EPB-1)
- For position-dependent switching of potential-free relay contacts (UO-ERC-R)
- For speed-dependent switching of potential-free relay contacts (UO-EGS-R)
- For error-dependent switching of potential-free relay contacts (with UO-ERC-R or UO-EGS-R)

The system manufacturer must review whether the properties of the UOL 40 fulfil the requirements in its specific application. The system manufacturer is responsible for use of the UOL 40 and for deciding whether to use the USL 42. The UOL 40 is designed for unsupervised, continuous operation.

**Proper use also includes:**

- observing all information in this operating and assembly manual
- observing type plates and any prohibition or information signs attached to the UOL 40
- observing the operating manual of the machine or system manufacturer
- operating the UOL 40 within the limits stipulated in the technical data
- secure (positive-locking) attachment of the UOL 40 to the drive axis
- not engaging in improper use

### 2.4 Improper use

	<p><b>WARNING!</b></p> <p>Danger of death, physical injury and property damage due to improper use of the UOL 40!</p> <p>In particular, the following uses are prohibited:</p> <ul style="list-style-type: none"> <li>• Use in environments with an explosive atmosphere.</li> <li>• Use in environments with radioactive radiation.</li> <li>• Use on ships.</li> <li>• Use for medical purposes.</li> <li>• Attaching transportation or lifting equipment to the UOL 40 or load hooks to lift a motor.</li> <li>• Attaching packaging equipment to the UOL 40, such as belts, tarps, etc.</li> <li>• Using the UOL 40 as a step, for instance to allow personnel to climb on a motor.</li> </ul>
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#### 2.5 Safety information

	<p><b>WARNING! ATTENTION! NOTE!</b></p> <p>Destruction, damage or impact to the function of the UOL 40.</p> <ul style="list-style-type: none"> <li>• Only complete wiring work and only connect or disconnect electrical connections when the USL 42 is powered down.</li> <li>• Heating/cooling must be used at the installation location to prevent the device from falling below or exceeding the permitted ambient temperature limits.</li> <li>• Review any potential hazards due to interactions with other systems and devices currently installed in the surrounding area, or which are to be installed. The user is responsible for taking relevant measures.</li> <li>• The power supply must be secured with a fuse appropriate for the diameter of the intake line.</li> <li>• Cables used must be suitable for the temperature range.</li> <li>• A defective UOL 40 may not be operated.</li> <li>• Ensure the installation area is protected against aggressive media (acids, etc.).</li> <li>• Shocks (such as impact by a hammer) to the shaft are not permitted during assembly.</li> <li>• The UOL 40 may not be used as a step, etc.</li> <li>• Opening the UOL 40 is prohibited (except for the junction box).</li> <li>• The type plate specifies the technical properties of the UOL 40. If the type plate is no longer legible, or if the type plate is missing entirely, the UOL 40 may not be operated. Please contact Hübner service (see page 2).</li> </ul>
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### 3 Assembly

#### 3.1 Safety information

	<p><b>WARNING!</b></p> <ul style="list-style-type: none"> <li>• Observe the safety information in section 2 during assembly, disassembly, and other work on the UOL 40.</li> <li>• All assembly, disassembly and other work on the UOL 40 may be carried out only by qualified personnel.</li> </ul>
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 	<p><b>DANGER! ATTENTION!</b></p> <p><b>Danger of death, severe physical injury and/or property damage due to deactivating safety functions, caused by an unsecured shaft drive.</b></p> <ul style="list-style-type: none"> <li>• The system manufacturer or operator must design the system to ensure that the drive shaft of the UOL 40 and the attachment (see chapter 3.2) of the UOL 40 are functional at all times (fault exclusion). Observe the specifications of DIN EN 61800-5-2:2008 “Electrical power drives with adjustable speed” – Safety requirements, table D.16 – Movement and position sensors”.</li> <li>• In general, the requirements and acceptance conditions for the system as a whole must be observed.</li> </ul> <p><b>Since the installation will differ depending on the application, the following information may not necessarily be complete.</b></p> <ul style="list-style-type: none"> <li>• All screws must be installed with the torque specified in the operating manual. Setting processes must be avoided, due to the danger that the connection may come loose. Screws must be tightened as necessary.</li> <li>• Using the USL 42 at low ambient temperatures will result in increased starting torque values. This must be taken into consideration when installing the shaft drive.</li> <li>• When using a coupling, the manufacturer's notices and installation requirements must be observed.</li> </ul>
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### 3.2 Technical information



**NOTE!**

Using a hammer or similar tools during installation, disassembly and other work on the UOL 40 is not permitted, due to the danger of damage to the ball bearings and couplings.

#### **Working temperature**

The working temperature (housing temperature) must be within the permitted range (see sec. 4.3).

#### **Protective class**

The diameter of the connection cable must be appropriate for the cable glands and junction box, in order to fulfil the protective class. (see section 4.3)

The end cap must be installed in the hollow shaft version.

#### **Ball bearing**

The UOL 40 contains maintenance-free ball bearings with lifetime lubrication. The bearings may only be exchanged by the manufacturer.

#### **Screw lock**

All attachment screws must be secured against unintentional loosening. We recommend using Loctite® 243 (medium strength screw locking agent).

#### **Required tools**

Hex wrenches:                      Sizes 10, 13, 22

Allen keys:                         5 mm, 6 mm

Flat screwdriver

Mounting grease

Loctite® 243 (medium strength screw locking agent)

#### **Assembly preparation**

1. Check accessories to ensure they are all present.
2. Preparing the installation site: Clean the drive shaft, centring, screw-fitting surfaces and attachment threads and check them for damage. Repair any damage.

#### **Personnel**

Assembly and commissioning may only be carried out by qualified personnel.



**NOTE!**

Observe the safety information in section 2 during assembly and commissioning.

### 3.2.1 Assembly for design B5 (flange)



**NOTE!**

Example assembly (for dimensional drawing, see section 9).

The following assembly description is only an example, and may vary depending on the type of coupling or flange used. The specific instructions of the coupling manufacturer must be observed.

- The coupling must be mounted so it is easy to move. Adjust the drill holes for used couplings if necessary.
- Mount the intermediate flange (4), so that the screw plug (16) points down, if possible.
- For step 9, it may be necessary to turn the drive shaft (1) to the desired position.

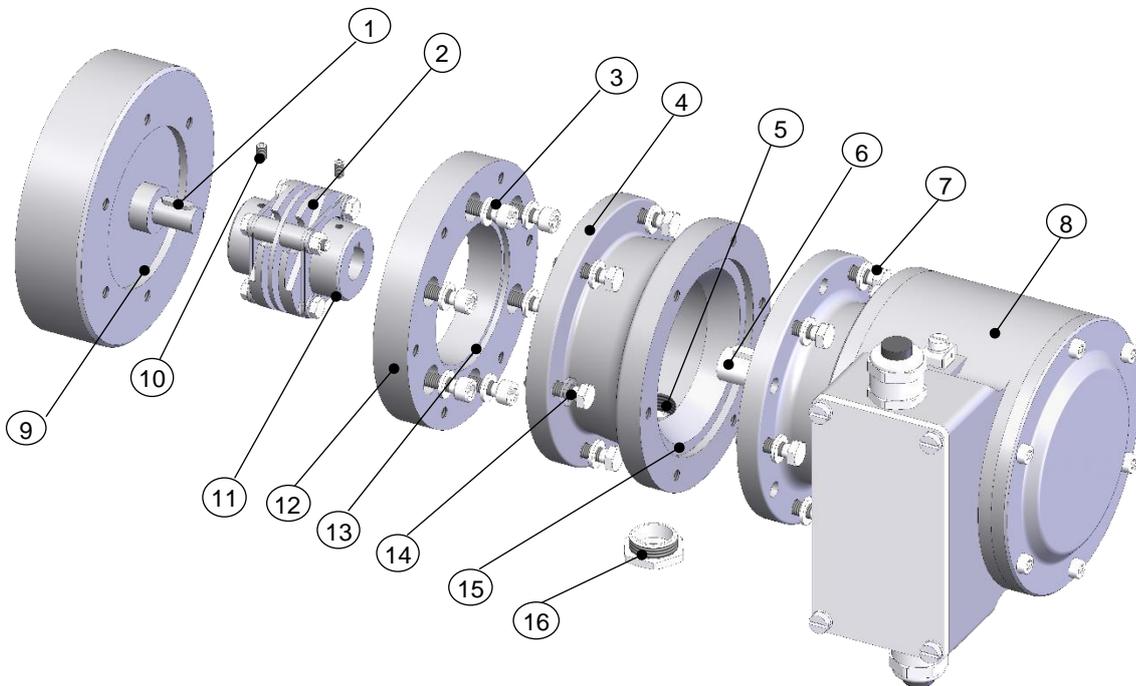


Fig. 3-1: Example design B5

1. Grease the drive shaft (1) lightly.
2. Mount the coupling (2) on the drive shaft (1).
3. Attach the coupling hub to the drive shaft (1) using a grub screw or regular screw (10) (depending on the coupling design).
4. Attach the spacer (12) to the drive side using the attachment screws and washers (3).
5. Attach the intermediate flange (4) to the spacer (12) using the attachment screws (14) and washers (14).
6. Grease the USL 42 shaft (6) lightly.
7. Insert the USL 42 (8) into the centring (15) and coupling hub (11) at the same time.
8. Fasten the USL 42 with at least 6 screws and washers (7) distributed evenly over the circumference of the flange (4).
9. Remove the screw plug (16) from the access opening (5) to the coupling.

10. Attach the coupling hub to the shaft using a grub screw or regular screw (10) (depending on the coupling design).
11. Close the access opening on the intermediate flange (4) to the coupling using the screw plug (16).

### 3.2.2 Assembly for design B35 (flange and base)



**NOTE!**

- A UOL 40 version B35 can be attached using the flange (B5) or base (B3). Example assembly (for dimensional drawing, see section 9).
- The following assembly description is only an example, and may vary depending on the type of coupling used. The specific instructions of the coupling manufacturer must be observed.
- The coupling (2) must be mounted so it is easy to move. Adjust the drill holes for used couplings if necessary.
- Angular errors and parallel misalignment between the drive shaft (1) and shaft of the UOL 40 (4) are considered installation errors, and must be kept as small as possible.

**Installation errors:**

- cause radial force to act on the UOL 40 shaft.
- reduce the service lives of the ball bearings and coupling.
- reduce signal quality (harmonics).

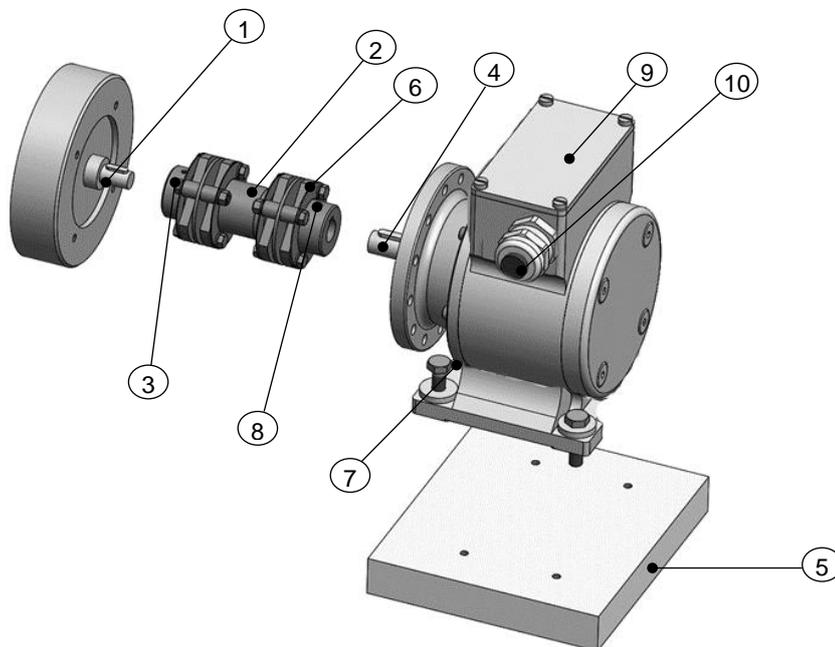


Fig. 3-2: Example design B35

1. Grease the drive shaft (1) lightly.
2. Attach the coupling hub (2) to the drive shaft (1) using a grub screw or regular screw (3) (depending on the coupling design).
3. Grease the UOL 40 shaft (4) lightly.
4. Align the UOL 40 shaft (4) to the drive shaft (1) and mount on the coupling hub (6).
5. Attach the base of the UOL 40 to the customer interface (5) using 4 screws and matching washers (7).
6. Attach the coupling hub to the shaft using a grub screw or regular screw (8) (depending on the coupling design).

#### Attachment screws

The following conditions must be complied for proper assembly:

Tensile strength	Screw	Tightening torque
330...459 N/mm <sup>2</sup>	M8x40 - 12.9	26 Nm
> 460 N/mm <sup>2</sup>	M8x35 - 12.9	26 Nm



#### NOTE!

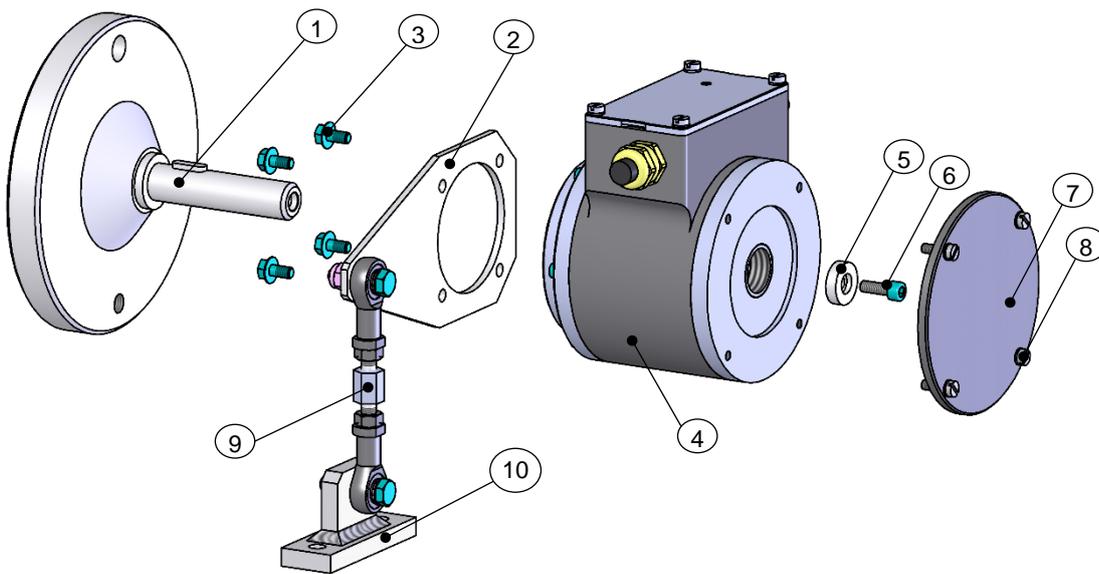
Appropriate measures must be taken if the minimum tensile strength on the screw thread of the customer interface is not observed (for instance using Ensaf bushings).

#### 3.2.3 Installation of hollow shaft version



#### NOTE!

- Example assembly (for dimensional drawing, see section 9).  
The following assembly description is only an example, and may vary depending on the type of adapter shaft used.
- The radial run-out of the adapter shaft may be a max. of 0.05 mm.
- Use the ball pressure screws to align the adapter shaft if necessary. Secure the ball pressure screws with Loctite® 243 if necessary. Remove any ball pressure screws that are not in use, or secure them with Loctite® 243 as well.
- Use keys in accordance with DIN 6885.
- The support arm (4) can be attached to the device in four different directions.
- The hollow shaft device must be able to be pushed easily onto the adapter shaft. Never used increased force to push it on; otherwise, this may damage the bearings. Rework the adapter shaft and key using emery cloth or a file if necessary. Do not strike the device hard against the shaft collar.
- The torque arm must be able to turn easily around the joint head after assembly. Failure to observe these requirements may result in bearing damage.
- The ideal angle between the support arm (2) and the torque arm (9) is 90°. The joint heads are maintenance-free, and must be kept free from contamination or paint.



1. Mount the adapter shaft (1) and align using a gauge.
2. Attach the support arm (2) to the hollow shaft encoder (4) using the included Tensilock screws (3). Tightening torque: 16 Nm.
3. Loosen the 4 screws (8) to remove the cover (7).
4. Mount the hollow shaft encoder (4) onto the adapter shaft (1).
5. Secure the hollow shaft device using the enclosed axial conical spring washer (5) and cylinder screw (6) (strength class 8.8). Tightening torque: 5.4 Nm.
6. Close the hollow shaft device using the cover or assembly kit for 2<sup>nd</sup> shaft end (7) and 4 screws (8).
7. Mounting the torque support:

**Mounting without base plate:**

The free joint head of the torque arm (9) is screwed directly onto a fixed point, for instance onto the motor housing.

**Mounting with base plate:**

The base plate (10) is screwed onto a fixed point, such as the motor housing or the foundation, using screws.

### 3.3 Disassembly

Disassembly may only be carried out by qualified personnel.

	<p><b>WARNING!</b> Observe the safety information in section 2 during disassembly, and other work on the UOL 40.</p>
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	<p><b>NOTE!</b> Using a hammer or similar tools during disassembly is not permitted, due to the danger of damage to the ball bearings and couplings.</p>
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#### 3.3.1 Disassembly of the UOL 40

Before disassembly, unplug all electrical connection cables for the UOL 40.  
Disassemble the UOL 40 in the reverse order indicated in section 3.

#### 3.3.2 Exchanging the UOL 40

When replacing UOL 40, observe the following:

- The new UOL 40 must have the same item no. (ID) as the old one.
- Install the new UOL 40 according to the specifications and requirements of section 3.
- When recommissioning the replaced UOL 40, a secure test run must be completed first to ensure it functions correctly.

### 3.4 Installation

#### 3.4.1 Basic regulations

	<p><b>WARNING!</b></p> <ul style="list-style-type: none"> <li>• The power supply used must fulfil the requirements of SELV and PELV (IEC 60364-4-41).</li> <li>• Potential equalisation measures must be taken throughout the entire processing chain for the system.</li> <li>• Ensure the energy supply is sufficient for the application.</li> <li>• The diameter of the power supply line must be sufficient that the max. voltage drop is &lt; 3 V.</li> <li>• When installing the cable, ensure there are no tripping hazards.</li> </ul>
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	<p><b>ATTENTION!</b></p> <p>A cable must be connected to the ground terminal, for connection to the earth potential.</p>
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#### 3.4.2 Electrical connection

1. Strip the supply cable. The cable for the supply line is shielded, and the fibre optic cable is not shielded. The cable cross section must be at least 0.8 mm<sup>2</sup> and the cable diameter must be at least 7 mm.
2. Crimp the wire end ferrules.
3. Open the junction box cover (9) (Fig. 3-2).
4. Remove the locking bolts on the cable glands (10) (Fig. 3-2). The cable gland for the supply cable is an EMC cable gland.
5. Insert the cable through the cable glands into the junction box.
6. The shield on the supply line is connected directly with the housing using a cone contactor via the EMC cable gland.
7. Tighten the cable glands until the cable is securely fixed in place and sealed.
8. Connect the supply voltage and fibre optic cable (see section 9.2).
9. If necessary, the cable glands can be exchanged. The cable must be installed in the junction box as shown on the following images
10. Close the cover on the junction box.

### NOTE!

- No moisture may enter the junction box when the box is open.
- Avoid tensile forces pulling the cables from the sides by ensuring the protective class of the cable glands is not negatively affected.
- Cables should be routed in the form of a loop to prevent tensile force (see image)
- Before closing the cover on the junction box, check the sealing surface to ensure it is clean and check the seal to ensure it is complete. Clean or replace damaged seals as necessary.
- When closing the cover on the junction box, ensure that cables do not become stuck.



## 4 Technical data

### 4.1 Type plate

The following image shows an example of a type plate.

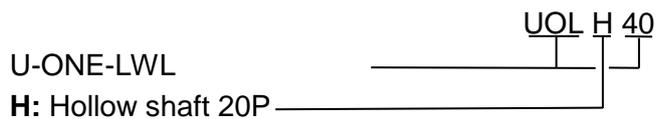


The type plate is located on the outside of the housing, and includes the following information:

- Manufacturer, address
- Type, year of construction
- CE mark
- Serial number (S/N)
- Protective class
- Supply voltage
- ID number

Fig. 4-1: Type plate (example)

### 4.2 Type designation



### 4.3 Mechanical data

#### 4.3.1 Solid shaft encoder

Information	Value	
Shaft load at the end of the shaft	≤ 300 N axial, ≤ 300 N radial	
Shaft end	Ø 14j6 x 30 mm Ø 11j6 x 30 mm	
Permitted speed	≤ 2800 1/min	
Working temperature (housing temperature)	-25°C...+ 67°C	
Max. ambient temperature	See chap. 4.3.4	
Vibration resistance	10 g (DIN EN 60068-2-6:2008 (55 ... 500 Hz))	
Shock resistance, screw fitting using M8 screws	100 g (DIN EN 60068-2-27:2009 (half sine 11 ms)).	
Bearing service life (see sec. 4.3.3)	3 x 10 <sup>10</sup> revolutions	
Rotor moment of inertia	approx. 330 gcm <sup>2</sup>	
Permitted angular acceleration	≤ 10 <sup>4</sup> rad/s <sup>2</sup>	
Breakaway torque	approx. 3.5 Ncm	
Protective class in accordance with DIN EN 60529	IP66	
Elevation above sea level	≤ 3000 m	
Result. Noise emission level	< 70 dB(A)	
Weight	Design B5 Design B35	approx. 3.6 kg approx. 3.8 kg

#### 4.3.2 Hollow shaft encoder

Information	Value
Interior diameter	20 with keyway
Permitted speed	≤ 2800 1/min
Working temperature (housing temperature)	-25°C...+ 67°C
Max. ambient temperature	See chap. 4.3.4
Vibration resistance	10 g (DIN EN 60068-2-6:2008 (55 ... 500 Hz))
Shock resistance	100 g (DIN EN 60068-2-27:2009 (half sine 11 ms))
Bearing service life (see sec. 4.3.3)	1.2 x 10 <sup>11</sup> revolutions
Rotor moment of inertia	approx. 785 gcm <sup>2</sup>
Permitted angular acceleration	≤ 10 <sup>4</sup> rad/s <sup>2</sup>
Breakaway torque	approx. 3.5 Ncm
Protective class in accordance with DIN EN 60529	IP66
Noise emission level	< 70 dB(A)
Max. elevation above sea level	≤ 3000 m
Weight	approx. 3.8 kg

#### 4.3.3 Bearing service life

The service lives indicated are based on the calculation specifications of ISO/TS 16282, with the following assumptions:

Continuous load throughout service life: 2000 1/min, 55°C

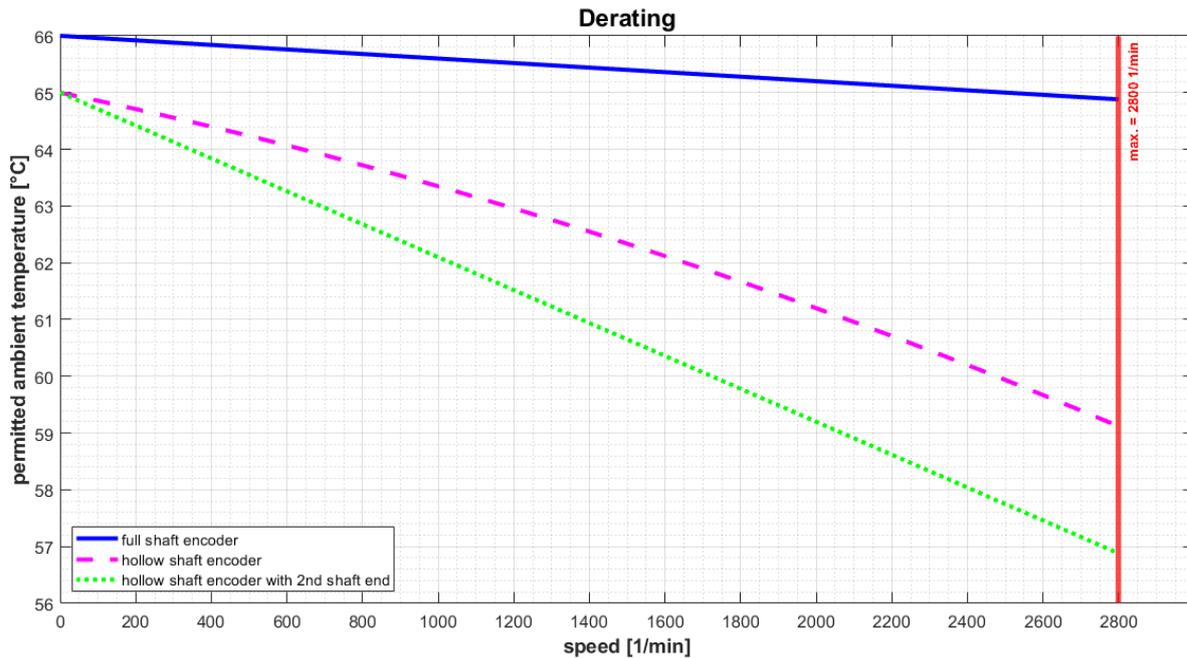
this means that the likelihood that the bearing will continue to function is 90%, based on the given service lives.

##### **The following factors influence the service life of the bearing**

- Operating temperature
- Operating speed
- Mechanical load due to vibrations and shocks
- Drive dynamics
- Influences of transportation and storage (bearing grease ageing)
- Installation errors

### 4.3.4 Speed derating

The following derating curves are based on the average device speed.



### 4.4 Electrical data

Information	Value
Supply voltage	15 V...27 VDC in accordance with IEC 60364-4-41, SELV/PELV
Power consumption	< 5 W
Connection technology	Screw terminals 0.25 mm <sup>2</sup> - 1.5 mm <sup>2</sup>
Total resolution	28 Bit
Singleturn functional	13 Bit (8192 steps/revolution)
Singleturn safety-related	8 Bit (256 steps/revolution)
Multiturn	15 Bit (32768 revolutions)
Incremental functional	4096 pulses/revolution
Fibre optic cable output	Multimode, gradient index fibre 50/125µm or 62.5/125µm
Transmission length	≤ 1000 m
Connection technology	ST plug connector

#### 4.5 Operating modes and displays

Operating mode	Status LED
<b>Start</b>	flashing yellow/green 2 Hz
<b>Normal</b>	Green
<b>Bootloader</b>	Flashing yellow/red 1 Hz
<b>Fault</b>	Red

### 5 Structure and function

The UOL 40 consists of optical Single-Turn scanning via a code disc with transmitted light, magnetic Multi-Turn scanning and an integrated fibre optic interface. The fibre optic interface transmits encoder data to the UO-ECU function module without errors. In addition, electronic type plate and diagnostic data are also transmitted.

Data is then available in the UO-ECU function module as electrical signals.

## 6 Inspections

### 6.1 Safety information



**NOTE / PERSONNEL**

Only qualified personnel may inspect the UOL 40 and its installation. Observe the safety information in **section 2** during inspection and other work on the UOL 40.

### 6.2 Maintenance information

The UOL 40 is maintenance-free. However, the following inspections are recommended to ensure optimal, fault-free operation.

The inspections described here may be carried out only by technicians. Please observe, in particular, operational and operator-relevant UV regulations, machine and system protection laws and application and country-specific specifications, laws and standards.

### 6.3 Inspection plan



**NOTE!**

No further work is required on the UOL 40, beyond the regular inspections described in the following inspection plan. Any modifications to the UOL 40 will result in a loss of all warranty claims!

Interval	Inspections
Annual	Check coupling to ensure it is free from play and damage
	Check the attachment screws to ensure they are tight
	Check cable connections and terminals to ensure they are tight
	Check the blind plugs to ensure they are sealed properly
	Check labels and type plates to ensure they are legible
After approx. 16,000 to 20,000 operating hours or heavy continuous loads	Check ball bearings to ensure they run smoothly and quietly. Ball bearings may only be replaced by the manufacturer.

## 7 Transportation, packaging and storage

### 7.1 Transportation safety information

	<p><b>CAUTION!</b> <b>Property damage due to improper transportation!</b></p> <p>These symbols and information on the packaging must be observed: Do not throw, danger of breakage Protect against wetness Protect against temperatures over 40°C and direct sunlight</p>
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### 7.2 Incoming goods controlling

The delivery must be checked promptly for transportation damage and to ensure it is complete upon receipt.

If there is transportation damage, the carrier must be informed directly upon delivery. (Take photos as evidence).

### 7.3 Packaging (disposal)

Packaging will not be taken back, and must be disposed of according to applicable statutory specifications and local regulations.

### 7.4 Storing packages (devices)

	<p><b>Protect against wetness!</b> Protect packages against wetness, store in a dry and dust-free location.</p>
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	<p><b>Protect against heat</b> Protect packages against temperatures over 40°C and direct sunlight</p>
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In case of long storage times (> 6 months), we recommend packaging the devices in protective packaging (with desiccants).

	<p><b>NOTE!</b> Turn the shaft of the UOL 40 every 6 months to prevent the grease from solidifying.</p>
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### 7.5 Returning equipment (repair/goodwill/warranty)

Service requests (repair/goodwill/warranty) can be initiated directly via the following online form:

<https://www.huebner-giessen.com/en/service-support/service/>

There you will also find contact details for our service, as well as questions and answers regarding the processing.

Devices that have come into contact with radioactive radiation or materials will not be taken back.

Devices that have come into contact with biological or chemical substances that could be hazardous to health must be decontaminated before they are returned. A clearance certificate must be enclosed.

## **7.6 Disposal**

The manufacturer is not obligated to take back the devices.

The UOL 40 must be treated as special electronic waste, and must be disposed of according to specific national law.

Local municipal authorities or speciality disposal companies can provide information on environmentally-appropriate disposal.

## 8 Accessories

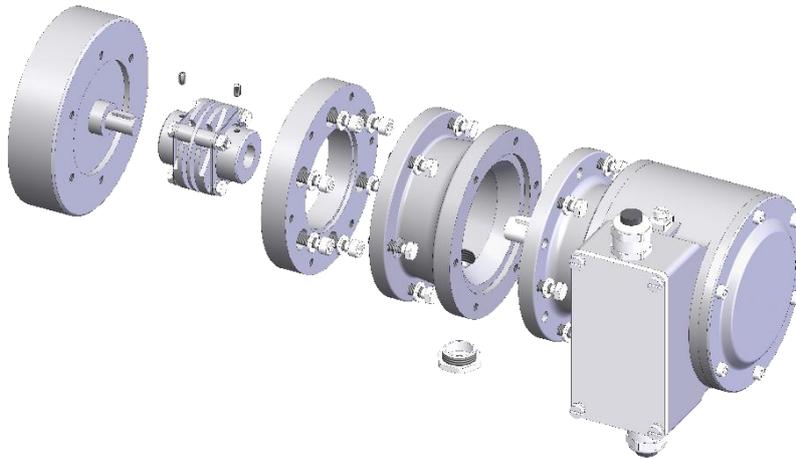
In addition, we offer matching accessories and customised engineering support to ensure our rotary encoder systems are robust and reliable.

### 8.1 Solid shaft attachment

We offer the following mechanical accessories for the solid shaft attachment, customised for the individual attachment point:

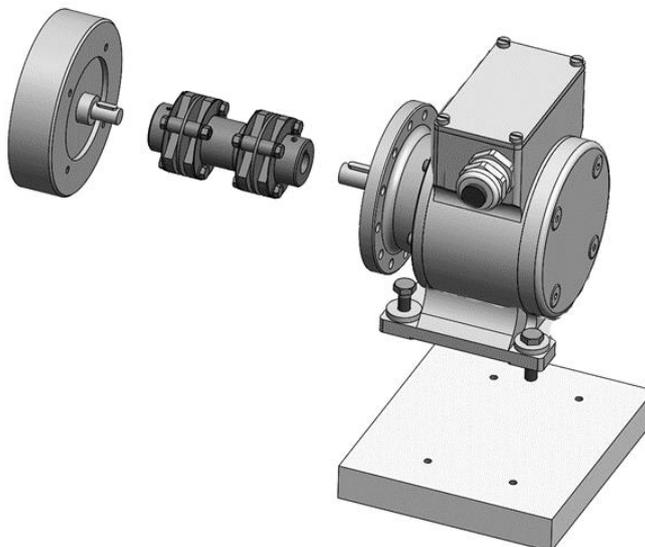
#### Flange installation:

- Couplings (single or double jointed couplings) with keyway for a secure, positive locking connection
- Intermediate flange incl. matching adapter disc as a mechanical interface to the machine housing



#### Base installation:

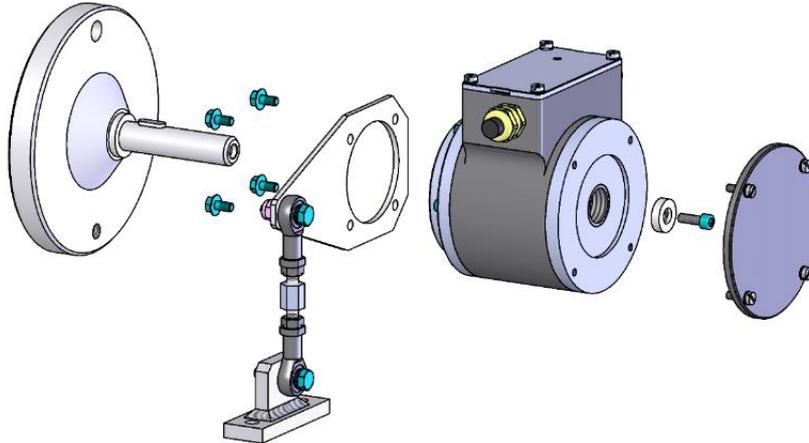
- Couplings (single or double jointed couplings) with keyway for a secure, positive locking connection



## 8.2 Hollow shaft attachment

We offer the following mechanical accessories for the hollow shaft attachment, customised for the individual attachment point:

- Adapter shafts (flange or screw-in adapter shafts) with keyway for a secure, positive locking connection
- Torque supports with matching support arm and support lengths



## 8.3 Cable protection systems

We offer specially designed cable protection systems with screw fittings and sealing inserts, as well as integrated shielding and strain relief in order to provide optimal protection for rotary encoder wiring (copper, fibre optic cable) in extreme ambient conditions.

## 8.4 Couplings for solid shaft installation

We recommend our HK5 couplings, which are free from play and torsion-resistant, to attach the UOL 40.

The couplings fulfill the following requirements:

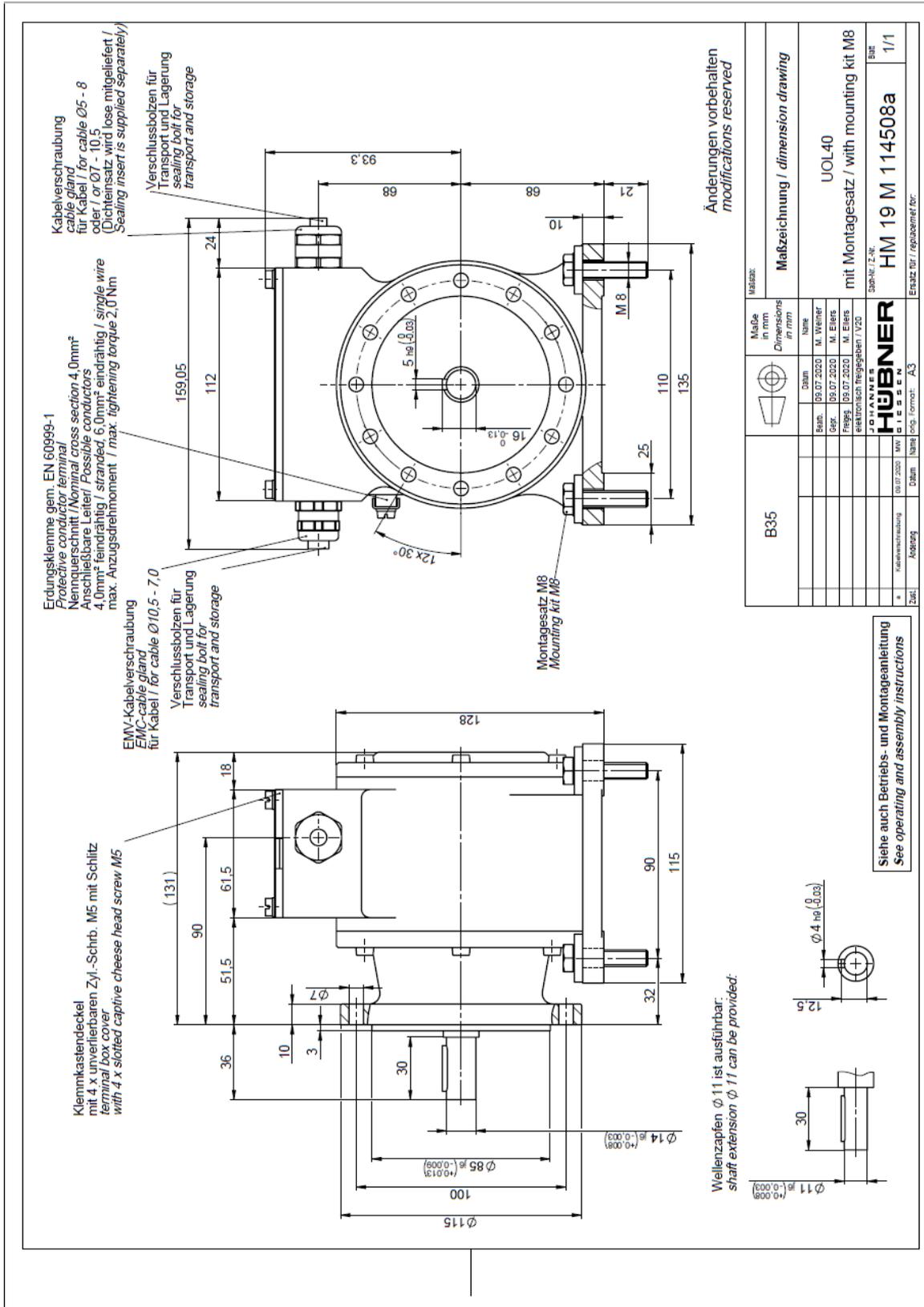
Information		Value	
Torque		5 Nm	
Max. speed		10000 1/min	
Installation precision	HK 5 / HKI 5:	Axial offset:	± 1 mm
		Angle:	0.5°
	HKD 5 / HKDI 5:	Axial offset:	± 1.5 mm
		Radial offset:	± 0.5mm

Our Sales department will be happy to provide you with further information.

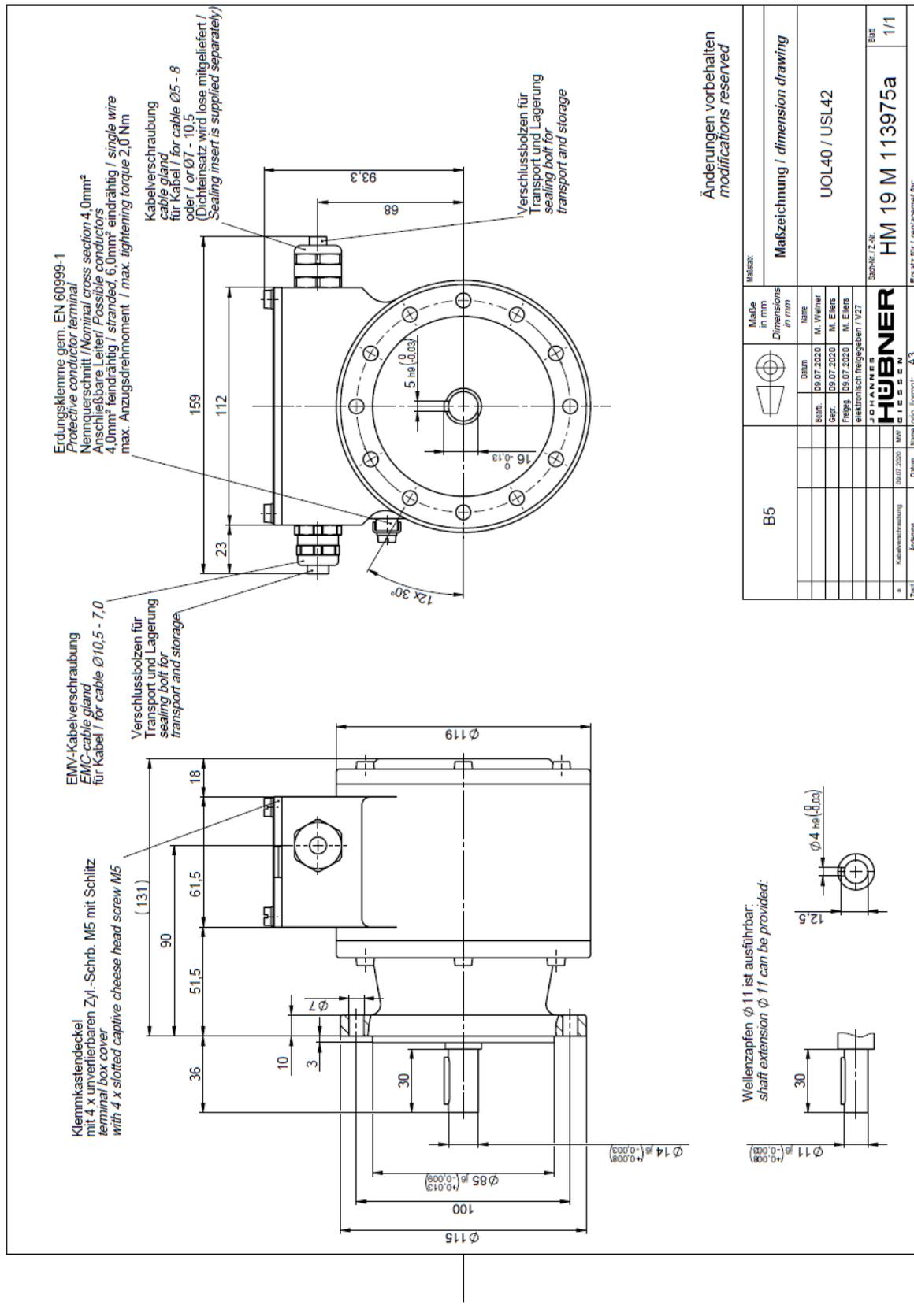
## 9 Documents

### 9.1 Dimensional drawings

HM 19 M 114508a



HM 19 M 113975a







#### 9.2 Wiring diagram

U-ONE-Safety-LWL / Basic Unit Connection diagram PN165-410		
1	0V	GND
2	15...27V DC	Power Supply
3	LWL	Fiber Optic Cable

