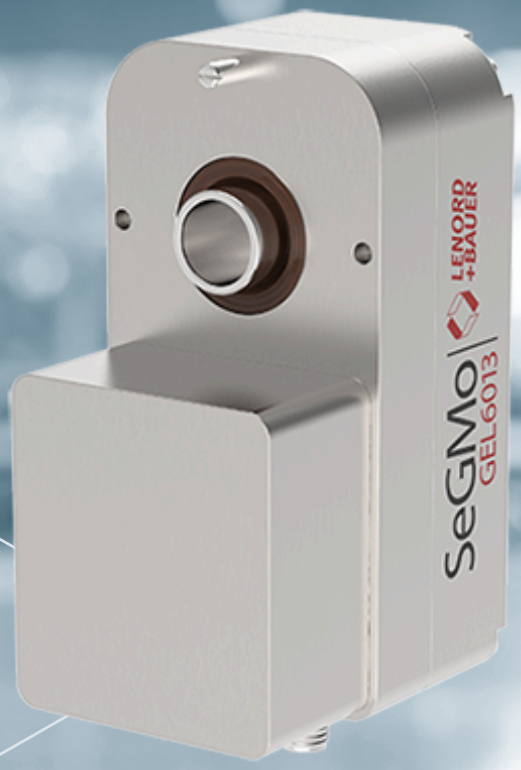
Made in Germany

www.lenord.com



Technical Information

GEL 6013

SeGMo-Positioning

Compact Positioning Drive for Confined Installation Situations with Through Hollow Shaft

D-51T-6013 | Date of issue 2026-10-26

PROFINET EtherNet/IP EtherCAT IO-Link c UL us In Vorbereitung/ In preparation

LENORD +BAUER

Finding solutions. Founding trust.

Motion sensors and integrated drive technology

SeGMo-System

The SeGMo-System is designed for the efficient integration of multiple positioning drives and position indicators into a machine or system.

The system consists of the following components:

- SeGMo-Positioning:
  Positioning drive for fully automatic format adjustment
- SeGMo-Assist:
  Position indicator for manual adjustment operations
- SeGMo-Lib:
  Pre-built function blocks for integration into the system control
- SeGMo-Support Tool:
  Software for advanced commissioning and configuration
- SeGMo-ImgConv Tool:
  Tool for converting image files into pictograms for SeGMo-Assist
- SeGMo-Service Tool:
  Software for advanced commissioning and configuration of Industrial Ethernet interfaces

SeGMo-Positioning

The positioning drives are complete mechatronic systems featuring a battery-free multiturn encoder, gearbox, and motor, as well as integrated power and control electronics. We also offer these for standalone use. With rated torques of up to 18 Nm [13.28 ft•lbf], they cover the performance range typical for secondary axes.

SeGMo-Assist

The position displays facilitate manual adjustment processes by showing target and actual positions. Products are available for rotary and linear applications. Another product without a Measuring system assists the operator, for example, during format or tool changes.

SeGMo-Positioning

6109 6110 6113



6008 6009 6013



SeGMo-Assist

SEPODR SEPODL SEHMI



SEROT SELIN



Overview Positioning Drive

General

The SeGMo positioning drive is a compact mechatronic unit consisting of a 32-bit microprocessor, a compact power amplifier, a stepping motor, a powerful gear and a magnetic-absolute multiturn encoder.



Features

- Nominal torque 10 Nm [7.38 ft•lbf]
- Aluminum housing
- Operating temperature range
  -10 °C to +55 °C [14 °F to 131 °F]
- Stepping motor
- Batteryless magnetic-absolute multiturn encoder
- Degree of protection IP65
- Integrated communication interfaces
  EtherCAT; IO-Link; EtherNet/IP; PROFINET IO/RT
- Optional with holding brake
- cULus Component Recognition(In preparation)

Advantages

- Extremely compact for confined installation situations
- Monitoring equipment to aid trouble-free operation
- Ready for use directly after switching on the power supply due to absolute position detection of the magnetic-absolute multiturn encoder
- Maintenance-free electrical parts
- Maintenance-free gear due to sealed-for-life lubrication

Fields of Application

- Packaging machines
- Food and bottling lines
- Wood and plastic processing machines
- General mechanical and systems engineering

All trademarks/brands quoted in this document are the property of their respective owner. Protected trademarks/brands are not marked as such in this document.

Description

General description

The positioning drive belongs to the SeGMo Positioning product group and is a component of the SeGMo system. It is an intelligent adjustment unit for mounting on a machine shaft end or for attachment to a machine shaft or spindle.

The positioning drive converts the movement commands into a mechanical rotary motion and actuates a machine shaft. Rotation of the positioning drive with the machine shaft is prevented by a headless screw.

Product construction

The positioning drive requires two supply voltages. The logic circuit supply voltage supplies the control electronics and the power circuit supply voltage supplies the power electronics for the motor.

The optional holding brake guarantees a reliable hold even under shock and vibration loads, especially in the case of vertical machine shafts.

The positioning drive requires a functional ground cable to be connected. Connection is via a flat connector.
We recommend a wire cross section of 4 mm² [12 AWG].

The positioning drive can be connected to a PC via the service connector. A USB service adapter ZB60X01 (USB-C) and USB cable are required for connection to a PC.

Stand-alone use

The positioning drive is intended for stand-alone use and can be directly connected to a higher level control system. Positioning drives with **ST** connection technology support Industrial Ethernet protocols and positioning drives with **SA/SL** connection technology support IO-Link.

For positioning drives with an **EC/IP/RT** communication interface, the interface configuration can be reset to the factory default using the S1 pushbutton.
Alternatively, the interface configuration can be reset to the factory default using the SeGMo-Service Tool.

SeGMo-Service Tool

The SeGMo-Service Tool offers the following functions:
- Communication interface **IP**:
  - Setting the IP address. (network connection)
- Communication interface: **– –**:
  - Industrial Ethernet interface configuration. (network connection and USB connection)
- Communication interfaces **EC, IP, RT**:
  - Resetting interface configuration to factory settings. (USB connection)

Magnetic-absolute multiturn encoder

A magnetic-absolute multiturn encoder makes reference search routines superfluous after a power failure or EMERGENCY STOP. After the power supply is switched on, the positioning drive detects its position via the batteryless multiturn encoder and is ready for operation directly.

When switched off, the output shaft can be adjusted by ±109 revolutions without losing the absolute position.

The multiturn encoder withstands high shock/vibration loads.

Operating modes

The positioning drive is **not** designed for continuous operation at nominal torque.

The positioning drive is designed for short-term operation at nominal torque. The following intervals are applicable for a duty cycle (DuCy) of

- DuCy = 25 % at 100 % load torque, duty type S2 “Base time 4 minutes: Duty cycle (DuCy) = 1 minute, break duration (BD)= 3 minutes“

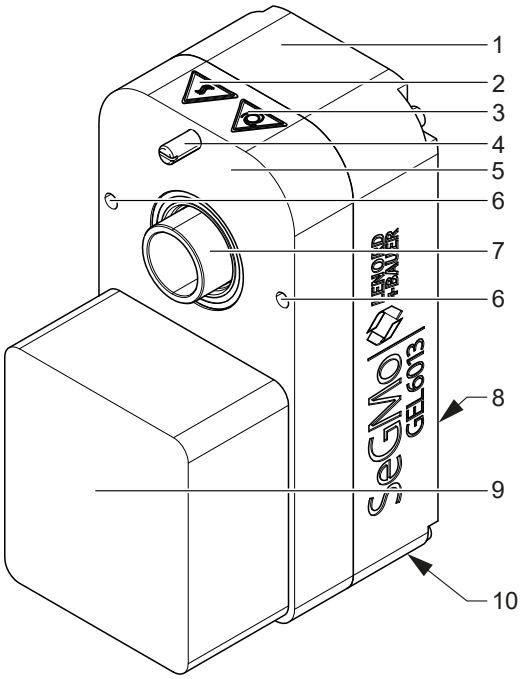
Other operating modes are secured by temperature monitoring and an adjustable current limitation.

Reliability

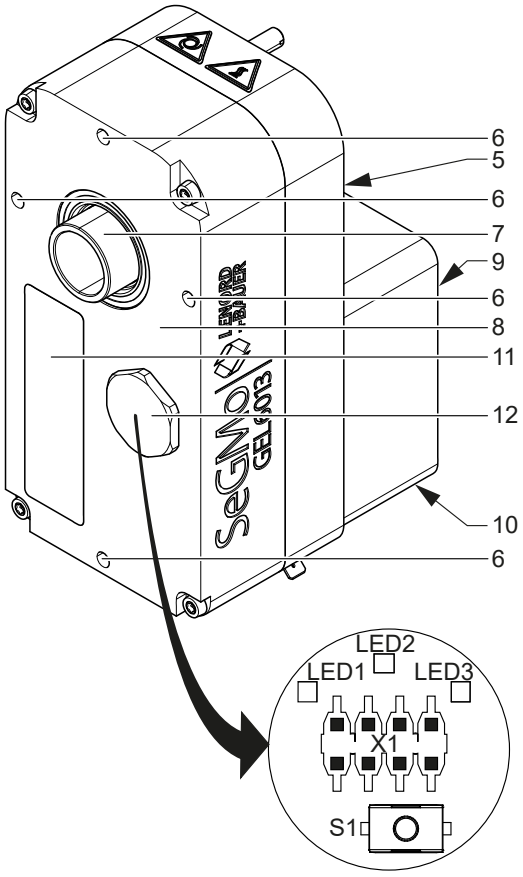
Important parameters are monitored, thus actively protecting the positioning drive from overload. The following monitoring devices support trouble-free operation:

- Soft start and stop via acceleration and deceleration ramps
- Over/undervoltage detection of supply voltage (power circuit and logic circuit)
- Standstill detection
- Temperature monitoring of power amplifier and housing interior
- Internal breaker and current limitation

Specified Parts



Positioning drive with through hollow shaft - Front view



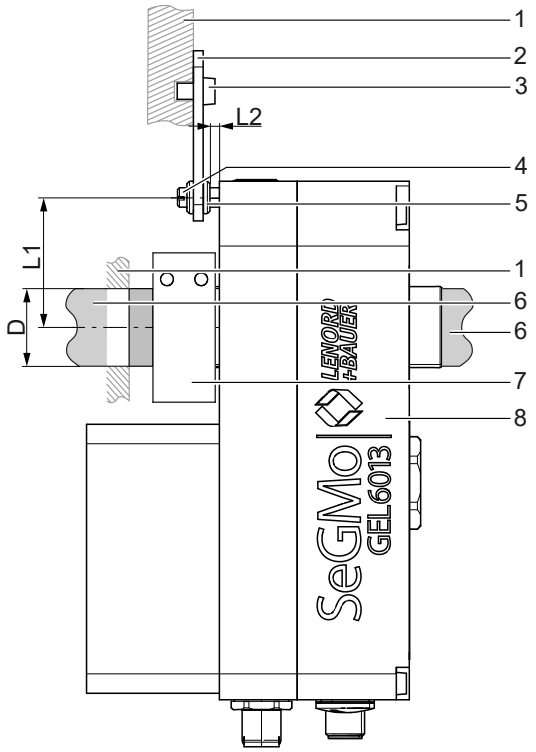
Positioning drive with through hollow shaft - Rear view

1 Housing: Top
2 “Caution: Hot Surface” warning sticker
3 “Caution: Automatic Start” warning label
4 Shaft screw
5 Housing: Front side
6 Alternative mounting positions for the shaft screw
7 Output shaft as a through hollow shaft (diameter according to Type Code)
8 Housing: Rear side
9 Housing: Motor cover
10 Housing: Underside
11 Nameplate
12 Blind plugs
- LED indicators LED1 through LED3 (LED states depend on the communication interface)
- Service connector X1 (USB)
- Pushbutton S1 for communication interface **– –/EC/IP/RT**

Assembly

The mounting concept provides for fixed-moving bearings. The machine shaft bears the weight of the positioning drive via the fixed bearing. The positioning drive is mounted directly onto the machine shaft via a force-fit connection, for example with a semi-hollow shaft and clamping ring. The headless screw prevents the positioning drive from rotating and compensates as a moving bearing for any imbalance movements occurring at the output shaft. We recommend assembling with the help of a torque support and plain bearing.

Imbalance movements are absorbed at the moving bearing
(example with standard torque support from Lenord+Bauer)



1 Machine housing
2 Torque support
(part of accessory set ZB6104)
3 Screw M5×8
(part of accessory set ZB6104)
4 Headless screw
5 Plain Bearing OG0002
(part of accessory kit ZB60X06 and accessory set ZB6104)
6 Machine shaft
7 Clamp coupling
8 Positioning drive housing
D Machine shaft diameter
L1 Spacing
„center output shaft“ — „center headless screw“:
40 mm [1.57 in]
L2 Spacing
„plain bearing“ — „positioning drive housing“:
1 to 2 mm [39.37 mil to 78.74 mil]

Technical Data

Positioning Drive

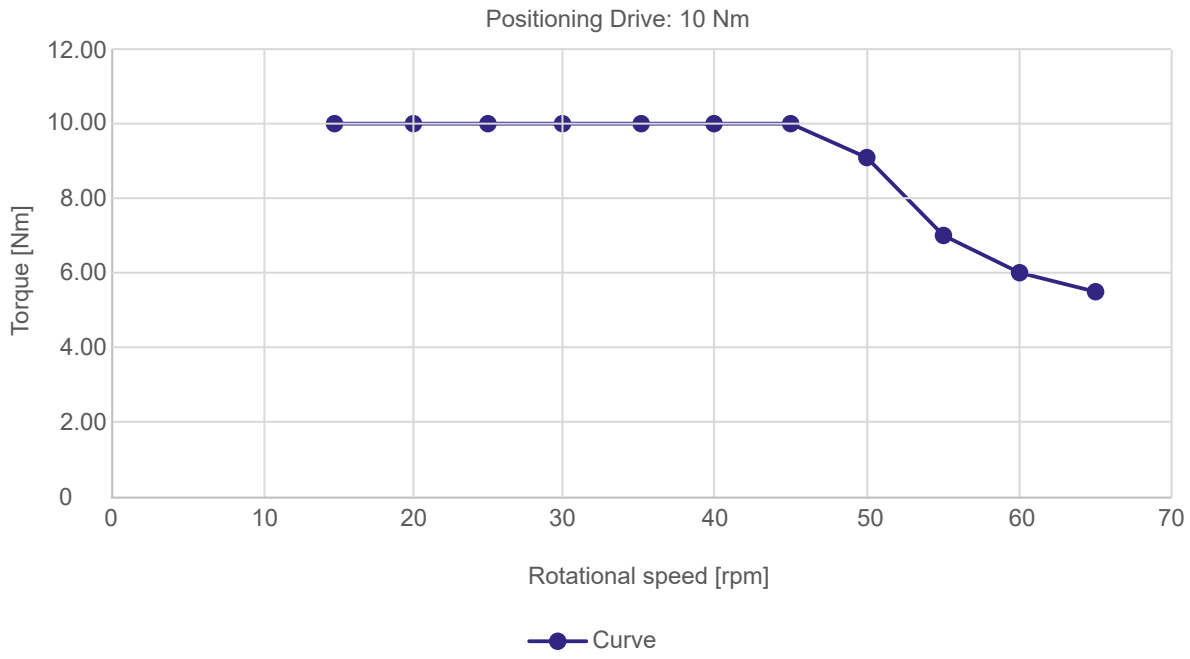
Nominal torque / Option (construction type)	**10** / **0** (K)	**10/1** (L)
Electrical data		
Supply voltage Logic circuit (1)	20 V to 30 V DC (Nominal supply voltage: 24 V DC)	
Supply voltage Power circuit (1)	24 V to 30 V DC (Nominal supply voltage: 24 V DC) (Maximum motor speed depends on voltage!)	
Maximum current consumption Logic circuit (2) (3) Connection Technology: ▪ **ST** ▪ **SA/SL**	 ▪ 100 mA ▪ 10 mA	
Maximum current consumption Power circuit (2) (3) (4)	3.1 A	
Duty cycle DuCy in % (load-dependent)(2)	DuCy = 25 % at 100 % load torque, duty type S2 “Base time 4 minutes: Duty cycle (DuCy) = 1 minute, Break duration (BD) = 3 minutes”	
Communication interfaces	EtherCAT; IO-Link; EtherNet/IP; PROFINET IO/RT	
Mechanical data		
Nominal torque output shaft (5)	10 Nm at 45 min^{-1} [7.38 ft•lbf at 45 rpm]	
Output shaft	Through hollow shaft 20.2 mm [0.8 in]	
Housing material	Aluminum	
Housing dimensions	80 mm×160 mm×99.6 mm [3.15 in×6.30 in×3.92 in]	80 mm×160 mm×127.6 mm [3.15 in×6.30 in×5.02 in]
Weight	≈1.5 kg [3.31 lb]	
Encoder data		
Resolution	1,000 increments per 360°	
Measuring system detection range	▪ In energized state: unlimited ▪ In de-energized state: 218 revolutions	
Ambient data		
Working temperature range	0 °C to +55 °C [32 °F to 131 °F]	
Operating temperature range	-10 °C to +55 °C [14 °F to 131 °F]	
Storage temperature range	-20 °C to +70 °C [-4 °F to +158 °F]	
Maximum relative air humidity	90 %	
Condensation	Not permitted	
Degree of protection (6)	IP65, DIN EN 60529:2014-09, shaft sealing ring (material: FKM)	
Dielectric strength	√ 2× 500 V DC; as per DIN EN 61439-1:2021-10	

Nominal torque / Option (construction type)	**10** / **0** (K)	**10/1** (L)
EMC (7)	Electromagnetic immunity DIN EN 61000-6-1:2007-10, EN 61000-6-1:2007 DIN EN 61000-6-2:2006-03 + correction 1:2011-06, EN 61000-6-2:2005 + AC:2005 IO-Link: DIN EN 61000-4-5:2019-03 (±1 kV Line-Earth/±0.5 kV Line-Line) Electromagnetic emission DIN EN 61000-6-3:2011-09 + correction 1:2012-11, EN 61000-6-3:2007 + A1:2011 + AC:2012, DIN EN 61000-6-4:2011-09, EN 61000-6-4:2007 + A1:2011	
Vibration resistance	50 m/s² [164.04 ft/s²] (≈ 5g) @ 10 to 150 Hz; as per DIN EN 60068-2-6:2008-10	
Shock resistance	150 m/s² [492.13 ft/s²] (≈ 15g) @ 6 ms; as per DIN EN 60068-2-27:2010-02	
Noise emission (8)	65 dB	
Data for “cULus Recognized Component” (9)		
cULus Recognized Component	In preparation	
Input voltage (power circuit) U_{IN} (10)	24 V to 30 V DC	
Input power (power circuit), Duty cycle (DuCy) = 1 minute, Break duration (BD) = 3 minutes	In preparation	In preparation
Enclosure type (6)	Type 1	
Working temperature range	In preparation	
Operating temperature range	In preparation	
Approvals		
European Economic Area	Conformity in accordance with ▪ EMC Directive 2014/30/EU ▪ Machinery Regulation (EU) 2023/1230 ▪ Machinery Directive 2006/42/EC CE	
United States and Canada (9)	Certification as cULus Recognized Component c UL us	

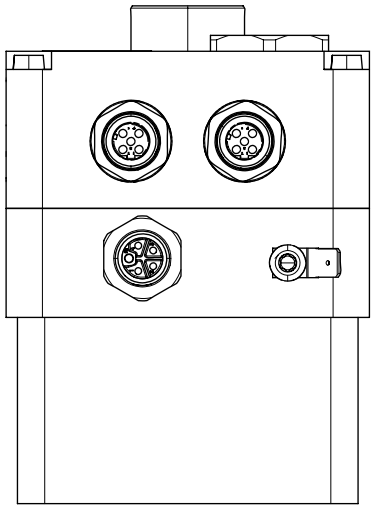
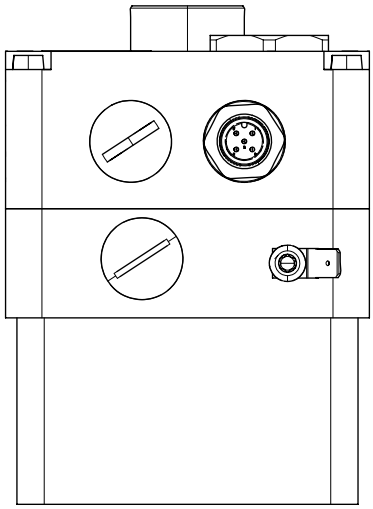
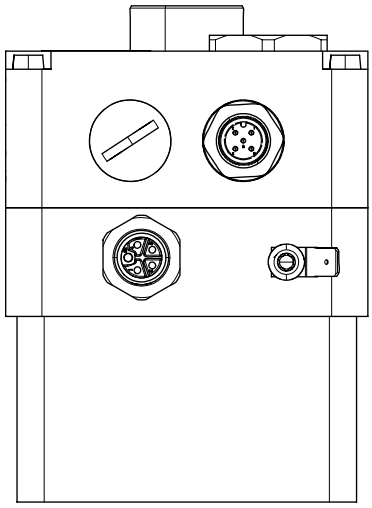
(1) The supply voltages are electrically isolated from each other.
(2) At nominal supply voltage
(3) External breaker required
(4) Load- and parameter-dependent
(5) At nominal supply voltage and duty type S2
(6) The degree of protection/housing enclosure type is only maintained if all blanking plugs are screwed in and all unused connectors are covered.
(7) Only use screened Ethernet cables.
(8) Measured at a distance of 1.0 m [39.37 in] at rated load and rated speed
(9) In preparation
(10) Corresponds to the supply voltage Power circuit

Torque-Speed Curve

Rated torque **10**



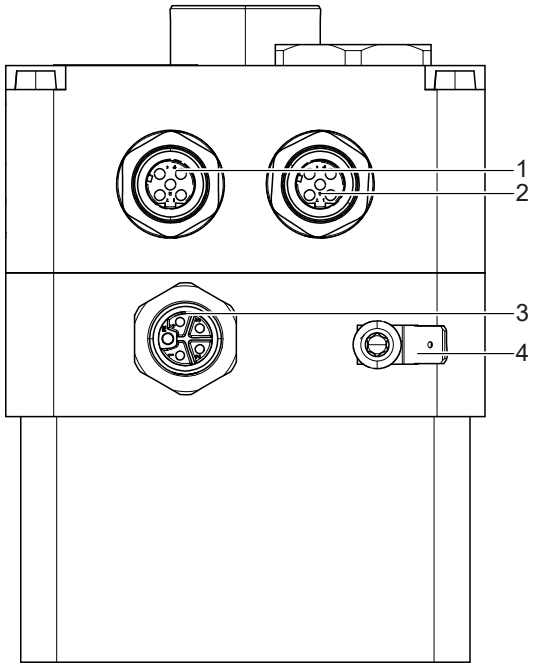
Overview Connection Technologies

Connection Technology		
ST	**SA**	**SL**
1 Connector ▪ Supply voltage Logic circuit ▪ Supply voltage Power circuit 1 Connector ▪ Communication interface IN 1 Connector ▪ Communication interface OUT	1 Connector ▪ Communication interface ▪ Supply voltage Logic circuit ▪ Supply voltage Power circuit	1 Connector ▪ Communication interface ▪ Supply voltage Logic circuit 1 Connector ▪ Supply voltage Power circuit
		
Communication interfaces:		
- - (Configurable Industrial Ethernet interface) **EC** (EtherCAT) **IP** (EtherNet/IP) **RT** (PROFINET IO/RT)	**IL** (IO-Link)	**IL** (IO-Link)

Connection Technology **ST**

Parts Named

Underside



1 Switch socket, M12 D-coded:
- Communication interface IN

2 Switch socket, M12 D-coded:
- Communication interface OUT

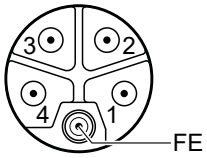
3 Male connector, M12 L-coded:
- Power supply:
  - Supply voltage Logic circuit
  - Supply voltage Power circuit

4 6.3 mm [0.25 in] flat connector:
- Functional ground

Pin Assignments

Power Supply (Logic Circuit Supply Voltage and Power Circuit Supply Voltage)

M12 L-coded

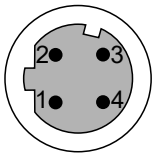


male contact
(plug-in view)

Pin designation	Signal designation
1	+24 V Logic
2	GND Power
3	GND Logic
4	+24 V Power
FE	Not Assigned
Connector housing	Functional ground

Communication interfaces
Configurable Industrial Ethernet interface (**- -**), EtherCAT (**EC**), EtherNet/IP (**IP**), PROFINET IO/RT (**RT**)

2×M12 D-coded



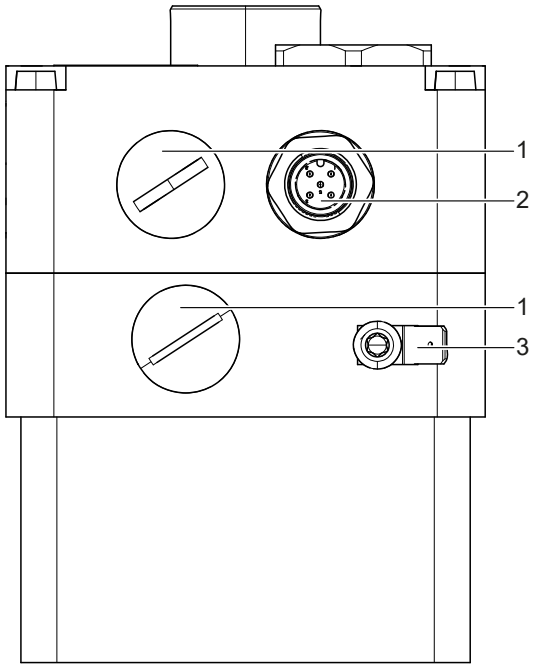
Switch sockets
(plug-in view)

Pin designation	Signal identifier IN/OUT
1	Transmission Data+
2	Receive Data+
3	Transmission Data-
4	Receive Data-

Connection Technology **SA**

Parts Named

Underside



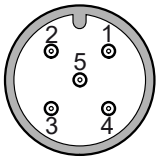
1 Sealing plug
(Not for operator use!)
2 Male connector, M12 A-coded:
- Communication interface IO-Link
- Power supply:
  - Supply voltage Logic circuit
  - Supply voltage Power circuit

3 6.3 mm [0.25 in] flat connector:
- Functional ground

Assignment

Power supply and communication interface IO-Link (**IL**)

M12 A-coded



Male contact
(plug-in view)

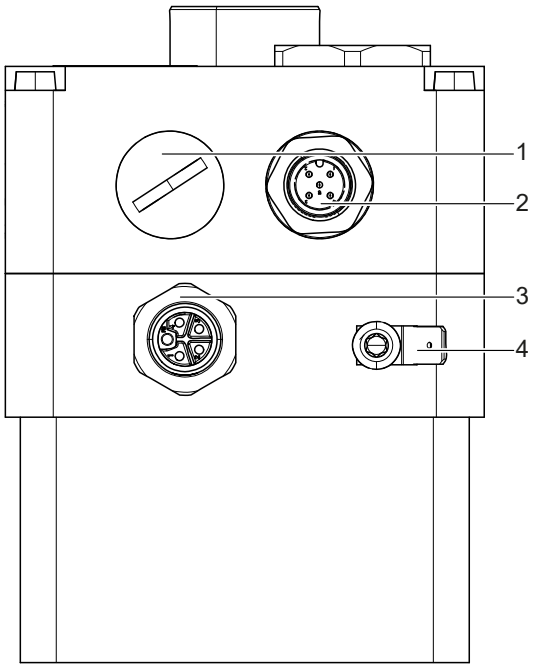
Pin designation	Signal identifier
1	+24 V (1)
2	+24 V power
3	GND (1)
4	IO-Link C/Q
5	GND power
Connector housing	Functional ground

(1) Power supply of communication interface and positioning drive (supply voltage Logic circuit)

Connection Technology **SL**

Parts Named

Underside



1 Sealing plug
(Not for operator use!)
2 Male connector, M12 A-coded:
- Communication interface IO-Link
- Power supply:
  - Supply voltage Logic circuit

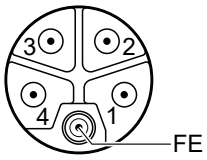
3 Male connector, M12 L-coded:
- Power supply:
  - Supply voltage Power circuit

4 6.3 mm [0.25 in] flat connector:
- Functional ground

Pin Assignments

Power Supply (Power Circuit Supply Voltage)

M12 L-coded



male contact
(plug-in view)

Pin designation	Signal designation
1	Not assigned
2	GND Power
3	Not used
4	+24 V Power
FE	Not assigned
Connector housing	Functional ground

Power supply (Supply voltage Logic circuit) and communication interfaceIO-Link (**IL**)

M12 A-coded



Male contact
(plug-in view)

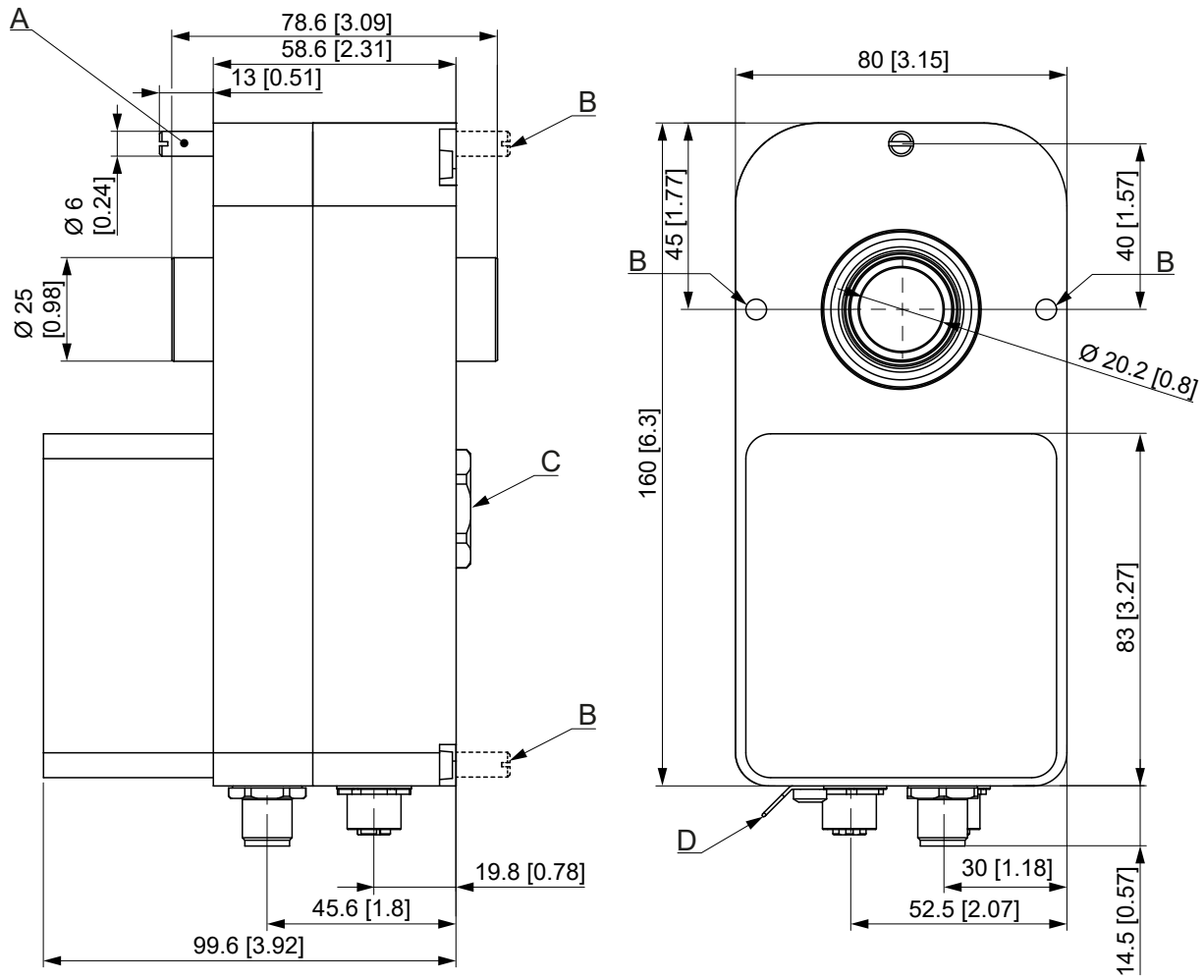
Pin designation	Signal identifier
1	+24 V (1)
2	unallocated
3	GND(1)
4	IO-Link C/Q
5	unallocated
Connector housing	Functional ground

(1) Power supply of communication interface and positioning drive (Supply voltage Logic circuit)

Dimension Drawings

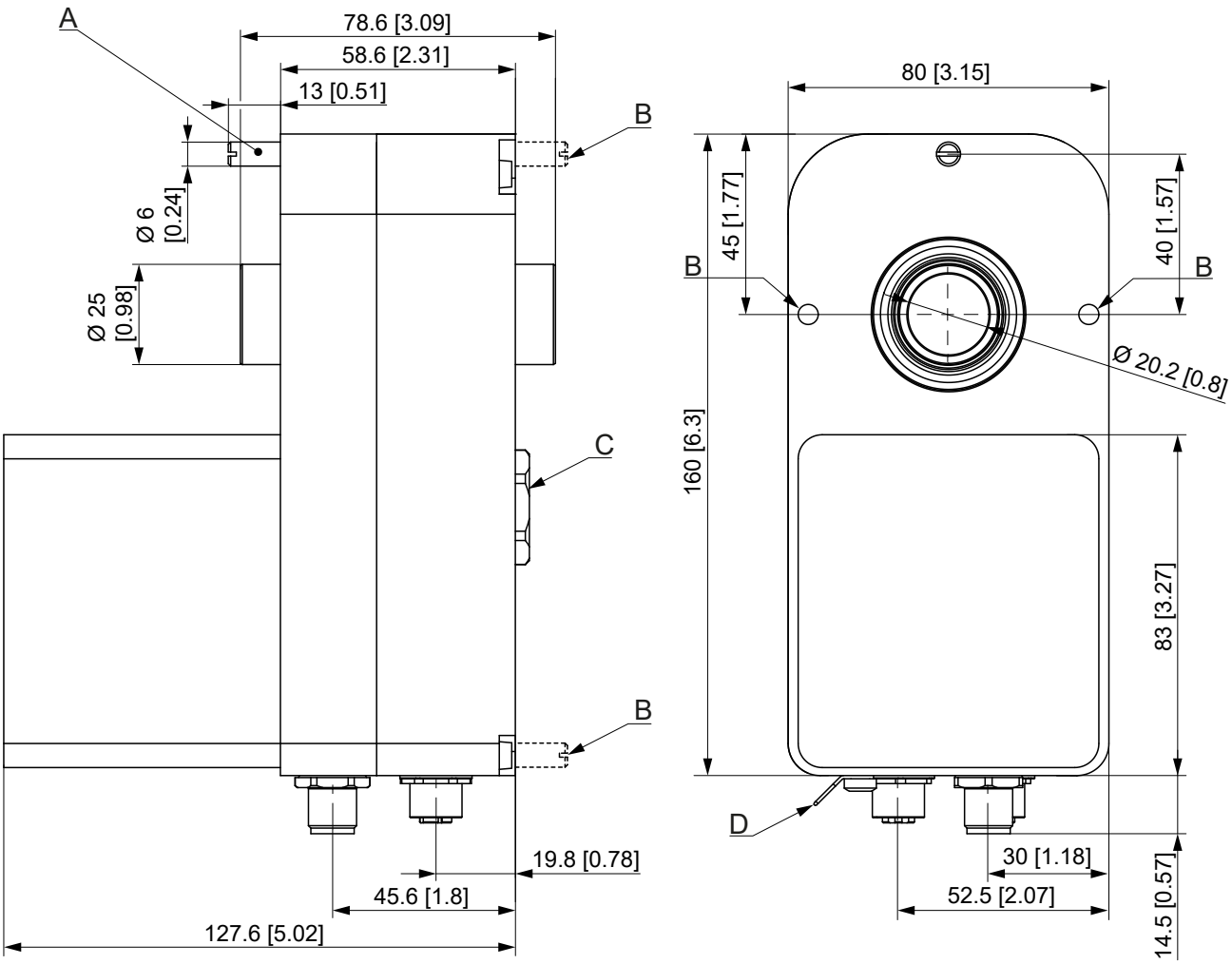
All dimensions in millimeters [inches]

Connection Technology **ST** / Nominal Torque **10** / Option **0**



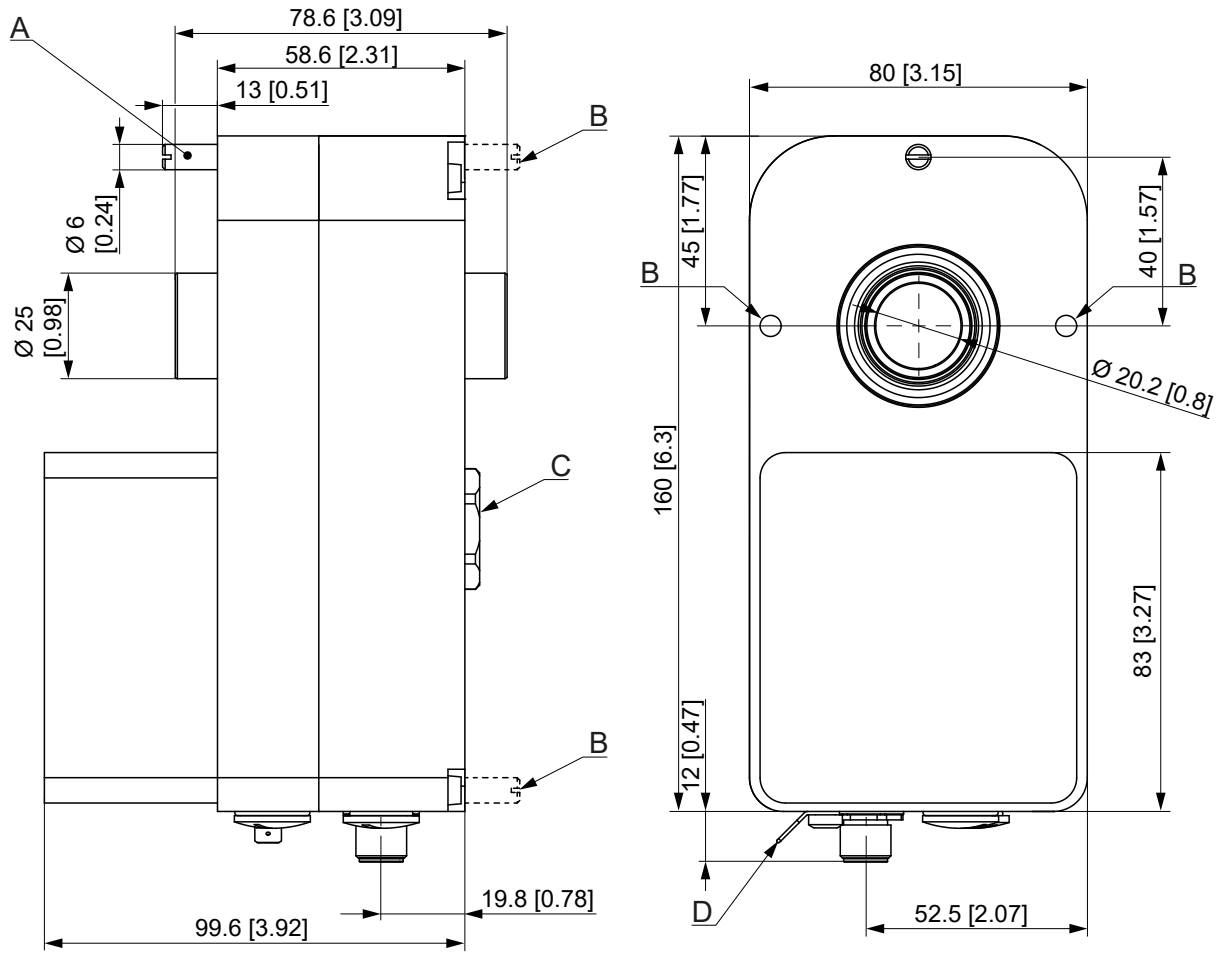
A Headless screw Ø6 mm [0.24 in]
B Alternative fastening positions of the headless screw
C Blanking plug with male thread; tightening torque 2 Nm [1.48 ft•lbf]
D 6.3 mm [0.25 in] flat connector

Connection Technology **ST** / Nominal Torque **10** / Option **1**



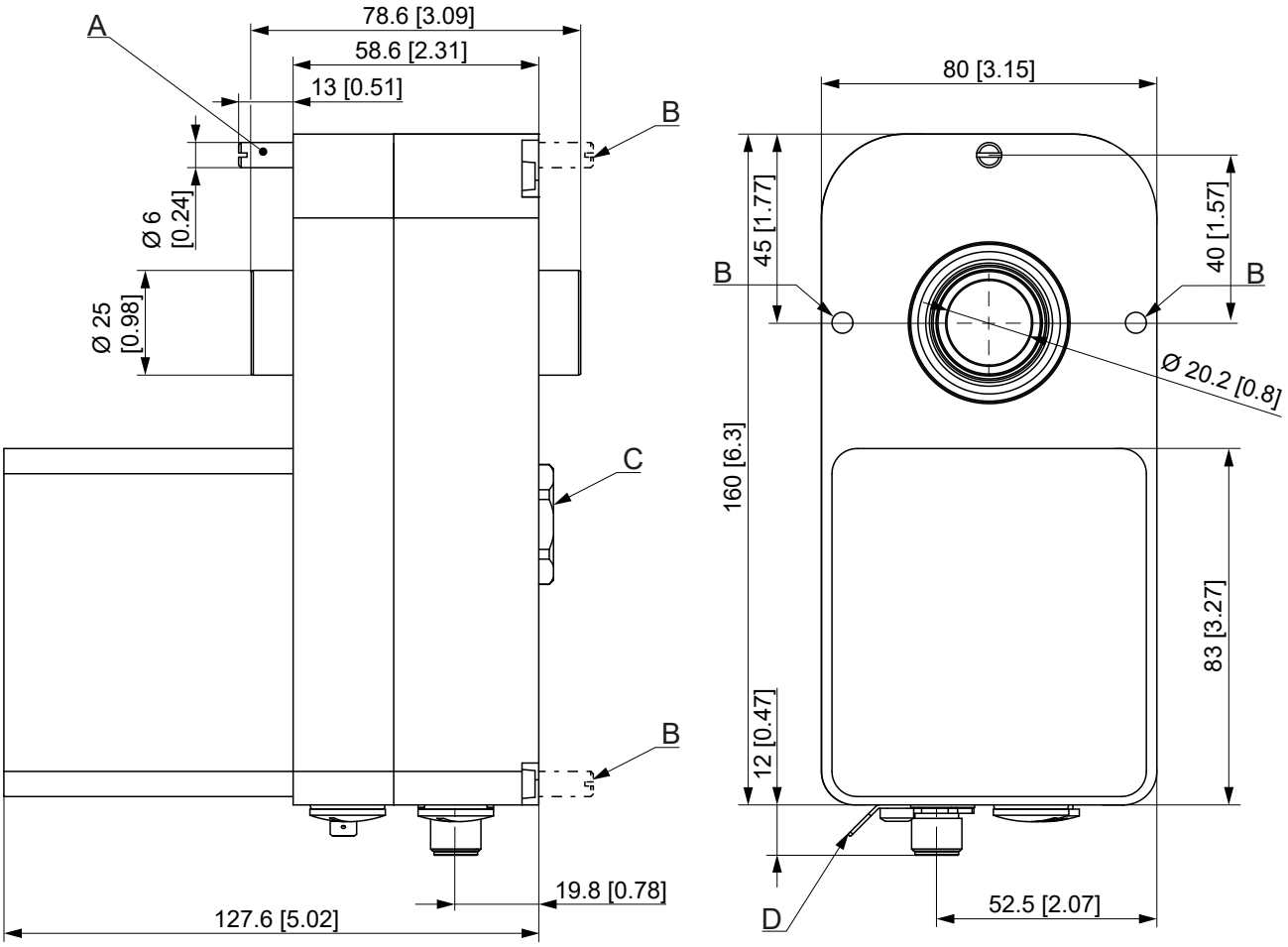
A Headless screw Ø6 mm [0.24 in]
B Alternative fastening positions of the headless screw
C Blanking plug with male thread; tightening torque 2 Nm [1.48 ft•lbf]
D 6.3 mm [0.25 in] flat connector

Connection Technology **SA** / Nominal Torque **10** / Option **0**



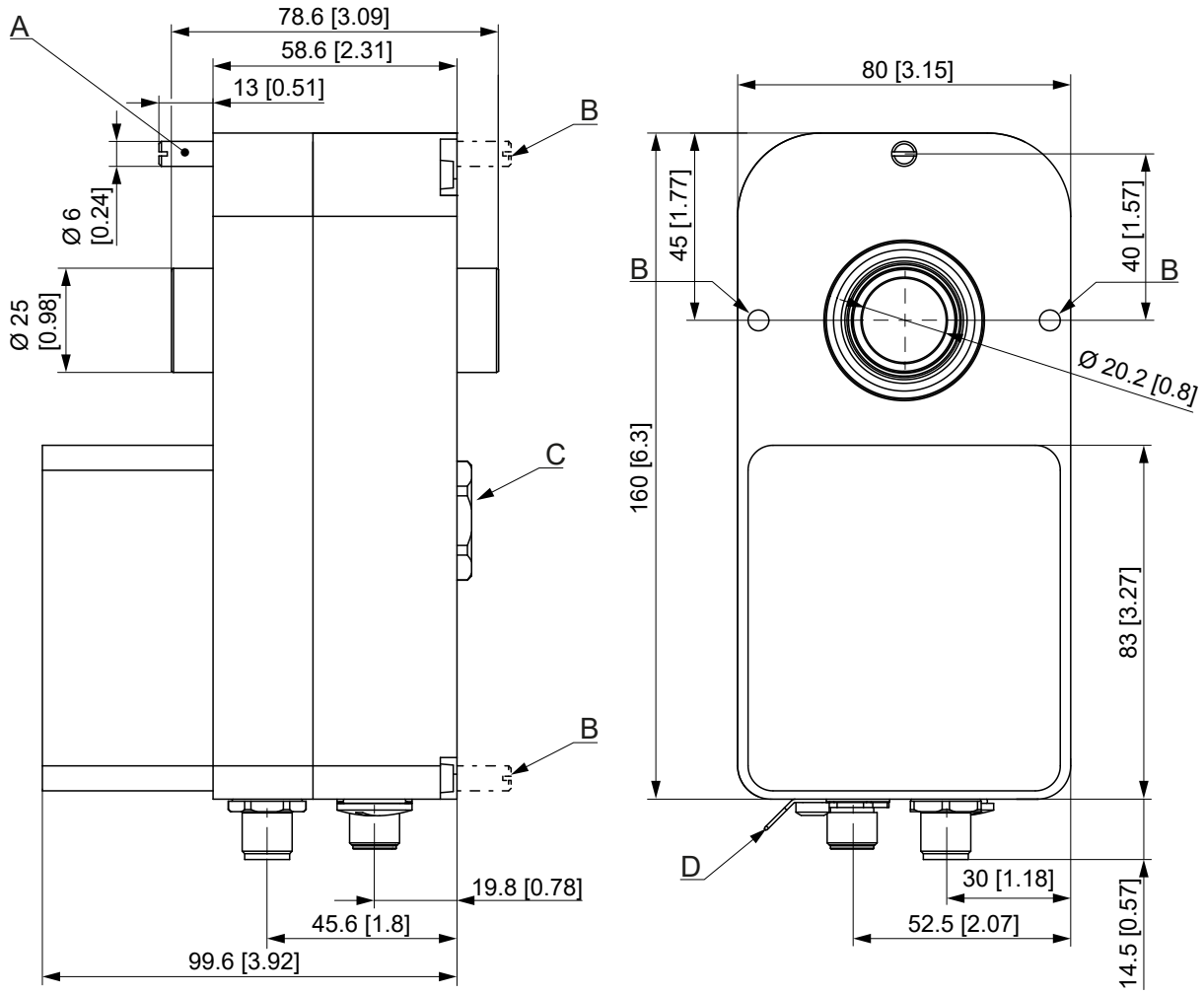
A Headless screw Ø6 mm [0.24 in]
B Alternative fastening positions of the headless screw
C Blanking plug with male thread; tightening torque 2 Nm [1.48 ft•lbf]
D 6.3 mm [0.25 in] flat connector

Connection Technology **SA** / Nominal Torque **10** / Option **1**



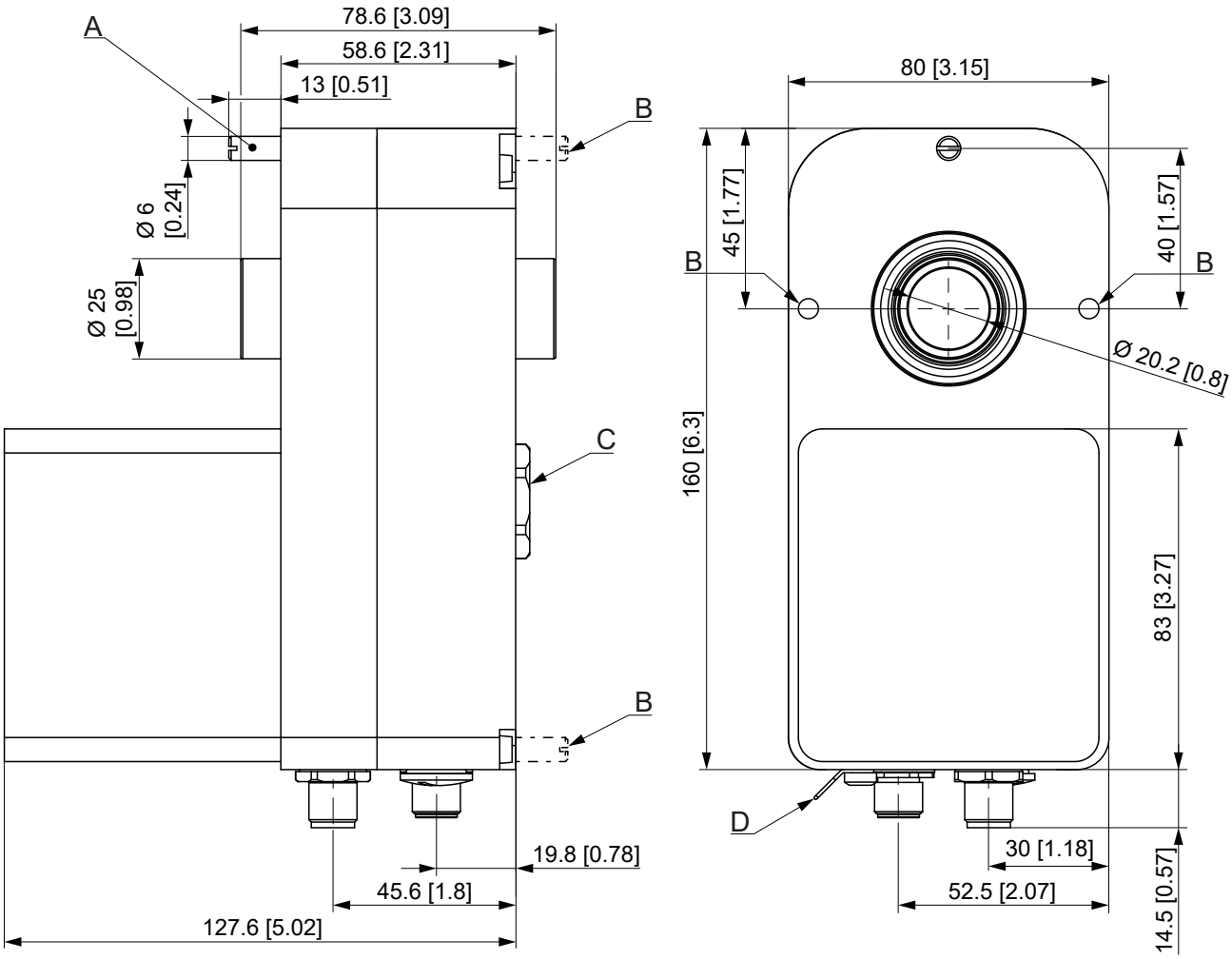
A Headless screw Ø6 mm [0.24 in]
B Alternative fastening positions of the headless screw
C Blanking plug with male thread; tightening torque 2 Nm [1.48 ft•lbf]
D 6.3 mm [0.25 in] flat connector

Connection Technology **SL** / Nominal Torque **10** / Option **0**



A Headless screw Ø6 mm [0.24 in]
B Alternative fastening positions of the headless screw
C Blanking plug with male thread; tightening torque 2 Nm [1.48 ft•lbf]
D 6.3 mm [0.25 in] flat connector

Connection Technology **SL** / Nominal Torque **10** / Option **1**



A Headless screw Ø6 mm [0.24 in]
B Alternative fastening positions of the headless screw
C Blanking plug with male thread; tightening torque 2 Nm [1.48 ft•lbf]
D 6.3 mm [0.25 in] flat connector

Accessories and Spare Parts

Assembly and Connection Accessories

The accessories are not included in the scope of supply.

Designation	Item number
Clamp coupling for machine shaft with diameter: ▪ 15 mm [0.59 in] ▪ 16 mm [0.63 in] ▪ 17 mm [0.67 in] ▪ 18 mm [0.71 in] ▪ 19 mm [0.75 in] ▪ 20 mm [0.79 in]	 ▪ MZ1351 ▪ MZ1335 ▪ MZ1354 ▪ MZ1356 ▪ MZ1355 ▪ MZ1339
USB service adapter (1)	ZB60X01
Accessory set, consisting of: ▪ 1 Torque support GZ1165 including plain bearing OG0001, item number BG5013 ▪ 1 pcs. plain bearing OG0002 ▪ 2 M5×8 screws, item number: VS2107 ▪ 1 M5×20 shaft screw, item number: VS3412 ▪ 1 assembly instruction sheet, item number: D-53H-6110_01	ZB6104
Accessories for nominal torque **10**	
Accessories kit plain bearings, comprising: 5 pc. plain bearing, item number: OG0002	ZB60X06
5 pc. headless screw M6x20, item number: VS3473	ZB60X09

(1) Not UL-certified

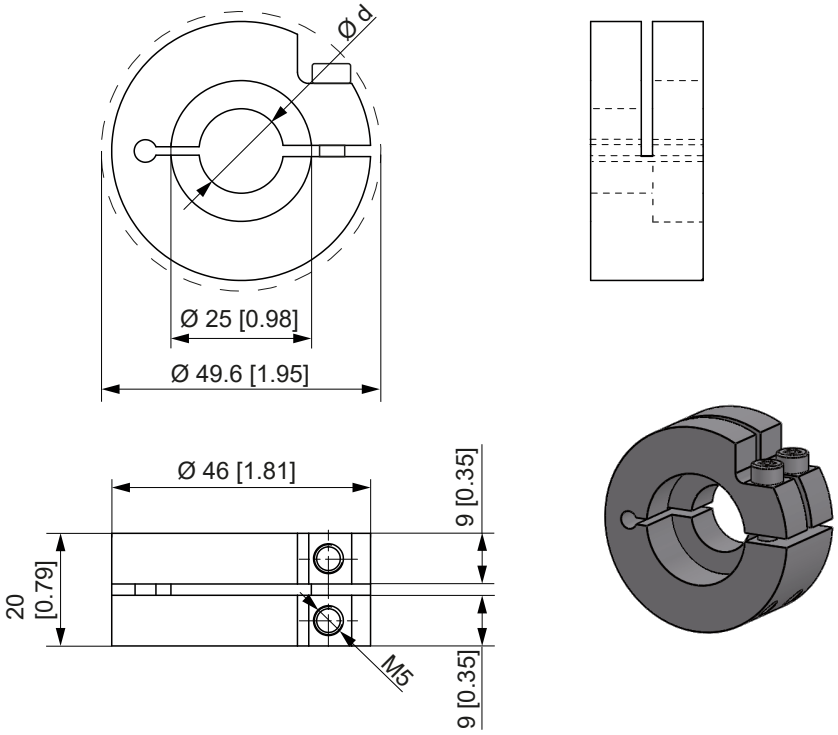
Spare Parts

Designation
Warning stickers
Warning sign “Warning Automatic start-up", lateral length 25 mm [0,98 in], ASR A1.3/ISO 7010, Warning sign W018
Warning sign “Warning Hot surface", lateral length 25 mm [0,98 in], ASR A1.3/ISO 7010, Warning sign W017

Dimensional Drawings Assembly Accessories

All dimensions in millimeters [inches]

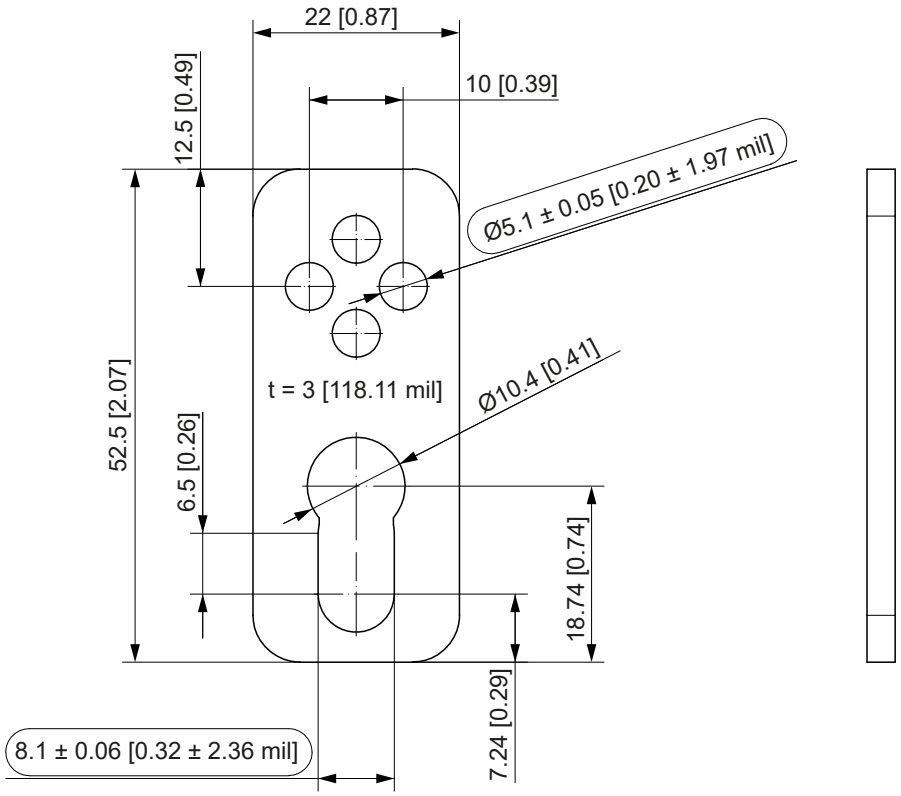
Clamp coupling



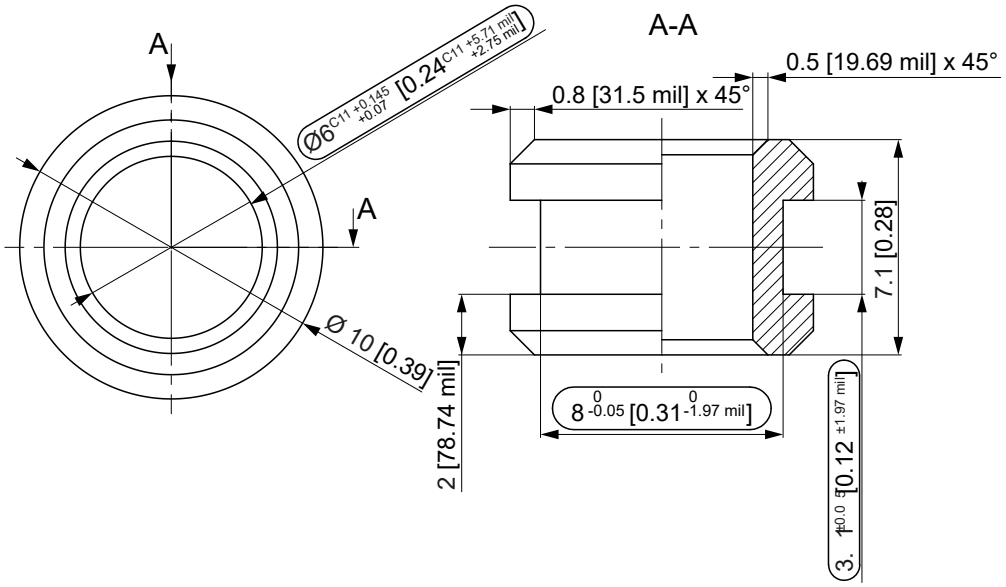
For machine shafts with diameters from 15 mm to 20 mm [0.59 in to 0.79 in]

Dimensions/**item number**	**MZ1351**	**MZ1335**	**MZ1354**	**MZ1356**	**MZ1355**	**MZ1339**
Ø d	15 [0.59] H9	16 [0.63] H9	17 [0.67] H9	18 [0.71] H9	19 [0.75] H9	20 [0.79] H9
Screws ISO 14579 Torx	M5	M5	M5	M5	M5	M5

Torque support GZ1165 from accessory set ZB6104



Plain bearing OG0002 (part of accessories kit ZB60X06 and accessory set ZB6104)



Type code

6013	Product Type
- -	**Communication interface** Configurable Industrial Ethernet interface (1)
EC	EtherCAT
IL	IO-Link
IP	EtherNet/IP
RT	PROFINET IO/RT
10	**Nominal torque** 10 Nm at 45 min-1 [7.38 ft•lbf at 45 rpm]
U	**Output in millimeter [inch]** 20.2 mm [0.8 in] Through hollow shaft
A	**Housing material** Aluminum
K	**Construction type** Short
L	Long
ST	**Connection Technology** 3 Connector (2×M12: Fieldbus/Industrial Ethernet, M12; power supply)
SA	1 Connector (M12: IO-Link and power supply)
SL	2 Connector (2×M12; Separate power circuit power supply)
M	**Sensor** Magnetic-absolute multiturn encoder (218 revolutions)
C	**Design** cULus Recognized Component (2)
2	**Degree of protection** IP 65 Design **C**: additionally, enclosure protection class Type 1
0	**Option** Without holding brake
1	Withholding brake
▼	▼ ▼ ▼ ▼ ▼ ▼ ▼ ▼ ▼ ▼ ▼
6013	_ _ _ _ _ _ _ _ _ _ _ _ _ ◄ **Product Code**

(1) USB service adapter required

(2) In preparation

Type code restrictions

Connection Technology

- **ST** connection technology is only available with communication interface **– –/EC/IP/RT**.
- **SA** and **SL** connection technology is only available with communication interface **IL**.

Customized modifications

- Customized housings and customized shafts are available upon request as per approval drawing.
- Customized versions with a special assembly or modified technical specifications are assigned a Y-number (<Product type>Y<Three-digit number>). Depending on the customized modification, more or other documents may apply.

Notes for USA and Canada

In preparation

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