SeGMo-Positioning

Compact positioning drives
for confined installation situations

GEL 6009

Technical information

Version 2025-10-14

General

The SeGMo-Positioning 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: 5 Nm [3.69 ft•lbf], 10 Nm [7.38 ft•lbf]
- Aluminum housing
- Operating temperature range
  -10 °C to +55 °C [14 °F to 131 °F]
- Stepping motor
- Magnetic-absolute multiturn encoder
  - Detection range: 342 revolutions, also in de-energized state
- Degree of protection: IP 54 or IP 65
- Communication interface: IO-Link; EtherCAT; EtherNet/IP; PROFINET IO/RT
- cULus Component Recognition(1)

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

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(1) In preparation

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Internet: www.lenord.com
E-Mail: info@lenord.de
Phone: +49 208 9963–0

Lenord, Bauer & Co. GmbH
Dohlenstraße 32
46145 Oberhausen, Germany

D-51T-6009

SeGMo-System

SeGMo-System

The SeGMo-System is suitable for efficient integration of several positioning drives and positioning displays in a machine or a system. The system comprises the following components:

- SeGMo-Positioning:
  Positioning drive for fully automatic format setting
- SeGMo-Box:
  Decentral control unit for up to 5 positioning drives
- Modular SeGMo-Box:
  Decentral control unit for up to 17 positioning drives or up to 48 positioning displays
- SeGMo-Assist:
  Position display for manual adjustment procedures
- SeGMo-Connect:
  Single cable concept (hybrid cable suitable for drag chain)
- SeGMo-Lib:
  Prefabricated function blocks for integration in the higher level control system
- SeGMo-Support Tool:
  Software for extended commissioning and configuration
- SeGMo-Web:
  Software for real-time transmission of the modular SeGMo-Box
- SeGMo-ImgConv Tool:
  Tool for converting image files into pictograms for SeGMo-Assist
- SeGMo-Service Tool:
  Software for extended commissioning and configuration of Industrial Ethernet positioning drives

SeGMo-Positioning:

The positioning drives are complete mechatronic systems with a batteryless multiturn encoder, gear and motor as well as integrated power and control electronics. We also offer these items for standalone use. With nominal torques of up to 18 Nm [13.28 ft•lbf], they cover the typical power range for secondary axes.

SeGMo-Box:

Up to 5 positioning drives can be connected to the SeGMo-Box. The connection of position displays is not provided. The SeGMo-Box supports all common fieldbus and Industrial Ethernet communication interfaces.

Modular SeGMo-Box:

Every modular SeGMo-Box comprises a basic housing with individually equippable plug-in modules. By combining basic housings, up to 17 positioning drives or up to 48 position displays can be connected. A combination of positioning drives and position displays on a modular SeGMo-Box is possible. The power supply can be provided separately for each equipped plug-in module. The modular SeGMo-Box supports all common Industrial Ethernet communication interfaces.

SeGMo-Assist:

The position displays facilitate manual adjustment procedures by displaying nominal and actual positions. Products are available for rotary and linear applications. Another product without a measuring system supports the operator, for example, when changing format parts or tools
.

SeGMo-Connect:

Using the positioning drives with a SeGMo-Box significantly reduces the cabling using SeGMo-Connect. Instead of the usual two separate cables for internal bus communication and a third cable for power supply to the positioning drives, only **ONE** hybrid cable is connected. In combination with the SeGMo-Box and 5 connected positioning drives, the SeGMo-Connect typically reduces the number of cables from 15 to 5.
The hybrid cable is designed for moveable use in drag chains. Its product variants are food grade quality, halogen-free and available as a cULus recognized component.

SeGMo-Positioning



SeGMo-Assist



SeGMo-Box



Modular(e) SeGMo-Box



PROFIBUS · CANopen · EtherNet/IP · EtherCAT · ETHERNET POWERLINK · PROFINET · sercos the automation bus · Modbus · IO-Link

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 positioning drive requires a functional ground cable to be connected. Connection is via a 6.3 mm [0.25 in] flat connector. We recommend a wire cross section of 4 mm^2 [12 AWG].
The positioning drive is intended for stand-alone use and can 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.
In the case of positioning drives with communication interfaces **EC/IP/RT** the interface configuration can be reset to the factory settings using pushbutton S1. Alternatively, the interface configuration can be reset to the factory settings using the “SeGMo-Service Tool”.
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.

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 ±171 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

SeGMo-Service Tool

The SeGMo-Service Tool offers the following functions:

Setting the IP address.

(Network connection)

- GEL 6009**IP**␣␣␣␣␣ST␣␣␣
- GEL 6109**IP**␣␣␣␣␣ST␣␣␣
- GEL 6110**IP**␣␣␣␣␣ST␣␣␣
- GEL 6113**IP**␣␣␣␣␣ST␣␣␣

Industrial Ethernet interfaces configuration.

(Network connection and USB connection)

- GEL 6009**– –**␣␣␣␣␣ST␣␣␣

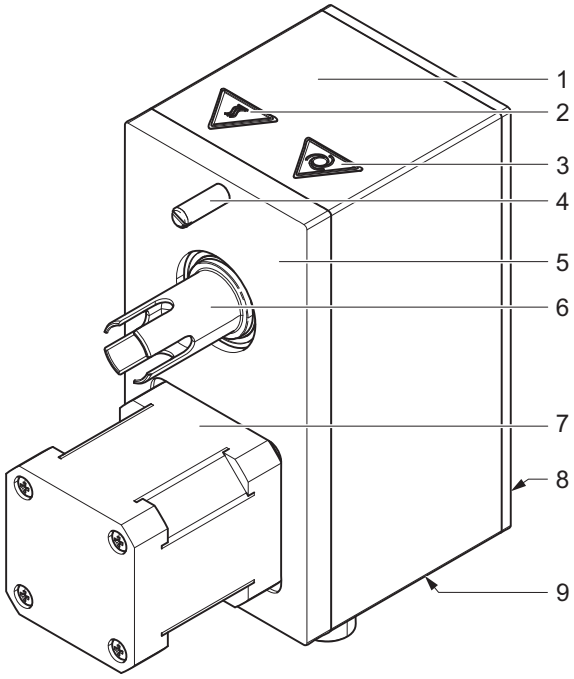
Resetting interface configuration to factory settings.

(USB connection)

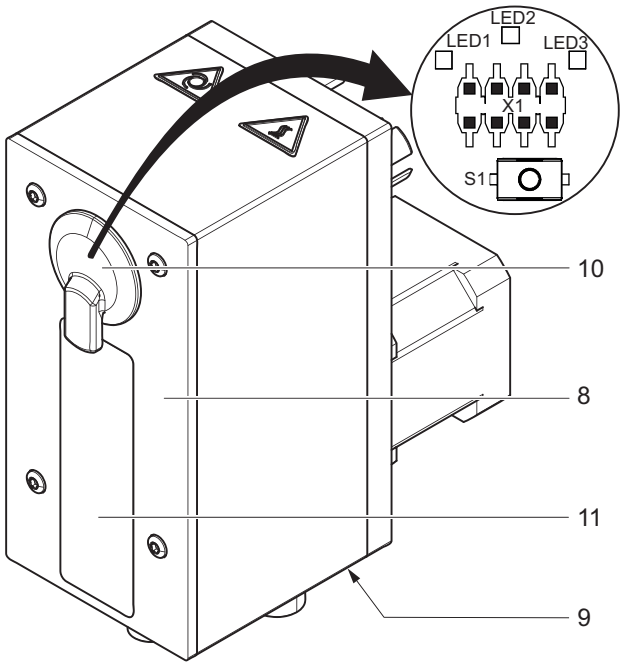
- GEL 6009**EC**␣␣␣␣␣ST␣␣␣
- GEL 6009**IP**␣␣␣␣␣ST␣␣␣
- GEL 6009**RT**␣␣␣␣␣ST␣␣␣

Description

Parts named



Front side of positioning drive with semi-hollow shaft



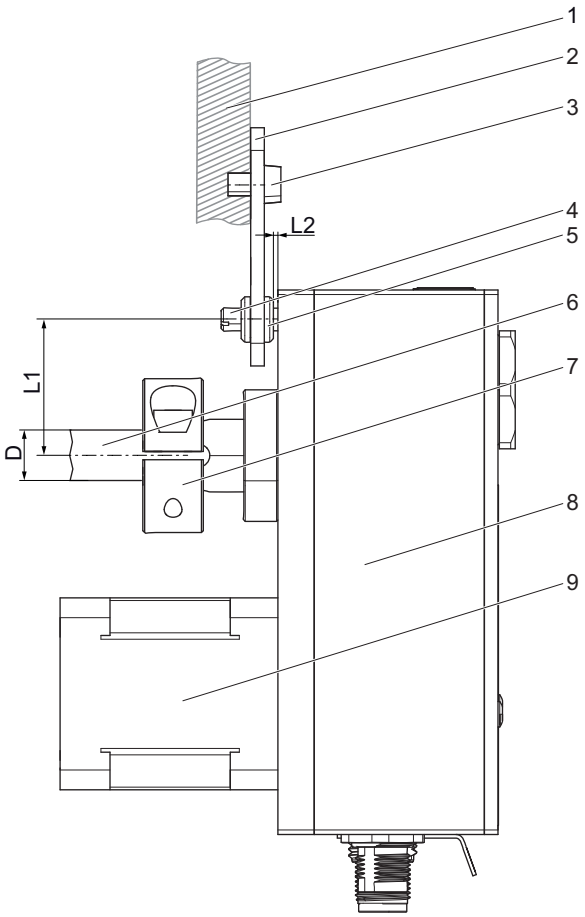
*Rear side of positioning drive with degree of protection **1** and semi-hollow shaft*

1 Housing: Top
2 Warning sticker “Warning Hot surface”
3 Warning sticker “Warning Automatic start-up”
4 Headless screw
5 Housing: Front side
6 Output shaft as semi-hollow shaft
(diameter as per type code)
7 Stepping motor
8 Housing: Rear side
9 Housing: Underside
10 Blanking plug
(design depending on degree of protection)
- LED displays LED1 to LED3
(LED states depending on the communication interface)
- Service connector X1 (USB)
- Pushbutton S1 for
communication interface **– –/EC/IP/RT**

11 Rating plate

Assembly

The mounting concept provides for fixed-moving bearings. The machine shaft bears the weight of the position display 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.



Mounting concept and dimensions

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
(accessory or component of accessory set ZB6104)
6 Machine shaft
7 Clamping ring
8 Positioning drive housing
9 Positioning drive stepping motor
D Machine shaft diameter
L1 Spacing
“center output shaft” — “center headless screw”:
30 mm [1.18 in]
L2 Spacing
“plain bearing” — “housing positioning drive”:
1 to 2 mm [39.37 mil to 78.74 mil]

Technical data

Positioning drive

Nominal torque (construction type)	**05 (K)**	**10 (K)**
Electrical data		
Supply voltage logic circuit[1]	20 V to 30 V DC (Nominal supply voltage: 24 V DC)	
Power circuit supply voltage[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**: 70 mA Connection technology **SA/ SL**: 10 mA	
Maximum current consumption power circuit[2] [3] [4]	Connection technology **ST/ SL**: 3 A Connection technology **SA**: 2 A[5]	Connection technology **ST/ SL**: 3 A Connection technology **SA**: 3 A[6]
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:	▪ IO-Link Industrial Ethernet ▪ EtherCAT; EtherNet/IP; PROFINET IO/RT	
Mechanical data		
Nominal torque output shaft[7]	Connection technology **ST**: 5 Nm at 50 min^{-1} [3.69 ft•lbf at 50 rpm] Connection technology **SA**: 5 Nm at 30 min^{-1} [3.69 ft•lbf at 30 rpm] Connection technology **SL**: 5 Nm at 50 min^{-1} [3.69 ft•lbf at 50 rpm]	Connection technology **ST**: 10 Nm at 30 min^{-1} [7.38 ft•lbf at 30 rpm] Connection technology **SA**: 10 Nm at 30 min^{-1} [7.38 ft•lbf at 30 rpm] Connection technology **SL**: 10 Nm at 30 min^{-1} [7.38 ft•lbf at 30 rpm]
Output shaft	Semi-hollow shaft	
Housing material	Aluminum	
Weight	≈ 1.0 kg [2.20 lb]	
Encoder data		
Resolution	1,000 increments per 360°	
Measuring system detection range	342 revolutions, also in de-energized state	
Positioning range	Not limited [8]	
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	

(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) Limited to 2 A ex factory. This value can be changed with an IO-Link parameter (see interface manual D-01R-6009IL or D-51R-6009IL).
(6) Limited to 3 A ex factory. This value can be changed with an IO-Link parameter (see interface manual D-01R-6009IL or D-51R-6009IL).
(7) At nominal supply voltage und nominal operation S2
(8) When the logic circuit supply voltage is applied, an electronic counter detects the positioning range beyond the measuring system detection range.

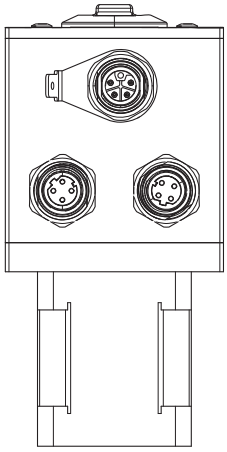
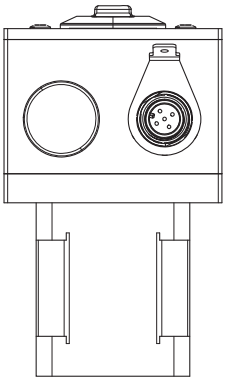
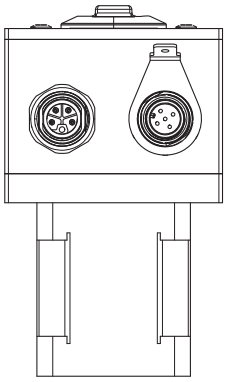
Nominal torque (construction type)	**05 (K)**	**10 (K)**
Degree of protection[1]	IP 54; DIN EN 60529:2014-09 IP 65, DIN EN 60529:2014-09, Shaft sealing ring (material: FKM)	
Dielectric strength	√2× 500 V AC; as per DIN EN 61439-1:2021-10	
EMC[2]	Electromagnetic immunity DIN EN 61000-6-1:2007-10, EN 61000-6-1:2007, 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	5g, 50 m/s² [164.04 ft/s²] @ 10 to 150 Hz; as per DIN EN 60068-2-6:2008-10	
Shock resistance	15g, 150 m/s² [492.13 ft/s²] @ 6 ms; as per DIN EN 60068-2-27:2010-02	
Noise emission	67 dB(A)	
Approvals		
European Economic Area	Conformity in accordance with ▪ EMC Directive 2014/30/EU ▪ Machinery Directive 2006/42/EC CE	

UL data (version C)[3]	
cULus recognized component	In preparation
Input voltage (power circuit) U_{IN} [4]	20 V to 30 V DC
Input power (power circuit), continuous operation	20 V to 30 V DC
Input voltage (power circuit),"duty cycle (DuCy) = 1 minute, break duration (BD) = 3 minutes"	In preparation
UL enclosure type[5]	Type 1
Ambient temperatures	
Working temperature range	In preparation
Operating temperature range	In preparation
Approvals	
USA and Canada[3]	Certification as cULus recognized component c UL us

(1) The degree of protection is only maintained if all blanking plugs are screwed in and all unused connectors are covered.
(2) Only use screened Ethernet cables.
(3) In preparation
(4) Corresponds to the supply voltage Power circuit
(5) The enclosure type is only maintained if all blanking plugs are screwed in and all unused connectors are covered.

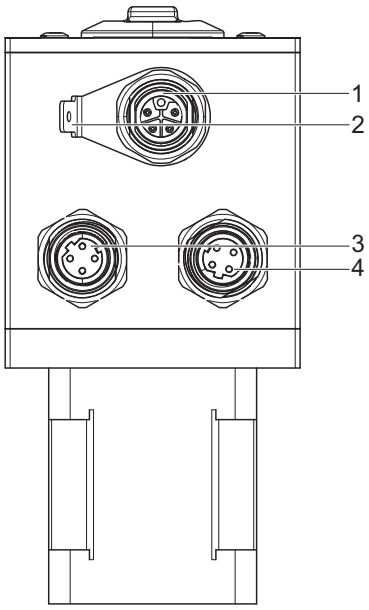
Overview — Connection Technologies

Connection Technologies

Connection Technology		
ST	**SA**	**SL**
1 connector ▪ Power supply logic circuit and power circuit 1 connector ▪ Communication interface IN 1 connector ▪ Communication interface OUT	1 connector ▪ Communication interface ▪ Power supply logic circuit and power circuit	1 connector ▪ Communication interface ▪ Power supply logic circuit 1 connector ▪ Power supply power circuit
 *ST underside connection technology*	 *SA underside connection technology*	 *SL underside connection technology*
Communication interfaces: **– –** (Configurable Industrial Ethernet interface) **EC** (EtherCAT) **IP** (EtherNet/IP) **RT** (PROFINET IO/RT)	Communication interfaces: **IL** (IO-Link)	Communication interfaces: **IL** (IO-Link)

Parts named

Connection elements underside



Underside

1 Male connector, M12 L-coded:
- Supply voltage logic circuit and power circuit

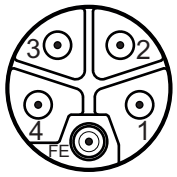
2 6.3 mm [0.25 in] flat connector:
- Functional ground

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

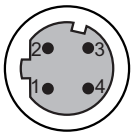
4 Switch socket, M12 D-coded:
- Communication interface OUT

Assignments

Supply voltage logic circuit and power circuit

Male connector, M12 L-coded (plug-in view)	Pin designation	Signal identifier
	1	+24 V logic
	2	GND power
	3	GND logic
	4	+24 V power
	FE	Functional ground
	Connector housing	Functional ground

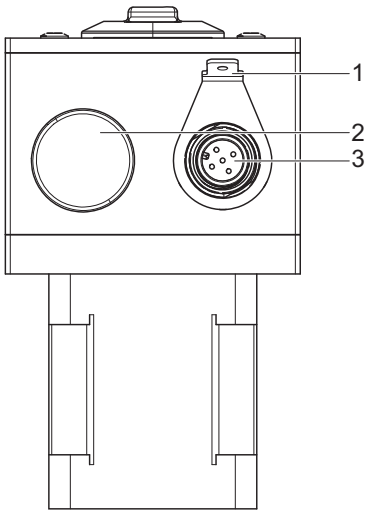
Industrial Ethernet communication interfaces

2 × switch socket, M12 D-coded (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

Connection elements underside



Underside

1 6.3 mm [0.25 in] flat connector:
- Functional ground

2 Sealing plug
(Not for operator use!)

3 Male connector, M12 A-coded:
- Communication interface IO-Link
- Logic circuit supply voltage
- Power circuit supply voltage

Assignments

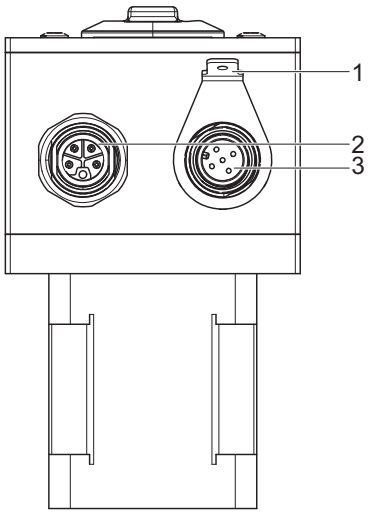
IO-Link communication interface and supply voltages (logic circuit and power circuit)

Male connector, M12 A-coded (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 (logic circuit)

Parts named

Connection elements underside



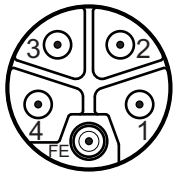
Underside
1 6.3 mm [0.25 in] flat connector:
- Functional ground

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

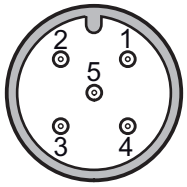
3 Male connector, M12 A-coded:
- Communication interface IO-Link
- Logic circuit supply voltage

Assignments

Power circuit supply voltage

Male connector, M12 L-coded (plug-in view)	Pin designation	Signal identifier
	1	unallocated
	2	GND power
	3	unallocated
	4	+24 V power
	FE	Functional ground
	Connector housing	Functional ground

IO-Link communication interface and logic circuit supply voltage

Male connector, M12 A-coded (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 (logic circuit)

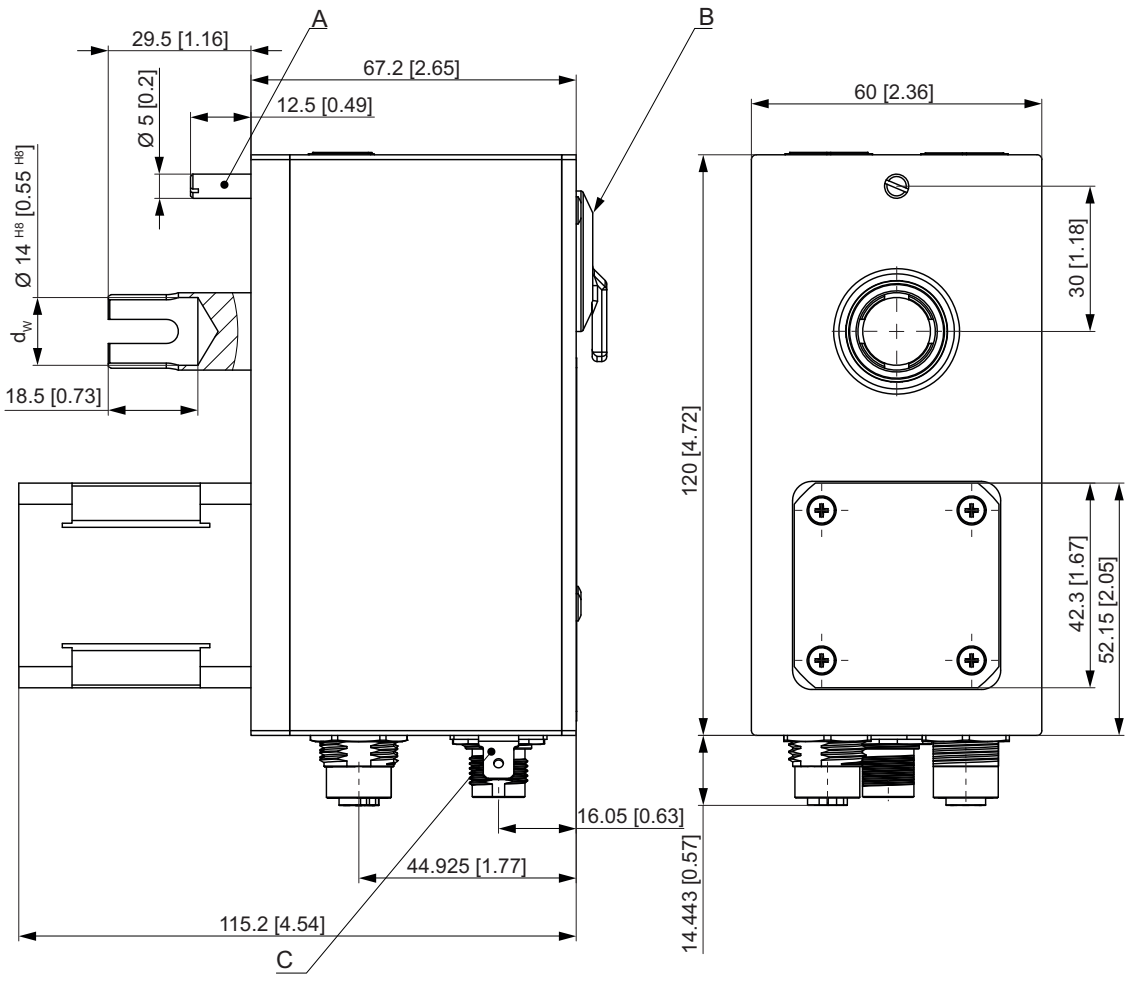
Dimensional drawings

All dimensions in millimeters [inch]; general tolerance DIN ISO 2768– mK

Design of blanking plugs and headless screws

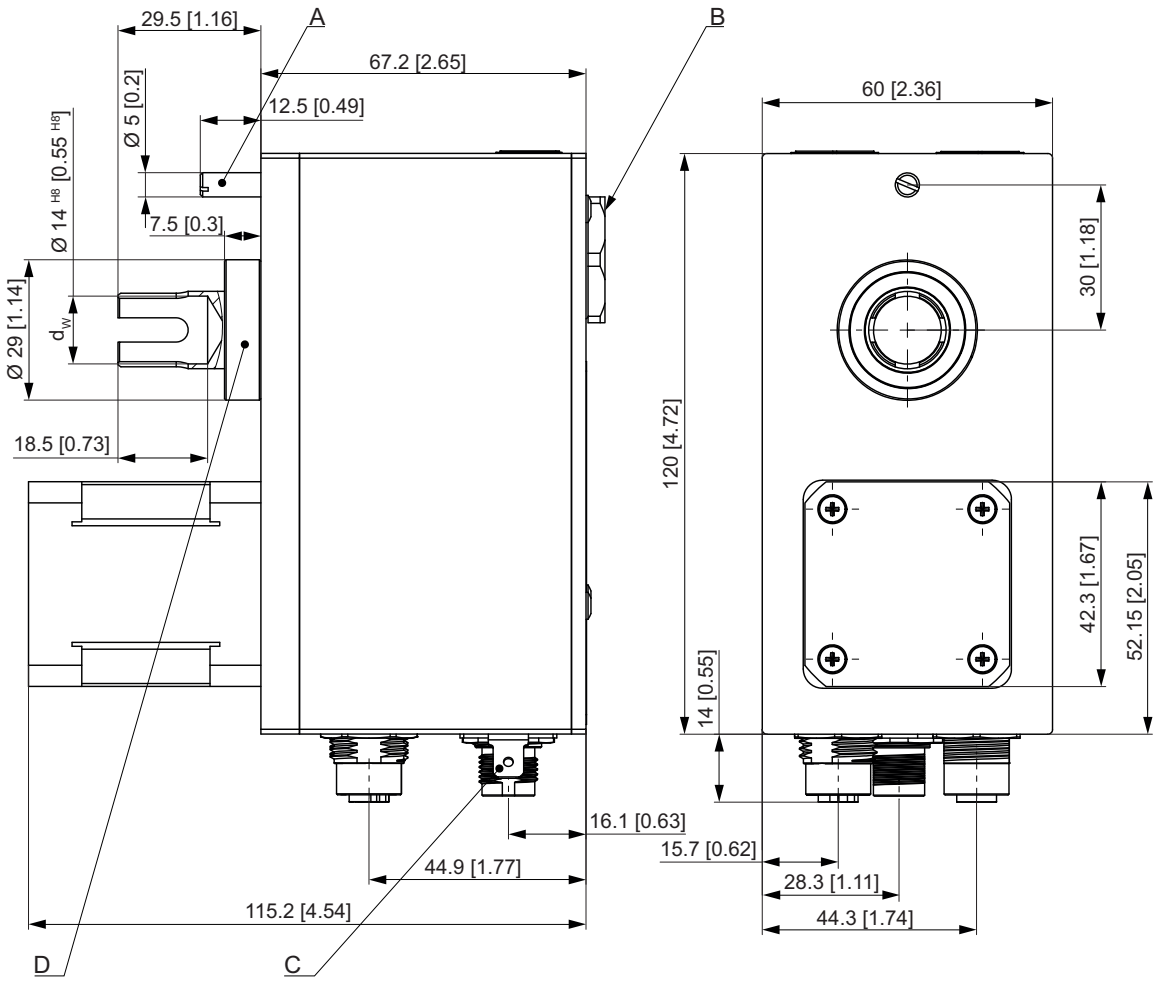
Nominal torque	Degree of protection	Blanking plug mounting type	Ø headless screw
05	**1**	Blanking plug with grip tab	5 mm
	2 with shaft sealing ring	Blanking plug with male thread Tightening torque: 2 Nm [1.48 ft•lbf]	
10	**1**	Blanking plug with grip tab	6 mm
	2 with shaft sealing ring	Blanking plug with male thread Tightening torque: 2 Nm [1.48 ft•lbf]	

Connection technology ST, nominal torque 05, degree of protection 1



A Ø 5 mm [0.2 in] headless screw
B Blanking plug with grip tab
C 6.3 mm [0.25 in] flat connector

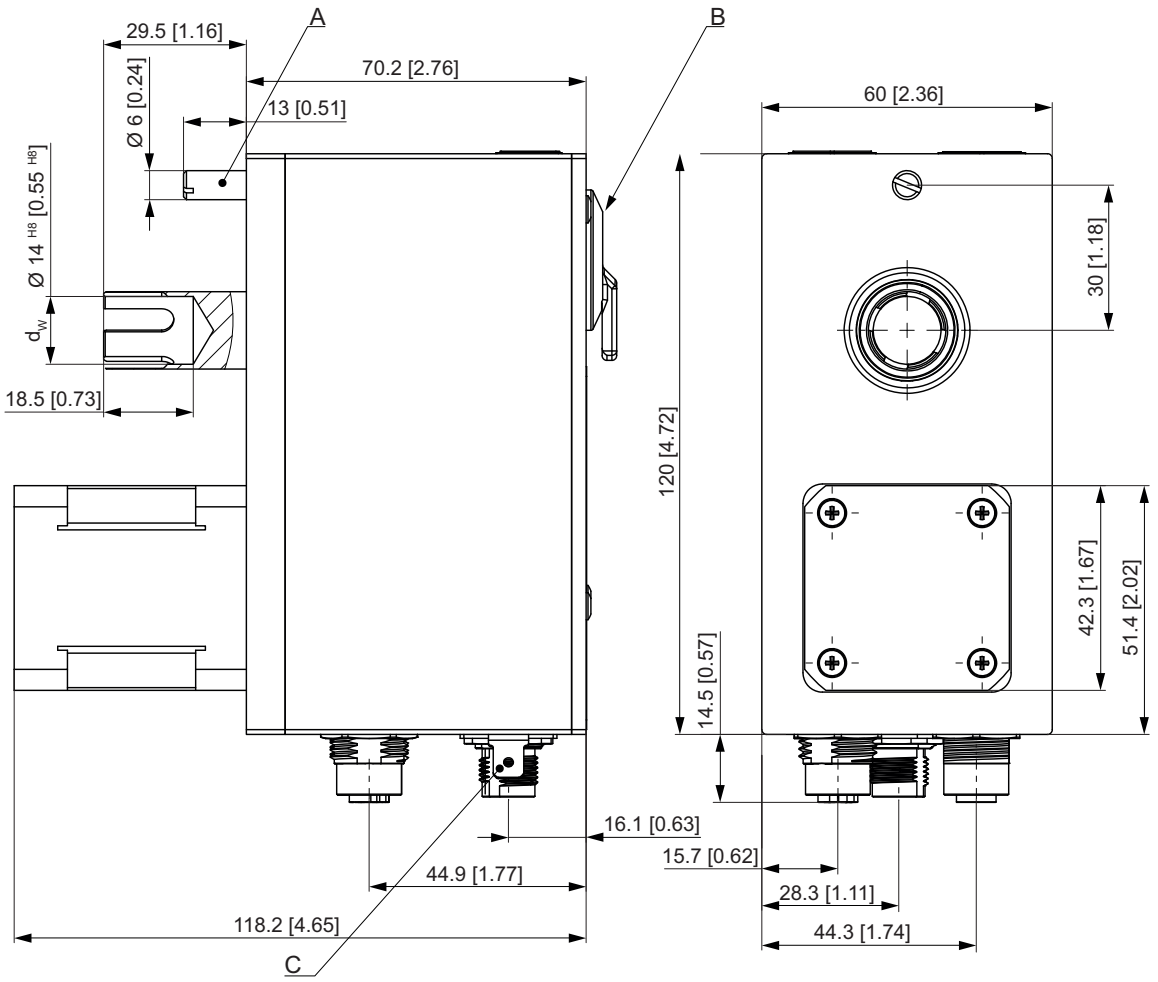
Connection technology ST, nominal torque 05, degree of protection 2



A Ø 5 mm [0.2 in] headless screw
B Blanking plug with male thread
C 6.3 mm [0.25 in] flat connector
D Shaft sealing ring

Dimensional drawings

Connection technology ST, nominal torque 10, degree of protection 1

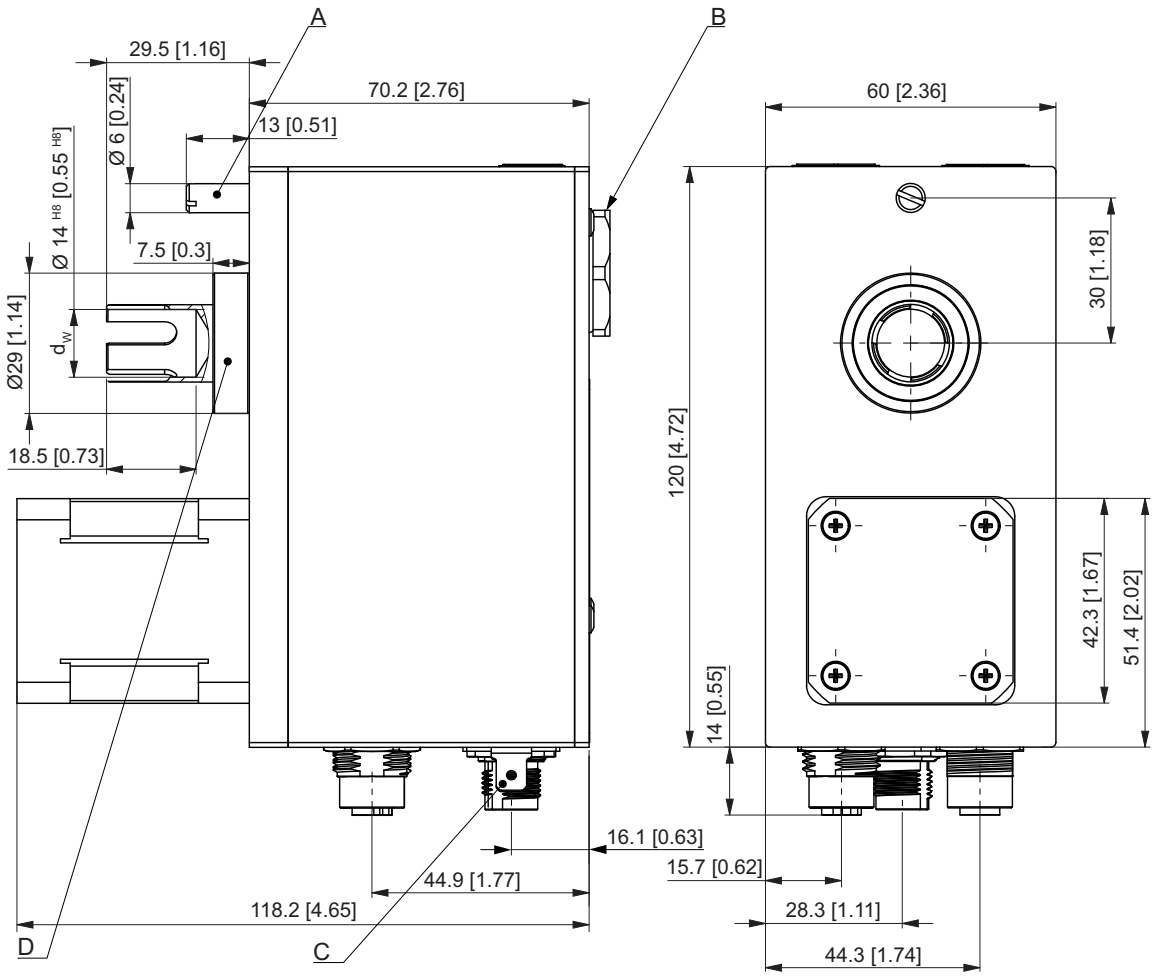


A Ø 6 mm [0.24 in] headless screw

B Blanking plug with grip tab

C 6.3 mm [0.25 in] flat connector

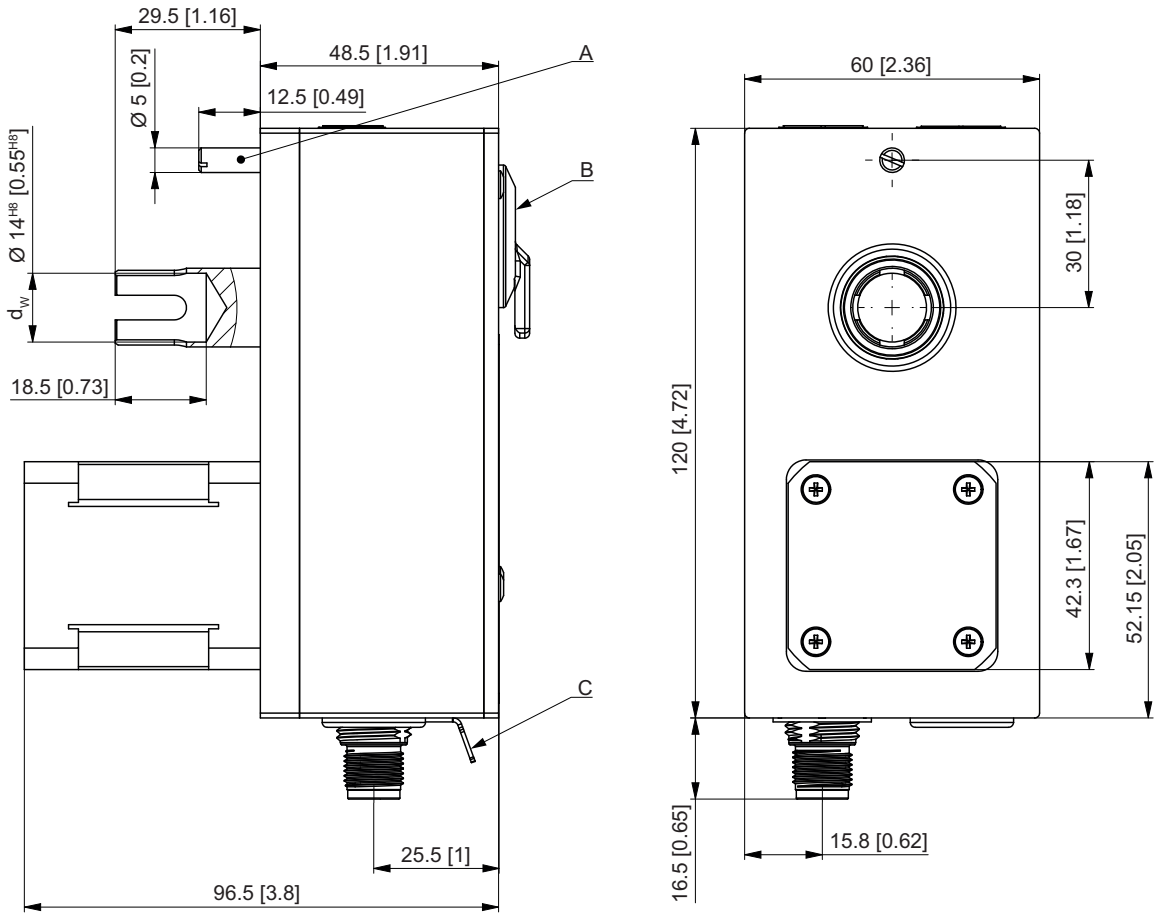
Connection technology ST, nominal torque 10, degree of protection 2



A Ø 6 mm [0.24 in] headless screw
B Blanking plug with male thread
C 6.3 mm [0.25 in] flat connector
D Shaft sealing ring

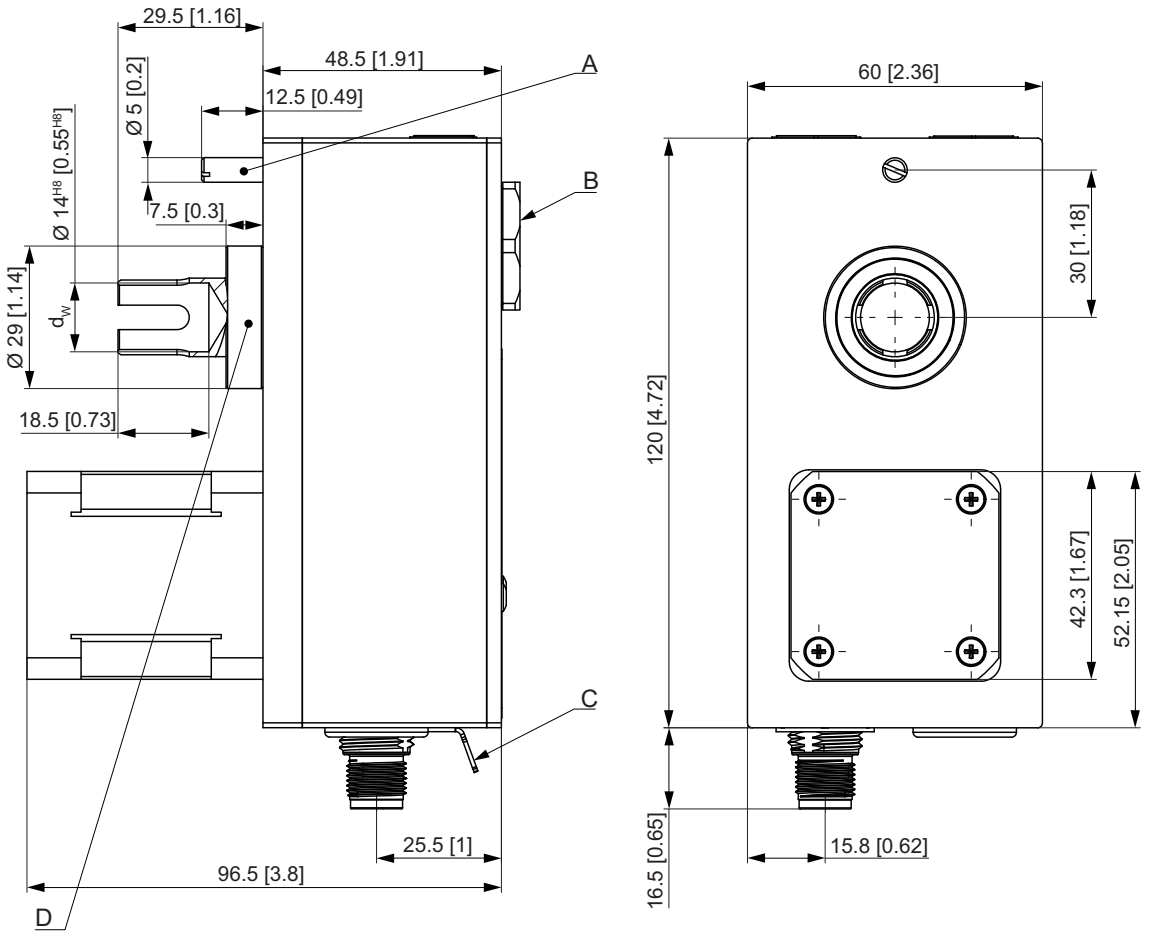
Dimensional drawings

Connection technology SA, nominal torque 05, degree of protection 1



A Ø 5 mm [0.2 in] headless screw
B Blanking plug with grip tab
C 6.3 mm [0.25 in] flat connector

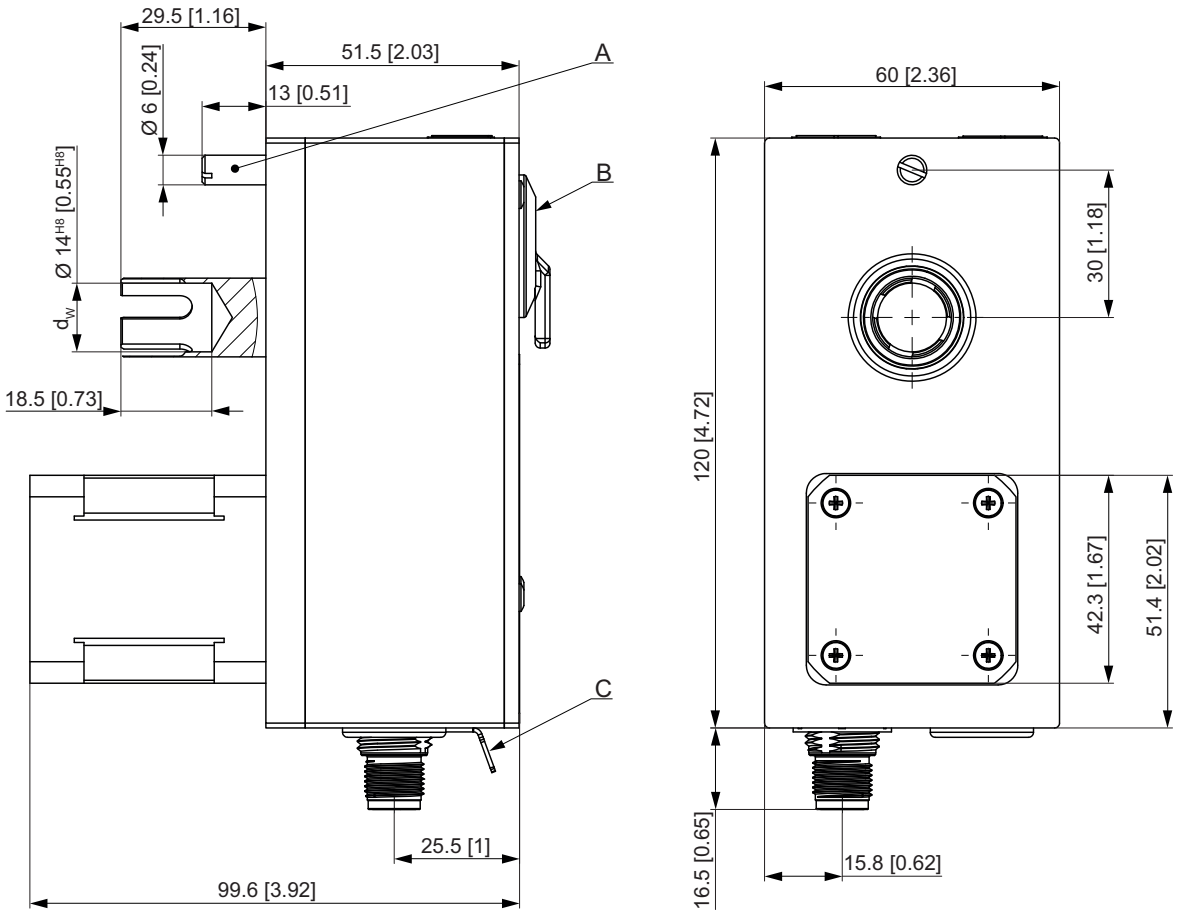
Connection technology SA, nominal torque 05, degree of protection 2



A Ø 5 mm [0.2 in] headless screw
B Blanking plug with male thread
C 6.3 mm [0.25 in] flat connector
D Shaft sealing ring

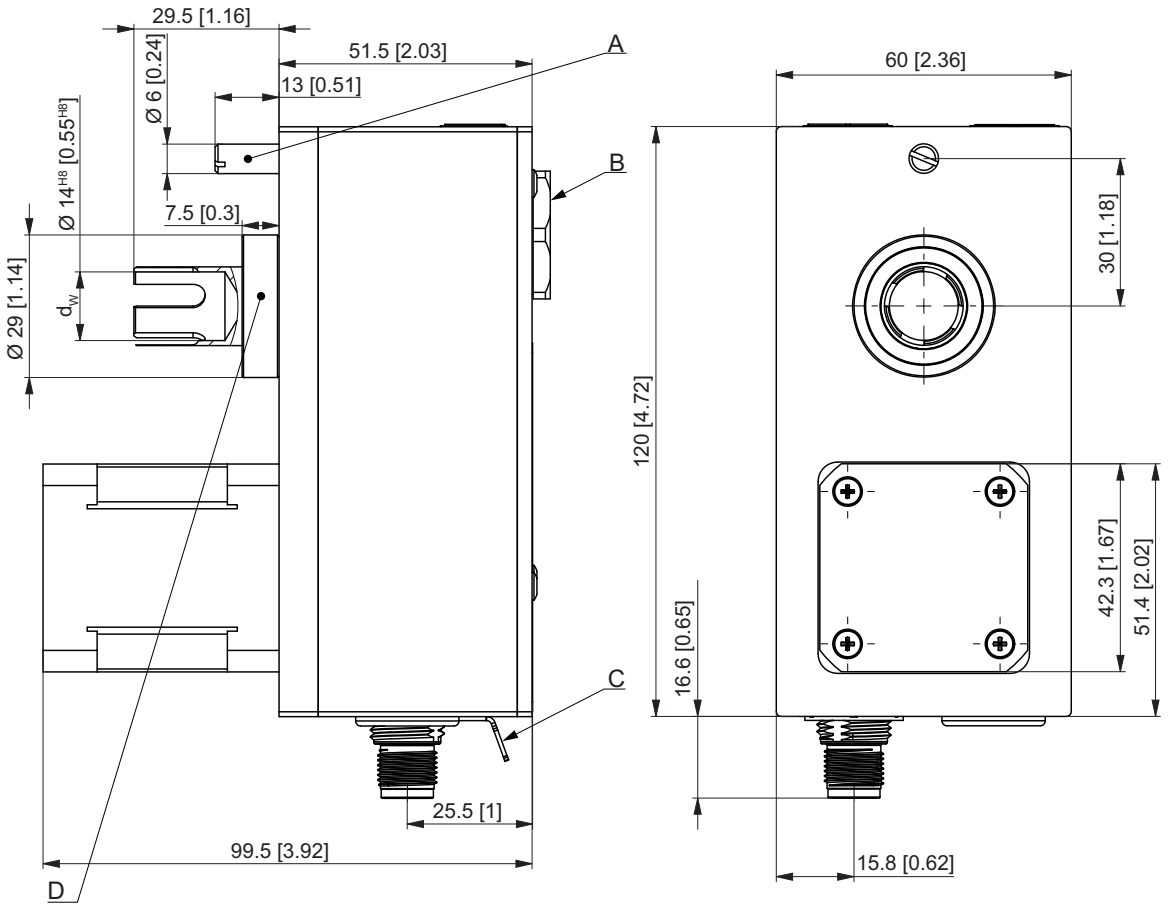
Dimensional drawings

Connection technology SA, nominal torque 10, degree of protection 1



A Ø 6 mm [0.24 in] headless screw
B Blanking plug with grip tab
C 6.3 mm [0.25 in] flat connector

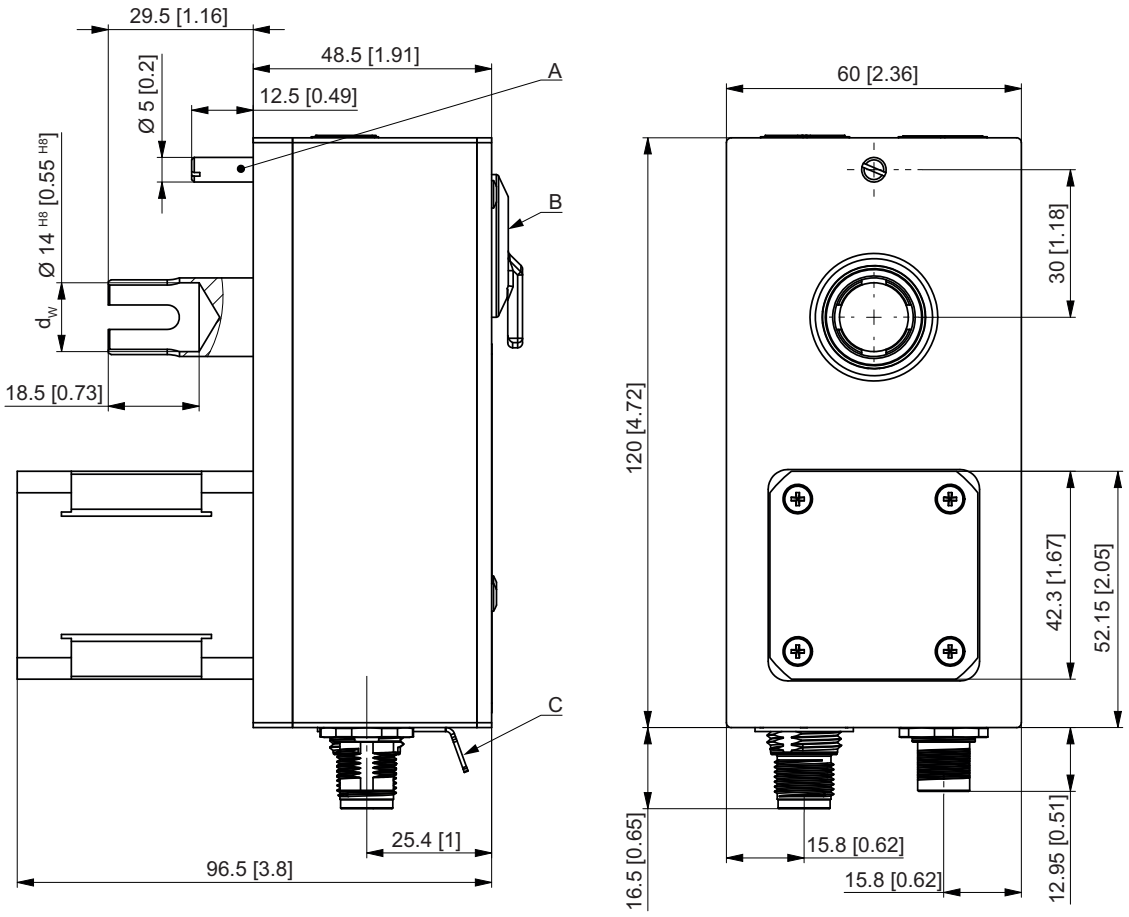
Connection technology SA, nominal torque 10, degree of protection 2



A Ø 6 mm [0.24 in] headless screw
B Blanking plug with male thread
C 6.3 mm [0.25 in] flat connector
D Shaft sealing ring

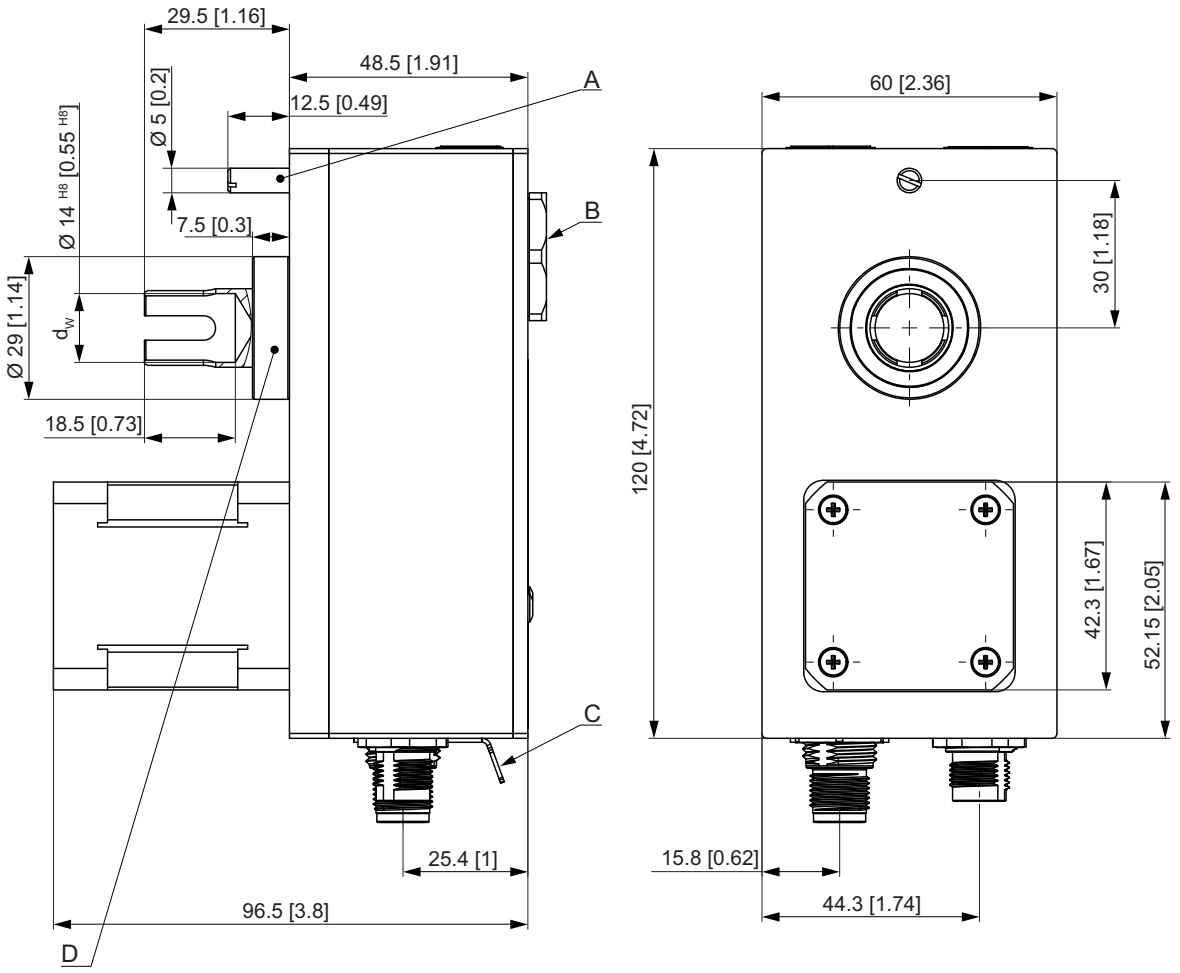
Dimensional drawings

Connection technology SL, nominal torque 05, degree of protection 1



A Ø 5 mm [0.2 in] headless screw
B Blanking plug with grip tab
C 6.3 mm [0.25 in] flat connector

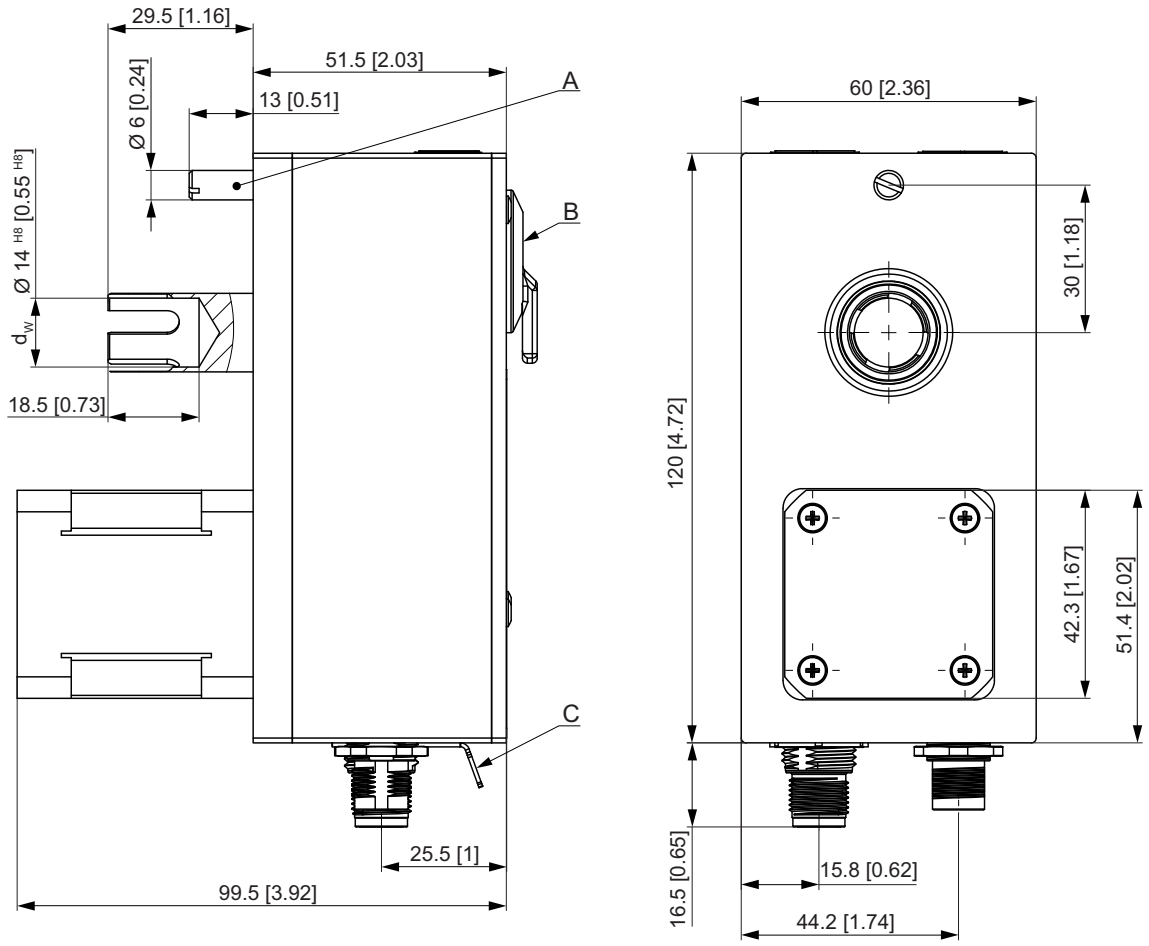
Connection technology SL, nominal torque 05, degree of protection 2



A Ø 5 mm [0.2 in] headless screw
B Blanking plug with male thread
C 6.3 mm [0.25 in] flat connector
D Shaft sealing ring

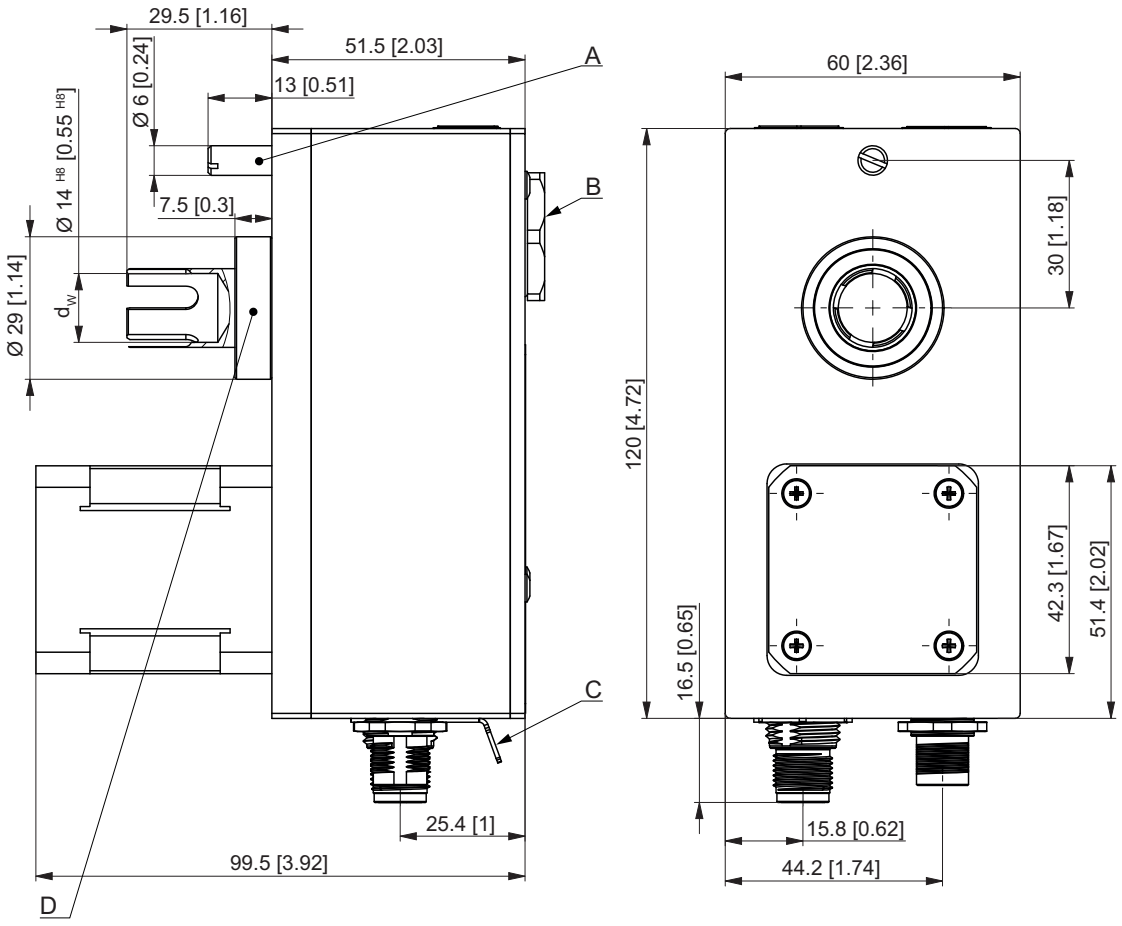
Dimensional drawings

Connection technology SL, nominal torque 10, degree of protection 1



A Ø 6 mm [0.24 in] headless screw
B Blanking plug with grip tab
C 6.3 mm [0.25 in] flat connector

Connection technology SL, nominal torque 10, degree of protection 2



A Ø 6 mm [0.24 in] headless screw
B Blanking plug with male thread
C 6.3 mm [0.25 in] flat connector
D Shaft sealing ring

Accessories and spare parts

Assembly and connection accessories

Accessories (not included in the scope of supply)

Designation	Item number
Clamping ring for output shaft **A**	MZ13711
USB service adapter	ZB60X01
Reducing sleeve di = 8 mm [0,31 in]	ZB60X03
Reducing sleeve di = 10 mm [0,39 in]	ZB60X04
Reducing sleeve di = 12 mm [0,47 in]	ZB60X05
Accessory set ▪ 1 pc. torque support including plain bearing OG0001, item number BG5013 ▪ 2 pc. screw M5×8, item number VS2107 ▪ 1 pc. headless screw M5×20, item number VS3412 ▪ 1 pc. assembly note, item number: D-53H-6110_01	ZB6104
Accessories for nominal torque 05	
Plain bearings, item number OG0001 (5 pcs.)	ZB61X01
Accessories for nominal torque 10	
Plain bearings, item number OG0002 (5 pcs.)	ZB60X06

Spare parts

Degree of protection 1

Designation	Item number
Blanking plug with grip tab (10 pcs.)	ZB60X02

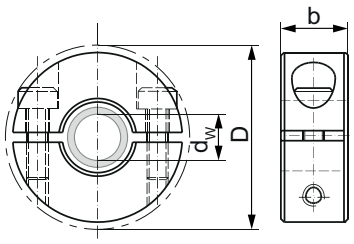
Warning stickers

Designation
Warning sign “Warning automatic start-up", lateral length 25 mm [0,98 in], ASR A1.3/ISO 7010, Warning sign W018
Warning sign “Do not touch the hot surface", lateral length 25 mm [0,98 in], ASR A1.3/ISO 7010, Warning sign W017

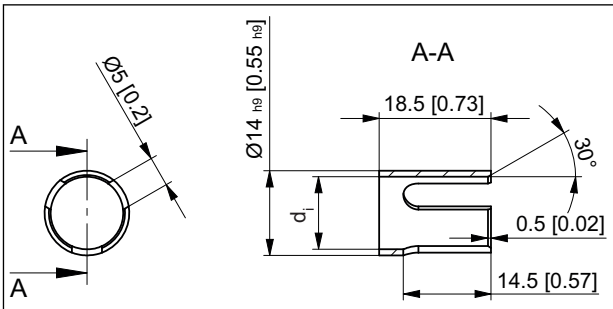
Dimensional drawings

All dimensions in millimeters [inch]; general tolerance DIN ISO 2768– mK

Clamping ring

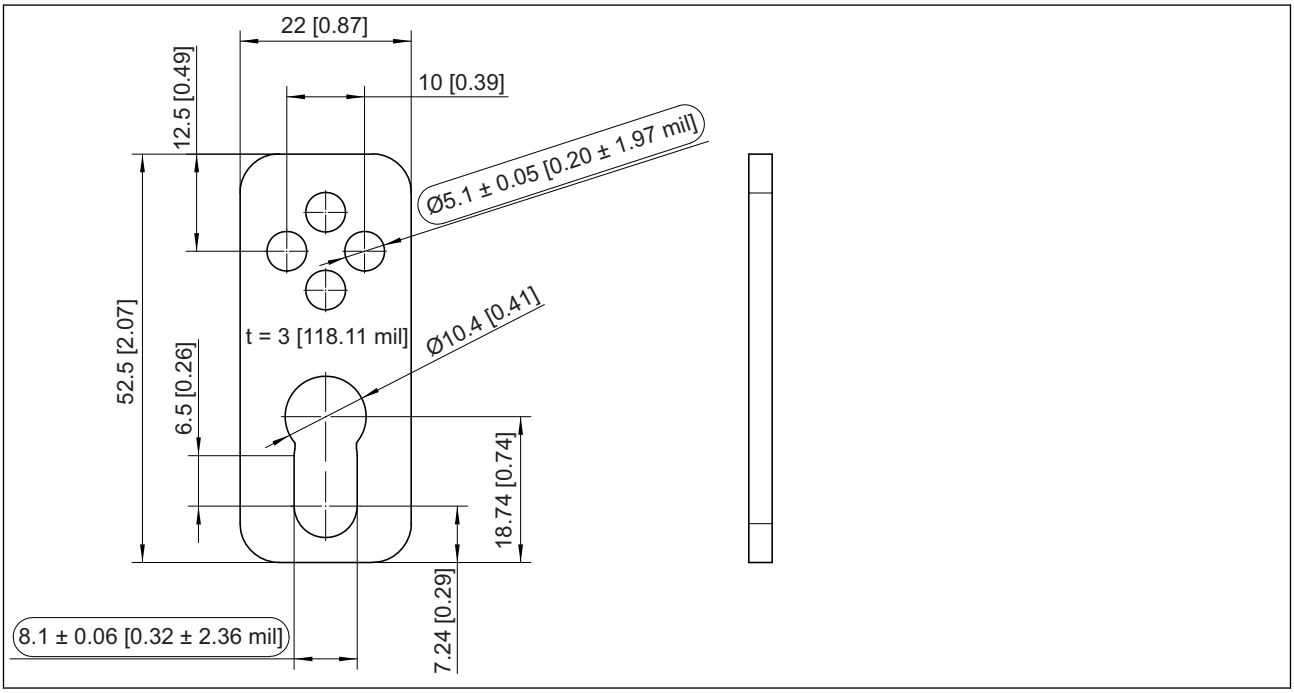
Dimensions/**item number**		**MZ13711**
	Diameter output shaft $\mathbf{d_w}$ ^{H8} (type code)	14 [0.55] (**A**)
	D	39.5 [1.56]
	b	13 [0.51]
	Screw DIN 912	M5

Reducing sleeves



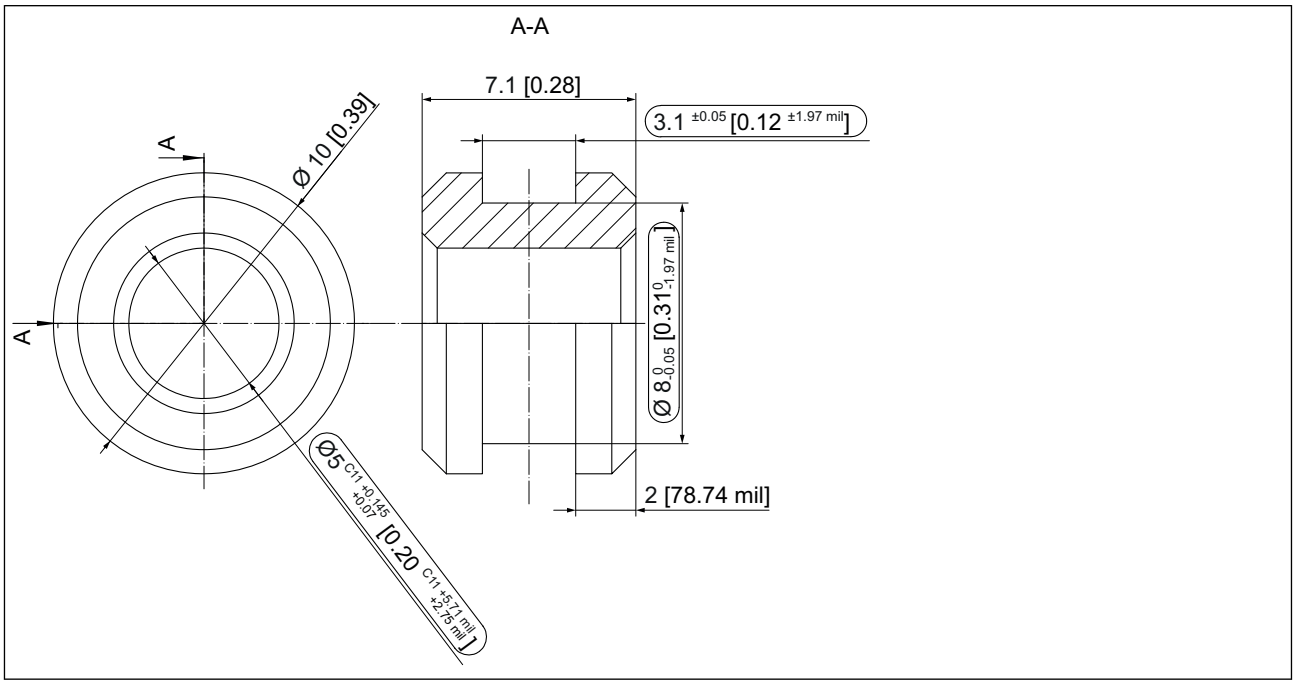
Dimensions/**item number**	**ZB60X05**	**ZB60X04**	**ZB60X03**
d_i	12 mm [0.47 in]	10 mm [0.39 in]	8 mm [0.31 in]
Tolerance	0/0.043 mm [0/1.69 mil]	0/0.036 mm [0/1.42 mil]	0/0.036 mm [0/1.42 mil]

Torque support from accessory set ZB6104

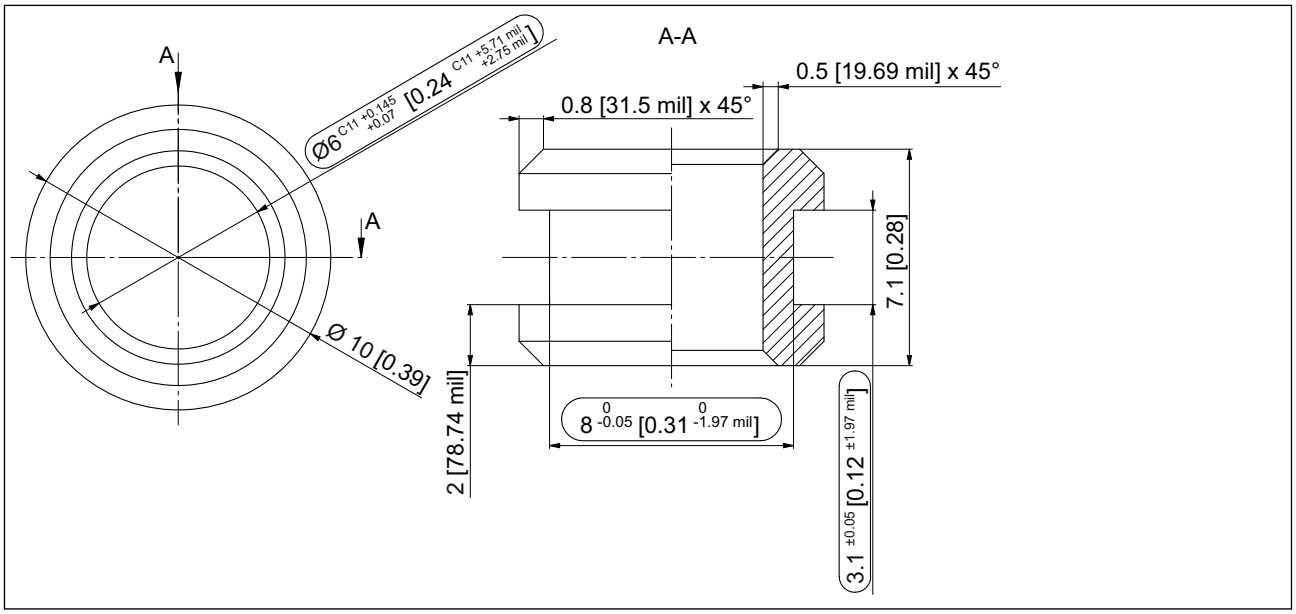


Accessories and spare parts

Plain bearings OG0001 for nominal torque 05 (the plain bearings are also contained in accessory set ZB6104.)



Plain bearings OG0002 for nominal torque 10 (item number ZB60X06)



Type code GEL 6009

	Communication interface								
	– – Configurable Industrial Ethernet interface[1]								
	EC EtherCAT								
	IL IO-Link								
	IP EtherNet/IP								
	RT PROFINET IO/RT								
		Nominal torque							
		05 5 Nm [3.69 ft•lbf]							
		10 10 Nm [7.38 ft•lbf]							
			Output shaft d_w in millimeter [inch]						
			A 14 H8 [0.55 H8] semi-hollow shaft						
				Housing material					
				A Aluminum					
					Construction type				
					K Short				
						Connection Technology			
						ST 3 connectors (2 × M12: fieldbus/industrial Ethernet, M12: power supply)			
						SA 1 Connector (M12: IO-Link and power supply)			
						SL 2 connectors (M12; separate power circuit power supply)			
							Sensor		
							M Magnetic-absolute multiturn encoder (342 revolutions)		
								Design	
								C cULus recognized component[2]	
									Degree of protection
									1 IP 54, DIN EN 60529:2014-0; Design **C**: [2]
									2 IP 65, DIN EN 60529:2014-09 (with shaft sealing ring and protection against humidity) Design **C**: [2]
6009	_ _	_ _	_	_	_	_ _	_	_	_

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 special housings and customized shafts are available upon request as per approval drawing.

Customized designs with a special assembly or with modified technical specifications are marked with a **Y** after the product type, followed by a three-digit number (<product type> **Y**_ _ _). Depending on the customized design, more or other documents may apply.

(1) USB service adapter required
(2) In preparation

Notes for USA and Canada

In preparation

Your notes

Your notes

Your notes

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Lenord, Bauer & Co. GmbH
Dohlenstraße 32
46145 Oberhausen
Germany
Phone +49 (0)208 9963-0
www.lenord.de

Lenord+Bauer Italia S.r.l.
Via Gustavo Fara, 26
20124 Milano
Italy
Phone +39 340 1047184
www.lenord.com

Lenord+Bauer USA Inc.
32000 Northwestern Highway
Suite 150
Farmington Hills, MI 48334
USA
Phone +1 248 446 7003
www.lenord.com

Lenord+Bauer
Automation Technology (Shanghai) Co.,Ltd.
Block 42, Room 302, No.1000, Jinhai Road
201206 Shanghai
China
Phone +86 21 50398270
www.lenord.cn