PRODUCT INFORMATION

DBS60 Core

RUGGED, VERSATILE INCREMENTAL ENCODERS FOR INDUSTRIAL APPLICATIONS

Incremental encoder

SICK
Sensor Intelligence.

DBS60 CORE
THE STANDARD PERFECTED:
RELIABLE. PRECISE. VERSATILE.

A real highlight in every sense

The DBS60 Core is a 60 mm incremental encoder with a universal electrical interface for many applications with various different flange and shaft types. Also with an isolated shaft for increased reliability. The encoder is stable and operationally safe, with a compact installation depth and a high protection class (IP65).
Its rugged structure and the large ball bearing distance enable permanently high bearing loads in addition to a long service life.

The DBS60 Core works reliably from –20 °C to +85 °C and optimally from –30 °C to +100 °C. Thanks to the flexible cable outlet it offers a large number of connection options. Benefit from its strengths!

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Product diversity is the name of the game

Flexible in the design of the electrical interfaces, SICK presents the DBS60 Core in addition to the standard TTL and HTL interfaces, also with a universal interface – in the voltage range from 4.5 V to 30 V, with automatic TTL/HTL adaptation. The encoder combines the 5 V TTL and the HTL interface in one product.

Pleasingly easy to assemble

The DBS60 Core wins over fans on the interface as a result of its many features, for example the solid shaft version, available in two variants. With a face mount flange, servo flange and the radial M23 or M12 male connector as well as many flange versions for the variants with through hollow shafts and blind hollow shafts. This means mounting can be achieved without significant effort. Simple and uncomplicated.

DBS60 CORE
QUICKLY CONNECTED
SOLID SHAFT

More options included

The universal hole pattern in the flange offers users a wide range of mounting options for various different applications without a great deal of effort for exchange encoders too. Its strength: it is particularly suitable for high radial loads.

Very flexible

Confined spaces are no problem for the DBS60 Core: its universal cable connection with flexible cabling means it can be used even in the smallest area. The radial connector outputs M12 and M23 ensure an optimal connection.

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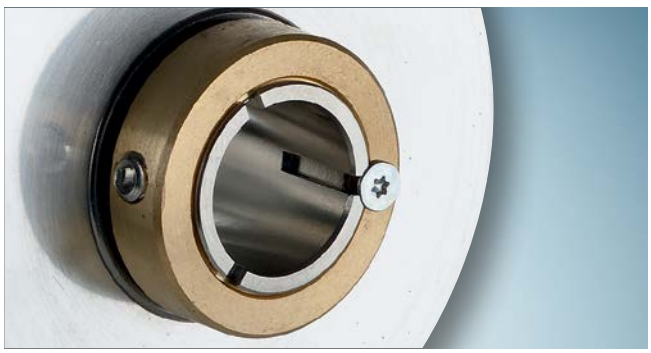
DBS60 CORE WELL-EQUIPPED AS A HOLLOW SHAFT

Always the optimal solution

The hollow shaft design of the DBS60 Core is equipped with a through hollow shaft or a blind hollow shaft. With a clamping ring on the front and optionally on the back of the through hollow shaft, facilitating its mounting considerably.

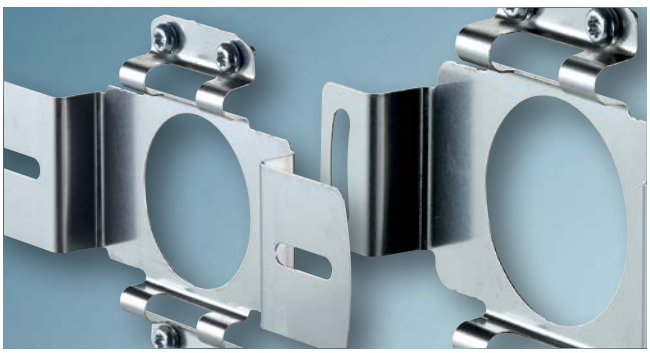
More safety in the detail

Small part with a large effect: the DBS60 Core can be delivered with an isolated shaft connection as desired. The plastic insert provides optimal protection for the encoder against high shaft temperatures and shaft flows.



Undetachable: screw secures collet

SICK places a high value on user friendliness: in the hollow shaft version of the DBS60 Core the collet is secured with a screw. This eliminates the risk of this being lost while the encoder is being mounted.



Advancement through diversity

With the universal stator coupling, many different applications are possible with just one encoder variant. If this is not suitable for your use, we have a wide selection for you: one or two-sided stator coupling for various different mounting positions and an adapter flange for register pin mounting, or simply without stator coupling at all.

RUGGED, VERSATILE INCREMENTAL ENCODERS FOR INDUSTRIAL APPLICATIONS

Additional information

Product description

The DBS60 Core is a rugged incremental encoder with a 58 mm diameter and compact installation depth. It offers a large range of mechanical and electrical interfaces. The solid shaft models are available with face mount flange and servo flange. The hollow shaft design is available as a blind hollow shaft and as a through hollow shaft and can receive shafts up to 5/8" (15.875 mm). The optional shaft insulation and the shaft clamping on the back of the encoder are unique to the hollow shafts. In addition to the standard interfaces 5 V and 24 V TTL/RS422 and 24 V HTL/push-pull, the DBS60 Core offers a flexible universal interface which combines the 5 V TTL and 24 V HTL in one product. The high enclosure rating IP 65 and the large ball bearing distance ensure high robustness and reliability, even in the case of high shaft loads. With a resolution of up to 5000 pulses, the DBS60 Core is the ideal product for standard use in various different industries.

At a glance

- Face mount flange, servo flange, blind and through hollow shaft
- Housing: Ø 58 mm; compact installation depth, large bearing distance
- Flange and stator couplings enable diverse mounting options
- Line count: up to 5000 pulses
- Cable outlet, radial M23 or M12 male connector
- TTL/RS-422 and HTL/push-pull, universal interface TTL/HTL with 4.5 V DC to 30 V DC
- Hollow shafts: metal up to Ø 5/8", isolated up to Ø 15 mm; clamping at the front and back

Your benefits

- Diverse installation options due to different flange and shaft versions
- Universal cable outlet and radial connector allow use in tight spaces and make flexible cable routing possible
- Compact housing dimensions save valuable space Optional hollow shaft clamp on the back facilitates mounting
- Protects the encoder against high shaft temperatures and currents through optional isolated shafts
- Flanges and stator couplings with different mounting holes allow diverse mounting options with one encoder version
- Rugged design with large bearing distance allows high shaft loads and a longer service life
- The TTL/HTL combination interface enables less product variety and reduces storage costs

→ www.mysick.com/en/DBS60_Core

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

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Detailed technical data

Performance

Pulses per revolution	4 ... 5000 [1]
Measurement step	90° electrical/pulses per revolution
Measurement step deviation	
< 3600 pulses per revolution	± 18°/pulses per revolution
≥ 3600 pulses per revolution	± 36°/pulses per revolution
Error limits	Measurement step deviation x 3
Duty cycle	
< 3600 pulses per revolution	≤ 0.5 ± 5%
≥ 3600 pulses per revolution	≤ 0.5 ± 10%
Initialization time	< 5 ms [2]

[1] For available pulses per revolution see type code.

[2] After this period valid signals can be read.

Mechanical data

	Solid shaft	Blind hollow shaft	Through hollow shaft
Mechanical design	Solid shaft, servo flange Solid shaft, face mount flange	Blind hollow shaft	Through hollow shaft clamping at the back Through hollow shaft
Shaft diameter	6 mm x 10 mm [1] 10 mm x 19 mm [1]	6 mm 8 mm 3/8" 10 mm 12 mm 1/2" 14 mm 15 mm 5/8" 6 mm (shaft isolated) 8 mm (shaft isolated) 3/8" (shaft isolated) 10 mm (shaft isolated) 12 mm (shaft isolated) 1/2" (shaft isolated) 14 mm (shaft isolated) 15 mm (shaft isolated)	
Mass	0.3 kg [2]	0.25 kg [2]	
Shaft material	Stainless steel	Stainless steel Stainless steel with plastic collar	
Flange material	Aluminum		
Housing material	Aluminum		
Cable material	PVC		
Startup torque	1.2 Ncm (+20 °C)	0.5 Ncm (+20 °C)	
Operating torque	1.1 Ncm (+20 °C)	0.4 Ncm (+20 °C)	
Permissible shaft movement, axial static/ dynamic	–	± 0.5 mm, ± 0.2 mm	

[1] Other on request.

[2] Based on an encoder with a connector outlet or a cable with a connector outlet.

[3] Higher values possible by limiting the overall service life.

[4] Take into account self-heating of 3.2 K per 1000 revolutions/min when designing the working temperature range.

[5] Take into account self-heating of 2.6 K per 1000 revolutions/min when designing the working temperature range.

[6] Maximum speed which does not lead to any harm to the encoder. Impact on the service life and signal quality is possible. Please note the maximum output frequency.

	Solid shaft	Blind hollow shaft	Through hollow shaft
Permissible shaft movement, radial static/dynamic	–	± 0.3 mm, ± 0.1 mm	
Permissible shaft load, radial/axial	100 N (radial) [3] 50 N (axial) [3]	–	
Operating speed	6000 /min [4]	6000 /min [5]	
Maximum operating speed	9000 /min [6]		
Rotor moment of inertia	33 gcm²	50 gcm²	
Bearing lifetime	3.6 x 10^9 revolutions		
Max. angular acceleration	500,000 rad/s²	500,000 rad/s² 200,000 rad/s² (shaft isolated)	

[1] Other on request.

[2] Based on an encoder with a connector outlet or a cable with a connector outlet.

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[5] Take into account self-heating of 2.6 K per 1000 revolutions/min when designing the working temperature range.

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Electrical data

	Solid shaft	Blind hollow shaft	Through hollow shaft
Electrical interface	4.5 V ... 5.5 V, TTL/RS422 [1] 10 V ... 30 V, TTL/RS422 [1] 10 V ... 27 V, HTL/Push pull [1] 4.5 V ... 30 V, TTL/HTL universal [1] [2]		
Connection type	Male connector M23, 12-pin, radial Male connector M12, 8-pin, radial Cable, 8-wire, universal, 0.5 m [3] Cable with male connector M12, 8-pin, universal, 0.5 m [3] Cable with male connector M23, 12-pin, universal, 0.5 m [3] Cable, 8-wire, universal, 1.5 m [3] Cable, 8-wire, universal, 3 m [3] Cable, 8-wire, universal, 5 m [3] Cable, 8-wire, universal, 10 m [3]		
Operating current (no load)			
4.5 V ... 5.5 V, TTL/RS422	≤ 50 mA		
Max. power consumption without load			
10 V ... 30 V, TTL/RS422	≤ 0.5 W		
10 V ... 27 V, HTL/Push pull	≤ 1 W		
4.5 V ... 30 V, TTL/HTL universal	≤ 0.5 W		
Load current	≤ 30 mA per channel		
Maximum output frequency	300 kHz [4]		
Reference signal, number	1		
Reference signal, position	90 degrees electric, logically gated with A and B		
Reverse polarity protection	✔		
Short-circuit protection of the outputs			

[1] 6 channels unless otherwise specified.

[2] Output level depends on the supply voltage.

[3] The universal cable connection is positioned so that it is possible to lay it without bends in a radial or axial direction.

[4] Up to 450 kHz on request.

[5] Short-circuit of another channel or GND permissible for a maximum of 60 s. No protection in the case of a short-circuit channel of U_s.

[6] Short-circuit of another channel or GND permissible for a maximum of 30 s.

[7] This product is a standard product and does not constitute a safety component as defined in the Machinery Directive. Calculation based on nominal load of components, average ambient temperature 40 °C, frequency of use 8760 h/a. All electronic failures are considered hazardous. For more information, see document no. 8015532".

	Solid shaft	Blind hollow shaft	Through hollow shaft
4.5 V ... 5.5 V, TTL/RS422	✔ [5]		
10 V ... 30 V, TTL/RS422	✔ [6]		
10 V ... 27 V, HTL/Push pull	✔ [6]		
4.5 V ... 30 V, TTL/HTL universal	✔ [6]		
MTTFd: time to hazardous failure [7]	500 years (EN ISO 13849-1)		

[1] 6 channels unless otherwise specified.

[2] Output level depends on the supply voltage.

[3] The universal cable connection is positioned so that it is possible to lay it without bends in a radial or axial direction.

[4] Up to 450 kHz on request.

[5] Short-circuit of another channel or GND permissible for a maximum of 60 s. No protection in the case of a short-circuit channel of U_S.

[6] Short-circuit of another channel or GND permissible for a maximum of 30 s.

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For more information, see document no. 8015532".

Ambient data

	Solid shaft	Blind hollow shaft	Through hollow shaft
EMC	According to EN 61000-6-2 and EN 61000-6-3		
Enclosure rating	IP 67 on housing side (acc. to IEC 60529) [1] IP 65 on shaft side (acc. to IEC 60529)		IP 65 on housing side (acc. to IEC 60529) [1] IP 65 on shaft side (acc. to IEC 60529)
Permissible relative humidity	90% (condensation of optical surfaces not permitted)		
Working temperature range			
4.5 V ... 5.5 V, TTL/RS422	–20 °C ... +85 °C		
10 V ... 30 V, TTL/RS422	–30 °C ... +100 °C, at a maximum of 3000 pulses per revolution –30 °C ... +85 °C, at more than 3000 pulses per revolution		
10 V ... 27 V, HTL/Push pull	–20 °C ... +85 °C		
4.5 V ... 30 V, TTL/HTL universal	–30 °C ... +100 °C, at a maximum of 3000 pulses per revolution –30 °C ... +85 °C, at more than 3000 pulses per revolution		
Storage temperature range	–40 °C ... +100 °C, without packaging		
Resistance to shocks	250 g, 3 ms (according to EN 60068-2-27)	250 g, 3 ms (according to EN 60068-2-27) 200 g, 3 ms, shaft isolated (according to EN 60068-2-27)	
Resistance to vibrations	30 g/10 Hz ... 2000 Hz (according to EN 60068-2-6)		

[1] In an assembled male connector.

Ordering information

Other device versions available at www.mysick.com/en/DBS60_Core

Blind hollow shaft

- **Shaft diameter:** 5/8"
- **Connection type:** cable, 8-wire universal, 1.5 m

Electrical interface	Voltage range	Pulses per revolution	Type	Part no.
TTL/RS422	4.5 V ... 5.5 V	1024	DBS60E-BJAK01024	1069704
		2048	DBS60E-BJAK02048	1069367
	10 V ... 30 V	1024	DBS60E-BJCK01024	1070607
		2048	DBS60E-BJCK02048	1070608
HTL/push pull	10 V ... 27 V	1024	DBS60E-BJEK01024	1069707
		2048	DBS60E-BJEK02048	1069709

Through hollow shaft

- **Shaft diameter:** 5/8"

Electrical interface	Voltage range	Connection type	Pulses per revolution	Type	Part no.
TTL/RS422	4.5 V ... 5.5 V	Cable with male connector M23, 12-pin, universal, 0.5 m	1024	DBS60E-TJAQ01024	1069756
			2048	DBS60E-TJAQ02048	1069757
		Cable, 8-wire universal, 1.5 m	1024	DBS60E-TJAK01024	1069746
			2048	DBS60E-TJAK02048	1069747
			4096	DBS60E-TJAK04096	1069748
	10 V ... 30 V	Cable, 8-wire universal, 1.5 m	1024	DBS60E-TJCK01024	1070615
			2048	DBS60E-TJCK02048	1070616
HTL/push pull	10 V ... 27 V	Cable, 8-wire universal, 1.5 m	1024	DBS60E-TJEK01024	1069758
			2048	DBS60E-TJEK02048	1069759
			4096	DBS60E-TJEK04096	1069760
TTL/HTL universal	4.5 V ... 30 V	Cable, 8-wire universal, 1.5 m	1024	DBS60E-TJFK01024	1070748
			2048	DBS60E-TJFK02048	1070749
			4096	DBS60E-TJFK04096	1070750

Through hollow shaft clamping at the back

- **Shaft diameter:** 5/8"
- **Connection type:** cable, 8-wire universal, 1.5 m

Electrical interface	Voltage range	Pulses per revolution	Type	Part no.
TTL/RS422	4.5 V ... 5.5 V	1024	DBS60E-RJAK01024	1069710
		2048	DBS60E-RJAK02048	1069711
		4096	DBS60E-RJAK04096	1069712
	10 V ... 30 V	1024	DBS60E-RJCK01024	1070609
		2048	DBS60E-RJCK02048	1070610
HTL/push pull	10 V ... 27 V	1024	DBS60E-RJEK01024	1069713
		2048	DBS60E-RJEK02048	1069714
TTL/HTL universal	4.5 V ... 30 V	1024	DBS60E-RJFK01024	1070744
		2048	DBS60E-RJFK02048	1070745

Solid shaft, servo flange

- **Shaft diameter:** 6 mm (other diameters available on request)

Electrical interface	Voltage range	Connection type	Pulses per revolution	Type	Part no.
TTL/RS422	4.5 V ... 5.5 V	Cable, 8-wire universal, 1.5 m	1000	DBS60E-S1AK01000	1069715
			2000	DBS60E-S1AK02000	1069716
	10 V ... 30 V	Cable, 8-wire universal, 1.5 m	1000	DBS60E-S1CK01000	1070611
		Cable, 8-wire universal, 1.5 m	2000	DBS60E-S1CK02000	1070612
HTL/push pull	10 V ... 27 V	Cable, 8-wire universal, 1.5 m	1000	DBS60E-S1EK01000	1069717
			2000	DBS60E-S1EK02000	1069718

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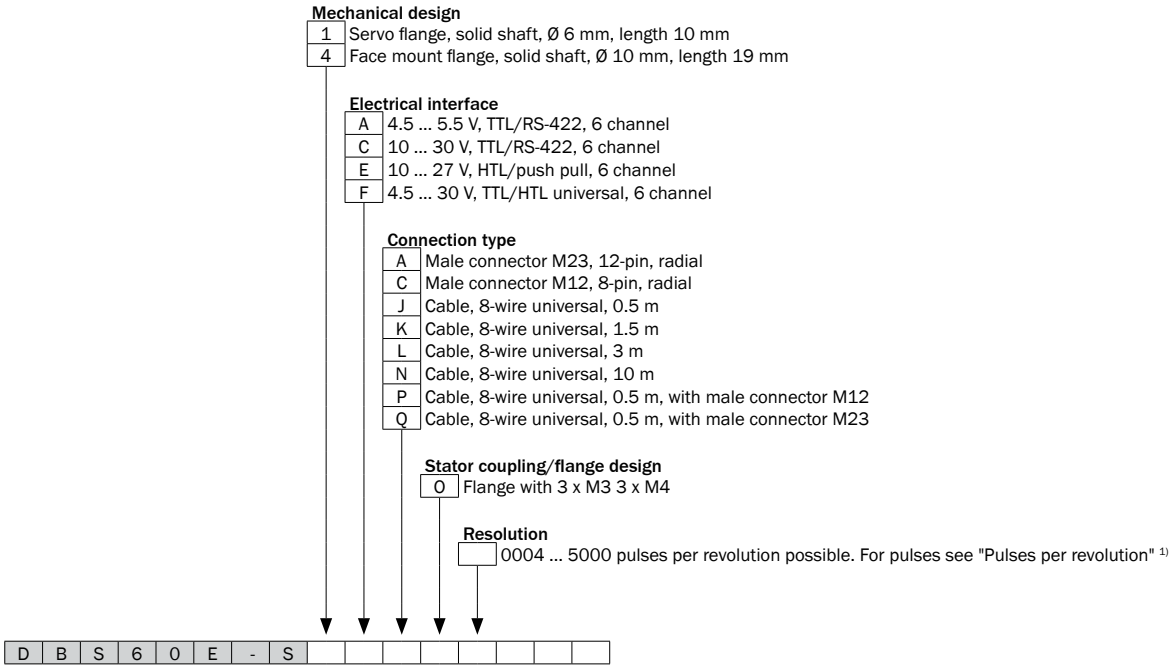
Solid shaft, face mount flange

- **Shaft diameter:** 10 mm (other diameters available on request)
- **Connection type:** cable, 8-wire universal, 1.5 m

Electrical interface	Voltage range	Pulses per revolution	Type	Part no.
TTL/RS422	4.5 V ... 5.5 V	1000	DBS60E-S4AK01000	1069719
		2000	DBS60E-S4AK02000	1069720
		5000	DBS60E-S4AK05000	1069721
	10 V ... 30 V	1000	DBS60E-S4CK01000	1070613
		2000	DBS60E-S4CK02000	1070614
HTL/push pull	10 V ... 27 V	1000	DBS60E-S4EK01000	1069722
		2000	DBS60E-S4EK02000	1069723
		5000	DBS60E-S4EK05000	1069724
TTL/HTL universal	4.5 V ... 30 V	1000	DBS60E-S4FK01000	1070746
		2000	DBS60E-S4FK02000	1070747

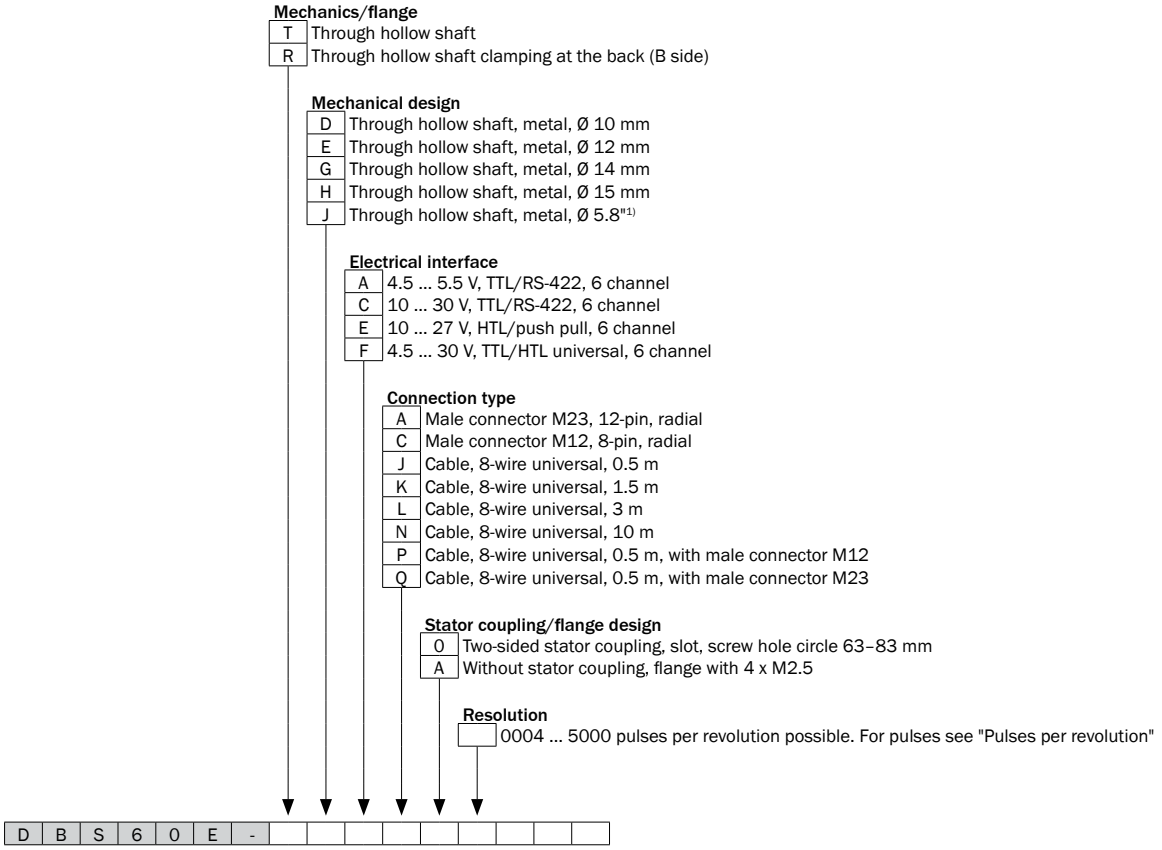
Type code

Solid shaft



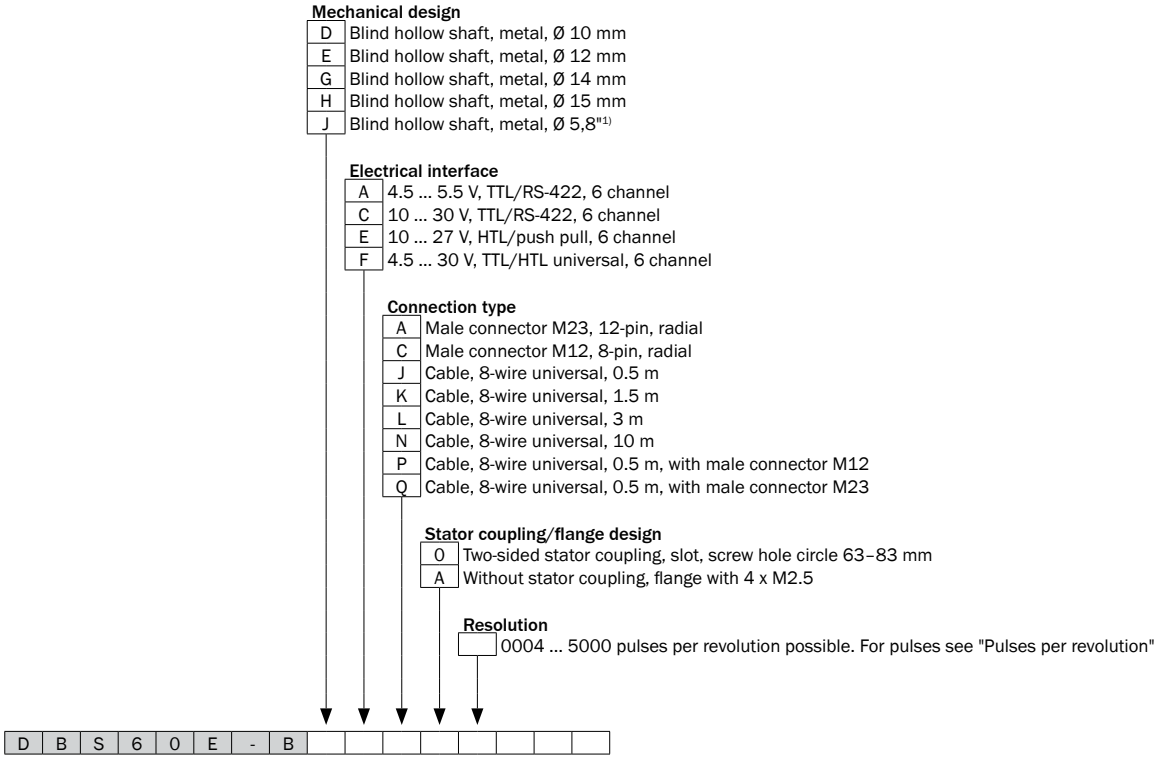
1) Other pulse on request.

Through hollow shaft



1) Order collets for 6 mm (only plastic) 8 mm, 3/8", 10 mm, 12 mm, 1/2", 14 mm and 15 mm separately as accessories (see recommended accessories). No collets are necessary for 5/8" shaft diameter.

Blind hollow shaft



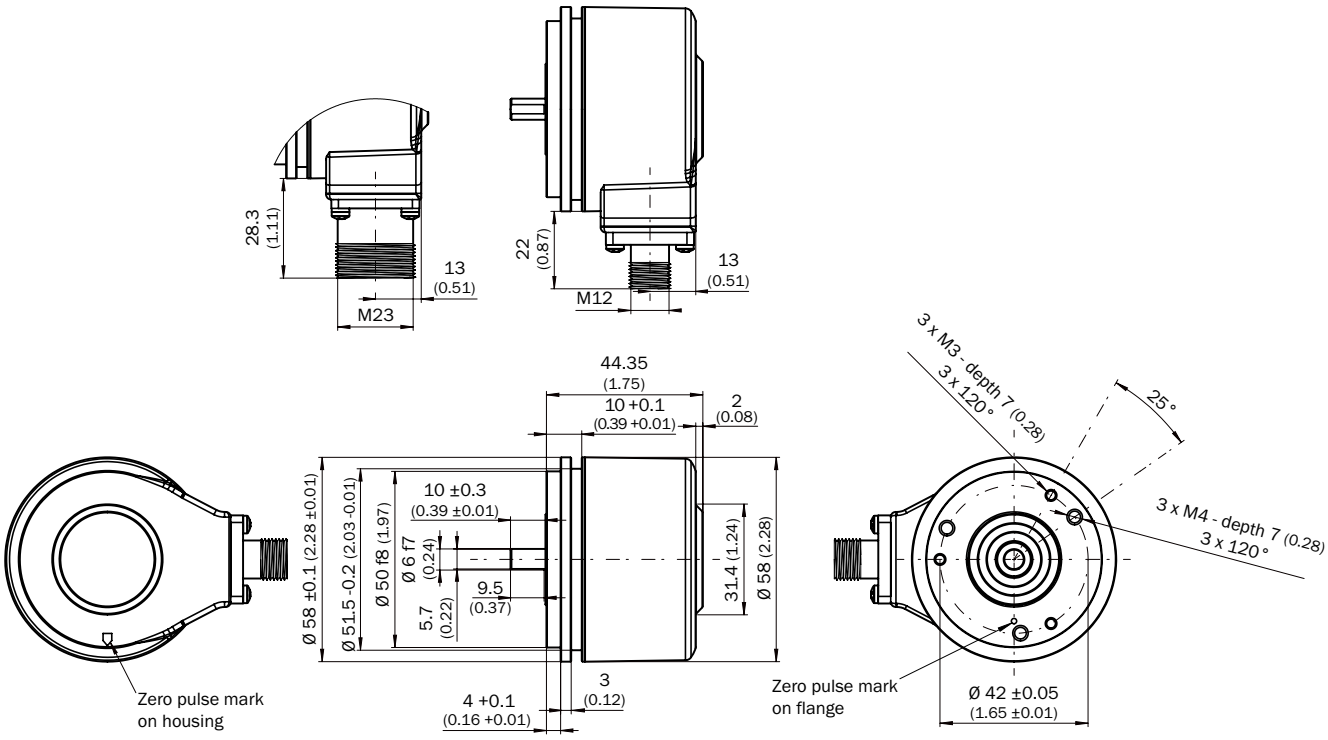
1) Order collets for 6 mm (only plastic) 8 mm, 3/8", 10 mm, 12 mm, 1/2", 14 mm and 15 mm separately as accessories (see recommended accessories). No collets are necessary for 5/8" shaft diameter.

Pulses per revolution

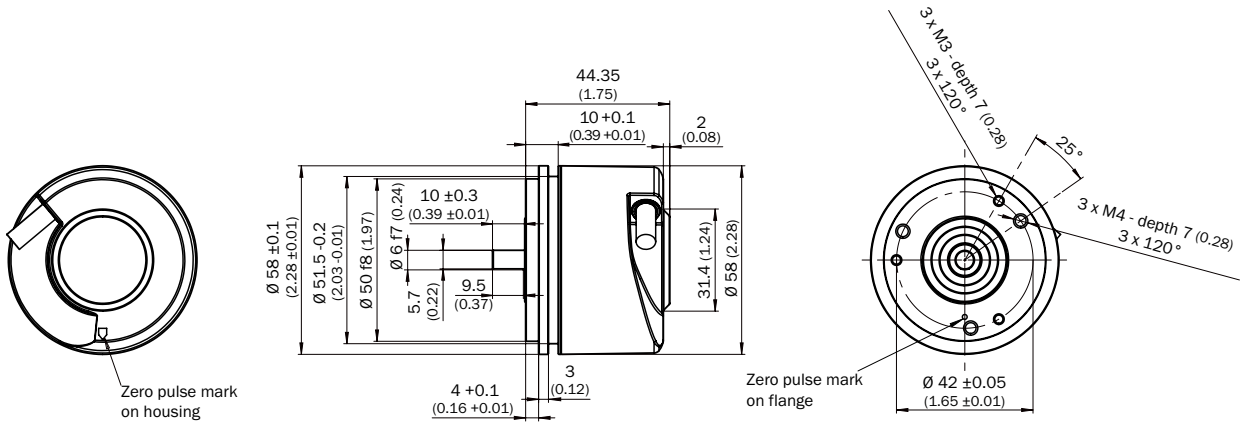
	E
Pulses per revolution	0100
	0128
	0360
	0500
	0512
	1000
	1024
	2000
	2048
	3000
	3600
	4096
	5000

Dimensional drawings (dimensions in mm)

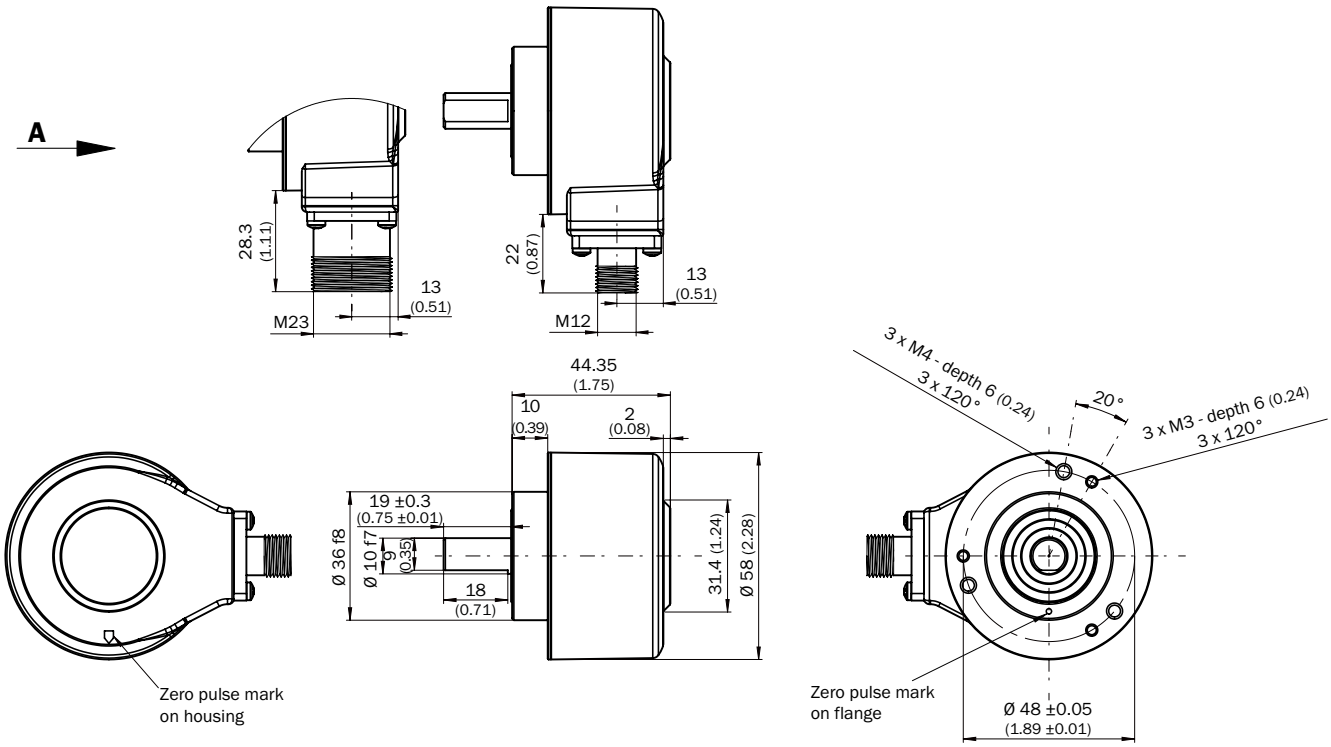
Solid shaft, servo flange, male connector connection



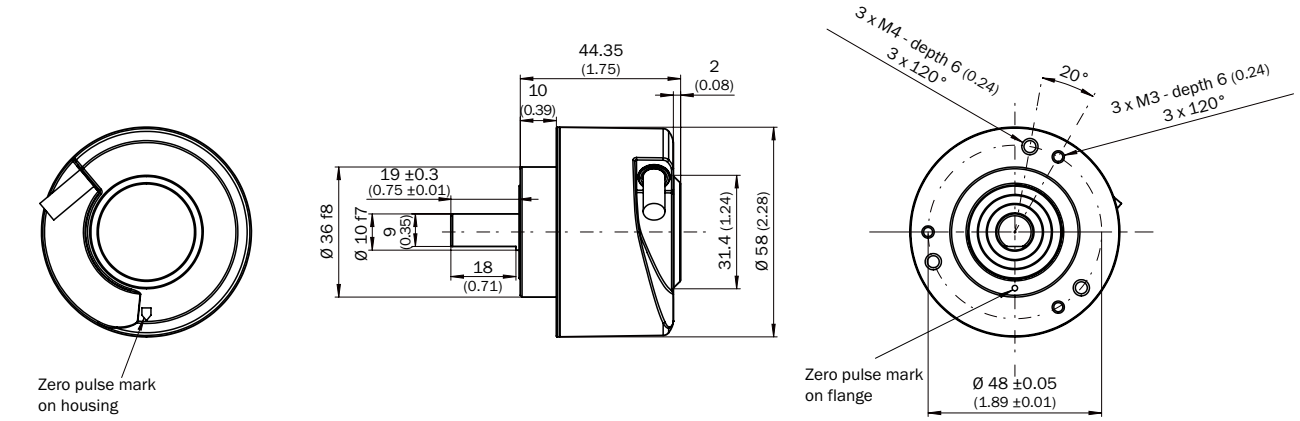
Solid shaft, servo flange, cable connection



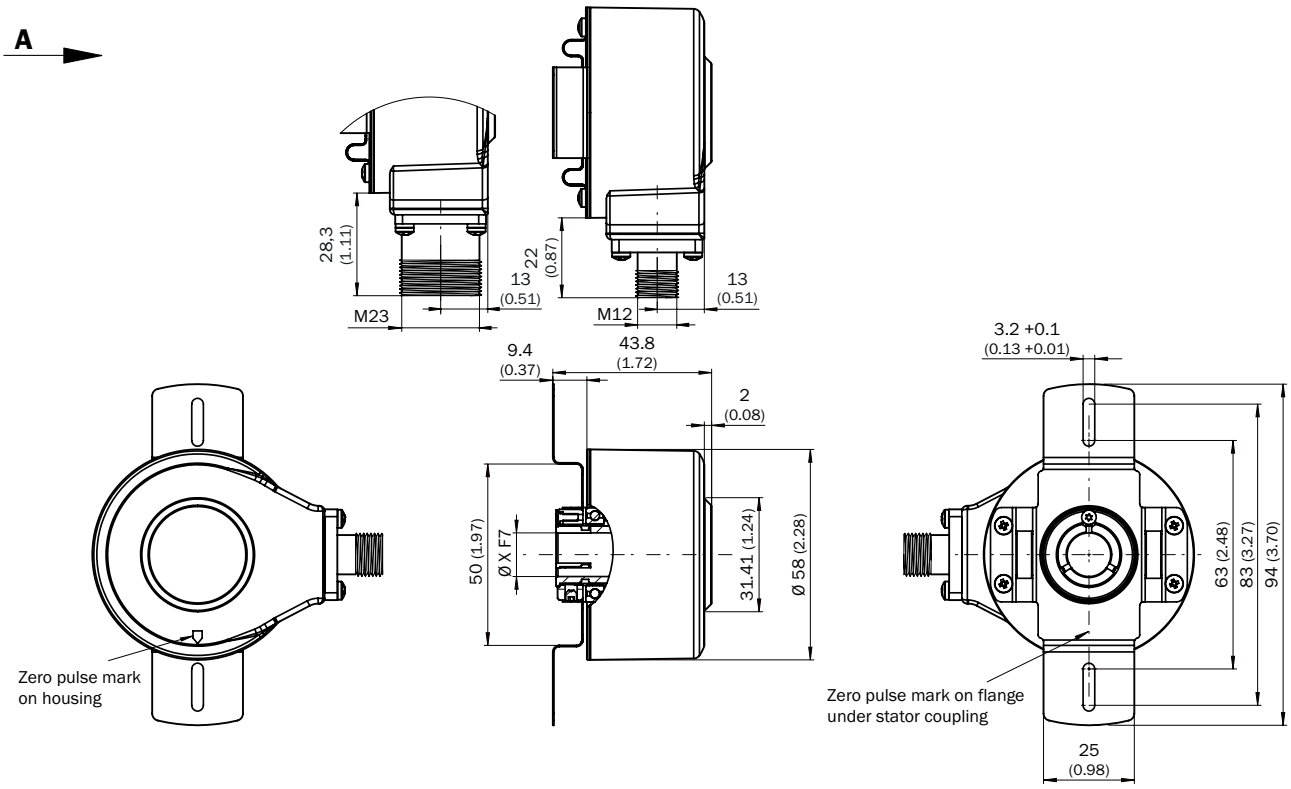
Solid shaft, face mount flange, male connector connection



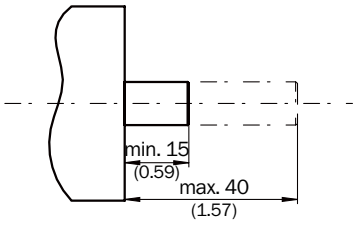
Solid shaft, face mount flange, cable connection



Blind hollow shaft, male connector connection, two-sided stator coupling, slot, screw hole circle 63–83 mm

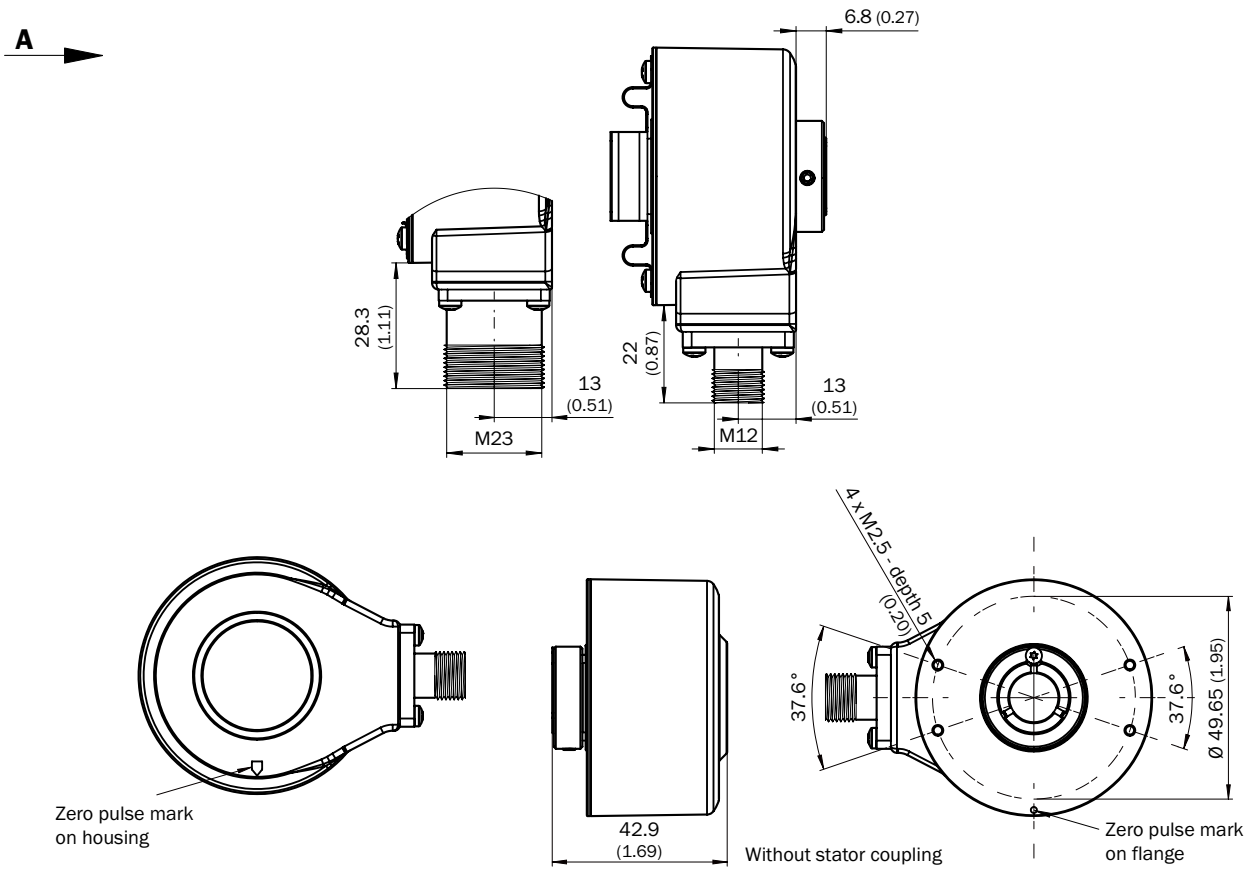


Installation example blind hollow shaft

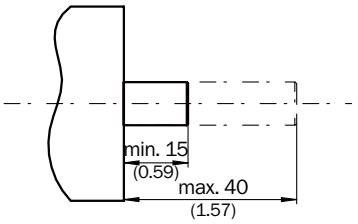


Customer-side

Blind hollow shaft, male connector connection, no stator coupling

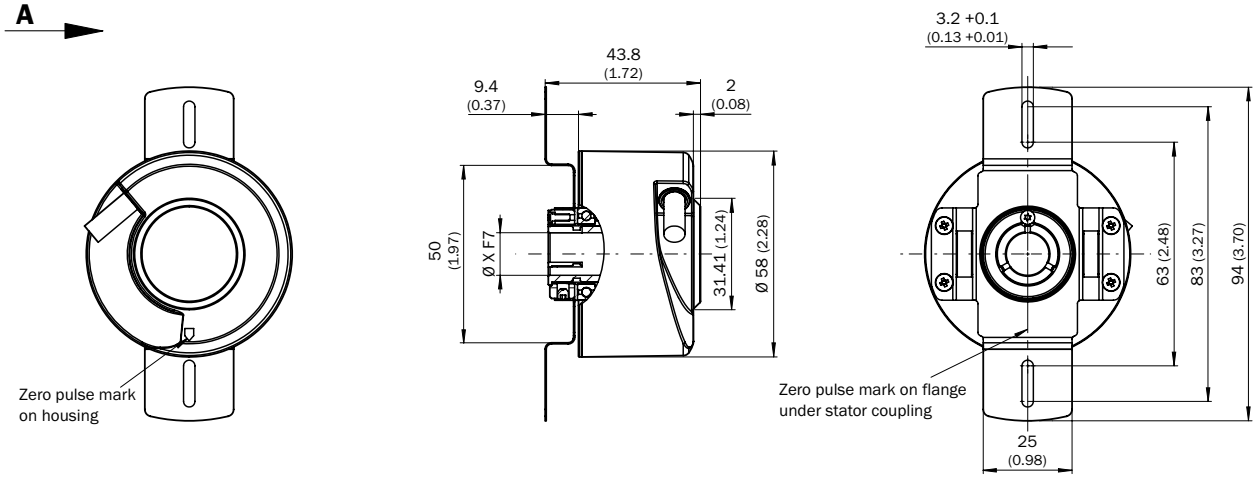


Installation example blind hollow shaft

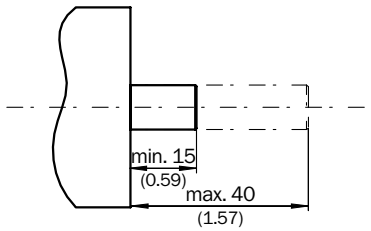


Customer-side

Blind hollow shaft, cable connection, two-sided stator coupling, slot, screw hole circle 63–83 mm

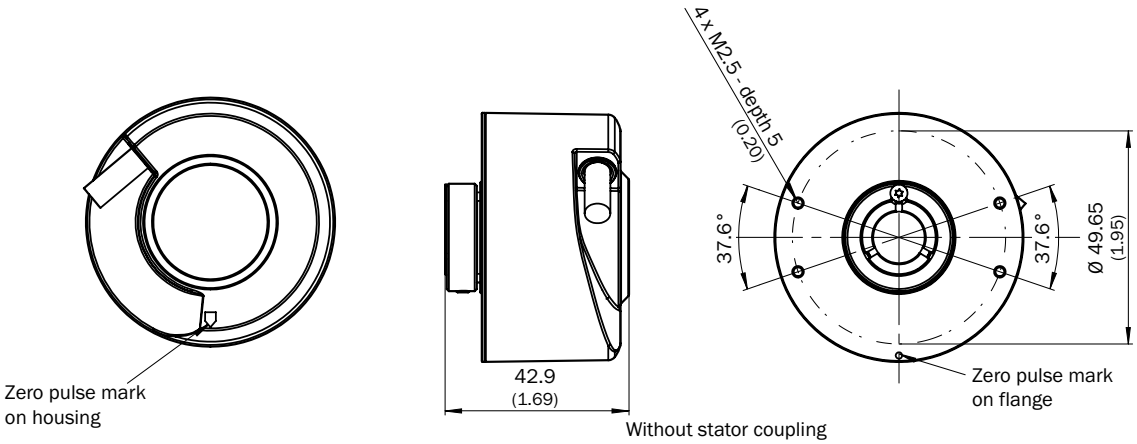


Installation example blind hollow shaft



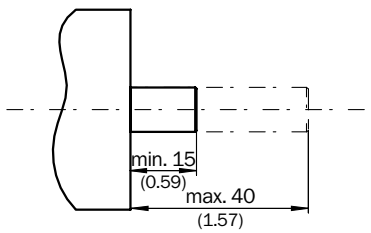
Costumer-side

Blind hollow shaft, cable connection, no stator coupling



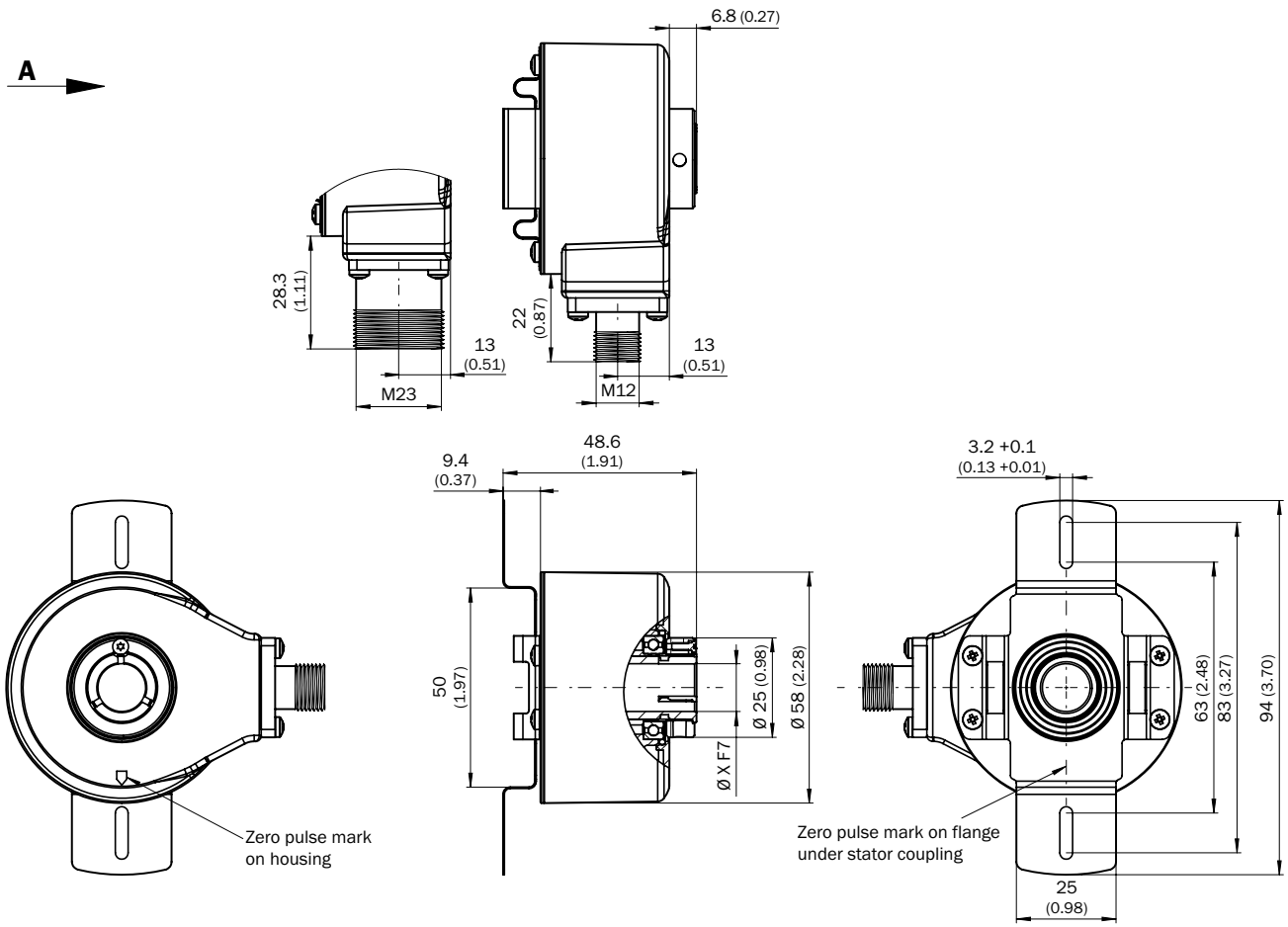
Without stator coupling

Installation example blind hollow shaft

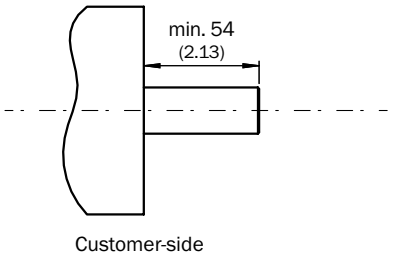


Costumer-side

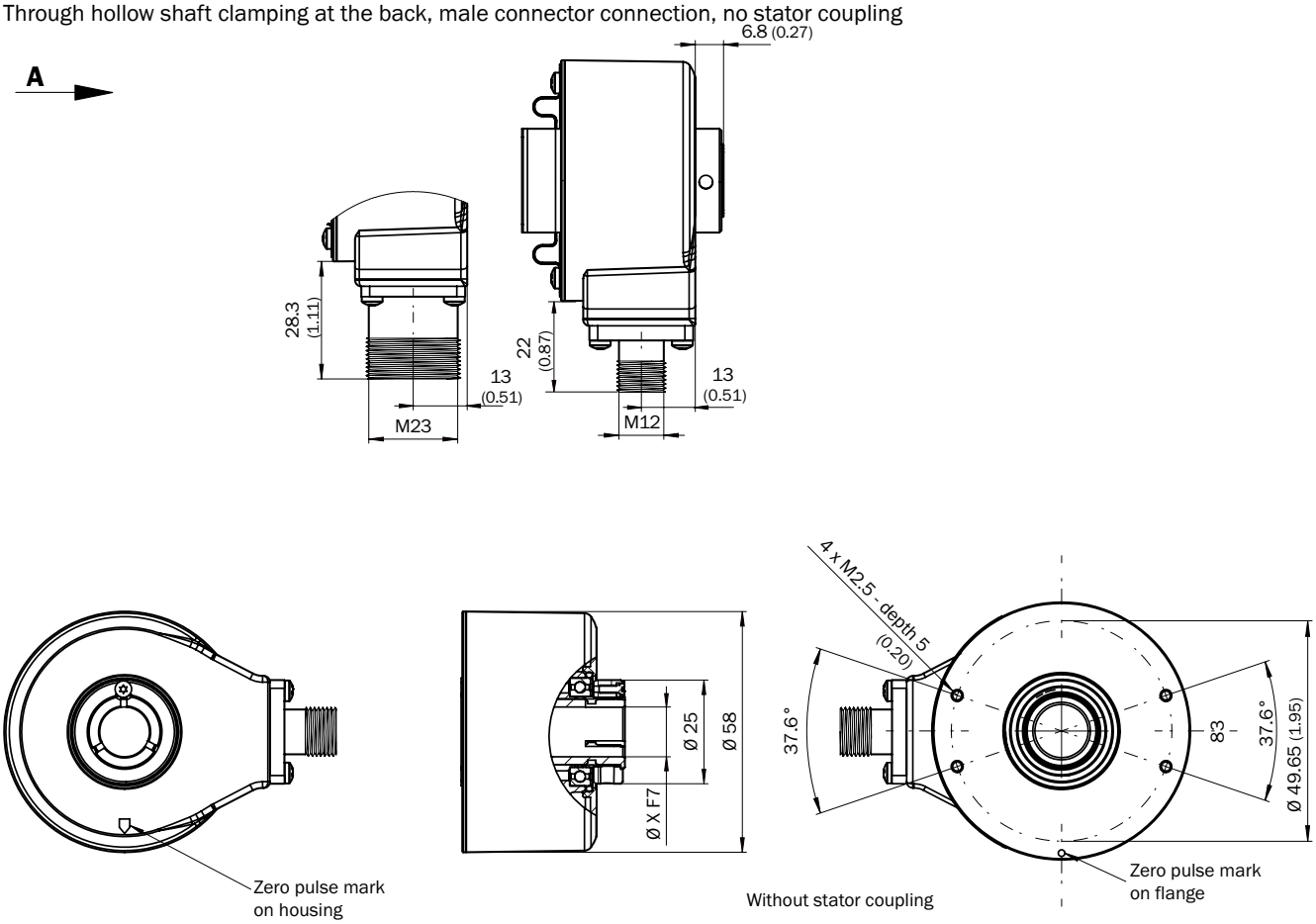
Through hollow shaft clamping at the back, male connector connection, two-sided stator coupling, slot, screw hole circle 63–83 mm



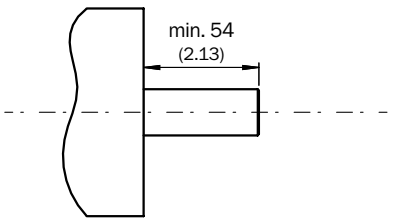
Installation example through hollow shaft



Through hollow shaft clamping at the back, male connector connection, no stator coupling

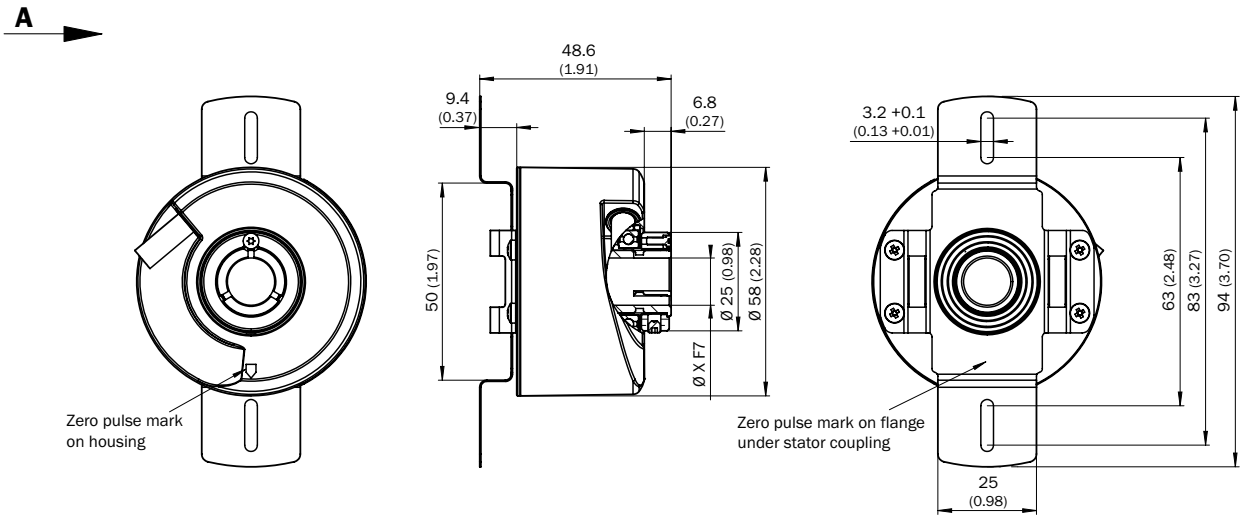


Installation example through hollow shaft

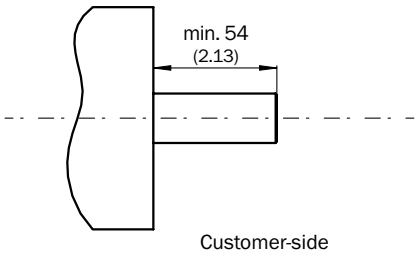


Customer-side

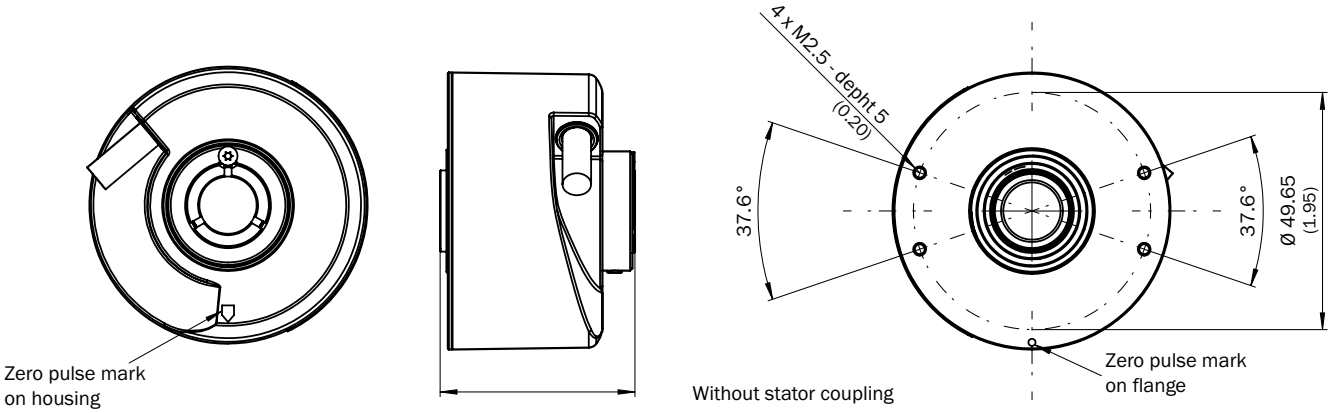
Through hollow shaft clamping at the back, cable connection, two-sided stator coupling, slot, screw hole circle 63–83 mm



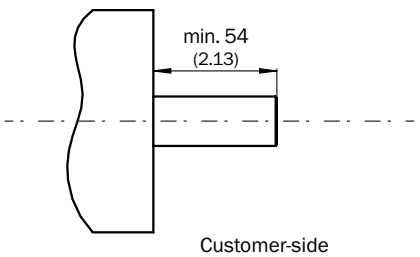
Installation example through hollow shaft



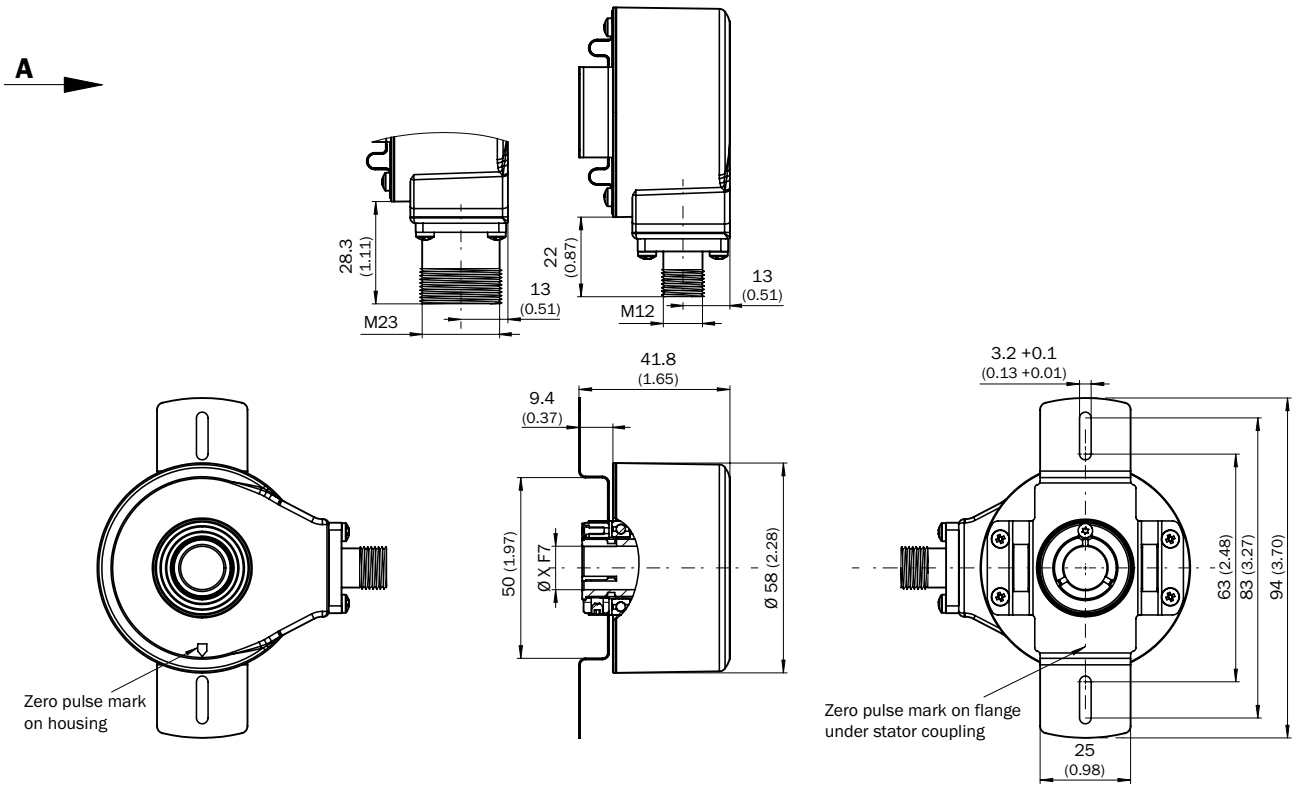
Through hollow shaft clamping at the back, cable connection, no stator coupling



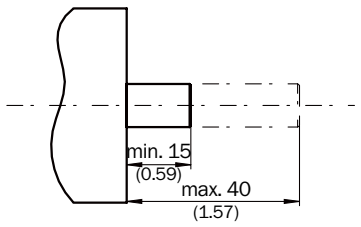
Installation example through hollow shaft



Through hollow shaft clamping at the front, male connector connection, two-sided stator coupling, slot, screw hole circle 63–83 mm

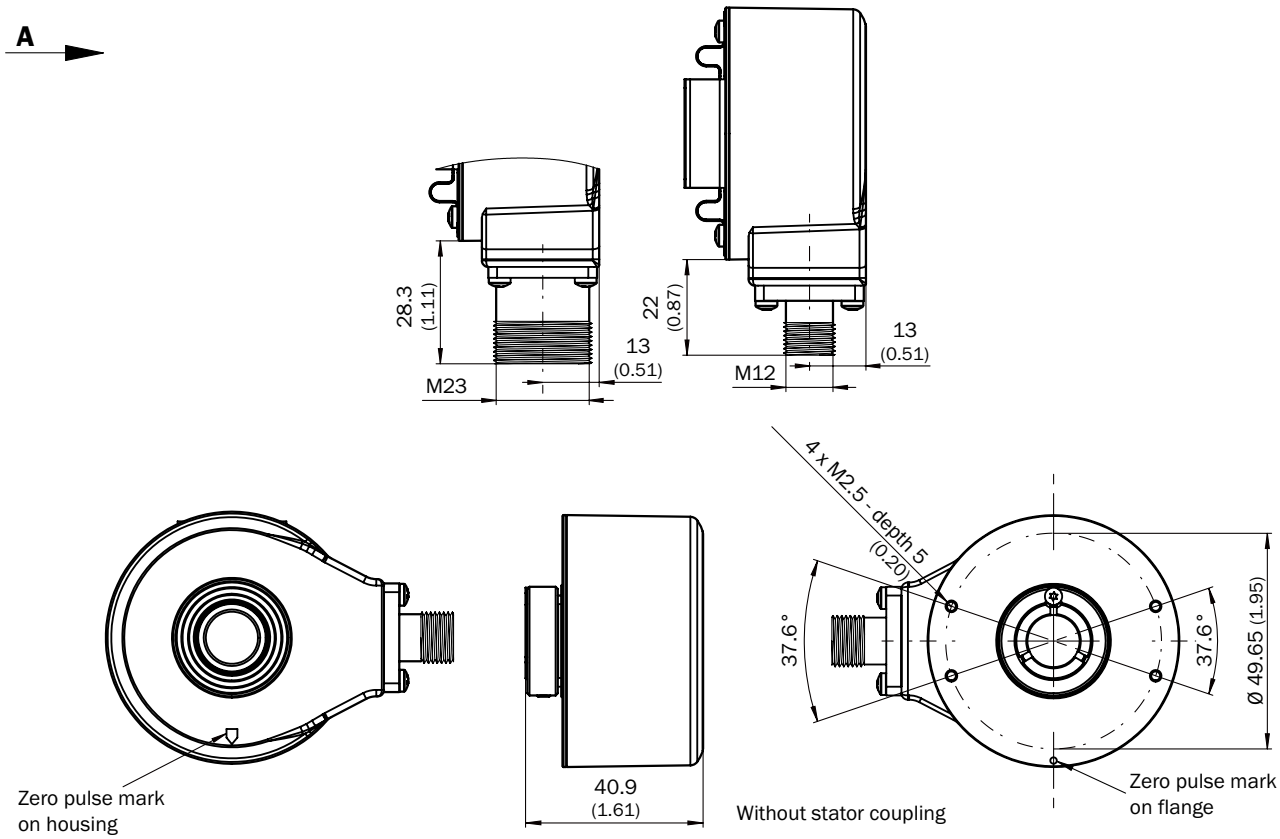


Installation example through hollow shaft

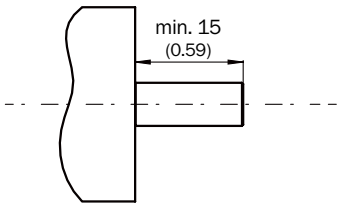


Customer-side

Through hollow shaft clamping at the front, male connector connection, no stator coupling

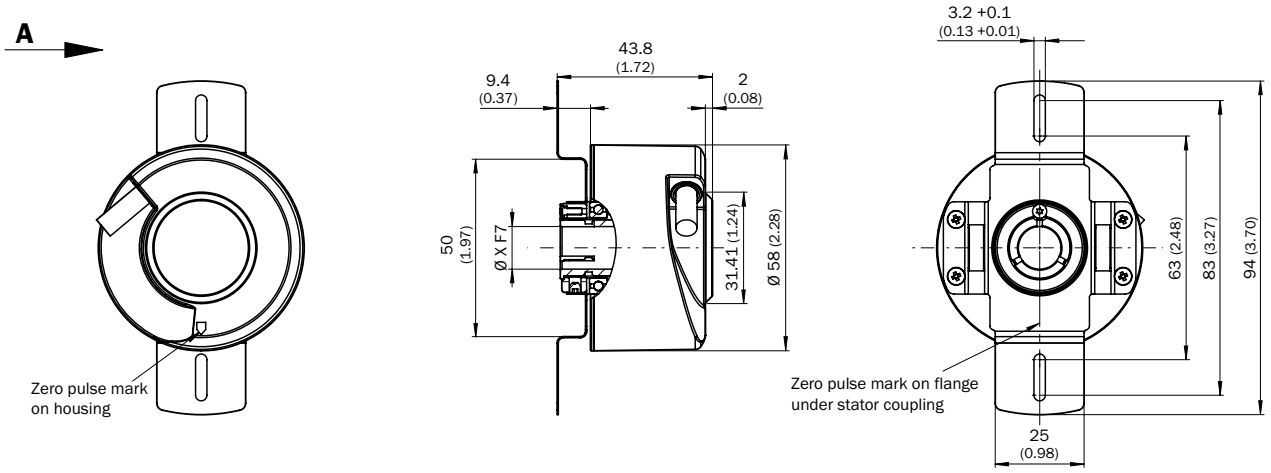


Installation example through hollow shaft

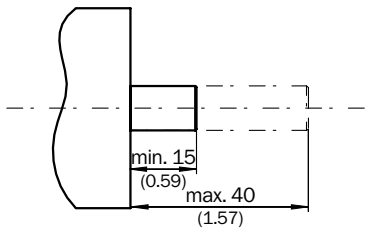


Customer-side

Installation example through hollow shaft

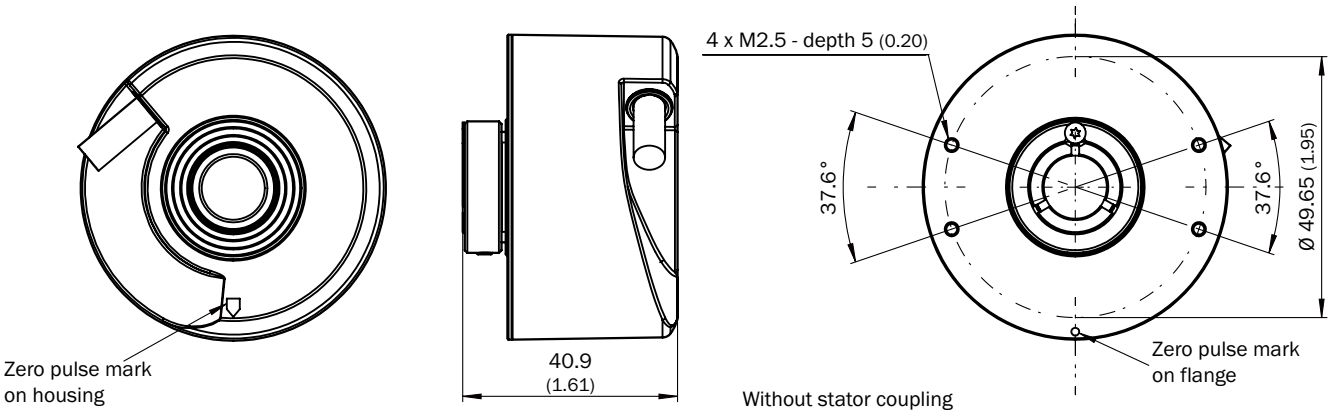


Installation example through hollow shaft



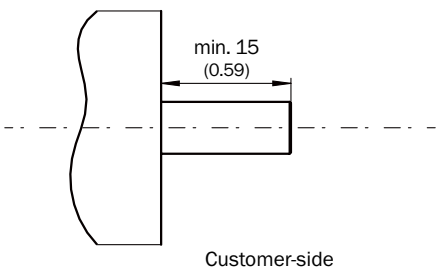
Costumer-side

Through hollow shaft clamping at the front, cable connection, no stator coupling



Without stator coupling

Installation example through hollow shaft

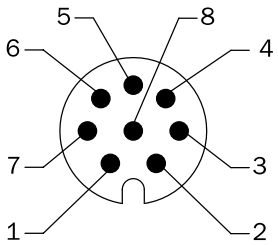


Customer-side

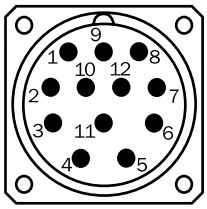
Connection type

8-core cable

View of M12 device connector on cable/housing

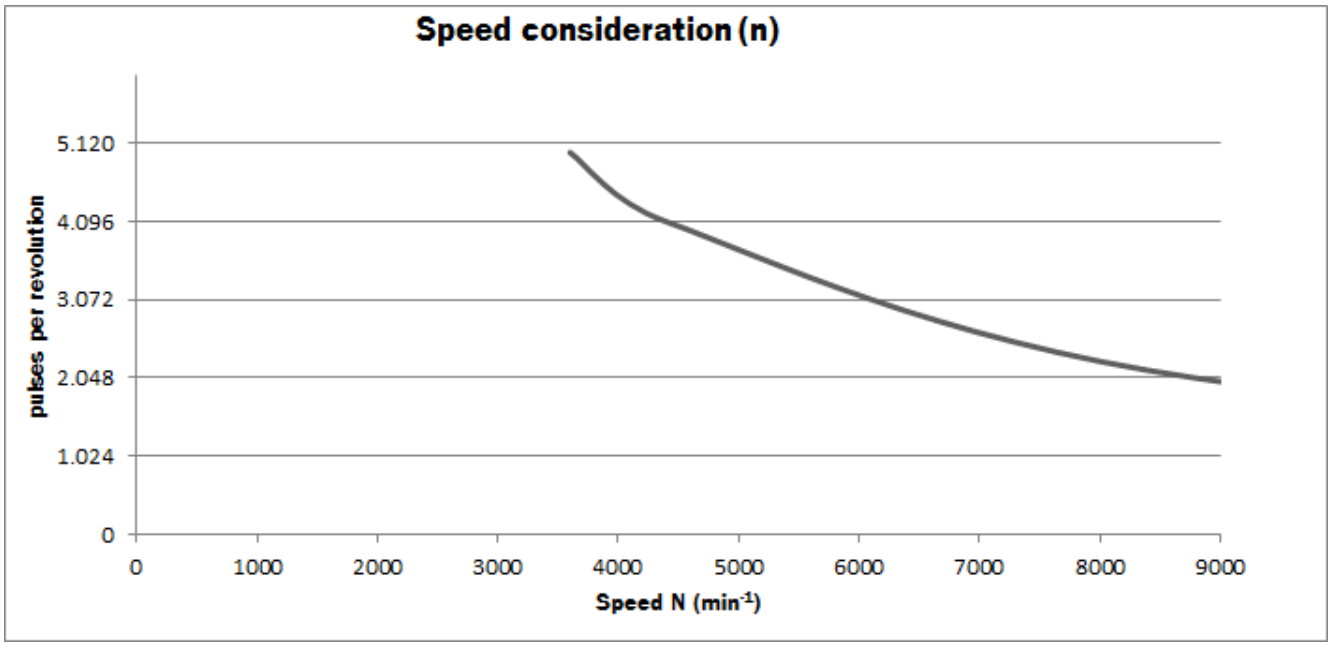


View of M23 device connector on cable cable/housing



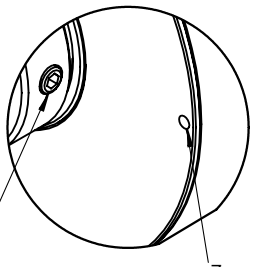
Colour of wires	Pin 12-pole in M12	Pin 12-pole in M23	Signal OC	Signal TTL; HTL	Explanation
Brown	1	6	Not connected	A-	Signal line
White	2	5	A	A	Signal line
Black	3	1	Not connected	B-	Signal line
Pink	4	8	B	B	Signal line
Yellow	5	4	Not connected	Z-	Signal line
Lilac	6	3	Z	Z	Signal line
Blue	7	10	GND	GND	Ground connection of the Encoder
Red	8	12	+Us	+Us	Supply voltage
-	-	9	Not connected	Not connected	Not connected
-	-	2	Not connected	Not connected	Not connected
-	-	11	Not connected	Not connected	Not connected
-	-	7	Not connected	Not connected	Not connected
Screen	Screen	Screen	Screen	Screen	Screen (Screen connected to Encoder housing.

Viewing number of resolutions



Zero declaration

Hollow shaft



Zero pulse is active when screw of clamping ring is in line with zero pulse mark on flange or housing mark

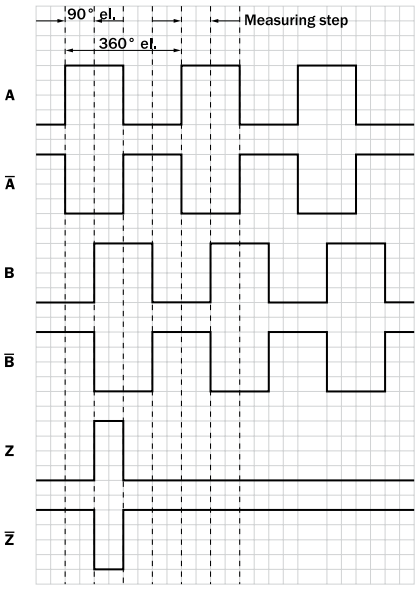
Zero pulse mark on flange

Solid shaft

Zero pulse active when the surface of the shaft shows the zero pulse mark on the flange

Signal outputs

Signal outputs for electrical interfaces TTL and HTL



Supply voltage	Output
4.5 ... 5.5 V	TTL
10 ... 30 V	TTL
10 ... 27 V	HTL
4.5 ... 30 V	TTL/HTL universal

Cw with view of the encoder shaft in the "A" direction, see dimensional drawing.

Accessories

Mounting brackets and plates

Mounting brackets

Figure	Brief description	Type	Part no.
	Mounting brackets for encoders with a centering collar of 36 mm, including mounting kit	BEF-WF-36	2029164

Flanges

Mounting flange

Figure	Brief description	Type	Part no.
	Two-sided stator coupling, screw hole circle 63 mm, slot width 3.2 mm	BEF-DS-09	2076214
	Two-sided stator coupling, slot, slot radius 63–83 mm, slot width 3.2 mm	BEF-DS-10	2076215
	One-sided stator coupling, slots, slot radius 32.25–142.55 mm, slot width 4.5 mm	BEF-DS-11	2076216
	One-sided stator coupling, slot, slot radius 33–48.5 mm, slot width 5.1 mm	BEF-DS-12	2076217
	Flange adapter (for hollow shaft) for register pin mounting (pin 4 mm)	BEF-DS-13	2076218
	One-sided stator coupling, slot, slot radius 32.1–37.6 mm, slot width 4.5 mm	BEF-DS-14	2076678
	Flange adapter, adaptation of face mount flange, centering collar 36 mm to 50 mm servo flange, aluminum, including 3 flat head screws M4 x 10	BEF-FA-036-050	2029160
	Flange adapter, adaptation of face mount flange, centering collar 36 mm pm a square mounting plate 60 mm, aluminum, including 3 flat head screws M4 x 10	BEF-FA-036-060REC	2029162
	Flange adapter, adaptation of face mount flange, centering collar 36 mm pm a square mounting plate 58 mm with shock absorbers, aluminum	BEF-FA-036-060RSA	2029163
	Flange adapter, adaptation of face mount flange, centering collar 36 mm pm a square mounting plate 63 mm, aluminum, including 3 flat head screws M4 x 10	BEF-FA-036-063REC	2034225

Other mounting accessories

Measuring wheels

Figure	Brief description	Type	Part no.
	Measuring wheel with smooth plastic surface (Hytrel) for 10 mm solid shaft, circumference 200 mm	BEF-MR-010020	5312988
	Measuring wheel with a ribbed plastic surface (Hytrel) for solid shaft 10 mm, diameter 63.66 mm, circumference 200 mm, tread 12 mm wide	BEF-MR-010020G	5318678
	Measuring wheel with a flat plastic surface (Hytrel) for solid shaft 10 mm, circumference 500 mm, diameter 159.16 mm	BEF-MR-010050	5312989

Figure	Brief description	Type	Part no.
	Measuring wheel, circumference 200 mm, bore Ø 6 mm, surface O-ring NBR70	BEF-MR006020R	2055222
	Measuring wheel, circumference 300 mm, bore Ø 6 mm, surface O-ring NBR70	BEF-MR006030R	2055634
	Measuring wheel, circumference 200 mm, bore Ø 10 mm, surface O-ring NBR70	BEF-MR010020R	2055224
	Measuring wheel, circumference 300 mm, bore Ø 10 mm, surface O-ring NBR70	BEF-MR-010030R	2049278
	Replacement O-ring set (set of 2) for measuring wheels (circumference 200 mm) with O-ring	BEF-OR-053-040	2064061
	Replacement O-ring set (set of 2) for measuring wheels (circumference 300 mm) with O-ring	BEF-OR-083-05	2064076

Mounting bell

Figure	Brief description	Type	Part no.
	Mounting bell for encoders with a servo flange, centering collar 50 mm, including mounting kit	BEF-MG-50	5312987

Servo clamps

Figure	Brief description	Type	Part no.
	Half shell servo clamps (set of 2) for servo flanges with a centering collar 50 mm, not including mounting hardware	BEF-WG-SF050	2029165
	Servo clamps, large, for servo flanges (clamping claws, mounting eccentrics), (set of 3), not including mounting hardware	BEF-WK-SF	2029166

Plug connectors and cables

Connecting cables with female connector

Figure	Brief description	Type	Part no.
	Head A: female connector, M12, 8-pin, straight Head B: cable Cable: suitable for drag chain, PVC, screened, 2 m, 0.25 mm², 4 x 2 x 0.25 mm²	DOL-1208-G02MAC1	6032866
	Head A: female connector, M12, 8-pin, straight Head B: cable Cable: suitable for drag chain, PVC, screened, 5 m, 0.25 mm², 4 x 2 x 0.25 mm²	DOL-1208-G05MAC1	6032867
	Head A: female connector, M12, 8-pin, straight Head B: cable Cable: suitable for drag chain, PVC, screened, 10 m, 0.25 mm², 4 x 2 x 0.25 mm²	DOL-1208-G10MAC1	6032868
	Head A: female connector, M12, 8-pin, straight Head B: cable Cable: suitable for drag chain, PVC, screened, 20 m, 0.25 mm², 4 x 2 x 0.25 mm²	DOL-1208-G20MAC1	6032869
	Head A: female connector, M23, 12-pin, straight Head B: cable Cable: incremental, suitable for drag chain, PUR, screened, 2 m, 4 x 2 x 0.25 mm² + 2 x 0.5 mm² + 1 x 0.14 mm²	DOL-2312-G02MLA3	2030682
		DOL-2312-G07MLA3	2030685
		DOL-2312-G10MLA3	2030688
		DOL-2312-G15MLA3	2030692
		DOL-2312-G20MLA3	2030695
		DOL-2312-G25MLA3	2030699
		DOL-2312-G30MLA3	2030702
	Head A: female connector, M23, 12-pin, straight Head B: cable Cable: incremental, suitable for drag chain, PUR, screened, 3 m, 4 x 2 x 0.25 mm² + 2 x 0.5 mm² + 2 x 0.14 mm²	DOL-2312-G1M5MA3	2029212
		DOL-2312-G03MMA3	2029213
		DOL-2312-G05MMA3	2029214
		DOL-2312-G10MMA3	2029215
		DOL-2312-G20MMA3	2029216
		DOL-2312-G30MMA3	2029217

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Female connectors (ready to assemble)

Figure	Brief description	Type	Part no.
	Head A: female connector, M12, 8-pin, straight, A-coded Head B: - Cable: incremental, SSI, screened	DOS-1208-GA01	6045001
	Head A: female connector, M23, 12-pin, straight Head B: - Cable: HIPERFACE®, SSI, incremental, screened	DOS-2312-G	6027538

Cables (ready to assemble)

Figure	Brief description	Type	Part no.
	Head A: cable Head B: cable Cable: SSI, suitable for drag chain, PUR, halogen-free, screened, 4 x 2 x 0.15 mm²	LTG-2308-MWENC	6027529
	Head A: cable Head B: cable Cable: SSI, PUR, screened, 4 x 2 x 0.15 mm² + 2 x 0.5 mm² + 1 x 0.14 mm²	LTG-2411-MW	6027530
	Head A: cable Head B: cable Cable: SSI, SSI, suitable for drag chain, PUR, halogen-free, screened, 4 x 2 x 0.25 mm² + 2 x 0.5 mm² + 2 x 0.14 mm²	LTG-2512-MW	6027531
	Head A: cable Head B: cable Cable: SSI, SSI, suitable for drag chain, PUR, halogen-free, screened, 4 x 2 x 0.25 mm² + 2 x 0.5 mm² + 2 x 0.14 mm², resistant to UV and salt water	LTG-2612-MW	6028516

Male connector (ready to assemble)

Figure	Brief description	Type	Part no.
	Head A: male connector, M12, 8-pin, straight, A-coded Head B: - Cable: incremental, screened	STE-1208-GA01	6044892
	Head A: male connector, M23, 12-pin, straight Head B: - Cable: HIPERFACE®, SSI, incremental, screened	STE-2312-G	6027537

Shaft adaptation

Collets and clamping rings

Figure	Brief description	Type	Part no.
	Collet isolated for hollow shaft encoder, internal diameter 6 mm	SPZ-58Z-006-P	2076228
	Collet isolated for hollow shaft encoder, internal diameter 8 mm	SPZ-58Z-008-P	2076229
	Collet isolated for hollow shaft encoder, internal diameter 3/8" (9.525 mm)	SPZ-58Z-38Z-P	2076226
	Collet isolated for hollow shaft encoder, internal diameter 10 mm	SPZ-58Z-010-P	2076230
	Collet isolated for hollow shaft encoder, internal diameter 12 mm	SPZ-58Z-012-P	2076231
	Collet isolated for hollow shaft encoder, internal diameter 1/2" (12.7 mm)	SPZ-58Z-12Z-P	2076227
	Collet isolated for hollow shaft encoder, internal diameter 14 mm	SPZ-58Z-014-P	2076232
	Collet isolated for hollow shaft encoder, internal diameter 15 mm	SPZ-58Z-015-P	2076233
	Metal collet for hollow shaft encoder, internal diameter 8 mm	SPZ-58Z-008-M	2076219
	Metal collet for hollow shaft encoder, internal diameter 3/8" (9.525 mm)	SPZ-58Z-38Z-M	2076224
	Metal collet for hollow shaft encoder, internal diameter 10 mm	SPZ-58Z-010-M	2076220
	Metal collet for hollow shaft encoder, internal diameter 12 mm	SPZ-58Z-012-M	2076221
	Metal collet for hollow shaft encoder, internal diameter 1/2" (12.7 mm)	SPZ-58Z-12Z-M	2076225
	Metal collet for hollow shaft encoder, internal diameter 14 mm	SPZ-58Z-014-M	2076222
	Metal collet for hollow shaft encoder, internal diameter 15 mm	SPZ-58Z-015-M	2076223

Shaft couplings

Figure	Brief description	Type	Part no.
	Washer coupling, shaft diameter 6 mm/10 mm; maximum shaft offset: radial +/– 0.3 mm, axial +/– 0.4 mm, angular +/– 2.5°; max. revolutions 12,000 rpm, –10° to +80°C, max. torque 60 Ncm; material: aluminum flange, glass fiber–reinforced polyamide membrane and hardened steel coupling pin	KUP-0610-F	5312985
	Washer coupling, shaft diameter 10 mm/10 mm; maximum shaft offset: radial +/– 0.3 mm, axial +/– 0.4 mm, angular +/– 2.5°; max. revolutions 12,000 rpm, –10° to +80°C, max. torque 60 Ncm; material: aluminum flange, glass fiber-reinforced polyamide membrane and hardened steel coupling pin	KUP-1010-F	5312986
	Bellows coupling, shaft diameter 6 mm/6 mm; maximum shaft offset: radial +/– 0.25 mm, axial +/– 0.4 mm, angular +/– 4°; max. revolutions 10,000 rpm, –30° to +120°C, max. torque 80 Ncm; material: stainless steel bellows, aluminum hub	KUP-0606-B	5312981
	Bellows coupling, shaft diameter 6 mm/10 mm; maximum shaft offset: radial +/– 0.25 mm, axial +/– 0.4 mm, angular +/– 4°; max. revolutions 10,000 rpm, –30° to +120°C, max. torque 80 Ncm; material: stainless steel bellows, aluminum hub	KUP-0610-B	5312982
	Bellows coupling, shaft diameter 10 mm/10 mm; maximum shaft offset: radial +/– 0.25 mm, axial +/– 0.4 mm, angular +/– 4°; max. revolutions 10,000 rpm, –30° to +120°C, max. torque 80 Ncm; material: stainless steel bellows, aluminum hub	KUP-1010-B	5312983
	Bellows coupling, shaft diameter 10 mm/12 mm; maximum shaft offset: radial +/– 0.25 mm, axial +/– 0.4 mm, angular +/– 4°; max. revolutions 10,000 rpm, –30° to +120°C, max. torque 80 Ncm; material: stainless steel bellows, aluminum hub	KUP-1012-B	5312984

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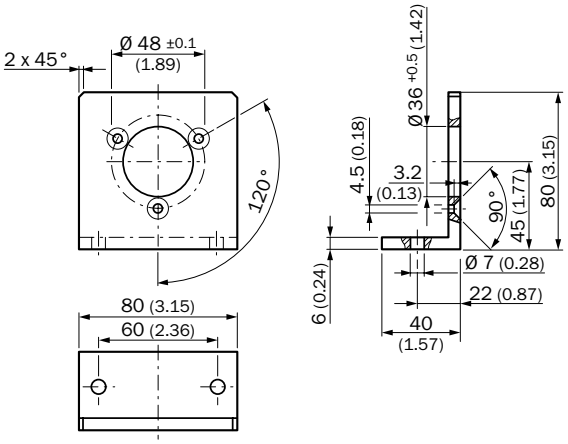
Figure	Brief description	Type	Part no.
	Bar coupling, shaft diameter 6 mm/6 mm; maximum shaft offset: radial +/– 0.3 mm, axial +/– 0.2 mm, angular +/– 3°; max. revolutions 10,000 rpm, –10° to +80°C, max. torque 80 Ncm; material: glass fiber-reinforced polyamide, aluminum hub	KUP-0606-S	5314178
	Bar coupling, shaft diameter 6 mm/8 mm; maximum shaft offset: radial +/– 0.3 mm, axial +/– 0.2 mm, angular +/– 3°; max. revolutions 10,000 rpm, –10° to +80°C, max. torque 80 Ncm; material: glass fiber-reinforced polyamide, aluminum hub	KUP-0608-S	5314179
	Bar coupling, shaft diameter 6 mm/10 mm; maximum shaft offset: radial +/– 0.3 mm, axial +/– 0.2 mm, angular +/– 3°; max. revolutions 10,000 rpm, –10° to +80°C, max. torque 80 Ncm; material: glass fiber-reinforced polyamide, aluminum hub	KUP-0610-S	5314178
	Bar coupling, shaft diameter 8 mm/10 mm; maximum shaft offset: radial +/– 0.3 mm, axial +/– 0.2 mm, angular +/– 3°; max. revolutions 10,000 rpm, –10° to +80°C, max. torque 80 Ncm; material: glass fiber-reinforced polyamide, aluminum hub	KUP-0810-S	5314178
	Bar coupling, shaft diameter 10 mm/10 mm; maximum shaft offset: radial +/– 0.3 mm, axial +/– 0.2 mm, angular +/– 3°; max. revolutions 10,000 rpm, –10° to +80°C, max. torque 80 Ncm; material: glass fiber-reinforced polyamide, aluminum hub	KUP-1010-S	2056408

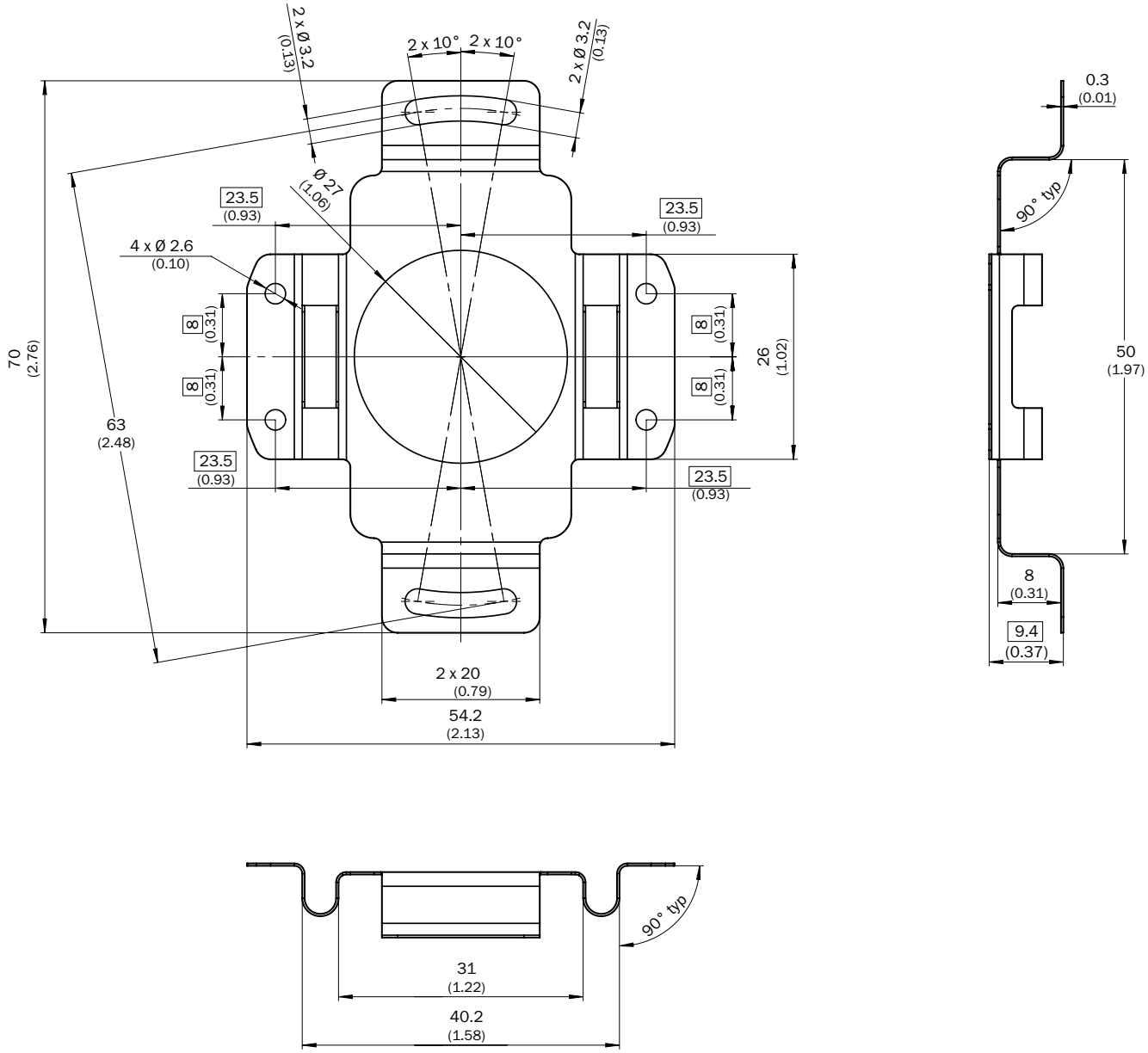
Mounting brackets and plates dimensional drawings: mounting brackets

BEF-WF-36



Flange dimensional drawings: flange plate

BEF-DS-09



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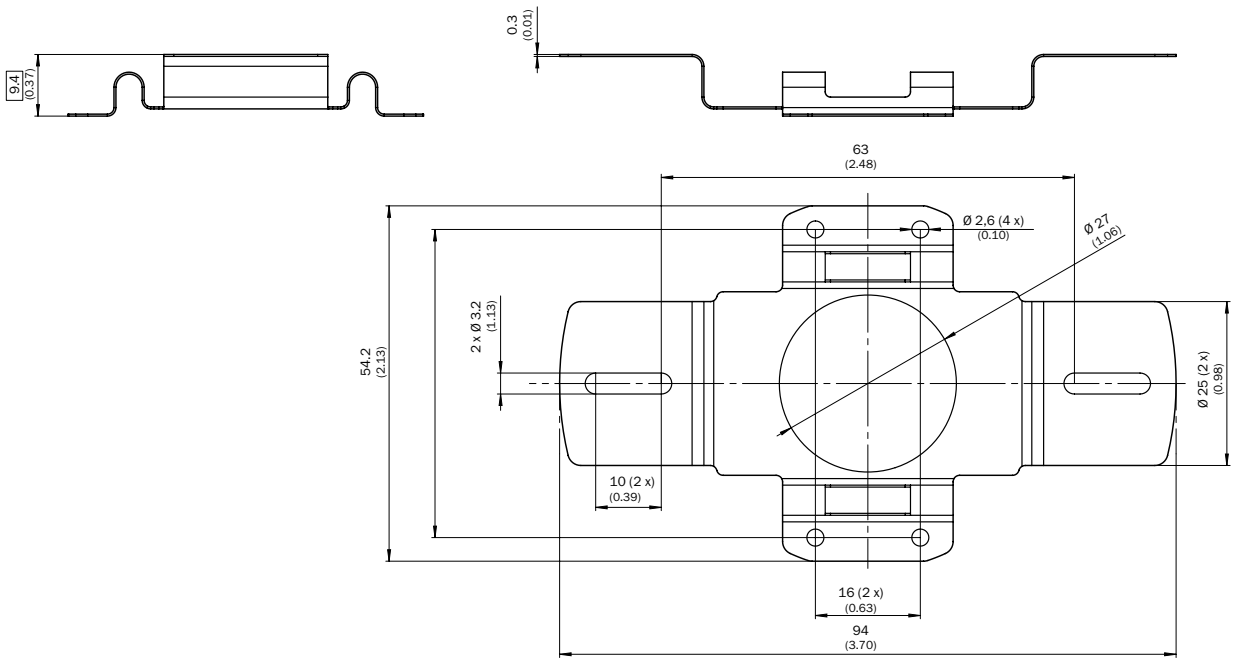
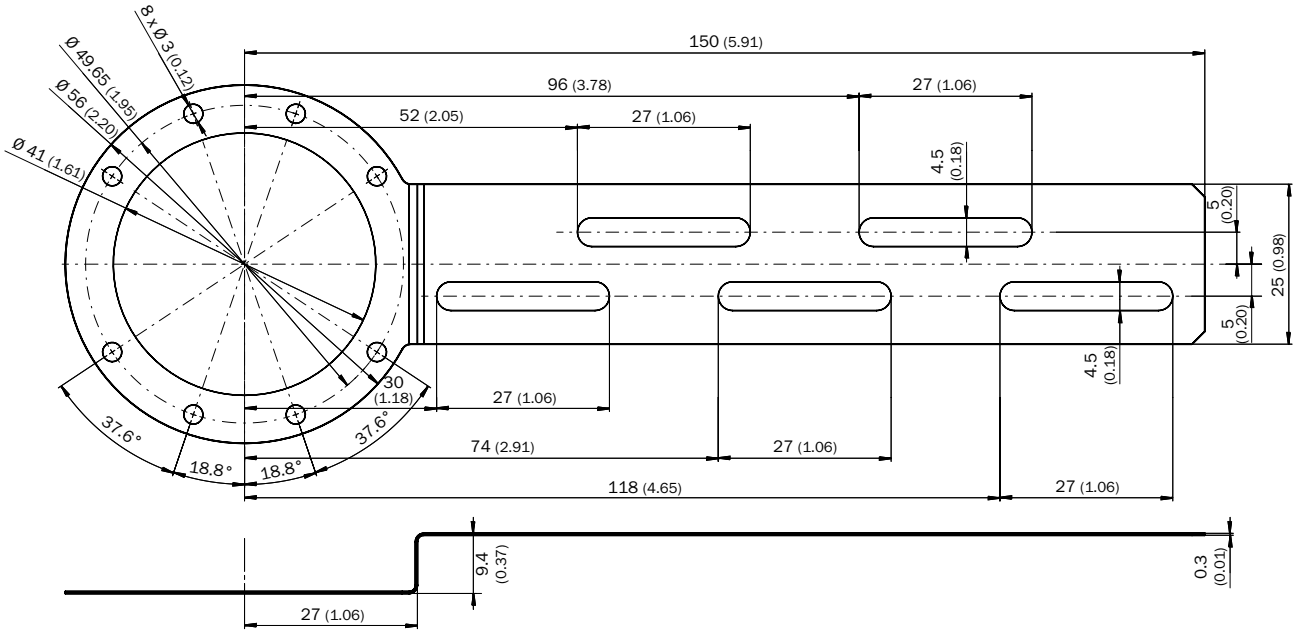
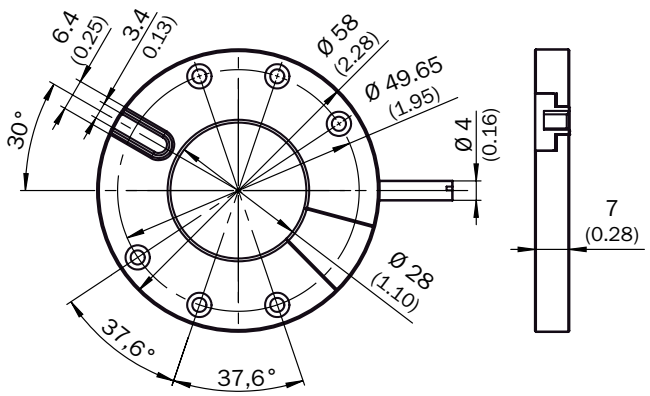
BEF-DS-10



BEF-DS-11



BEF-DS-13



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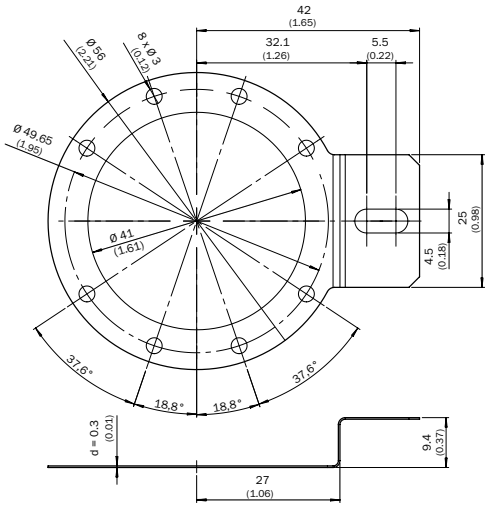

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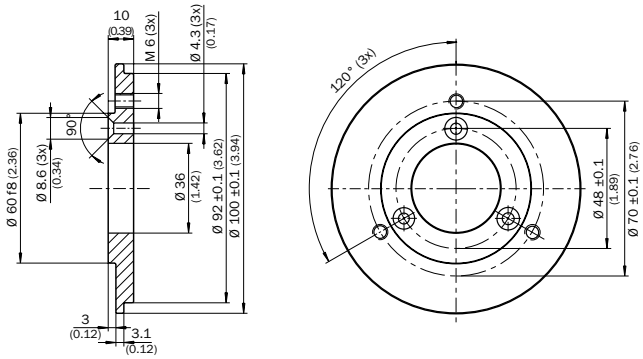

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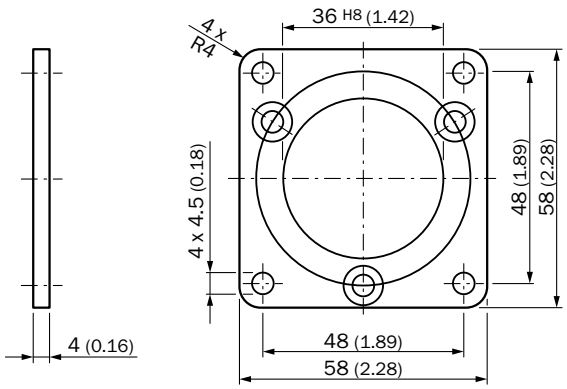
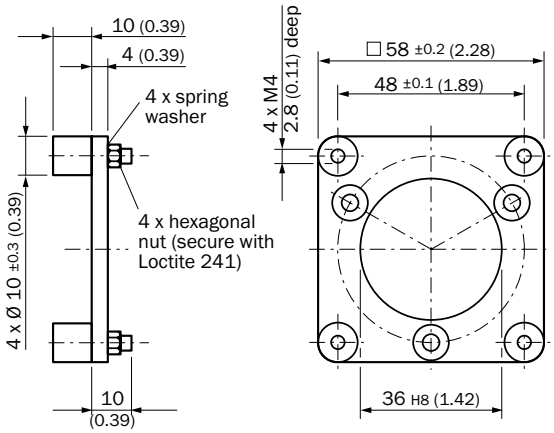
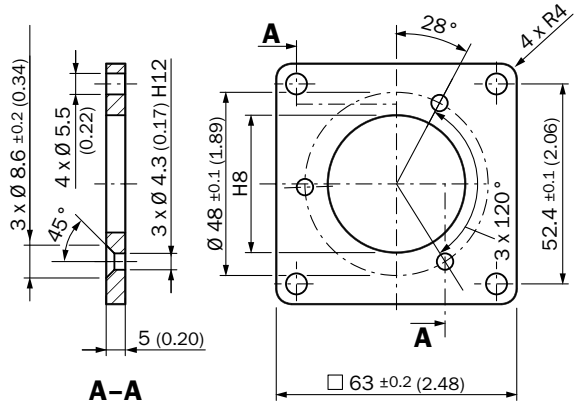


BEF-FA-036-060RSA



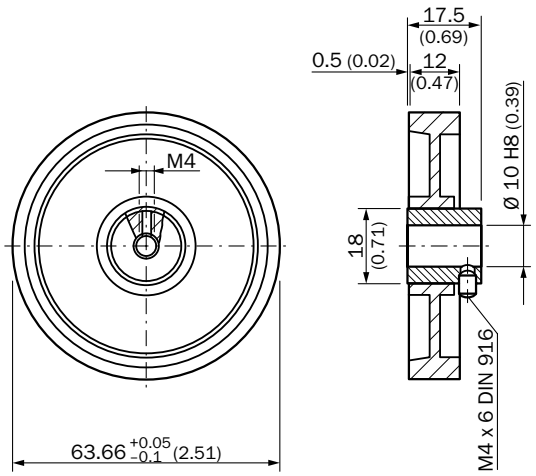
BEF-FA-036-063REC



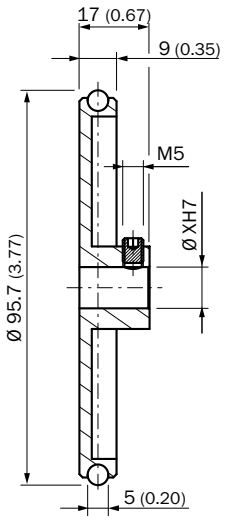
8017590/2014-07-21
Subject to change without notice

Other mounting accessories dimensional drawings: measuring wheels

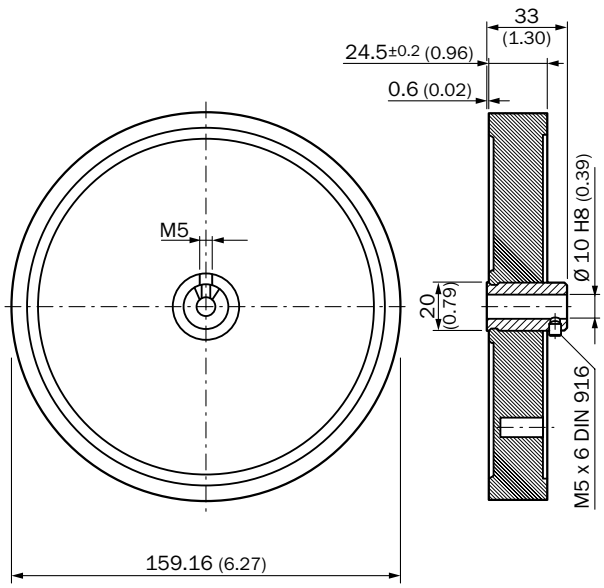
BEF-MR-010020
BEF-MR-010020G



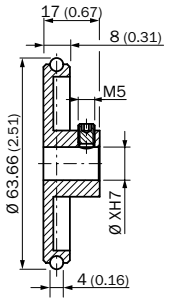
BEF-MR-010030R
BEF-MR006030R



BEF-MR-010050

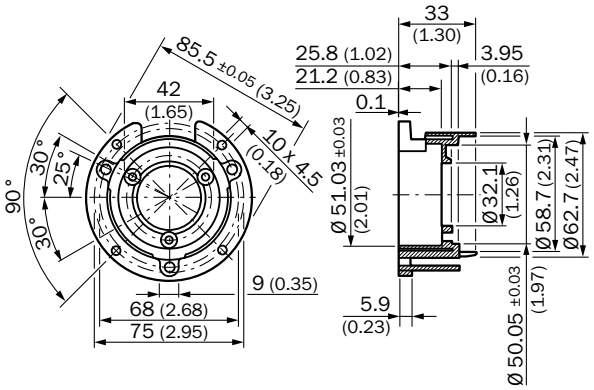


BEF-MR006020R
BEF-MR010020R



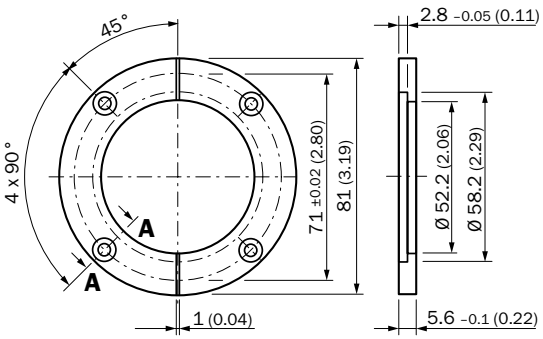
Other mounting accessories dimensional drawings: mounting bell

BEF-MG-50

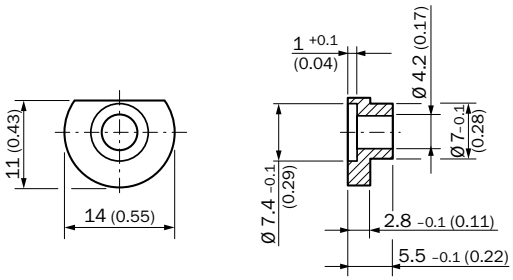


Other mounting accessories dimensional drawings: servo clamps

BEF-WG-SF050

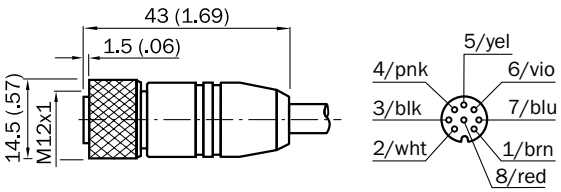


BEF-WK-SF



Plug connectors and cables dimensional drawings: connecting cables with female connector

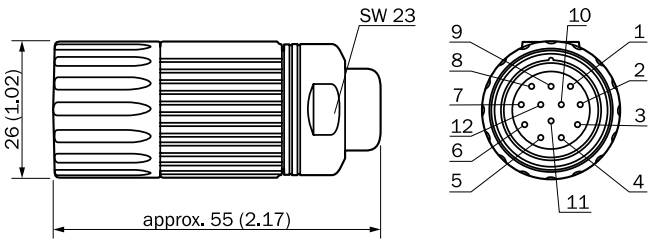
DOL-1208-G02MAC1
DOL-1208-G05MAC1
DOL-1208-G10MAC1
DOL-1208-G20MAC1



All dimensions in mm (inch)

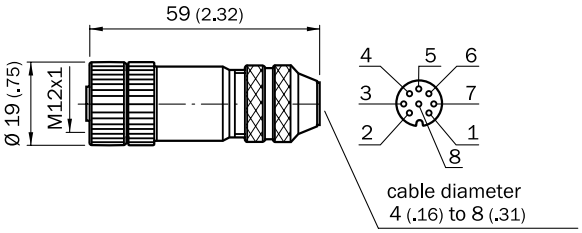
DOL-2312-G0xMLA3
DOL-2312-GxxMLA3
DOL-2312-G0xMMA3
DOL-2312-GxxMMA3

DOL-2312-G1M5MA3
DOL-2312-GxxMLA3
DOL-2312-G30MMA3

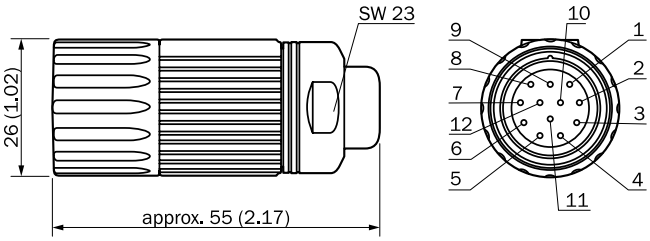


Plug connectors and cables dimensional drawings: female connectors (ready to assemble)

DOS-1208-GA01

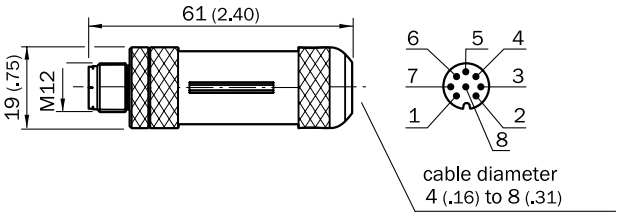


DOS-2312-G

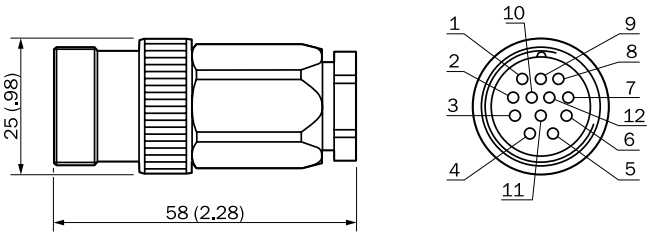


Plug connectors and cables dimensional drawings: male connectors (ready to assemble)

STE-1208-GA01

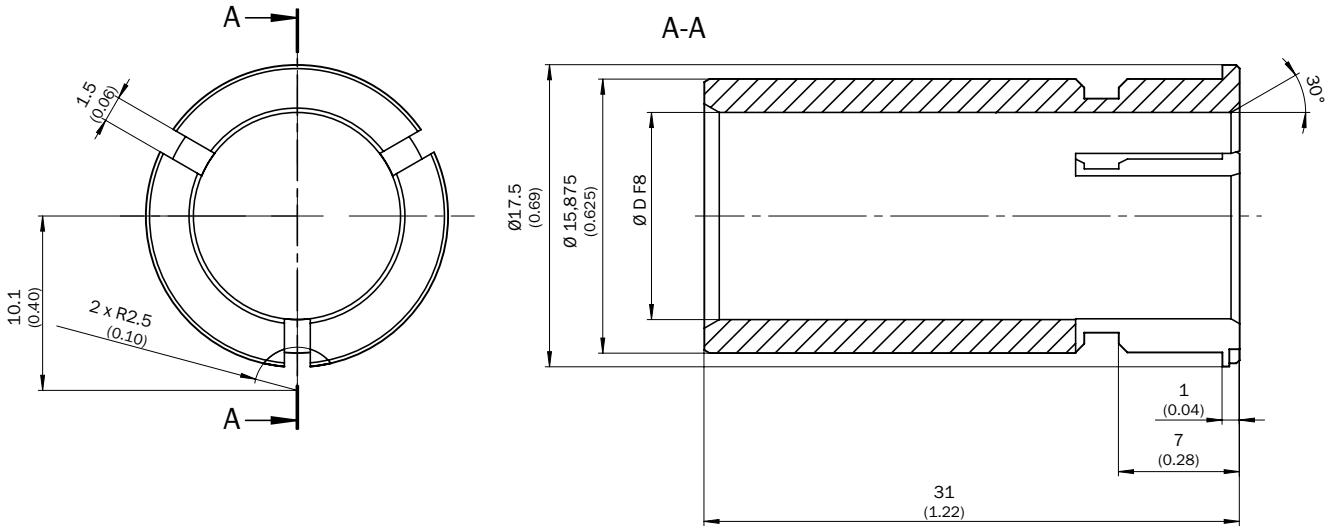


STE-2312-G



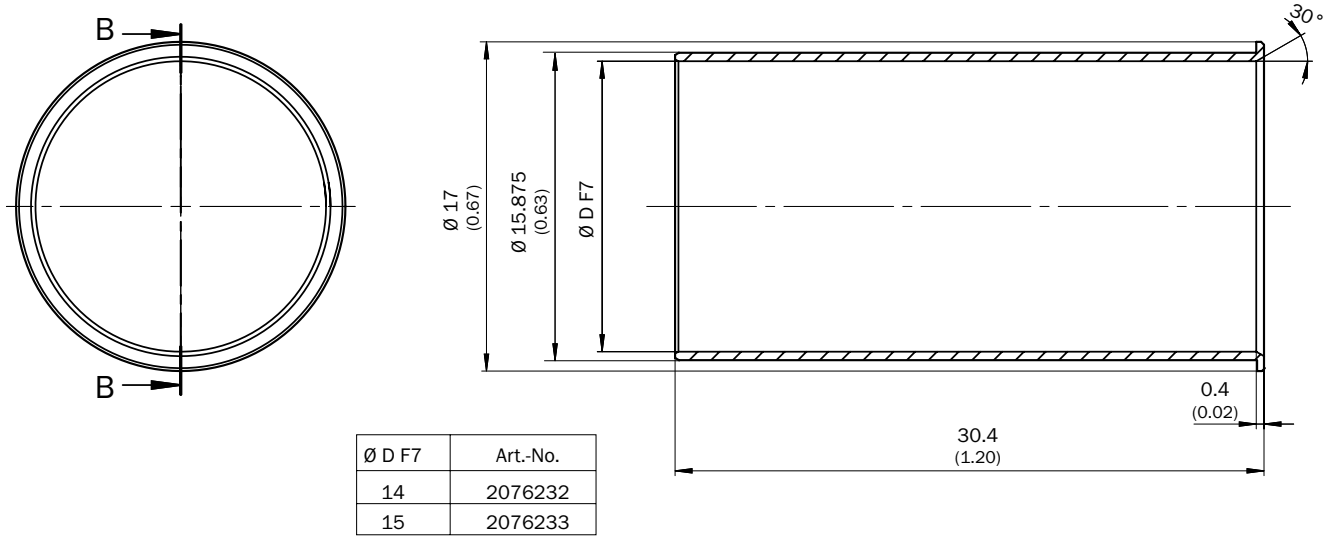
Shaft adaptation dimensional drawings: collets and clamping rings

Collets, plastic
SPZ-58Z-006-P
SPZ-58Z-008-P
SPZ-58Z-010-P
SPZ-58Z-012-P
SPZ-58Z-38Z-P
SPZ-58Z-12Z-P



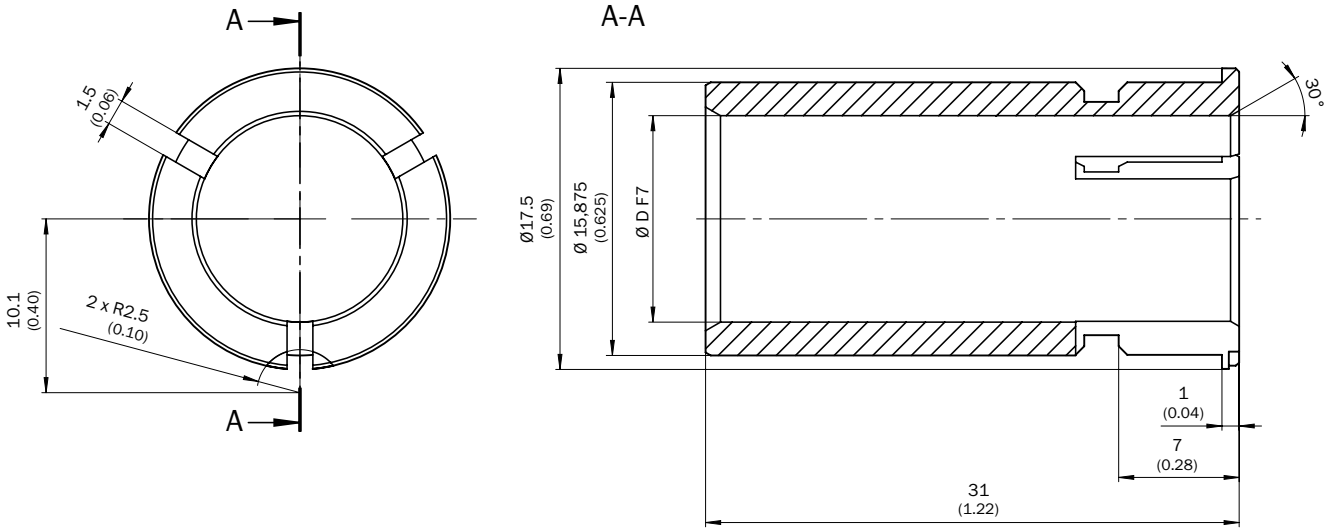
Ø D F8	Art.-No.
6	2076228
8	2076229
3/8″ (9.525)	2076226
10	2076230
12	2076231
1/2″ (12.7)	2076227

SPZ-58Z-014-P
SPZ-58Z-015-P



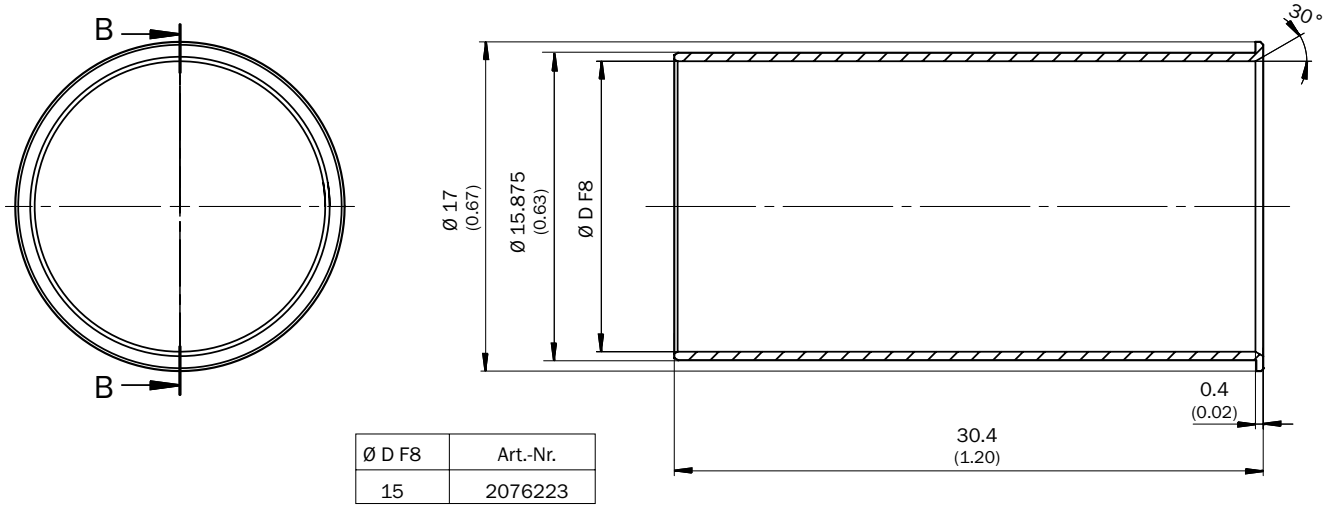
Ø D F7	Art.-No.
14	2076232
15	2076233

Collets, metal
SPZ-58Z-008-M
SPZ-58Z-010-M
SPZ-58Z-012-M
SPZ-58Z-014-M
SPZ-58Z-12Z-M
SPZ-58Z-38Z-M



Ø D F7	Art.-No.
8	2076219
3/8″ (9.525)	2076224
10	2076220
12	2076221
1/2″ (12.7)	2076225
14	2076222

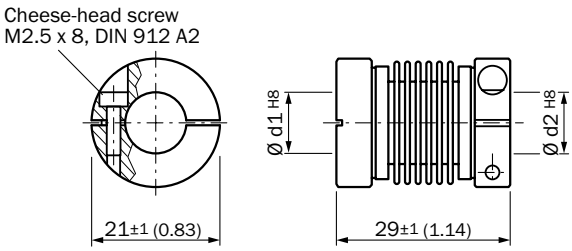
SPZ-58Z-015-M



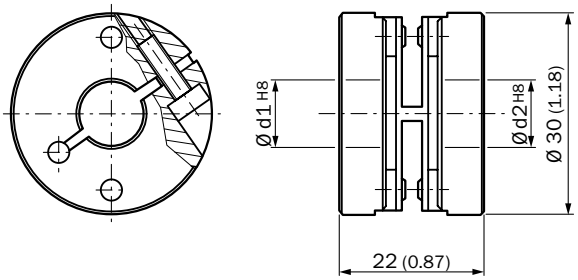
Ø D F8	Art.-Nr.
15	2076223

Shaft adaptation dimensional drawings: shaft couplings

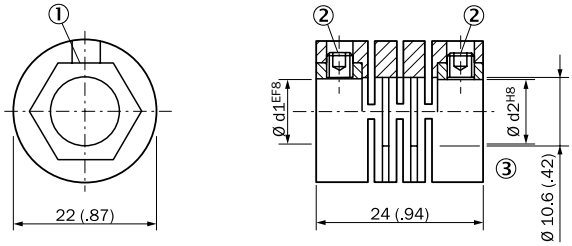
KUP-xxxx-B



KUP-xxxx-F



KUP-xxxx-S



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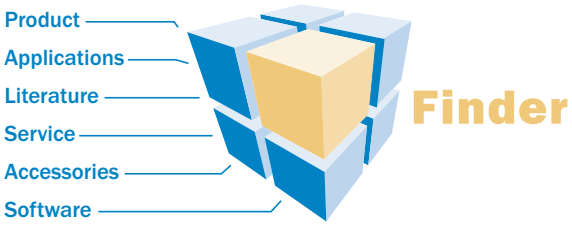

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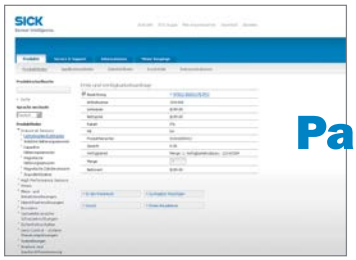

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SICK AT A GLANCE

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