PRODUCT INFORMATION

DBS60 Inox

RUGGED STAINLESS STEEL INCREMENTAL ENCODER FOR CHALLENGING APPLICATIONS

Incremental Encoders

SICK
Sensor Intelligence.

RUGGED STAINLESS STEEL INCREMENTAL ENCODER FOR CHALLENGING APPLICATIONS

DBS60 Inox

DBS60I-W Washdown Encoder

Additional information

Product description

The combination of a complete stainless steel design and a rugged shaft seal make the DBS60 Inox incremental encoder resistant to harsh environmental conditions. Its stainless steel housing is offered with standard IP67 or IP69K (DBS60I-W*) enclosure ratings and has a diameter of only 58 mm, thereby enabling it to be used in challenging applications with limited installation space. The IP69K DBS60I-W* variant with its patented deflector shield, which protects the shaft seal, is an ideal product for applications in washdown environments. With various mechanical and communication interfaces as well as a resolution of up to 5,000 pulses, the DBS60 Inox fulfills customer requirements from many different fields of industry.

At a glance

- Stainless steel design: 303/304 (V2A), 316L (V4A) for the IP69K variant
- Enclosure rating: IP67, IP69K (DBS60I-W*)
- Blind hollow shaft or solid shaft with face mount or square flange
- Up to 5,000 pulses per revolution
- Cable connection or M12 male connector
- Interfaces: TTL/HTL, TTL/RS-422, HTL/push-pull

Your benefits

- Stainless steel housing provides a high level of resistance to environmental influences
- Ideally suited for applications requiring high protection against aggressive media and cleaning agents
- IP67 and IP69K (DBS60I-W*) enclosure ratings for optimum ingress protection
- Bacterial growth prevention through clean design (IP69K variant)
- Corrosion resistance with 316L (V4A) stainless steel (IP69K variant)
- Design of the IP69K variant suitable for high-pressure, warm-water washdown typical for environments in the food and beverage industry

→ www.sick.com/DBS60_Inox

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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Fields of application

- Food and beverage industry
- Medical technology
- Packaging machines
- Challenging outdoor applications, e. g., in ports or offshore plants

Detailed technical data

Performance

Pulses per revolution	0 ... 5,000 [1]
Measuring step	90° electric/pulses per revolution
Measuring step deviation	
< 3,600 pulses per revolution	± 18° / pulses per revolution
≥ 3,600 pulses per revolution	± 36° / pulses per revolution
Error limits	Measuring step deviation x 3
Duty cycle	
< 3,600 pulses per revolution	≤ 0.5 ± 5 %
≥ 3,600 pulses per revolution	≤ 0.5 ± 10 %

[1] Available pulses per revolution see type code.

Interfaces

Communication interface	Incremental
Communication Interface detail	TTL / RS-422 HTL / Push pull TTL / HTL [1] (depending on type)
Number of signal channels	6-channel
Initialization time	< 5 ms [2]
Output frequency	≤ 300 kHz [3]
4.5 V... 5.5 V, TTL/RS-422	
Load current	≤ 30 mA, per channel
Operating current	≤ 50 mA (without load)
TTL/RS-422	
Load current	≤ 30 mA, per channel
Power consumption	≤ 0.5 W (without load)
HTL/Push pull	
Load current	≤ 30 mA, per channel
Power consumption	≤ 1 W (without load)
TTL/HTL	
Load current	≤ 30 mA, per channel
Power consumption	≤ 0.5 W (without load)

[1] Output level depends on the supply voltage.

[2] Valid signals can be read once this time has elapsed.

[3] Up to 450 kHz on request.

Electrical data

	Solid shaft	Blind hollow shaft
Connection type	Male connector, M12, 8-pin, radial Cable, 8-wire, radial, 5 m Cable, 8-wire, radial, 1.5 m (depending on type)	Male connector, M12, 8-pin, radial Cable, 8-wire, radial, 5 m (depending on type)
Supply voltage	4.5 .V .. 5.5 V 10 .V .. 30 V 10 V ... 27 V 4.5 V ... 30 V (depending on type)	
Reference signal, number	1	
Reference signal, position	90°, electric, logically gated with A and B	
Reverse polarity protection	✔	
Short-circuit protection of the outputs		
4.5 V ... 5.5 V, TTL, RS-422	✔ [1]	
10 V ... 30 V, TTL, RS-422	✔ [2]	
10 V ... 27 V, HTL, Push pull	✔ [2]	
4.5 V ... 30 V, TTL, HTL	✔ [2]	
MTTFd: mean time to dangerous failure	500 years (EN ISO 13849-1) [3]	

[1] Short-circuit opposite to another channel or GND permissible for max. 60 s. No protection signal against U_S.

[2] Short-circuit opposite to another channel, US or GND permissable for maximum 30 s.

[3] 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.

Mechanical data

	Solid shaft	Blind hollow shaft
Mechanical design	Solid shaft, Square flange Solid shaft, face mount flange (depending on type)	Blind hollow shaft
Shaft diameter		
Square flange, flange with 4 x hole 5.5 mm	10 mm	–
Face mount flange, flange with 3 x M3 and 3 x M4	10 mm 3/8” (depending on type)	–
2-sided stator coupling, slot, screw hole circle 63–83 mm	–	6 mm 8 mm 12 mm 10 mm 14 mm 15 mm (depending on type)
Shaft length		
Solid shaft, Square flange	19 mm	–
Solid shaft, face mount flange	19 mm	–
Flange type / stator coupling	Flange with 4 x hole 5.5 mm / flange with 3 x M3 and 3 x M4 (depending on type)	2-sided stator coupling, slot, screw hole circle 63–83 mm

	Solid shaft	Blind hollow shaft
Weight		
Solid shaft, Square flange	0.61 kg [1]	–
Solid shaft, face mount flange	0.5 kg [1] 0.7 kg (DBS60I-W*) [2] (depending on type)	–
Blind hollow shaft	–	0.44 kg [1]
Shaft material		
DBS60I-Q*	Stainless steel V2A	–
DBS60I-S*	Stainless steel V2A	–
DBS60I-B*	–	Stainless steel V2A
DBS60I-W*	Stainless steel V4A (316L)	–
Flange material		
DBS60I-Q*	Stainless steel V2A	–
DBS60I-S*	Stainless steel V2A	–
DBS60I-B*	–	Stainless steel V2A
DBS60I-W*	Stainless steel V4A (316L)	–
Housing material		
DBS60I-Q*	Stainless steel V2A	–
DBS60I-S*	Stainless steel V2A	–
DBS60I-B*	–	Stainless steel V2A
DBS60I-W*	Stainless steel V4A (316L)	–
Material, cable	PVC	
Shaft sealing ring material	FKM80	
Material, cable gland		
DBS60I-Q*	Stainless steel V2A / Nickel-plated brass	–
DBS60I-S*	Stainless steel V2A / Nickel-plated brass	–
DBS60I-B*	–	Stainless steel V2A / Nickel-plated brass
DBS60I-W*	Stainless steel V4A (316L)	–
Start up torque	1 Ncm (+20 °C)	2.1 Ncm (+20 °C)
Operating torque	0.9 Ncm (+20 °C)	2 Ncm (+20 °C)
Permissible shaft movement, axial static/ dynamic	–	± 0.5 mm / ± 0.2 mm
Permissible shaft movement, radial static/ dynamic	–	± 0.3 mm / ± 0.1 mm
Permissible shaft loading radial/axial	80 N (radial) [3] 40 N (axial) [3]	–
Operating speed	≤ 6,000 min^{-1} [4]	
Moment of inertia of the rotor		
DBS60I-Q*	34 gcm^2	–
DBS60I-S*	34 gcm^2	–
DBS60I-B*	–	52 gcm^2
DBS60I-W*	45 gcm^2	–
Bearing lifetime	3.6 x 10^9 revolutions	
Angular acceleration	≤ 500,000 rad/s^2	

[1] Relates to encoders with male connector outlet.

[2] For an encoder with cable Connection 1.5 m.

[3] Higher values are possible using limited bearing life.

[4] Maximum speed which does not cause mechanical damage to the encoder. Impact on the service life and signal quality is possible. Please note the maximum output frequency.

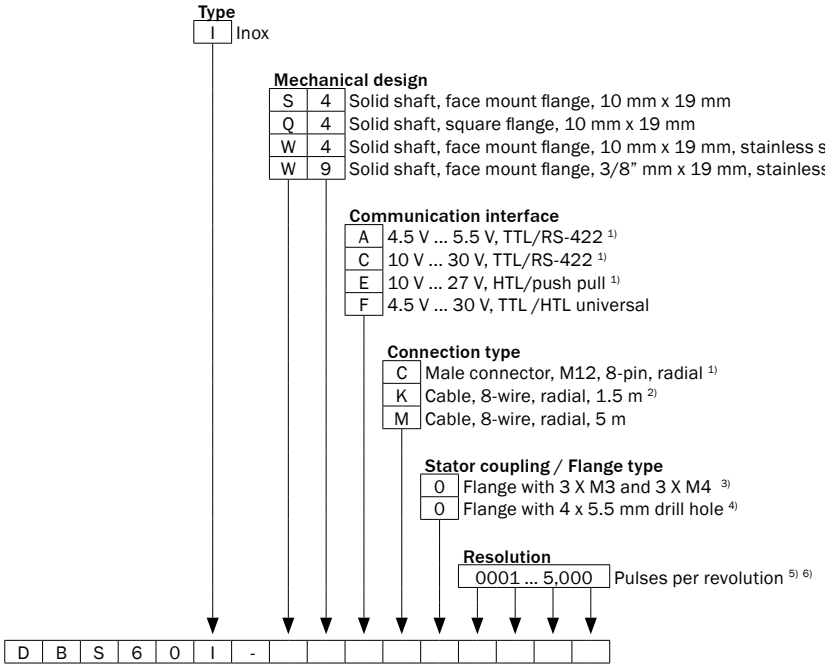
Ambient data

	Solid shaft	Blind hollow shaft
EMC	According to EN 61000-6-2 and EN 61000-6-3	
Enclosure rating		
DBS60I-Q*	IP67, connector outlet (according to IEC 60529) [1] IP67, cable outlet (according to IEC 60529) (depending on type)	–
DBS60I-S*	IP67, connector outlet (according to IEC 60529) [1] IP67, cable outlet (according to IEC 60529) (depending on type)	–
DBS60I-B*	–	IP67, connector outlet (according to IEC 60529) [1] IP67, cable outlet (according to IEC 60529) (depending on type)
DBS60I-W*	IP69K (according to IEC 60529)	–
Permissible relative humidity	90 % (condensation of the optical scanning not permitted)	
Operating temperature range		
4.5 V ... 5.5 V, TTL, RS-422	–20 °C ... +85 °C	
10 V ... 30 V, TTL, RS-422	–30 °C ... +100 °C, at maximum 3,000 pulses per revolution –30 °C ... +85 °C, at more than 3,000 pulses per revolution (depending on type)	
10 V ... 27 V, HTL, Push pull	–20 °C ... +85 °C	
4.5 V ... 30 V, TTL, HTL	–30 °C ... +100 °C, at maximum 3,000 pulses per revolution –30 °C ... +85 °C, at more than 3,000 pulses per revolution (depending on type)	
Storage temperature range	–40 °C ... +100 °C, without package	
Resistance to shocks	100 g, 6 ms (according to EN 60068-2-27)	
Resistance to vibration	30 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6)	10 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6)

[1] With mating connector fitted.

Type code

Solid shaft

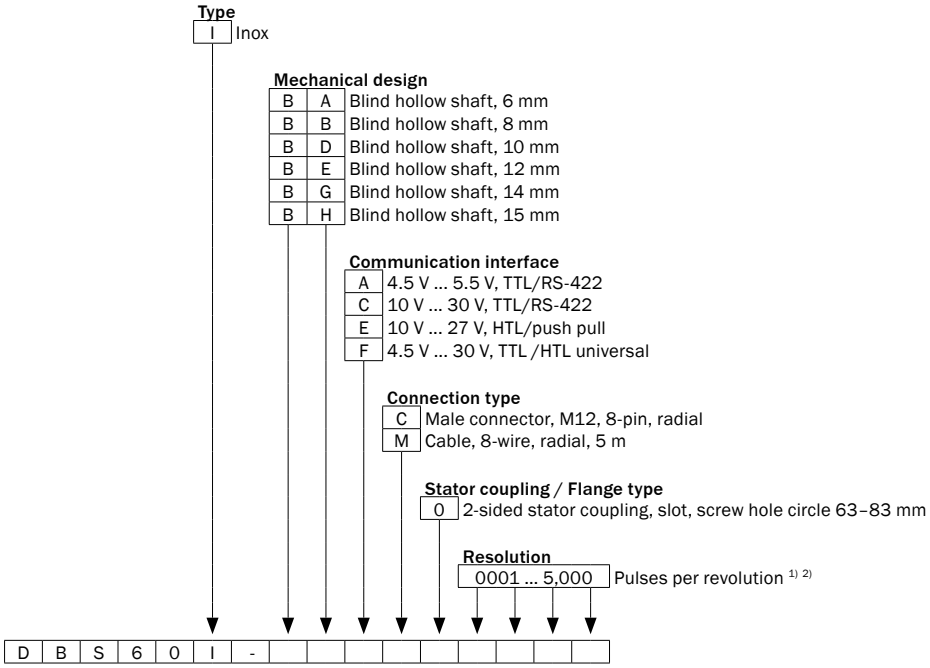


1) For mechanical version S4 and Q4.
2) For mechanical version W4 and W9.
3) For mechanical version S4, W4 and W9.
4) For mechanical version Q4.
5) See "Pulses per revolution" table.
6) Other pulses upon request.

Pulses per revolution (other pulses upon request)

DBS60I-S*, DBS60I-Q*, DBS60I-B*	DBS60I-W*
0010	-
0020	-
0050	-
0100	-
0128	-
0160	-
0200	-
0256	-
0360	-
0512	-
1000	1000
1024	1024
2000	-
2048	2048
2500	-
3000	-
3600	-
4096	-
5000	5000

Hollow shaft



[1] See “Pulses per revolution” table.
[2] Other pulses upon request.

Pulses per revolution (other pulses upon request)

DBS60I
0010
0020
0050
0100
0128
0160
0200
0256
0360
0512
1000
1024
2000
2048
2500
3000
3600
4096
5000

Ordering information

- **Mechanical design:** Solid shaft, Square flange
- **Housing material:** Stainless steel V2A
- **Enclosure rating:** IP67
- **Shaft diameter:** 10 mm
- **Communication interface:** Incremental

Communication Interface detail	Supply voltage	Connection type	Pulses per revolution	Type	Part no.
HTL / Push pull	10 V ... 27 V	Male connector, M12, 8-pin, radial	1,024	DBS60I-Q4EC01024	1100934
			2,000	DBS60I-Q4EC02000	1097827
TTL / HTL	4.5 V ... 30 V	Cable, 8-wire, radial, 5 m	1,000	DBS60I-Q4FM01000	1089712
			2,000	DBS60I-Q4FM02000	1089713
			5,000	DBS60I-Q4FM05000	1089714
TTL / RS-422	10 V ... 30 V	Cable, 8-wire, radial, 5 m	2,000	DBS60I-Q4CM02000	1112249
	4.5 V ... 5.5 V	Male connector, M12, 8-pin, radial	2,000	DBS60I-Q4AC02000	1111098

- **Mechanical design:** Solid shaft, face mount flange
- **Housing material:** Stainless steel V4A (316L)
- **Enclosure rating:** IP69K
- **Communication interface:** Incremental
- **Communication interface detail:** TTL / HTL
- **Supply voltage:** 4.5 V ... 30 V

Shaft diameter	Communication Interface detail	Supply voltage	Connection type	Pulses per revolution	Type	Part no.
10 mm	TTL / HTL	4.5 V ... 30 V	Cable, 8-wire, radial, 1.5 m	1,000	DBS60I-W4FK01000	1111504
				1,024	DBS60I-W4FK01024	1111505
				2,048	DBS60I-W4FK02048	1111506
				5,000	DBS60I-W4FK05000	1111507
			Cable, 8-wire, radial, 5 m	1,000	DBS60I-W4FM01000	1111508
				1,024	DBS60I-W4FM01024	1111509
				2,048	DBS60I-W4FM02048	1111510
				5,000	DBS60I-W4FM05000	1111511
3/8"	TTL / HTL	4.5 V ... 30 V	Cable, 8-wire, radial, 1.5 m	1,000	DBS60I-W9FK01000	1111512
				1,024	DBS60I-W9FK01024	1111513
				2,048	DBS60I-W9FK02048	1111514
				5,000	DBS60I-W9FK05000	1111515
			Cable, 8-wire, radial, 5 m	1,000	DBS60I-W9FM01000	1111516
				1,024	DBS60I-W9FM01024	1111517
				2,048	DBS60I-W9FM02048	1111518
				5,000	DBS60I-W9FM05000	1111544

- **Mechanical design:** Solid shaft, face mount flange
- **Housing material:** Stainless steel V2A
- **Enclosure rating:** IP67
- **Shaft diameter:** 10 mm
- **Communication interface:** Incremental

Communication Interface detail	Supply voltage	Connection type	Pulses per revolution	Type	Part no.
HTL / Push pull	10 V ... 27 V	Cable, 8-wire, radial, 5 m	1,024	DBS60I-S4EM01024	1098934
			5,000	DBS60I-S4EM05000	1107569
		Cable, 8-wire, radial, 5 m	512	DBS60I-S4FM00512	1111140
			1,000	DBS60I-S4FM01000	1089705
			2,000	DBS60I-S4FM02000	1089707
			5,000	DBS60I-S4FM05000	1089710
TTL / RS-422	4.5 V ... 5.5 V	Male connector, M12, 8-pin, radial	1,000	DBS60I-S4AC01000	1098320
			1,024	DBS60I-S4AC01024	1088917

- **Mechanical design:** blind hollow shaft
- **Housing material:** Stainless steel V2A
- **Enclosure rating:** IP67
- **Communication interface:** Incremental

Shaft diameter	Communication Interface detail	Supply voltage	Connection type	Pulses per revolution	Type	Part no.
10 mm	HTL / Push pull	10 V ... 27 V	Male connector, M12, 8-pin, radial	1,024	DBS60I-BDEC01024	1100933
	TTL / HTL	4.5 V ... 30 V	Cable, 8-wire, radial, 5 m	1,024	DBS60I-BDFM01024	1089715
				2,048	DBS60I-BDFM02048	1089716
12 mm	HTL / Push pull	10 V ... 27 V	Male connector, M12, 8-pin, radial	5,000	DBS60I-BEEC05000	1111698
	TTL / HTL	4.5 V ... 30 V	Cable, 8-wire, radial, 5 m	1,024	DBS60I-BEFM01024	1089717
				2,048	DBS60I-BEFM02048	1089718
	TTL / RS-422	4.5 V ... 5.5 V	Cable, 8-wire, radial, 5 m	2,500	DBS60I-BEAM02500	1089852
14 mm	HTL / Push pull	10 V ... 27 V	Male connector, M12, 8-pin, radial	5,000	DBS60I-BGEC05000	1100266
	TTL / RS-422	4.5 V ... 5.5 V	Cable, 8-wire, radial, 5 m	1,024	DBS60I-BGAM01024	1094726
15 mm	HTL / Push pull	10 V ... 27 V	Cable, 8-wire, radial, 5 m	2,048	DBS60I-BHEM02048	1105072
	TTL / HTL	4.5 V ... 30 V	Cable, 8-wire, radial, 5 m	1,024	DBS60I-BHFM01024	1089719
				2,048	DBS60I-BHFM02048	1089720
	TTL / RS-422	4.5 V ... 5.5 V	Male connector, M12, 8-pin, radial	1,000	DBS60I-BHAC01000	1110916
6 mm	HTL / Push pull	10 V ... 27 V	Male connector, M12, 8-pin, radial	5,000	DBS60I-BAEC05000	1111696
	TTL / HTL	4.5 V ... 30 V	Cable, 8-wire, radial, 5 m	1,000	DBS60I-BAFM01000	1101753

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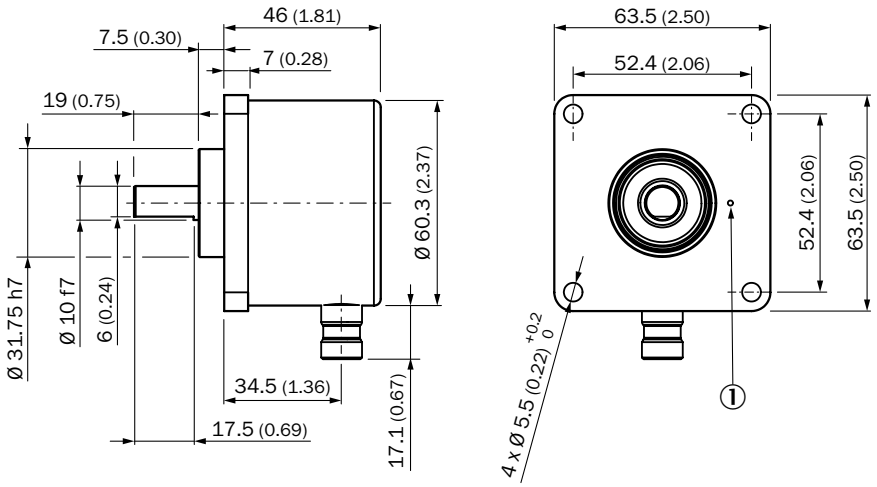
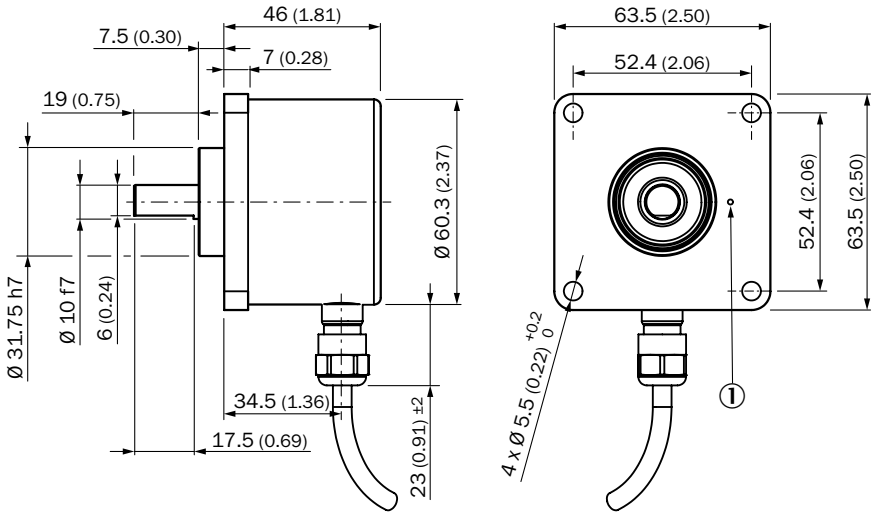
Dimensional drawings (Dimensions in mm (inch))

Solid shaft, square flange, connector outlet



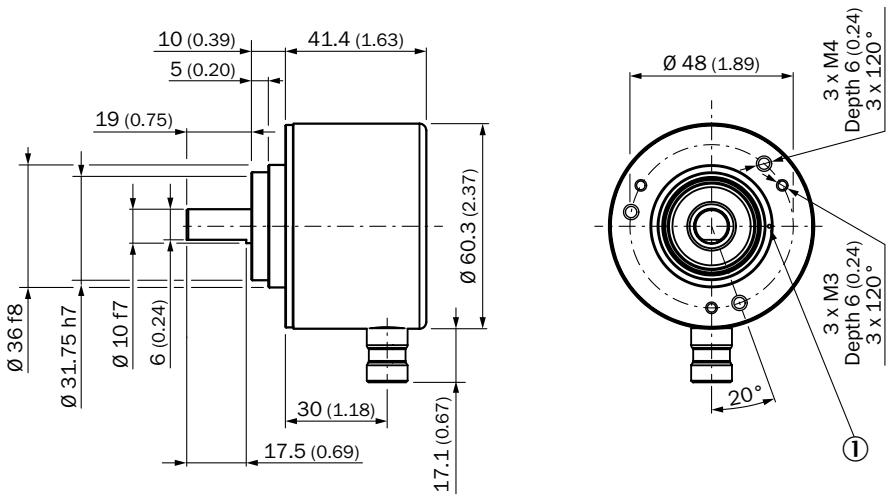
① Zero pulse mark on flange

Solid shaft, square flange, cable outlet



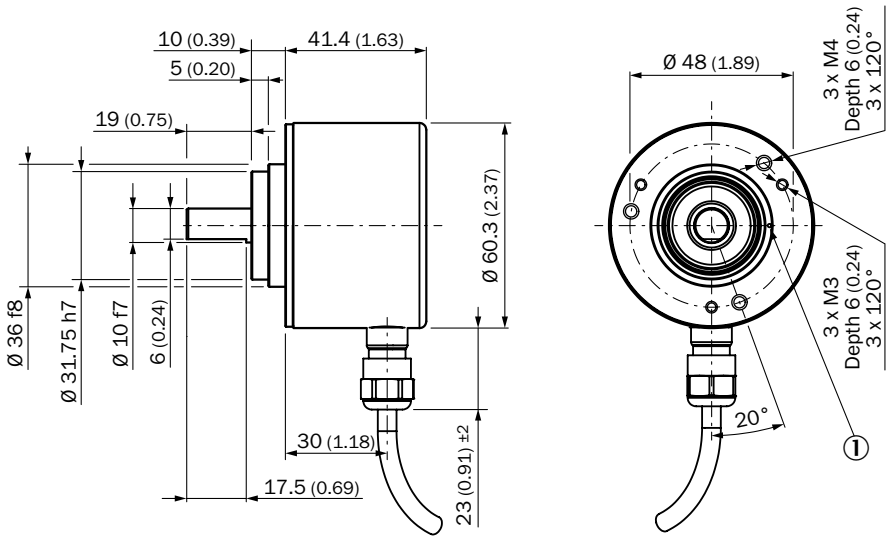
① Zero pulse mark on flange

Solid shaft, face mount flange, connector outlet



① Zero pulse mark on flange

Solid shaft, face mount flange, cable outlet



① Zero pulse mark on flange

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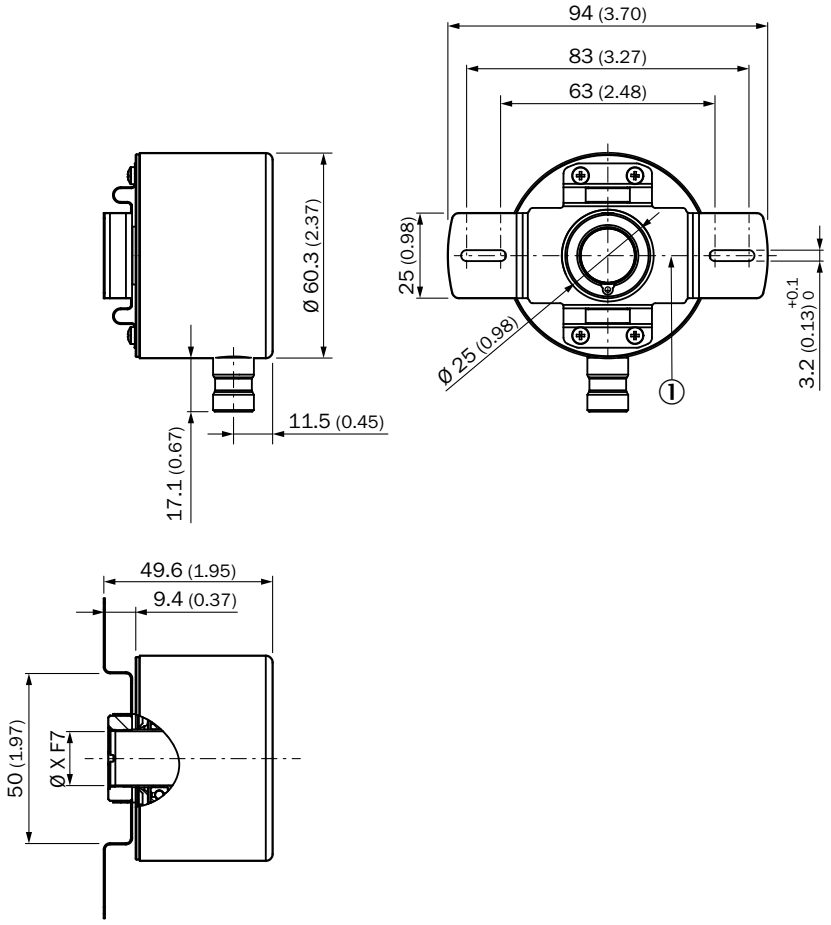
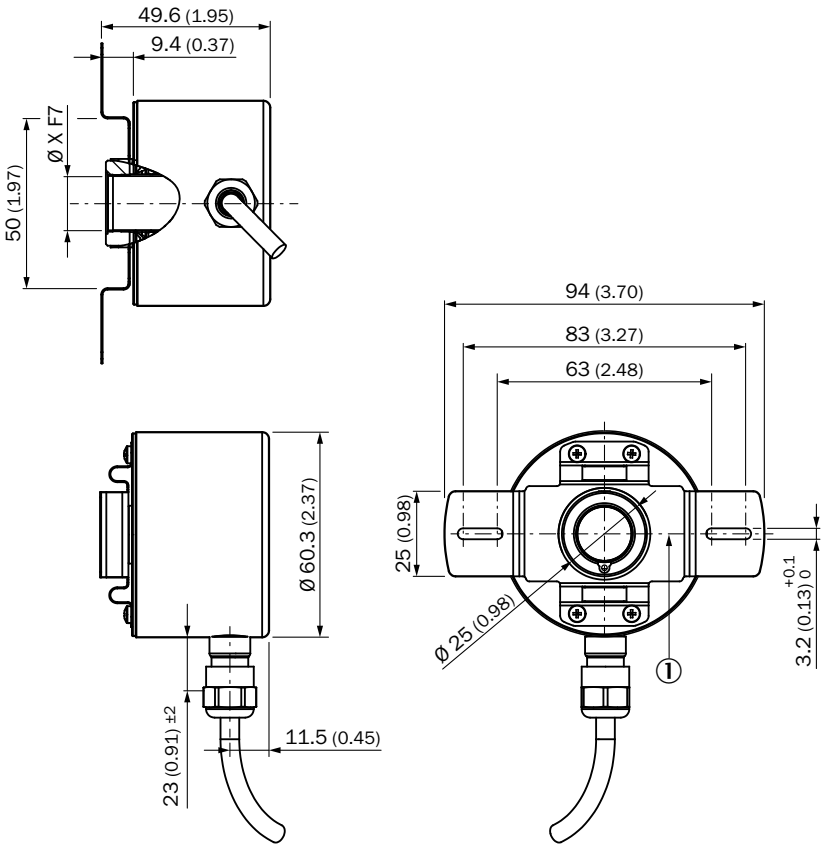
Blind hollow shaft, male connector connection, 2-sided stator coupling, slot, screw hole circle 63–83 mm



① Zero pulse mark on flange

Type Blind hollow shaft	Shaft diameter XF7
DBS60I-BAxxxxxxxx	6 mm
DBS60I-BBxxxxxxxx	8 mm
DBS60I-BDxxxxxxxx	10 mm
DBS60I-BExxxxxxxx	12 mm
DBS60I-BGxxxxxxxx	14 mm
DBS60I-BHxxxxxxxx	15 mm

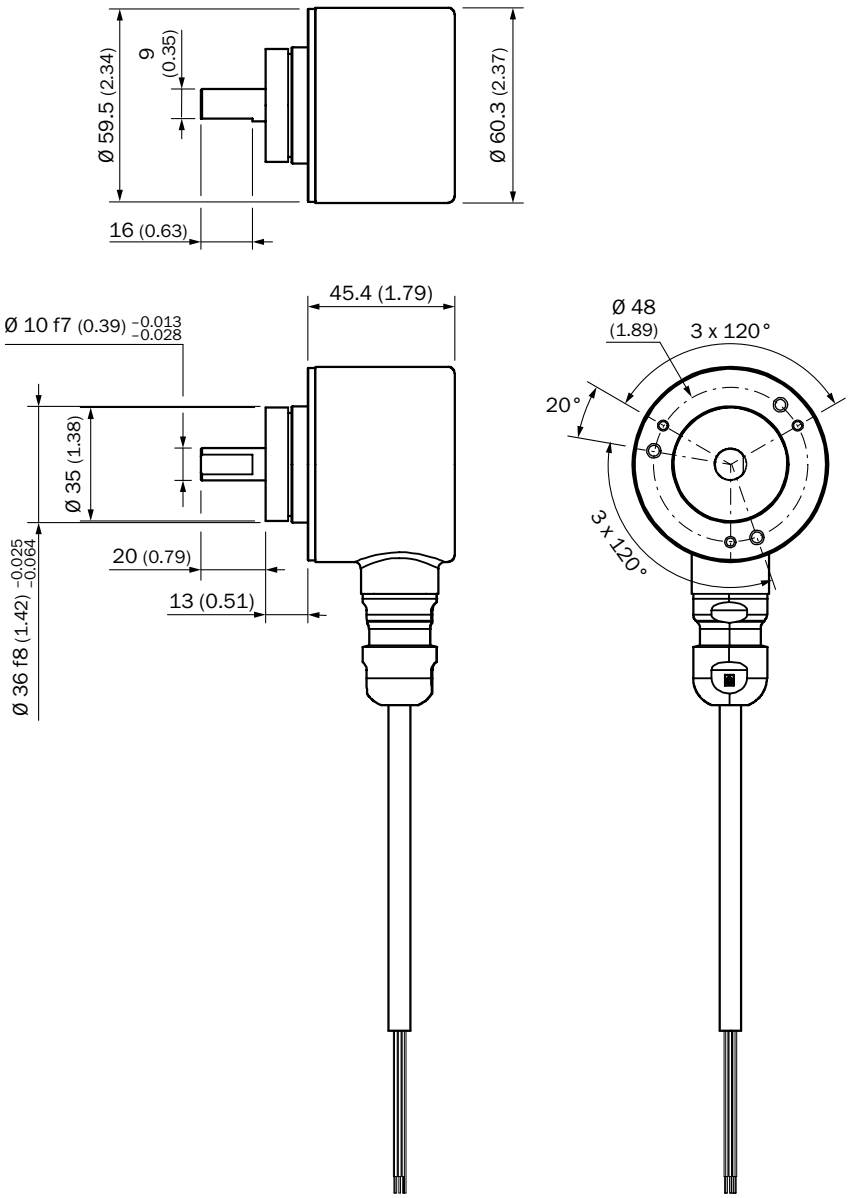
Blind hollow shaft, cable connection, 2-sided stator coupling, slot, screw hole circle 63–83 mm



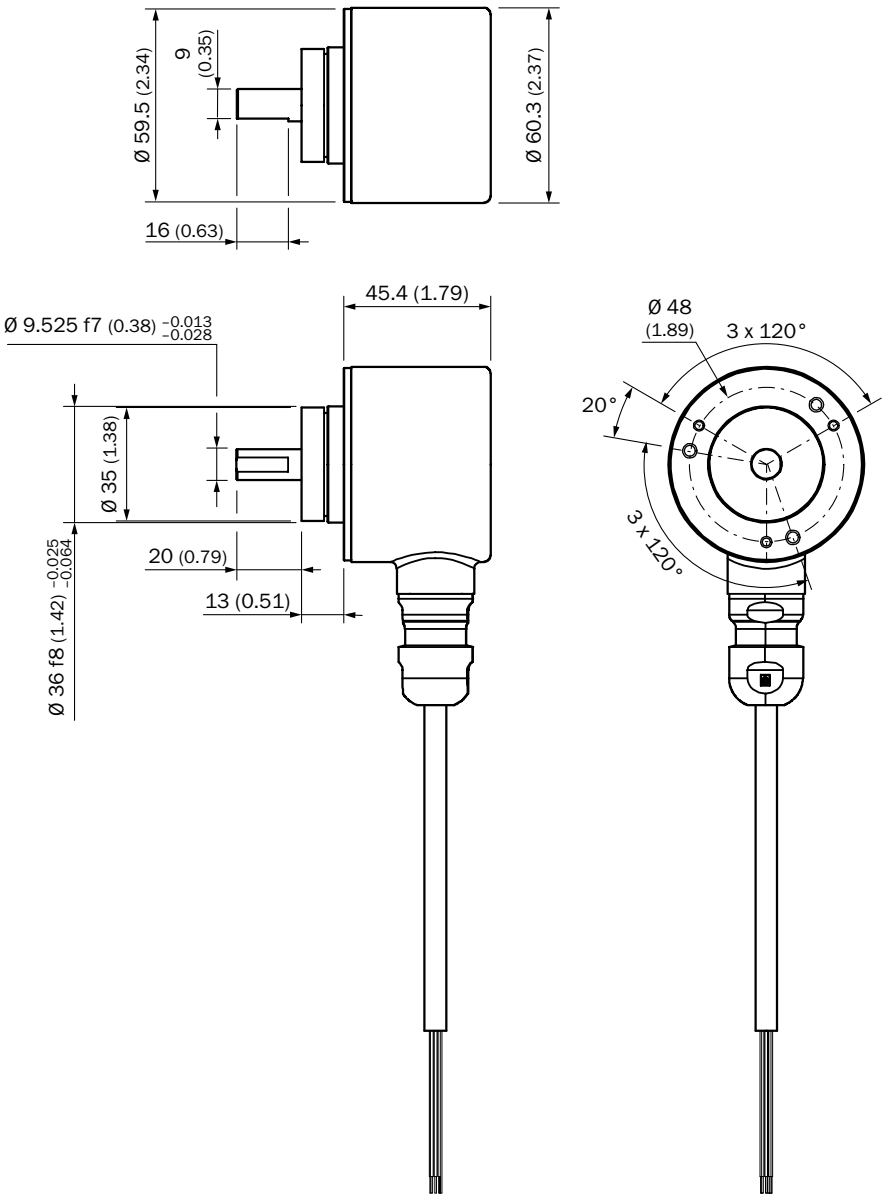
① Zero pulse mark on flange

Type Blind hollow shaft	Shaft diameter XF7
DBS60I-BAxxxxxxxx	6 mm
DBS60I-BBxxxxxxxx	8 mm
DBS60I-BDxxxxxxxx	10 mm
DBS60I-BExxxxxxxx	12 mm
DBS60I-BGxxxxxxxx	14 mm
DBS60I-BHxxxxxxxx	15 mm

DBS60I-W4*, Solid shaft, face mount flange, cable connection



DBS60I-W9*, Solid shaft, face mount flange, cable connection



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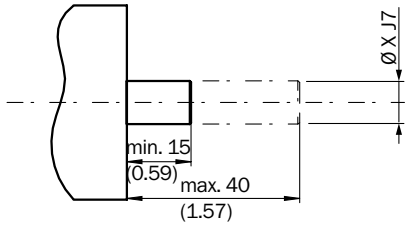
Attachment specifications

Blind hollow shaft

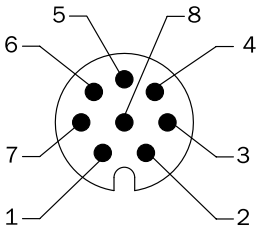


Customer side

Type Blind hollow shaft	Shaft diameter xj7
DBS60I-BAxxxxxxxx	6 mm
DBS60I-BBxxxxxxxx	8 mm
DBS60I-BDxxxxxxxx	10 mm
DBS60I-BExxxxxxxx	12 mm
DBS60I-BGxxxxxxxx	14 mm
DBS60I-BHxxxxxxxx	15 mm

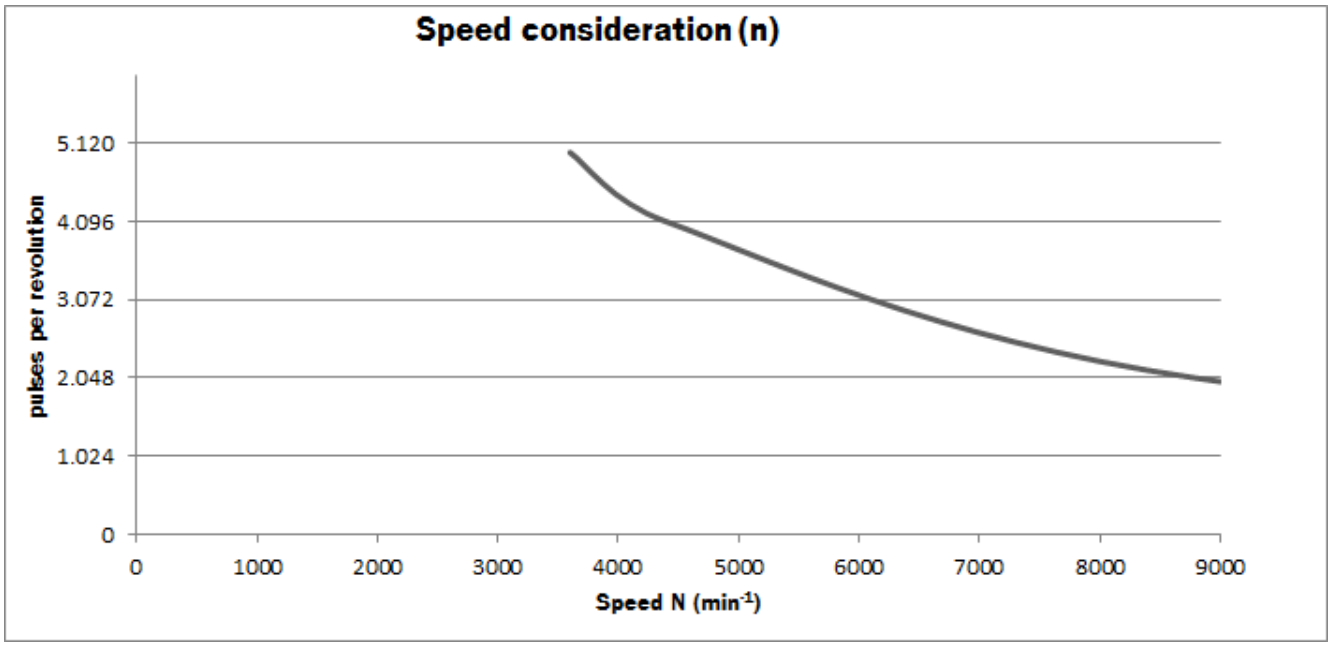
PIN assignment

View of M12 device connector on cable/housing



Colour of wires	Pin 8-pole in M12	Signal TTL; HTL	Explanation
Brown	1	A-	Signal line
White	2	A	Signal line
Black	3	B-	Signal line
Pink	4	B	Signal line
Yellow	5	Z-	Signal line
Lilac	6	Z	Signal line
Blue	7	GND	Ground connection of the Encoder
Red	8	+Us	Supply voltage
Screen	Screen	Screen	Screen (Screen connected to Encoder housing.

Maximum revolution range



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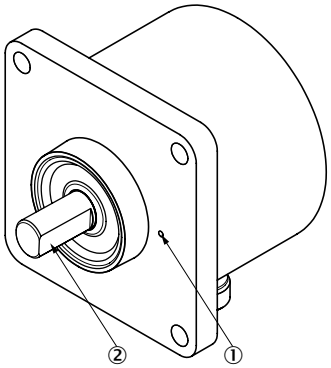
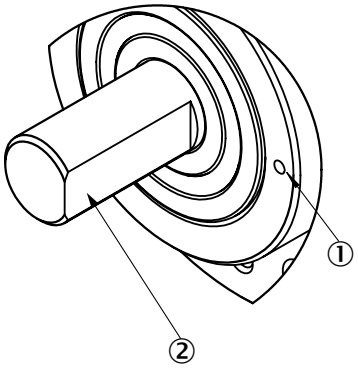
Zero pulse explanation

Solid shaft, square flange



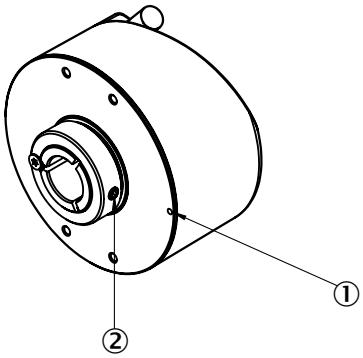
① Zero pulse mark on flange
② Zero pulse active when the surface of the shaft shows the zero pulse mark on the flange

Solid shaft, face mount flange



① Zero pulse mark on flange
② Zero pulse active when the surface of the shaft shows the zero pulse mark on the flange

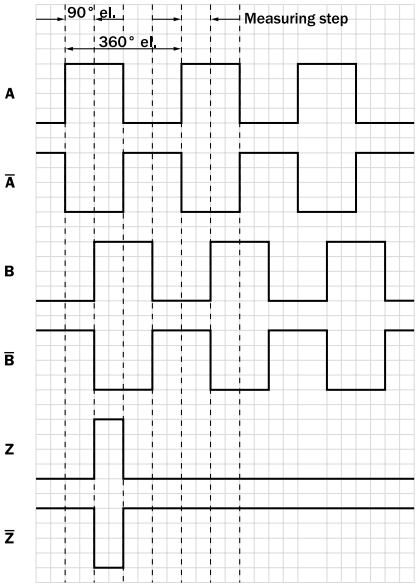
Hollow shaft



Attention! If stator coupling is mounted, the zero pulse mark can be hidden by the stator coupling
① Zero pulse mark on flange
② Zero pulse is active when screw of clamping is inline with zero pulse mark on flange or housing mark

Signal outputs

Signal outputs for electrical interfaces TTL and HTL



Cw with view on the encoder shaft in direction “A”, compare dimensional drawing.

Supply voltage	Output
4,5 V ... 5,5 V	TTL
10 V ... 30 V	TTL
10 V ... 27 V	HTL
4,5 V ... 30 V	TTL/HTL universal
4,5 V ... 30 V	TTL

Accessories

Mounting systems

Flanges

Flange plates

Figure	Brief description	Type	Part no.
	Two-sided stator coupling, screw hole circle diameter 63 mm, slot width 3.2 mm	BEF-DS-09	2076214
	Two-sided stator coupling, slot, slot radius 63 mm – 83 mm, slot width 3.2 mm	BEF-DS-10	2076215
	One-sided stator coupling, slots, slot radius 32.75 mm – 142.65 mm, slot width 4.5 mm	BEF-DS-11	2076216
	Torque support, 1-sided, slotted hole, screw hole radius 31.5 mm - 48.5 mm, hole width 5.1 mm	BEF-DS-12	2076217
	One-sided stator coupling, slot, slot radius 32.1 mm – 37.6 mm, slot width 4.5 mm	BEF-DS-14	2076678
	Flange adapter, adaptation of face mount flange with 36 mm centering hub to 50 mm servo flange, stainless steel, Including 3 countersunk screws with Precote 85-8 coating; M4*12	BEF-FA-036-050-I	2094778

Dimensional drawings ➜ page 24

Shaft adaptation

Collets and clamping rings

Figure	Brief description	Type	Part no.
	Collet plastic insulated for hollow shaft, shaft diameter 6 mm, outer diameter 5/8" (15.875 mm), plastic	SPZ-58Z-006-P	2076228
	Collet metal for hollow shaft, shaft diameter 8 mm, outer diameter 5/8" (15.875 mm), metal	SPZ-58Z-008-M	2076219
	Collet plastic insulated for hollow shaft, shaft diameter 8 mm, outer diameter 5/8" (15.875 mm), plastic	SPZ-58Z-008-P	2076229
	Collet metal for hollow shaft, shaft diameter 10 mm, outer diameter 5/8" (15.875 mm), metal	SPZ-58Z-010-M	2076220
	Collet plastic insulated for hollow shaft, shaft diameter 10 mm, outer diameter 5/8" (15.875 mm), plastic	SPZ-58Z-010-P	2076230
	Collet metal for hollow shaft, shaft diameter 11 mm, outer diameter 5/8" (15.875 mm), metal	SPZ-58Z-011-M	2094671
	Collet metal for hollow shaft, shaft diameter 12 mm, outer diameter 5/8" (15.875 mm), metal	SPZ-58Z-012-M	2076221
	Collet plastic insulated for hollow shaft, shaft diameter 12 mm, outer diameter 5/8" (15.875 mm), plastic	SPZ-58Z-012-P	2076231
	Collet metal for hollow shaft, shaft diameter 14 mm, outer diameter 5/8" (15.875 mm), metal	SPZ-58Z-014-M	2076222
	Collet plastic insulated for hollow shaft, shaft diameter 14 mm, outer diameter 5/8" (15.875 mm), plastic	SPZ-58Z-014-P	2076232

Figure	Brief description	Type	Part no.
	Collet metal for hollow shaft, shaft diameter 15 mm, outer diameter 5/8" (15.875 mm), metal	SPZ-58Z-015-M	2076223
	Collet plastic insulated for hollow shaft, shaft diameter 15 mm, outer diameter 5/8" (15.875 mm), plastic	SPZ-58Z-015-P	2076233

Dimensional drawings ➜ page 25

Shaft couplings

Figure	Brief description	Type	Part no.
	Bellows coupling, shaft diameter 6 mm / 10 mm, maximum shaft offset: radial ± 0.25 mm, axial ± 0.4 mm, angular +/- 4°; max. speed 10,000 rpm, –30 °C to +120 °C, max. torque 80 Ncm; material: stainless steel bellows, aluminum hub	KUP-0610-B	5312982
	Spring washer coupling, shaft diameter 6 mm / 10 mm, Maximum shaft offset: radial +/- 0.3 mm, axial +/- 0.4 mm, angular +/- 2.5°; max. speed 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
	Bar coupling, shaft diameter 6 mm / 10 mm, max. shaft offset: radial ± 0,3 mm, axial ± 0,3 mm, angular ± 3°; max. speed 10.000 rpm, –10° to +80 °C, max. torque: 80 Ncm, material: fiber-glass reinforced polyamide, aluminum hub	KUP-0610-S	2056407
	Bar coupling, shaft diameter 8 mm / 10 mm, max. shaft offset: radial ± 0,3 mm, axial ± 0,3 mm, angular ± 3°; max. speed 10.000 rpm, –10° to +80 °C, max. torque: 80 Ncm, material: fiber-glass reinforced polyamide, aluminum hub	KUP-0810-S	5314178
	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 clamping hubs	KUP-1010-B	5312983
	Double loop coupling, shaft diameter 10 mm / 10 mm, Maximum shaft offset: radial +/- 2.5 mm, axial +/- 3 mm, angular +/- 10°; max. speed 3,000 rpm, –30° to +80 °C, max. torque 1.5 Nm; material: polyurethane, galvanized steel flange	KUP-1010-D	5326703
	Spring washer coupling, shaft diameter 10 mm / 10 mm, maximum shaft offset, radial ± 0.3 mm, axial ± 0.4 mm, angle ± 2.5°, torsion spring stiffness 30 Nm/rad; material: aluminum flange, glass-fiber reinforced polyamide membrane and hardened steel coupling pin	KUP-1010-F	5312986
	Bar coupling, shaft diameter 10 mm / 10 mm; maximum shaft offset: radial ± 0.3 mm, axial ± 0.2 mm, angular ± 3°; speed 10,000 rpm, –10° to +80° Celsius, max. torque 80 Ncm; material: glass fiber-reinforced polyamide, aluminum hub	KUP-1010-S	2056408
	Spring washer coupling, shaft diameter 10 mm / 10 mm, maximum shaft offset, radial ± 0.3 mm, axial ± 0.4 mm, angle ± 2.5°, torsion spring stiffness 30 Nm/rad; material: aluminum flange, glass-fiber reinforced polyamide membrane and hardened steel coupling pin	KUP-1010-W	5319914
	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 clamping hubs	KUP-1012-B	5312984

Dimensional drawings ➜ page 25

Connection systems

Plug connectors and cables

Cables (ready to assemble)

Figure	Brief description	Type	Part no.
	Head A: cable Head B: Flying leads Cable: SSI, Incremental, HIPERFACE®, PUR, halogen-free, shielded, 4 x 2 x 0.15 mm², 5.6 mm	LTG-2308-MWENC	6027529
	Head A: cable Head B: Flying leads Cable: SSI, PUR, shielded, 4 x 2 x 0.25 mm2 + 2 x 0.5 mm2 + 1 x 0.14 mm², 7.5 mm	LTG-2411-MW	6027530

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Figure	Brief description	Type	Part no.
	Head A: cable Head B: Flying leads Cable: SSI, PUR, halogen-free, shielded, 4 x 2 x 0.25 mm^2 + 2 x 0.5 mm^2 + 2 x 0.14 mm^2, 7.8 mm	LTG-2512-MW	6027531
	Head A: cable Head B: Flying leads Cable: SSI, TTL, HTL, PUR, halogen-free, shielded, 4 x 2 x 0.25 mm^2 + 2 x 0.5 mm^2 + 2 x 0.14 mm^2, 7.8 mm, UV and saltwater-resistant	LTG-2612-MW	6028516

Field-attachable connectors

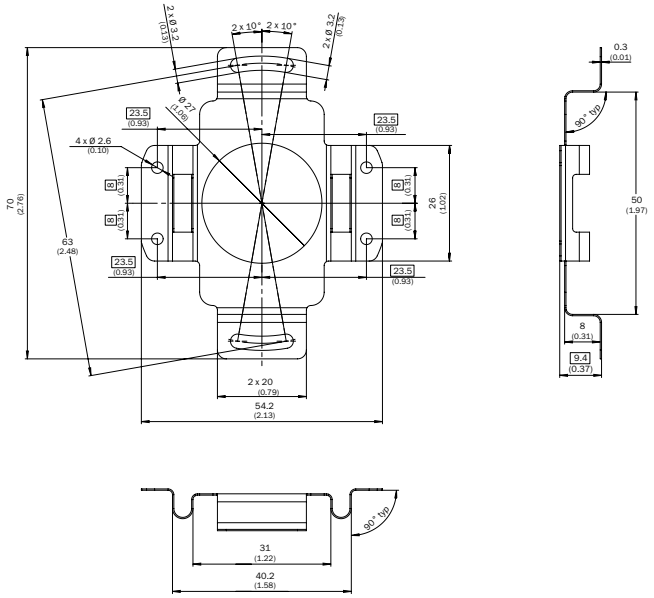
Figure	Brief description	Type	Part no.
	Head A: female connector, M12, 8-pin, straight, A-coded Head B: - Cable: shielded	YF12ES8-0050S5586A	2097334
	Head A: male connector, M12, 8-pin, straight, A-coded Head B: - Cable: shielded	YM12ES8-0050S5586A	2097337

Dimensional drawings ➜ page 26

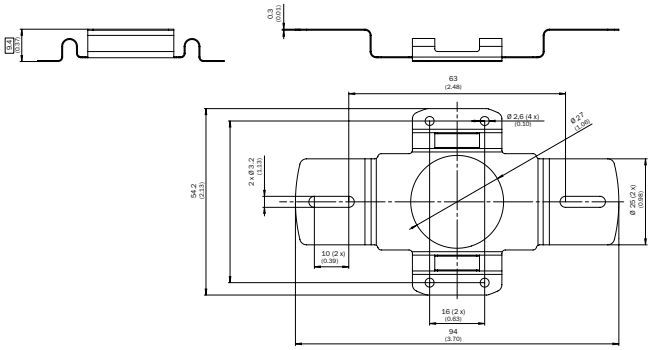
Dimensional drawings for accessories (Dimensions in mm (inch))

Flanges

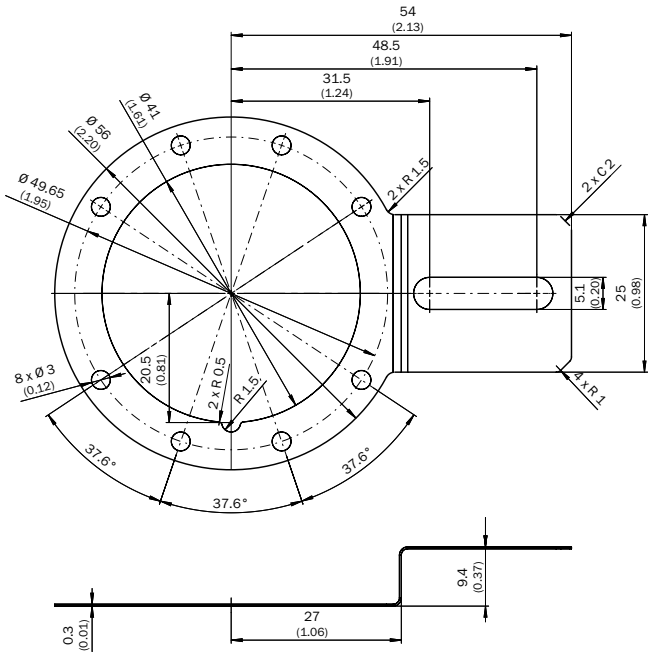
BEF-DS-09



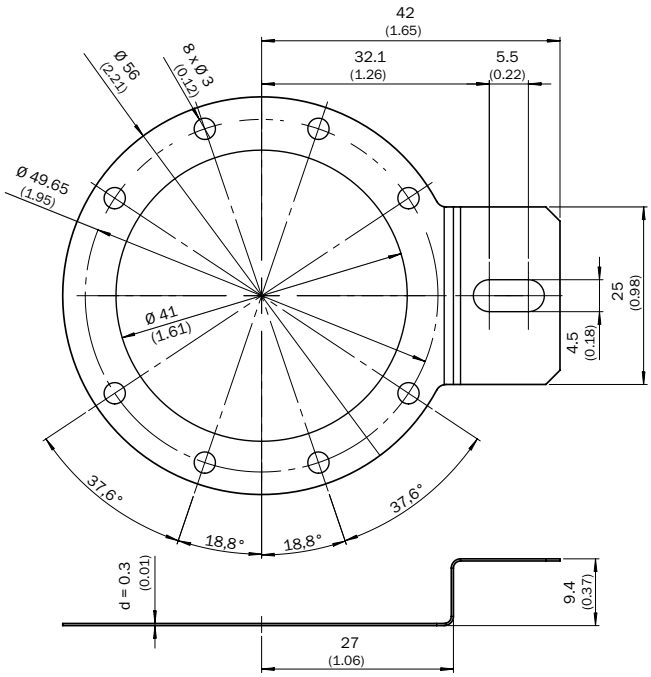
BEF-DS-10



BEF-DS-12



BEF-DS-14



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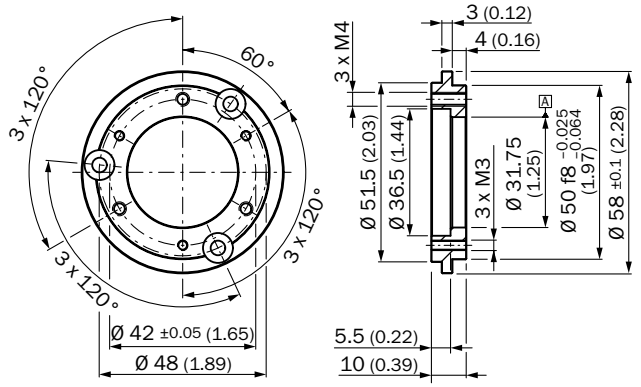
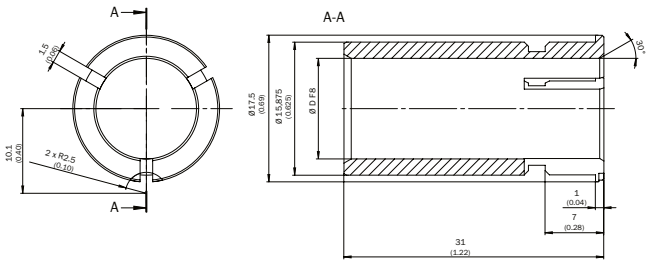
BEF-FA-036-050-I



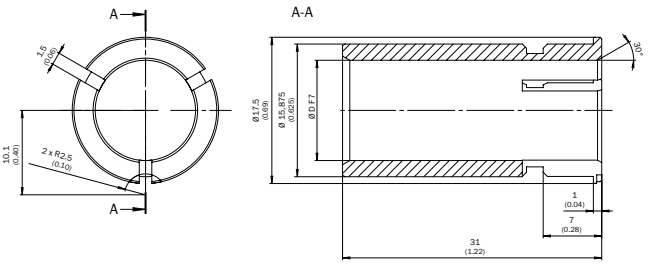
Shaft adaptation

SPZ-58Z-0xx-P



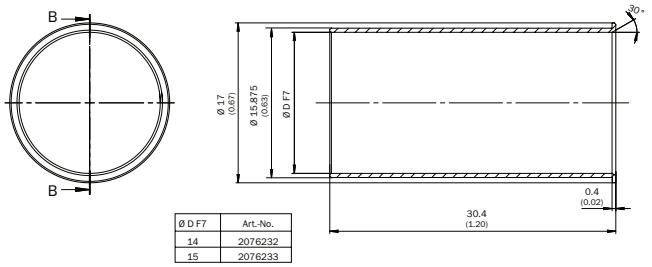
Ø D F8	Art.-No.
6	2076228
8	2076229
3/8" (9.525)	2076226
10	2076230
12	2076231
1/2" (12.7)	2076227

SPZ-58Z-0xx-M



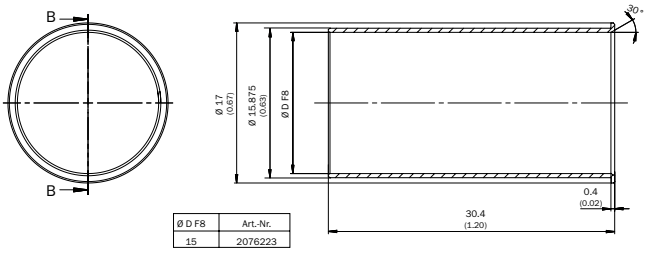
Ø D F7	Art.-No.
8	2076219
3/8" (9.525)	2076224
10	2076220
11	2094671
12	2076221
1/2" (12.7)	2076225
14	2076222

SPZ-58Z-01x-P



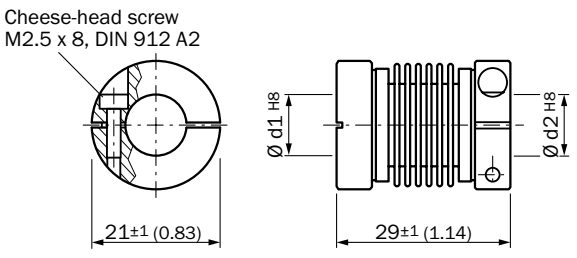
Ø D F7	Art.-No.
14	2076232
15	2076233

SPZ-58Z-015-M

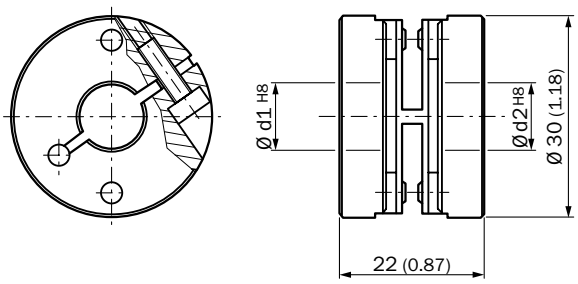


Ø D F8	Art.-Nr.
15	2076223

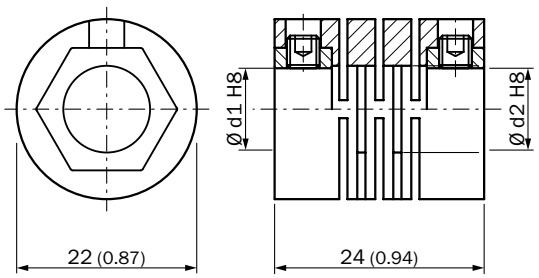
KUP-xx1x-B



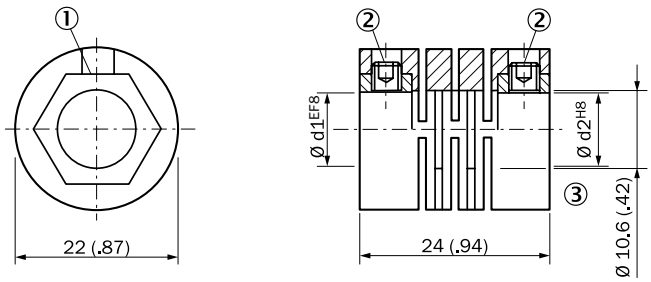
KUP-xx10-F



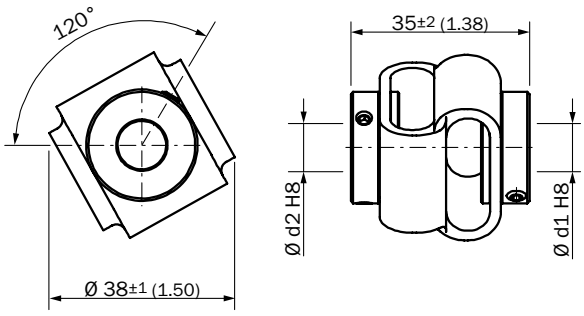
KUP-xx10-S



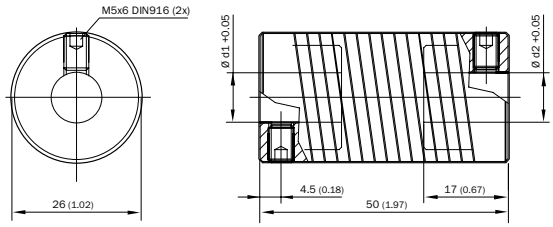
KUP-0810-S



KUP-1010-D

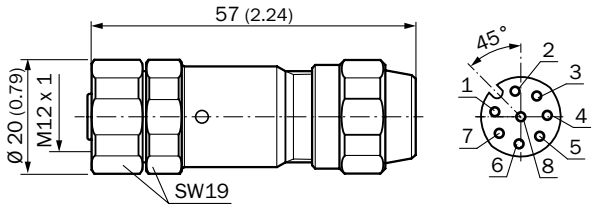


KUP-1010-W

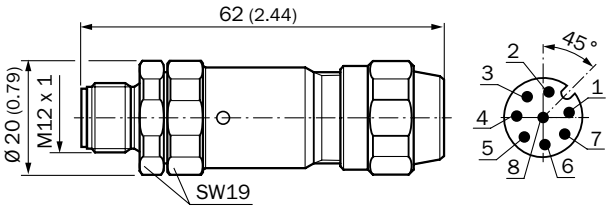


Plug connectors and cables

YF12ES8-0050S5586A



YM12ES8-0050S5586A



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