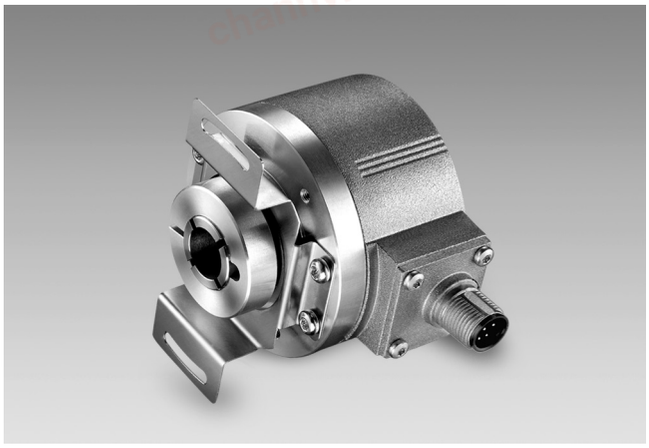
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Incremental encoders

With blind or through hollow shaft

100…5000 pulses per revolution

EIL580 - hollow shaft



EIL580 with blind hollow shaft

Features

- **Size ø58 mm**
- **Precise optical sensing**
- **Output signal level TTL or HTL**
- **Blind or through hollow shaft, ø8…15 mm**
- **Connection axial, radial or tangential**
- **Pulses per revolution up to 5000**
- **High protection up to IP 67**
- **High resistance to shock and vibrations**

Technical data - electrical ratings

Voltage supply	5 VDC ±5 % 8...30 VDC 4.75...30 VDC
Reverse polarity protection	Yes
Short-circuit proof	Yes (HTL) Yes (TTL, max. 1 s and 1 signal)
Consumption w/o load	≤70 mA
Pulses per revolution	100...5000
Phase shift	90° ±10°
Scan ratio	40...60 %
Reference signal	Zero pulse, width 90° ±10 %
Sensing method	Optical
Output frequency	≤300 kHz (TTL) ≤160 kHz (HTL)
Output signals	A+, B+, R+, A-, B-, R-
Output stages	TTL/RS422 HTL/push-pull
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-3
Approval	UL 508 / CSA 22.2

Technical data - mechanical design

Size (flange)	ø58 mm
Motor shaft tolerance	0.2 mm axial 0.03 mm radial
Protection DIN EN 60529	IP 65 (without shaft seal), IP 67 (with shaft seal)
Starting torque	≤0.02 Nm (+20 °C, IP 65) ≤0.025 Nm (+20 °C, IP 67)
Materials	Housing: aluminium die-cast Flange: aluminium
Operating temperature	-40...+85 °C
Relative humidity	90 % non-condensing
Resistance	DIN EN 60068-2-6 Vibration 30 g, 10-2000 Hz DIN EN 60068-2-27 Shock 250 g, 6 ms
Connection	Flange connector M12, 8-pin Flange connector M23, 12-pin Cable
Weight approx.	300 g
EIL580 - blind hollow shaft	
Shaft type	ø8...15 mm (blind hollow shaft)
Operating speed	≤6000 rpm (+20 °C, IP 67) ≤8000 rpm (+20 °C, IP 65)
EIL580 - through hollow shaft	
Shaft type	ø8...15 mm (through hollow shaft)
Operating speed	≤3000 rpm (+20 °C, IP 67) ≤6000 rpm (+20 °C, IP 65)

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Incremental encoders

With blind or through hollow shaft

100…5000 pulses per revolution

EIL580 - hollow shaft

Part number

Blind hollow shaft

EIL580- | **B** | | | **.** | | | | **.** | | **.A** |

Pulse number - see table

Voltage supply / output stages
- **E** **5 VDC, TTL/RS422, 6 channels**
- H 8...30 VDC, TTL/RS422, 6 channels
- **N** **8...30 VDC, HTL/push-pull, 6 channels**
- Q 4.75...30 VDC, HTL/push-pull, 6 channels

Connection
- **R** **Cable radial, 1 m**
- L Cable radial, 2 m
- **F** **Flange connector M23, 12-pin, radial, male, ccw**
- B Flange connector M12, 8-pin, radial, male, ccw
- T Cable axial, 1 m
- U Cable axial, 2 m
- D Flange connector M23, 12-pin, axial, male, ccw
- A Flange connector M12, 8-pin, axial, male, ccw
- P Cable tangential, 1 m
- Q Cable tangential, 2 m

Protection
- **5** **IP 65**
- 7 IP 67

Specification hollow shaft
- 08 ø8 mm, clamping ring at A side
- U3 ø3/8” (9,52 mm), clamping ring at A side
- **10** **ø10 mm, clamping ring at A side**
- **12** **ø12 mm, clamping ring at A side**
- U4 ø1/2” (12.7 mm), clamping ring at A side
- **14 ø14 mm, clamping ring at A side**
- **15 ø15 mm, clamping ring at A side**

Flange
- N Without stator coupling
- **T** **With stator coupling ø63 mm**
- P Torque pin 3 mm, axial/radial

Shaft type
- B Blind hollow shaft

Printed in **bold** = standard items (up to the quantity of 10 will be supplied within 5 working days).

Pulse number

100	300	720	1250	2500
120	**360**	800	1440	3000
150	400	900	1500	**3600**
200	500	**1000**	1800	4000
250	512	**1024**	2000	**4096**
256	600	1200	**2048**	5000

Stock items

EIL580-BT12.5FE.01024.A	EIL580-BT12.5FE.02048.A
EIL580-BT12.5FN.01024.A	EIL580-BT12.5FN.02048.A
EIL580-BT14.5FE.01024.A	EIL580-BT14.5FE.02048.A
EIL580-BT14.5FN.01024.A	EIL580-BT14.5FN.02048.A

Numerous stock items in single quantity will be supplied within 24 hours respectively one day ex works.

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Incremental encoders

With blind or through hollow shaft

100…5000 pulses per revolution

EIL580 - hollow shaft

Part number

Through hollow shaft

EIL580- | **T** | | | **.** | | | | **.** | | **.A** |

Pulse number - see table

Voltage supply / output stages
- **E** **5 VDC, TTL/RS422, 6 channels**
- H 8...30 VDC, TTL/RS422, 6 channels
- **N** **8...30 VDC, HTL/push-pull, 6 channels**
- Q 4.75...30 VDC, HTL/push-pull, 6 channels

Connection
- **R** **Cable radial, 1 m**
- L Cable radial, 2 m
- **F** **Flange connector M23, 12-pin, radial, male, ccw**
- B Flange connector M12, 8-pin, radial, male, ccw
- P Cable tangential, 1 m
- Q Cable tangential, 2 m

Protection
- **5** **IP 65**
- 7 IP 67

Specification hollow shaft

08 ø8 mm, clamping ring at A side	**15 ø15 mm, clamping ring at A side**
U3 ø3/8” (9,52 mm), clamping ring at A side	V3 ø3/8” (9,52 mm), clamping ring at B side
10 ø10 mm, clamping ring at A side	B0 ø10 mm, clamping ring at B side
12 ø12 mm, clamping ring at A side	B2 ø12 mm, clamping ring at B side
U4 ø1/2” (12.7 mm), clamping ring at A side	V4 ø1/2” (12.7 mm), clamping ring at B side
14 ø14 mm, clamping ring at A side	B4 ø14 mm, clamping ring at B side

Flange
- N Without stator coupling
- **T** **With stator coupling ø63 mm**
- P Torque pin 3 mm, axial/radial

Shaft type
- T Through hollow shaft

Printed in **bold** = standard items (up to the quantity of 10 will be supplied within 5 working days).

Pulse number

100	300	720	1250	2500
120	**360**	800	1440	3000
150	400	900	1500	**3600**
200	500	**1000**	1800	4000
250	512	**1024**	2000	**4096**
256	600	1200	**2048**	5000

Stock items

EIL580-TT12.5FE.01024.A	EIL580-TT12.5FE.02048.A
EIL580-TT12.5FN.01024.A	EIL580-TT12.5FN.02048.A
EIL580-TT14.5FE.01024.A	EIL580-TT14.5FE.02048.A
EIL580-TT14.5FN.01024.A	EIL580-TT14.5FN.02048.A

Numerous stock items in single quantity will be supplied within 24 hours respectively one day ex works.

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Incremental encoders
With blind or through hollow shaft
100…5000 pulses per revolution

EIL580 - hollow shaft

Accessories

Connectors and cables

10127844	Connection cable 2 m shielded with female connector M12, 8-pin, straight (ESG 34FH0200G)
10129332	Connection cable 5 m shielded with female connector M12, 8-pin, straight (ESG 34FH0500G)
10129333	Connection cable 10 m shielded with female connector M12, 8-pin, straight (ESG 34FH1000G)
11053961	Connection cable 2 m shielded with female connector M12, 8-pin, angled (ESW 33FH0200G)
11053962	Connection cable 5 m shielded with female connector M12, 8-pin, angled (ESW 33FH0500G)
10170054	Connection cable 10 m shielded with female connector M12, 8-pin, angled (ESW 33FH1000G)
10164705	Connector M23, 12-pin
11095302	Connection cable 1 m shielded with female connector M23, 12-pin
11100408	Connection cable 2 m shielded with female connector M23, 12-pin
11100430	Connection cable 5 m shielded with female connector M23, 12-pin
11100431	Connection cable 10 m shielded with female connector M23, 12-pin

Mounting accessories for EIL580 - blind hollow shaft

11066081	Torque arm, 1-arm, bolt circle ø82 mm, mounting M4 (mounting kit 003)
11066083	Torque arm, 1-arm, bolt circle ø74…94 mm, mounting M4/M5 (mounting kit 006)
11073119	Torque arm, 1-arm, bolt circle ø65.5...281 mm, mounting M4, can be cut to length (mounting kit 021)
11067367	Torque arm, 1-arm, bolt circle ø74…94 mm, mounting M6 (mounting kit 028)
11113210	Torque arm, 1-arm, bolt circle ø63...94 mm, mounting M4 (mounting kit 047)
11129153	Torque arm, 1-arm open, bolt circle ø41...54 mm, mounting M4 (mounting kit 200)
11100198	Stator coupling, 2-armed, bolt circle ø63 mm, mounting M3 (mounting kit 046)
11106627	Fan cover clip 8 mm
11094674	Clamping ring 12/31/ 8 M3 8.8 for EIL580 hollow shaft ø8...10 mm for clamping at A or B side

Mounting accessories for EIL580 - blind hollow shaft

11094675	Clamping ring 17/31/ 8 M3 8.8 for EIL580 hollow shaft ø12...15 mm for clamping at A side

Mounting accessories for EIL580 - through hollow shaft

11066081	Torque arm, 1-arm, bolt circle ø82 mm, mounting M4 (mounting kit 003)
11066083	Torque arm, 1-arm, bolt circle ø74…94 mm, mounting M4/M5 (mounting kit 006)
11073119	Torque arm, 1-arm, bolt circle ø65.5...281 mm, mounting M4, can be cut to length (mounting kit 021)
11067367	Torque arm, 1-arm, bolt circle ø74…94 mm, mounting M6 (mounting kit 028)
11113210	Torque arm, 1-arm, bolt circle ø63...94 mm, mounting M4 (mounting kit 047)
11129153	Torque arm, 1-arm open, bolt circle ø41...54 mm, mounting M4 (mounting kit 200)
11100198	Stator coupling, 2-armed, bolt circle ø63 mm, mounting M3 (mounting kit 046)
11106627	Fan cover clip 8 mm
11094674	Clamping ring 12/31/ 8 M3 8.8 for EIL580 hollow shaft ø8...10 mm for clamping at A or B side
11094675	Clamping ring 17/31/ 8 M3 8.8 for EIL580 hollow shaft ø12...15 mm for clamping at A side
11123483	Clamping ring 16/31/ 8 M3 8.8 for EIL580 hollow shaft ø12...14 mm for clamping at B side

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Incremental encoders

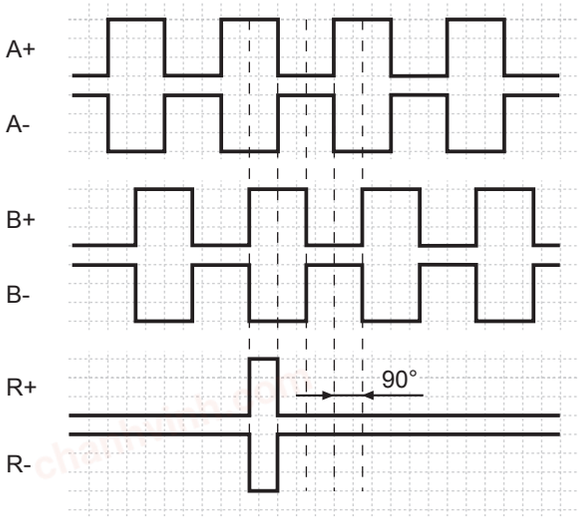
With blind or through hollow shaft

100…5000 pulses per revolution

EIL580 - hollow shaft

Output signals

Clockwise rotating direction when looking at flange.



Trigger level

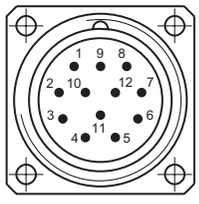
Outputs	TTL/RS422
Output level High	≥2.5 V
Output level Low	≤0.5 V
Load	≤20 mA

Outputs	HTL/Push-pull
Output level High	≥UB -3 V
Output level Low	≤1.5 V
Load	≤20 mA

Terminal assignment

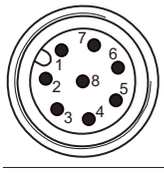
Flange connector M23, 12-pin / cable

Pin	Core color	Assignment
1	pink	B-
2	–	–
3	blue	R+
4	red	R-
5	green	A+
6	yellow	A-
7	–	–
8	grey	B+
9	–	–
10	white	GND
11	–	–
12	brown	UB
Screen:	Connected to housing	
Cable data:	PVC, 4x2x0.14 mm², bending radius >32.5 mm Outer diameter 6.5 mm	



Flange connector M12, 8-pin

Pin	Assignment
1	GND
2	UB
3	A+
4	A-
5	B+
6	B-
7	R+
8	R-



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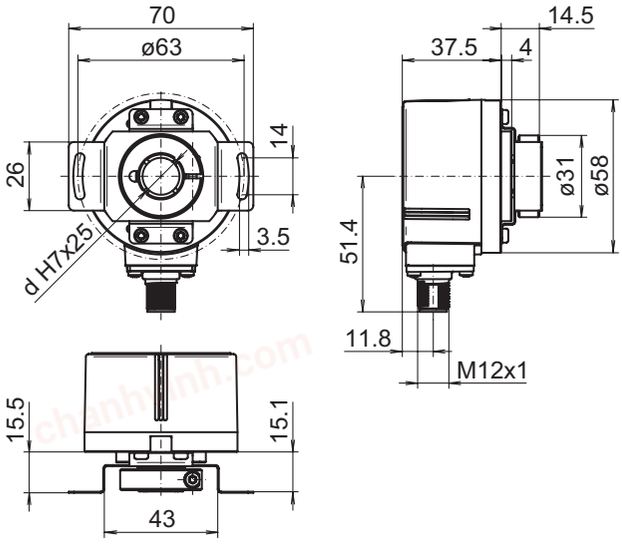
Incremental encoders

With blind or through hollow shaft
100…5000 pulses per revolution

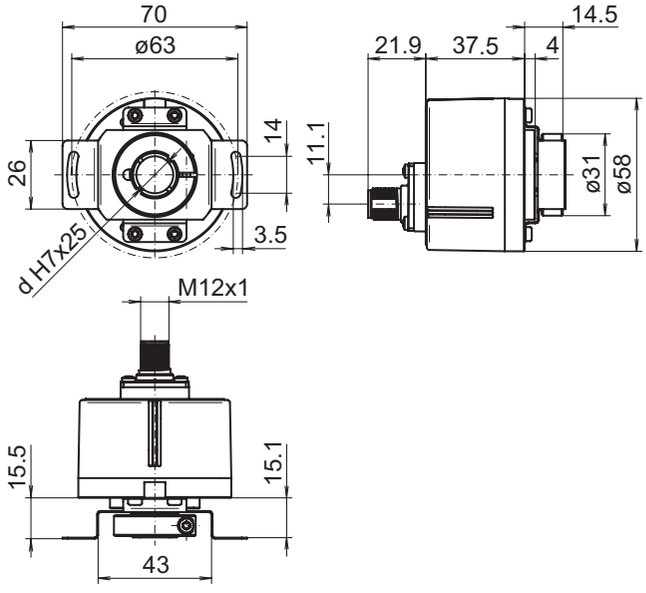
EIL580 - hollow shaft

Dimensions

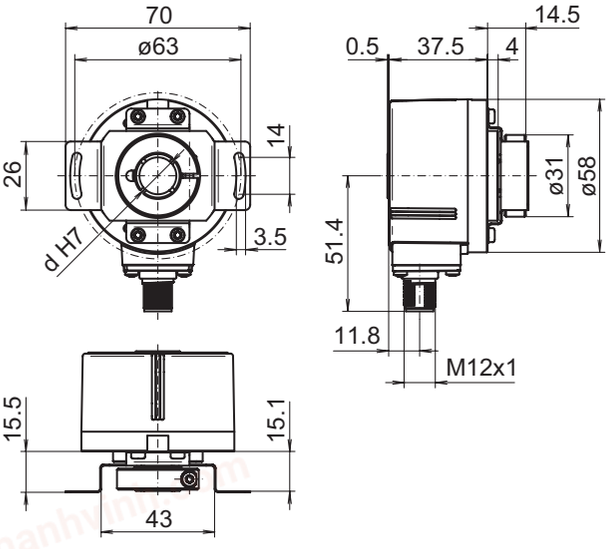
Clamping ring at A-side:
Blind hollow shaft, flange connector M12 radial



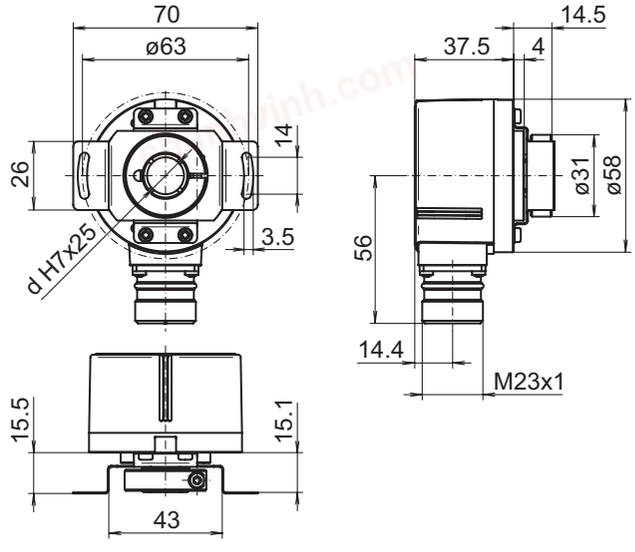
Clamping ring at A-side:
Blind hollow shaft, flange connector M12 axial



Clamping ring at A-side:
Through hollow shaft, flange connector M12 radial



Clamping ring at A-side:
Blind hollow shaft, flange connector M23 radial



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Incremental encoders

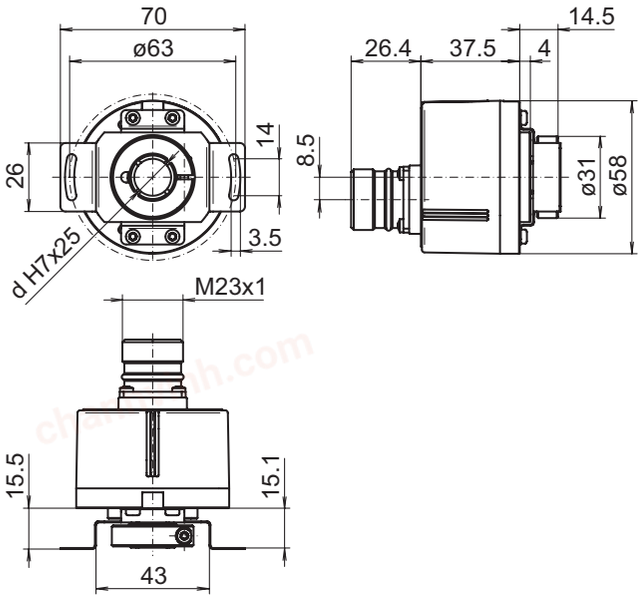
With blind or through hollow shaft

100…5000 pulses per revolution

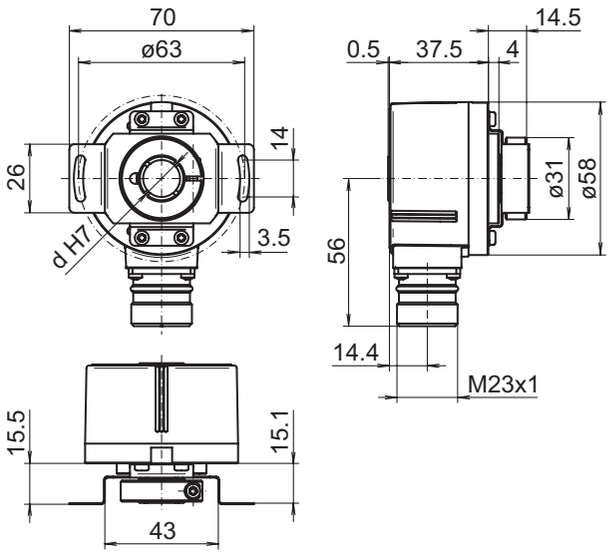
EIL580 - hollow shaft

Dimensions

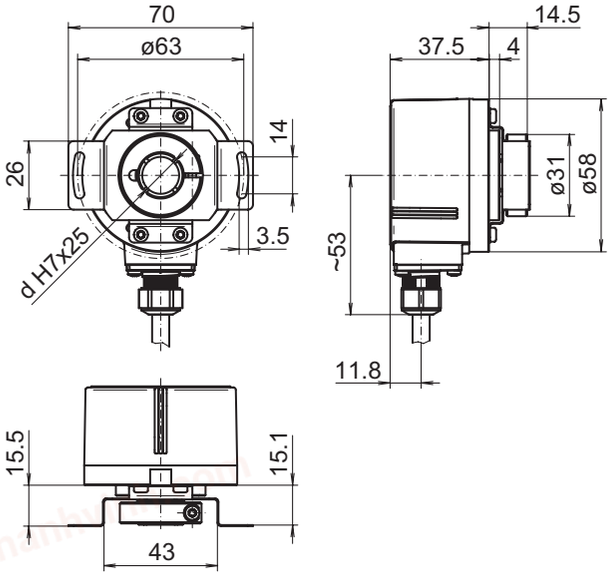
Clamping ring at A-side:
Blind hollow shaft, flange connector M23 axial



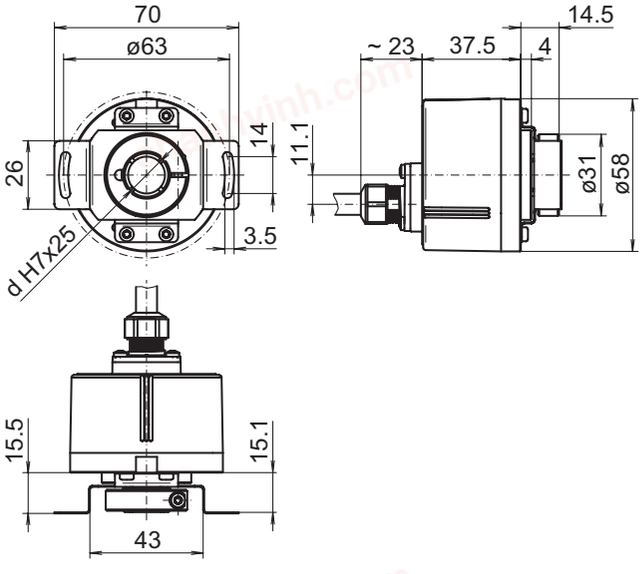
Clamping ring at A-side:
Through hollow shaft, flange connector M23 radial



Clamping ring at A-side:
Blind hollow shaft, cable radial



Clamping ring at A-side:
Blind hollow shaft, cable axial



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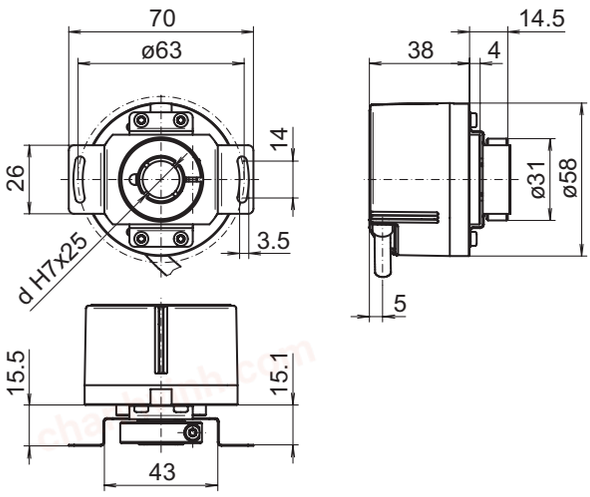
Incremental encoders

With blind or through hollow shaft
100…5000 pulses per revolution

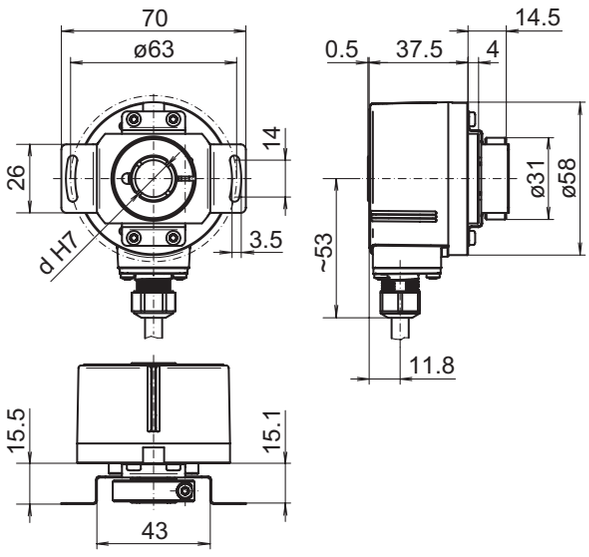
EIL580 - hollow shaft

Dimensions

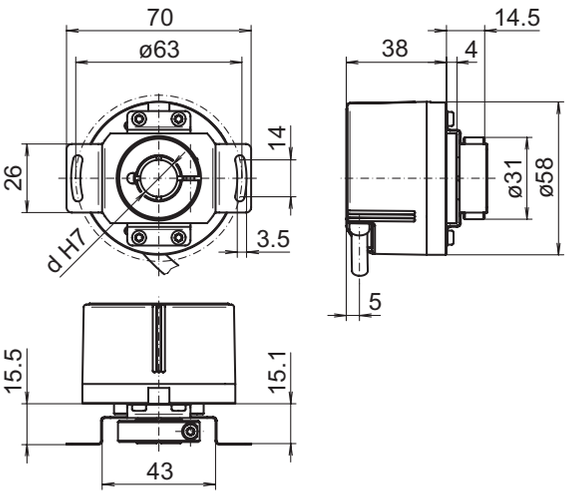
Clamping ring at A-side:
Blind hollow shaft, cable tangential



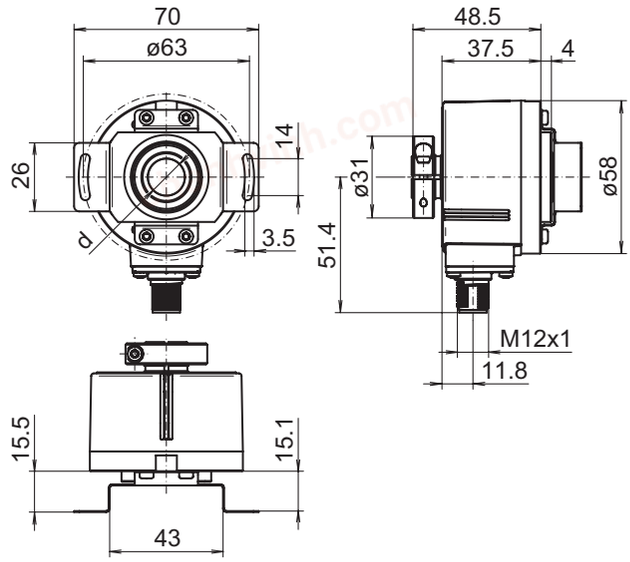
Clamping ring at A-side:
Through hollow shaft, cable radial



Clamping ring at A-side:
Through hollow shaft, cable tangential



Clamping ring at B-side:
Through hollow shaft, flange connector M12 radial



d H7: ø10, ø12, ø14
d G7: ø3/8" (ø9.52), ø1/2" (ø12.7)

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Incremental encoders

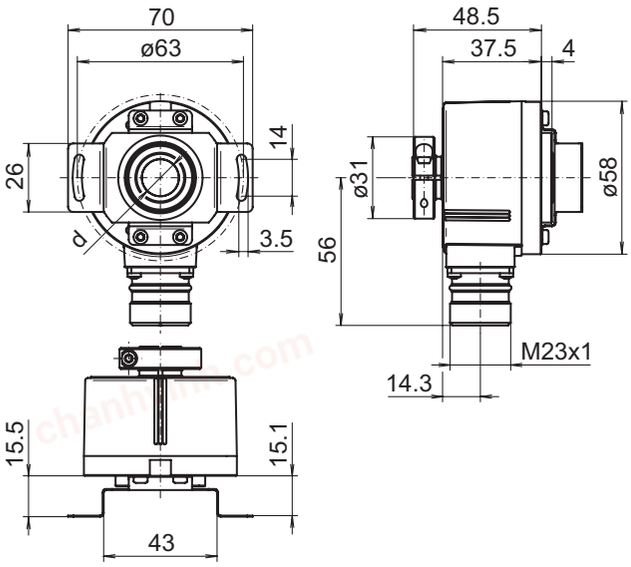
With blind or through hollow shaft

100…5000 pulses per revolution

EIL580 - hollow shaft

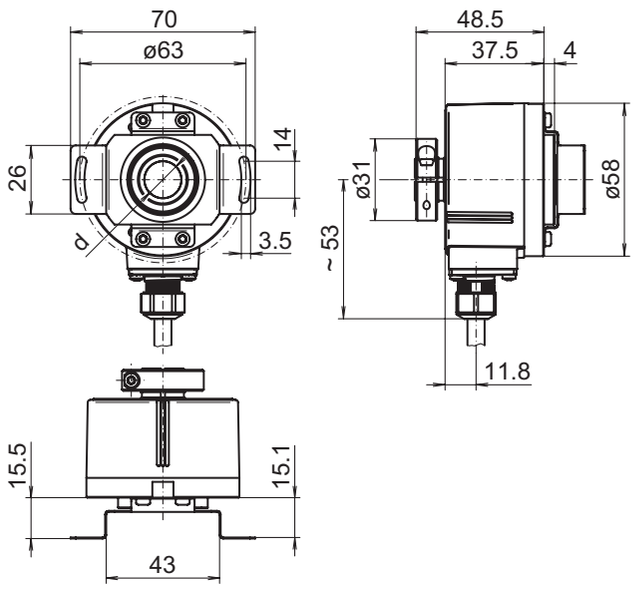
Dimensions

Clamping ring at B-side:
Through hollow shaft, flange connector M23 radial



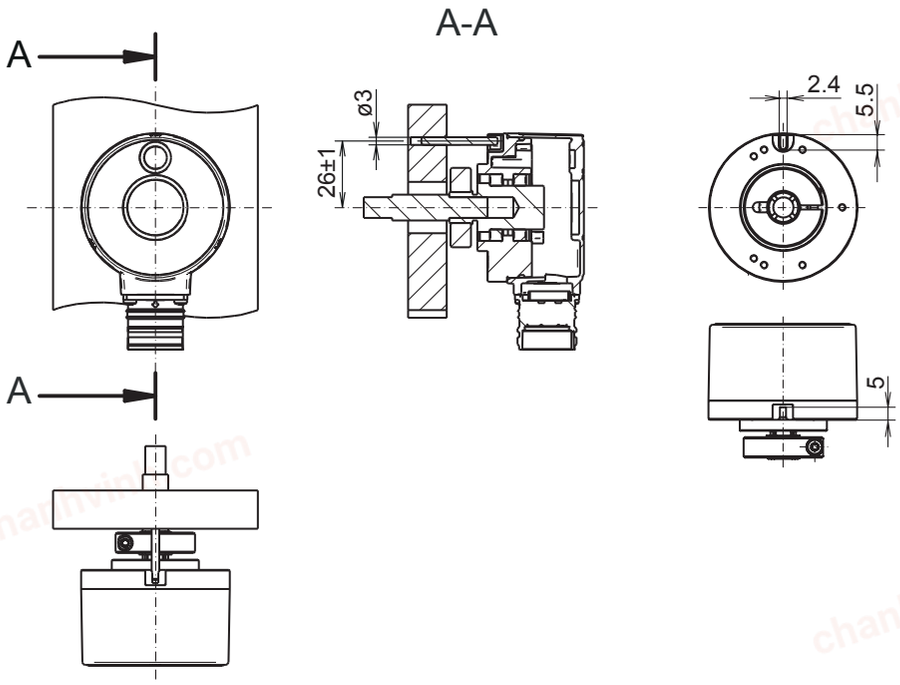
d H7: ø10, ø12, ø14
d G7: ø3/8" (ø9.52), ø1/2" (ø12.7)

Clamping ring at B-side:
Through hollow shaft, cable radial



d H7: ø10, ø12, ø14
d G7: ø3/8" (ø9.52), ø1/2" (ø12.7)

Pin torque support, axial, clamping ring at A-side



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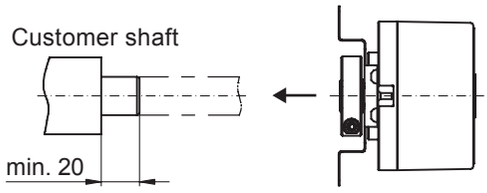
Incremental encoders

With blind or through hollow shaft
100…5000 pulses per revolution

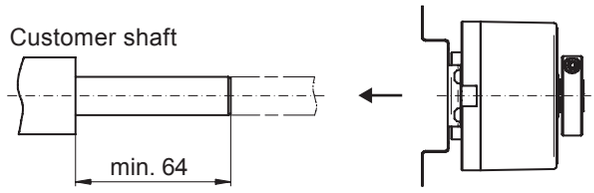
EIL580 - hollow shaft

Dimensions

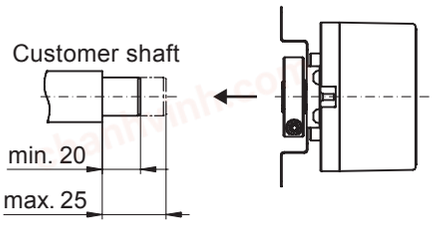
Clamping ring at A-side: Through hollow shaft



Clamping ring at B-side: Through hollow shaft



Blind hollow shaft



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