

EL - ER 58 F / G EL - ER 63 F / G

BLIND HOLLOW SHAFT INCREMENTAL ENCODER

MAIN FEATURES

Hollow shaft encoder series for industrial applications with high mechanical resistance requirements. These encoders are designed to withstand high radial and axial shaft loads.

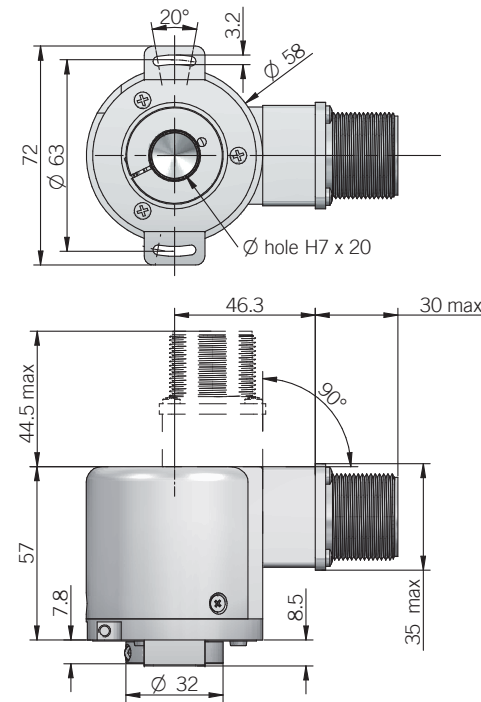
- 3 channel encoder (A / B / Z) up to 24000 ppr
- Power supply up to +28 V DC with several electrical interfaces available
- Up to 500 kHz output frequency
- Cable or connector output
- Available with metal cover for heavy duty applications
- Blind hollow shaft diameter up to 15 mm
- Mounting by stator coupling, torque stop slot or torque pin



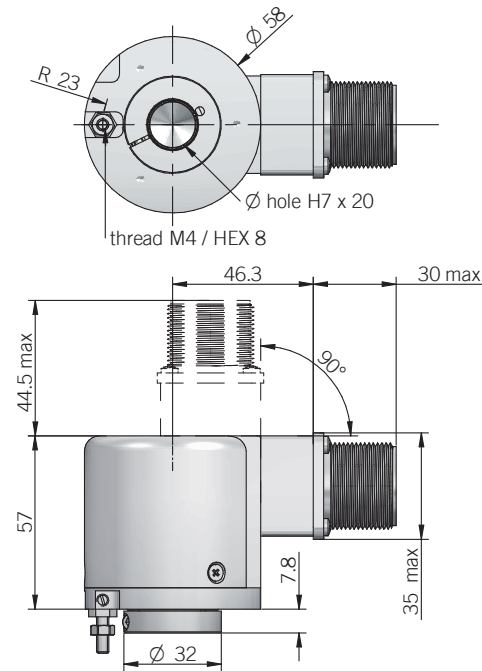
ORDERING CODE ER 58F M* 500 S 5/28 P 8 X 3 M R .162 +XXX

SERIES incremental encoder series EL incremental encoder series ER	MODEL blind hollow shaft with stator coupling 58F blind hollow shaft with torque pin 58G blind hollow shaft with torque stop slot 63F blind hollow shaft with torque pin 63G	METAL COVER * add for metal cover M	RESOLUTION ppr from 1 to 24000 refer to the available pulses list	ZERO PULSE without zero pulse S with zero pulse Z	POWER SUPPLY (with L electrical interface) 5 V DC 5 5 ... 28 V DC 5/28	ELECTRICAL INTERFACE NPN open collector C push-pull P line driver L power supply 5/28V - output RS-422 RS	BORE DIAMETER mm 8 mm 10 mm 12 mm 14 mm 15	ENCLOSURE RATING IP 54 X IP 66 S	MAX ROTATION SPEED 3000 rpm 3	OUTPUT TYPE cable (standard length 1,5 m) P preferred cable lengths 2 / 3 / 5 / 10 m, to be added after DIRECTION TYPE (eg. PR5) MIL male connector M JIS-C-5432 male connector J M12 male connector M12 M23 male connector H M16 male connector C	DIRECTION TYPE axial A radial R	MATING CONNECTOR mating connector not included .162 to be reported only with connector output (eg. MR.162), for mating connector see Accessories	VARIANT custom version XXX
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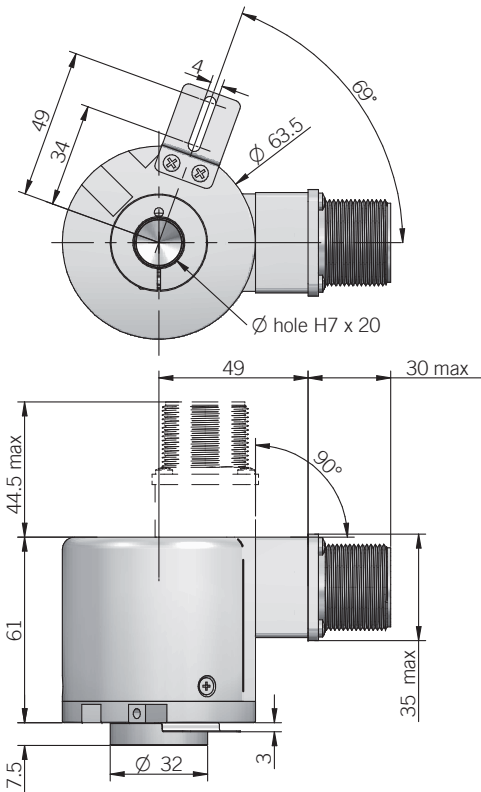
58 F



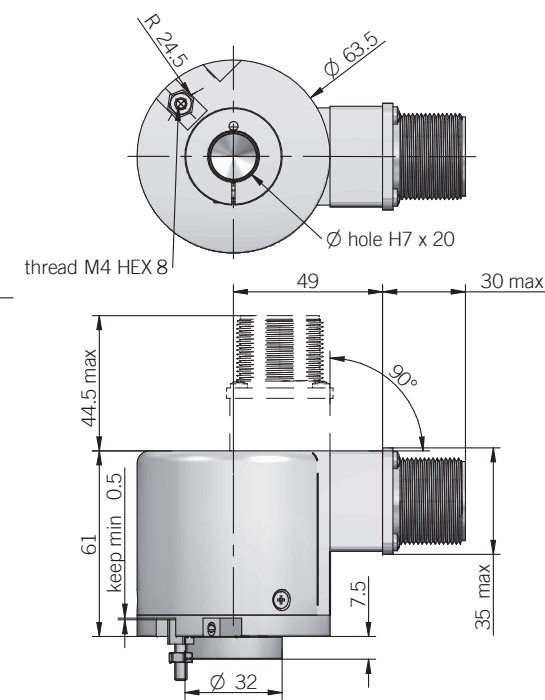
58 G



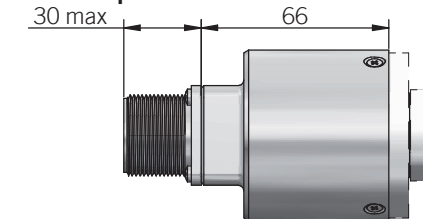
63 F



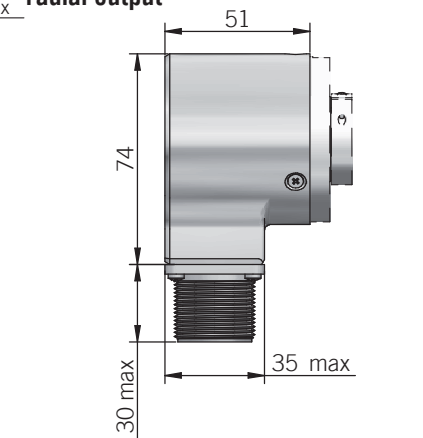
63 G



Dimensions with metal cover and axial output



Dimensions with metal cover and radial output



torque pin is included in model G, for model F please refer to Accessories

recommended mating shaft tolerance g6
dimensions in mm

ELECTRICAL SPECIFICATIONS

Resolution	from 1 to 2500 ppr (58 G) from 1 to 24000 ppr (58 F - 63 F / G)
Power supply¹	5 = 4,5 ... 5,5 V DC 5/28 = 4,5 ... 30 V DC (reverse polarity protection)
Power draw without load	800 mW max
Max load current	C / P = 50 mA / channel L / RS = 20 mA / channel
Electrical interface²	NPN open collector (AEIC-7273, pull-up max +30 V DC) push-pull / line driver HTL (AEIC-7272) line driver RS-422 (AELT-5000 or equivalent)
Max output frequency	250 kHz up to 6000 ppr 500 kHz from 7200 ppr
Counting direction	A leads B clockwise (shaft view)
Electromagnetic compatibility	according to 2014/30/EU directive
RoHS	according to 2011/65/EU (01/09/2020) directive
UL / CSA	certificate n. E212495

EL SERIES RESOLUTIONS

1 - 2 - 4 - 5 - 10 - 15 - 16 - 20 - 25 - 30 - 32 - 40 - 50 - 60 - 70 - 80 - 90 - 160 - 180 - 350 - 450 - 660 - 700 - 750 - 1500

ER SERIES RESOLUTIONS

100 - 120 - 128 - 150 - 200 - 240 - 250 - 256 - 300 - **360** - 400 - 480 - **500** - **512** - **600** - 625 - **720** - 800 - 900 - **1000** - **1024** - 1200 - 1250 - 1440 - 1600 - 1800 - **2000** - **2048** - **2500** - 3000 - **3600** - 4000 - 4096 - **5000** - 6000 - **7200** - 8000 - 8192 - 9000 - **10000** - 10240 - 12000 - **14400** - 16000 - 16384 - 18000 - **20000** - 20480 - 24000

please directly contact our offices for other pulses, preferred resolutions in bold

CONNECTIONS

Function	Cable C / P	Cable L / RS	7 pin J C / P	7 pin J L / RS no Zero	7 pin M C / P	7 pin M L / RS no Zero	10 pin J L / RS with Zero	10 pin M L / RS with Zero	5 pin M12 C / P	8 pin M12 L / RS	12 pin H	5 pin C C / P	8 pin C L / RS
+V DC	red	red	6	4	F	D	4 - 5	D - E	2	7	12	5	7
0 V	black	black	1	6	A	F	6	F	4	1	10	1	8
A+	green	green	3	1	C	A	1	A	3	6	5	2	1
A-	/	brown or grey	/	3	/	C	7	G	/	5	6	/	2
B+	yellow	yellow	5	2	E	B	2	B	1	4	8	4	3
B-	/	orange	/	5	/	E	8	H	/	3	1	/	4
Z+	blue	blue	4	/	D	/	3	C	5	2	3	3	5
Z-	/	white	/	/	/	/	9	I	/	8	4	/	6
⊕	shield	shield	7	7	G	G	10	J	housing	housing	9	/	/

<p>J connector (7 pin) JIS-C-5432 Size 16 solder side view FV</p>	<p>M connector (7 pin) Amphenol MS3102-E-16-S solder side view FV</p>	<p>M12 connector (5 pin) M12 A coded solder side view FV</p>	<p>C connector (5 pin) circular M16 solder side view FV</p>	<p>H connector (12 pin) - M23 CCW Hummel 7.410.000000 - 7.002.912.603 solder side view FV</p>
<p>J connector (10 pin) JIS-C-5432 Size 16 solder side view FV</p>	<p>M connector (10 pin) Amphenol MS3102-E-18-1 solder side view FV</p>	<p>M12 connector (8 pin) M12 A coded solder side view FV</p>	<p>C connector (8 pin) IEC 60130-9 solder side view FV</p>	

MECHANICAL SPECIFICATIONS

Bore diameter	∅ 8* / 10* / 12* / 14 / 15 mm * with supplied shaft adapter (valid for resolution ≥ 3000 ppr)
Enclosure rating	X = IP 54 (IEC 60529) S = IP 66 (IEC 60529)
Max rotation speed	3000 rpm
Shock	50 G, 11 ms (IEC 60068-2-27)
Vibration	10 G, 10 ... 2000 Hz (IEC 60068-2-6)
Moment of inertia	4 x 10 ⁻⁶ kgm ² (95 x 10 ⁻⁶ lbft ²)
Starting torque (at +20°C / +68°F)	< 0,02 Nm (2,83 Ozin) IP 54 < 0,06 Nm (8,50 Ozin) IP 66
Bearing stage material	EN-AW 2011 aluminum
Shaft material	1.4305 / AISI 303 stainless steel
Shaft adapter material	CuSn12 / CC483K bronze
Housing material	PA66 glass fiber reinforced / painted aluminum
Bearings	n.2 ball bearings
Bearings life	10 ⁹ revolutions
Operating temperature^{3,4}	-10° ... +60°C (+14° ... +140°F) EL series -20° ... +70°C (-4° ... +158°F) ER series
Storage temperature⁴	-25° ... +70°C (-13° ... +158°F)
Fixing torque for collar clamping	1,5 Nm (212 Ozin) recommended
Weight	350 g (12,35 oz)

¹ as measured at the transducer without cable influences
² for further details refer to OUTPUT LEVELS on TECHNICAL BASICS section
³ measured on the transducer flange
⁴ condensation not allowed

MAIN FEATURES

Hollow shaft encoder series for small AC motors, thanks to compact size (only 35 mm height).

- 3 channel encoder (A / B / Z) up to 2500 ppr
- Power supply up to +28 V DC with several electrical interfaces available
- Up to 300 kHz output frequency
- Cable output, connectors available on cable end
- Through or blind hollow shaft diameter up to 15 mm
- Shaft fixing by collar clamping

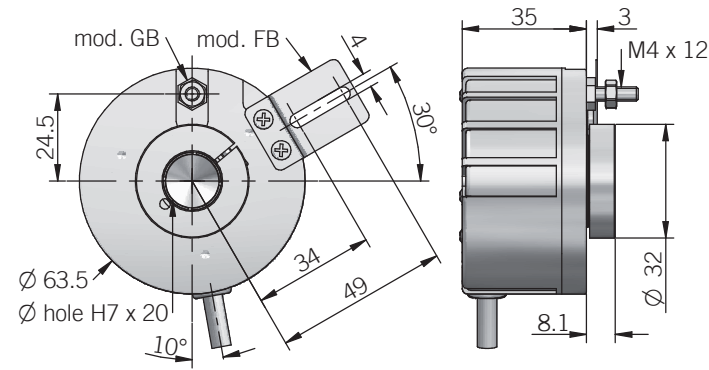


ORDERING CODE

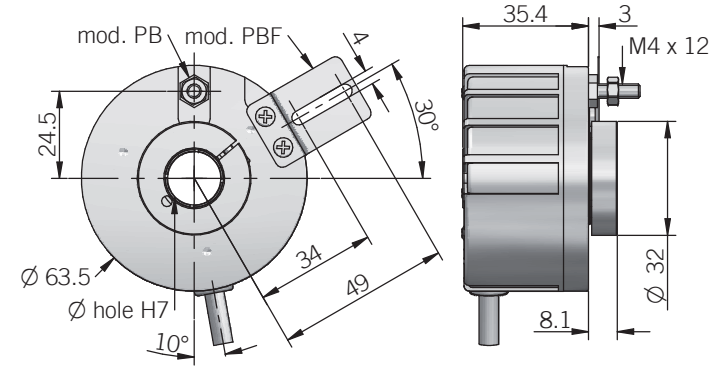
EL 63GB 500 S 5/28 P 8 X 3 PR .XXX

SERIES incremental encoder EL	MODEL blind hollow shaft with torque stop slot 63FB blind hollow shaft with torque pin 63GB through hollow shaft with torque pin 63PB through hollow shaft with torque stop slot 63PBF rear fixing shaft with torque pin 63PC rear fixing shaft with torque stop slot 63PCF	RESOLUTION ppr from 1 to 2500 refer to the available pulses list	ZERO PULSE without zero pulse S with zero pulse Z	POWER SUPPLY (with L electrical interface) 5 V DC 5 5 ... 28 V DC 5/28	ELECTRICAL INTERFACE NPN open collector C push-pull P line driver L power supply 5/28V - output RS-422 RS	BORE DIAMETER mm 8 mm 10 mm 12 mm 14 mm 15	ENCLOSURE RATING IP 54 X	MAX ROTATION SPEED 3600 rpm 3	OUTPUT TYPE radial cable (standard length 1,5 m) PR preferred cable lengths 2 / 3 / 5 / 10 m, to be added after OUTPUT TYPE (eg. PR5)	VARIANT custom version XXX
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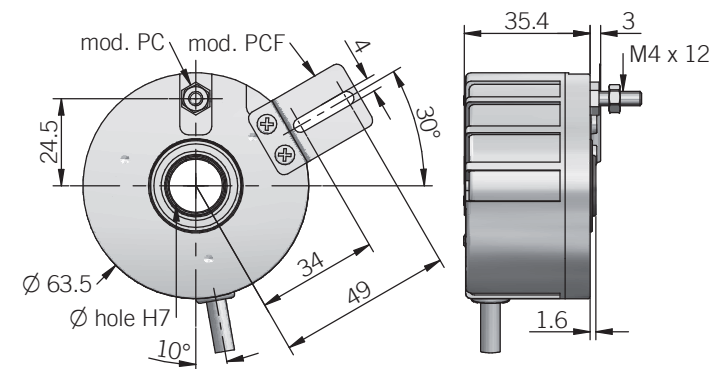
63 FB / GB



63 PB / PBF

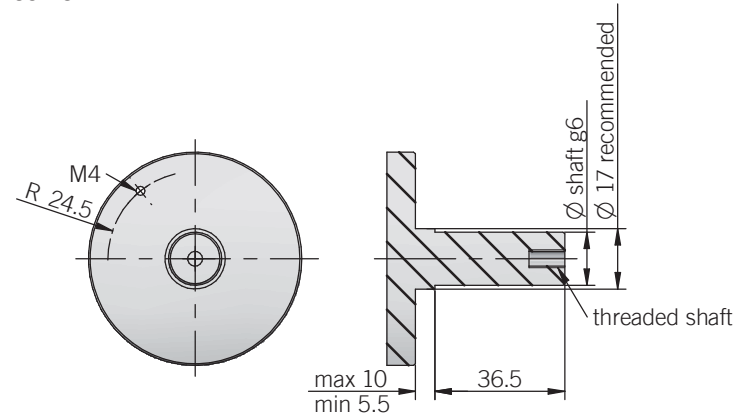


63 PC / PCF



torque pin is included in model GB / PB / PC, for model FB / PBF / PCF please refer to Accessories

RECOMMENDED INTERFACE FLANGE DESIGN
63 PC



dimensions in mm

ELECTRICAL SPECIFICATIONS

Resolution	from 1 to 2500 ppr
Power supply¹	5 = 4,5 ... 5,5 V DC 5/28 = 4,5 ... 30 V DC (reverse polarity protection)
Power draw without load	800 mW max
Max load current	C / P = 50 mA / channel L / RS = 20 mA / channel
Electrical interface²	NPN open collector (AEIC-7273, pull-up max +30 V DC) push-pull / line driver HTL (AEIC-7272) line driver RS-422 (AELT-5000 or equivalent)
Max output frequency	300 kHz
Counting direction	A leads B clockwise (shaft view)
Electromagnetic compatibility	according to 2014/30/EU directive
RoHS	according to 2011/65/EU (01/09/2020) directive
UL / CSA	certificate n. E212495

RESOLUTIONS

1 - 2 - 5 - 20 - 25 - 32 - 50 - 60 - 100 - 128 - 200 - 250 - 256 - 360 - 400 - 500 - 512 - 600 - 720 - 1000 - 1024 - 1440 - 1800 - 2000 - 2048 - 2500

please directly contact our offices for other pulses, preferred resolutions in bold

CONNECTIONS

Function	Cable C / P	Cable L / RS
+V DC	red	red
0 V	black	black
A+	green	green
A-	/	brown or grey
B+	yellow	yellow
B-	/	orange
Z+	blue	blue
Z-	/	white
≡	shield	shield

MECHANICAL SPECIFICATIONS

Bore diameter	ø 8 / 10 / 12 / 14 / 15 mm
Enclosure rating	IP 54 (IEC 60529)
Max rotation speed	3600 rpm continuous / 4000 rpm peak
Shock	50 G, 11 ms (IEC 60068-2-27)
Vibration	10 G, 10 ... 2000 Hz (IEC 60068-2-6)
Moment of inertia	4 x 10 ⁻⁶ kgm ² (95 x 10 ⁻⁶ lbf ²)
Starting torque (at +20°C / +68°F)	< 0,04 Nm (5,66 Ozin)
Bearing stage material	EN-AW 2011 aluminum
Shaft material	1.4305 / AISI 303 stainless steel
Housing material	PA 66 glass fiber reinforced
Bearings	n.2 ball bearings
Bearings life	10 ⁹ revolutions
Operating temperature^{3,4}	-10° ... +60 °C (+14° ... +140°F)
Storage temperature⁴	-25° ... +70 °C (-13° ... +158°F)
Weight	350 g (12,35 oz)

¹ as measured at the transducer without cable influences

² for further details refer to OUTPUT LEVELS on TECHNICAL BASICS section

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