

**MAIN FEATURES**

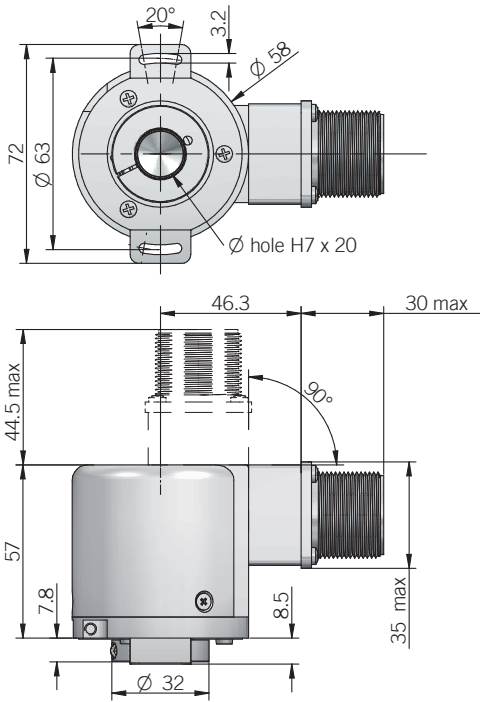
Hollow shaft encoder series for industrial applications with high mechanical resistance requirements. These encoders are designed to withstand high radial and axial shaft loads.

- 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

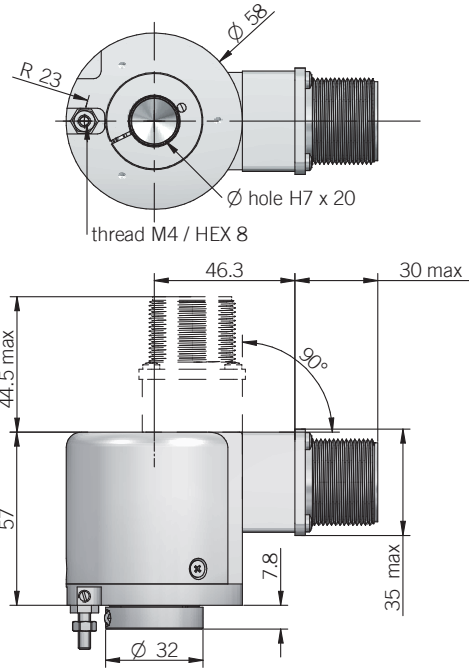


ORDERING CODE	ER	58F	M*	500	S	5/28	P	8	X	3	M	R	.162	+XXX
<b>SERIES</b> incremental encoder series <b>EL</b> incremental encoder series <b>ER</b>														
<b>MODEL</b> blind hollow shaft with stator coupling <b>58F</b> blind hollow shaft with torque pin <b>58G</b> blind hollow shaft with torque stop slot <b>63F</b> blind hollow shaft with torque pin <b>63G</b>														
<b>METAL COVER</b> * add for metal cover <b>M</b>														
<b>RESOLUTION</b> ppr from <b>1</b> to <b>24000</b> refer to the available pulses list														
<b>ZERO PULSE</b> without zero pulse <b>S</b> with zero pulse <b>Z</b>														
<b>POWER SUPPLY</b> (with L electrical interface) <b>5 V DC 5</b> <b>5 ... 28 V DC 5/28</b>														
<b>ELECTRICAL INTERFACE</b> NPN open collector <b>C</b> push-pull <b>P</b> line driver <b>L</b> power supply 5/28V - output RS-422 <b>RS</b>														
<b>BORE DIAMETER</b> mm <b>8</b> mm <b>10</b> mm <b>12</b> mm <b>14</b> mm <b>15</b>														
<b>ENCLOSURE RATING</b> IP 54 <b>X</b> IP 66 <b>S</b>														
<b>MAX ROTATION SPEED</b> 3000 rpm <b>3</b>														
<b>OUTPUT TYPE</b> cable (standard length 1.5 m) <b>P</b> preferred cable lengths 2 / 3 / 5 / 10 m, to be added after DIRECTION TYPE (eg. PR5) MIL male connector <b>M</b> JIS-C-5432 male connector <b>J</b> M12 male connector <b>M12</b> M23 male connector <b>H</b> M16 male connector <b>C</b>														
<b>DIRECTION TYPE</b> axial <b>A</b> radial <b>R</b>														
<b>MATING CONNECTOR</b> mating connector not included <b>.162</b> to be reported only with connector output (eg. MR.162), for mating connector see Accessories														
<b>VARIANT</b> custom version <b>XXX</b>														

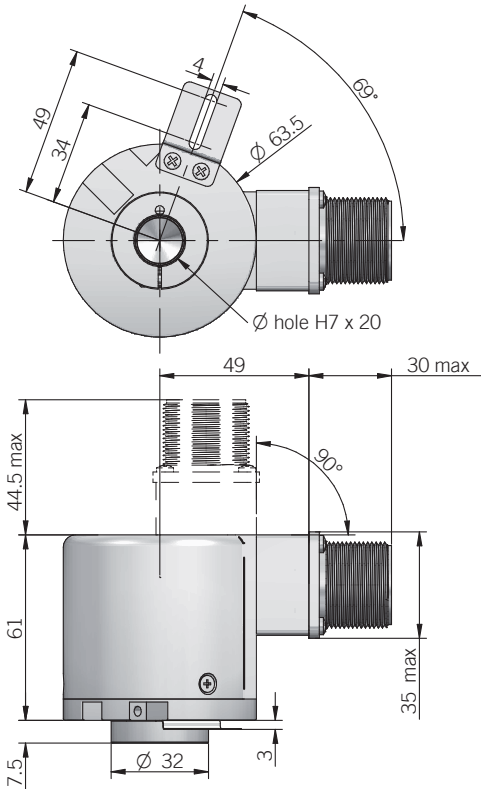
58 F



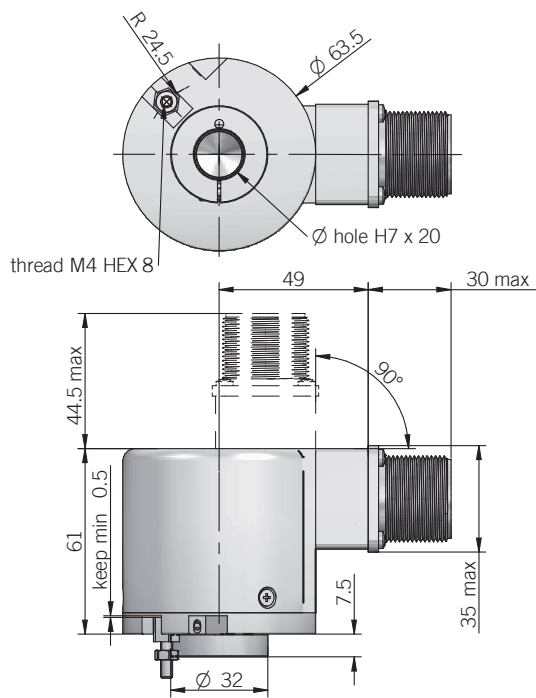
58 G



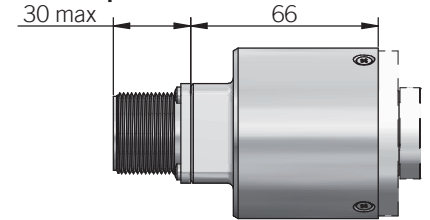
63 F



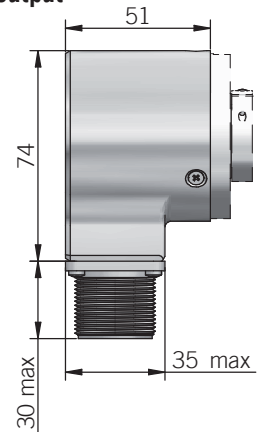
63 G



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**

<b>Resolution</b>	from 1 to 2500 ppr (58 G) from 1 to 24000 ppr (58 F - 63 F / G)
<b>Power supply<sup>1</sup></b>	5 = 4,5 ... 5,5 V DC 5/28 = 4,5 ... 30 V DC (reverse polarity protection)
<b>Power draw without load</b>	800 mW max
<b>Max load current</b>	C / P = 50 mA / channel L / RS = 20 mA / channel
<b>Electrical interface<sup>2</sup></b>	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)
<b>Max output frequency</b>	250 kHz up to 6000 ppr 500 kHz from 7200 ppr
<b>Counting direction</b>	A leads B clockwise (shaft view)
<b>Electromagnetic compatibility</b>	according to 2014/30/EU directive
<b>RoHS</b>	according to 2011/65/EU (01/09/2020) directive
<b>UL / CSA</b>	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

**MECHANICAL SPECIFICATIONS**

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

<sup>1</sup> as measured at the transducer without cable influences

<sup>2</sup> for further details refer to OUTPUT LEVELS on TECHNICAL BASICS section

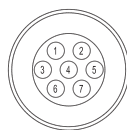
<sup>3</sup> measured on the transducer flange

<sup>4</sup> condensation not allowed

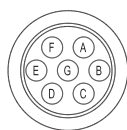
**CONNECTIONS**

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	/	/

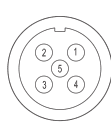
J connector (7 pin)  
JIS-C-5432 Size 16  
solder side view FV



M connector (7 pin)  
Amphenol MS3102-E-16-S  
solder side view FV



M12 connector (5 pin)  
M12 A coded  
solder side view FV



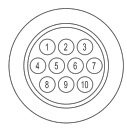
C connector (5 pin)  
circular M16  
solder side view FV



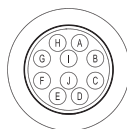
H connector (12 pin) - M23 CCW  
Hummel 7.410.000000 -  
7.002.912.603  
solder side view FV



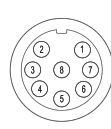
J connector (10 pin)  
JIS-C-5432 Size 16  
solder side view FV



M connector (10 pin)  
Amphenol MS3102-E-18-1  
solder side view FV



M12 connector (8 pin)  
M12 A coded  
solder side view FV



C connector (8 pin)  
IEC 60130-9  
solder side view FV

