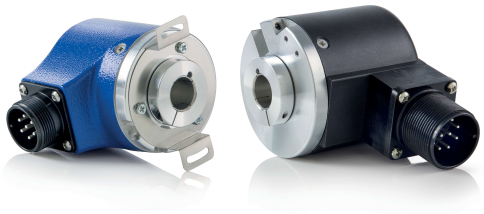
# EMIP 58 F - 63 G

## BLIND HOLLOW SHAFT PROGRAMMABLE MAGNETIC INCREMENTAL ENCODER

### MAIN FEATURES

Hollow shaft encoder series for industrial applications with high mechanical resistance requirements. The proprietary state of the art magnetic sensor provides wide options (resolution, electrical output, index width) programmable by the end user.

- 3 channel encoder (A / B / Z) up to 20000 ppr
- Power supply up to +30 V DC with differential (TTL or HTL) as electrical interface
- Up to 800 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 or with torque pin



| ORDERING CODE | EMI | P | 58F | M* | 20000 | Z | 5/30 | L | 15 | X | X | M | R | .162 | +XXX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**SERIES**
magnetic incremental encoder EMI

**FEATURE**
user programmable P

**MODEL**
blind hollow shaft with stator coupling 58F
blind hollow shaft with torque pin 63G

**METAL COVER**
* add for metal cover M

**RESOLUTION**
ppr 20000
user programmable from 1 to 20000 ppr

**ZERO PULSE**
with zero pulse Z

**POWER SUPPLY**
5 ... 30 V DC 5/30

**ELECTRICAL INTERFACE**
line driver L
RS-422 / HTL user programmable

**BORE DIAMETER**
mm 15
other diameters with optional shaft adapter, see Accessories

**ENCLOSURE RATING**
IP 54 X
IP 66 S

**OPTION**
to be reported X

**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 plug connector M
M12 plug connector M12
M23 plug connector H

**DIRECTION TYPE**
axial A
radial R

**SOCKET**
socket not included .162
to be reported only with connector output (eg. MR.162), for socket see Accessories

**VARIANT**
custom version XXX

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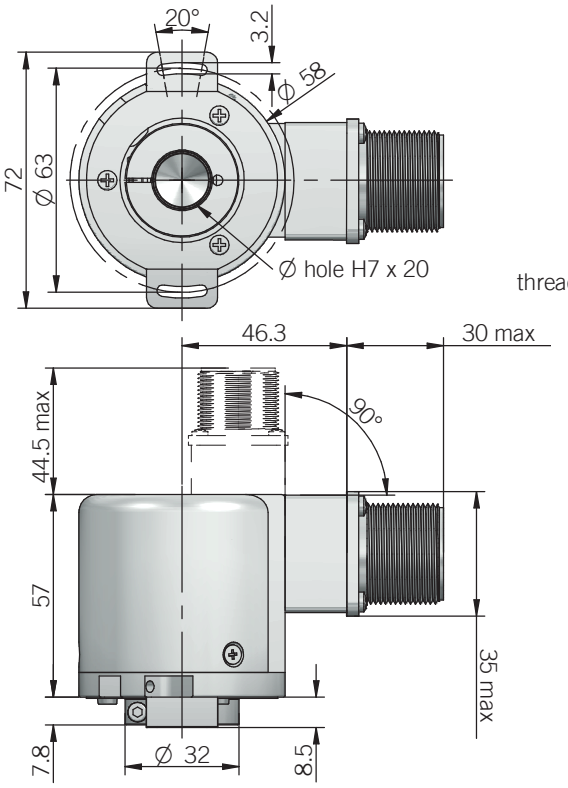
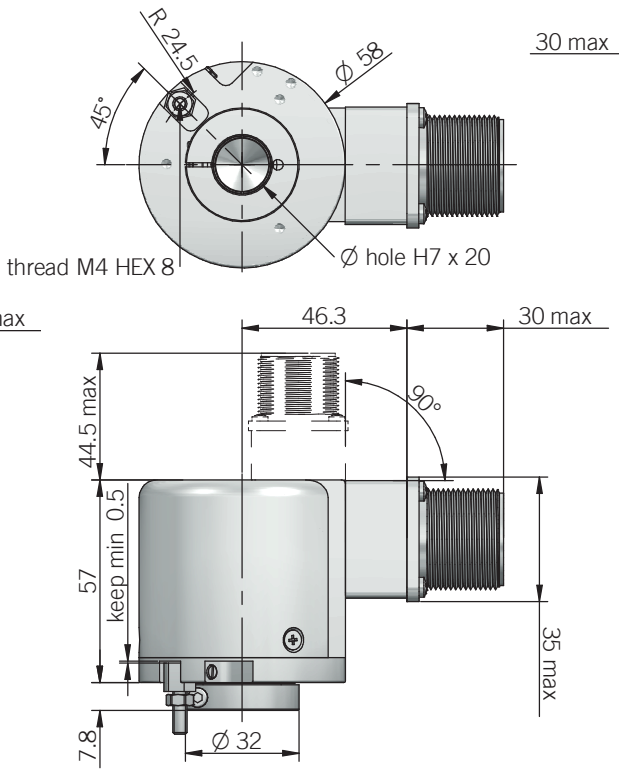
## 58 F



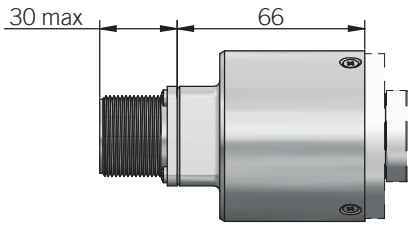

recommended mating shaft tolerance g6
dimensions in mm

## 63 G

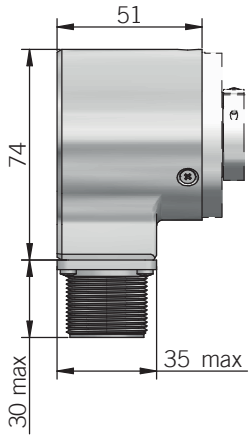



torque pin is included in model G

## DIMENSIONS WITH METAL COVER AND AXIAL OUTPUT




## DIMENSIONS WITH METAL COVER AND RADIAL OUTPUT




## ELECTRICAL SPECIFICATIONS

| | |
|---|---|
| **Resolution** | user programmable from 1 to 20000 ppr<br>default 1024 ppr |
| **Power supply**[1] | 4,5 ... 30 V DC (reverse polarity protection) |
| **Power draw without load** | 0,8 W max |
| **Max load current** | 20 mA / channel |
| **Electrical interface**[2] | line driver TTL / HTL (AEIC-7272 or similar)<br>user programmable / default TTL |
| **Max output frequency** | 800 kHz |
| **Counting direction** | user programmable<br>default A leads B clockwise (shaft view) |
| **Index length** | user programmable<br>default 180°e (gated A) |
| **Accuracy** | ± 0,10° |
| **Hysteresis** | user programmable from 0° to 0,70°<br>default 0,17° |
| **Start-up time** | 500 ms |
| **Mean time to dangerous failure ($MTTF_d$)**[3]<br>**according to EN ISO 13849-1** | 173 years |
| **Mission time (Tm)**[3] | 20 years |
| **Diagnostic coverage (DC)**[3] | 0% |
| **Cable type** | shielded - fixed installation<br>conductors section 0,22 mm² / AWG 24<br>bending radius min 60 mm |
| **Electromagnetic compatibility** | according to 2014/30/EU directive |
| **RoHS** | according to 2011/65/EU directive |
| **UL / CSA** | file n. E212495 |

## MECHANICAL SPECIFICATIONS

| | |
|---|---|
| **Bore diameter** | ø 15 mm<br>ø 6* / 8* / 9,52 (3/8")* / 10* / 11* / 12*<br>* with optional shaft adapter, please refer to Accessories |
| **Enclosure rating IEC 60529** | X = IP 54<br>S = IP 66 |
| **Max rotation speed** | 6000 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 $10^{-6}$ kgm² (95 x $10^{-6}$ lbft²) |
| **Starting torque (at +20°C / +68°F)** | < 0,02 Nm (2,83 Ozin) |
| **Bearing stage material** | aluminum |
| **Shaft material** | stainless steel |
| **Housing material** | PA66 glass fiber reinforced / painted aluminum |
| **Bearings** | n.2 ball bearings |
| **Bearings life** | $10^9$ revolutions |
| **Operating temperature**[3, 4] | -25° ... +100°C (-13° ... +212°F)<br>-25° ... +85°C (-13° ... +185°F) with M12 connector |
| **Storage temperature**[4] | -25° ... +70°C (-13° ... +158°F) |
| **Weight** | 350 g (12,35 oz)<br>450 g (15,87 oz) with metal cover |

[1] as measured at the transducer without cable influences
[2] for further details refer to OUTPUT LEVELS on TECHNICAL BASICS section
[3] this product is not a safety component, for further details refer to TECHNICAL BASICS section
[4] measured on the transducer flange
[5] condensation not allowed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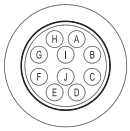
## CONNECTIONS

| Function | Cable | 10 pin M | 8 pin M12 | 12 pin H |
|---|---|---|---|---|
| +V DC | red | D - E | 7 | 12 |
| 0 V | black | F | 1 | 10 |
| A+ | green | A | 6 | 5 |
| A- | brown or grey | G | 5 | 6 |
| B+ | yellow | B | 4 | 8 |
| B- | orange | H | 3 | 1 |
| Z+ | blue | C | 2 | 3 |
| Z- | white | I | 8 | 4 |
| ⏚ | shield | J | housing[1] | 9 |

[1] only with metal cover

M connector (10 pin)
Amphenol MS3102-E-18-1
front view




M12 connector (8 pin)
M12 A coded
front view

H connector (12 pin) - M23 CCW
Hummel 7.410.000000 - 7.002.912.603
front view

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