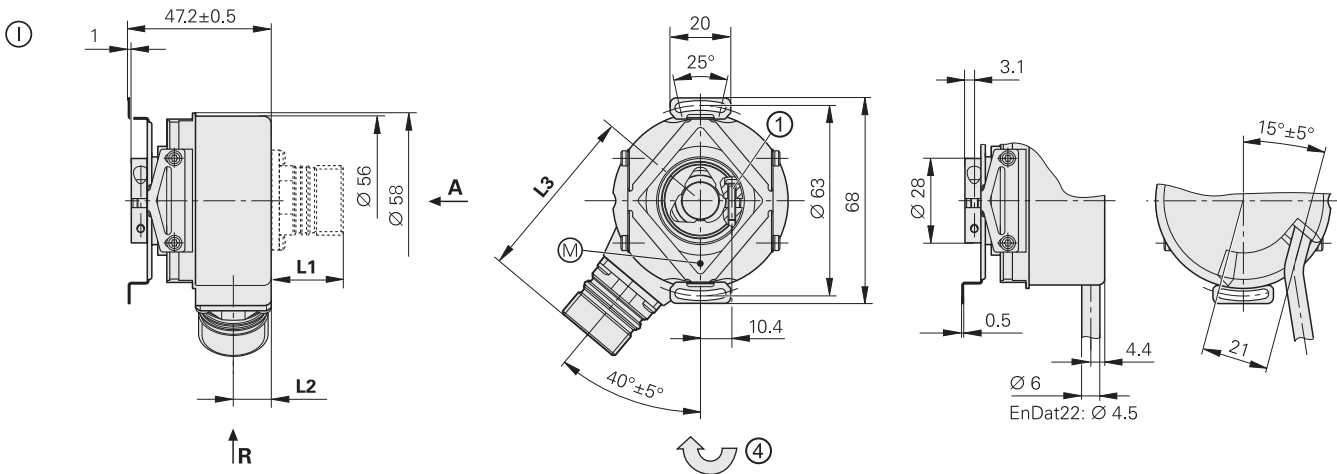


ECN/EQN/ERN 400 series

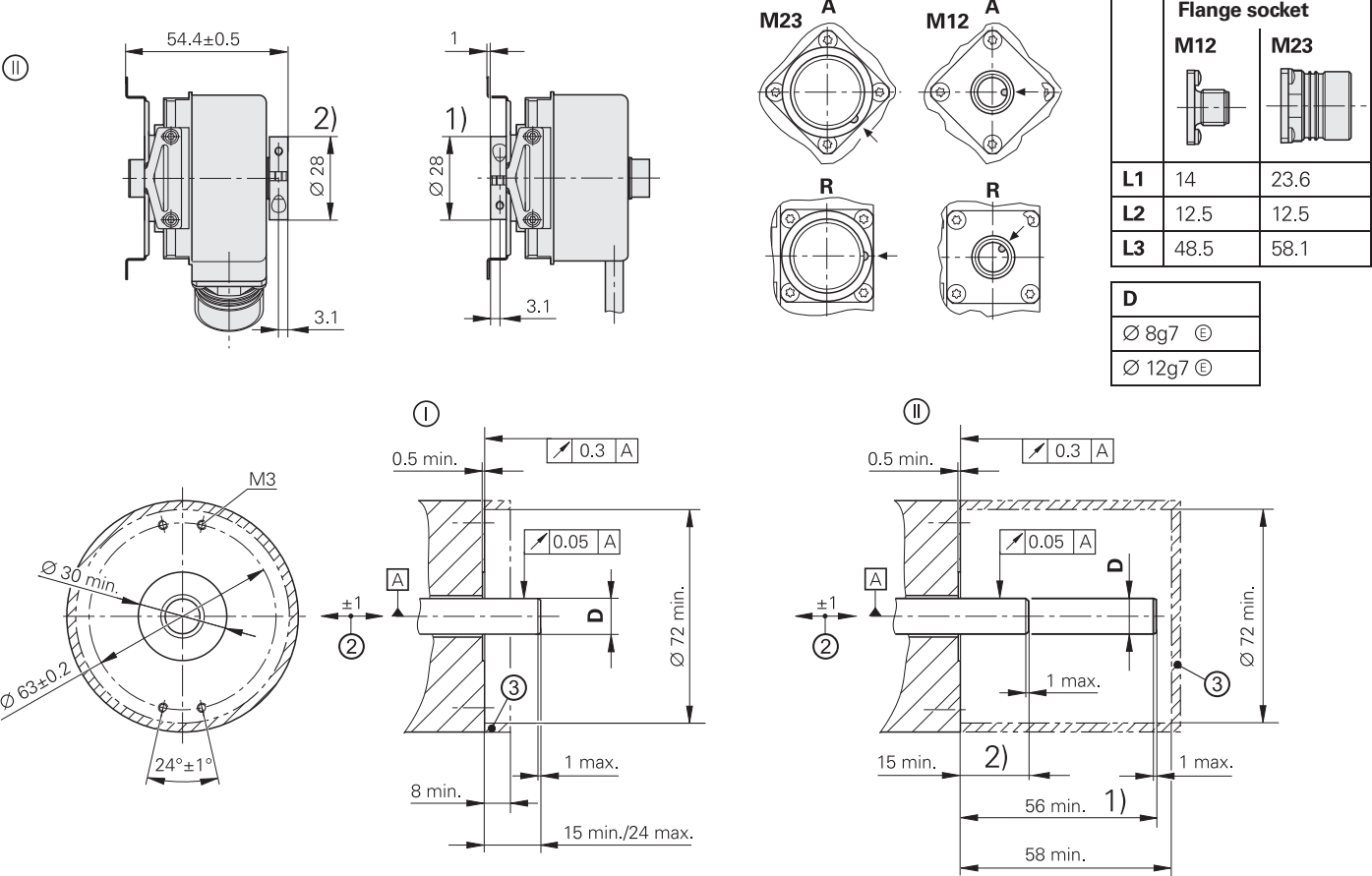
- Absolute and incremental rotary encoders
- Stator coupling for plane surface
 - Blind hollow shaft or hollow through shaft



Blind hollow shaft



Hollow through shaft



mm
Tolerancing ISO 8015
ISO 2768:1989-mH
≤ 6 mm: ±0.2 mm

- Radial cable (can also be used axially)
A = Bearing of mating shaft
M = Measuring point for operating temperature
1 = Clamping screw with X8 hexalobular socket
2 = Compensation of mounting tolerances and thermal expansion; no dynamic motion permitted
3 = Ensure protection against contact (EN 60529)
4 = Incremental rotary encoders: direction of shaft rotation for output signals as per interface description
Absolute rotary encoders: direction of shaft rotation for ascending position values
1) = Clamping ring on housing side (delivery condition)
2) = Clamping ring on coupling side (optionally mountable)

	Absolute		
	Singleturn		
	ECN 425		ECN 413
Interface*	EnDat 2.2	EnDat 2.2	SSI
Ordering designation	EnDat22	EnDat01	SSI39r1
Positions/revolution	33554432 (25 bits)	8192 (13 bits)	
Revolutions	–		
Code	Pure binary		Gray
Elec. permissible speed Deviations ¹⁾	≤ 12000 rpm for continuous position value	512 lines: ≤ 5000/12000 rpm ±1 LSB/±100 LSB 2048 lines: ≤ 1500/12000 rpm ±1 LSB/±50 LSB	≤ 12000 rpm ±12 LSB
Calculation time <i>t</i> _{cal} Clock frequency	≤ 7 µs ≤ 8 MHz	≤ 9 µs ≤ 2 MHz	≤ 5 µs –
Incremental signals	Without	~ 1 V _{PP} ²⁾	
Line counts*	–	512 2048	512
Cutoff frequency –3 dB Output frequency	– –	512 lines: ≥ 130 kHz; 2048 lines: ≥ 400 kHz –	
System accuracy	±20"	512 lines: ±60"; 2048 lines: ±20"	
Electrical connection*	• M12 flange socket, radial • Cable (1 m) with M12 coupling	• M23 flange socket, radial • Cable (1 m) with M23 coupling or without connecting element	
Supply voltage	DC 3.6 V to 14 V		DC 4.75 V to 30 V
Power consumption (maximum)	3.6 V: ≤ 0.6 W 14 V: ≤ 0.7 W		4.75 V: ≤ 0.6 W 30 V: ≤ 0.78 W
Current consumption (typical, without load)	5 V: 80 mA		5 V: 70 mA 24 V: 20 mA
Shaft*	Blind hollow shaft or hollow through shaft (both available in Ø 8 mm or Ø 12 mm)		
Mech. permiss. speed ³⁾	≤ 6000 rpm/≤ 12000 rpm ⁴⁾		
Starting torque (typical) at 20 °C	Blind hollow shaft: 0.01 Nm (with IP66: 0.05 Nm) Hollow through shaft: 0.025 Nm (with IP66: 0.075 Nm)		
Moment of inertia of rotor	≤ 4.6 · 10 ^{–6} kgm ²		
Permiss. axial motion of measured shaft	±1 mm		
Vibration: 55 Hz to 2000 Hz Shock: 6 ms	≤ 300 m/s ² ; flange socket version: ≤ 150 m/s ² (EN 60068-2-6); higher values upon request ≤ 2000 m/s ² (EN 60068-2-27)		
Max. operating temp. ³⁾	100 °C		
Min. operating temp.	Flange socket or fixed cable: –40 °C; moving cable: –10 °C		
Protection EN 60529	At housing: IP67 (IP66 with hollow through shaft) At shaft inlet: IP64 (with Ø 12 mm: IP66 upon request)		
Mass	≈ 0.3 kg		
Valid for ID	1178024-xx ⁵⁾	1065932-xx	1353129-xx

Bold: This preferred version is available on short notice.

* Please select when ordering

¹⁾ Speed-dependent deviations between absolute value and incremental signal

²⁾ Limited tolerances: signal amplitude: 0.8 V_{PP} to 1.2 V_{PP}