



HEIDENHAIN



Product Information

ROC 413

ROQ 425

Absolute Rotary Encoders
with PROFINET Interface

January 2009

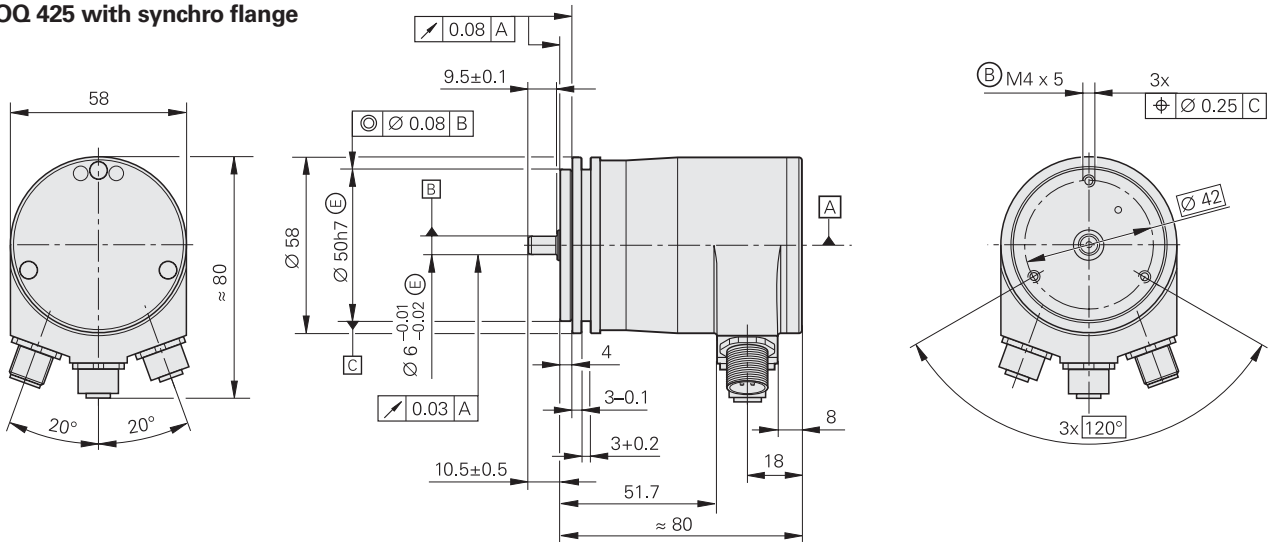
ROC/ROQ 400 PROFINET Series

Rotary encoders for separate shaft coupling

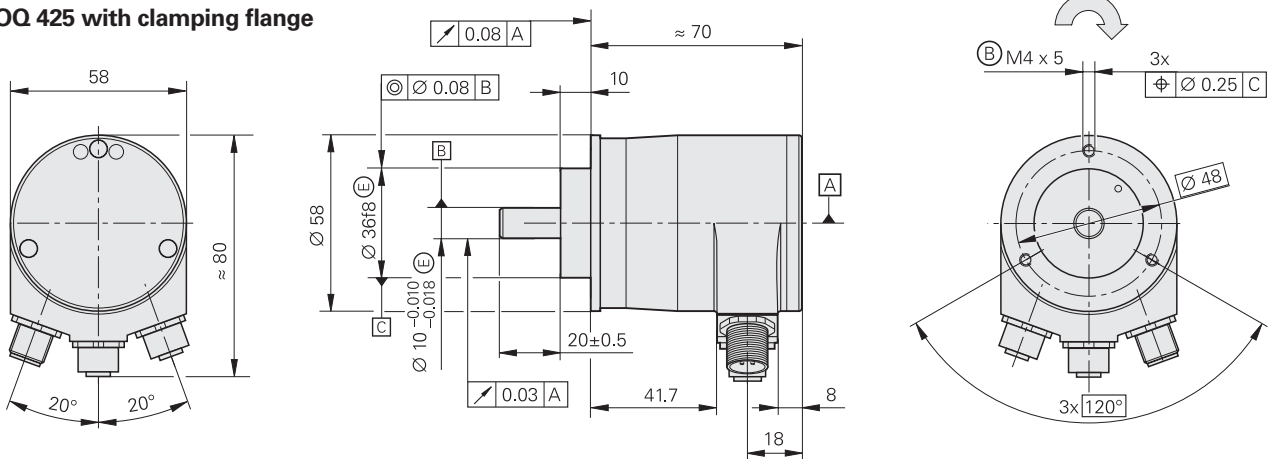
- With synchro or clamping flange
- Absolute position value over PROFINET Class 4



ROC 413/ROQ 425 with synchro flange



ROC 413/ROQ 425 with clamping flange



Dimensions in mm



Tolerancing ISO 8015
ISO 2768 - m H
< 6 mm: ±0.2 mm

Cable radial, also usable axially

▣ = Bearing

⊕ = Threaded mounting hole

↻ Direction of shaft rotation for output signals as per the interface description

	Absolute			
	Singletum		Multitum	
	ROC 413		ROQ 425	
Absolute position values	PROFINET			
Positions per rev	8 192 (13 bits) ²⁾			
Revolutions	–		4 096 ²⁾	
Code	Pure binary			
Elec. permissible speed Deviations ¹⁾	≤ 5 000/12 000 min ⁻¹ ± 1 LSB/± 100 LSB		≤ 5 000/10 000 min ⁻¹ ± 1 LSB/± 100 LSB	
System accuracy	± 60"			
Power supply Current consumption without load	10 to 30 V ≤ 150 mA at 24 V			
Electrical connection	Three M12 flange sockets, radial			
Mounting flange*	Synchro flange	Clamping flange	Synchro flange	Clamping flange
Shaft	Solid shaft D = 6 mm	Solid shaft D = 10 mm	Solid shaft D = 6 mm	Solid shaft D = 10 mm
Mech. permissible speed n	≤ 12 000 min ⁻¹			
Starting torque	≤ 0.01 Nm (at 20 °C)			
Moment of inertia of rotor	≤ 2.7 · 10 ⁻⁶ kgm ²	≤ 2.3 · 10 ⁻⁶ kgm ²	≤ 2.7 · 10 ⁻⁶ kgm ²	≤ 2.3 · 10 ⁻⁶ kgm ²
Shaft load ⁴⁾	Axial 10 N/radial 20 N at shaft end			
Vibration 55 to 2 000 Hz Shock 6 ms	≤ 100 m/s ² (EN 60 068-2-6) ≤ 1 000 m/s ² (EN 60 068-2-27)			
Max. operating temperature ⁵⁾	70 °C			
Min. operating temperature	–40 °C			
Protection EN 60529	IP 67 at housing; IP 64 at shaft end ³⁾			
Weight	Approx. 0.35 kg			

* Please select when ordering

¹⁾ Velocity-dependent deviations between the absolute value and incremental signal

²⁾ These functions are programmable

³⁾ IP 66 upon request

⁴⁾ See also *Mechanical Design and Installation* in the *Rotary Encoders* catalog

⁵⁾ For the correlation between the operating temperature and the shaft speed or supply voltage, see *General Mechanical Information* in the *Rotary encoders* catalog.

Electrical Connection

Connection

PROFINET and the power supply are connected via the M12 connecting elements. The necessary mating connectors are:

PORT 1 and 2:

M12 coupling (male), 4-pin, D-coded

Power supply:

M12 connector, 4-pin, A-coded



Pin layout

PORT 1 and 2 4-pin connector (female) M12 D-coded					
Absolute position values					
	1	2	3	4	Housing
PORT 1/2	Tx+	Rx+	Tx-	Rx-	Shield

Power supply 4-pin coupling (male) M12 A-coded				
	1	3	2	4
	Up	0V	Vacant	Vacant

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For more information

Brochure: *Rotary Encoders*