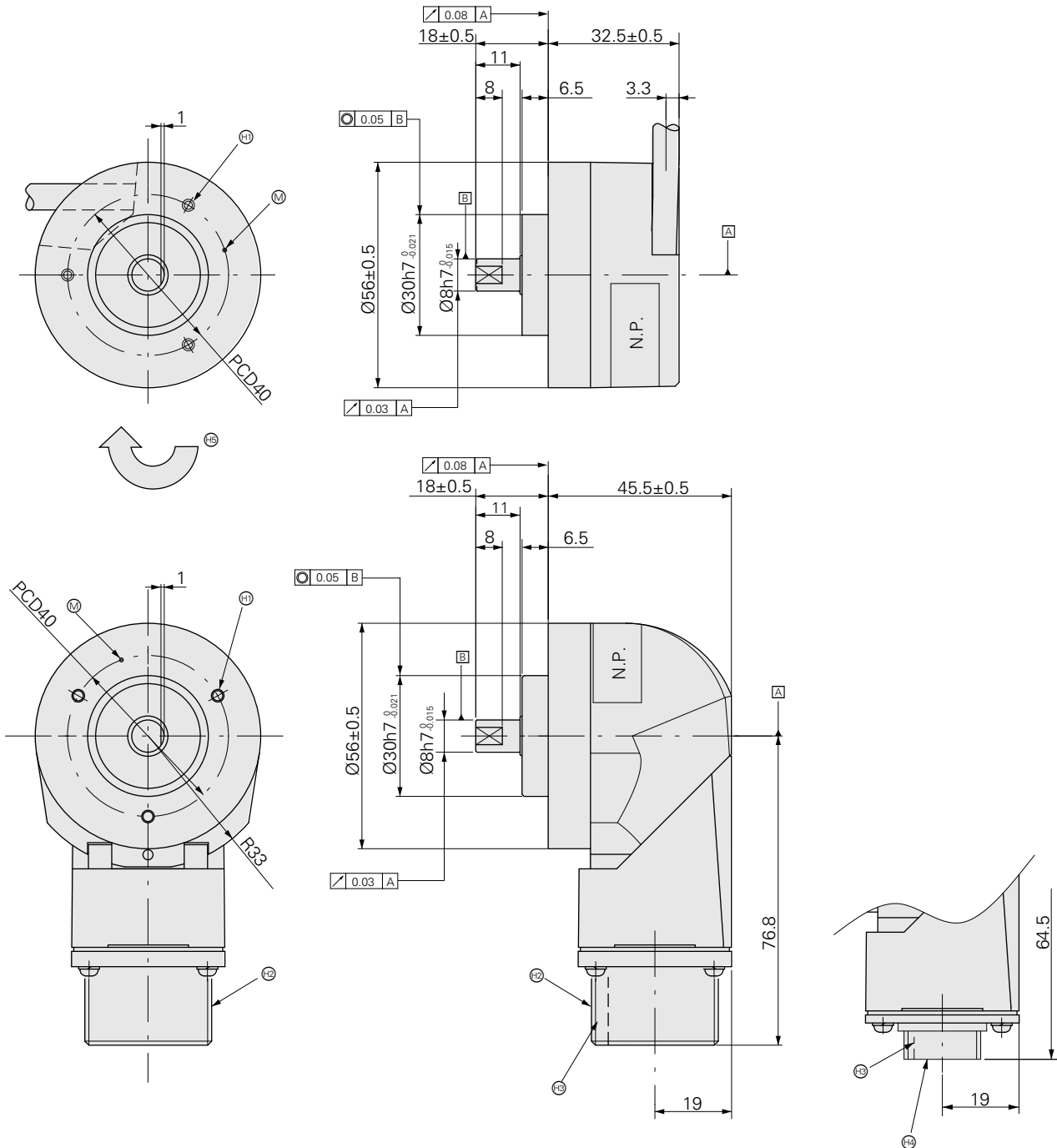
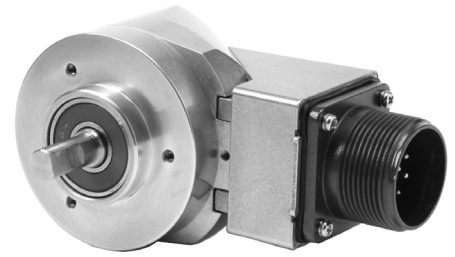


ROD 400 Series

Incremental Rotary Encoders for separate rotor coupling

- Outer Diameter 56 mm
- Length 32.5 mm/45.5mm
- Shaft Diameter 8.0 mm






Dimensions in mm



Tolerancing ISO 8015

- Ⓜ = Measuring point for operating temperature
- Ⓧ = 3-M3, Depth 6, Equally Spaced
- Ⓩ = Flange socket MS3102E20-29P(Equivalent)
- Ⓚ = Key
- Ⓛ = Flange socket RM15WTRZ-10P(71)
- Ⓝ = Direction of shaft rotation for output signals as per the interface description

| Flange socket | Type | Mating connector |
|----------------------------|----------------|--|
| 10-pin RM15WTRZ-10P(71) | Non-Waterproof | Connector RM15TP-10S(71) |
| | Waterproof | Connector RM15WTPZ-10S(71) |
| | Waterproof | Clamp JR13WCC-10(72) |
| 17-pin MS3102E20-29P | Non-Waterproof | Connector MS3106B-20-29S |
| | Non-Waterproof | Clamp MS3057-12A |
| | Waterproof | Combined Connector/Clamp unit MS3106E-20-29S |

| | ROD 420 | ROD 430 | |
|---|--|--|--|
| Incremental signals |  TTL - C ¹⁾ |  HTL - C ¹⁾ |  HTLs ²⁾ - C ¹⁾ |
| Output pulse * (Accuracy Class) | 100 ^(l) 200 ^(l) 300 ^(l) 500 ^(l) 512 ^(l) 600^(l) 900 ^(l) 1000 ^(l) 1024^(l) 1200 ^(l) 2500 ^(l) 4096 ^(l) 5000 ^(l) 10000 ^(ll) | | |
| Scanning frequency Edge separation <i>a</i> | ≤ 300 kHz ≥ 0.41 μs | ≤ 200 kHz ≥ 0.62 μs | |
| System accuracy | Accuracy Class I : ±1/10 SP Accuracy Class II : ±1/5 SP | | |
| Power supply Current consumption without load | 5V ± 10% ≤ 70 mA | 10.8V to 26.4V ≤ 70 mA | |
| Output current | ± 10 mA | ± 20 mA | ≤ 40 mA |
| Electrical connection | <ul style="list-style-type: none"> • Cable 1m, without connector • 17-pin MS3102E-20-29P flange socket, radial • 10-pin RM15WTRZ-10P(71) flange socket, radial | | |
| Shaft | Solid shaft D = 8 mm | | |
| Mech. permissible speed n | ≤ 6000 min ⁻¹ | | |
| Starting torque (at 20°C) | ≤ 0.007 Nm | | |
| Moment of inertia of rotor | 3.0 · 10 ⁻⁶ kgm ² | | |
| Shaft load | Axial : 20 N Radial: 30 N | | |
| Vibration 25 to 2000 Hz Shock 6 ms | ≤ 100 m/s ² (JIS C 60 068-2-6, EN 60 068-2-6) ≤ 1000 m/s ² (JIS C 60 068-2-27, EN 60 068-2-27) | | |
| Max. operating temp. (Ambient Temperature) | 90°C (85°C) | | |
| Min. operating temp. | For rigid configuration : -20°C For frequent flexing : -10°C | | |
| Protection EN 60 529 | IP64 (IP66 when shaft is stationary) | | |
| Mass | Cable Approx. 0.2 kg (without cables) Flange socket Approx. 0.4 kg | | |

Bold : preferred versions

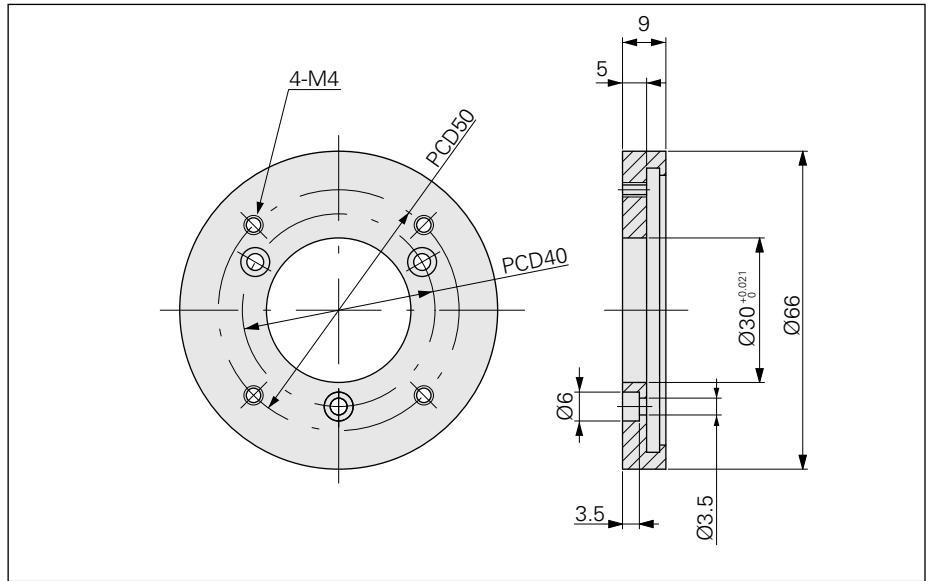
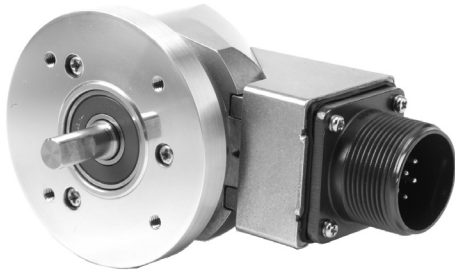
* Please select when ordering.

¹⁾ Bypass capacitor is connected to FG.

²⁾ Without inverse signal

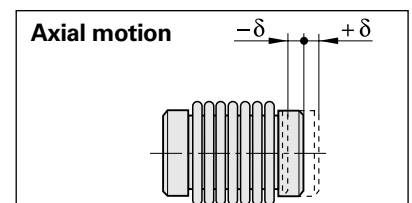
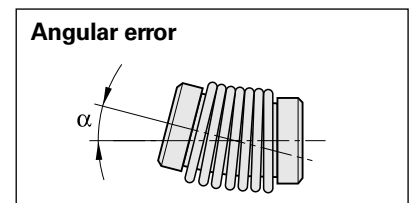
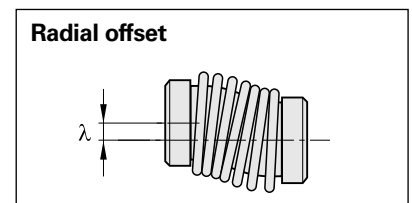
Mounting Accessories

Mounting flange for ROD 400 series
ID 728 586-01



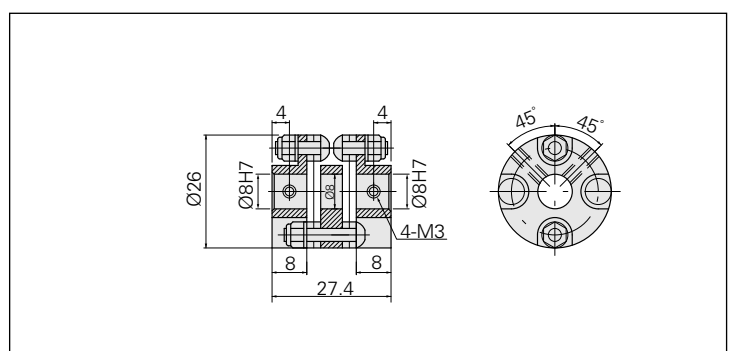
Rotor Couplings

| | for ROD 400 series |
|------------------------------|------------------------------------|
| | C 22 |
| Hub bore | 8/8 mm |
| Galvanic isolation | - |
| Kinematic transfer error* | $\pm 20''$ |
| Torsional rigidity | $225 \frac{\text{Nm}}{\text{rad}}$ |
| Max. torque | 0.98 Nm |
| Max. radial offset λ | $\leq 0.2 \text{ mm}$ |
| Max. angular error α | $\leq 1.5^\circ$ |
| Max. axial motion δ | $\leq 0.3 \text{ mm}$ |
| Moment of inertia (approx.) | $2.5 \cdot 10^{-6} \text{ kgm}^2$ |
| Permissible speed | 20000 min^{-1} |
| Mass | 30 g |




*With radial misalignment $\lambda = 0.1 \text{ mm}$, angular error $\alpha = 0.15 \text{ mm}$ over $100 \text{ mm} \pm 0.09$, valid up to $50 \text{ }^\circ\text{C}$

Rotor coupling C 22 for ROD 400 series
ID 731 375-01



Connecting Elements and Cables

Connecting Cables

| | | |
|--|----------------------------|---|
| Cable diameter 6.5 mm | |  |
| Connector ¹⁾ | Cable Specification | |
| 10-pin RM15TP-10S(71) | 4x 2x 0.18 mm ² | 736 060-01 (1m) 736 060-03 (3m) 736 060-05 (5m) |
| 17-pin MS3106B-20-29S MS3057-12A | 4x 2x 0.18 mm ² | 736 061-01 (1m) 736 061-03 (3m) 736 061-05 (5m) |

¹⁾With Water Proofed conector on request

Mating Connectors

| Mating connector | Type-Name | ID Number |
|---|------------------|------------|
| 10-pin, Connector, Non-Waterproof | RM15TP-10S(71) | 721636-02 |
| 10-pin, Connector, Waterproof | RM15WTPZ-10S(71) | 1105835-01 |
| 10-pin, Clamp, Waterproof | JR13WCC-10(72) | 1106395-01 |
| 17-pin, Connector, Non-Waterproof | MS3106B-20-29S | 721630-01 |
| 17-pin, Combined Connector/Clamp unit, Non-Waterproof | MS3057-12A | 721627-01 |
| 17-pin, Connector, Waterproof | MS3106E-20-29S | 1105832-01 |

Pin Layout

TTL - C / HTL - C

| 10-pin RM15WTRZ-10P(71) flange socket | | | | 17-pin MS3102B-20-29P flange socket | | | | | | | | | |
|--|--|--------------|-------|--|---------------------|---------------------|----------|---------------------|----------|---------------------|---------------|--------|---------------|
| | | Power supply | | | Incremental signals | | | | | | Other signals | | |
| 10-pin RM15WTRZ-10P(71) flange socket | | 1 | 2 | 10 | 3 | 4 | 5 | 6 | 7 | 8 | / | 9 | / |
| 17-pin MS3102B-20-29P flange socket | | H | K | T | A | N | C | R | B | P | M | / | D/E/F/G/J/L/S |
| | | U_P | 0V | FG | U_{a1} | $\overline{U_{a1}}$ | U_{a2} | $\overline{U_{a2}}$ | U_{a0} | $\overline{U_{a0}}$ | 0V | Vacant | Vacant |
| Cable $\varnothing 6.5$ mm 4x 2x 0.18 mm ² | | White | Black | | Red | Pink | Olive | Blue | Yellow | Orange | | | |

Cable shield connected to housing; U_P = power supply

HTLs- C / Open Collectors

| 10-pin RM15WTRZ-10P(71) flange socket | | | | 17-pin MS3102B-20-29P flange socket | | | | | | | | | |
|--|--|--------------|-------|--|---------------------|------|----------|------|----------|--------|---------------|--------|---------------|
| | | Power supply | | | Incremental signals | | | | | | Other signals | | |
| 10-pin RM15WTRZ-10P(71) flange socket | | 1 | 2 | 10 | 3 | 4 | 5 | 6 | 7 | 8 | / | 9 | / |
| 17-pin MS3102B-20-29P flange socket | | H | K | T | A | N | C | R | B | P | M | / | D/E/F/G/J/L/S |
| | | U_P | 0V | FG | U_{a1} | 0V | U_{a2} | 0V | U_{a0} | 0V | 0V | Vacant | Vacant |
| Cable $\varnothing 6.5$ mm 4x 2x 0.18 mm ² | | White | Black | | Red | Pink | Olive | Blue | Yellow | Orange | | | |

Cable shield connected to housing; U_P = power supply

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<http://www.heidenhain.co.jp>

HEIDENHAIN K.K.

Hulic Kojimachi Bldg., 9F
3-2 Kojimachi, Chiyoda-ku,
Tokyo 102-0083 Japan

+81 (0)3 3234 7781

+81 (0)3 3262 2539