HEIDENHAIN

Product Information

# ROD 320.007
# ROD 323.031

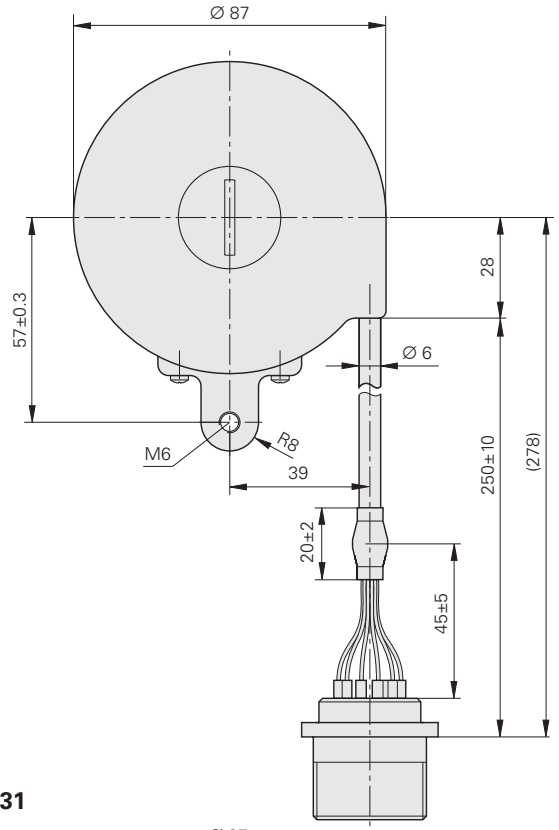
Rotary Encoders for
Siemens Servo Drives

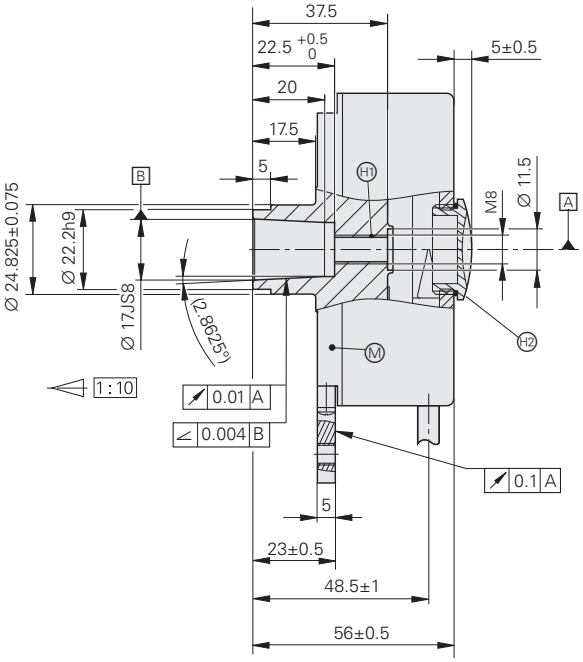
March 2008

# ROD 320/323 Series

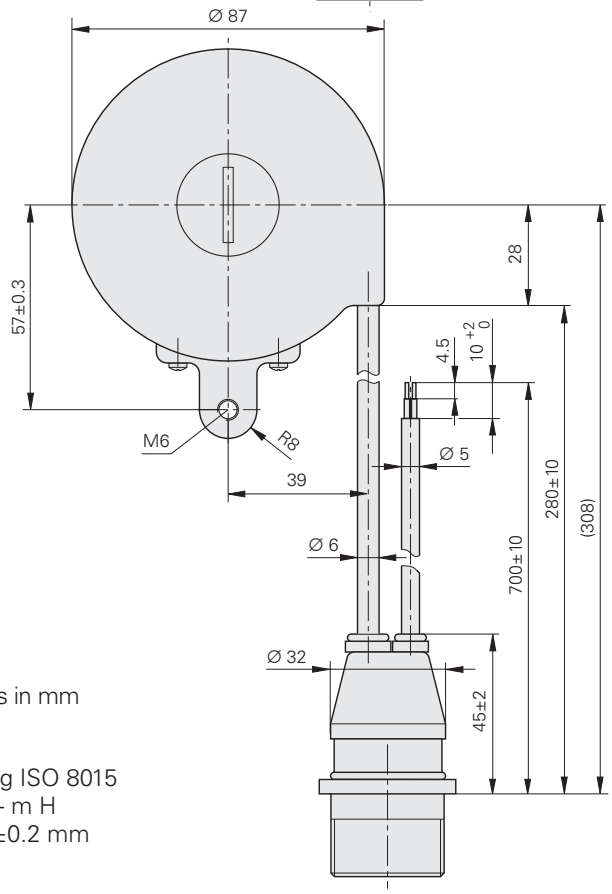
**Rotary encoders with integral bearing for integration in motors**
- **For wire mounting**
- **Taper shaft**

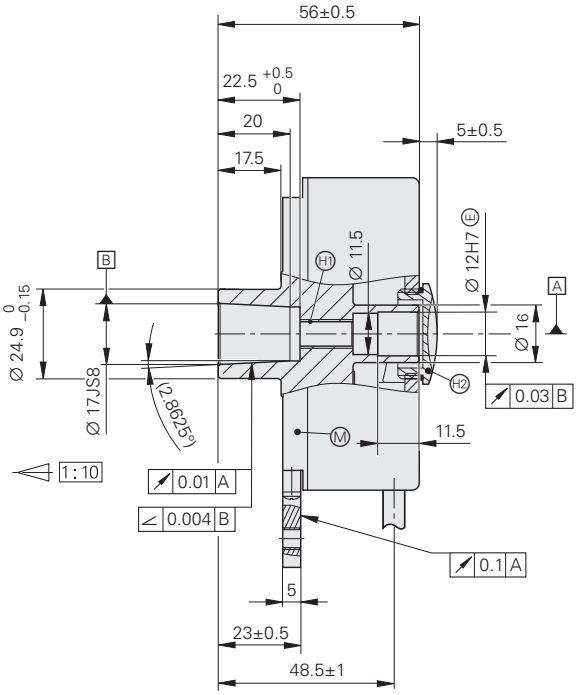
**ROD 320.007**




**ROD 323.031**




Dimensions in mm

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

A = Bearing
Ⓜ = Measuring point for operating temperature
Ⓗ1 = Max. torque for central screw 10 Nm
Ⓗ2 = Filler plug M25 x 1.5, tightening torque 1.0 ± 0.1 Nm

| | ROD 320.007 | ROD 323.031 |
|---|---|---|
| **Incremental signals** | ⊓⊔ TTL | |
| Signal periods | 1000, 1024, 2000, 2048, 2500, 5000 | 1024, 1250, 2500 |
| Reference mark | One | |
| Scanning frequency<br>Edge separation a | ≤ 300 kHz<br>≥ 0.43 µs | |
| **Power supply** | 5 V ± 5%/ ≤ 150 mA (without load) | |
| **Electrical connection** | 0.25 m | 0.28 m |
| Flange socket | 1 1/4-18 UNEF-2A | |
| Cable outlet | Radial | |
| **Shaft** | Shaft with inside taper 1:10 | |
| **Mech. permissible speed n**<br>**Max. permissible shaft speed** | ≤ 12000 $min^{-1}$<br>≤ 13000 $min^{-1}$ | |
| **Theoretical bearing service life**<br>(without consideration of the usable life of the grease) | *At 3000 $min^{-1}$:* 85000 hours<br>*At 6000 $min^{-1}$:* 54000 hours<br>*At 9000 $min^{-1}$:* 41000 hours<br>*At 12000 $min^{-1}$:* 34000 hours | |
| **Starting torque**<br>at 20 °C | < 0.05 Nm | |
| **Moment of inertia** of rotor | $55 \cdot 10^{-6}$ $kgm^2$ | |
| **Shaft load**<br>at shaft end | *Axial:* 50 N; *radial:* 50 N (at ≤ 12000 $min^{-1}$) | |
| **Vibration** 55 to 2000 Hz<br>**Shock** 6 ms | ≤ 100 $m/s^2$ (IEC 60068-2-6)<br>≤ 1000 $m/s^2$ (IEC 60068-2-27) | |
| **Max. operating temperature** | 100 °C | |
| **Min. operating temperature** | –10 °C | |
| **Storage temperature** | –30 °C to 80 °C | |
| **Protection** IEC 60529 | IP 64 at housing; IP 53 at shaft inlet (flange) | |
| **Weight** | Approx. 0.75 kg | Approx. 0.80 kg |

# Electrical Connection

## ROD 320.007 Pin Layout

**17-pin**
**flange socket**

| | Power supply | | | Incremental signals | | | | | | Other signals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **C, J, K** | **N, P, T** | **H** | **A** | **D** | **B** | **E** | **F** | **G** | **L** | **R** | **S** | **M** |
| | **$U_P$** | **0 V** | **Shield** | **$U_{a1}$** | **$\overline{U_{a1}}$** | **$U_{a2}$** | **$\overline{U_{a2}}$** | **$U_{a0}$** | **$\overline{U_{a0}}$** | **$\overline{U_{aS}}$** | ⌊ ⌋ | | **Vacant** |
| | Brown/ Green | White/ Green | / | Brown | Green | Gray | Pink | Red | Black | Violet | / | / | / |

**Shield** on housing; **$U_P$** = power supply voltage
Vacant pins or wires must not be used!

## ROD 323.031 Pin Layout

**17-pin**
**flange socket**

| | Power supply | | | Incremental signals | | | | | | Other signals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **C, K, J** | **P, N, T** | **H** | **A** | **D** | **B** | **E** | **F** | **G** | **R** | **S** | **L** | **M** |
| | **$U_P$** | **0 V** | **Shield** | **$U_{a1}$** | **$\overline{U_{a1}}$** | **$U_{a2}$** | **$\overline{U_{a2}}$** | **$U_{a0}$** | **$\overline{U_{a0}}$** | ⌊ ⌋ | | **T+** | **T–** |
| | Brown/ Green | White/ Green | / | Brown | Green | Gray | Pink | Red | Black | / | / | Red[1)] | Blue[1)] |

**Shield** on housing; **$U_P$** = power supply voltage
Vacant pins or wires must not be used!
[1)] Wires of separately connected two-conductor cable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**For more information**
- Catalog: *Rotary Encoders*
- Catalog: *Position Encoders for Servo Drives*