



Hollow shaft servo motors RD50/70/85-HW



Compact drive units with industry-leading power density and a wide range of applications with hollow shaft

With the hollow shaft servo motors of the RD series RoboDrive presents high-performance motors based on the proven stator-rotor installation kits. The RoboDrive technology provides the highest power density at maximum torque range and overload capability with a maximized hollow shaft diameter in a compact design.

The hollow shaft design allows to guide signals, media and fluids, rays, and cables through the motor. The integration of gear elements, spindle nuts or optics and serial actuators expands the field of applications. The integrated absolute encoder enables high positioning accuracy and excellent speed stability.

The variable concept offers solutions for a variety of demanding drive applications. On request alternative voltage levels, increased speeds and customized torque adaptations and optional integrated hollow shaft safety breaks are realizable.

Key features:

- Hollow shaft
- Industry-leading power density
- Excellent overload capability
- Compact design
- Absolute encoder with high resolution
- Integrated hollow shaft safety brake optional
- Customer specific flange available

Basic data

| | RD50x08-HW | RD50x14-HW | RD70x10-HW | RD70x18-HW | RD85x13-HW | RD85x26-HW |
|--|--------------|--------------|--------------|--------------|----------------|----------------|
| Power P [W] | 155 | 180 | 270 | 275 | 430 | 410 |
| Rated torque T_r [Nm] | 0,27 | 0,50 | 0,74 | 1,25 | 1,43 | 2,60 |
| Peak torque T_{max} [Nm] | 0,9 | 1,4 | 2,3 | 4,0 | 4,5 | 8,3 |
| Rotation speed n_{max}^* [rpm] | 5.500 | 3.500 | 3.500 | 2.100 | 2.900 | 1.500 |
| Diameter D [mm] | 61 | 61 | 80 | 80 | 96 | 96 |
| Length L [mm] w/o brake with brake | 57,8 64,2 | 73,6 80 | 71,2 89,1 | 79,1 97 | 75,5 93,4 | 88,9 106,8 |
| Weight m [g] w/o brake with brake | 465 620 | 530 685 | 820 1.100 | 960 1.250 | 1.300 1.690 | 1.650 2.050 |
| Inertia J [kgcm ²] w/o brake with brake | 0,22 0,25 | 0,26 0,30 | 0,78 0,90 | 0,94 0,11 | 2,15 2,45 | 2,76 3,06 |

* Theoretical no-load rotation speeds at $U_n = 48$ V. Variations can arise from operation with different inverters.
Higher rotation speeds or change of the voltage level can be achieved by changing the connection scheme.

Electrical data

| | RD50x08-HW | RD50x14-HW | RD70x10-HW | RD70x18-HW | RD85x13-HW | RD85x26-HW |
|-----------------------------------|--|------------|-----------------|------------|-----------------|------------|
| Rated voltage U_r [V] | 48 | 48 | 48 | 48 | 48 | 48 |
| Rated current I_r [A] | 4,8 | 5,0 | 7,0 | 7,0 | 11,0 | 11,0 |
| Torque constant k_T [Nm/A] | 0,057 | 0,098 | 0,106 | 0,180 | 0,130 | 0,244 |
| Terminal resistance R_{TT} [mΩ] | 552 | 800 | 470 | 655 | 210 | 323 |
| Terminal inductance L_{TT} [μH] | 720 | 820 | 800 | 1350 | 470 | 920 |
| Number of pole pairs | 10 | 10 | 10 | 10 | 10 | 10 |
| Sensor type | Magnetic encoder, BISS-C differential, accuracy $\pm 0,1^\circ$; supply voltage $U_{dd} = 5V$ | | | | | |
| Position resolution (drive side) | 100.000 inc/rev | | 160.000 inc/rev | | 200.000 inc/rev | |

All data relate to star-serial connection at $U_r = 48V$. The voltage level can be changed on request.

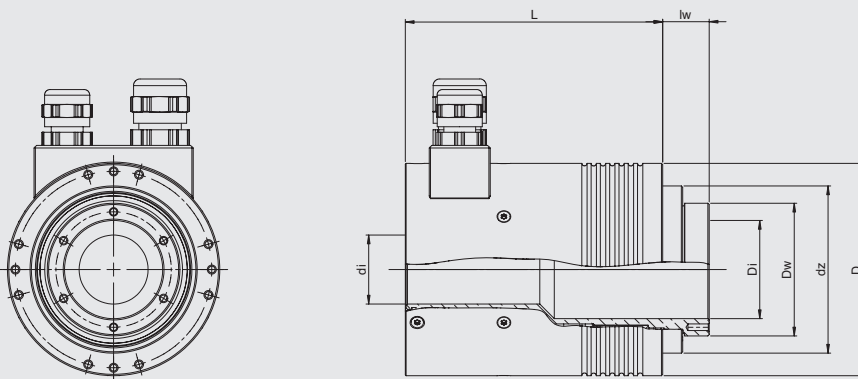
Safety brake data

| | RD50x08-HW | RD50x14-HW | RD70x10-HW | RD70x18-HW | RD85x13-HW | RD85x26-HW |
|--|------------|------------|------------|------------|------------|------------|
| Braking torque $M_{Br}/M_{B,max}$ [Nm] | 0,30/0,55 | 0,60/1,10 | 0,84/1,54 | 1,44/2,64 | 1,68/3,08 | 3,12/5,72 |
| Thermal losses @ U_{Br} [W] | 2,6 | 2,6 | 3,7 | 3,7 | 5,0 | 5,0 |

All brakes are operated with a rated voltage, $U_{Br} = 10V$, to open the brake, an over-excitation voltage of 30V is required.

Dimensions

| | RD50x08-HW | RD50x14-HW | RD70x10-HW | RD70x18-HW | RD85x13-HW | RD85x26-HW |
|---|--------------|------------|--------------|------------|--------------|---------------|
| Motor diameter D [mm] | 61 | 61 | 80 | 80 | 96 | 96 |
| Motor length L [mm] w/o brake with brake | 57,8 64,2 | 73,6 80 | 71,2 89,1 | 79,1 97 | 75,5 93,4 | 88,9 106,8 |
| Shaft diameter Dw [mm] | 38 g6 | 38 g6 | 50 g6 | 50 g6 | 62 g6 | 62 g6 |
| Hollow shaft diameter Di [mm] | 26,5 H6 | 26,5 H6 | 37 H6 | 37 H6 | 47,5 H6 | 47,5 H6 |
| Hollow shaft diameter di [mm] | 17 | 17 | 26 | 26 | 35 | 35 |
| Shaft length lw [mm] | 16,7 | 16,7 | 17,5 | 17,5 | 19,7 | 19,7 |
| Centering diameter dz [mm] | 51 g6 | 51 g6 | 63 g6 | 63 g6 | 79 g6 | 79 g6 |



RoboDrive is a brand of the TQ-Group
 TQ-Systems GmbH | Mühlstr. 2 | 82229 Seefeld | Germany
 Tel.: +49 8153 9308-0 | Fax: +49 8153 4223
 info@robodrive.com | www.robodrive.com

