

Gear motors RD50/70/85-HD

Compact actuators for high precision and backlash-free drives in the industry and robotics



The geared motors of the RD-HD series are powerful and high-precision servo solution with hollow shaft for low-voltage applications. The technology from Harmonic Drive uniquely combines highest precision and zero backlash in a compact lightweight design. Combined with the RoboDrive technology, the harmonic drive can be exploited to the peak load. Due to the outstanding dynamics of this motor and the very low gear elasticity and inertia it is possible to precisely control the powertrain. The geared motors RD-HD are successfully used in robotics, handling and automation, medical and optical applications.

On request other sizes and types of Harmonic Drive gears are delivered with matching motors.

Key features:

- Hollow shaft with protective tube
- Industry-leading power density
- Excellent torque density and positioning accuracy
- Absolute encoder with high resolution
- Very compact and lightweight design

Basic data

	RD50x08-HD	RD70x10-HD	RD85x13-HD
Power P [W]	155	270	430
Rated output torque T_r [Nm]	7,8	40,0	67,0
Peak output torque T_{max} [Nm]	28	92	176
Collision torque T_{col} [Nm]	54	147	304
Output speed n_{max} at U_r^* [rpm]	55	22	18
Gear ratio **	1:100	1:160	1:160
Diameter D [mm]	61	80	96
Length L [mm]	54,3	63,5	70,3
Weight m [g]	890	2600	3650

* Theoretical no-load rotation speeds at $U_r = 48$ 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.
** Other gear ratios on request.

Electrical data

	RD50x08-HD	RD70x10-HD	RD85x13-HD
Rated voltage U_r [V]	48	48	48
Rated current I_r [A]	4,8	7,0	11,0
Torque constant k_T [Nm/A]	0,057	0,106	0,13
Terminal resistance R [m Ω]	552	470	210
Terminal inductance L [μ H]	720	800	470
Number of pole pairs	10	10	10
Sensor type	Magnetic encoder, BISS-C differential, accuracy $\pm 0,1^\circ$; supply voltage $U_{dd} = 5$ V		

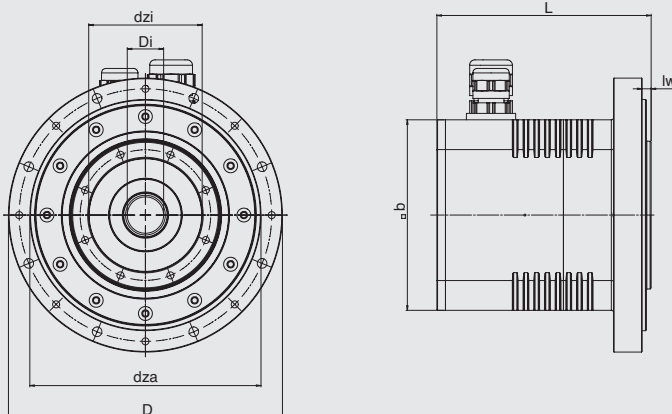
All data relate to star-serial connection and can be altered on customer request.

Data gear

	RD50x08-HD	RD70x10-HD	RD85x13-HD
Type	CPL-14A-100-2A	CPL-20A-160-2A	CPL-25A-160-2A
Torsional stiffness [Nm/arcmin]	2,1	8,4	16,6
Backlash [arcmin]	< 1	< 1	< 1
Max. tilting torque [Nm]	125	230	277

Dimensions

	RD50x08-HD	RD70x10-HD	RD85x13-HD
Diameter D [mm]	97	128	141
Motor length L [mm]	78	101	112
Edge length b [mm]	66	89	103,5
Centering shaft diameter d_c [mm]	35 H6	53 H6	58 H7
Inner shaft diameter d_i [mm]	9	17	21
Shaft length l_w [mm]	4,3	4,2	6
Centering diameter d_{za} [mm]	83 h6	108 h6	118 h6



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

