Hollow-shaft servo motors RD50/70/85-HW

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

With the hollow shaft servo motors of the RD series RoboDrive presents high-performance motors based on the well-established stator-rotor 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, customized torque adaptations and integrated hollow-shaft safety brakes can be realized.

Key features:

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

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}* at U_r [rpm]	5,500	3,500	3,500	2,100	2,900	1,500
Motor diameter D [mm]	61	61	80	80	96	96
Motor length L [mm] w/o brake with brake	57.8 73.6	64.2 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 [kgcm²] w/o brake with brake	0.22 0.25	0.26 0.30	0.78 0.90	0.94 1.06	2.15 2.45	2.76 3.06

* 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 adapting the interconnection 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	1,350	470	920
Number of pole pairs	10	10	10	10	10	10
Sensor type*	Magnetic encoder, BISS-C differential, accuracy ± 0.1°, supply voltage U_{dd} = 5 V					
Position resolution	100,000 inc/rev		160,000 inc/rev		200,000 inc/rev	

All data relate to star-serial interconnection at U_r = 48 V. The voltage level can be adapted on request.
* SSI, SPI, PWM, I2C, asynchronous serial communication interfaces can be realized on request.

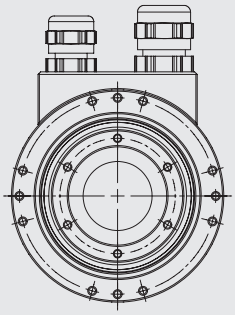
Safety brake data

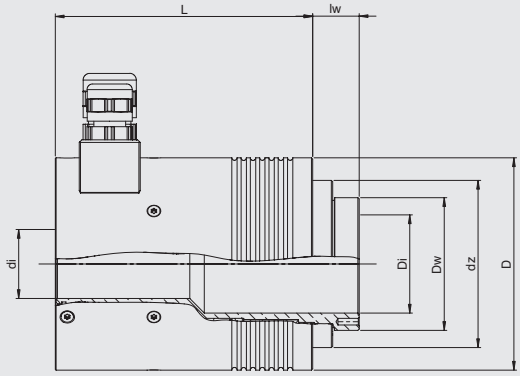
	RD50x08-HW	RD50x14-HW	RD70x10-HW	RD70x18-HW	RD85x13-HW	RD85x26-HW
Braking torque $T_{B,r}/T_{B,max}$ [Nm]	0.30/0.75	0.60/1.50	0.84/2.10	1.44/3.60	1.68/4.20	3.12/7.80
Thermal losses $P_{B,L}$ at $U_{B,r}$ [W]	2.6	2.6	3.7	3.7	5.0	5.0

All brakes are operated with a rated voltage of $U_{B,r}$ = 10 V, to open the brake an over-excitation voltage of 30 V is required.
Adaption of voltage level can be realized on request.

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





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