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Synchronous servo motors with hollow shaft

EZHD

18.1 Overview

Synchronous servo motors with hollow shaft

Features

- Continuous flange hollow shaft for conveying media ✓
- Reinforced A-side bearing for absorbing radial forces ✓
- Reinforced B-side bearing for absorbing axial forces ✓
- High dynamics ✓
- Super compact due to tooth-coil winding method with the highest possible copper fill factor ✓
- Backlash-free holding brake (optional) ✓
- Inductive EnDat absolute encoders ✓
- Elimination of referencing with multi-turn absolute encoders (optional) ✓
- Electronic nameplate for fast and reliable commissioning ✓
- Rotatable plug connectors with quick lock ✓

Torques

M	1.9 – 24.6 Nm
M	2.6 – 31.1 Nm

18.2 Selection tables

The technical data specified in the selection tables applies to:

- Installation altitudes up to 1000 m above sea level
- Surrounding temperatures from -15 °C to $+40\text{ °C}$
- Operation on a STOBBER drive controller
- DC link voltage $U_{ZK} = \text{DC } 540\text{ V}$
- Coating: RAL 9005 Jet black, matte

In addition, the technical data applies to an uninsulated design with the following thermal mounting conditions:

Type	Dimensions of steel mounting flange (thickness x width x height)	Convection surface area Steel mounting flange
EZHD04	23 x 210 x 275 mm	0.16 m ²
EZHD05		
EZHD07	28 x 300 x 400 mm	0.3 m ²

Note the differing ambient conditions in Chapter [▶ 18.7.3](#)

Formula symbols

An explanation of the formula symbols can be found in Chapter [▶ 23.1](#).

Observe the additional information on the following formula symbols:

- I_0 = RMS value of the line-to-line current when stall torque M_0 is generated (tolerance $\pm 5\%$).
- I_{\max} = RMS value of the short-term maximum permitted line-to-line current when maximum torque M_{\max} is generated (tolerance $\pm 5\%$). Exceeding I_{\max} may lead to irreversible damage (demagnetization) of the rotor.
- I_N = RMS value of the line-to-line current when nominal torque M_N is generated at the nominal point (tolerance $\pm 5\%$).
- M_0 = Torque that a motor is continuously able to deliver at a speed of 10 rpm (tolerance $\pm 5\%$). At a speed of 0 rpm, a minor continuous torque has to be taken into account. Contact your STOBBER customer advisor for such an application.

Type	K_{EM} [V/1000 rpm]	n_N [rpm]	M_N [Nm]	I_N [A]	$K_{M,N}$ [Nm/A]	P_N [kW]	M_0 [Nm]	I_0 [A]	K_{M0} [Nm/A]	M_R [Nm]	M_{\max} [Nm]	I_{\max} [A]	R_{U-V} [Ω]	L_{U-V} [mH]	T_{el} [ms]	J [kgm ²]	m [kg]
EZHD0411U	96	3000	1.90	2.36	0.81	0.60	2.60	2.89	1.05	0.44	8.50	16.5	6.70	37.70	5.63	9.35	5.46
EZHD0412U	94	3000	4.20	4.29	0.98	1.3	5.10	4.94	1.12	0.44	16.0	26.5	3.00	21.80	7.26	10.1	6.55
EZHD0414U	116	3000	7.70	6.30	1.22	2.4	8.50	6.88	1.30	0.44	29.0	35.0	1.85	15.00	8.11	11.6	8.55
EZHD0511U	97	3000	3.00	3.32	0.90	0.94	4.10	4.06	1.12	0.44	16.0	22.0	3.80	23.50	6.18	22.3	7.50
EZHD0512U	121	3000	7.00	5.59	1.25	2.2	7.80	6.13	1.34	0.44	31.0	33.0	2.32	16.80	7.24	25.1	8.90
EZHD0513U	119	3000	8.30	7.04	1.18	2.6	10.9	8.76	1.29	0.44	43.0	41.0	1.25	10.00	8.00	27.9	10.3
EZHD0515U	141	3000	14.0	9.46	1.48	4.4	16.4	11.0	1.54	0.44	67.0	52.0	0.93	8.33	8.96	33.6	13.1
EZHD0711U	95	3000	7.30	7.53	0.97	2.3	7.90	7.98	1.07	0.63	20.0	25.0	1.30	12.83	9.87	63.6	13.8
EZHD0712U	133	3000	11.6	8.18	1.42	3.6	14.4	9.99	1.50	0.63	41.0	36.0	1.00	11.73	11.73	72.5	16.2
EZHD0713U	122	3000	17.8	13.4	1.33	5.6	20.4	15.1	1.39	0.63	65.0	62.0	0.52	6.80	13.08	81.4	18.5
EZHD0715U	140	3000	24.6	17.2	1.43	7.7	31.1	21.1	1.50	0.63	104	87.0	0.33	4.80	14.55	100	23.9

18.3 Torque/speed curves

Torque/speed curves depend on the nominal speed and/or winding design of the motor and the DC link voltage of the drive controller that is used. The following torque/speed curves apply to the DC link voltage DC 540 V.

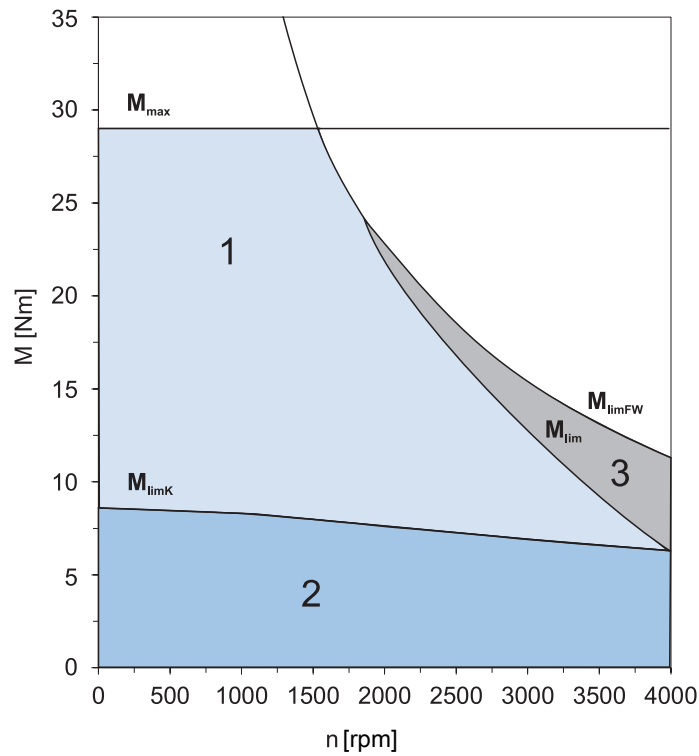


Fig. 1: Explanation of a torque/speed curve

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|---|---|
| <p>1 Torque range for brief operation ($ED_{10} < 100\%$) with $\Delta\vartheta = 100$ K</p> | <p>2 Torque range for continuous operation with constant load (S1 mode, $ED_{10} = 100\%$) with $\Delta\vartheta = 100$ K</p> |
| <p>3 Field weakening range (can be used only with operation on STOBBER drive controllers)</p> | |

