

1.11 Motor Data 8MSA4

1.11.1 Technical Data

	8MSA4S.dd-eeff			8MSA4M.dd-eeff			8MSA4L.dd-eeff			8MSA4X.dd-eeff		
Rated Speed n_N [min ⁻¹]	3000	4500	6000	3000	4500	6000	3000	4500	6000	3000	4500	6000
Rated Torque M_N [Nm]	2.3	1.9	1.2	4.6	4.1	3	6.4	5.6	4.5	8.5	7.5	6
Rated Power P_N [kW]	0.72	0.90	0.75	1.45	1.93	1.88	2.01	2.64	2.83	2.67	3.53	3.77
Rated Current I_N [A]	1.85	2.25	1.75	3.75	4.4	4.25	4.35	5.6	6	6	6.5	7.7
Stall Torque M_0 [Nm]	2.6			5.3			7.5			9.5		
Stalled Current I_0 [A]	1.92	2.76	3.21	4.11	5.34	6.82	4.82	6.98	9.07	6.38	7.76	11.26
Peak Torque M_{max} [Nm]	10.4			21.2			30			38		
Peak Current I_{max} [A]	11.5	16.5	19.6	25.1	32.6	40.9	29.4	41.9	55.3	38.3	46.6	67.6
Maximum Rotational Acceleration without Brake a [rad/s ²]	54737			80000			72289			62810		
Maximum Speed n_{max} [min ⁻¹]	12000			12000			12000			12000		
Torque Constant K_T [Nm/A]	1.36	0.94	0.81	1.29	0.99	0.78	1.56	1.08	0.83	1.49	1.22	0.84
Voltage Constant K_E [V/1000 min ⁻¹]	82	57	49	78	60	47	94	65	50	90	74	51
Stator Resistance R_{2ph} [Ω]	9.6	4.55	3.3	4.2	2.55	1.55	3	1.45	0.87	1.65	1.13	0.59
Stator Inductance L_{2ph} [mH]	41.5	20.5	15	24	14.5	8.9	19.2	9.2	5.6	11.7	7.9	4.1
Electrical Time Constant t_{el} [ms]	4.32	4.51	4.55	5.71	5.69	5.74	6.4	6.34	6.44	7.09	6.99	6.95
Thermal Time Constant t_{therm} [min]	60			64			66			68		
Moment of Inertia without Brake J [kgcm ²]	1.9			2.65			4.15			6.05		
Weight without Brake m [kg]	4.5			5.6			7.7			10.5		

Moment of Inertia for Brake J_{Br} [kgcm ²]	0.54			0.54			0.54			0.54		
Weight of Brake m_{Br} [kg]	0.46			0.46			0.46			0.46		
Holding Torque of the Brake M_{Br} [Nm]	8			8			8			8		

Recommended Cable Cross Section for B&R Motor Cables [mm ²] ¹⁾	1.5			1.5			1.5			1.5		4
Recommended ACOPOS Servo Drive 8Vxxx.00-x ²⁾	1022	1045		1045	1090		1045	1090		1090	1180	

Table 22: Technical data for 8MSA4

- 1) The B&R motor cables with this cable cross section are produced optimally (stripping length) for the recommended ACOPOS servo drives (see next line). B&R motor cables with other cable cross sections can also be used (within the specified terminal cross section range) and can be obtained from B&R in the desired design on request.
- 2) The recommended servo drive is defined for the stall current of the motor; if more than double the stall torque is required during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline, detailed inspection of the corresponding speed - torque characteristic curve can result in deviations of the servo drive size (one size larger or smaller).
The speed - torque characteristic curves shown in the following sections always refer to the smallest recommended servo drive for the motor length!

1.11.2 Speed-Torque Characteristic Curves with 400 VAC Supply Voltage

8MSA4S.dd-eeff

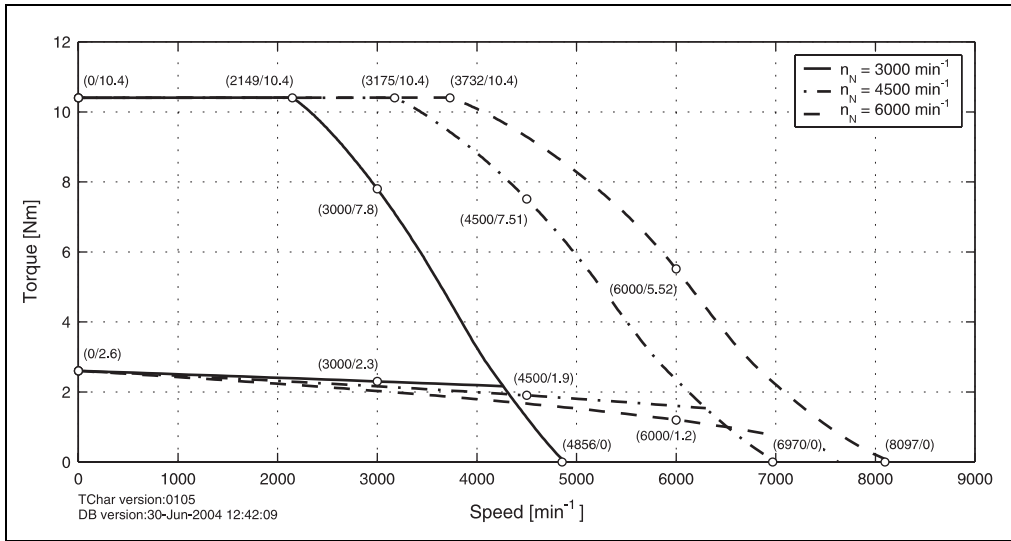


Figure 15: Speed - torque characteristic curve for 8MSA4S.dd-eeff

8MSA4M.dd-eeff

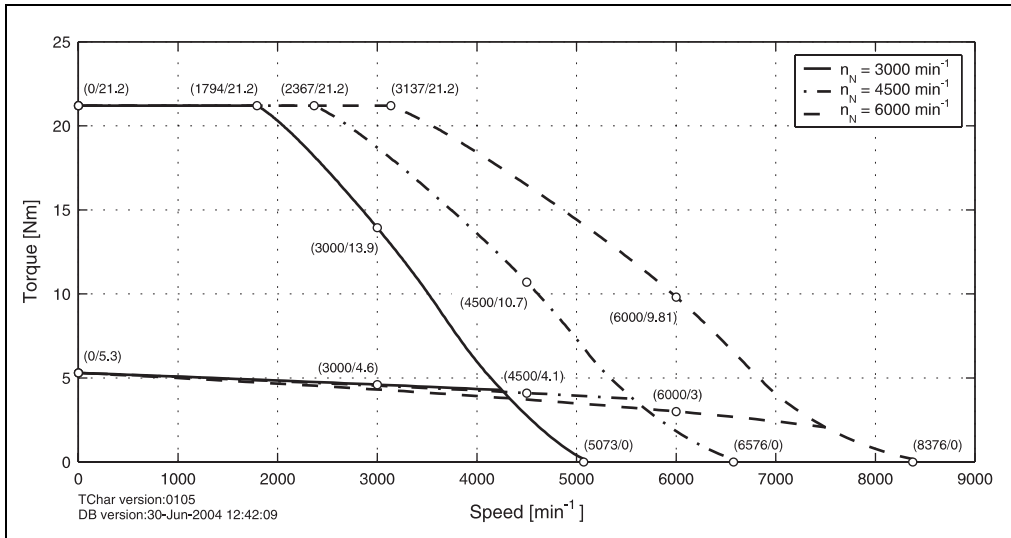


Figure 16: Speed - torque characteristic curve for 8MSA4M.dd-eeff

8MSA4L.dd-eeff

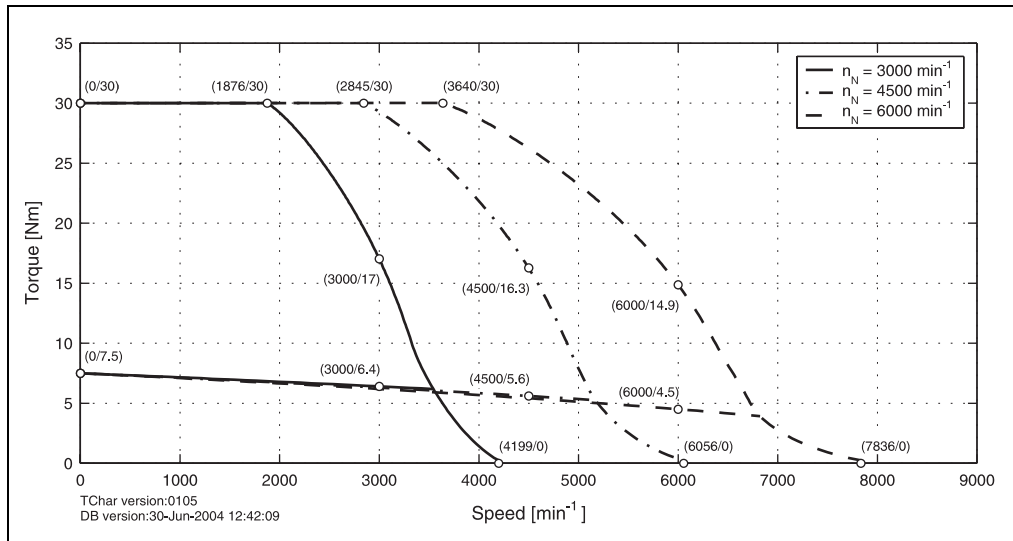


Figure 17: Speed - torque characteristic curve for 8MSA4L.dd-eeff

8MSA4X.dd-eeff

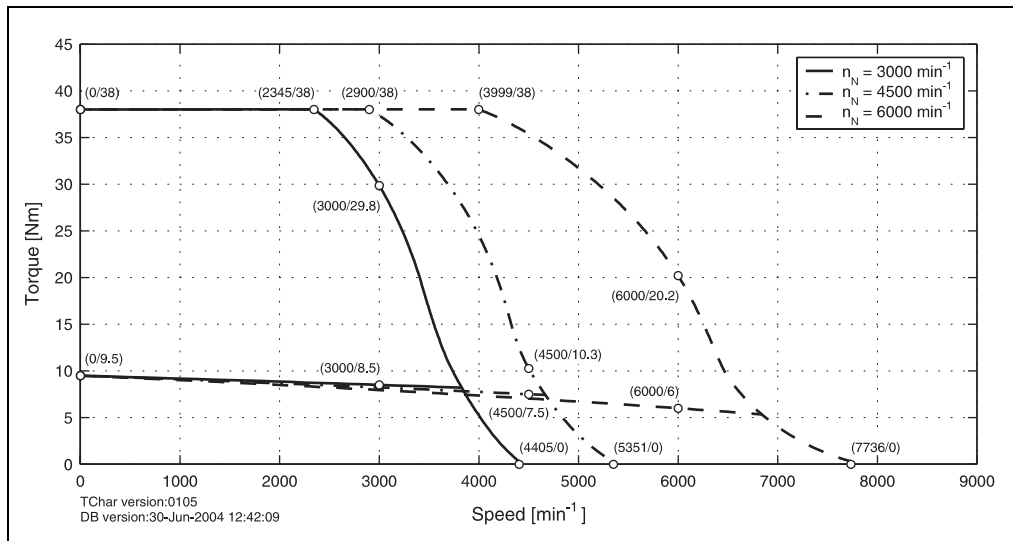


Figure 18: Speed - torque characteristic curve for 8MSA4X.dd-eeff

1.11.4 Maximum Shaft Load

The values in the diagrams below are based on a mechanical lifespan of the bearings of 20,000 operating hours.

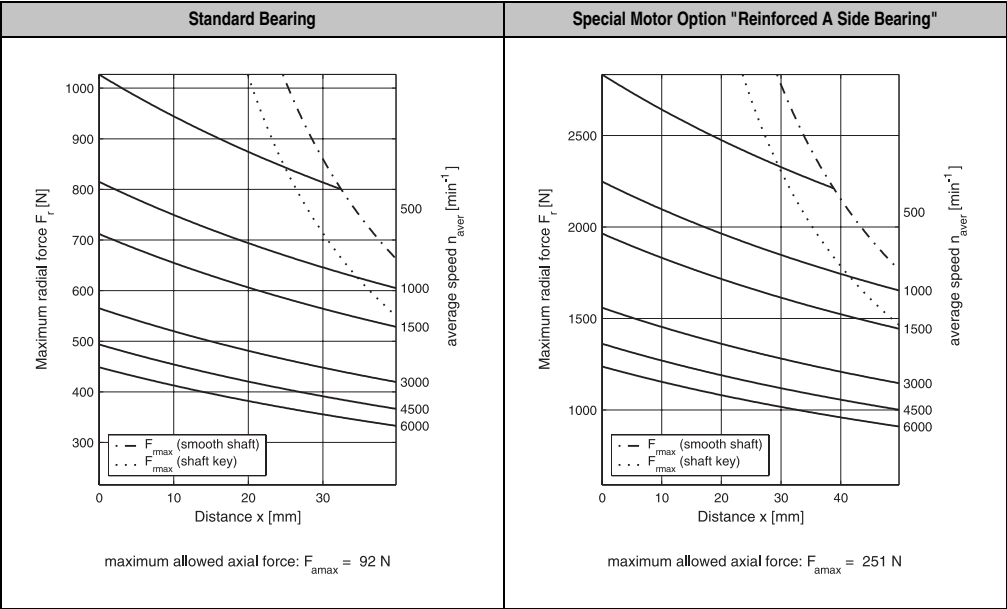


Table 24: Maximum shaft load for 8MSA4