

7. MAC 112

7.1. Technical Data

Designation	Symbol	Unit	Motor type MAC ...			
			112 A - - - Z •	112 B - - - P •	112 C - - - K •	112 D - - - H •
Nominal motor speed ¹⁾	n	min ⁻¹	1500	1500	1500	1500
Continuous torque at standstill ²⁾	M _{dN}	Nm	10.7 (13.0) ⁵⁾	18.2 (29) ⁵⁾	28.0 (44.0) ⁵⁾	38.0 (57.0) ⁵⁾
Continuous current at standstill	I _{dN}	A	14.5 (17.2) ⁵⁾	21.0 (33.0) ⁵⁾	31.0 (49.0) ⁵⁾	42.0 (63) ⁵⁾
Rotor moment of inertia ³⁾	J _M	kgm ²	61 x 10 ⁻⁴	120 x 10 ⁻⁴	170 x 10 ⁻⁴	230 x 10 ⁻⁴
Torque constant at 20 °C	K _m	Nm/A	0.820	0.910	1.000	1.010
Windings resistance at 20 °C	R _A	Ohm	0.990	0.450	0.270	0.176
Windings inductance	L _A	mH	10.0	6.3	4.5	3.2
Maximum peak of pulse current	I _{peak}	A	54	97	141	195
Thermal time constant	T _{th}	min	100 (75) ⁵⁾	90 (60) ⁵⁾	100 (75) ⁵⁾	120 (90) ⁵⁾
Mass ⁴⁾	m _M	kg	25	36	48	59
			112 A - - - V •	112 B - - - L •	112 C - - - H •	112 D - - - F •
Nominal motor speed ¹⁾	n	min ⁻¹	2000	2000	2000	2000
Continuous torque at standstill ²⁾	M _{dN}	Nm	10.5 (13.0) ⁵⁾	17.5 (29) ⁵⁾	27.0 (44.0) ⁵⁾	38.0 (57.0) ⁵⁾
Continuous current at standstill	I _{dN}	A	18.5 (22.9) ⁵⁾	26.3 (43.5) ⁵⁾	41.0 (67.0) ⁵⁾	56.0 (83) ⁵⁾
Rotor moment of inertia ³⁾	J _M	kgm ²	61 x 10 ⁻⁴	120 x 10 ⁻⁴	170 x 10 ⁻⁴	230 x 10 ⁻⁴
Torque constant at 20 °C	K _m	Nm/A	0.630	0.740	0.730	0.760
Windings resistance at 20 °C	R _A	Ohm	0.650	0.260	0.150	0.110
Windings inductance	L _A	mH	6.0	3.5	2.5	1.8
Maximum peak of pulse current	I _{peak}	A	71	130	195	260
Thermal time constant	T _{th}	min	100 (75) ⁵⁾	90 (60) ⁵⁾	100 (75) ⁵⁾	120 (90) ⁵⁾
Mass ⁴⁾	m _M	kg	25	36	48	59
			112 A - - - L •	112 B - - - G •	112 C - - - E •	112 D - - - E •
Nominal motor speed ¹⁾	n	min ⁻¹	3000	3000	3000	3000
Continuous torque at standstill ²⁾	M _{dN}	Nm	9.8 (13.0) ⁵⁾	16.0 (29) ⁵⁾	24.0 (44.0) ⁵⁾	35.0 (57.0) ⁵⁾
Continuous current at standstill	I _{dN}	A	31.0 (41.3) ⁵⁾	41.0 (75.0) ⁵⁾	57.0 (104) ⁵⁾	63.0 (102) ⁵⁾
Rotor moment of inertia ³⁾	J _M	kgm ²	61 x 10 ⁻⁴	120 x 10 ⁻⁴	170 x 10 ⁻⁴	230 x 10 ⁻⁴
Torque constant at 20 °C	K _m	Nm/A	0.350	0.430	0.470	0.620
Windings resistance at 20 °C	R _A	Ohm	0.180	0.090	0.060	0.070
Windings inductance	L _A	mH	1.9	1.2	1.0	1.3
Maximum peak of pulse current	I _{peak}	A	130	223	312	312
Thermal time constant	T _{th}	min	100 (75) ⁵⁾	90 (60) ⁵⁾	100 (75) ⁵⁾	120 (90) ⁵⁾
Mass ⁴⁾	m _M	kg	25	36	48	59
					112 C - - - C •	
Nominal motor speed ¹⁾	n	min ⁻¹			5000	
Continuous torque at standstill ²⁾	M _{dN}	Nm			27.0	
Continuous current at standstill	I _{dN}	A			87.5	
Rotor moment of inertia ³⁾	J _M	kgm ²			170 x 10 ⁻⁴	
Torque constant at 20 °C	K _m	Nm/A			0.330	
Windings resistance at 20 °C	R _A	Ohm			0.030	
Windings inductance	L _A	mH			0.5	
Maximum peak of pulse current	I _{peak}	A			400	
Thermal time constant	T _{th}	min			100	
Mass ⁴⁾	m _M	kg			48	

¹⁾ The usable motor speed is determined by the drive used.

Only those usable speeds n_{max} found in the selection lists of the motor-drive combinations are binding.

²⁾ With 60K overtemperature at the motor housing.

Continuous torque can be limited by the drive. See selection data.

³⁾ With tacho-generator, without holding brake

⁴⁾ With tacho-generator, without holding brake, without blower.

⁵⁾ Parenthetical values apply to versions with surface cooling.

Fig 7.1: Type-dependent motor data

Designation	Symbol	Unit	Data		
Permissible ambient temperature	T_{um}	°C	0 ... + 45		
Permissible storage and transport temperature	T_L	°C	-20 ... +80		
Maximum installation elevation		m	1000 m. above sea level		
Protection category			IP 65		
Insulation classification			F		
Housing coat			Black prime coat (RAL9005)		
Voltage constant of the tachogenerator ¹⁾	C_w	Vs/rad V/min ⁻¹	0.0143 1.5/1000	0.0286 3/1000	0.0572 6/1000 ²⁾

¹⁾ Tachovoltage can be selected application-related.
²⁾ If 6 V/1000 min⁻¹ tachometer is used, then usable speed is limited to 1600 min⁻¹.

Fig 7.2: General data MAC 112

Designation	Symbol	Unit	Data holding brake		
			Standard	heavy-duty ¹⁾ electrically released	extra heavy-duty ¹⁾
Principle of action					
Holding torque	M_H	Nm		40	
Nominal voltage	U_N	V	14	DC 24 ± 10%	60
Nominal current	I_N	A	0.75	1.35	1.35
Moment of inertia	J_B	kgm ²	3.6×10^{-4}	32×10^{-4}	32×10^{-4}
Release delay	t_L	ms	70	150	150
Clamping delay	t_K	ms	30	30	30
Mass	m_B	kg	1.1	3.5	3.5

¹⁾ Not available with MAC 112A .

Fig 7.3: Technical data - holding brake

Designation	Symbol	Unit	Axial cooling	Radial cooling
Power consumption	S_N	VA	40/42	40/42
Nominal voltage	U_N	V	AC 230 or 115 ¹⁾	AC 230 or 115 ¹⁾
Frequency	f	Hz	50/60	50/60
Mass	m_L	kg	approx.. 3.3 ²⁾	approx.. 3.2 ²⁾
Protection category blower unit			IP 24	IP 24
Protection category blower motor			IP 44	IP 44

¹⁾ 115 V special design
²⁾ Blower shroud for motor with tacho feedback.

Fig 7.4: Technical data - surface cooling

7.4. Dimensional data - natural convection

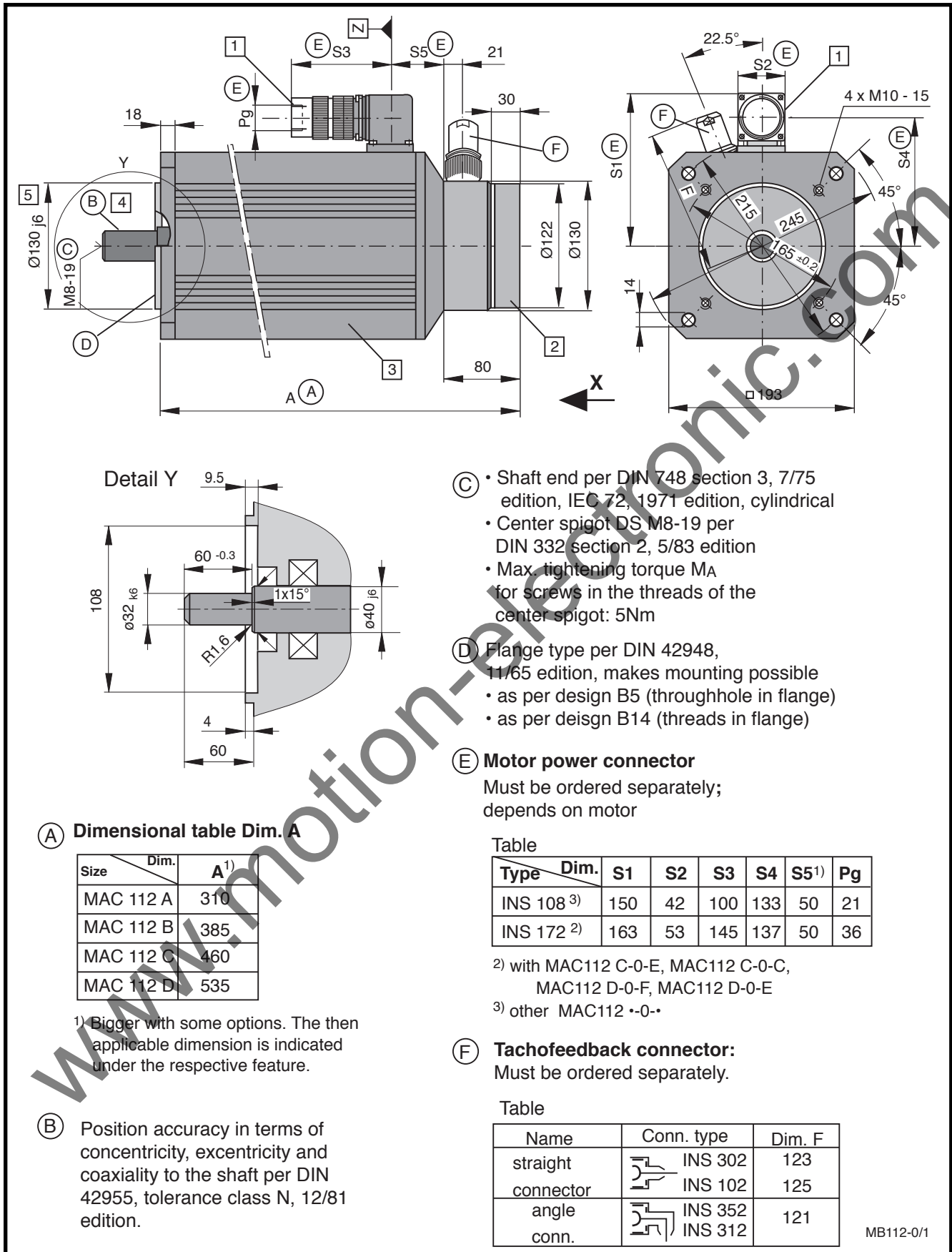


Fig 7.12: Dimensional data - MAC 112 (natural convection)