

42D00249 Data sheet MMA100-5-EM1 (230 V_{AC} / 330 V_{DC}) water cooled



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Version 1.0

42D00249 Data sheet MMA100-5-EM1 (230 V_{AC} / 330 V_{DC})

1 Characteristic operating points

Parameter		Unit	Operation Mode		
			S1	S2	S2
Feasible operation time	t _{on}		continuous	60 s	10 s
Torque	T	[Nm]	80	110	138
Power	P	[kW]	25.1	34.5	43.3
Speed	n	[rpm]	3000	3000	3000
Phase Current	I _{rms}	[A]	77	110	176
Line-Line Voltage	U _{rms}	[V]	224.3	233.5	233.3
Rated Battery Voltage	U _{DC}	[V]	330	330	330
Electric frequency	f _{el}	[Hz]	250	250	250
Efficiency	η	[%]	95	92	89

○ Recommended Inverter (for shown operating points S1 and S2 60 s): Emsiso H10 100-150-450
 ○ Performance data were determined with a thermally decoupled engine and a coolant temperature of 60°C at 10 l/min (Water/Ethylenglycol 50/50)

2 Electrical Data

Parameter	Unit	Value
Phase:		
k _E	[V _{RMS} /krpm]	99.48
k _T	[Nm/A]	0.81
R _{Ph,20}	[Ohm]	0.035
L _d	[mH]	0.45
L _q	[mH]	0.57
Connection		Y

3 Additional Data

Max. Speed	[rpm]	6000
Moment of inertia	[kgm ²]	0.006
Weight	[kg]	25
Protection class		IP67
Thermal class		H
Maximum motor temperature	[°C]	170
S1 motor temperature	[°C]	140
Thermal protection		PTC (Pt1000 on request)
Cooling type		Water cooled
Min flow rate (motor coolant)	[l/min]	10
Rated flow rate (motor coolant)	[l/min]	10
Max flow rate (motor coolant)	[l/min]	30
Pressure drop @ rated flow rate	[bar]	0.02
Coolant		Water/Ethylenglycol 50/50
Max. cooling pressure (motor coolant)	[bar]	3
Coolant max temperature	[°C]	60

For specific details, motor geometry and dimensions please see additional information in interface drawing or product selection guide. If not available please contact customer support under support@moteg.de.

4 Efficiency map

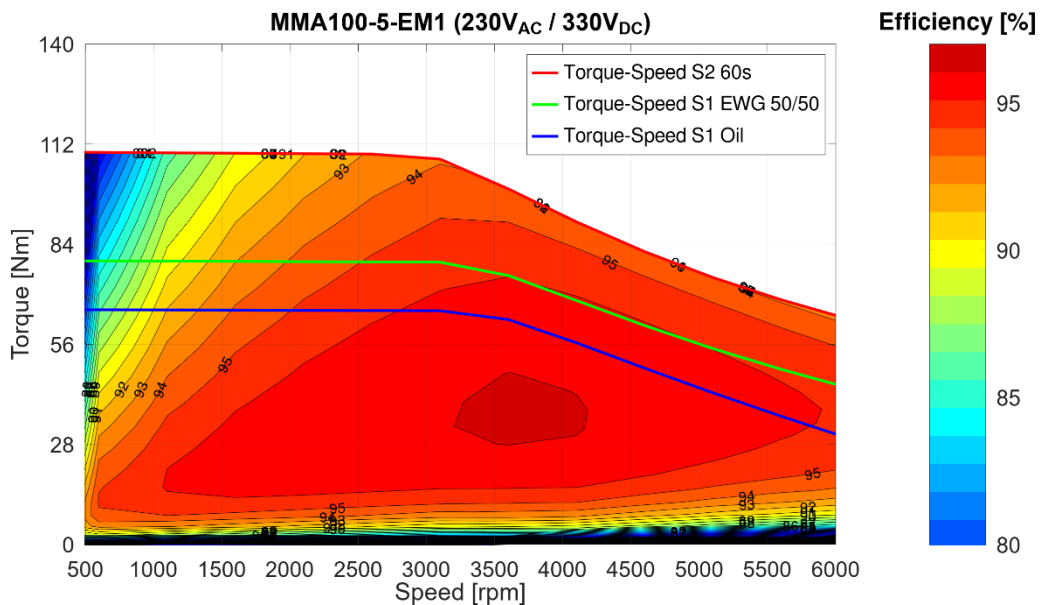


Figure 1 Efficiency map and Torque Speed curves

- o Recommended Inverter (for shown efficiency map): Emsiso H10 100-150-450
- o Performance data were determined with S1-temperatures with $U_{DC} = 330$ V, with a thermally decoupled engine and a coolant temperature of 60°C at 10 l/min (Water/Ethylenglycol 50/50)

5 Specified characteristics (according to DIN EN 60349-4)

Simulation of curves at 150°C average winding temperature and 100°C magnet temperature

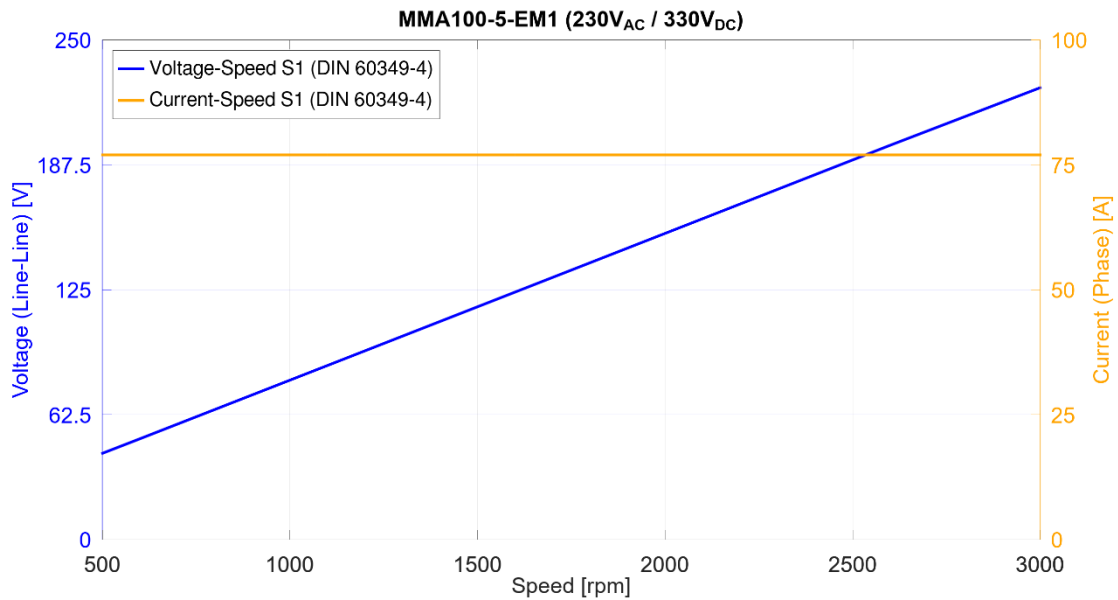


Figure 2 Phase voltage and current over speed (DIN EN 60349-4)

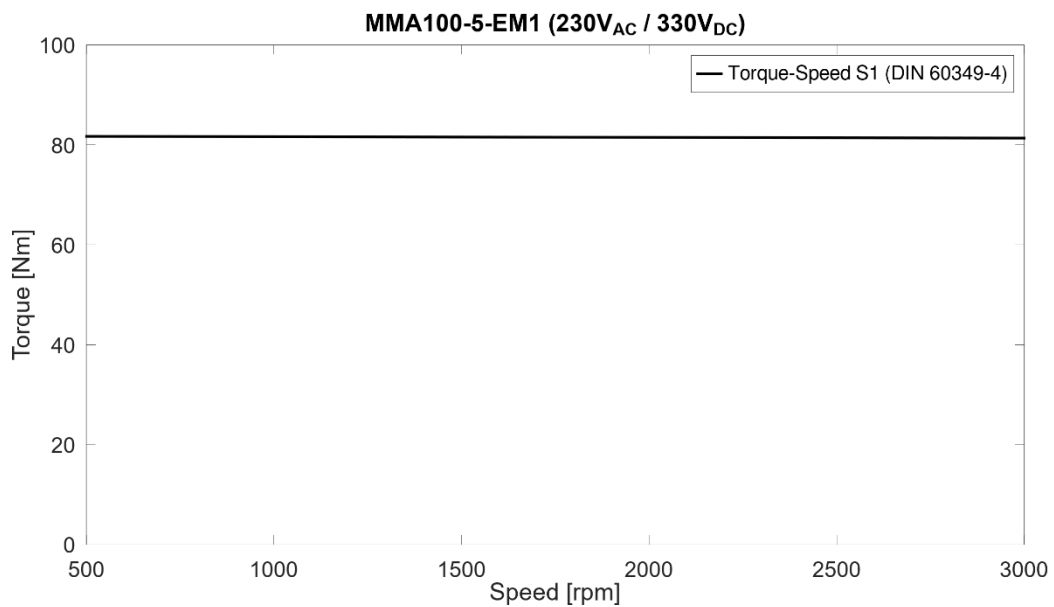


Figure 3 Torque-Speed curve S1 (DIN EN 60349-4)