

MMA100-5-FA1

34V_{AC} / 48V_{DC}

LIQUID COOLED ELECTRIC MOTORS



PRODUCT DATASHEET

CHARACTERISTIC OPERATING POINTS

Parameter		Unit	Operation Mode		
			S1	S2	S2
Feasible operation time	t_{on}		continuous	60 s	10 s
Torque	T	[Nm]	108.6	150	200
Power	P	[kW]	17	15.7	21
Speed	n	[rpm]	1500	1000	1000
Phase Current	I_{rms}	[A]	352	515	785
Line-Line Voltage	U_{rms}	[V]	33.9	29.2	28.8
Rated Battery Voltage	U_{DC}	[V]	48	48	48
Electric frequency	f_{el}	[Hz]	125	83.33	83.33
Efficiency	η	[%]	91.9	83	75

- Recommended Inverter (for shown operating points): Poclairn emDrive L30
- Performance data were determined with a thermally decoupled engine and a coolant temperature of 60°C at 10 l/min (Water/Ethylenglycol 50/50)

ELECTRICAL DATA

Parameter	Unit	Value
Phase:		
k_E	$[V_{RMS}/krpm]$	12.4
k_T	[Nm/A]	0.308
$R_{Ph,20}$	[Ohm]	0.002583
L_d	[mH]	0.03534
L_q	[mH]	0.04318
Connection		Y

ADDITIONAL DATA

Max. Speed	[rpm]	6000
Moment of inertia*	[kgm ²]	0.007
Weight*	[kg]	32
Protection class		IP67
Thermal class		H
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 [Network | Poclairn](#).

*: Weight and moment of inertia may vary with shaft type

EFFICIENCY MAP

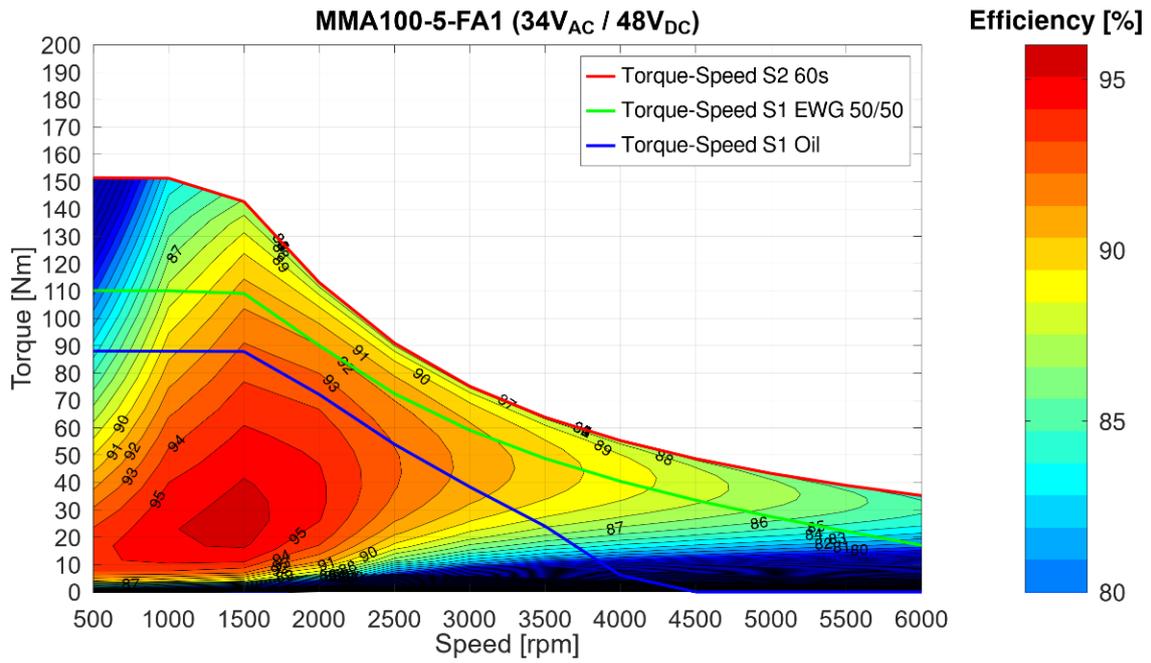


Figure 1 Efficiency map and Torque Speed curves

- o Recommended Inverter (for shown efficiency map): Poclain emDrive L30
- o Performance data were determined with S1-temperatures with $U_{DC} = 48\text{ V}$, with a thermally decoupled engine and a coolant temperature of 60°C at 10 l/min (Water/Ethylenglycol 50/50)

SPECIFIED CHARACTERISTICS (ACCORDING TO DIN EN 60349-4)

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

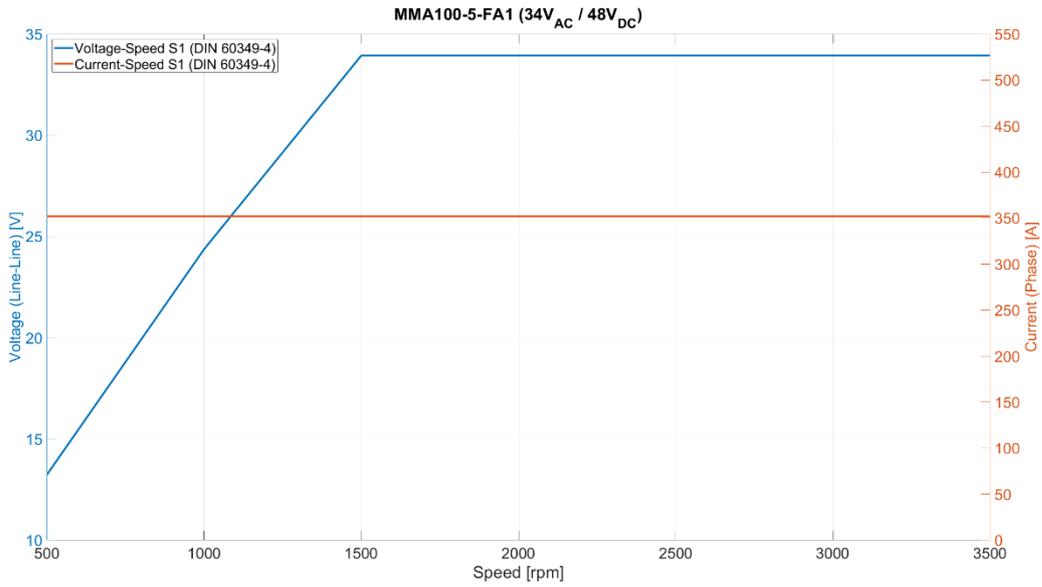


Figure 2 Phase voltage and current over speed (DIN EN 60349-4)

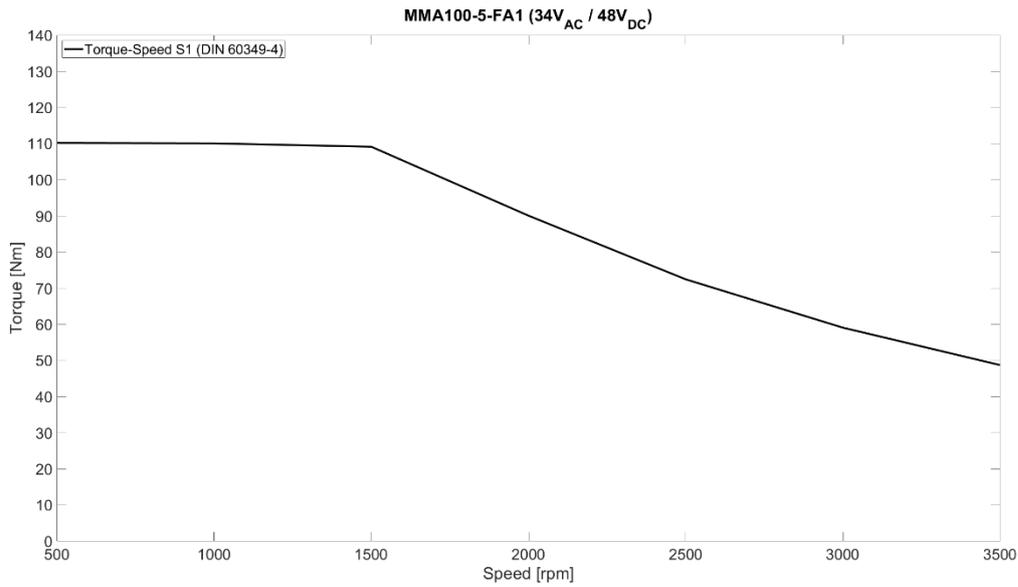


Figure 3 Torque-Speed curve S1 (DIN EN 60349-4)



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