

**42D00324 Data sheet MMA100-5-FA1 (68 V<sub>AC</sub> / 96 V<sub>DC</sub>)**



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## 42D00324 Data sheet MMA100-5-FA1 (68 V<sub>AC</sub> / 96 V<sub>DC</sub>)

### 1 Characteristic Performance Data

| Parameter                   | Unit                | Value |
|-----------------------------|---------------------|-------|
| S1 Torque (max.)            | [Nm]                | 116.4 |
| S1 Current (max.)           | [A <sub>RMS</sub> ] | 368.1 |
| S1 Base Speed               | [rpm]               | 3000  |
| S1 Torque at base speed     | [Nm]                | 95.8  |
| S1 Power at base speed      | [kW]                | 30.1  |
| S1 Efficiency at base speed | [%]                 | 95.4  |
| Max. Torque (S2 60s)        | [Nm]                | 173.1 |
| Max. Current (S2 60s)       | [A <sub>RMS</sub> ] | 630   |
| Max. Speed                  | [rpm]               | 6000  |
| Instant Torque (30s)        | [Nm]                | 159   |
| Instant Speed               | [rpm]               | 2500  |

- Recommended Inverter (for shown performance data): Emsiso L50 500-800-120
- Performance data were determined with S1-temperatures with UDC = 96 V, with a thermally decoupled electrical machine and a coolant temperature of 60°C at 10 l/min (Water-Ethylenglycol 50-50)

### 2 Electrical Data

| Parameter          | Unit                     | Value    |
|--------------------|--------------------------|----------|
| k <sub>E, ph</sub> | [V <sub>RMS</sub> /krpm] | 12.52    |
| k <sub>T</sub>     | [Nm/A]                   | 0.316    |
| R <sub>Ph,20</sub> | [Ohm]                    | 0.002497 |
| L <sub>d</sub>     | [mH]                     | 0.038    |
| L <sub>q</sub>     | [mH]                     | 0.046    |
| Connection         |                          | Y        |

### 3 Additional Data

| Parameter                             | Unit    | Value                           |
|---------------------------------------|---------|---------------------------------|
| Weight                                | [kg]    | 28.7                            |
| Protection class                      |         | IP67                            |
| Thermal class                         |         | H                               |
| Maximum motor temperature             | [°C]    | 170                             |
| S1 motor temperature                  | [°C]    | 140                             |
| Thermal monitoring                    |         | PT1000                          |
| Cooling type                          |         | Liquid 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 / Oil |
| 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](mailto:support@moteg.de).

### 4 Efficiency map

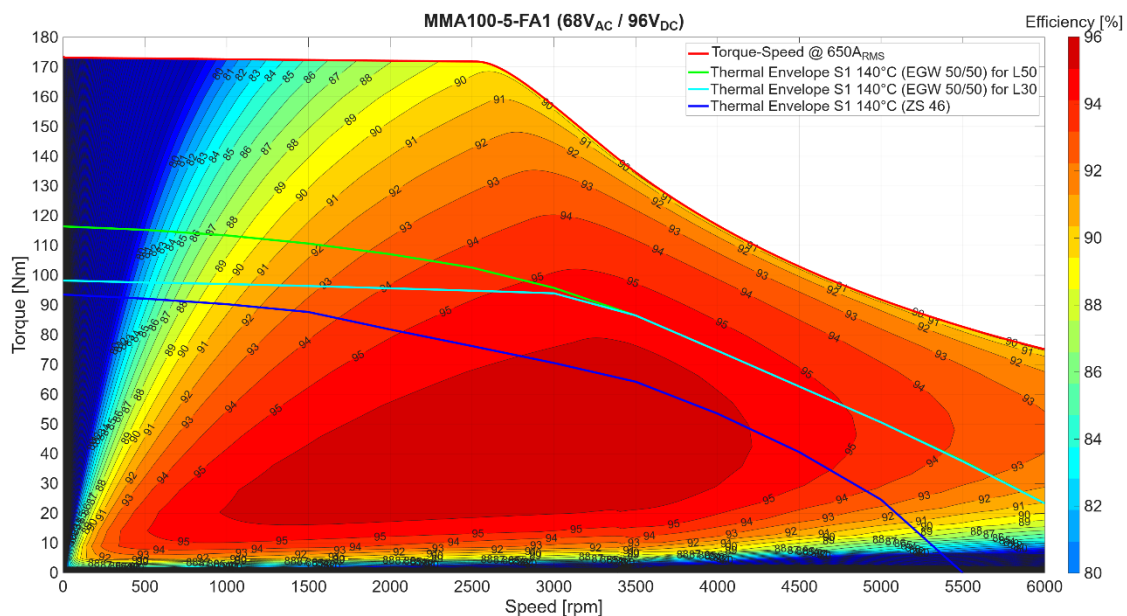
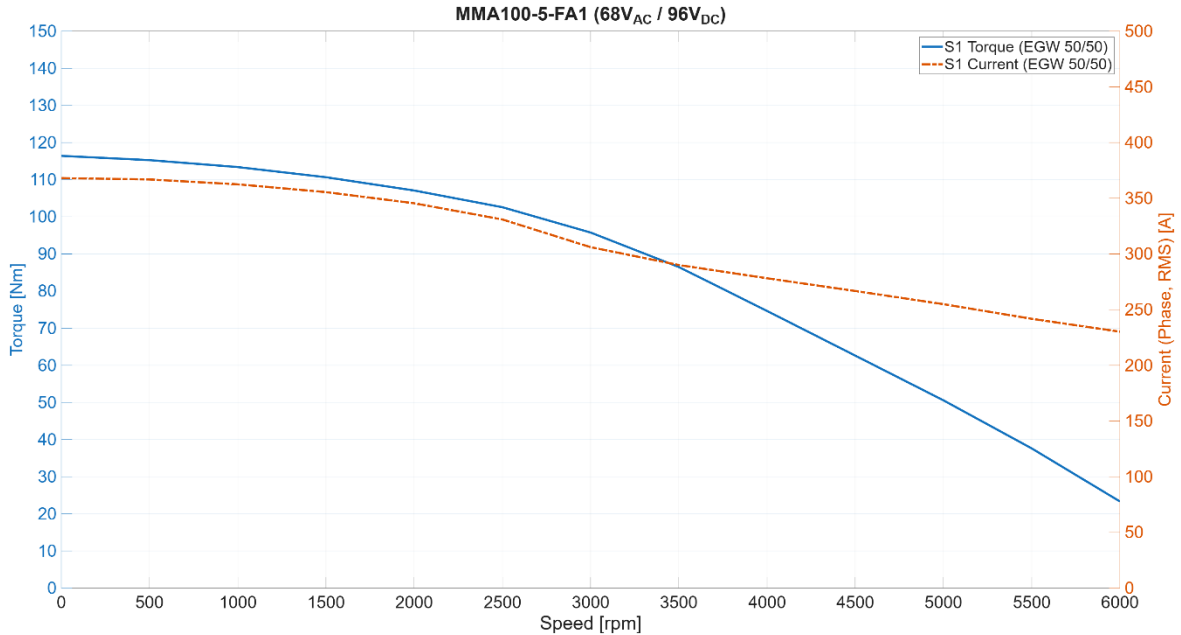


Figure 1 Efficiency map and Torque Speed curves

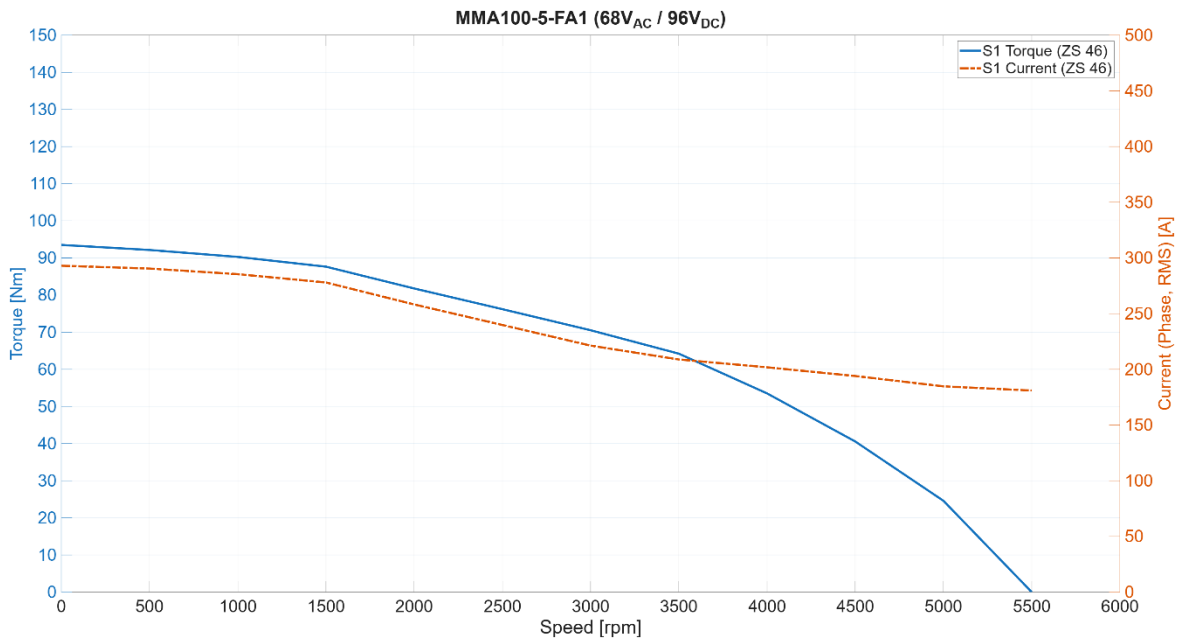
- o Recommended Inverter (for shown efficiency map): Emsiso L50 500-800-120 / L30 300-450-120
- o Performance data were determined with S1-temperatures with  $U_{DC} = 96$  V, with a thermally decoupled electrical machine and a coolant temperature of 60°C at 10 l/min (Water-Ethylenglycol 50-50) or Oil (Equisis ZS 46) respectively

## 5 Thermal Envelope S1 140°C (Water-Ethylenglycol 50-50)



- o Thermal Envelope for S1 (140°C) performance was determined with  $U_{DC} = 96$  V, with a thermally decoupled electrical machine and a coolant temperature of 60°C at 10 l/min (Water-Ethylenglycol 50-50)

## 6 Thermal Envelope S1 140°C (Oil: Equivis ZS 46)



- o Thermal Envelope for S1 (140°C) performance was determined with  $U_{DC} = 96$  V, with a thermally decoupled electrical machine and a coolant temperature of 60°C at 10 l/min (Oil: Equivis ZS 46)

## 7 Specified characteristics (according to DIN EN 60349-4)

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

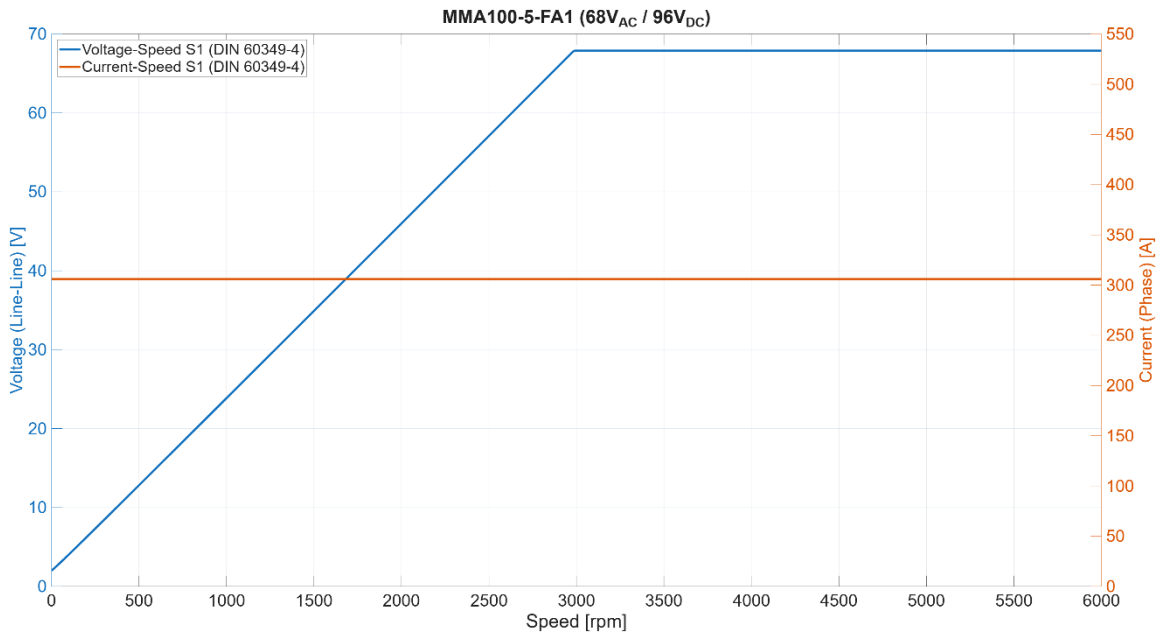


Figure 2 Phase voltage and current over speed (DIN EN 60349-4)

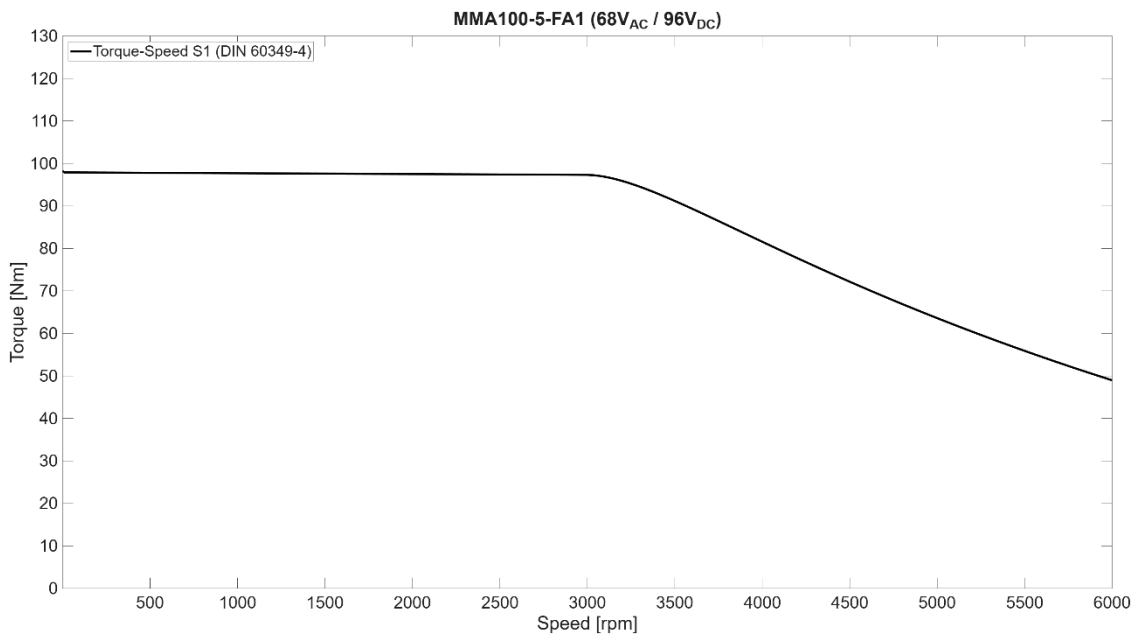


Figure 3 Torque-Speed curve S1 (DIN EN 60349-4)