

AC INDUCTION MOTOR DATA SHEET

General Specification

Model number	M800006
Outline dimension drawing	see figure 4
Nameplate data (1)	See figure 5
Rated frequency	50 Hz
Motor Location	Indoor
Altitude	Less than 1000 meters
Relative humidity	Less than 90%
Ambient Temp	40 degrees C (Max)
Duty Type	Continuous
Weight (approx.)	1.68 Kg
Inertia (approx.)	0.0766 mNm/Rad/sec ²
Friction torque (approx.)	8 mNm
Coupling method	Direct (2)
Terminal connection	Three phase cable (color coded)

Performance Data (1)

Rated Output	13.6 W
Number of poles	4
Rotor type	Squirrel Cage
Rated Voltage (line to line)	14.7 RMS
Maximum continuous phase current	0.91 RMS
Peak phase current : full load	1.83 A
Peak phase current: locked rotor	3.31 A
Efficiency: 50 % load	66 %
Efficiency :75 % load	61 %
Efficiency 100% load	49 %
Power factor (p.u) : 50 % load	0.60
Power factor (p.u) : 75 % load	0.75
Power factor (p.u) : 100 % load	0.82
Speed at full load	1121 RPM
Torque: full load	116 mNm
Torque : locked rotor	109 mNm

- (1) Based on a linear four parameter model with measured parameters and connected to a 14.7V RMS/50Hz AC supply
- (2) Adaptor plate can be used to connect to the www.ti.com/tool/2MTR-DYNO see figure 3

Performance data based on measured parameters of a typical machine are given in figure 1

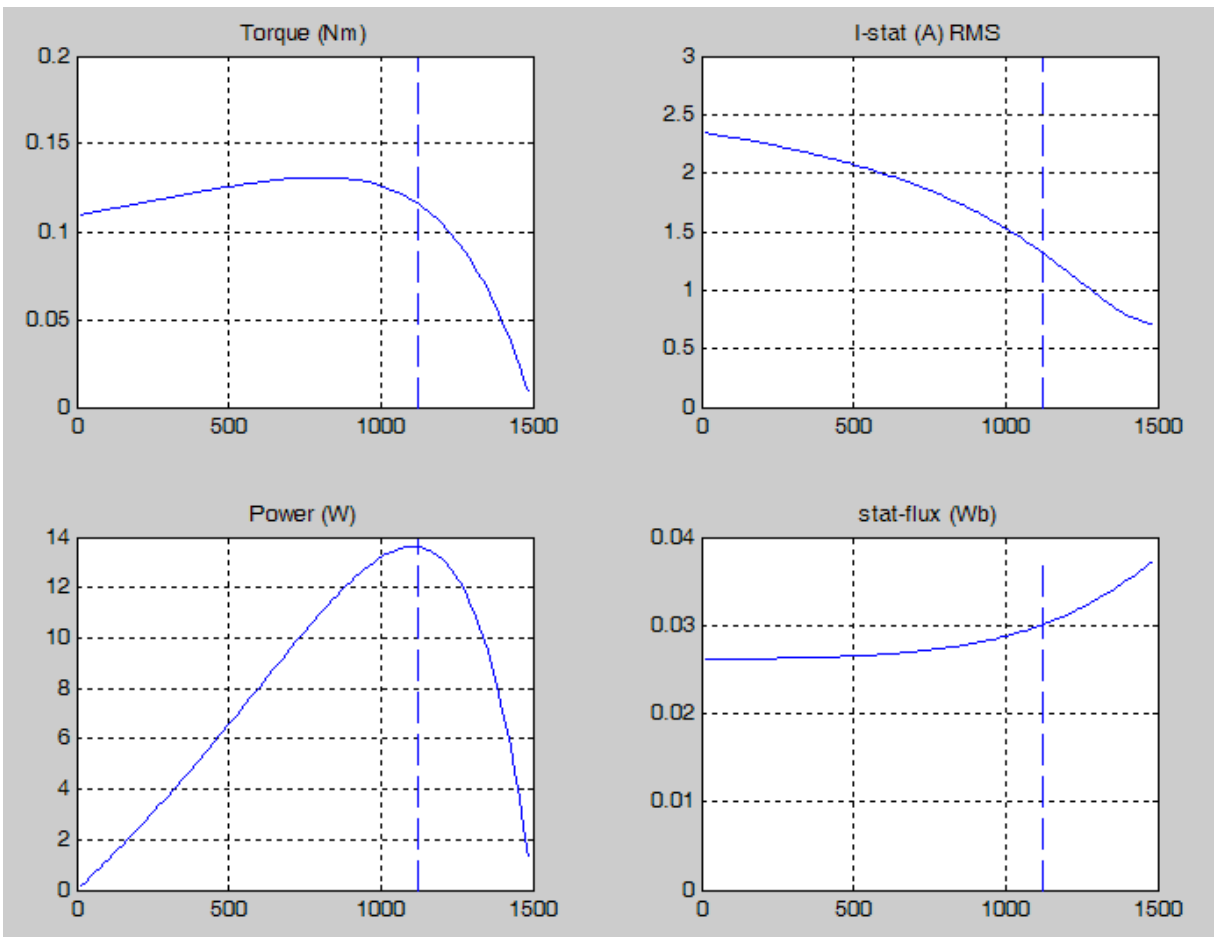


Figure 1 Steady state performance data (1) at nominal voltage

Operation under FOC

When operating the machine with a three phase converter the following limits (3) are typically used

Minimum DC bus voltage	21 V
Nominal DC bus voltage	24 V
Maximum DC bus voltage	27 V

(3) Theoretical value based on the use of SVM and rated voltage

A typical magnetization curve showing the rotor flux (4) as function of the direct axis current is given in figure 3. The linear function is used to provide an estimate for the magnetizing inductance. This is used to calculate the performance data shown above.

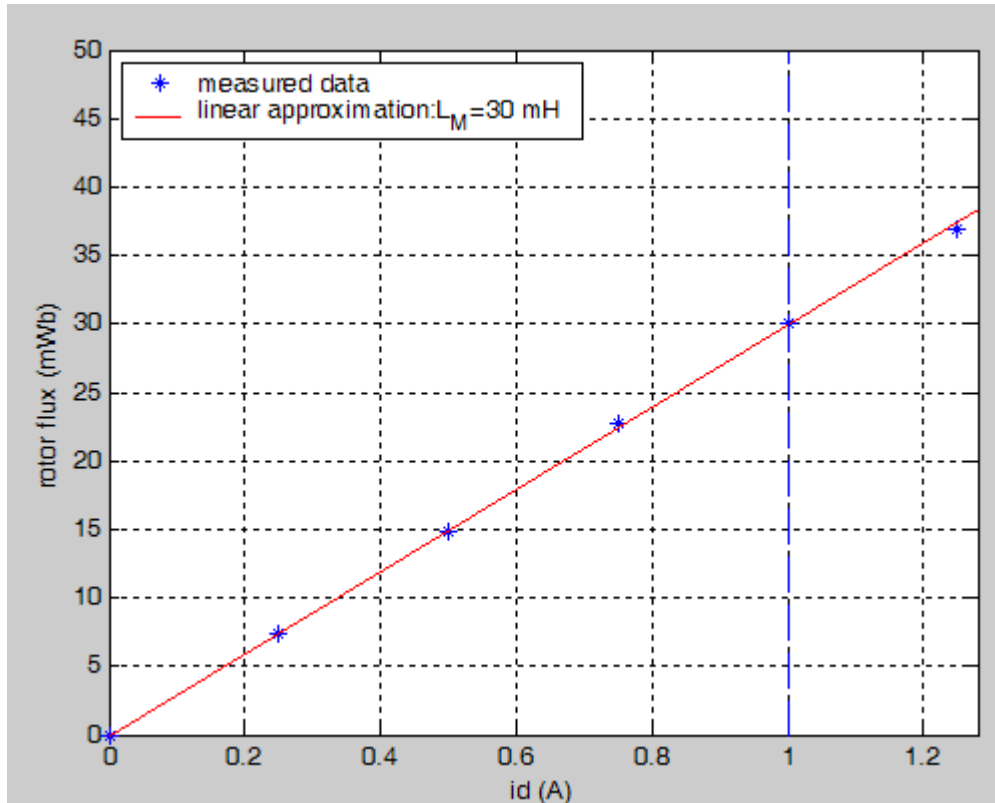


Figure 2 Typical magnetization curve, measured under field oriented control conditions at a speed of 300 RPM

(4) Rotor flux value based on the use of a four parameter model.

When operating the machine under FOC the following limits are typically used

Maximum RMS phase current	1.3 A
Nominal Direct axis current (Id)	1.08 A
Maximum Direct axis current (Id_max)	1.83 A (quadrature current zero)

USER_MOTOR for MotorWare user.h

```
#elif (USER_MOTOR == LVACIMTR)
#define USER_MOTOR_TYPE          MOTOR_Type_Induction
#define USER_MOTOR_NUM_POLE_PAIRS    (2)
#define USER_MOTOR_Rr              (1.05)
#define USER_MOTOR_Rs                (1.79)
```

```
#define USER_MOTOR_Ls_d      (0.00681)
#define USER_MOTOR_Ls_q      (USER_MOTOR_Ls_d)
#define USER_MOTOR_RATED_FLUX  (0.24) //(0.8165*14.7/50.0) = 0.24 V/Hz
#define USER_MOTOR_MAGNETIZING_CURRENT (1.08)
#define USER_MOTOR_RES_EST_CURRENT  (0.3)
#define USER_MOTOR_IND_EST_CURRENT  (NULL)
#define USER_MOTOR_MAX_CURRENT      (1.83)
#define USER_MOTOR_FLUX_EST_FREQ_Hz (10.0)
```

Adaptor plate

An adaptor plate is used to mechanically connect the machine to one axis of the www.ti.com/tool/2MTR-DYNO via the mounting frame



Outline of Dimensions

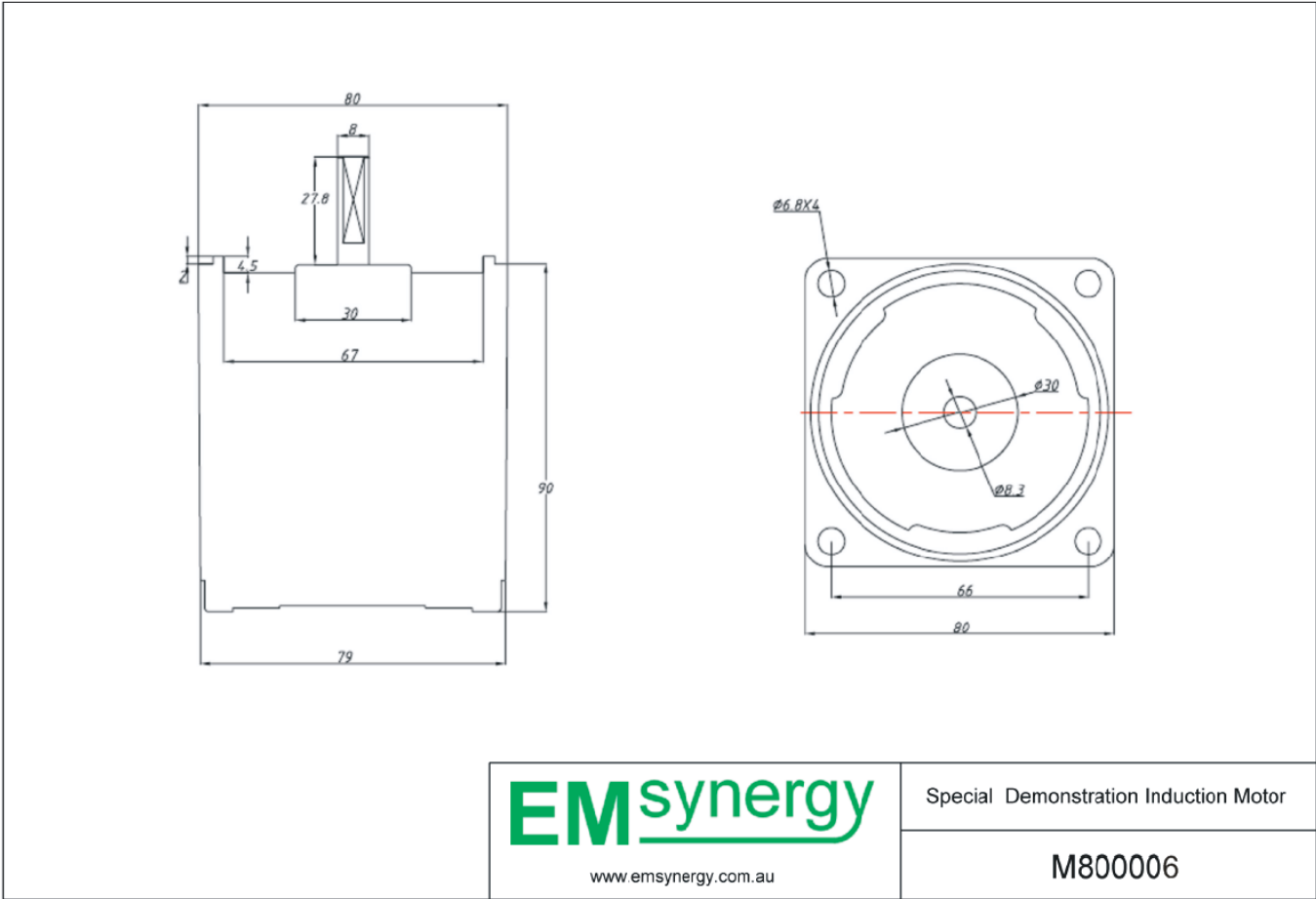


Figure 3 Outline Dimensional Drawing



Figure 43 Nameplate data

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