EMsynergy

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 Peak phase current: locked rotor	1.83 A 3.31 A
Efficiency: 50 % load Efficiency :75 % load Efficiency 100% load	66 % 61 % 49 %
Power factor (p.u) : 50 % load Power factor (p.u) : 75 % load Power factor (p.u) : 100 % load	0.60 0.75 0.82
Speed at full load	1121 RPM
Torque: full load Torque : locked rotor	116 mNm 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

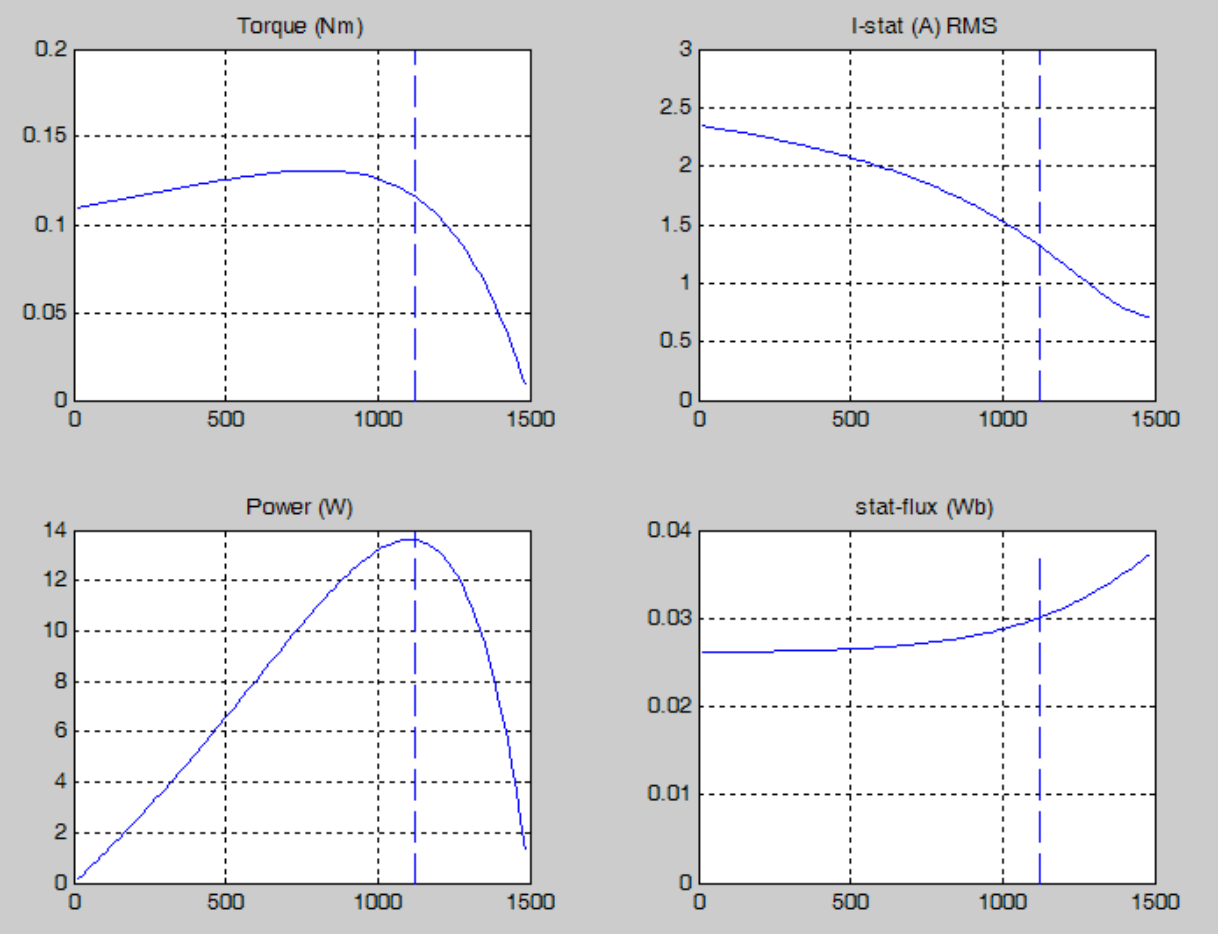

Figure 1 Steady state performance data (1) at nominal voltage

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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.

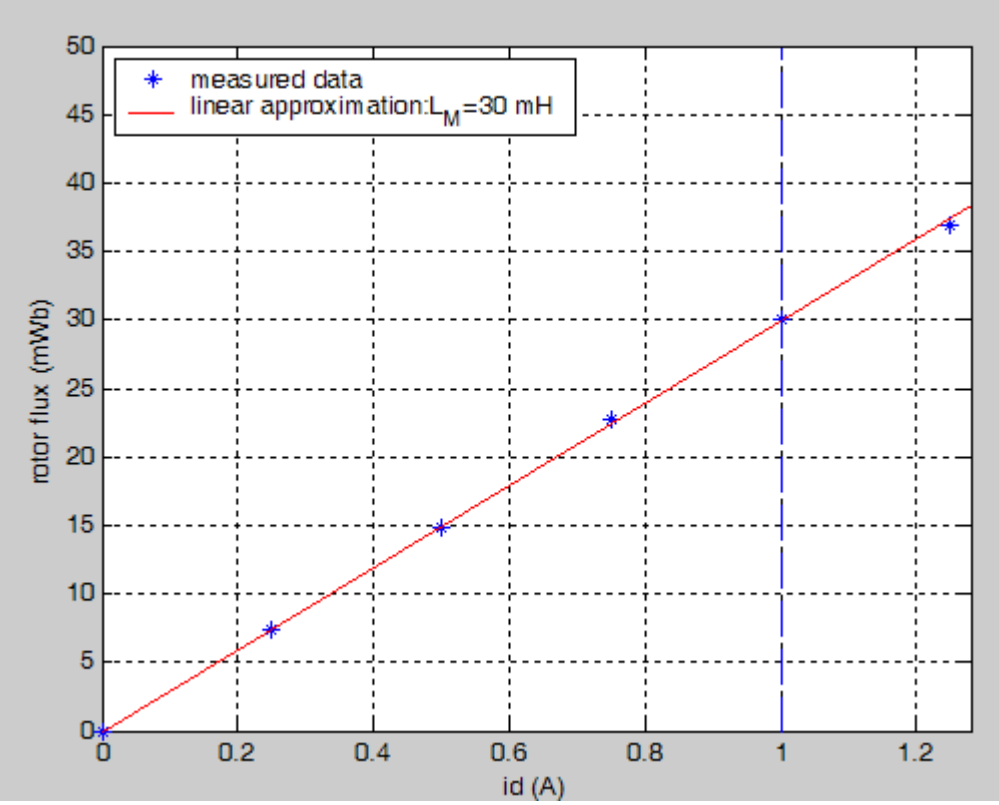

Figure 2 Typical magnetization curve, measured under field oriented control conditions at a speed of 300 RPM

(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 adapter 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

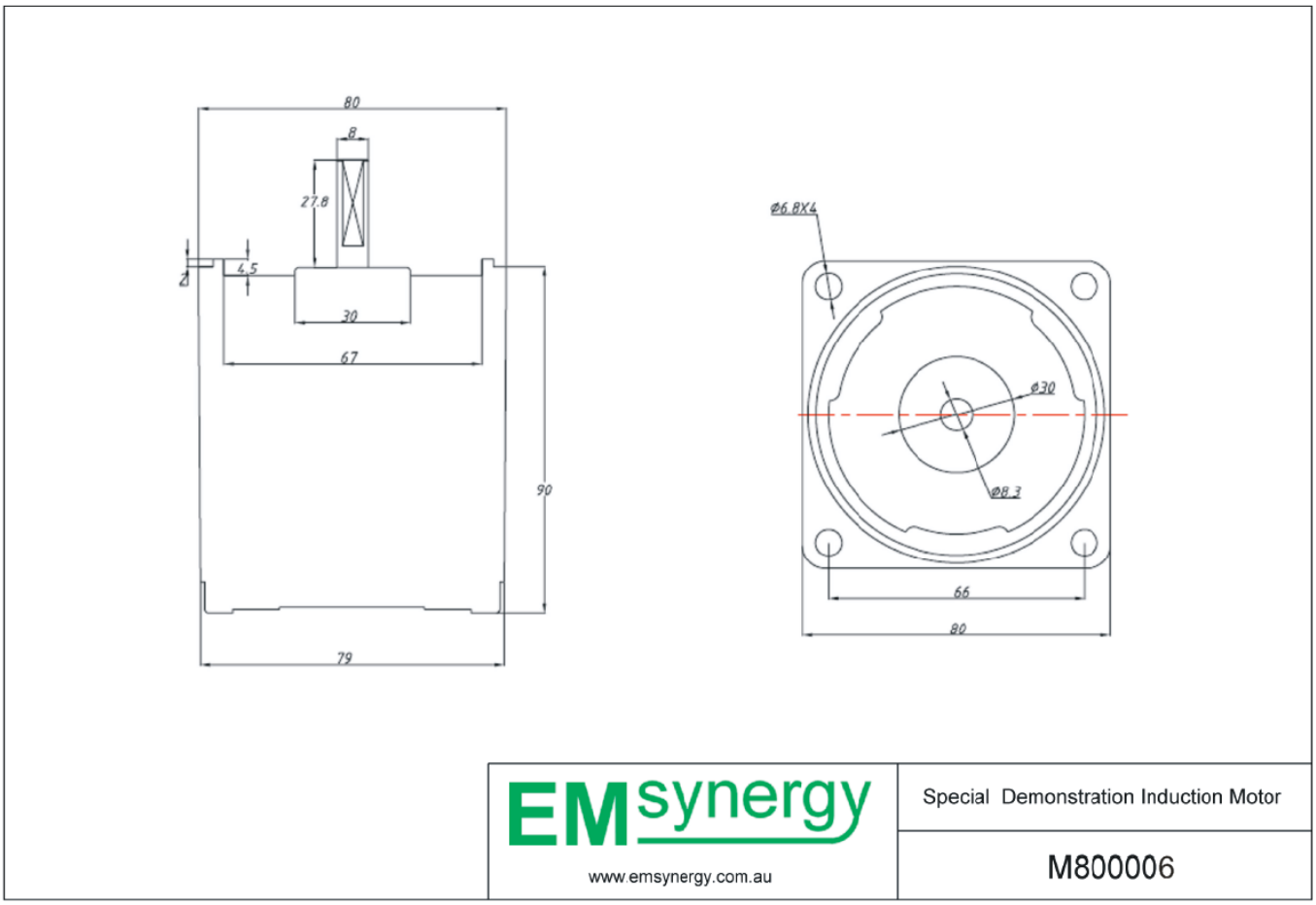

Figure 3 Outline Dimensional Drawing

Figure 43 Nameplate data

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