

STANDARD AND SPECIFICATION

All TECO motors are manufactured in accordance with the following standards:

TITLES	IEC
General	IEC 60034-1 / IEC 60085
Dimension/ Outputs	IEC 60072
Starting	IEC 60034-12
Terminal Designation	IEC 60034-8
Construction	IEC 60034-7
Thermal Protection	IEC 60034-11
Voltage	IEC 60038
Cooling	IEC 60034-6
Vibration	IEC 60034-14
Protection	IEC 60034-5

PRODUCT CODE

When placing orders, please specify the model code to avoid unnecessary miscommunication.

Model Code	Frame Type	Mounting	Frame Size
AEEVUK	Cast Iron	B3	80-355
AEUVUK	Cast Iron	B5 or V1	80-355
AEEVUP	Cast Iron	B35	80-355
AEAVUK	Aluminium	B3	63-132
AEGVUK	Aluminium	B5 or V1	63-132
AEAVUP	Aluminium	B35	63-132

* External support required for F# 315 & 355 for B5 mounting

ELECTRICAL

Standard motors have the design and operating parameters as follows, any variation from this, performance alteration is expected according to the information given in this section.

Voltage : 400V / 50Hz
 Ambient Temperature : 40 degree Celsius
 Operation Altitude : up to 1000m
 Duty Cycle : S1 (Continuous)
 Rotation : Clockwise viewed from drive end

Voltage and Frequency

The motor can be supplied with wide range of rated voltage with tolerance of +/- 10% in accordance to IEC 60038.

Standard stock items with operating voltage ranging as follows:

Rated kW	Voltage Range
≤ 2.2	220-240V / 380-415V for 50Hz
≤ 2.2	220-240V / 380-480V for 60Hz *
≥ 3	380-415V for 50Hz
≥ 3	380-440V for 60Hz *

* Performance variation as per multiplier listed below if supplied with different voltage and cycle. (In term of performance at 400V/ 50hz)

Supply [Volt/Hz]	Starting Torque	Rated Torque
380 / 50	0.9	1.01
400 / 50	1	1
415 / 50	1.07	0.99
380 / 60	0.61	0.84
440 / 60	0.81	0.82
480 / 60	0.95	0.81

Rated output / Insulation and Temperature Rise

TECO motors have class F insulation. Motor temperature is class B, 80 degree Celsius, above an ambient temperature of 40 degree Celsius, and at an altitude of less than 1000 meters above sea level.

If any deviation of the above mentioned operating parameters, the maximum output should be deviated from rated output according to the table as shown.

Altitudes from sea level (m)	Ambient Temperature (°C)			
	<30	40	50	60
1000	1.08	1	0.94	0.82
2000	1	0.94	0.82	0.79
3000	0.94	0.82	0.79	0.71
4000	0.82	0.79	0.71	0.65

Variable Speed Driven

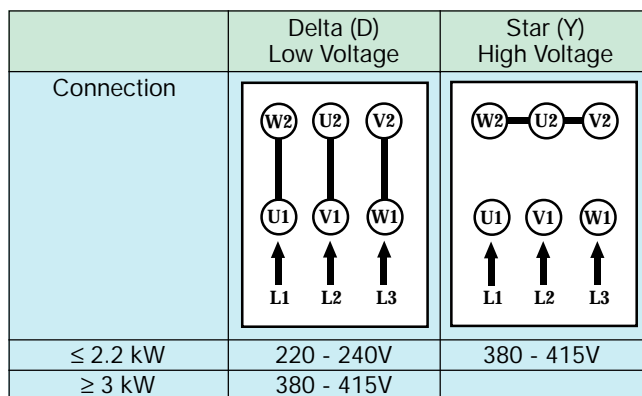
Driven under variable speed drive, special care has to be taken on the selection of drive and necessary filter in order to meet the acceptance level of the motor at time rise of 3200V/μs and maximum voltage of 2000VAC. However, maximum speed of rotation is limited to its mechanical capability (refer to mechanical section)

Speed Range With VFD

TECO motor allow the user to operate the motor with 30 Hz to 50Hz range of frequency supply under VFD for constant torque application. For variable torque application, wider range allowed from 20Hz to 50Hz.

Connection Diagram

TECO Standard motor having connection method as shown.



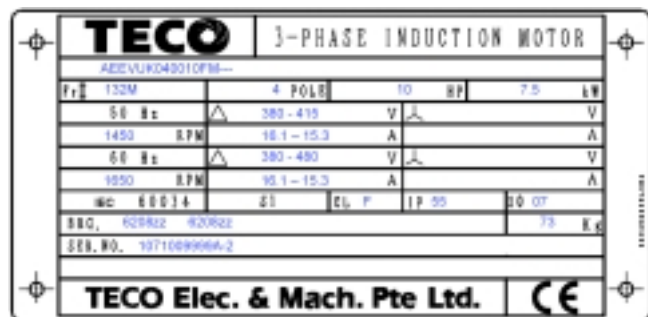
Note :

- Above diagram shows the connection of DOL starting of the motor at 220-240V or 380-415V. For Star-delta starting, you have to remove all the terminal links at star and delta connection and connect the six wires from the star-delta starter to the terminals U1, V1, W1, U2, V2, W2 respectively.
- Standard production motors 2.2kW and smaller can be used for DOL starting at 220-240V and 380-415V. But they can only be used for star-delta starting at voltage 220-240V because they are wound 220-240V in delta. 3kW and larger can be used at 380-415V DOL starting and also 380-415V star-delta starting because they are wound 380-415V in delta.

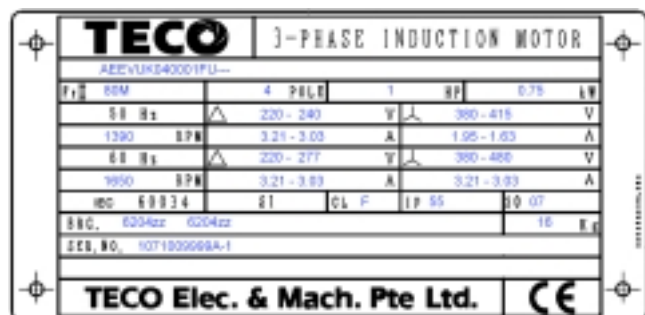
Nameplate

Motor nameplate is made of stainless steel to prevent rust and corrosion.

Sample Nameplate for motor $\leq 2.2\text{kW}$



Sample Nameplate for motor $\geq 3\text{kW}$



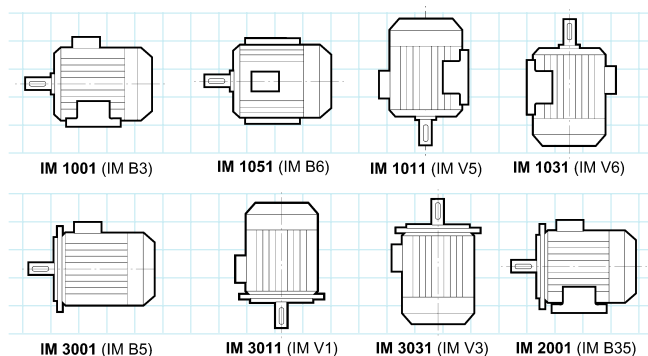
MECHANICAL

Construction

Standard motor is IC411, TEFC (Totally Enclosed Fan Cooled). TENV (Totally Enclosed Natural Ventilated) type is available on request. Frames, end shields and terminal boxes of cast iron enclosure motors are manufactured from high grade cast iron. The motor cooling fans are for bi-directional rotation and are made of polypropylene or fabricated steel material.

4, 6 and 8 pole motors up to and including 280 frame, and all 2 pole motors (frame 63-355) are fitted with polypropylene fan, while 4, 6 and 8 pole motors 315 frame and above are fitted with fabricated steel fan. The fan cover is made of pressed steel. The rotor is manufactured from pressure die cast aluminium.

Mounting Arrangement



Degree of protection

Standard motor is of IP55 protection. IP56 is available on request. IP56 is for protection against heavy seas or water projected in powerful jets. Canopy is recommended for motor which is installed outdoors and is subjected to solar radiation from exposure to direct sunlight or downpour of rain. All standard motors are fitted with two drain plugs at the lowest point of the motor enclosure for water drainage purpose. End user should drain off the water periodically if there is any condensation inside the motor.

Cooling & Ventilation

All TEFC type motors are fitted with external fan for ventilation purpose. The airflow is from non-drive end to drive end. In case of variable speed driven, independent forced cooling fan is recommended for constant torque application lower than 30Hz supply and variable torque application lower than 20Hz supply.

Balancing & Vibration

The rotors of TECO motors are dynamically balanced with a half key on the shaft extension. Coupling or pulley must be appropriately balanced before fitting onto the motor shaft. The vibration velocity magnitude in mm/s (r.m.s.) shall not exceed the limits specified in the following table when measured under free suspension mounting condition.

Limits of maximum vibration velocity mm/s (r.m.s.) for free suspension mounting condition.

Speed RPM	Frame Size		
	56 - 132	160 - 280	315 and above
600 - 3600	1.6 mm/s	1.8 mm/s	2.8 mm/s

Terminal Box

Terminal boxes are with one or two cable entries with dimensions as shown below. Cast iron frame sizes 132 and smaller only have one cable entry. Cast iron frame 160 and above and all aluminium frames have two cable entries. For those Terminal boxes with two cable entries, one is supplied with cable gland and the other one closed with threaded cover (ready for use if required).

FRAME SIZE	CAST IRON TYPE		ALUMINIUM TYPE	
	CABLE ENTRY HOLE SIZE	No. OF HOLES	CABLE ENTRY HOLE SIZE	No. OF HOLES
63	-	-	M16 x 1.5	2
71	-	-	M20 x 1.5	2
80	M20 x 1.5	1	M20 x 1.5	2
90	M20 x 1.5	1	M20 x 1.5	2
100	M20 x 1.5	1	M20 x 1.5	2
112 - 132	M25 x 1.5	1	M25 x 1.5	2
160 - 180	M32 x 1.5	2	-	-
200	M50 x 1.5	2	-	-
255	M50 x 1.5	2	-	-
250 - 280	M63 x 1.5	2	-	-
315	M63 x 1.5	2	-	-
355	M72 x 2.0	2	-	-