

Annexure-1: Technical specification of 30 kW Induction motor

Application: The required induction motor intended to use for a test set-up to establish the control software for e-mobility application. Hence, the induction motor should be of electric vehicle application with high speed of operations. The induction motor should be designed to be supplied from the PWM inverter with the operating frequency ranging from 0 Hz to 335 Hz.

Sl. No.	Particulars	Requirements
1	Type	Three phase AC Induction Motor
2	Standard	IS/IEC 60034-1
3	Rating (kW)	30 kW continuous at 0.8 PF
4	No. of poles	4
5	Ambient condition	40°C
6	Humidity	20% to 99% during operation
7	Altitude	≤ 1000M
8	Direction of rotation	Bidirectional
9	Insulation class / Temp. rise	Class 'H' / class 'F'
10	Mounting	IM1001 (B3)
11	Protection	IP 55
12	Cooling	IC 416 (Forced cooling), 1-Ph or 3-Ph motor fan has to be used for cooling.
13	Frame / Type	160 / ML
14	DC link voltage of inverter	600V (DC)
15	Voltage at the motor terminals	415 ± 5% V (AC), PWM voltage
16	No. of phases	3 Phase
17	Rated Frequency / Rated Speed	Min 50 Hz / Min 1500 rpm
18	Max. Frequency / Max. Speed	(335 Hz / 10000 rpm) +/- 10%
19	Voltage Input to the motor	The motor should be designed to take pulse width modulation AC output with 600V pulse super imposed on fundamental frequency of 0Hz to 335 Hz.
20	Rated Torque	Has to be mentioned, should be greater than 70 Nm.
21	Max. Torque	Maximum torque at a particular speed has to be mentioned in the offer
22	Duty	Short time (S2) - 30 Minutes
23	Stator winding connections / no. of leads	All the six terminals of the winding has to bring out for making it either star or delta.
24	Efficiency and power factor	At different loadings (100%, 75%, and 50%) and at a power factor, the efficiency has to be mentioned in the offer.
25	Temperature detectors	1 No. of 3-wire RTD for winding
26	Weight	The approximate weight has to be mentioned in the offer.

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27	Speed sensing	Hall Effect Sensor or any other sensing mechanism (to measure the speed and the direction of motor rotation) has to be mounted while delivering the motor.
	General	
28	Drawings	The drawings has to be submitted within 14 days from the placement of purchase order for approval.
29	Motor Parameters	The motor design values (stator leakage inductances, stator resistance, rotor leakage inductances, rotor resistance, magnetic inductance and rotor inertia) has to be submitted before delivering the machine with the test results.
30	Inspection	The Inspection at vendor premises may or may not be carried out based on the test reports submitted before dispatching
31	Delivery	Should be delivered within three months from the date of approving the drawings.
32	Warranty	Minimum of 18 months from the date of receipt of the motor at Corporate R&D.