

Laboratory	Advanced Motor Test Centre, Siemens Limited, Motor Works- Kalwa, Thane - Belapur Road, Thane, Maharashtra		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electrical Testing	Issue Date	14.11.2014
Certificate Number	T-3183	Valid Until	13.11.2016
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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
I.	ROTATING ELECTRICAL MACHINE			
1	3 Phase Induction Motors IS 325, 3 Phase Energy Efficient Squirrel cage induction motors – IS 12615 & Rotating Electrical Machines – IEC 60034-1	Resistance measurement of Stator winding Temperature rise test at rated Voltage & Frequency	IS 325: 1996 Cl.22.3.1 IS 4029: 2010 Cl. 7.2 by Voltmeter-Ammeter method IS 12615: 2011 Cl. 19.2 IEC 60034-2-1:2007 Cl.5.7 IS 325: 1996 Cl.14 IS12802:1989 Cl. 5.2 Resistance method IS12802:1989 Cl. 5.8 for Bearing temperature measurement IS 12615: 2011 Cl. 19.7 IEC 60034-1: 2010 Cl. 8.4	Resistance : 0.002 Ω to 200 Ω Least Count: 0.001 Ω Temperature 15 °C to 40 °C / LC 0.1 °C Input Power: 30 W to 3000 kW LC 0.001 W Voltage 10 V to 12000 V LC 0.1 V (at 40 to 72 Hz) Current 0.2A to 3000A LC 0.01 A (at 40 Hz to 72 Hz) Power factor (cos φ) 0.03 to 1.00 LC 0.001 Speed 60 rpm to 4600 rpm LC 0.1 rpm Frequency 40 Hz to 72 Hz LC 0.01 Hz Resistance: 0.002 Ω to 200 Ω / 0.001 Ω Temperature 15°C to 150 °C / LC 0.1 °C

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	3 Phase Induction Motors IS 325, 3 Phase Energy Efficient Squirrel cage induction motors – IS 12615 & Rotating Electrical Machines – IEC 60034-1	Load test to determine efficiency, power factor and slip	IS 325: 1996 Cl. 23.5 IS 4029:2010 Cl. 8.8 Dynamometer method IS 12615: 2011 Cl. 19.6 IEC 60034-2-1:2010 Cl. 6.3 ≤ 1 kW Motors Cl. 6.4 >1 kW Motors	Input Power 30 W to 3000 kW LC 0.001 W Voltage: 10 V to 12000 V LC 0.1 V (at 40 Hz to 72 Hz) Current 0.2A to 3000A LC 0.01 A (at 40 Hz to 72 Hz) Power factor (cos ϕ) 0.03 to 1.00 LC: 0.001 Speed: 60 rpm to 4600 rpm LC: 0.1 rpm Frequency: 40 Hz to 72 Hz LC: 0.01 Hz Torque: 0.5 Nm to 20000 Nm LC: 0.1 Nm Output Power: 30 W to 3000 kW LC: 0.001 W Temperature 15 °C to 150 °C / LC: 0.1 °C

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	3 Phase Induction Motors IS 325, 3 Phase Energy Efficient Squirrel cage induction motors – IS 12615 & Rotating Electrical Machines – IEC 60034-1	Momentary overload test at 1.6 times rated torque for 15 Sec.	IS 325: 1996 Cl. 13.1.1 IS 12615: 2011 Cl. 19.8 IEC 60034-1: 2010 Cl.9.4	Input Power 30 W to 3000 kW LC: 0.001 W Voltage: 10 V to 12000 V LC: 0.1 V (at 40 Hz to 72 Hz) Current 0.2 A to 3000 A LC: 0.01 A (at 40 to 72 Hz) Power factor (cos ϕ) 0.0 3to 1.00 LC: 0.001 Speed: 60 rpm to 4600 rpm LC: 0.1 rpm Frequency: 40 Hz to 72 Hz LC 0.01 Hz Torque: 0.5 Nm to 20000 Nm LC: 0.1 Nm Output Power: 30 W to 3000 kW LC: 0.001 W

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	3 Phase Induction Motors IS 325, 3 Phase Energy Efficient Squirrel cage induction motors – IS 12615 & Rotating Electrical Machines – IEC 60034-1	Reduced Voltage running up test on no load.	IS 325: 1996 Cl. 23.2 IS 12615: 2011 Cl. 19.4	Voltage: 10 V to 12000 V LC 0.1 V (at 40 Hz to 72 Hz)
		No load test	IS 325: 1996 Cl. 23.1 IS 12615: 2011 Cl. 19.3 IEC 60034-1: 2010 Cl. 9.1	Input Power: 30 W to 3000 kW LC: 0.001 W Voltage: 10 V to 12000 V LC: 0.1 V (at 40 Hz to 72 Hz) Current: 0.2A to 3000 A LC: 0.01 A (at 40 Hz to 72 Hz) Power factor: (cos ϕ) 0.03 to 1.00 LC 0.001 Frequency: 40 Hz to 72 Hz LC 0.01 Hz
		Measurement of Vibration severity during no load running	IS 325: 1996 Cl. 15 IS 12075:2002 IS 12615: 2011 Cl. 19.11 IEC 60034-14:2003 Cl. 7.3	Vibration: 0.2 mm/s to 10 mm/s LC 0.1 mm/s
		Over speed test at 1.2 times rated RPM for 120 Seconds	IS 325: 1996 Cl. 26 IS 12615:2011 Cl. 19.15 IEC 60034-1:2010	Frequency 40 Hz to 72 Hz LC: 0.01 Hz 60 rpm to 6000 rpm L: 0.1 rpm

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	3 Phase Induction motors IS 325, 3 Phase Energy Efficient Squirrel cage induction motors – IS 12615 & Rotating Electrical Machines – IEC 60034-1	Locked rotor test	IS 325: 1996 Cl. 23.4	Input Power: 30 W to 3000 kW LC: 0.001 W Voltage: 10 V to 12000 V LC: 0.1 V (at 40 Hz to 72 Hz) Current: 0. 2A to 3000 A LC: 0.01 A (at 40 Hz to 72 Hz) Power factor: (cos ϕ) 0.03 to 1.00 LC 0.001 Frequency: 40 Hz to 72 Hz LC 0.01 Hz Torque: 0.5 Nm to 20000 Nm LC: 0.1 Nm Speed: 60 rpm to 4600 rpm LC: 0.1 rpm
		a) Locked Rotor test at a voltage that will produce rated current.	IS 4029: 2010 Cl. 8.3	
		b) Locked Rotor Torque Test at suitable reduced voltages using Dynamometer method	IS 12615: 2011 Cl. 19.5 IEC 60034-1	
		Insulation resistance test	IS 325: 1996 Cl.25 IS 4722:2001 Cl.30.2 IS 12615:2011 Cl. 19.9 IS 7816:1975 Cl.7	Insulation Resistance: 100 k Ω to 1T Ω (0.5 kV to 5 kV) / LC: 1 k Ω
		High voltage test	IEC 60034-1: 2010 Cl. 9.2 IS 325: 1996 Cl. 24	Voltage 0.5 kV to 30 kV / LC: 0.01 kV

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	3 Phase Induction Motors IS 325, 3 Phase Energy Efficient Squirrel cage induction motors – IS 12615 & Rotating Electrical Machines – IEC 60034-1	Polarization Index test	IS 4029:2010 Cl. 6 IS 12615: 2011 Cl. 19.10 IEC 60034-1: 2010 Cl. 9.2	Polarization Index: 0.1 to 10 / LC: 0.1
			IS 325: 1996 Cl.25 IS 4722:2001 Cl.30.2 IS 12615:2011 Cl. 19.9 IS 7816:1975 Cl.8.5 IEC60034-1: 2010	
		Shaft Voltage measurement test	IS 4029:2010 Cl. 9 IS 12615: 2011 Cl. IEC60034-1: 2010	Voltage: 10 mV to 5000 mV / LC: 1 mV
		Noise Test	IS 325: 1996 Cl. 22.3.1 IS 12065:1987 Cl.3 IS 12615: 2011 Cl. 19.12 IS 12065:1987 Cl.3	Frame size: 63 to 630 Noise 60 dB to 114 dB (A) / LC 0.1 dB Speed: 60 rpm to 4600 rpm LC: 0.1 rpm Input Power: 30 W to 3000 kW LC: 0.001 W

