

Laboratory **Standard Testing Association & Research Centre, Plot No. 150, GIDC, Motipura, NH-8, Himmatnagar, Sabarkantha, Gujarat**

Accreditation Standard **ISO/IEC 17025: 2005**

Certificate Number **TC-7574**

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Validity **12.07.2018 to 11.07.2020**

Last Amended on **10.10.2018**

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
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ELECTRICAL TESTING

I.	ROTATING ELECTRICAL MACHINES			
1.	Submersible Pump Sets (0.37 kW to 100 kW) (up to 600 V)	Marking/Rating Plate	IS 8034, Clause No. 16	Qualitative
		Surface Finish Test/ Bearing or Roughness Testing	IS 8034, Clause No. 6.4.1	0.05 µm to 10 µm
		Water Temperature	IS 8034, Clause No. 7.1.1.3	20 °C to 50 °C
		Flow	IS 8034 Clause No. 14.1 Clause No. 15 IS 11346 Clause No. 3.1.1	Upto 16000 LPS
		Head	IS 8034 Clause No. 14.1.3	0.01 m to 50 m
		Electrical Power	IS 8034 Clause No. 14.1.4	0.37 kW to 100 kW (45 Hz to 70 Hz)
		Speed	IS 11346 Clause No. 3.2.4.3	Upto 3600 rpm
		Balancing of Impeller/ Rotor	IS 9283:2013 Clause No. 5.6 IS 8034 Clause No. 6.4.2	0.1 g to 5 kg (2 to 50 kg)
		Hydrostatic Test	IS 8034, Clause No. 9.1	Qualitative
		Direction of Rotation	IS 8034, Clause No. 10	Qualitative
		Insulation Resistance	IS 8034 Clause No. 7.1 & 7,2 IS 9283 Clause No. 16.1 & 16.2 IS 9283, Clause No. 21	0.1 MΩ to 500 MΩ 500 Volt/1000 Volt
		High Voltage	IS 8034 Clause No. 7.1 & 7,2 IS 9283 Clause No. 16.1 16.2 IS 9283	Qualitative

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			Clause No.20	
		Stator Resistance	IS 8034 Clause No. 7.1 & 7,2 IS 9283 Clause No.16.1 & 16.2	1 $\mu\Omega$ to 19.99 k Ω
		No Load Test at Rated Voltage	IS 8034 Clause No. 7.1 & 7,2 IS 9283 Clause No. 16.1 & 16.2	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Reduced Voltage Running Up Test At No Load	IS 8034 Clause No. 7.1 & 7,2 IS 9283 Clause No. 16.1 & 16.2	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Locked Rotor	IS 8034, Clause No. 7.1 IS 9283 Clause No. 16.1 & 16.2	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Momentary Overload	IS 8034 Clause No. 7.1 IS 9283 Clause No. 16.1 & 16.2	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Temperature Rise At Rated Voltage	IS 8034 Clause No 7.1.1.1 IS 9283 Clause No. 16.1 & 16.2	(-) 50 °C to 300 °C Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Temperature Rise At Reduced Voltage	IS 8034 Clause No. 7.1.1.2 IS 9283 Clause No. 16.1 & 16.2	(-) 50 °C to 300 °C Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW

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				(45 Hz to 70 Hz) Upto 3600 rpm
		Submersible Cable	IS 8034, Clause No 8	Up to 5000 mm
		Typical Installation	IS 8034, Clause No 11	Upto 600 mm
		Voltage & Frequency variation	IS 8034, Clause No.7 IS 9283, Clause No 6.2	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Constructional Features	IS 8034, Clause No. 6	Qualitative
		Shaft Extension	IS 8034, Clause No. 6 IS 9283, Clause No.2.1	0.02 mm to 12.7 mm
		Leakage Current Test	IS 8034 Clause No. 7.1 IS 9283, Clause 23	0.1 mA to 200 mA
2.	Openwell Submersible Pump Sets (0.12 kW to 100 kW) (up to 600 V)	Marking	IS 14220, Clause No. 11	Qualitative
		Surface Finish Test	IS 14220, Clause No. 7.1	0.05 to 10 µm
		Performance Test Flow	IS 14220	Upto 16000 LPS
		Head	IS 14220 Clause No. 9.1.3	0.01 m to 50 m
		Electrical Power	IS 14220	0.37 kW to 100 kW (45 Hz to 70 Hz)
		Speed	IS 14220, Clause No. 7.4.6.7	Upto 3600 rpm
		Balancing of Impeller/ Rotor	IS 14220 Clause No 7.3 & 7.4.5	0.1 g to 5 kg (2 to 50 kg)
		Hydrostatic Test	IS 14220 Clause No. 7.5	Qualitative
		Earthing	IS 14220 Clause No. 7.4.4	Qualitative
		Insulation Resistance	IS 14220 Clause No. 7.4.6.5	0.1 MΩ to 500 MΩ 500 Volt/1000 Volt

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		High Voltage	IS 14220 Clause No. 7.4.6.5	0.01 kv to 5 kV AC
		Stator Resistance	IS 14220 Clause No. 7.4.6.2	1 $\mu\Omega$ to 19.99 k Ω
		No Load Test at Rated Voltage	IS 14220 Clause No. 7.4.6.2	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Locked Rotor Test	IS 14220 Clause No. 7.4.6.2	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Full Load Test	IS 14220 Clause No. 9.1.2 IS 9283 Clause No. 16.1 (g)	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Temperature Rise at Rated Voltage	IS 14220 Clause No. 7.4.6.3	(-) 50 °C to 300 °C Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Temperature Rise at Reduced Voltage	IS 14220 Clause No. 7.4.6.4	(-) 50 °C to 300 °C Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Leakage Current Test	IS 14220 Clause No.7.4.6.2	0.1 mA to 200 mA
		Reduced Voltage Running Up Test At No Load	IS 14220 Clause No.7.4.6.2	Upto 600 V 0.1 A to 300 A

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				0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Pump Performance Voltage Current Power Speed Head Flow	IS 14220 Clause No.10.2	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Constructional Features	IS 14220 Clause No.6.1	Qualitative
3.	Pumps Sewage And Drainage (0.37 kW to 100 kW) (up to 600 V)	Verification of Marking	IS 5600 Clause No. 19	Qualitative
		Water Temperature	IS 5600 Clause No. 14 IS 5120 Clause No. 14	20 °C to 50 °C
		Pump Test	IS 5600	
		Flow	Clause No. 13	Upto 16000 LPS
		Head		0.01 m to 50 m
		Electrical Power		0.37 kW to 100 kW (45 Hz to 70 Hz)
		Speed		Upto 3600 rpm
		Balancing of Rotor		0.1 g to 5 kg (2 to 50 kg)
		Hydrostatic Test		Qualitative
		Direction of Rotation	IS 5600 Clause No. 7	Qualitative
4.	Electric Monoset Pumps For Clear, Cold Water For Agriculture And Water Supply Purposes (0.37 kW to 25 kW,	Marking	IS 9079 Clause No. 16	Qualitative
		Rate of Flow	IS 9079 Clause No. 10.1 IS 11346 Clause No. 3.2.1.4.d	Upto 16000 LPS

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	Single Phase 0.37 kW to 1.5 kW (up to 600 V)	Head	IS 9079 Clause No. 10 IS 11346 Clause No. 3.2.2.1 &3.2.2.2	0.01 m to 50 m
		Electrical Power	IS 9079 Clause No. 10 IS 11346 Clause No. 3.2.3.2	0.37 kW to 100 kW (45 Hz to 70 Hz)
		Speed	IS 9079 Clause No. 10 IS 11346 Clause No. 3.2.4.3	Upto 3600 rpm
		Balancing of Impeller/ Rotor	IS 9079 Clause No. 10 IS 11346 Clause No. 3.2.4.3	0.1 g to 5 kg (2 to 50 kg)
		Hydrostatic	IS 9079 Clause .No. 12.2	Qualitative
		Direction Of Rotation	IS 9079 Clause .No.7	Qualitative
		High Voltage	IS 9079 Clause .No.11.2	Qualitative
		Insulation Resistance	IS 9079 Clause .No. 11.2	0.1 MΩ to 500 MΩ 500 Volt/1000 Volt
		No Load Test at Rated Voltage	IS 9079 Clause .No.11.2	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Locked Rotor	IS 9079 Clause .No.11.2	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm

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		Reduced Voltage Running Up	IS 9079 Clause .No.11.2	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Stator Resistance	IS 9079 Clause .No.11.2	1 $\mu\Omega$ to 19.99 k Ω
		Temperature Rise at Rated Voltage	IS 9079 Clause No.11.2.3	(-) 50 °C to 300 °C 0 to 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Temperature Rise at Reduced Voltage.	IS 9079, Clause No.11.2.3	(-) 50 °C to 300 °C Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Constructional Details	IS 9079, Clause No .6	Qualitative
		Design features/ Guarantee of Performance	IS 9079, Clause No.9 IS 9079, Clause No.13.2	Qualitative
5.	Pumps- Regenerative For Clear, Cold Water (0.18 kW to 3.7 kW) (up to 600 V)	Marking	IS 8472 Clause No.17.1	Qualitative
		Performance Tests	IS 8472 Clause No.13,16	Upto 600 V 0.1 A to 300 A 0.18 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Rate of Flow	IS 8472, Clause No. 13	Upto 16000 LPS
		Head	IS 8472, Clause No. 13	0.01 m to 50 m
		Electrical Power	IS 8472, Clause No. 13 IS 11346, Clause No. 3.2.3.2	0.18 kW to 100 kW (45 Hz to 70 Hz)

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		Speed	IS 8472 Clause No. 13 IS 11346 Clause No. 3.2.4.3	Upto 3600 rpm
		Balancing of Impeller/ Rotor	IS 8472 Clause No. 13	0.1 g to 5 kg (2 to 50 kg)
		Hydrostatic	IS 8472 Clause No.13.3 IS 8472 Clause No.9	Qualitative
		High Voltage	IS 8472 Clause No.14.1.2	0.01 kv to 5 kV AC
		Insulation Resistance	IS 8472 Clause No.14.1.2	0.1 MΩ to 500 MΩ 500 Volt/1000 Volt
		Locked Rotor	IS 8472 Clause No.14.1.2	Upto 600 V 0.1 A to 300 A 0.18 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Reduced Voltage Running Up At No Load (Three Phase Mono Set)	IS 8472 Clause No.14.2	Upto 600 V 0.1 A to 300 A 0.18 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Stator Resistance (Three Phase Mono Set)	IS 8472 Clause No.14.2	1 μΩ to 19.99 kΩ
		Constructional Details	IS 8472 Clause No.8	Qualitative
		Temperature Rise at Rated Voltage	IS 8472 Clause No.14.1.2.1.1	(-) 50 °C to 300 °C Upto 600 V 0.1 A to 300 A 0.18 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Temperature Rise at Reduced Voltage	IS 8472 Clause No.14.1.2.1.2	(-) 50 °C to 300 °C Upto 600 V 0.1 A to 300 A 0.18 kW to 100 kW (45 Hz to 70 Hz)

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				Upto 3600 rpm
		No Load Test at Rated Voltage	IS 8472 Clause No.14.1.2	Upto 600 V 0.1 A to 300 A 0.18 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Temperature Rise at Rated Voltage	IS 8472 Clause No.14.1.2.1.1	(-) 50 °C to 300 °C Upto 600 V 0.1 A to 300 A 0.18 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Direction of Rotation	IS 8472 Clause No.9	Qualitative
		Pull up & Pull out Torque	IS 8472 Clause No.14.1.2	Upto 600 V 0.1 A to 300 A 0.18 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Self Priming Test	IS 8472 Clause No.13.5,16.2	0.01 Sec to 3600 sec
6.	Horizontal Centrifugal Pump for Clear, Cold Water (0.37 kW to 100 kW) (up to 600 V)	Marking	IS 6595-1 Clause No.13 IS 6595-2, Clause No.13	Qualitative
		Performance Tests Voltage Current Power Speed Head Flow	IS 6595-1 Clause No.10 & 11 IS 6595-2 Clause No.10 & 11	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Head	IS 6595-1 Clause No. 10 IS 11346 Clause No. 3.2.2.1 & 3.2.2.2	0.01 m to 50 m

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		Rate of Flow	IS 6595-1 Clause No. 10 IS 11346 Clause No. 3.2.1.4.d	Upto 16000 LPS
		Electrical Power	IS 6595-1 Clause No. 10 IS 11346 Clause No. 3.2.3.2	0.37 kW to 100 kW (45 Hz to 70 Hz)
		Speed	IS 6595-1 Clause No. 10 IS 11346 Clause No. 3.2.4.3	Upto 3600 rpm
		Balancing Of Impeller/Rotor	IS 6595-1 Clause No. 9.2 IS 11346 Clause No. 3.2.4.3	0.1 g to 5 kg (2 to 50 kg)
		Hydrostatic	IS 6595-1 Clause No.9.1 IS 6595-2 Clause No.9.1 IS 6595-1 Clause No.7 IS 6595-2 Clause No.10.4	Upto 35 kg/cm ²
		Direction Of Rotation	IS 6595-1 Clause No.7 IS 6595-2 Clause No.7	Qualitative
		Constructional Details	IS 6595-1 Clause No.6 IS 6595-2 Clause No.6	Qualitative

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		Design features	IS 6595-1 Clause No.8 IS 6595-2 Clause No.8	Qualitative
7.	Motors For Submersible Pump sets (0.37 kW to 100 kW) (up to 600 V)	Marking	IS 9283 Clause No.15	Qualitative
		Terminal marking	IS 9283 Clause No.13	Qualitative
		Dimensions Of Motors	IS 9283 Clause No.7.1	Upto 1000 mm
		Earthing	IS 9283 Clause No.5.2.1	Qualitative
		Insulation Resistance	IS 9283 Clause No.16.1(a), 21	0.1 MΩ to 500 MΩ 500 Volt/1000 Volt
		High Voltage Test	IS 9283 Clause No. 16.1(b),20	0.01 kv to 5 kV AC
		Stator Resistance	IS 9283 Clause No.16.1(c)	1 μΩ to 19.99 kΩ
	No Load Test at Rated Voltage	IS 9283 Clause No.16.1(d)	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm	
	Reduced Voltage Running Up Test At No Load	IS 9283 Clause No.16.1(e)	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm	
	Full load/ Load/ Determination of Efficiency	IS 9283 Clause No.16.1(g)	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm	

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		Momentary Overload Test	IS 9283 Clause No.16.1(m) & 20	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Temperature Rise Test At Reduced Voltage	IS 9283 Clause No.16.1(j)	(-) 50 °C to 300 °C Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Temperature Rise at Reduced Voltage	IS 9283 Clause No.16.1(k) & 23	(-) 50 °C to 300 °C Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Leakage Current	IS 9283 Clause No.16.1(n)	0.1 mA to 200 mA
		Balancing of rotor	IS 9283 Clause No.5.6	0.1 g to 5 kg
		Constructional Details	IS 9283 Clause No.5	Qualitative
		Performance characteristic	IS 9283 Clause No.16.1(h)	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Shaft Extension	IS 9283 Clause No.7.2.2	0.02 mm to 12.7 mm

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		Voltage & Frequency variation	IS 9283 Clause No.6.2	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
8.	Three Phase Squirrel Cage Induction Motor (0.37 kW to 100 kW) (up to 600 V)	Terminal Marking	IS 7538 Clause No.19.1.1	Qualitative
		Marking	IS 7538 Clause No.20.1	Qualitative
		Earthing	IS 7538 Clause No.11	Qualitative
		Of Dimensions	IS 7538 Clause No.22.3	Upto 1000 mm
		Limits Of Noise Level	IS 7538 Clause No.22.3.1(2)	
		Insulation Resistance	IS 7538 Clause No.22.3.1(m)	0.1 MΩ to 500 MΩ 500 Volt/1000 Volt
		High Voltage Test	IS 7538 Clause No.22.3.1(n)	0.01 kv to 5 kV AC
		Of Stator Resistance	IS 7538 Clause No. 22.3.1 (b)	1 μΩ to 19.99 kΩ
		No Load Test at Rated Voltage	IS 7538 Clause No.22.3.1(c)	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Reduced Voltage Running Up	IS 7538 Clause No.22.3.1(d)	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm

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		Locked Rotor	IS 7538 Clause No.22.3.1(e)	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Full load/ Load/ Efficiency	IS 7538 Clause No.22.3.1(f)	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Momentary overload	IS 7538 Clause No.22.3.1(k)	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Temperature Rise Test At Rated Voltage	IS 7538 Clause No.22.3.1(h)	(-) 50 °C to 300 °C Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Temperature Rise at Reduced Voltage.	IS 7538 Clause No.22.3.1(j)	(-) 50 °C to 300 °C Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Efficiency at reduced voltage	IS 7538 Clause No.22.3.1(g)	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Vibration	IS 7538 Clause No.22.3.1(p)	0.3 to 200mm/sec

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		Over speed	IS 7538 Clause No.22.3.1(s)	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 99999 rpm
9.	Energy Efficient Inductions Motors-Three Phase Squirrel Cage (0.12 kW to 100 kW) (up to 600 V)	Terminal Marking	IS 12615, Clause No.16	Qualitative
		Marking	IS 12615 Clause No.18	Qualitative
		Earthling	IS 12615 Clause No.10	Qualitative
		Dimensions Test	IS 12615 Clause No.21.1(a)	Upto 1000 mm
		High Voltage	IS 12615 Clause No.21.1(k)	Qualitative
		Stator Resistance	IS 12615 Clause No.21.1(b)	1 $\mu\Omega$ to 19.99 k Ω
		No Load Test At Rated Voltage	IS 12615 Clause No.21.1(c)	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Reduced Voltage Running Up	IS 12615 Clause No.21.1(d)	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Locked Rotor Test	IS 12615 Clause No.21.1(e)	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Full Load Test/ Determination of Efficiency, Power Factor, Slip	IS 12615 Clause No.21.1(f)	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Noise Level Test	IS 12615 Clause No.15	Up to 130 DB
		Temperature Rise at Rated Voltage	IS 12615 Clause No.21.1(g)	(-) 50 °C to 300 °C Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Temperature Rise at Reduced Voltage	IS 12615 Clause No.21.1(d)	(-) 50 °C to 300 °C Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Momentary Overload	IS 12615 Clause No.21.1(h)	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Insulation Resistance	IS 12615 Clause No.21.1(j)	0.1 MΩ to 500 MΩ 500 Volt/1000 Volt
		Vibration	IS 12615 Clause No.21.2(a)	0.3 mm/sec to 200 mm/sec
		Over Speed Test	IS 12615 Clause No.21.2(e)	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 99999 rpm

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10.	Textile Motors, Loom Motors (0.37 kW to 22 kW) (up to 600 V)	Terminal Marking	IS 2972, Clause No.. 13	Qualitative
		Dimensions	IS 2972, Clause No. 7.1	Upto 1000 mm
		Insulation Resistance (Both Before And After The High Voltage Test)	IS 2972 Clause No. 16.3.1 & 16.3.2	0.1 MΩ to 500 MΩ 500 Volt/1000 Volt
		High Voltage	IS 2972 (Clause No. 16.3.1& 16.3.2)	Qualitative
		Stator Resistance	IS 2972 Clause No. 16.3.1	1 μΩ to 19.99 kΩ
		No Load Test	IS 2972 Clause No. 16.3.1 & 16.3.2	Upto 600 V 0.1 A to 300 A 0.05 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Reduced Voltage Running Up Test	IS 2972 Clause No. 16.3.1 & 16.3.2	Upto 600 V 0.1 A to 300 A 0.05 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Locked Rotor	IS 2972, Clause No. 16.3.1 & 16.3.2	Upto 600 V 0.1 A to 300 A 0.05 kW to 75 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Momentary Overload	IS 2972 Clause No. 16.3.1	0.01 A to 300 A AC 0.05 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 RPM 50 V to 600 V Upto 500 N-m 1 °C to 300 °C
	Full Load Test	IS 2972, Clause No. 16.3.1	0.05 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm	

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		Temperature Rise	IS 2972, Clause No. 16.3.1	(-) 50 °C to 300 °C Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
11.	Single Phase Small AC Electrical Motor For Centrifugal Pump For Agriculture Application (0.37 kW to 3.5kW) (up to 600 V)	Terminal Marking	IS 14582 Clause No. 14	Qualitative
		Rating plate	IS 14582 Clause No.15.1	Qualitative
		Dimension	IS 14582 Clause No.9	Upto 1000 mm
		Earthing	IS 14582 Clause No.11	1 μΩ to 19.99 kΩ
		Insulation Resistance	IS 14582 Clause No.16.2(k)	0.1 MΩ to 500 MΩ 500 Volt/1000 Volt
		High Voltage Test	IS 14582 Clause No.16.2(m)	Qualitative
		Stator Resistance	IS14582:1998 Clause No.16.2(a)	1 μΩ to 19.99 kΩ
		Break away starting current at rated voltage & frequency	IS 14582 Clause No.16.2(f)	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		No Load Test At Rated Voltage	IS 14582 Clause No.16.2(b)	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Reduced Voltage Running Up Test At No Load	IS 14582 Clause No. 16.2	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Locked Rotor	IS 14582 Clause No. 16.2(d)	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Full load/ Load/ Determination of Efficiency	IS 14582 Clause No. 16.2(j)	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Temperature Rise Test At Rated Voltage	IS 14582 Clause No. 16.2(g)	(-) 50 °C to 300 °C Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Temperature Rise at Reduced Voltage.	IS 14582 Clause No. 16.2(h)	(-) 50 °C to 300 °C Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
12.	DC Motors: Window, Wiper, Gear, Non-Gear, Starter, Field, Series, Blowers (up to 600 V)	Marking	IS/IEC 60034-1 Clause No. 10.2	Qualitative
Terminal Marking		IS/IEC 60034-8	Qualitative	
Earthing		IS/IEC 60034-1 Clause No. 11.1	Qualitative	
Stator Resistance		IS/IEC 60034-1 Clause No. 9.1 IS/IEC 60034-2-1 Clause No. 5.7	1 μΩ to 19.99 kΩ	

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		No Load Test At Rated Voltage	IS/IEC 60034-1 Clause No. 9.1 IS/IEC60034-2-1 Clause No. 6.1.3.2.4	Upto 600 V 0.1 A to 300 A 0.18 kW to 50 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Full load/ Load/ Determination of Efficiency	IS/IEC 60034-2-1 Clause No. 6 & 7	Upto 600 V 0.1 A to 300 A 0.18 kW to 50 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Momentary overload	IS/IEC 60034-1 Clause No.9.4	Upto 600 V 0.1 A to 300 A 0.18 kW to 50 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Locked Rotor	IS/IEC 60034-12 Clause No. 6.0	Upto 600 V 0.1 A to 300 A 0.18 kW to 50 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Temperature Rise at Rated Voltage.	IS/IEC 60034-1 Clause No. 8.6.2	(-) 50 °C to 300 °C Upto 600 V 0.1 A to 300 A 0.18 kW to 50 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Withstand voltage	IS/IEC 60034-1 Clause No. 9.2	Qualitative
		Direction of Rotation	IS/IEC 60034-8 Clause No. 9.1	Qualitative
		Commutation	IS/IEC 60034-1 Clause No. 9.10 IEC 60034-1 Clause No. 9.10	Qualitative

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		Phase sequence	IS/IEC 60034-1 Clause No. 9.1	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Over speed	IS/IEC 60034-1 Clause No. 9.7	Upto 600 V 0.1 A to 300 A 0.18 kW to 50 kW (45 Hz to 70 Hz) Upto 99999 rpm
		Performance Testing Steady State Test	IS/IEC 60034-2-1 Clause No. D.3 by Retardation Method	DC Motor with 20 Nm Endurance testing. Voltage Range: 1 V DC to 24 V DC Current Range: 0.01 A to 10 A Speed Range: Upto 3000 rpm Torque Range:500 Nm
		Determination of efficiency	IS/IEC 60034-2-1 Clause No. 6 & 7 IS 15999-2-1 Clause No. 6 & 7	1 V DC to 24 V DC Current Range: 0.01 A to 10 A Speed Range: Upto 3000 rpm Torque Range:500 Nm
13.	Single 1ph Induction motors and Universal motors (up to 600 V) (0.12 to 2.2 kW)	Terminal Marking	IS 996, Clause No.14	Qualitative
Marking		IS 996, Clause No.16	Qualitative	
Earthing		IS 996, Clause No.9.5	Qualitative	
Dimension		IS 996, Clause No.7.2	Upto 1000 mm	
Insulation Resistance		IS 996, Clause No.17.3(g)	0.1 MΩ to 500 MΩ 500 Volt/1000 Volt	
		Moisture Proofness	IS 996 Clause No.17.3(g)	Upto 70 °C 10 to 95 % RH Size 600 × 600 × 600 mm

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		High Voltage	IS 996 Clause No.17.3(h)	Qualitative
		Constructional Details	IS 996, Clause No.9	Qualitative
		Stator Resistance	IS 996	1 $\mu\Omega$ to 19.99 k Ω
		No Load Test At Rated Voltage	IS 996 Clause No.17.3(a)	Upto 600 V 0.1 A to 300 A 0.18 kW to 50 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Method of Cooling	IS 996, Clause No.11	Upto 600 V 0.1 A to 300 A 0.18 kW to 50 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Full load/ Load/ Determination of Efficiency	IS 996 Clause No.17.3(d)	Upto 600 V 0.1 A to 300 A 0.18 kW to 50 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Momentary overload	IS 996 Clause No.17.3(f)	Upto 600 V 0.1 A to 300 A 0.18 kW to 50 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Break away starting current at rated voltage & frequency	IS 996 Clause No.17.3(C)	Upto 600 V 0.1 A to 300 A 0.18 kW to 50 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Temperature Rise at Rated Voltage.	IS 996 Clause No.17.3(e)	(-) 50 °C to 300 °C Upto 600 V 0.1 A to 300 A 0.18 kW to 50 kW (45 Hz to 70 Hz)

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		Vibration	IS 996 Clause No.17.3(m)	Upto 3600 rpm 0.3 to 200 mm/sec
		Pull up & Pull out Torque	IS 996 Clause No.17.3(b)	Upto 600 V 0.1 A to 300 A 0.18 kW to 50 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Leakage Current	IS 996 Clause No.17.3(k)	0.1 to 200 mA
14.	Self priming pumps & Centrifugal Pumps (0.37 to 100 kW) up to 600 V	Marking/ Rating plate	IS 8418 Clause No.17	Qualitative
		Pump Performance Voltage Current Power Speed Head Flow	IS 8418:1999 Clause No.12.2	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Rate of Flow	IS 8418 Clause No. 12.2	Upto 16000 LPS
		Head	IS 8418 Clause No. 12.2	0.01 m to 50 m
		Electrical Power	IS 8418 Clause No. 13 IS 11346:2002 Clause No. 3.2.3.2	0.37 kW to 100 kW (45 Hz to 70 Hz)
		Speed	IS 8418 Clause No. 13 IS 11346 Clause No. 3.2.4.3	Upto 3600 rpm
		Balancing of Impeller/ Rotor	IS 8418 Clause No. 13.3	0.1 g to 5 kg (2 to 50 kg)
		Hydrostatic	IS 8418 Clause No.13.2	Upto 35 kg/cm ²

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		Design features/ Guarantee of Performance	IS 8418 Clause No.11	Qualitative
		Direction of Rotation	IS 8418 Clause No.7	Qualitative
		Priming Test	IS 8418 Clause No.12.3	0.01 Sec to 3600 sec
15.	Centrifugal Jet pumps (up to 600 V)	Marking	IS 12225 Clause No.12	Qualitative
		Pump Performance Voltage Current Power Speed Head Flow	IS 12225 Clause No.8.2,9,10	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Rate of Flow	IS 12225 Clause No.8.2,9,10	Upto 16000 LPS
		Head	IS 12225 Clause No.8.2,9,10	0.01 m to 50 m
		Electrical Power	IS 12225 Clause No.8.2,9,10	0.37 kW to 100 kW (45 Hz to 70 Hz)
		Speed	IS 12225 Clause No.8.2,9,10	Upto 3600 rpm
		Balancing of Impeller/ Rotor	IS 8472:1998 Clause. 13	Upto 0.001 kg to 50 kg
		Pressure Testing	IS 12225 Clause No.9.3	Upto 35 kg/cm ²
		High Voltage	IS 12225 Clause No.5.2.1	Qualitative
		Insulation Resistance	IS 12225 Clause No.5.2.1	0.1 MΩ to 500 MΩ 500 Volt/1000 Volt
		Locked Rotor	IS 12225 Clause No.5.2.1	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm

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		Reduced Voltage Running Up	IS 12225 Clause No.5.2.1	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Stator Resistance	IS 12225 Clause No.5.2.1	1 $\mu\Omega$ to 19.99 k Ω
		Constructional Details/ Constructional Features/ Constructional Requirements	IS 12225 Clause No.6	Qualitative
		Temperature Rise at Reduced Voltage/at limiting value of voltage and frequency variation.	IS 12225 Clause No.5.2.1	(-) 50 °C to 300 °C Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		No Load Test at Rated Voltage	IS 12225 Clause No.5.2.1	Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm
		Temperature Rise at Rated Voltage	IS 12225 Clause No.5.2.1	(-) 50 °C to 300 °C Upto 600 V 0.1 A to 300 A 0.37 kW to 100 kW (45 Hz to 70 Hz) Upto 3600 rpm

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MECHANICAL TESTING

I.	RUBBER & RUBBER PRODUCTS			
A.	Natural Rubber & Products & Synthetic Rubber & Products			
1.	Automotive Vehicle-Tubes For Pneumatic Tyres	Marking	IS 13098 Clause No.6.1(a,b,c,d)	Qualitative
		Forms & Fit	IS 13098 Clause No.3.3	
		Thickness Uniformity (From Arithmetic Mean thickness, at any point) Crown Base Side wall-1 Side wall-2	IS 13098 Clause No.3.3.1	0 to 5 mm
		Tube Valve designation Valve Dimensions Rubber Base Dia. Effective Length Rubber base Thickness (On separate Valve) Valve Core Short Overall Length Core in head position	IS 13098 Clause No.3.1	0 to 50.0 mm 0 to 30.0 mm 0 to 10.00 mm
		Elongation at Break (Before Ageing)	IS 13098 Clause No.4.1.1	Upto 800 %
		Strength of Splice	IS 13098 Clause No.4.1.2	Upto 20 N/mm ² Upto 200 kgf/cm ²)
		Set after Ageing	IS 13098 Clause No.4.1.3	Upto 100 %

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		Accelerated Ageing	IS 13098 Clause No.4.1.4	0 to 100%
		Air Tightness	IS 13098, Clause No.5	Qualitative
II.	PROPERTIES OF POWDER METALLURGICAL PRODUCTS			
A.	Stainless Steel & Others			
1.	Steel Shelving Cabinets	Marking	IS 3312	Qualitative
		Fabrication	IS 3312 Clause No.4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 4.10, 4.10.4, 6.1	Qualitative Upto 1900 mm
		Load	Clause No.7.1.	Upto 200 kg
		Scratch Hardness	Clause No.9.1	Qualitative
		Pressure	Clause No.9.2	Qualitative
		Flexibility And Adhesion (Impact)	Clause No.9.3	Qualitative
		Stripping	Clause No.9.4	0 to 180°