

Laboratory **MSME Testing Centre, Govt. of India, Ministry of MSME, Shaheed
Captain Gaur Marg, Okhla, New Delhi**

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

Certificate Number **TC-7167**

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Validity **13.04.2018 to 12.04.2020**

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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
CHEMICAL TESTING				
I. INDUSTRIAL AND FINE CHEMICALS				
1.	Sodium Hypochlorite	Relative Density Available Chlorine Total Chlorine Free Sodium Carbonate Iron	IS 11673	1 g/cc to 2.0 g/cc 10 % to 20 % 10 % to 20 % 0.1 g/l to 1g/l 0.4 mg/l to 1.0 mg/l
2.	Sulphuric Acid	Total Acidity	IS 266	50 % to 99.9 %
3.	Hydrochloric Acid	Total Acidity	IS 265	10 % to 35 %
II. SOAPS, DETERGENTS & TOILETRIES				
A. Soaps				
1.	Toilet Soap	Total Fatty Matter Rosin Acids Free Caustic Alkali as NaOH Matter Insoluble in alcohol Chlorides, as NaCl	IS 286	20 % to 85 % 3 % to 10 % 0.01 % to 0.2 % 2 % to 10 % 1 % to 5 %
2.	Liquid Toilet Soap	Total Fatty Matter Matter Insoluble in alcohol Free Caustic Alkali (as K ₂ O)	IS 286 IS 286 IS 4199	5 % to 30 % 2 % to 5 % 0.02 % to 0.1 %
B. Synthetic Detergent				
1.	Household Laundry Detergent Powder	Active Ingredient Total Phosphates Active Alkalinity	IS 4955 IS 4955 IS 4955	5 % to 30 % 5.0 % to 15.0 % 5 ml to 50 ml

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2.	Household Detergent Bars	Active Detergent Sodium Tri Poly Phosphate (Stpp) & Pyrophosphate Active Alkali	IS 4956 IS 4956 IS 8180	5 % to 30 % 5 % to 15 % 5 ml to 30 ml
3.	Acid Slurry (Alkyl Benzene Sulphonic Acid)	Active Matter Free Alkyl Benzene Free Sulphuric Acid	IS 8401	50 % to 99 % 2 % to 5 % 2 % to 5 %
4.	Scouring Powder	Total Fatty Matter Alkylaryl Sulphonate Moisture and Volatile Matter Matter Insoluble in alcohol	IS 286 IS 4955 IS 286 IS 286	1 % to 10 % 1 % to 10 % 2 % to 5 % 50 % to 95 %
III.	PAINTS AND SURFACE COATING			
1.	Paint	Drying Time Consistency Consistency by Ford Cup Colour Wet Opacity Water Content	IS 101 (Part-3/Sec-1) IS 2932 IS 101 (Part 1/Sec 5) IS 101 (Part 4/Sec 2) IS 101 (Part 4/Sec I) IS 101 (Part 2/Sec I)	1 h to 48 h Qualitative test 80 sec to 240 sec Qualitative test 3 m ² /l to 50 m ² /l 0.1 % to 10 %
	Paints & Surface Coating	Scratch Hardness Flexibility and Adhesion Gloss Fineness of Grind Mass in kg/10 lit Resistance to Acid	IS 101 (Part 5/Sec I) IS 101 (Part 5/Sec II) IS 101 (Part 1/Sec VI) IS 101 (Part 4/Sec IV) IS 101 (Part 3/Sec V): IS 2932	Qualitative Test Qualitative Test 2 to 100 2 micron to 100 micron 5 to 30 kg/10 lit. Qualitative test
		Resistance to Alkali Volatile Matter	IS 2932 IS 101 (Part 2/Sec II)	Qualitative test 10 % to 60 %

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		Non-Volatile Matter	IS 101 (Part 8/Sec II)	10 % to 60 %
		Phthalic Anhydride	IS 101 (Part 8/Sec IV)	5 % to 50 %
		Artificial Sea Water	IS 2074: 1992	Qualitative Test
		Spray Test		
		Lead Restriction	IS 101 (Part 8/Sec V)	1 % to 10%
2.	Polishes	Odour	IS 1746	Qualitative Test
		Colour		Qualitative Test
		Consistency		Qualitative Test
		Applicability		Qualitative Test
		Colour of Water		Qualitative Test
		Extract		
		Softening Point		40 °C to 80 °C
		pH		4 to 12
		Distillation Range		100 °C to 280 °C
		Nonvolatile Matter		10 % to 50 %
		Flash Point		20 °C to 50 °C
		Ooze Test		Qualitative Test
IV.	PAPER & PULP			
1.	Writing and Printing Paper	Substance pH	IS 1060: 1966 (Part 1)	20g/m ² to 200 g/m ² 4 to 10
2.	Computer Paper	Substance Moisture content Ash	IS 1060	20 g/m ² to 200 g/m ² 3.0 % to 20 % 5 % to 30 %
V.	WATER			
1.	Water for Construction purpose	Vol. of 0.02 N NaOH required for 100 ml of sample	IS 3025 (Part 22)	1 ml to 10 ml
		Vol. of 0.02 N H ₂ SO ₄ required for 100 ml of sample	IS 3025 (Part 23)	1 ml to 50 ml
		Organic Solid	IS 3025 (Part 18)	20 mg/l to 500 mg/l

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		Inorganic Solid Sulphates Chlorides Suspended Matter pH	IS 3025 (Part 18) IS 3025 (Part 24) IS 3025 (Part 32) IS 3025 (Part 17) IS 3025 (Part 11)	50 mg/l to 4000 mg/l 1 mg/l to 500 mg/l 20 mg/l to 2500 mg/l 2 mg/l to 3000 mg/l 4 to 12
VI. METALS AND ALLOYS (OPTICAL EMISSION SPECTROMETER)				
1.	Low Alloy Steel	C Mn Si P S Cr Ni	ASTM E-415 2017	0.005% to 1.6% 0.001% to 2.5% 0.001% to 1.5% 0.010% to 0.25% 0.010% to 0.25% 0.010% to 5.0% 0.010% to 5.0%
2.	Stainless steel	C Mn Si P S Cr Ni Cu Ti	ASTM-1086-2014	0.030% to 1.20% 1.0% to 7.0% 1.0% to 2.0% 0.040% to 0.045% 0.030% to 0.045% 11.50% to 20.0% 0.50% to 11.0% 0.05% to 0.70% 0.05% to 0.10%
3.	Wrought Aluminium and Alloys for utensils	Cu Mg Si Fe Mn Zn Cr Ti	ASTM-E-1251-2017	0.01% to 15% 0.01% to 15% 0.01% to 20% 0.01% to 5% 0.01% to 1% 0.01% to 10% 0.01% to 1.0% 0.1 % to 1%

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4.	Copper and its alloys	Pb Sn Fe Ni Zn Si Mn P	BS EN -1982-2008	0.05% to 10% 0.1% to 20% 0.01% to 10% 0.05% to 5% 0.01% to 50% 0.05% to 2.0% 0.01% to 1% 0.01% to 1%
VII. METALLIC COATINGS AND TREATMENT SOLUTIONS				
1.	Metallic Coatings And Treatment Solutions	Mass of Zinc Coating Uniformity of Zinc Coating Thickness of Zn Coating Thickness of Cr Coating Anodic Coating on Aluminium	IS 6745 IS 2633 IS 6012 IS 6012 IS 6012	50.0 g/m ² to 500.0 g/m ² Qualitative Test 5.0 micron to 50.0 micron 5.0 micron to 100 micron 2.0 micron to 50 micron

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<u>ELECTRICAL TESTING</u>				
I.	DOMESTIC ELECTRICAL APPLIANCES			
1.	Stationary Storage Type Electric Water Heater, (Upto 50 Ltrs.)		IS 2082 IS 302-2-21	
2.	Electric Instantaneous Water Heaters. (Upto 6 Ltrs.)		IS 8978 IS 302-2-35	
3.	Electric Immersion Water Heater, (Upto 4.5 KW)		IS 368 IS 302-2:201	
4.	Electrical Iron. (Up to 1 KW)		IS 366 IS 302-2:3	
5.	Electric Radiator (Up to 3 KW)		IS 369 IS 302-2-30	
6.	Mineral filled sheathed heating element,		IS 4159-2002	
7.	Domestic Food Mixer Grinder,	Test for Protection against access to live parts	IS 4250 IS 302-1 Cl.8	0 to 50 V, (Qualitative Test)
		Test for Power Input & Current	IS 302-1 Cl.10	Upto 5000 W, Upto 20 Amps.
		Heating Test/ Temperature Rise Test (Thermocouple/	IS 302-1 Cl.11	Upto 300°C, Upto 1 Kohms

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		Resistance Method) Test for Leakage Current & Electric strength at operating temperature	IS 302-1 Cl.13	1 to 5 kV (AC), , (Qualitative Test)
		Test for Transient over voltages	IS 302-1 Cl.14	1 to 5 kV (AC), (Qualitative Test)
		Test for Moisture Resistance	IS 302-1 Cl.15	Upto RH 95%,
		Test for Leakage Current and Electric strength	IS 302-1 Cl.16	0.01 to 5 mA., 1 to 5 kV (AC), Qualitative Test
		Test for Overload Protection of transformers and associated circuits	IS 302-1 Cl.17	0 to 300V (AC), $\pm 0.5\%$, (Qualitative Test)
		Test for Abnormal Operation	IS 302-1 Cl.19	Upto 300 °C (Qualitative Test)
		Test for Stability & Mechanical Hazards	IS 302-1 Cl.20	Inclined plane with angle from 1 to 30° (Qualitative Test)
		Test for Mechanical strength	IS 302-1 Cl.21	(Qualitative Test)
		Test for construction	IS 302-1 Cl.22	(Qualitative Test)
		Test for checking of Internal wiring	IS 302-1 Cl.23	(Qualitative Test)
		Test for checking components (Visual tests only for certified components)	IS 302-1 Cl.24	(Qualitative Test)
		Test for supply connection and external flexible cords	IS 302-1 Cl.25	a) 1 to 100000 flexing @60 flexing per minutes (Qualitative Test)

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				b) Resistance 0.1 to 100 Ohms, $\pm 0.05\%$, c) Area 0.5 to 40 Sq.mm., ± 0.5 mm.
		Test for Terminals for external conductors	IS 302-1 Cl.26	Area 0.5 to 16 Sq.mm., ± 0.5 mm.
		Testing for provision for earthing	IS 302-1 Cl.27	0 to 5 V, 0 to 30 Amps
		Test for screw & connections	IS 302-1 Cl.28	Force applied: 0.1 to 1.5 Nm, $\pm 0.5\%$ (Qualitative Test)
		Test for creepage distance & clearances	IS 302-1 Cl.29	0 to 300 mm., ± 0.01 mm
		Test for resistance to heat & fire	IS 302-1 Cl.30	0 to 300 mm. ± 0.1 mm. 0 to 800°C, ± 1.0 °C (Qualitative Test)
		Test for resistance to rusting	IS 302-1 Cl.31	(Qualitative Test)
		Measurement of heating up time	IS 366 Cl.10	1 to 60 minutes, ± 1.0 sec
		Measurement of sole plate Temperature	IS 366 Cl.11	Upto 300 °C,
		Measurement of Temperature distribution	IS 366 Cl.12	Upto 300 °C,
		Measurement of Initial Over swing temperature & Heating up excess temperature	IS 366 Cl.13	Upto 300 °C,
		Measurement of cyclic fluctuations of temperature	IS 366 Cl.14	Upto 300 °C, $\pm 0.5\%$
		Measurement of Thermostatic stability	IS 366 Cl.16	Upto 300 °C, $\pm 0.5\%$

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		Rated Capacity	IS 2082 Cl.15	1 to 50 Litre
		Standing Loss per 24 Hours	IS 2082 Cl.16	Upto 999.99 kWh, Upto 99.90 °C
		Hot Water Output	IS 2082 Cl.17	Upto 99.90 °C
		Re-Heating Time	IS 2082 Cl.18, Cl.15	Upto 300 Min.
		Mixing Factor	IS 2082 Cl.19, Cl.15	Upto 99.90 °C (Qualitative Test)
		Deviation from Dial Calibration	IS 2082 Cl.20	Amb. to 99.90 °C. (Qualitative Test)
		Cyclic Temp. Variation	IS 2082 Cl.21	Amb to 99.90 °C (Qualitative Test)
		Finish Test	IS 2082 Cl.22	(Qualitative Test)
		Endurance Test	IS 2082 Cl.23, Cl.15	0 to 100 hrs. (Qualitative Test)
		Endurance Test	IS:8978 Cl.12	Upto 5000 W, Upto 300 V, Upto 20 Amps., (Qualitative Test)
		Finish Test	IS 8978 Cl.10	(Qualitative Test)
		Endurance Test	IS 368 Cl.10	Upto 5000 W, 0.5% As per relevant ISS 0 to 3 kV, 60 minutes (Qualitative Test)
		Finish Test	IS 368 Cl.11	(Qualitative Test)
		Dimensions	IS 369 Table 1, Cl. 14.1, Cl. 10	1-300 mm. +/- 0.01mm.
		Temperature Rise of Surface on which the Appliance is Placed or Supported	IS:369 Table 1, Cl. 14.1, Cl. 11	0 to 199.9 deg.C, ±0.1 °C
		Endurance Test	IS 369 Table 1, Cl. 14.1, Cl. 12	Upto 5000 W, ± 0.5 % Upto 300 V, ± 0.5 %

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				Upto 20 Amp., $\pm 0.5\%$ (Qualitative Test)
		Finish Test	IS 369 Table 1, Cl. 14.1 & Cl. 13	(Qualitative Test)
		Starting Test	IS:4250 Table 1 Cl.9.10.1	Upto 5000 W, $\pm 0.5\%$ Upto 300 V, $\pm 0.5\%$ Upto 20 Amp., $\pm 0.5\%$ (Qualitative Test)
		Endurance Test	IS:4250 Cl.18 IS:302-1	0 to 1500Hrs Upto 2000 W, $\pm 0.5\%$ Upto 300 V, $\pm 0.5\%$ Upto 10 Amp., $\pm 0.5\%$ 0 to 3 kV, 60 minutes (Qualitative Test)
		Operational Tests:- a) Grinding Coffee,	IS:4250 Cl.34, 38.17 Table Cl.34.2	355 micron to 1.4 mm (Qualitative Test)
		ii) Idly Batter		355 micron to 1.4 mm (Qualitative Test)
8.	Electric Ceiling Fans (up to 1500 mm)		IS 374	
9.	Propeller type ac Ventilating Fans (up to 600 mm)		IS 2312	
		Air Delivery Test	IS 374 Cl. 10.3, Cl. 14.2 of 2312	Upto 500 m/minute, $+ 0.5\%$ (Measure as velocity)
		Temperature. Rise Test	IS 374 Cl.10.4, Cl. 14.3 of 2312	Upto 100 °C
		Leakage Current Test	IS 374 Cl.10.5, Cl. 14.7 of 2312	0.01 to 5 mA
		Test for high voltage	IS 374 Cl.10.6, Cl. 14.8 of 2312	(Qualitative Test)
		Test for insulation	IS 374 Cl.10.7, Cl. 14.9 of	1 to 10 ⁶ Mega ohms, $+1.0\%$

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		resistance	2312	
		Test for starting	IS:374 Cl.10.8, Cl.10.1 of 2312	Upto 300 V. AC, +0.5 % (Qualitative Test)
		Fan speed & Input	IS 374 Cl.10.9, Cl. 14.11, IS 2312 Cl.12.11	Up to 99999 RPM, +0.1-1 RPM, Up to 200 W, + 0.5%
		Test for earthing connections	IS 374 Cl. 10.10 IS 2312 Cl. 14.10	Up to 5V, +0.5 to 30 Amps, +/-0.5%,
		Protection Against Direct Contact	IS 2312 Cl.6.11	Qualitative/ Qualitative Test
		Sizes	IS 2312 Cl.3	0 to 3000 mm
		Starting	IS 2312 Cl. 10.1	Upto 5000 W, ± 0.5 % Upto 300 V, ± 0.5 % Upto 20 Amp., ± 0.5 % (Qualitative Test)
		Silent Operation	IS 2312 Cl.12.1	Upto 5000 W, ± 0.5 % Upto 300 V, ± 0.5 % Upto 20 Amp., ± 0.5 % (Qualitative Test)
		Power factor	IS 2312 Cl.14.6	± 0.1 to 1, (Lead/lag), +0.5%
		Speed Regulators	IS 374 Cl. 7.9	Upto 5000 W, ± 0.5 % Upto 300 V, ± 0.5 % Upto 20 Amp., ± 0.5 % 230V, +/- 0.5 %, 1 to 100 Hz., ± 0.50 % (Qualitative Test)
		Silent Operation	IS 374 Cl.7.12	Upto 5000 W, ± 0.5 % Upto 300 V, ± 0.5 % Upto 20 Amp., ± 0.5 %

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				(Qualitative Test)
		Protection against electric shock (for regulators)	IS 374 Cl. 10.11	Upto 50 V. (DC), +0.5%, (Qualitative Test)
		Moisture Resistance (Fan Regulator)	IS 374 Cl. 10.12	Upto R.H 95 %, +1.0 %
		Mechanical Strength (Fan Regulator)	IS 374 Cl.10.13	Force applied: 0.1 to 1.0 Nm. (Qualitative Test)
		Suspension System & Torsion Test	IS 374 Cl. 10.14	Upto 1000 kg-cm, +2.0% (Qualitative Test)
		Test for creep age distance & clearances	IS 374 Cl. 10.15	Upto 300 mm, + 0.01 mm
		Test for Mechanical Endurance of Regulator	IS 374 Cl. 10.16	0 to 2500 Operations @ 6 Operation/minute (Qualitative Test)
(II)	Rotating electrical machines:			
1.	Single Phase Induction Motor	For Ventilated/ Closed Type Enclosure:- A) Degree of Protection Test (IP20/IP44) B) No Load Test (After Degree of Protection Test)	IS 996 Cl.10.1.2 IS 4691 table 1 & 2, IS 4691 Cl. 8.2.2	Upto 2000W 0.5% 0 to 99, 999RPM, +/- 1RPM 0 to 3 kV AC +/- 2% (Qualitative Test)
		Vibration test	IS 996 C1.12.6	0.1 to 100 micro/meter 0.5%
		a) Torque at Rated Voltage & Frequency	IS 996 Cl.12.1.1 and table 1	Torque measurement equipment 1500 kg L.C 500 g. Upto 2000W +/- 0.5% (Qualitative Test)

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		b) Momentary Overload Test	IS 996 Cl.12.1.2, Table 2	Torque measurement equipment 1500 kg L.C 500 g. Upto 2000W +/- 0.5% (Qualitative Test)
		c) Breakaway Starting (Locked Motor) Current	IS 996 Cl.12.5.1, Table 3 to 13	Torque measurement equipment 1500 kg L.C 500 g. Upto 2000W +/- 0.5% (Qualitative Test)
		Full Load Performance at Rated Voltage & Frequency	IS 996 Cl.12.5.1 and notes 1 to 3, tables 1 to 13	Upto 2000W 0.5% 0 to 99, 999RPM, +/- 1RPM Upto 100 Hz., ± 0.50 % (Qualitative Test)
		Temperature Rise Test	IS 996 Cl.12.2 IS 12802 table 1	Amb. to 300°C, +/-1°C As per manual +/-1%, 1 to 5000 W, ± 0.5 % 1 to 300 V, ± 0.5 % 1 to 20 Amp., ± 0.5 % 1 to 5000 W, ± 0.5 % 1 to 300 V, ± 0.5 % 1 to 20 Amp., ± 0.5 %, 0.1 to 190 deg.C, ±0.1°C
		Insulation Resistance Test	IS 996 Cl.12.7	1-100 x 10 ⁶ Mega ohms. +/- 0.5%
		High Voltage Test	IS 996 Cl. 13.1, table 13	0.1 to 3 kV (DC), ±2.5%
		i) Moisture Proof ness Test a) Insulation	IS 996 Cl.13.2,12.7	RH 50 % to 95 % 1-100x10 ⁶ Mega ohms. +/-0.5%, 0-100 hr

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		Resistance Test		
		b) High Voltage Test	IS 996 Cl. 13.1	0.1 to 3 kV (DC), +2.5%
		j) Leakage Current	IS 996 Cl.13.3	1 to 500 micro amp, +/-1%
III.	CABLES AND ACCESSORIES			
1.	PVC Insulated Cables for Working voltage up to and including 450/750 volts (1 to 400 Sq.mm)		IS 694	
		Tensile Strength (for Al. Conductor)	IS 8130, IS 10810 Part- 2	0 N to 500 N, LC: 2 N 0 N to 10 KN, LC: 0.004 KN,
		Wrapping Test (for Al Conductor)	IS 10810(Pt-3) IS 8130 Cl. 6.2.2 IS:694 ,Table 1	Qualitative/ Qualitative Test
		Test for conductor resistance (Al. & Copper Conductor)	IS 10810 (Pt-5) IS 8130 Cl. 6.3 IS:694 Table 1	0 Ohms to 100 Ohms, +0.05%
		Test for overall dimensions and thickness (Insulation and Sheath)	IS 10810(Pt-6) IS 694-2010 Cl 10,13,14 & table 1 to 5	0 to 300 mm, +0.01 mm & 0 to 50 mm. +0.01 mm
		Tensile Strength and elongation at break	IS 8130, IS 10810 Part- 7	0 to 500 N, LC: 2 N 0 to 10 kN, LC: 0.004 kN,
		Loss of mass Test (Insulation and Sheath)	IS 10810(Pt-10) IS 5831 Table 1 & 2 IS:694 Table 1	0 to 100 gms., +0.05 %
		Ageing in air oven (Insulation and Sheath)	IS 10810(Pt-11) IS 5831 Table 1 & 2 IS:694 Table 1	0 to 200 °C ±1.0 °C, (Qualitative Test)
		Test for Shrinkage	IS 10810(Pt-12)	0 to 200 °C, +1.0 °C.

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		(Insulation and Sheath)	IS 5831 Table 1 & 2 IS:694 Table 1	(Sample Conditioning) 0 to 300 mm. +0.01 mm.
		Heat Shock Test (Insulation and Sheath)	IS 10810(Pt-14) IS 5831 Table 1 & 2 IS:694 Table 1	0 to 250°C, ±1.0 °C (Qualitative Test)
		Hot Deformation Test (Insulation and Sheath)	IS 10810(Pt-15) IS 5831 Table 1 & 2 IS:694 Table 1	0 to 100 °C, ±1.0 °C, (Sample Conditioning), 0 to 300 mm., ± 0.01 mm.
		Test for Insulation Resistance Test	IS 10810(Pt-43) IS 5831 Table 1 & 2 IS:694 Table 1	1 to 10 ⁶ mega ohm, ±1.0%
		High Voltage Test (Water Immersion & room temp.) (AC)	IS 10810 (Pt45) IS:694 Table 1	0 to 6 kV (AC), ±2.5%
		High Voltage Test (DC)	IS 10810(Pt-45) IS:694 Table 1	0 to 2 kV (DC), ±2.5%
		Flammability Test	IS 10810(Pt-53) IS:694 Table 1	0 to 600 mm., + 0.05 mm.
		Cold bend test	IS 10810(Pt-20) IS 5831 Table 1 & 2 IS:694 Table 1	0 to -20°C, +2.0 °C (Qualitative Test)
		Cold impact test	IS 10810(Pt-21) IS 5831 Table 1 & 2 IS:694 Table 1	0 to -20°C, +2.0 °C (Qualitative Test)
		Oxygen Index Test	IS 694 Cl. 10.5 IS 10810 (Pt-58)	1 to 850 °C, +1.0 °C
		Test for Temp. Index,	IS 694 Cl. 10.7 IS 10810 (Pt-64)	1 to 250 °C, +1.0 °C
		Test for Halogen Acid Gas Evaluation,	IS 694 Cl. 10.6 IS 10810 (Pt-59)	1 to 850 °C, +1.0 °C
		Test for Smoke Density	IS 10810 Part-63	0 to 100 %
		Thermal stability Test (Insulation and	IS 10810 (Pt- 60) IS 5831 Appendix B IS:694	0 to 250 °C, ±0.1 °C (Qualitative Test)

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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
2.	PVC Insulated (Heavy Duty Electric Cables Part-I for working voltage up to and including 1100 volts.) (1 to 400 Sq. mm)	Sheath)	Table 1 IS 1554 (Pt-1)	
		Tensile Strength (for Al. Conductor)	IS 8130 IS 10810 Part- 2	0 N to 500 N, LC: 2 N 0 N to 10 kN, LC: 0.004 kN,
		Wrapping Test (for Al. Conductor)	IS 10810(Pt-3) IS 8130 Cl. 6.2.2 IS 1554(Pt-1) CI 15	Qualitative/ Qualitative Test
		Test for conductor resistance (Al & Copper Conductor)	IS 10810(Pt-5) IS 8130 Cl. 6.3 IS 1554(Pt-1) CI 15	0 to 100 ohms, $\pm 0.05\%$
		Test for thickness (Insulation and Sheath)	IS 10810(Pt-6) IS 1554(Pt-1) CI 10,13,14 CI. 9,12,14,15 table 2,4,7	0 to 300mm, ± 0.01 mm & 0 to 50 mm. ± 0.01 mm
		Tensile Strength and elongation at break	IS 8130 IS 10810 Part- 7	0 to 500 N, LC: 2 N 0 to 10 kN, LC: 0.004 kN,
		Loss of mass Test (Insulation and Sheath)	IS 10810(Pt-10) IS 5831 Table 1 & 2 IS 1554(Pt-1) CI 15	0 to 100 gms., ± 0.05 %
		Ageing in air oven (Insulation and Sheath)	IS 10810(Pt-11) IS 5831 Table 1 & 2 IS 1554(Pt-1) CI 15	0 to 200 °C ± 1.0 °C, (Qualitative Test)
		Test for Shrinkage (Insulation and Sheath)	IS 10810(Pt-12) IS 5831 Table 1 & 2 IS 1554(Pt-1) CI 15	0 to 200 °C, ± 1.0 °C. (Sample Conditioning) 0 – 300 mm. ± 0.01 mm.
		Heat Shock Test (Insulation and Sheath)	IS 10810(Pt-14) IS 5831 Table 1 & 2 IS 1554(Pt-1) CI 15	0 to 250°C, ± 1.0 °C (Qualitative Test)
Hot Deformation Test (Insulation and Sheath)	IS 10810(Pt-15) IS 5831 Table 1 & 2 IS 1554(Pt-1) CI 15	0 to 100 °C, ± 1.0 °C, (Sample Conditioning), 0 to 300 mm., ± 0.01 mm.		

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		Test for Insulation Resistance	IS 10810(Pt-43) IS 5831 Table 1 & 2 IS 1554(Pt-1) CI 15	1 to 10 ⁶ mega ohm, $\pm 1.0\%$
		High Voltage Test (Water Immersion) (AC)	IS 10810 (Pt45) IS 1554(Pt-1) CI 15, 16	0 to 6 kV (AC), $\pm 2.5\%$
		High Voltage Test (DC)	IS 10810(Pt-45) IS 1554(Pt-1) CI 15, 16	0 to 2 kV (DC), $\pm 2.5\%$
		High Voltage Test(Room Temp)	IS 10810 (Pt45) IS 1554(Pt-1) CI 15, 16	0 to 3 kV (AC), $\pm 2.5\%$
		Flammability Test	IS 10810 (Pt-53) IS 1554(Pt-1) CI 15, 16	0 to 600 mm., ± 0.05 mm.
		Cold bend test	IS 10810(Pt-20) IS 5831 Table 1 & 2 IS:1554(Pt-1) CI 15	0 to -20°C, ± 2.0 °C (Qualitative Test)
		Cold impact test	IS 10810(Pt-21) IS 5831 Table 1 & 2 IS:1554(Pt-1) CI 15	0 to -20°C, ± 2.0 °C (Qualitative Test)
		Thermal stability Test (Insulation and Sheath)	IS 10810(Pt- 60) IS 5831 Appendix B IS:1554(Pt-1) CI 15 IS 7098(Pt-I)	0 to 250 °C, ± 0.1 °C (Qualitative Test)
3.	Cross linked Polyethylene Insulated PVC Sheathed Cables Part-I for working voltage up to and including 1100 volts, (1 to 400 Sq. mm)	Tensile Strength (for Al. Conductor)	IS 8130 IS 10810 Part- 2	0 N to 500 N, LC: 2 N 0 N to 10 kN, LC: 0.004 kN,
Wrapping Test (for Al Conductor)		IS 10810(Pt-3) IS 8130 Cl. 6.2.2 of IS 7098(Pt-1) CI.15	Qualitative/ Qualitative Test	
Test for conductor resistance (Al. & Copper Conductor)		IS 10810(Pt-5) IS 8130 Cl. 6.3 IS 7098(Pt-1) CI.15	0 to 100 ohms, $\pm 0.05\%$	
Test for thickness		IS 10810(Pt-6)	0 to 300 mm ± 0.01 mm	

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		Insulation and Sheath	IS 7098-(Part-I) Cl 9, 12 , 14,15 & table 2,4,6	0 to 50 mm±0.01 mm
		Tensile Strength and elongation at break	IS 8130 IS 10810 Part- 7	0 to 500 N, LC: 2 N 0 to 10 kN, LC: 0.004 kN,
		Loss of mass Test (Insulation and Sheath)	IS 10810(Pt-10) IS 5831 Table 1 & 2 IS 7098(Pt-1) Cl.7,15	0 to 100 gms., ±0.05 %
		Ageing in air oven (Insulation and Sheath)	IS 10810(Pt-11) IS 5831 Table 1 & 2 IS 7098(Pt-1) Cl. 4, 7, 15 & table -1	0 to 200 °C ±1.0 °C, (Qualitative Test)
		Test for Shrinkage (Insulation and Sheath)	IS 10810(Pt-12) IS 5831 Table 1 & 2 IS 7098(Pt-1) Cl. 4, 7, 15 & table -1	0 to 200 °C, ±1.0 °C. (Sample Conditioning) Up to 300 mm. ±0.01 mm.
		Heat Shock Test (Insulation and Sheath)	IS 10810(Pt-14) IS 5831 Table 1 & 2 IS 7098(Pt-1) Cl. 7, 15	0 to 250 °C, ±1.0 °C (Qualitative Test)
		Hot Deformation Test (Insulation and Sheath)	IS 10810(Pt-15) IS 5831 Table 1 & 2 IS 7098(Pt-1) Cl.7,15	0 to 100 °C, ±1.0 °C, (Sample Conditioning), Upto 300 mm., ± 0.01 mm.
		Water Absorption (gravimetric) (Insulation and Sheath)	IS 10810(Pt-33) IS 7098(Pt-1) Cl. 4,15 & table 1	0 to 100 gram
		Test for Insulation Resistance (Volume Resistivity)	IS 10810(Pt-43) IS 7098(Pt-1) Cl. 4,15 & table -1	1 to 10 ⁶ mega ohm, ±1.0%
		High Voltage Test (Water Immersion & room temp.) (AC)	IS 10810 (Pt-45) IS 7098-(Pt-I) Cl.15, 16.2	3 kV (AC), ±2.5%
		Flammability Test	IS 10810(Pt-53) IS 7098(Pt-I) Cl. 15,16.3	0 to 600 mm., + 0.05 mm.
		Cold bend test	IS 10810(Pt-20) IS 5831 Table 1 & 2	0 to -20°C, ±2.0 °C (Qualitative Test)

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			IS:7098(Pt-1) Cl.15	
		Cold impact test	IS 10810(Pt-21) IS 5831 Table 1 & 2 IS:7098(Pt-1) Cl.15	0 to -20°C, +2.0 °C (Qualitative Test)
		Oxygen Index Test	IS 7098-Pt.1 Cl. 16.9 IS 10810 (Pt-58)	0 to 100% Ambient to 100°C
		Test for Temp. Index	IS 7098-Pt.1 Cl. 16.14	0 to 100% Ambient to 100°C
		Test for Halogen Acid Gas Evaluation	IS 7098-Pt.1 Cl. 16.13 IS 10810 (Pt-59)	0 to 999 °C 0 to 4137 KPa
		Test for Smoke Density	IS 7098-Pt.1 Cl. 16.15 IS 10810 (Pt-63)	0 to 100 %
		Thermal stability Test (Insulation and Sheath)	IS 10810(Pt- 60) IS 5831 Appendix B IS 7098(Pt-1) CL.15 IS 7098(Pt-1) Cl.7,15, table 1	0 to 250 °C, ±0.1 °C (Qualitative Test)
		Hot set Test (Insulation and Sheath)	IS 10810(Pt-30) IS 7098(Pt-1) Cl. 4 & table-1, Cl 4,15,table 1	0 to 200 °C, ±1.0 °C
4	Aerial Bunched Cables for Working Voltages up to and including 1100 Volts, (1 to 120 sq.mm)		IS 14255	
		Tensile Strength (for Al. Conductor)	IS 8130 IS 10810 Part- 2	0 N to 500 N, LC: 2 N 0 N to 10 kN, LC: 0.004 kN,
		Wrapping Test (for Al Conductor)	IS 10810(Pt-3) IS 8130 Cl. 6.2.2 IS 14255 Cl.10	Qualitative/ Qualitative Test
		Test for conductor resistance (Al. & Copper Conductor)	IS 10810(Pt-3) IS 8130 Cl. 6.2.2 IS 14255 Cl.10	0 to 100 ohms, ±0.05%
		Test for thickness Insulation and Sheath	IS 10810(Pt-6) IS 14255 Cl.10 ,table 4	0 to 300mm, ±0.01 mm & 0 to 50 mm. +0.01 mm

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		Tensile Strength and elongation at break	IS 8130 IS 10810 Part- 7	0 to 500 N, LC: 2 N 0 to 10 kN, LC: 0.004 kN,
		Ageing in air oven (Insulation and Sheath)	IS 10810(Pt-11) IS 14255 Cl.10 ,Table 1	0 to 200 °C ±1.0 °C, (Qualitative Test)
		Test for Shrinkage (Insulation and Sheath)	IS 10810(Pt-12) IS 14255 Cl.10 ,Table 1	0 to 200 °C, ±1.0 °C. (Sample Conditioning) 0 to 300 mm. ±0.01 mm.
		Water Absorption (gravimetric) (Insulation and Sheath)	IS 10810(Pt-33) IS 14255 Cl.10 ,Table 1 & 2	0 to 100 gram
		Hot Set Test	IS:14255 Table-1, Cl. 10 IS 1081 (Pt.30)	Amb. to 300 °C +/- 3.0 °C
		High Voltage Test (Water Immersion) (AC)	IS 10810 (Pt-45) IS 14255 Cl.10 ,11.2	0 to 3 kV (AC), ±2.5%
(IV)	TRANSMISSION LINE EQUIPMENT AND ACCESSORIES			
1.	ACSR Conductor (1 to 560 sq. mm.)		IS 398 (1 to 4)	
		Test for conductor resistance (Al. & Copper Conductor)	IS 10810(Pt-3) IS 8130 Cl. 6.2.2 IS 398 (1-4)	0 to 100 ohms, ±0.05%

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MECHANICAL TESTING				
I. PERFORMANCE TEST				
1.	Plastic Flushing Cistern For Water Closets & Urinals	Construction-Dimensioning	IS 7231 Cl. 5.1,5.2,5.3.5.4,5.6,5.7,5.8 & Cl.6	2 mm to 350 mm
		Operation & Performance Requirement	IS :7231 Cl.7.1,7.2,7.3,7.4	Qualitative
		Discharge Capacity & Discharge Rate	IS 7231 Cl. 7.5 & 7.6	3L to 10L
		Distortion Resistance Test	IS 7231 Cl. 8.1	Qualitative
		Dead Load Test	IS 7231 Cl. 8.2	Qualitative
		Front Thrust Test	IS 7231 Cl. 8.3	Qualitative
		Impact Test	IS 7231 Cl. 8.4	Qualitative
		Endurance Test	IS 7231 Cl. 9.3	Upto 3000 cycles (Qualitative)
2.	Pressure Cooker	Capacity Test	IS 2347 Cl. 4.1	1 to 24 ltrs.
		Fusible Plug	IS 2347 Cl. 5.2	3.0kg/cm ² (Qualitative)
		Vent Pipe	IS 2347 Cl. 5.7	2mm (Min.)
		Construction	IS 2347 Cl.6.1,6.2,6.3	Qualitative
		Workmanship & Finish	IS 2347 Cl. 7	Qualitative
		Capacity Test	IS 2347 Cl. 4.1	1 to 24 ltrs.
		Fusible Plug	IS 2347 Cl. 5.2	3.0kg/cm ² (Qualitative)
	Vent Pipe	IS 2347 Cl. 5.7	2mm (Min.)	
	Construction	IS 2347 Cl.6.1,6.2,6.3	Qualitative	
	Workmanship & Finish	IS 2347 Cl. 7	Qualitative	
	Air Pressure Test	IS 2347 Cl. 8.1	40% to 100% of Nominal Steam Pressure (NSP)	
	Proof Pressure Test	IS 2347 Cl. 8.2	Twice the NSP	

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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
		Operating Test For Pressure Regulating Device	IS 2347 Cl. 8.3	110% to 120% of NSP/OP
		Test For Safety Pressure Relief Device	IS 2347 Cl. 8.4	1.5 to 3 times of NSP
		Bursting Pressure Test	IS 2347 Cl. 8.5	6 kg/cm ² (Min.)
		Test For Removal Of Lid Under Pressure	IS 2347 Cl. 8.6	Qualitative
3.	Domestic Gas Stove Use With LPG	Material	IS 5116 Cl.5 IS 4246 Cl. 5	Qualitative
		Design for maintenance	IS 4246 Cl.6	180mm (Min.)
		Rigidity & Stability	IS 4246 Cl.7	Qualitative
		Construction & Finish	IS 4246 Cl.8	Qualitative
		Gas Taps	IS 4246 Cl.9 IS 5116 Cl. 8	Qualitative
		Injector Jet	IS 4246 Cl.10 IS 5116 Cl. 9	Qualitative
		Burners	IS 4246 Cl.11,11.2,11.3 IS 5116 Cl.10	Qualitative
		Burner Pan support	IS 4246 Cl.12	Qualitative
		Gas Soundness Test	IS 4246 Cl.13.1 IS 5116 Cl. 16	Qualitative
		Dimensions. Connections /fitting	IS 4246 Cl.14 IS 5116 Cl.18	1mm to 22.5mm

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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
		Strength and Rigidity test	IS 4246 Cl. 15	Qualitative
		Gas Consumption Test	IS 4246 Cl.17	3 to 100 ltr/. Hrs.
		Ignition and Flame travel	IS 4246 Cl.18 IS 5116 Cl.14	Qualitative
		Flame stability	IS 4246 Cl.19	Qualitative
		Noise Control and Flash back	IS 4246 Cl.20,21	Qualitative
		Formation of soot	IS 4246 Cl.22	Qualitative
		Resistance To Draught	IS 4246 Cl. 23	Qualitative
		Combustion Test	IS 4246 Cl. 24	CO / CO2 - 0.02
		Fire Hazard And Limiting Temperatures	IS 4246 Cl.25 IS 5116 Cl.23	30 °C to 600 °C
		Thermal Efficiency	IS 4246 Cl.26	68% (Min.)
4.	Mini domestic Water heater for use with LPG	General Requirements	IS 5116 Cl.4 IS 15558 Cl.4.1 to 4.1.12	Qualitative
		Material test	IS 5116 Cl.5 IS 2305 Proc.5	Qualitative
		Dimensions / Connections	IS 15558 Cl.6 IS5116 Cl.18	1mm to 22.5mm
		Flame visibility	IS 15558 Cl.7	Qualitative
		Gas tap	IS 15558 Cl.8	Qualitative
		Flame failure device	IS 15558 Cl.9	Qualitative
		Ignition Device	IS 5116 Cl. 14 IS 15558 Cl.10	Qualitative

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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
		Protection against Accidental Heating	IS 15558 Cl.11	Qualitative
		Water rate Adjustment	IS 15558 Cl.12	Qualitative
		Gas & water soundness test	IS 15558 Cl.14, Cl.15 IS 5116 Cl.16	Qualitative
		Thermal efficiency	IS 5116 Cl.16	82% to 84% (Min)
		Combustion efficiency test	IS 15558 Cl.17	CO / CO ₂ – 0.02
		Gas consumption test	IS 15558 Cl.18 IS 5116 Cl. 20.4	7 g/h to 1200g/h
		Ignition and flame travel	IS 15558 Cl.19	Qualitative
		Flame stability, noise control, Flash back & resistance to draught	IS 15558 Cl.20, 21,22,23	Qualitative
		Fire hazard & limiting temp.	IS 15558 Cl.24 IS 5116 Cl. 23	30°C to 600 °C.
		Temp. rise test	IS 15558 Cl.25	30 °C to 90 °C
		Hot water output test	IS 15558 Cl.26	Qualitative
5.	SS sink for Domestic Purpose	Dimensions	IS 13983 Cl.6	1mm to 515mm
		Construction and workmanship	IS 13983Cl.7 & Cl.8	Qualitative

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6.	Tower Bolts (Ferrous & Non ferrous metals)	Dimensions	IS:204(Pt-1)91 & (Pt-2)92 Cl.6, Cl.7	Size 75mm to 900mm
7.	Steel Door Frames	Dimensions	IS 4351 Cl. 6 & 7	Size 790 mm to 2090mm
8.	Hot Rolled steel sections for door window and ventilators	Dimensions	IS 7452 Cl. 6, & Cl. 7	Size 16mm to 46mm
9.	Door Handles	Dimensions	IS 208 Cl.6	Size 75 to 150mm
10.	Plastic bib tap/angle valve /pillar tap/stop valve for hot and cold water services	Nominal sizes & Dimensions Identification Construction & workmanship	IS 9763 Cl. 5 ,6,7 & 8	Size 15mm to 20mm
		Residual chlorine	IS 9763 Cl.9.1	Qualitative
		Drip proofness test	IS 9763 Cl.9.2	Qualitative
		Thermal shock test	IS 9763 Cl.9.3	Qualitative
		Hydraulic pressure test	IS 9763 Cl.9.4	Qualitative
		Mechanical strength characteristics	IS 9763 Cl.9.5	Qualitative
11.	Steel butt hinges	Dimensions, Tolerances, General, knuckle, pin, screw holes & finish	IS 1341 Cl.5, 6.1, 6.2, 6.3, 6.4, 7	Size 15mm to 150mm
12.	Non Ferrous Metal Butt Hinges	Dimensions, Tolerances, General, knuckle, pin, screw holes & finish	IS 205 Cl.5, 6 , 6.2, 6.3.1, 6.3.2,7	Size 25mm to 150mm
13	Continuous Piano Hinges	Dimensions, Tolerances, General, knuckle, pin, screw holes & finish	IS 3818 Cl.4, Cl. 5.1,5.2,5.3,5.4	Size 25mm to 50mm

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14.	Cast copper alloy screw down bib tap and stop valves for water services	Dimension and Tolerance	IS: 781 Cl.5.1 ,5.2, 6.6.,6.7,6.8,8	Tap Size - 8 mm to 25mm Valve Size – 8 to 50 mm
		Minimum mass	IS: 781 Cl.7	Tap Mass –0.25 to 3.75kg Valve Mass –0.22 to 3.75kg
		Testing (Hydraulic)	IS: 781 Cl.9	Qualitative
III.	MECHANICAL PROPERTIES OF METALS			
1.	Ferrous/Non-Ferrous Material (Cast Irons, Steels, Alloy Steels, Aluminium, Copper, Brass Etc Including HSD Bar) Welded material	Tensile Test	IS 1608	1 N/mm ² to 1700 N/mm ²
		Ultimate tensile strength,		
		Yield stress		1 N/mm ² to 1500 N/mm ²
		Elongation		1 % to 100%
		0.2% Proof Stress		1 N/mm ² to 1500 N/mm ²
		Bend Test	IS 1599	1mm to 32mm (Qualitative)
		Rebend Test	IS 1786	8mm to 32 mm Dia (Qualitative)
		Reverse Bend Test	IS 1716	2mm to 10mm dia. (Qualitative)
		Vickers Hardness	IS 1501 (Part 1)	90 to 1000 HV30
		Rockwell Hardness	IS 1586 (Part1)	30 HRB to 91 HRB 20 HRC to 80 HRC
	Brinell Hardness	IS 1500-2005 (Part 1):2013	66.8 HB to 908 HB (2.5 mm Ball Dia. 187.5 kg. Load)	
	Sectional Weight	IS 1786: 1985 IS 808: 1989 IS 1173: 1978 IS 1730: 1989 IS 1732: 1989 IS 1852: 1985	1 g to 300 kg	

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2.	Metallic Tubes	Bend Test	IS 2329	16 mm to 60 mm dia. (Qualitative)
		Flattening Test	IS 2328	40 mm to 500 mm dia. (Qualitative)
		Drift Expansion Test	IS 2335	40 mm to 200 mm dia. (Qualitative)
3.	Aluminum Conductors for Transmission Purpose	Breaking Load Test	IS 398 (Part 2) IS 1608	1 N/mm ² to 1700 N/mm ²
		Wrapping Test	IS 1755	1mm to 4mm Dia of wire (Qualitative)
4.	Rigid Steel Conduit Pipe	Compression Test	IS 9537 (Part 1) IS 9537 (Part 2)	16 mm to 63 mm dia (Qualitative)
		Dimension Test		0.01 mm to 4mm
		Bend Test		16mm to 25mm Dia (Qualitative)
5.	Precast Manhole Cover And Frame	Load Test	IS 12592	2 kN to 350 kN (Qualitative)
		Dimension		0.01mm to 1000mm
6.	Metallic Foil	Tensile Test	IS 13237	1 N/mm ² to 1700 N/mm ²
7.	Vulcanized Rubber	Ultimate Tensile Strength	IS 3400 (Part 1)	1 N/mm ² to 1700 N/mm ²
		Elongation at Break	IS 3400 (Part 1)	0 to 1000%
8.	Rigid Plain Conduit of Insulating Material	Collapse Test	IS 9537 (Part 1) IS 9537 (Part 3)	16mm to 50mm dia (Qualitative)
		Compression Test		16mm to 50mm Dia (Qualitative)
		Dimension Test		0.01 mm to 4mm
		Bend Test		16mm to 25mm dia (Qualitative)

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9.	PVC Insulated Cable	Tensile Strength	IS 10810 (Part 2)	1 N/mm ² to 1700 N/mm ²
		Elongation		1 % to 1000%
10.	Thermosetting Synthetic Resin Bonded Laminated Sheets	Cross Breaking Strength	IS 1998	1 N/mm ² to 1700 N/mm ²