

<b>Laboratory</b>	<b>Bureau of Indian Standards (Eastern Regional Office Laboratory) P-230, C.I.T Scheme, VII M, Block W, Kankurgachi, Kolkata, West Bengal</b>		
<b>Accreditation Standard</b>	<b>ISO/IEC 17025: 2005</b>		
<b>Discipline</b>	<b>Mechanical Testing</b>	<b>Issue Date</b>	<b>18.09.2014</b>
<b>Certificate Number</b>	<b>T-0107</b>	<b>Valid Until</b>	<b>17.09.2016</b>
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<b>S.No.</b>	<b>Product / Material of Test</b>	<b>Specific Test Performed</b>	<b>Test Method Specification against which tests are performed</b>	<b>Range of Testing / Limits of Detection</b>
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#### **I. TEXTILE MATERIALS**

<b>1. Jute &amp; Textile Products</b>	Measurement of length & width	IS1943:1995(RA 2000) IS 2566:1993(RA 2000) IS 12650:2003 IS 2818(Part-1 to Part 6)(RA 2000) IS15138:2002 IS 3667:1993(RA 2000) IS 3984:2002	10 to 2000mm 0.5 to 1000mm
	Measurement of ends, picks	IS 1943:1995 (RA 2000) IS 2566:1993 (RA 2000) IS12650:2003 IS 2818(Part 1 to Part 6)(RA 2000) IS 15138:2002 IS 3667:1993(RA 2000)	picks per dm ends per dm
	Measurement of stitches	IS 1943:1995(RA 2000) IS 2566:1993(RA 2000) IS 12650:2003 IS 2818(Part 1 to Part 6)(RA 2000) IS 15138:2002 IS 9113:1993(RA 2000)	stitches per dm
	Mass & thickness of liner	IS15138:2002	0.02 to 200 g 0.01 to 25 mm
	Mass & moisture regain (%) of Jute Bags & fabric	IS 1943:1995(RA2000) IS 2566:1993(RA2000) IS 12650:2003 IS 2818(Part 1 to Part 6)(RA 2000) IS 15138:2002, IS 3667 :1993(RA2000), IS3984:2002	25 to 60000 g 8% to 30%

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	<b>Jute &amp; Textile Products</b>	Measure-ment of oil content	IS 1943:1995(RA 2000) IS 2566:1993(RA 2000) IS12650:2003 IS 2818(Part 1 to Part 6)(RA2000) IS15138: 2002 IS 3667:1993 (RA 2000)	0.1 to 5%
		Threads / dm of Canvas & Cotton Drill	IS 1963:1985 (RA 2004)	1 to 500
		Width & Breaking Load of Binding Material	IS 1954:1990 (RA 2002) IS 1969:1985 (RA1999)	0.01 to 50mm (WIDTH) 100 to 5000 N
		Length ,Breaking Load & Slip Resistance of Laces	IS 4778: 1982 (RA 2001) IS 1969: 1985 (RA 1999)	10 to 2000 m (length) 100 to 1000N Slip Resistance 0.5 to 100N

## **II. MECHANICAL PROPERTIES OF MATERIALS**

<b>1.</b>	<b>Ferrous &amp; Non Ferrous Material &amp; Products</b>	Tensile Test Yield Stress, Ultimate Tensile Strength percentage Elongation	IS 1608:2005	8 to 40kN/ 200 N 20 to 100kN/ 500 N 40 to 200kN/ 1000N 80 to 400kN/ 2000N
		Bend Test	IS 1599:1985(RA 1996) IS 2329:2005	(Qualitative) 4 to 150 mm (for Flat, round) 15to 50 mm (tube)
		Flattening Test for tube	IS 2328:2005	(Qualitative) 4 to 150 mm OD
		Re-bend Test	IS 1786:2008 (RA 2004)	(Qualitative) 4 to 32 mm dia

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	<b>Ferrous &amp; Non Ferrous Material &amp; Products</b>	Dimensions, Deformation , Surface Characteristics & Mass	IS 204 (Part 1) : 1991 (RA 2000) IS 204(Part 2) : 1992 (RA 2001) IS 205:1992 (RA2007) IS 208:1996(RA 2001) IS 274(Part 2)-1981 (RA 2003) IS 277: 2008 IS 278 : 2009 IS 280 :2006 IS 281:2009 IS 362: 1991 (RA 2006) IS 513 :2008) IS 808 :1989 (RA 2004) IS 814:2004 IS 1029 :1970 (RA 2008) IS 1038:1983 (RA 2006) IS 1079:1994 IS 1161 :1998(RA2009) IS 1239(Part-1) :2004 IS 1239(Part- 2) 1992 (RA 2009) IS 1341:1992 (RA 2007) IS 1536: 2001 IS 1538: 1993 (RA 2009) IS 1730: 1989 (RA 2009) IS 1732: 1989 (RA 2009) IS 1759: 1986 (RA 2007) IS 1785(Part1&2 Part):1983 (RA 2008) IS1786:2008, IS 1852:1985 (RA 2008) IS 1993:2006 IS 2141 : 2000, (RA 2005) IS 2681 : 1993 (RA 2003) IS 2879 :1998 IS 3589 :2001	10 to 2000 mm/ 0.5mm 2.5 to 25 mm/0.001 mm 25 to 50mm./ 0.001mm 0.5 to 300mm/ 0.5 mm

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	<b>Ferrous &amp; Non Ferrous Material &amp; Products</b>	Dimensions, Deformation , Surface Characteristics & Mass	IS 3601: 2006 IS 3954 :1991 (RA 2006) IS 4109 :1967(RA 1991) IS 6003 :1983 (RA 2003) IS 6006 :1983 (RA 2008) IS 6392 :1971 (RA 2009) IS 7092 ( Part 1) :1992(RA 2006) IS 7092(Part 2) :1987 (RA 2006)	10 to 2000 mm/ 0.5mm, 2.5 to 25 mm/ 0.001 mm 25 to 50mm./ 0.001mm 0.5 to 300mm/ 0.5 mm
		Hardness test (Brinnel)	IS 1500:2005	100 to 230 HBW, 2.5/187.5, 250to 300 HBW, 5/750, 200to 350HBW, 10/3000

### III. BUILDINGS MATERIALS

<b>1. Plywood and Plywood Products</b>  <b>IS 303:1989</b> <b>IS 1659:2004</b> <b>IS 710:2010</b> <b>IS 4990:1993</b> <b>IS 2202(P-1)1999</b> <b>IS 1328:1996</b>	Moisture Content	IS1734 (Part 1):1993(RA 2003)	2% to 30%
	Adhesion of Plies	IS1734 (Part 5):1983(RA 2003)	Qualitative
	Water resistance	IS1734 (Part 6):1983(RA 2003)	Qualitative
	Mycological Test	IS1734 (Part 7):1983(RA 2003)	Qualitative
	Tensile Strength	IS1734 (Part 9):1983(RA 2003)	0.2 to 40kN/200N
	Static Bending Strength	IS1734 (Part 11):1983(RA 2003)	0.1 to 20000N (for, IS 710:2010, size Upto 12 mm thickness)
	End immersion	IS4020 (Part 13):1998(RA 2008)	Qualitative
	Knife test	IS 4020 (Part 14):1998 (RA 2008)	Qualitative
	Glue Adhesion test	IS4020 (Part 15):1998 (RA 2003)	Qualitative

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2.	<b>Wrought Al Utensils</b>	Dimensions	IS 1660(Part 1):1982 (RA 1998)	300 to 1000 mm/0.5 mm 100 to 300/0.01 mm 2.5 to 25 mm/ 0.01 mm
3.	<b>Landing Valve (Type - A)</b>	Dimensions	IS 5290 -1993 (RA 2003)	100 to 300mm/ 0.01mm 2.5 to 25 mm/0.01 mm

#### **IV. PLASTICS AND RUBBER**

1.	<b>HDPE Pipe</b>	Dimensions	IS 4984 – 1995 (RA 2002)	2.5 to 25mm/ 0.01mm 2 to 300mm / 0.01mm 0.5 to 300 mm /0.5mm
		Reversion Test	Annx C of IS 4984:1995	16 to 280 mm Dia ± 10%
		Melt Flow Rate	IS 2530 : 1963 (RA 2003)	0.1 to 300 °C/0.1°C
2.	<b>UPVC Potable water Pipe</b>	Dimensions	IS 4985 – 2000	2.5 to 25 mm/ 0.01 mm 2 to 300 mm/ 0.01 mm
		Resistance to External Blow at 0°C	Annx C of IS 4985:2000	16 to 300 mm Dia
3.	<b>PVC Fittings &amp; 90° bend (Potable water supplies)</b>	Dimensions	IS 10124 (Part 2):1988(RA 2003) IS 10124 (Part 8):1988 (RA 2003)	2.5 to 25 mm/ 0.01 mm 2 to 300 mm / 0.01mm 16 to 300 mm Dia
4.	<b>Branch Pipe &amp; Nozzle (Fire hose)</b>	Dimensions	IS 903 - 1993 (RA 1998)	2.5 to 25 mm/ 0.01 mm 2 to 300 mm/ 0.01 mm

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<b>5.</b>	<b>Rubber Sealing Ring</b>	Stretch Test	IS 5382 : 1986 (RA2008)	0.5 to 1000 mm/ 0.5mm
		Tensile Strength & Elongation at break	IS3400 (Part 1):1987 (RA2008)	0.01 to 5000 N/ 0.01 N 0.5 to 300 mm/0.5 mm
		Compression Set	IS3400 (Part 10) :2004 (RA2008)	0.01 to 25 mm/ 0.01 mm
		Accelerated ageing in air	IS 3400 (Part 4) : 2004 (RA2008)	0.1 to 250° C
		Water immersion test	IS 3400 (Part 6) :2004 (RA2001)	0.1 to 250° C
		Water Absorption Test	IS 5382:1986 (Appn-C) (RA2008)	0.1 to 15% 0.1 to 20%
<b>6.</b>	<b>Rubber (Boots &amp; Shoes)</b>	Relative density of foxing & toe cap of Rubber Sole & Heel	IS 3400: (Part 9): 2003	0.01 to 3.0
		Impact Test	IS 3976: 2003, IS 11226 : 1993 (RA1998), IS 1989 (Part 1):1986(RA 1997), IS 1989 (Part2) : 1986 (RA 1992)	Depression Upto to 300mm
		Tensile strength & Elongation at break of rubber sole & heel	IS3400 (Part 1 & Part 4) :1987 (RA 2003)	0.01 to 5000 N/ 0.01 N
		Compression Set Test of Rubber sole & heel	IS 3400(Part 10):1977 (RA 2003)	0.1% to 40%

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	<b>Rubber (Boots &amp; Shoes)</b>	Flexing Resistance of Rubber sole & heel	IS 3400(Part 16) :1974 (RA 2003)	a) crack to Qualitative b) Cut growth 0.5 to 1000 mm
		Ageing Test (in air)	IS 3400(Part 4) :1987 (RA 2003)	a) Change in TS (MPa) Upto +15 - 40 b) Change in Hardness (IRHD) Upto +15 -10 c) % elongation +15 - 40
		Adhesion & Consolidation Test of Foxing & Composite Rubber	IS 3400(Part 5) :1986 (RA 2003)	Qualitative
		Determination of Mass	IS 1989 (Part 1):1986 (RA1997) IS 1989(Part 2) : 1982 (RA1992) IS 3735 : 1996 IS 5676:1995(RA 2002) IS 11226 : 1993 (RA 1998) IS 3976: 2003	0.05 to 3000gm
		Flexing Endurance Test of Body	IS 5557 :2004 (Appn-B)	Qualitative
		Leakage Resistance Test	IS 5557: 2004	Qualitative
		Dimension of Eyelets	IS 5041:1978 (RA2001)	Upto 25 mm
<b>7.</b>	<b>Toe Cap</b>	Dimensions, Performance Test & Finish	IS 5852 :2004	0.05 to 150 mm/0.05 mm, 0.01 to 150 mm/0.01 mm, 0.01 to 25 mm/0.01 mm

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#### **V. PERFORMANCE TEST**

<b>1.</b>	<b>Pressure Cooker</b>	Capacity Test	IS 2347 :1995 (RA 2002)	Upto 22 lit/ 0.5lit
		Temperature Responsive safety pressure device Test	IS 2347 :1995 (RA 2002)	Upto 7 kg/ cm <sup>2</sup> / LD=0.2 kg/ cm <sup>2</sup>
		Air Pressure Test	IS 2347 :1995 (RA 2002)	Upto 1.6 kg/ cm <sup>2</sup> / LD=0.05 kg/ cm <sup>2</sup>
		Proof pressure & Bursting Pressure Test	IS 2347 :1995 (RA 2002)	Upto 7 kg/ cm <sup>2</sup> / LD=0.2 kg/ cm <sup>2</sup> & Upto 21 kg/ cm <sup>2</sup> / LD=0.25kg/ cm <sup>2</sup>
		Operating Test for Pressure Regulating Device	IS 2347 :1995 (RA 2002)	Upto 1.6 kg/ cm <sup>2</sup> / LD=0.05 kg/ cm <sup>2</sup>
		Safety Pressure Relief Device	IS 2347 :1995 (RA 2002)	Upto 7 kg/ cm <sup>2</sup> / LD=0.2 kg/ cm <sup>2</sup>
		Check the Workmanship & Finish	IS 2347 :1995 (RA 2002)	Qualitative

**-X-X-X-X-X-X-X-X-X-X-X-**