

**Laboratory**                      **Ordnance Equipment Factory, Hazratpur Testing Laboratory,  
Hazratpur, Firozabad, Uttar Pradesh**

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

**Certificate Number**        **TC-5633**

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**Validity**                        **30.11.2018 to 29.11.2020**

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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
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**CHEMICAL TESTING**

I.	<b>TEXTILE (WOVEN &amp; NON WOVEN)</b>			
1.	<b>Fabrics, Cords, Ropes, Tapes,</b>	Colour Fastness to Washing with Soap or Soap and Soda)	IS/ISO 105 (Part-C10 :2006)	Qualitative (Grade 1 to 5)
		Colour Fastness to Perspiration	IS 971:1983 (RA 2009)	Qualitative (Grade 1 to 5)
		Fabrics (Other than Wool) – Dimensional Changes on Soaking in Water	IS 2977: 1989 (RA 2016)	(-) 20% to (+) 20%
		Colour Fastness to Sea Water	IS 690 : 1988 (RA 2017)	Qualitative (Grade 1 to 5)
		Colour Fastness to Organic Solvents	IS 688 : 1988 (RA 2017)	Qualitative (Grade 1 to 5)
		Colour Fastness to Rubbing	IS 766 : 1988 (RA 2009)	Qualitative (Grade 1 to 5)
		pH Value of Aqueous Extracts	IS 1390 : 1983 (RA 2013)	4.01 to 12.00
		Scouring Loss in Grey and Finished Cotton Textile Materials	IS 1383 : 1977 (RA 2013)	01% to 30%
		Quantitative Chemical Analysis of Binary Mixture of Polyester Fibre with Cotton or Regenerated Cellulose	IS 3416 (Part 1) : 1988 (RA 2017)	05% to 100%
		Water Soluble Matter	IS 3456:1966 (RA 2016)	0.2% to 30%
Proofing Content.	IS 6803:1972 (RA 2017)	0.2% to 30%		

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		Resistance to Heat.	IS 14181(Part 1 to 3)- 2002 (RA 2013)	Qualitative
		C F to Leveling Test	Appendix of Prov/S/4369/Fabric/PV/TC-11/2(A)	Qualitative
		C F to Chorite Test	Appendix of Prov/S/4369/Fabric/PV/TC-11/2(A)	Qualitative
		C F to Hydro Test	Appendix of of Prov/S/4369/Fabric/PV/TC-11/2(A)	Qualitative
		Identification of Material	IS 667-1981 (RA 2017)	Qualitative
		Dye Identification	IS 4472(Part-I) -1967 (RA 2006)	Qualitative
		Blocking.	BS:3424-1993 Method 13	Qualitative
		Weight of deproofed fabric	IS 7016 (Part. I)- 1982 (RA 2014) BS:3424-1993	02 g/m <sup>2</sup> to 300 g/m <sup>2</sup>
		Water Repellency (Uncoated surface)	IS 390:1978 (RA 2013)	Qualitative
		Water Soluble matter, % mass	IS 3456: 1966 (RA 2016)	0.1% to 30%
		Flame Retardancy Test	IS 11871:1986 (RA 2013)	Qualitative
<b>II.</b>	<b>PLASTIC &amp; RESINS</b>			
<b>1.</b>	<b>Polyurethane Foam</b>	Heat Ageing Test (Reduction of Density)	IS 7888 -1976 (RA 2014)	0.1% to 50 %

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<b><u>MECHANICAL TESTING</u></b>				
<b>I.</b>	<b>TEXTILE MATERIAL</b>			
<b>1.</b>	<b>Fabrics</b>	Width of Woven Fabrics	IS 1954 : 1990 (RA 2017)	05 cm to 2000 cm
		Threads per Unit Length	IS 1963 : 2004 (RA 2014)	03 per cm to 100 per cm
		Mass per Unit Length and Mass per Unit Area	IS 1964 : 2001 (RA 2017)	02 g/m to 300 g/m & 02 g/m <sup>2</sup> to 700 g/m <sup>2</sup>
		Linear Density of Yarns Spun on Cotton System.	IS 1315 : 1977 (RA 2010)	10 tex to 500 tex
		Breaking Strength (Ravelled Strips)	IS 1969 (Part 1) : 2009 (RA 2014)	20 N to 4500 N
		Yarn - Breaking Strength and Elongation at Break of Single Strand	IS 1670 : 1991 (RA 2017)	10 N to 500 N
		Breaking Load of Braided Nylon cords for aerospace purposes	IS 4227: 1998 (RA 2013) (Amalgamating IS 4437:1973)	20 N to 4500 N
		Breaking Strength of Coated and Treated Fabrics	IS 7016 (Part 2) : 2015	20 N to 4500 N
		Breaking Load of Tyre yarns, cords and tyre cord warp sheets made from man-made fibres	IS 4910 (Part 3) : 1989 (RA 2010)	20 N to 4500 N
		Tear Strength of Coated and Treated Fabrics	IS 7016 (Part 3) : 1981 (RA 2008)	20 N to 4500 N

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		Tear Strength by the Falling Pendulum Method	IS 6489 (Part 1) : 2011	320 g to 6400 g
		Recovery from creasing of textile fabrics by measuring the angle of recovery.	IS 4681 : 1981 (RA 2008)	30 ° to 180 °
		Cone Test	IS 6803 : 1972 (RA 2017)	Qualitative (01ml to 400ml)
		Pressure Head Test	IS 6803 : 1972 (RA 2017)	Qualitative
		Pilling Resistance Test	IS 10971(Pt I):2011 (RA 2017)	Qualitative (1 Grade to 5 Grade)
		Count of Yarn removed from Fabrics	IS 3442: 1980 (RA 2014)	10 tex to 500tex
		Resistance to Abrasion	IS 14181(Pt-2):2002 (RA 2013) ANNEX 'L'	Qualitative
<b>2.</b>	<b>Netting Mosquito</b>	No of Holes on Base bias	Appendix A of IS : 1431: 1973 (RA 2016)	01 Pick to 35 pick
<b>3.</b>	<b>Nylon Cords</b>	Mass	Appen-B IS : 4727:1998 (Amalgamating IS 4437: 1973) (RA 2013)	0.2 g/m to 700 g/m
		Twist of Yarn	IS 832(Part 1): 2011, ISO 2061: 1995 (RA 2017)	05 tpm to 80 tpm
<b>4.</b>	<b>Plastic slide fasteners</b>	Security of Interlocking of textile Chain to lateral load	Clause 10.2 of IS 14181(Part1):2002 (RA 2013)	10 N to 1500 N
		Fold over security of textile Chain		10 N to 600 N
		Security of attachment of Top stop		10 N to 600 N
		Security of attachment		10 N to 600 N

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		of Bottom stop	Clause 10.2 of IS 14181(Part1):2002 (RA 2013)	
		Security of attachment of Retainer Longitudinal load (open end)		Qualitative
		Security of attachment of Retainer to Lateral Load (Open end)		Qualitative
		Security of attachment of Puller to Slider		10 N to 1500 N
		Security of slider lock holding		10 N to 100 N
		Remeshability of Fastener	Clause 10.3 of IS 14181(Part1):2002 (RA 2013)	Qualitative
		Textile chain Thickness	Clause 8.1 of IS 14181(Part1):2002 (RA 2013)	02 mm to 50 mm
		Textile chain Width		02 mm to 50 mm
<b>5.</b>	<b>Elastic Tapes</b>	Determination of Load Required for 50 % Extension and Limit of Useful extension	Clause 4.4 (A-6) of IS 9686:1980(RA 2017)	10 % to 300 %
		Accelerated Ageing	Clause 4.4 (A-3) of IS 9686:1980 (RA 2017)	Qualitative
		Tension Decay under constant stretch.	Clause 4.4 (A-7) of IS 9686:1980(RA 2017)	02 % to 20 %
		Fatigue Test.	Clause 4.4 (A-8) of IS 9686:1980(RA 2017)	Qualitative
		Thickness	IS-7702:2012 ISO 5084:1996 (RA 2017)	01mm to 10mm
<b>6.</b>	<b>Coated Fabrics</b>	Resistance to Low Temp.at - 40° C	IS 7016(Part 10): 1997 ISO 4675:1990 (RA 2003)	Qualitative

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		Resistance to Accelerating Ageing at temp 70 ±1 °C	IS 7016 (Part. 8):1975 (RA 2017)	Qualitative
		Resistance damage by flexing	IS 7016 (Part. 4):2003 ISO 7854:1995 (RA 2013)	Qualitative
		Water proofness	IS 7016 (Part. 7):2003 ISO 7854:1995 (RA 2013)	Qualitative
7.	<b>Hook &amp; Loop Tape</b>	Shearing Strength	Clause 7.2 of IS: 8156:2014(RA 2014)	05 N to 1500 N
		Peeling Strength		05 N to 1500 N
		Endurance Test	Clause 7.4 of IS: 8156:2014 (RA 2014)	Qualitative
8.	<b>Fabric</b>	Air Permeability in Fabrics for Parachute	IS 11056-2013 rev. I	10 cm <sup>3</sup> /cm <sup>2</sup> /Sec to 800 cm <sup>3</sup> /cm <sup>2</sup> / Sec
9.	<b>Ropes And Cordages</b>	Linear density	IS 7071 (Part. 2):1989 (RA 2014)	10 tex to 500 tex
		Length	IS 7071 (Part. 2):1989 (RA 2014)	05 mm to 1000 mm
		Mass	IS 7071 (Part. 2):1989 (RA 2014)	02 g to 200 g
		Breaking Load	IS 7071 (Part. 4):1989 (RA 2014)	45 N to 4500 N
10.	<b>Nylons Cords</b>	Breaking Load 15 cm between grip in N	Appen-B IS : 4727:1998 (Amalgamating IS 4437: 1973) (RA 2013)	01 to 5000 N
		Elongation at break %	Appen-B IS : 4727:1998 (Amalgamating IS 4437: 1973) (RA 2013)	01 to 5000 N
		Linear Density of yarn	Appen-D JSS 4020-9	10 tex to 100 tex
		No. of Spindle	JSS 4020-9	1 to 40
		No. of Ends	JSS 4020-9	1 to 90
		No. of Plates / dm	Appen-B JSS 4020-9	01count to 100 count

**Ramprasath. R**  
**Convenor**

**Nitan Garg**  
**Program Manager**

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		Sheath Slackness	Anx-B Clause 4.2 of IS 4227:1998 (RA 2013)	2 mm to 50 mm
		Core looping Tendency		Qualitative
11.	Elastic Tape	50% extension.	IS 9686:1980(RA 2017)	Upto 1400 gf
		50% extension (After Ageing)	IS 9686:1980(RA 2017)	Upto 1400 gf
		Tension Decay under constant stretch (After Ageing)	IS 9686:1980(RA 2017)	75 g to 250 g
12.	HDPE interlining	Weave (2/1) twill	Visual	Qualitative
		Bond Strength (kgs) Fusing Condition.	IS 1963	1% to 20%, 1% to 20%
13.	Coated Fabrics	Weave.	Visual	Qualitative
		Water Vapour Transmission	DMSRDE/T&GS/89/377 (d)	02 mg/cm <sup>2</sup> /hour to 20 mg/cm <sup>2</sup> /hour
14.	Hook & Loop Tape	Shearing Strength after Endurance L&H Fasteners	IS 8156:2014 (RA 2014)	05 N to 1500 N
		Peeling Strength after Endurance L&H Fasteners	IS 8156:2014 (RA 2014)	05 N to 1500 N
15.	Ropes And Cordage	Mass, kg/1000 m, (Max) Unwaxed (3.0)	Appdx.A of ADRDE/Specn / 1984/19 (a), Visual	01g to 20 g
		Construction, (Cabled)	Visual	Qualitative
		Dia (mm)	IND/TC/2324 (b)	02 mm to 100 mm
		No. of seration per mm width	Appdx-B, IND/TC/2324 (b)	0 to 2100 g
16.	Tapes & Webs	Stiffness (Drop angle) of Tape Nylon UVR-WR treated	ADRDE/SPECN/70 (a)	02° to 200 °



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23.	Rubber Solution	Rubber Solution. (Adhesive Strength in Shear)	IND/GS/1535	05 N to 100 N
		Rubber Solution. (Adhesion Strength by Stripping)		05 N to 100 N
II.	<b>MECHANICAL PROPERTIES OF METALS</b>			
1.	<b>Triangular 'D' Ring for Cargo Parachute</b>	Proof load in Triangular 'D' Ring	JSS:1670-03:2005-Rev-No.1	1000 N to 2500 N

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