Laboratory	**Randack Fasteners India Pvt. Ltd.-Material Testing Lab, Gat No. 1197, Ghotawade Phata, Village-Pirangut, Tal-Mulshi, Dist-Pune, Maharashtra**		
Accreditation Standard	**ISO/IEC 17025: 2005**		
Certificate Number	**TC-6567**	**Page 1 of 3**	
Validity	**25.07.2018 to 24.07.2020**	**Last Amended on 15.07.2019**	

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.	**METAL & ALLOYS**			
1.	**Low carbon steel & alloy**	Carbon (C)	ASTM E415 IS 8811	0.09 % to 0.75 %
		Silicon (Si)		0.20 % to 2.00 %
		Manganese (Mn)		0.30 % to 1.5 %
		Sulphur (S)		0.001 % to 0.05 %
		Phosphorus (P)		0.003 % to 0.05 %
		Nickel (Ni)		0.02 % to 2.50 %
		Molybdenum (Mo)		0.004 % to 0.20 %
		Copper (Cu)		0.003 % to 0.40 %
		Chromium (Cr)		0.10 % to 2.50 %
		Boron (B)		0.0005 % to 0.01 %
2.	**Stainless steel**	Carbon (C)	ASTME1086 IS 9879	0.010 % to 0.20 %
		Silicon (Si)		0.20 % to 0.80 %
		Manganese(Mn)		0.20 % to 2.0 %
		Phosphorus (P)		0.007 % to 0.050 %
		Sulphur (S)		0.002 % to 0.050 %
		Chromium (Cr)		10.0 % to 20.00 %
		Nickel (Ni)		1.0 % to 15.00 %
		Molybdenum (Mo)		0.050 % to 2.75 %

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Convenor

Alok Jain
Program Manager

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MECHANICAL TESTING

I.	**MECHANICAL PROPERTIES OF METALS**			
1.	**Ferrous Material, Alloy's and products**	**Tensile Test**	IS 1608 ISO 6892 (Part 1)	10 kN to 1000 kN 60 kN to 3000 kN
		Ultimate Tensile Strength		100 N/mm^2 to 1500 N/mm^2
		Yield Strength (0.2% Proof Stress)		100 N/mm^2 to 1400 N/mm^2
		% Elongation,		5 % to 50 %
		% Reduction in Area		9 % to 80 %
		Charpy Impact Test	DIN EN ISO 148 (Part 1) IS1757 (Part 1)	2 J to 300 J Ambient to -52°C
		Brinell Hardness Test	ISO: 6506-1 ASTM E 10 IS 1500 (Part 1)	100 to 600 HBW 10/3000 100 to 600 HBW 5/750
		Rockwell Hardness Test	ISO 6508-1 ASTM E 18 IS 1586-(Part 1)	20 HRC to 70 HRC
		Vickers Hardness Test	ISO 6507-1 ASTM E92	240.0 HV30 to 750.0 HV30 125 HV10 to 775 HV 10
		Micro Vickers Hardness Test	ASTM E384	180 to 360 HV0.3
2.	**Plated / Coated Part**	Salt Spray Test	ISO 9227/ASTM B 117	Qualitative test
3.	**Steel Fasteners Nut / Stud / Bolt**	Proof Load Test (For Nut)	ISO 898-2	M18, M20, M22, M24, M27, M30, M36 to M56
		Proof Load Test (For Bolt & Stud)	ISO 898-1	M10, M12, M14, M16, M18, M20, M22, M24, M27, M30, M36 to M56
		Torque Tension Test - Torque Coefficient (K), Coefficient of Total Friction (μ-TOT)	ISO 16047	Load: 100 kN to 2500 kN Torque: 200 Nm to 20000 Nm

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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
II.	**METALLOGRAPHY TEST**			
1.	**Ferrous Material, Alloy's and products**	Effective Case Depth measurement by Micro Vickers hardness method	IS 6416	150 to 650 HV1 180 to 360 HV0.3
		Average Grain Size Measurement by Comparison Method	ASTM E 112	Qualitative (ASTM Grain Size No. 1 to 10) Magnification 100X
		General Microstructure Examination.	ASM Hand Book Volume 9 ASTM E407 ASTM E3	Qualitative (Magnification 50 to 1000x)
		Non Metallic Inclusion Rating by Method "A"	ASTM E -45 IS 4163	Qualitative (Inclusion Rating Types A, B, C, D: 0.5 to 3.0) (Magnification 50 to 1000 x)
		Total Case Depth by Microscopic Method	ISO 6416	0.01 mm to 2.0 mm (Magnification 50 to 1000 x)
		Depth of Decarburization By Microscopic method	IS 6396 ASTM E 1077	0.01 mm to 2.0 mm (Magnification 50 to 1000 x)
		Coating Thickness measurement by Microscopic Method	ASTM B 487 ISO 1463	0.01 mm to 2.0 mm (Magnification 50 to 1000 x)
2.	**Ferrous Fasteners Nut / Stud / Bolt**	Determination of Carburization & Decarburization of Bolts, Screws & Studs by Micro Vickers Hardness method	ISO 898-1 Clause No. 9.10.3	180 to 360 HV0.3

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