

Laboratory

Material Testing Department (MTD), Machine Tool Prototype Factory,  
Ordnance Estate, Ambarnath, Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-8042

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Validity 26.10.2018 to 25.10.2020

Last Amended on --

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.	METALS AND ALLOYS			
1.	<b>Ferrous Alloys- Low Alloys Steel</b>	Carbon	ASTM E 415:2017	0.040 % to 1.60 %
		Manganese		0.001 % to 2.00 %
		Silicon		0.100 % to 2.00 %
		Sulphur		0.020 % to 0.10 %
		Phosphorous		0.020 % to 0.15 %
		Chromium		0.050 % to 2.00 %
		Nickel		0.050 % to 4.50 %
		Molybdenum		0.100 % to 1.60 %
		Vandium		0.100 % to 1.50 %
		Aluminium		0.100 % to 2.00 %
		Copper		0.050 % to 0.50 %
2.	<b>Stainless Steel</b>	Carbon	ASTM E 1086:2014	0.030 % to 0.20 %
		Manganese		0.100 % to 2.00
		Silicon		0.050 % to 2.50 %
		Sulphur		0.020 % to 0.40 %
		Phosphorous		0.020 % to 0.05 %
		Chromium		5.000 % to 30.0 %
		Nickel		0.100 % to 10.0 %
		Molybdenum		0.050 % to 3.00 %
		Copper		0.100 % to 0.50 %
		Titanium		0.050 % to 0.20 %
3.	<b>Copper Base Alloy (Brass &amp; Bronze)</b>	Aluminium	BS 15079 : 2015	0.005 % to 15.00 %
		Tin		0.005 % to 15.00 %
		Lead		0.001 % to 10.00 %
		Nickel		0.005 % to 0.600 %
		Iron		0.100 % to 5.00 %
		Manganese		0.005 % to 2.00 %
		Phosphorous		0.001 % to 2.00 %

**Battal Singh  
Convenor**

**N. Venkateswaran  
Program Manager**

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		Silicon		0.001 % to 2.00 %
		Zinc		0.001 % to 45.0 %
4.	Aluminium Alloy	Iron	ASTM E 1251 : 2017a	0.001 % to 1.00 %
		Manganese		0.001 % to 1.00 %
		Copper		0.001 % to 15.00 %
		Silicon		0.050 % to 6.00 %
		Titanium		0.001 % to 0.20 %
		Tin		0.001 % to 0.10 %
		Lead		0.001 % to 0.10 %
		Magnesium		0.001 % to 1.0 %
		Zinc		0.001 % to 3.0 %

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#### MECHANICAL TESTING

I.				
1.	<b>Ferrous &amp; Non-Ferrous Material &amp; Product</b>	<b>Tensile Test</b>		
		Tensile strength	IS 1608 (Part 1): 2018	100 MPa to 1500 MPa
		Yield stress		100 MPa to 1200 MPa
		% Elongation		2 % to 60 %
		<b>Hardness Testing</b>		
		Rockwell Hardness Test	IS 1586 (Part 1): 2012	20 HRC to 65 HRC
		Brinell Hardness Test	IS 1500 (Part 1): 2013	150 HBW to 450 HBW/ 10/ 3000
	Vickers Hardness Test	IS 1501 (Part 1): 2013	200 HV5 to 750 HV5	