

Laboratory Testing Laboratory, Kalyani Carpenter Special Steels Ltd., Mundhwa, Pune, Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Discipline Chemical Testing **Issue Date** 24.10.2014

Certificate Number T-1441 **Valid Until** 23.10.2016

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
I.	METALS & ALLOYS			
1	STEEL (Carbon, Low Alloy, Medium Alloy steels). Rolled / Forged Products)	C	IS 8811-1998 & ASTM E415-2008 Chemical Analysis of Steel by Optical Emission Spectrometer	0.01% to 1.10%
		Mn		0.20% to 2.00%
		Si		0.040% to 1.15%
		S		0.001% to 0.055%
		P		0.003% to 0.085%
		Cr		0.02% to 3.50%
		Ni		0.05% to 5.00%
		Mo		0.005% to 0.60%
		Al		0.005% to 1.50 %
		Ti		0.001% to 0.20%
		Cu		0.02% to 0.50%
		Sn		0.002% to 0.10%
		V		0.005 % to 2.00 %
		B		0.0003 % to 0.05%
	Ca	0.0005 % to 0.005%		

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	STEEL (Carbon, Low Alloy, Medium Alloy steels). Rolled / Forged Products)	As		0.002% to 0.10%
		Nb		0.002% to 0.40%
		W		0.005% to 2.00%
		Co		0.005% to 0.30%
		N ₂		0.005% to 0.025%
2.	STEEL (Carbon, High Alloy, Stainless Alloy steels). Rolled / Forged Products)	C	IS 9879-1998 & ASTM E1086-94 (Reapproved 2005) Chemical Analysis of Steel by Optical Emission Spectrometer	0.02% to 0.60%
		Mn		0.20% to 10.00%
		Si		0.040% to 4.00%
		S		0.003% to 0.065%
		P		0.003% to 0.10%
		Cr		5.00% to 35.00%
		Ni		0.20% to 35.00%
		Mo		0.01 % to 3.00%
		Al		0.005% to 0.10%
	Ti	0.001% to 1.50%		

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	STEEL (Carbon, High Alloy, Stainless Alloy steels). Rolled / Forged Products)	Cu		0.01% to 4.50 %
		Sn		0.002% to 0.10%
		V		0.005% to 2.00%
		B		0.0003% to 0.05%
		Ca		0.0005% to 0.005%
		As		0.002% to 0.10%
		Nb		0.002% to 1.00%
		W		0.005% to 2.00%
		Co		0.005% to 0.10%
		N ₂		0.002% to 0.500%
3.	Steel	Carbon	ASTM E 1019-2003 by LECO (Combustion-Infrared absorption method)	0.01% to 2.00%
		Sulphur		0.005 % to 0.40%
		Nitrogen	ASTM E 1019-2003 LECO (Thermal Conductivity method)	0.0010% to 0.55%
		Oxygen		0.0003% to 0.030%

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	Steel	Hydrogen	Manufacture Manual & WI-CL-07 Revision 03 Dated 28.08.14 by LECO (Diffusion method)	0.0001% to 0.0010%

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