

BSL**SPECTRO LAB**

CERTIFICATE NO.
T - 1452 & T- 1453

METALLURGICAL TESTING CENTRE

(A Unit of BSL Castings Pvt. Ltd.)

(NABL ACCREDITED LAB)

TEST REPORT

WORKS & OFFICE :

PLOT NO. 263, SECTOR-24
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BSL/SPECTRO/5.10F-01/01/00

Issued to : M/s. Nov Sara India (P) Ltd.
7/1, Pritam Road, Unit - II,
Dehra Dun - 248001

Report No. 161897

Ref. No. Nil

D.O.T. : 29.01.2011

D.O.R. : 29.01.2011

J.O. No. : 49086

Sample Description Sample No. - 5619, Heat No. - B-24, Dia - 70.0mm

RESULTS

Chemical Analysis (Fe Base - LAS)

Protocol : ASTM E 1507 (By O.E.S)

Sample ID; J.O.No. - 49086

<u>Element</u>	<u>%</u>
Carbon	0.021
Silicon	0.432
Sulphur	0.017
Phosphorus	0.033
Manganese	1.962
Nickel	10.08
Chromium	16.47
Molybdenum	2.023
Vanadium	0.040
Copper	0.591
Tungsten	<0.02
Cobalt	<0.03
Aluminium	<0.01
Titanium	<0.02
Iron	68.31

Checked By

263,
SECTOR-24,
FARIDABAD

BSL SPECTRO LAB & METALLURGICAL TESTING CENTRE

Authorised Signatory
(Q.M. / T.M.)

- Note :
1. The result listed refer only to the tested samples and applicable parameters, Endorsement of product is neither inferred nor implied.
 2. Total Liability of our Laboratory is limited to the invoiced amount. No liability will be accepted after the sample is taken back.
 3. *Not Covered under NABL Scope.
 4. This report can not be used as an evidence in a court of law.
 5. Samples will be destroyed after 15 days.
 6. Any Complaints about this report should be communicated within 7 days of issue of this report.
 7. This report shall not be reproduced except in full, without the written permission of the Laboratory.

MILL TEST CERTIFICATE

(En 10204 - 3.1)

AD 2000 - MERKBLATT W0 CERTI NO. 07 202 1423 WP-1414/09 & PED 97/23/EC CERTI NO. 07 202 1423 WZ 1414/09

Customer Name & Destination : M/s. Sara Services & Engineers Pvt. Ltd.		T.C.NO.:L - 18003	Date : 23/01/2011	ORDER NO : Nil		
Material Specification	Manufacturing Route	Supply Condition	Size	Stamp of the Testing Engineer	Colour Code	Weight (Mt)
AISI - 316L Round Bars.	Electric Furnace with AOD Route, Ladle Refined, Fully Killed Quality Steel.	As Rolled	70 mm		Blue & White.	4255 -

CHEMICAL ANALYSIS IN PERCENTAGE

ELEMENTS	C	Mn	Si	S	P	Cr	Ni	N	Mo	Size	Pes.
Specification	Min.	-	-	-	-	16.00	10.00	-	2.00		
	Max.	0.030	2.00	1.00	0.030	0.045	18.00	14.00	0.1000	3.00	
Heat No.	Grade										
B-24	AISI-316L	0.023	1.91	0.42	0.018	0.038	16.57	10.03	0.0591	2.03	70 mm 22

ULTRASONIC TESTING ACC. STD : 6mm FBH	REMARKS : NA	Radiation Level : 0.08 to 0.15 uSv/hr
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MECHANICAL PROPERTIES : TEST STD ASTM A370

Size	Test Condition	UTS (N/MM ²)	YS (N/MM ²)	% EL	% RA	Hardness (BHN)	
						Min.	Max.
70 MM	Solution Annealed	535	240	56.12	67.37	155	160

METALLURGICAL TEST RESULT

Grain Size
E 112

IMPACT TESTING : ASTM E - 23

METALLURGICAL TEST RESULT					Grain Size E 112	Test Temp :		Test Std :	
INCLUSION RATING ASTM E - 45						Sr. No	Impact Energy (J)	Average	
	A	B	C	D					
Thin	-	-	-	-	-	-	-	-	-
Thick	-	-	-	-	-	-	-	-	-

JOMINY HARDENABILITY : ASTM - 3848

MACROSTREAK FLAW TEST (IS - 4075)

DIST mm/Inch	J	J	J	J	J	J	Marco Test (ASTM E - 381)	1 st Step	2 nd Step	3 rd Step
ACTUAL HRC	-	-	-	-	-	-	-	-	-	-

Visual Inspection :

Remarks	1 Ultrasonic testing as per ASTM E-114/EN 583-1
	2 Microstructure (Grain Size) as per ASTM E - 112
	3 Inclusion Rating as per ASTM E - 45/DIN 50602
	4 Radioactive contaminations are well within the specification.
	5 Lead has not been added during manufacturing.
	6 Steel is fully killed by Aluminium for fine grain structure.

For Laxcon Steels Ltd.

For Laxcon Steels Ltd.

WE CONFIRM/THAT THE TEST
CERTIFICATE FINDINGS ARE
CORRECT & RESULTS ARE
AS PER STANDARD /
CUSTOMER'S REQUIREMENTS

Chemist

Authorized Signatory (Q.C.)