



VARDHMAN SPECIAL STEELS LTD.

TEST CERTIFICATE

QF MSD 4.12 06

ISO/TS 16949 : 2009
Certificate : 37659-2008
ISO 14001 : 2004
Certificate : 52070-2009
OHSAS 18001 : 2007
Certificate : 70060-2010

Heat no.	61732	Customer	For aproval		
Grade	SAE8620H	Certificate no.	2017/10/025	Invoice no.	
Finish Size (mm)	54 MM	Certificate date	03/10/2017	Invoice date	
Finish Shape	Round	Colour Code	Blue Base/Black Line	No. of Bars	
Cast Size (mm)	200*200	Length of Bars	4-6 MTRS.	Quantity (MT)	
Reduction Ratio	17.5	Supply Condition	Hot Rolled		

Manufacturing Route EAF-LRF-VD (TANK DEGASSING)-CCP With EMS & AMLC

% CHEMICAL COMPOSITION

	C	Si	Mn	S	P	Ni	Cr	Mo	Cu	Sn	Al	Ti	Ca	B	V	
Min.	0.17	0.15	0.60	--	--	0.35	0.35	0.15	--	--	0.020	--	--	--	--	
Max.	0.23	0.35	0.95	0.025	0.025	0.75	0.65	0.25	0.30	--	0.045	--	--	--	--	
Actual	0.20	0.245	0.87	0.014	0.015	0.39	0.47	0.155	0.12	0.006	0.029	0.0026	0.0013	0.0003	0.004	
	O2	N2	H2	Grain Size			As per IS-6396			D.I. Value		Micro Structure				
	As per ASTM E 1019 in PPM			(IS:4748/ASTM E112)			Total Decarb (mm)			INCH.						
Min.	--	--	--	7			--			--		Pearlite+Ferrite				
Max.	15	80	1.5	8			1% of section			--						
Actual	13	75	1.1	7.0/7.5			0.23 mm			--		Pearlite+Ferrite				

INCLUSION RATING - IS:4163 / ASTM E45A

									As per JIS G 0555			DIN 50602			Hardness As per IS 1500	
															BHN	
	A		B		C		D		A	B+C	Total	K3	K4		Min	Max
Max.	2.5	1.5	2.0	1.0	2.0	1.0	2.0	1.0	--	--	--	--	--		--	250
Actual	1.5	--	0.5	--	--	--	1.5	--	--	--	--	--	--		190	210

JOMINY HARDENABILITY (IN HRC) IS-1586

Mm/Inch.	J1.5MM	J9MM	J13MM	J20MM												
Min.	41	22	--	--												
Max.	48	35	30	20												
Actual	43.5	28.0	23.5	18.0												

MECHANICAL PROPERTIES IS 1608 : 2005

MM/Inch	Test Condition	Tensile Strength	Yield Strength	Elongation	Reduction Area	Impact Strength	
Min.	--	--	--	--	--	--	
Max.		--	--	--	--	--	
Actual	--	--	--	--	--	--	
	Internal Soundness (ASTM E381)		Step Down Test (IS:4075)		Surface Defects		MPI
Required	C2R2S2 Max.		As per IS:4075		Free fromseams,laps ,crack etc.		--
Actual	C2R2S2 Max.		Ok As per IS4075		Ok in visual inspection		100% Bars done-Ok
	Ultrasonic Test		MFLT		Dimension Tolerance		Ovality / Lobbing
Required	YES		--		As per IS3739 Gr1		NA
Actual	100% Bars manual ut done & found OK		100% Bars done -OK		As per IS3739 Gr1		NA

Mixup Test 100% Bars Checked by Spark, Metascope, Ni Spot test, Mobile Spectro & found - OK

Remarks :-

Reference Standard JMT - D-22/16D, Rev.02,DT.07.12.2011

For any Technical Support / Quality related issues please contact -

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Checked by :
Engineer - R&D

Approved by :
Authorised Signatory