

## VARDHMAN SPECIAL STEELS LTD.

C-58, FOCAL POINT, PHASE V, LUDHIANA (PB.) INDIA

Ph. No.: 0161-2670707-09

## TEST CERTIFICATE

rdhman CERTIFICATE NO. \_\_\_2018/05/509

DATE. 24/05/2018

HAPPY FORGINGS LTD (UNIT-II)



QF MSD 4.12.06 ISO/TS 16949 : 2009 Certificate: 37659-2008 ISO 14001: 2004

Certificate: 177315-2015 OHSAS 18001: 2007 Certificate: 177314-2015

We certify that the material described below fully conforms to IS:7283-1992. Chemical Composition and Mechanical Properties of the product tested in accordance with the Scheme of Testing and Inspection contained in the BIS Certification Marks licence No. CM/L-9700028216 are as indicated below against each order No. etc.

(PLEASE REFER TO IS:7283-1992 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

## TEST RESULTS

							ILOIP	ESULI	3							
Order No	o. & Date			Grade	Heat No (Cast No)	Finished Section (Nominal Size mm)	Qty	Finish Shape	Cast Section (mm)	Red. Ratio	Supply Cond.	Color Code		Length of Bar		No of Bars
		59008 14 AZ		1E1120 6546		100mm	700	ORCS	RCS 200*200	4.0	Hot Rolled	Red Base/White		3-6MTR		78
Manufact	uring Rou	ite	EAF-LR	F-VD-CC	P With E	MS & AML	C									
% CHEMI	CAL COM	POSITIO	N												-	
	С	Si	Mn	S	Р	Ni	Cr	Mo	Cu	Sn	Al	Ti	Ca	В	V	
Min.	0.19		0.80	0.015			0.45	0.08			0.020					1 1 1
Max.	0.23	0.18	1.10	0.025	0.020		0.70	0.25		**			0.0020			
Actual	0.205	0.105	1.05	0.022	0.015	0.055	0.655	0.105	0.090	0.005	0.025	0.0014	0.0010	0.0002	0.004	
	02	N2	H2 G		Grain Size		Total Decarb (mn		(mm)	D.I. Value				cro Structure		
	In PPM		(IS:4748/ASTM E112)		W E112)	(IS:6396)			2.11 74140		WHICH Structure					
Min.	FI 11			5						43	2 mm					
Max.					***					61.0 mm				-		
Actual	13 78 1.2				6.5/7.5			**			45.97 mm		_			30 10
INCLUSIO				/I E45A/ I		,Method A				40.0	77 111111		<del>/</del>	-	Havdas	an DUN
	A		В		C		D			JIS		DIN		Hardness E IS 1500:19		
	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	A	B+C	Total	КЗ	K4			
Max.	3.0	2.0	2.0	1.0	0.5	0.5	1.0	1.0	-	Dio	Total	No	N4		Min	Max
Actual	2.0		0.5		0.0		1.0	1.0				_				220
riotadi	2.0		0.0						(IN LIBC)	(10.2040)					180	200
MM / Inch	J1/16	- J3/16	J8/16			JOIVIIIVI	HANDEN	ADILIT	(IN HRC)	(15 3848)						
Min.	43	35	30/16							4						
Max.	48		29													
Actual	44.0	39.0	23.5													
Actual	44.0	39.0	20.0			MEOU	I A D III A A I	PROPER	7150 (10	10001						
	Too	4.0							RTIES (IS							
Min.	Test Condition			Tensile Strength			Yield Strength			Elongation		Reduction Area		Impact Strength		
	-		**		**											
Max.																
Actual	-				~~		ни -									
									quirement	S						
Standard	Internal	Soundne	ss (ASTM	E381 / IS	11371)	Step Down (IS 4075) / Blue Fracture Test (IS:10138)				Surface Defects (Visual /MFLT)			FLT)	Bend Test ( IS1599:1985)		
Required	C3R3S3 max					As per IS 4075				Depth of defect 0.3 mm max.						
Actual	C3R3S3 max					OK As per IS 4075				OK						
	Ultrasonic Test					MFLT				Dimension Tolerance			Ovality / Lobbing			
	Yes									IS:3739			IS:3739			
Required		100% Bars manual ut done & found OK					scope,Ni Spot test,Mobile Spectro - OK				Asper is 3739 gr 1			A s per IS3739 gr 1		
Actual							M-0			Asp	er is 3739 gr	1	1	As per IS3	3739 ar 1	

Remarks:-Free from radioactive material or banned substances.

Reference Standard IS 7283:1992, Customer Specification Caterpillar Inc.CHG NO.17,DT.28.04.2010

For any Technical Support / Quality related issues please contact

Mr. Dinesh Singh (Chief Manager - R&D)

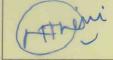
Mobile no.: 081466-25586, email: met5.vss@vardhman.com

For any Test Certificate related issues please contact -

Mr. K.K.Shukla (Officer - R&D)

Mobile no.: 075080-02659 , email: met2.vss@vardhman.com

Website : www.vardhmansteel.com



Checked by: Engineer - R&D

Approved by: Authorised Signatory

For VARDHMAN SPECIAL STEELS LTD.