



VARDHMAN SPECIAL STEELS LTD.

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

Ph. No.: 0161-2670707-09

TEST CERTIFICATE

24/02/2018 DATE.



OF MSD 4.12.06 ISO/TS 16949: 2009 Certificate: 37659-2008

ISO 14001: 2004

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

TEST CERTIFICATE NO. ___2018/02/486 HAPPY FORGINGS LTD (UNIT-II)

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-970002816 are as indicated below against each order No. etc.

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

TEST RESULTS

								THE RESERVE AND ADDRESS OF THE PERSON NAMED IN									
Order No. 8	& Date	ite Invoice No.		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	
		SAA17000 2690		1E1120	63832	100mm 4	29480	RCS	200*200	4.0	Hot Rolled	Red Base/White Line		3-6MTR		72	
anufactur	ing Pout		FAE-I RE	-VD-CC	P With EN	MS & AMLO											
CHEMICA			10.17														
CHEWICA	C	Si	Mn	S	P	Ni	Cr	Mo	Cu	Sn	Al	Ti	Ca	В	V		
Min.	0.19		0.80	0.015			0.45	0.08		-	0.020		-				
Max.	0.19	0.18	1.10	0.025	0.020		0.70	0.25	-				0.0020	77			
Actual	0.23	0.18	1.05	0.020	0.015	0.060	0.655	0.105	0.100	0.006	0.029	0.0019	0.0014	0.0003	0.004		
Actual	0.21	N2	H2		Grain Siz	ze	Tota	l Decarb	(mm)	D.I.	Value		Mic	ro Struct	ture		
-	In PPM		(IS:4	748/ASTI	VI E112)	(IS:6396)											
Min.				5						43.2 mm				-			
Max.										61	.0 mm						
Actual	12	77	1.2		6.5/7.5			**		48.	26 mm						
	USION RATING - IS:4163 / ASTM E45A/ ISO 4967,N									JIS		DIN		Hardness B		AND DESCRIPTION	
CLUSION						С	D			JIS		Dit		IS 150		00:1983	
	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	A	B+C	Total	K3	K4		Min	Max	
Max.	3.0	2.0	2.0	1.0	0.5	0.5	1.0	1.0								220	
Actual	2.0	2.0	0.5				1.0					1/			180	200	
Actual	2.0		0.0			JOMINY	HARDE	NABILIT	Y (IN HRC	(IS 3848							
ana / look		10140	J8/16	_													
/IM / Inch	J1/16 43	J3/16 35	J8/16	+						1							
Min.	48		29	+													
Max.	44.5	38.0	23.0	+	+												
Actual	44.5	30.0	20.0			MEC	HANICA	L PROPE	ERTIES (IS	3 1608)							
	Test Condition				Tensile Strength			Yield Strength			Elongation		Reduction Area		Impact Strength		
Min.		lest condition				3,127				A							
100000000000000000000000000000000000000			- 1							-		MM		4			
Max.						1						- ///					
Actual				1			Supplem	entary R	Requireme	nts			7-1				
Standard	Interna	al Soundn	ess (AST	M E381 /	IS11371)	Step Do	wn (IS 40	075) / Blu S:10138)	e Fractur		ace Defects	(Visual	MFLT)	Bend T	est (IS1	599:198	
Required	C3R3S3 max						As per IS 4075				Depth of defect 0.3 mm max.				***		
	C3R3S3 max					OK As per IS 4075					OK						
Actual	Ultrasonic Test						MFLT				Dimension Tolerance			Ovality / Lobbing			
Deguired	Yes										IS:3739			IS:3739			
Required	100% Bars manual ut done & found OK						_ /				Asper is 3739 gr 1			A s per IS3739 gr 1			
	1 1007	Dais III	arruar at c	20110 0 10		tascope,Ni	Snot toet	Mobile	Spectro - O	K							

Remarks:-

Free from radioactive material or banned substances.

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

For any Technical Support / Quality related issues please contact

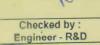
Mr. Dinesh Singh (Sr. Manager - R&D) Mobile no.: 081466-25586 , email : met5.vss@vardhman.com

For any Test Certificate related issues please contact -

Mr. Rajesh Kalia (Executive - R&D)

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

Website: www.vardhmansteel.com



Approved by: **Authorised Signatory**

For VARDHMAN SPECIAL STEELS LTD