

	 58 <sup>th</sup> K.M.Stone Delhi-Jaipur Highway Binola Dist- Gurgaon (Haryana)-122413	Record No : Page: 1 of 1
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## METALLURGICAL TEST REPORT OF FINISHED FORGINGS

Test Certificate No : SAL/GGN/17-18/EV-35/02/0

Customer : VECV LTD

Part Name :

Part No. :

Date : 25/02/2018

P/O No. :

Qty. :

Ch. No. & date :

Material Spec. : 16MnCr5 (MAC-TS-039)			Used: 16MnCr5 (MAC-TS-039)		
Heat No.	Name of Main Producer	SAL – Heat code	Reduction Ratio		
35629	Gerdau Steel India Pvt. Ltd	PI	28.20:1		

Chemistry{ AS Per ASTM E 415 :2014 / IS 8811 - 1998 } & Visual

Status	% C	% Mn	% Si	% S	% P	% Ni	% Cr	% Mo	% Cu	% Ca	% Al	Visual	Remarks
Specified	0.14/ 0.19	1.00/ 1.30	0.40 Max.	0.035 Max.	0.035 Max.	...	0.80/ 1.10	....	....	.....	0.040	Ok	Acceptable
Observed	0.14	1.15	0.27	0.008	0.019	-	1.07				0.024		

Metallurgy, Mechanical & Qualitative

Status	Macro Test 50%HCl; Microscope/Lens		Micro Structure	Grain Size (AST M E- 112)	Inclusion Rating: ASTM E-45								*Qualitative Test (100%)	
	Segregation Level ASTM E-381	Grain Flow Pattern			A		B		C		D		Spark	Mobile Spectro meter
					T	H	T	H	T	H	T	H		
Specn	C3R3S3 max	Must follow contour	P in F matrix ; no banding	6/8	2.0	1.5	2.0	1.5	2.0	1.5	2.0	1.5	Ok	Ok
Obsvd	C1R1S1	Satisfactory	Ok	7-8	1.5	0.5	1.0	-	-	-	1.0	0.5		

Magnetic Crack Detection		H/T –Status : Normalising				UTS N/mm <sup>2</sup>	YS N/mm <sup>2</sup>	% EL	Hardness (RM) HB IS1500:2013
		Hardness HB (spec)	Hardness HB (obsvd)	Microstructure: (100X, 2% Nital)					
				Spec	Ferrite & Pearlite				
Specn.	Obsvd.	150~190				Spec.	Spec	Spec.	Spec
						NA	NA	NA	240 Max.
.....	----					Obsrvd	Ferrite & Pearlite	Obsvd	Obsvd.

Hardenability Test: IS 3848:1981 HRC				*Ch/Iz Impact Test ('V'/'U') Joules / ft-lbs / kg-mtrs		*Upsettability Test
Jominy Value at Specified Distance (inch)				Specn.	Observed	
J1/16		J4/16		NA	----	Ok
Spec.	Obsvd.	Spec.	Obsvd.			
42MAX.	41	33~37	34			

Remarks : \*\* This heat is approved by customer.

Above said components are found to be metallurgically ok .

**The tests marked with an \* are not accredited by NABL.**

This certificate is guarantee for the samples tested by Laboratory.

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Prepared By

Approved By