

UNIQUE

UNIQUE FORGINGS (INDIA) PVT LTD

MATERIAL TEST CERTIFICATE

Unit- II Plot No 601, G I D C, Vithal Udyog Nagar, Pin-388121

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TEST CERTIFICATE NO : UFIPL/17-18/3149

DATE : 15-03-2018

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Client VE COMMERCIAL VEHICLE LTD

Purchase Order No By mail

DATE : 23-01-2018

Work Order 177 03 18

Order Status : INCOMPLETE

PO Sr No	Part Name	Part Number	Drawing Number	Invoice No	Date	Desp Qty
1	GEAR, CLUSTER CREEPER 49T AND 19T	19115	ED 19115/F	4569	15/03/18	151

RAW MATERIAL

Grade	Section	Heat Number	Heat Code	Steel Mill
20MnCr5	60 DIA	K 118507	B 217	KALYANI STEEL

CHEMICAL COMPOSITION

Element	C %	Si %	Mn %	P %	S %	Cr %	Al %	Ni %	Mo %
Minimum	0.170	0.150	1.100	---	---	1.000	0.020		
Maximum	0.220	0.350	1.400	0.025	0.035	1.300	0.060		
As per Mill TC	0.190	0.240	1.150	0.013	0.019	1.040	0.021		
As per UFIPL	0.180	0.222	1.140	0.013	0.021	1.040	0.024		

JOMINY VALUE - HRC (IS 3848)

AT	J 1MM	J 2MM	J 3MM	J 4MM	J 6MM	J 7MM	J 8MM	J 9MM	J 10MM	J 13MM	J 15MM
Required						33-37					
Observed						36					

METALLURGICAL & PHYSICAL OBSERVATION

Value	Inclusion Rating (IS 4163)				Macro ASTM E-381	Micro structure	Grain Size ASTM E112	Step Down Test	Up Setting Test
	A	B	C	D					
	T/H	T/H	T/H	T/H					
Required	2.5/1.5	1.5/1.0	0	1.5/1.0	C2R2S2	P+F	5-8	IS: 4075	IS: 3479
Observed	1.0/0.5	0.5/0.0	0.5/0.0	1.0/0.0	C2R2S2	P+F	6-7	OK	OK

HEAT TREATMENT

Process	Normalizing	Iso Annealing	Hardening	Tempering
Temperature	@ 930°C	NA	NA	NA

MECHANICAL PROPERTIES

Value	LOT NO	UTS N/MM2	YS N/MM2	ELGN %	RDN IN AREA %	PTC NO	Impact Test @			
							I J	II J	III J	PTC NO
Required										
Observed										

FINAL TESTING

Value	Supply Condition	Micro Structure	Grain Size ASTM E112	Hardness BHN	Magna Flux	Spark Test	Spectral Test
Required	Normalised	Pearlite+Ferrite	5-8	160 - 200 BHN	NA	NA	NA
Observed	Normalised	Pearlite+Ferrite	6-8	167 - 182	OK	NA	NA

FINAL INSPECTION

Visual	Dimensional	Ultrasonic	Identification
OK	OK		
Note			

Remarks

WE CERTIFY THAT THE MATERIAL DESCRIBED ABOVE WERE MANUFACTURED, SAMPLED, TESTED AND INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND ANY SUPPLEMENTARY REQUIREMENTS OR OTHER REQUIREMENTS DESIGNATED IN PURCHASE ORDER OR CONTRACT WAS FOUND TO MEET THOSE REQUIREMENTS

Prepared By

Checked By

Approved By

