



CUSTOMER : FORGE INDIA PVT.LTD. DISTT-SOLAN (HP)
 SPECIFICATION : FI/TDC/S-002,ISSUE NO.1
 REV No / REF NO : 00.
 HEAT NO : D 59206
 GRADE : 20MNCR5
 SECTION(MM) : 50 DIA
 REDUCTION RATIO : 16.5
 INPUT SIZE (MM) : 180 X 180
 PROCESS ROUTE : BF/EDF/LRF/VD/CCM/SEN/M'EMS/AMLC

INVOICE NO : 7475
 TRUCK NO : CG04HT-1118
 DATE : 03/05/2018
 NO OF PCS / BNDL : 68 PS/03 BL.
 QUANTITY (MT) : 5.240
 COLOUR CODE : RED+BLUE DOT
 SUPPLY CONDITION : AS ROLLED
 MULTIPLE LENGTH : 5-6MTR.

QA/RM/F10

1. CHEMICAL COMPOSITION % (Ladle/Product)

	%C	%Mn	%P	%S	%Si	%Cr	%Ni	%Mo	%Pb	%Cu	%Sn	%V	%Ti	%B	%Al	%Ca
CUST. MIN	0.170	1.100	--	--	0.150	1.000	--	--	--	--	--	--	--	--	0.020	--
SPEC. MAX	0.220	1.400	0.025	0.035	0.400	1.300	--	--	--	--	--	--	--	--	0.040	--
ACTUAL	0.195	1.140	0.021	0.027	0.200	1.050	0.017	0.002	--	0.007	0.005	0.004	0.0030	0.0002	0.028	0.001

2. MECHANICAL PROPERTIES

SPECIFIED

ACTUAL

YS : --
 UTS : --
 ELONGATIONS(5.65Sq.rt.A) % : --
 REDUCTION AREA % : --
 IMPACT VALUE : --
 HARDNESS(BHN/HRB/HRC) : 220BHN MAX. 170/190 BHN

3. METALLURGICAL PROPERTIES

MICRO STRUCTURE : P+F PEARLITE+FERRITE
 GRAIN SIZE(ASM E112/IS:4748) : 6/8 6.5/7.5
 TOTAL DEARB (MM) SAEJ419 : 1.0%DF DIA 0.26MM PARTIAL
 INCL RATINGS(ASM E-45/IS:4163)

SPECIFIC REQUIREMENT

ACTUAL

	THIN	THICK	THIN	THICK	THIN	THICK	THIN	THICK
SPECIFIC REQUIREMENT	A-2.0/1.5	B-2.0/1.5	C-2.0/1.0	D-2.0/1.0				
ACTUAL	1.5	0.0	0.5	0.0	0.0	0.0	1.5	0.0

MACRO ETCH TEST (ASTM E - 381) : C2R2S2 MAX. BETTER THAN C2R2S2.
 4. D. I. VALUE (J406) : --
 JOMINY REQUIREMENT : 4/16"=34/38 HRC
 HARDENABILITY IS:384B/A255-02

DIST-INCH/MM			4/16"													
VALUES(HRC)			38.00													

5. GAS LEVEL (PPM) SPECIFIED MAX : O2: 20.0 N2: 70-80 H2: 2.0
 GAS LEVEL (PPM) ACHIEVED : O2: 16.2 N2: 80.0 H2: 1.6

6. REMARKS : 100% SPARK/SPECTRAL/MOBILE SPECTRO TEST :OK
 STEP DOWN TEST :OK
 UPSET TEST :NA
 100% UT & MPI TEST OK.

