



JAYASWAL NECO INDUSTRIES LIMITED

(STEEL PLANT DIVISION)

SILTARA INDUSTRIAL GROWTH CENTRE, RAIPUR (C.G.)

Ph.: +91-7721-264241/263, Fax No.: +91-7721-264279/264240

TEST CERTIFICATE

No: BM 3950

QA/RM/F10

CUSTOMER : JAYASWAL NECO INDUSTRIES LTD. LUDHIANA - 10.
 SPECIFICATION : TD60-18
 REV No / REF NO : 0.02.09.2017/13
 HEAT NO : D 60048
 GRADE : 20MNCR5
 SECTION(MM) : 63RCS
 REDUCTION RATIO : 8.2
 INPUT SIZE (MM) : 180 X 180
 PROCESS ROUTE : BF/EDF/LRF/VD/CCM/SEN/M'EMS/AML

INVOICE NO :
 TRUCK NO : HR63C-6985
 DATE : 04/05/2018
 NO OF PCS / BNDL : 96PCS/08BNDL
 QUANTITY (MT) : 15.370
 COLOUR CODE : RED+BLUE DOT
 SUPPLY CONDITION : AS ROLLED
 MULTIPLE LENGTH : 5-6M

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	--	0.020	0.150	1.000	--	--	--	--	--	--	--	--	0.020	--
SPEC. MAX	0.220	1.400	0.025	0.035	0.400	1.300	0.150	0.050	--	0.200	0.025	0.020	0.0100	0.0004	0.040	0.0030
ACTUAL	0.170	1.120	0.016	0.026	0.240	1.000	0.017	0.003	--	0.010	0.002	0.002	0.0030	0.0003	0.035	0.0013

2. MECHANICAL PROPERTIES

	SPECIFIED	ACTUAL
YS	--	--
UTS	--	--
ELONGATIONS(5.65Sq.rt.A) %	--	--
REDUCTION AREA %	--	--
IMPACT VALUE	--	--
HARDNESS(BHN/HRB/HRC)	240MAX	210/230 BHN

3. METALLURGICAL PROPERTIES

MICRO STRUCTURE	P+F	FERRITE+PEARLITE
GRAIN SIZE(ASM E112/IS:4748)	6/8	6.5/7.5
TOTAL DECARB (MM) SAEJ419	--	--
INCL RATINGS(ASM E-45/IS:4163)	--	--

Material has been sold to M/s. Forge India
Putl, H.P.
4800053 25/5/18 15.350MT
 vide Invoice No. HR37C7188
 Truck No. HR37C7188
 Jayaswal Neco Industries Ltd. (Ldh.)

SPECIFIC REQUIREMENT

	THIN	THICK	THIN	THICK	THIN	THICK	THIN	THICK
A-2.0/1.0			B-2.0/1.0		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=31/35	--
HARDENABILITY IS:3848/A255-02	--	--

DIST-INCH/MM	1/16	2/16	3/16	4/16	5/16	6/16	7/16	8/16	9/16	10/16						
VALUES(HRC)	45.00	43.00	39.00	35.00	31.50	29.00	27.00	25.50	24.50	23.00						

5. GAS LEVEL (PPM) SPECIFIED MAX	O2: 20.0	N2: 70-90	H2: 2.0
GAS LEVEL (PPM) ACHIEVED	O2: 15.2	N2: 74.0	H2: 1.8

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



AUTHORISED SIGNATORY

THE MATERIAL IS FREE FROM RADIO ACTIVE CONTAMINATION & HAZARDOUS CHEMICAL UNDER ROHS