



INSPECTION CERTIFICATE

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CERTIFICATE NO. : IJQ20160311108
DATE OF ISSUE : 11.MAR.2016
CUSTOMER : AMERICAN PIPING PRODUCTS
CONTRACT(P/O) NO. : 15015
COMMODITY : SEAMLESS CARBON STEEL COLD FINISHED PIPE
STANDARD : ASTM A53 2012 Edition/A106 2011 Edition // ASME SA53/SA106 2013 Edition // API 5L FORTY-FIFTH EDITION, 2012

EN10204-3.1 / EN10204-3.2

SUPPLIER ILJIN STEEL Corporation

NO.	W/O (HEAT NO.)	ORDER SIZE				QUANTITY				TOTAL LENGTH	Manufacturing Process	Pipe End (Type)	HEAT TREATMENT	Grade	REMARK
		ID	OD	WT	LENGTH	PCS	MASS								
							lbs / ft	TOTAL (lbs/ft)							
1	DR16030900 (R453950)	3.364 " (85.4 mm)	4.000" (101.6 mm)	0.318 " (8.08 mm)	40 ' (12192 mm)	24	12.52 (18.62 kg)	12,019.20 (5457.00 kg)	960.00 ' (292.61 M)	CF	BEP	SRA	ASTM A53 B ASTM A106 B & C ASME SA53 B ASME SA106 B & C API 5L B (PSL1) API X42 (PSL1)	1. THE HARDNESS DESCRIBED HEREIN COMPLIANCE WITH NACE MR-0175/MR-0103(MAX.22HRC) 2. *R - CHEMICAL COMPOSITION REQUIREMENT FOLLOWS NEXT - ASTM A53B : TABLE 1. (REMARK C) - ASTM A106B&C : TABLE 1 (REMARK B) - API 5L : TABLE 4 (REMARK b) 3. NO WELD REPAIR WAS PERFORMED 4. NO MERCURY, MERCURY COMPOUNDS OR MERCURY BEARING INSTRUMENTS AND/OR EQUIPMENT HAVE BEEN USED IN ANY MANNER WHICH MIGHT CAUSE CONTAMINATION IN MANUFACTURE, ASSEMBLY, OR TEST OF MATERIAL. 5. STEEL MELTED AND MANUFACTURED IN KOREA 6. SRA TEMP. : MIN. 650 °C	
		TOTAL				24	12.52	12019.20	960.00						

NO.	W/O (HEAT NO.)	S T A T U S	CHEMICAL COMPOSITION(%)														N D T	HYDRO -STATIC TEST	TENSILE TEST (GAGE LENGTH : 50.8±0.13mm)			IMPACT TEST (ASTM E23)	HARDNESS (ASTM E18)	BENDING TEST	FLATTENING TEST	FLARING TEST	DWT	HYDRO-BURST	V I S U A L	D I M E N S I O N	D R I F T E S T	S T R A I G H T N E S S																
			C	Si	Mn	P	S	Cr	Ni	Mo	Cu	Al	Ti	V	Nb	B			U4	VN	V1												V2	CEQ	Sec.	PRE-SSURE	Width	Y.S	T.S	E.L	Energy	□ HRB	□ HRC	□ HB	□ HV	H=(1+e)t/(e+t/O.D.)	5kg X 2m	MPa
			*4	X100	*R	X1000	X100			X1000			*5	*6	*7	*8			*9	*10	psi												*P	*L	MPa	MPa	%	(1) Temp °C	(2) Unit	Jule	*T	*L	Temp : °C	Temp : °C				
Spec.		MAX	25	10	135	25	25	40	40	15	40			80		1.0	0.15		0.50	EC	UT	5	2970	19.05	290	485	20.3							57.81														
1	DR16030900 (R453950)	LA	18	23	93	8	4	7	5	2	7	18		6	12	0.5	0.2		0.36																													
		BA	17	25	92	6	2	7	5	1	8	18	1	4	12	0.4	0.2		0.35																													
		PA	17	25	93	6	2	7	5	1	8	19	1	4	12	0.4	0.2		0.35	*G	*G																											

NOTE

*1 - NF : Normalizing Forming / HF : Hot Finished / CF : Cold Finished
 *2 - BEP : Bevelled End / PEP : Plain End
 *3 - A : As Rolled / SRA : Stress Relieved Annealing
 Q+T : Quenched & Tempered / N+T : Normalized & Tempered
 N : Normalized / Iso : Isothermal Annealing

*4 - LA : Ladle Analysis / BA : Billet Analysis / PA : Product Analysis
 *5 - Cu+Ni+Cr+Mo+V
 *6 - Nb+V
 *7 - Nb+V+Ti
 *8 - Cr+Ni
 *9 - C+Mn/6+(Cr+Mo+V)/5+(Cu+Ni)/15

*10 - UT : Ultrasonic Test / EC : Eddy Current Test / MT : Magnetic Particle Test/ EM : Electro Magnetic Inspection
 *P - Tubular or Plate Type of ASTM E8 Fig.12
 *F - Full Section Type of ASTM E8 Fig.11
 *G - Good / *L - Longitudinal / *T - Transverse

Third party Section

◆ WE HEREBY CERTIFY THAT THE MATERIAL HEREIN HAS BEEN MADE AND TESTED IN ACCORDANCE WITH ABOVE SPECIFICATION AND THE RESULTS OF ALL TEST ARE ACCEPTABLE
 ◆ THE QUALITY SYSTEM OF OUR WORKS HAS BEEN ASSESSED AND REGISTERED AS MEETING THE REQUIREMENTS OF ISO 9001, ANY WELDING HAS NOT BEEN PERFORMED ON THE MATERIAL
 ◆ THIS CERTIFICATION IS INTENDED ONLY FOR PRODUCTS LISTED. MODIFICATION TO OR UNAUTHORIZED USE OF THIS CERTIFICATION IS STRICTLY PROHIBITED. OFFENSES MAY BE REGARDED AS FORGERY OF DOCUMENTS AND BE SUBJECT TO CRIMINAL PROSECUTION.

YOUNG KYU SEO
 Manager of Q.M Dept.