INSPECTION CERTIFICATE

EN10204-3.1 ■ / EN10204-3.2 □

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CERTIFICATE NO.	: IJQ20160201123
DATE OF ISSUE	: 01.FEB.2016
CUSTOMER	: AMERICAN PIPING PRODUCTS
CONTRACT(P/O) NO.	: 15016
COMMODITY	: SEAMLESS CARBON STEEL HOT FINISHED PIPE
STANDARD	: ASTM A106 2011 Edition/A333 2011 Edition // ASME SA106/SA333 2013 Edition //

SUPPLIER	ILJIN STEEL Corporation

NO.	W/O (HEAT NO.)	ORDER SIZE ID	OD	WT	LENGTH	QUANTITY PCS	MASS lbs / ft	TOTAL (lbs/ft)	TOTAL LENGTH	Manufacturing Process *1	Pipe End (Type) *2	HEAT TREATMENT *3	Grade	REMARK
1	ST16010140 (D03039)	6.065 " (154.1 mm)	6.625" (168.28 mm)	0.280 " (7.11 mm)	40 ' (12192 mm)	55	18.99 (28.26 kg)	41,778.00 (18967.00 kg)	2200.00 ' (670.56 M)	NF	BEP	N/A	ASTM A106 B & C ASTM A333 Gr.6 ASME SA106 B & C ASME SA333 Gr.6	1. THE HARDNESS DESCRIBED HEREIN COMPLIANCE WITH NACE MR-0175/MR-0103(MAX22-HRC) 2. *1 - CHEMICAL COMPOSITION REQUIREMENT FOLLOWS NEXT - ASTM A106/B/C : TABLE 1 (REMARK B) - ASTM A333 GR.6 : TABLE 3 (REMARK A) 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. IMPACT TEST SAMPLE THICKNESS : 5 mm 6. NORMALIZING FORMING TEMP. : ASTM A333 4.2.1.2 (845 ~ 845 °C) 7. STEEL METHOD AND MANUFACTURED IN KOREA
		TOTAL				55	18.99	41778.00	2,200.00					

NO.	W/O (HEAT NO.)	STATUS	CHEMICAL COMPOSITION(%) C	Si	Mn	P	S	Cr	Ni	Mo	Cu	Al	Ti	V	Nb	B	U4	VN	V1	V2	CEQ	NDT		HYDRO-STATIC TEST Sec.	PRESSURE psi	TENSILE TEST (GAGE LENGTH : 50.8+0.13mm) Width *L	Y.S 0.5% EUI MPa	T.S MPa	E.L %	IMPACT TEST (ASTM E23) Energy (1) Temp: -40 °C (2) Unit: Joule *T	*L	HARDNESS (ASTM E18) □ HRB □ HRC □ HB □ HV	BENDING TEST	FLATTENING TEST H=(1+e)t/(e+t/O.D.)	FLARING TEST	DWT Stg X 2m Temp: °C	HYDRO-BURST MPa Temp: °C	VISUAL	DIMENSION	DRIFT TEST	STRAIGHTNESS
			*4	X100		*R	X1000			X100				X1000			*5	*6	*7	*8	*9	*10				*P	MPa	MPa	%	*T	*L										
Spec.		MAX	24		135	25	25	30	40	17	40			80	20		1.0				0.50	EC	UT	5	2800	19.05								67.79							
		MIN		10	29																						275	485	28.3		9											
1	ST16010140 (D03039)	LA	19	23	98	12	5	15	6	2	6	16	28	4	3	0.2	0.3				0.40																					
		BA	20	24	96	11	7	15	5	2	6	17	25	4	3	0.2	0.3				0.40																					
		PA	19	24	96	10	6	15	5	2	6	17	24	4	3	0.2	0.3				0.40		*G	*G			397 426	530 560	32.4 31.5		38 45 39			*G					*G	*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