CERTIFICATE NO.	: IJQ20230623626
DATE OF ISSUE	: 23.JUN.2023
CUSTOMER	
CONTRACT(P/O) NO.	: 25.808
COMMODITY	: SEAMLESS CARBON STEEL HOT FINISHED PIPE
STANDARD	: ASTM A53 2020 Edition / A106 2019 Edition ASME SA53 / SA106 2021 Edition

INSPECTION CERTIFICATE

EN10204-3.1 ■ / EN10204-3.2 □

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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
1	ST23060161 (D19511)	3.826"	4.500"	0.337"	21.0'	313	15.00	98,595.00	6573.00'	HF	BEP	N/A	ASTM A53 B ASTM A106 B ASME SA53 B ASME SA106 B
		TOTAL				313	15.00	98595.00	6,573.00				

REMARK
1. THE HARDNESS DESCRIBED HEREIN COMPLIANCE WITH NACE MR-0175/MR-0103(MAX.22HRC), 2015 EDITION.
2. *R - CHEMICAL COMPOSITION REQUIREMENT FOLLOWS NEXT
- ASTM A53B : TABLE 1 (REMARK C)
- ASTM A106B : TABLE 1 (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

NO.	W/O (HEAT NO.)	STALS *4	C	Si	Mn	P	S	Cr	Ni	Mo	Cu	Al	Ti	V	Nb	B	U4	VN	V1	V2	CEQ
			X100		*R	X1000		X100				X1000					*5	*6	*7	*8	*9
Spec.		MAX	27		120	35	35	40	40	15	40			80			1.0		0.15		0.45
		MIN		10	29																
1	ST23060161 (D19511)	LA	17	25	111	12	3	8	4	1	6	21	27	28	1	0.3	0.2		0.06		0.39
		BA	18	26	111	11	2	9	4	1	6	21	26	26	2	0.1	0.2		0.05		0.39
		PA	19	26	115	12	3	9	5	2	6	21	27	27	4	0.3	0.2		0.06		0.41
			19	26	116	12	3	9	5	2	7	21	27	27	5	0.2	0.2		0.06		0.41

NO.	W/O (HEAT NO.)	NDT (1) Notch Type N10 *10		HYDRO -STATIC TEST Sec.	PRE-SSURE psi	TENSILE TEST (GAGE LENGTH : 2±0.004) Width *L	*P	YS 0.5% EU. psi	TS psi	El %	IMPACT TEST (ASTM E23) Energy (1) Temp °F (2) Unit ft-lb *T	*L	HARDNESS (ASTM E18) ■ HRB □ HRC □ HB □ HV	BENDING TEST	FLATTENING TEST H=(1+e)t/(e+t/O.D.)	FLARING TEST	DWT 5kg X 2m Temp : °C	HYDRO -BURST MPa Temp : °C	VISUAL	DIMENSION	DRIFT TEST	STRAIGHTNESS
Spec.		EC	UT	S	2500	0.75		34809	60191	23.7					2.49							
1	ST23060161 (D19511)		*G	*G				53367	75722	33.5			83.6		*G				*G	*G		*G
								57056	77186	33.5			83.4									
													84.0									

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

BYUNG RUL LEE
Manager of Q.M Dept.