INSPECTION CERTIFICATE

EN10204-3.1 ■ / EN10204-3.2 ☐

ILJIN Steel Corporation

Imsil Plant Address

1746 Hoguk-ro, Imsil-eup, Imsil-gun, Jeollabuk-do, 55927

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CERTIFICATE NO.	: IJQ20230410624
DATE OF ISSUE	: 10.APR.2023
CUSTOMER	:
CONTRACT(P/O) NO.	: 10p40780
COMMODITY	: SEAMLESS CARBON STEEL HOT FINISHED PIPE
STANDARD	: ASTM A53 2020 Edition / A106 2019 Edition ASME SA53/SA106 2021 Edition // API 5L FORTY-SIXTH EDITION, 2018

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	ST23030101 (D18536)	2.067 "	2.375"	0.154 "	21.0 '	961	3.66	73,862.5	20181.0 '	HF	BEP	N/A	ASTM A53 B ASTM A106 B&C ASME SA53 B ASME SA106 B&C API 5L B (PSL1) API 5L X42 (PSL1)
		TOTAL				961	3.66	73,862.5 '	20,181.0				

REMARK

1. THE HARDNESS DESCRIBED HEREIN COMPLIANCE WITH NACE MR-0175/MR-0103(MAX.22HRC) 2015 EDITION.
2. THERE ARE NO WELDING REPAIR ON PIPES
3. WE HEREBY CIRTIFY THAT THERE ARE NO MERCURY, MERCURY COMPOUNDS, MERCURY BEARING INSTRUMENTS AND NO MERCURY EQUIPMENT HAVE BEEN USED ON OUR PIPES.
4. *R - CHEMICAL COMPOSITION REQUIREMENT FOLLOWS NEXT
   - ASTM A53 : TABLE 1. (REMARK C)
   - ASTM A106 : TABLE 1 (REMARK B)
   - API 5L : TABLE 4 (REMARK b)

NO.	W/O (HEAT NO.)	STATUS	C	Si	Mn	P	S	Cr	Ni	Mo	Cu	Al	Ti	V	Nb	B	U4	VN	V1	V2	CEQ
			CHEMICAL COMPOSITION(%)																		
		*4	X100		*R	X1000		X100				X1000					*5	*6	*7	*8	*9
Spec.		MAX	25		120	30	30	40	40	15	40			80			1.0		0.15		0.50
		MIN		10	29																
1	ST23030101 (D18536)	LA	18	22	109	13	2	8	4	1	7	21	24	27		0.3	0.2		0.05		0.39
		BA	18	23	110	13	2	10	4	1	7	23	22	25	1	0.2	0.3		0.05		0.40
		PA	18	24	110	10	2	10	5	2	8	22	23	28	1	0.2	0.3		0.05		0.40
			18	24	110	10	2	10	5	2	8	22	23	28	2	0.2	0.3		0.05		0.40
			18	24	109	10	2	10	5	2	8	21	23	27	1	0.2	0.3		0.05		0.40

NO.	W/O (HEAT NO.)	NDT (1) Notch Type: N10 *10 EC	UT	HYDRO-STATIC TEST Sec. 5	PRESSURE psi	TENSILE TEST (GAGE LENGTH : 2.0±0.005inch) Width *L	Y.S 0.5% EUL *P	T.S ksi	E.L %	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)V/(e+t/O.D.)	FLARING TEST	DWT 5kg X 2m Temp : °C	HYDRO-BURST MPa Temp : °C	VISUAL	DIMENSION	DRIFT TEST	STRAIGHTNESS
Spec.				2970		0.75							180°								
							42	60	20.2				90°	1.22							
1	ST23030101 (D18536)		*G	*G			75	88	30.7				*G	*G				*G	*G		*G
							76	87	31.3												
							75	86	31.1												

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.: