

INSPECTION CERTIFICATE

CERTIFICATE NO. :WYK5972-01

PAGE : 1/7 DATE : 2020-08-06

CUSTOMER :SC TUBULAR SOLUTIONS (B) SDN BHD
ORDER NO. :19-157/19-MTKY-08-115952/83556
SHIPPER :SUMITOMO CORPORATION 057 KEN-1002/1 0-845-N3-5-8-KW11-01
COMMODITY :SEAMLESS STEEL CASING WITH DINO VAM MS
STANDARD :SM-110TT (NIPPON STEEL STD.)
SPECIFICATION :TSP-2629R3, TSP-3073R4, TSP-3529R2
MILL WORK NO. :WYK5972 O.D.:16inch W.T.:84.00lb/ft LENGTH:R-3 QUANTITY:161pcs.
TOTAL LENGTH:1864.89m MASS:233130kg

HEAT NO. :JOK6033 JOL5343
PRODUCTS PCS. :67 94

HEAT TREATMENT :QUENCHED & TEMPERED

CHEMICAL COMPOSITION(%)

		*1	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	Ca	Al
						*2	*2					*3	
SPEC. MIN.		R	-	-	-	-	-	-	-	-	-	-	-
MAX.		R	35	-	135	20	5	10	150	99	85	-	10
HEAT NO.													
JOK6033		L	27	28	92	10	2	1	52	2	34	12	3
		P	26	27	92	9	2	1	53	2	34	8	2
		P	25	28	89	9	1	1	53	2	33	18	2
JOL5343		L	26	27	93	8	1	1	50	2	34	16	3
		P	25	26	93	8	1	1	50	2	34	14	3
		P	25	26	96	8	1	1	52	2	34	12	3

*1 R:LADLE & PRODUCT ANALYSIS L:LADLE ANALYSIS P:PRODUCT ANALYSIS *2:X1000 *3:X10000 OTHER:X100

TENSILE TEST

		*1 *2	YS	TS	EL	YR
			*3	*3	%	%
SPEC. MIN.	PIPE	L B	P 110.0	P 125.0	15	-
MAX.	NO.	L B	P 140.0	P -	-	97
HEAT NO.						
JOK6033	W0121	L B	P 135.2	P 146.3	23	92
	W0160	L B	P 135.2	P 146.3	28	92
	W0199	L B	P 133.4	P 145.3	24	92
JOL5343	W0001	L B	P 134.2	P 144.2	30	93
	W0050	L B	P 135.5	P 145.8	27	93
	W0100	L B	P 131.1	P 147.1	26	89
	W0101	L B	P 125.7	P 143.0	27	88
	W0110	L B	P 136.9	P 148.4	26	92
	W0120	L B	P 134.0	P 144.3	24	93

TYPE OF SPECIMEN:STRIP 1-1/2in. WIDTH *1 SAMPLING DIRECTION L:LONGITUDINAL *2 SAMPLING POSITION B:BASE METAL
*3 UNIT P:ksi GAUGE LENGTH:2.0in. KIND OF YS:0.6% EXTENSION UNDER LOAD

WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN MADE IN ACCORDANCE WITH THE RULES OF THE CONTRACT.

Y. Itoh

YUJIN ITO

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QUALITY ASSURANCE DEPARTMENT

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NO.205360W20



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PAGE : 2/7

DATE : 2020-08-06

IMPACT TEST(+32.0° F 2mm V-Notch 10X7.50)

		*1 *2	*3 *4	AVG			*3 *4	AVG		
SPEC. MIN.	PIPE	T B	E F	*5	10/15	15	S %	*6	75	-
MAX.	NO.	T B	E F		-/-	-	S %		-	-
				[1]	[2]	[3]		[1]	[2]	[3]
HEAT NO.										
J0K6033	W0121	T B	E F	64	64	68	65	S %	100	100
	W0160	T B	E F	63	64	65	64	S %	100	100
	W0199	T B	E F	61	60	63	61	S %	100	100
J0L5343	W0001	T B	E F	83	83	77	81	S %	100	100
	W0050	T B	E F	77	71	76	75	S %	100	100
	W0100	T B	E F	67	66	68	67	S %	100	100
	W0101	T B	E F	66	67	70	68	S %	100	100
	W0110	T B	E F	73	73	72	73	S %	100	100
	W0120	T B	E F	72	74	71	72	S %	100	100

[1] [2] [3]: SPECIMEN NO.

ABSORBED ENERGY

*5:ABSOLUTE SINGLE VALUE / SINGLE VALUE (ONE CAN BE BELOW AVG) AVG:AVERAGE VALUE OF ONE SET(3 PIECES)

SHEAR AREA *6:VALUE OF ONE PIECE AVG:AVERAGE VALUE OF ONE SET(3 PIECES)

*1 SAMPLING DIRECTION T:TRANSVERSE *2 SAMPLING POSITION B:BASE METAL *3 E:ABSORBED ENERGY S:SHEAR AREA

*4 UNIT F:ft•lbf %:%

COLLAPSE RESISTANCE MIN.2190psi: ACCEPTABLE

VISUAL & DIMENSIONS: ACCEPTABLE

DRIFT TEST: ACCEPTABLE

HYDROSTATIC TEST 5600psiX5sec.: ACCEPTABLE

ULTRASONIC EXAMINATION: ACCEPTABLE

APPLICABLE STANDARD: SR2

REFERENCE STANDARD: L2 EXTERNAL & INTERNAL LONGITUDINAL & TRANSVERSE NOTCH LENGTH 1.0in. WIDTH 0.040in.

ELECTRO MAGNETIC EXAMINATION: ACCEPTABLE

APPLICABLE STANDARD: API 5CT

REFERENCE STANDARD: L2 EXTERNAL LONGITUDINAL & TRANSVERSE NOTCH LENGTH 1.0in. WIDTH 0.040in.

ULTRASONIC WALL THICKNESS CHECK: ACCEPTABLE

SR12: ACCEPTABLE

EN 10204 3.1

TEST HEAT LOT

HEAT NO.	HEAT LOT NO.	PIPE NO.
J0K6033	003	W0121-W0199
J0L5343	001	W0001-W0100
J0L5343	002	W0101-W0120

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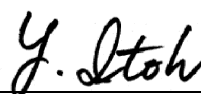
PAGE : 3/7

DATE : 2020-08-06

HARDNESS TEST(HRC)

		*1*2 *3	*4 *5	*V.A.												
SPEC. MIN.		B C	- -	-												
MAX.		B C	- -	3.0												
	PIPE		AVG.	OUTER WALL	MID WALL	INNER WALL										
HEAT NO.	NO.		QUAD	IMPRESSION NO.	IMPRESSION NO.	IMPRESSION NO.										
			-RANT	(1)	(2)	(3)	AVG.	(1)	(2)	(3)	AVG.	(1)	(2)	(3)	AVG.	
JOK6033	W0121	B C T	33.2	A 32.8	32.7	33.1	32.9	33.4	33.7	33.6	33.6	33.6	32.6	33.4	33.2	0.7
	W0160	B C B	32.9	A 32.2	32.2	32.6	32.3	33.4	33.6	33.5	33.5	32.6	32.8	32.9	32.8	1.2
	W0199	B C T	33.2	A 32.6	32.8	32.8	32.7	33.9	33.8	33.6	33.8	33.2	33.0	33.0	33.1	1.1
JOL5343	W0001	B C T	32.9	A 32.4	32.4	32.2	32.3	33.2	33.4	33.2	33.3	33.2	33.0	33.1	33.1	1.0
	W0050	B C B	32.9	A 32.3	32.4	32.1	32.3	33.2	33.2	33.6	33.3	32.6	32.9	33.8	33.1	1.0
	W0100	B C T	33.1	A 32.2	32.4	32.3	32.3	33.8	34.1	33.7	33.9	33.2	33.2	32.8	33.1	1.6
	W0101	B C B	33.2	A 32.5	32.1	32.4	32.3	33.7	33.8	33.8	33.8	33.6	33.2	34.0	33.6	1.5
	W0110	B C T	33.5	A 32.8	32.8	32.8	32.8	33.8	33.7	33.9	33.8	33.8	33.7	34.0	33.8	1.0
	W0120	B C B	32.9	A 32.2	32.4	32.5	32.4	33.5	33.4	33.3	33.4	33.4	32.8	32.9	33.0	1.0
		*ALL	33.1													
*1 SAMPLING POSITION B:BASE METAL *2 LOCATION C:CROSS SECTION *3 SAMPLING LOCATION T:TOP B:BOTTOM *4 EACH																
*5 AVERAGE *V.A.:VARIATION AVERAGE MAX.-MIN. * ALL:ALL AVG.																

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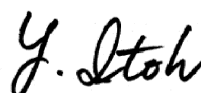
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PAGE : 4/7 DATE : 2020-08-06

TEMPERING TEMPERATURE

HEAT NO.	PRODUCT PCS. (PCS.)	HEAT LOT/NO.	SETTING TEMPERING TEMPERATURE (°C)
J0K6033	67	003	573
J0L5343	79	001	573
J0L5343	15	002	573
TOTAL	161		
REMARKS : TEMPERING TEMPERATURE CONTROL RANGE : SETTING TEMPERATURE +, -10°C			

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INSPECTION CERTIFICATE(COUPLING)

CERTIFICATE NO. :WYYK5972-01

PAGE : 5 / 7 DATE :2020-08-06

MATERIAL WORK NO.:WCKK0601, (KS550, KS551)

HEAT TREATMENT:QUENCHED & TEMPERED

CHEMICAL COMPOSITION(%)

		*1	C	Si	Mn	P *2	S *2	Cu	Cr	Ni	Mo	Ca *3	Al
SPEC. MIN.		R	-	-	-	-	-	-	-	-	-	-	-
MAX.		R	35	-	135	20	5	10	150	99	85	-	10
HEAT NO. JOL2497		L	27	24	45	7	3	2	103	2	46	12	2
		P	27	25	44	7	3	2	103	2	47	13	2
		P	27	25	44	7	3	2	103	2	48	10	2
		P	27	25	45	7	3	2	103	2	48	13	2
		P	27	25	45	7	3	2	103	2	48	13	2

*1 R:LADLE & PRODUCT ANALYSIS L:LADLE ANALYSIS P:PRODUCT ANALYSIS *2:X1000 *3:X10000 OTHER:X100

TENSILE TEST

		*1 *2	YS *3	TS *3	EL %	YR %
SPEC. MIN.	PIPE	L B	P 110.0	P 125.0	12	-
MAX.	NO.	L B	P 140.0	P -	-	97
HEAT NO. JOL2497	1-1	L B	P 123.0	P 136.0	21	90
	1-1	L B	P 123.4	P 136.8	21	90
	2-1	L B	P 122.7	P 136.2	22	90
	3-1	L B	P 123.3	P 137.1	22	90
	4-1	L B	P 121.4	P 134.0	22	91
	5-1	L B	P 122.7	P 136.3	21	90
	6-1	L B	P 123.1	P 137.1	22	90
	7-1	L B	P 123.0	P 137.1	22	90
	8-4	L B	P 123.7	P 137.5	22	90

TYPE OF SPECIMEN:ROUND BAR 0.5in. DIAMETER *1 SAMPLING DIRECTION L:LONGITUDINAL

*2 SAMPLING POSITION B:BASE METAL *3 UNIT P:ksi GAUGE LENGTH:2.0in. KIND OF YS:0.6% EXTENSION UNDER LOAD

IMPACT TEST(+32.0° F 2mm V-Notch 10X10)

		*1 *2	*3 *4	AVG	*3 *4	AVG
SPEC. MIN.	PIPE	T B	E F *5	15/22	S %	*6 75
MAX.	NO.	T B	E F	-/-	S %	-
			[1] [2] [3]		[1] [2] [3]	
HEAT NO. JOL2497	1-1	T B	E F 105 109 103 106		S % 100 100 100 100	
	1-1	T B	E F 105 103 106 105		S % 100 100 100 100	
	2-1	T B	E F 101 97 100 99		S % 100 100 100 100	
	3-1	T B	E F 106 97 98 100		S % 100 100 100 100	
	4-1	T B	E F 128 123 122 124		S % 100 100 100 100	
	5-1	T B	E F 106 110 104 107		S % 100 100 100 100	
	6-1	T B	E F 97 91 98 95		S % 100 100 100 100	

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INSPECTION CERTIFICATE(COUPLING)

CERTIFICATE NO. :WYYK5972-01

PAGE : 6 / 7 DATE :2020-08-06

IMPACT TEST(+32.0° F 2mm V-Notch 10X10)

		*1 *2	*3 *4	AVG				*3 *4	AVG			
SPEC. MIN. MAX.	PIPE NO.	T B	E F	*5	15/22		22	S %	*6	75		-
		T B	E F		- / -		-	S %		-		-
				[1]	[2]	[3]			[1]	[2]	[3]	
HEAT NO.												
JOL2497	7-1	T B	E F	104	98	97	100	S %	99	99	99	99
	8-4	T B	E F	119	114	118	117	S %	100	100	100	100
[1] [2] [3]: SPECIMEN NO.												
ABSORBED ENERGY												
*5:ABSOLUTE SINGLE VALUE / SINGLE VALUE (ONE CAN BE BELOW AVG) AVG:AVERAGE VALUE OF ONE SET(3 PIECES)												
SHEAR AREA *6:VALUE OF ONE PIECE AVG:AVERAGE VALUE OF ONE SET(3 PIECES)												
*1 SAMPLING DIRECTION T:TRANSVERSE *2 SAMPLING POSITION B:BASE METAL *3 E:ABSORBED ENERGY S:SHEAR AREA												
*4 UNIT F:ft•lbf %: %												

VISUAL & DIMENSIONS: ACCEPTABLE

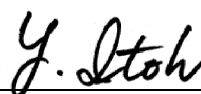
MAGNETIC PARTICLE EXAMINATION: ACCEPTABLE

APPLICABLE STANDARD: API 5CT

REFERENCE STANDARD: JIS Z 2320 TYPE A1 EXTERNAL & INTERNAL LONGITUDINAL

EN 10204 3.1

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INSPECTION CERTIFICATE(COUPPLING)

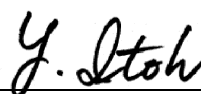
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HARDNESS TEST(HRC)

		*1*2	*3	*4	*V.A.												
SPEC. MIN.		B C	-	-	-												
MAX.		B C	-	-	5.0												
HEAT NO.	PIPE NO.		AVG.	QUAD	OUTER WALL IMPRESSION NO.				MID WALL IMPRESSION NO.				INNER WALL IMPRESSION NO.				
				-RANT	(1)	(2)	(3)	AVG.	(1)	(2)	(3)	AVG.	(1)	(2)	(3)	AVG.	
JOL2497	1-1	B C	29.3	A	29.0	28.6	28.9	28.8	29.6	30.5	29.8	30.0	28.8	29.2	29.4	29.1	1.2
	1-1	B C	29.4	A	29.1	29.0	28.8	29.0	30.6	30.6	30.7	30.6	28.9	28.6	28.7	28.7	1.9
	2-1	B C	29.1	A	29.0	29.0	29.0	29.0	30.2	29.8	30.2	30.1	28.7	28.1	28.1	28.3	1.8
	3-1	B C	29.4	A	29.0	29.7	29.2	29.3	30.3	30.3	30.1	30.2	28.6	28.7	28.3	28.5	1.7
	4-1	B C	29.1	A	29.1	28.8	28.8	28.9	29.6	29.6	29.4	29.5	28.7	28.9	28.8	28.8	0.7
	5-1	B C	29.0	A	29.1	29.1	28.8	29.0	29.2	29.8	29.6	29.5	28.6	28.5	28.5	28.5	1.0
	6-1	B C	29.4	A	28.9	28.6	28.7	28.7	29.9	29.9	29.6	29.8	29.6	29.5	29.8	29.6	1.1
	7-1	B C	28.9	A	28.3	28.5	29.0	28.6	29.2	29.7	29.7	29.5	28.7	28.4	28.3	28.5	1.0
	8-4	B C	29.2	A	28.4	28.4	28.5	28.4	29.9	29.4	29.9	29.7	29.5	29.3	29.4	29.4	1.3
		*ALL	29.2														
*1 SAMPLING POSITION B:BASE METAL *2 LOCATION C:CROSS SECTION *3 EACH																	
*4 AVERAGE *V.A.:VARIATION AVERAGE MAX.-MIN. * ALL:ALL AVG.																	

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