



INSPECTION CERTIFICATE

CERTIFICATE NO. :BYF7820

PAGE : 1/8 DATE : 2015-09-25

CUSTOMER

ORDER NO.

SHIPPER

COMMODITY :SEAMLESS STEEL TUBING WITH VAM TOP HC (THREAD AND COUPLING)

STANDARD :SM13CRS-110

SPECIFICATION

MILL WORK NO. :BYF7820

O. D. :5-1/2inch W. T. :20.00lb/ft LENGTH:MIN. 11.58m MAX. 12.50m

QUANTITY:617pcs. TOTAL LENGTH:7575.85m MASS:225457kg

NIPPON STEEL & SUMITOMO METAL STD.

HEAT NO. :F517012

F517013

F517037

F517038

F517039

F517046

F518049

PRODUCTS PCS. :4

143

147

154

119

3

15

HEAT NO. :F518050

PRODUCTS PCS. :32

HEAT TREATMENT :QUENCHED & TEMPERED

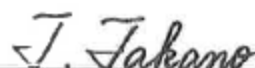
CHEMICAL COMPOSITION (%)

			C	Si	Mn	P	S	Cr	Ni	Mo	Ti	V	Al
		#1				#3	#3	#2	#2	#2			#3
SPEC. MIN.	R	R	-	10	-	-	-	115	50	15	-	-	1
MAX.	R	R	3	50	50	20	5	135	65	30	50	50	500
HEAT NO.													
F517012	L	L	1	23	41	15	0	121	54	19	9	6	31
	P	P	1	23	41	15	1	120	54	19	8	6	29
	P	P	1	23	41	14	1	120	53	19	8	6	27
F517013	L	L	1	25	41	16	0	120	54	19	10	6	34
	P	P	1	25	41	16	0	119	53	19	10	6	32
	P	P	1	25	41	16	1	119	53	19	10	6	31
F517037	L	L	1	23	44	15	0	121	56	20	9	6	30
	P	P	1	24	44	15	0	120	55	20	9	6	25
	P	P	1	24	44	15	0	120	55	20	9	6	26
F517038	L	L	1	26	43	15	0	120	55	20	10	6	31
	P	P	1	26	43	14	0	120	54	20	10	6	29
	P	P	1	25	43	15	0	120	54	20	10	6	28
F517039	L	L	1	28	43	15	0	121	55	19	10	6	37
	P	P	1	28	43	14	0	120	54	19	10	6	35
	P	P	1	28	43	15	0	120	54	19	10	6	34
F517046	L	L	1	23	41	16	0	120	54	19	10	6	30
	P	P	1	24	41	16	0	120	54	20	10	6	29
	P	P	1	24	41	16	1	119	53	20	10	6	26
F518049	L	L	1	24	43	18	0	120	54	19	10	6	33
	P	P	1	25	43	17	0	119	53	19	10	6	30
	P	P	1	25	43	18	0	120	53	19	10	6	31
F518050	L	L	1	22	42	16	0	120	54	19	10	6	31
	P	P	1	23	43	17	0	119	53	19	10	6	29
	P	P	1	23	42	17	0	119	53	19	10	6	30

*1 R:LADLE & PRODUCT ANALYSIS L:LADLE ANALYSIS P:PRODUCT ANALYSIS *2:X10 *3:X1000 OTHER:X100

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


28 Sep. 2015
GLOBAL SCS

 TAKASHI TAKANO
HEAD OF DEPARTMENT
QUALITY ASSURANCE DEPARTMENT

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NO. 427419K15



INSPECTION CERTIFICATE

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TENSILE TEST

		*1 *2	YS *3	YS *3	TS *3	TS *3	EL %
SPEC. MIN. MAX.	HEAT- LOT NO.	L B L B	P 110.0 P 125.0	M 758 M 862	P 110.0 P -	M 758 M -	15 -
HEAT NO.							
F517012	710	L B	P 118.4	M 816	P 124.2	M 856	28
	710	L B	P 117.5	M 810	P 122.3	M 843	27
F517013	703	L B	P 116.2	M 801	P 121.5	M 838	28
	703	L B	P 113.0	M 779	P 119.8	M 826	27
	706	L B	P 115.4	M 796	P 121.5	M 838	30
	706	L B	P 114.4	M 789	P 120.7	M 832	28
F517037	701	L B	P 118.2	M 815	P 124.3	M 857	26
	701	L B	P 118.1	M 814	P 124.0	M 855	27
	708	L B	P 118.5	M 817	P 124.2	M 856	27
	708	L B	P 119.8	M 826	P 123.9	M 854	27
F517038	702	L B	P 117.8	M 812	P 122.8	M 847	28
	702	L B	P 116.8	M 805	P 122.3	M 843	28
	707	L B	P 114.7	M 791	P 121.5	M 838	26
	707	L B	P 118.2	M 815	P 124.2	M 856	27
F517039	704	L B	P 115.0	M 793	P 121.3	M 836	23
	704	L B	P 113.7	M 784	P 120.8	M 833	29
	705	L B	P 116.6	M 804	P 121.8	M 840	28
	705	L B	P 115.2	M 794	P 121.1	M 835	28
F517046	709	L B	P 117.3	M 809	P 122.8	M 847	27
	709	L B	P 117.3	M 809	P 122.8	M 847	27
F518049	711	L B	P 117.5	M 810	P 122.6	M 845	29
	711	L B	P 116.9	M 806	P 122.0	M 841	28
F518050	712	L B	P 116.8	M 805	P 121.5	M 838	28
	712	L B	P 116.6	M 804	P 121.5	M 838	28

TYPE OF SPECIMEN:STRIP lin. (25.4mm) WIDTH *1 SAMPLING DIRECTION L:LONGITUDINAL *2 SAMPLING POSITION B:BASE METAL
*3 UNIT P:ksi M:MPa GAUGE LENGTH:2.0in. (50.8mm) KIND OF YS:0.6% EXTENSION UNDER LOAD

IMPACT TEST (-10.0°C +14.0°F 2mm V-Notch 10X7.50)

		*1 *2	*3 *4	AVG	*3 *4	AVG
SPEC. MIN. MAX.	HEAT- LOT NO.	L B L B	E J *5 E J	22/33 -/-	E F *5 E F	16/24 -/-
			[1] [2] [3]		[1] [2] [3]	
HEAT NO.						
F517012	710	L B	E J 189 213 190 197		E F 139 157 140 145	
F517013	703	L B	E J 218 209 203 210		E F 161 154 150 155	
	706	L B	E J 198 193 211 201		E F 146 142 156 148	
F517037	701	L B	E J 220 226 196 214		E F 162 167 145 158	
	708	L B	E J 200 208 198 202		E F 148 153 146 149	
F517038	702	L B	E J 191 187 188 189		E F 141 138 139 139	
	707	L B	E J 185 188 190 188		E F 136 139 140 138	
F517039	704	L B	E J 203 182 203 196		E F 150 134 150 145	
	705	L B	E J 203 204 182 196		E F 150 150 134 145	

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28 Sep. 2015
GLOBAL SCS

T. Takano
TAKASHI TAKANO
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Fax. No. : +81-3-6867-4926 E-mail: pipe-ipp@jp.nssmc.com NO. 427419K15

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CERTIFICATE NO. : BYYF7820

PAGE : 3/8 DATE : 2015-09-25

IMPACT TEST (-10.0°C +14.0°F 2mm V-Notch 10X7.50)

		*1 *2	*3 *4	AVG	*3 *4	AVG
SPEC. MIN.	HEAT-	L B	E J	*5 22/33	E F	*5 16/24
MAX.	LOT NO.	L B	E J	-/-	E F	-/-
				(1) (2) (3)		(1) (2) (3)
HEAT NO.						
F517046	709	L B	E J	190 199 192 194	E F	140 147 142 143
F518049	711	L B	E J	203 199 200 201	E F	150 147 148 148
F518050	712	L B	E J	197 203 193 198	E F	145 150 142 146
		*1 *2	*3 *4	AVG		
SPEC. MIN.	HEAT-	L B	S %	*6 - -		
MAX.	LOT NO.	L B	S %	- -		
				(1) (2) (3)		
HEAT NO.						
F517012	710	L B	S %	100 100 100 100		
F517013	703	L B	S %	100 100 100 100		
	706	L B	S %	100 100 100 100		
F517037	701	L B	S %	100 100 100 100		
	708	L B	S %	100 100 100 100		
F517038	702	L B	S %	100 100 100 100		
	707	L B	S %	100 100 100 100		
F517039	704	L B	S %	100 100 100 100		
	705	L B	S %	100 100 100 100		
F517046	709	L B	S %	100 100 100 100		
F518049	711	L B	S %	100 100 100 100		
F518050	712	L B	S %	100 100 100 100		

[1] [2] [3]: SPECIMEN NO.
 ABSORBED ENERGY *5:VALUE OF ONE PIECE/EACH VALUE OF TWO PIECES 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 L:LONGITUDINAL *2 SAMPLING POSITION B:BASE METAL *3 E:ABSORBED ENERGY S:SHEAR AREA
 *4 UNIT J:Joule F:ft-lbf %:%

VISUAL & DIMENSIONS: ACCEPTABLE

DRIFT TEST: ACCEPTABLE (SPECIAL LENGTH:42in.)

HYDROSTATIC TEST 10000psi (69.0MPa) X10sec.: ACCEPTABLE

ULTRASONIC EXAMINATION (PIPE BODY & PIPE ENDS)

APPLICABLE STANDARD/REFERENCE STANDARD: ISO SEC. 10 (L2 NOTCH): ACCEPTABLE

MAGNETIC PARTICLE EXAMINATION (PIPE ENDS)

APPLICABLE STANDARD/REFERENCE STANDARD: ISO SEC. 10: ACCEPTABLE

ELECTRO MAGNETIC EXAMINATION

APPLICABLE STANDARD/REFERENCE STANDARD: ISO SEC. 10 (L2 NOTCH): ACCEPTABLE

EDDY CURRENT EXAMINATION (PIPE ENDS)

APPLICABLE STANDARD/REFERENCE STANDARD: ISO SEC. 10 (L2 NOTCH): ACCEPTABLE

ULTRASONIC WALL THICKNESS CHECK: ACCEPTABLE

DELTA FERRITE CONTENTS < 4%: GUARANTEED

THREAD GAUGING & INSPECTION: ACCEPTABLE

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INSPECTION CERTIFICATE

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HARDNESS TEST (HRC)

		*1	*2	*3	*4	*5								*V. A.
SPEC.	MIN.		B	C	-	-								-
MAX.			B	C	-	32.0								3.0
	HEAT-				AVG.	OUTER WALL				INNER WALL				
	LOT NO.					QUAD	IMPRESSION NO.			IMPRESSION NO.				
HEAT NO.						-RANT	(1)	(2)	(3)	AVG.	(1)	(2)	(3)	AVG.
F517012	710	B	C	T	26.8	A	27.1	26.1	26.2	26.5	27.2	27.1	27.0	27.1
	710	B	C	B	26.5	A	26.9	26.2	26.3	26.5	26.6	26.6	26.6	26.6
F517013	703	B	C	T	26.4	A	26.4	26.2	26.2	26.3	26.5	26.4	26.5	26.5
	703	B	C	B	26.3	A	26.5	26.1	26.0	26.2	26.6	26.6	26.2	26.5
	706	B	C	T	26.1	A	25.9	25.9	26.0	25.9	26.5	26.4	26.0	26.3
	706	B	C	B	25.9	A	26.0	25.6	25.7	25.8	26.0	26.3	26.0	26.1
F517037	701	B	C	T	26.8	A	26.7	26.6	26.7	26.7	26.9	26.9	26.8	26.9
	701	B	C	B	26.9	A	27.0	26.6	26.7	26.8	27.1	27.0	27.0	27.0
	708	B	C	T	27.0	A	26.8	26.8	26.9	26.8	27.0	27.3	27.1	27.1
	708	B	C	B	26.9	A	27.1	27.1	26.8	27.0	27.0	26.7	26.6	26.8
F517038	702	B	C	T	26.1	A	26.1	25.9	25.7	25.9	26.4	26.3	26.4	26.4
	702	B	C	B	26.8	A	26.4	26.6	26.7	26.6	27.1	26.9	27.2	27.1
	707	B	C	T	26.0	A	25.7	26.0	26.0	25.9	26.0	26.0	26.4	26.1
	707	B	C	B	26.9	A	27.0	26.5	27.2	26.9	26.9	26.6	27.2	26.9
F517039	704	B	C	T	26.1	A	26.0	25.9	25.9	25.9	26.1	26.1	26.6	26.3
	704	B	C	B	26.5	A	26.2	26.5	26.4	26.4	26.8	26.6	26.6	26.7
	705	B	C	T	26.3	A	26.2	25.9	26.1	26.1	26.7	26.5	26.3	26.5
	705	B	C	B	26.0	A	26.1	26.3	25.8	26.1	26.1	26.0	26.0	26.0
F517046	709	B	C	T	26.7	A	26.4	26.2	26.1	26.2	27.3	27.3	27.0	27.2
	709	B	C	B	26.6	A	26.7	26.7	26.4	26.6	26.8	26.4	26.5	26.6
F518049	711	B	C	T	26.5	A	26.4	27.1	26.6	26.7	25.9	26.5	26.5	26.3
	711	B	C	B	26.3	A	26.2	26.2	25.9	26.1	26.6	26.8	26.2	26.5
F518050	712	B	C	T	26.2	A	26.0	26.2	26.4	26.2	26.2	26.2	26.3	26.2
	712	B	C	B	26.0	A	26.1	25.7	26.5	26.1	26.1	25.9	25.9	26.0
		*ALL			26.4									
*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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NO. 427419K15



NIPPON STEEL &
SUMITOMO METAL
CORPORATION

NIPPON STEEL & SUMITOMO METAL CORPORATION
WAKAYAMA WORKS (KAINAN AREA)
260-100, FUNOO, KAINAN, JAPAN

INSPECTION CERTIFICATE

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PAGE : 5/8 DATE :2015-09-25

TEMPERING TEMPERATURE

HEAT NO.	PRODUCT PCS. (PCS.)	HEAT LOT/NO.	SETTING TEMPERING TEMPERATURE (°C)
F517012	4	710	605
F517013	87	703	605
F517013	56	706	605
F517037	79	701	605
F517037	68	708	605
F517038	71	702	605
F517038	83	707	605
F517039	92	704	605
F517039	27	705	605
F517046	3	709	605
F518049	15	711	605
F518050	32	712	605
TOTAL	617		
REMARKS : TEMPERING TEMPERATURE CONTROL RANGE : SETTING TEMPERATURE $\pm$ -10°C			

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INSPECTION CERTIFICATE (COUPLING)

CERTIFICATE NO. :BYFF7820

PAGE : 6/8 DATE :2015-09-25

MATERIAL WORK NO.:BCFF3550

HEAT TREATMENT:QUENCHED & TEMPERED

CHEMICAL COMPOSITION(%)

		*1	C	Si	Mn	P *3	S *3	Cr *2	Ni *2	Mo *2	Ti	V	Al *3
SPEC. MIN.		R	-	10	-	-	-	115	50	15	-	-	1
MAX.		R	3	50	50	20	5	135	65	30	50	50	500
HEAT NO.													
F514067		L	1	23	42	17	0	121	54	20	9	6	36
		P	1	24	42	18	1	121	55	20	10	6	34
		P	1	24	42	17	1	120	54	20	10	6	34
F514070		L	1	25	41	16	0	120	55	19	10	5	33
		P	1	27	41	16	0	120	55	19	10	5	32
		P	1	27	41	15	0	120	54	19	10	5	32
F515017		L	1	24	42	15	0	120	54	19	10	5	37
		P	1	24	41	15	0	120	54	19	10	5	35
		P	1	24	41	15	0	120	54	19	10	5	36
F515018		L	1	23	42	13	0	120	54	19	10	5	36
		P	1	24	42	13	0	120	54	19	10	5	36
		P	1	24	42	13	0	120	54	19	10	5	35

*1 R:LADLE & PRODUCT ANALYSIS L:LADLE ANALYSIS P:PRODUCT ANALYSIS *2:X10 *3:X1000 OTHER:X100

TENSILE TEST

		*1 *2	YS *3	YS *3	TS *3	TS *3	EL %
SPEC. MIN.	HEAT-	L B	P 110.0	M 758	P 110.0	M 758	13
MAX.	LOT NO.	L B	P 125.0	M 862	P -	M -	-
HEAT NO.							
F514067	704	L B	P 121.0	M 834	P 126.5	M 872	24
	704	L B	P 122.1	M 842	P 126.8	M 874	24
F514070	702	L B	P 120.8	M 833	P 126.5	M 872	25
	702	L B	P 119.9	M 827	P 125.6	M 866	25
F515017	701	L B	P 118.8	M 819	P 124.6	M 859	25
	701	L B	P 119.1	M 821	P 124.9	M 861	25
F515018	703	L B	P 117.6	M 811	P 122.8	M 847	25
	703	L B	P 117.2	M 808	P 122.7	M 846	26

TYPE OF SPECIMEN:ROUND BAR 0.5in. (12.7mm) DIAMETER *1 SAMPLING DIRECTION L:LONGITUDINAL

*2 SAMPLING POSITION B:BASE METAL *3 UNIT P:ksi M:MPa GAUGE LENGTH:2.0in. (50.8mm)

KIND OF YS:0.6% EXTENSION UNDER LOAD

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INSPECTION CERTIFICATE (COUPLING)

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PAGE : 7/8 DATE :2015-09-25

IMPACT TEST (-10.0°C +14.0°F 2mm V-Notch 10X10)

		*1 *2	*3 *4	AVG				*3 *4	AVG			
SPEC. MIN.	HEAT-	T B	E J	*5	19/28	28		E F	*5	14/21	21	
MAX.	LOT NO.	T B	E J		-/-	-		E F		-/-	-	
					[1] [2] [3]					[1] [2] [3]		
HEAT NO.												
F514067	704	T B	E J	137	141	159	146	E F	101	104	117	107
F514070	702	T B	E J	151	165	143	153	E F	111	122	105	113
F515017	701	T B	E J	183	181	195	186	E F	135	133	144	137
F515018	703	T B	E J	182	173	140	165	E F	134	128	103	122
		*1 *2	*3 *4	AVG								
SPEC. MIN.	HEAT-	T B	S %	*6	-	-						
MAX.	LOT NO.	T B	S %		-	-						
					[1] [2] [3]							
HEAT NO.												
F514067	704	T B	S %	73	69	78	73					
F514070	702	T B	S %	78	75	74	76					
F515017	701	T B	S %	86	75	81	81					
F515018	703	T B	S %	84	84	81	83					

[1] [2] [3]: SPECIMEN NO.
 ABSORBED ENERGY *5:VALUE OF ONE PIECE/EACH VALUE OF TWO PIECES 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 J:Joule F:ft·lbf %:%

VISUAL & DIMENSIONS: ACCEPTABLE

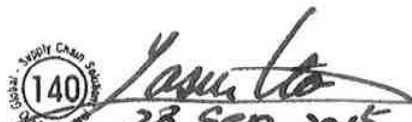
MAGNETIC PARTICLE EXAMINATION

APPLICABLE STANDARD/REFERENCE STANDARD: ISO SEC. 9: ACCEPTABLE

DELTA FERRITE CONTENTS < 4%: GUARANTEED

THREAD GAUGING & INSPECTION: ACCEPTABLE

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


28 Sep. 2015
GLOBAL SCS


TAKASHI TAKANO
HEAD OF DEPARTMENT
QUALITY ASSURANCE DEPARTMENT

<An Important Message To Our Customers>

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 Fax. No. : +81-3-6867-4926 E-mail: pipe-ipp@jp.nssmc.com

NO. 427419K15



NIPPON STEEL &
SUMITOMO METAL
CORPORATION

NIPPON STEEL & SUMITOMO METAL CORPORATION
WAKAYAMA WORKS [KAINAN AREA]
260-100, FUNOO, KAINAN, JAPAN

INSPECTION CERTIFICATE (COUPLING)

CERTIFICATE NO. : BYYF7820

PAGE : 8/8 DATE : 2015-09-25

HARDNESS TEST (HRC)

		*1	*2	*3	*4		*5												*V. A.
SPEC.	MIN. MAX.	B C		-		-												-	
		B	C	-		32.0												5.0	
HEAT NO.	HEAT- LOT NO.			AVG.	OUTER WALL IMPRESSION NO.				MID WALL IMPRESSION NO.				INNER WALL IMPRESSION NO.						
					QUAD	(1)	(2)	(3)	AVG.	(1)	(2)	(3)	AVG.	(1)	(2)	(3)		AVG.	
F514067	704	B	C	T	27.5	A	27.5	27.4	28.1	27.7	28.0	27.8	27.7	27.8	26.9	26.7	27.4	27.0	0.8
	704	B	C	B	27.6	A	27.7	27.7	27.3	27.6	27.6	27.5	27.8	27.6	27.4	27.7	27.7	27.6	0.0
F514070	702	B	C	T	27.9	A	27.5	27.4	27.5	27.5	27.7	28.1	28.3	28.0	28.3	27.9	28.5	28.2	0.7
	702	B	C	B	27.4	A	27.0	26.8	27.3	27.0	27.6	27.7	27.2	27.5	27.8	27.4	27.5	27.6	0.6
F515017	701	B	C	T	27.4	A	26.8	26.9	27.4	27.0	28.1	27.4	27.2	27.6	27.1	27.6	27.7	27.5	0.6
	701	B	C	B	27.0	A	26.4	26.5	27.0	26.6	27.0	27.0	26.8	26.9	27.2	27.1	27.6	27.3	0.7
F515018	703	B	C	T	26.8	A	26.6	26.8	27.0	26.8	26.9	26.8	27.1	26.9	26.6	26.8	26.7	26.7	0.2
	703	B	C	B	26.7	A	26.8	26.7	26.9	26.8	26.9	27.1	26.9	27.0	26.0	26.3	26.8	26.4	0.6
		*ALL			27.3														
*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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