

INSPECTION CERTIFICATE

#941, Soju-Dong, Yang San Si,
Kyeong Nam, Korea
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- * Date : 2014. 04. 07.
- * Cert. No : KS14 - Y0460
- * Order No :
- * Project Name :
- * Customer :
- * Specification for Material : ASTM A105N - 12
- * Dimension & Visual : GOOD
- * Application Spec : ASME B16.11 & MSS SP-97
- * According to EN10204 3.1

* Chemical Composition (%) * P, S : x1000, * Other : x100

Heat No.	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	V	Raw maker
	35.0	35.0	105.0	35.0	40.0	30.0	12.0	40.0	40.0	8.0	
B04024	17.0	21.0	87.0	21.0	11.0	14.0	2.0	7.0	20.0	1.0	SeAH Besteel
B09972	17.0	25.0	84.0	12.0	5.0	18.0	1.0	6.0	11.0	7.0	SeAH Besteel
A09855	16.0	24.0	83.0	11.0	10.0	17.0	1.0	4.0	8.0	6.0	SeAH Besteel
B09968	17.0	24.0	85.0	19.0	7.0	17.0	1.0	6.0	10.0	7.0	SeAH Besteel
B09973	16.0	24.0	89.0	13.0	6.0	17.0	1.0	5.0	11.0	7.0	SeAH Besteel
280823	17.0	21.0	84.0	17.0	3.0	12.0	3.0	8.0	19.0	0.0	SeAH Besteel
333391	17.0	22.0	83.0	15.0	3.0	11.0	2.0	7.0	17.0	0.0	SeAH Besteel
A06410	16.0	23.0	84.0	7.0	10.0	20.0	5.0	6.0	13.0	8.0	SeAH Besteel
334552	17.0	23.0	82.0	20.0	5.0	16.0	2.0	8.0	23.0	0.0	SeAH Besteel
333392	17.0	19.0	86.0	21.0	4.0	12.0	2.0	7.0	20.0	0.0	SeAH Besteel
B09974	17.0	28.0	85.0	14.0	5.0	17.0	1.0	5.0	10.0	7.0	SeAH Besteel
B04026	17.0	22.0	82.0	18.0	5.0	12.0	1.0	6.0	18.0	1.0	SeAH Besteel
B09411	16.0	24.0	85.0	19.0	5.0	14.0	1.0	5.0	12.0	7.0	SeAH Besteel
B06480	16.0	23.0	83.0	15.0	8.0	13.0	2.0	7.0	16.0	7.8	SeAH Besteel
B04020	17.0	21.0	84.0	24.0	5.0	17.0	2.0	7.0	23.0	1.0	SeAH Besteel
B06482	16.0	24.0	83.0	12.0	5.0	8.0	0.0	3.0	4.0	7.9	SeAH Besteel
B09966	16.0	24.0	84.0	14.0	8.0	16.0	4.0	4.0	7.0	7.0	SeAH Besteel

SAMPLE

14002-001

Reviewed By
 Witnessed By

We hereby certify that material described herein has been tested and satisfied as above in accordance with the specification.

CERTIFIED
07. Apr. 2014
Approved by QA Manager
A4(210X297)

*** Mechanical Properties.** Spec. of Test Piece : ASTM A370

Heat No.	Y S (MPa)	T S (MPa)	E L (%)	R A (%)	Hardness(HB)	Heat Treatment
	min 250	min 485	min 22	min 30	max 187	
B04024	319.0	495.0	39.9	69.1	138 , 140	900°C A.C
B09972	368.0	571.0	27.6	60.4	156 , 163	900°C A.C
A09855	286.0	489.0	34.2	65.2	140 , 143	900°C A.C
B09968	351.0	551.0	27.6	66.1	140 , 143	900°C A.C
B09973	326.0	511.0	34.6	59.9	140 , 143	900°C A.C
280823	362.0	521.0	32.3	68.6	143 , 146	900°C A.C
333391	368.0	511.0	42.5	70.9	152 , 152	900°C A.C
A06410	384.0	579.0	27.1	65.5	170 , 174	900°C A.C
334552	386.0	531.0	32.2	70.3	143 , 146	900°C A.C
333392	308.0	491.0	35.4	66.0	143 , 143	900°C A.C
B09974	370.0	557.0	28.7	66.9	149 , 149	900°C A.C
B04026	408.0	589.0	27.6	67.4	170 , 174	900°C A.C
B09411	377.0	578.0	26.8	66.7	167 , 170	900°C A.C
B06480	366.0	550.0	28.9	65.4	156 , 156	900°C A.C
B04020	334.0	499.0	33.4	68.6	140 , 143	900°C A.C
B06482	344.0	532.0	35.8	69.5	143 , 149	900°C A.C
B09966	406.0	584.0	29.6	67.3	170 , 174	900°C A.C


*** Detail Description ***

SER	Item No	DESCRIPTION	Qty(ea)	Code Name	Heat No.
-	4-1	90 ELBOW - SW - 3000 LB - 1/2"	4	N74676	B04024
-	4-2	90 ELBOW - SW - 3000 LB - 3/4"	117	N74677	B09972
-	4-3	90 ELBOW - SW - 3000 LB - 1"	31	N74678	A09855
-	4-4	90 ELBOW - SW - 3000 LB - 1-1/2"	17	N74680	B09968
-	7-2	90 ELBOW - SW - 6000 LB - 3/4"	26	N107641	B09973
-	8-1	90 ELBOW - SW - 9000 LB - 1/2"	17	N43335	B09973
-	8-2	90 ELBOW - SW - 9000 LB - 3/4"	20	N43337	280823
-	8-3	90 ELBOW - SW - 9000 LB - 1"	7	N43338	B09968
-	9-1	45 ELBOW - SW - 3000 LB - 1"	2	N74673	333391
-	9-3	45 ELBOW - SW - 3000 LB - 1/2"	5	N74671	A06410
-	9-4	45 ELBOW - SW - 3000 LB - 3/4"	2	N74672	334552
-	26-2	RED TEE - SW - 3000 LB - 1" x 1/2"	1	R502357	333392
-	26-3	RED TEE - SW - 3000 LB - 1" x 3/4"	3	R502358	B09972
-	26-5	RED TEE - SW - 3000 LB - 1-1/2" x 3/4"	3	R502363	B09974
-	45-2	EQUAL TEE - SW - 3000 LB - 3/4"	11	S111773	B04026
-	45-3	EQUAL TEE - SW - 3000 LB - 1"	3	S111774	B09411
-	49-1	EQUAL TEE - SW - 9000 LB - 1/2"	17	S41546	A06410
-	49-2	EQUAL TEE - SW - 9000 LB - 3/4"	10	S41548	B06480
-	61-1	SOCKOLET - SW - 3000 LB - 6" x 3/4"	12	S92897	B09411
-	61-2	SOCKOLET - SW - 3000 LB - 6" x 1-1/2"	1	S92900	B04020
-	61-4	SOCKOLET - SW - 3000 LB - 12" x 3/4"	1	S92765	B09411
-	61-5	SOCKOLET - SW - 3000 LB - 16" x 1"	1	S92776	B04020
-	64-1	45 ELBOW - SW - 6000 LB - 3/4"	2	N107682	B06482
-	70-1	RED TEE - SW - 6000 LB - 1" x 3/4"	3	R732586	A09855
-	70-2	RED TEE - SW - 6000 LB - 1-1/2" x 3/4"	4	R732591	B09966

SAMPLE

Reviewed By
 Witnessed By

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 Approved by QA Manager
 A4(210)287


*** Detail Description ***

SER	Item No	DESCRIPTION	Q'ty(ea)	Code Name	Heat No.
-	70-3	RED TEE - SW - 6000 LB - 1-1/2" x 1"	2	R732592	B09966
-	71-1	SOCKOLET - SW - 6000 LB - 16" x 3/4"	1	S32926	B09411
TOTAL			328		

SAMPLE

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 A4(210X297)

INSPECTION CERTIFICATE

#941 Soju-Dong, Yang San Si,
 Kyeong Nam, Korea
 TEL: 055) 386-2224
 FAX: 055) 386-0488~9/0479

* Date : 2014. 05. 28.
 * Cert. No : KS14 - Y0648
 * Order No :
 * Project Name :
 * Customer :

* Specification for Material : ASME A182-F304L - 12a
 * Dimension & Visual : GOOD
 * Application Spec : MSS SP-97
 * According to EN10204 3.1

SAMPLE

* Chemical Composition (%) * P, S : x1000 , * Other : x100

Heat No.		C	Si	Mn	P	S	Cr	Ni	N					Raw maker
		3.0	100.0	200.0	45.0	30.0	1800.0	800.0						
258852	L	1.2	43.0	174.0	30.0	29.0	1805.0	800.0	8.8					Acciaierie Valbruna
	P	1.3	44.7	171.3	29.0	29.0	1803.0	804.7	8.6					
258122	L	1.3	52.0	177.0	30.0	30.0	1817.0	806.0	8.9					Acciaierie Valbruna
	P	1.4	57.0	175.4	28.0	29.0	1821.8	808.7	8.8					
423146	L	2.2	57.0	179.0	29.0	28.0	1840.0	818.0	8.8					Acciaierie Valbruna
	P	2.6	59.9	176.1	32.0	27.0	1837.2	819.8	8.4					

* Mechanical Properties. Spec. of Test Piece : ASTM A370

Heat No.	Y S (MPa) min 205	T S (MPa) min 515	E L (%) min 30	R A (%) min 50				Heat treatment Solution Annealed
258852	327.0	608.0	53.9	72.2				1050°C W.Q
258122	393.0	674.0	66.2	66.9				1050°C W.Q
423146	364.0	625.0	55.4	75.8				1050°C W.Q

* P.M.I Check : GOOD(KSQ-140528-P-Y002)
 * Corrosion Test (ASTM A262 Practice 'E') : GOOD

***DETAIL ITEM LIST**

SER	Item No	DESCRIPTION	Q'ty(ea)	Code name	Heat No.
-	16	SOCKOLET - SW - 3000 LB - 16" x 1-1/2"	2	-	258852
-	17	SOCKOLET - SW - 3000 LB - 10" x 1-1/2"	2	-	258852
-	18	SOCKOLET - SW - 3000 LB - 10" x 3/4"	3	-	258122
-	19	SOCKOLET - SW - 3000 LB - 8" x 1-1/2"	2	-	258852
-	20	SOCKOLET - SW - 3000 LB - 8" x 1"	14	-	423146
-	21	SOCKOLET - SW - 3000 LB - 8" x 3/4"	9	-	258122
-	23	SOCKOLET - SW - 3000 LB - 6" x 1-1/2"	1	-	258852
-	24	SOCKOLET - SW - 3000 LB - 6" x 1"	11	-	423146
-	25	SOCKOLET - SW - 3000 LB - 6" x 3/4"	3	-	258122
-	26	SOCKOLET - SW - 3000 LB - 4" x 1-1/2"	1	-	258852
-	27	SOCKOLET - SW - 3000 LB - 4" x 3/4"	3	-	258122
TOTAL			51		

Reviewed By
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#941 Soju-Dong, Yang San Si,
Kyeong Nam, Korea
TEL: 055) 386-2224
FAX: 055) 386-0488~9/0479

* Date : 2014. 07. 28.
* Cert. No : KS14 - S1201
* MES JOB NO : HC4410
* MES REQ NO : 034PR3201
* MES PO NO : HJ20667B
* Project No : 35-116(HJ20667B)
* Project Name : TSA PROJECT
* Customer : TOHKI CO.,LTD.

* Specification for Material : ASTM A182-F316L - 12a
* Dimension & Visual : GOOD
* Application Spec : ASME 16.11 & MSS SP-97
* According to EN10204 3.1

* Chemical Composition (%) * P, S : x1000 , * Other : x100

Heat No.	C	Si	Mn	P	S	Cr	Mo	Ni	N	Raw Maker
	3.0	100.0	200.0	45.0	30.0	1600.0 1800.0	200.0 300.0	1000.0 1500.0	10.0	
258607	1.8	47.0	149.0	30.0	27.0	1667.0	201.0	1013.0	5.7	Acciaierie Valbruna
258048	1.2	56.0	149.0	30.0	30.0	1686.0	202.0	1004.0	6.0	Acciaierie Valbruna
258047	1.2	50.0	151.0	32.0	28.0	1675.0	205.0	1017.0	5.8	Acciaierie Valbruna
256182	1.3	58.0	151.0	31.0	29.0	1674.0	201.0	1002.0	5.8	Acciaierie Valbruna
260437	1.4	50.0	156.0	30.0	30.0	1684.0	201.0	1010.0	5.6	Acciaierie Valbruna

* Mechanical Properties. Spec. of Test Piece : ASTM A370

Heat No.	Y S (MPa) min 170	T S (MPa) min 485	E L (%) min 30	R A (%) min 50	Heat Treatment Solution Annealed
258607	371.0	617.0	53.8	73.4	1050°C W.Q
258048	359.0	596.0	59.2	76.7	1050°C W.Q
258047	335.0	599.0	56.0	66.7	1050°C W.Q
256182	417.2	664.0	45.8	71.5	1050°C W.Q
260437	367.0	611.0	53.0	77.6	1050°C W.Q

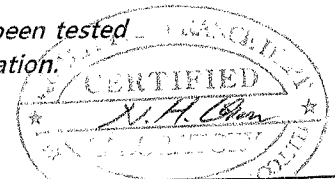
* P.M.I Check : 100% Tested - GOOD (KSQ-140728-P-S002)

* Detail Description *

SER	Item No	DESCRIPTION	Q'ty(ea)	Code Name	Heat No.
-	27	90 ELBOW - SW - 3000 LB - 3/4"	12	EL90SG0H	258607
-	28	90 ELBOW - SW - 3000 LB - 1"	55	EL90SG0H	258048
-	29	90 ELBOW - SW - 3000 LB - 1-1/2"	9	EL90SG0H	258047
-	61	SOCKOLET - SW - 3000 LB - 3" x 1"	8	JO90SG0H	256182
-	62	SOCKOLET - SW - 3000 LB - 4" x 3/4"	12	JO90SG0H	256182
-	63	SOCKOLET - SW - 3000 LB - 4" x 1"	21	JO90SG0H	256182
-	64	SOCKOLET - SW - 3000 LB - 6" x 1"	3	JO90SG0H	256182
-	65	SOCKOLET - SW - 3000 LB - 8" x 1"	3	JO90SG0H	256182
-	66	SOCKOLET - SW - 3000 LB - 8" x 1-1/2"	3	JO90SG0H	258048
-	102	RED TEE - SW - 3000 LB - 1" x 3/4"	3	TR9090SG0H	260437
-	110	EQUAL TEE - SW - 3000 LB - 1"	4	TT9090SG0H	260437
TOTAL			133		

Reviewed By
 Witnessed By

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A4(210X297)