

INDUSTRIAL TESTING LABORATORY SERVICES, LLC

635 Alpha Drive - RIDC Park

Pittsburgh, PA 15238 Phone: 412.963.1900 Fax: 412.963.1926

e-mail: info@itls.com website: itls.com

TEST REPORT L19352 April 5, 2012

Purchase Order No: 694689-000 OP

SHAW POWER

To:

Shaw Modular Solutions LLC

OCT 0 9 2012

012

3191 West Lincoln Road Lake Charles, LA 70605

SMS QO ACCEPT

Attn:

Nick Koseski

7-25-12

Sample Received:

ITLS received ten (10) samples for Chemical, Mechanical, Hardness, Impact, Ferrite and Intergranular Corrosion evaluation, identified as follows:

Sample #	Heat #	Gauge	Supplier	
1	609632-1A	0.625	Outokumpu	
21	609632-1A	0.625	Outokumpu	
3	609633-1A	0.625	Outokumpu	
4	609633-1A	0.625	Outokumpu	
5 •	609642-1A	0.625	Outokumpu	
6	609642-1A	0.625	Outokumpu	
7)	853602-1A	0.625	Outokumpu	
8 🕨	853602-1A	0.625	Outokumpu	
9 •	853604-1A	0.625	Outokumpu	
10 /	853604-1A	0.625	Outokumpu	

Acceptance:

Sample #	Test	Acceptance
All	Chemical Analysis	APP-VL52-Z0-023, Rev. 1, ASTM A240-11b (UNS S32101)
All	Mechanical	APP-VL52-Z0-023, Rev. 1, ASTM A240-11b (UNS S32101), A480-11b
All	Rockwell B	ASTM A240-11b (UNS S32101), A480-11b
All	Ferrite	APP-VL52-Z0-023, Rev. 1, ASTM E562-11, Method A
All	Impact	APP-VL52-Z0-023, Rev. 1, ASTM A923-08, Method B
All	Intergranular Corrosion	ISO 3651-2 Method A

Page 1 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



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Shaw Modular Solutions, LLC ITLS Report L19352 April 5, 2012

Test References:

Specification	Title	
ASTM A751-11	Standard Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products	
ASTM A370-11a	Standard Test Methods and Definitions for Mechanical Testing of Steel Products	
ASTM E8-11	Standard Test Methods for Tension Testing of Metallic Materials	
ASTM E140-07	Standard Hardness Conversion Tables for Metals	
ASTM E23-07a ^{ε1}	Standard Test Methods for Notched Bar Impact Testing of Metallic Materials	
ASTM E3-11	Standard Guide for Preparation of Metallographic Specimens	
ASTM E18-08b	Standard Test Methods for Rockwell Hardness of Metallic Materials	
ASTM E1245-03 (2008)	Standard Practice for Determining the Inclusion of Second-Phase Constituent Content of Metals by Automatic Image Analysis	
ASTM E562-11	Standard Test Method for Determining volume Fraction by Systematic Manual Point Count	

Quality References:

Reference	
10CFR21, 10CFR50.55(e) and 10CFR50 App.B	
ASME NQA-1 – 1994 Basic and Supplementary Requireme	nts
USNRC Regulatory Guide 1.28 Rev. 3	
ITLS QA Manual Rev. 3 dated 06/20/08	
No ITLS subcontractors used for completion of this order	

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Shaw Modular Solutions, LLC ITLS Report L19352 April 5, 2012

Results:

Chemical Analysis - ASTM A751-11 (OES)

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POWER OCT II 9 2012

		Composition (wt%)												
Sample #	С	Mn	Р	S	Si	Ni	Cr	Мо	N	Cu	Co	AI	V	Total Others
1 -	0.021	4.87	0.015	<0.002	0.67	1.60	21.2	0.19	0.22	0.39	<0.01	0.07	0.07	0.14
2 -	0.022	4.95	0.017	<0.002	0.68	1.62	21.2	0.19	0.22	0.39	<0.01	0.07	0.08	0.14
3	0.023	4.96	0.019	<0.002	0.68	1.63	21.3	0.19	0.21	0.39	<0.01	0.07	0.08	0.14
4	0.023	4.97	0.018	<0.002	0.68	1.63	21.2	0.19	0.22	0.39	<0.01	0.07	0.08	0.14
5 -	0.021	4.86	0.018	<0.002	0.67	1.60	21.2	0.30	0.23	0.35	<0.01	0.07	0.10	0.17
6 -	0.021	4.94	0.019	<0.002	0.68	1.62	21.2	0.30	0.23	0.35	<0.01	0.07	0.10	0.17
7 -	0.023	5.08	0.017	<0.002	0.79	1.56	21.2	0.20	0.22	0.39	<0.01	0.06	0.08	0.15
8 -	0.023	5.15	0.018	<0.002	0.79	1.58	21.2	0.19	0.22	0.38	<0.01	0.06	0.08	0.14
9 -	0.024	5.22	0.019	<0.002	0.78	1.59	21.2	0.20	0.22	0.38	<0.01	0.06	0.08	0.14
10 -	0.023	5.24	0.018	<0.002	0.78	1.58	21.3	0.19	0.21	0.38	<0.01	0.06	0.08	0.14
Required	0.040 Max	4.00 6.00	0.040 Max	0.030 Max	1.00 Max	1.35 1.70	21.0 22.0	0.10 0.80	0.20 0.25	0.10 0.80	0.05 Max	0.10 Max	0.10 Max	0.50 Max

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Shaw Modular Solutions, LLC ITLS Report L19352 April 5, 2012

Mechanical Properties - ASTM E8-09 (Flat) & ASTM E18-08b (HRB)

Sample	Test Temp (°F)	Initial Dimensions (in)	Initial Area (in²)	*Yield Strength (ksi)	Tensile Strength (ksi)	Elongation (%) in 2"	Hardness HRB** (Avg. of 3)
1 *	Room	0.499 x 0.660	0.3293	71	102	46	95
2 .	Room	0.497 x 0.668	0.3320	73	103	47	96
3	Room	0.508 x 0.659	0.3348	70	100	50	96
4	Room	0.499 x 0.672	0.3353	73	102	50	96
5)	Room	0.497 x 0.654	0.3250	72	103	48	95
6 .	Room	0.500 x 0.642	0.3210	72	102	50	96
7 .	Room	0.497 x 0.670	0.3330	73	105	45	97
8 🌶	Room	0.500 x 0.683	0.3415	73	104	46	96
9 /	Room	0.496 x 0.650	0.3224	74	105	46	96
10 /	Room	0.500 x 0.670	0.3350	75	104	46	97
	Required			65 Min	94 Min	30 Min	290 HBW Max

^{*}Yield calculated at 0.20% offset

ACCEPTABLE

**Customer requested hardness in Rockwell B. All measured values were between 95 and 97 HRB which is approximately equal to Brinell 210 to 233 based on ASTM E140 Tables 2 and 5. These values are well below the specified max of 290 HBW and are therefore acceptable.

SMS QO ACCEPT 13 7-Z5-IZ



Shaw Modular Solutions, LLC ITLS Report L19352 April 5, 2012 SHAW POWER

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Results (cont.):

Impact Test - ASTM A923-08 Method B

Sample #	Temperature (°F)	Absorbed Energy (ft-lbs)
1 .	-40	56
2 •	-40	48
3	-40	59
4	-40	61
5	-40	42
6	-40	45
7.	-40	55
8 ,	-40	50
9 .	-40	60
10 •	-40	54
Required	-40	20 Min

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Ferrite Testing - ASTM E562-11 Method A

Sample #	Ferrite (%)
1 /	51
2 *	51
3	52
4	49
5 1	52
6 1	53
7 🌶	53
8 /	53
9 •	54
10 *	53
Required	40 - 60%

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Ferrite volume fraction tested with Image Analysis per ASTM E1245-03(2008). ASTM E562 offers the use of ASTM E1245 to determine the same measurements.

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Page 5 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



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Shaw Modular Solutions, LLC ITLS Report L19352 April 5, 2012 012

Results (cont.):

Intergranular Corrosion Test - ISO 3651-2 Method A

Sample #	Bend Radius	Bend	Result
1 /	1T	90°	Accept - No Cracking Observed
2 /	1T	90°	Accept – No Cracking Observed
3	1T	90°	Accept - No Cracking Observed
4	1T · · · ·	90°	Accept - No Cracking Observed
5 🕦	1T	90°	Accept - No Cracking Observed
6 🐧	1T	90°	Accept – No Cracking Observed
7 .	1T	90°	Accept – No Cracking Observed
8 •	1T	90°	Accept - No Cracking Observed
9 •	1T	90°	Accept - No Cracking Observed
10 •	1T	90°	Accept - No Cracking Observed
Required	1T	90°	No Cracking @ 10X

ACCEPTABLE

This certification affirms that the contents are correct and accurate, and that the test operations performed by Industrial Testing Laboratory Services are in compliance with the material specification, ITLS Quality Assurance Manual Rev. 3 dated 6/20/2008, ASME NQA-1 1994, Regulatory Guide 1.28, 10 CFR 50 App. B, 10 CFR Part 21 and any additional requirements of SMS Purchase Order # 694689. Test Results comply with the PO required material specification(s) as noted below.

All Samples: ACCEPTABLE

Signature

Date 4/5/2012

7-25-17



INDUSTRIAL TESTING LABORATORY SERVICES, LLC

635 Alpha Drive - RIDC Park

Pittsburgh, PA 15238 Phone: 412.963.1900 Fax: 412.963.1926

e-mail: info@itls.com website: itls.com

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3191 West Lincoln Road Lake Charles, LA 70605

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Attn:

Nick Koseski

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Sample Received:

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6	609642-1A	0.625	Outokumpu	
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8 🕨	853602-1A	0.625	Outokumpu	
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Acceptance:

Sample #	Test	Acceptance
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All	Mechanical	APP-VL52-Z0-023, Rev. 1, ASTM A240-11b (UNS S32101), A480-11b
All	Rockwell B	ASTM A240-11b (UNS S32101), A480-11b
All	Ferrite	APP-VL52-Z0-023, Rev. 1, ASTM E562-11, Method A
All	Impact	APP-VL52-Z0-023, Rev. 1, ASTM A923-08, Method B
All	Intergranular Corrosion	ISO 3651-2 Method A

Page 1 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



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Shaw Modular Solutions, LLC ITLS Report L19352 April 5, 2012

Test References:

Specification	Title	
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ASTM E8-11	Standard Test Methods for Tension Testing of Metallic Materials	
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ASTM E3-11	Standard Guide for Preparation of Metallographic Specimens	
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USNRC Regulatory Guide 1.28 Rev. 3	
ITLS QA Manual Rev. 3 dated 06/20/08	
No ITLS subcontractors used for completion of this order	

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Shaw Modular Solutions, LLC ITLS Report L19352 April 5, 2012

Results:

Chemical Analysis - ASTM A751-11 (OES)

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		Composition (wt%)												
Sample #	С	Mn	Р	S	Si	Ni	Cr	Мо	N	Cu	Co	AI	V	Total Others
1 -	0.021	4.87	0.015	<0.002	0.67	1.60	21.2	0.19	0.22	0.39	<0.01	0.07	0.07	0.14
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3	0.023	4.96	0.019	<0.002	0.68	1.63	21.3	0.19	0.21	0.39	<0.01	0.07	0.08	0.14
4	0.023	4.97	0.018	<0.002	0.68	1.63	21.2	0.19	0.22	0.39	<0.01	0.07	0.08	0.14
5 -	0.021	4.86	0.018	<0.002	0.67	1.60	21.2	0.30	0.23	0.35	<0.01	0.07	0.10	0.17
6 -	0.021	4.94	0.019	<0.002	0.68	1.62	21.2	0.30	0.23	0.35	<0.01	0.07	0.10	0.17
7 -	0.023	5.08	0.017	<0.002	0.79	1.56	21.2	0.20	0.22	0.39	<0.01	0.06	0.08	0.15
8 -	0.023	5.15	0.018	<0.002	0.79	1.58	21.2	0.19	0.22	0.38	<0.01	0.06	0.08	0.14
9 -	0.024	5.22	0.019	<0.002	0.78	1.59	21.2	0.20	0.22	0.38	<0.01	0.06	0.08	0.14
10 -	0.023	5.24	0.018	<0.002	0.78	1.58	21.3	0.19	0.21	0.38	<0.01	0.06	0.08	0.14
Required	0.040 Max	4.00 6.00	0.040 Max	0.030 Max	1.00 Max	1.35 1.70	21.0 22.0	0.10 0.80	0.20 0.25	0.10 0.80	0.05 Max	0.10 Max	0.10 Max	0.50 Max

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OCT 0 9 2012

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Shaw Modular Solutions, LLC ITLS Report L19352 April 5, 2012

Mechanical Properties - ASTM E8-09 (Flat) & ASTM E18-08b (HRB)

Sample	Test Temp (°F)	Initial Dimensions (in)	Initial Area (in²)	*Yield Strength (ksi)	Tensile Strength (ksi)	Elongation (%) in 2"	Hardness HRB** (Avg. of 3)
1 *	Room	0.499 x 0.660	0.3293	71	102	46	95
2 .	Room	0.497 x 0.668	0.3320	73	103	47	96
3	Room	0.508 x 0.659	0.3348	70	100	50	96
4	Room	0.499 x 0.672	0.3353	73	102	50	96
5)	Room	0.497 x 0.654	0.3250	72	103	48	95
6 .	Room	0.500 x 0.642	0.3210	72	102	50	96
7 .	Room	0.497 x 0.670	0.3330	73	105	45	97
8 🌶	Room	0.500 x 0.683	0.3415	73	104	46	96
9 /	Room	0.496 x 0.650	0.3224	74	105	46	96
10 /	Room	0.500 x 0.670	0.3350	75	104	46	97
	Required			65 Min	94 Min	30 Min	290 HBW Max

^{*}Yield calculated at 0.20% offset

ACCEPTABLE

**Customer requested hardness in Rockwell B. All measured values were between 95 and 97 HRB which is approximately equal to Brinell 210 to 233 based on ASTM E140 Tables 2 and 5. These values are well below the specified max of 290 HBW and are therefore acceptable.

SMS QO ACCEPT 13 7-Z5-IZ



Shaw Modular Solutions, LLC ITLS Report L19352 April 5, 2012 SHAW POWER

OCT 0 9 2012

012

Results (cont.):

Impact Test - ASTM A923-08 Method B

Sample #	Temperature (°F)	Absorbed Energy (ft-lbs)
1 .	-40	56
2 •	-40	48
3	-40	59
4	-40	61
5	-40	42
6	-40	45
7.	-40	55
8 ,	-40	50
9 .	-40	60
10 •	-40	54
Required	-40	20 Min

ACCEPTABLE

Ferrite Testing - ASTM E562-11 Method A

Sample #	Ferrite (%)					
1 /	51					
2 *	51					
3	52					
4	49					
5 1	52					
6 1	53					
7 🌶	53					
8 /	53					
9 •	54					
10 *	53					
Required	40 - 60%					

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Ferrite volume fraction tested with Image Analysis per ASTM E1245-03(2008). ASTM E562 offers the use of ASTM E1245 to determine the same measurements.

ACCEPTABLE

Page 5 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



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Shaw Modular Solutions, LLC ITLS Report L19352 April 5, 2012 012

Results (cont.):

Intergranular Corrosion Test - ISO 3651-2 Method A

Sample #	Bend Radius	Bend	Result
1 /	1T	90°	Accept - No Cracking Observed
2 /	1T	90°	Accept – No Cracking Observed
3	1T	90°	Accept - No Cracking Observed
4	1T · · · ·	90°	Accept - No Cracking Observed
5 •	1T	90°	Accept - No Cracking Observed
6 🐧	1T	90°	Accept – No Cracking Observed
7 .	1T	90°	Accept – No Cracking Observed
8 •	1T	90°	Accept - No Cracking Observed
9 •	1T	90°	Accept - No Cracking Observed
10 •	1T	90°	Accept - No Cracking Observed
Required	1T	90°	No Cracking @ 10X

ACCEPTABLE

This certification affirms that the contents are correct and accurate, and that the test operations performed by Industrial Testing Laboratory Services are in compliance with the material specification, ITLS Quality Assurance Manual Rev. 3 dated 6/20/2008, ASME NQA-1 1994, Regulatory Guide 1.28, 10 CFR 50 App. B, 10 CFR Part 21 and any additional requirements of SMS Purchase Order # 694689. Test Results comply with the PO required material specification(s) as noted below.

All Samples: ACCEPTABLE

Signature

Date 4/5/2012

7-25-17



Certificate of Analysis and Tests

OUR ORDER 0278834 - 06

HEAT & PIECE 609641-2A 03/23/12

SOLD TO: SHAW MODULAR SOLUTIONS, L.L.C. SHIP TO: SHAW MODULAR SOLUTIONS, L.L.C. 3191 W LINCOLN ROAD 3191 W LINCOLN ROAD

TAKE CHARLES

T.A 70605

LAKE CHARLES	LA 70605	LAKE CHARLES	LA 70605
746363 12/22/11	YOUR ORDER	& DATE TAG# P	/N #2232445
HEAT & PIECE 609641 - 2A WEIGHT 8938 FINISH 1 GRADE 2101 DIMENSIONS .625 X 117.0	UNS S3210	1 EXACT	
*** MFG IN NEW CASTLE, IN, ASTM A240-11A ASMESA240-11EI REQUIRES PRODUCT ANALYSIS ASTM E562-08 (10% ACCURACY) ASTM A923-06 METHOD A&B ONL U. T. TEST TO ASTM A 577-90 APP-VL52-ZO-023 R1 W/EXCEPTS	USA FROM SLA OSI Q UHA 5 Y UT AS NON S ISO 3	TIONS	D 2
PLATES & TEST PCS SOLUTION THEN WATER QUENCHED FREE FROM MERCURY CONTAMINATION ROLLED, ANNEALED & PICK	TION AT CURRENT [LED (HRAP)	ETECTION LIMITS	
HARDNESS HRC 15 YIELD STRENGTH (PSI) 7 TENSILE STRENGTH (PSI) 10 BEND INTERGRANULAR CORROSION ELONGATION % IN 2" REDUCTION OF AREA % ASTM E-562 POINT COUNT FER CHARPY TEST AT -40F (TRANS LATERAL EXPANSION = 40, 40 CHARPY TEST AT -40F (TRANS	0443 3990 OK OK 44.2 62.2 RITE @ 500X = 47%) 54, 49, 50 FT-I , 38 (MILS)	% AT 10% RELATIVE ACCUR LBS. FULL SAMPLE SIZE	SHAW POWER OCT 1 5 2012
CHARPY TEST AT -40F (TRANS - CHEMICAL COMPOSITION CARBON (C) .022 MANGANESE (MN) 4.75 PHOSPHORUS (P) .023 SULFUR (S) .001 SILICON (SI) .64 CHROMIUM (CR) 21.43 NICKEL (NI) 1.54 COBALT (CO) .04 COPPER (CU) .33 MOLY (MO) .31 NITROGEN (N) .21 COLUMBIUM (CB) .011 TITANIUM (TI) .004 ALUMINUM (AL) .022 TIN (SN) .006	- PRODUCT ANALYS: (C) .017 (MN) 4.29 (P) .021 (S) .007 (SI) .66 (CR) 21.00 (NI) 1.62 (CO) .05 (CU) .35 (MO) .31 (N) .25 (CB) .010 (TI) .005 (AL) .022 (SN) .007	[S	ACCEPT 15 8-13-12

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN HAS BEEN MADE AND TESTED IN ACCORDANCE WITH THE LISTED SPECIFICATION(S) AND THAT THE RESULTS OF ALL TESTS ARE ACCEPTABLE.

JAMES DOUBMAN, QUALITY ASSURANCE MANAGER

Samo P Outokumpu Stainless Plate, Inc. CERTIFICATE IN CONFORMANCE WITH EN10204-95 3.1.B/EN10204-2004 3.1 P.O. Box 370 New Castle Indiana 47362 **ISSUED FOR Information (IFI)**



NDE RESULT RECOR	D						Pa	age 1 of 2
	REPORT O	FNONE	ESTR	RUCT	IVE	EXAMIN	MOITAN	
Customer OUTOKUMPU (Shav	v Modular Solut	ions)			Date 3/13	112		
Address		1.51	2	0		No. or Report No.		
PO BOX 370, 549 W	/ State Rd 38 Ne				2893	33		
New Castle, Indiana	Plant	PD No: 28862B	Owner:		dular	Solutions	Plan or Drawing I	No UA
Surface Condition	1 100316	Heat No.		Heat T		ooiutions	Type of Material	
SMOOTH			BELOW			V/A	2101CO	65°F
Type of Examination UT (SHEAR WAVE)	Examination Sta ASTM A57			Acceptan ASTM			SP-UT-1	re No. I App II-U Rev 5
ORDER NO.	HEAT NO.	Acc	Rej I	Defe	ct Code	T	Remark	
278834	609633-5A	X					.250 x 108	x 222
278834	853605-4A	Х					.625 x 117	x 410
278834	853602-4A	Х					.625 x 117	x 410
278834	853601-2A	X					.625 x 117	x 410
278834	853605-1A	Х					.625 x 117	x 410
278834	853605-2A	Х					.625 x 117	x 410
278834	853604-1A	Х					.625 x 117	x 410
278834	853604-2A	Х					.625 x 117	x 410
278834	609642-3A	Х					.625 x 117	x 410
278834	609641-2A	X					.625 x 117	x 410
278834	609645-1A	Х					.625 x 117	x 410
	Type of Work New	No of I	Items Accepte	ed	No	of Items Rejected	2	
Remarks: The r	olates listed abo	ve were ult	rasonic	ally tes	sted i	for indicatio	ns in accord	dance with
listed standards and								
noted Standards and	production							
Conclusion: No record	able indications	were note	d at the	time o	of this	inspection		
					2442		*	
Client Personnel	Teo	chnician F	Robert Car	ddel -	المراجعة المراجعة		SNT-TC-1A L	evel II Ultrasonic

3-14-12

SHAW POWER

OCT 1 5 2012



NDE TECHNIQUE RECORD ULTRASONIC

Facility QC Control No. 290850	Technique No. Master
Client Outokumpu / Shaw Modular Solution	s P.O. No. 28862B
Item Description Stainless Steel Plate	
Part No. N/A	Drawing No. N/A
Specification ASTM A577-90	Acceptance ASTM A577-90
Procedure SP-UT-1 App II-U Rev.5	
WELDS	OTHER TEST ITEMS
Weld Joint N/A	Type of Item Stainless Steel Plate
Weld Process N/A	Processing Rolled
Base Material N/A	Material 2101CO
Material Thickness N/A	Dimensions See Page 1
Weld Length/OD N/A Surface Condition N/A	Additional Info N/A
PRECLEAN: Method N/A	Surface Condition Smooth
EQUIPMENT: Make Krautkramer	Material N/A Batch No. N/A
PRESENTATION X A-SCAN	Model USN 52 S/N 00NC078 B-SCAN C-SCAN
TRANSDUCERS:	B-SCAN C-SCAN
Make Krautkramer Model S/N	00W86X Sound Beam Angle (Material) 70°
Crystal Size .76" x .625" Crystal M	
The contract of the contract o	nufacturer N/A Batch No. N/A
CALIBRATION BLOCK: Type Part	Material 2101CO S/N N/A
	nersion Water Column
X Pulse Echo Res	onance Through Transmission
SCANNING: X Manual	Automatic
The state of the s	ning Speed < 6"Per/Sec. % Overlap N / A
POST CLEAN: Method N/A	10%
OTHER INFORMATION:	
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Prepared By:	Approved by: Date
Robert Caddel	N/A 3/13/12 PAGE 2 OF 2



ACUREN									
NDE RESULT RECOR	D						Pa	ge1 of2	
	REPORT O	FNOND	ESTR	UCT	TIVE	EXAMIN			
Customer OUTOKUMPU (Shav	v Modular Solut	ione)	T. C.		Date 3/13	112			
Address			17000		Contro	l No. or Report No.			
PO BOX 370, 549 W Job or Project Location		PO No:	Owner:		2908		Plan or Drawing N	lo	
New Castle, Indiana Surface Condition	Plant	28862B Heat No.	Shav	V MOC		Solutions	Type of Material	/A Temp of Material	
SMOOTH Type of Examination	Examination Sta		ELOW			I/A	2101CO	65°F	
UT (STRAIGHT BEA		3	Acceptanc ASTM			evel B S1		App II-U Re	v 5
order no. 278834	HEAT NO. 609633-5A	Acc	Rej	Defe	ct Code		Remarks .250 x 108		
270004	903033-3A	X		-			.230 X 100	X 444	
278834	853605-4A	Х		+-			.625 x 117	x 410	
278834	853602-4A	Х		1			.625 x 117	x 410	
278834	853601-2A	Х		1			.625 x 117	x 410	
278834	853605-1A	Х					.625 x 117	x 410	
278834	853605-2A	Х					.625 x 117	x 410	
278834	853604-1A	Х					.625 x 117	x 410	
278834	853604-2A	Х					.625 x 117	x 410	
278834	609642-3A	Х					.625 x 117	x 410	
278834	609641-2A	Х					.625 x 117	x 410	
278834	609645-1A	Х					.625 x 117	x 410	
								and Water	
				-					
	Type of Work	No of ite	ms Accepted	i	No	of Items Rejected			
	New		11			-0-			
Remarks: The p	lates listed abo	ve were ultr	asonica	lly tes	sted f	or indicatio	ns in accord	lance with	
listed standards and	procedures.								
Conclusion: No record	able indications	were noted	at the t	ime o	of this	inspection.			
Client Personnel	Te	chnician <u>Ro</u>	bert Cad	del ·	le separation de la constantina della constantin	and the second of the second o	SNT-TC-1A Le	evel II Ultras	sonic

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NDE TECHNIQUE RECORD ULTRASONIC

				Nego-	-
Facility QC Control No. 290850		Technique No.	Master		
Client Outokumpu / Shaw Modular Solu	tions		8862B		
Item Description Stainless Steel Plate					
Part No. N/A		Drawing No. N	I/A		
Specification ASTM A578-07			STM A578-07	Level B S1	
Procedure SP-UT-1 App II-U Rev.5		1.0000000000	io i mi i toro o i	Level B o i	
WELDS		OTHE	R TEST ITEM	S	
Weld Joint N/A	Tv		nless Steel Pla		
Weld Process N/A		ocessing Rolled			
Base Material N/A		aterial 2101CO			
Material Thickness N/A			Page 1		
Weld Length/OD N/A		ditional Info N/A			
Surface Condition N/A		TO CONTROL TO SERVICE TO CONTROL TO THE SERVICE TO	Smooth		
PRECLEAN: Method N/A		aterial N/A		- NI- NI/A	
EQUIPMENT: Make Krautkramer		odel USN 52		h No. N/A	
PRESENTATION X A-SCAN	1010	B-SCAN	S/N	00NC078	
TRANSDUCERS:		D-SCAIN		-SCAN	
	S/N 5	704CE Sound	Poom Angle /	0.4040=101	
	The second secon		Beam Angle (0°
	al Mater				MHz
COUPLANT: Material Water	Manufa		Batcl		
CALIBRATION BLOCK: Type Part		Material 2101C		N/A	
	Immersi	on \	Nater Column		
	Resonar		Through Trans	mission	
SCANNING: X Manual		Automatic			
	canning	Speed < 6"Per/Se	ec. % Over	iap N/A	
POST CLEAN: Method N/A			10%		
OTHER INFORMATION:					
					-
			Til Control		
					SHAW
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Prepared By:	Anr	proved by:	Date		
Robert Caddel	1,,64	N/A	3/13/12	PAGE 2 OF	= 2
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3-14-12



INDUSTRIAL TESTING LABORATORY SERVICES, LLC

635 Alpha Drive - RIDC Park

Pittsburgh, PA 15238 Phone: 412.963.1900 Fax: 412.963.1926

e-mail: info@itls.com website: itls.com

TEST REPORT L19352 April 5, 2012

Purchase Order No: 694689-000 OP

SHAW POWER

To:

Shaw Modular Solutions LLC

OCT 0 9 2012

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3191 West Lincoln Road Lake Charles, LA 70605

SMS QO ACCEPT

Attn:

Nick Koseski

7-25-12

Sample Received:

ITLS received ten (10) samples for Chemical, Mechanical, Hardness, Impact, Ferrite and Intergranular Corrosion evaluation, identified as follows:

Sample #	Heat #	Gauge	Supplier
1	609632-1A	0.625	Outokumpu
21	609632-1A	0.625	Outokumpu
3	609633-1A	0.625	Outokumpu
4	609633-1A	0.625	Outokumpu
5 •	609642-1A	0.625	Outokumpu
6	609642-1A	0.625	Outokumpu
7)	853602-1A	0.625	Outokumpu
8 🕨	853602-1A	0.625	Outokumpu
9 •	853604-1A	0.625	Outokumpu
10 /	853604-1A	0.625	Outokumpu

Acceptance:

Sample #	Test	Acceptance
All	Chemical Analysis	APP-VL52-Z0-023, Rev. 1, ASTM A240-11b (UNS S32101)
All	Mechanical	APP-VL52-Z0-023, Rev. 1, ASTM A240-11b (UNS S32101), A480-11b
All	Rockwell B	ASTM A240-11b (UNS S32101), A480-11b
All	Ferrite	APP-VL52-Z0-023, Rev. 1, ASTM E562-11, Method A
All	Impact	APP-VL52-Z0-023, Rev. 1, ASTM A923-08, Method B
All	Intergranular Corrosion	ISO 3651-2 Method A

Page 1 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



SHAW POWER OCT 0 9 2012

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Shaw Modular Solutions, LLC ITLS Report L19352 April 5, 2012

Test References:

Specification	Title
ASTM A751-11	Standard Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products
ASTM A370-11a	Standard Test Methods and Definitions for Mechanical Testing of Steel Products
ASTM E8-11	Standard Test Methods for Tension Testing of Metallic Materials
ASTM E140-07	Standard Hardness Conversion Tables for Metals
ASTM E23-07a ^{£1}	Standard Test Methods for Notched Bar Impact Testing of Metallic Materials
ASTM E3-11	Standard Guide for Preparation of Metallographic Specimens
ASTM E18-08b	Standard Test Methods for Rockwell Hardness of Metallic Materials
ASTM E1245-03 (2008)	Standard Practice for Determining the Inclusion of Second-Phase Constituent Content of Metals by Automatic Image Analysis
ASTM E562-11	Standard Test Method for Determining volume Fraction by Systematic Manual Point Count

Quality References:

Reference	
10CFR21, 10CFR50.55(e) and 10CFR50 App.B	
ASME NQA-1 - 1994 Basic and Supplementary Requi	irements
USNRC Regulatory Guide 1.28 Rev. 3	
ITLS QA Manual Rev. 3 dated 06/20/08	
No ITLS subcontractors used for completion of this ord	der

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Shaw Modular Solutions, LLC ITLS Report L19352 April 5, 2012

Results:

Chemical Analysis - ASTM A751-11 (OES)

SMS QC ACCEPT SHAW POWER OT 0 9 2012

	Composition (wt%)													
Sample #	С	Mn	Р	S	Si	Ni	Cr	Мо	N	Cu	Co	AI	٧	Total Others
1 -	0.021	4.87	0.015	<0.002	0.67	1.60	21.2	0.19	0.22	0.39	<0.01	0.07	0.07	0.14
2 *	0.022	4.95	0.017	<0.002	0.68	1.62	21.2	0.19	0.22	0.39	<0.01	0.07	0.08	0.14
3	0.023	4.96	0.019	<0.002	0.68	1.63	21.3	0.19	0.21	0.39	<0.01	0.07	0.08	0.14
4	0.023	4.97	0.018	<0.002	0.68	1.63	21.2	0.19	0.22	0.39	<0.01	0.07	0.08	0.14
5 -	0.021	4.86	0.018	<0.002	0.67	1.60	21.2	0.30	0.23	0.35	<0.01	0.07	0.10	0.17
6 -	0.021	4.94	0.019	<0.002	0.68	1.62	21.2	0.30	0.23	0.35	<0.01	0.07	0.10	0.17
7 •	0.023	5.08	0.017	<0.002	0.79	1.56	21.2	0.20	0.22	0.39	<0.01	0.06	0.08	0.15
8 -	0.023	5.15	0.018	<0.002	0.79	1.58	21.2	0.19	0.22	0.38	<0.01	0.06	0.08	0.14
9 ~	0.024	5.22	0.019	<0.002	0.78	1.59	21.2	0.20	0.22	0.38	<0.01	0.06	0.08	0.14
10 •	0.023	5.24	0.018	<0.002	0.78	1.58	21.3	0.19	0.21	0.38	<0.01	0.06	0.08	0.14
Required	0.040 Max	4.00	0.040 Max	0.030 Max	1.00 Max	1.35 1.70	21.0 22.0	0.10 0.80	0.20 0.25	0.10 0.80	0.05 Max	0.10 Max	0.10 Max	0.50 Max

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Shaw Modular Solutions, LLC ITLS Report L19352 April 5, 2012

Mechanical Properties - ASTM E8-09 (Flat) & ASTM E18-08b (HRB)

Sample	Test Temp (°F)	Initial Dimensions (in)	Initial Area (in²)	*Yield Strength (ksi)	Tensile Strength (ksi)	Elongation (%) in 2"	Hardness HRB** (Avg. of 3)
1 *	Room	0.499 x 0.660	0.3293	71	102	46	95
2 .	Room	0.497 x 0.668	0.3320	73	103	47	96
3	Room	0.508 x 0.659	0.3348	70	100	50	96
4	Room	0.499 x 0.672	0.3353	73	102	50	96
5)	Room	0.497 x 0.654	0.3250	72	103	48	95
6 .	Room	0.500 x 0.642	0.3210	72	102	50	96
7 .	Room	0.497 x 0.670	0.3330	73	105	45	97
8 🌶	Room	0.500 x 0.683	0.3415	73	104	46	96
9 /	Room	0.496 x 0.650	0.3224	74	105	46	96
10 /	Room	0.500 x 0.670	0.3350	75	104	46	97
	Required				94 Min	30 Min	290 HBW Max

^{*}Yield calculated at 0.20% offset

ACCEPTABLE

**Customer requested hardness in Rockwell B. All measured values were between 95 and 97 HRB which is approximately equal to Brinell 210 to 233 based on ASTM E140 Tables 2 and 5. These values are well below the specified max of 290 HBW and are therefore acceptable.

SMS QO ACCEPT 13 7-Z5-IZ



Shaw Modular Solutions, LLC ITLS Report L19352 April 5, 2012

SHAW

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Results (cont.):

Impact Test - ASTM A923-08 Method B

Sample #	Temperature (°F)	Absorbed Energy (ft-lbs)		
1 🌶	-40	56		
2 🎍	-40	48		
3	-40	59		
4	-40	61		
5	-40	42		
6 •	-40	45		
7.	-40	55		
8 🌶	-40	50		
9 🌶 .	-40	60		
10 •	-40	54		
Required	-40	20 Min		

ACCEPTABLE

Ferrite Testing - ASTM E562-11 Method A

Sample #	Ferrite (%)
1 /	51
2 *	51
3	52
4	49
5 1	52
6 1	53
7 ,	53
8 /	53
9 •	54
10 *	53
Required	40 - 60%

SMS QC ACCEPT 19 7-25-12

Ferrite volume fraction tested with Image Analysis per ASTM E1245-03(2008). ASTM E562 offers the use of ASTM E1245 to determine the same measurements.

ACCEPTABLE

Page 5 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



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Shaw Modular Solutions, LLC ITLS Report L19352 April 5, 2012 012

Results (cont.):

Intergranular Corrosion Test - ISO 3651-2 Method A

Sample #	Bend Radius	Bend	Result
1 /	1T	90°	Accept - No Cracking Observed
2 /	1T	90°	Accept – No Cracking Observed
3	1T	90°	Accept - No Cracking Observed
4	1T · · · ·	90°	Accept - No Cracking Observed
5 •	1T	90°	Accept - No Cracking Observed
6 🐧	1T	90°	Accept – No Cracking Observed
7 .	1T	90°	Accept – No Cracking Observed
8 •	1T	90°	Accept - No Cracking Observed
9 •	1T	90°	Accept - No Cracking Observed
10 •	1T	90°	Accept - No Cracking Observed
Required	1T	90°	No Cracking @ 10X

ACCEPTABLE

This certification affirms that the contents are correct and accurate, and that the test operations performed by Industrial Testing Laboratory Services are in compliance with the material specification, ITLS Quality Assurance Manual Rev. 3 dated 6/20/2008, ASME NQA-1 1994, Regulatory Guide 1.28, 10 CFR 50 App. B, 10 CFR Part 21 and any additional requirements of SMS Purchase Order # 694689. Test Results comply with the PO required material specification(s) as noted below.

All Samples: ACCEPTABLE

Signature

Date 4/5/2012

7-25-17



INDUSTRIAL TESTING LABORATORY SERVICES, LLC 635 Alpha Drive – RIDC Park Pittsburgh, PA 15238 Phone: 412.963.1900 Fax: 412.963.1926 e-mail: info@itls.com website: itls.com

> TEST REPORT L19495 May 7, 2012

Purchase Order No: 694689-000 OP

To:

Shaw Modular Solutions LLC

3191 West Lincoln Road Lake Charles, LA 70605

Attn:

Nick Koseski

ACCEPT

13 6-30-12

Sample Received:

ITLS received twelve (12) samples for Chemical, Mechanical, Hardness, Impact, Ferrite and Intergranular Corrosion evaluation, identified as follows:

Sample #	Heat #	Description	Supplier
1	853731-1A	0.625" thick Duplex Plate	Outokumpu
2	853731-1A	0.625" thick Duplex Plate	Outokumpu
- 3	609643-2A	0.625" thick Duplex Plate	Outokumpu
4	609643-2A	0.625" thick Duplex Plate	Outokumpu
5	609644-3A	0.625" thick Duplex Plate	Outokumpu
6	609644-3A	0.625" thick Duplex Plate	Outokumpu
7	853735-3A	0.500" thick Duplex Plate	Outokumpu
8	853735-3A	0.500" thick Duplex Plate	Outokumpu
9	609643-3A	0.625" thick Duplex Plate	Outokumpu
10	609643-3A	0.625" thick Duplex Plate	Outokumpu
11	853843-2A	1.187" thick Duplex Plate	Outokumpů
12 .	853843-2A	1.187" thick Duplex Plate	Outokumpu

Acceptance:

Sample #	Test	Acceptance
All	Chemical Analysis	APP-VL52-Z0-023, Rev. 1, ASTM A240-11b (UNS S32101)
All	Mechanical	APP-VL52-Z0-023, Rev. 1, ASTM A240-11b (UNS S32101), A480-11b
All	Rockwell B	ASTM A240-11b (UNS S32101), A480-11b
All	Ferrite	APP-VL52-Z0-023, Rev. 1, ASTM E562-11, Method A
All	Impact	APP-VL52-Z0-023, Rev. 1, ASTM A923-08, Method B
. All	Intergranular Corrosion	ISO 3651-2 Method A

SHAW POWER AUG 3 0 2012

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Page 1 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



Test References:

Specification	Title
ASTM A751-11	Standard Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products
ASTM A370-12	Standard Test Methods and Definitions for Mechanical Testing of Steel Products
ASTM E8-11	Standard Test Methods for Tension Testing of Metallic Materials
ASTM E140-07	Standard Hardness Conversion Tables for Metals
ASTM E23-07a ^{c1}	Standard Test Methods for Notched Bar Impact Testing of Metallic Materials
ASTM E3-11	Standard Guide for Preparation of Metallographic Specimens
ASTM E18-08b	Standard Test Methods for Rockwell Hardness of Metallic Materials
ASTM E1245-03 (2008)	Standard Practice for Determining the Inclusion of Second-Phase Constituent Content of Metals by Automatic Image Analysis
ASTM E562-11	Standard Test Method for Determining Volume Fraction by Systematic Manual Point Count

Quality References:

Reference	
10CFR21, 10CFR50.55(e) and 10CFR50 App.B	
ASME NQA-1 – 1994 Basic and Supplementary Requirements	
USNRC Regulatory Guide 1.28 Rev. 3	
ITLS QA Manual Rev. 3 dated 06/20/08	
No ITLS subcontractors used for completion of this order	

SMS QC ACCEPT 13 G-30-12

> SHAW POWER

AUG 3 0 2012

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Page 2 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



Results:

Shaw Modular Solutions, LLC ITLS Report L19495 May 7, 2012

Chemical Analysis - ASTM A751-11 (OES/Leco)

		Composition (wt%)												
Sample #	С	Mn	Р	s	Si	Ni '	Cr	Мо	N	Cu	Co	Al	V	Total Others
1	0.027	5.00	0.022	0.001	0.55	1.58	21.6	0.21	0.22	0.41	<0.01	0.01	0.08	0.09
2	0.025	4.89	0.022	0.001	0.57	1.58	21.4	0.22	0.22	0.43	<0.01	0.01	0.08	0.09
3	0.026	4.79	0.022	0.001	0.52	1.57	21.7	0.31	0.23	0.36	0.01	0.02	0.10	0.13
. 4	0.027	4.78	0.023	0.001	0.51	1.57	21.9	0.31	0.22	0.36	0.01	0.03	0.10	0.13
5	0.027	4.91	0.023	0.001	0.51	1.55	21.8	0.30	0.22	0.35	0.01	0.02	0.10	0.13
6	0.025	4.91	0.022	0.001	0.51	1.54	21.8	0.30	0.22	0.35	0.01	0.03	0.10	0.13
7	0.025	5.05	0.021	0.001	0.55	1.57	21.7	0.21	0.22	0.41	0.01	0.01	0.08	0.09
8	0.025	5.02	0.022	0.001	0.55	1.56	21.5	0.21	0.22	.0.42	<0.01	0.01	0.08	0.09
9	0.025	4.84	0.022	0.001	0.50	1.53	21.8	0.30	0.22	0.35	0.01	0.02	0.10	0.13
10	0.026	4.70	0.021	0.001	0.51	1.55	21.9	0.30	0.23	0.36	0.01	0.02	0.10	0.13
11	0.032	4.83	0.021	0.001	0.53	1.45	21.9	0.21	0.22	0.38	0.01	0.02	0.09	0.11
12	0.034	4.75	0.023	0.001	0.54	1.46	21.8	0.21	0.22	0.39	0.01	0.02	0.09	0.11
Required	0.040 Max	4.00 6.00	0.040 Max	0.030 Max	1.00 Max	1.35 1.70	21.0 ° 22.0	0.10 0.80	0.20 0.25	0.10 0.80	0.05 Max	0.10 Max	0.10 Max	0.50 Max

ACCEPTABLE

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ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



Results (cont):

Impact Test - ASTM A923-08 Method B

·	A STATE OF THE STA	
Sample #	Temperature (°F)	Absorbed Energy (ft-lbs)
1.	-40	- 68
2	-40	80
3	-40	45
4	-40	42
5	-40	45
6	-40	44
7	40	62
. 8	-40	69
9	-40	44
. 10	-40	50 [.]
11	-40	30
12	-40	31
Required	-40	20 Min

ACCEPTABLE

Ferrite Testing - ASTM E562-11 Method A

Sample #	Ferrite (%)
1	48
2	50
3	52
4	51
5	52
6	50
7	48
8	50
9	52
10	. 49
11	52 ·
12	53
Required	40 - 60%

5MS QC ACCEPT 13 6-30-12

> SHAW POWER

AUG 3 0 2012

Ferrite volume fraction tested with Image Analysis per ASTM E1245-03(2008). ASTM E562 offers the use of ASTM E1245 to determine the same measurements.

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ACCEPTABLE

Page 4 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



Results (cont.):

Mechanical Properties - ASTM E8-11 (Flat/Round) & ASTM E18-08b (HRB)

Sample #	Test Temp (°F)	Initial Dimensions (in)	Initial Area (in²)	*Yield Strength (ksi)	Tensile Strength (ksi)	Elongation (%) in 2"	Hardness HRB** (Avg. of 3)
1	Room	0.499 x 0.678	0.3383	72	103	48	96
2	Room	0.498 x 0.661	0.3292	73	104 .	47	96
3	Room	0.498 x 0.661	0.3292	76	106	47	95
4	Room	0.500 x 0.658	0.3290	73	103	46	96
5	Room	0.500 x 0.671	0.3355	73	102	46	96
6	Room	0.501 x 0.674	0.3377	73	103	45	95
7	Room	0.498 x 0.526	0.2619	73	104	44	97
8	Room	0.497 x 0.529	0.2629	74	104	44	97
9	Room	0.501 x 0.668	0.3347	73	103	46	95
10	Room	0.500×0.658	0.3290	72	102	46	96
11	Room	0.500 dia.	0.1963	74	104	42	97
12	12 Room 0.500 dia. 0.1963			73	104	41	97
	Red	quired	þ	65 Min	94 Min	30 Min	290 HBW Max

^{*}Yield calculated at 0.20% offset

ACCEPTABLE

**Customer requested hardness in Rockwell B. All measured values were between 95 and 97 HRB which is approximately equal to Brinell 210 to 233 based on ASTM E140 Tables 2 and 5. These values are well below the specified max of 290 HBW and are therefore acceptable.



SHAW POWER

AUG 3 0 2012

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Page 5 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



Results (cont.):

Intergranular Corrosion Test - ISO 3651-2 Method A

Sample #	Bend Radius	Bend	Result
1	1T	90°	Accept – No Cracking Observed
2	1T	90°	Accept - No Cracking Observed
3	1T	90°	Accept - No Cracking Observed
4	1T	90°	Accept - No Cracking Observed
5	1T	90°	Accept - No Cracking Observed
6	1T	90°	Accept - No Cracking Observed
7	1T	90°	Accept - No Cracking Observed
8	1T	90°	Accept - No Cracking Observed
9	1T	90°	Accept - No Cracking Observed
10	1T	90°	Accept - No Cracking Observed
11	1T	90°	Accept - No Cracking Observed
12	1T	90°	Accept - No Cracking Observed
Required	1T	90°	No Cracking @ 10X

ACCEPTABLE

This certification affirms that the contents are correct and accurate, and that the test operations performed by Industrial Testing Laboratory Services are in compliance with the material specification, ITLS Quality Assurance Manual Rev. 3 dated 6/20/2008, ASME NQA-1 1994, Regulatory Guide 1.28, 10 CFR 50 App. B, 10 CFR Part 21 and any additional requirements of SMS Purchase Order # 694689. Test Results comply with the PO required material specification(s) as noted below.

All Samples: ACCEPTABLE

Signature

Date 5/7/2012

SMS QO ACCEPT

6-30-12

SHAW

AUG 3 0 2012

003

Page 6 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



INDUSTRIAL TESTING LABORATORY SERVICES, LLC 635 Alpha Drive – RIDC Park Pittsburgh, PA 15238 Phone: 412.963.1900 Fax: 412.963.1926 e-mail: info@itls.com website: itls.com

> TEST REPORT L19495 May 7, 2012

Purchase Order No: 694689-000 OP

To:

Shaw Modular Solutions LLC

3191 West Lincoln Road Lake Charles, LA 70605

Attn:

Nick Koseski

ACCEPT

13 6-30-12

Sample Received:

ITLS received twelve (12) samples for Chemical, Mechanical, Hardness, Impact, Ferrite and Intergranular Corrosion evaluation, identified as follows:

Sample #	Heat #	Description Supplier			
1	853731-1A	0.625" thick Duplex Plate Outokum			
2	853731-1A	0.625" thick Duplex Plate Outokun			
- 3	609643-2A	0.625" thick Duplex Plate	Outokumpu		
4	609643-2A	0.625" thick Duplex Plate	Outokumpu		
5	609644-3A	0.625" thick Duplex Plate	Outokumpu		
6	609644-3A	0.625" thick Duplex Plate	Outokumpu		
7	853735-3A	0.500" thick Duplex Plate	Outokumpu		
8	853735-3A	0.500" thick Duplex Plate	Outokumpu		
9	609643-3A	0.625" thick Duplex Plate Outokump			
10	609643-3A	3A 0.625" thick Duplex Plate Outokump			
11	853843-2A	13-2A 1.187" thick Duplex Plate Outokumpu			
12 .	853843-2A	1.187" thick Duplex Plate Outokump			

Acceptance:

Sample #	Test	Acceptance
All	Chemical Analysis	APP-VL52-Z0-023, Rev. 1, ASTM A240-11b (UNS S32101)
All	Mechanical	APP-VL52-Z0-023, Rev. 1, ASTM A240-11b (UNS S32101), A480-11b
All	Rockwell B	ASTM A240-11b (UNS S32101), A480-11b
All	Ferrite	APP-VL52-Z0-023, Rev. 1, ASTM E562-11, Method A
All	Impact	APP-VL52-Z0-023, Rev. 1, ASTM A923-08, Method B
. All	Intergranular Corrosion	ISO 3651-2 Method A

SHAW POWER AUG 3 0 2012

003

Page 1 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



Test References:

Specification	Title
ASTM A751-11	Standard Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products
ASTM A370-12	Standard Test Methods and Definitions for Mechanical Testing of Steel Products
ASTM E8-11	Standard Test Methods for Tension Testing of Metallic Materials
ASTM E140-07	Standard Hardness Conversion Tables for Metals
ASTM E23-07a ^{c1}	Standard Test Methods for Notched Bar Impact Testing of Metallic Materials
ASTM E3-11	Standard Guide for Preparation of Metallographic Specimens
ASTM E18-08b	Standard Test Methods for Rockwell Hardness of Metallic Materials
ASTM E1245-03 (2008)	Standard Practice for Determining the Inclusion of Second-Phase Constituent Content of Metals by Automatic Image Analysis
ASTM E562-11	Standard Test Method for Determining Volume Fraction by Systematic Manual Point Count

Quality References:

Reference	
10CFR21, 10CFR50.55(e) and 10CFR50 App.B	
ASME NQA-1 – 1994 Basic and Supplementary Requirements	
USNRC Regulatory Guide 1.28 Rev. 3	
ITLS QA Manual Rev. 3 dated 06/20/08	
No ITLS subcontractors used for completion of this order	

SMS QC ACCEPT 13 G-30-12

> SHAW POWER

AUG 3 0 2012

003

Page 2 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



Results:

Shaw Modular Solutions, LLC ITLS Report L19495 May 7, 2012

Chemical Analysis - ASTM A751-11 (OES/Leco)

		Composition (wt%)												
Sample #	С	Mn	Р	s	Si	Ni '	Cr	Мо	N	Cu	Co	Al	V	Total Others
1	0.027	5.00	0.022	0.001	0.55	1.58	21.6	0.21	0.22	0.41	<0.01	0.01	0.08	0.09
2	0.025	4.89	0.022	0.001	0.57	1.58	21.4	0.22	0.22	0.43	<0.01	0.01	0.08	0.09
3	0.026	4.79	0.022	0.001	0.52	1.57	21.7	0.31	0.23	0.36	0.01	0.02	0.10	0.13
. 4	0.027	4.78	0.023	0.001	0.51	1.57	21.9	0.31	0.22	0.36	0.01	0.03	0.10	0.13
5	0.027	4.91	0.023	0.001	0.51	1.55	21.8	0.30	0.22	0.35	0.01	0.02	0.10	0.13
6	0.025	4.91	0.022	0.001	0.51	1.54	21.8	0.30	0.22	0.35	0.01	0.03	0.10	0.13
7	0.025	5.05	0.021	0.001	0.55	1.57	21.7	0.21	0.22	0.41	0.01	0.01	0.08	0.09
8	0.025	5.02	0.022	0.001	0.55	1.56	21.5	0.21	0.22	.0.42	<0.01	0.01	0.08	0.09
9	0.025	4.84	0.022	0.001	0.50	1.53	21.8	0.30	0.22	0.35	0.01	0.02	0.10	0.13
10	0.026	4.70	0.021	0.001	0.51	1.55	21.9	0.30	0.23	0.36	0.01	0.02	0.10	0.13
11	0.032	4.83	0.021	0.001	0.53	1.45	21.9	0.21	0.22	0.38	0.01	0.02	0.09	0.11
12	0.034	4.75	0.023	0.001	0.54	1.46	21.8	0.21	0.22	0.39	0.01	0.02	0.09	0.11
Required	0.040 Max	4.00 6.00	0.040 Max	0.030 Max	1.00 Max	1.35 1.70	21.0 ° 22.0	0.10 0.80	0.20 0.25	0.10 0.80	0.05 Max	0.10 Max	0.10 Max	0.50 Max

ACCEPTABLE

Au6 3 1 20 20 20 Page 3 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



Results (cont):

Impact Test - ASTM A923-08 Method B

·	A STATE OF THE STA	
Sample #	Temperature (°F)	Absorbed Energy (ft-lbs)
1.	-40	- 68
2	-40	80
3	-40	45
4	-40	42
5	-40	45
6	-40	44
7	40	62
. 8	-40	69
9	-40	44
. 10	-40	50 [.]
11	-40	30
12	-40	31
Required	-40	20 Min

ACCEPTABLE

Ferrite Testing - ASTM E562-11 Method A

Sample #	Ferrite (%)
1	48
2	50
3	52
4	51
5	52
6	50
7	48
8	50
9	52
10	. 49
11	52 ·
12	53
Required	40 - 60%

5MS QC ACCEPT 13 6-30-12

> SHAW POWER

AUG 3 0 2012

Ferrite volume fraction tested with Image Analysis per ASTM E1245-03(2008). ASTM E562 offers the use of ASTM E1245 to determine the same measurements.

003

ACCEPTABLE

Page 4 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



Results (cont.):

Mechanical Properties - ASTM E8-11 (Flat/Round) & ASTM E18-08b (HRB)

Sample #	Test Temp (°F)	Initial Dimensions (in)	Initial Area (in²)	*Yield Strength (ksi)	Tensile Strength (ksi)	Elongation (%) in 2"	Hardness HRB** (Avg. of 3)
1	Room	0.499 x 0.678	0.3383	72	103	48	96
2	Room	0.498 x 0.661	0.3292	73	104 .	47	96
3	Room	0.498 x 0.661	0.3292	76	106	47	95
4	Room	0.500 x 0.658	0.3290	73	103	46	96
5	Room	0.500 x 0.671	0.3355	73	102	46	96
6	Room	0.501 x 0.674	0.3377	73	103	45	95
7	Room	0.498 x 0.526	0.2619	73	104	44	97
8	Room	0.497 x 0.529	0.2629	74	104	44	97
9	Room	0.501 x 0.668	0.3347	73	103	46	95
10	Room	0.500×0.658	0.3290	72	102	46	96
11	Room	0.500 dia.	0.1963	74	104	42	97
12	Room	0.500 dia.	0.1963	73	104	41	97
	Required				94 Min	30 Min	290 HBW Max

^{*}Yield calculated at 0.20% offset

ACCEPTABLE

**Customer requested hardness in Rockwell B. All measured values were between 95 and 97 HRB which is approximately equal to Brinell 210 to 233 based on ASTM E140 Tables 2 and 5. These values are well below the specified max of 290 HBW and are therefore acceptable.



SHAW POWER

AUG 3 0 2012

003

Page 5 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



Results (cont.):

Intergranular Corrosion Test - ISO 3651-2 Method A

Sample #	Bend Radius	Bend	Result
1	1T	90°	Accept – No Cracking Observed
2	1T	90°	Accept – No Cracking Observed
3	1T	90°	Accept – No Cracking Observed
4	1T	90°	Accept - No Cracking Observed
5	1T	90°	Accept - No Cracking Observed
6	1T	90°	Accept - No Cracking Observed
7	1T	90°	Accept - No Cracking Observed
8	1T	90°	Accept - No Cracking Observed
9	1T	90°	Accept - No Cracking Observed
10	1T	90°	Accept - No Cracking Observed
11	1T	90°	Accept - No Cracking Observed
12	1T	90°	Accept - No Cracking Observed
Required	1T	90°	No Cracking @ 10X

ACCEPTABLE

This certification affirms that the contents are correct and accurate, and that the test operations performed by Industrial Testing Laboratory Services are in compliance with the material specification, ITLS Quality Assurance Manual Rev. 3 dated 6/20/2008, ASME NQA-1 1994, Regulatory Guide 1.28, 10 CFR 50 App. B, 10 CFR Part 21 and any additional requirements of SMS Purchase Order # 694689. Test Results comply with the PO required material specification(s) as noted below.

All Samples: ACCEPTABLE

Signature

Date 5/7/2012

SMS QO ACCEPT

6-30-12

SHAW

AUG 3 0 2012

003

Page 6 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



INDUSTRIAL TESTING LABORATORY SERVICES, LLC 635 Alpha Drive - RIDC Park Pittsburgh, PA 15238 Phone: 412.963.1900 Fax: 412.963.1926 e-mail: info@itls.com website: itls.com

> **TEST REPORT** L19495 May 7, 2012

Purchase Order No: 694689-000 OP

To:

Shaw Modular Solutions LLC

3191 West Lincoln Road Lake Charles, LA 70605

Attn:

Nick Koseski

ams qu ACCEPT .

6-30-12

Sample Received:

ITLS received twelve (12) samples for Chemical, Mechanical, Hardness, Impact, Ferrite and Intergranular Corrosion evaluation, identified as follows:

Sample #	Heat #	Description	Supplier
1	853731-1A	0.625" thick Duplex Plate	Outokumpu
2	853731-1A	0.625" thick Duplex Plate	Outokumpu
. 3	609643-2A	0.625" thick Duplex Plate	Outokumpu
4	609643-2A	0.625" thick Duplex Plate	Outokumpu
5	609644-3A	0.625" thick Duplex Plate	Outokumpu
6	609644-3A	0.625" thick Duplex Plate	Outokumpu
7	853735-3A	0.500" thick Duplex Plate	Outokumpu
8	853735-3A	0.500" thick Duplex Plate	Outokumpu
9	609643-3A	0.625" thick Duplex Plate	Outokumpu
10	609643-3A	0.625" thick Duplex Plate	Outokumpu
11	853843-2A	1.187" thick Duplex Plate	Outokumpů
12 .	853843-2A	1.187" thick Duplex Plate	Outokumpu

Acceptance:

Sample #	Test	Acceptance		
All	Chemical Analysis	APP-VL52-Z0-023, Rev. 1, ASTM A240-11b (UNS S32101)		
All	Mechanical	APP-VL52-Z0-023, Rev. 1, ASTM A240-11b (UNS S32101), A480-11b		
All	Rockwell B	ASTM A240-11b (UNS S32101), A480-11b		
All	Ferrite	APP-VL52-Z0-023, Rev. 1, ASTM E562-11, Method A		
All	Impact	APP-VL52-Z0-023, Rev. 1, ASTM A923-08, Method B		
. All	Intergranular Corrosion	ISO 3651-2 Method A		

SHAW POWER AUG 3 0 2012

003

Page 1 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



Test References:

Specification	Title
ASTM A751-11	Standard Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products
ASTM A370-12	Standard Test Methods and Definitions for Mechanical Testing of Steel Products
ASTM E8-11	Standard Test Methods for Tension Testing of Metallic Materials
ASTM E140-07	Standard Hardness Conversion Tables for Metals
ASTM E23-07a ^{c1}	Standard Test Methods for Notched Bar Impact Testing of Metallic Materials
ASTM E3-11	Standard Guide for Preparation of Metallographic Specimens
ASTM E18-08b	Standard Test Methods for Rockwell Hardness of Metallic Materials
ASTM E1245-03 (2008)	Standard Practice for Determining the Inclusion of Second-Phase Constituent Content of Metals by Automatic Image Analysis
ASTM E562-11	Standard Test Method for Determining Volume Fraction by Systematic Manual Point Count

Quality References:

Reference	
10CFR21, 10CFR50.55(e) and 10CFR50 App.B	
ASME NQA-1 – 1994 Basic and Supplementary Requirements	
USNRC Regulatory Guide 1.28 Rev. 3	
ITLS QA Manual Rev. 3 dated 06/20/08	
No ITLS subcontractors used for completion of this order	

SMS QC ACCEPT 13 G-30-12

> SHAW POWER

AUG 3 0 2012

003

Page 2 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



Results:

Shaw Modular Solutions, LLC ITLS Report L19495 May 7, 2012

Chemical Analysis - ASTM A751-11 (OES/Leco)

						Co	mpositi	on (wt%)					
Sample #	С	Mn	Р	S	Si	Ni '	Cr	Mo	N	Cu	Co	AI	V	Total Others
1	0.027	5.00	0.022	0.001	0.55	1.58	21.6	0.21	0.22	0.41	<0.01	0.01	0.08	0.09
2	0.025	4.89	0.022	0.001	0.57	1.58	21.4	0.22	0.22	0.43	<0.01	0.01	0.08	0.09
3	0.026	4.79	0.022	0.001	0.52	1.57	21.7	0.31	0.23	0.36	0.01	0.02	0.10	0.13
. 4	0.027	4.78	0.023	0.001	0.51	1.57	21.9	0.31	0.22	0.36	0.01	0.03	0.10	0.13
5	0.027	4.91	0.023	0.001	0.51	1.55	21.8	0.30	0.22	0.35	0.01	0.02	0.10	0.13
6	0.025	4.91	0.022	0.001	0.51	1.54	21.8	0.30	0.22	0.35	0.01	0.03	0.10	0.13
7	0.025	5.05	0.021	0.001	0.55	1.57	21.7	0.21	0.22	0.41	0.01	0.01	0.08	0.09
8	0.025	5.02	0.022	0.001	0.55	1.56	21.5	0.21	0.22	.0.42	<0.01	0.01	0.08	0.09
9	0.025	4.84	0.022	0.001	0.50	1.53	21.8	0.30	0.22	0.35	0.01	0.02	0.10	0.13
10	0.026	4.70	0.021	0.001	0.51	1.55	21.9	0.30	0.23	0.36	0.01	0.02	0.10	0.13
11	0.032	4.83	0.021	0.001	0.53	1.45	21.9	0.21	0.22	0.38	0.01	0.02	0.09	0.11
12	0.034	4.75	0.023	0.001	0.54	1.46	21.8	0.21	0.22	0.39	0.01	0.02	0.09	0.11
Required	0.040 Max	4.00 6.00	0.040 Max	0.030 Max	1.00 Max	1.35 1.70	21.0 ° 22.0	0.10 0.80	0.20 0.25	0.10 0.80	0.05 Max	0.10 Max	0.10 Max	0.50 Max

ACCEPTABLE

ACCEPT

AUG 3 0 2012 Page 3 of 62

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



Results (cont):

Impact Test - ASTM A923-08 Method B

·	A STATE OF THE STA	
Sample #	Temperature (°F)	Absorbed Energy (ft-lbs)
1.	-40	- 68
2	-40	80
3	-40	45
4	-40	42
5	-40	45
6	-40	44
7	40	62
. 8	-40	69
9	-40	44
. 10	-40	50 [.]
11	-40	30
12	-40	31
Required	-40	20 Min

ACCEPTABLE

Ferrite Testing - ASTM E562-11 Method A

Sample #	Ferrite (%)
1	48
2	50
3	52
4	51
5	52
6	50
7	48
8	50
9	52
10	. 49
11	52 ·
12	53
Required	40 - 60%

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> SHAW POWER

AUG 3 0 2012

Ferrite volume fraction tested with Image Analysis per ASTM E1245-03(2008). ASTM E562 offers the use of ASTM E1245 to determine the same measurements.

003

ACCEPTABLE

Page 4 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



Results (cont.):

Mechanical Properties - ASTM E8-11 (Flat/Round) & ASTM E18-08b (HRB)

Sample #	Test Temp (°F)	Initial Dimensions (in)	Initial Area (in²)	*Yield Strength (ksi)	Tensile Strength (ksi)	Elongation (%) in 2"	Hardness HRB** (Avg. of 3)
1	Room	0.499 x 0.678	0.3383	72	103	48	96
2	Room	0.498 x 0.661	0.3292	73	104 .	47	96
3	Room	0.498 x 0.661	0.3292	76	106	47	95
4	Room	0.500 x 0.658	0.3290	73	103	46	96
5	Room	0.500 x 0.671	0.3355	73	102	46	96
6	Room	0.501 x 0.674	0.3377	73	103	45	95
7	Room	0.498 x 0.526	0.2619	73	104	44	97
8	Room	0.497 x 0.529	0.2629	74	104	44	97
9	Room	0.501 x 0.668	0.3347	73	103	46	95
10	Room	0.500×0.658	0.3290	72	102	46	96
11	Room	0.500 dia.	0.1963	74	104	42	97
12	Room	0.500 dia.	0.1963	73	104	41	97
	Red	quired	þ	65 Min	94 Min	30 Min	290 HBW Max

^{*}Yield calculated at 0.20% offset

ACCEPTABLE

**Customer requested hardness in Rockwell B. All measured values were between 95 and 97 HRB which is approximately equal to Brinell 210 to 233 based on ASTM E140 Tables 2 and 5. These values are well below the specified max of 290 HBW and are therefore acceptable.



SHAW POWER

AUG 3 0 2012

003

Page 5 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



Results (cont.):

Intergranular Corrosion Test - ISO 3651-2 Method A

Sample #	Bend Radius	Bend	Result
1	1T	90°	Accept – No Cracking Observed
2	1T	90°	Accept - No Cracking Observed
3	1T	90°	Accept - No Cracking Observed
4	1T	90°	Accept - No Cracking Observed
5	1T	90°	Accept - No Cracking Observed
6	1T	90°	Accept - No Cracking Observed
7	1T	90°	Accept - No Cracking Observed
8	1T	90°	Accept - No Cracking Observed
9	1T	90°	Accept - No Cracking Observed
10	1T	90°	Accept - No Cracking Observed
11	1T	90°	Accept - No Cracking Observed
12	1T	90°	Accept - No Cracking Observed
Required	1T	90°	No Cracking @ 10X

ACCEPTABLE

This certification affirms that the contents are correct and accurate, and that the test operations performed by Industrial Testing Laboratory Services are in compliance with the material specification, ITLS Quality Assurance Manual Rev. 3 dated 6/20/2008, ASME NQA-1 1994, Regulatory Guide 1.28, 10 CFR 50 App. B, 10 CFR Part 21 and any additional requirements of SMS Purchase Order # 694689. Test Results comply with the PO required material specification(s) as noted below.

All Samples: ACCEPTABLE

Signature

Date 5/7/2012

SMS QO ACCEPT

6-30-12

SHAW

AUG 3 0 2012

003

Page 6 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02

Certificate of Analysis and Tests

OUR ORDER 0278834 - 01

609633-5A HEAT & PIECE -03/23/12

SOLD TO: SHAW MODULAR SOLUTIONS, L.L.C. SHIP TO: SHAW MODULAR SOLUTIONS, L.L.C. 3191 W LINCOLN ROAD 3191 W LINCOLN ROAD

			LAKE CHARLES		ž.
	746363 12/22/13 HEAT & PIECE 609633 - 5A WEIGHT 1859 FINISH 1 GRADE 2101 DIMENSIONS .250 X 108	UNS S321	01 EXACT		
	*** MFG IN NEW CASTLE, IN ASTM A240-11A ASMESA240-11 REQUIRES PRODUCT ANALYSIS ASTM E562-08 (10% ACCURACY ASTM A923-06 METHOD A&B ON U. T. TEST TO ASTM A 577-9 APP-VL52-ZO-023 R1 W/EXCEP COUPONS REQUIRED ASTM A262-02A PRACTICE E NO GRIPPER MARKS	SPECIFIC USA FROM SL OSI UHA Y UT A NON IS ISO ASTM SMS NO W	ATIONSATIONSATIONSATIONSATION SWEDEN A480-11A ASMESA480 11EN A480-11A ASMESA480 11EN A480-11A ASMESA480 11EN A578-02	 1 2 2	
)	PLATES & TEST PCS SOLUTION THEN WATER QUENCHED FREE FROM MERCURY CONTAMIN HOT ROLLED, ANNEALED & PIC	ANNEALED @ 1900	DEGREES FAHRENHEIT MINI	MUM.	
	HARDNESS HRC 1 YIELD STRENGTH (PSI) TENSILE STRENGTH (PSI) 1 BEND INTERGRANULAR CORROSION ELONGATION % IN 2" REDUCTION OF AREA % ASTM E-562 POINT COUNT FE CHARPY TEST AT -40F (TRAN LATERAL EXPANSION = 42, 4	8 85159 07540 OK OK 31.2 58.8 RRITE @ 500X = 45 S) 33, 32, 34 FT- 5, 46 (MILS)	% AT 10% RELATIVE ACCUR LBS. 1/2 SAMPLE SIZE	ACY	er er
	- CHEMICAL COMPOSITION CARBON (C) .023 MANGANESE (MN) 4.77 PHOSPHORUS (P) .021 SULFUR (S) .001 SILICON (SI) .66 CHROMIUM (CR) 21.40 NICKEL (NI) 1.54 COBALT (CO) .03 COPPER (CU) .39 MOLY (MO) .19 NITROGEN (N) .22 COLUMBIUM (CB) .001 TITANIUM (TI) .003 ALUMINUM (AL) .021 TIN (SN) .006	PRODUCT ANALYS (C) .016 (MN) 4.36 (P) .020 (S) .007 (SI) .65 (CR) 21.00 (NI) 1.61 (CO) .04 (CU) .40 (MO) .21 (N) .24 (CB) .004 (TI) .004 (AL) .023 (SN) .006		AMS CCEPT 15 10 17 17	SHAW POWER APR 1 9 200

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN HAS BEEN MADE AND TESTED IN ACCORDANCE WITH THE LISTED SPECIFICATION(S) AND THAT THE RESULTS OF ALL TESTS ARE ACCEPTABLE.

JAMES DOUBMAN, QUALITY ASSURANCE MANAGER

CERTIFICATE IN CONFORMANCE WITH EN10204-95 3.1.B/EN10204-2004 3.1

Outokunpu Stainless Plate, Inc. P.O. Box 370 New Castle, Indiana 47362



NDE RESULT RECOR	D						Page 1 of 2		
	REPORT (OF NOND	ESTRI	JCT	IVE	EXAMIN	NATION		
Customer OUTOKUMPU (Shav		•	•		Date 3/13/12 Control No. or Report No.				
PO BOX 370, 549 W	State Rd 38 N	lew Castle ,IN	47362 Owner:		2893	3	1		
New Castle, Indiana	Plant	28862B	1	/ Mo	dular :	Solutions	Plan or Drawing No N/A		
Surface Condition SMOOTH			BELOW				Type of Material Temp of Material 2101CO 65°F		
Type of Examination UT (SHEAR WAVE)	Examination ASTM A		1000	,	ce Standa A577		NDT Procedure No. SP-UT-1 App II-U Rev 5		
ORDER NO.	HEAT NO:	Acc	Rej		ct Code		Remarks:		
278834	609633-5A	X					.250 x 108 x 222		
278834	853605-4A	Х					.625 x 117 x 410		
278834	853602-4A	X					.625 x 117 x 410		
278834	853601-2A	X					.625 x 117 x 410		
278834	853605-1A	Х					.625 x 117 x 410		
278834	853605-2A	X					.625 x 117 x 410		
278834	853604-1A	. х					.625 x 117 x 410		
278834	853604-2A	X	-				.625 x 117 x 410		
278834	609642-3A	Х					.625 x 117 x 410		
278834	609641-2A	X	9				.625 x 117 x 410		
278834	609645-1A	X.					.625 x 117 x 410		
7	-								
	Type of Work New	No of I	Items Accepted	i	No	of Items Rejected -0-			
Remarks: The	plates listed al	bove were ulf	trasonica	illy te	sted t	for indication	ons in accordance with		
listed standards and			****				-		
notou otanicaluo ant	, production,								
Conclusion: No record	dable indicatio	ns were note	d at the t	ime	of this	inspection	1.		
				-	4				
			· · · · · · · · · · · · · · · · · · ·						
Client Personnel		TechnicianI	Robert Cad	del	KIFT		SNT-TC-1A Level II Ultrasonic		









NDE TECHNIQUE RECORD ULTRASONIC

Facility QC Control No. 290850	Technique No.	Master
Client Outokumpu / Shaw Modular Solutions		3862B
Item Description Stainless Steel Plate		7002.0
Part No. N/A	Drawing No. N	I/A
Specification ASTM A577-90		ASTM A577-90
Procedure SP-UT-1 App II-U Rev.5	Acceptance	79 I M A377-90
	OTH	D TECT ITEMS
WELDS Weld Joint N/A		R TEST ITEMS
		inless Steel Plate
Weld Process N/A	Processing Rolled	
Base Material N/A	Material 2101CO	
Material Thickness N/A		Page 1
Weld Length/OD N/A	Additional Info N/A	
Surface Condition N/A	Surface Condition	Smooth
PRECLEAN: Method N/A	Material N/A	Batch No. N/A
EQUIPMENT: Make Krautkramer	Model USN 52	S/N 00NC078
PRESENTATION X A-SCAN	B-SCAN	C-SCAN
TRANSDUCERS:		
Make Krautkramer Model S/N	00W86X Sound	l Beam Angle (Material) 70°
Crystal Size .76" x .625" Crystal M	The second secon	Frequency 2.25 MHz
	nufacturer N/A	Batch No. N/A
CALIBRATION BLOCK: Type Part	Material 21010	
()		Water Column
		Through Transmission
		Through Hansimssion
SCANNING: X Manual	Automatic	O/ Overden NI / A
	ning Speed < 6"Per/S	
POST CLEAN: Method N/A		10%
OTHER INFORMATION:		,
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		SHAW
		SHAW POWER APR 1 9 2012
		APR 1 9 2013
		APR 1 9 2013
		SHAW POWER APR 1 9 2013
		APR 1 9 2013
		APR 1 9 2013
		APR 1 9 2013 005
Prepared By: Robert Caddel	Approved by: N/A	APR 1 9 2013



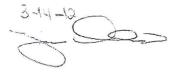




NDE RESULT RECOR	D						Page 1 of 2
	REPORT O	F NOND	ESTRU	CT	IVE	EXAMIN	NATION
Customer OUTOKUMPU (Shav Address	v Modular Solut	ions)		Date 3/13/12 Control No. or Report No.			
PO BOX 370, 549 W	State Rd 38 Ne	w Castle ,IN	47362 Owner:		2908	50	
New Castle, Indiana	Plant	28862B			Modular Solutions		Plan or Drawing No N/A
Surface Condition SMOOTH			Heat No. Hes		nt Treat N/A		Type of Material Temp of Material 2101CO 65°F
Type of Examination UT (STRAIGHT BEA	Examination Sta	and the second s	Acceptance St ASTM A5			wal R S1	NDT Procedure No. SP-UT-1 App II-U Rev 5
ORDER NO.	HEAT NO.	Acc		Defect		ACI D O I	Remarks
278834	609633-5A	Х					.250 x 108 x 222
278834	853605-4A	Х					.625 x 117 x 410
278834	853602-4A	Х					.625 x 117 x 410
278834	853601-2A	Х					.625 x 117 x 410
278834	853605-1A	Х					.625 x 117 x 410
278834	853605-2A	Х					.625 x 117 x 410
278834	853604-1A	Х					.625 x 117 x 410
278834	853604-2A	Х					.625 x 117 x 410
278834	609642-3A	Х					.625 x 117 x 410
278834	609641-2A	X					.625 x 117 x 410
278834	609645-1A	Х					.625 x 117 x 410
	5						

	Type of Work New	No of It	ems Accepted		No	of Items Rejected -0-	
Remarks: The	plates listed abo	ve were ulti	rasonically	/ tes	sted f	or indicatio	ons in accordance with
listed standards and	procedures.						

Conclusion: No record	lable indications	s were noted	d at the tin	ne o	f this	inspection	1.
				w			
		į.					a a
Client Personnel	Te	echnician <u>R</u>	obert Cadde	1 4	Life II	<u> </u>	SNT-TC-1A Level II Ultrasonic









NDE TECHNIQUE RECORD ULTRASONIC

Facility OC Control No. 200950	Technique No.	Master
Facility QC Control No. 290850		
Client Outokumpu / Shaw Modular Solutions	P.O. No28	8862B
Item Description Stainless Steel Plate		
Part No. N/A		I/A
Specification ASTM A578-07	Acceptance A	STM A578-07 Level B S1
Procedure SP-UT-1 App II-U Rev.5		
WELDS	OTHE	R TEST ITEMS
Weld Joint N/A		inless Steel Plate
Weld Process N/A	Processing Rolled	
Base Material N/A	Material 2101CO	
Material Thickness N/A	Dimensions See F	Page 1
Weld Length/OD N/A	Additional Info N/A	
Surface Condition N/A	Surface Condition	Smooth
PRECLEAN: Method N/A	Material N/A	Batch No. N/A
EQUIPMENT: Make Krautkramer	Model USN 52	S/N 00NC078
PRESENTATION X A-SCAN	B-SCAN	C-SCAN
TRANSDUCERS:	1 10 00/11	
Make Panametric Model V104 S/N	570465 Sound	l Beam Angle (Material) 0°
Crystal Size 1" Dia. Crystal N		*
	nufacturer N/A	Batch No. N/A
CALIBRATION BLOCK: Type Part	Material 21010	
		Water Column
		Through Transmission
SCANNING: X Manual	Automatic	Of Original NL (A
	ning Speed < 6"Per/S	
POST CLEAN: Method N/A		10%
OTHER INFORMATION:		
2		
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		Shaw Powed
		SHAW POWER
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and the same of th		SHAW POWER APR 1 9 2013
	Approved by	APR 1 9 2013 005
Prepared By: Robert Caddel	Approved by:	SHAW POWER APR 1 9 2013 CO5 Date 3/13/12 PAGE 2 OF 2

3-14-12





INDUSTRIAL TESTING LABORATORY SERVICES, LLC

635 Alpha Drive - RIDC Park

Pittsburgh, PA 15238 Phone: 412.963.1900 Fax: 412.963.1926

e-mail: info@itls.com website: itls.com

TEST REPORT L19352 April 5, 2012

Purchase Order No: 694689-000 OP

SHAW POWER

To:

Shaw Modular Solutions LLC

OCT 0 9 2012

012

3191 West Lincoln Road Lake Charles, LA 70605

SMS QO ACCEPT

Attn:

Nick Koseski

7-25-12

Sample Received:

ITLS received ten (10) samples for Chemical, Mechanical, Hardness, Impact, Ferrite and Intergranular Corrosion evaluation, identified as follows:

Sample #	Heat #	Gauge	Supplier	
1	609632-1A	0.625	Outokumpu	
21	609632-1A	0.625	Outokumpu	
3	609633-1A	0.625	Outokumpu	
4	609633-1A	0.625	Outokumpu	
5 •	609642-1A	0.625	Outokumpu	
6	609642-1A	0.625	Outokumpu	
7)	853602-1A	0.625	Outokumpu	
8 🕨	853602-1A	0.625	Outokumpu	
9 •	853604-1A	0.625	Outokumpu	
10 !	853604-1A	0.625	Outokumpu	

Acceptance:

Sample #	Test	Acceptance
All	Chemical Analysis	APP-VL52-Z0-023, Rev. 1, ASTM A240-11b (UNS S32101)
All	Mechanical	APP-VL52-Z0-023, Rev. 1, ASTM A240-11b (UNS S32101), A480-11b
All	Rockwell B	ASTM A240-11b (UNS S32101), A480-11b
All	Ferrite	APP-VL52-Z0-023, Rev. 1, ASTM E562-11, Method A
All	Impact	APP-VL52-Z0-023, Rev. 1, ASTM A923-08, Method B
All	Intergranular Corrosion	ISO 3651-2 Method A

Page 1 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



SHAW POWER OCT 0 9 2012

012

Shaw Modular Solutions, LLC ITLS Report L19352 April 5, 2012

Test References:

Specification	Title			
ASTM A751-11	Standard Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products			
ASTM A370-11a Standard Test Methods and Definitions for Mechanical Testing of S Products				
ASTM E8-11	Standard Test Methods for Tension Testing of Metallic Materials			
ASTM E140-07	Standard Hardness Conversion Tables for Metals			
ASTM E23-07a ^{ε1}	Standard Test Methods for Notched Bar Impact Testing of Metallic Materials			
ASTM E3-11	Standard Guide for Preparation of Metallographic Specimens			
ASTM E18-08b	Standard Test Methods for Rockwell Hardness of Metallic Materials			
ASTM E1245-03 (2008)	Standard Practice for Determining the Inclusion of Second-Phase Constituent Content of Metals by Automatic Image Analysis			
ASTM E562-11	Standard Test Method for Determining volume Fraction by Systematic Manual Point Count			

Quality References:

Reference	
10CFR21, 10CFR50.55(e) and 10CFR50 App.B	
ASME NQA-1 – 1994 Basic and Supplementary Requireme	nts
USNRC Regulatory Guide 1.28 Rev. 3	
ITLS QA Manual Rev. 3 dated 06/20/08	
No ITLS subcontractors used for completion of this order	

SMS Q₀
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Shaw Modular Solutions, LLC ITLS Report L19352 April 5, 2012

Results:

Chemical Analysis - ASTM A751-11 (OES)

SMS QC ACCEPT SHAW POWER OT 0 9 2012

		Composition (wt%)												
Sample #	С	Mn	Р	S	Si	Ni	Cr	Мо	N	Cu	Co	AI	٧	Total Others
1 -	0.021	4.87	0.015	<0.002	0.67	1.60	21.2	0.19	0.22	0.39	<0.01	0.07	0.07	0.14
2 *	0.022	4.95	0.017	<0.002	0.68	1.62	21.2	0.19	0.22	0.39	<0.01	0.07	0.08	0.14
3	0.023	4.96	0.019	<0.002	0.68	1.63	21.3	0.19	0.21	0.39	<0.01	0.07	0.08	0.14
4	0.023	4.97	0.018	<0.002	0.68	1.63	21.2	0.19	0.22	0.39	<0.01	0.07	0.08	0.14
5 -	0.021	4.86	0.018	<0.002	0.67	1.60	21.2	0.30	0.23	0.35	<0.01	0.07	0.10	0.17
6 -	0.021	4.94	0.019	<0.002	0.68	1.62	21.2	0.30	0.23	0.35	<0.01	0.07	0.10	0.17
7 •	0.023	5.08	0.017	<0.002	0.79	1.56	21.2	0.20	0.22	0.39	<0.01	0.06	0.08	0.15
8 -	0.023	5.15	0.018	<0.002	0.79	1.58	21.2	0.19	0.22	0.38	<0.01	0.06	0.08	0.14
9 ~	0.024	5.22	0.019	<0.002	0.78	1.59	21.2	0.20	0.22	0.38	<0.01	0.06	0.08	0.14
10 •	0.023	5.24	0.018	<0.002	0.78	1.58	21.3	0.19	0.21	0.38	<0.01	0.06	0.08	0.14
Required	0.040 Max	4.00	0.040 Max	0.030 Max	1.00 Max	1.35 1.70	21.0 22.0	0.10 0.80	0.20 0.25	0.10 0.80	0.05 Max	0.10 Max	0.10 Max	0.50 Max

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Shaw Modular Solutions, LLC ITLS Report L19352 April 5, 2012

Mechanical Properties - ASTM E8-09 (Flat) & ASTM E18-08b (HRB)

Sample	Test Temp (°F)	Initial Dimensions (in)	Initial Area (in²)	*Yield Strength (ksi)	Tensile Strength (ksi)	Elongation (%) in 2"	Hardness HRB** (Avg. of 3)		
1 *	Room	0.499 x 0.660	0.3293	71	102	46	95		
2 .	Room	0.497 x 0.668	0.3320	73	103	47	96		
3	Room	0.508 x 0.659	0.3348	70	100	50	96		
4	Room	0.499 x 0.672	0.3353	73	102	50	96		
5)	Room	0.497 x 0.654	0.3250	72	103	48	95		
6 .	Room	0.500 x 0.642	0.3210	72	102	50	96		
7 .	Room	0.497 x 0.670	0.3330	73	105	45	97		
8 🌶	Room	0.500 x 0.683	0.3415	73	104	46	96		
9 /	Room	0.496 x 0.650	0.3224	74	105	46	96		
10 /	Room	0.500 x 0.670	0.3350	75	104	46	97		
	Red	quired		65 Min	94 Min	30 Min	290 HBW Max		

^{*}Yield calculated at 0.20% offset

ACCEPTABLE

**Customer requested hardness in Rockwell B. All measured values were between 95 and 97 HRB which is approximately equal to Brinell 210 to 233 based on ASTM E140 Tables 2 and 5. These values are well below the specified max of 290 HBW and are therefore acceptable.

5MS Q0 ACCEPT 13 7-Z5-IZ



Shaw Modular Solutions, LLC ITLS Report L19352 April 5, 2012

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Results (cont.):

Impact Test - ASTM A923-08 Method B

Sample #	Temperature (°F)	Absorbed Energy (ft-lbs)		
1 🌶	-40	56		
2 🎍	-40	48		
3	-40	59		
4	-40	61		
5	-40	42		
6 •	-40	45		
7.	-40	55		
8 🌶	-40	50		
9 🌶 .	-40 60			
10 •	-40	54		
Required	-40	20 Min		

ACCEPTABLE

Ferrite Testing - ASTM E562-11 Method A

Sample #	Ferrite (%)
1 /	51
2 *	51
3	52
4	49
5 1	52
6 1	53
7 ,	53
8 /	53
9 •	54
10 *	53
Required	40 - 60%

SMS QC ACCEPT 19 7-25-12

Ferrite volume fraction tested with Image Analysis per ASTM E1245-03(2008). ASTM E562 offers the use of ASTM E1245 to determine the same measurements.

ACCEPTABLE

Page 5 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



SHAW

OCT 0 9 2012

Shaw Modular Solutions, LLC ITLS Report L19352 April 5, 2012 012

Results (cont.):

Intergranular Corrosion Test - ISO 3651-2 Method A

Sample #	Bend Radius	Bend	Result
1 /	1T	90°	Accept - No Cracking Observed
2 /	1T	90°	Accept – No Cracking Observed
3	1T	90°	Accept - No Cracking Observed
4	1T · · · ·	90°	Accept - No Cracking Observed
5 🕦	1T	90°	Accept - No Cracking Observed
6 🐧	1T	90°	Accept – No Cracking Observed
7 .	1T	90°	Accept - No Cracking Observed
8 •	1T	90°	Accept - No Cracking Observed
9 •	1T	90°	Accept - No Cracking Observed
10 •	1T	90°	Accept - No Cracking Observed
Required	1T	90°	No Cracking @ 10X

ACCEPTABLE

This certification affirms that the contents are correct and accurate, and that the test operations performed by Industrial Testing Laboratory Services are in compliance with the material specification, ITLS Quality Assurance Manual Rev. 3 dated 6/20/2008, ASME NQA-1 1994, Regulatory Guide 1.28, 10 CFR 50 App. B, 10 CFR Part 21 and any additional requirements of SMS Purchase Order # 694689. Test Results comply with the PO required material specification(s) as noted below.

All Samples: ACCEPTABLE

Signature

Date 4/5/2012

7-25-17



Certificate of Analysis and Tests

OUR ORDER 0278834 - 06

HEAT & PIECE 609641-2A 03/23/12

SOLD TO: SHAW MODULAR SOLUTIONS, L.L.C. SHIP TO: SHAW MODULAR SOLUTIONS, L.L.C. 3191 W LINCOLN ROAD 3191 W LINCOLN ROAD

TAKE CHARLES

T.A 70605

LAKE CHARLES	LA 70605	LAKE CHARLES	LA 70605
746363 12/22/11	YOUR ORDER	& DATE TAG# P	/N #2232445
HEAT & PIECE 609641 - 2A WEIGHT 8938 FINISH 1 GRADE 2101 DIMENSIONS .625 X 117.0	UNS S3210	1 EXACT	
*** MFG IN NEW CASTLE, IN, ASTM A240-11A ASMESA240-11EI REQUIRES PRODUCT ANALYSIS ASTM E562-08 (10% ACCURACY) ASTM A923-06 METHOD A&B ONL U. T. TEST TO ASTM A 577-90 APP-VL52-ZO-023 R1 W/EXCEPTS	USA FROM SLA OSI Q UHA 5 Y UT AS NON S ISO 3	TIONS	D 2
PLATES & TEST PCS SOLUTION THEN WATER QUENCHED FREE FROM MERCURY CONTAMINATION ROLLED, ANNEALED & PICK	TION AT CURRENT [LED (HRAP)	ETECTION LIMITS	
HARDNESS HRC 15 YIELD STRENGTH (PSI) 7 TENSILE STRENGTH (PSI) 10 BEND INTERGRANULAR CORROSION ELONGATION % IN 2" REDUCTION OF AREA % ASTM E-562 POINT COUNT FER CHARPY TEST AT -40F (TRANS LATERAL EXPANSION = 40, 40 CHARPY TEST AT -40F (TRANS	0443 3990 OK OK 44.2 62.2 RITE @ 500X = 47%) 54, 49, 50 FT-I , 38 (MILS)	% AT 10% RELATIVE ACCUR LBS. FULL SAMPLE SIZE	SHAW POWER OCT 1 5 2012
CHARPY TEST AT -40F (TRANS - CHEMICAL COMPOSITION CARBON (C) .022 MANGANESE (MN) 4.75 PHOSPHORUS (P) .023 SULFUR (S) .001 SILICON (SI) .64 CHROMIUM (CR) 21.43 NICKEL (NI) 1.54 COBALT (CO) .04 COPPER (CU) .33 MOLY (MO) .31 NITROGEN (N) .21 COLUMBIUM (CB) .011 TITANIUM (TI) .004 ALUMINUM (AL) .022 TIN (SN) .006	- PRODUCT ANALYS: (C) .017 (MN) 4.29 (P) .021 (S) .007 (SI) .66 (CR) 21.00 (NI) 1.62 (CO) .05 (CU) .35 (MO) .31 (N) .25 (CB) .010 (TI) .005 (AL) .022 (SN) .007	[S	ACCEPT 15 8-13-12

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN HAS BEEN MADE AND TESTED IN ACCORDANCE WITH THE LISTED SPECIFICATION(S) AND THAT THE RESULTS OF ALL TESTS ARE ACCEPTABLE.

JAMES DOUBMAN, QUALITY ASSURANCE MANAGER

Samo P Outokumpu Stainless Plate, Inc. CERTIFICATE IN CONFORMANCE WITH EN10204-95 3.1.B/EN10204-2004 3.1 P.O. Box 370 New Castle Indiana 47362 **ISSUED FOR Information (IFI)**



NDE RESULT RECOR	D						Pa	age 1 of 2	
	REPORT O	FNONE	ESTR	RUCT	IVE	EXAMIN	MOITAN		
Customer OUTOKUMPU (Shav	v Modular Solut	ions)			Date 3/13	112			
Address		1.51	2	0		No. or Report No.			
PO BOX 370, 549 W State Rd 38 New Castle, IN 4736 Job or Project Location PO No: Own.					2893	33			
New Castle, Indiana	Plant	PD No: 28862B	Owner:		dular	Iular Solutions Plan or Drawing No N/A			
Surface Condition	1 100316	Heat No.		Heat T		ooiutions	Type of Material		
SMOOTH			BELOW			V/A	2101CO	65°F	
Type of Examination UT (SHEAR WAVE)	Examination Sta ASTM A57			Acceptan ASTM			SP-UT-1	re No. I App II-U Rev 5	
ORDER NO.	HEAT NO.	Acc	Rej I	Defe	ct Code	T	Remark		
278834	609633-5A	X					.250 x 108	x 222	
278834	853605-4A	Х					.625 x 117	x 410	
278834	853602-4A	Х					.625 x 117	x 410	
278834	853601-2A	X					.625 x 117	x 410	
278834	853605-1A	Х					.625 x 117 x 410		
278834	853605-2A	Х					.625 x 117	x 410	
278834	853604-1A	Х					.625 x 117	x 410	
27.8834	853604-2A	Х			.625 x 117 x 410			x 410	
278834	609642-3A	Х					.625 x 117	x 410	
278834	609641-2A	X	.65				.625 x 117	x 410	
278834	609645-1A	Х					.625 x 117	x 410	
	Type of Work New	No of I	Items Accepta	ed	No	of Items Rejected	2		
Remarks: The r	olates listed abo	ve were ult	rasonic	ally tes	sted i	for indicatio	ns in accord	dance with	
listed standards and									
noted Standards and	production								
Conclusion: No record	able indications	were note	d at the	time o	of this	inspection			
					2442		*		
Client Personnel	Teo	chnician F	Robert Car	ddel -	المراجعة المراجعة		SNT-TC-1A L	evel II Ultrasonic	

3-14-12

SHAW POWER

OCT 1 5 2012



NDE TECHNIQUE RECORD ULTRASONIC

Facility QC Control No. 290850	Technique No. Master
Client Outokumpu / Shaw Modular Solution	s P.O. No. 28862B
Item Description Stainless Steel Plate	
Part No. N/A	Drawing No. N/A
Specification ASTM A577-90	Acceptance ASTM A577-90
Procedure SP-UT-1 App II-U Rev.5	
WELDS	OTHER TEST ITEMS
Weld Joint N/A	Type of Item Stainless Steel Plate
Weld Process N/A	Processing Rolled
Base Material N/A	Material 2101CO
Material Thickness N/A	Dimensions See Page 1
Weld Length/OD N/A Surface Condition N/A	Additional Info N/A
PRECLEAN: Method N/A	Surface Condition Smooth
EQUIPMENT: Make Krautkramer	Material N/A Batch No. N/A
PRESENTATION X A-SCAN	Model USN 52 S/N 00NC078 B-SCAN C-SCAN
TRANSDUCERS:	B-SCAN C-SCAN
Make Krautkramer Model S/N	00W86X Sound Beam Angle (Material) 70°
Crystal Size .76" x .625" Crystal M	
The contract of the contract o	nufacturer N/A Batch No. N/A
CALIBRATION BLOCK: Type Part	Material 2101CO S/N N/A
	nersion Water Column
X Pulse Echo Res	onance Through Transmission
SCANNING: X Manual	Automatic
The second secon	ning Speed < 6"Per/Sec. % Overlap N / A
POST CLEAN: Method N/A	10%
OTHER INFORMATION:	
	·
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Prepared By:	Approved by: Date
Robert Caddel	N/A 3/13/12 PAGE 2 OF 2



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NDE RESULT RECOR	D						Pa	ge1 of2	
	REPORT O	FNOND	ESTR	UCT	TIVE	EXAMIN			
Customer OUTOKUMPU (Shav	v Modular Solut	ione)	T. C.		Date 3/13	112			
Address			17000		Contro	l No. or Report No.			
PO BOX 370, 549 W Job or Project Location		PO No:	Owner:		2908		Plan or Drawing N	lo	
New Castle, Indiana Surface Condition	Plant	28862B Heat No.	Shav	V MOC		Solutions	Type of Material	/A Temp of Material	
SMOOTH Type of Examination	Examination Sta		ELOW			I/A	2101CO	65°F	
UT (STRAIGHT BEA		3	Acceptanc ASTM			evel B S1		App II-U Re	v 5
order no. 278834	HEAT NO. 609633-5A	Acc	Rej	Defe	ct Code		Remarks .250 x 108		
270004	903033-3A	X		-			.230 X 100	X 444	
278834	853605-4A	Х		+-			.625 x 117	x 410	
278834	853602-4A	Х		1			.625 x 117	x 410	
278834	853601-2A	Х		1			.625 x 117	x 410	
278834	853605-1A	Х					.625 x 117	x 410	
278834	853605-2A	Х					.625 x 117	x 410	
278834	853604-1A	Х					.625 x 117	x 410	
278834	853604-2A	Х					.625 x 117	x 410	
278834	609642-3A	Х					.625 x 117	x 410	
278834	609641-2A	Х					.625 x 117	x 410	
278834	609645-1A	Х					.625 x 117	x 410	
								and Water	
				-					
	Type of Work	No of ite	ms Accepted	i	No	of Items Rejected			
	New		11			-0-			
Remarks: The p	lates listed abo	ve were ultr	asonica	lly tes	sted f	or indicatio	ns in accord	lance with	
listed standards and	procedures.								
Conclusion: No record	able indications	were noted	at the t	ime o	of this	inspection.			
Client Personnel	Te	chnician <u>Ro</u>	bert Cad	del ·	Carpane .	and the second of the second o	SNT-TC-1A Le	evel II Ultras	sonic

344-12

SHAW POWER

OCT 1 5 2012



NDE TECHNIQUE RECORD ULTRASONIC

				Nego-	-
Facility QC Control No. 290850		Technique No.	Master		
Client Outokumpu / Shaw Modular Solu	tions		8862B		
Item Description Stainless Steel Plate					
Part No. N/A		Drawing No. N	I/A		
Specification ASTM A578-07			STM A578-07	Level B S1	
Procedure SP-UT-1 App II-U Rev.5		1.00000000000	io i mi i toro o i	Level B o i	
WELDS		OTHE	R TEST ITEM	S	
Weld Joint N/A	Tv		nless Steel Pla		
Weld Process N/A		ocessing Rolled			
Base Material N/A		aterial 2101CO			
Material Thickness N/A			Page 1		
Weld Length/OD N/A		ditional Info N/A			
Surface Condition N/A		TO CONTROL TO SERVICE TO CONTROL TO THE SERVICE TO	Smooth		
PRECLEAN: Method N/A		aterial N/A		- NI- NI/A	
EQUIPMENT: Make Krautkramer		odel USN 52		h No. N/A	
PRESENTATION X A-SCAN	1010	B-SCAN	S/N	00NC078	
TRANSDUCERS:		D-SCAIN		-SCAN	
	S/N 5	704CE Sound	Poom Angle /	0.4040=101	
	The state of the s		Beam Angle (0°
	al Mater				MHz
COUPLANT: Material Water	Manufa		Batcl		
CALIBRATION BLOCK: Type Part		Material 2101C		N/A	
	Immersi	on \	Nater Column		
	Resonar		Through Trans	mission	
SCANNING: X Manual		Automatic			
	canning	Speed < 6"Per/Se	ec. % Over	iap N/A	
POST CLEAN: Method N/A			10%		
OTHER INFORMATION:					
					-
			T Company		
					SHAW
					POWER
					. 000
					OCT 1 5 2
					3 20
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					003
					Tripping law
And the state of t					
Prepared By:	Anr	proved by:	Date		
Robert Caddel	1,,64	N/A	3/13/12	PAGE 2 OF	= 2
1,000(1,000(0)		19// (0/10/12	. / OL 2 01	4-

3-14-12



To:

INDUSTRIAL TESTING LABORATORY SERVICES, LLC 635 Alpha Drive - RIDC Park

Pittsburgh, PA 15238 Phone: 412.963.1900 Fax: 412.963.1926 e-mail: info@itls.com website: itls.com

TEST REPORT L19572 May 7, 2012

SHAW

Purchase Order No: 694689-000 OP

OCT 0 9 2012

Shaw Modular Solutions LLC 3191 West Lincoln Road

012

Lake Charles, LA 70605

Attn: Nick Koseski

Sample Received:

ITLS received four (4) samples for Chemical, Mechanical, Hardness, Impact, Ferrite and Intergranular Corrosion evaluation, identified as follows:

Sample #	Heat #	Description	Supplier
. 1	853603-1A	0.625" thick Duplex Plate	Outokumpu
2	853603-1A#	0.625" thick Duplex Plate	Outokumpu
3	853841-5A	0.250" thick Duplex Plate	Outokumpu
4	853841-5A	0.250" thick Duplex Plate	Outokumpu

Acceptance:

Sample #	Test	Acceptance
All	Chemical Analysis	APP-VL52-Z0-023, Rev. 1, ASTM A240-11b (UNS S32101)
All	Mechanical	APP-VL52-Z0-023, Rev. 1, ASTM A240-11b (UNS S32101), A480-11b
All	Rockwell B	ASTM A240-11b (UNS S32101), A480-11b
All	Ferrite	APP-VL52-Z0-023, Rev. 1, ASTM E562-11, Method A
All	Impact	APP-VL52-Z0-023, Rev. 1, ASTM A923-08, Method B
All	Intergranular Corrosion	ISO 3651-2 Method A

ACCEPT

7-12-12

Page 1 of 5

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



Test References:

Specification	Title
ASTM A751-11	Standard Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products
ASTM A370-12	Standard Test Methods and Definitions for Mechanical Testing of Steel Products
ASTM E8-11	Standard Test Methods for Tension Testing of Metallic Materials
ASTM E140-07	Standard Hardness Conversion Tables for Metals
ASTM E23-07a ^{ε1}	Standard Test Methods for Notched Bar Impact Testing of Metallic Materials
ASTM E3-11	Standard Guide for Preparation of Metallographic Specimens
ASTM E18-08b	Standard Test Methods for Rockwell Hardness of Metallic Materials
. ASTM E1245-03 (2008)	Standard Practice for Determining the Inclusion of Second-Phase Constituent Content of Metals by Automatic Image Analysis
ASTM E562-11	Standard Test Method for Determining Volume Fraction by Systematic Manual Point Count

Quality References:

Reference	SH
10CFR21, 10CFR50.55(e) and 10CFR50 App.B	POV
ASME NQA-1 – 1994 Basic and Supplementary Requirements	OCTO
USNRC Regulatory Guide 1.28 Rev. 3	
ITLS QA Manual Rev. 3 dated 06/20/08	01
No ITLS subcontractors used for completion of this order	

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Results:

Chemical Analysis - ASTM A751-11 (OES/Leco)

						Co	mpositi	on (wt%)					
Sample #	С	Mn	Р	S	Si	Ni	Cr	Мо	N	Cu	Co	Al	V	Total Others
1 .	0.029	4.94	0.021	0.001	0.78	1.52	21.3	0.22	0.22	0.40	<0.01	0.02	0.08	0.10
2 .	0.031	4.84	0.023	0.001	0.77	1.56	21.3	0.22	0.22	0.39	<0.01	0.02	0.08	0.10
3	0.037	4.83	0.021	0.001	0.67	1.44	21.4	0.21	0.22	0.37	<0.01	0.01	0.09	0.10
4	0.035	4.85	0.022	0.001	0.68	1.56	21.0	0.21	0.22	0.38	<0.01	0.02	0.09	0.11
Required	0.040 Max	4.00 6.00	0.040 Max	0.030 Max	1.00 Max	1.35 1.70	21.0 .22.0	0.10 0.80	0.20 0.25	0.10 0.80	0.05 Max	0.10 Max	0.10 Max	0.50 Max

ACCEPTABLE

Impact Test - ASTM A923-08 Method B

Sample #	Temperature (°F)	Absorbed Energy (ft-lbs)
1 .	-40	52
2 🏮	-40	54
3*	-40	27
4*	-40	35
Required	-40	20 Min .

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*Note: Specimen size 10mm x 6.7mm, 2/3 size per ASTM A673. Absorbed energy values converted per ASTM A673 Table 1.

ACCEPTABLE



430000-CMTR-12-000019 Page 4 of 5



Shaw Modular Solutions, LLC ITLS Report L19572 May 7, 2012

Results (cont):

Mechanical Properties - ASTM E8-11 (Flat) & ASTM E18-08b (HRB)

Sample #	Test Temp (°F)	Initial Dimensions (in)	Initial Area (in²)	*Yield Strength (ksi)	Tensile Strength (ksi)	Elongation (%) in 2"	Hardness HRB** (Avg. of 3)
1.	Room	0.498 x 0.675	0.3362	72	102	50	97
2	Room	0.498×0.675	0.3362	73	103	46	96
3	Room	0.501 x 0.288	0.1443	84	106	41	97
4	Room	0.500×0.281	0.1405	86	108	42	98
	Rec	quired		65	94	30	290 HBW
	1100			Min	Min	Min	Max

^{*}Yield calculated at 0.20% offset

ACCEPTABLE

Ferrite Testing - ASTM E562-11 Method A

Sample #	Ferrite (%)
1 •	54
2	49 .
3	49 .
4	. 46
Required	40 - 60%

Ferrite volume fraction tested with Image Analysis per ASTM E1245-03(2008). ASTM E562 offers the use of ASTM E1245 to determine the same measurements.

ACCEPTABLE

6MS Q0 ACCEPT 13 7-12-12



^{**}Customer requested hardness in Rockwell B. All measured values were between 96 and 98 HRB which is approximately equal to Brinell 216 to 240 based on ASTM E140 Tables 2 and 5. These values are well below the specified max of 290 HBW and are therefore acceptable.



Results (cont.):

Intergranular Corrosion Test - ISO 3651-2 Method A

Sample #	Bend Radius	Result	
1 0	1T	90°	Accept - No Cracking Observed
. 2 •	1T	90°	Accept - No Cracking Observed
3	1T	90°	Accept – No Cracking Observed
4	1T	90°	Accept - No Cracking Observed
Required	1T	90°	No Cracking @ 10X

ACCEPTABLE

This certification affirms that the contents are correct and accurate, and that the test operations performed by Industrial Testing Laboratory Services are in compliance with the material specification, ITLS Quality Assurance Manual Rev. 3 dated 6/20/2008, ASME NQA-1 1994, Regulatory Guide 1.28, 10 CFR 50 App. B, 10 CFR Part 21 and any additional requirements of SMS Purchase Order # 694689. Test Results comply with the PO required material specification(s) as noted below.

All Samples: ACCEPTABLE

Signature

Date 5/7/2012

SMS QC ACCEPT

13

7-12-12

SHAW POWER OCT 0 9 2012 **012**



INDUSTRIAL TESTING LABORATORY SERVICES, LLC

635 Alpha Drive - RIDC Park

Pittsburgh, PA 15238 Phone: 412.963.1900 Fax: 412.963.1926

e-mail: info@itls.com website: itls.com

TEST REPORT L19352 April 5, 2012

Purchase Order No: 694689-000 OP

SHAW POWER

To:

Shaw Modular Solutions LLC

OCT 0 9 2012

012

3191 West Lincoln Road Lake Charles, LA 70605

SMS QO ACCEPT

Attn:

Nick Koseski

7-25-12

Sample Received:

ITLS received ten (10) samples for Chemical, Mechanical, Hardness, Impact, Ferrite and Intergranular Corrosion evaluation, identified as follows:

Sample #	Heat #	Gauge	Supplier
1	609632-1A	0.625	Outokumpu
21	609632-1A	0.625	Outokumpu
3	609633-1A	0.625	Outokumpu
4	609633-1A	0.625	Outokumpu
5 •	609642-1A	0.625	Outokumpu
6	609642-1A	0.625	Outokumpu
7)	853602-1A	0.625	Outokumpu
8 🕨	853602-1A	0.625	Outokumpu
9 •	853604-1A	0.625	Outokumpu
10 !	853604-1A	0.625	Outokumpu

Acceptance:

Sample #	Test	Acceptance
All	Chemical Analysis	APP-VL52-Z0-023, Rev. 1, ASTM A240-11b (UNS S32101)
All	Mechanical	APP-VL52-Z0-023, Rev. 1, ASTM A240-11b (UNS S32101), A480-11b
All	Rockwell B	ASTM A240-11b (UNS S32101), A480-11b
All	Ferrite	APP-VL52-Z0-023, Rev. 1, ASTM E562-11, Method A
All	Impact	APP-VL52-Z0-023, Rev. 1, ASTM A923-08, Method B
All	Intergranular Corrosion	ISO 3651-2 Method A

Page 1 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



SHAW POWER OCT 0 9 2012

012

Shaw Modular Solutions, LLC ITLS Report L19352 April 5, 2012

Test References:

Specification	Title
ASTM A751-11	Standard Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products
ASTM A370-11a	Standard Test Methods and Definitions for Mechanical Testing of Steel Products
ASTM E8-11	Standard Test Methods for Tension Testing of Metallic Materials
ASTM E140-07	Standard Hardness Conversion Tables for Metals
ASTM E23-07a ^{£1}	Standard Test Methods for Notched Bar Impact Testing of Metallic Materials
ASTM E3-11	Standard Guide for Preparation of Metallographic Specimens
ASTM E18-08b	Standard Test Methods for Rockwell Hardness of Metallic Materials
ASTM E1245-03 (2008)	Standard Practice for Determining the Inclusion of Second-Phase Constituent Content of Metals by Automatic Image Analysis
ASTM E562-11	Standard Test Method for Determining volume Fraction by Systematic Manual Point Count

Quality References:

Reference	
10CFR21, 10CFR50.55(e) and 10CFR50 App.B	
ASME NQA-1 - 1994 Basic and Supplementary Requi	irements
USNRC Regulatory Guide 1.28 Rev. 3	
ITLS QA Manual Rev. 3 dated 06/20/08	
No ITLS subcontractors used for completion of this ord	der

SMS Q₀
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Shaw Modular Solutions, LLC ITLS Report L19352 April 5, 2012

Results:

Chemical Analysis - ASTM A751-11 (OES)

SMS QC ACCEPT SHAW POWER OT 0 9 2012

	Composition (wt%)													
Sample #	С	Mn	Р	S	Si	Ni	Cr	Мо	N	Cu	Co	AI	٧	Total Others
1 -	0.021	4.87	0.015	<0.002	0.67	1.60	21.2	0.19	0.22	0.39	<0.01	0.07	0.07	0.14
2 *	0.022	4.95	0.017	<0.002	0.68	1.62	21.2	0.19	0.22	0.39	<0.01	0.07	0.08	0.14
3	0.023	4.96	0.019	<0.002	0.68	1.63	21.3	0.19	0.21	0.39	<0.01	0.07	0.08	0.14
4	0.023	4.97	0.018	<0.002	0.68	1.63	21.2	0.19	0.22	0.39	<0.01	0.07	0.08	0.14
5 -	0.021	4.86	0.018	<0.002	0.67	1.60	21.2	0.30	0.23	0.35	<0.01	0.07	0.10	0.17
6 -	0.021	4.94	0.019	<0.002	0.68	1.62	21.2	0.30	0.23	0.35	<0.01	0.07	0.10	0.17
7 •	0.023	5.08	0.017	<0.002	0.79	1.56	21.2	0.20	0.22	0.39	<0.01	0.06	0.08	0.15
8 -	0.023	5.15	0.018	<0.002	0.79	1.58	21.2	0.19	0.22	0.38	<0.01	0.06	0.08	0.14
9 ~	0.024	5.22	0.019	<0.002	0.78	1.59	21.2	0.20	0.22	0.38	<0.01	0.06	0.08	0.14
10 •	0.023	5.24	0.018	<0.002	0.78	1.58	21.3	0.19	0.21	0.38	<0.01	0.06	0.08	0.14
Required	0.040 Max	4.00	0.040 Max	0.030 Max	1.00 Max	1.35 1.70	21.0 22.0	0.10 0.80	0.20 0.25	0.10 0.80	0.05 Max	0.10 Max	0.10 Max	0.50 Max

ACCEPTABLE

SHAW POWER

OCT 0 9 2012

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Shaw Modular Solutions, LLC ITLS Report L19352 April 5, 2012

Mechanical Properties - ASTM E8-09 (Flat) & ASTM E18-08b (HRB)

Sample	Test Temp (°F)	Initial Dimensions (in)	Initial Area (in²)	*Yield Strength (ksi)	Tensile Strength (ksi)	Elongation (%) in 2"	Hardness HRB** (Avg. of 3)
1 *	Room	0.499 x 0.660	0.3293	71	102	46	95
2 .	Room	0.497 x 0.668	0.3320	73	103	47	96
3	Room	0.508 x 0.659	0.3348	70	100	50	96
4	Room	0.499 x 0.672	0.3353	73	102	50	96
5)	Room	0.497 x 0.654	0.3250	72	103	48	95
6 .	Room	0.500 x 0.642	0.3210	72	102	50	96
7 .	Room	0.497 x 0.670	0.3330	73	105	45	97
8 🌶	Room	0.500 x 0.683	0.3415	73	104	46	96
9 /	Room	0.496 x 0.650	0.3224	74	105	46	96
10 /	Room	0.500 x 0.670	0.3350	75	104	46	97
	Red	quired		65 Min	94 Min	30 Min	290 HBW Max

^{*}Yield calculated at 0.20% offset

ACCEPTABLE

**Customer requested hardness in Rockwell B. All measured values were between 95 and 97 HRB which is approximately equal to Brinell 210 to 233 based on ASTM E140 Tables 2 and 5. These values are well below the specified max of 290 HBW and are therefore acceptable.

5MS Q0 ACCEPT 13 7-Z5-IZ



Shaw Modular Solutions, LLC ITLS Report L19352 April 5, 2012

SHAW

OCT 0 9 2012

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Results (cont.):

Impact Test - ASTM A923-08 Method B

Sample #	Temperature (°F)	Absorbed Energy (ft-lbs)		
1 🌶	-40	56		
2 🎍	-40	48		
3	-40	59		
4	-40	61		
5	-40	42		
6 •	-40	45		
7.	-40	55		
8 🌶	-40	50		
9 🌶 .	-40	60		
10 •	-40	54		
Required	-40	20 Min		

ACCEPTABLE

Ferrite Testing - ASTM E562-11 Method A

Sample #	Ferrite (%)
1 /	51
2 *	51
3	52
4	49
5 1	52
6 1	53
7 ,	53
8 /	53
9 •	54
10 *	53
Required	40 - 60%

SMS QC ACCEPT 19 7-25-12

Ferrite volume fraction tested with Image Analysis per ASTM E1245-03(2008). ASTM E562 offers the use of ASTM E1245 to determine the same measurements.

ACCEPTABLE

Page 5 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



SHAW

OCT 0 9 2012

Shaw Modular Solutions, LLC ITLS Report L19352 April 5, 2012 012

Results (cont.):

Intergranular Corrosion Test - ISO 3651-2 Method A

Sample #	Bend Radius	Bend	Result
1 /	1T	90°	Accept - No Cracking Observed
2 /	1T	90°	Accept – No Cracking Observed
3	1T	90°	Accept - No Cracking Observed
4	1T · · · ·	90°	Accept - No Cracking Observed
5 🕦	1T	90°	Accept - No Cracking Observed
6 🐧	1T	90°	Accept – No Cracking Observed
7 .	1T	90°	Accept - No Cracking Observed
8 •	1T	90°	Accept - No Cracking Observed
9 •	1T	90°	Accept - No Cracking Observed
10 •	1T	90°	Accept - No Cracking Observed
Required	1T	90°	No Cracking @ 10X

ACCEPTABLE

This certification affirms that the contents are correct and accurate, and that the test operations performed by Industrial Testing Laboratory Services are in compliance with the material specification, ITLS Quality Assurance Manual Rev. 3 dated 6/20/2008, ASME NQA-1 1994, Regulatory Guide 1.28, 10 CFR 50 App. B, 10 CFR Part 21 and any additional requirements of SMS Purchase Order # 694689. Test Results comply with the PO required material specification(s) as noted below.

All Samples: ACCEPTABLE

Signature

Date 4/5/2012

7-25-17



Certificate of Analysis and Tests

OUR ORDER 0278834 - 05

HEAT & PIECE 853605-4A 03/14/12

SOLD TO: SHAW MODULAR SOLUTIONS, L.L.C. SHIP TO: SHAW MODULAR SOLUTIONS, L.L.C. 3191 W LINCOLN ROAD 3191 W LINCOLN ROAD

LAKE CHARLES	LA	70605	LAKE CHARLES	LA	70605
746363 12/22/11	У	OUR ORDER	& DATE TAG#	P/N #22324	45
HEAT & PIECE 853605 - 4A WEIGHT 8938 FINISH 1 GRADE 2101 DIMENSIONS .625 X 117.0	00 X	UNS S321 410.000	01 EXACT		
*** MFG IN NEW CASTLE, IN, ASTM A240-11A ASMESA240-11EI REQUIRES PRODUCT ANALYSIS ASTM E562-08 (10% ACCURACY) ASTM A923-06 METHOD A&B ONLY U. T. TEST TO ASTM A 577-90 APP-VL52-ZO-023 R1 W/EXCEPTS COUPONS REQUIRED ASTM A262-02A PRACTICE E NO GRIPPER MARKS	USA	SPECIFIC FROM SL ASTM OSI UHA UT A NON ISO ASTM SMS NO W	ATIONSABS IMPORTED FROM BRIT A480-11A ASMESA480 11 OA MAN ED 2 R 1 10/15/51 CHARPY @ -40F (-40C STM A578-07 LEVEL B S1 STANDARD PROPERTIES RE 3651-2 A262-02A PRACTICE A PO REOMTS WITH EXCEPT ELD REPAIRS	AIN ED 02) QD	
PLATES & TEST PCS SOLUTION ATTHEN WATER QUENCHED FREE FROM MERCURY CONTAMINATHOT ROLLED, ANNEALED & PICKI	NNEALE: ION AT ED (1	D @ 1900 CURRENT HRAP)	DEGREES FAHRENHEIT MIN DETECTION LIMITS	IMUM.	
HARDNESS HRC 18 YIELD STRENGTH (PSI) 65 TENSILE STRENGTH (PSI) 94 BEND INTERGRANULAR CORROSION ELONGATION % IN 2" 3 REDUCTION OF AREA % ASTM E-562 POINT COUNT FERE CHARPY TEST AT -40F (TRANS)	OK 4.7 7.3				
LATERAL EXPANSION = 44, 60,	51 (M	ILS)			SHAW POWER
- CHEMICAL COMPOSITION CARBON (C) .028 MANGANESE (MN) 4.95 PHOSPHORUS (P) .026 SULFUR (S) .001 SILICON (SI) .79 CHROMIUM (CR) 21.53 NICKEL (NI) 1.56	(C) (MN) (P) (SI)	.016 4.55 .020 .007	15		OCT 1 5 2012
CHROMIUM (CR) 21.53 NICKEL (NI) 1.56 COBALT (CO) .04 COPPER (CU) .35 MOLY (MO) .23 NITROGEN (N) .22 COLUMBIUM (CB) .011 TITANIUM (TI) .001 ALUMINUM (AL) .020 TIN (SN) .009 TANTALUM (TA) .002	(CR) (NI) (CO) (CU) (MO) (CB) (TI) (AL) (SN) (TA)	21.10 1.54 .04 .36 .22 .23 .006 .004 .017		ACCEPT 15 8-13-	12

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN HAS BEEN MADE AND TESTED IN ACCORDANCE WITH THE LISTED SPECIFICATION(S) AND THAT THE RESULTS OF ALL TESTS ARE ACCEPTABLE.

JAMES DOUBMAN, QUALITY ASSURANCE MANAGER

Outching Stainless Plate, Inc. CERTIFICATE IN CONFORMANCE WITH EN10204-95 3.1.B/EN10204-2004 3.1

New Castle, Indiana 47362



NDE RESULT RECOR	n						D-		
REPORT OF NONDESTRUCTIVE EXAMINATION									
Customer Date									
OUTOKUMPU (Shav	w Modular Solut	ions)			3/13				
PO BOX 370, 549 W	Address PO BOX 370, 549 W State Rd 38 New Castle ,IN 47362 Control No. or Report No. 28933								
Job or Project Location New Castle, Indiana		PD No: 28862B	Owner:	86	de la se	Caludiana	Plan or Drawing N		
Surface Condition	Plaiit	Heat No.	Snav	W INIOC		Solutions	Type of Material	I/A Temp of Material	
SMOOTH Type of Examination	Examination Sta		ELOW	<u> </u>		I/A	2101CO	65°F	
UT (SHEAR WAVE)	ASTM A57			Acceptant ASTM			SP-UT-1	App II-U Rev 5	
ORDER NO.	HEAT NO.	Acc X	Rej	Defec	ct Code		Remark	5	
278834	609633-5A	_ ^					.250 x 108	x 222	
070004	070005 44	X					.625 x 117	- 44D	
278834	853605-4A	X	-	-					
278834	853602-4A			-			.625 x 117		
278834	853601-2A	X		-			.625 x 117		
278834	853605-1A			-			.625 x 117		
278834	853605-2A	X			.625 x 117 x 41				
278834	853604-1A	Х			.625 x 117 x 4				
27,8834	853604-2A	Х	www.mwyerese	-			.625 x 117		
278834	609642-3A	Х					.625 x 117	***************************************	
278834	609641-2A	X			.625 x 117 x 41				
278834	609645-1A	Х					.625 x 117	x 410	
				<u> </u>					
		В		ļ					
	Type of Work	No of Its	ems Accepter		Na	of Items Rejected			
	New	IND OF ILE	ans Accepted	'	IVO	-Q-	2		
Remarks: The p	olates listed abo	ve were ultr	asonica	Ily tes	sted f	or indicatio	ns in accord	lance with	
listed standards and									
Conclusion: No record	able indications	were noted	l at the t	ime o	fthis	inspection	•		
Client Personnel	Tec	chnician <u>R</u> i	obert Cad	del r	المراجعة المراجعة	Commence of the second	SNT-TC-1A L	evel II Ultrasonic	

3-14-12

SHAW POWER

OCT 1 5 2012



NDE TECHNIQUE RECORD ULTRASONIC

Facility QC Control No. 290850	Technique No. Master							
Client Outokumpu / Shaw Modular Solution	s P.O. No. 28862B							
Item Description Stainless Steel Plate								
Part No. N/A	Drawing No. N/A							
Specification ASTM A577-90	Acceptance ASTM A577-90							
Procedure SP-UT-1 App II-U Rev.5								
WELDS OTHER TEST ITEMS								
Weld Joint N/A	Type of Item Stainless Steel Plate							
Weld Process N/A	Processing Rolled							
Base Material N/A	Material 2101CO							
Material Thickness N/A	Dimensions See Page 1							
Weld Length/OD N/A Surface Condition N/A	Additional Info N/A							
PRECLEAN: Method N/A	Surface Condition Smooth							
EQUIPMENT: Make Krautkramer	Material N/A Batch No. N/A							
PRESENTATION X A-SCAN	Model USN 52 S/N 00NC078 B-SCAN C-SCAN							
TRANSDUCERS:	B-SCAN C-SCAN							
Make Krautkramer Model S/N	00W86X Sound Beam Angle (Material) 70°							
Crystal Size .76" x .625" Crystal M								
The contract of the contract o	nufacturer N/A Batch No. N/A							
CALIBRATION BLOCK: Type Part	Material 2101CO S/N N/A							
	nersion Water Column							
X Pulse Echo Res	onance Through Transmission							
SCANNING: X Manual	Automatic							
The second secon	ning Speed < 6"Per/Sec. % Overlap N / A							
POST CLEAN: Method N/A	10%							
OTHER INFORMATION:								
	·							
	SHAW							
	POWER							
	007.4.5.000							
	OCT 1 5 2012							
	000							
Prepared By:	Approved by: Date							
Robert Caddel	N/A 3/13/12 PAGE 2 OF 2							



ACUREN								
NDE RESULT RECOR	n				-		Ph.	
NDE NEGGET RECON	REPORT O	ENOND	ECTD	IICT		EYARAIR		ge1 of2
Customer					Date		WALION .	
OUTOKUMPU (Shaw Modular Solutions) 3/13/12 Address Control No. or Report No.								
PO BOX 370, 549 W State Rd 38 New Castle ,IN 47362 290850								
Job or Project Location New Castle, Indiana	ı Plant	PO No: 28862B	Owner: Shav	v Mod	dular	Solutions	Plan or Drawing N	/A
Surface Condition SMOOTH		Heat No.	ELOW	Heat T		VA	Type of Material 2101CO	Temp of Material
Type of Examination	Examination Sta	andard	Acceptano		rd		NDT Procedure	No.
UT (STRAIGHT BEA	AM) ASTM A57 Theat no.	78-07 Acc	ASTM Rei		-07 Le	evel B S1	SP-UT-1	App II-U Rev 5
278834	609633-5A	Х					.250 x 108	
278834	853605-4A	Х					.625 x 117	x 410
278834	853602-4A	Х					.625 x 117	x 410
278834	853601-2A	Х					.625 x 117	x 410
278834	853605-1A	Х					.625 x 117	x 410
278834	853605-2A	Х					.625 x 117	× 410
278834	853604-1A	Х					.625 x 117	x 410
278834	853604-2A	X					.625 x 117	x 410
278834	609642-3A	Х					.625 x 117	x 410
278834	609641-2A	Х					.625 x 117	x 410
278834	609645-1A	Х					.625 x 117	x 410
			-1					and the same of th
				<u> </u>		of Items Rejected		
	Type of Work New	NO OT ITE	ms Accepted	1	NO	-O-		
Remarks: The plates listed above were ultrasonically tested for indications in accordance with								
listed standards and	procedures.							
Conclusion: No recordable indications were noted at the time of this inspection.								
Client Personnel	Te	chnician <u>Ro</u>	obert Cad	del .	lister		SNT-TC-1A Le	evel II Ultrasonic

344-12

SHAW POWER

OCT 1 5 2012



Facility QC Control No. 290850	Technique No.	Master	
Client Outokumpu / Shaw Modular Solution		28862B	
Item Description Stainless Steel Plate	_		
Part No. N/A	Drawing No.	N/A	
Specification ASTM A578-07	Acceptance	ASTM A578-07	7 Level B S1
Procedure SP-UT-1 App II-U Rev.5			
WELDS		HER TEST ITEN	
Weld Joint N/A		tainless Steel P	late
Weld Process N/A	Processing Roll		
Base Material N/A	Material 2101C		
Material Thickness N/A Weld Length/OD N/A		Page 1	
	Additional Info N		
Surface Condition N/A PRECLEAN: Method N/A	Surface Condition	Smooth	
EQUIPMENT: Make Krautkramer	Material N/A		ch No. N/A
PRESENTATION X A-SCAN	Model USN 52 B-SCAN	S/N	00NC078 C-SCAN
TRANSDUCERS:	D-SCAN		D-SCAN
	N 570465 Sour	nd Beam Angle	(Material) 0°
	Material Cerami	10 -	
	Manufacturer N/A		th No. N/A
CALIBRATION BLOCK: Type Part		1CO S/	
	nmersion	Water Column	
	esonance	Through Trans	ļ.
SCANNING: X Manual	Automatic] Tillough Han	31111031011
· · · · · · · · · · · · · · · · · · ·	anning Speed < 6"Per	/Sec. % Ove	rlap N/A
POST CLEAN: Method N/A		10%	
OTHER INFORMATION:	0		
		T .	
			SHAW
			POWER
			OALEK
			OCT 1 5 20
			003
particular and the second			
Prepared By:	Approved by:	Date	
Robert Caddel	N/A	3/13/12	PAGE 2 OF 2

3-14-12

Certificate of Analysis and Tests

OUR ORDER 0278834 - 01

609633-5A HEAT & PIECE -03/23/12

SOLD TO: SHAW MODULAR SOLUTIONS, L.L.C. SHIP TO: SHAW MODULAR SOLUTIONS, L.L.C. 3191 W LINCOLN ROAD 3191 W LINCOLN ROAD

			LAKE CHARLES		ž.
	746363 12/22/13 HEAT & PIECE 609633 - 5A WEIGHT 1859 FINISH 1 GRADE 2101 DIMENSIONS .250 X 108	UNS S321	01 EXACT		
	*** MFG IN NEW CASTLE, IN ASTM A240-11A ASMESA240-11 REQUIRES PRODUCT ANALYSIS ASTM E562-08 (10% ACCURACY ASTM A923-06 METHOD A&B ON U. T. TEST TO ASTM A 577-9 APP-VL52-ZO-023 R1 W/EXCEP COUPONS REQUIRED ASTM A262-02A PRACTICE E NO GRIPPER MARKS	SPECIFIC USA FROM SL ST OSI UHA Y UT A NON IS ISO ASTM SMS NO W	ATIONSATIONSATIONSATIONSATION SWEDEN A480-11A ASMESA480 11EN A480-11A ASMESA480 11EN A480-11A ASMESA480 11EN A578-02	 1 2 2	
)	PLATES & TEST PCS SOLUTION THEN WATER QUENCHED FREE FROM MERCURY CONTAMIN HOT ROLLED, ANNEALED & PIC	ANNEALED @ 1900	DEGREES FAHRENHEIT MINI	MUM.	
	HARDNESS HRC 1 YIELD STRENGTH (PSI) TENSILE STRENGTH (PSI) 1 BEND INTERGRANULAR CORROSION ELONGATION % IN 2" REDUCTION OF AREA % ASTM E-562 POINT COUNT FE CHARPY TEST AT -40F (TRAN LATERAL EXPANSION = 42, 4	8 85159 07540 OK OK 31.2 58.8 RRITE @ 500X = 45 S) 33, 32, 34 FT- 5, 46 (MILS)	% AT 10% RELATIVE ACCUR LBS. 1/2 SAMPLE SIZE	ACY	er er
	- CHEMICAL COMPOSITION CARBON (C) .023 MANGANESE (MN) 4.77 PHOSPHORUS (P) .021 SULFUR (S) .001 SILICON (SI) .66 CHROMIUM (CR) 21.40 NICKEL (NI) 1.54 COBALT (CO) .03 COPPER (CU) .39 MOLY (MO) .19 NITROGEN (N) .22 COLUMBIUM (CB) .001 TITANIUM (TI) .003 ALUMINUM (AL) .021 TIN (SN) .006	PRODUCT ANALYS (C) .016 (MN) 4.36 (P) .020 (S) .007 (SI) .65 (CR) 21.00 (NI) 1.61 (CO) .04 (CU) .40 (MO) .21 (N) .24 (CB) .004 (TI) .004 (AL) .023 (SN) .006		AMS CCEPT 15 10 17 17	SHAW POWER APR 1 9 200

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN HAS BEEN MADE AND TESTED IN ACCORDANCE WITH THE LISTED SPECIFICATION(S) AND THAT THE RESULTS OF ALL TESTS ARE ACCEPTABLE.

JAMES DOUBMAN, QUALITY ASSURANCE MANAGER

CERTIFICATE IN CONFORMANCE WITH EN10204-95 3.1.B/EN10204-2004 3.1

Outokunpu Stainless Plate, Inc. P.O. Box 370 New Castle, Indiana 47362



NDE RESULT RECOR	D						Page 1 of 2			
REPORT OF NONDESTRUCTIVE EXAMINATION										
Customer OUTOKUMPU (Shaw Modular Solutions) Address Control No. or Report No.										
PO BOX 370, 549 W State Rd 38 New Castle ,IN 47362 28933										
Job or Project Location Po No: Owner: Plan or Drawing No New Castle, Indiana Plant 28862B Shaw Modular Solutions N/A										
Surface Condition Heat No. Heat Treat Type of Material Temp of Material SMOOTH SEE BELOW N/A 2101CO 65°F										
Type of Examination UT (SHEAR WAVE)	Examination ASTM A		1000	,	ce Standa A577		NDT Procedure No. SP-UT-1 App II-U Rev 5			
ORDER NO.	HEAT NO:	Acc	Rej		ct Code		Remarks:			
278834	609633-5A	X					.250 x 108 x 222			
278834	853605-4A	Х					.625 x 117 x 410			
278834	853602-4A	X					.625 x 117 x 410			
278834	853601-2A	X					.625 x 117 x 410			
278834	853605-1A	Х					.625 x 117 x 410			
278834	853605-2A	X					.625 x 117 x 410			
278834	853604-1A	. х					.625 x 117 x 410			
278834	853604-2A	X	X .628		.625 x 117 x 410					
278834	609642-3A	Х					.625 x 117 x 410			
278834	609641-2A	X	9				.625 x 117 x 410			
278834	609645-1A	X.					.625 x 117 x 410			
7	-									
	Type of Work New	No of I	Items Accepted	i	No	of Items Rejected -0-				
Remarks: The	plates listed al	bove were ulf	trasonica	illy te	sted t	for indication	ons in accordance with			
listed standards and							-			
notou otanicaluo ant	, production,									
Conclusion: No record	dable indicatio	ns were note	d at the t	ime	of this	inspection	1.			
				-	4					
			· · · · · · · · · · · · · · · · · · ·							
Client Personnel		TechnicianI	Robert Cad	del	KIFT		SNT-TC-1A Level II Ultrasonic			









Facility QC Control No. 290850	Technique No.	Master
Client Outokumpu / Shaw Modular Solutions		3862B
Item Description Stainless Steel Plate		7002.0
Part No. N/A	Drawing No. N	I/A
Specification ASTM A577-90		ASTM A577-90
Procedure SP-UT-1 App II-U Rev.5	Acceptance	79 I M A377-90
	OTH	D TECT ITEMS
WELDS Weld Joint N/A		R TEST ITEMS
		inless Steel Plate
Weld Process N/A	Processing Rolled	
Base Material N/A	Material 2101CO	
Material Thickness N/A		Page 1
Weld Length/OD N/A	Additional Info N/A	
Surface Condition N/A	Surface Condition	Smooth
PRECLEAN: Method N/A	Material N/A	Batch No. N/A
EQUIPMENT: Make Krautkramer	Model USN 52	S/N 00NC078
PRESENTATION X A-SCAN	B-SCAN	C-SCAN
TRANSDUCERS:		
Make Krautkramer Model S/N	00W86X Sound	l Beam Angle (Material) 70°
Crystal Size .76" x .625" Crystal M	The second secon	Frequency 2.25 MHz
	nufacturer N/A	Batch No. N/A
CALIBRATION BLOCK: Type Part	Material 21010	
()		Water Column
		Through Transmission
		Through Hansimssion
SCANNING: X Manual	Automatic	O/ Overden NI / A
	ning Speed < 6"Per/S	
POST CLEAN: Method N/A		10%
OTHER INFORMATION:		,
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		SHAM
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		SHAW
		SHAW POWER APR 1 9 2012
		APR 1 9 2013
		APR 1 9 2013
		SHAW POWER APR 1 9 2013
		APR 1 9 2013
		APR 1 9 2013
		APR 1 9 2013 005
Prepared By: Robert Caddel	Approved by: N/A	APR 1 9 2013



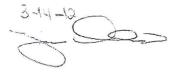




NDE RESULT RECORD Page 1 of 2									
REPORT OF NONDESTRUCTIVE EXAMINATION									
Customer OUTOKUMPU (Shaw Modular Solutions) Address Date 3/13/12 Control No. or Report No.									
PO BOX 370, 549 W State Rd 38 New Castle ,IN 47362 290850									
Job or Project Location PO No: Owner: Plan or Drawing No New Castle, Indiana Plant 28862B Shaw Modular Solutions N/A									
Surface Condition Heat No. Heat Treat Type of Material Temp of Material SMOOTH SEE BELOW N/A 2101CO 65°F									
Type of Examination Examination Standard Acceptance Standard NDT Procedure No. UT (STRAIGHT BEAM) ASTM A578-07 ASTM A578-07 Level B S1 SP-UT-1 App II-U Rev 5									
ORDER NO.	HEAT NO.	Acc		Defect		ACI D O I	Remarks		
278834	609633-5A	Х					.250 x 108 x 222		
278834	853605-4A	Х					.625 x 117 x 410		
278834	853602-4A	Х					.625 x 117 x 410		
278834	853601-2A	Х					.625 x 117 x 410		
278834	853605-1A	Х					.625 x 117 x 410		
278834	853605-2A	Х					.625 x 117 x 410		
278834	853604-1A	Х	.625 x 117 x 410				.625 x 117 x 410		
278834	853604-2A	Х	.625 x 117 x 410			.625 x 117 x 410			
278834	609642-3A	Х					.625 x 117 x 410		
278834	609641-2A	X					.625 x 117 x 410		
278834	609645-1A	Х					.625 x 117 x 410		
	5								

	Type of Work New	No of It	ems Accepted		No	of Items Rejected -0-			
Remarks: The	plates listed abo	ve were ulti	rasonically	/ tes	sted f	or indicatio	ons in accordance with		
listed standards and	procedures.								

Conclusion: No record	lable indications	s were noted	d at the tin	ne o	f this	inspection	1.		
				w					
		į.					a a		
Client Personnel	Te	echnician <u>R</u>	obert Cadde	1 4	Life II	<u> </u>	SNT-TC-1A Level II Ultrasonic		









Facility OC Control No. 200950	Technique No.	Master
Facility QC Control No. 290850		
Client Outokumpu / Shaw Modular Solutions	P.O. No28	8862B
Item Description Stainless Steel Plate		
Part No. N/A		I/A
Specification ASTM A578-07	Acceptance A	STM A578-07 Level B S1
Procedure SP-UT-1 App II-U Rev.5		
WELDS	OTHE	R TEST ITEMS
Weld Joint N/A		inless Steel Plate
Weld Process N/A	Processing Rolled	
Base Material N/A	Material 2101CO	
Material Thickness N/A	Dimensions See F	Page 1
Weld Length/OD N/A	Additional Info N/A	
Surface Condition N/A	Surface Condition	Smooth
PRECLEAN: Method N/A	Material N/A	Batch No. N/A
EQUIPMENT: Make Krautkramer	Model USN 52	S/N 00NC078
PRESENTATION X A-SCAN	B-SCAN	C-SCAN
TRANSDUCERS:	1 10 00/11	
Make Panametric Model V104 S/N	570465 Sound	l Beam Angle (Material) 0°
Crystal Size 1" Dia. Crystal N		*
	nufacturer N/A	Batch No. N/A
CALIBRATION BLOCK: Type Part	Material 21010	
		Water Column
		Through Transmission
SCANNING: X Manual	Automatic	O Overden N (A
	ning Speed < 6"Per/S	
POST CLEAN: Method N/A		10%
OTHER INFORMATION:		
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,		SHAW
		Shaw Powed
		SHAW POWER
		SHAW POWER APR 1 9 2013
and the same of th		SHAW POWER APR 1 9 2013
	Approved by	APR 1 9 2013 005
Prepared By: Robert Caddel	Approved by:	SHAW POWER APR 1 9 2013 CO5 Date 3/13/12 PAGE 2 OF 2

3-14-12





Certificate of Analysis and Tests

OUR ORDER 0278834 - 06

HEAT & PIECE 609641-2A 03/23/12

SOLD TO: SHAW MODULAR SOLUTIONS, L.L.C. SHIP TO: SHAW MODULAR SOLUTIONS, L.L.C. 3191 W LINCOLN ROAD 3191 W LINCOLN ROAD

TAKE CHARLES

T.A 70605

LAKE CHARLES	LA 70605	LAKE CHARLES	LA 70605
746363 12/22/11	YOUR ORDER	& DATE TAG# P	/N #2232445
HEAT & PIECE 609641 - 2A WEIGHT 8938 FINISH 1 GRADE 2101 DIMENSIONS .625 X 117.0	UNS S3210	1 EXACT	
*** MFG IN NEW CASTLE, IN, ASTM A240-11A ASMESA240-11EI REQUIRES PRODUCT ANALYSIS ASTM E562-08 (10% ACCURACY) ASTM A923-06 METHOD A&B ONLU. T. TEST TO ASTM A 577-90 APP-VL52-ZO-023 R1 W/EXCEPTS	USA FROM SLA OSI Q UHA 5 Y UT AS NON S ISO 3	TIONS	D 2
PLATES & TEST PCS SOLUTION THEN WATER QUENCHED FREE FROM MERCURY CONTAMINATION ROLLED, ANNEALED & PICK	TION AT CURRENT [LED (HRAP)	ETECTION LIMITS	
HARDNESS HRC 15 YIELD STRENGTH (PSI) 7 TENSILE STRENGTH (PSI) 10 BEND INTERGRANULAR CORROSION ELONGATION % IN 2" REDUCTION OF AREA % ASTM E-562 POINT COUNT FER CHARPY TEST AT -40F (TRANS LATERAL EXPANSION = 40, 40 CHARPY TEST AT -40F (TRANS	0443 3990 OK OK 44.2 62.2 RITE @ 500X = 47%) 54, 49, 50 FT-I , 38 (MILS)	% AT 10% RELATIVE ACCUR LBS. FULL SAMPLE SIZE	SHAW POWER OCT 1 5 2012
CHARPY TEST AT -40F (TRANS - CHEMICAL COMPOSITION CARBON (C) .022 MANGANESE (MN) 4.75 PHOSPHORUS (P) .023 SULFUR (S) .001 SILICON (SI) .64 CHROMIUM (CR) 21.43 NICKEL (NI) 1.54 COBALT (CO) .04 COPPER (CU) .33 MOLY (MO) .31 NITROGEN (N) .21 COLUMBIUM (CB) .011 TITANIUM (TI) .004 ALUMINUM (AL) .022 TIN (SN) .006	- PRODUCT ANALYS: (C) .017 (MN) 4.29 (P) .021 (S) .007 (SI) .66 (CR) 21.00 (NI) 1.62 (CO) .05 (CU) .35 (MO) .31 (N) .25 (CB) .010 (TI) .005 (AL) .022 (SN) .007	[S	ACCEPT 15 8-13-12

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN HAS BEEN MADE AND TESTED IN ACCORDANCE WITH THE LISTED SPECIFICATION(S) AND THAT THE RESULTS OF ALL TESTS ARE ACCEPTABLE.

JAMES DOUBMAN, QUALITY ASSURANCE MANAGER

Samo P Outokumpu Stainless Plate, Inc. CERTIFICATE IN CONFORMANCE WITH EN10204-95 3.1.B/EN10204-2004 3.1 P.O. Box 370 New Castle Indiana 47362 **ISSUED FOR Information (IFI)**



NDE RESULT RECOR	n						D-		
		FNOND	ESTR	IICT	WE	EYARAIA		ige 1 of 2	
REPORT OF NONDESTRUCTIVE EXAMINATION Date									
OUTOKUMPU (Shaw Modular Solutions) Address Control No. or Report No.									
PO BOX 370, 549 W	I State Rd 38 Ne	w Castle ,IN	47362	0	2893				
Job or Project Location New Castle, Indiana		PD No: 28862B	Owner:	86	d l	Caludiana	Plan or Drawing N		
Surface Condition	Plaiit	Heat No.	Snav	W INIOC		Solutions	Type of Material	I/A Temp of Material	
SMOOTH Type of Examination	Examination Sta		ELOW	<u> </u>		I/A	2101CO	65°F	
UT (SHEAR WAVE)	ASTM A57			Acceptant ASTM			SP-UT-1	App II-U Rev 5	
ORDER NO.	HEAT NO.	Acc X	Rej	Defec	ct Code		Remark	5	
278834	609633-5A	_ ^					.250 x 108	x 222	
070004	070005 44	X					.625 x 117	- 44D	
278834	853605-4A	X	-	-					
278834	853602-4A			-			.625 x 117		
278834	853601-2A	X		-			.625 x 117		
278834	853605-1A			-			.625 x 117		
278834	853605-2A	X					.625 x 117		
278834	853604-1A	Х					.625 x 117		
27,8834	853604-2A	Х	www.mwyerese	-			.625 x 117		
278834	609642-3A	Х					.625 x 117	***************************************	
278834	609641-2A	X					.625 x 117		
278834	609645-1A	Х					.625 x 117	x 410	
				<u> </u>					
		В		ļ					
	Type of Work	No of Its	ems Accepter		Na	of Items Rejected			
	New	IND OF ILE	ans Accepted	'	IVO	-Q-	2		
Remarks: The p	olates listed abo	ve were ultr	asonica	Ily tes	sted f	or indicatio	ns in accord	lance with	
listed standards and									
Conclusion: No record	able indications	were noted	l at the t	ime o	fthis	inspection	•		
Client Personnel	Tec	chnician <u>R</u> i	obert Cad	del r	المراجعة المراجعة	Commence of the second	SNT-TC-1A L	evel II Ultrasonic	

3-14-12

SHAW POWER

OCT 1 5 2012



Facility QC Control No. 290850	Technique No. Master
Client Outokumpu / Shaw Modular Solution	s P.O. No. 28862B
Item Description Stainless Steel Plate	
Part No. N/A	Drawing No. N/A
Specification ASTM A577-90	Acceptance ASTM A577-90
Procedure SP-UT-1 App II-U Rev.5	
WELDS	OTHER TEST ITEMS
Weld Joint N/A	Type of Item Stainless Steel Plate
Weld Process N/A	Processing Rolled
Base Material N/A	Material 2101CO
Material Thickness N/A	Dimensions See Page 1
Weld Length/OD N/A Surface Condition N/A	Additional Info N/A
PRECLEAN: Method N/A	Surface Condition Smooth
EQUIPMENT: Make Krautkramer	Material N/A Batch No. N/A
PRESENTATION X A-SCAN	Model USN 52 S/N 00NC078 B-SCAN C-SCAN
TRANSDUCERS:	B-SCAN C-SCAN
Make Krautkramer Model S/N	00W86X Sound Beam Angle (Material) 70°
Crystal Size .76" x .625" Crystal M	
The contract of the contract o	nufacturer N/A Batch No. N/A
CALIBRATION BLOCK: Type Part	Material 2101CO S/N N/A
	nersion Water Column
X Pulse Echo Res	onance Through Transmission
SCANNING: X Manual	Automatic
The second secon	ning Speed < 6"Per/Sec. % Overlap N / A
POST CLEAN: Method N/A	10%
OTHER INFORMATION:	
	·
	SHAW
	POWER
	007.4.5.000
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Prepared By:	Approved by: Date
Robert Caddel	N/A 3/13/12 PAGE 2 OF 2



ACUREN									
NDE RESULT RECOR	D						Pa	ge1 of2	
	REPORT O	FNOND	ESTR	UCT	TIVE	EXAMIN			
Customer OUTOKUMPU (Shav	v Modular Solut	ione)	T. C.		Date 3/13	112			
Address			17000		Contro	l No. or Report No.			
PO BOX 370, 549 W Job or Project Location		PO No:	Owner:		2908		Plan or Drawing N	lo	
New Castle, Indiana Surface Condition	Plant	28862B Heat No.	Shav	V MOC		Solutions	Type of Material	/A Temp of Material	
SMOOTH Type of Examination	Examination Sta		ELOW			I/A	2101CO	65°F	
UT (STRAIGHT BEA		3	Acceptanc ASTM			evel B S1		App II-U Re	v 5
order no. 278834	HEAT NO. 609633-5A	Acc	Rej	Defe	ct Code		Remarks .250 x 108		
270004	903033-3A	X		-			.230 X 100	X 444	
278834	853605-4A	Х		+-			.625 x 117	x 410	
278834	853602-4A	Х		1			.625 x 117	x 410	
278834	853601-2A	Х		1			.625 x 117	x 410	
278834	853605-1A	Х					.625 x 117	x 410	
278834	853605-2A	Х					.625 x 117	x 410	
278834	853604-1A	Х					.625 x 117	x 410	
278834	853604-2A	Х					.625 x 117	x 410	
278834	609642-3A	Х					.625 x 117	x 410	
278834	609641-2A	Х					.625 x 117	x 410	
278834	609645-1A	Х					.625 x 117	x 410	
								and Water Control	
				-					
	Type of Work	No of ite	ms Accepted	i	No	of Items Rejected			
	New		11			-0-			
Remarks: The p	lates listed abo	ve were ultr	asonica	lly tes	sted f	or indicatio	ns in accord	lance with	
listed standards and	procedures.								
Conclusion: No record	able indications	were noted	at the t	ime o	of this	inspection.			
Client Personnel Technician <u>Robert Caddel</u> SNT-TC-1A Level II Ultrasonic									

344-12

SHAW POWER

OCT 1 5 2012



				Nego-	-
Facility QC Control No. 290850		Technique No.	Master		
Client Outokumpu / Shaw Modular Solu	tions		8862B		
Item Description Stainless Steel Plate					
Part No. N/A		Drawing No. N	I/A		
Specification ASTM A578-07			STM A578-07	Level B S1	
Procedure SP-UT-1 App II-U Rev.5		1.0000000000	io i mi i toro o i	Level B o i	
WELDS		OTHE	R TEST ITEM	S	
Weld Joint N/A	Tv		nless Steel Pla		
Weld Process N/A		ocessing Rolled			
Base Material N/A		aterial 2101CO			
Material Thickness N/A			Page 1		
Weld Length/OD N/A		ditional Info N/A			
Surface Condition N/A		TO CONTROL TO SERVICE TO CONTROL TO THE SERVICE TO	Smooth		
PRECLEAN: Method N/A		aterial N/A		- NI- NI/A	
EQUIPMENT: Make Krautkramer		odel USN 52		h No. N/A	
PRESENTATION X A-SCAN	1010	B-SCAN	S/N	00NC078	
TRANSDUCERS:		D-SCAIN		-SCAN	
	S/N 5	704CE Sound	Poom Angle /	0.4040=101	
	The second secon		Beam Angle (0°
	al Mater				MHz
COUPLANT: Material Water	Manufa		Batcl		
CALIBRATION BLOCK: Type Part		Material 2101C		N/A	
	Immersi	on \	Nater Column		
	Resonar		Through Trans	mission	
SCANNING: X Manual		Automatic			
	canning	Speed < 6"Per/Se	ec. % Over	iap N/A	
POST CLEAN: Method N/A			10%		
OTHER INFORMATION:					
					-
			Til Control		
					SHAW
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					Tripping law
The second secon					
Prepared By:	Anr	proved by:	Date		
Robert Caddel	1,,64	N/A	3/13/12	PAGE 2 OF	= 2
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3-14-12



Certificate of Analysis and Tests

OUR ORDER 0278834 - 05

HEAT & PIECE 853605-4A 03/14/12

SOLD TO: SHAW MODULAR SOLUTIONS, L.L.C. SHIP TO: SHAW MODULAR SOLUTIONS, L.L.C. 3191 W LINCOLN ROAD 3191 W LINCOLN ROAD

LAKE CHARLES	LA	70605	LAKE CHARLES	LA	70605
746363 12/22/11	У	OUR ORDER	& DATE TAG#	P/N #22324	45
HEAT & PIECE 853605 - 4A WEIGHT 8938 FINISH 1 GRADE 2101 DIMENSIONS .625 X 117.0	00 X	UNS S321 410.000	01 EXACT		
*** MFG IN NEW CASTLE, IN, ASTM A240-11A ASMESA240-11EI REQUIRES PRODUCT ANALYSIS ASTM E562-08 (10% ACCURACY) ASTM A923-06 METHOD A&B ONLY U. T. TEST TO ASTM A 577-90 APP-VL52-ZO-023 R1 W/EXCEPTS COUPONS REQUIRED ASTM A262-02A PRACTICE E NO GRIPPER MARKS	USA	SPECIFIC FROM SL ASTM OSI UHA UT A NON ISO ASTM SMS NO W	ATIONSABS IMPORTED FROM BRIT A480-11A ASMESA480 11 OA MAN ED 2 R 1 10/15/51 CHARPY @ -40F (-40C STM A578-07 LEVEL B S1 STANDARD PROPERTIES RE 3651-2 A262-02A PRACTICE A PO REOMTS WITH EXCEPT ELD REPAIRS	AIN ED 02) QD	
PLATES & TEST PCS SOLUTION ATTHEN WATER QUENCHED FREE FROM MERCURY CONTAMINATHOT ROLLED, ANNEALED & PICKI	NNEALE: ION AT ED (1	D @ 1900 CURRENT HRAP)	DEGREES FAHRENHEIT MIN DETECTION LIMITS	IMUM.	
HARDNESS HRC 18 YIELD STRENGTH (PSI) 65 TENSILE STRENGTH (PSI) 94 BEND INTERGRANULAR CORROSION ELONGATION % IN 2" 3 REDUCTION OF AREA % ASTM E-562 POINT COUNT FERE CHARPY TEST AT -40F (TRANS)	OK 4.7 7.3				
LATERAL EXPANSION = 44, 60,	51 (M	ILS)			SHAW POWER
- CHEMICAL COMPOSITION CARBON (C) .028 MANGANESE (MN) 4.95 PHOSPHORUS (P) .026 SULFUR (S) .001 SILICON (SI) .79 CHROMIUM (CR) 21.53 NICKEL (NI) 1.56	(C) (MN) (P) (SI)	.016 4.55 .020 .007	15		OCT 1 5 2012
CHROMIUM (CR) 21.53 NICKEL (NI) 1.56 COBALT (CO) .04 COPPER (CU) .35 MOLY (MO) .23 NITROGEN (N) .22 COLUMBIUM (CB) .011 TITANIUM (TI) .001 ALUMINUM (AL) .020 TIN (SN) .009 TANTALUM (TA) .002	(CR) (NI) (CO) (CU) (MO) (CB) (TI) (AL) (SN) (TA)	21.10 1.54 .04 .36 .22 .23 .006 .004 .017		ACCEPT 15 8-13-	12

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN HAS BEEN MADE AND TESTED IN ACCORDANCE WITH THE LISTED SPECIFICATION(S) AND THAT THE RESULTS OF ALL TESTS ARE ACCEPTABLE.

JAMES DOUBMAN, QUALITY ASSURANCE MANAGER

Outching Stainless Plate, Inc. CERTIFICATE IN CONFORMANCE WITH EN10204-95 3.1.B/EN10204-2004 3.1

New Castle, Indiana 47362



NDE RESULT RECOR	n						D-	
REPORT OF NONDESTRUCTIVE EXAMINATION								
Customer	ILLI OILI O	INCHAD			Date	LVM:aist.	MALIOIR	
OUTOKUMPU (Shav	w Modular Solut	ions)			3/13			
PO BOX 370, 549 W	I State Rd 38 Ne	w Castle ,IN	47362	0	2893	No. or Report No.		
Job or Project Location New Castle, Indiana		PD No: 28862B	Owner:	86	d l	Caludiana	Plan or Drawing N	
Surface Condition	Plaiit	Heat No.	Snav	W INIOC		Solutions	Type of Material	I/A Temp of Material
SMOOTH Type of Examination	MOOTH SEE BELOW N/A 2101CO 69				65°F			
UT (SHEAR WAVE)	ASTM A57			ASTM			SP-UT-1	App II-U Rev 5
ORDER NO.	HEAT NO.	Acc X	Rej	Defec	ct Code		Remark	5
278834	609633-5A	_ ^					.250 x 108	x 222
070004	070005 44	X					.625 x 117	- 44D
278834	853605-4A	X	-	-				
278834	853602-4A			-			.625 x 117	
278834	853601-2A	X		-			.625 x 117	
278834	853605-1A			-			.625 x 117	
278834	853605-2A	X					.625 x 117	
278834	853604-1A	Х					.625 x 117	
27,8834	853604-2A	Х	www.mwyerese	-			.625 x 117	
278834	609642-3A	Х					.625 x 117	***************************************
278834	609641-2A	X					.625 x 117	
278834	609645-1A	Х					.625 x 117	x 410
				<u> </u>				
		В		<u> </u>				
	Type of Work	No of Its	ems Accepter		Na	of Items Rejected		
	New	IND OF ILE	ans Accepted	'	IVO	-Q-	2	
Remarks: The p	olates listed abo	ve were ultr	asonica	Ily tes	sted f	or indicatio	ns in accord	lance with
listed standards and								
Conclusion: No record	able indications	were noted	l at the t	ime o	fthis	inspection	•	
Client Personnel	Tec	chnician <u>R</u> i	obert Cad	del r	المراجعة المراجعة	Commence of the second	SNT-TC-1A L	evel II Ultrasonic

3-14-12

SHAW POWER

OCT 1 5 2012



Facility QC Control No. 290850	Technique No. Master
Client Outokumpu / Shaw Modular Solution	s P.O. No. 28862B
Item Description Stainless Steel Plate	
Part No. N/A	Drawing No. N/A
Specification ASTM A577-90	Acceptance ASTM A577-90
Procedure SP-UT-1 App II-U Rev.5	
WELDS	OTHER TEST ITEMS
Weld Joint N/A	Type of Item Stainless Steel Plate
Weld Process N/A	Processing Rolled
Base Material N/A	Material 2101CO
Material Thickness N/A	Dimensions See Page 1
Weld Length/OD N/A Surface Condition N/A	Additional Info N/A
PRECLEAN: Method N/A	Surface Condition Smooth
EQUIPMENT: Make Krautkramer	Material N/A Batch No. N/A
PRESENTATION X A-SCAN	Model USN 52 S/N 00NC078 B-SCAN C-SCAN
TRANSDUCERS:	B-SCAN C-SCAN
Make Krautkramer Model S/N	00W86X Sound Beam Angle (Material) 70°
Crystal Size .76" x .625" Crystal M	
The contract of the contract o	nufacturer N/A Batch No. N/A
CALIBRATION BLOCK: Type Part	Material 2101CO S/N N/A
	nersion Water Column
X Pulse Echo Res	onance Through Transmission
SCANNING: X Manual	Automatic
The second secon	ning Speed < 6"Per/Sec. % Overlap N / A
POST CLEAN: Method N/A	10%
OTHER INFORMATION:	
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Prepared By:	Approved by: Date
Robert Caddel	N/A 3/13/12 PAGE 2 OF 2



ACUREN								
NDE RESULT RECOR	n				-		Ph.	
NDE NEGOET RECON	REPORT O	ENOND	ECTD	IICT		EYARAIR		ge1 of2
Customer					Date		WALION .	
OUTOKUMPU (Shar	w Modular Solut	tions)			3/13	112 I No. or Report No.		
PO BOX 370, 549 W	/ State Rd 38 Ne				2908	CROTHER-PROPERTY PORT AT CHARMON POLICIES SHOWING		
Job or Project Location New Castle, Indiana	ı Plant	PO No: 28862B	Owner: Shav	v Mod	dular	Solutions	Plan or Drawing N	/A
Surface Condition SMOOTH		Heat No.	ELOW	Heat T		VA	Type of Material 2101CO	Temp of Material
Type of Examination	Examination Sta	andard	Acceptano		rd		NDT Procedure	No.
UT (STRAIGHT BEA	AM) ASTM A57 I heat no.	78-07 Acc	ASTM Rei		-07 Le	evel B S1	SP-UT-1	App II-U Rev 5
278834	609633-5A	Х					.250 x 108	
278834	853605-4A	Х					.625 x 117	x 410
278834	853602-4A	Х					.625 x 117	x 410
278834	853601-2A	Х					.625 x 117	x 410
278834	853605-1A	Х					.625 x 117	x 410
278834	853605-2A	Х					.625 x 117	× 410
278834	853604-1A	Х					.625 x 117	x 410
278834	853604-2A	X					.625 x 117	x 410
278834	609642-3A	Х					.625 x 117	x 410
278834	609641-2A	Х					.625 x 117	x 410
278834	609645-1A	Х					.625 x 117	x 410
								and the second
				<u> </u>		of Items Rejected		
	Type of Work New	NO OT ITE	ms Accepted	1	NO	-O-		
Remarks: The	olates listed abo	ve were ultr	asonica	lly tes	sted f	for indicatio	ns in accord	ance with
listed standards and	procedures.							
Conclusion: No record	able indications	were noted	at the t	ime o	of this	inspection.		
Client Personnel	Te	chnician <u>Ro</u>	obert Cad	del .	lister		SNT-TC-1A Le	evel II Ultrasonic

344-12

SHAW POWER

OCT 1 5 2012



Facility QC Control No. 290850	Technique No.	Master	
Client Outokumpu / Shaw Modular Solution		28862B	
Item Description Stainless Steel Plate	_		
Part No. N/A	Drawing No.	N/A	
Specification ASTM A578-07	Acceptance	ASTM A578-07	7 Level B S1
Procedure SP-UT-1 App II-U Rev.5			
WELDS		HER TEST ITEM	
Weld Joint N/A		tainless Steel P	late
Weld Process N/A	Processing Roll		
Base Material N/A	Material 2101C		
Material Thickness N/A Weld Length/OD N/A		Page 1	
	Additional Info N		
Surface Condition N/A PRECLEAN: Method N/A	Surface Condition	Smooth	
EQUIPMENT: Make Krautkramer	Material N/A		ch No. N/A
PRESENTATION X A-SCAN	Model USN 52 B-SCAN	S/N	00NC078 C-SCAN
TRANSDUCERS:	D-SCAN		D-SCAN
	N 570465 Sour	nd Beam Angle	(Material) 0°
	Material Cerami	1 -	
	Manufacturer N/A		th No. N/A
CALIBRATION BLOCK: Type Part		1CO S/	
	nmersion	Water Column	
	esonance	Through Trans	ļ.
SCANNING: X Manual	Automatic] Tillough Han	31111031011
· · · · · · · · · · · · · · · · · · ·	anning Speed < 6"Per	/Sec. % Ove	rlap N/A
POST CLEAN: Method N/A		10%	
OTHER INFORMATION:	0		
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particular and the second			
Prepared By:	Approved by:	Date	
Robert Caddel	N/A	3/13/12	PAGE 2 OF 2

3-14-12



Certificate of Analysis and Tests

OUR ORDER 0278834 - 06

HEAT & PIECE 609641-2A 03/23/12

SOLD TO: SHAW MODULAR SOLUTIONS, L.L.C. SHIP TO: SHAW MODULAR SOLUTIONS, L.L.C. 3191 W LINCOLN ROAD 3191 W LINCOLN ROAD

TAKE CHARLES

T.A 70605

LAKE CHARLES	LA 70605	LAKE CHARLES	LA 70605
746363 12/22/11	YOUR ORDER	& DATE TAG# P	/N #2232445
HEAT & PIECE 609641 - 2A WEIGHT 8938 FINISH 1 GRADE 2101 DIMENSIONS .625 X 117.0	UNS S3210	1 EXACT	
*** MFG IN NEW CASTLE, IN, ASTM A240-11A ASMESA240-11EI REQUIRES PRODUCT ANALYSIS ASTM E562-08 (10% ACCURACY) ASTM A923-06 METHOD A&B ONLU. T. TEST TO ASTM A 577-90 APP-VL52-ZO-023 R1 W/EXCEPTS	USA FROM SLA OSI Q UHA 5 Y UT AS NON S ISO 3	TIONS	D 2
PLATES & TEST PCS SOLUTION THEN WATER QUENCHED FREE FROM MERCURY CONTAMINATION ROLLED, ANNEALED & PICK	TION AT CURRENT [LED (HRAP)	ETECTION LIMITS	
HARDNESS HRC 15 YIELD STRENGTH (PSI) 7 TENSILE STRENGTH (PSI) 10 BEND INTERGRANULAR CORROSION ELONGATION % IN 2" REDUCTION OF AREA % ASTM E-562 POINT COUNT FER CHARPY TEST AT -40F (TRANS LATERAL EXPANSION = 40, 40 CHARPY TEST AT -40F (TRANS	0443 3990 OK OK 44.2 62.2 RITE @ 500X = 47%) 54, 49, 50 FT-I , 38 (MILS)	% AT 10% RELATIVE ACCUR LBS. FULL SAMPLE SIZE	SHAW POWER OCT 1 5 2012
CHARPY TEST AT -40F (TRANS - CHEMICAL COMPOSITION CARBON (C) .022 MANGANESE (MN) 4.75 PHOSPHORUS (P) .023 SULFUR (S) .001 SILICON (SI) .64 CHROMIUM (CR) 21.43 NICKEL (NI) 1.54 COBALT (CO) .04 COPPER (CU) .33 MOLY (MO) .31 NITROGEN (N) .21 COLUMBIUM (CB) .011 TITANIUM (TI) .004 ALUMINUM (AL) .022 TIN (SN) .006	- PRODUCT ANALYS: (C) .017 (MN) 4.29 (P) .021 (S) .007 (SI) .66 (CR) 21.00 (NI) 1.62 (CO) .05 (CU) .35 (MO) .31 (N) .25 (CB) .010 (TI) .005 (AL) .022 (SN) .007	[S	ACCEPT 15 8-13-12

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN HAS BEEN MADE AND TESTED IN ACCORDANCE WITH THE LISTED SPECIFICATION(S) AND THAT THE RESULTS OF ALL TESTS ARE ACCEPTABLE.

JAMES DOUBMAN, QUALITY ASSURANCE MANAGER

Samo P Outokumpu Stainless Plate, Inc. CERTIFICATE IN CONFORMANCE WITH EN10204-95 3.1.B/EN10204-2004 3.1 P.O. Box 370 New Castle Indiana 47362 **ISSUED FOR Information (IFI)**



NDE RESULT RECOR	D						Pa	age 1 of 2
	REPORT O	FNONE	ESTR	RUCT	IVE	EXAMIN	MOITAN	
Customer OUTOKUMPU (Shav	v Modular Solut	ions)			Date 3/13	112		
Address		1.51	2	0		No. or Report No.		
PO BOX 370, 549 W	/ State Rd 38 Ne				2893	33		
New Castle, Indiana	Plant	PD No: 28862B	Owner:		dular	Solutions	Plan or Drawing I	No UA
Surface Condition	1 100316	Heat No.		Heat T		oorations	Type of Material	
SMOOTH			BELOW			V/A	2101CO	65°F
Type of Examination UT (SHEAR WAVE)	Examination Sta ASTM A57			Acceptan ASTM			SP-UT-1	re No. I App II-U Rev 5
ORDER NO.	HEAT NO.	Acc	Rej I	Defe	ct Code	T	Remark	
278834	609633-5A	X					.250 x 108	x 222
278834	853605-4A	Х					.625 x 117	x 410
278834	853602-4A	Х					.625 x 117	x 410
278834	853601-2A	X					.625 x 117	x 410
278834	853605-1A	Х					.625 x 117	x 410
278834	853605-2A	Х					.625 x 117	x 410
278834	853604-1A	Х					.625 x 117	x 410
27.8834	853604-2A	Х					.625 x 117	x 410
278834	609642-3A	Х					.625 x 117	x 410
278834	609641-2A	X					.625 x 117	x 410
278834	609645-1A	Х					.625 x 117	x 410
	Type of Work New	No of I	Items Accepta	ed	No	of Items Rejected	2	
Remarks: The r	olates listed abo	ve were ult	rasonic	ally tes	sted i	for indicatio	ns in accord	dance with
listed standards and								
noted Standards and	production							
Conclusion: No record	able indications	were note	d at the	time o	of this	inspection		
					2442		*	
Client Personnel	Teo	chnician F	Robert Car	ddel -	المراجعة المراجعة		SNT-TC-1A L	evel II Ultrasonic

3-14-12

SHAW POWER

OCT 1 5 2012



Facility QC Control No. 290850	Technique No. Master
Client Outokumpu / Shaw Modular Solution	s P.O. No. 28862B
Item Description Stainless Steel Plate	
Part No. N/A	Drawing No. N/A
Specification ASTM A577-90	Acceptance ASTM A577-90
Procedure SP-UT-1 App II-U Rev.5	
WELDS	OTHER TEST ITEMS
Weld Joint N/A	Type of Item Stainless Steel Plate
Weld Process N/A	Processing Rolled
Base Material N/A	Material 2101CO
Material Thickness N/A	Dimensions See Page 1
Weld Length/OD N/A Surface Condition N/A	Additional Info N/A
PRECLEAN: Method N/A	Surface Condition Smooth
EQUIPMENT: Make Krautkramer	Material N/A Batch No. N/A
PRESENTATION X A-SCAN	Model USN 52 S/N 00NC078 B-SCAN C-SCAN
TRANSDUCERS:	B-SCAN C-SCAN
Make Krautkramer Model S/N	00W86X Sound Beam Angle (Material) 70°
Crystal Size .76" x .625" Crystal M	
The contract of the contract o	nufacturer N/A Batch No. N/A
CALIBRATION BLOCK: Type Part	Material 2101CO S/N N/A
	nersion Water Column
X Pulse Echo Res	onance Through Transmission
SCANNING: X Manual	Automatic
The second secon	ning Speed < 6"Per/Sec. % Overlap N / A
POST CLEAN: Method N/A	10%
OTHER INFORMATION:	
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	POWER
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Prepared By:	Approved by: Date
Robert Caddel	N/A 3/13/12 PAGE 2 OF 2



ACUREN									
NDE RESULT RECOR	D						Pa	ge1 of2	
	REPORT O	FNOND	ESTR	UCT	TIVE	EXAMIN			
Customer OUTOKUMPU (Shav	v Modular Solut	ione)	T. C.		Date 3/13	112			
Address			17000		Contro	l No. or Report No.			
PO BOX 370, 549 W Job or Project Location		PO No:	Owner:		2908		Plan or Drawing N	lo	
New Castle, Indiana Surface Condition	Plant	28862B Heat No.	Shav	V MOC		Solutions	Type of Material	/A Temp of Material	
SMOOTH Type of Examination	Examination Sta		ELOW			I/A	2101CO	65°F	
UT (STRAIGHT BEA		3	Acceptanc ASTM			evel B S1		App II-U Re	v 5
order no. 278834	HEAT NO. 609633-5A	Acc	Rej	Defe	ct Code		Remarks .250 x 108		
270004	903033-3A	X		-			.230 X 100	X 444	
278834	853605-4A	Х		+-			.625 x 117	x 410	
278834	853602-4A	Х		1			.625 x 117	x 410	
278834	853601-2A	Х		1			.625 x 117	x 410	
278834	853605-1A	Х					.625 x 117	x 410	
278834	853605-2A	Х					.625 x 117	x 410	
278834	853604-1A	Х					.625 x 117	x 410	
278834	853604-2A	Х					.625 x 117	x 410	
278834	609642-3A	Х					.625 x 117	x 410	
278834	609641-2A	Х					.625 x 117	x 410	
278834	609645-1A	Х					.625 x 117	x 410	
								and Water	
				-					
	Type of Work	No of ite	ms Accepted	i	No	of Items Rejected			
	New		11			-0-			
Remarks: The p	lates listed abo	ve were ultr	asonica	lly tes	sted f	or indicatio	ns in accord	lance with	
listed standards and	procedures.								
Conclusion: No record	able indications	were noted	at the t	ime o	of this	inspection.			
Client Personnel	Te	chnician <u>Ro</u>	bert Cad	del ·	Carpane .	and the second of the second o	SNT-TC-1A Le	evel II Ultras	sonic

344-12

SHAW POWER

OCT 1 5 2012



				Nego-	-
Facility QC Control No. 290850		Technique No.	Master		
Client Outokumpu / Shaw Modular Solu	tions		8862B		
Item Description Stainless Steel Plate					
Part No. N/A		Drawing No. N	I/A		
Specification ASTM A578-07			STM A578-07	Level B S1	
Procedure SP-UT-1 App II-U Rev.5		1.0000	io i mi i toro o i	Level B o i	
WELDS		OTHE	R TEST ITEM	S	
Weld Joint N/A	Tv		nless Steel Pla		
Weld Process N/A		ocessing Rolled			
Base Material N/A		aterial 2101CO			
Material Thickness N/A			Page 1		
Weld Length/OD N/A		ditional Info N/A			
Surface Condition N/A		TO CONTROL TO SERVICE TO CONTROL TO THE SERVICE TO	Smooth		
PRECLEAN: Method N/A		aterial N/A		- NI- NI/A	
EQUIPMENT: Make Krautkramer		odel USN 52		h No. N/A	
PRESENTATION X A-SCAN	1010	B-SCAN	S/N	00NC078	
TRANSDUCERS:		D-SCAIN		-SCAN	
	S/N 5	704CE Sound	Poom Angle /	0.4040=101	
	The second secon		Beam Angle (0°
	al Mater				MHz
COUPLANT: Material Water	Manufa		Batcl		
CALIBRATION BLOCK: Type Part		Material 2101C		N/A	
	Immersi	on \	Nater Column		
	Resonar		Through Trans	mission	
SCANNING: X Manual		Automatic			
	canning	Speed < 6"Per/Se	ec. % Over	iap N/A	
POST CLEAN: Method N/A			10%		
OTHER INFORMATION:					
					-
			Til Control		
					SHAW
					POWER
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					Tripping law
The second secon					
Prepared By:	Anr	proved by:	Date		
Robert Caddel	1,,64	N/A	3/13/12	PAGE 2 OF	= 2
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3-14-12



Certificate of Analysis and Tests

OUR ORDER 0278834 - 05

HEAT & PIECE 853605-4A 03/14/12

SOLD TO: SHAW MODULAR SOLUTIONS, L.L.C. SHIP TO: SHAW MODULAR SOLUTIONS, L.L.C. 3191 W LINCOLN ROAD 3191 W LINCOLN ROAD

LAKE CHARLES	LA	70605	LAKE CHARLES	LA	70605
746363 12/22/11	У	OUR ORDER	& DATE TAG#	P/N #22324	45
HEAT & PIECE 853605 - 4A WEIGHT 8938 FINISH 1 GRADE 2101 DIMENSIONS .625 X 117.0	00 X	UNS S321 410.000	01 EXACT		
*** MFG IN NEW CASTLE, IN, ASTM A240-11A ASMESA240-11EI REQUIRES PRODUCT ANALYSIS ASTM E562-08 (10% ACCURACY) ASTM A923-06 METHOD A&B ONLY U. T. TEST TO ASTM A 577-90 APP-VL52-ZO-023 R1 W/EXCEPTS COUPONS REQUIRED ASTM A262-02A PRACTICE E NO GRIPPER MARKS	USA	SPECIFIC FROM SL ASTM OSI UHA UT A NON ISO ASTM SMS NO W	ATIONSABS IMPORTED FROM BRIT A480-11A ASMESA480 11 OA MAN ED 2 R 1 10/15/51 CHARPY @ -40F (-40C STM A578-07 LEVEL B S1 STANDARD PROPERTIES RE 3651-2 A262-02A PRACTICE A PO REOMTS WITH EXCEPT ELD REPAIRS	AIN ED 02) QD	
PLATES & TEST PCS SOLUTION ATTHEN WATER QUENCHED FREE FROM MERCURY CONTAMINATHOT ROLLED, ANNEALED & PICKI	NNEALE: ION AT ED (1	D @ 1900 CURRENT HRAP)	DEGREES FAHRENHEIT MIN DETECTION LIMITS	IMUM.	
HARDNESS HRC 18 YIELD STRENGTH (PSI) 65 TENSILE STRENGTH (PSI) 94 BEND INTERGRANULAR CORROSION ELONGATION % IN 2" 3 REDUCTION OF AREA % ASTM E-562 POINT COUNT FERE CHARPY TEST AT -40F (TRANS)	OK 4.7 7.3				
LATERAL EXPANSION = 44, 60,	51 (M	ILS)			SHAW POWER
- CHEMICAL COMPOSITION CARBON (C) .028 MANGANESE (MN) 4.95 PHOSPHORUS (P) .026 SULFUR (S) .001 SILICON (SI) .79 CHROMIUM (CR) 21.53 NICKEL (NI) 1.56	(C) (MN) (P) (SI)	.016 4.55 .020 .007	15		OCT 1 5 2012
CHROMIUM (CR) 21.53 NICKEL (NI) 1.56 COBALT (CO) .04 COPPER (CU) .35 MOLY (MO) .23 NITROGEN (N) .22 COLUMBIUM (CB) .011 TITANIUM (TI) .001 ALUMINUM (AL) .020 TIN (SN) .009 TANTALUM (TA) .002	(CR) (NI) (CO) (CU) (MO) (CB) (TI) (AL) (SN) (TA)	21.10 1.54 .04 .36 .22 .23 .006 .004 .017		ACCEPT 15 8-13-	12

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN HAS BEEN MADE AND TESTED IN ACCORDANCE WITH THE LISTED SPECIFICATION(S) AND THAT THE RESULTS OF ALL TESTS ARE ACCEPTABLE.

JAMES DOUBMAN, QUALITY ASSURANCE MANAGER

Outching Stainless Plate, Inc. CERTIFICATE IN CONFORMANCE WITH EN10204-95 3.1.B/EN10204-2004 3.1

New Castle, Indiana 47362



NDE RESULT RECOR	n						D-	
REPORT OF NONDESTRUCTIVE EXAMINATION								
Customer	ILLI OILI O	INCHAD			Date	LVM:aist.	MALIOIR	
OUTOKUMPU (Shav	w Modular Solut	ions)			3/13			
PO BOX 370, 549 W	I State Rd 38 Ne	w Castle ,IN	47362	0	2893	No. or Report No.		
Job or Project Location New Castle, Indiana		PD No: 28862B	Owner:	86	d l	Caludiana	Plan or Drawing N	
Surface Condition	Plaiit	Heat No.	Snav	W INIOC		Solutions	Type of Material	I/A Temp of Material
SMOOTH Type of Examination	MOOTH SEE BELOW N/A 2101CO 69				65°F			
UT (SHEAR WAVE)	ASTM A57			ASTM			SP-UT-1	App II-U Rev 5
ORDER NO.	HEAT NO.	Acc X	Rej	Defec	ct Code		Remark	5
278834	609633-5A	_ ^					.250 x 108	x 222
070004	070005 44	X					.625 x 117	- 44D
278834	853605-4A	X	-	-				
278834	853602-4A			-			.625 x 117	
278834	853601-2A	X		-			.625 x 117	
278834	853605-1A			-			.625 x 117	
278834	853605-2A	X					.625 x 117	
278834	853604-1A	Х					.625 x 117	
27,8834	853604-2A	Х	www.mwyerese	-			.625 x 117	
278834	609642-3A	Х					.625 x 117	***************************************
278834	609641-2A	X					.625 x 117	
278834	609645-1A	Х					.625 x 117	x 410
				<u> </u>				
		В		<u> </u>				
	Type of Work	No of Its	ems Accepter		Na	of Items Rejected		
	New	IND OF ILE	ans Accepted	'	IVO	-Q-	2	
Remarks: The p	olates listed abo	ve were ultr	asonica	Ily tes	sted f	or indicatio	ns in accord	lance with
listed standards and								
Conclusion: No record	able indications	were noted	l at the t	ime o	fthis	inspection	•	
Client Personnel	Tec	chnician <u>R</u> i	obert Cad	del r	المراجعة المراجعة	Commence of the second	SNT-TC-1A L	evel II Ultrasonic

3-14-12

SHAW POWER

OCT 1 5 2012



Facility QC Control No. 290850	Technique No. Master
Client Outokumpu / Shaw Modular Solution	s P.O. No. 28862B
Item Description Stainless Steel Plate	
Part No. N/A	Drawing No. N/A
Specification ASTM A577-90	Acceptance ASTM A577-90
Procedure SP-UT-1 App II-U Rev.5	
WELDS	OTHER TEST ITEMS
Weld Joint N/A	Type of Item Stainless Steel Plate
Weld Process N/A	Processing Rolled
Base Material N/A	Material 2101CO
Material Thickness N/A	Dimensions See Page 1
Weld Length/OD N/A Surface Condition N/A	Additional Info N/A
PRECLEAN: Method N/A	Surface Condition Smooth
EQUIPMENT: Make Krautkramer	Material N/A Batch No. N/A
PRESENTATION X A-SCAN	Model USN 52 S/N 00NC078 B-SCAN C-SCAN
TRANSDUCERS:	B-SCAN C-SCAN
Make Krautkramer Model S/N	00W86X Sound Beam Angle (Material) 70°
Crystal Size .76" x .625" Crystal M	
The contract of the contract o	nufacturer N/A Batch No. N/A
CALIBRATION BLOCK: Type Part	Material 2101CO S/N N/A
	nersion Water Column
X Pulse Echo Res	onance Through Transmission
SCANNING: X Manual	Automatic
The second secon	ning Speed < 6"Per/Sec. % Overlap N / A
POST CLEAN: Method N/A	10%
OTHER INFORMATION:	
	·
	SHAW
	POWER
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	OCT 1 5 2012
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Prepared By:	Approved by: Date
Robert Caddel	N/A 3/13/12 PAGE 2 OF 2



ACUREN								
NDE RESULT RECOR	n				-		Ph.	
NDE NEGOET RECON	REPORT O	ENOND	ECTD	IICT		EYARAIR		ge1 of2
Customer					Date		WALION .	
OUTOKUMPU (Shar	w Modular Solut	tions)			3/13	112 I No. or Report No.		
PO BOX 370, 549 W	/ State Rd 38 Ne				2908	CROTHER-PROPERTY PORT AT CHARMON POLICIES SHOWING		
Job or Project Location New Castle, Indiana	ı Plant	PO No: 28862B	Owner: Shav	v Mod	dular	Solutions	Plan or Drawing N	/A
Surface Condition SMOOTH		Heat No.	ELOW	Heat T		VA	Type of Material 2101CO	Temp of Material
Type of Examination	Examination Sta	andard	Acceptano		rd		NDT Procedure	No.
UT (STRAIGHT BEA	AM) ASTM A57 I heat no.	78-07 Acc	ASTM Rei		-07 Le	evel B S1	SP-UT-1	App II-U Rev 5
278834	609633-5A	Х					.250 x 108	
278834	853605-4A	Х					.625 x 117	x 410
278834	853602-4A	Х					.625 x 117	x 410
278834	853601-2A	Х					.625 x 117	x 410
278834	853605-1A	Х					.625 x 117	x 410
278834	853605-2A	Х					.625 x 117	x 410
278834	853604-1A	Х					.625 x 117	x 410
278834	853604-2A	Х					.625 x 117	x 410
278834	609642-3A	Х					.625 x 117	x 410
278834	609641-2A	Х					.625 x 117	x 410
278834	609645-1A	Х					.625 x 117	x 410
								and the second
				<u> </u>		of Items Rejected		
	Type of Work New	NO OT ITS	ms Accepted	1	NO	-O-		
Remarks: The	olates listed abo	ve were ultr	asonica	lly tes	sted f	for indicatio	ns in accord	ance with
listed standards and	procedures.							
Conclusion: No record	able indications	were noted	at the t	ime o	of this	inspection.		
Client Personnel	Te	chnician <u>Ro</u>	obert Cad	del .	lister		SNT-TC-1A Le	evel II Ultrasonic

344-12

SHAW POWER

OCT 1 5 2012



Facility QC Control No. 290850	Technique No.	Master	
Client Outokumpu / Shaw Modular Solution		28862B	
Item Description Stainless Steel Plate	_		
Part No. N/A	Drawing No.	N/A	
Specification ASTM A578-07	Acceptance	ASTM A578-07	7 Level B S1
Procedure SP-UT-1 App II-U Rev.5			
WELDS		HER TEST ITEM	
Weld Joint N/A		tainless Steel P	late
Weld Process N/A	Processing Roll		
Base Material N/A	Material 2101C		
Material Thickness N/A Weld Length/OD N/A		Page 1	
	Additional Info N		
Surface Condition N/A PRECLEAN: Method N/A	Surface Condition	Smooth	
EQUIPMENT: Make Krautkramer	Material N/A		ch No. N/A
PRESENTATION X A-SCAN	Model USN 52 B-SCAN	S/N	00NC078 C-SCAN
TRANSDUCERS:	D-SCAN		D-SCAN
	N 570465 Sour	nd Beam Angle	(Material) 0°
	Material Cerami	1 -	
	Manufacturer N/A		th No. N/A
CALIBRATION BLOCK: Type Part		1CO S/	
	nmersion	Water Column	
	esonance	Through Trans	ļ.
SCANNING: X Manual	Automatic] Tillough Han	31111031011
· · · · · · · · · · · · · · · · · · ·	anning Speed < 6"Per	/Sec. % Ove	rlap N/A
POST CLEAN: Method N/A		10%	
OTHER INFORMATION:	0		
		T .	
			SHAW
			POWER
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particular and the second			
Prepared By:	Approved by:	Date	
Robert Caddel	N/A	3/13/12	PAGE 2 OF 2

3-14-12



INDUSTRIAL TESTING LABORATORY SERVICES, LLC 635 Alpha Drive – RIDC Park Pittsburgh, PA 15238 Phone: 412.963.1900 Fax: 412.963.1926 e-mail: info@itls.com website: itls.com

> TEST REPORT L19495 May 7, 2012

Purchase Order No: 694689-000 OP

To:

Shaw Modular Solutions LLC

3191 West Lincoln Road Lake Charles, LA 70605

Attn:

Nick Koseski

ACCEPT

13 6-30-12

Sample Received:

ITLS received twelve (12) samples for Chemical, Mechanical, Hardness, Impact, Ferrite and Intergranular Corrosion evaluation, identified as follows:

Sample #	Heat #	Description	Supplier
1	853731-1A	0.625" thick Duplex Plate	Outokumpu
2	853731-1A	0.625" thick Duplex Plate	Outokumpu
- 3	609643-2A	0.625" thick Duplex Plate	Outokumpu
4	609643-2A	0.625" thick Duplex Plate	Outokumpu
5	609644-3A	0.625" thick Duplex Plate	Outokumpu
6	609644-3A	0.625" thick Duplex Plate	Outokumpu
7	853735-3A	0.500" thick Duplex Plate	Outokumpu
8	853735-3A	0.500" thick Duplex Plate	Outokumpu
9	609643-3A	0.625" thick Duplex Plate	Outokumpu
10	609643-3A	0.625" thick Duplex Plate	Outokumpu
11	853843-2A	1.187" thick Duplex Plate	Outokumpů
12 .	853843-2A	1.187" thick Duplex Plate	Outokumpu

Acceptance:

Sample #	Test	Acceptance
All	Chemical Analysis	APP-VL52-Z0-023, Rev. 1, ASTM A240-11b (UNS S32101)
All	Mechanical	APP-VL52-Z0-023, Rev. 1, ASTM A240-11b (UNS S32101), A480-11b
All	Rockwell B	ASTM A240-11b (UNS S32101), A480-11b
All	Ferrite	APP-VL52-Z0-023, Rev. 1, ASTM E562-11, Method A
All	Impact	APP-VL52-Z0-023, Rev. 1, ASTM A923-08, Method B
. All	Intergranular Corrosion	ISO 3651-2 Method A

SHAW POWER AUG 3 0 2012

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Page 1 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



Test References:

Specification	Title
ASTM A751-11	Standard Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products
ASTM A370-12	Standard Test Methods and Definitions for Mechanical Testing of Steel Products
ASTM E8-11	Standard Test Methods for Tension Testing of Metallic Materials
ASTM E140-07	Standard Hardness Conversion Tables for Metals
ASTM E23-07a ^{c1}	Standard Test Methods for Notched Bar Impact Testing of Metallic Materials
ASTM E3-11	Standard Guide for Preparation of Metallographic Specimens
ASTM E18-08b	Standard Test Methods for Rockwell Hardness of Metallic Materials
ASTM E1245-03 (2008)	Standard Practice for Determining the Inclusion of Second-Phase Constituent Content of Metals by Automatic Image Analysis
ASTM E562-11	Standard Test Method for Determining Volume Fraction by Systematic Manual Point Count

Quality References:

Reference	
10CFR21, 10CFR50.55(e) and 10CFR50 App.B	
ASME NQA-1 – 1994 Basic and Supplementary Requirements	
USNRC Regulatory Guide 1.28 Rev. 3	
ITLS QA Manual Rev. 3 dated 06/20/08	
No ITLS subcontractors used for completion of this order	

SMS QC ACCEPT 13 G-30-12

> SHAW POWER

AUG 3 0 2012

003

Page 2 of 6

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Results:

Shaw Modular Solutions, LLC ITLS Report L19495 May 7, 2012

Chemical Analysis - ASTM A751-11 (OES/Leco)

		Composition (wt%)												
Sample #	С	Mn	Р	s	Si	Ni '	Cr	Мо	N	Cu	Co	Al	V	Total Others
1	0.027	5.00	0.022	0.001	0.55	1.58	21.6	0.21	0.22	0.41	<0.01	0.01	0.08	0.09
2	0.025	4.89	0.022	0.001	0.57	1.58	21.4	0.22	0.22	0.43	<0.01	0.01	0.08	0.09
3	0.026	4.79	0.022	0.001	0.52	1.57	21.7	0.31	0.23	0.36	0.01	0.02	0.10	0.13
. 4	0.027	4.78	0.023	0.001	0.51	1.57	21.9	0.31	0.22	0.36	0.01	0.03	0.10	0.13
5	0.027	4.91	0.023	0.001	0.51	1.55	21.8	0.30	0.22	0.35	0.01	0.02	0.10	0.13
6	0.025	4.91	0.022	0.001	0.51	1.54	21.8	0.30	0.22	0.35	0.01	0.03	0.10	0.13
7	0.025	5.05	0.021	0.001	0.55	1.57	21.7	0.21	0.22	0.41	0.01	0.01	0.08	0.09
8	0.025	5.02	0.022	0.001	0.55	1.56	21.5	0.21	0.22	.0.42	<0.01	0.01	0.08	0.09
9	0.025	4.84	0.022	0.001	0.50	1.53	21.8	0.30	0.22	0.35	0.01	0.02	0.10	0.13
10	0.026	4.70	0.021	0.001	0.51	1.55	21.9	0.30	0.23	0.36	0.01	0.02	0.10	0.13
11	0.032	4.83	0.021	0.001	0.53	1.45	21.9	0.21	0.22	0.38	0.01	0.02	0.09	0.11
12	0.034	4.75	0.023	0.001	0.54	1.46	21.8	0.21	0.22	0.39	0.01	0.02	0.09	0.11
Required	0.040 Max	4.00 6.00	0.040 Max	0.030 Max	1.00 Max	1.35 1.70	21.0 ° 22.0	0.10 0.80	0.20 0.25	0.10 0.80	0.05 Max	0.10 Max	0.10 Max	0.50 Max

ACCEPTABLE

Page 3 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



Results (cont):

Impact Test - ASTM A923-08 Method B

·	A STATE OF THE STA	
Sample #	Temperature (°F)	Absorbed Energy (ft-lbs)
1.	-40	- 68
2	-40	80
3	-40	45
4	-40	42
5	-40	45
6	-40	44
7	40	62
. 8	-40	69
9	-40	44
. 10	-40	50 [.]
11	-40	30
12	-40	31
Required	-40	20 Min

ACCEPTABLE

Ferrite Testing - ASTM E562-11 Method A

Sample #	Ferrite (%)
1	48
2	50
3	52
4	51
5	52
6	50
7	48
8	50
9	52
10	. 49
11	52 ·
12	53
Required	40 - 60%

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Ferrite volume fraction tested with Image Analysis per ASTM E1245-03(2008). ASTM E562 offers the use of ASTM E1245 to determine the same measurements.

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Page 4 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



Results (cont.):

Mechanical Properties - ASTM E8-11 (Flat/Round) & ASTM E18-08b (HRB)

Sample #	Test Temp (°F)	Initial Dimensions (in)	Initial Area (in²)	*Yield Strength (ksi)	Tensile Strength (ksi)	Elongation (%) in 2"	Hardness HRB** (Avg. of 3)
1	Room	0.499 x 0.678	0.3383	72	103	48	96
2	Room	0.498 x 0.661	0.3292	73	104 .	47	96
3	Room	0.498 x 0.661	0.3292	76	106	47	95
4	Room	0.500 x 0.658	0.3290	73	103	46	96
5	Room	0.500 x 0.671	0.3355	73	102	46	96
6	Room	0.501 x 0.674	0.3377	73	103	45	95
7	Room	0.498 x 0.526	0.2619	73	104	44	97
8	Room	0.497 x 0.529	0.2629	74	104	44	97
9	Room	0.501 x 0.668	0.3347	73	103	46	95
10	Room	0.500×0.658	0.3290	72	102	46	96
11	Room	0.500 dia.	0.1963	74	104	42	97
12	Room	0.500 dia.	0.1963	73	104	41	97
	Red	quired	þ	65 Min	94 Min	30 Min	290 HBW Max

^{*}Yield calculated at 0.20% offset

ACCEPTABLE

**Customer requested hardness in Rockwell B. All measured values were between 95 and 97 HRB which is approximately equal to Brinell 210 to 233 based on ASTM E140 Tables 2 and 5. These values are well below the specified max of 290 HBW and are therefore acceptable.



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AUG 3 0 2012

003

Page 5 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



Results (cont.):

Intergranular Corrosion Test - ISO 3651-2 Method A

Sample #	Bend Radius	Bend	Result
1	1T	90°	Accept – No Cracking Observed
2	1T	90°	Accept - No Cracking Observed
3	1T	90°	Accept - No Cracking Observed
4	1T	90°	Accept - No Cracking Observed
5	1T	90°	Accept - No Cracking Observed
6	1T	90°	Accept - No Cracking Observed
7	1T	90°	Accept - No Cracking Observed
8	1T	90°	Accept - No Cracking Observed
9	1T	90°	Accept - No Cracking Observed
10	1T	90°	Accept - No Cracking Observed
11	1T	90°	Accept - No Cracking Observed
12	1T	90°	Accept - No Cracking Observed
Required	1T	90°	No Cracking @ 10X

ACCEPTABLE

This certification affirms that the contents are correct and accurate, and that the test operations performed by Industrial Testing Laboratory Services are in compliance with the material specification, ITLS Quality Assurance Manual Rev. 3 dated 6/20/2008, ASME NQA-1 1994, Regulatory Guide 1.28, 10 CFR 50 App. B, 10 CFR Part 21 and any additional requirements of SMS Purchase Order # 694689. Test Results comply with the PO required material specification(s) as noted below.

All Samples: ACCEPTABLE

Signature

Date 5/7/2012

SMS QO ACCEPT

6-30-12

SHAW

AUG 3 0 2012

003

Page 6 of 6

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



Certificate of Analysis and Tests

OUR ORDER 0278834 - 09

HEAT & PIECE 853732-3A 04/13/12

SOLD TO: SHAW MODULAR SOLUTIONS, L.L.C. SHIP TO: SHAW MODULAR SOLUTIONS, L.L.C. 3191 W LINCOLN ROAD 3191 W LINCOLN ROAD

LAKE CHARLES

LAKE CHARLES	LA 70	605	LAKE CHARLES	· LA	70605
746363 12/ HEAT & PIECE 853732 - WEIGHT 89 FINISH 1 GRADE 2101 DIMENSIONS 625 X	YOU 22/11 IT 3A 38 U 117.000 X 4	EM DESCRIPTION	4	P/N #2232	445
*** MFG IN NEW CASTLE ASTM A240-11A ASMESA24 REQUIRES PRODUCT ANALY ASTM E562-08 (10% ACCU ASTM A923-06 METHOD A& U. T. TEST TO ASTM A 5 APP-VL52-Z0-023 R1 W/E COUPONS REQUIRED ASTM A262-02A PRACTICE NO GRIPPER MARKS	, IN, USA 0-11ED SIS RACY) B ONLY 77-90	FROM SLABS IMI ASTM A480-1 OSI OA MAN UHA 51 CHAF UT ASTM A57 NON STANDA	PORTED FROM BRITALIA ASMESA480 11 ED 2 R 1 10/15/RPY @ -40F (-40C) 78-07 LEVEL B SI RD PROPERTIES RE D2A PRACTICE A DMTS WITH EXCEPT	TAIN ED '02 C)	
PLATES & TEST PCS SOLU THEN WATER QUENCHED FREE FROM MERCURY CONT HOT ROLLED, ANNEALED &	AMINATION AT C	URRENT DETECTI AP)	ON LIMITS		
HARDNESS HRC YIELD STRENGTH (PSI) TENSILE STRENGTH (PSI BEND INTERGRANULAR CORROSIO ELONGATION % IN 2" REDUCTION OF AREA % ASTM E-562 POINT COUN CHARPY TEST AT -40F (LATERAL EXPANSION = 5 A923 METHOD C CORROSI	N OK 40.7 62.9 T FERRITE @ 50	OX = 46% AT 10)% RELATIVE ACCI	IRACY	
COBALT (CO) . COPPER (CU) . MOLY (MO) . NITROGEN (N) . COLUMBIUM (CB) . TITANIUM (TI) . ALUMINUM (AL)	023 (C) 86 (MN) 027 (P) 001 (S) 68 (SI) 42 (CR)	ANALYSIS012 4.48 .021 .007 .68 21.00 1.62 .04 .39 .22 .22 .008 .004 .009 .005	SMS QO ACCEPT 13 7-12-12	AP.	SHAW POWER R Z U 2013

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN HAS BEEN MADE AND TESTED IN ACCORDANCE WITH THE LISTED SPECIFICATION(S) AND THAT THE RESULTS OF ALL TESTS ARE ACCEPTABLE.

JAMES DOUBMAN, QUALITY ASSURANCE MANAGER

ou Stabless Flate, he CERTIFICATE IN CONFORMANCE WITH EW10204-95 3.1.3/EM10204-2004 3.1 P.O. Box 370



NDE RESULT RECORD						Sun	P	age 1 of 2
REPORT OF NONDESTRUCTIVE EXAMINATION								
Customer Outokumpu	On the Control of the				Date 04/12	2/12	1	
PO BOX 370, 549 W State	te Rd 38 I	New Castle	,IN 47362		Control 2955	No. or Report No.		
Job or Project Location New Castle, Indiana Pla	P	28862B	Owner: Shaw Mod			ons	an or Drawing No N/A	
Surface Condition SMOOTH		9 (800,000	E BELOW	Heat T	reat N/A	Τχ	pe of Material 2101CO	Temp of Material 65°F
Type of Examination UT (Shearwave)	Examination	Standard A577-90	Acceptance Star ASTM A57			1 000	DT Procedure No.	. II-U Rev.5
ORDER NO; HEAT		Acc	Rej	make the same of t	ct Code		Remarks	7. 11-0 INEV.3
278834 853731	-4A	X					00" X 124"	
278834 853735	i-3A	Х				.5	00" X 124"	X 372"
								N. A.
278834 853732	2-3A#	Х				.6.	25" X 117"	X 410"
								and the state of t
								Han
and the second s							120	WED
							APR	2 0 2013
							70	- 0 2013
							00	5
			-					
					N/	f Items Rejected	· · · · · · · · · · · · · · · · · · ·	
-0	Type of Wo	TK I	No of Items Accept	iea	IND O	-0-		The state of the s
Remarks: The plate	es listed a	above were	e Ultrasonio	teste	d for	indications	in accorda	nce with
listed standards and pro	cedures	u						
			4 5 4 47		_ 5 ** -	. 1		35_'d\$
Conclusion: No recordable	e indicati	ons were r	noted at the	time	or this	s inspectio	n on plates	listed
above.						AUDIT		
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Client Baroannal		Tachnician	D-2 1	تجترا		SNT-TC-1A	Level III	Ultrasonic
Client Personnel			David Klir	ngstein		0141-10-18	r FCACI III	URIASUING
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5MS Q_C ACCEPT 7-19-12



REVILLIA					
Facility QC Control No. 295585	Technique No.	Master			
Client Outokumpu Inc.	P.O. No. 288	362 B	mtour stars.		
Item Description Steel Plate					
Part No. N/A	Drawing No. N/	A			
Specification ASTM A577-90	Acceptance	ASTM A57	7-90		
Procedure SP-UT-1 App II-U Rev.5		***************************************			
WELDS .	OTHER	TEST ITEMS			
Weld Joint N/A		Plate			
Weld Process N/A	Processing Rolled	Na tanàna mandria dia kaominina dia kaominina dia kaominina dia kaominina dia kaominina dia kaominina dia kaomi			
Base Material N/A	Material 2101CO				
Material Thickness N/A	Dimensions See Pa	age 1	- Contract of the Contract of		
Weld Length/OD N/A	Additional Info N/A	· · · · · · · · · · · · · · · · · · ·	to the first state of the state		
Surface Condition N/A		Smooth			
PRECLEAN: Method N/A	Material N/A	Batch			
EQUIPMENT: Make Krautkramer	Model USN 60	S/N	-A-Marian Marian		
PRESENTATION X A-SCAN	B-SCAN	C-	SCAN		
TRANSDUCERS:		- 6 · .			
Make GE Model Benchmark S/N					
	laterial Ceramic		ency 2.25 MHz		
	nufacturer N/A		No. NA		
CALIBRATION BLOCK: Type Notch	Material 2101C	THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER.	I N/A		
		Nater Column			
		Through Transi	mission		
SCANNING: X Manual	Automatic	2/ 2			
Pattern 100% Scan POST CLEAN: Method N/A	ning Speed < 6"Per/Se	ec. %.Over	lap 10%		
OTHER INFORMATION:					
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Prepared By:	Approved by:	Date			
David B. Klingstein	N/A	04/12/12	PAGE 2 OF 2		
David B. Klingstein					

4-13-12



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Customer Date Outokumpu 04/12/12									
Address PO BOX 370, 549 W Stat	e Rd 38 Ne	w Castle	IN 47362			I No. or Report	No.		news and the second
Job or Project Location	PO	No:	Owner:				Plan or Draw		
New Castle, Indiana Plan Surface Condition	18 28	3862B Heat	Shaw N	IOGUI Heat T		lutions	Type of Mate	N/A	Temp of Material
SMOOTH Type of Examination	Examination Sta		E BELOW Acceptance Stan		N/A		2101C	co	65°F
UT (STRAIGHT BEAM)	ASTM A5		ASTM A57		Level	B S1			. II-U Rev.5
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Conclusion: No recordable	indication	0 11/020 20	stad at the	in a	-£44:	·inomonéi		_5 13	
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Client Personnel	Te	echnician_	0 1 - 9 K	التوليد		SNT-TC-	1A Level	111	Ultrasonic
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Technique No. Master	ACUREN						
Client	Facility QC Control No. 295585		Technique No.	Master			
Item Description Steel Plate Part No. N/A Acceptance ASTM A578-07 ASTM A578-07 Acceptance Acceptance							
Part No. N/A Acceptance Specification ASTM A578-07 Level B S1							
Specification		77	Drawing No. N/A	4			
Procedure	Specification ASTM A578-07				I-07 Level B S1		
Weld Joint M/A							
Weld Process N/A Processing Rolled			OTHER	TEST ITEMS			
Base Material N/A Material 2101CO	Weld Joint N/A			Plate	•		
Base Material N/A Material 2101CO	Weld Process N/A	Pr	ocessing Rolled				
Weld Length/OD N/A Surface Condition N/A Surface Condition Smooth	Base Material N/A		aterial 2101CO				
Surface Condition	Material Thickness N/A	Di	mensions See.Pa	ige 1			
PRECLEAN: Method M/A Material N/A Batch No. N/A	Weld Length/OD N/A	Ad	Iditional Info N/A				
EQUIPMENT: Make Krautkramer Model USN 60 S/N 00R5W2 PRESENTATION X A-SCAN B-SCAN C-SCAN TRANSDUCERS: Make Panamet Model A 420 S/N 263733 Sound Beam Angle (Material) 0° Crystal Size 1" Dia. Crystal Material Ceramic Frequency 2.25 MHz COUPLANT: Material Water Manufacturer N/A Batch No. N/A CALIBRATION BLOCK: Type Notch Material 2101CO S/N N/A METHOD X Contact Immersion Water Column X Pulse Echo Resonance Through Transmission SCANNING: X Manual Automatic Pattern 100% Scanning Speed ≤6"Per/Sec. % Overlap 10% OTHER INFORMATION: Prepared By: Approved by: Date 04/12/12 PAGE 2 OF 2	Surface Condition N/A	Su	Inface Condition S	Smooth-			
PRESENTATION X A-SCAN B-SCAN C-SCAN TRANSDUCERS: Make Panamet Model A 420 S/N 263733 Sound Beam Angle (Material) 0° Crystal Size 1" Dia. Crystal Material Ceramic Frequency 2.25 MHz COUPLANT: Material Water Manufacturer N/A Batch No. N/A CALIBRATION BLOCK: Type Notch Material 2101CO S/N N/A METHOD X Contact Immersion Water Column X Pulse Echo Resonance Through Transmission SCANNING: X Manual Automatic Pattern 100% Scanning Speed < 6"Per/Sec. % Overlap 10% OTHER INFORMATION: Pattern 10% Automatic OTHER INFORMATION: Date Pattern 10% Prepared By: Approved by: Date Page 2 OF 2	PRECLEAN: Method N/A	M	aterial N/A	Batch	No. N/A		
TRANSDUCERS: Make Panamet Model A 420 S/N 263733 Sound Beam Angle (Material) 0° Crystal Size 1" Dia. Crystal Material Ceramic Frequency 2.25 MHz COUPLANT: Material Water Manufacturer N/A Batch No. N/A CALIBRATION BLOCK: Type Notch Material 2101CO S/N N/A METHOD X Contact Immersion Water Column X Pulse Echo Resonance Through Transmission SCANNING: X Manual Automatic Scanning Speed <6"Per/Sec. % Overlap 10% POST CLEAN: Method N/A OTHER INFORMATION: Prepared By: Approved by: Date O4/12/12 PAGE 2 OF 2		M	odel USN 60	S/N	.00R5W2		
Make Pahamet Model A 420 S/N 263733 Sound Beam Angle (Material) 0°			B-SCAN	C-	SCAN		
Crystal Size							
COUPLANT: Material Water Manufacturer N/A Batch No. N/A CALIBRATION BLOCK: Type Notch Material 2101CO S/N N/A METHOD X Contact Immersion Water Column X Pulse Echo Resonance Through Transmission SCANNING: X Manual Pattern Automatic POST CLEAN: Method N/A Scanning Speed <6"Per/Sec.							
CALIBRATION BLOCK: Type Notch Material 2101CO S/N N/A METHOD X Contact Immersion Water Column X Pulse Echo Resonance Through Transmission SCANNING: X Manual Pattern 100% Method N/A POST CLEAN: Method N/A OTHER INFORMATION: Pattern 100% ACCEPT 13 7-19-1Z Prepared By: Approved by: N/A Approved by: N/A Approved by: Date 04/12/12 PAGE 2 OF 2							
METHOD X Contact Immersion Water Column X Pulse Echo Resonance Through Transmission SCANNING: X Manual Automatic Pattern 100% Scanning Speed < 6"Per/Sec. % Overlap 10% Overlap 10%		Manufa					
X Pulse Echo Resonance Through Transmission					N/A		
SCANNING: X Manual Automatic Pattern 100% Scanning Speed <6*Per/Sec. % Overlap 10% POST CLEAN: Method N/A OTHER INFORMATION: SMS Q ACCEPT 13 7-19-17 Prepared By: Approved by: N/A Approved by: Date 04/12/12 PAGE 2 OF 2	METHOD X Contact	Immers	ion V	Vater Column			
Pattern 100% Scanning Speed <6"Per/Sec. % Overlap 10% OTHER INFORMATION: SMS Q ACCEPT 13 7-19-17 Approved by: N/A Approved by: N/A Approved by: N/A Approved by: Page 2 OF 2	X Pulse Echo	Resona	ance T	hrough Transr	mission		
Prepared By: Method N/A OTHER INFORMATION: SMS Q ACCEPT 13 7-19-17 Approved by: N/A Approved by: N/A Date 04/12/12 PAGE 2 OF 2	SCANNING: X Manual		Automatic				
OTHER INFORMATION: SMS QC ACCEPT 13 7-19-17 Prepared By: Approved by: N/A Approved by: N/A Date 04/12/12 PAGE 2 OF 2		canning	Speed < 6"Per/Se	ec. % Overl	<u>ap 10%</u>		
Prepared By: SHAW POWER APR 2 0 2013 7-19-17 Approved by: N/A Date 04/12/12 PAGE 2 OF 2							
7-19-17. Prepared By: Approved by: N/A Date 04/12/12 PAGE 2 OF 2	OTHER INFORMATION:						
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7-19-17. Prepared By: Approved by: N/A Date 04/12/12 PAGE 2 OF 2							
7-19-17. Prepared By: Approved by: N/A Date 04/12/12 PAGE 2 OF 2							
7-19-17. Prepared By: Approved by: N/A Date 04/12/12 PAGE 2 OF 2	c)	MS a			SHAW		
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7-19-17. Prepared By: Approved by: N/A Date 04/12/12 PAGE 2 OF 2		13			20 2013		
Prepared By: Approved by: N/A Date N/A 04/12/12 PAGE 2 OF 2	7.4	7					
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N/A 04/12/12 PAGE 2 OF 2	Prepared By:	A	pproved by:	Date			
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INDUSTRIAL TESTING LABORATORY SERVICES, LLC 635 Alpha Drive – RIDC Park

Pittsburgh, PA 15238 Phone: 412.963.1900 Fax: 412.963.1926 e-mail: info@itls.com website: itls.com

TEST REPORT L19844 June 11, 2012

Purchase Order No: 694689-000 OP

To:

Shaw Modular Solutions LLC 3191 West Lincoln Road

Lake Charles, LA 70605

Attn:

Nick Koseski

Sample Received:

ITLS received four (4) samples for Chemical, Mechanical, Hardness, Impact, Ferrite and Intergranular Corrosion evaluation, identified as follows:

Sample #	Heat #	Description	Supplier
1	853844-4A	1.250" thick Duplex Plate	Outokumpu
2	853844-4A	1.250" thick Duplex Plate	Outokumpu
3	854143-2A	0.625" thick Duplex Plate	Outokumpu
4	854143-2A	0.625" thick Duplex Plate	Outokumpu

Acceptance:

Sample #	Test	Acceptance
All	Chemical Analysis	APP-VL52-Z0-023, Rev. 1, ASTM A240-11b (UNS S32101)
All	Mechanical	APP-VL52-Z0-023, Rev. 1, ASTM A240-11b (UNS S32101), A480-11b
All	Rockwell B	ASTM A240-11b (UNS S32101), A480-11b
All .	Ferrite	APP-VL52-Z0-023, Rev. 1, ASTM E562-11, Method A
All	Impact	APP-VL52-Z0-023, Rev. 1, ASTM A923-08, Method B
All	Intergranular Corrosion	ISO 3651-2 Method A

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Page 1 of 5

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



Shaw Modular Solutions, LLC ITLS Report L19844 June 11, 2012

Test References:

Specification	Title
ASTM A751-11	Standard Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products
ASTM A370-12	Standard Test Methods and Definitions for Mechanical Testing of Steel Products
ASTM E8-11	Standard Test Methods for Tension Testing of Metallic Materials
ASTM E140-07	Standard Hardness Conversion Tables for Metals
ASTM E23-07a ^{ε1}	Standard Test Methods for Notched Bar Impact Testing of Metallic Materials
ASTM E3-11	Standard Guide for Preparation of Metallographic Specimens
ASTM E18-08b	Standard Test Methods for Rockwell Hardness of Metallic Materials
ASTM E1245-03 (2008)	Standard Practice for Determining the Inclusion of Second-Phase Constituent Content of Metals by Automatic Image Analysis
ASTM E562-11	Standard Test Method for Determining Volume Fraction by Systematic Manual Point Count

Quality References:

Reference	(+)
10CFR21, 10CFR50.55(e) and 10CFR50 App.B	
ASME NQA-1 - 1994 Basic and Supplementary Requiremen	its
USNRC Regulatory Guide 1.28 Rev. 3	
ITLS QA Manual Rev. 3 dated 06/20/08	
No ITLS subcontractors used for completion of this order	





AMS





Results:

Shaw Modular Solutions, LLC ITLS Report L19844 June 11, 2012

Chemical Analysis - ASTM A751-11 (OES/Leco)

	Composition (wt%)													
Sample #	С	Mn	Р	S	Si	Ni	Cr	Мо	N	Cu	Со	Al	V	Total Others
1	0.032	5.15	0.022	<0.001	0.77	1.40	21.4	0.21	0.21	0.39	0.01	0.01	0.09	0.11
2	0.031	5.07	0.021	<0.001	0.74	1.38	21.4	0.21	0.21	0.38	0.01	0.01	0.09	0.10
3	0.030	5.09	0.018	<0.001	0.86	1.40	21.3	0.21	0.20	0.42	0.01	0.02	0.08	0.09
4	0.028	5.11	0.017	0.001	0.82	1.40	21.3	0.21	0.20	0.43	0.01	0.01	0.09	0.11
Deminst	0.040	4.00	0.040	0.030	1.00	1.35	21.0	0.10	0.20	0.10	0.05	0.10	0.10	0.50
Required	Max	6.00	Max	Max	Max	1.70	22.0	0.80	0.25	0.80	Max	Max	Max	Max

ACCEPTABLE

Impact Test - ASTM A923-08 Method B

Sample #	Temperature (°F)	Absorbed Energy (ft-lbs)
1	-40	21
2	-40	21
3	-4 0	65
4	-40	56
Required	-40	.20 Min

ACCEPTABLE





Page 3 of 5

ISO - 17025 Certified - Mechanical 1938.01; Nondestructive 1938.02



Shaw Modular Solutions, LLC ITLS Report L19844 June 11, 2012

Results (cont):

Ferrite Testing - ASTM E562-11 Method A

Sample #	Ferrite (%)
1	50 .
2	50
3	51
4	49
Required	40 - 60%

Ferrite volume fraction tested with Image Analysis per ASTM E1245-03(2008). ASTM E562 offers the use of ASTM E1245 to determine the same measurements.

ACCEPTABLE

Mechanical Properties - ASTM E8-11 (Flat/Round) & ASTM E18-08b (HRB)

Sample #	Test Temp (°F)	Initial Dimensions (in)	Initial Area (in²)	*Yield Strength (ksi)	Tensile Strength (ksi)	Elongation (%) in 2"	Hardness HRB** (Avg. of 3)
1	Room	0.499 dia.	0.1956	74	99	42	96
2	Room	0.499 dia.	0.1956	75	98	44	95
3	Room	0.501 x 0.660	0.3307	70	99	44	95
4	Room	0.502 x 0.672	0.3373	72	100	44	96
	Red	quired	ii.	65	94	30	290 HBW
		quirou		Min	Min	Min	Max

^{*}Yield calculated at 0.20% offset

ACCEPTABLE

**Customer requested hardness in Rockwell B. All measured values were between 95 and 96 HRB which is approximately equal to Brinell 210 to 226 based on ASTM E140 Tables 2 and 5. These values are well below the specified max of 290 HBW and are therefore acceptable.







Shaw Modular Solutions, LLC ITLS Report L19844 June 11, 2012

Results (cont.):

Intergranular Corrosion Test - ISO 3651-2 Method A

Sample #	Bend Radius	Bend	Result
1	1T	90°	Accept - No Cracking Observed
2	1T	90°	Accept – No Cracking Observed
3	. 1T	90°	Accept - No Cracking Observed
4	1T	90°	Accept - No Cracking Observed
Required	, 1T	90°	No Cracking @ 10X

ACCEPTABLE

This certification affirms that the contents are correct and accurate, and that the test operations performed by Industrial Testing Laboratory Services are in compliance with the material specification, ITLS Quality Assurance Manual Rev. 3 dated 6/20/2008, ASME NQA-1 1994, Regulatory Guide 1.28, 10 CFR 50 App. B, 10 CFR Part 21 and any additional requirements of SMS Purchase Order # 694689. Test Results comply with the PO required material specification(s) as noted below.

All Samples: ACCEPTABLE

Signature

Date 6/11/2012

Electronic Copy - Original and Signed Report Located at ITLS





INDUSTRIAL TESTING LABORATORY SERVICES, LLC 635 Alpha Drive – RIDC Park

Pittsburgh, PA 15238 Phone: 412.963.1900 Fax: 412.963.1926 e-mail: info@itls.com website: itls.com

TEST REPORT L20474 August 30, 2012

Purchase Order No: 694689-000 OP

To:

Shaw Modular Solutions LLC 3191 West Lincoln Road Lake Charles, LA 70605

Attn:

Nick Koseski

ACCEPT 3

SHAW POWER

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Sample Received:

ITLS received one (1) sample for Chemical, Mechanical, Hardness, Impact, Ferrite and Intergranular Corrosion evaluation, identified as follows:

Sample #	Heat #	Description	Supplier
1	854385-1A	0.625" thick Duplex Plate	Outokumpu

Acceptance:

Sample #	Test	Acceptance
All	Chemical Analysis	APP-VL52-Z0-023, Rev. 1, ASTM A240-11b (UNS S32101)
All	Mechanical	APP-VL52-Z0-023, Rev. 1, ASTM A240-11b (UNS S32101), A480-11b
All	Rockwell B	ASTM A240-11b (UNS S32101), A480-11b
All	Ferrite	APP-VL52-Z0-023, Rev. 1, ASTM E562-11, Method A
All	Impact	APP-VL52-Z0-023, Rev. 1, ASTM A923-08, Method B
All	Intergranular Corrosion	ISO 3651-2 Method A



Shaw Modular Solutions, LLC ITLS Report L20474 August 30, 2012

Test References:

Specification	Title
ASTM A751-11	Standard Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products
ASTM A370-12	Standard Test Methods and Definitions for Mechanical Testing of Steel Products
ASTM E8-11	Standard Test Methods for Tension Testing of Metallic Materials
ASTM E140-07	Standard Hardness Conversion Tables for Metals
ASTM E23-07a ^{ε1}	Standard Test Methods for Notched Bar Impact Testing of Metallic Materials
ASTM E3-11	Standard Guide for Preparation of Metallographic Specimens
ASTM E18-11	Standard Test Methods for Rockwell Hardness of Metallic Materials
ASTM E1245-03 (2008)	Standard Practice for Determining the Inclusion of Second-Phase Constituent Content of Metals by Automatic Image Analysis
ASTM E562-11	Standard Test Method for Determining Volume Fraction by Systematic Manual Point Count

Quality References:

Reference
10CFR21, 10CFR50.55(e) and 10CFR50 App.B
ASME NQA-1 – 1994 Basic and Supplementary Requirements
USNRC Regulatory Guide 1.28 Rev. 3
ITLS QA Manual Rev. 4 dated 12/3/11
No ITLS subcontractors used for completion of this order







Results:

Shaw Modular Solutions, LLC ITLS Report L20474 August 30, 2012

Chemical Analysis - ASTM A751-11 (OES/Leco)

						Co	mpositi	on (wt%))					
Sample #	С	Mn	Р	S	Si	Ni	Cr	Мо	N	Cu	Co*	AI*	V*	Total Others*
1	0.030	5.17	0.020	<0.002	0.55	1.47	21.9	0.22	0.22	0.38	0.01	0.01	0.08	0.10
Required	0.040 Max	4.00 6.00	0.040 Max	0.030 Max	1.00 Max	1.35 1.70	21.0 22.0	0.10 0.80	0.20 0.25	0.10 0.80	0.05 Max	0.10 Max	0.10 Max	0.50 Max

^{*}Note: Customer-supplied requirement

ACCEPTABLE

Impact Test - ASTM A923-08 Method B

Sample #	Temperature (°F)	Absorbed Energy (ft-lbs)		
1	-40	91		
Required	-40 or below	20 Min		

ACCEPTABLE

Intergranular Corrosion Test – ISO 3651-2 Method A

Sample #	Sample # Bend Radius		Result
1	1 1T		Accept – No Cracking Observed
Required	1T	90°	No Cracking @ 10X

ACCEPTABLE







Shaw Modular Solutions, LLC ITLS Report L20474 August 30, 2012

Results (cont):

Ferrite Testing - ASTM E562-11 Method A

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Sample #	Ferrite (%)
1	50
Required	40 - 60%

Ferrite volume fraction tested with Image Analysis per ASTM E1245-03(2008). ASTM E562 offers the use of ASTM E1245 to determine the same measurements.

ACCEPTABLE

Mechanical Properties - ASTM E8-11 (flat) & ASTM E18-11 (HRB)

Sample #	Test Temp (°F)	Initial Dimensions (in)	Initial Area (in²)	*Yield Strength (ksi)	Tensile Strength (ksi)	Elongation (%) in 2"	Hardness HRB** (Avg. of 3)
1	Room	0.499 x 0.662	0.3303	71	100	51	100
	Pag	ruired		65	94	30	290 HBW
Required				Min	Min	Min	Max

^{*}Yield calculated at 0.20% offset

ACCEPTABLE

**Customer requested hardness in Rockwell B. All measured values were 100 HRB which is approximately equal to Brinell 240 to 256 based on ASTM E140 Tables 2 and 5. These values are well below the specified max of 290 HBW and are therefore acceptable.

This certification affirms that the contents are correct and accurate, and that the test operations performed by Industrial Testing Laboratory Services are in compliance with the material specification, ITLS Quality Assurance Manual Rev. 4 dated 12/3/11, ASME NQA-1 1994, Regulatory Guide 1.28, 10 CFR 50 App. B, 10 CFR Part 21 and any additional requirements of SMS Purchase Order # 694689. Test Results comply with the PO required material specification(s) as noted below.

All Samples ACCEPTABLE

Signature

Date 8/30/2012

Electronic Copy - Original and Signed Report Located at ITLS

Page 4 of 4