

FORM U-1A

Manufactured by KW International, LLC.
Manufacturer's Serial No. 109133 CRN --- National Board No. 5312

CERTIFICATE OF SHOP/FIELD COMPLIANCE

We certify that the statements made in this report are correct and that all details of design, material, construction and workmanship of this vessel conform to the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. "U" Certificate of Authorization Number 43,196 expires May 14, 2024.
Date 7/5/23 Co. Name KW International, LLC. Signed [Signature]
(Manufacturer) (Representative)

CERTIFICATE OF SHOP/FIELD INSPECTION

Vessel constructed by KW International, LLC. at 200 Texas Avenue Columbus, Texas 78934
I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and employed by Authorized Inspection Associates, LLC of Houston, Texas
have inspected the component described in this Manufacturer's Data Report on 7/5/23, and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.
Date 11 JUL 23 Signed [Signature] Commissions NB124908P
(Authorized Inspector) (National Board Authorized Inspector Commission number)

SM

NE

5312

CERTIFIED BY



Setting the New STANDARD

KWI INTERNATIONAL
www.kwiintl.com

FOR SERVICE AND PARTS:
1-844-594-3324

U

RT

M.A.W.P.

500

PSI

AT

200

°F

M.T.M.T.

-20

°F

AT

500

PS

TEST PRESSURE

650

PS

YEAR BUILT

2023

ORDER NO.

16992

TAG NO.

SERIAL NO.

109133

DWG. NO.

SEP-H702L0

REV

48" C.A. X 10" H. FL. BRASS PAR. C.

C.A. 7/8"

FORM U-2A MANUFACTURER'S PARTIAL DATA REPORT (ALTERNATIVE FORM)
A Part of a Pressure Vessel Fabricated by One Manufacturer for Another Manufacturer
As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

1. Manufactured and certified by Absolute Metal Products, LLC
7708 Gessner Road, Houston, Texas 77040 USA

2. Manufactured for KW International, 200 Texas Ave., Columbus, TX 79834 USA

3. Location of installation Unknown

4. Type Shell 14509-1.1 thru 14509.1-9
(ASME Section VIII, Division 1, Subpart 1) (ASME Section VIII, Division 1) (ASME Section VIII, Division 1)

2023
(ASME Section VIII, Division 1)

5. ASME Code, Section VIII, Div 1 2021
(ASME Section VIII, Division 1) (ASME Section VIII, Division 1) (ASME Section VIII, Division 1)

6. Shell (a) Number of course(s) 1 (b) Overall length 120"

No.	Course(s)		Material		Thickness		Long Joint (Cat A)			Circum. Joint (Cat A, B & C)			Heat Treatment	
	Diameter	Length	Spec./Grade or Type	Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time	
1	48"OD	120"	SA516-70AR	3/4"	-	1	Full							

Body Flanges on Shell													
No.	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Location	Bolting				
									Num & Size	Bolting Material	Washer (OD, ID, Thk)	Washer Material	

7. Heads: (a) (b)
(Material, grade or type) (Design) (Material, grade or type) (Design)

Location (Top, Bottom, Ends)	Thickness		Radius		Elliptical Ratio	Conical Apex Angle	Hemis. Radius	Flat Diameter	Side to Pressure		Category A		
	Min.	Corr.	Crown	Knuckle					Convex	Concave	Type	Full, Spot, None	Eff.
(a)													
(b)													

Body Flanges on Heads													
Location	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Bolting					
								Num & Size	Bolting Material	Washer (OD, ID, thk)	Washer Material		
(a)													
(b)													

8. MAWP at max. temp. Min design metal temp. at
(Design) (Design) (Design) (Design)

9. Impact Test NO at test temperature of
(Indicate type and the corresponding impact test)

10. Hydro., pneu., or comb. Test pressure NONE Proof test

11. Nozzles, inspection, and safety valve openings

Purpose (Inlet, Outlet, Drain, Etc.)	No.	Diameter or Size	Type	Material		Nozzle Thickness		Reinforcement Material	Attachment Details		Location (inspc. Open)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	

12. Identification of Part(s)

Name of Part	Quantity	Line No.	Mfr's. Identification No.	Mfr's. Drawing No.	CRN	National Board No.	Year Built

13. Supports: Skirt No Lugs Legs Other Attached
(ASME Section VIII, Division 1) (ASME Section VIII, Division 1)

14. Remarks: No design functions performed by Absolute Metal Products LLC.

FORM U-2A

Manufactured by Absolute Metal Products, LLC

Manufacturer's Serial No. 14509-1 1 thru 14509-1-9 CRN National Board No.

CERTIFICATE OF SHOP/FIELD COMPLIANCE

We certify that the statements made in this report are correct and that all details of material, construction, and workmanship of this pressure vessel part conform to the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1.

U or PRT Certificate of Authorization No. 52,928 Expires 4/1/2025

Date 07 March 2023 Name Absolute Metal Products, LLC Signed [Signature]

CERTIFICATE OF SHOP/FIELD INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and employed by Authorized Inspection Associates, LLC of Houston, TX

have inspected the pressure vessel part described in this Manufacturer's Data Report on 3/7/2023 and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel part in accordance with ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. By Signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or implied, concerning the pressure vessel part described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date 3/7/2023 Signed James Hulston Commissions NB15475BR

MAILING ADDRESS
 P.O. Box 1690
 Gray, LA 70359
 Locations Nationwide
 please visit
 www.nviindt.com



Done Right!

DAILY RADIOGRAPHY WORK REPORT

2449 West Park Ave. Gray,
 Louisiana 70359
 Office (985)876-5559
 Fax (985)876-9355
 Report No: RG-202-6508
 Page 1 of 1

Client: ABSOLUTE METAL PRODUCTS, LLC	Job Location: Houston, TX	Inspection Date: Mar 05, 2023
Billing Address: 7208 GESSNER ROAD HOUSTON TX 77040	NVI Project #: 002314	Ref: N/A
	AFE# or P.O. #: AMP700JF	Project: KWI
	NVI Procedure: NVI-ASME-RT-01 Rev. 5 (Film Radiography RT-ASME Sec. V)	Acceptance Code: ASME Sec VIII Div. 1
	Customer Job No: 14509	

Discontinuities found: None
 Please indicate repair with client required nomenclature or with "Repair" in Remarks ✓ = Accept X = Reject

Report Description: Gamma Radiography of 75" x 48" OD x 120" Cylinder (Long Seam)

Weld No	Area	Pipe Size	Recommendations				Weld No	Area	Pipe Size	Recommendations			
			✓	Discont	WS	Remarks				✓	Discont	WS	Remarks
1	1-4	.75" x 48" OD x 120"	✓		7		26						
2		0-1-2	✓				27						
3		2-3-4	✓				28						
4		4-5-6	✓				29						
5		6-7-8	✓				30						
6		8-9-10	✓				31						
7		10-11-12	✓				32						
8		12-13-14	✓				33						
9		14-15-16	✓				34						
10		16-17-18	✓				35						
11		18-19-20	✓				36						
12							37						
13							38						
14							39						
15							40						
16							41						
17							42						
18							43						
19							44						
20							45						
21							46						
22							47						
23							48						
24							49						
25							50						

Technique: DWE/SWV	DWE/DWV	SWE/SWV ✓	Panoramic	SOD: 19.125	CFD: 876
Exposure Method: IR-192	Curies: 89.0	Ug: 006	Focal Size: 176	Welds Inspected: 1	Exposures per weld: 10
Estimated Cost: 0.00	Paint Sticks: 0.0	Chemical Change: No	Rig Number: 620	Camera Number: D11374	
Film Delivered To Client	Films in Cassette: 1.0	Film Storage Box: 0.0	<i>Chase Jones</i> Level II Technician: Chase Jones Assistant: Daniel Moreno Assistant Assistant		
Manufacturer: AGFA	Film Type: D5	Film Size: 4.5 X 17			
Penetrometer Type: ASTM (SE) E-747 B PACK	Required Wire: BB 016	Achieved Wire: BB 016			
Hours Worked: 0.0	Travel Time: 0.0	Mileage: 0.0	Per Diem: No	ATV: No	
Generator: No	Darkroom: Yes	Time:			
Comments: 10 Shots @ 4.5" x 17"					
Client Representative: Johnny Fortenberry QC Manager		Client Email: jfortenberry@absolutemetalusa.com		Client Phone Number: 2818988471	

Client Signature: *Johnny Fortenberry QC*



JSW Steel (USA) INC.
5200, East McKinney Road,
BAYTOWN, TX 77523

METALLURGICAL TEST REPORT

Document MET - 04 Rev. No.: 4 Rev. Date: 08/16/22

MTR Rev. 0 2/14/2023

Bulletin	Order Item	Heat	PO No.	Shipping Mode	Order Dimensions	Slab Origin	TC No.
T132501	JSW21964-02	S32155	15932	TRUCK	0.75x120.5x450		T132501-2155-1

Plates Certified for the Following grades	Specifications	Marking Instructions
ASME-SA516-70 2021 EDITION AR Hot Filled Carbon Steel Plates Plates Manufactured In the USA		Stencil in 2 location(s); X Loc. 18 Y Loc. 30; CUST: MADEINUSA PN PO DIM GRADE; FREIGHT ORDER ITEM PLATE ID SHIPWEEK SLAB ID TRANSMODE Stamp in 2 location(s); X Loc. 18 Y Loc. 12, Slab ID; Slab ID; Slab ID
Sold To: ABSOLUTE METAL PRODUCTS LLC 7208 GESSNER ROAD HOUSTON, TX 77040 Ship To: ABSOLUTE METAL PRODUCTS LLC 7208 GESSNER ROAD HOUSTON, TX 77040	Complies with ASME SA516 2021	

Test	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Sn	Al	N	V	B	Ti	Nb	Ca	CE
LA0LE	0.19	1.13	0.013	0.002	0.20	0.030	0.010	0.020	0.000	0.002	0.033	0.0040	0.004	0.0003	0.002	0.003	0.0000	0.39

Carbon Equivalent: CE = C + Mn/6 + (Cr + Mo + V)/5 + (Ni + Cu)/15
 PCM = C + Si/30 + Mn/20 + Cu/20 + Ni/60 + Cr/20 + Mo/15 + V/10 + B
 AWS = C + (Mn-Si)/6 + (Cr + Mo + V)/5 + (Ni + Cu)/15

Plate Tested	Smpl. Loc.	Slab Identity	Gauge Tested	Test Cond	Test Dir.	Yield Point (KSI)	Ten. Stgth. (KSI)	Elong in 2"	VS/UTS Ratio	Yield Strength Determined At
1284835	A	03A	0.7500	AR	T	44	75	37.0%	0.58	0.2%
1284837	A	11A	0.7500	AR	T	50	77	34.0%	0.64	0.2%

HARDNESS								Hardness Spec.
Plate	Loc.	Hardness Scale	Test1	Test2	Test3	Avg	Batch	
1284835	A	ROCKWELL C	2	4	2	3		NACE MR0175
1284837	A	ROCKWELL C	8	6	8	7		NACE MR0175

Plates Certified For The Above Tests

Material	Thick(IN)	Width(IN)	Len(IN)	Wgt(LB)	Material	Thick(IN)	Width(IN)	Len(IN)	Wgt(LB)
1284836A	0.7500	120.500	450.00	11533.658	1284837A	0.7500	120.500	450.00	11533.658

Checked by QC Dept.
3-14-23
MK

Formed in accordance with UG-79, UG 80, UCS-79. No heat treat

24/03

S32155-11A
April W

DIN: EN 10204 2004 3.1 This is to certify that the product described herein was manufactured, sampled, and tested in accordance with the specifications and requirements in such specifications. Fine Grain, Si-Al Fully Killed Steel. We certify that delivery of this product with the requirement of the specification and purchase order received from customer. DRC Conflict Free. No intentional addition of Pb, Se, S, Hg or B. JSW Steel USA, Inc is an ISO 9001:2015 certified facility.



APR 20 2023

KW INTERNATIONAL LLC
PO BOX 19829
HOUSTON, TX 77224

Reference Customer P/O: PO31405 TAG: HDELP0531
Trinity Sales Order: 859645

GENTLEMEN:

Attached are copies of mill test reports for the following material provided on referenced purchase order. We certify the following:

22-SA516-70 ELLIP-2:1 HEAD 48.00 OD 1.00 NOM 0.950 MIN WITH 2.0" SF.

CODE	QTY	THICKNESS	PRODUCER	MELT	SLAB	GRADE
TABK	3	1.00	JSW STEEL	S28400	08C1	SA516-70
TABI	1	1.00	JSW STEEL	S27993	01A	SA516-70
TABL	1	1.00	JSW STEEL	S27992	09B	SA516-70
TCCG	1	1.00	CLEVELAND CLIFFS	821X04120	X067373	SA516-70
TCCH	4	1.00	CLEVELAND CLIFFS	821X04120	X067374	SA516-70
TCCA	3	1.00	CLEVELAND CLIFFS	821X00720	X067363	SA516-70
TCDA	3	1.00	CLEVELAND CLIFFS	821X00740	X067316	SA516-70
TCCB	3	1.00	CLEVELAND CLIFFS	821X00720	X067364	SA516-70
TCEC	2	1.00	CLEVELAND CLIFFS	821X05220	X068690	SA516-70
TBAR	1	1.00	JSW STEEL	S30770	03A	SA516-70

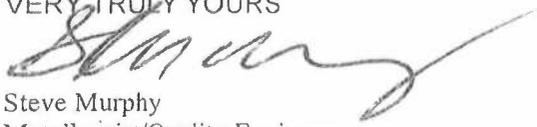
TRINITY HEADS, INC certifies that heads manufactured from material represented by this report were normalized during forming at 1650F (+/-25F) for 30 minutes and air cooled.

The items listed above were formed in strict accordance with all applicable requirements of the ASME Boiler and Pressure Vessel Code Section VIII, Div. 1. All heads comply with UG-79 and UG-81.

Attached mill test reports are in compliance to ASME Code Section II current edition.

If you have further questions, please contact your customer service representative in Navasota, TX at 1-800-392-3594.

VERY TRULY YOURS


Steve Murphy
Metallurgist/Quality Engineer

Checked by QC Dept.

APR 20 2023

ad



Cleveland-Cliffs Bums Harbor LLC

QUALITY ASSURANCE

REPORT OF TEST AND ANALYSIS

SHIPMENT NO 803-87340	DATE SHIPPED 01-31-22	CAR OR VEHICLE NO LMIC 200026	PAGE 2
TRINITY IND INC HEAD DIV 11765 HWY 6 PO BOX NAVASOTA TX 77868	TRINITY IND INC 11765 HWY 6 S NAVASOTA TX 77868		

SERIAL NUMBER	PAT NO	HEAT NUMBER	NO PCS	SIZE AND QUANTITY			WEIGHT	YIELD POINT	TENSILE STRENGTH	AF FRAC ELONG	RED
				THICKNESS	WIDTH OR DIA	LENGTH					

QUALITY STEEL MELTED & MANUFACTURED IN THE U. S. A.

PLATES - ASME SA516 21ED Grade 70; PVQ
Killed Fine Grain Practice; MOD C
0.20 Max, C U 0.25 Max, SN 0.025
Max; Plate: AS-ROLLED; Test: NORM
1625/1675F FOR 30MIN /IN
30MINS/MIN; FIRST TST AS
ROLLED-ADD'L TENSION PER TST PC
HEAT TREATMENT

NO WELD REPAIR WAS PERFORMED ON BELOW PLATE(S)

CO# 404872 GH 822-1608C

X067363	821X00720	1	1	122.5	245	8512	49100	76900	8	34
							51400	77200	8	30

(M55)MFST REF#:HP1537

X067316	521X00740	2	1	122.5	245	17024	48300	74600	8	27
							49200	74500	8	29

(M55)MFST REF#:HP1537

TCCA
TCCA

Q-QUENCH TEMPERATURE	T-TEMPER TEMPERATURE	N-NORMALIZE TEMPERATURE
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HEAT NUMBER IS USED AS CERTIFICATE NUMBER; ORIGIN/EXPORT COUNTRY IS USA.
PLEASE DIRECT IMPORT QUESTIONS TO NICOLE.MINOR@CLEVELANDCLIFFS.COM,
14661 ROTUNDA DRIVE, DEARBORN MI 48120; TEL +1(313)317-0946

SERIAL NUMBER	PAT NO	HEAT NUMBER	HARD BHN	BEND	THICKNESS INCHES	TYPE	SIZE	DIR	TEST TEMP F	ENERGY	CHARPY IMPACT			LAT EXP			MIL		
											FT	LBS		1	2	3	1	2	3

HT.# 001
MTR APPROVED [Signature]
DATE 01/31/2022
ISP [Signature]
QUALITY CONTROL DEPT.

HEAT NUMBER	CHEMICAL ANALYSIS														MQUAID GRAIN SIZE
	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V	Ti	Al	B	Cb	

821X00720	.18	1.13	.017	.004	.331	.019	.02	.13	.038	.002	.002	.034	.0002	.002	.005	.001
821X00740	.18	1.22	.012	.008	.361	.023	.01	.13	.039	.002	.002	.036	.0002	.002	.004	.004

Checked by QC Dept.

4 FEB 2023

I certify that the above results are a true and correct copy of actual results contained in records maintained by Cleveland-Cliffs Bums Harbor LLC and are in full compliance with the requirements of the specification cited above. This test report cannot be altered and must be transmitted intact with any subsequent third party test reports, if required.

CUSTOMER: Trinity/Nextera DATE: 5/9/23
 S/O #: 16992 S/N #: 109133
 DESCRIPTION OF VESSEL: 48" OD x 10' H 3 Ph Sep'r. RT-1 Internal Coating

NOZZLE	HEAT	WELD	WELDER
Shell	S32155	sn.14509-1-4	AMP
Ref. Hd.	TCCA	RS#1	F,51
Left Hd.	TCDA	RS#2	F,V
N1 6" 600# RFLWN	C09-KD		O
N2 6" 300# RFLWN	43329A		O
N3 4" 300# RFLWN	21115A		51
N4 4" 300# RFLWN	21115A		P
N5A,B,C 2" 300# RFLWN	32711A		51,P
N6A,B 4" 300# RFLWN	WW024, 21115A		V,U
C1 2" 6M CPLG	D628		V
C2 2" 6M CPLG	D628		V
C3 2" 6M CPLG	D628		V
C4A,B 2" 6M CPLG	4T9P		V
C5 2" 6M CPLG	D628		43
C6 1" 6M CPLG	41K		43
C7A,B .75" 6M CPLG	A4M		V
C8A,B .75" 6M CPLG	A4M		V
C9 .75" 6M CPLG	A4M		V
C10 .5" 6M CPLG	D613		43
M1 18" 300# RFLWN	GG341		51
M1 18" 300# RF Bld.	83717/1		-----

Ameriforge

An AFG Holdings Company

Material Test Report

Heat Code: C09-KD

Forged Vessel Connections (FVC)

13770 Industrial Rd. Houston, TX 77015

Sales: (713) 393-4200

PART# FLGRF079I-EXXONAML

ISO 9001:2015 Certified

MSI SUPPLY INC PO BOX 7463 Houston, TX 77248	00012105	PO: 00312-073882	Sales Order: 193228	Line: 1
		Item Code: LWN060600140A002A1	Qty Shipped: 4	
		Item Desc: 6 X 600 X 14 LWN RF SA105N		
		Mill Heat: Y9309		
Spec: ASTM A350 (18) / ASME SA350 (21) - LF2 CL1 & ASTM A105/A105M (21) / ASME SA105/SA105M (21)				

Element	(%wt)	Ladle	Product	EPCRA	CAS#	Element	(%wt)	Ladle	Product	EPCRA	CAS#
C	Carbon	0.16				Mo	Molybdenum	0.03			
Mn	Manganese	1.15		Y	7439-96-5	V	Vanadium	0.02			
P	Phosphorous	0.014				Cb	Columbium	0.014			
S	Sulphur	0.010				B	Boron	0.0002			
Si	Silicon	0.26				Ti	Titanium	0.001		Y	7440-02-0
Cu	Copper	0.18		Y	7440-50-8	Al	Aluminum	0.012			
Ni	Nickel	0.08		Y	7440-02-0	C.E.		0.39			
Cr	Chromium	0.07		Y	7440-47-3						

Mechanical Testing				Heat Treat			
Test Lab	Goolsby Testing Inc 22-3104			Norm. Temp. (F)	1675		
Test Bar Size	5X5X12'			Norm. (Hrs)	5.75		
HBW	143 - 149			Norm. Cooling Type	AIR		
Elg (%)	35.2			Other			
RA (%)	64.2						
Tensile Specimen Size (in)	.498			Country of Melt	USA		
Tensile (ksi)	77.3			Country of Finish Machining	USA		
Yield (ksi)	55.1			Country of Forging	USA		
Gauge Length (in)	2			Vacuum Degassed	YES		
Charpy Orientation	LONGITUDINAL			Gr.Sz	12		
Charpy Temp (F)	-50						
Charpy Specimen Size (mm)	10X10						
Charpy (ft lbs)	31 - 28 - 64						
Avg Energy 3 Specimens (ft)	41						
Min Energy 1 Specimens (ft)	28						
% Shear	10 - 10 - 10						
Lat. Exp. (in)	.027 - .027 - .053						

Checked by QC Dept.

MAY 22 2023

(P.56)

The recording of false, fictitious, or fraudulent statement or entries on this document may be punishable as a felony under federal statute.

EPCRA Supplier Notification: This product may contain one or more toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act (Title III of the Superfund Amendments and Reauthorization Act of 1986) and 40 C.F.R. Part 372. Potentially reportable chemicals are indicated with a checkmark in the "EPCRA" column and a Chemical Abstract Services (CAS) registry number is provided for each such chemical in addition to the percent by weight of the chemical present in this product. It is your responsibility alone to determine whether your facility is required to submit a Toxic Release Inventory Report under EPCRA Section 313.

Certification No.: 1630713

Certification Date: 4/11/2023

Issued By: Shaloron Dunn

Page 1 of 2

This report is issued in compliance with the requirements of EN10204 3.1 / ISO 10474 3.1.b

Material Test Report

Heat Code: CO9-KD

Forged Vessel Connections (FVC)

13770 Industrial Rd. Houston, TX 77015

ISO 9001:2015 Certified

Sales: (713) 393-4200

MSI SUPPLY INC	00012105	PO: 00312-073882	Sales Order: 193228	Line: 1
PO BOX 7463		Item Code: LWN060600140A002A1	Qty Shipped: 4	
Houston, TX 77248		Item Desc: 6 X 600 X 14 LWN RF SA105N		
		Mill Heat: Y9309		
Spec: ASTM A350 (18) / ASME SA350 (21) - LF2 CL1 & ASTM A105/A105M(21) / ASME SA105/SA105M(21)				

Material is Fully Killed; Fine Grain Practice in accordance with SA-29 Paragraph 5.1.

Product compliant with NACE MR0175/ISO 15156-2:2015, Annex A (A.2.1.2, A2.1.3).

Product compliant with NACE MR0103/ISO 17945:2015, Section 13.1.1 and 13.1.3.

We hereby certify that the material represented by this document has been tested and is in conformance with the Purchase Order and Specification Requirements.

- * No Weld repair performed.
 - * Ladle Chemical Analysis results are reported from the raw material suppliers MTR.
 - * Tensile taken from a round specimen. Measurement of elongation after fracture.
 - * Yield strength was determined using the .2% offset method, unless specified.
 - * All material supplied under this order is certified to be free of mercury contamination and no mercury bearing equipment was used in manufacturing, fabrication or testing.
 - * When reported on MTR: Tensile Testing Per ASTM E8; Brinell Hardness Per ASTM E10; Charpy Testing Per ASTM E23
 - * AF Global manufactures materials according to a certified Quality Management System conforming to ISO 9001:2015 and PED certified to 2014/68/EU, Annex 1, Section 4.3.
- Unless otherwise noted on PO, Dimensions of all standard pipe flanges and flange fittings (NPS 1/2 to NPS 24) per ASME B16.5-2020, large diameter steel flanges (NPS 26 to 60) per ASME B16.47-2020, Orifice flanges per ASME B16.36-2020.
- * AFGlobal uses the latest edition of ASTM E29 (Standard practice for using significant digits in test data to determine conformance with specifications), to claim conformance or nonconformance to a specification. When a accept/reject determination is required AFGlobal uses a test uncertainty ratio (TUR) of 1:1 or higher as acceptable.
 - * DNV PED Certificate No 10000425664-PA-ACCREDIA-USA Valid thru December 03, 2023.

Checked by QC Dept.

MAY 22 2023



The recording of false, fictitious, or fraudulent statement or entries on this document may be punishable as a felony under federal statute.

EPCRA Supplier Notification: This product may contain one or more toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act (Title III of the Superfund Amendments and Reauthorization Act of 1986) and 40 C.F.R. Part 372. Potentially reportable chemicals are indicated with a checkmark in the "EPCRA" column and a Chemical Abstract Services (CAS) registry number is provided for each such chemical in addition to the percent by weight of the chemical present in this product. It is your responsibility alone to determine whether your facility is required to submit a Toxic Release Inventory Report under EPCRA Section 313.

Certification No.: 1630713
Certification Date: 4/11/2023
Issued By: Shaloron Dunn


Dusty Bannon - Quality Analyst

with the requirements of EN10204 3.1 / ISO 10474 3.1.b

Page 2 of 2



REPORT # 43329A

PAGE 1 OF 1
REPORT # 43329A

REPORT # 43329A

SOLD / SHIPPED TO: WINNSUPPLY

Item	Quantity	Description
1	11	6" X 300 X 12" LG RF LWN

Heat Number: 43329A
 Material Type: SA105N/SA350LF2CL1

CHEMICAL ANALYSIS

PHYSICAL PROPERTIES

C	.18
Mn	1.28
P	.013
S	.004
Si	.24
Cr	.03
Mo	.01
V	.00
Cu	.02
Ni	.01
Cb(Nb)	.00

Yield PSI	48,900
Tensile PSI	75,600
Elongation %	33.0
Reduction of Area %	68.7
Hardness	156/156 HBW
CVN -50 °F	FT LBS 68/72/69
	% Shear 50/50/50
	MLE .061/.066/.062

Sn	
As	
Sb	
Ti	.00
Al	.03
B	.0003
C E	0.40

MADE TO FINE GRAIN PRACTICE

Heat Treatment	NORMALIZED
Temperature	1706 °F
Time at Temperature	3 HRS
Cooling Media	AIR

Flange dimensions and bolt hole patterns comply with ASME B16.5, B16.47, MSS SP-44. Hub profile for reinforcing nozzles per ASME Section VIII Div. 1 Appendix 2 (Figure 2-4). NO MERCURY, OR RADIOACTIVE SUBSTANCES CAME IN CONTACT WITH THIS MATERIAL DURING MANUFACTURING. NO WELDING PERFORMED. We hereby certify that all test results and process information contained herein are correct and true as contained in the records of the company.

Prepared by: *Cynthia Madrid*
 Name: Cynthia Madrid Title: QA Representative

Checked by QC Dept.

4/21/2023
[Signature]



14527 Smith Rd.
 Humble, Texas 77396
 TEL: (281) 441-4088
 FAX: (281) 441-8899

PAGE: 1 of 1
 REPORT # 23-043145
 DATE: 4/13/2023
 FCI ORDER # 119526
 IAW ASME 2021 ED.

CUSTOMER ORDER # 00312-073849
 SOLD / SHIPPED TO: WINNSUPPLY

PART# FLGRFD723-EXXONAML

IAW EN10204 TYPE 3.1

Item	Quantity	Description
1	33	4" X 300 X 14" LG RF LWN

Heat Number: 21115A
 Material Type: SA105/SA350LF2CL1

CHEMICAL ANALYSIS

PHYSICAL PROPERTIES

C	.17
Mn	1.23
P	.015
S	.002
Si	.25
Cr	.02
Mo	.00
V	.00
Cu	.01
Ni	.01
Cb(Nb)	.00

Yield PSI	48,200
Tensile PSI	74,800
Elongation %	38.1
Reduction of Area %	75.4
Hardness	153/153 HBW
CVN -50 °F	FT LBS 72/60/73
	% Shear 50/50/50
	MLE .081/.054/.063

Sn	
As	
Sb	
Ti	.00
Al	.04
B	.0005
C E	0.38

EFVD
 FULLY KILLED

MADE TO FINE GRAIN PRACTICE

Heat Treatment NORMALIZED
 Temperature 1706 °F
 Time at Temperature 6 HRS
 Cooling Media AIR

Flange dimensions and bolt hole patterns comply with ASME B16.5, B16.47, MSS SP-44. Hub profile for reinforcing nozzles per ASME Section VIII Div. 1 Appendix 2 (Figure 2-4). We hereby certify that all test results and process information contained herein are correct and true as contained in the records of the company.

Prepared by:

Nancy Loos

Name: Nancy Loos

Title: QA Representative

Checked by QC Dept.

MAY 22 2023

14527 Smith Rd.
Houston, Texas 77056
Tel: (281) 251-1088
Fax: (281) 251-1099

PAGE 1 of 1
REPORT # 23-042755
DATE 4/5/2023

FCI ORDER # 119387
IAW ASME 2021 ED.
IAW NACE MR0175 2015Ed

CUSTOMER ORDER # FC2300542
SOLD / SHIPPED TO: FIELD INDUSTRIES

IAW EN10204 TYPE 3.1

Item	Quantity	Description	
3	27	2" X 300 X 7" LG RF LWN, TAG PART# F23LN7NA	PART HBW: 149
4	6	2" X 300 X 7" LG RF LWN, TAG PART# F23LN7NA	PART HBW: 156

Heat Number: 32711A

Material Type: SA105N/SA350LF2CL1

CHEMICAL ANALYSIS

PHYSICAL PROPERTIES

C .19
Mn 1.26
P .008
S .003
Si .25
Cr .03
Mo .01
V .00
Cu .02
Ni .02
Cb(Nb) .00

Yield PSI 47,100
Tensile PSI 72,400
Elongation % 33.2
Reduction of Area % 72.6
Hardness 150/150 HBW
CVN -50 °F FT LBS 70/73/98
% Shear 80/80/80
MLE .064/.068/.085

Sn
As
Sb
Ti .00
Al .03
B .0002
C E 0.41

MADE TO FINE GRAIN PRACTICE

Heat Treatment NORMALIZED
Temperature 1706 °F
Time at Temperature 5 HRS
Cooling Media AIR

Flange dimensions and bolt hole patterns comply with ASME B16.5, B16.47, MSS SP-44. Hub profile for reinforcing nozzles per ASME Section VIII Div. 1 Appendix 2 (Figure 2-4). We hereby certify that all test results and process information contained herein are correct and true as contained in the records of the company.

Prepared by:

Name: Cynthia Madrid

Title: QA Representative

Checked by QC Dept.

4-17-23
AAK



CUSTOMER ORDER # 100-100000
 SOLD / SHIPPED TO: WINNSUPPLY

Item	Quantity	Description
18	17	4" X 300 X 12" LG RF LWN

Heat Number: WW044
 Material Type: SA105N/SA350LF2CL1

CHEMICAL ANALYSIS

PHYSICAL PROPERTIES

C	.19
Mn	1.03
P	.007
S	.005
Si	.22
Cr	.13
Mo	.04
V	.02
Cu	.20
Ni	.10
Cb(Nb)	.00
N	.009
Sn	.009
As	.004
Sb	.003
Ti	.00
Al	.02
B	.0002
C E	0.42

Yield PSI	63,500
Tensile PSI	73,500
Elongation %	34.1
Reduction of Area %	71.1
Hardness	153/153 HBW
CVN -50 °F	FT LBS 57/190/59
	% Shear 50/100/50
	MLE .052/.079/.054

MADE TO FINE GRAIN PRACTICE

Heat Treatment **NORMALIZED**
 Temperature 1650 °F
 Time at Temperature 4-1/2 HRS
 Cooling Media AIR

Flange dimensions and bolt hole patterns comply with ASME B16.5, B16.47, MSS SP-44. Hub profile for reinforcing nozzles per ASME Section VIII Div. 1 Appendix 2 (Figure 2-4). NO MERCURY, OR RADIOACTIVE SUBSTANCES CAME IN CONTACT WITH THIS MATERIAL DURING MANUFACTURING. NO WELDING PERFORMED. We hereby certify that all test results and process information contained herein are correct and true as contained in the records of the company.

Prepared by: _____

Name: Cynthia Madrid

Title: QA Representative

Checked by QC Dept

MAY 24 2023



The Best Value -
Price, Quality, Service
All The Time.

CERTIFIED MILL TEST REPORT

KWI# FITNP0167

LOG NO. F0000000175755 Page 1 of 8

BONNEY FORGE CORPORATION
P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330
(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
www.bonneyforge.com

CUSTOMER: WIN SUPPLY EAST HOUSTON #312

DATE 11/07/2022

CUSTOMER

BONNEY ORDER NO. B000317625

ORDER NO.: 00312-067578

SHIP TO: WIN SUPPLY EAST HOUSTON #B12
1357 SHEFFIELD BLVD
HOUSTON TX 77015
United States

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
1	100	D628	2 6M A105 COUP TOE 6" LG SA/A105 Al 0.032 C 0.190 Cb 0.004 Co 0.006 Cr 0.110 Cu 0.190 Mn 1.050 Mo 0.040 Ni 0.070 P 0.005 S 0.018 Si 0.230 V 0.035 CE(Long Formula) = 0.42 T/S(PSI) 81,600 Y/S(PSI) 55,680 EL(%) 29.70 RA(%) 63.00 Brinell Hardness 169 BHN 164 BHN
2	700	D577	2 3000 A105 COUP T SA/A105 Al 0.022 C 0.200 Co 0.003 Cr 0.130 Cu 0.040 Mn 1.040 Mo 0.003 Nb 0.012 Ni 0.020 P 0.006 S 0.018 Si 0.230 V 0.004 CE(Long Formula) = 0.40 T/S(PSI) 74,400 Y/S(PSI) 42,900 EL(%) 33.00 RA(%) 59.60 Brinell Hardness 143 BHN 142 BHN
3	250	D579	1 6000 A105 COUP T SA/A105 Al 0.018 C 0.200 Co 0.002 Cr 0.110 Cu 0.030 Mn 1.030 Mo 0.010 Nb 0.011 Ni 0.010 P 0.004 S 0.016 Si 0.210 V 0.003 CE(Long Formula) = 0.40 T/S(PSI) 76,300 Y/S(PSI) 46,500 EL(%) 33.00 RA(%) 61.60 Brinell Hardness 144 BHN 147 BHN
4	500	D464	1/4 3M/6M A105 HXPL T SA/A105 C 0.150 Cr 0.070 Cu 0.100 Mn 0.650 Mo 0.010 Ni 0.040 P 0.005 S 0.008 Si 0.210 V 0.001 CE(Long Formula) = 0.28 T/S(PSI) 0 Y/S(PSI) 0 EL(%) 0.00 RA(%) 0.00 Brinell Hardness 150 BHN 162 BHN

Checked by QC Dept.

4-6-23
M

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by Paige Smith
Paige Smith
Quality Assurance Representative

CMTR: Rev 3

KWI PART# FITNP0168



TEXAS PAW, LLC
315 NORTH WYOMING DRIVE HOUSTON, TX 77002
(713) 375-7600 - FAX (713) 375-7623



PENNSYLVANIA MACHINE WORKS, LLC
201 BETHLE AVENUE ASTON, PA 19014
(610) 437-2593 - FAX (610) 437-3335



US DROP FORGE CO.
P.O. BOX 134 - ROUTE 554
1309 AUBURN ROAD WOODRICH TOWNSHIP NJ 08096
(609) 497-3500 FAX (609) 497-1549

CERTIFIED MATERIAL TEST REPORT

MSI SUPPLY, INC.
PO BOX 7463
HOUSTON, TX 77018

P.O. 00312075471
ORDER # 03 430644
5/16/23

2X8LG 6MTD HFCE A105 QTY: 22

HEAT CODE: 4T9P MATERIAL: A105
ASTM SPEC: A105 SPEC. YEAR: 21 SPEC. REV:
UNS NUMBER: K03504

CHEMICAL ANALYSIS (%)

C	MN	P	S	SI	NI	CR	MO	CU	TI	AL
.190	1.080	.007	.010	.220	.020	.120	.006	.050	.002	.035
N	PB	CO	SB	V	CB	SN	B	AS	CA	
.002	<.001	.003	<.001	.004	.010	.002	<.001	.002	.001	

PHYSICAL ANALYSIS

YS (PST)	TS (PST)	%EL 4D	%RA	HARDNESS (HB)	HARDNES2 (HB)	C.E=
43700	76500	35.000	62.900	153	154	.40

HARDNESS 1 NACE MR0103 & MR0175

Country of Origin: Canada. Country of Origin is Country of Melt.
Manufactured to: ASME B16.11 - 2016

ASTM A105-05
ASME SECTION II SA105 2021 EDITION
MATERIAL IS CAPABLE OF PASSING A HYDROSTATIC TEST COMPATIBLE WITH THE RATING OF THE FINISHED FITTING
CERTIFICATE 1/2" W EN 10204:2004 TYPE 3.1 AND ISO10474:2013 TYPE 3.1
ANSI/NACE MR0103/ISO17945:2015 SECTION 5.2
ANSI/NACE MR0175/ISO15156-2:2015 SECTIONS A.2.1.2 AND A.2.1.3
ASME SECTION II SA105 2019 ED
MATERIAL IS FULLY KILLED
DURING MANUFACTURE AND PROCESSING, THIS PRODUCT DID NOT COME IN DIRECT CONTACT WITH POLYCHLORINATED BIPHENYLS (PCB'S),
MERCURY OR ANY OF ITS COMPOUNDS NOR WITH ANY MERCURY CONTAINING DEVICE THAT EMPLOYED A SINGLE BOUNDARY OF CONTAINMENT.
NO WELD REPAIRED MATERIAL - MADE IN THE U.S.A.
AS OF THE ORIGINAL MTR PRINT DATE, ARTICLES AS SUPPLIED BY PENN MACHINE HAVE NO INTENDED SUBSTANCE RELEASE, NOR CONTAIN
ANY SIGNIFICANT AMOUNT (DO NOT EXCEED 0.1 WT%) OF CHEMICAL COMPOUNDS ON THE EU CANDIDATE LIST OF SVHC (ARTICLE 59(10))
PER ECHA GUIDELINE RIP 1.8, AND THUS THERE IS NO OBLIGATION TO REGISTER THEM UNDER REACH.
THE PRODUCTS SUPPLIED ARE IN COMPLIANCE WITH THE REQUIREMENTS OF THE ORDER, AND IN WHICH PENN SUPPLIES TEST RESULTS.

Checked by QC Dept.

MAY 24 2023

WE HEREBY CERTIFY THAT THE REPORTED FIGURES ARE CORRECT AS CONTAINED IN THE RECORDS OF THE CORPORATION.

(ELECTRONIC SIGNATURE)
MICHAEL BARRON
QA Manager



MANUFACTURERS OF Penn FORGED PIPE FITTINGS
QUALITY • SERVICE • PARTNERSHIP
www.pennuso.com

12Jul12 8: 6

TEST CERTIFICATE

No: 1 106969

KREHER STEEL COMPANY, LLC.
1550 NORTH 25TH AVENUE
MELROSE PARK, IL 60160
Tel: 708-345-8180 Fax: 708-345-8293

P/O No 2726
Rel
S/O No 1 235478-001
B/L No 1 191952-002 Shp 12Jul12
Inv No Inv

12-30-14

Sold To: (7811)
PRODUCTION MANUFACTURING CO., INC.
5909 EAST 13TH STREET
TULSA OK 74112

Ship To: (1)
PRODUCTION MANUFACTURING CO., INC.
5909 EAST 13TH STREET
TULSA OK 74112

Tel: 918-836-3585 Fax: 918-835-9681

CERTIFICATE of ANALYSIS and TESTS

Cert. No: 1 106969
12Jul12

Part No
TURN & POLISH ROUNDS A105
2.2500 X 16'R/L

0

ASTM A105-05
ASME SA105
HEAT NUMBER 121546
Cu .15 , V .035 AND Cb/Nb .003
LOT NUMBER 50267 WEIGHT 6504
TENSILE 80300
YIELD 52800
ELONGATION 24 %
REDUCTION OF AREA 47 %
HARDNESS 156 -156 AT SURFACE
MADE IN THE USA

2 1/4" Ø SA105
41K

Heat Number
121546

*** Chemical Analysis ***
C=0.2000 Mn=0.8800 P=0.0050 S=0.0290 Si=0.2400 Cu=0.1500
Ni=0.0600 Cr=0.1030 Mo=0.0210 Al=0.0020 Cb=0.0030 V=0.0350
Sn=<.009> B=<.0004> Ti=<.0004> N=<.0089> Ca=<.0007>

I hereby certify that this data is correct as
contained in the records of this company.
I hereby certify that no mercury came in contact
with or no weld repair was done to this product
while in our possession.

[Handwritten Signature]

PRODUCTION MFG, TULSA, OKLA
CUSTOMER IPS
P.O.# HP 286260 X
ITEM 1" 6000# X 3" ToE Coupling
HEAT CODE 41K

Checked by QC Dept.

JAN 15 2018

[Handwritten Signature]



400 McMunn St.
South Lyon, MI 48178

TEST REPORT



KWI# FITNP0140

Date : 07/23/2022

Page : 1

Job : MJ00010548

Order : MS00015235

Truck# : MT07604

Heat : A222984

Pick# : 62541

Ship# : *A4M*

Ship To : <i>1 3/4" x .425 SA105 SA105N LF2</i>		Sold To : <i>8/3/22</i>	
P.O. No : 12102	Cust Item :	Shape : Round Round	Wt/ft : 6.014
OD Size : 1.750 IN	ID Size :	Wall Size : 0.425 IN (Average)	Grade : 7400-2
Surface : OIL		Anneal : Normalized	

Specifications : ASME-SA105-21-000,ASME-SA350-21-LF2 (Class 1),ASTM-A105-18,ASTM-A519--17,EN-EN 10204 3.1-2004,NACE-MR0103-2015,NACE-MR0175-2015

OIL. PRODUCE TO ASTM A105 & ASTM A519. CHEMISTRY & PHYSICALS TO SA-350/LF2, ASTM A105 & ASME SA-105/SA-105N. CERT TO NACE MR0-175, MR0-103 & EN10204 3.1.B. REPORT CE = %C + (%MN)/6 + (%CU + %NI)/15 + (%CR + %V + %MO)/5 < .45 AIM 0.020 MAX S. MARK W/MST, SIZE, GRADE, CUST NAME, PO#, SPEC & HEAT#. T/R TO INCLUDE COMPLETE CHEMISTRY, PHYSICALS, ROA, HBW, GRAIN SIZE & MFG IN USA. CHARPY @ -50 DEG-F. ROUTING-CALL TERRY DE PRIEST @ 918-836-3585 W/ READY.

Heat	Furnace	Melted Source	Feet	Weight (lbs)
A222984	EAF	USA,SDI - PITTSBORO, IN	4275	25710

Chemistry Analysis - L (Ladle) , P1/P2(Product Analysis) -%																ppm							
C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Al	V	Sn	Nb	SB	As	Ti	Zr	N	Ca	CO	W	B	H2	CE
L	0.18	1.08	0.009	0.003	0.200	0.280	0.07	00.14	0.02	0.026	0.004	0.008	0.000	0.003	0.004	0.000	0.013	0.001	0.005	0.000	0.00		0.42

Grain Size: 8 CASTING METHOD: Bloom

Tensile Properties - PSI				Hardness	
Tensile	Yield	%Elong	ROA %	HBw	Mid
84593	73119	39.0	71.9	149.0	163.0

Tensile: 5/8" strip longitudinal

Charpy									
Temp	Size	Impact Longitudinal	Avg -L	Lat Exp	% Shear	Impact Transverse	Avg-T	Lat Exp	% Shear
-50 F	7.500	96 FP	102						
	MM	115 FP							
		96 FP							

Additional Testing							
Hydro(Tested 100% Length)	Ultrasonic %	Eddy Current	Flatten	Flare	Bend	Expansion	
							PASS

Heat Cycle							
Normalized		Temper		Final Anneal		Stress Relieved	
Temperature	Time	Temperature	Time	Temperature	Time	Temperature	Time
1700 F	20.00 Min						

Checked by QC Dept.
4-6-23
AMK



400 McMunn St.
South Lyon, MI 48178

TEST REPORT



Date : 07/23/2022

Page : 2

Job : MJ00010548

Truck# : MT07604

Heat : A222984

Order : MS00015235

Pick# : 62541

Ship# :

Lot Details

Bundle	Footage	Pcs	Length
ms0001523501001	600	40	Cut 15' -
ms0001523501002	720	48	Cut 15' -
ms0001523501003	720	48	Cut 15' -
ms0001523501004	720	48	Cut 15' -
ms0001523501005	720	48	Cut 15' -
ms0001523501006	795	53	Cut 15' -

- Material has not been exposed to metallic mercury, lead or asbestos so as to cause contamination. Material is free from radioactive contamination. Cold Drawn Seamless. No weld repair. 100% Manufactured USA.
- Michigan Seamless Tube LLC, South Lyon MI is a division of Specialty Steel Works, Inc.
- Certificate of Conformance Statement: This certificate asserts that the tubing listed above has been manufactured, inspected and approved in accordance with all specifications, requirements and the customer's purchase order.

Jacob Gorkowski
Quality Assurance Manager

CUSTOMER MSI
P.O.# 312-065792
ITEM 3/4" 6000ft x 3' TOE
HEAT CODE A4M

Checked by QC Dept.

Y-b-23
[Signature]



MILL TEST REPORTS

Bonney Forge
14496 Croghan Pike
Mt. Union, PA 17066

CERTIFIED MILL TEST REPORT

MSI SUPPLY 5/23/2023

LOT NO.
D613

CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS
1/2" X 4" 6MA105 TOE Coupling SW/T

C	0.190	MN	0.990	P	0.008	S	0.022	SI	0.240
NI	0.050	CR	0.120	MO	0.020	CU	0.110	CO	0.010
V	0.002	AL	0.023	Nb	0.002				
CE(LONG FORMULA) = 0.394									
T/S(PSI) 72400 Y/S(PSI) 44800 EL(%) 32.000 RA(%) 67.000									
BRINELL HARDNESS 149, 149									

[Click here for Original Steel Mill Certification](#)

1. CERTIFYING ASTM A105-21 / ASME SA105-21 EDITION.
2. THE MATERIAL SUPPLIED MEETS THE REQUIREMENTS OF NACE MR0175/ISO 15156-2.
3. THE MATERIAL SUPPLIED WAS INSPECTED AND MANUFACTURED IN ACCORDANCE WITH EN DIN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT.
4. THE ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.

THIS DOCUMENT HAS BEEN ELECTRONICALLY SUBMITTED.

Cancel	Logout
--------	--------

Checked by QC Dept.

5/23/2023



14527 Smith Rd.
 Humble, Texas 77396
 TEL: (281) 441-4088
 FAX: (281) 441-8899

PAGE: 1 of 1
 REPORT # 23-044167
 DATE: 5/1/2023
FCI ORDER # 118127
 IAW ASME 2021 ED.
 IAW NACE MR0175 2015Ed

CUSTOMER ORDER # PO30842
 SOLD / SHIPPED TO: KW INTERNATIONAL

Item Quantity Description

3 6 18" X 300 X 17" LG RF LWN

TAG: PO30842
 TAG: FLGRF3226
 PART HBW: 149

Heat Number: GG341
 Material Type: SA105N

Steel Origin (melt): ITALY

CHEMICAL ANALYSIS

PHYSICAL PROPERTIES

C .17
 Mn 1.18
 P .008
 S .003
 Si .25
 Cr .07
 Mo .02
 V .00
 Cu .20
 Ni .09
 Cb(Nb) .00
 N .007
 Sn .009

Yield PSI 43,396
 Tensile PSI 71,988
 Elongation % 37.4
 Reduction of Area % 72
 Hardness 1478/151 HBW

Ti .00
 Al .03
 B .0004
 C E 0.40

MADE TO FINE GRAIN PRACTICE

Heat Treatment **NORMALIZED**
 Temperature 1650 °F
 Time at Temperature 2.5 HRS
 Cooling Media AIR

Flange dimensions and bolt hole patterns comply with ASME B16.5, B16.47, MSS SP-44. Hub profile for reinforcing nozzles per ASME Section VIII Div. 1 Appendix 2 (Figure 2-4). NO MERCURY, OR RADIOACTIVE SUBSTANCES CAME IN CONTACT WITH THIS MATERIAL DURING MANUFACTURING. NO WELDING PERFORMED. We hereby certify that all test results and process information contained herein are correct and true as contained in the records of the company.

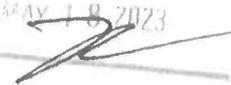
Prepared by: 

Name: Cynthia Madrid

Title: QA Representative

Checked by QC Dept.

MAY 1 8 2023





Flanschenwerk Bebitz
 Flanschenwerk Bebitz GmbH • Lebendorfer Str. 1 • 06420 Könnern OT Bebitz • GERMANY
 Tel. +49 34691 40 0 - Fax +49 3469140 329 - Email: flanges@bebitz.de (A01)



Abnahmeprüfzeugnis 3.1 / Inspection certificate 3.1 / Certificat de reception 3.1
 nach (A02) / acc. DIN EN 10204 : 2005 Nr. (A03) / No.22-03656 Datum (Z02) / Date 26.09.2022

Zeichen des Herstellers (A04)
 Manufacturer's brand



Stempel des Abnehmers (Z03)
 Stamp of the testing engineer



Überprüft als Hersteller nach AD-Merkblatt W0 / TRD100 und VdTÜV Werkstoffblätter 350/3, 354, 399 / Approved as manufacturer according AD-Merkblatt W0 / TRD100 and VdTÜV Material Sheets 350/3, 354, 399
 Zertifiziert nach DGR 2014/68/EU durch TÜV NORD Systems GmbH Co. KG, notifizierte Stelle 0045 / Certified according to PED 2014/68/EU, certifying body TÜV NORD GmbH Co. KG, notified body no. 0045

Besteller (A06) Customer	Bestell-Nr (A07) / Order-No. 317265 Auftrag (A08) / Order 20002217 Lieferschein / Delivery No. 30008314 Position (B07.1) / Item 20
Stck (B08) Bezeichnung (B01; B09 - B11) Quantity Product	Schmelze/Prüflos (B07) Heat no./Test no.
38 18 inch Blind Flange 300 lbs raised face Customer ID: 18----FN503CAA	83717/1

Material (B02; B05) A 105N - ASTM A105M-21 / ASME SA-105M
 normalized 900 °C, air cooled - manufactured from fully killed steel and to fine grain practice

Anford. (B03) ASME B16.5-2017
 NACE MR0175-2015/MR0103-2015 - DIN EN ISO 15156-2:2015 Annex A/DIN EN ISO 17945:2015
Requirements 2019 ASME Boiler & Pressure Vessel Code - Section II Part A, ASTM A961-20 / ASME SA-961

Schmelzenanalyse (C71 - C92) / Ladle analysis													Erschmelzung (C70) / Melting process E+VD		
C	Si	Mn	P	S	Cr	Ni	Ti	Mo	Nb	V	N	Cu	Al	CEV	
0,190	0,19	1,10	0,007	0,003	0,13	0,07	0,002	0,04	0,002	0,003	0,004	0,14	0,023	0,42	

$$CEV = C + \frac{Mn}{8} + \frac{V + Mo + Cr}{5} + \frac{Ni + Cu}{15} \quad PREN = Cr + 3,3 \times Mo + 16 \times N$$

Mechanische Prüfungen / Mechanical tests

Probenlage (C02): T / Position of Specimen: T Zugversuch / Tensile Test - ASTM A 370						KBV / Impact test DIN EN ISO 148-1 ASTM A370 (V-Kerb / V-notch)			Härte (C32) Hardness ISO 6506-1			
Temp (C03) ° C	Streckgrenze (C11) / Yield 0,2% 1,0% MPa (N/mm²) MPa (N/mm²)		Zugfestigkeit (C12) Tensile MPa (N/mm²)	Dehnung (C13) Elongation %		Einschnürr. Red. of area %	Temp. (C03) ° C	Einzelwerte (C42) Single values J		MW (C43) Average J	HBW 2,5/187,5	
20	min 250		485	22,0		30	20				137	
	max			5d ₀	4d ₀						187	
20	317		489	30,1	37,6	72	-29	135	149	157	147,0	148
												146

Country of Melting: Germany - Country of Origin: Germany

Checked by QC Dept.

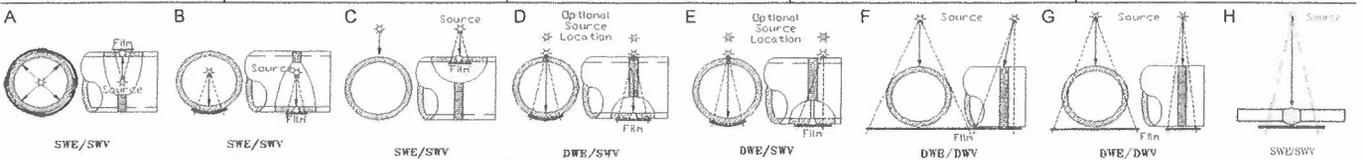
MAY 18 2023

Am Material wurden keine Reparaturschweißungen vorgenommen. / No welding repair on the material.
 Material ist nicht radioaktiv oder mit Quecksilber kontaminiert. / Material is free from radioactive or mercury contamination.
 Sicht- und Maßprüfungen ohne Beanstandungen. (D01) / Visual and dimensional examinations without objections.
 Die Anforderungen der Bestellung sind erfüllt. / The product meets the requirements of the order specifications.
 Die Angaben in Klammern entsprechen den Vorgaben der DIN EN 10168 / Data in parentheses refer to DIN EN 10168.
 APZ ist mit EDV erstellt und ohne Unterschrift gültig. / MTR was electronically generated and is valid without a signature.

R. Sparing
 Abnahmebeauftragter des Herstellers (Z02) / Inspection Representative of the Manufacturer

CUSTOMER: KW International	ACUREN SERVICE CALL #: 407_J074182	DATE: 06/28/2023
LOCATION/ADDRESS: Columbus Texas	CUSTOMER CONTACT: John Delacerda	
PART # / DRAWING #: 109133	CUSTOMER PO #: N/A	CUSTOMER WO #: N/A
ITEM DESCRIPTION: 48" X 1.75" Vessel	STAGE OF MANUFACTURE: Final	SURFACE CONDITION: As Welded

NDE PROCEDURE	REV.	SPECIFICATION/CODE	REV./EDITION	ACCEPTANCE PROCEDURE / STANDARD:	PARTS INSPECTED:	ACCEPTED:	REJECTED:
RT-1	31	ASME Sec. VIII	2020	UW-51	2	0	2
Material and Thickness:	Carbon Steel	1.75 in.	A	B	in.	C	in.
Diameter: (inches)	48"		A	B		C	D
Rein. Thickness: (inches)	.125"		A	B		C	D
Distance: (inches)	SOD: 22.125 OFD: 1.875		A	SOD: OFD: B SOD: OFD: C SOD: OFD: D			
Exposure Time (H:M:S):	1		A	B		C	D
IQI Amount / Type / Material:	4 B WIRE Mat: S/S		A	Mat: B Mat: C Mat: D			
IQI Size / Location:	Size: .032 Film		A	Size: B Size: C Size: D			
Shim Thickness & Material:	N/A		A	B		C	D
Number of Exposures:	1		A	B		C	D
Markers: Number or Spacing:	0-1		A	B		C	D
Focal Spot μg	0.115 in. 0.0097 μg		A	in. μg B in. μg C in. μg D			
Screens: (inches)	Front: .010 Rear: .010		A	Front: Rear: B Front: Rear: C Front: Rear: D			
Film Loading / Brand / Type:	Single AGFA D5		A	B		C	D
Film Process: (Manual)	Time: 2:00 Temp: 80 °F		A	Time: Temp: °F B Time: Temp: °F C Time: Temp: °F D			
Shot Configuration:	A - SWE/SWV		A	B		C	D



SOURCE: <input checked="" type="checkbox"/> Ir <input type="checkbox"/> Co <input type="checkbox"/> Se <input type="checkbox"/> X-Ray	Ci 51.7	kV	ma	DENSITOMETER MODEL #: X-RITE 300	DENSITOMETER SERIAL #: 0028682	CAL DUE DATE: 11/30/2023
C - Crack SL - Slag T - Tungsten	CP - Cluster Porosity P - Porosity/Gas Pocket HB - Hollow Bead	IP - Insufficient Penetration IF - Insufficient Fusion EP - Excessive Penetration	EU - External Undercut IU - Internal Undercut IC - Internal Concavity	S - Surface IPD - IP Due to High/Low BT - Burn Through	IFD - IF Due to Cold Lap FA - Film Artifact	

Weld/Component	View	Technique	Density		Accept / Reject	List Indications	Welder ID - Other ID Remarks
			IQI/Base	Weld			
RS1	1-2	A	2.8	2.6	Accept		51/F
	2-3	A	2.7	2.5	Accept		
	3-4	A	2.8	2.6	Accept	P.06"	
	4-5	A	2.8	2.6	Accept		
	5-6	A	3.0	2.8	Accept		
	6-7	A	3.0	2.8	Accept		
	7-8	A	3.1	2.9	Accept	Aligned Por .186"	
	8-9	A	2.9	2.7	Accept	FA	
	9-10	A	2.8	2.6	Reject	SL	
	10-11	A	2.8	2.6	Accept		
	11-12	A	3.0	2.7	Accept		
	12-1	A	3.0	2.7	Accept		

<input type="checkbox"/> Additional Pages	Comments:	Per Diem	Assistant Tech Name (Print): RANDY A. LUJAN
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# of Film & Size: (24) 4.5 X 17" AGFA D5	Total # of Welds: 2	No. on Job: 2	Travel if Applicable: Hours: Miles Total	Hours Worked: to and to	Total Hours: 3
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CLIENT REPRESENTATIVE JOHN DELACERDA	06/28/2023	ACUREN INSPECTOR RANDY LUJAN	06/28/2023	II
Print Name / Signature	Date	Print Name / Signature	Date	Inspection Level

The Client Representative who receives this report is responsible for verifying that the acceptance standard listed in the report is correct and promptly notifying Acuren of any issues with this report and/or the work summarized herein. The owner is responsible for the final disposition of all items inspected.

PEER REVIEW (IF APPLICABLE):

Print Name / Signature _____ Date _____

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RADIOGRAPHIC EXAMINATION CONTINUATION SHEET

CUSTOMER: KW International		ACUREN SERVICE CALL #: 407_J074182	DATE: 06/28/2023
LOCATION/ADDRESS: Columbus Texas		CUSTOMER CONTACT: John Delacerda	
PART # / DRAWING #: 109133		CUSTOMER PO #: N/A	CUSTOMER WO #: N/A
ITEM DESCRIPTION: 48" X 1.75" Vessel		STAGE OF MANUFACTURE: Final	SURFACE CONDITION: As Welded
C - Crack	CP - Cluster Porosity	IP - Insufficient Penetration	EU - External Undercut
SL - Slag	P - Porosity/Gas Pocket	IF - Insufficient Fusion	IU - Internal Undercut
T - Tungsten	HB - Hollow Bead	EP - Excessive Penetration	IC - Internal Concavity
		S - Surface	IPD - IP Due to High/Low
		BT - Burn Through	IFD - IF Due to Cold Lap
			FA - Film Artifact

Weld/Component	View	Technique	Density		Accept / Reject	List Indications	Welder ID - Other ID Remarks
			IQI/Base	Weld			
RS-2	1-2	A	3.1	2.9	Accept		V/F
	2-3	A	3.1	2.9	Accept		
	3-4	A	3.1	2.9	Accept	P.04"/P.04"	
	4-5	A	3.4	3.2	Accept		
	5-6	A	3.4	3.2	Accept		
	6-7	A	2.9	2.7	Accept		
	7-8	A	2.9	2.7	Reject	SL/ OR	
	8-9	A	2.9	2.8	Reject	SL	
	9-10	A	2.9	2.8	Reject	SL	
	10-11	A	3.1	2.9	Accept		
	11-12	A	3.1	2.8	Accept		
	12-1	A	3.1	2.8	Reject	LINEAR	

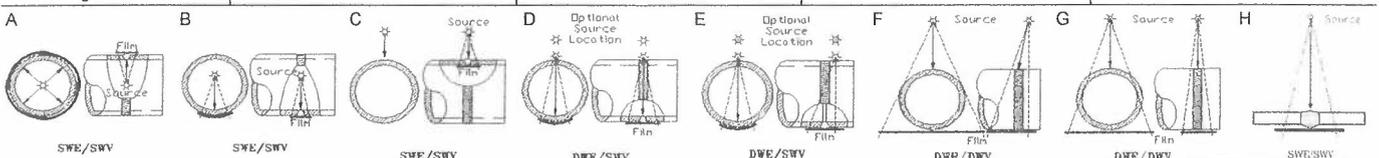
CLIENT REPRESENTATIVE JOHN DELACERDA	06/28/2023	ACUREN INSPECTOR RANDY LUJAN	06/28/2023	II
Print Name / Signature	Date	Print Name / Signature	Date	Inspection Level
The Client Representative who receives this report is responsible for verifying that the acceptance standard listed in the report is correct and promptly notifying Acuren of any issues with this report and/or the work summarized herein. The owner is responsible for the final disposition of all items inspected.				
PEER REVIEW (IF APPLICABLE):				
_____ Print Name / Signature Date				

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RADIOGRAPHIC EXAMINATION REPORT

CUSTOMER: KW International		ACUREN SERVICE CALL #: 407_J074182	DATE: 06/29/2023
LOCATION/ADDRESS: Columbus Texas		CUSTOMER CONTACT: John Delacerda	
PART # / DRAWING #: 109133		CUSTOMER PO #: N/A	CUSTOMER WO #: N/A
ITEM DESCRIPTION: 48" X 1.75" Vessel		STAGE OF MANUFACTURE: Repair	SURFACE CONDITION: As Welded

NDE PROCEDURE	REV.	SPECIFICATION/CODE	REV./EDITION	ACCEPTANCE PROCEDURE / STANDARD:	PARTS INSPECTED:	ACCEPTED:	REJECTED:	
RT-1	33	ASME Sec. VIII	2020	UW-51	2	1	1	
Material and Thickness:		Carbon Steel 1.75 in.	A	B	in.	C	in.	D
Diameter: (inches)		48"	A	B	C	D		
Rein. Thickness: (inches)		.125"	A	B	C	D		
Distance: (inches)		SOD: 22.125 OFD: 1.875	A	SOD: OFD: B	SOD: OFD: C	SOD: OFD: D		
Exposure Time (H:M:S):		1	A	B	C	D		
IQI Amount / Type / Material:		4 B WIRE Mat: S/S	A	Mat: B	Mat: C	Mat: D		
IQI Size / Location:		Size: .032 Film	A	Size: B	Size: C	Size: D		
Shim Thickness & Material:		N/A	A	B	C	D		
Number of Exposures:		1	A	B	C	D		
Markers: Number or Spacing:		0-1	A	B	C	D		
Focal Spot µg		0.115 in. 0.0097 µg	A	in. µg B	in. µg C	in. µg D		
Screens: (inches)		Front: .010 Rear: .010	A	Front: Rear: B	Front: Rear: C	Front: Rear: D		
Film Loading / Brand / Type:		Single AGFA D5	A	B	C	D		
Film Process: (Manual)		Time: 2:00 Temp: 80 °F	A	Time: Temp: °F B	Time: Temp: °F C	Time: Temp: °F D		
Shot Configuration:		A - SWE/SWV	A	B	C	D		



SOURCE:	<input checked="" type="checkbox"/> Ir <input type="checkbox"/> Co <input type="checkbox"/> Se <input type="checkbox"/> X-Ray	51.7	kV	ma	DENSITOMETER MODEL #: X-RITE 300	DENSITOMETER SERIAL #: 0028682	CAL. DUE DATE: 11/30/2023
C - Crack	CP - Cluster Porosity	IP - Insufficient Penetration	EU - External Undercut	S - Surface	IFD - IF Due to Cold Lap		
SL - Slag	P - Porosity/Gas Pocket	IF - Insufficient Fusion	IU - Internal Undercut	IPD - IP Due to High/Low	FA - Film Artifact		
T - Tungsten	HB - Hollow Bead	EP - Excessive Penetration	IC - Internal Concavity	BT - Burn Through			

Weld/Component	View	Technique	Density		Accept / Reject	List Indications	Welder ID - Other ID	Remarks
			IQI/Base	Weld				
RS1-R1	9-10	A	2.8	2.6	Accept		51/F	
RS2-R1	7-8	A	3.1	2.9	Accept			
	8-9	A	3.1	2.9	Reject	SL		V/F
	9-10	A	3.1	2.9	Accept			
	12-1	A	A	2.8	Accept			

Additional Pages

Comments:

Per Diem

Assistant Tech Name (Print): RANDY A. LUJAN

of Film & Size: (5) 4.5 X 17" AGFA D5

Total # of Welds: 2 No. on Job: 2

Travel if Applicable: Hours: Miles Total: to and to Total Hours: 1

CLIENT REPRESENTATIVE: JOHN DELACERDA 06/29/2023

ACUREN INSPECTOR: RANDY LUJAN 06/29/2023 II

The Client Representative who receives this report is responsible for verifying that the acceptance standard listed in the report is correct and promptly notifying Acuren of any issues with this report and/or the work summarized herein. The owner is responsible for the final disposition of all items inspected.

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KWI	DOCUMENT TITLE: HYDROSTATIC PRESURE TEST RECORD	Document No.: KWI-FM-009
	DOCUMENT TYPE: QUALITY RECORD	Original Issue Date: 29-JUL-14
		Form Revision: 0
		Form Rev. Date: 29-JUL-14
		Form App'd: AVD Page 1 of 1

SALES ORDER NUMBER: 16992	CUSTOMER: NATEPA Energy
JOB/SERIAL NUMBER: 109133	CODE/SPECIFICATION: ASME SEC. VIII; ASME B31.3
NB NUMBER (IF APPLICABLE): 5312	PROCEDURE/REV.: KWI-PR-001, REV.0
MATERIAL DESCRIPTION: PRESSURE VESSEL PIPE, ETC.	DRAWING NUMBER: SEPH20240

PRESSURE GAUGE		
MANUFACTURER: Stewart USA	MODEL NUMBER: Stewart USA 1500	SERIAL NUMBER: 1500-2
CALIBRATION DATE: 11-4-23	NOTES: N/A	
CHART RECORDER		
MANUFACTURER: Crystalyx	MODEL NUMBER: 15KPSR/B1	SERIAL NUMBER: 924556
CALIBRATION DATE: 1-6-24	NOTES: N/A	

TEST DATA	
TEST PRESSURE: 1672#	TESTING MEDIUM: MUNICIPAL WATER
TEST DURATION: 1 hour	CORROSION INHIBITOR: NONE

INSPECTION RESULTS		
PIECE NUMBER/SERIAL NO.	ACCEPT/REJECT	COMMENTS
RPO 109133	✓	

Justin...
KWI TEST TECHNICIAN SIGNATURE

7/5/23
DATE OF TEST

Mark...
WITNESS SIGNATURE

7-5-23
DATE OF TEST

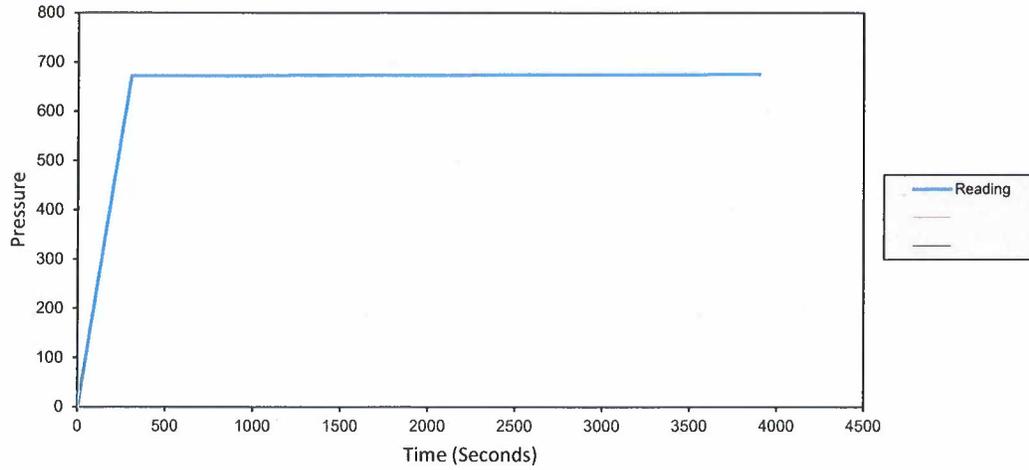
Data Collection Report

RPO109133 48 OD 500# HZ. 3-PH SEPARATOR

Gauge Information	
Serial Number	924556
Model	15KPSIXP2I
Message Store	-----
Units	PSI

Run Info	
Start Time	7/5/23 8:30:41 AM
Stop Time	7/5/23 9:40:30 AM
Logging Interval	300

Pressure



	QUALITY FORM		SECTION NO.	
	FABRICATION TRAVELER		KWI-FM-212	
			REVISION	2
			DATE	AUG 2022
		PAGE	1 of 3	

PROJECT INFORMATION			
DATE: 4/20/2023	SALES ORDER: 16992	CUSTOMER: NEXT ERA ENERGY RESOURCES LLC	
JOB/SERIAL NUMBER(S): 109133	DRAWING NO: SEPHZ0240 Rev. 1	NB #: 5312	
PROJECT DESCRIPTION: 48" OD x 10'-0" 500# HZ. 3-PHASE SEPARATOR			RT-1

DESIGN REQUIREMENTS			
DESIGN PRESS. INT: 500	EXT:	DESIGN TEMP: 200	
CALCULATIONS, WPS & PQR REVIEWED BY:	AI:	DATE: 28 APR 23	
	QC:	DATE: 4/25/20	

OUTSIDE APPROVAL INSPECTIONS	
ITP REQUIRED: YES <input type="checkbox"/> NO <input type="checkbox"/>	IF YES, CLIENT INSPECTION REUIRED? YES <input type="checkbox"/> NO <input type="checkbox"/>
NDE REQUIRED: YES <input type="checkbox"/> NO <input type="checkbox"/>	IF YES, NDE IS A HOLD POINT

FABRICATION						
	SHOP	DATE	QC	DATE	AI	
					HOLD	CHK
MATERIAL INSPECTION / PROFILER						
a. Check Thickness and Surface	nc	6-8				
b. Examine MTR's and Compare to Heat No.					ATM	7/11
c. Record Mill Stamp and Transfers	nc	6-8				
FABRICATION INSPECTION						
a. Verify Nozzle Thick and Flange Ratings						
b. Shell Layout	# nc	6-8	+			
c. Head Layout	#		+			
d. Nozzle Fit up Shell	#	see notes	+			
e. Nozzle Fit up Head	# MS	6/19	+	KS 6/19		
f. Check Internals	# MS	6/20	+	JF 6-20-23	*	ATM 7/5
CUTTING, FITTING, AND ALIGNMENT						
a. Girths Seams	Inlet Hd	# MS	6/21	+	TG 6-21	
b. Head Seams	Ret Hd	# MS	6/22	+	KS 6-22	
NONDESTRUCTIVE EXAMINATIONS & TESTING						
a. Radiography.						
a. Long Seams.						

	QUALITY FORM		SECTION NO.	
	FABRICATION TRAVELER		KWI-FM-212	
			REVISION	2
			DATE	AUG 2022
		PAGE	2 of 3	

b. Round Seams.	FULL				ALLOW 6-28-22						
c. Nozzles.											
b. Ultrasonic Test.											
c. Penetrant Test.											
d. Oil Bucket / Weir Test.											
FINAL INSPECTION											*
a. Final Dimension	# M.S	7/3/23	+		KS	7/3					
b. Check Fillet Weld Sizes.	# M.S	7/3/23	+								
c. Out of Roundness.	# M.S	7/3/23	+								
d. Weld Appearance and Reinforcement.	# M.S	7/3/23	+								
e. Name Plate Attached.	# M.S	7/3/23	+								
f. Check Stamping on Nameplate.											

QUALITY TESTING AND CHECKS								
	SHOP	DATE	QC	DATE	AI			
					HOLD	CHK	DATE	
POST WELD HEAT TREATMENT								
a. Chart reviewed			+					
HYDROSTATIC TESTING								
a. Pressure Test Report							*	
b. Gauge S/N: 1500-7								
c. Code Stamp.			+					
DATA REPORT SIGNED								
a. Verified							*	
SANDBLAST								
a. Inspection			+					
PAINT								
a. Inspection			+					

QC FINAL APPROVAL:	DATE:
---------------------------	--------------

QC Final Approval Required before Shipping or moving to Assembly

#-KWI Shop Hold Point

+ - KWI QC Hold Point

*-AI Hold Point

www.kwintl.com	Telephone: 844.594.4626	KW International, LLC
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Setting the New STANDARD

KW International, LLC
SHOP REPORT

CUSTOMER: NEXT ERA/TRINITY SHOP ORDER: 16922

SERIAL NO.: 109133 NATIONAL BOARD NO.: 5812

DESCRIPTION: 48" OD X 10'- 0" 500# HZ. 3-PHASE SEPARATOR.

DRAWING NO.: SEPHZ0240, REV.1 VESSEL: 1 OF 1

TYPE OF TEST: HYDROSTATIC TEST PRESSURE: 650

REF END

TC DA

AMP
SN: 14509-1-4
HT- S32155

TCCA

SIGNED: _____

TITLE: QUALITY CONTROL

COMPANY: KW International LLC

DATE TESTED: 7-5-77

GAUGE: 1500.2