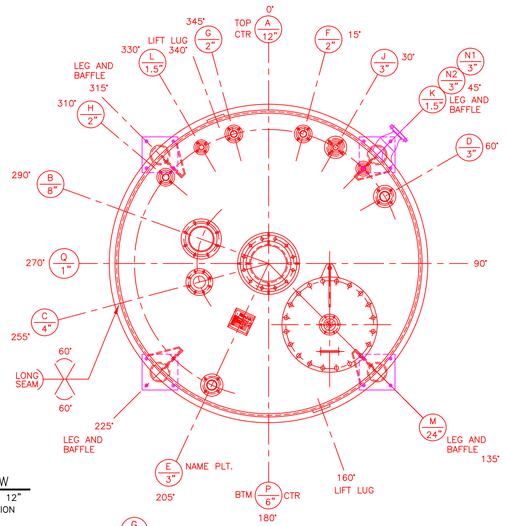
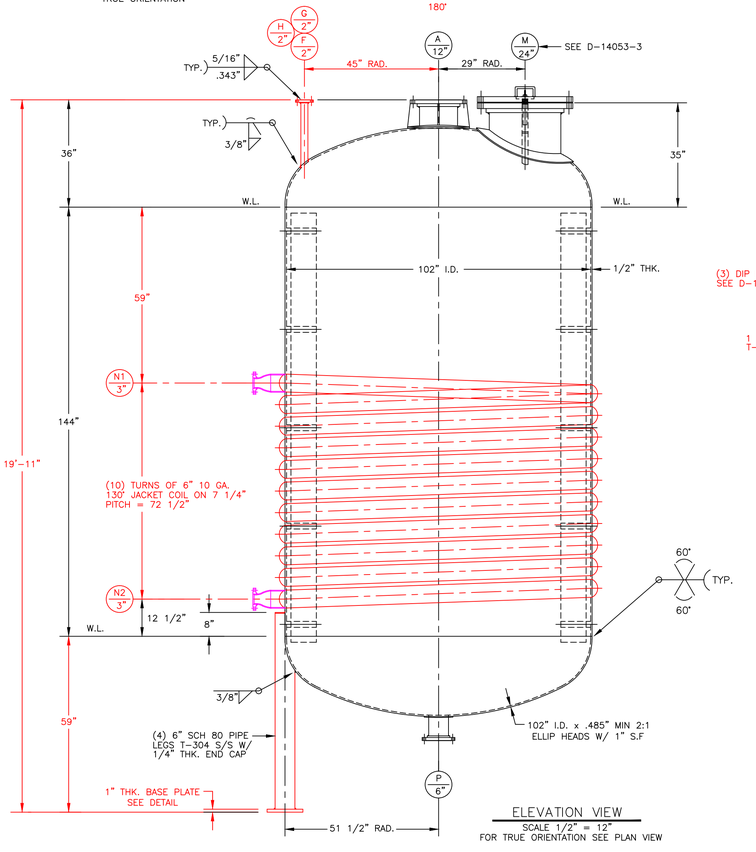
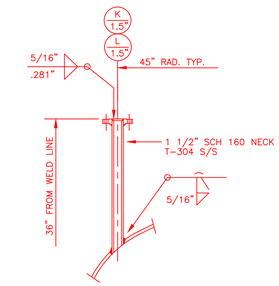


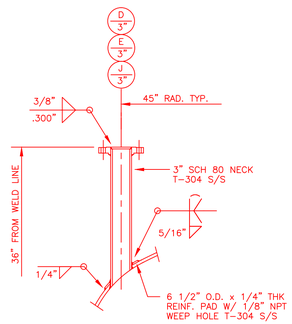
PLAN VIEW
SCALE 1/2" = 12"
TRUE ORIENTATION



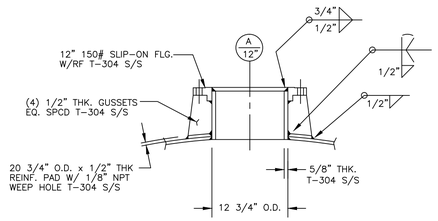
ELEVATION VIEW
SCALE 1/2" = 12"
FOR TRUE ORIENTATION SEE PLAN VIEW



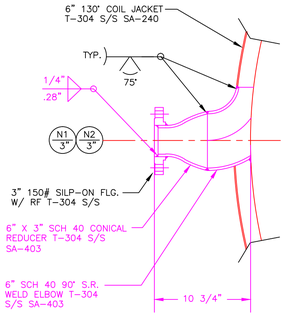
NOZZLE "K & L" DETAIL
SCALE 1" = 12"



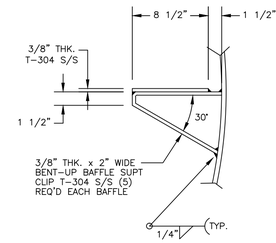
NOZZLE "D, E & J" DETAIL
SCALE 1" = 12"



AGITATOR "A" DETAIL
SCALE 1" = 12"

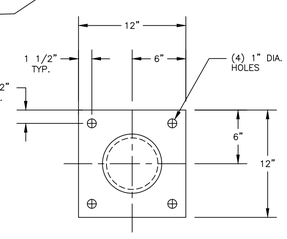


COIL NOZZLES "N1 & N2" DETAIL
SCALE 1 1/2" = 12" (2) REQ'D.

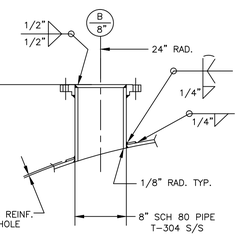


BAFFLE SUPPORT CLIP DETAIL
SCALE 1 1/2" = 12"

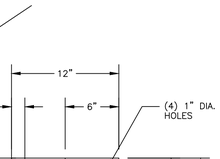
CONSTRUCTION VIEW
SCALE 1/2" = 12"
FOR TRUE ORIENTATION SEE PLAN VIEW



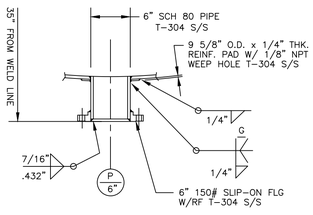
LEG BASE PLATE DETAIL
SCALE 1 1/2" = 12"



NOZZLE "B" DETAIL
SCALE 1" = 12"



TYP. COIL WELD DETAIL
SCALE 3" = 12"



NOZZLE "P" DETAIL
SCALE 1" = 12"

NOZZLE SCHEDULE

MARK	QUAN.	SIZE	ASME B16.5 RATING	SCH	SERVICE
A	1	12"	150# SLIP-ON W/RF	5/8"	AGITATOR
B	1	8"	150# SLIP-ON W/RF	80	FUTURE
C	1	4"	150# SLIP-ON W/RF	80	FUTURE
D	1	3"	150# SLIP-ON W/RF	80	VENT
E	1	3"	150# SLIP-ON W/RF	80	RELIEF
F	1	2"	150# SLIP-ON W/RF	160	CHARGE PORT
G	1	2"	150# SLIP-ON W/RF	160	CHARGE PORT
H	1	2"	150# SLIP-ON W/RF	160	CHARGE PORT
■ J	1	3"	150# SLIP-ON W/RF	80	CHARGE PORT W/ 1 1/2" DIP PIPE
K	1	1 1/2"	150# SLIP-ON W/RF	160	CHARGE PORT
L	1	1 1/2"	150# SLIP-ON W/RF	160	CHARGE PORT
■ M	1	24"	150# SLIP-ON W/RF	1/2"	MANWAY W/ DAVIT & 4" S.G.
N1	1	3"	150# SLIP-ON W/RF	40	COIL INLET
N2	1	3"	150# SLIP-ON W/RF	40	COIL OUTLET
P	1	6"	150# SLIP-ON W/RF	80	DRAIN
Q	1	1"	150# STUD PAD W/RF	—	THERMOWELL

■ FURNISHED W/ BLIND FLG., GASKET AND BOLTING

- NOTES -

1. CONSTRUCTION TO COMPLY WITH ASME CODE SECTION VIII DIV. 1 2013 ED. – ADDENDA INCLUDING CERT. & STAMP FOR INSTALLATION IN THE STATE OF OHIO
2. NAME PLATE STAMPING:

ASME U W RT-3
CERTIFIED BY: NB
ROBEN MFG. CO., INC.
LAKEWOOD N.J. 08701

VESSEL MAWP 100 PSI AT 450 ° F
VESSEL MAEWP 15 PSI AT 450 ° F
MIN. DESIGN METAL TEMP. –25 ° F AT 15/100 PSI
JACKET MAWP 150 PSI AT 375 ° F
JACKET MAEWP 15 PSI AT 375 ° F
MIN. DESIGN METAL TEMP. –25 ° F AT 15/150 PSI
INT. COIL/TUBE MAWP ____ PSI AT ____ ° F
INT. COIL/TUBE MAEP ____ PSI AT ____ ° F
MIN. DESIGN METAL TEMP. ____ ° F AT ____ PSI
SERIAL NO. 14053-1 YEAR 2014
P.O. NO. 4502514375 TAG NO. –
EQUIP. NO. 72-9106 CAPACITY 6000 GALS

DETAIL DWG
MANWAY DETAIL ——— D-14053-3

3. | | SHELL SIDE | JKT SIDE |
|---|---|---|
TEST PRESSURE | 145 psig | 211 psig
CORROSION ALLOWANCE | 1/16" |

4. APPROXIMATE WEIGHTS:
EMPTY ——— 18,578 LBS.
5. PAINT: NO
6. SANDBLAST: NO
7. STRESS RELIEVE: NO
8. N.D.E.: YES SPOT X-RAY
LIQUID PENETRANT: YES
9. CUSTOMER'S INSPECTION: YES

–GENERAL NOTES–

1. ALL BOLT HOLES TO STRADDLE VESSEL CENTER LINES.
2. VESSEL TO BE FREE OF ALL WELD SPLATTER, DIRT, OIL, AND GREASE.
3. COVER & PLUG ALL OPENINGS FOR SHIPMENT.
4. INTERNAL WELDS TO BE GROUND SMOOTH
5. WHEN INSTALLING VESSEL IN THE FIELD REPLACE TEST/SHIPPING GASKETS W/ PROCESS GASKETS.
6. INTERNAL WELDS TO BE GROUND SMOOTH AND NO WELD SLAG.
7. PASSIVATE TANK WITH OAKITE 33.

CUSTOMER ASHLAND
P.O. NO. 4502514375
UNITS REQ'D. (1) ONE

ASME MATERIAL SPECIFICATIONS

SHELL	T-304/304L	SA-240	M.W. COVER	T-304/304L	SA-182	JACKET COIL	T-304/304L	SA-240	HT. EXCH. SHELL			TIE RODS			BOLTING ZINC PLTD	GASKETS 1/8" THK.
FORMED HEADS	T-304/304L	SA-240	M.W. FLANGE	T-304/304L	SA-182	JKT. WELD CAP			EXPANSION JOINT			SPACERS			■ SA-193 B7	▭ ENVELON 3565
BAFFLES	T-304/304L	SA-240	M.W. NECK	T-304/304L	SA-240	TOP CLOSURE RING			UNIT FLANGES			BAFFLES			▭ SA-325	■ PTFE
NOZZLE LAP JOINT FLG'S			REIN. PADS	T-304 S/S	SA-240	BTM. CLOSURE RING			NOZZLE FLGS.			BONNET SHELLS			▭ SA-320	▭ RUBBER
NOZZLE SLIP-ON FLG'S	T-304/304L	SA-182	INSULATION RINGS			JKT. NOZZ. FLGS.	T-304/304L	SA-182	NOZZLE NECKS			BONNET HEADS			NUTS ZINC PLTD	▭ FLEXITALLIC SPIRAL WOUND FLEXICARB CG
NOZZLE NECKS (PIPE)	T-304/304L	SA-312	LIFT LUGS	T-304 S/S	SA-240	JKT. NOZZ. NECKS	T-304/304L	SA-312	COUPLINGS			RIBS			■ SA-194 2H	
NOZZLE NECKS (PLT.)	T-304/304L	SA-240	PIPE LEGS	T-304 S/S	SA-312	STIFFENING RINGS			TUBE SHEETS			BONNET NOZZ. FLGS.			▭ SA-325	O-RING .275" ø
STUD PADS			SKIRT BASE RING						TUBES ☐ SEAMLESS ☐ WELDED			BONNET NOZZ. NECKS			▭ SA-320	▭ TEFLON W/ VITON ENV.

DRAWING DISTRIBUTION:
QUALITY CONTROL
MIKE ANDRETTA
GEORGE HAND
TYLER/MACHINE SHOP
ASHOK PATEL

REV.	DESCRIPTION	BY	CKD	DATE
(B)	REVISED AS BUILT DWG. 1/12/2015	RED	GH	1/12/15
(A)	REVISED PER CUST. APPROVED DRAWING	RED	GH	10/21/14

ROBEN Manufacturing Company, Inc.
Steel and Alloy Fabrication

102" I.D. T-304/304L S/S SOLVENT RECOVERY TANK

EQUIP NO: 72-9106

SCALE	MADE	CKD	DATE	DRAWING
AS SHOWN	RED	GH	10/15/14	D-14053-1 (B)

National Board Number: 10509

Mfr. Representative: [signature] Date: 2-3-15

Authorized Inspector: KO Date: 2-3-15

1/4

FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS

As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

1. Manufactured and certified by: Roben Mfg. Co., Inc., 760 Vassar Avenue, Lakewood, NJ 08701
(Name and address of Manufacturer)

2. Manufactured for: ASHLAND 1979 ATLAS ST. COLUMBUS, OHIO 43228
(Name and address of Purchaser)

3. Location of installation: ASHLAND 1979 ATLAS ST. COLUMBUS, OHIO 43228
(Name and address)

4. Type: VERTICAL (Horizontal, vertical, or sphere) | JACKETED TANK (Tank, separator, jkt. vessel, heat exch., etc.) | 14053-1 (Manufacturer's serial number)

(CRN) | D-14053-1 REV B (Drawing number) | 10509 (National Board number) | 2014 (Year built)

5. ASME Code, Section VIII, Div. 1: 2013 AND NONE (Edition and Addenda, if applicable (date)) | 2732 (Code Case number) | (Special service per UG-120(d))

Items 6-11 incl. to be completed for single wall vessels, jackets of jacketed vessels, shell of heat exchangers, or chamber of multichamber vessels.

6. Shell: (a) Number of course(s): ONE (b) Overall length: 283'-6"

Course(s)			Material	Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B & C)			Heat Treatment	
No.	Diameter	Length	Spec/Grade or Type	Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time
1	6" OD	283'-6"	SA240T304	.135"	-	-	-	-	-	-	-	-	-

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

7. Heads: (a) (Material spec. number, grade or type) (H.T. - time and temp.) (b) (Material spec. number, grade or type) (H.T. - time and temp.)

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

8. Type of jacket: TYPE 1 Jacket closure: 1/2 I C R WELDED (Describe as ogee and weld, bar, etc.)

If bar, give dimensions: If bolted, describe or sketch.

9. MAWP: 150 PSI (Internal) 15 PSI (External) at max. temp. 375°F (Internal) 375°F (External) Min. design metal temp. -25° F at 15/150 PSI

10. Impact test: NO AS PER PARAGRAPH UHA-51 (indicate yes or no and the component(s) impact tested) at test temperature of

11. Hydro., pneu., or comb. test pressure: HYDRO 211 PSI Proof test: U-G-101(m) SHELL 3000 PSI Date: 1/29/2015

Items 12 and 13 to be completed for tube sections.

12. Tubesheet: (Stationary (material spec. no.)) (Diameter (subject to press.)) (Nominal thickness) (Corr. allow.) (Attachment (welded or bolted))

(Floating (material spec. no.)) (Diameter) (Nominal thickness) (Corr. allow.) (Attachment)

13. Tubes: (Material spec. no., grade or type) (O.D.) (Nominal thickness) (Number) (Type (straight or U))

(04/14)

National Board Number: 10509

Mfr. Representative: [signature] Date: 2-3-15

Authorized Inspector: [signature] Date: 2-3-2015

FORM U-1 (Cont'd)

Items 14-18 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers.

14. Shell: (a) No. of course(s) 2 (b) Overall length 12'-0

Course(s)			Material	Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B & C)			Heat Treatment	
No.	Diameter	Length	Spec./Grade or Type	Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time
1	8'-6" ID	6'-0"	SA240T304	.500"	.062"	1	SPOT	85%	1	NONE	85%	-	-
1	8'-6" ID	6'-0"	SA240T304	.500"	.062"	1	SPOT	85%	1	NONE	85%	-	-

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

15. Heads: (a) SA240T304 (b) SA240T304L

(Material spec. number, grade, or type) (H.T. - time and temp.)

	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)	TOP	.485"	.062"	-	-	2.1	-	-	-	CONVEX	CONCAVE	1	FULL	100%
(b)	BT	.485"	.062"	-	-	2.1	-	-	-	CONVEX	CONCAVE	1	FULL	100%

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

16. MAWP 100 PSI (Internal) 15 PSI (External) at max. temp. 450°F (Internal) 450°F (External) Min. design metal temp. -25°F at 15/100 PSI

17. Impact test NO AS PER PARAGRAPH UHA-51 at test temperature of

(Indicate yes or no and the component(s) impact tested)

18. Hydro., pneu., or comb. test pressure 145 PSI Proof test

19. Nozzles, inspection, and safety valve openings:

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diameter or Size	Type	Material		Nozzle Thickness		Reinforcement Material	Attachment Details		Location (Insp. Open.)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
					SEE ATTACHED						
					U-4						

20. Supports: Skirt NO (Yes or no) Lugs 2 (Number) Legs (Number) Others (Describe) Attached (Where and how)

21. Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report (list the name of part, item number, Manufacturer's name, and identifying number):

LINE #15, ELLIPHEAD 102" ID X .625" TK 1028275-4 TOP HEAD, 1028275-2 BT HEAD ENERFHB INC. 2631 "U"

22. Remarks

NOT RESPONSIBLE FOR SAFETY DEVICES UG-125 HYDRO IN VERTICAL POSITION.

National Board Number: 10509

Mfr. Representative: [signature] Date: 2-3-15

Authorized Inspector: [signature] Date: 2-3-15

FORM U-1 (Cont'd)

CERTIFICATE OF SHOP COMPLIANCE

We certify that the statements 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 24584 Expires 01/01/2017

Date 2-3-15 Name Rohen Mfg. Co., Inc. (Manufacturer) Signed [signature] (Representative)

CERTIFICATE OF SHOP INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and employed by HSB Global Standards of

have inspected the pressure vessel described in this Manufacturer's Data Report on 1-31-2015, 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 2-3-15 Signed [signature] (Authorized Inspector) Commissions NB11005ABN, NJ 1012 (National Board (incl. endorsements))

CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE

We certify that the statements in this report are correct and that the field assembly construction of all parts of this vessel conforms with the requirements of ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. U Certificate of Authorization Number _____ Expires _____.

Date _____ Name _____ (Assembler) Signed _____ (Representative)

CERTIFICATE OF FIELD ASSEMBLY INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and employed by

_____

of _____, have compared the statements in this Manufacturer's Data Report with the described pressure vessel

and state that parts referred to as data items _____, not included in the certificate of shop inspection, have been

inspected by me and to the best of my knowledge and belief, the Manufacturer has constructed and assembled this pressure vessel in accordance with the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. The described vessel was inspected and subjected to a hydrostatic test of _____. 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 _____ Signed _____ (Authorized Inspector) Commissions _____ (National Board (incl. endorsements))

(04/14)

National Board Number: 10509 Serial No: 14053-1

Mfg: [signature] Date: 2-3-15

AI: KP Date: 2-3-15

FORM U-4 MANUFACTURER'S DATA REPORT SUPPLEMENTARY SHEET

As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

3/4

1. Manufactured and certified by ROBEN MFG. CO., INC.,
760 VASSAR AVENUE, LAKEWOOD, NJ 08701
(Name and address of Manufacturer)

2. Manufactured for ASHLAND, 1979 ATLAS ST., COLUMBUS, OHIO 43228
(Name and address of Purchaser)

3. Location of installation ASHLAND, 1979 ATLAS ST., COLUMBUS, OHIO 43228
(Name and address)

4. Type VERTICAL (Horizontal, vertical, or sphere) JACKETED TANK (Tank, separator, heat exch., etc.) 14053-1 (Manufacturer's serial number)

(CRN) D-14053-1 REV B (Drawing number) 10509 (National Board number) 2014 (Year built)

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diameter or Size	Type	Material		Nozzle Thickness		Reinforcement Material	Attachment Details		Location (Insp. Open.)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
AGITATOR	1	12"	SOW/RF	SA240T304	SA182T304	.625"	.062"	SA240T304	UW16.1(d)	FIG2-4(8)	
FUTURE	1	8"	SOW/RF	SA240T304	SA182T304	SCH80	.062"	SA240T304	UW16.1(d)	FIG2-4(8)	
FUTURE	1	4"	SOW/RF	SA312T304	SA182T304	SCH80	.062"	-	UW16.1(d)	FIG2-4(8)	
VENT	1	3"	SOW/RF	SA312T304	SA182T304	SCH80	.062"	-	UW16.1(d)	FIG2-4(8)	
RELIEF	1	3"	SOW/RF	SA312T304	SA182T304	SCH80	.062"	-	UW16.1(d)	FIG2-4(8)	
CHARGE PORT	3	2"	SOW/RF	SA312T304	SA182T304	SCH160	.062"	-	UW16.1(d)	FIG2-4(8)	
CHARGE PORT	1	3"	SOW/RF	SA312T304	SA182T304	SCH80	.062"	-	UW16.1(d)	FIG2-4(8)	
CHARGE PORT	2	1 1/2"	SOW/RF	SA312T304	SA182T304	SCH160	.062"	-	UW16.1(d)	FIG2-4(8)	
MAN WAY	1	24"	SOW/RF	SA240T304	SA182T304	1/2"	.062"	SA240T304	UW16.1(d)	FIG2-4(8)	TOP HEAD
COIL INLET	1	3"	SOW/RF	SA312T304	SA182T304	SCH40	-	-	UW16.1(d)	FIG2-4(8)	
COIL OUTLET	1	3"	SOW/RF	SA312T304	SA182T304	SCH40	-	-	UW16.1(d)	FIG2-4(8)	
DRAIN	1	6"	SOW/RF	SA312T304	SA182T304	SCH80	.062"	-	UW16.1(d)	FIG2-4(8)	
THERMOWELL	1	1"	STUDPAD	SA290T304	-	1 7/8"	.062"	-	-	-	

Remarks

Certificate of Authorization: Type U No. 24584 Expires 01/05/2017

Date 2-3-15 Name ROBEN MFG. CO., INC. (Manufacturer) Signed [signature] (Representative)

Date 2-3-2015 Name [signature] (Authorized Inspector) Commissions NB11005ABN, NJ 1012 (National Board (incl. endorsements))

(08/14)

509

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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: ENERFAB, INC., 4955 Spring Grove Avenue, Cincinnati, Ohio 45232 (Name and address of Manufacturer)

2. Manufactured for: ROBEN MANUFACTURING CO, 760 VASSAR AVENUE, LAKEWOOD NJ 08701 (Name and address of Purchaser)

3. Location of installation: UNKNOWN (Name and address)

4. Type: ELLIP HEADS 102"ID x .6250" THK [Description of vessel part (shell, two-piece head, tube bundle)] | 1028275 - 1,2,3,4 (Manufacturer's serial number) | (CRN)

(National Board number) | PO# 14053-544 (Drawing number) | (Drawing prepared by) | 2014 (Year built)

5. ASME Code, Section VIII, Div. 1: 2013 EDITION [Edition and Addenda (date)] | (Code Case number) | [Special service per UG-120(d)]

6. Shell (a) Number of course(s): | (b) Overall length

Course(s)			Material	Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment	
No.	Diameter	Length	Spec./Grade or Type	Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time

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

7. Heads: (a) SA240-304/304L S/S (Material spec. number, grade or type) (H.T. - time & temp.) | (b) (Material spec. number, grade or type) (H.T. - time & temp.)

	Location (Top, Bottom, Ends)	Thickness		Radius		Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure		Category A		
		Min.	Corr.	Crown	Knuckle					Convex	Concave	Type	Full, Spot, None	Eff.
(a)		.4850				2:1						1	FULL	Unk.
(b)														

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

8. MAWP (Internal) (External) at max. temp. (Internal) (External) Min. design metal temp. at

9. Impact test: NO [Indicate *yes* or *no* and the component(s) impact tested] at test temperature of

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 (Insp. 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 (Yes or no) Lugs (Number) Legs (Number) Others (Describe) Attached (Where and how)

14. Remarks: NO DESIGN FUNCTION BY ENERFAB INC.

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NB 10509

FORM U-2A (Back)

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 2631 Expires 12/31/2015

Date 11-03-2014 Name ENERFAB, INC. (Manufacturer) Signed (Representative)

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 HSB Global Standards of Hartford, CT have inspected the pressure vessel part described in this Manufacturer's Data Report on 11-3-2014, 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 11-3-2014 Signed (Authorized Inspector) Commissions NB 10604 A (National Board (incl. endorsements))

Used Roben Mfg 6,000 Gallon 304 Stainless Steel Jacketed Reactor 100 PSI, Half-Pipe Coil (2015). 102" diameter X 144" high straight side. Internal rated 100/FV @ -25 to 450 F. Half pipe coiled jacket rated 150/FV @ 375 F. Dished heads. NB# 10509, Serial# 14053-1. Top Fittings: 24" manway with sight glass. 12" agitator nozzle (No Agitator or Drive), (2) 1.5", (3) 2", (3) 3", (1) 4", and (1) 8". 6" center bottom outlet and One 1" offset bottom head thermocouple. Has (4) internal baffles and supports stands for a diptube. Mounted on (4) stainless steel legs. Built 2015.

SPECIFICATIONS

Manufacturer	**Roben**
Serial #	**14053-1**
Category	**Reactors**
Subcategory	**Stainless Steel 5000 Gallon and up**

USED EQUIPMENT FACTS ABOUT THIS MACHINE

Manufacturer Information

- **Manufacturer:** Roben Manufacturing Co.
- **Capacity:** Approx. 6,000 Gallons
- **Construction:** 304 Stainless Steel
- **Year Built:** 2015
- **National Board #:** 10509
- **Serial #:** 14053-1
- **Condition:** Used
- **Mounting:** (4) Stainless Steel Legs

his **Used Roben Mfg 6,000 Gallon Stainless Steel Jacketed Reactor Body** is a heavy-duty process vessel designed for heating, cooling, blending, and reaction applications in chemical, pharmaceutical, and food processing environments.

The vessel measures approximately **102" diameter x 144" straight side height** and features **dished heads** for strength and pressure integrity. The internal vessel is rated **100 PSI / Full Vacuum at -25°F to 450°F**, while the **half-pipe coiled jacket** is

rated **150 PSI / Full Vacuum at 375°F**, allowing efficient thermal transfer using steam, glycol, or hot oil.

Top fittings include a **24" manway with sight glass**, a **12" agitator nozzle** (no agitator or drive included), and multiple process nozzles ranging from **1.5" to 8"**, providing flexibility for instrumentation and product flow.

Additional features include:

- **6" center bottom outlet**
- **1" offset bottom head thermocouple**
- **(4) Internal baffles**
- **Dip tube support stands**
- Mounted on **(4) stainless steel legs**

Built in **2015**, this reactor body is ideal for facilities seeking a high-pressure, jacketed vessel ready for custom agitation and process integration.

Specifications

- Capacity: **Approx. 6,000 Gallons**
- Diameter: **102 inches**
- Straight Side Height: **144 inches**
- Construction: **304 Stainless Steel**
- Heads: **Dished Top & Bottom**
- Internal Rating:
  - **100 PSI / Full Vacuum**
  - **-25°F to 450°F**
- Jacket Type: **Half-Pipe Coil**
- Jacket Rating:
  - **150 PSI / Full Vacuum**
  - **Up to 375°F**
- Top Fittings:
  - **24" Manway with Sight Glass**
  - **12" Agitator Nozzle (No Agitator Included)**
  - (2) 1.5"
  - (3) 2"
  - (3) 3"

    - (1) 4"
    - (1) 8"
- Bottom:
    - **6" Center Outlet**
    - **1" Offset Thermocouple**
- Internals:
    - **(4) Baffles**
    - Dip tube support stands
- Mounting: **(4) Stainless Steel Legs**
- Year Built: **2015**

Applications

- Chemical reactions
- Polymer processing
- Pharmaceutical manufacturing
- Specialty chemical blending
- Food-grade heating and mixing

What Might This Be Used For

This jacketed reactor body is commonly used for **temperature-controlled chemical reactions, blending, or batch processing under pressure or vacuum conditions**, particularly in regulated and industrial environments.

Products This Equipment Is Used For

- Resins
- Adhesives
- Polymers
- Specialty chemicals
- Pharmaceutical intermediates
- Flavorings
- Liquid coatings
- Industrial additives
- Emulsions

- Process formulations

PRODUCT DETAILS

- Jacketed reactor
- 6000 gallon reactor
- Stainless steel reactor
- Roben reactor
- Pressure vessel
- Chemical reactor
- Industrial reactor
- Process vessel
- Jacketed tank
- Used reactor
- Used Roben 6000 gallon reactor
- 304 stainless steel jacketed reactor
- Half pipe coil reactor vessel
- 100 PSI pressure reactor
- Industrial chemical reaction vessel
- Full vacuum rated reactor
- Stainless steel batch reactor
- 6,000 gallon pressure vessel
- Jacketed mixing vessel
- Used 2015 stainless reactor
- Used Roben Mfg 6000 gallon 304 stainless steel jacketed reactor for sale
- Half pipe coiled jacket pressure vessel 100 PSI
- Industrial batch reactor 102 inch diameter
- Full vacuum rated stainless steel reaction vessel
- Chemical processing reactor body without agitator
- 6000 gallon jacketed pressure vessel 2015
- Stainless steel reactor with 6 inch bottom outlet
- Industrial heating and cooling reaction tank
- 304 stainless steel pressure rated reactor vessel

- Used chemical plant jacketed reactor
- Buy 6000 gallon jacketed reactor
- Used stainless steel pressure vessel for sale
- Purchase half pipe jacketed reactor
- Industrial chemical reactor price
- 100 PSI stainless reactor
- Vacuum rated process vessel
- Batch reactor for sale
- Used 304 stainless reactor
- Pressure vessel supplier
- Industrial reaction tank purchase
- Sell Roben reactor
- Used 6000 gallon reactor available
- Jacketed pressure vessel for sale
- Surplus chemical reactor
- Sell stainless steel process vessel
- Industrial reactor liquidation
- Half pipe jacket vessel resale
- Pressure rated tank for sale
- Used batch reactor system
- Chemical plant vessel available