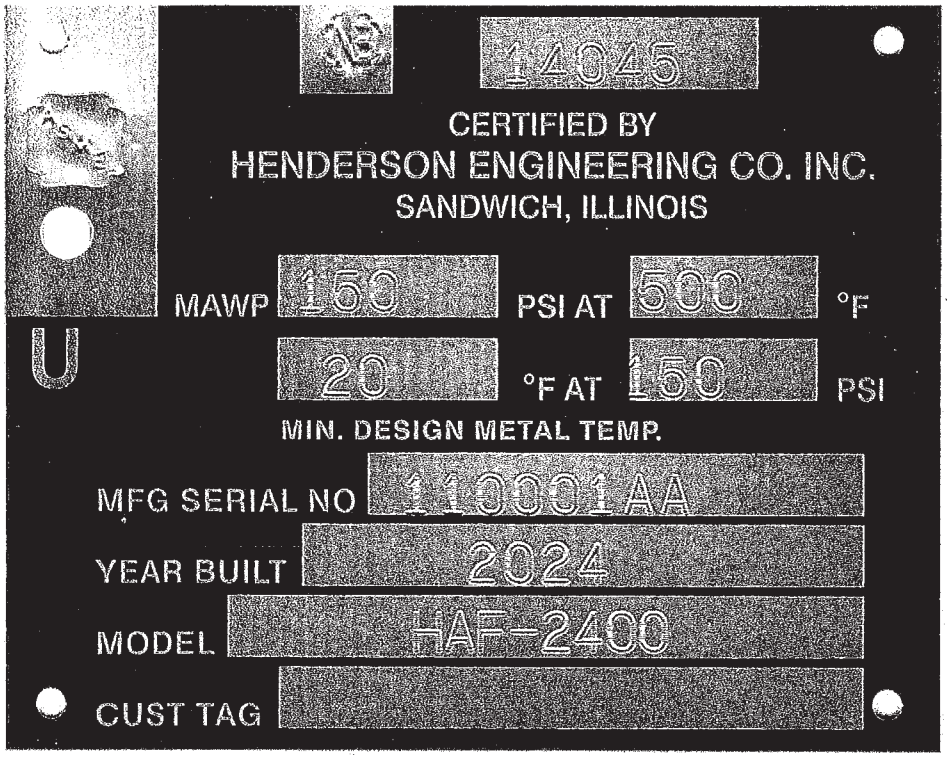
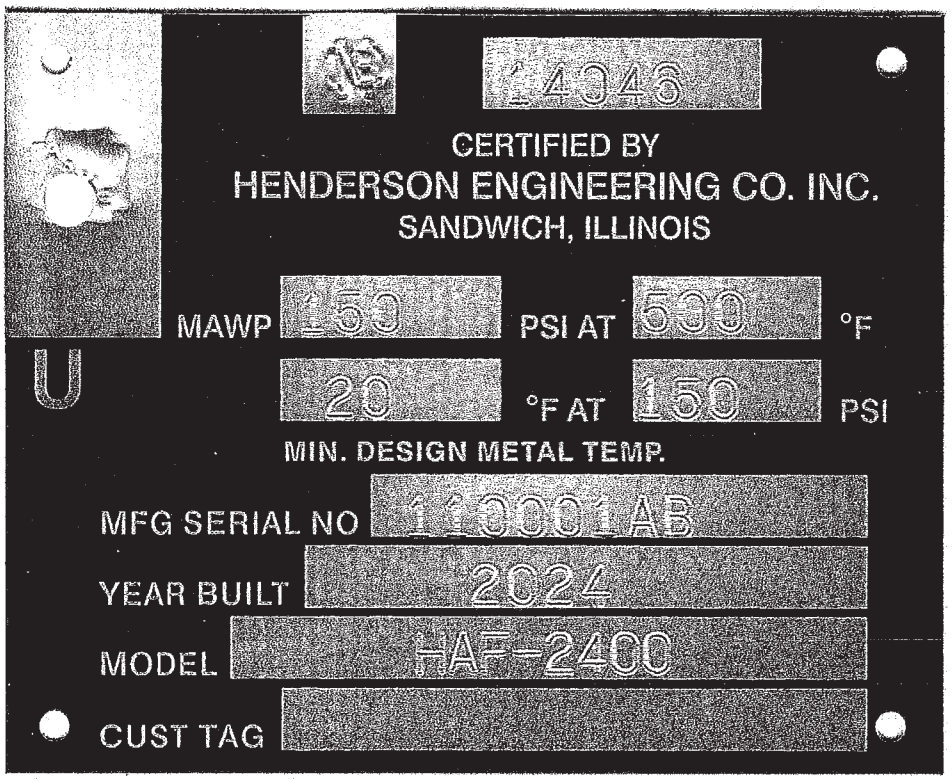
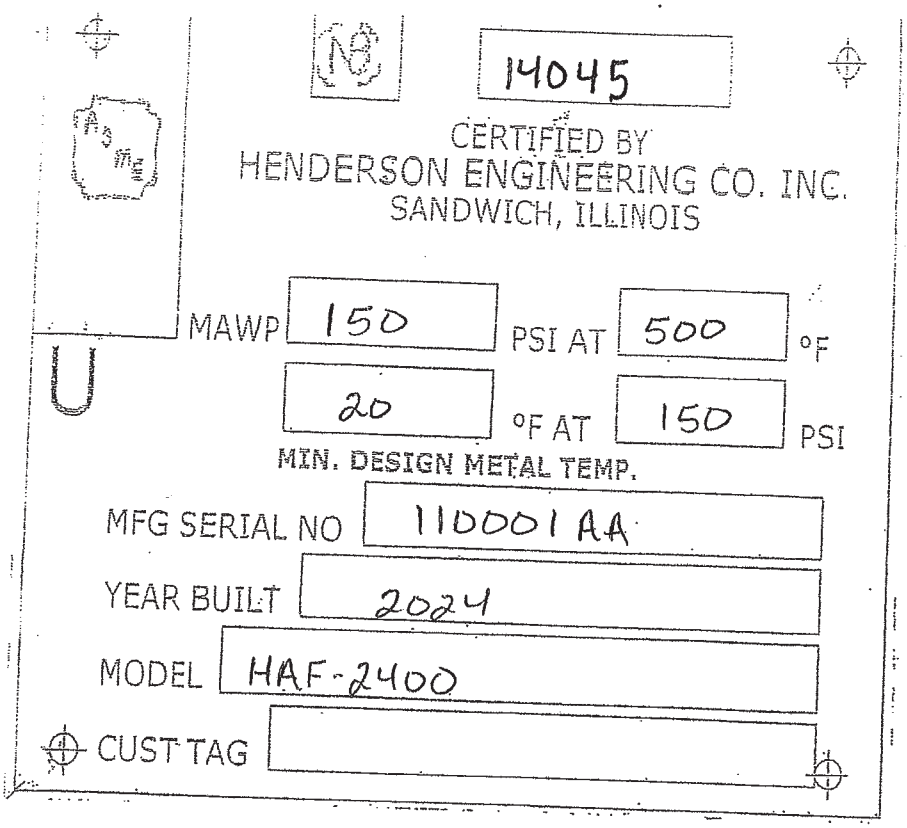
NATIONAL BOARD NUMBERS 14045


14045
CERTIFIED BY
HENDERSON ENGINEERING CO. INC.
SANDWICH, ILLINOIS
MAWP 150 PSI AT 500 °F
U
20 °F AT 150 PSI
MIN. DESIGN METAL TEMP.
MFG SERIAL NO 110001AA
YEAR BUILT 2024
MODEL HAF-2400
CUST TAG


14046
CERTIFIED BY
HENDERSON ENGINEERING CO. INC.
SANDWICH, ILLINOIS
MAWP 150 PSI AT 500 °F
U
20 °F AT 150 PSI
MIN. DESIGN METAL TEMP.
MFG SERIAL NO 110001AB
YEAR BUILT 2024
MODEL HAF-2400
CUST TAG



Inspection Point	Quality Control Date	Quality Control Initial	Authorized Inspector Date	Authorized Inspector Initial	Comments
Review Calcs, Drwg, MTR, etc.	7/31/24	LMG			Shell Ht# D1616 72 Head Ht# Top
					Bottom BDRJ
Check transfer of Ht#'s	SEP 2 5 2024	LMG	SEP 2 5 2024	GB	Pipe Ht#'s 4 GEAW
Fit-up Hds & Shells					
Internal Inspection	SEP 2 5 2024	LMG	SEP 2 5 2024	GB	Other Ht#'s MWY
					HH
Completed Weld	SEP 2 5 2024	LMG	SEP 2 5 2024	GB	Drwg # IR91160
Hydrotest @ 200 PSI	SEP 2 5 2024	LMG	SEP 2 5 2024	GB	Welder McLaughlin
					Symbol M
Verify stamping of nameplate	SEP 2 5 2024	LMG	SEP 2 5 2024	GB	WPS used 215

Miscellaneous Comments

X

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

110001

(Alternative Form for Single Chamber, Completely Shop or Field Fabricated Vessels Only)

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

1. Manufactured and certified by **Henderson Engineering Co., Inc., 95 N. Main Street, Sandwich, Illinois, 60548, USA**
(Name and address of Manufacturer)

2. Manufactured for Ingersoll Rand, 525 Harbour Place Drive #600, Department 11, Davidson, NC 28036
(Name and address of Purchaser)

3. Location of Installation World Energy Paramount, 14700 Downey Ave., Paramount, CA 90723
(Name and address)

4. Type **Vertical** (Horizontal or vertical, tank) | **110001AA** (Manufacturer's serial number) | **N/A** (CRN) | **IR91160** (Drawing number) | **14045** (National Board number) | **2024** (Year built)

5. ASME Code, Section VIII, Division 1 **2021/ N/A** [Edition and Addenda, if applicable (date)] | **N/A** (Code Case numbers) | **N/A** [Special service per UG-120(d)]

6. Shell: **SA-53 E/B** (Material spec. number, grade) | **.250 in** (Nominal thickness) | **0 in** (Corr. allow.) | **1' 0.75" (OD)** (Inner diameter) | **3' 6"** [Length (overall)]

Body Flanges on Shells

No.	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Location	Bolting			
									Num & Size	Bolting Material	Washer (OD, ID, thk)	Washer Material
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

7. Seams: **ERW** [Long. (welded, dbl., sngl., lap, butt)] | **None** [R.T.(spot or full)] | **85%** (Eff.,%) | **N/A** (H.T. temp) | **N/A** (Time, hr) | **2** [Girth. (welded, dbl., sngl., lap, butt)] | **None** [R.T. (spot or full)] | **65%** (Eff., %) | **1** (No. of courses)

8. Heads: (a) **SA-516 70** (Material spec. number, grade or type) (H.T. - time and temp.) (b) **N/A** (Material spec. number, grade or type) (H.T. - time and 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)	BOTTOM	.221	0	N/A	N/A	2:1	N/A	N/A	N/A		X	N/A	N/A	N/A

Body Flanges on Heads

No.	Location	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Bolting			
									Num & Size	Bolting Material	Washer (OD, ID, thk)	Washer Material
(a)	TOP	RFSO	12"	N/A	B16.5	150#	SA105	Welded	(12) 7/8"	SA449	N/A	N/A

9. MAWP **150 psi** (Internal) | **N/A** (External) at max. temp. **500 °F** (Internal) | **N/A** (External)

Min. design metal temp. **20 °F** at **150 psi** . Hydro, pneu., or comb. test pressure **200**

Proof test **N/A**

10. 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	
In/Outlet	2	4"	RFSO	SA-53 E/B	SA105	Sch 40	0		UW-16.1c	Fig. 2-4 (3)	Shell
Drain	2	3/4"	CPLG	SA105	N/A	3000#	0		UW-16.1c	N/A	Btm. Hd./Shell
Gauge	2	1/4"	CPLG	SA105	N/A	3000#	0		UW-16.1c	N/A	Shell

11. Supports: Skirt **No** (Yes or no) Lugs **1** (Number) Legs **N/A** (Number) Other **N/A** (Describe) Attached **Top - Welded** (Where and how)

12. Remarks: Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors, have been furnished for the following items of the report:

N/A
(Name of part, item number, Manufacturer's name and identifying stamp)

Hydro tested in vertical position UG-20(f) External pressure not design consideration

FORM U-1A

Manufactured by **Henderson Engineering Co., Inc., 95 N. Main Street, Sandwich, Illinois, 60548, USA**

Manufacturer's Serial No. **110001AA** CRN **N/A** National Board No. **14045**

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 **7982** expires **March 30, 2025**.

Date **09/24/2024** Co. name **Henderson Engineering Co., Inc.** (Manufacturer) Signed _____ (Representative)

CERTIFICATE OF SHOP/FIELD INSPECTION

Vessel constructed by **Henderson Engineering Co., Inc.** at **95 N. Main Street, Sandwich, Illinois, 60548, USA**

I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and employed by The Hartford Steam Boiler Inspection and Insurance Company, of Hartford, CT

have inspected the component described in this Manufacturer's Data Report on September 25, 2024, 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 09/25/2024 Signed _____ (Authorized Inspector) Commissions 12343, IL2007, WI838881, IN1738, IA1501 (National Board Authorized Inspector Commission number)