

FORM U-MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured and certified by John Zink Company, LLC 1501 South John Zink Ave., Skiatook, Ok. 74070
(Name and address of Manufacturer)

2. Manufactured for Waukesha Pearce Industries 12320 S. Main Houston, Tx. 77035
(Name and address of Purchaser)

3. Location of installation Waukesha Pearce Industries 12320 S. Main Houston, Tx. 77035
(Name and address)

4. Type: Horizontal Box Header / Heat Exchanger 936256-301 None 301 2599 2001
(Horiz., vert., or sphere) (Tank, separator, jkt. vessel, heat exch., etc.) (Mfg's serial No.) (CRN) (Drawing No.) (Nat'l. Bd. No.) (Year built)

5. ASME Code, Section VIII, Div. 1 1998 Edition, 2000 Addenda None None
Edition and Addenda (date) Code Case No. 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 multi-chamber vessels.

6. Shell (a) No. of course(s): "Two Headers" One Each End (b) Overall length (ft & in.): "Two" 4' - 10 7/8" Header end to end length

No.	Course(s)		Material Spec./Grade or Type	Thickness		Long Joint (Cat. A)			Circum. Joint (Cat. A, B & C)			Heat Treatment	
	Diameter, in.	Length (ft. & in.)		Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time
1	7.12"X8.37	4' - 10 7/8"	SA-516-70N	See	Remarks	N/A	Corner	N/A	N/A	None	N/A	None	N/A
1	7.12"X8.37	4' - 10 7/8"	SA-516-70N	See	Remarks	N/A	Corner	N/A	N/A	None	N/A	None	N/A

7. Heads: (a) SA-516-70N (No Heat Treatment) (b) SA-516-70N (No Heat Treatment)
(Mat'l Spec. No., Grade or Type) H.T.-Time & Temp (Mat'l Spec. No., 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) Ends	.500"	.125"						*			S	None	1
(b) Ends	.500"	.125"						*			S	None	1

If removable, bolts used (describe other fastening) N/A
(Mat'l Spec. No., Grade, size, No.)

8. Type of jacket N/A Jacket closure N/A
(Describe as ogee & weld, bar, etc.)

If bar, give dimensions N/A If bolted, describe or sketch

9. MAWP 150 N/A psi at max. temp. 250 N/A °F Min. design metal temp. -20 °F at 150 psi
(internal) (external) (internal) (external)

10. Impact test Impact testing is not required per UCS-66.1 & UG-20 (f).
(Indicate yes or no and the component(s) impact tested)

11. Hydro., ~~part of comb.~~ test press. 195 Proof test N/A
Items 12 and 13 to be completed for tube sections.

12. Tubesheet: N/A N/A N/A N/A N/A
Stationary (Mat'l Spec. No.) Dia., in. (subject to press.) Nom. thk., in. Corr. Allow., in. Attachment (welded or bolted)

N/A N/A N/A N/A N/A

13. Tubes: SA-249-304 1" .049" Avg. Wall 102 Straight
Floating (Mat'l Spec. No.) Dia., in. Nom. thk., in. Corr. Allow., in. Attachment

SA-249-304 1" .049" Avg. Wall 102 Straight

Mat'l Spec. No., Grade or Type O.D., in. Nom. thk., in. or gauge Number Type (Straight or U)

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): N/A (b) Overall length (ft & in.): N/A

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

15. Heads: (a) N/A (b) N/A
(Mat'l Spec. No., Grade or Type) H.T.-Time & Temp (Mat'l Spec. No., 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)													
(b)													

If removable, bolts used (describe other fastening) N/A
(Mat'l Spec. No., Grade, Size, No.) RR 1026.10

16. MAWP N/A (internal) N/A (external) psi at 0 temp. N/A (internal) N/A (external) °F Min. design temp. N/A °F at N/A psi.

17. Impact test N/A (Indicate yes or no and the component(s) impact tested)

18. Hydro., pneu., or comb. test press. N/A Proof test N/A

19. Nozzles, inspection, and safety valve openings:

Purpose (inlet, Outlet, Drain, etc.)	Diameter (No. 1 or Size)	Flange Type	Material		Nozzle Thickness		Reinforcement Material	How Attached		Location (Insp. Open)
			Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
Process Conn.	2" 8"	150# RFWN	SA-234-WPB	SA-105N	.500"	.125"	None	UW16.1(A)	Welded	Header
Utility Conn.	2" 1"	N/A	SA-105N Cplg.	N/A	6000#	.125"	None	UW16.1(A)	N/A	Header
Utility Conn.	2" 3/4"	N/A	SA-105N Cplg.	N/A	6000#	.125"	N/A	UW16.1(A)	N/A	*
Tube Plugs	2041 1 1/8"	N/A	SA-105N Plug	N/A	N/A	.125"	N/A	Threaded	N/A	Header

20. Supports: Skirt No (Yes or No) Lugs N/A (No.) Legs N/A (No.) Others Supported by structure (Describe) Attached Bolted (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, mfg's. name and identifying number)
N/A

22. Remarks: Item 6: The tubesheet and plugsheet thicknesses are: .750" thick for the inlet and outlet header. Both are SA-516-70N with a .125" corr. allowance. The top and wrapper thickness for both the inlet and outlet headers are .500" SA-516-70N with a .125" corr. allowance. * Item 7: Each header has two flat heads, the dimensions for the heads are: 5.375" X 7.125". No relieving device per UG-125. * Item 19: The 3/4" cplg.'s are located in the transition nozzle neck.
The length of all the tubes are: 11' - 10 1/2" from the tubesheet to tubesheet. Corrosion allowance is not applied to the tubes. Fabricated in accordance with appendix 28.

CERTIFICATE OF SHOP 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 Code for Pressure Vessels, Section VIII, Division 1,
U Certificate of Authorization No. 7800 Expires 02/28, 2003

Date 7-19-01 Name John Zink Company, LLC (Manufacturer) Signed George Adams (Representative)

CERTIFICATE OF SHOP INSPECTION

I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and the State or Province of Oklahoma and employed by Heartland Lloyds Insurance Company of Houston, Tx. have inspected the pressure vessel described in this Manufacturer's Data Report on 7-20-01, and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME Code, Section VIII, Division 1. By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his 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 7-20-01 Signed [Signature] (Authorized Inspector) Commissions NB#12461A OK# 883 (Nat'l Board incl. endorsement, State, Province and No.)

CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE

We certify that the statements on this report are correct and that the field assembly construction of all parts of this vessel conforms with the requirements of ASME Code, Section VIII, Division 1,
U Certificate of Authorization No. _____ Expires _____, 19 _____

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 the State or Province of _____ 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 ASME Code, Section VIII, Division 1. The described vessel was inspected and subjected to a hydrostatic test of _____ psi. By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his 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 _____ (Nat'l Board incl. endorsement, State, Province and No.)

FORM U MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured and certified by John Zink Company, LLC 1501 South John Zink Ave., Skiatook, Ok. 74070
(Name and address of Manufacturer)

2. Manufactured for Waukesha Pearce Industries 12320 S. Main Houston, Tx. 77035
(Name and address of Purchaser)

3. Location of installation Waukesha Pearce Industries 12320 S. Main Houston, Tx. 77035
(Name and address)

4. Type: Horizontal Box Header / Heat Exchanger 936256-303 None 303 2600 2001
(Horiz., vert., or sphere) (Tank, separator, jkt. vessel, heat exch., etc.) (Mfg's serial No.) (CRN) (Drawing No.) (Nat'l. Bd. No.) (Year built)

5. ASME Code, Section VIII, Div. 1 1998 Edition, 2000 Addenda None None
Edition and Addenda (date) Code Case No. 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 multi-chamber vessels.

6. Shell (a) No. of course(s): "Two Headers" One Each End (b) Overall length (ft & in.): "Two" 3' - 11 5/8" Header end to end length

Course(s)			Material	Thickness		Long Joint (Cat. A)			Circum. Joint (Cat. A, B & C)			Heat Treatment	
No.	Diameter, in.	Length (ft. & in.)	Spec./Grade or Type	Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time
1	4.25"X8.37	3' - 11 5/8"	SA-516-70N	See	Remarks	N/A	Corner	N/A	N/A	None	N/A	None	N/A
1	4.25"X8.37	3' - 11 5/8"	SA-516-70N	See	Remarks	N/A	Corner	N/A	N/A	None	N/A	None	N/A

7. Heads: (a) SA-516-70N (No Heat Treatment) (b) SA-516-70N (No Heat Treatment)
(Mat'l Spec. No., Grade or Type) H.T.-Time & Temp (Mat'l Spec. No., Grade or Type) H.T.-Time & Temp

Location (Top, Bottom, Ends)	Thickness		Radius		Elliptical	Conical	Hemispherical	Flat	Side to Pressure		Category A		
	Min.	Corr.	Crown	Knuckle	Ratio	Apex Angle	Radius	Diameter	Convex	Concave	Type	Full, Spot, None	Eff.
(a) Ends	.500"	.125"						*			S	None	1
(b) Ends	.500"	.125"						*			S	None	1

If removable, bolts used (describe other fastening) N/A
(Mat'l Spec. No., Grade, size, No.)

8. Type of jacket N/A Jacket closure N/A
(Describe as ogee & weld, bar, etc.)

If bar, give dimensions N/A (If bolted, describe or sketch)

9. MAWP 150 N/A psi at max. temp. 250 N/A °F Min. design metal temp. -20 °F at 150 psi.
(internal) (external) (internal) (external)

10. Impact test Impact testing is not required per UCS-66.1 & UG-20 (f).
(Indicate yes or no and the component(s) impact tested)

11. Hydro. 195 test press. N/A Proof test
Items 12 and 13 to be completed for tube sections.

12. Tubesheet: N/A N/A N/A N/A N/A
Stationary (Mat'l Spec. No.) Dia., in. (subject to press.) Nom. thk., in. Corr. Allow., in. Attachment (welded or bolted)

N/A N/A N/A N/A N/A
Floating (Mat'l Spec. No.) Dia., in. Nom. thk., in. Corr. Allow., in. Attachment

13. Tubes: SA-249-304 1" .049" Avg. Wall 82 Straight
Mat'l Spec. No., Grade or Type O.D., in. Nom. thk., in. or gauge Number Type (Straight or U)

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): N/A (b) Overall length (ft & in.): N/A

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

15. Heads: (a) N/A (b) N/A
(Mat'l Spec. No., Grade or Type) H.T.-Time & Temp (Mat'l Spec. No., Grade or Type) H.T.-Time & Temp

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

If removable, bolts used (describe other fastening) N/A
(Mat'l Spec. No., Grade, Size, No.) RR 1026.10

16. MAWP N/A N/A psi at 0 amp. N/A N/A °F Min. design temp. N/A °F at N/A psi.
 (internal) (external) (internal) (external)

17 Impact test N/A
 (Indicate yes or no and the component(s) impact tested)

18. Hydro., pneu., or comb. test press. N/A Proof test N/A

19. Nozzles, inspection, and safety valve openings:

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diameter or Size	Flange Type	Material		Nozzle Thickness		Reinforcement Material	How Attached		Location (Insp. Open)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
Process Conn.	2	3"	150# RFWN	SA-333-GR6	SA-105N	.438"	.125"	None	UW16.1(A)	Welded	Header
Utility Conn.	2	1"	N/A	SA-105N Cplg.	N/A	6000#	.125"	None	UW16.1(A)	N/A	Header
Utility Conn.	2	3/4"	N/A	SA-105N Cplg.	N/A	6000#	.125"	N/A	UW16.1(A)	N/A	*
Tube Plugs	164	1 1/8"	N/A	SA-105N Plug	N/A	N/A	.125"	N/A	Threaded	N/A	Header

20. Supports: Skirt No Lugs N/A Legs N/A Others Supported by structure Attached Bolted
 (Yes or No) (No.) (No.) (Describe) (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, mfg's. name and identifying number)
N/A

22. Remarks: Item 6: The tubesheet and plugsheet thicknesses are: .750" thick for the inlet and outlet header. Both are SA-516-70N with a .125" corr. allowance. The top and wrapper thickness for both the inlet and outlet headers are .500" SA-516-70N with a .125" corr. allowance. * Item 7: Each header has two flat heads, the dimensions for the heads are: 2.500" X 7.125". No relieving device per UG-125. * Item 19: The 3/4" cplg.'s are located in the nozzle necks.
 The length of all the tubes are: 11' - 10 1/2" from the tubesheet to tubesheet. Corrosion allowance is not applied to the tubes. Fabricated in accordance with appendix 28.

CERTIFICATE OF SHOP 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 Code for Pressure Vessels, Section VIII, Division 1,
 U Certificate of Authorization No. 7800 Expires 02/28, 2003
 Date 7-19-01 Name John Zink Company, LLC Signed George Blunn
 (Manufacturer) (Representative)

CERTIFICATE OF SHOP INSPECTION

I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and the State or Province of Oklahoma and employed by Heartland Lloyds Insurance Company of Houston, Tx. have inspected the pressure vessel described in this Manufacturer's Data Report on 7-20-01, and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME Code, Section VIII, Division 1. By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his 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 7-20-01 Signed [Signature] Commissions NR#12461A OK#883
 (Authorized Inspector) (Nat'l Board incl. endorsement, State, Province and No.)

CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE

We certify that the statements on this report are correct and that the field assembly construction of all parts of this vessel conforms with the requirements of ASME Code, Section VIII, Division 1,
 U Certificate of Authorization No. _____ Expires _____, 19____
 Date _____ Name _____ Signed _____
 (Assembler) (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 the State or Province of _____ 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 ASME Code, Section VIII, Division 1. The described vessel was inspected and subjected to a hydrostatic test of _____ psi. By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his 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 _____ Commissions _____
 (Authorized Inspector) (Nat'l Board incl. endorsement, State, Province and No.)