

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

HC-5155

1. Manufactured and certified by Ward Tank & Heat Exchanger Corp., 6670 East Harris Blvd. Charlotte, NC 28215
(Name and address of Manufacturer)

2. Manufactured for KOSA, 4600 Highway 421 North, Wilmington, NC 28401 **#104245**
(Name and address of Purchaser)

3. Location of installation KOSA, 4600 Highway 421 North, Wilmington, NC 28401
(Name and address)

4. Type: Horizontal Heat Exchanger HC-5155 - 03-HC-5155 3066 2003
(Horiz., vert., or sphere) (Tank, separator, jkt. vessel, heat exh., etc.) (Mfg's serial No.) (CRN) (Drawing No.) (Nat'l. Bd. No.) (Year built)

5. ASME Code, Section VIII, Div. 1 2001, A02 - -
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): 6 (SEE REMARKS) (b) Overall length (ft & in.): 19'-10"

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
2	31" OD	8'-0"	SA-516-70	0.375"	0.0625"	1	None	70%	1	None	70%	N/A	N/A
1	31" OD	1'-7.375"	SA-516-70	0.375"	0.0625"	1	None	70%	1	None	70%	N/A	N/A
1	31" OD	1'-3.25"	SA-516-70	0.375"	0.0625"	1	None	70%	1	None	70%	N/A	N/A

7. Heads: (a) - (b) -
(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) -
(Mat'l Spec. No., Grade, size, No.)

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

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

9. MAWP 175 - psi at max. temp. 375 - °F Min. design metal temp. -20 °F at 175 psi.
(internal) (external) (internal) (external)

10. Impact test No per UG-20f at test temperature of - °F
(Indicate yes or no and the component(s) impact tested)

11. Hydro., ~~hydro.~~, test press. 228 Proof test -

Items 12 and 13 to be completed for tube sections.

12. Tubesheet: SA-240 S31803 31" 1" 0.0625" Welded
Stationary (Mat'l Spec. No.) Dia., in. (subject to press.) Nom. thk., in. Corr. Allow., in. Attachment (welded or bolted)

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

13. Tubes: SA-789 S31803 0.750" 0.065" 600 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): 2 (b) Overall length (ft & in.): 2'-2.625"

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, Spbt, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time
1	31"	1'-6.125"	SA-240 T316	0.25"	0"	1	None	70%	N/A	None	70%	N/A	N/A
1	31"	0'-8.5"	SA-240 T316	0.25"	0"	1	None	70%	N/A	None	70%	N/A	N/A
-	-	-	-	-	-	-	-	-	-	-	-	-	-

15. Heads: (a) SA-516-70 W/SA-240 T316 Clad (b) (head Jacket) SA-516-70
(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	3.125"	0"	-	-	-	-	-	36.5"	-	X	N/A	None	70%
(b)	Ends	0.22"	0"	28"	2"	-	-	-	-	-	X	N/A	None	70%

If removable, bolts used (describe other fastening) (72) Studs, 1.125"-8 X 9.75" SA-193 B7 ; (144) Nuts, Hex, 1.125"-8 SA-194 2H
(Mat'l Spec. No., Grade, Size, No.)



JKT MAMP: 175 PSI AT 375°F. TEST: 228 PSI