NATIONAL BD. NO. (M CERTIFIED BY: ## Ken ADV SERIAL NO. 2004	Lube Engineered Prod. Sion of finture technologies, inc.
M.A.W.P. 4901 PSI MDMT PF HEAT. SUR. Sq. Ft. 2	at 7,50 % at 2,30 %
year built <u>[2004</u> /- Btu/HR <u>[202</u>	MM.

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FORM P-3 MANUFACTURER'S DATA REPORT FOR WATERTUBE BOILERS, SUPERHEATERS, WATERWALLS, AND ECONOMIZERS As Required by the Provisions of the ASME Code Rules, Section I

MASTER DATA REPORT YES ☐ (check one) NO ☑

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1. M	anufactured by	Kentube En	gineered]	Products A D	vision of Fintu	he Technologies	, Inc., 4141 So	uth Galvesto	ол. Tulsa, ОК 7	4107		
	anufactured for					(Name ar	nd address of m	anufacturer)	-			
3. Lo	ocation of installs	ation Unknov	γn			(Name	and address of p	ourchaser)				
							(Name and ad	dress)				
4. UI	it Identification;			mizer r, superheater		s. <u>2004717</u> (Mfr's Seria		(CRN)	20047176-1f re		5830	2004
		wate	rwall, eco	nomizer, etc.)		·	•	•	(Drawing No.	,	l Bd. No.)	(Year Built)
5. Ti	ne chemical and nstruction and w	physical prop orkmanship c	erties of at onform to	I parts meet th Section I of the	e requirements o ASME Boller a	of material specifi nd Pressure Ves	sel Code.	<u>2001 </u>	RAND PRESSUR Idenda to200	<u>3</u> and Co	ODE. The de ode Cases	sign,
St	pporting Manufa	acturer's Data	Reports p	roperly identific	ed and signed by	Commissioned		Year) Itached for th	Dat) e following items ((Numbers)
		, w			(Name of part, it	em number, mfr's	name, and ider	ntifying stamp)			
=												
6. (a) Drums:											
	lnside	înside L	enath	-	Sho	ll Plates			T. J. J.		Tube Hole L	
No.	Diameter,	ft.	in.		oec. No.,	Thickness,	Inside Radius	s, Thickn	Tubesheets ess, Inside Ra	adius, Le	Efficience ongitu-	y, % Circum-
1	in.	_	-	Gr	ade	[n.	in.	<u></u>			dinal	ferential
2	-					-	-				-	-
3	<u> </u>				-	<u>-</u>	<u> </u>	-			-	-
	Longitu Join			Circum. Joints				Usada				
No.	No. & Type*	Effi- clency	No. Tyr	. & E	ncy	'l. Spec. No., Grade	Thickn	Heads ess, in,	Type**	Radius of Dish	Manholes No. Size	Hydro- static Test, psi.
2		-	-		<u>-</u>	-	 - -	-	-	-	-	-
3	-										-	
	ate if (1) Seamle Boiler tubes:	ess; (2) Fusion	welded.						licate if (1) Flat; (2)) Dished; (3) E	Ellipsoidai; (4)	Hemispherica
	· · · · · · · · · · · · · · · · · · ·	Thickness	M	lat'l. Spec. No.	. Grade	6, (c) Headers no.		ox or sinuous or ro	und Matil en	ec no · Thick	'nocel
	-	-		-			Heads or Ends		-			-
<u> </u>				-				(Shape: Mat	il. spec no. Thickn	ess)		
	-					0. (d) Staybolts _	(N	lat'l. spec. no.; Dia	meter: Size te	olltala: Nat are	29)
			,				Pitch	- '	in. Net Area	in.	MAWP	
6. (e)	Mud Drum;		or	,	I to	ada as Fusia	(Hor. a	nd Vert.)		d by one bolt		
(-,		(For sect. hea	ader boiler	s, State Size;		ads or Ends	(Shape; Mat'l	spec. no.; T	hickness)	Hydro. Test,	psi	-
7 (0)	Motorcall		. spec. no	.; Thickness)								
/ <u>, [a</u>	Waterwall Head	ders: Mate	erial	Thickness,		Heads or E Thickness,	nds Materia	ı H	7(b) Wat ydro Diameter	erwall Tubes	T	Antorial
No.	Size and Shap			in.	Shape	in.	Spec. No	o. Tes	st. psi. jn.	r, Thickne		viaterial pec. No.
-	-	 	•	-	 - -		-		.+		-	-
	-	<u> </u>		<u> </u>		-	_			-	+	-
	Economizer He								8(b) E	Economizer To	ıbes	
1	4.026" inlet 4.026" outlet			 	weld cap	sch 40	sa-234 w		- 2.0"	.105"	sa-	178 gr a
<u>_</u>	1 4.020 outlet	sa-106	gro		weld cap	sch 40	sa-234 w	pb		<u> </u>		<u> </u>

FORM P-3 (Back)

9. (a) Superheater Headers				Heads or Ends			9 (b) Superheater Tubes				
	Size and Sh	Materia nape Spec. N		Thickness, in.	Shape	Thickness, in.	Material Spec. No.	Hydro Test, psi.	Diameter, in.	Thickness, in.	Material Spec. No.
<u> </u>	-			-	-	-	-	-	-	-	"
Ė	-	-			-	-	-	-		-	
<u> </u>) Other Parts	(1) threaded cour	nlet	l	(2) -	<u> </u>	(3)			10(b) T	ubes for Other Parts
1	(6) .750			3000#	-				_		
2	(0).730	Sa-10.)	3000#	<u>-</u>	-	-			-	-
3					-	+	-	-	-	-	-
	penings (1)	Steam	(1)	4.0" x 300# rf	wn flange sa-10:	5	(2) Safety Valve	(1) .500" x 300	0# threaded co	ouplet sa-105
					of nozzies or outle				(No., size, and	type of nozzle	s or outlets)
	(3)	Blowoff			<u>-</u>		(4) Feed		1) 4,0" x 300#		
			(No.	, size, and type	of nozzles or out	lets)		(No.,	size, type and	location of cor	inections)
12.	ļ	Maximum Allowable	1	Par. and/or la on Which	Shop Hydro.	Heating Surface				13.	
	[Working Pressure		vP is Based	Test, psi	Sq. Ft.	Heating surface to be stamped				dro. Test psi
а	Boiler	-	İ		-)	on drum heads. This heating sur-				-
\rightarrow	Waterwall			-		{	face not to be used for deter-				
-	Economizer	490		pg-99	735	2,273	mining minimum				
-	Superheater Other Parts		 		-		safety valve capacity.				-
		igned Steaming Car	l			hr					,,,,
			_								
15. H	lemarks: <u>sr</u>	v = .500" kunkle n	nodel # 5	327, set pressu	re (a) 490 psig, (ships loose)					
					CERTIFIC	ATE OF SH	OP COMPLIANCE				
	•			•		ill details of de	sign, material, constructi	on, and wor	kmanship of th	is boiler confor	m
1 1		he ASME BOILER				4 41 1	0) 0	Occupation of		1.000	2005
0	ur Certificate	of Authorization No.		107	2	to use the (s) <u> </u>				
_	-1 1111	(1000)	\mathcal{L}	,			Name -	Centube En	gineered Prod	ucts A Divisio	on of Fintube
"	ete <u>11/1</u>	4/2004 Signe		(4)	uthorized Represe	ntalive)	Name	<u> rechnologi</u>		nufacturer)	
	······································		<u> </u>	y (' ''			IOP INSPECTION				
l	OILER MADE	F BY	KENT	URE ENGINE				4141 S. G.	ALVESTON.	TULSA OK 7	4107
l B	BOILER MADE BY KENTUBE ENGINEERED PRODUCTS at 4141 S. GALVESTON, TULSA OK 74107										
		ned, holding a valid	commiss	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							
		ned, holding a valid a and employed by		_						•	DKLAHUMA nave inspected parts
ļ.,	the undersigr					ONE BEA	CON AMERICA, b, 10a, 11, 12c, 15				nave inspected parts
l, of S	the undersign this boiler re upporting Ma	and employed by ferred to as data ite nufacturer's Data Re	ms	items		ONE BEA	CON AMERICA, b, 10a, 11, 12c, 15				nave inspected parts and have examined and state that, to the
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KENTUBE CYLINDRICAL FUEL ECONOMIZER 20047176 GAS OPENING DIA. TO BE SPECIFIED BY CUSTOMER RFWN FLANGE FEEDWATER CONN. 2" THK. CERAMIC FIBER INSULATION CORRUGATED **OUTER CASING** Ω LIFTING LUG SUPPORT FEET 2" NPT MALE CONN. **FOR ROTARY** SOOTBLOWER FLOW



SEE PERFORMANCE DATA SHEET FOR DIMENSIONS AND SIZE OF FEEDWATER CONN'S.

BI

GREEN, GARRETT

From:

steven.taylor@wareinc.com

Sent: To: Wednesday, September 15, 2004 2:48 PM

GREEN, GARRETT

Subject:

30,000pph boiler economizer

20047176

Garrett, the dimensions for the economizer flanges it as follows:

The outside of the flange is $66" \times 45"$. Holes are $1 \frac{1}{2}"$ from the outside edge.

The long side of the flange has 14 spaces @ 4 1/2".

The short side has one space on each end at 3" and 8 equal spaces @ 4 1/2".

The flanges are made of 3" X 3" angle.

Let me know if you need any further detail.

Thanks

Steven Taylor Director of Sales Rental, Equipment and Special Project Sales 800-228-8861 502-314-8011--cell 502-331-9656--home



555 West 41st Street Tulsa, Oklahoma 74107-7012

Tel: 918-446-4561 Fax: 918-445-4001 www.kentube.com

20047176

EQUIPMENT DATA

A Division of Fintube Technologies, Inc.

PREPARED FOR Ware, Inc. REFERENCE

30000 lb/h rental

PROPOSAL

315-41132-0-0

DATE

9-24-2004

DESIGN

ASME CODE SECTION	1	CYLINDRICAL ECONOMIZE	R MODEL 511240
TUBE SIDE FLUID	WATER	GAS SIDE FUEL	NATURAL GAS
FLUID FLOW	DOWN	GAS FLOW	VERTICAL
DESIGN TEMPERATURE (°F)	700	FLOW TYPE	COUNTER-CURRENT
DESIGN PRESSURE (psi)	490	EFFECTIVE SURFACE (ft ²)	2.273

PERFORMANCE

	<u>TUBE</u>	<u>SHELL</u>		
FLOW RATE (lb/hr)	30,000	35,850	HEAT EXCHANGED (Btu/hr)	2,522,311
TEMP IN (°F)	220	580	U EXTERNAL (Btu/hr-ft ² -°F)	6.454
TEMP OUT (°F)	303.1	317.5	LMTD (°F)	171.9
PRES IN (psi)	335	14.7	U BARE (Btu/hr-ft ² -°F)	60.841
PRES DROP (psi & in WC)	(1.3) 8.8	0.74	BARE TUBE SURFACE (ft²)	241
VELOCITY (ft/sec)	2.0	33.9	MAX FIN TEMP (°F)	487
SPEC HEAT (Btu/lb-°F)	1.0121	0.2734	MAX TUBE WALL TEMP (°F)	349
FOULING (hr-ft ² -°F/Btu)	0.001	0.002	FLUID SAT TEMP (°F)	417

CONSTRUCTION

NUMBER OF WRAPS	12	CASING	C/STL
NUMBER OF RINGS	4	INSULATION	2 in. CERAMIC FIBER
STREAMS	4	LAGGING	30 GA GALVANIZED

EFFECTIVE LENGTH (ft)	9.588
. ,	

FIN PITCH (fins per inch)

FIN HEIGHT (in)

FIN THICKNESS (in)

TUBE SIDE

EFFECTIVE LENGTH (ft)	9.588		
NOZZLE SIZE	4 in. RFWN	SOOTBLOWER TYPE	BUILT IN
TUBE MATERIAL	SA-178-A		
TUBE OD (in)	2.00	DRAWING NUMBER	CFE-V6
TUBE MIN WALL (in)	0.105		
TUBE PITCH	4.5 in. SQUARE	DIM A (OVERALL HEIGHT)	8'-0 3/4"
TUBE TYPE	FINNED	DIM B (NOZZLE C-C)	5'-1 1/4"
FIN MATERIAL	C/STL	DIM C (DIAMETER)	5'-0 1/2"
FIN TYPE	SOLID		

4

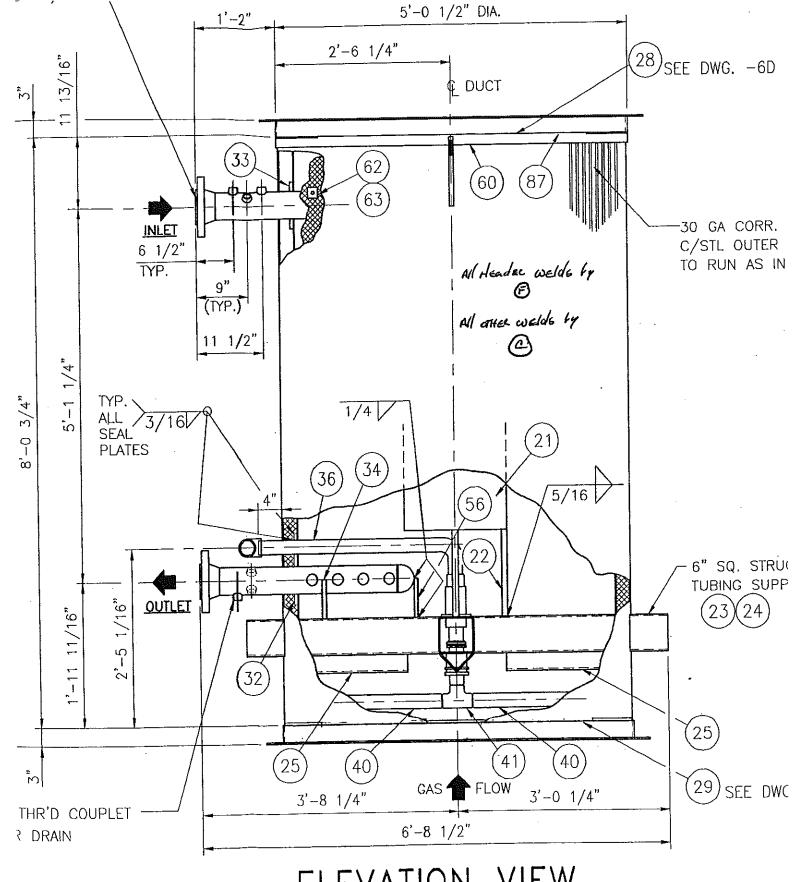
0.75

0.06

6,579 UNIT WEIGHT - DRY (lb) UNIT WEIGHT - WET (lb) 7,183

SHELL SIDE

OPT



VIEW ELEVATION

KEP JOB # 20047176

-			 DWN.	SRD	9/30
Ŋ			снкр.	DRB	10/7/
7	-				