CBHR SPECIFICATION

Furnish and install as shown on drawings, a Kansas City Deaerator Continuous Blowdown w/Heat Recovery MODEL NO. (CBHR) _____
as manufactured by Kansas City Deaerator Company, Inc.

The Flash Economizer shall be capable of handling _____ #/hr. continuous blowdown and _____
gpm make-up at the boiler operating pressure/pressures of_____ psig. flashing to low pressure deaerator, feedwater
heater or other low pressure user at _____ psig.

The Flash Economizer shall consist of the following components and accessories:

1. Vertical Flash Separator section with threaded connections for tangential inlet with stainless steel wear plate, blowdown drain recovered steam vent, and tank cleanout connections as well as couplings as required for accessories.

2. Vertical coil-type heat exchanger made of (copper or stainless steel) with steel threaded connections for make-up inlet, outlet, and openings for remote thermometer bulbs.

3. Flanged bottom section with drop out coil design for easy cleaning and maintenance.

4. Balanced float trap with all working parts constructed of stainless steel with removable seats, located externally and back vented to maintain a constant level in the flash separator.

5. Thermometer gauge panel showing temperatures of the make-up inlet, make-up outlet, and blowdown water to drain.

6. A safety relief valve set at 150 psig, a Michigan site level gauge, and tank clean out valve.

7. Optional Accessories shall include a high level alarm switch, multi-boiler manifold, flow control or blowdown valves, pressure gauge, and sample cooler with piping.

All the above components shall be mounted on a table base with four angle iron floor supports and pads in such a manner that will allow gravity flow of blowdown water through the system. The finished system shall be painted with a blue enamel exterior.

The equipment shall be designed and constructed in accordance with the latest ASME Code Sec. VIII, Div. 1. requirements for a unfired pressure vessel for 150 psig MAWP.

Kansas City Deaerator Company
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Standard Deaerating Units

KANSAS CITY DEAERATOR

HS Series
Up to 350,000 #/hr
Low Headroom

TC Series
Up to 250,000 #/hr
Tray Unit
Meets HEI

BDS Series
Up to 250,000 #/hr
Tray Unit
Meets HEI

DS Series
Up to 800,000 #/hr
Tray Unit
Meets HEI

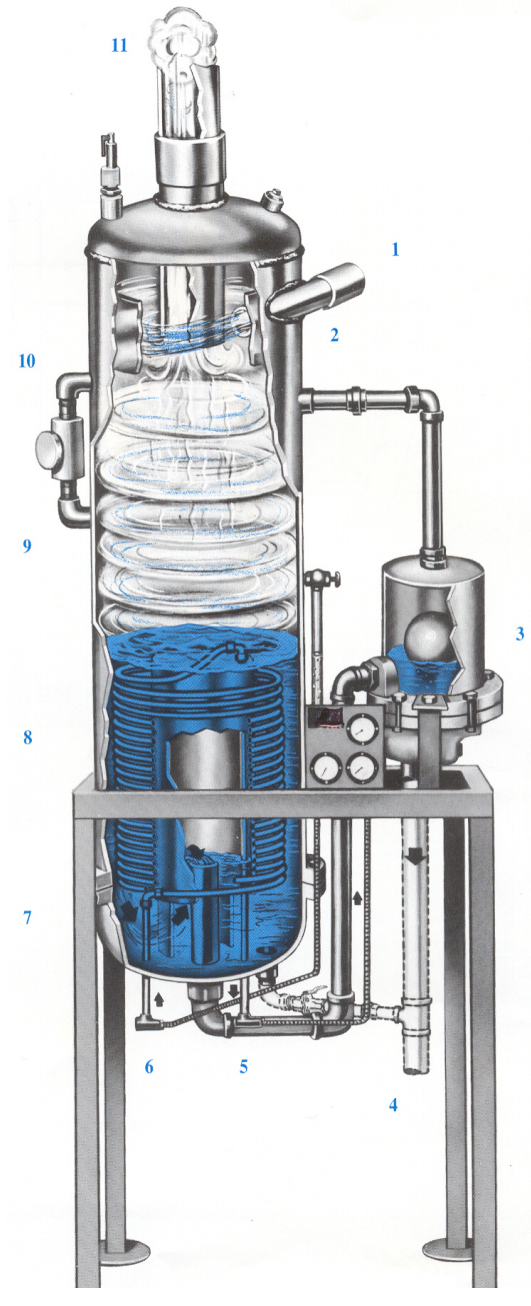
VS & VT Series
Up to 800,000 #/hr
Tray Unit
Minimal Plan Area
Meets HEI

HH Series
Up to 16,000,000 #/hr
Tray Unit-Meets HEI

CBHR – Continuous Blowdown
w/Heat Recovery

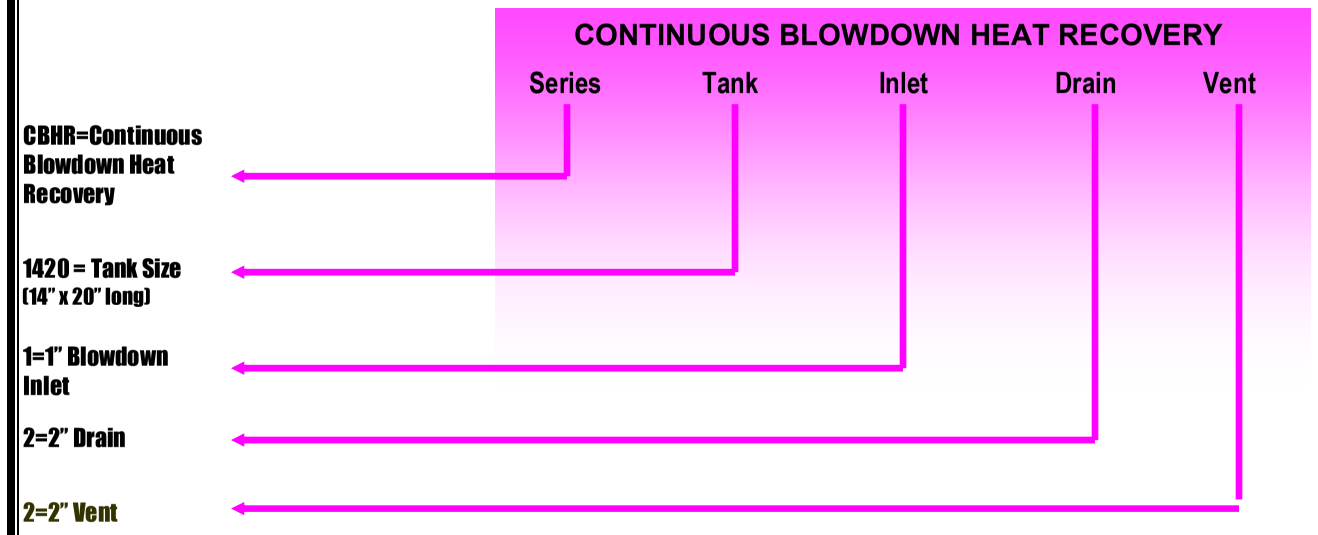
Principles of Operation

1. **TANGENTIAL INLET** imparts high velocity spinning action to liquid
2. **STAINLESS STEEL** wear Plate at point of impingement prevents erosion of separator wall
3. **FLOAT TRAP** for continuous discharge of cooled water to drain
4. **COOLED BLOWDOWN** to drain (100 - 110°)
5. **BOILER MAKE-UP** exits heated by continuous blowndown at no extra cost
6. **COLD WATER** boiler make-up enters system
7. **SLUDGE AREA** no pockets or baffles in heat exchanger area for sludge to deposit and reduce heat recovery efficiency or to clop the flow area
8. **SPIRAL COIL HEAT EXCHANGER** designed to provide maximum heat transfer
9. **HIGH VELOCITY CENTRIFUGAL ACTION** drives liquid and solids to outside – only clean dry steam releases into central vortex area and up into steam outlet
10. **LOW PRESSURE VORTEX AREA** expedites instant flashing of all steam to outlet
11. **STEAM OUTLET** clean dry steam 97% quality to deaerator



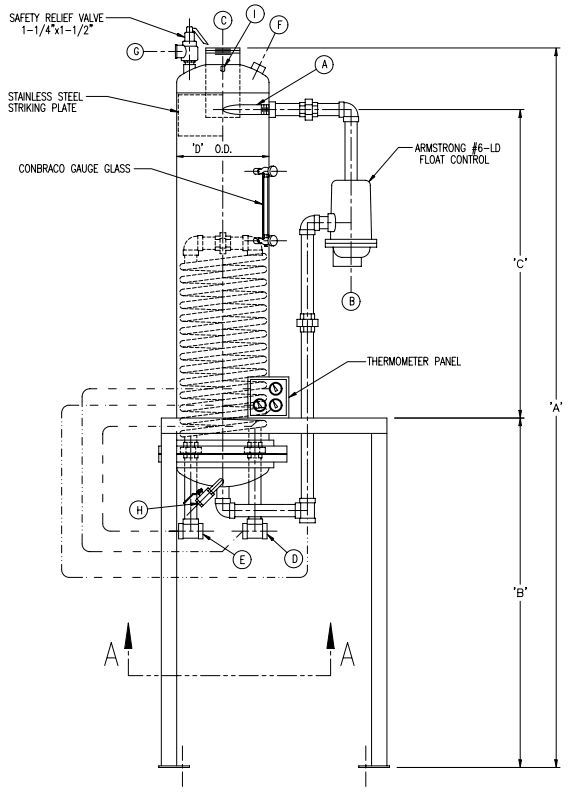
HEAT EXCHANGE INSTITUTE HEI INCORPORATED

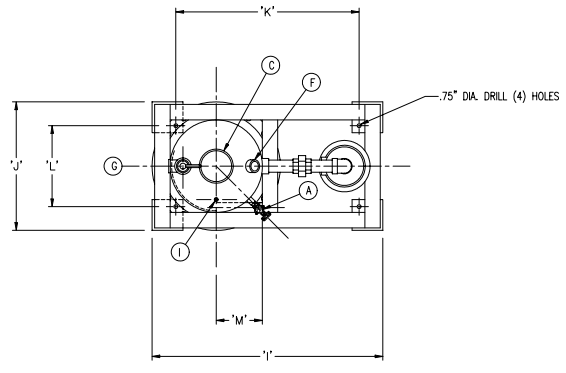
Model Number Selection



EXAMPLE:	SERIES	TANK	INLET		DRAIN		VENT
	CBHR	1420	-- 1	--	2	--	2

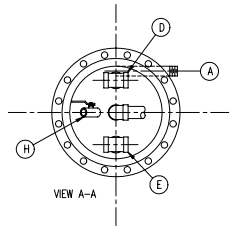
Typical Arrangement





NOZZLE SCHEDULE	NOM.
A. BLOWDOWN INLET	'E' SCH.80 NPTM
B. CONDENSATE OUTLET	'G' NPTF
C. STEAM VENT	'F' SCH.40 NPTM
D. MAKE-UP IN	'H' NPTF
E. MAKE-UP OUT	'H' NPTF
F. INSPECTION PORT	1-1/2" 3000# NPTF
G. RELIEF VALVE OUTLET	1-1/2" NPTF
H. CLEAN/DRAIN	3/4" NPTF
I. PRESSURE GAUGE CONN.	1/4" 3000# NPTF

MATERIAL SPECIFICATIONS		
HEADS	18" O.D.x.313" H/C	SA 516-70
SHELL	18" O.D.x.313"	SA 53-B
PIPE	SCH.40 & SCH.80	SA 53-B & 106-B
FLANGES	150# R.F.S.O.	SA 105
COUPLINGS	3000# NPTF	SA 105
STRIKING PLATE	16 GA. S.S.	SA 240-304
FRAME & SUPPORTS	3"x3"x.25"	SA 36
FLOOR PADS	6"x6"x.25"	SA 516-70
COILS	STAINLESS STEEL OR COPPEER	
FINISH	INTERNATIONAL BLUE ENAMEL	



NOTES:
* FLASH ECONOMIZER IS DESIGNED,CONSTRUCTED,AND STAMPED IN ACCORDANCE WITH ASME CODE,SECTION VIII,DIV.1,FOR A MAWP OF 150 PSIG @ 450°F.
* HYDROTESTED AT 195 PSIG.

SELECTION CHART

CBHR MODEL	BLOW DOWN	MAKE UP	A	B	C	D	E	F	G	H	I	J	K	L	M
CBHR3-15	3	15	97	46	40	10.75	1.5	2.5	1	1	37.25	17.75	28.00	8.50	9.0
CBHR6-30	6	30	111	53	46	12.75	1.5	3	1	1.25	35.00	19.00	27.00	11.00	9.0
CBHR10-50	10	50	106	51	43	16.00	1.5	4	2	1.5	41.50	23.50	32.25	14.25	9.0
CBHR20-100	20	100	140	68	60	18.00	1.5	6	2	2	45.00	25.00	35.75	15.75	9.0
CBHR30-150	30	150	132.5	67	51.25	24.00	1.5	6	2	2.5	51.00	33.00	41.75	23.75	9.0