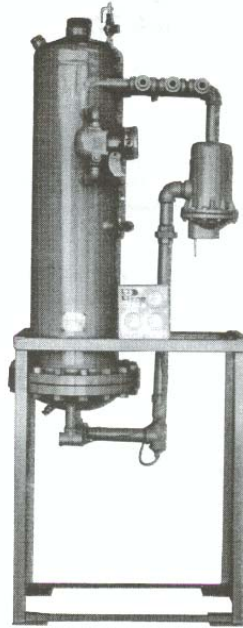


# FLASH TANK ECONOMIZER PRODUCT GUIDE



## Overview

A flash tank is used to recover blowdown energy in the form of flash steam and blowdown. This can only be used with a deaerator or some other pressurized device. This unit requires back pressure in excess of 2 psig on the flash tank economizer. It can be ordered for a single boiler or multiple boilers.

## Package Includes:

- Flash Separator with Stainless Steel Coil Heat Exchanger
- Floor Supports
- Liquid Level Controller
- Liquid Level Indicator, Brass Body Michigan Gauge
- Temperature Control Panel with (3) Indicating Thermometers (Drain Temperature, Make-up in, Make-Up out)
- Safety Valve
- ASME Code Construction ( 150# Design )

## FEATURES AND BENEFITS

### Flashing:

- Hot, high-pressure blowdown water from each boiler is piped to individual flow control valves on the inlet manifold. Pressure drops across the flow control valve to 5-20 psig, causing the blowdown water to flash into a mixture of steam and water.

### Separation Steam/Water:

- An entrainment baffle directs the mixture around the inside of the tank in a centrifugal motion. Efficient baffling separates the dirty blowdown water from the clean steam.

### Discharge:

- Steam then rises through the top of the flash tank and is piped to the feedwater heater, or wherever low pressure steam is required. The remaining hot, dirty water flows out the bottom of the flash tank to a heat exchanger for additional heat recovery, or to a blow-off tank or sewer.

### Heat Recovery:

- In addition to the heat recovered as flashed steam, the heat exchanger will transfer the remaining heat normally lost during blowdown, to the cold make-up water as it flows to the feedwater heater.

## PRODUCT OFFERING

Flash tank heat exchangers are used when operating pressures exceed 25 psig and continuous blowdown heat recovery is desired for cost savings. They consist of an ASME approved and stamped flash tank and a blowdown heat exchanger. Water from continuous blowdown enters the tank and separates into steam and water. The steam, normally at 5 psig, can be returned to the deaerator to help meet heating needs. Hot water leaves the flash tank at temperatures of 220 °F, or more. It goes into the heat exchanger, where it heats cold makeup water entering the system. The systems quickly pay for themselves with fuel savings resulting from recycled heat that would otherwise be wasted. The Model AHR (Figure H13-1) is available in sizes ranging from 3 to 30 gpm blowdown and 9 to 150 gpm makeup. The model AHR is a coil type flash tank heat exchanger. It is a compact, low cost alternative to the shell and tube design. The basic difference is the heat exchanger, constructed of stainless steel, is integral with the ASME approved flash tank. The space saving system includes floor supports, liquid level control, three indicating thermometers, and a safety valve as standard equipment.

### Standard Offering

- Flash separator with stainless steel coil heat exchanger.
- Floor supports.
- Liquid level controller
- Liquid level indicator, brass body Michigan gauge.
- Temperature control panel with three indicating thermometers (drain temperature, make-up inlet, make-up outlet).
- Safety Valve.

**Major Components**

- ASME Code Construction (150# Design).
- Blowdown system.
- Flashtank.
- Heat exchanger.
- Stand.

**Optional Equipment**

- Drain valve and level control.
- Sample coolers and assembly.
- Flow control valve and assembly.
- Manifold.
- Safety valve.
- Gauge glass.
- Pressure gauge.
- Gauge panel.
- Level alarm.
- Level alarm control panel.
- Thermometers for exchanger operation.

**Packages**

<b>Model Number</b>	<b>Blowdown GPM Maximum Capacity</b>	<b>Make-Up GPM Maximum Capacity</b>	<b>Shipping Wt.</b>
ACC-AHR-3-9	3	9	1030
ACC-AHR-3-15	3	15	1095
ACC-AHR-6-12	6	12	1230
ACC-AHR-6-30	6	30	1265
ACC-AHR-10-20	10	20	1805
ACC-AHR-10-50	10	50	1840
ACC-AHR-20-40	20	40	2110
ACC-AHR-20-100	20	100	2360
ACC-AHR-30-60	30	60	2435
ACC-AHR-30-150	30	150	2935

**Options**

	<b>Shipping Wt. (lbs)</b>
High Level Alarm Switch	20
Multiple Boiler Manifold ( per Boiler )	5
SC325SS Sample Cooler ( w/SS Coil & Accessories )	30
Sample Cooler Mounting w/One Boiler	10
Each Additional Boiler	5
ASME 'U' Stamp	

# FLASH TANK HEAT EXCHANGERS

## SAMPLE SPECIFICATIONS: MODEL AHR

### PART 1 GENERAL

#### 1.1 GENERAL

The following sample specification is provided by cleaver- brooks to assist you in specifying your customer's requirements.

### PART 2 PRODUCTS

#### 1.2 MODEL AHR

##### A. General

1. Furnish Cleaver-Brooks Model ACC-AHR \_\_\_\_ packaged flash tank coil type heat exchanger system, designed to handle a maximum blowdown rate of \_\_\_\_ gpm (3 to 30) and a maximum makeup rate of \_\_\_\_ gpm (9 to 150).
2. The system shall be designed for boilers of (130-2200) hp operating at (0-600) psig. The unit shall be designed to cool the blowdown to within 30 °F of the makeup water temperature. The unit shall have a 150 psig rating at 365 °F.
3. The system's flash tank shall have an ASME code design pressure of 150 psig and an internal flash pressure of \_\_\_\_ psig (5 to 15). The flash tank shall be \_\_\_\_" diameter and \_\_\_\_" high and shall be complete with a \_\_\_\_" tangential blowdown inlet, stainless steel wear plate, steam outlet, ball type float trap with all working parts constructed of stainless steel, tank stand, brass-bodied Michigan site glass, and a safety relief valve set at 150 psig. The flash tank shall have a flanged bottom section for quick access to the sludge area and to the coil.
4. The system shall also have a vertical coil-type heat exchanger. The exchanger shall be constructed of stainless steel and shall be integral with the flash tank. The coil shall be complete with \_\_\_\_" threaded connections for the makeup water inlet and outlet.
5. A gauge panel shall be furnished and shall include dial thermometers for indicating makeup inlet temperature, makeup outlet temperature and blowdown outlet temperature. The gauge panel shall be prepiped and mounted on the unit.
6. The entire system shall be supported by steel legs with 3/4" diameter holes for customer-supplied 1/2" diameter bolts. The system will be painted with Cleaver-Brooks blue finish paint.

##### B. Optional Equipment

1. A SC-325 Sample Cooler with isolation valves and interconnecting piping shall be supplied for a single boiler application. With each additional boiler, a sample valve assembly shall be added and manifolded to the sample cooler.

##### C. Multiple Boiler Operation

1. A manifold assembly shall be necessary for multiple boiler installations and shall consist of the necessary piping with threaded connections for the customer-supplied continuous blowoff valves.

# Notes