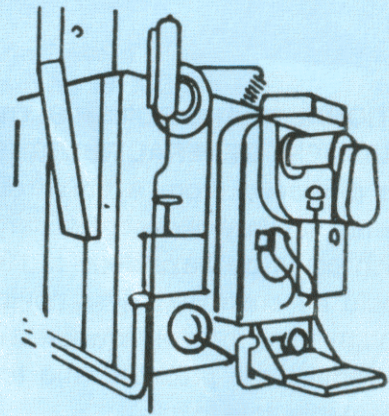
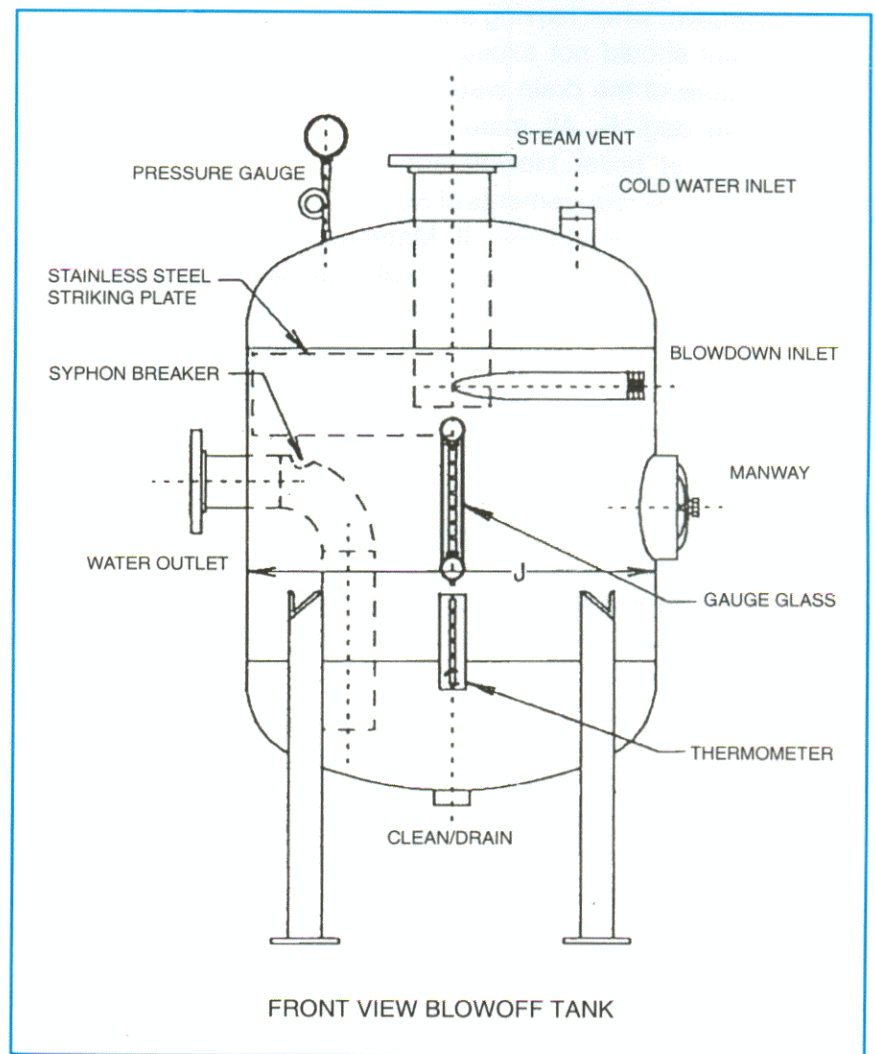


# Penn BLOWOFF TANKS



- Sizing to National Board**  
 Convenient selector charts provide sizing to meet the recommendations of the National Board.
- ASME Code Rated Vessel**  
 Each unit is stamped and registered in accordance with the requirements of ASME Code Sec. VIII, Div. 1.
- Stainless Steel Wear Plate**  
 Welded to the shell interior as provided on all Penn tangential inlets prevents erosion of side wall.
- Controls Thermal Pollution**  
 Each blowdown accumulates in the bottom of the tank to cool so that at the next blowdown the water mixes and is cooled to drain.
- Quiet Release of Steam**  
 Vent sizes permit low velocity release of steam to atmosphere additional vent appliances are not needed. Vent noise level below 90 dB(A).

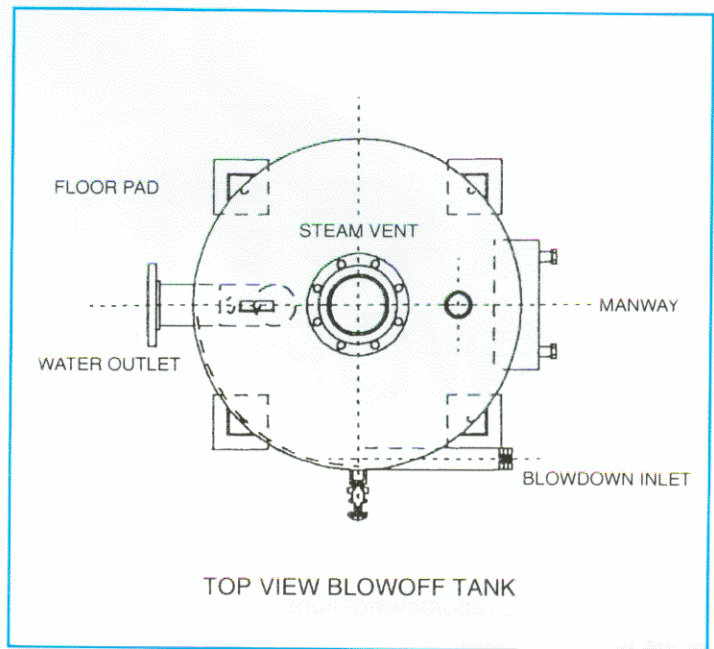


**- A PROVEN METHOD FOR BOILER BLOWOFF -**

## NATIONAL BOARD BOILER BLOWOFF EQUIPMENT GENERAL RULES 1991 EDITION.

The blowdown from a boiler or boilers that enters a sanitary sewer or discharges in an area which could be hazardous to life or property should be controlled. This control should be through some form of blowoff equipment which will reduce the pressure and temperature to acceptable safe levels.

The blowdown vessel shall be of a volume equal to at least twice the volume of one blowdown of the boiler when the normal water level is reduced by not less than 4 inches. The pressure of the blowdown when leaving any type of blowoff equipment should not exceed 5 psig and the temperature of the drain water should not exceed 140 deg. F. All materials used in the fabrication of boiler blowoff equipment shall comply with the requirements of Sec. VIII, Div. 1, Pressure Vessels and Sec. II, Materials of the ASME Code. All blowoff equipment shall have openings to facilitate cleaning and inspection.



### TANK FEATURES:

Penn Blowoff tanks come standard ASME Code Sec. VIII, Div. 1 designed and stamped for 50 psig at 450 deg. F. and are of a welded construction from 3/8" thick carbon steel materials. The tank would be fitted with the following connections, a blowdown tangential inlet with stainless steel wear plate, water overflow outlet which extends to within 6" of the bottom of the tank, a 3/4" siphon shall be located in the top portion of the outlet pipe, and atmospheric steam vent. Couplings connections are provided for a pressure gauge, thermometer, level gauge, tank clean out drain, and cold water inlet. The tank would be supported by a set of four angle legs with floor pads. 36" diameter and smaller tanks include couplings for inspection ports and larger tanks include a 12" x 16" manway. For multiple boilers, frequent blowdown, or addition of continuous blowdown an optional drain aftercooler fitting with temperature regulator valve can be provided to control the condensate outlet to 140 Deg. F. to the drain. A level gauge, thermometer, and pressure gauge can also be supplied as an option. Penn Blowoff Tanks are completely welded and assembled in Brookville, Pennsylvania, USA using only new materials with a shop primer applied to the exterior. Each unit is skidded for shipment and carries a full year warranty against materials and workmanship.

### SIZING REQUIREMENTS:

Tank size is very important for proper tank performance. The tank selector chart and nozzle sizing charts are based on the recommendations of the national board. The tank is selected using the drum size, and the nozzles are sized from the blowoff valve size and boiler operating pressure. On multiple boilers the largest drum and valve size should be used. Some states have special requirements other than the recommendations of the National Board. Please specify the State or Province the tank will be used in.

## BLOWOFF TANK SIZING

1. Calculate the Cu. Ft. amount of blowoff when lowering the Boiler Water Level 4". The following formula should be used: Cu. Ft. of Blowoff = (4"/12") X Drum Dia. Ft. X Drum Length Ft.
2. Select a Blowoff Tank which has Cu. Ft. holding capacity equal to the amount calculated. If the amount of Blowoff is known select a tank with that amount holding capacity.
3. Select the drain and vent nozzles below using the Blowdown Valve Size and Boiler Operating Pressure. The inlet should be the same size as the Blowoff Valve.

**BLOWOFF TANK SELECTOR CHART**

Tank Cu. Ft. Holding Capacity	Tank Diameter	Overall Tank Height	Tank Total Cu. Ft.	Tank Total Gallons
2.2 Cubic Feet	18"	3'	4.4	32.7
3.0 Cubic Feet	18"	4'	6	44.8
3.7 Cubic Feet	20"	4'	7.4	55.5
4.7 Cubic Feet	20"	5'	9.4	70.6
5.3 Cubic Feet	24"	4'	10.6	79.6
6.8 Cubic Feet	24"	5'	13.6	101.7
8.2 Cubic Feet	30"	4'	16.5	123.1
10.6 Cubic Feet	30"	5'	21.1	158
12.9 Cubic Feet	30"	6'	25.8	192.9
13.5 Cubic Feet	36"	5'	26.9	201.4
16.8 Cubic Feet	36"	6'	33.6	251.4
20.2 Cubic Feet	42"	5'	40.5	302.9
24.9 Cubic Feet	42"	6'	49.8	372.3
29.5 Cubic Feet	42"	7'	59.1	441.7
32.1 Cubic Feet	48"	6'	64.3	480.9
38.2 Cubic Feet	48"	7'	76.5	572
47.8 Cubic Feet	54"	7'	95.6	715.3
55.5 Cubic Feet	54"	8'	111.1	831
58.4 Cubic Feet	60"	7'	116.9	874.3
68.0 Cubic Feet	60"	8'	136	1017.5
77.6 Cubic Feet	60"	9'	155.2	1160.7
96.1 Cubic Feet	72"	8'	192.1	1437.3
109.9 Cubic Feet	72"	9'	219.8	1644.4
123.8 Cubic Feet	72"	10'	247.5	1851.5

**NOZZLE SELECTOR CHART**

BDV SIZE	0-50 PSIG			51-150 PSIG			151-300 PSIG		
	INLET	DRAIN	VENT	INLET	DRAIN	VENT	INLET	DRAIN	VENT
1"	1"	2 1/2"	2 1/2"	1"	3"	4"	1"	4"	6"
1 1/4"	1 1/4"	3"	3"	1 1/4"	4"	6"	1 1/4"	4"	6"
1 1/2"	1 1/2"	3"	4"	1 1/2"	4"	6"	1 1/2"	6"	8"
2"	2"	4"	4"	2"	6"	6"	2"	6"	10"
2 1/2"	2 1/2"	6"	6"	2 1/2"	6"	8"	2 1/2"	8"	10"

BDV SIZE	301-800 PSIG			801-1200 PSIG			1201-1600 PSIG		
	INLET	DRAIN	VENT	INLET	DRAIN	VENT	INLET	DRAIN	VENT
1"	1"	3"	6"	1"	4"	8"	1"	4"	10"
1 1/4"	1 1/4"	6"	10"	1 1/4"	6"	12"	1 1/4"	6"	12"
1 1/2"	1 1/2"	6"	10"	1 1/2"	6"	12"	1 1/2"	6"	14"
2"	2"	6"	14"	2"	8"	16"	2"	8"	18"
2 1/2"	2 1/2"	8"	16"	2 1/2"	8"	20"	2 1/2"	8"	24"

YOU CAN DEPEND ON PENN



Penn Separator Corp.  
Brookville, PA 15825

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**IN PA CALL: 814-849-7328**  
**FAX: (814) 849-4510**

**FOR THE PENN SEPARATOR  
REPRESENTATIVE IN YOUR AREA.**