

# MADDEN

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# BLOWDOWN TANK OPERATOR'S MANUAL

*The tried-and-true way to safely dispose of boiler blowdown.*



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# Blowdown Tank Installation Instructions

BD Tank Model No. \_\_\_\_\_

National Board Serial No. \_\_\_\_\_

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**Function:** Blowdown Tanks are used as a system for cooling the bottom boiler blowdown. These large tanks retain the blowdown water volume from one blow after the flash steam has been vented to the atmosphere and allow the water to cool down by natural convection over a 6-12 hour period. This retained water that did not reach the tank's overflow drain will be close to room temperature when it is displaced by the next blowdown. The resulting mixture of retained water and new blowdown entering the tank will be  $\leq 140^{\circ}$  Fahrenheit as it is displaced out of the overflow drain.

**Construction Design:** This tank has been fabricated to meet ASME Sec. VIII, Div. 1 standards. Typical pressure rating is 50 PSI and materials used for shell and head material is SA516 (or SA455) Gr 70 Carbon Steel.

## Installation:

1. Once the system is at the job site inspect for signs of physical shipping damage and to ensure conformity to drawing specifications.
  - a. If any damage or nonconforming parts are observed contact the factory for resolution before installing.
2. Erect and secure the system to the appropriate platform/skid, or lag directly to the floor. The vessel has (4) support legs with footpads containing bolt holes.
3. Vent: pipe vent to ensure steam will not harm personnel in the room which the blowdown tank is installed. Further piping specifics should be provided by the installing contractor and/or the project's design engineering firm.
4. Drain: pipe to floor drain/city sewer. Further piping specifics should be provided by the installing contractor and/or the project's design engineering firm.
5. Centrifugal Inlet(s): from the boiler, pipe the boiler blowdown line(s) the rest of the way to this vessel's centrifugal inlet pipe(s). Only one boiler should be blown down at a time, never simultaneously. Specifics should be provided by the installing contractor and/or the project's design engineering firm.
6. Quenching water supply "line" or "spool" (if applicable): it is recommended to include a Y-strainer, self-operating water supply valve, and a check valve as a quenching water supply "line". For a quenching water supply "spool" Madden recommends isolating the regulating valve with (2) gate valves and including a bypass line with a globe valve for manual control of quenching water. Ensure there is enough city water pressure to supply the required cold-water flow to the aftercooler (consult factory if needed). Further piping installation specifics should be provided by the installing contractor and/or the project's design engineering firm.
7. Ancillary Equipment: install appropriate gauges and valves as necessary.
8. Initial Operation: Madden recommends blowing down for 10-20 seconds while another operator observes the tank filling. Do not fill above the overflow drain line unless your unit includes an aftercooler to quench the hot condensate. Wait at least 6 hours before blowing down again to see what natural convection will cool the remaining condensate to, and then what temperature the quenched mixture will exit the tank at. If your unit does have an aftercooler package, ensure the cold water regulating valve actuates before performing a normal/full blowdown process.

# Recommended Storage & Handling Blowdown Separators & Tanks

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## 1. Inspection and Mounting

Your boiler blowdown equipment system has been inspected and performance tested at the factory. Upon arrival visually inspect vessels and ancillary equipment to make sure there has been no shipping damage. If there has been damage, do not operate the equipment. Contact the factory or the local sales representative. If the equipment is not damaged, lag the equipment to the floor and then attach piping and ancillary equipment

## 2. Handling

Most Madden boiler blowdown equipment is easily handled with a standard shop fork lift, occasionally needing forklift extensions. Special lifts or other handling issues will be stated by Madden before shipment in the rare case it is necessary.

## 3. Storage & Preservation

For storage, Madden recommends our boiler blowdown equipment be used indoors. If outdoor use is absolutely necessary Madden recommends NEMA4X electrical enclosures, IP55 (or higher) motor enclosures, and either epoxy painted or stainless steel skids.

For cases where preservation is necessary before installation, Madden recommends covering your boiler blowdown equipment with a plastic tarp and keeping it in doors if possible. For most ancillary equipment, routine maintenance is not necessary. Barring an unforeseen circumstance, your unit should start up quickly and easily once properly installed.

## 4. Repairs and service

Set up a file folder for your boiler blowdown equipment to include the operating manual and parts list. Record the national board serial number(s) and u-stamp numbers. If the invoice for the boiler blowdown equipment is available, include it as it may have other useful data. Read the operators manual and parts list and follow the instructions. Set up a preventive maintenance inspection and service schedule and keep a record of the service in the file.

## 5. Help line

If questions or problems occur during the set up or operation of your Madden boiler blowdown equipment, contact your local sales representative or the Madden factory for assistance.

Phone: 574-295-4292 from 7:30 am - 4:00 pm EST, FAX: 574-295-7562

Email: [info@maddenep.com](mailto:info@maddenep.com) and Website: [www.maddenep.com](http://www.maddenep.com).

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