As energy costs continue to soar, heat recovery from the continuous blowdown of your boiler is fast becoming one of the most cost effective areas of energy conservation. The Stickle Continuous Blowdown Heat Recovery System pays for itself through energy cost savings in weeks—not years. With the Stickle System you can be sure you are not draining dollars down the sewer. Just as important, you can also be sure you are achieving constant and metered removal of accumulated boiler solids.

THE OPERATION

The Stickle Series 550 Continuous Blowdown Recovery System is designed to recover the heat from continuous blowdown in two stages. The first stage begins at the time the blowdown water is introduced into the flash tank via the blowdown flow control valve. The pressure of the blowdown is reduced from the boiler pressure to the flash tank operating pressure. At this point usually five to twenty percent of the blowdown is flashed into steam depending upon the specific conditions of the job. This liberated steam represents a major portion of the available blowdown heat. This steam may be used to supplement the heating steam in the deaerator or for any other process requiring low pressure steam.

The second stage consists of passing the remaining blowdown condensate through the shell side of a shell and tube heat exchanger. Feedwater make-up is circulated through the tube side of recover the remaining portion of available blowdown heat. The blowdown condensate is then discharged to the drain.

Stickle Steam will handle your steam...boiler to boiler.
CONTINUOUS BLOWDOWN
HEAT RECOVERY SYSTEM

A VERSATILE SYSTEM
The Stickle Steam Specialties Series 550 Continuous Blowdown Heat Recovery System is offered in a wide range of flow rates, boiler pressure, and blowdown tank operating pressures.

From top to bottom each Stickle Series 550 Continuous Blowdown Heat Recovery System is individually designed to meet your specific conditions.

1 BLOWDOWN FLOW CONTROL- The standard mode of blowdown flow control is accomplished by the use of an 800 psig rated steel body manual globe valve. This valve is equipped with stainless steel trim, linear characteristic valve plug, and micrometer handwheel. If automatic control and modulation of blowdown is required Stickle Steam Specialties offers a continuous sampling conductivity controller. This controller constantly monitors, through an orificed line, the conductivity of the blowdown. Conductivity level is a direct indicator of the dissolved solids concentration. A preselected setpoint determines the level of allowable concentration. The Controller compares the current solids concentration to the setpoint and transmits a pneumatic output signal to a diaphragm control valve, regulating the flow of blowdown into the blowdown tank. This controller is available with either a meter or a 60 day recording chart.

2 BLOWDOWN TANK- The Stickle system blowdown tank utilizes a tangential inlet design. This design provides maximum efficiency in steam separation while maintaining compactness of size. Every Series 550 blowdown tank is designed, fabricated, inspected, and stamped in accordance with ASME pressure vessel requirements, and, if applicable, any local, state, and federal codes.

3 HEAT EXCHANGER- Every shell and tube heat exchanger utilized in the Series 550 line is equipped with type 304 stainless steel tubes to prevent corrosion. Both shell and line tubes are designed, fabricated, inspected, and stamped for 150 psig in accordance with ASME Section VIII. Each heat exchanger is individually sized for maximum heat transfer and minimum pressure loss for each job. Each unit is furnished with complete bypass piping and isolation valves around the heat exchanger for easy maintenance without system shutdown. Each unit is also furnished with piping provisions for installation of backflush piping for purging of heat exchanger with fresh water. If desired, complete backflush piping may be provided with the unit.

4 LIQUID SEAL/LEVEL CONTROL- A constant liquid level is maintained in the blowdown tank at all times. On standard units this is accomplished by an external pneumatic displacer type level control. This controller modulates, via a 3 to 15 psig air signal, a diaphragm valve on the blowdown condensate outlet of the heat exchanger. This arrangement enables the heat exchanger to be totally occupied with liquid at all times. The liquid seal eliminates the occurrence of destructive flashing forces within the heat exchanger. Where instrument air is not available, the Stickle Series 550 may be equipped with direct acting mechanical lever type ball float and valve actuation.
ACCESSORIES

In addition to the essential components previously described the Stickle Series 550 Continuous Blowdown Heat Recovery system is furnished complete with the accessories as stand equipment.

- Blowdown tank safety relief valve.
- Blowdown tank liquid level sight glass.
- Blowdown tank pressure indicator.
- Make-up inlet temperature indicator.
- Make-up outlet temperature indicator.
- Blowdown outlet temperature indicator
- Package construction including internal piping and structural steel base
- Blowdown tank sediment drain and valve

Stickle Steam Specialties also offers the following components which may be integrated into the Stickle Series 550 Continuous Blowdown Heat Recovery System:

- Stickle C900-005 Sample Cooler with valves
- Continuous Sampling conductivity meter/controller
- Complete heat exchanger backflush piping
- Multiple blowdown flow control valves
- Blowdown tank temperature indicator
- High liquid level alarm float switch
THE STICKLE EDGE
The Stickle Series 550 line of continuous blowdown heat recovery systems will economically meet the demands of the vast majority of the process industry applications. However there may be particular circumstances which demand unusual engineering considerations. In these cases Stickle Steam Specialties stands ready to fill the gap.

The Stickle reputation for flexibility in working with the customer and his special needs is unparalleled in the industry. Practically any and every component of the Stickle system may be subject to special design factors as well as the system layout.

The following is a partial list of such considerations:

- Space limitations
- High and low pressure applications
- Large Flow rates
- Military/government specifications
- Integration and compatibility with existing customer equipment
- Customer preference of accessory manufacturer
- Heat transfer requirements
- Special materials of construction
- Computer monitoring/control
- Remote location

The Stickle Continuous Blowdown Heat Recovery System may be incorporated as part of a comprehensive boiler room package. Providing you with the most efficient solutions to your boiler room needs is the overall concept-the Stickle Concept.

THE STICKLE CONCEPT
Singular responsibility is quickly becoming a primary objective in operations where a variety of functions and equipment is involved. Why? Singular responsibility eliminates the guesswork of whom to contact in the event a question or problem should arise in the operation. How many times have your paid someone to come in and tell you what the problem is with someone else’s equipment?

What is Singular responsibility? Singular responsibility is the concept of having one principal in a position of responsibility for a variety of functions.

Singular responsibility is also a keystone of the Stickle Concept. Stickle Steam Specialties Company, Incorporated has the capability of providing singular responsibility for all the following functions:

- Condensate Return
- Water Treatment
- Deaeration
- Continuous Blowdown Heat Recovery
- Bottom Blowdown

Singular responsibility in providing you with a dependable and efficient comprehensive system of any and all of these functions is the heart of the Stickle Concept.