

Automatic Blow-Down and Foam Collapsing Systems

Signal Foam-Meter Electromatic Blowoff Nox-Foam Gun System

This equipment provides for accurately controlled automatic blowdown and automatic injection of foam subsiding solution in the boiler for the positive and economical prevention of boiler foaming. When used in conjunction with Dearborn Stabilizer Treatment it permits the maintenance of the maximum concentration of foaming salts in the boiler, which results in extremely low cost of blowoff control and scientific prevention of the foaming of the boiler.



Foam-Meter Instrument Box

The light signals on the Foam-Meter instrument box give the enginemen visual indication of the development of foam or expansion of water inside the boiler at two predetermined levels. When the foamy water or invisible water level in the boiler closes off a safe amount of the steam zone, it contacts the longer of two electrodes projecting from the top of the boiler, closing an electric circuit to operate a relay and causing the bottom light on the Foam-Meter instrument box to show. This electric current also opens a 1-in. electro-pneumatic blowoff valve to remove enough of the concentrated or foul boiler water to cause the water surface to drop below the end of the long electrode to break the electric circuit, put out the light and close the blowoff valve. The long electrode that causes this operation of the bottom light and blow-off valve is usually located 2 in. to 3 in. above the top of the water glass.

On some occasions the development of foam or expansion of the water inside the boiler is of such rapidity that the 1-in. electromatic blowoff valve and even the manually operated larger blowoff valves would fail to keep the surface of the foamy water from reaching the throttle. The shorter of the two Foam-Meter electrodes ends about 7 in. from the roof sheet and when the foamy water contacts this shorter electrode it closes the second or warning electric circuit, causing the flashing of the top light and the automatic operation of the Nox-Foam Gun to discharge sufficient Nox-Foam solution directly into the boiler near the steam dome to collapse the foamy water and cause it to subside or drop away from the dome and short electrode. This breaks the electric circuit and the action is of such rapidity as to make it practically impossible for foam to reach the throttle.

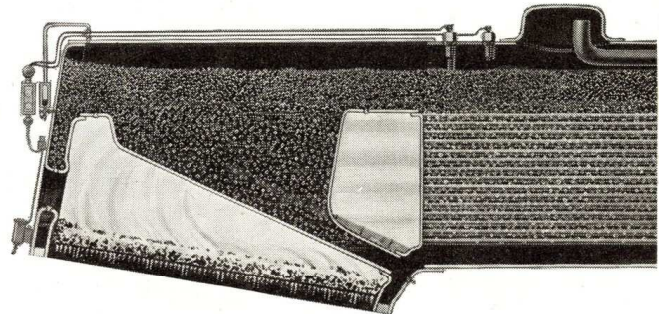
When the Signal Foam-Meter system is used in conjunction with waters treated with Dearborn Stabilizer Treatment, the blowing off is deferred until the water has built up an alkali or foam producing salt concentration which is much higher than it is possible to maintain without the use of the Stabilizer Treatment and therefore produces economy in blowing off.

It is impossible for any boiler operator to determine the position of the surface of the steam-swollen water inside the boiler. It is the prime function of the Signal Foam-Meter to indicate and control the level of the steam-bubble-expanded water surface

inside the boiler and thus eliminate the guessing as to the proper and correct blowing of the boiler under all varying conditions of load and operation and provide automatic control of the blowing off requirements.

The Nox-Foam Gun is always on guard to automatically discharge directly into the boiler at the steam dome enough foam subsiding solution to collapse the foamy water and keep it from reaching the throttle at all times.

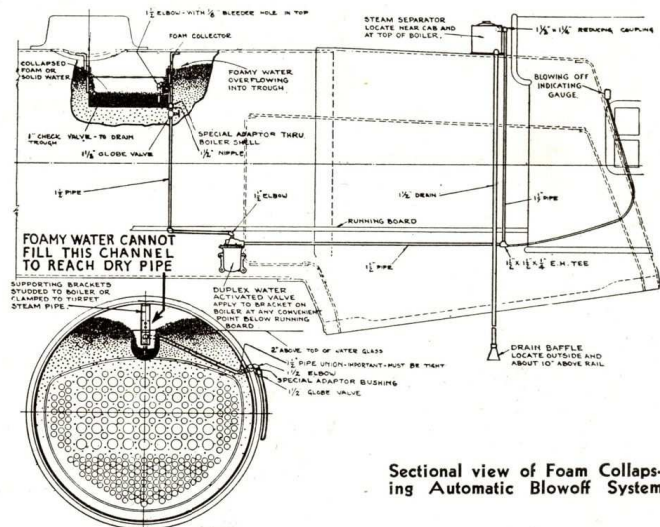
Carefully computed figures establish that the Signal Foam-Meter saves \$344.00 annually on the average locomotive. The Signal Foam-Meter Electromatic Blowoff System can be installed on any locomotive in the roundhouse in one day's time. It has been in successful service on railroads in this country and abroad over a period of years.



Sectional view Foam-Meter Electromatic
Blowoff showing foam contacting long electrode

Foam Collapsing Automatic Blowoff System

This system is operated mechanically by a water actuated valve. It anticipates and prevents the development of light water or foam beyond a predetermined safe level in the steam space.



Sectional view of Foam Collapsing Automatic Blowoff System

No floats or other mechanisms are employed inside the boiler. The system is safe, dependable and economical in operation. Its flexibility permits automatic blowoff from the mud ring simultaneously with discharge of collapsed foam from the surface. Used in conjunction with the Dearborn Balanced System of Water Treatment, the Foam Collapsing Automatic Blowoff System operates with no waste of fuel or water and no foaming.

ELECTRO-CHEMICAL ENGINEERING CORP., CHICAGO, ILL.

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Other Products and Branch Offices Are Listed in the Classified Indexes