

HOFFMAN VENTING VALVES

One-Pipe Gravity Vacuum Systems

The purpose of vacuum heating is to create and maintain a partial vacuum in the radiators and mains in order that steam may be generated at a temperature below 212 degrees.

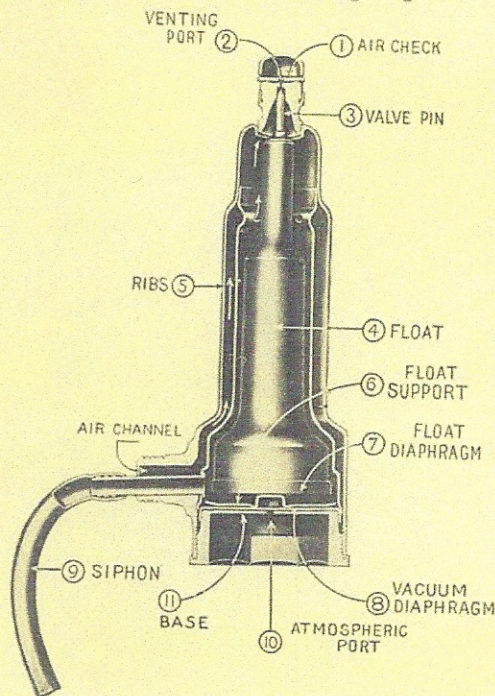
The advantages of a vacuum system over an ordinary steam system are that the radiators will retain their heat much longer—it is possible to get up steam more quickly—and a considerable saving in fuel consumption is effected.

Hoffman No. 2 Valves and Vacuum Specialties

Specialties for converting an ordinary one-pipe steam system into a vacuum system were first perfected by Hoffman Specialty Company and consist of Hoffman No. 2 Radiator Valves, Hoffman No. 6 or 16 Valves for venting mains, and Hoffman Kompo Gage.

Hoffman No. 2 Valves vent the air from the system in the same way that the No. 1 Valve does—promptly, efficiently and noiselessly. In addition, they perform another function. After air is exhausted from the radiators, the valve port automatically locks itself and prevents air from re-entering the radiator.

Under these conditions and provided the system is air-tight at all other points, when steam condenses in the radiator and shrinks to approximately 1/1700 of its previous volume, a vacuum is created. Air does not rush back into the system, and cool it off, nor is it necessary to force air out when steam is again generated.



The practical advantages of a vacuum system with Hoffman No. 2 Valves are shown by the chart of comparative performances on page 6.

Hoffman No. 2 Valves make possible the distribution of steam to all the radiators in 15 minutes instead of an hour as with an ordinary steam system and insure radiators remaining hot for three hours instead of 30 minutes after fires are banked.

In systems using oil or gas burners, the number of operations of the burner per day is reduced about 25 per cent through the use of No. 2 Hoffman Vacuum Valves on the radiators and No. 6 or No. 16 Valves on the pipe lines. In coal burning systems reduction in fuel consumption of 33 1/3 per cent is common.

Operation of No. 2 Hoffman Valves

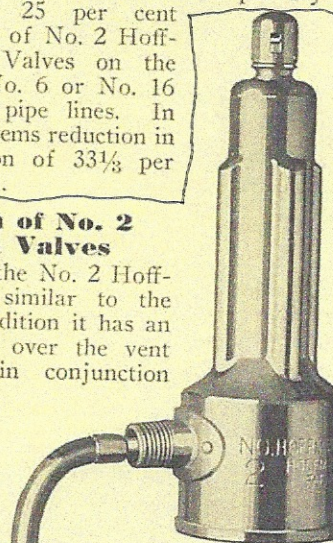
In construction the No. 2 Hoffman Valve is similar to the No. 1 but in addition it has an air check valve over the vent port working in conjunction with a vacuum diaphragm.

Normally the air check (1) does not function in the maintenance of a vacuum, for when a radiator is filled with steam and the float diaphragm

(7) is expanded, closing the port, the vacuum diaphragm (8) will expand whenever the pressure goes down below atmosphere and follow up the contracting float diaphragm, thus maintaining the port closed against air intake.

In a half-hot radiator the float diaphragm (7) is not expanded and the vent port (2) is open. Consequently with a cessation of steam generation, air would be drawn in to fill the space given up by the steam as it condenses were it not for the fact that as soon as the pressure goes down to atmosphere the air check drops and temporarily closes the vent port. Return of air is prevented and as soon as a vacuum of 1 inch is present in the system, vacuum diaphragm (8) expands, lifting the float, and closing the vent port. After this action occurs the air check has no further function.

The superiority of the diaphragm controlled port compared with valves having air check only is indicated by the fact that the total pressure exerted in holding the vent port closed is approxi-



No. 2 Valve

Radiator connection 1/4 in. "Special short siphons" can be supplied when required. Maximum guaranteed operating pressure, 10 lbs.