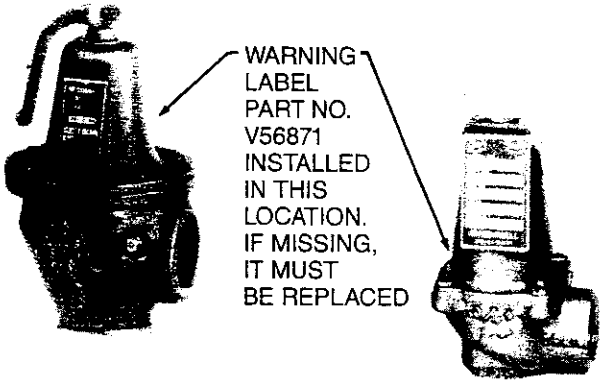
McDONNELL & MILLER

INSTRUCTION MANUAL

V55693
REVISION B



McDONNELL ASME Safety Relief Valves

Installation, Operating and Service Instructions

HV

INSTALLER: PLEASE LEAVE THIS MANUAL FOR THE OWNER'S USE.

SAFETY INSTRUCTION

This safety alert symbol will be used in this manual to draw attention to safety related instructions. When used, the safety alert symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! FAILURE TO FOLLOW THE INSTRUCTIONS MAY RESULT IN A SAFETY HAZARD.

DESCRIPTION

M&M diaphragm operated cast iron and diaphragm-assist operated bronze ASME Safety Relief Valves are designed to protect fired and unfired hot water pressure vessels against over-pressure conditions. The diaphragm's "oversized" effective area generates a greater operating force which helps to overcome the effects of fouling. These valves feature a unique fail-safe disc with sufficient area to permit the valves to maintain their safety relief function in the event of a diaphragm rupture. These valves are designed, manufactured, tested and labeled in accordance with the requirements of Section IV of the ASME Boiler and Pressure Vessel Code. They are offered in a wide range of capacities to permit a close match with the boiler output rating.

Temperature and Pressure Limits

Maximum operating temperature: 250°F
Maximum operating pressure: 125 psig

INSTALLATION INSTRUCTIONS

WARNING: An undersized safety relief valve of inadequate relieving capacity can cause a boiler to explode. Before installing the safety relief valve, check the nameplate to make sure the pipe size, relief (opening) pressure, and BTUH rating are the same as required to protect the system against overpressure. BTUH rating and maximum operating pressure are stamped on the boiler nameplate. Failure to follow these instructions could result in serious personal injury or death and property damage.

WARNING: Improper safety relief valve installation can prevent the valve from protecting the system against overpressure conditions. The following instructions must be followed if the safety relief valve is to provide the overpressure protection required. Failure to follow these instructions could result in serious personal injury or death and property damage.

1. Safety relief valves must be installed in the top or side, at the highest practical point, of a boiler or other equipment being protected by the safety relief valve. Do not install the safety relief valve below the lowest permissible water level.
2. Safety relief valves must be installed in an upright position with the stem or spindle in the vertical position. See Figure 1, 2 or 3 for typical installations.
3. Never reduce the inlet or outlet pipe connections to the safety relief valve. Install with pipe the same diameter as the safety relief valve inlet and outlet pipe connections.
4. Do not install any shutoff valves between the safety relief valve and the equipment it is to protect against overpressurization.
5. Do not install any shutoff valves in the discharge piping from the safety relief valve.
6. Do not use pipe threaded on both ends in the drop line between the valve discharge connection and the floor or floor drain.
7. Discharge piping must be as short and as straight as possible. It must be arranged and supported so as to prevent undue stress on the safety relief valve.
8. If elbows are used in the discharge piping, they must be located as close as possible to the safety relief valve outlet.
9. Provisions must be made to assure proper drainage of discharge piping. The size and arrangement of discharge piping must be such that any pressure that may exist or develop will not reduce the relieving capacity below that required to protect the system.
10. Pipe the safety relief valve discharge to approximately 2" above the floor or to a floor drain. This will decrease the possibility of scalding someone who may be standing nearby, if the safety valve discharges.
11. Apply pipe sealing compounds sparingly to male threads only. Excessive use of pipe sealing compounds may adversely affect the operation of the safety relief valve.

CAUTION: The use of Teflon impregnated pipe compound and Teflon tape on pipe threads provides lubricity which can lead to overtightening and breakage. Do not overtighten. Failure to follow these instructions could result in property damage and/or moderate personal injury.

CAUTION: System additives may cause premature failure of the safety relief valve components. The compatibility of additives with the safety relief valve must be checked before they are used. Failure to follow these instructions could result in property damage and/or moderate personal injury.

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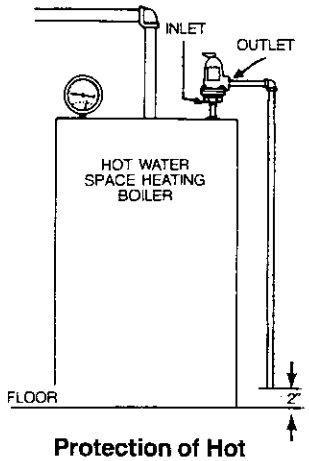
INSTALL THE ASME SAFETY RELIEF VALVE AS NOTED:

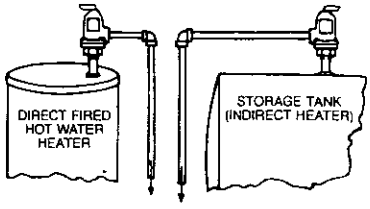


Protection of Hot Water Space Heating Boilers.

FIG. 1

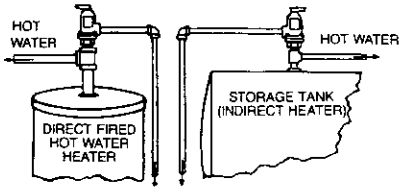
A. PREFERRED METHOD

1. Water Heaters: Directly on the water heater.
2. Storage Tanks with Indirect Heater: Directly on the storage tank.



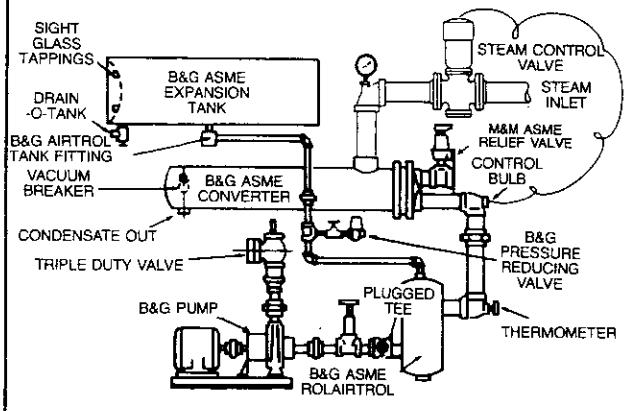
B. ALTERNATE METHOD

On the hot riser coming out of the water heater or the storage tank.



Protection of Domestic Hot Water Heaters and Tanks.

FIG. 2



Protection of Heat Exchanger systems

FIG. 3

OPERATING INSTRUCTIONS

The safety relief valve is designed to protect a heating system from overpressurization. The safety relief valve does not operate unless there is an overpressure condition.

1. If the safety relief valve discharges periodically, it is an indication that the system has lost its air cushion in the compression or expansion tanks.

> **WARNING:** Scale buildup from frequent discharging of safety relief valve can prevent safety relief valve from being able to discharge its rated capacity. The causes of frequent discharging such as a water logged compression tank must be immediately corrected. Failure to follow these instructions could result in serious personal injury or death and property damage.

2. The safety relief valve pressure setting is not field adjustable and must not be tampered with.

> **WARNING:** Attempts to change safety relief valve setting will prevent it from relieving at rated capacity and thus causing the boiler to explode. Do not attempt to adjust the pressure setting of the safety relief valve. Failure to follow these instructions could result in serious personal injury or death and property damage.

SERVICE INSTRUCTIONS

1. The operating condition of the safety relief valve should be checked as follows every 30 days that the boiler, or other system component that the relief valve is protecting is in operation, or after any prolonged period of inactivity:

> **WARNING:** The uncontrolled discharge of hot water from the safety relief valve can be very hazardous and could scald anyone in the vicinity. Make sure that proper discharge piping is in place at all times. Failure to follow these instructions could result in serious personal injury or death and property damage.

a) Shut off the circulating pump and the fuel input to the boiler.

b) Isolate the boiler from the system by closing shutoff valves, leaving the expansion tank valve and the automatic fill valve open.

c) Lift the manual opening lever on top of the relief valve to the full open position and hold it open for at least five seconds or until clean water is discharged.

d) Release the lever and allow the relief valve to snap closed. If the relief valve leaks, operate the manual opening lever several more times to clear the seat of any foreign material that is preventing proper seating.

e) If the relief valve continues to leak, it must be replaced before the boiler is returned to operation.

> **WARNING:** Scale buildup from the continuous discharge of the safety relief valve will prevent the safety relief valve from discharging its rated capacity should an overpressurization condition occur. Immediately shut down the boiler and replace the safety relief valve should this condition occur. Failure to follow these instructions could result in serious personal injury or death and property damage.

f) After it has been determined that the relief valve is not leaking, return the system to operation by reversing the steps in a) and b) above.

2. When the above test is performed, also inspect the safety relief valve for signs of corrosion, damage or scale buildup. Inspect and make sure the discharge line is clear.

> **WARNING:** Corrosion, scale buildup, leakage or damage to safety relief valve are indications the safety relief valve may fail to provide overpressurization protection. Every 30 days the safety relief valve must be inspected and if any of the above conditions are noted it must be replaced. Failure to follow these instructions could result in serious personal injury or death and property damage.

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