

ROYAL & SUNALLIANCE
EQUIPMENT BREAKDOWN INSURANCE
& RISK CONTROL SERVICES

MAST
RISK MANAGEMENT

PRESSURE RELIEF VALVES ON PRESSURE-RETAINING ITEMS

(The following is taken in large part from the National Board Inspection Code)

The most important appurtenances on any pressurized system are the pressure relief devices provided for overpressure protection of that system. These devices such as safety valves, safety relief valves, and pressure-temperature relief valves are called upon to operate and reduce an overpressure (a/o overtemperature) condition. They are intended to function when normal operating controls fail or abnormal system conditions are encountered.

Periodic inspection and maintenance of these important safety devices is critical to ensure their continued functioning and to provide assurance that they will be available when called upon to operate.

Areas of concern include: a. safety considerations; b. device data; c. condition of the device; d. condition of the installation; e. testing and operational inspection.

- A) The operation of these devices involves the discharge of high pressure a/o high temperature fluids. Extreme caution should be used when working around these devices due to hazards to personnel.
- B) The set pressure shall be no higher than the MAWP (Maximum Allowable Working Pressure) marked on the protected pressure-retaining item or system.
- C) Check for evidence of leakage/improper sealing, deposits of material build-up/rust/corrosion, check for damage, plugged drain holes, and that connections are tight.
- D) Check that the inlet piping is not smaller than the inlet of the device; check that the discharge piping is open and is not smaller than the device outlet size; check adequacy of piping supports and that inlet or discharge piping is not binding or placing excessive stress on the valve body; check that there are no intervening isolation valves between the pressure source and the valve inlet or between the valve outlet and its point of discharge.
- E) Pressure relief valves must be periodically tested to ensure they are free to operate and will operate in accordance with the requirements of the original code of construction. Testing may be accomplished by the owner on the unit where the valve is installed... and should only be performed by qualified individuals under carefully controlled conditions...by activating the test or 'try' lever (manual check). This test will only indicate that the valve is free to operate. All manual checks should be performed with some pressure under the valve in order to flush out debris from the seat which could cause leakage. If a valve is found stuck closed, the system should immediately be taken out of service until the condition can be corrected. It is recommended that a written procedure be available to conduct this testing.

Recommended Test Frequencies (Jurisdictional Regulations overrule)

Low Pressure Steam Boilers	- Manual check quarterly; pressure test annually prior to steam heating season to verify nameplate set pressure.
Hot Water Heating Boilers	- Manual check quarterly; pressure test annually prior to heating season to verify nameplate set pressure.
Water Heaters	- Manual check every two months. Due to the relatively low cost of safety valves for this service, it is recommended that a defective valve be replaced with a new valve if a repair or resetting is indicated.
Air Receivers	- Manual check regularly.

