

Pressure Relief Valves

The Pressure Relief Valve is designed to ensure the system does not exceed set pressure. When installing a relief valve, consideration must be given to the downstream venting arrangements. For non-toxic gases a simple vent via holes in the spring casing is possible (C2 & C15), otherwise a piped vent to the low-pressure side of the system is needed.

Types of Pressure Relief Valves

Spring Loaded – Sprung loaded Pressure Relief Valves are the most common due to their highly robust, simple and effective design. These valves have orifice sizes up to 11.1mm (0.437") and are used to relieve pressure up to 1,020 bar (15,000 psi). For more accurate control, a combination of balance piston and cone seat is used, the pressure acting on the differential area between the piston and the seat is used to open the valve in a controlled manner. Valves such as the C11 can be used as 'safety relief valves' and can be supplied CE marked and Pressure Equipment Directive (PED) approved.

Dome Loaded – Typically known as Dome Loaded Back Pressure Maintaining Valves. These designs used pressurised gas is stored in a dome on one side of a diaphragm or piston to balance downstream fluid pressure on the other side. For relieving large flows at medium and high pressures, spring sizes become too large and the high spring forces difficult to contain. A more compact and convenient solution is to use a dome loaded valve. In the case of pneumatic systems, the dome gas is obtained by bleeding a small flow from the supply side of the system until the desired dome pressure is obtained. For hydraulic systems, a separate gas pressure supply (e.g. gas bottle) is needed for the initial charging of the dome. Unlike Spring Loaded Pressure Relief Valves these valves cannot be used as CE marked 'safety relief valves.'



C11 Pressure Relief Valve.



Pressure Relief Valves

Spring Loaded

Valve Type	Orifice mm (ins)	Ports (standard)	Pressure bar (psi)		Gas or Liquid
			Min	Max	
C10	9.5 (0.375)	1/2" BSP	20 (300)	240 (3,500)	Both
C11	6.4 (0.250)	1/2" BSP	35 (500)	450 (6,500)	Both
C12	3.2 (0.125)	3/8" BSP	20 (300)	275 (4,000)	Both

Dome Loaded

For details of Dome Loaded Pressure Relief Valves please refer our Dome Loaded Back Pressure Maintaining Valve datasheets; such as the H200.

