

IS 3224: 2021 Valve for Compressed Gas Cylinders Excluding Liquefied Petroleum Gas (LPG) Cylinders

Valves for Compressed Gas Cylinders are specialized devices that control the release, flow, and sealing of gases stored in high-pressure cylinders. These valves are crucial for safe gas storage, transport, and use, as they help regulate the gas flow, maintain pressure integrity, and prevent leaks or accidental gas discharge.

Good quality parameters for **Valves for Compressed Gas Cylinders** ensure safe, reliable, and efficient gas handling. These parameters are critical for maintaining valve performance under high pressure, preventing leaks, and ensuring compatibility with different gases. Some quality parameters for valves are as follow:

- (i) Leak Tightness**
- (ii) Material Compatibility**
- (iii) Relief/Bursting Pressure**
- (iv) Temperature Range**
- (v) Safety Features**
- (vi) Corrosion and Chemical Resistance**

The Indian Standard IS 3224: 2021 - Valves for Compressed Gas Cylinders Excluding Liquefied Petroleum Gas (LPG) Cylinders addresses several critical quality and safety parameters for valves used in high-pressure gas applications. Here's how IS 3224: 2021 covers each parameter:

- i) Leak Tightness:** IS 3224 sets strict leak-tightness requirements for valves, ensuring they prevent gas leakage under specified operating conditions.
- ii) Material Compatibility:** The standard specifies the chemical and mechanical properties of materials used for the valve body, sealing components, and other parts in contact with gas and must be compatible with the type of gas being stored.
- iii) Relief/Bursting Pressure:** IS 3224 specifies maximum working pressures and burst pressures for valves to ensure structural integrity under high-pressure conditions.
- iv) Temperature Range:** IS 3224 includes provisions to ensure valves can operate from $-20\text{ }^{\circ}\text{C}$ to $+65\text{ }^{\circ}\text{C}$ in indoor and outdoor environments.
- v) Safety Features:** IS 3224 specifies safety tests like Flame Impingement Test, Flow Capacity of the Pressure Relief Device (PRD), Fusible Material – Resistance to Extrusion Test etc.
- vi) Corrosion Resistance:** The standard specifies tests requirement of materials for corrosion resistance.

The above requirements within IS 3224: 2021 ensure that valves for compressed gas cylinders are manufactured and tested to meet high safety, durability, and performance standards, addressing essential operational and safety aspects for industrial and medical gas handling applications.