



With three independent seals the stem sealing of the Christensen valve is unique. This is made up of a reinforced P.T.F.E. Thrust plate (6) followed by a 100% pure graphite seal with a stainless steel back.up ring (41). The graphite seal is very efficient at extremely high temperatures, and meets the most strict demands of several different standards relative to fire safe design. At the top of the stem, the primary seal (sealing ring) is placed (4). The sealing ring is P.T.F.E. (teflon) with a special alloy spring. The ring can be replaced from the outside. The sealing ring is kept in a place by the stem bearing (2) and the snap ring/locking ring (25)

In addition to the stem seals mentioned, the wrench operated valve has a weatherproof seal to prevent penetration of water and dirt into the stem.

The bottom cover (9) is bolted on the valve body, with the studs (13a) and the nuts (13). Two flexible plates of diaphragms (15) and (28) are placed in a recess between the valve body and the bottom cover. They operate as a metal seal between the valve body and the bottom cover in order to prevent the medium from leaking at the adjustment arrangement pressure screw (11), the retaining ring (14) and the bottom screw (12).

### **The CCR System (Christensen Cavity Relief System)**

A new feature has been added to protect against possible overpressure in the inner cavities (between, in and below the two plugs), this feature is a patented pressure relief bore. This feature is a bore going from the body sealing surface against the diaphragm, to the port outside of each plug. While operating normally, the bore is kept closed by the pressure of the bottom cover, obtained by studs and nuts, against the diaphragms.

If an overpressure occurs, while both plugs are in the closed position, e.g. if the valve is exposed to thermal stress, the pressure against the bottom cover will cause the studs to stretch and then open the relief, so the pressure escapes into the pipeline, and not out in the atmosphere. As the pressure falls the studs retract the bottom cover back into place and close the bore.

Besides the metal to metal sealing between body and bottom cover a pure graphite sealing ring (70) is installed.

A bleed port is available in configuration as per customer preference. This port allows access to verify the sealing of the valve itself. Any leakage past the first plug would be detected via the bleed port.

The plug adjustment within the valve body means of a pressure screw (11) and is kept in place by the retaining ring (14) when the bottom screw (12) is tightened. All adjustments to the plug are accomplished by a "flexing" of the two diaphragms.

As mentioned, the valve is provided with a lubrication system which allows penetration of special lubricant into the valve through lubricant screws (24) and check valves (21). The lubricant is injected into a network of grooves by means of a special high pressure lubricant gun. This network system ensures that all seal faces are supplied with a thin coat of lubricant which acts as a secondary seal.

The valve can be supplied as wrench operated or gear operated. On the gear operated valve the gear can be rotated 180° if needed.

Moreover, the Twin Plug valve is designed with ISO top as standard, which allow mounting of any kind of actuator. The Christensen Twin Plug is fully bidirectional and can be mounted in any position including upside down. Locking devices, sequential locking devices etc. are all available upon request.