

# Design & Testing

MSS SP-81 applies to bonnetless metal seated knife gate valves, 2" to 24" size, 150 psi CWP. Sizes above 24" are not covered under this standard. Additionally, resilient seated knife gate valves and slide knife gate valves are also not covered under MSS SP-81. These products are subject to the individual manufacturer's internal testing & design standard.

**Body** - MSS SP-81 requires the valve body (pressure vessel and related structure) to be designed for and hydrostatically pressure tested to 1.5 times the rated working pressure.

- Valve rated pressure - 150 psi
- Body test pressure - 225 psi

**Gate** - MSS SP-81 requires the gate to be designed for and hydrostatically pressure tested to 1.1 times the rated working pressure.

- Valve rated pressure - 150 psi
- Gate test pressure - 165 psi

**Seat** - MSS SP-81 has an allowable leakage rate (for metal to metal seated valves) of 40 cc per inch of diameter, per minute at 40 psi pressure. On a 12" valve this would be equal to 40 times 12, or 480 cc per minute at 40 psi.

- Maximum allowable leakage of 0.6 GPM when tested with water at 40 psi applied in the normal flow direction.
- No visible leakage when tested with water at 40 psi (for soft seated valves only).

**Face to Face** - MSS SP-81 has specified face-to-face dimensions and tolerances for each valve size to assure ease of installation for the consumer, regardless of the valve manufacturer.



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