

VP SERIES

VESSEL & REACTOR VALVES

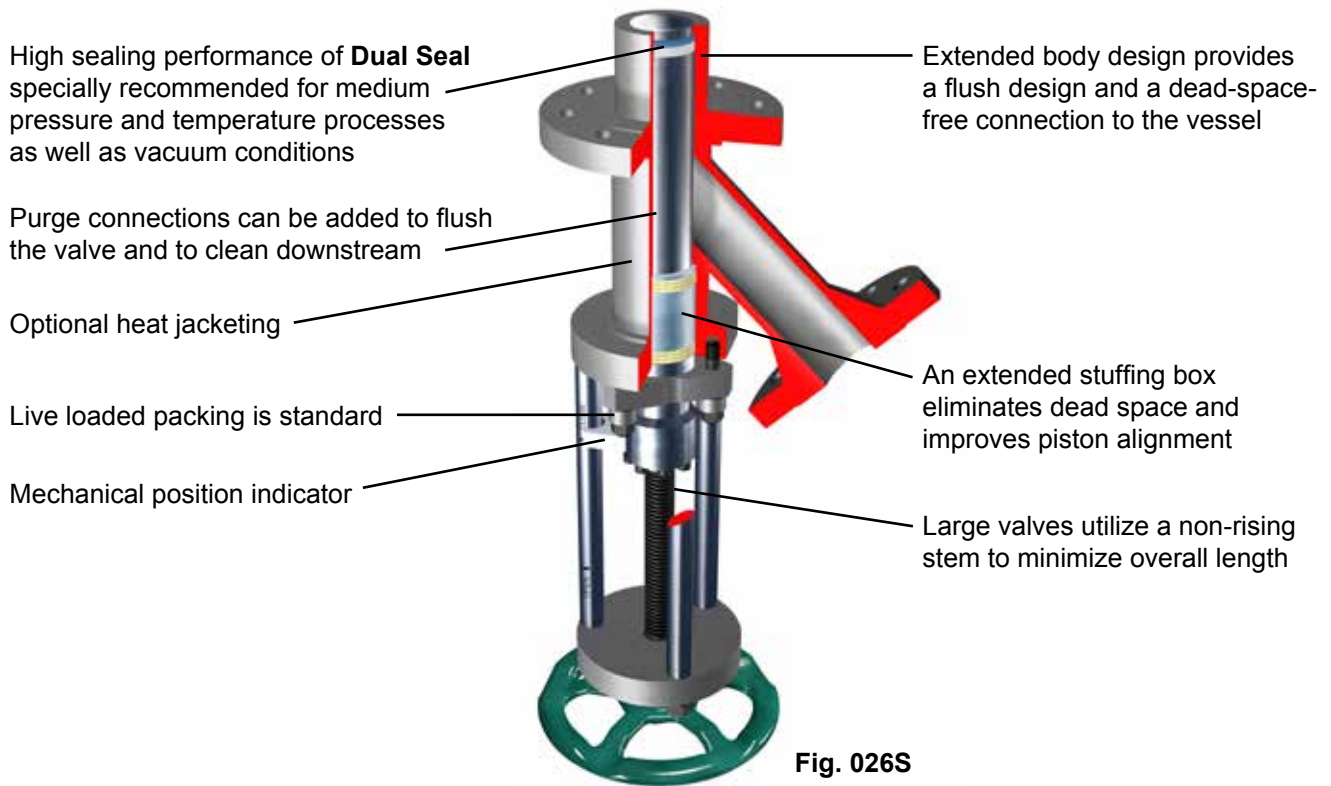
METAL & DUAL SEATED PISTON VALVES



HIGH PERFORMANCE PISTON VALVES

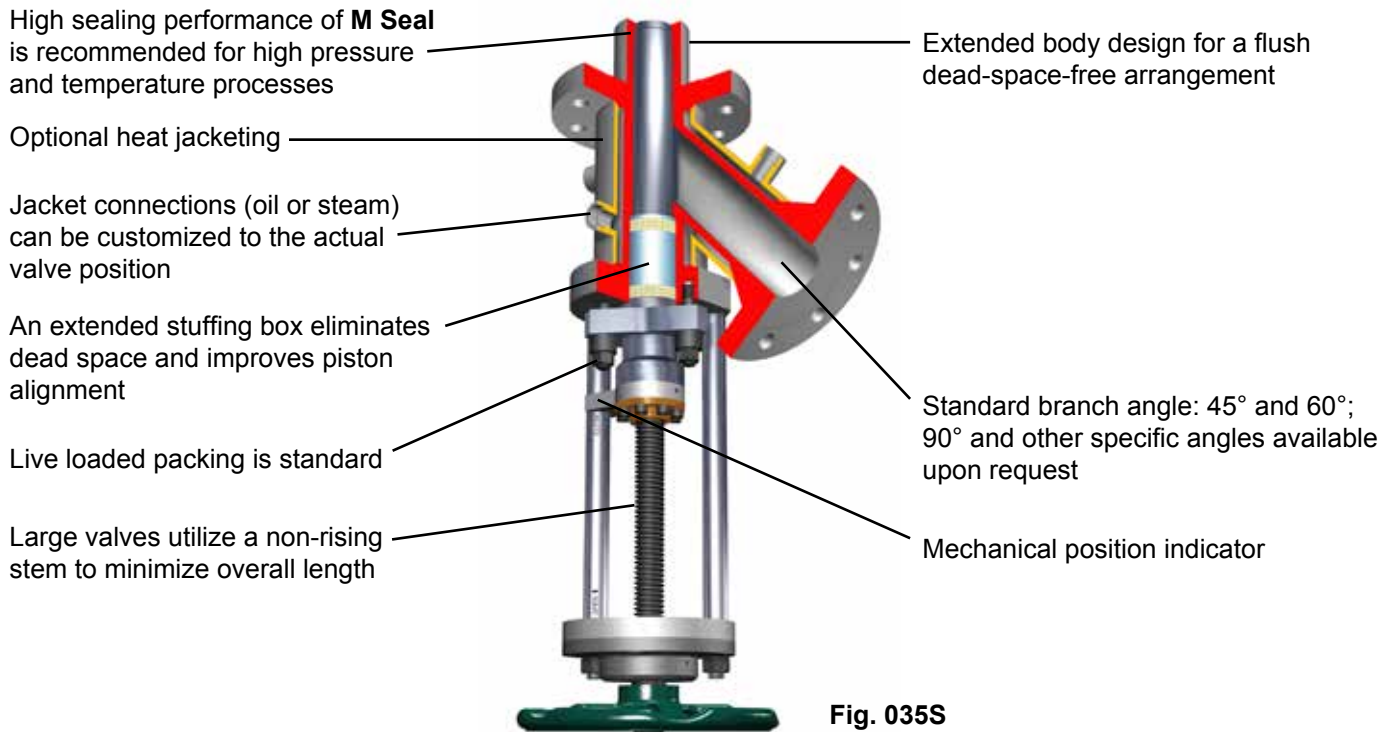
DUAL SEATED PISTON VALVE

CODE: VP4D-VP6D



M SEAL PISTON VALVE

CODE: VP4D-VP6D



Strahman **M Seal** and **Dual Seal** designs are dead-space-free reactor outlet valves. When opening, the piston retracts completely into the valve body, providing an unrestricted full flow. In combination with our maximized port sizes, this design offers maximum flow capacity. **M Seal** is specifically designed for high pressure and temperature applications such as polymer processes. For mid-range pressure and temperature applications with slurries or high viscosity products, **Dual Seal** offers the unique double sealing reliability.

Strahman valves are available in a choice of options including material of construction, actuators and customized or standard connections to piping. Other specific features are full jacketing, vacuum package and dead-space-free connections to vessels.

Typical applications include the draining of viscous products, especially in combination with low pressure and/or vacuum processes.

BODY ARRANGEMENTS

The Strahman **M Seal**, **M Ring Seal**, **M Control** and **Dual Seal** Piston valves use the following two stem designs:

- Figure **023S** or **030S** are for small sizes or high pressure applications. Valves have a rising stem design.
- Figure **026S** or **035S** are for large sizes. Valves have non-rising stems to minimize overall dimensions.

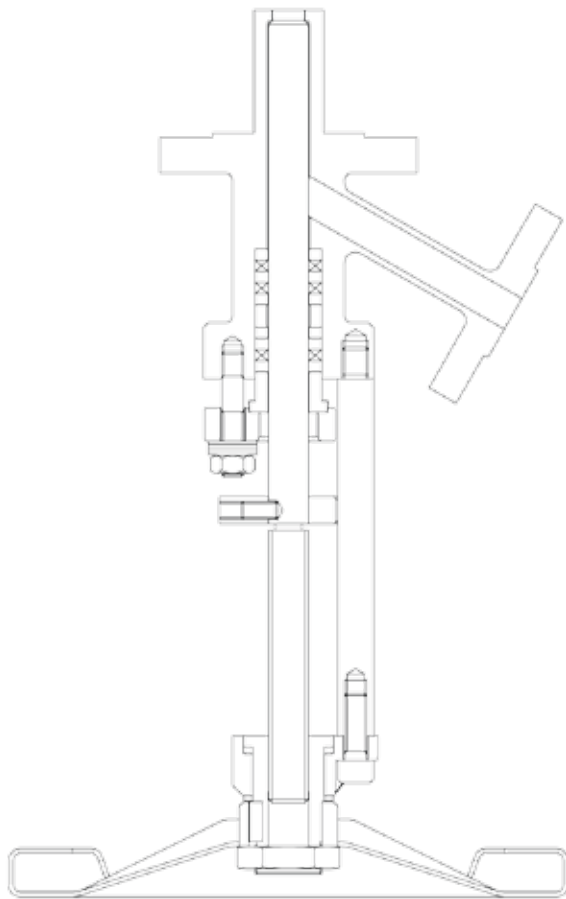


Fig. 023S and 030S
Rising Stem Design

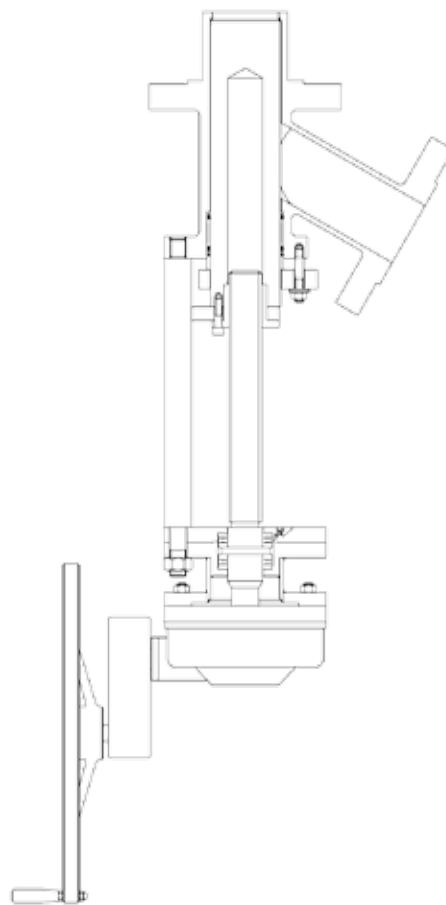
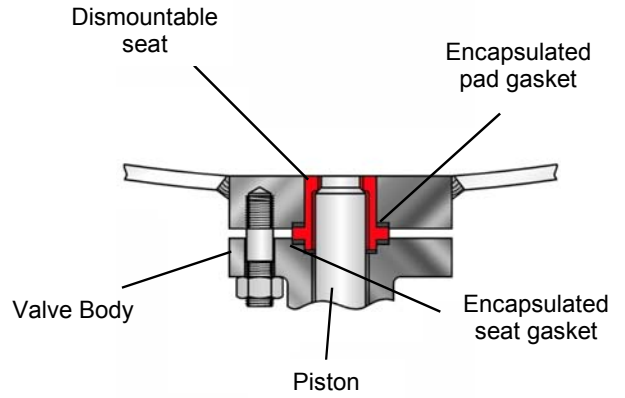


Fig. 026S and 035S
Non-Rising Stem Design

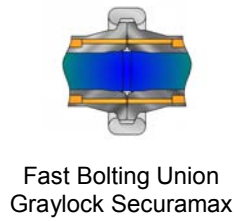
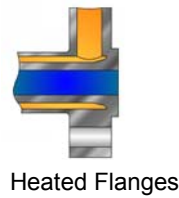
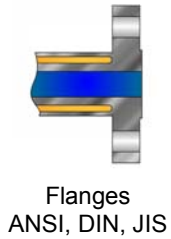
DISMOUNTABLE SEAT

As an option, the body seat can be dismountable. This is an attractive option when the process is corrosive during the reaction. Parts directly in contact with the process (seat and trim) are made of sophisticated alloys while valve body and piping are fabricated from regular materials.

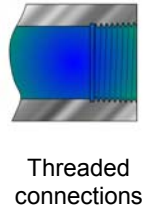
Note: The closing effort is transferred to the pad bolting and the body flange. A stress calculation is required to check the correct sizing of the bolting section and the flange thickness. Strahman engineers will be pleased to make these calculations.



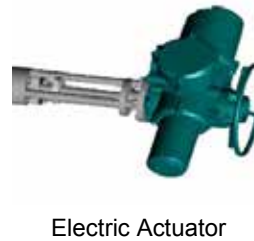
LINE AND BRANCH OPTIONS



JACKET CONNECTIONS



ACTUATION OPTIONS



TECHNICAL AND GENERAL INFORMATION

DESIGN CODE AND CONSTRUCTION

- Design standard compliant with ASME B16.34
- International standards include ANSI, DIN, JIS, API etc.
- Wide range of material selections including carbon steel / stainless steel / Titanium / Hastelloy / Duplex / Monel / Tantalum / Zirconium
- Fabricated, cast, forged and bar stock designs
- Combinations of fabricated, sand and investment castings, and bar stock available

SURFACE FINISH

- For polymer applications, Strahman recommends a surface finish of 300 (Ra 0.4) for all parts are in contact with the medium

QUALITY ASSURANCE AND TESTING

- ISO 9001 compliant
- PED / ATEX / CE marking
- TUV / HPO / TA Luft
- Standard testing procedures
- CU TR 010
- CU TR 032

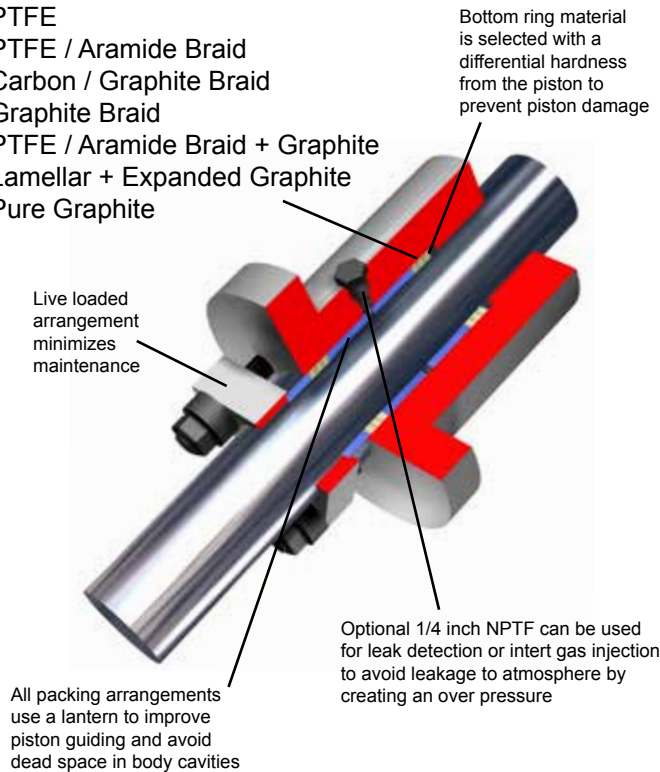
RANGE DEFINITION

VL Manufacturing Range	PN 10	PN 16	PN 20-150 lbs.	PN 25	PN 40	PN 50 300 lbs.	PN 64 400 lbs.	PN 100 600 lbs.	PN 150/160-900 lbs.	PN 250 - 1500 lbs.	PN 320	PN 420 - 2500 lbs.	PN 630 - 4500 lbs.
3/8" - DIN10	M Seal and Dual Seal											M Seal only	
1/2" - DIN15	M Seal and Dual Seal												
3/4" - DIN20	M Seal and Dual Seal												
1" - DIN25	M Seal and Dual Seal												
1 1/4" - DIN32	M Seal and Dual Seal												
1 1/2" - DIN40	M Seal and Dual Seal												
2" - DIN50	M Seal and Dual Seal												
2 1/2" - DIN65	M Seal and Dual Seal												
3" - DIN80	M Seal and Dual Seal												
4" - DIN100	M Seal and Dual Seal												
5" - DIN125	M Seal and Dual Seal												
6" - DIN150	M Seal and Dual Seal												
8" - DIN200	M Seal and Dual Seal												
10" - DIN250	M Seal and Dual Seal												
12" - DIN300	M Seal and Dual Seal												
14" - DIN350	M Seal and Dual Seal												
16" - DIN400													
18" - DIN450													
20" - DIN500													
24" - DIN600													
28" - DIN600													
32" - DIN600													
36" - DIN600													
40" - DIN600													
44" - DIN600													
48" - DIN600													

PACKING DEFINITION

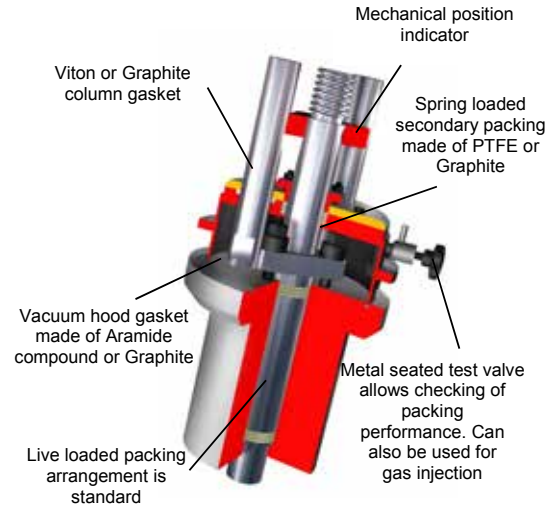
Typical Packing Materials:

- PTFE
- PTFE / Aramide Braid
- Carbon / Graphite Braid
- Graphite Braid
- PTFE / Aramide Braid + Graphite
- Lamellar + Expanded Graphite
- Pure Graphite



VACUUM HOOD

For valves on full vacuum service, Strahman offers a special **vacuum package** that maintains tightness to atmosphere. Valves with this package are usually equipped with an **M Ring Seal** design as process sealing. The system uses a replaceable aluminum or nickel seal ring and provides high vacuum performance. This special **vacuum package** provides zero leakage between atmosphere and process.



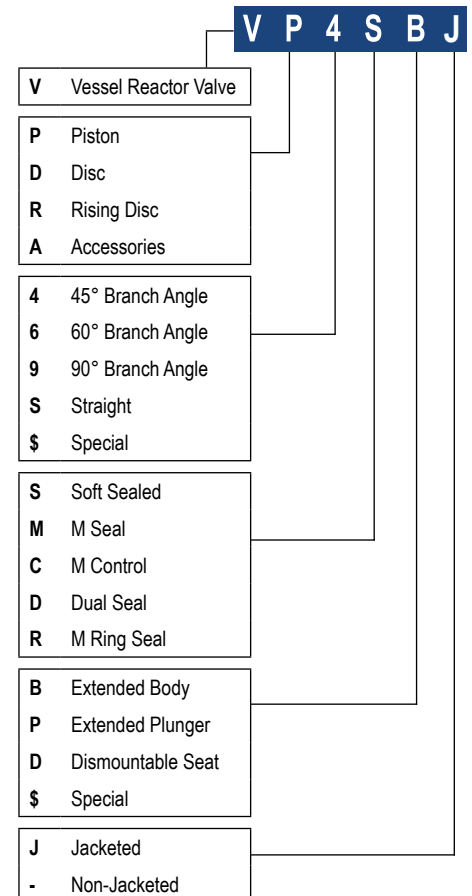
STANDARD PAD GASKET RANGE

- PTFE
- Aramide / Nitrile
- Laminated Graphite
- Laminated Graphite / 316
- Spiral Wound 316L / PTFE
- Spiral Wound 316L / Graphite
- Spiral Wound 321 / Graphite
- Spiral Wound Inconel / Graphite
- Spiral Wound Titanium / Graphite
- Perfluoroelastomer (Kalrez) O-Ring
- Welded Lip Seals
- Metallic O-Ring Helicoflex Gasket Aluminum / 316
- Metallic O-Ring Helicoflex Gasket Nickel / Nimonic 90
- 316L RTJ
- Nitrile O-Ring
- EPDM O-Ring
- Silicone O-Ring
- Fluorocarbon (Viton) O-Ring
- Silicone FEP Jacketed O-Ring

STANDARD BODY GASKET RANGE

- PTFE
- Aramide / Nitrile
- Carbon / Nitrile
- Laminated Graphite
- Laminated Graphite / 316
- Spiral Wound 316L / PTFE
- Spiral Wound 316L / Graphite
- Spiral Wound 321 / Graphite
- Spiral Wound Inconel / Graphite
- Spiral Wound Titanium / Graphite
- Welded Lip Seals

VALVE CODING SYSTEM

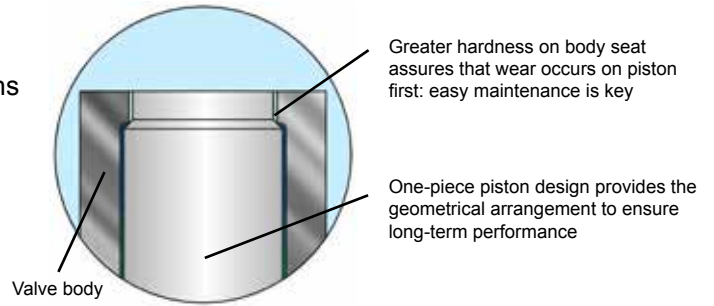


SEALING SYSTEMS

M SEAL

This sealing system offers a wide range of material combinations selected to create a differential hardness between body and plunger seat. The maintenance friendly design of the **M Seal** system provides long and reliable valve performance and is suitable for almost all process conditions.

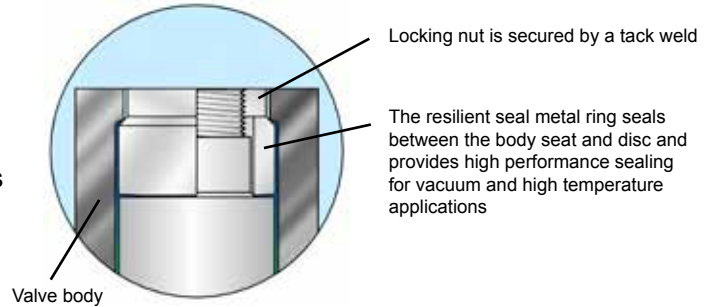
- **Temperature:** Min.: -200°C / -330°F
Max.: 815°C / 1500°F
- **Pressure:** 630 bar / 9000 PSIG



M RING SEAL

The **M Ring Seal** is also based on a differential hardness between the body and the piston surface. The replaceable metallic seal ring made of aluminum, nickel or titanium provides excellent sealing performance, especially in applications that combine full vacuum temperatures above 200°C.

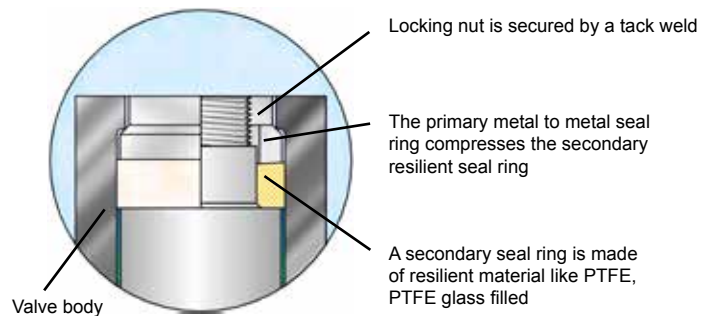
- **Temperature:** Min.: -200°C / -330°F
Max.: 450°C / 840°F
- **Pressure:** 250 bar / 3550 PSIG and full vacuum



DUAL SEAL

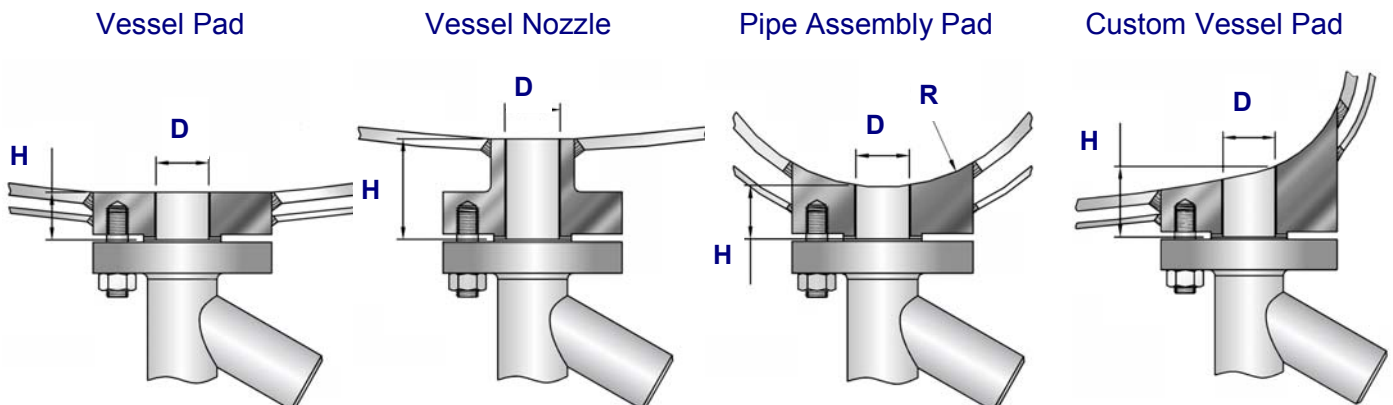
The **Dual Seal** is a unique double sealing system that works like a piston operating within a cylindrical seat. Unlike other designs, the secondary resilient seal ring is mounted on the piston and will expand after metal to metal contact of the primary seat ring. The design provides a true metal to metal seal in case of resilient seal failure.

- **Temperature:** Min.: -50°C / -60°F
Max.: 200°C / 450°F
- **Pressure:** 250 bar / 3550 PSIG and full vacuum



VESSEL CONNECTIONS

To connect valves to existing vessels or reactors, there are two possibilities: a nozzle or a pad connection. In both cases, the customer must specify the following vessel connection details: **D** (inside diameter), **H** (height), **DN** (nominal size), **PN** (pressure rating) and connection **standard** (ISO, ANSI, DIN, etc.). To eliminate retention areas radius **R** can be specified for optional contouring. For new projects, Strahman can supply valves with easy-to-fit standardized pads that are ready to be installed.



THE STRAHMAN FAMILY OF PRODUCTS INCLUDE:



WASH DOWN EQUIPMENT

Cleaning and sanitizing equipment for applications where safety is the number one concern — built to outlast and outperform all others.

AUTOMATED VALVES & THERMAL SHUT-OFF VALVES

Completely assembled automated valves and fire-safe thermal shut-off valves fabricated for quick and reliable problem-solving solutions for industrial applications.

PROCESS VALVES


Engineered solutions for the transfer of fluid and flow control for highly critical applications from sampling to inline process to permanent isolation.





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