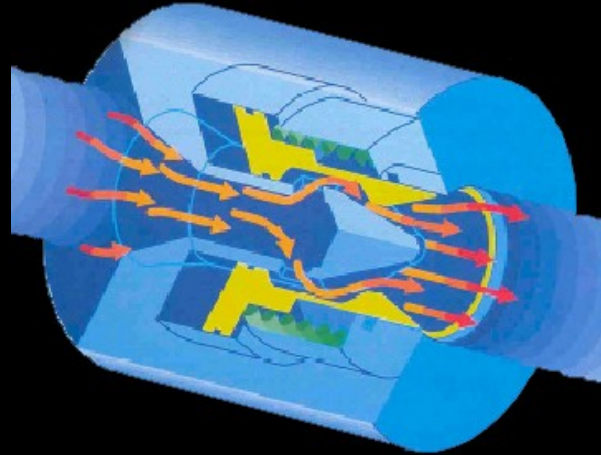




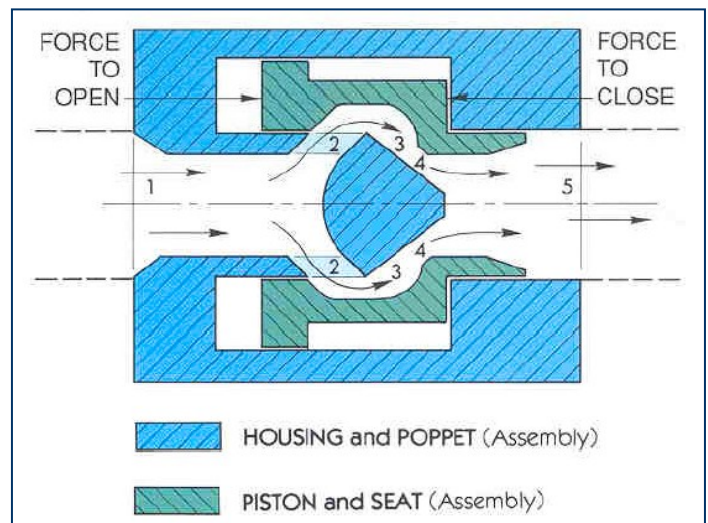
IN-LINE DESIGN SERIES



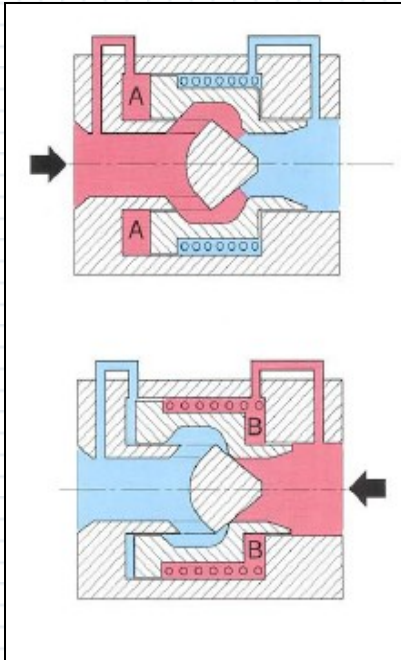
The Solution to Compactness In High Flow Valve Design

Simplicity in Valving Only One Moving Part

The basic In-Line design differs from a normal poppet valve in that the poppet is held stationary and the seat is positioned as required by the valve function. The seat is part of the piston or actuator assembly. It is guided inside the housing and extends over the poppet stem. In the graphic (shown in open position) incoming fluid enters through the inside diameter of the poppet (1); flows through symmetrical holes in the poppet stem (2); moves through a streamlined chamber (3) in the piston; passes the seat (4); and flows through the I.D. of the piston (5) to outlet. The in-line flow passage is quieter than valves with angle flow passages. The illustration is a schematic representation and does not show any specific actuation means. It is easily seen that this concept is applicable to all 2-way valve functions by varying the design of the peripheral portion of the piston and, where necessary, selecting a suitable pilot valve.



Check Valve



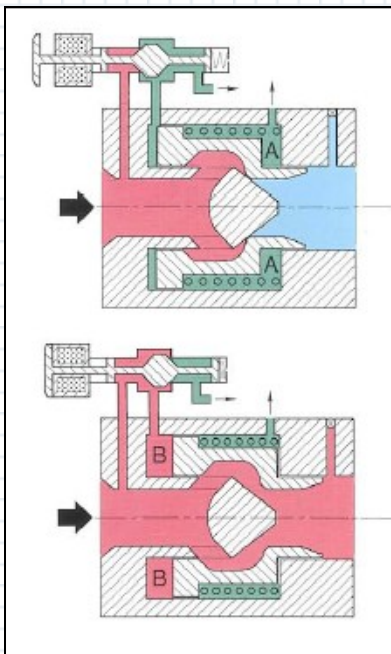
CHECK VALVE OPERATION

Normal line flow (inlet pressure) provides the necessary energy against the piston (at point A) to overcome the return spring force, thus maintaining the valve in an open position.

The check valve function occurs when downstream pressure pushes the piston (at point B) back onto the stationary poppet, thus closing the valve. Sufficient seating force is provided by both the spring and downstream pressure acting against the piston.

Shut-Off Valve

SOLENOID or PRESSURE OPERATED
Normally Open or Normally Closed



SOLENOID OPERATION

The main valve is shown in a normally closed position and is sealed by spring force (at point A). With the 3-way, 2-position pilot valve energized, pressure is applied to the opposite side of the piston (at point B). Pressure forces acting on the piston moves the seat away from the poppet to the open position. Unrestricted flow is obtained when the piston reaches its point of full travel.

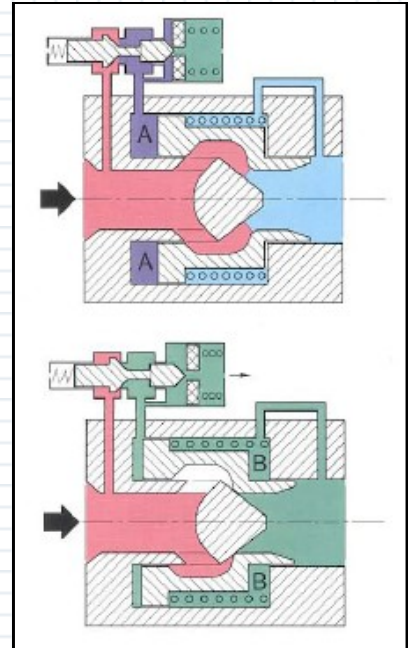
NOTE: The pilot pressure source may be from an internal or external supply. Venting can either be to atmosphere or internal to the line.

Reducing Valve

Accurate pressure control from a simple internal or external air reference to a sophisticated closed loop.

REDUCING OPERATION

From the normally closed position, the controlled pressure from a regulated pilot valve acts on the piston surface (at point A) and moves the piston off the seat against the spring. As downstream pressure rises and pushes on surface (at point B), the piston tends to move back towards the seat. As the reference pressure is reduced, the piston moves to the closed position when spring force exceeds the pressure forces on the piston.



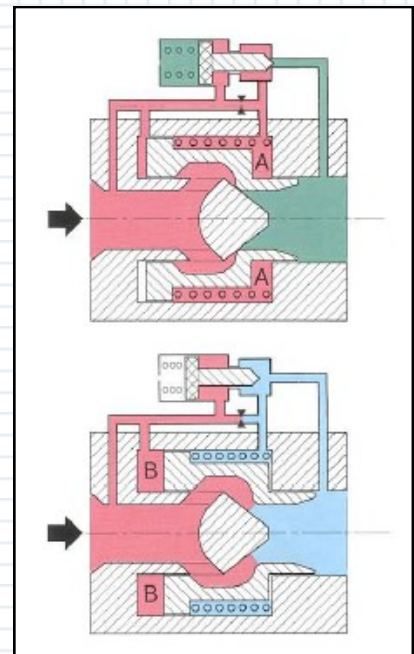
Relief Valve BACK PRESSURE REGULATOR

RELIEF OPERATION

Accurate relief control from simple spring reference, internal or external air reference to a sophisticated closed loop.

The pilot relief valve spring is preset to monitor upstream pressure. When the upstream pressure rises above the set pressure, the pilot valve is unseated and the pilot pressure (at point A) decays, the higher pressure (at point B) causes the In-line valve piston to unseat and vent the excess pressure.

When the inlet pressure reaches the preset pressure the pilot closes. Pressure forces on the main piston are balanced and the valve spring closes the valve.

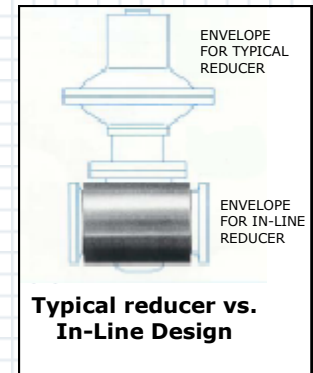


Four Valve Functions and they are all IN-LINE

Marotta's In-Line Series of valves offer you extremely high flow capability with the ultimate in compactness. These two long sought after features were achieved by designing cylindrical shaped bodies that are slightly larger than the line size being used. In addition, the coaxial flow path provides a much lower pressure drop when compared to conventional valves of similar size.

The concept and general design parameters are well defined and new In-Line designs are sized by computer programming.

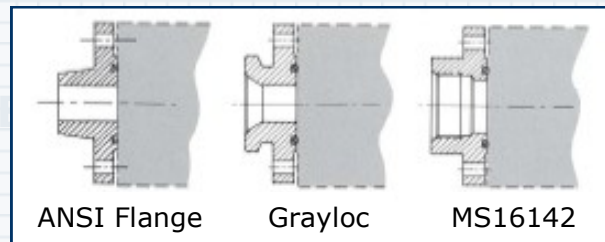
In-Line valves are simple, rugged and reliable!



Plumbing/Pipe Connection

Another significant feature of the In-Line Design Series is its capability to use standard adapters to provide connections that will meet your particular requirements. The basic valve is suitable for ANSI flanges, i.e. welded neck, slip-on, threaded, lap joint, socket and reducing.

Special Connections can be manufactured to accept ANSI flanges, Grayloc or MS16142



Typical In-Line Series Specifications

Service: Gases: Air, N₂, H₂, He, O₂
Liquids: Oil, Water, Corrosive Media

Pressure: 150 to 6,000 psig

Sizes: 1 to 10 inches

Capacities: Slightly less than line size

Materials: Stainless or Carbon Steels,
Aluminum Alloy, Naval Brass

Electrical: 115V AC, 24V DC Pilot Valve,
440 VAC Continuous Duty

The In-Line Series Delivers More Benefits

1. Pressure Balanced for Minimal Actuation Force
2. Fast and Controllable Response
3. Smooth Operation Minimizes "Water Hammer"
4. Low Pressure Drop at High Flow Rates
5. Space Saving Axial Flow Configuration
6. Reliability—One Moving Part, Insignificant Seat Abrasion
7. Commonality in Valving Functions
8. Tight Sealing—Less Leakage
9. 150 to 6,000 psig

Other requirements or materials available on request.

For Specific Applications Call Marotta