

VELOCITY CHECK VALVES

Are two position, two way Normally Closed, positive flow shut off, safety valves.

DESIGNED to provide instantaneous, positive flow shut-off in the event either of the following abnormal conditions occur: (1) a high pressure surge at the Inlet, or (2) development of a pressure differential downstream of the Outlet connection.

SPECIAL FEATURES include the valve's suitability for use with either pneumatic or hydraulic fluid, control circuits. Several different models can be provided for either Field or Panel mount, low pressure (below 200 PSI) applications.

REASON TO USE: Excellent as a **rupture response, flow control** valve when overpressuring occurs to diaphragms, Bourdon Tubes or Helical Coils. The Velocity Check Valve would prevent discharge of fugitive emissions for ruptured Transmitters, Pressure Gauges, pneumatic/electrical Switches and Pressure Sensors.

More frequently, the HLR 7790 Series Velocity Check Valves are being utilized in "**Push-To-Charge**" (pressurize), control circuit applications. A sudden loss of pressure due to actuation of an ESD Valve or other component, will result in instantaneous flow shut off. In this manner, the instrument supply media (Nitrogen, Hydraulic fluid or Natural Gas) is isolated and conserved.

Our Velocity Check Valves are also being utilized with Line Pressure Operated safety systems. They provide both the pressure shut-off response and the manual reset feature required by "LPO" systems.

FEATURES

Standard Service Models

Working Pressure:

100-10,000 PSI

Max. Test Pressure:

15,000 PSI

Connections: Inlet: 1/2 -14 N.P.T.

Outlet: 1/4"-18 N.P.T.

Material: 316 S.S.

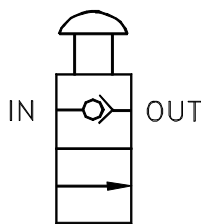
Panel Mount Models Hole Cutout Size:

1-11/16 in Dia. (42.86mm)

Low Pressure Service Models

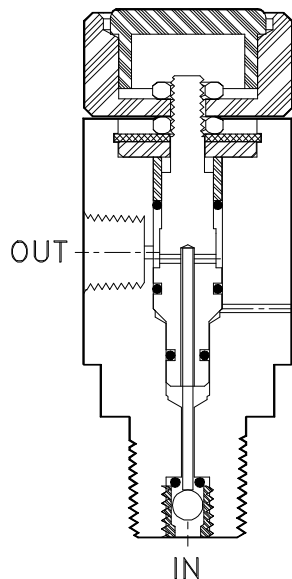
Working Pressure: 50-200 PSI

Max. Test Pressure: 1,000 PSI

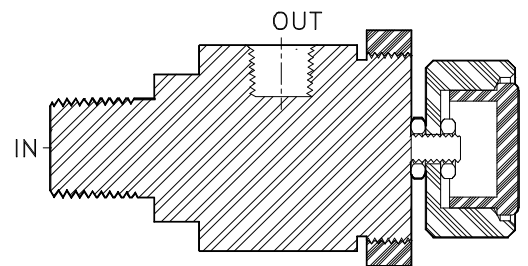


ANSI Symbol

HLR 7790B
Field Mount Model

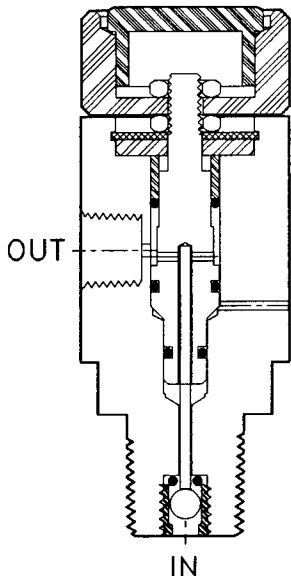


HLR 7790LP-PM
Low Pressure Panel Mount Model



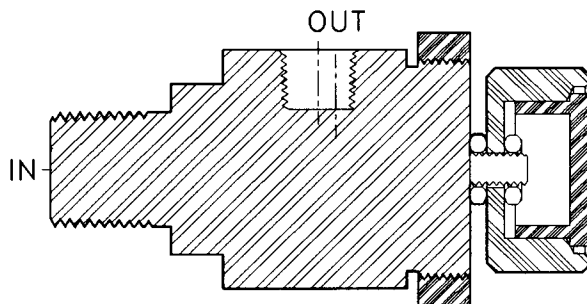
VELOCITY CHECK VALVE MODELS

COMMON FEATURES: *Two Position, Two Way Normally Closed, Differential Pressure Operated, Positive Flow Shutoff*



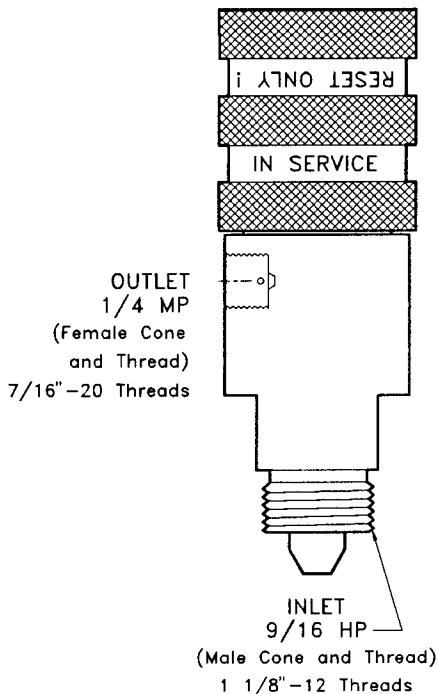
HLR 7790B

*10,000 PSI Working Pressure
Standard Field Mount Unit
Manual Reset*



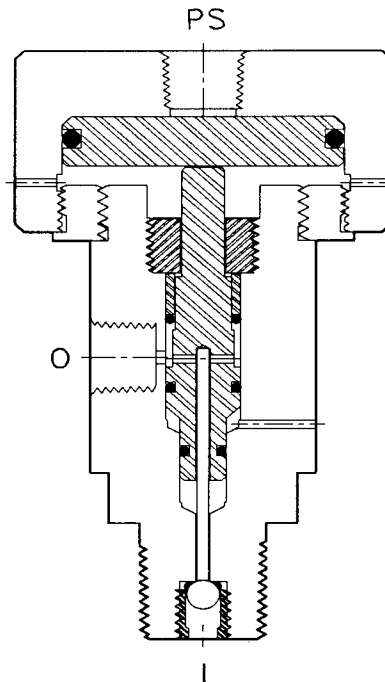
HLR 7790LP-PM

*1,000 PSI Working Pressure
Special Low Pressure Service
Panel Mount Unit
Panel Hole Cutout Size: 1-11/16 inch dia.
(42.86mm)*



HLR 7790B15

*15,000 PSI Working Pressure
Field Mount*



HLR 100-4

*10,000 PSI Working Pressure
Field Mount
Pilot Pressure Operated &
Reset*

Velocity Check Valves

General Product Operating Information

INTRODUCTION

The Velocity Check Valves are two position, two way **Normally Closed**, manual reset, flow control safety valve. They are generally installed at or near the pressure source. Velocity Check Valves pressurize a receiving control circuit and react to an abnormal downstream pressure differential with positive flow shutoff. The two most common Velocity Check Valve applications are briefly described next.

1. A Rupture Response Flow Shut-off Safety Valve.

Rupture, due to over pressuring, could occur to controls that utilize Diaphragms, Bourdon Tubes or Helical Coils. Generally, these controls are Pressure Sensors (Pilots), Transmitters, Gauges, and Switches. Velocity Check Valves enables process pressure to be safely transmitted via instrumentation tubing from a strategic monitor source to the receiving control. Should a rupture or an unintentional disconnection occur, the Velocity Check Valve would prevent the discharge of fugitive emissions by stopping source pressure flow at its Inlet connection.

2. To Pressurize and Operate Line Pressure Operated (LPO) Safety Systems.

Line Pressure Operated (LPO) Safety Systems are self-contained, surfaced mounted, components that respond to either abnormal high or low flowline pressure. Control devices are installed to provide the necessary shut-in response by isolating and depressurizing the instrument control supply to the Flow Control Safety Valve or Shutdown Valve. In this system, the Velocity Check Valve is used to first pressurize the Safety Valve and its control circuit for normal operation. The development of a pressure differential within the pressurized, closed loop control circuit will then block the incoming flow at the Velocity Check Valve's inlet. Control pressure will be exhausted from the safety system circuit by a Pressure Sensor to provide the required shut-in response. Our Velocity Check Valve also provides the "lock-out" or manual reset feature necessary for "failsafe" operation.

OPERATION

Velocity Check Valves have a blocked-to-flow or a Normally Closed flow path in its shelf or unactuated position. Pressure applied at the valve's inlet connection forces the Ball against a seal to maintain the **closed** flow path currently established. The Knob is positioned in its outer most placement, away from the valve Body. This position or blocked-to-flow status is maintained until the Knob is physically pushed downward to unseat the Ball. This manual positioning feature insures failsafe operation of a control circuit.

Initial control circuit pressurization can be accomplished by pushing downward on the Knob. Movement of the Knob by force, will in turn, shift the Piston and Pin's position to dislodge the Ball from the seal surface. A flow path will become established between the Inlet (I) and Outlet (O) connections. This "open-to-flow" status will be automatically maintained once static pressure is established within the receiving control circuit. The Knob's inward placement will be retained until an internal pressure surge occurs or it is purposely pulled outward.