HIGH PRESSURE CONTROL VALVES

QUICK START GUIDE

CAUTION

Prior to installing, the instructions provided herein should be completely reviewed and understood before operating or repairing this equipment. All CAUTION and WARNING notes must be strictly observed to prevent personal injury or equipment damage.

Description

The Kimray high pressure control valve (HPCV) is designed for use in liquid and gas control applications which require modulating (throttling) or on/off service.

The HPCV is a diaphragm-operated control valve with a single port body and a pneumatic spring actuator. The field-reversable actuator is available in either fail closed or fail open orientations. All Kimray high pressure control valves feature a live-loaded packing box for leak-proof service.

The Stem Guided HPCV features a Class IV metal-to-metal, non-balanced trim set. Multiple equal percentage and on/off trim options are available to accommodate a variety of flow requirements.

The Cage Guided HPCV features a Class VI soft-seated, balanced trim set. Full port or reduced port options are available with equal percentage or modified percentage flow characteristics.

A nameplate is attached to each valve. The nameplate lists the serial number, model number, and pressure rating.

Installation

Before installing the control valve, inspect it for damage that may have occurred during shipment or for foreign material that may have collected during shipment. Inspect the openings in the valve and clean process piping to ensure they are clear of scale, chips, and other debris. For flanged bodies, remove the masking sticker from the raised face of each end connection.

1. Install the valve with the arrow on the valve body pointing in the direction of flow. The arrow indicates the preferred direction of flow through the valve but the valve does not prevent flow in the opposite direction. The flow direction in the stem guided valve is down through the valve orifice. The flow through the cage guided valve is up through the valve orifice. If conditions indicate backward flow, check valves can be installed.
2. Install the valve using good piping practices. For flanged bodied valves, use a suitable gasket between the body and the process piping flanges. For threaded (NPT) bodied valves, use TFE tape or pipe thread sealant on external pipe threads.
3. Connect instrument gas to the actuator connection. For fail open valves, the actuator connection is on the top side of the actuator (see Figure 1). For fail closed valves, the actuator connection is on the bottom side of the actuator (see Figure 2). The maximum required instrument gas pressure is 30 psig (2 bar). The maximum allowable instrument gas pressure is 45 psig (3 bar).
4. Verify all pressure connections are tight before pressurizing the system.

Fail Open Valve:

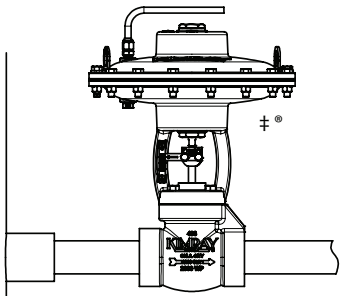

Figure 1

Remove the plastic stopper from the tapped hole on the top side of the bonnet. Install a 1/4" or 3/8" tube fitting (not provided). The tubing must be installed from the source of instrument gas. The plug in the lower half of the bonnet is a breather plug.

Fail Closed Valve:

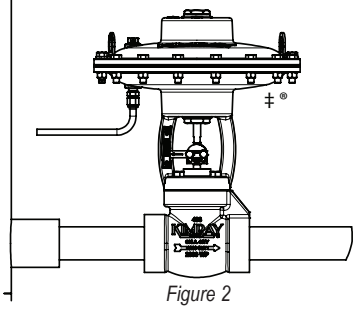

Figure 2

Remove the plastic stopper from the tapped hole in the under side of the bonnet. Install a 1/4" or 3/8" tube fitting (not provided). The tubing must be installed from the source of instrument gas. The plug at the top of the bonnet is a breather plug.

CAUTION

When ordered, the high pressure valve configuration and construction materials were selected to meet specific pressure, temperature, pressure drop and fluid conditions. Since some body/trim material combinations are limited in their pressure drop and temperature ranges, do not subject the high pressure valve to any other conditions without first contacting the Kimray Inc. sales office or a sales / applications representative.

All Pictures shown are for illustration purpose only. Actual product may vary due to product enhancement.
‡ Configuration of High Pressure Control Valve is a trademark of Kimray, Inc.

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KIMRAY INC.

Start-up and Test
With the installation completed and appropriate relief and check valves installed and set, slowly open the upstream and downstream shutoff valves. In order to test the functionality of the valve, allow only a small amount of upstream pressure through the upstream shutoff valve. Check for proper valve operation by cycling the source of instrument gas several times.

Maintenance
Maintenance should be performed on a regular basis. An initial inspection interval of 6 months is recommended. Depending on the service conditions of the valve, the inspection interval may be decreased or increased.

The valve can be repaired without being removed from the piping.

Only use genuine Kimray replacement parts.

Repair kits and detailed repair instructions are available for each valve.

Visit www.kimray.com or contact your Kimray authorized distributor for additional product information and / or literature.

Inspection Schedule	
*Valve Seat (seat, plug, cage & packing box)	Inspect every 6 months under normal service conditions. Under severe service conditions such as sand, corrosion, salt, or high pressure drop, inspect regularly until a predictable pattern can be established. Check seating surface where the ball meets the cone seat for erosion. This could cause the valve to leak when shut.
Seals	Should be replaced as needed. Check for cracks or swelling. If the seal feels hard, replace.
Body	Under normal conditions, the valve body will last for years. Severe conditions will require inspection more frequently. The valve body should be inspected every time the valve trim is inspected.
Actuator	Inspect spring, stem, and diaphragm once per year.
**Wear Plug Assembly	Inspect every 6 months under normal service conditions. Under severe service conditions such as sand, salt, or other abrasive material, inspect regularly until a predictable pattern can be established. Check the wear plug for erosion. Lack of proper inspection may result in a compromised wear plug assembly.
*Under severe operating conditions, the maintenance schedule described will not be adequate and a shorter maintenance interval may be required. **For the Dual Port Body (T-Body) option used in through-body configuration.	

Troubleshooting		
Problem	**Possible Cause(s)**	**Possible Solution**
Fluid leaking from packing box	Stem worn Packing worn	Replace trim Replace packing
Valve leaks when closed	Debris stuck in valve Soft seat worn Trim worn	Disassemble and clean seat area Replace seat Replace trim
Erratic Operation	Improper valve sizing Soft seat leaking Wet instrument supply	Verify valve sizing Inspect for deformation or obstructions in seat Relocate instrument supply source

WARNING
Before beginning installation:
• Read and follow instructions.
• Make sure the valve cannot operate during installation.

Do not exceed the maximum supply pressure specified on the valve name-plate.

Never tighten any fitting or the main connections to the valve while there is pressure on the line.

WARNING
Before any service, be certain that the valve is fully isolated and that all pressure upstream and downstream has been relieved. Use bypass valves or fully shut off the process.

Be sure that any operating or instrument gas lines have been disconnected.

Never stand directly in front of or over a valve when the system is pressurized. The valve could suddenly open, blowing debris into the person's face and eyes.

WARNING
A leaking valve is an indication that service is required. Failure to take valve out of service immediately may cause a hazardous condition.

NOTE
If conditions indicate the possibility of backward flow you may wish to install check valves.
Never assume that a check valve is fully blocking the downstream line.

For questions or comments, contact your local Kimray authorized distributor, or visit www.kimray.com.

Kimray Inc.
52 NW 42nd Street
Oklahoma City, OK 73118

Customer Service: 405.525.6601 | service@kimray.com

Product Support: 405.525.4264 | ProductSupport@Kimray.com