

INSTALLATION - INSTRUCTIONS

TYPE 135

BACK PRESSURE AND RELIEF VALVES

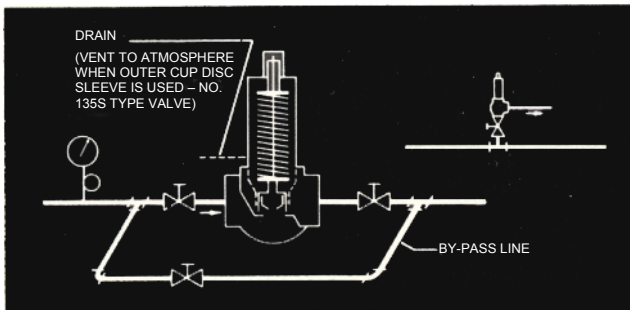
Angle or Globe Pattern

Cup Disc Type

Steam, Air, Water, Oil Service

DESIGN AND OPERATION:

The inner valve is cup formed and slides over a stationary piston which is part of the seat bushing casting. The edge of the cup cuts across the outlets of the passages between the piston and seat to control the flow and pressure. Valve is normally closed. Pressure from the valve inlet is transmitted by a short tube to the space above the piston where it tends to lift the cup against the spring force. As this tube faces upstream, the velocity head of the entering fluid is changed into additional pressure to lift the cup. The tube may extend



outside the valve to transmit pressure from a remote point. A close fitting sleeve surrounds the cup to prevent pressure in the outlet chamber from acting downward on the cup and raising the inlet pressure.

A vent in the spring housing prevents an accumulation of pressure above the disc. Since there is always some fluid leakage between the sleeve and the cup, this vent connection should be piped back to the reservoir when liquids are used. The piping should be kept as short as possible to avoid pressure buildup above the cup. When used as a relief valve without the sleeve and vent, the capacities are reduced as indicated in the table. The smoother and more chatter free characteristics of the cup construction are retained. Although the spring can be designed for a wide range of adjustment, much better regulation results if the spring is specified and designed for a definite pressure with a moderate adjustment range. The cap locks the adjusting screw and prevents leakage.

INSTALLATION:

Clean dirt, etc. from valve and pipe. Install valve in a horizontal line with spring chamber above the line. Flow through the valve should agree with markings on the valve. If the valve is two or more sizes smaller than the pipe install it in the by-pass line to reduce strains on the valve. Trap condensate ahead of valve inlet.

STARTING:

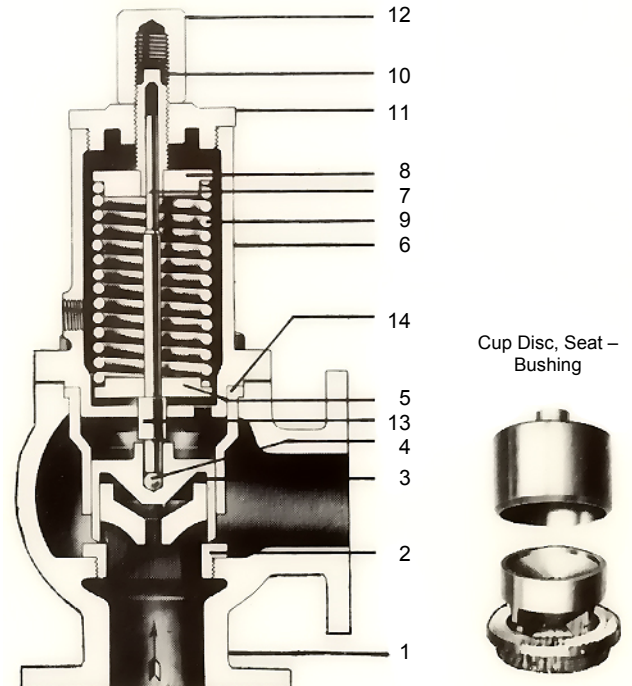
Open outlet valve fully; open inlet valve gradually - adjusting the back pressure by changing the spring compression.

TROUBLES AND REMEDIES:

To stop any pulsating or hunting check to make sure the inlet shutoff valve is wide open. Dismantle and clean thoroughly the #135 valve including the equalizing port. If the cup disc and seat bushing are scored, dress lightly with powered emery and oil. Failure to close is usually caused by dirt, etc. on seat; try cleaning seat by opening valve with pressure allowing the media to pass through the valve. If needed, dismantle the valve and clean. To dismantle valve detach the spring chamber from the valve body and remove entire assembly. The adjusting spring could be compressed in the spring chamber and access to this part should be handled cautiously.

MAINTENANCE:

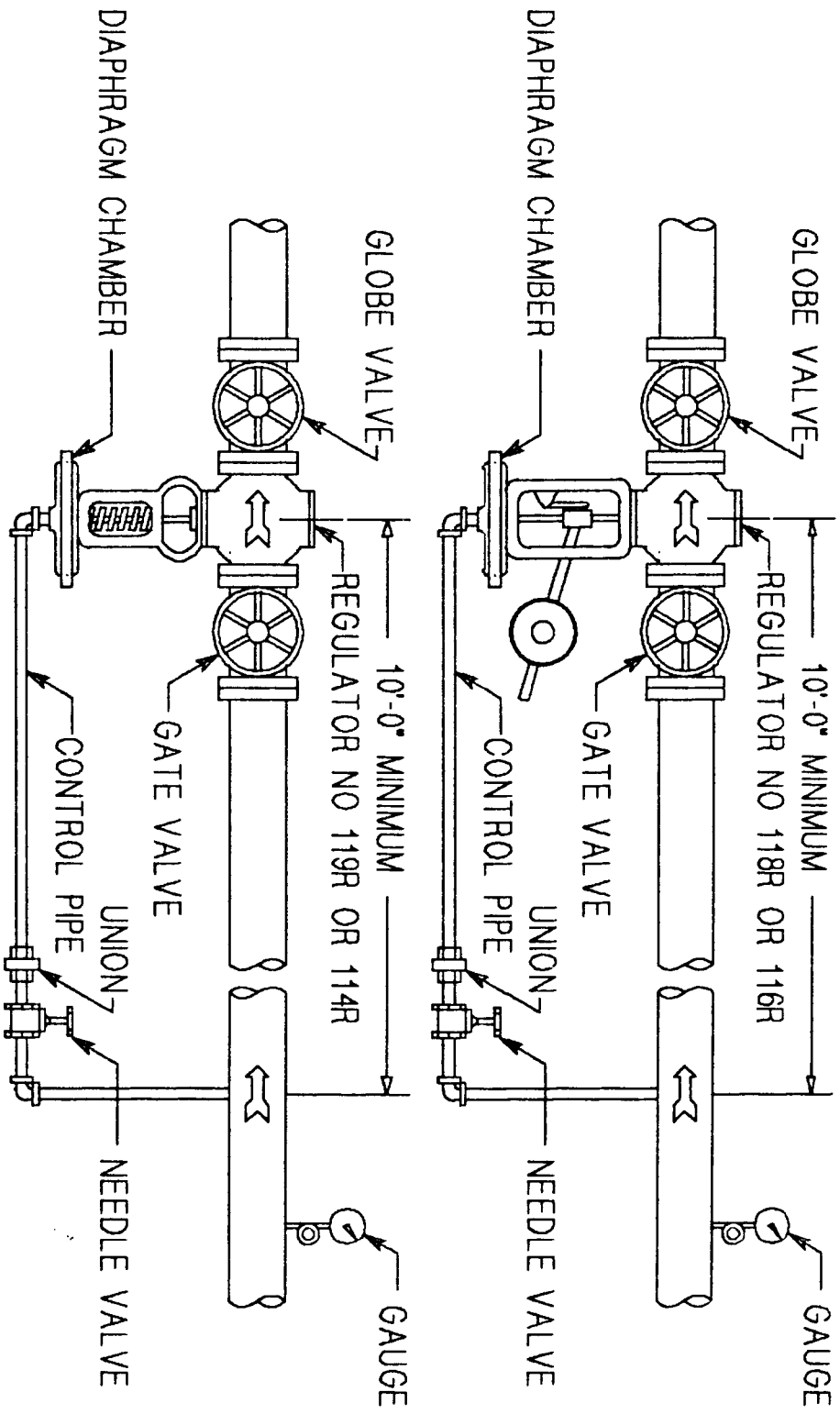
Operation and condition of the valve should be checked regularly.



TYPE 135 ANGLE with flanged connections

- | | | |
|-----------------------|-----------------------|--------------------------|
| 1) Body | 6) Spring Chamber | 11) Spring Chamber Cover |
| 2) Seat | 7) Valve Stem | 12) Adjustment Screw Cap |
| 3) Cup Disc | 8) Upper Spring Plate | 13) Stem Head |
| 4) Ball | 9) Spring | 14) Sleeve |
| 5) Lower Spring Plate | 10) Adjusting Screw | |

DRAWING NO.
25115A



INSTALLATION MAY BE MADE IN A HORIZONTAL LINE WITH THE DIAPHRAGM AND/OR PISTON ABOVE OR BELOW THE LINE OR IN A VERTICAL LINE WITH THE STEM LOCATED IN A HORIZONTAL PLANE.
 CONTROL PRESSURE IS PIPED TO THE DIAPHRAGM AND/OR PISTON FROM THE HIGH PRESSURE DISCHARGE LINE ABOUT 10 ft. BEHIND THE CONTROL VALVE.
 WHERE STEAM IS THE MEDIA, THE CONTROL PRESSURE LINE SHOULD BE SO LOCATED AS TO FORM A CONDENSATE DROP TO SEAL THE DIAPHRAGM AND PROTECT IT FROM THE HEAT OF THE STEAM.
 A NEEDLE VALVE INSTALLED ON THIS LINE WILL CUSHION THE ACTION OF THE MAIN VALVE.

O. C. KECKLEY COMPANY 3400 CLEVELAND SKOKIE ILLINOIS		DRAWING NO.	25115A
		PART NO.	
SUGGESTED INSTALLATION			
FOR NO'S 118R, 116R, 119R, 114R		SCALE	
		DATE	6-13-95
		DR. BY	S. C. Z.

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INSTRUCTION BULLETIN

Type 114R and Type 119R Diaphragm Relief Valves

GENERAL DESCRIPTION

The type 114R is designed for dependable control of backpressure and relief of excess pressure on applications where absolutely tight shut-off is not required. It will maintain backpressure ranges from 5-200#. Several different sizes of topworks are required to cover this range, each adjustable over part of the range.

NOTE:

When backpressure range is 100 PSIG or above, a piston-operated topworks must be furnished.

The type 119R single seated valve is recommended where a tight closing regulator is required. Topworks selection is dependent on valve size and set pressure – check with factory.

INSTALLATION

Type 114R and 119R relief valves may be installed in a horizontal line with topworks either above or below the pipeline. The direction of flow must be as shown by the arrow or inlet markings on the valve body. Control pressure is piped to the diaphragm chamber from the pressure line ahead of the relief valve. Dwg. #25115-A shows the suggested installation arrangement.

Any piping connected to the valve should be tested for leaks and loose connections. Be sure all lines are clear and free from obstructions.

It is recommended that a strainer be installed in the line ahead of the valve.

ADJUSTMENT

Type 114R and 119R are provided with a spring adjustment. To increase the relief pressure, turn the adjusting nut clockwise and to reduce the relief pressure, turn the adjusting nut counterclockwise.

VALVE PACKING

Special precautions should be taken in tightening the packing gland nut. This may seem to be only finger tight, but it has been tightened enough to hold the pressure under actual working conditions as specified. Excess tightening of this nut will increase the stem friction and prevent the valve from operating properly.

To REPACK THE VALVE, unscrew the packing gland nut and lift up the gland. Remove old packing and insert one length of new packing. Do not add new packing to packing already in the packing gland.

DIAPHRAGM REMOVAL

Turn adjusting nut in a counterclockwise direction until tension is off of the spring. Loosen and remove diaphragm cover. Remove existing diaphragm. Install new diaphragm and reassemble. Tighten adjusting screw to desired relief pressure.

WHEN ORDERING PARTS

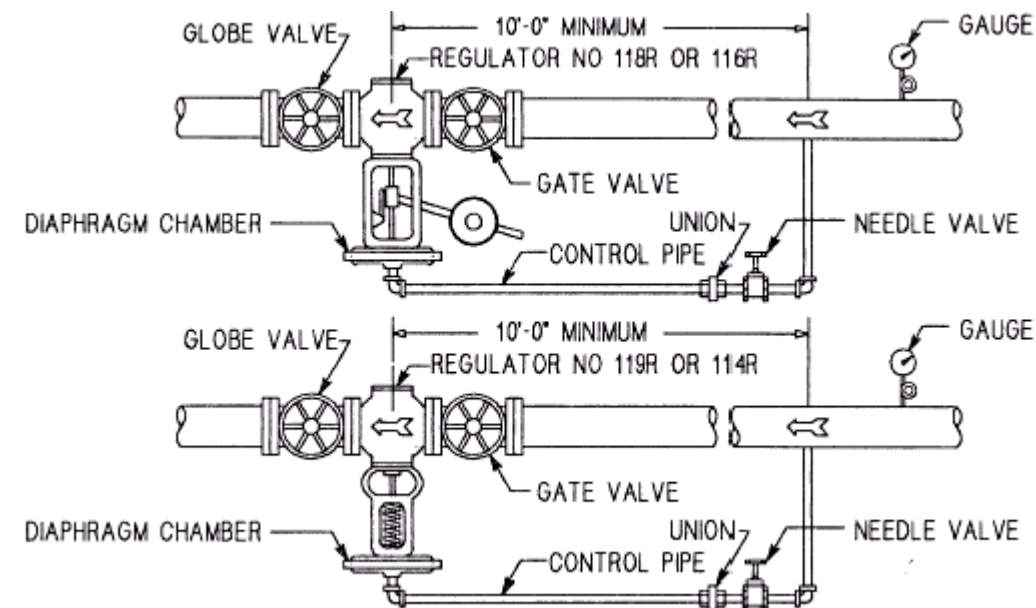
Serial numbers are stamped on a small nametag attached to the topworks assembly. When ordering parts, this number and the size and type of valve must be furnished in order that the factory may properly furnish the exact material needed.

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GENERAL DATA

All valves have been tested and inspected before shipping. The valve has been adjusted to the relief pressure specified by the customer. Use caution in tightening the packing nut, as the nut was tightened at the factory to hold pressure for which the valve was ordered. When used on steam service, the diaphragm must be protected with a water seal to protect it from high steam temperatures.



Control pressure is piped to the diaphragm and/or piston from the high-pressure discharge line about 10 ft. ahead of the control valve.

If steam is the media, the pilot control line should be so located as to form a condensate trap to seal the diaphragm and protect it from the heat of steam.

A needle valve installed in the pilot control line will cushion the action of the valve proper.