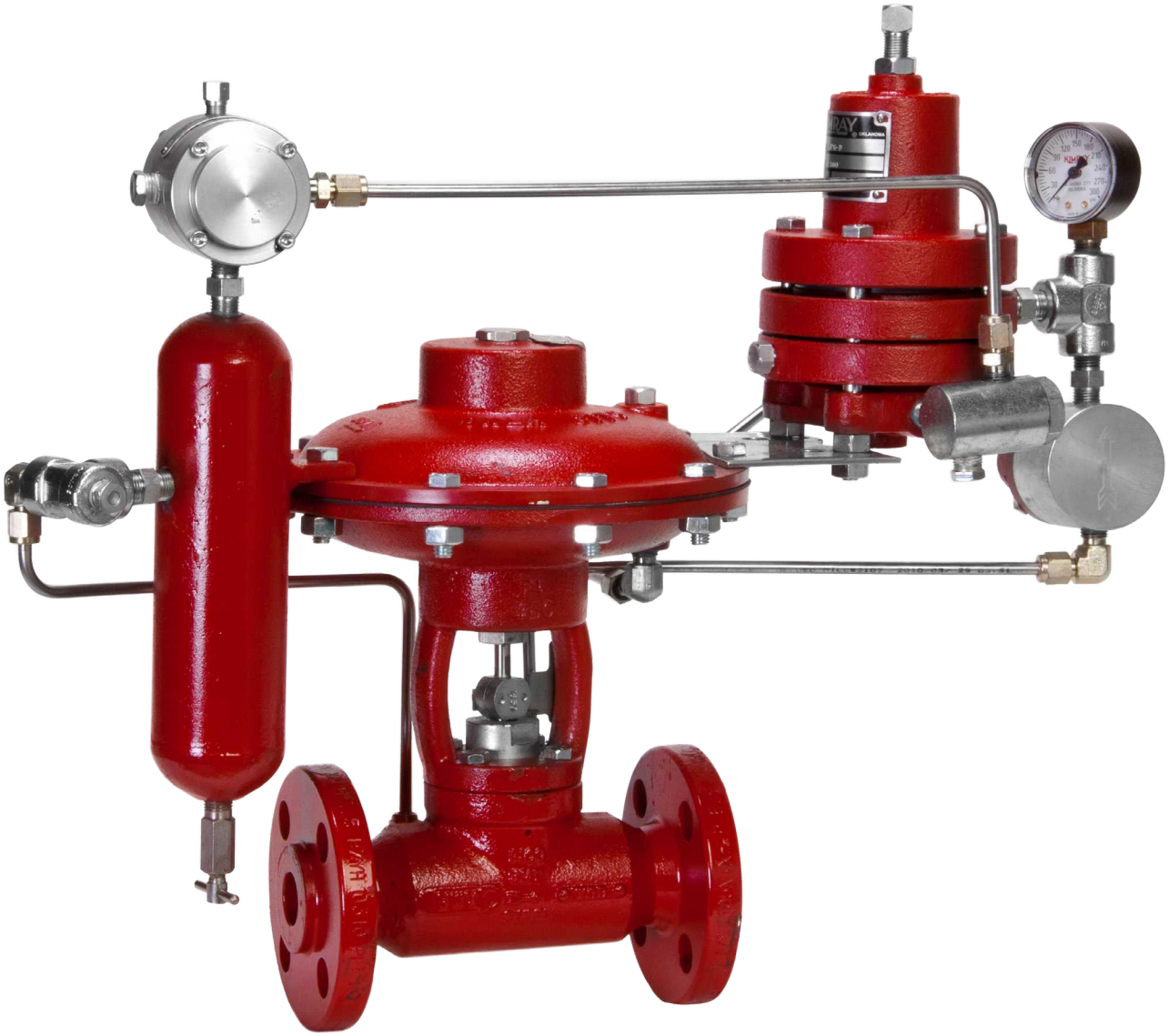
KIMRAY INC.®

INSTALLATION OPERATION & MAINTENANCE GUIDE



HIGH PRESSURE REGULATOR PACKAGES

Contents

A Before you start

⚠ CAUTION:
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.

A1 Scope

Do not install, operate, or maintain a pressure regulator without being fully trained and qualified with the Kimray installation, operation and maintenance manual.

To avoid personal injury or property damage, it is important to carefully read, understand, and follow all the contents of this manual, including all safety cautions and warnings.

If you have any questions about this manual, contact your Kimray applications support group before proceeding.

A2 Introduction

This repair manual contains information for tubing connection of High Pressure Regulators.

A3 Description

The Kimray back pressure regulator combines a pressure pilot with a control valve. Upstream gas is used to operate the valve. In the pilot, a spring is compressed with an adjusting screw. This places a force against a thick diaphragm which is in contact with the controlled pressure on the side opposite of the spring. As the two forces work against each other, they continually reposition a small three-way valve (the pilot plug and seats) which controls diaphragm pressure in the valve. Proper function can best be accomplished when the gas flowing through the pilot is clean and free of liquid. The valve shuts off with a resilient seat on the plug closing against a metal seat in the valve body.

The Kimray back pressure regulator maintains a constant upstream pressure. It limits upstream pressure by adjusting open to relieve excess pressure or conserves upstream pressure by adjusting closed to limit the flow to downstream.

⚠ CAUTION: Install the valve using good piping practice. For flanged bodies remove the masking sticker from the raised face of each end connection & use a suitable gasket between the body and the pipeline flanges. For threaded (NPT) bodies, use TFE Tape or pipe thread sealant on external pipe threads.

⚠ CAUTION:
When ordered, the pressure regulator 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 pressure regulator to any other conditions without first contacting the Kimray Inc, sales office or a sales / applications representative.

⚠ WARNING:
DO NOT exceed the maximum pressure specified on the nameplate. Under no circumstances should the regulator supply pressure ever exceed the maximum psig.

A4 Maintenance

Maintenance should be performed on a regular basis. Initial intervals of 12 months is recommended. The maintenance interval may increase or decrease depending on changing application environments. The valve can be repaired without being removed from the piping.

Related Publications
The following publications are applicable for the regulator

Number	Type	Title

See catalog section E1 & Y for product pages.

Abbreviations / Acronyms
The abbreviations that follow are used in this manual.

Term	Definition
BP	Back Pressure
PR	Pressure Reducing

Commonly Replaced Parts
- Trim Set
- Diaphragm
- O-ring

Occasional Replacement Parts
- Body
- Spring

A5 Changes and Updates

⚠ NOTE:
To prevent galling or seizing at assembly level for straight threads Kimray recommends using a nickel impregnated paste. For other threads use a nickel impregnated PTFE thread sealant tape.

OPERATIONS:

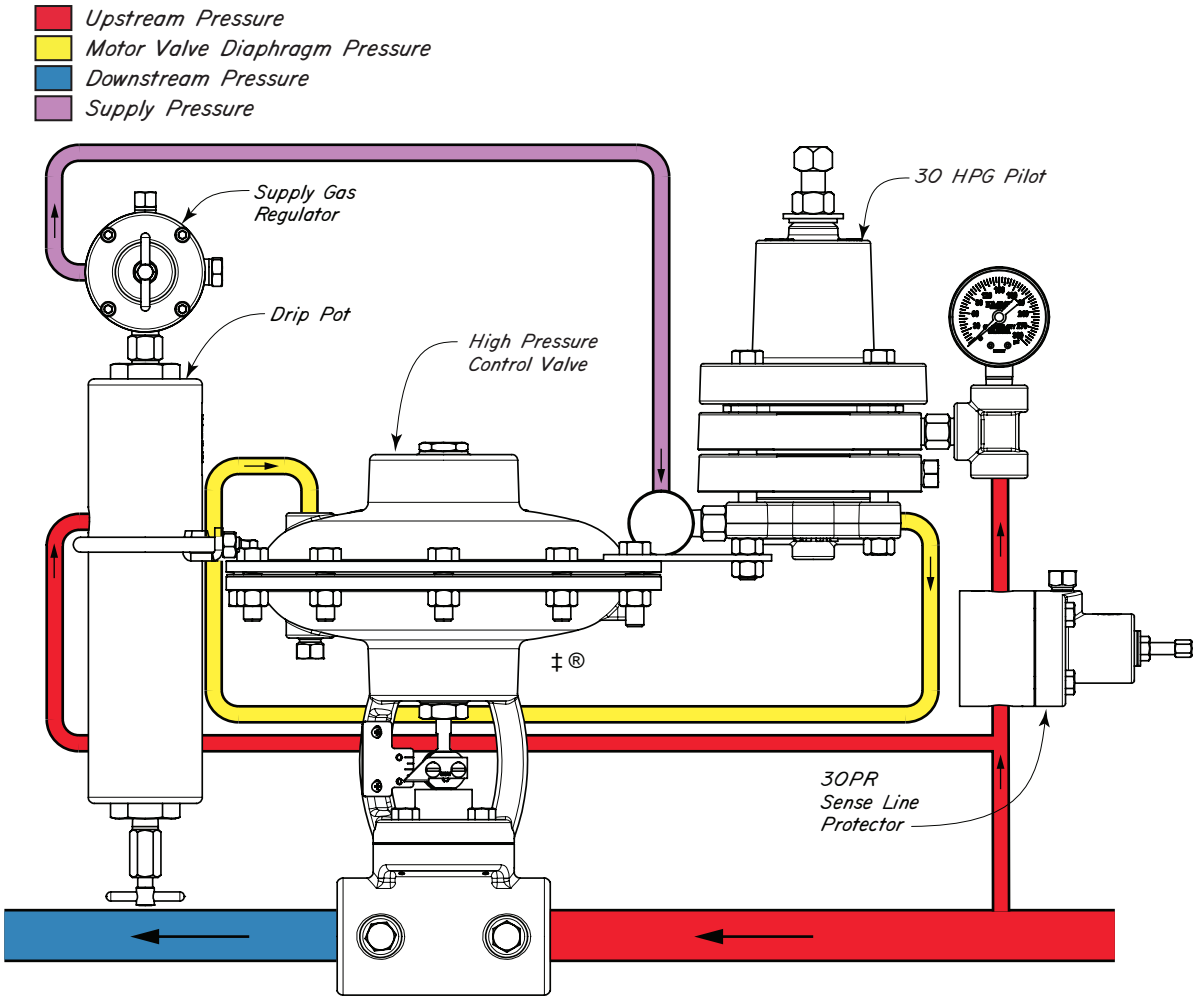
The Kimray Back Pressure HPCV is a upstream pressure regulator. The Back Pressure HPCV is commonly used to regulate the pressure of natural gas during the oil and gas production process. The Back Pressure HPCV is a self contained unit that incorporates a type HPG or type PG control pilot to monitor upstream pressure and position the HPCV closure member to maintain a precise upstream set point. A type YAV supply gas regulator and drip pot use upstream pressure to provide dry supply gas to the control pilot for operation. All HPCV packages include a YDM or YDM360 sense line over pressure protector for safety.

PRESSURE RANGE:

30 HPG 5-300 psig

SUPPLY PRESSURE:

20 & 30 psig



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.

OPERATIONS:

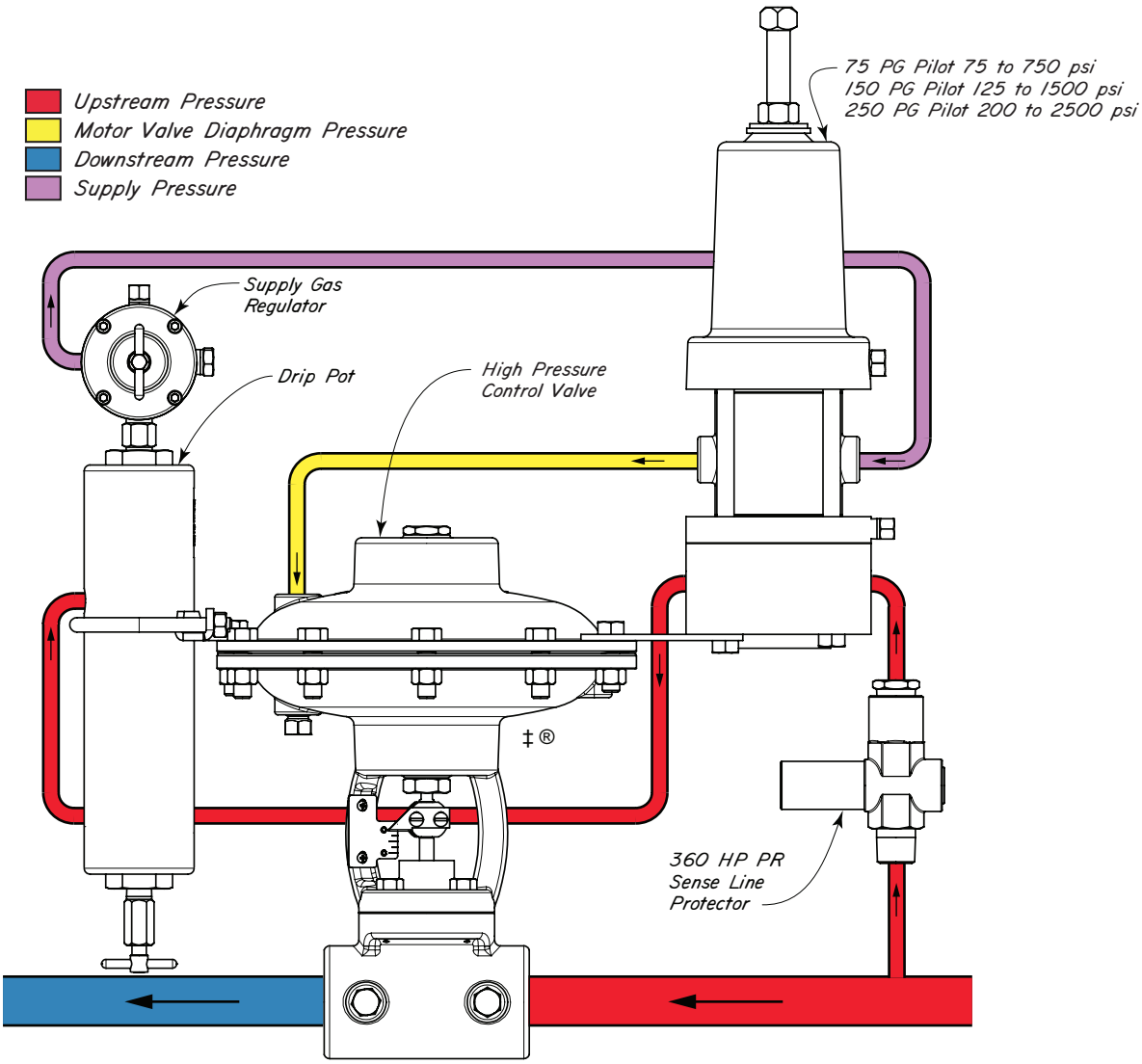
The Kimray Back Pressure HPCV is a upstream pressure regulator. The Back Pressure HPCV is commonly used to regulate the pressure of natural gas during the oil and gas production process. The Back Pressure HPCV is a self contained unit that incorporates a type HPG or type PG control pilot to monitor upstream pressure and position the HPCV closure member to maintain a precise upstream set point. A type YAV supply gas regulator and drip pot use upstream pressure to provide dry supply gas to the control pilot for operation. All HPCV packages include a YDM or YDM360 sense line over pressure protector for safety.

PRESSURE RANGE:

75 PG 75-750 psig
150 PG 125-1500 pisg
250 PG 200-2500 psig

SUPPLY PRESSURE:

20 & 30 psig



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OPERATIONS:

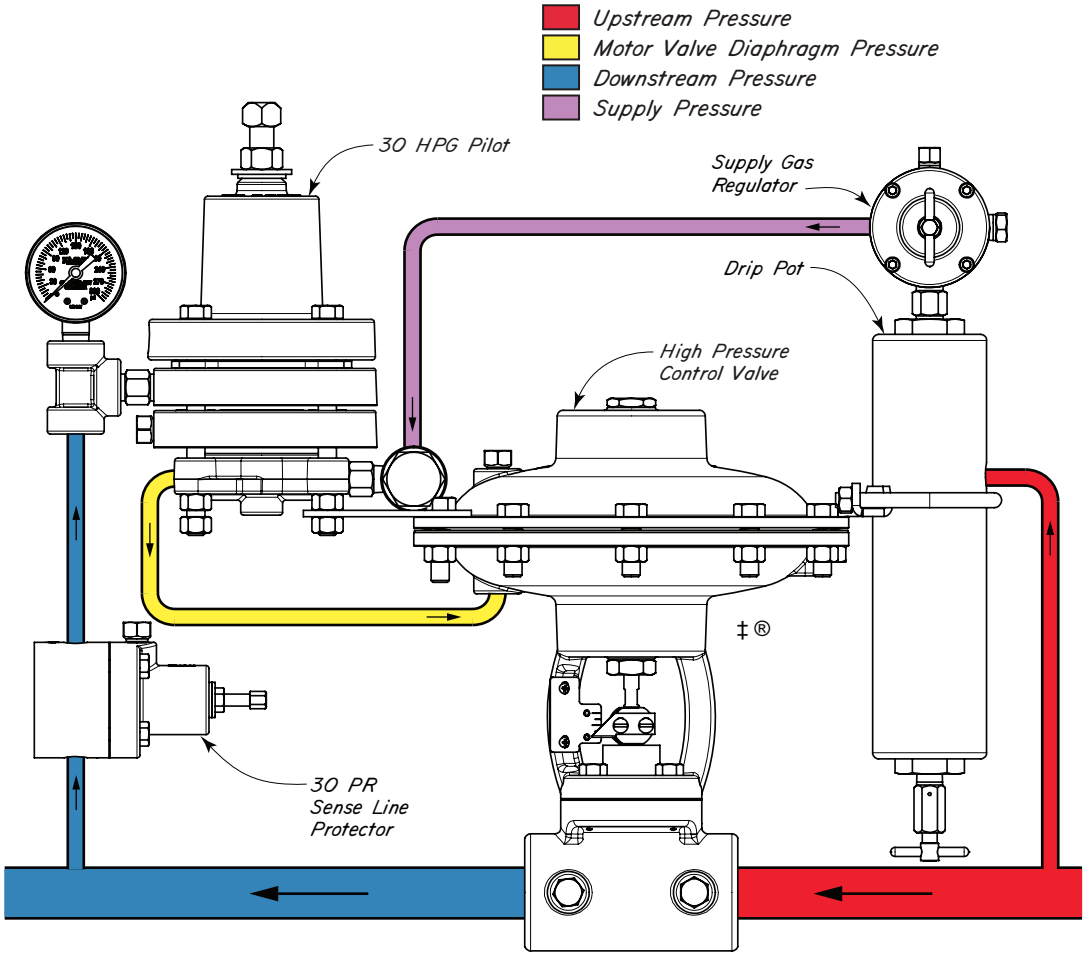
The Kimray Pressure Reducing HPCV is a downstream pressure regulator. The Pressure Reducing HPCV is commonly used to regulate the pressure of natural gas during the oil and gas production process. The Pressure Reducing HPCV is a self contained unit that incorporates a type HPG or type PG control pilot to monitor downstream pressure and position the HPCV closure member to maintain a precise downstream set point. A type YAV supply gas regulator and drip pot use upstream pressure to provide dry supply gas to the control pilot for operation. All HPCV packages include a YDM or YDM360 sense line over pressure protector for safety.

PRESSURE RANGE:

30 HPG 5-300 psig

SUPPLY PRESSURE:

20 & 30 psig



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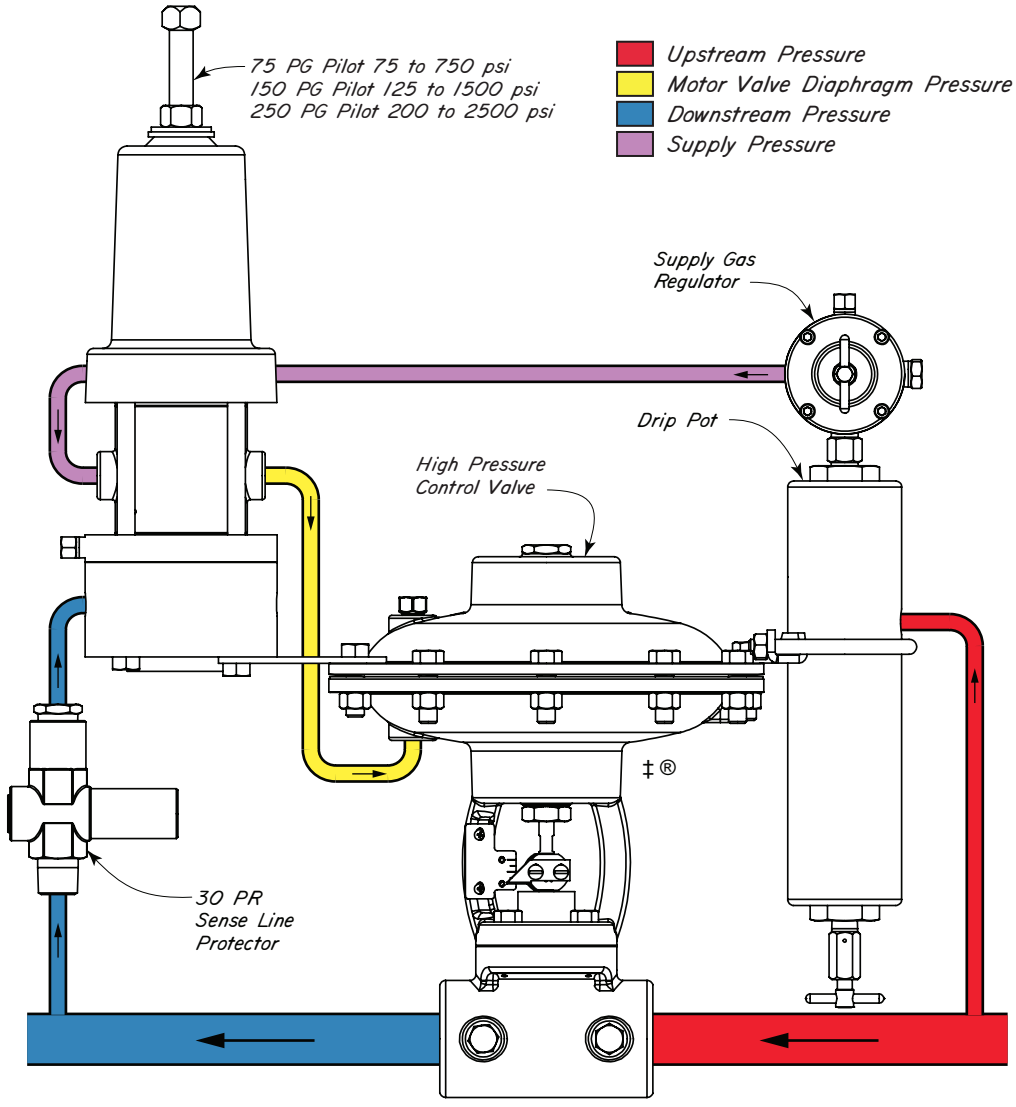
OPERATIONS:

The Kimray Pressure Reducing HPCV is a downstream pressure regulator. The Pressure Reducing HPCV is commonly used to regulate the pressure of natural gas during the oil and gas production process. The Pressure Reducing HPCV is a self contained unit that incorporates a type HPG or type PG control pilot to monitor downstream pressure and position the HPCV closure member to maintain a precise downstream set point. A type YAV supply gas regulator and drip pot use upstream pressure to provide dry supply gas to the control pilot for operation. All HPCV packages include a YDM or YDM360 sense line over pressure protector for safety.

PRESSURE RANGE:

75 PG 75-750 psig
150 PG 125-1500 pisg
250 PG 200-2500 psig

SUPPLY PRESSURE:
20 & 30 psig



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OPERATIONS:

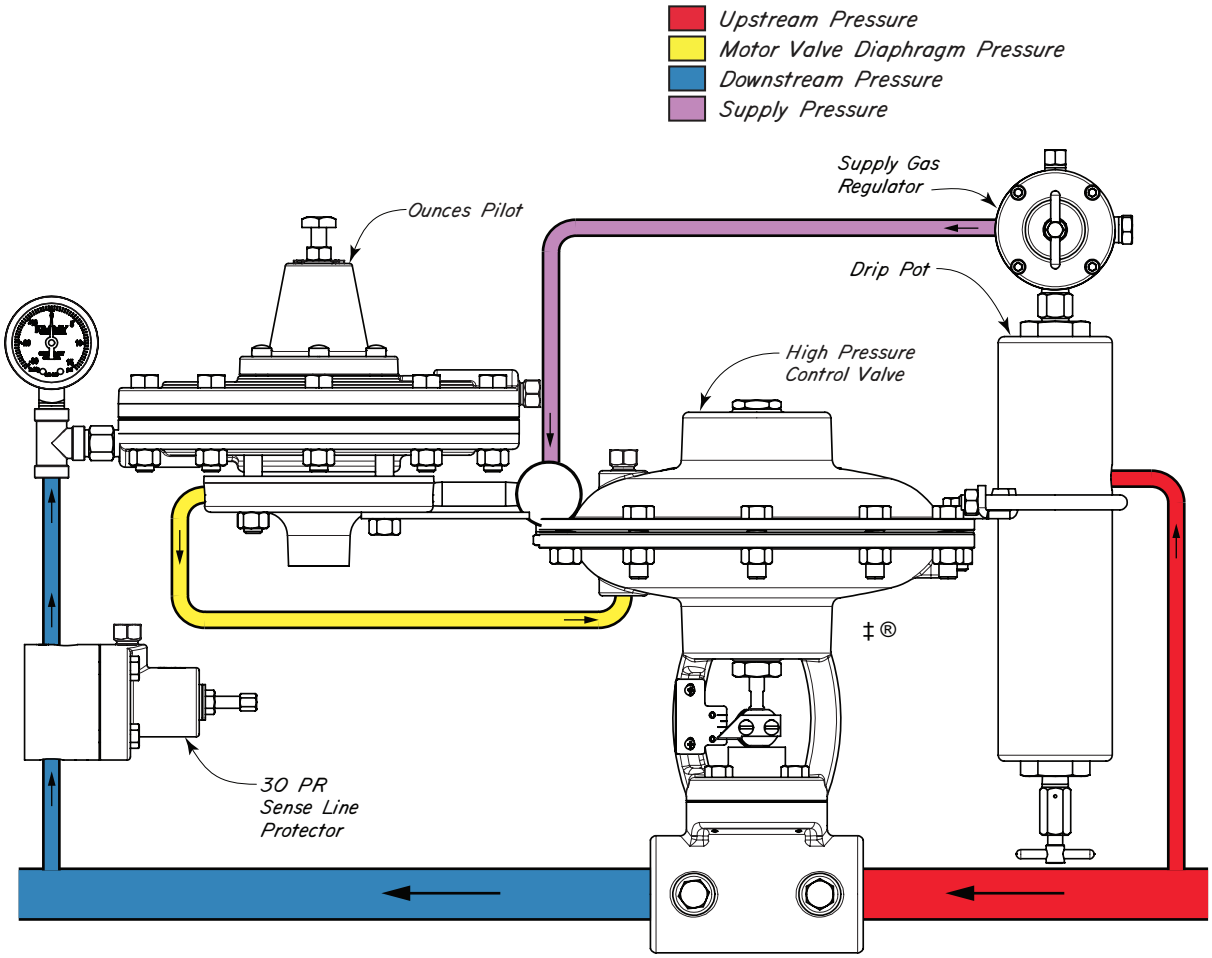
The Kimray Pressure Reducing Ounces HPPR is To monitor and regulate downstream pressure below 20 psi. The ouncer pilot monitors downstream pressure, if pressure increases the pilot vents output causing the valve to close. If pressure decreases the pilot gives output causing the valve to open. A type YAV supply gas regulator and drip pot use upstream pressure to provide dry supply gas to the control pilot for operation. All HPCV packages include a YDM or YDM360 sense line over pressure protector for safety.

PRESSURE RANGE:

1/2 ounce - 20 psig

SUPPLY PRESSURE:

20 to 30 psig



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OPERATIONS:

The Kimray High Low Regulator is used to close valve in case sense pressure becomes to low or to high, only allows valve to flow when pressure is between set points.

Direct acting pilot, monitors low set point. When pressure is below set point the pilot vents output causing the valve to close. When sense pressure is above set point the pilot gives an output causing the valve to open.

Indirect acting pilot, monitors high set point. When pressure is below set point the pilot gives output to direct acting pilot allowing it to open valve. When pressure is above set point, the pilot vents output removing supply pressure to direct acting pilot causing the valve to close.

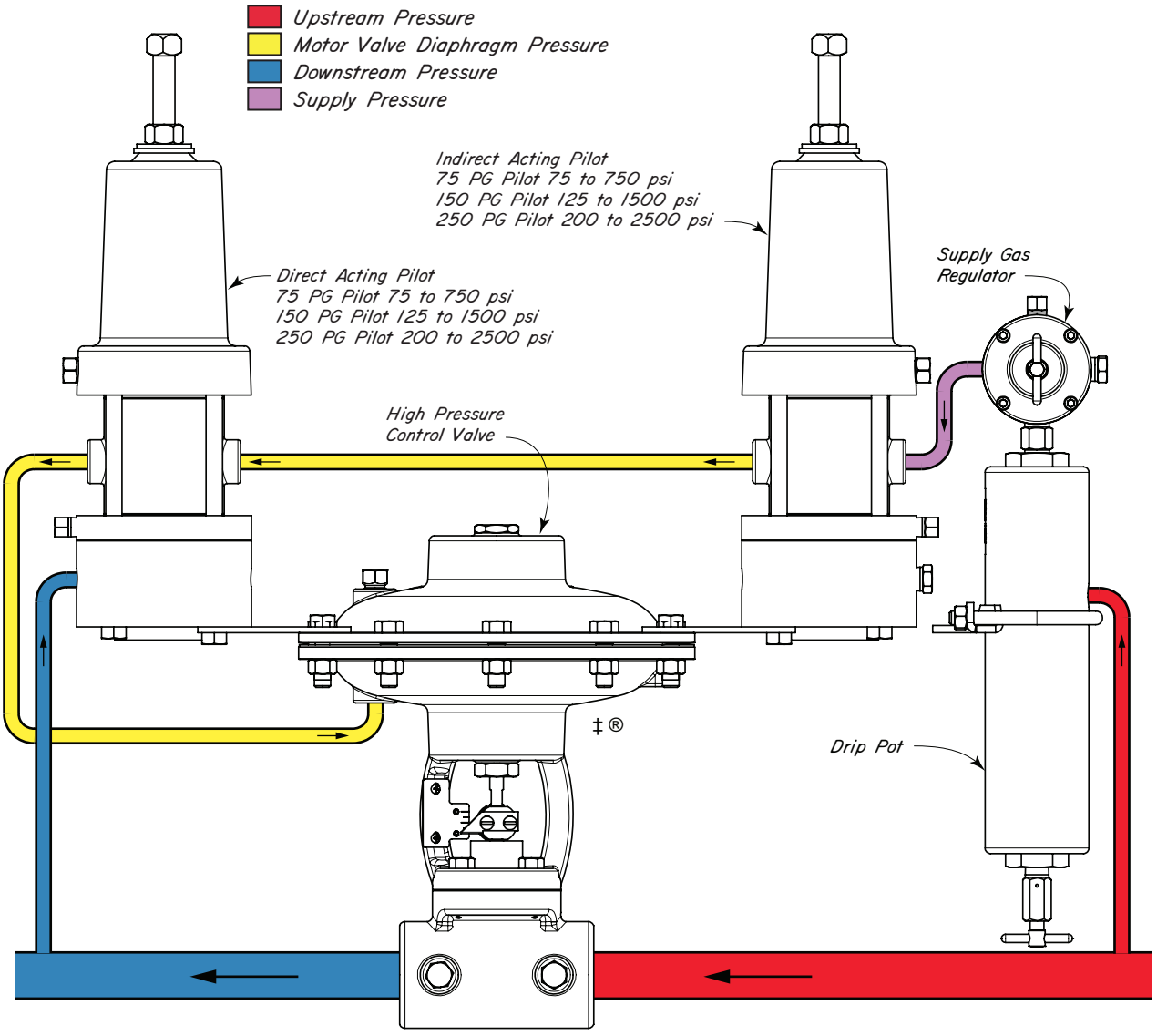
Valve will remain closed until pressure either climbs above low set point or drops below high set point.

PRESSURE RANGE:

75 PG 75-750 psig
150 PG 125-1500 pisg
250 PG 200-2500 psig

SUPPLY PRESSURE:

20 & 30 psig



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MODEL: High Low Regulator with Manual Reset
Installation, Operation & Maintenance Guide

OPERATIONS:

The Kimray High Low Regulator with Manual Reset is used to to close the valve in case sense pressure becomes to low or to high, only allows valve to flow when pressure is between set points. If pressure is beyond high or low set point, the valve will close and not open until pressure is between set point and an operator resets system.

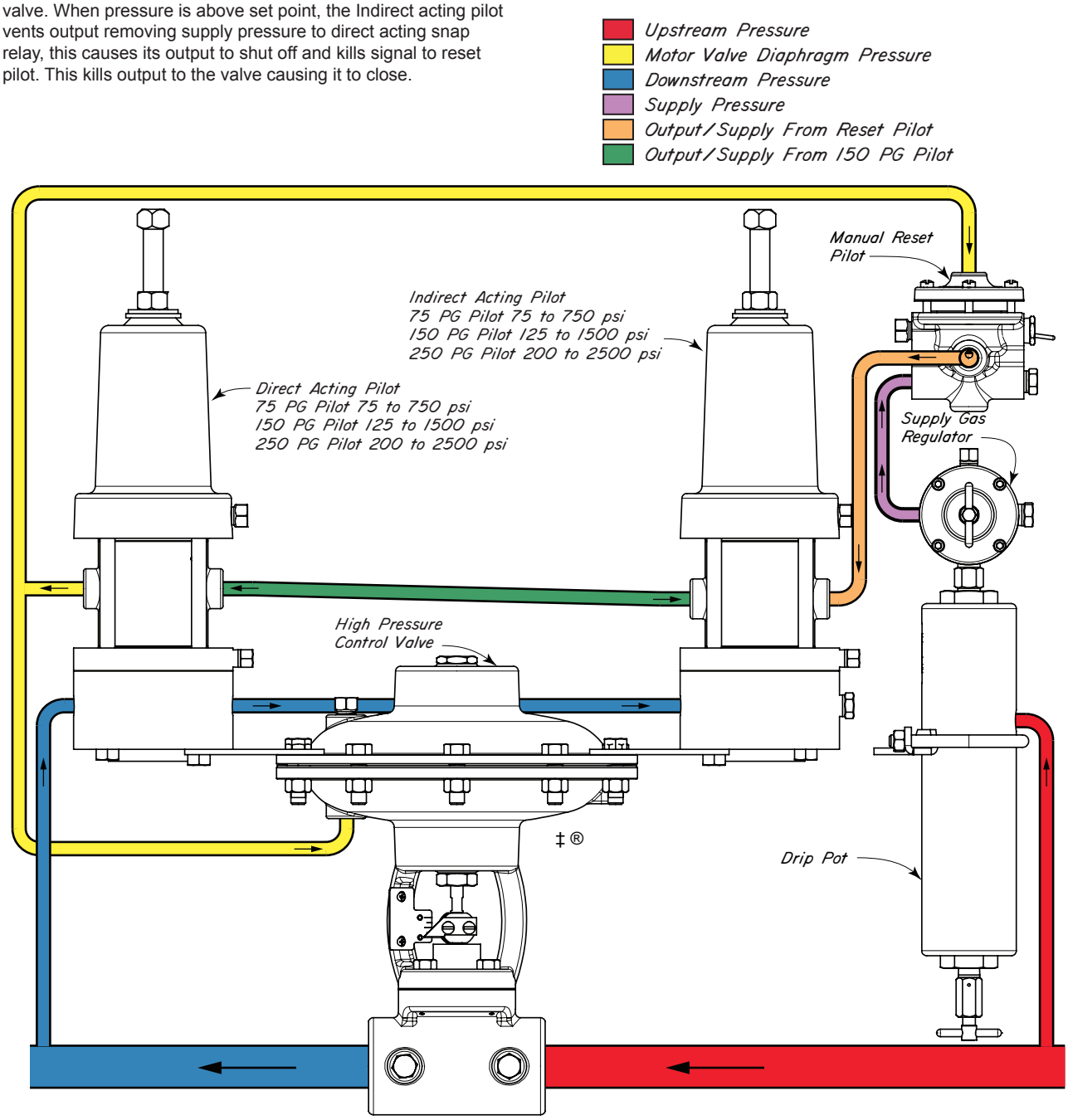
Direct acting pilot, monitors low set point. When pressure is below set point the pilot vents output causing the valve to close. When sense pressure is above set point the pilot gives an output causing the valve to open.

Indirect acting pilot, monitors high set point. When pressure is below set point the pilot gives output to direct acting snap relay allowing it to keep reset pilot open and gives output to the valve. When pressure is above set point, the Indirect acting pilot vents output removing supply pressure to direct acting snap relay, this causes its output to shut off and kills signal to reset pilot. This kills output to the valve causing it to close.

PRESSURE RANGE:

75 PG 75-750 psig
150 PG 125-1500 pisg
250 PG 200-2500 psig

SUPPLY PRESSURE:
20 & 30 psig



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OPERATIONS:

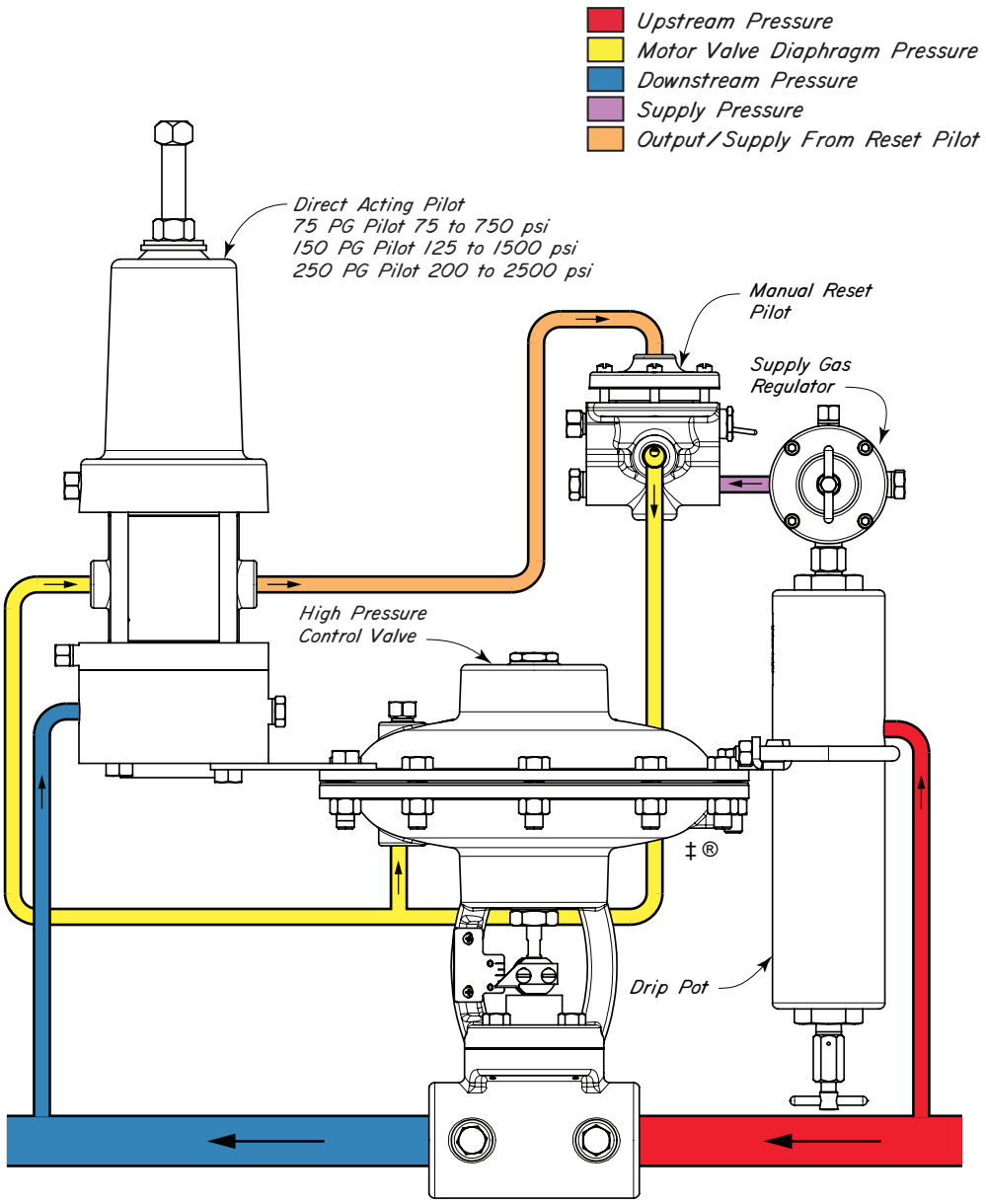
The Kimray Low Pressure Shut In monitors downstream pressure and shuts valve if pressure gets below set point of pilot. Valve will remain closed until operater can reset pilot.

Direct acting pilot maintains output to 3pgm reset pilot, if sense pressure drops below set point of direct acting pilot, pressure is removed from the top of the 3pgm pilot causing it to vent output to valve. This results in the valve closing until downstream pressure increases and a operator can hit the reset toggle switch.

PRESSURE RANGE:

75 PG 75-750 psig
150 PG 125-1500 pisg
250 PG 200-2500 psig

SUPPLY PRESSURE:
20 & 30 psig



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MODEL: High Pressure Shut In
Installation, Operation & Maintenance Guide

OPERATIONS:

The Kimray High Pressure Shut in is used to close valve when downstream pressure increases above sense pressure set point. Valve will remain closed until operator can manually reset valve.

Direct acting pilot monitors sense pressure, when sense pressure gets above set point the direct acting pilot gives output to the 3ps or bistable pilot.

1)This turns the bistable pilot off and vents pressure from valve closing it until pressure decreases and an operator can reset the system.

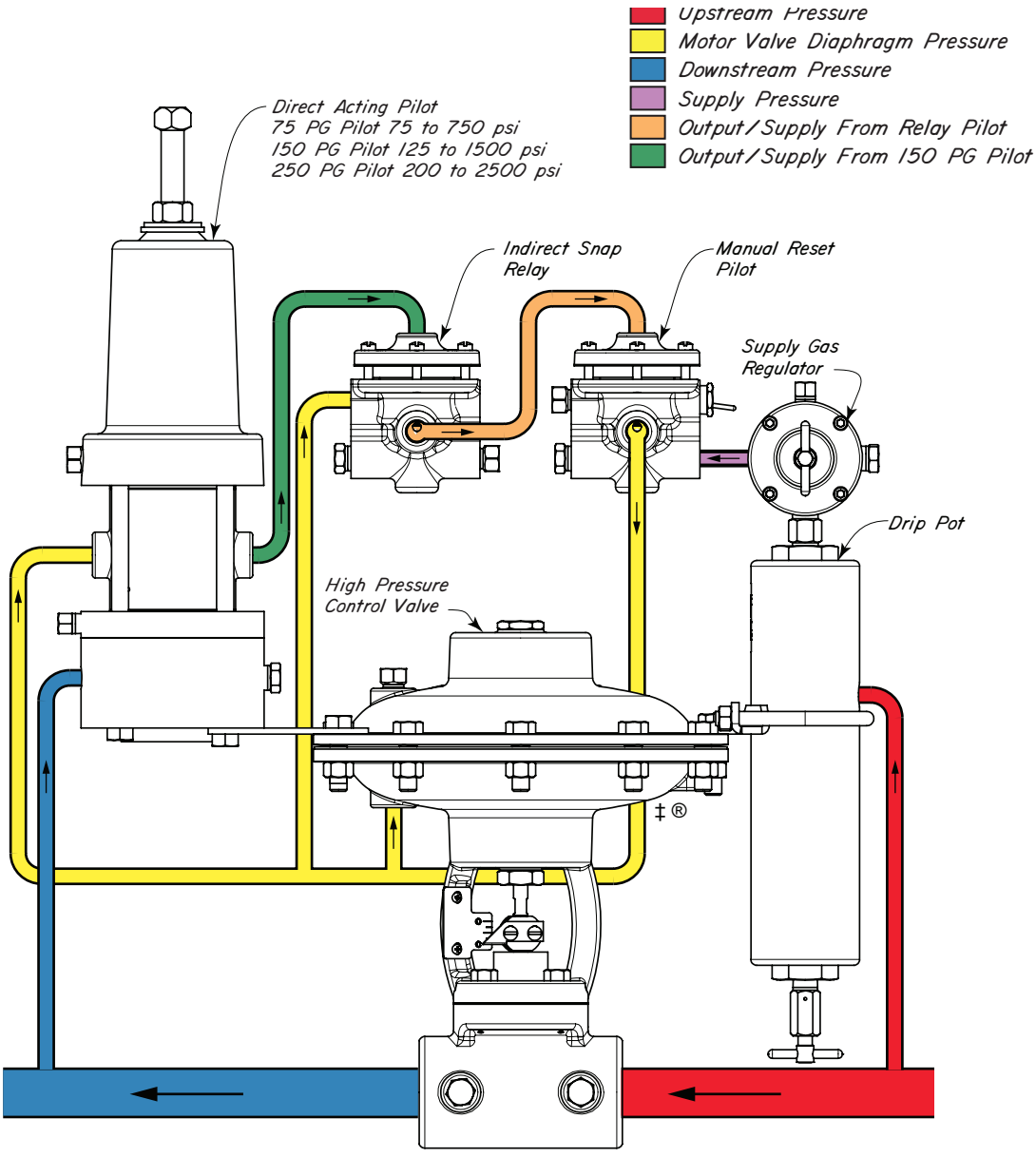
2) The output from the direct acting pilot turns of the output of the 3ps pilot and kills the output to the 3pgm pilot. The 3pgm kills supply gas and causes the valve to close until pressure decreases and operator can reset the system.

PRESSURE RANGE:

75 PG 75-750 psig
150 PG 125-1500 pisg
250 PG 200-2500 psig

SUPPLY PRESSURE:

20 & 30 psig



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OPERATIONS:

The Kimray GAP Controller is used for back pressure application, turns valve on at high pressure and keeps valve open until low set point is reached. Keeps valve closed until high set point is reached and opens valve until low set point is reached.

Indirect pilot monitors low set point. If sense pressure is below set point the indirect pilot gives output to the bistable pilot, causing it to turn off and vent output. This closes the valve. Valve will remain closed until bistable is turned on from direct pilot.

Direct pilot monitors High set point. If pressure goes above set point the pilot gives output to turn on bistable valve. This causes the bistable to give output to the valve and open it. Valve will stay open until bistable receives and off signal from indirect pilot.

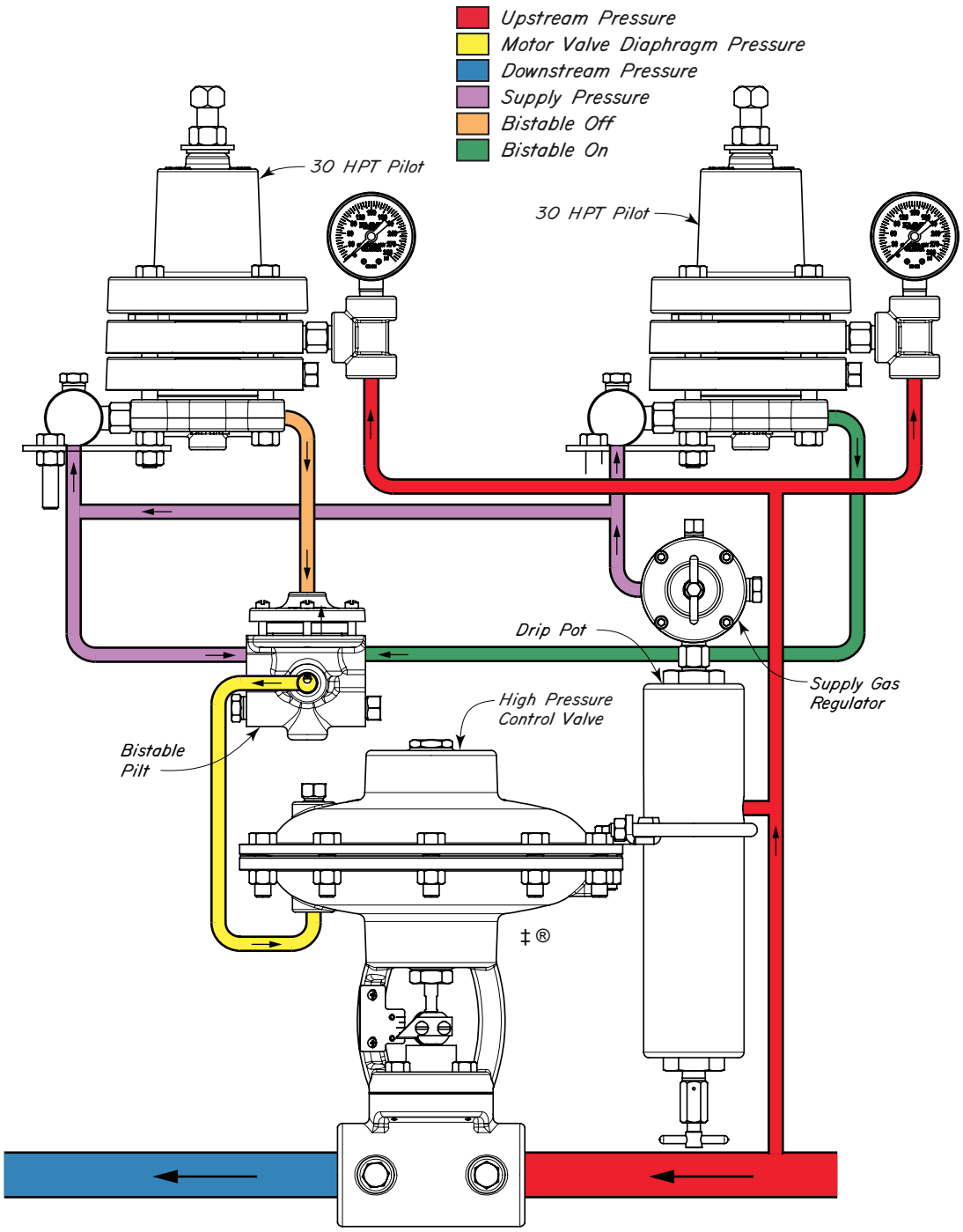
Bistable pilot is a on off switch. It will maintain its position even if the source or signal that activated it is removed.

PRESSURE RANGE:

30 HPG 5-300 psig

SUPPLY PRESSURE:

20 & 30 psig



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Kimray is an ISO 9001- certified manufacturer.
Kimray quality assurance process maintains strict controls
of materials and the certification of parts used in the Kimray severe service control valve.

Please visit our website for up to date product data www.Kimray.com

WHO WE ARE

Kimray is a manufacturer of oil and gas control equipment based in Oklahoma City, Oklahoma, USA.

Trusted for generations, Kimray has been creating simple, effective solutions for temperature, level, flow, and pressure control since 1948. Common applications include separation, heating, compression, dehydration, and artificial lift.

Buying from Kimray is about much more than the product. We are partners with hearts to serve. The relationships between our representatives and our customers extend from before the sale through the life of the product. Our focus is not on short-term profits but long-term growth for our customers.

Visit Kimray.com to learn more about our company and the products we create.

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