

HIGH PRESSURE CONTROL VALVES



KIMRAY[®]

INC.

SECTION E1

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1" & 2" HPCV

APPLICATION:

For discharge of liquid or gas from vessels, separators, treaters, knockouts, and similar liquid accumulators.

For Back Pressure or Pressure Reducing applications with pressure pilots.

Material	Line Size	Design Pressure	Topworks & Inner Valves	Parts List
Steel	1"	4000 psig Max.	Pg. 10.1	Pg. 10.2
Steel	2"	4000 psig Max.	Pg. 10.1	Pg. 10.3

CONVERSION INSTRUCTIONS:
PO to PC AND PC to POPg.10.4

2", 3", 4", 6" & 8" HPCV PB

APPLICATION:

For discharge of liquid or gas from vessels, separators, treaters, knockouts, and similar liquid accumulators.

For Back Pressure or Pressure Reducing applications with pressure pilots.

Material	Line Size	Design Pressure	Topworks & Inner Valves	Parts List
Steel	2"	4000 psig Max.	Pg. 15.1	Pg. 15.2
Steel	3"	1500 psig Max.	Pg. 15.1	Pg. 15.3
Steel	4"	1500 psig Max.	Pg. 15.1	Pg. 15.4
Steel	6"	1500 psig Max.	Pg. 15.1	Pg. 15.5
Steel	8"	1480 psig Max.	Pg. 15.1	Pg. 15.6

1" & 2" -65 TOPWORKS

APPLICATION:

Allows a wider spring adjustment range for discharge of liquid or gas from vessels, separators, treaters, knockouts, and similar liquid accumulators.

Allows a finer control when used with Back Pressure and Pressure Reducing Controllers.

Used as an operator on 1" HPCV or 1" SMS.

Material	Line Size	Design Pressure	Topworks	Parts List
Steel	1"	4000 psig Max.	Pg. 20.1	Pg. 20.2
Steel	2"	4000 psig Max.	Pg. 20.1	Pg. 20.2

23 MVP MANUAL VALVE POSITIONER

APPLICATION:

Used on 2" HPCV's.

For opening valves manually when supply gas is not available.

For closing valves manually when there is pressure on the diaphragm.

For limiting valve stem travel in the opening or closed direction.

Material	Operating Pressure	Topworks Description	Parts List
Ductile	30 psig Max.	Pg. 30.1	Pg. 30.2
Steel	30 psig Max.	Pg. 30.1	Pg. 30.2

1" & 2" PVP PNEUMATIC VALVE POSITIONER

APPLICATION:

Used as an operator on the KIMRAY 2" HPCV where valve opening must be set independent of the pressure drop across the valve orifice.

Use for linear positioning of the inner valve of a KIMRAY 2" HPCV where the signal is a pressure.

Material	Operating Pressure	Topworks Description	Parts List
Ductile	35 to 45 psig Max.	Pg. 40.1	Pg. 40.2
Steel	35 to 45 psig Max.	Pg. 40.1	Pg. 40.2

23EPVP ELECTRO-PNEUMATIC VALVE POSITIONER

APPLICATION:

Used on 2" HPCV's for field automation where electrical signals are used to position valve for on-off or precision flow control.

Material	Supply Pressure	Control Voltage	Description of Operation	Parts List
Ductile	30 psig Max.	±8 to 12 VDC	Pg. 45.1	Pg. 45.2

ELECTRO-PNEUMATIC CONTROLLER

APPLICATION:

Convert 12 Volt DC signal from relay or computer to a pneumatic signal for actuating a valve positioner

Material	Supply Pressure	Control Voltage	Description of Operation	Parts List
Aluminum	15, 30 & 100 psig	12 VDC	Pg. 45.3	Pg. 45.4

1" & 2" MV METERING VALVE

APPLICATION:

This valve can be used to meter or control flow of liquids and/or gases on meter runs, flow lines or may be used as a choke under low pressure drop conditions where freezing is not a problem.

Used anytime a reference control point is required in 64th of an inch opening.

Material	Line Size	Operating Pressure	Description of Operation	Parts List
Steel	1"	4000 psig Max.	Pg. 50.1	Pg. 50.2
Steel	2"	4000 psig Max.	Pg. 50.1	Pg. 50.3

1" & 2" MV PB METERING VALVE

APPLICATION:

This valve can be used to meter or control flow of liquids and/or gases on meter runs, flow lines or may be used as a choke under low pressure drop conditions where freezing is not a problem.

Used anytime a reference control point is required in 64th of an inch opening.

Material	Line Size	Operating Pressure	Description of Operation	Parts List
Steel	2"	4000 psig Max.	Pg. 55.1	Pg. 55.2
Steel	3"	4000 psig Max.	Pg. 55.1	Pg. 55.3

TABLE OF CONTENTS

1" SMS NON-FREEZE DUMP VALVE

APPLICATION:

For discharge of liquid from vessels where freezing may occur due to high pressure drop

Material	Operating Pressure	Topworks Description	Parts List
Steel	4000 psig Max.	Pg. 60.1	Pg. 60.2

INNER VALVE TRIM

1" Valves	Pg. 90.1
2" Valves	Pg. 90.1

SOFT SEATS

1" Valves	Pg. 90.2
2" Valves	Pg. 90.2

1" -65 SMS NON-FREEZE DUMP VALVE

APPLICATION:

Allows a wider spring adjustment range for the discharge of liquid from vessels where freezing may occur due to high pressure drop.

Material	Operating Pressure	Topworks Description	Parts List
Steel	4000 psig Max.	Pg. 60.1	Pg. 60.3

DIMENSIONS

1" Valves	Pg. 100.1
2" Valves	Pg. 100.2
2", 3", 4" & 6" HPCV PB Valves	Pg. 100.3

FLOW CAPACITIES

Gas Capacity Chart	Pg. 70.1
Liquid Capacity Chart	Pg. 70.2

OTHER APPLICATIONS

APPLICATION:

BULLETIN NUMBER

SOLENOID VALVE	E184249
MICRO WITCH	E184250
EQUAL PERCENTAGE TRIM	E184251
PRESSURE DIFFERENTIAL CONTROLLER	E184254
HIGH PRESSURE CONTROLLER	E184255
HIGH/LOW SHUT-IN VALVE CONTROLLER	E187105
HIGH PRESSURE PRESSURE REDUCING REGULATORS:	
300 psig Regulator	E184257
1500 psig Regulator	E188306
HIGH PRESSURE BACK PRESSURE REGULATOR	E188307
Descriptions of Other Applications	Pg. 110.1

STUFFING BOX ASSEMBLIES

APPLICATION:

For use in KIMRAY HPCV's. Each assembly has its own specific uses for the valve it was designed for.

Material	Line Size	Stuffing Box assembly	Parts List
Steel	1"	1" HPCV	Pg. 80.1
Steel	1"	1" HPCV w/Nut	Pg. 80.1
Steel	1"	1" SMS	Pg. 80.1
Steel	2"	2" HPCV	Pg. 80.1
Steel	2"	2" HPCV w/Nut	Pg. 80.1

ORDER INFORMATION

To order a standard High Pressure Control Valve, refer to Valves Available chart on each parts reference page. Determine which HPCV is needed and order by "Cat. No."

High Pressure Control Valves are available with steel yoke and bonnet. Several springs are available for different diaphragm pressures. Stuffing box assemblies, seats, stems and valve bodies are available in 316 stainless steel. Inner valves can be machined from a wide selection of materials. Flanged and socket weld bodies available. And all bodies are available with 1/4" NPT tapped holes upstream and down stream.

To order High Pressure Control Valves with materials or features not listed in "Valves available" chart, contact the KIMRAY, Inc. Authorized Distributor in your area. For a listing of Authorized Distributors, refer to the back cover sheet of this section.

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TEMPERATURE:

+30° to +500° F
0° to +260° C

APPLICATION:

Crude Oil & Gas Production (High heat), Steam
Flood Production Chemicals (corrosion inhibitors) Amine
Sweetener Systems, Gasoline, Diesel, Fuel Oil Systems

FLUID / GAS:

Crude Oil & Gas Production, H₂S, Steam, Petroleum
fluids, Sea Water

HSN (HNBR)

TEMPERATURE:

-15° to +300° F
-26° to +149° C

APPLICATION:

Crude Oil & Gas Production w/ H₂S, Wet CO₂

FLUID / GAS:

Crude Oil & Gas, H₂S, Wet CO₂, Sea Water

NITRILE

TEMPERATURE:

Buna-N:
-40° to +220° F
-40° to +105° C
Low-Temp:
-85° to +120° F
-65° to +49° C

APPLICATION:

Crude Oil & Gas Production Glycol Dehydrators,
Gasoline, Jet Fuel & Diesel Fuel Pumping, Water Disposal,
Methanol Injection Pumps, Water pump seals, hydraulic
pump seals

FLUID / GAS:

Crude Oil & Gas, Good to Poor in Sour Production (See
HSN), Water, Glycols, Hydraulic Oils, Resistance to crude
oil in the presence of H₂S and amines, Diesel fuel, fuel oils

DO NOT USE WITH:

Aromatic hydrocarbons, chlorinated hydrocarbons,
phosphate esters (hydraulic fluids)

TEFLON (T)

TEMPERATURE:

-40° to +400° F
-20° to +204° C

APPLICATION:

Chemically Inert Elastomer Best in static Do not use at
low temps

FLUID / GAS:

Almost All Chemicals

VITON[®] is a trade mark of Dupont

TEMPERATURE:

-10° to +350° F
-23° to +177° C

APPLICATION:

Crude Oil & Gas Production, Glycol Dehydrators,
Gasoline, Jet Fuel & Diesel Fuel Pumping, Water Disposal,
Methanol Injection Pumps. (Also Vacuum Service) (Gas
permeability is very low)

FLUID / GAS:

Crude Oil & Gas, H₂S, Propane, Gasoline, Diesel, Fuel
Oil Systems

DO NOT USE WITH:

Hot Water, Not preferred for wet CO₂, Methyl Alcohol,
Amines, Sodium hydroxide solutions

POLYURETHANE (P)

TEMPERATURE:

-40° to +220° F
-40° to +104° C

APPLICATION:

High abrasion resistance Seats, Diaphragms

FLUID / GAS:

Crude Oil gas and Water, H₂S, propane, butane, fuel,
mineral oil and grease

NOTES:



Kimray is an ISO 9001- certified manufacturer.

APPLICATIONS:

For discharge of liquid or gas from vessels, separators, treaters, knockouts and other similar liquid accumulators.

For back pressure or pressure reducing applications with pressure pilots.

FEATURES:

- Compact design
- O Ring sealed seat
- Valve travel indicator
- Field reversible topworks
- Teflon packed stuffing box

CERTIFICATIONS:

Canadian Registration Number (CRN):
0C15021.24567890NTY

TOPWORKS:

Standard topworks have an effective diaphragm area of approximately 30 square inches for 1" and 65 square inches for 2" control valves.

Unless otherwise specified, all HPCV's will be furnished with ductile topworks.

SPRINGS:

The 1" HPCV springs are available for diaphragm pressures of 10, 20, and 30 psig.

The 2" HPCV springs are available for diaphragm pressures of 15, 20, and 30 psig.

Unless otherwise specified, all 1" HPCV's with 1/2" INNER VALVES get 30 psig spring others get 20 psig. spring, all 2" HPCV's will be furnished with springs as follows 2000 psig. W.P. valves, 20 lb. springs and 4000 psig. W.P. valves, 30 lb. springs.

Top Adjusting Screw may be adjusted to vary the spring tension slightly; this affects pressure required to actuate valve.

STEM TRAVEL:

- 1" HPCV - 1/2" maximum
- 2" HPCV - 3/4" maximum

ACTUATOR WORKING PRESSURE:

- 10-30 psig normal (see spring ranges)
- 45 psig maximum

WORKING PRESSURE:

- 1" HPCV - 4000 psig
- 2" HPCV - 2000 & 4000 psig

TEMPERATURE RANGE:

-20° to 500°F

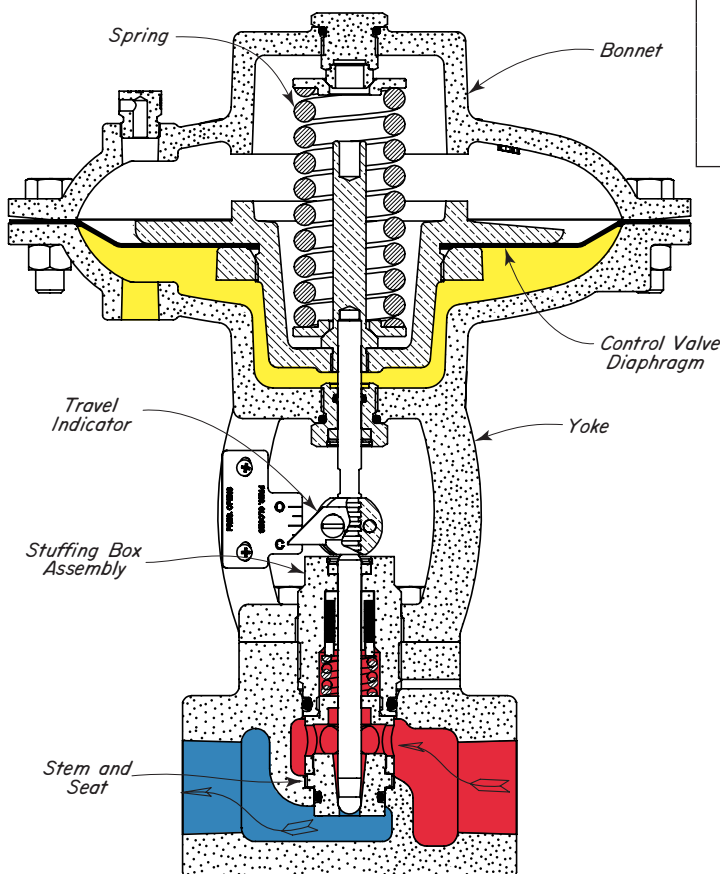
INNER VALVE SPECIFICATIONS:

The 1" HPCV standard valve plugs consists of a carbide ball rigidly connected to a 303 stainless steel stem. Standard seats are made of heat treated tool steel.

The 2" HPCV standard valve plugs for 1/2" and smaller consist of a carbide ball rigidly connected to a 303 stainless steel stem. Standard valve plugs for 3/4" and 1" consist of a hardened high chrome alloy ball rigidly connected to a 303 stainless steel stem. Standard seats are made of heat treated tool steel.

Inner valves can be made from a wide selection of materials. Specify when ordering.

1" Cf & Cv VALUES					2" Cf & Cv VALUES				
Line Size	Trim Type	Trim Size	Cf	Cv	Line Size	Trim Type	Trim Size	Cf	Cv
1"	Quick Opening (Carbide)	1/8"	0.73	0.45	2"	Quick Opening (Carbide)	1/4"	0.65	2.10
		3/16"	0.74	1.00			3/8"	0.76	4.07
		1/4"	0.68	1.93			1/2"	0.80	7.20
		3/8"	0.74	3.86			3/4"	0.78	13.11
		1/2"	0.90	5.70			1"	0.70	19.90
	Nominal	1/8"	0.58	1.06		Nominal	1/4"	0.55	2.96
		3/16"	0.59	1.51			3/8"	0.77	4.04
		1/4"	0.78	2.17			1/2"	0.78	7.20
		3/8"	0.91	3.22			3/4"	0.80	12.20
		1/2"	0.94	5.72			1"	0.77	21.25
	Equal Percent-age	1/8"	0.73	0.34		Equal Percent-age	1/4"	0.65	1.72
		1/4"	0.66	1.99			7/16"	0.60	5.44
		1/2"	0.78	6.49			5/8"	0.58	10.76
	Soft Seat	15/16"	0.65	12.00		Soft Seat	1 1/2"	0.75	35.4

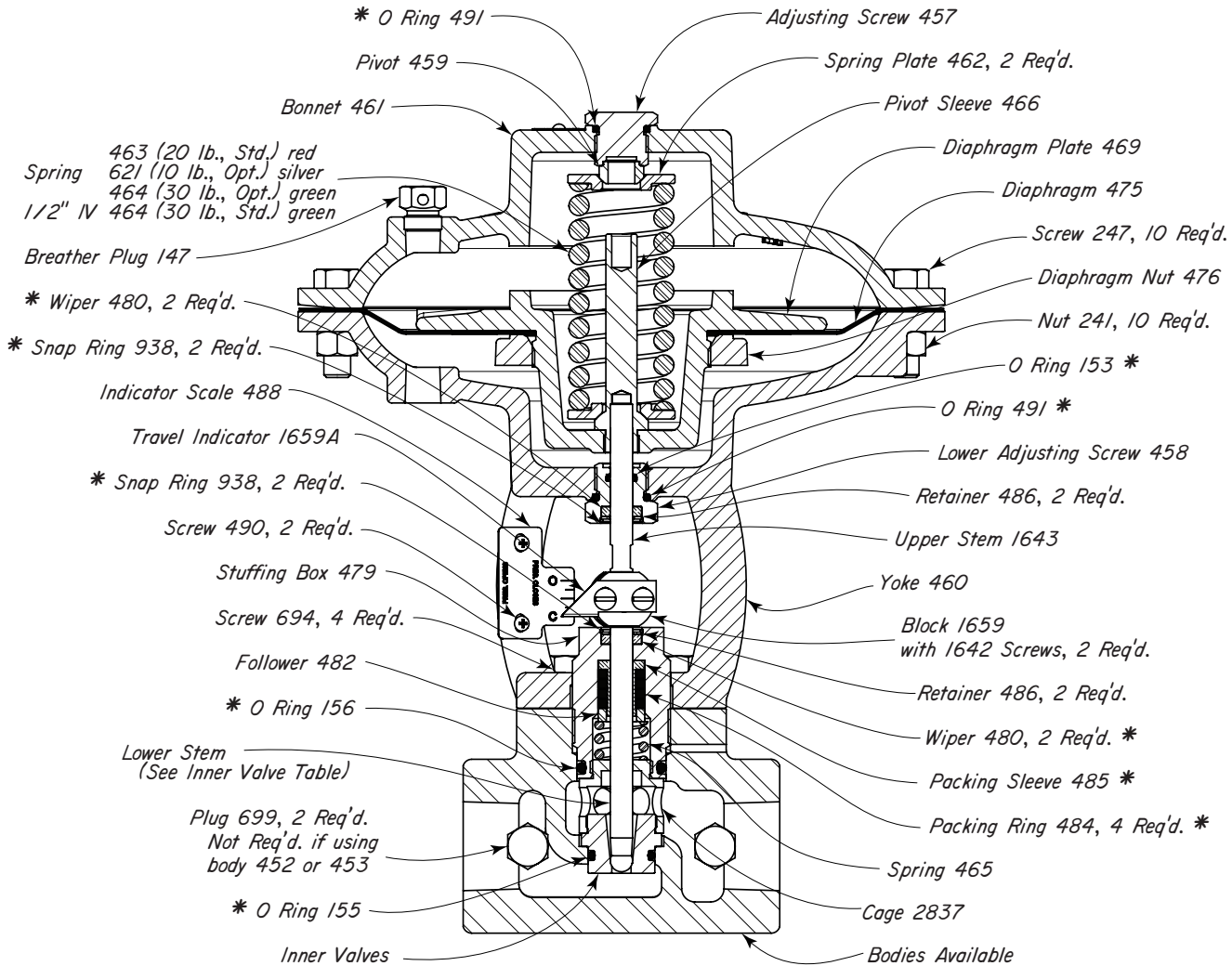


- Control Valve Diaphragm Assembly
- Control Valve Diaphragm Pressure
- Upstream Pressure
- Downstream Pressure



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1 HPCV STEEL BODY DUCTILE TOPWORKS



SEAT SIZE	LINEAR FLOW SEATS D-2 TOOL STEEL TRIM SET NO.
1/8"	T2842
3/16"	T2841
1/4"	T2840
3/8"	T2838
1/2"	T2839

Seat Removal Tool 3032
(Available at extra cost)

BODY TYPE	SCREWED		FLANGED THRU		FLANGED ANGLE	
	BODY	W.P.	BODY	ANSI CLASS	BODY	ANSI CLASS
THRU	452 Δ	4000 psig	2374RF	150 RF	2772RF	150 RF
	452W	4000 psig	2769RTJ	150 RTJ	2776RTJ	150 RTJ
ANGLE	453 Δ	4000 psig	5335RF	300 RF	2773RF	300 RF
	453W	4000 psig	2770RTJ	300 RTJ	2777RTJ	300 RTJ
1" NPT ANSI THREADS			1945RF	600 RF	2133RF	600 RF
Δ DOES NOT INCLUDE 1/4" NPT TAPPED HOLES			2054RTJ	600 RTJ	2778RTJ	600 RTJ
			2768RF	1500 RF		
			2771RTJ	1500 RTJ	2780RTJ	1500 RTJ

THRU VALVES AVAILABLE:

CAT. NO.	INNER VALVE	VALVE	MAX W.P.	KIT
EAE	1/8"	1400 SMT PO 1/8 IV	4000	RFA
EAF	3/16"	1400 SMT PO 3/16 IV	4000	RFA
EAG	1/4"	1400 SMT PO 1/4 IV	4000	RFA
EAH	3/8"	1400 SMT PO 3/8 IV	4000	RFA
EAI	1/2"	1400 SMT PO 1/2 IV	4000	RFA

NOTE: All standard HPCV's have a Cat No. Seats, stems, cages, stuffing boxes and valve bodies are available in 316 stainless steel. Inner valves can be made from a wide selection of materials. Specify when ordering.

ANGLE VALVES AVAILABLE:

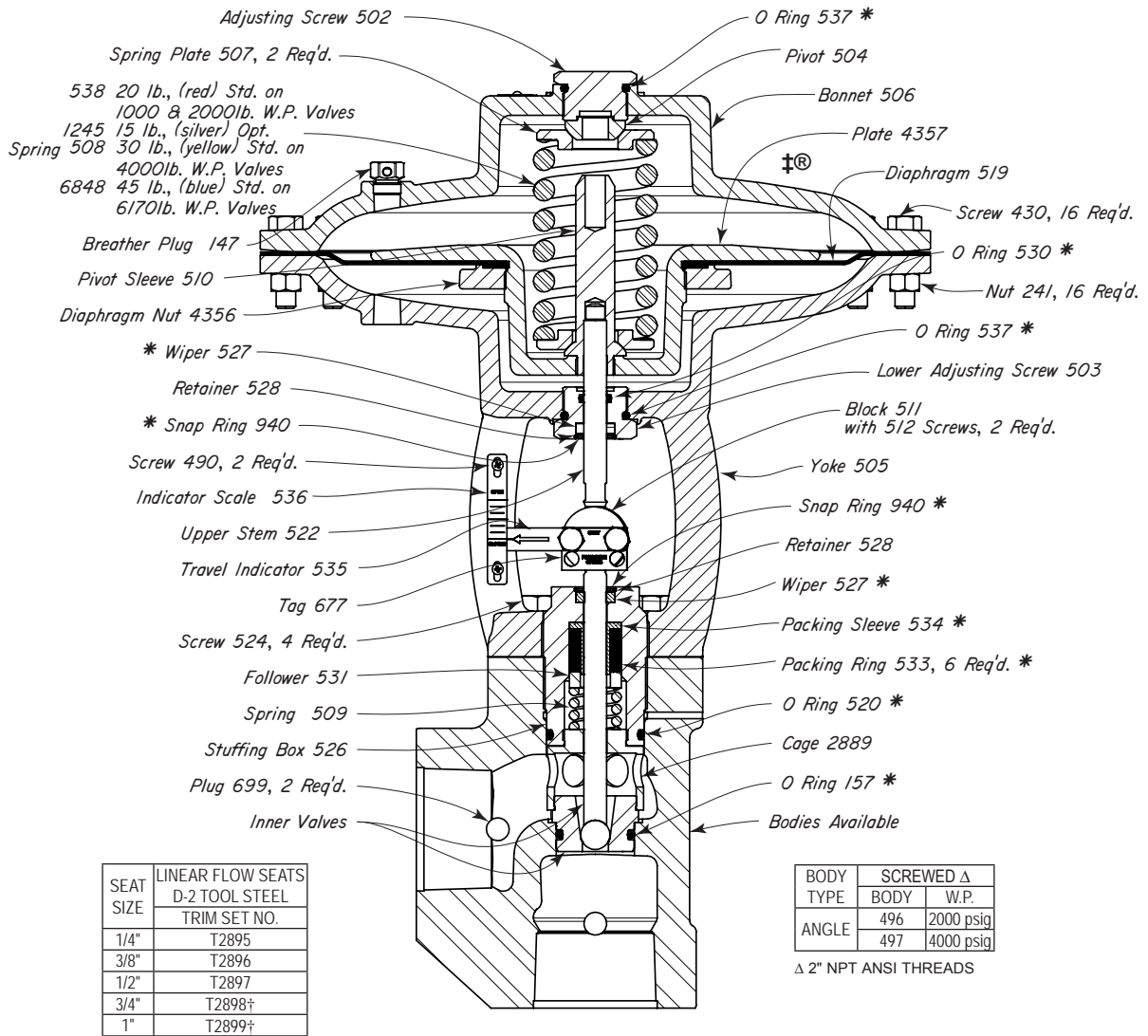
CAT. NO.	INNER VALVE	VALVE	MAX W.P.	KIT
EAA	1/4"	1400 SMA PO 1/4 IV	4000	RFA
EAB	3/8"	1400 SMA PO 3/8 IV	4000	RFA
EAC	1/2"	1400 SMA PO 1/2 IV	4000	RFA

For dimensions refer to Table of Contents. Flanged dimensions available on request.

*These are recommended spare parts and are stocked as repair kits.

Snap and Equal Percentage trim sets available see page E1:90.1

For more code options see Product Bulletin PB0002



ANGLE VALVES AVAILABLE:

CAT. NO.	INNER VALVE	VALVE	MAX W.P.	KIT
ECK	1/2"	2200 SMA PO	2000	RFE
ECL	3/4"	2200 SMA PO	2000	RFE
ECM	1"	2200 SMA PO	2000	RFE
ETB	1/2"	2400 SMA PO	4000	RFE
ECQ	3/4"	2400 SMA PO	4000	RFE
ECU	1"	2400 SMA PO	4000	RFE

NOTES:

All standard HPCV's have a Cat No. Seats, stems, cages, stuffing boxes and valve bodies are available in 316 stainless steel. Inner valves can be made from a wide selection of materials. Specify when ordering.

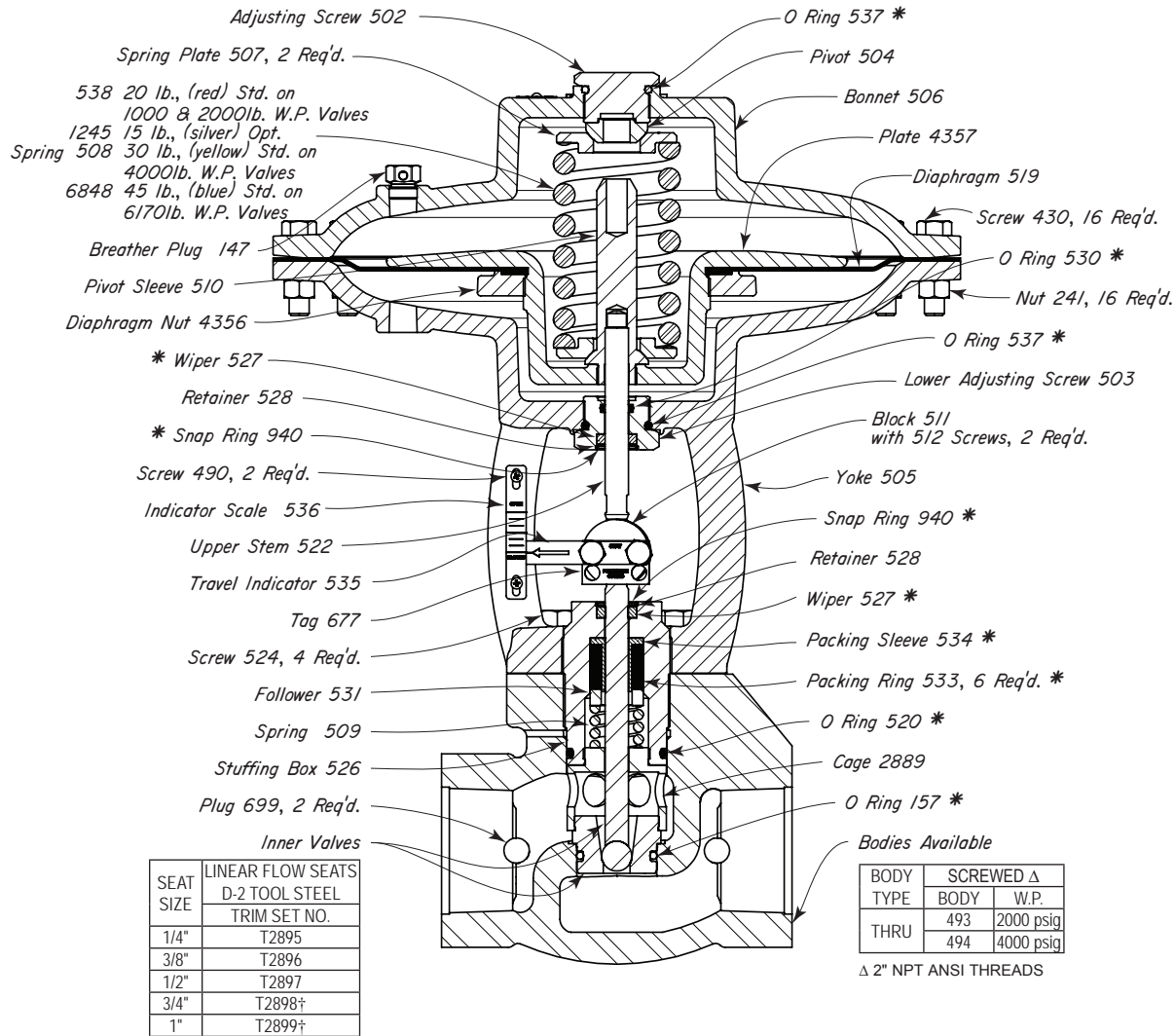
For dimensions refer to Table of Contents. Flanged dimensions available on request.

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Snap and Equal Percentage trim sets available see page E1:90.1

For more code options see Product Bulletin PB0002

2 SMT HPCV STEEL BODY DUCTILE TOPWORKS



Seat Removal Tool 3033
(Available at extra cost)
† CHROME ALLOY BALL ON STEM
(All other stems use carbide balls)

THRU VALVES AVAILABLE:

CAT. NO.	INNER VALVE	VALVE	MAX W.P.	KIT
ECN	1/2"	2200 SMT PO	2000	RFE
ECO	3/4"	2200 SMT PO	2000	RFE
ECP	1"	2200 SMT PO	2000	RFE
ECR	1/2"	2400 SMT PO	4000	RFE
ECS	3/4"	2400 SMT PO	4000	RFE
ECT	1"	2400 SMT PO	4000	RFE

NOTES:

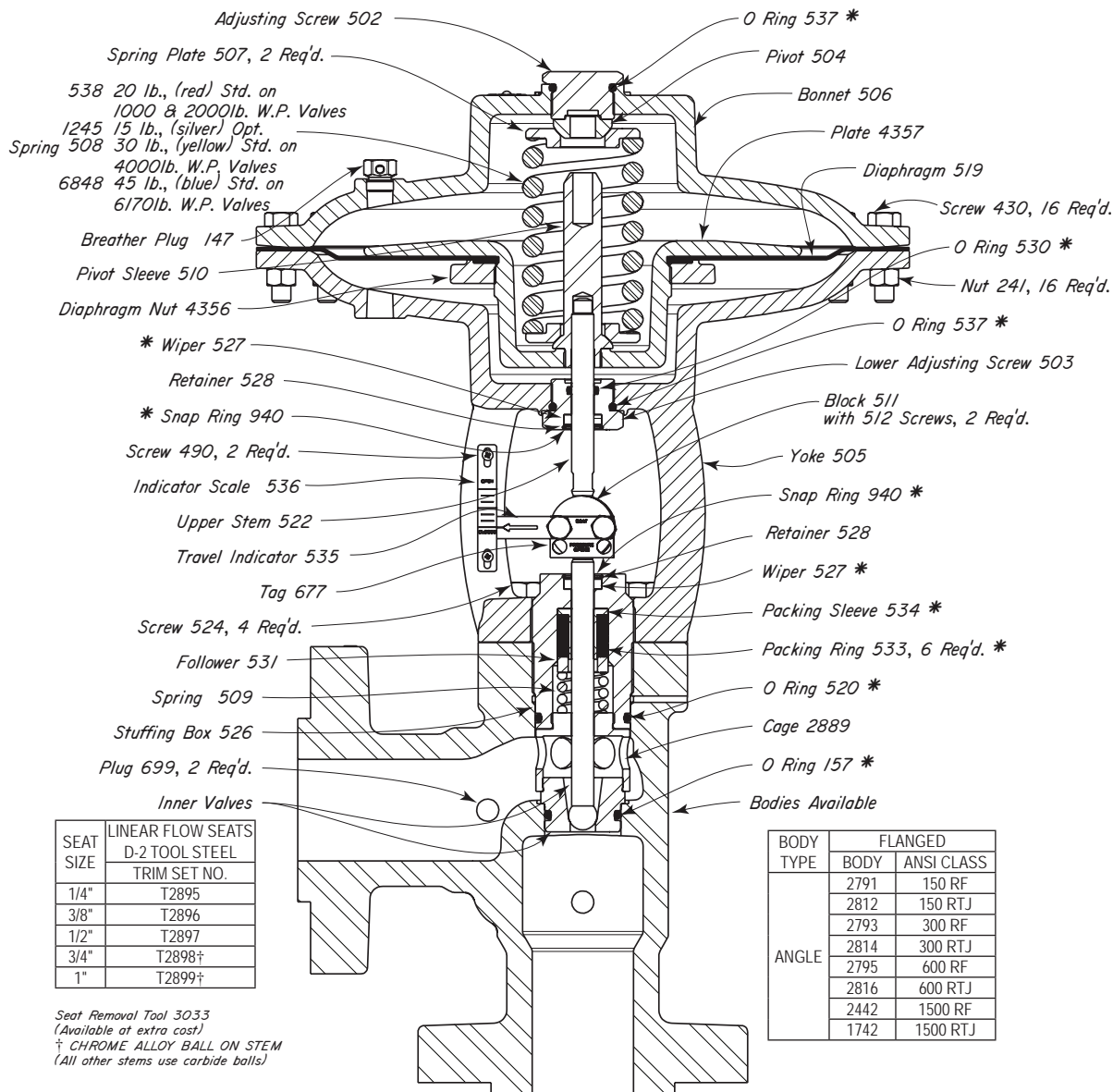
All standard HPCV's have a Cat No. Seats, stems, cages, stuffing boxes and valve bodies are available in 316 stainless steel. Inner valves can be made from a wide selection of materials. Specify when ordering.

For dimensions refer to Table of Contents. Flanged dimensions available on request.

*These are recommended spare parts and are stocked as repair kits.

Snap and Equal Percentage trim sets available see page E1:90.1

For more code options see Product Bulletin PB0002



ANGLE VALVES AVAILABLE:

CAT. NO.	INNER VALVE	VALVE	MAX W.P.	KIT
EPS	1/4"	2" FMA 150RF PO	285	RFE
EPT	3/8"	2" FMA 150RF PO	285	RFE
EPW	1/2"	2" FMA 150RF PO	285	RFE
EPX	3/4"	2" FMA 150RF PO	285	RFE
EPY	1"	2" FMA 150RF PO	285	RFE
EZF	1/4"	2" FMA 300RF PO	740	RFE
EZG	3/8"	2" FMA 300RF PO	740	RFE
EZH	1/2"	2" FMA 300RF PO	740	RFE
EZI	3/4"	2" FMA 300RF PO	740	RFE
EDT	1"	2" FMA 300RF PO	740	RFE
MFO	1/4"	2" FMA 600RF PO	1480	RFE
MGK	3/8"	2" FMA 600RF PO	1480	RFE
MCO	1/2"	2" FMA 600RF PO	1480	RFE
MBT	3/4"	2" FMA 600RF PO	1480	RFE
EVM	1"	2" FMA 600RF PO	1480	RFE

NOTES:

All standard HPCV's have a Cat No. Seats, stems, cages, stuffing boxes and valve bodies are available in 316 stainless steel. Inner valves can be made from a wide selection of materials. Specify when ordering.

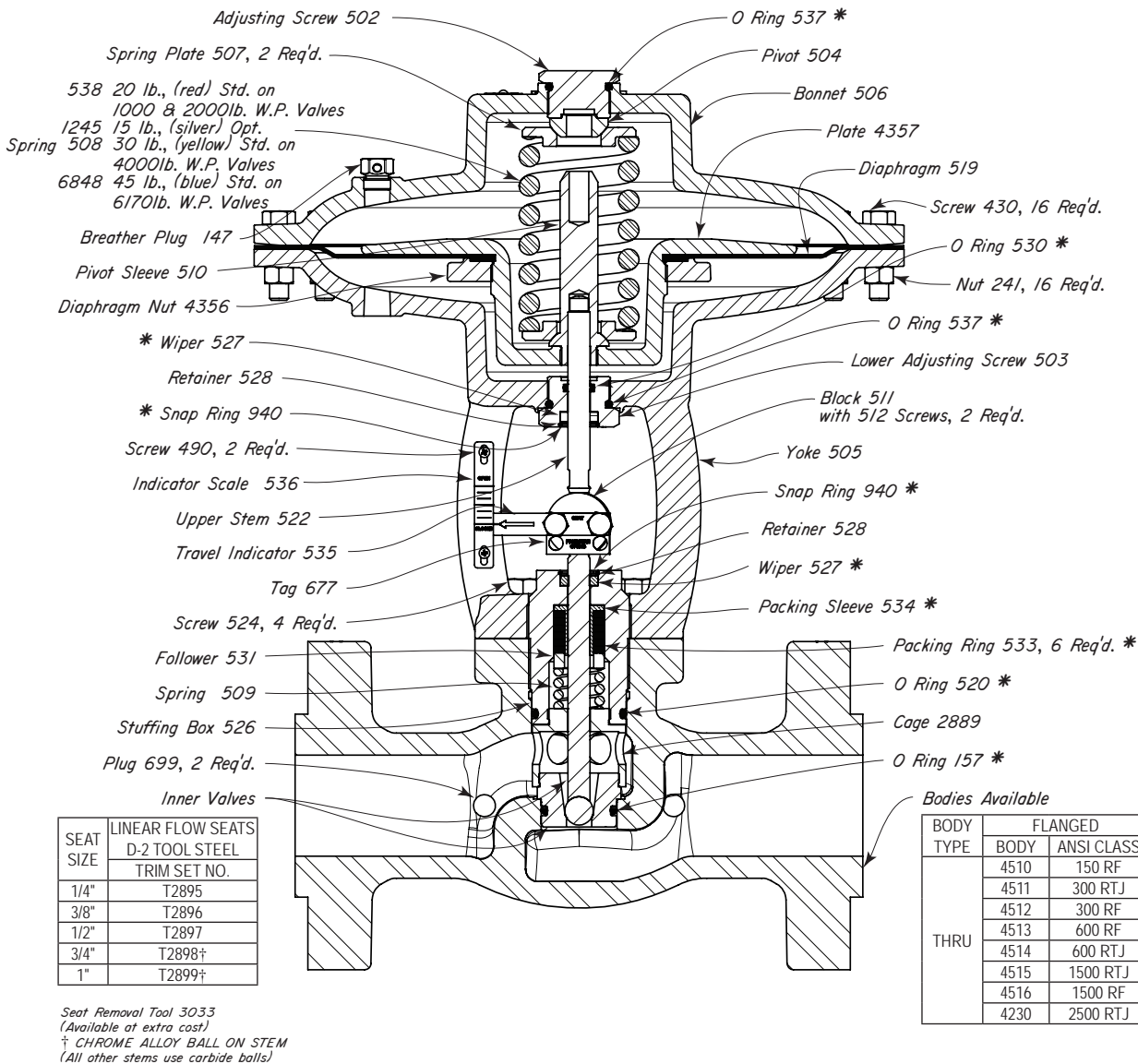
For dimensions refer to Table of Contents. Flanged dimensions available on request.

*These are recommended spare parts and are stocked as repair kits.

Snap and Equal Percentage trim sets available see page E1:90.1

For more code options see Product Bulletin PB0002

2 FMT HPCV STEEL BODY DUCTILE TOPWORKS



THRU VALVES AVAILABLE:

CAT. NO.	INNER VALVE	VALVE	MAX W.P.	KIT
EHR	1/4"	2" FMT 150RF PO	285	RFE
EHS	3/8"	2" FMT 150RF PO	285	RFE
EHT	1/2"	2" FMT 150RF PO	285	RFE
EHU	3/4"	2" FMT 150RF PO	285	RFE
EHV	1"	2" FMT 150RF PO	285	RFE
EPA	1/4"	2" FMT 300RF PO	740	RFE
EPB	3/8"	2" FMT 300RF PO	740	RFE
EPC	1/2"	2" FMT 300RF PO	740	RFE
EPD	3/4"	2" FMT 300RF PO	740	RFE
EPE	1"	2" FMT 300RF PO	740	RFE
EPJ	1/4"	2" FMT 600RF PO	1480	RFE
EDP	3/8"	2" FMT 600RF PO	1480	RFE
EIE	1/2"	2" FMT 600RF PO	1480	RFE
EGO	3/4"	2" FMT 600RF PO	1480	RFE
EGP	1"	2" FMT 600RF PO	1480	RFE
EPK	1/4"	2" FMT 1500RF PO	3705	RFE
EPM	3/8"	2" FMT 1500RF PO	3705	RFE

THRU VALVES AVAILABLE:

CAT. NO.	INNER VALVE	VALVE	MAX W.P.	KIT
EPN	1/2"	2" FMT 1500RF PO	3705	RFE
EGQ	3/4"	2" FMT 1500RF PO	3705	RFE
EGR	1"	2" FMT 1500RF PO	3705	RFE

All standard HPCV's have a Cat No. Seats, stems, cages, stuffing boxes and valve bodies are available in 316 stainless steel. Inner valves can be made from a wide selection of materials. Specify when ordering.

For dimensions refer to Table of Contents. Flanged dimensions available on request.

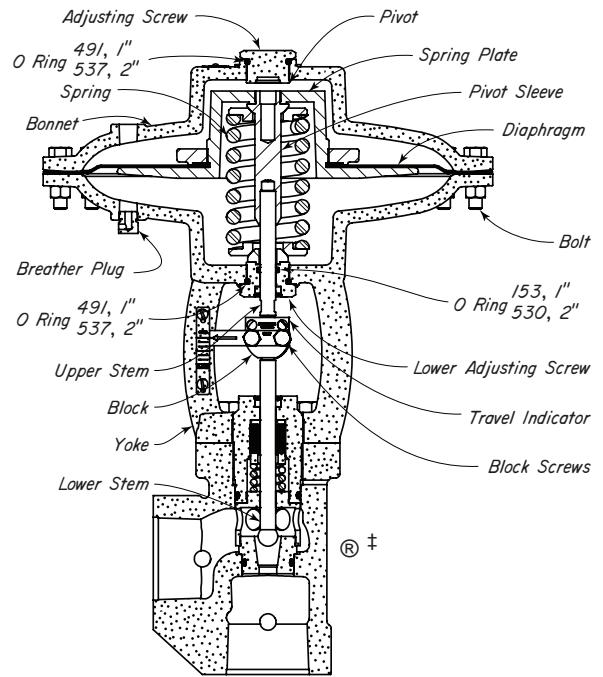
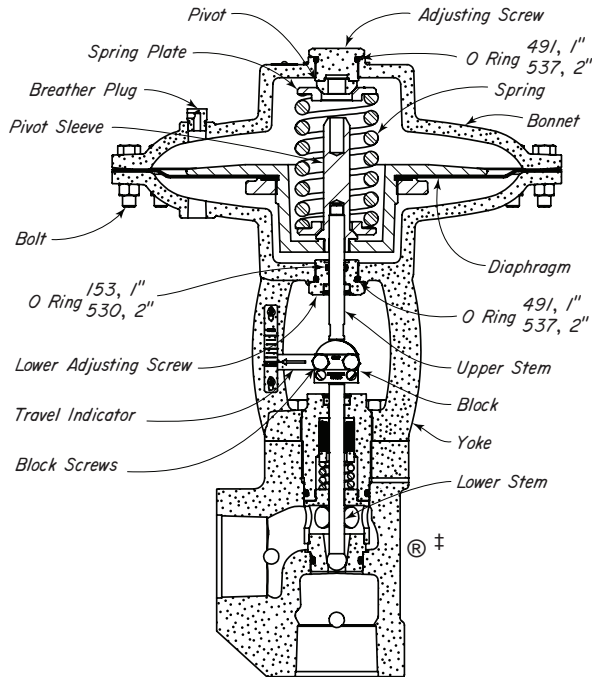
*These are recommended spare parts and are stocked as repair kits.

Snap and Equal Percentage trim sets available see page E1:90.1

For more code options see Product Bulletin PB0002

Kimray is an ISO 9001- certified manufacturer.

CONVERSION INSTRUCTIONS



PRESSURE CLOSING to PRESSURE OPENING:

Remove BLOCK SCREWS, TRAVEL INDICATOR and COUPLING BLOCK. Remove UPPER ADJUSTING SCREW, BOLTS, and BONNET. Lift out Diaphragm Assembly (Crosshatched). Remove SPRING, SPRING PLATES and PIVOT. Unscrew UPPER STEM and insert in opposite end of PIVOT SLEEVE.

Invert Diaphragm Assembly and replace. Care should be taken when threading the UPPER STEM through the LOWER ADJUSTING SCREW so as not to damage O RING, 153Q - 1", 530Q - 2". Replace SPRING with a SPRING PLATE in each end. UPPER ADJUSTING SCREW opening Thread UPPER ADJUSTING SCREW into BONNET until contact is made with the PIVOT, then tighten two turns. The UPPER ADJUSTING SCREW now becomes the SPRING adjustment. With BLOCK SCREWS through INDICATOR, replace COUPLING BLOCK matching match marks. Move BREATHER PLUG to BONNET (upper Diaphragm Housing). Connect Diaphragm Pressure from PILOT to YOKE (Lower Diaphragm Housing).

PRESSURE OPENING to PRESSURE CLOSING:

Remove BLOCK SCREWS, TRAVEL INDICATOR and COUPLING BLOCK. Remove UPPER ADJUSTING SCREW, BOLTS, and BONNET. Lift out Diaphragm Assembly (Crosshatched). Remove SPRING, SPRING PLATES and PIVOT. Rotate Diaphragm Assembly when pulling UPPER STEM through LOWER ADJUSTING SCREW so as not to damage O RING, 153Q - 1", and 530Q - 2".

Unscrew UPPER STEM and replace in opposite end of PIVOT SLEEVE.

Using COUPLING BLOCK, pull LOWER STEM up to open position. Thread LOWER ADJUSTING SCREW in YOKE until end is flush with inside surface of YOKE. Set PIVOT on top of LOWER ADJUSTING SCREW with the beveled surface up. Replace SPRING with a SPRING PLATE in each end.

Invert Diaphragm Assembly from its original position and replace. Be sure UPPER STEM and LOWER STEM meet. With BLOCK SCREWS through INDICATOR, replace COUPLING BLOCK matching match marks. Replace BONNET and BOLTS and INDICATOR is in "Open" position, then tighten one turn. Move BREATHER PLUG to YOKE (Lower Diaphragm Housing). Connect Diaphragm Pressure from PILOT to BONNET (Upper Diaphragm Housing).

Models sold earlier than July 2014 will only have one O RING 491 - 1", 532 - 2" that will need to be switched to the pressurized area of TOPWORKS

NOTES:



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APPLICATIONS:

For discharge of liquid or gas from vessels, separators, treaters, knockouts and other similar liquid accumulators.

For back pressure or pressure reducing applications with pressure pilots.

FEATURES:

- Compact design
- Soft seat with metal to metal backup
- Valve travel indicator
- Field reversible topworks
- Teflon packed stuffing box
- Bubble tight shut-off
- Piston balanced seat assembly

CERTIFICATIONS:

- Canadian Registration Number (CRN):
- OC10903.24567890NTY (2" HPCV PB)
- OC15019.24567890NTY (3"-10" HPCV PB)

TOPWORKS:





Unless otherwise specified, all HPCV's will be furnished with ductile topworks.

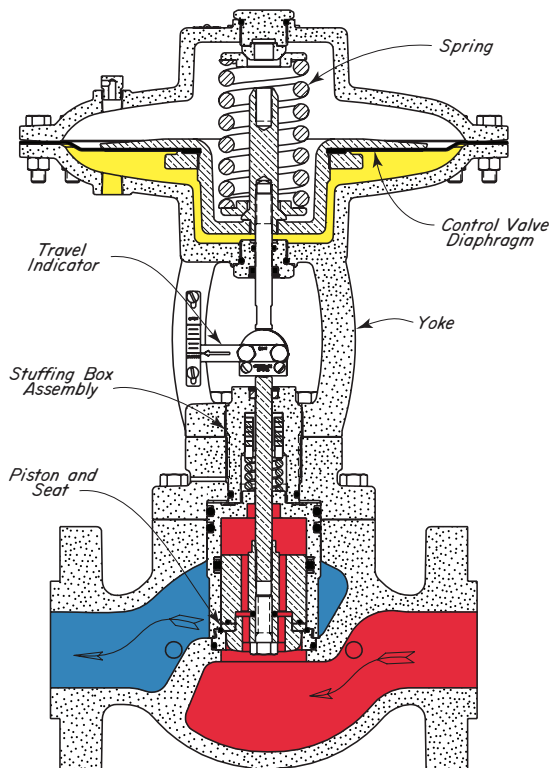
Effective diaphragm area:

- 2" HPCV PB - 65 square inches
- 3" HPCV PB - 100 square inches
- 4" HPCV PB - 100 square inches
- 6" HPCV PB - 120 square inches
- 8" HPCV PB - 120 square inches
- 10" HPCV PB - 120 square inches

ACTUATOR WORKING PRESSURE:

- 15-30 psig normal (see spring ranges)
- 45 psig maximum

-  Control Valve Diaphragm Assembly
-  Control Valve Diaphragm Pressure
-  Upstream Pressure
-  Downstream Pressure



SPRINGS:

HPCV springs are available for diaphragm pressures of 15, 20, and 30 psig in the 2" valve and 30 psig in the 3" and 4" valve. Unless otherwise specified, all PISTON BALANCED HPCV's will be furnished with 30 lb. springs.

Top Adjusting Screw may be adjusted to vary the spring tension slightly; this affects pressure required to actuate valve.

STEM TRAVEL:

- 2" HPCV PB - 3/4" nominal
- 3" HPCV PB - 1 3/8" nominal
- 4" HPCV PB - 1 3/4" nominal
- 6" HPCV PB - 2 1/2" nominal
- 8" HPCV PB - 2 1/2" nominal
- 10" HPCV PB - 2 1/2" nominal

WORKING PRESSURE:

- 2" HPCV PB - 1500, 4000 psig
- 3" HPCV PB - 1500 psig
- 4" HPCV PB - 1500 psig
- 6" HPCV PB - 1500 psig
- 8" HPCV PB - 1500 psig
- 10" HPCV PB - 1500 psig

STANDARD TRIM SPECIFICATIONS:

- 316 stainless steel cage
- D-2 tool steel valve plug assembly
- D-2 tool steel seat
- Polyurethane seal with Metal-to-Metal back-up
- (Other material available on request)

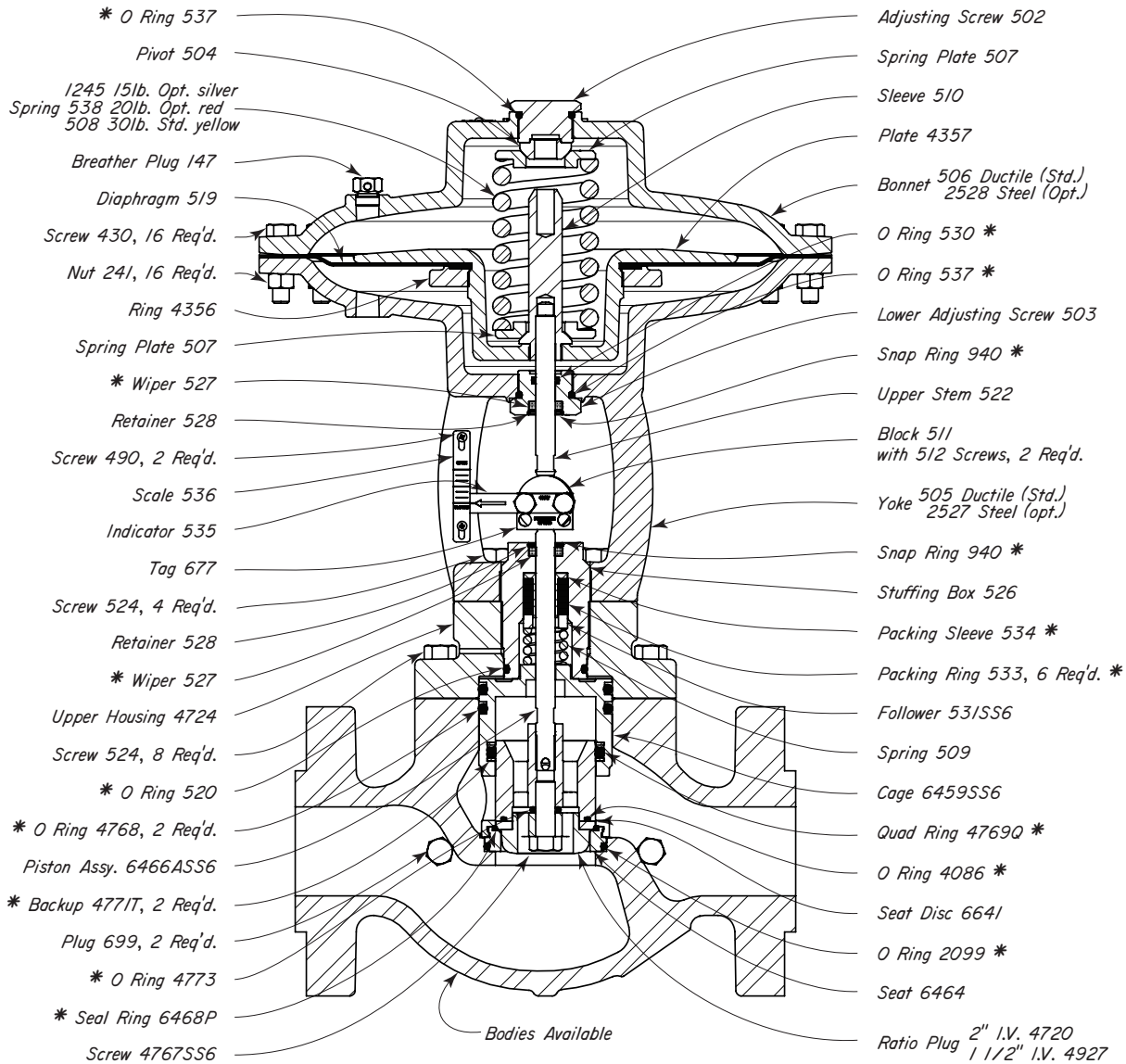
Cf & Cv VALUES				
Line Size	Trim Type	Trim Size	Cf	Cv
2"	Equal Percentage	1 1/2"	0.75	28.6
		2"	0.76	57.0
3"	Equal Percentage	2"	0.75	52.6
		3"	0.76	107.0
4"	Equal Percentage	3"	0.75	115.0
		4 3/8"	0.75	222.0
6"	Equal Percentage	4 3/8"	0.75	222.0
		6 3/4"	0.75	431.0
8"	Reduced EP	6"	0.75	453.0
	Refined EP	8 1/2"	0.75	630.0
	Modified EP ¹	8 1/2"	0.75	810.0
10"	Reduced EP	6"	0.75	655.0
	Refined EP	8 1/2"	0.75	884.0
	Modified EP ¹	8 1/2"	0.75	1091.0

¹ Standard Trim Configuration



Kimray is an ISO 9001- certified manufacturer.

PISTON BALANCED 2" STEEL BODY DUCTILE TOPWORKS



BODY TYPE	SCREWED ‡			FLANGED		
	SIZE	BODY	W.P.	SIZE	BODY	ANSI CLASS
THRU	2"	4813	1500 psig	2"	4712	600 RF
	2"	4764	4000 psig	2"	4713	600 RTJ
				2"	4714	1500 RF
				2"	4715	1500 RTJ
				3"	4871	600 RF
				3"	4872	600 RTJ

‡ 2" NPT ANSI THREADS

THRU VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	VALVE	MAX W.P.	KIT
EFG	2" SCRD.	2150 SMT PB 2 IV	1500	RUR
EFH	2" SCRD.	2400 SMT PB 2 IV	4000	RUR
EFI	2" FLGD.	2150 FMT PB 600 RF- 2 IV	1480	RUR
EFJ	2" FLGD.	2150 FMT PB 600 RTJ- 2 IV	1480	RUR
EFK	2" FLGD.	2150 FMT PB 1500 RF- 2 IV	3705	RUR
EFL	2" FLGD.	2150 FMT PB 1500 RTJ- 2 IV	3705	RUR
EFM	3" FLGD.	3150 FMT PB 600 RF- 2 IV	1480	RUR
EFO	3" FLGD.	3150 FMT PB 600 RTJ- 2 IV	1480	RUR

*For working pressure vs. working temperature see ASME B16.34;
For flanges & flanged fittings see ASME B16.5.

NOTES:

All standard HPCV's have a Cat. No. Seats, stems, cages, stuffing boxes and valve bodies are available in 316 stainless steel. Inner valves can be made from a wide selection of materials. Specify when ordering.

Dimensions refer to E1:100.3

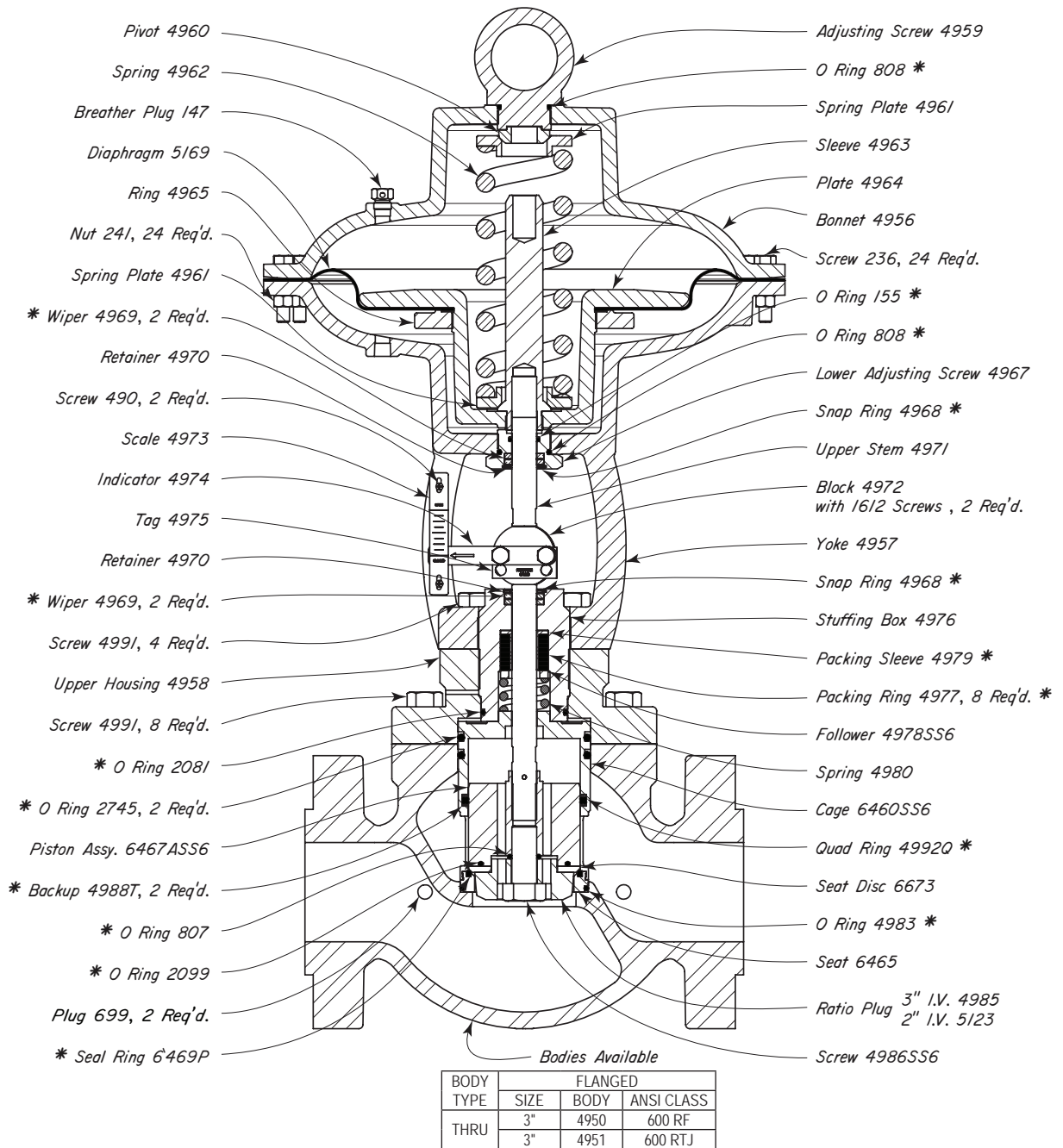
For BOTTOM WORKS only refer to Bulletin No. E105357

For TOP WORKS only refer to Bulletin No. E106025

*These are recommended spare parts and are stocked as repair kits.

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PISTON BALANCED 3" STEEL BODY DUCTILE TOPWORKS



THRU VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	VALVE	MAX W.P.	KIT
EFU	3" FLGD.	3150 FMT PB 600 RF- 3 IV	1480	RUT
EFV	3" FLGD.	3150 FMT PB 600 RTJ- 3 IV	1480	RUT
EZU	3" FLGD.	3150 FMT PB 600 RF- 2 IV	1480	RUT

*For working pressure vs. working temperature see ASME B16.34;
For flanges & flanged fittings see ASME B16.5.

NOTES:

All standard HPCV's have a Cat. No. Seats, stems, cages, stuffing boxes and valve bodies are available in 316 stainless steel. Inner valves can be made from a wide selection of materials. Specify when ordering.

Dimensions refer to E1:100.3

For BOTTOM WORKS only refer to Bulletin No. E105356

For TOP WORKS only refer to Bulletin No. E106003

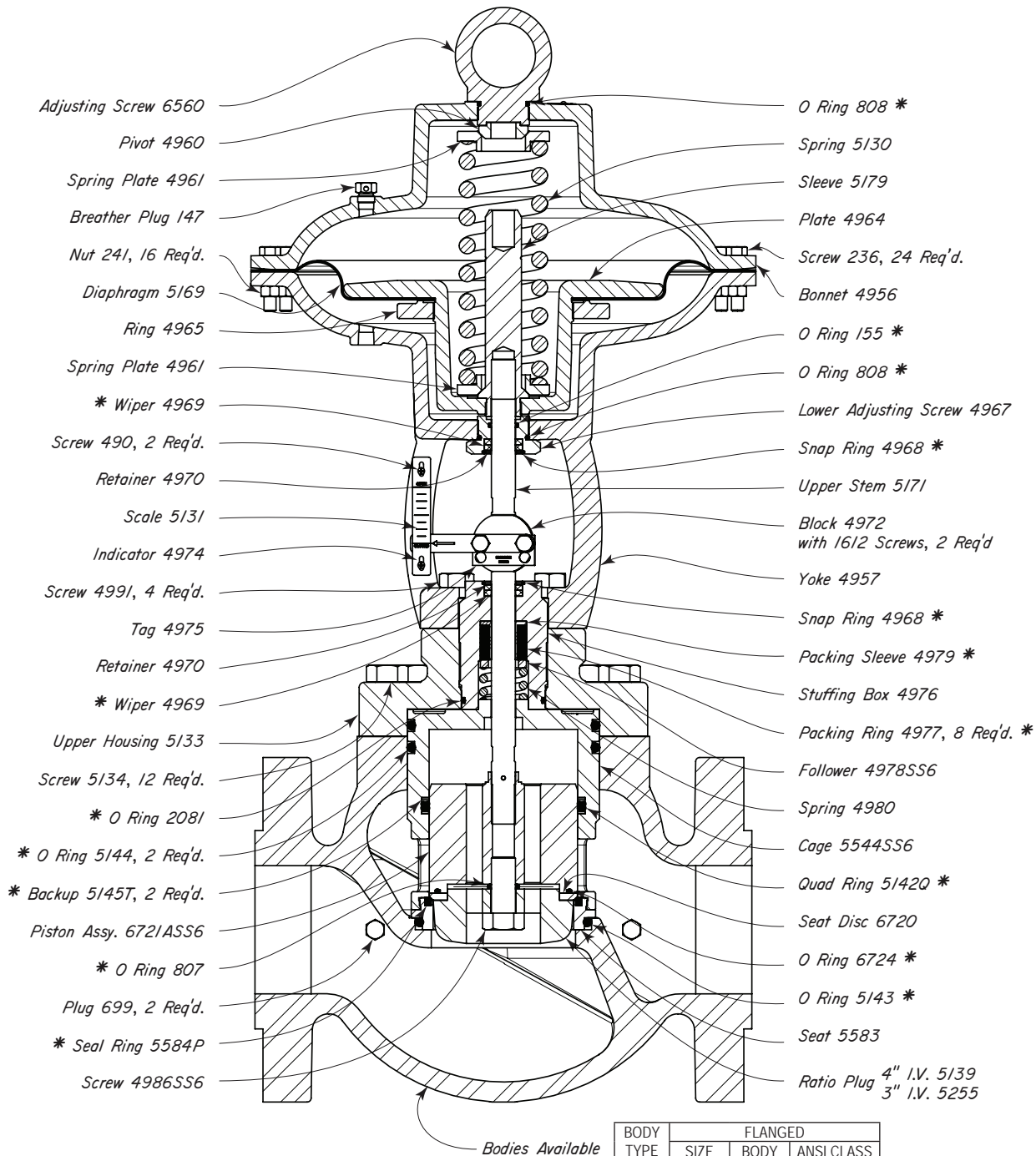
*These are recommended spare parts and are stocked as repair kits.

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HIGH PRESSURE CONTROL VALVES

KIMRAY INC.®

PISTON BALANCED 4" STEEL BODY DUCTILE TOPWORKS



BODY TYPE	SIZE	FLANGED	
		BODY	ANSI CLASS
THRU	4"	5146	600 RF

THRU VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	VALVE	MAX W.P.	KIT
EGU	4" FLGD.	4150 FMT PB 600 RF 4 IV	1480	RUU

*For working pressure vs. working temperature see ASME B16.34;
For flanges & flanged fittings see ASME B16.5.

NOTES:

All standard HPCV's have a Cat. No. Seats, stems, cages, stuffing boxes and valve bodies are available in 316 stainless steel. Inner valves can be made from a wide selection of materials. Specify when ordering.
Dimensions refer to E1:100.3

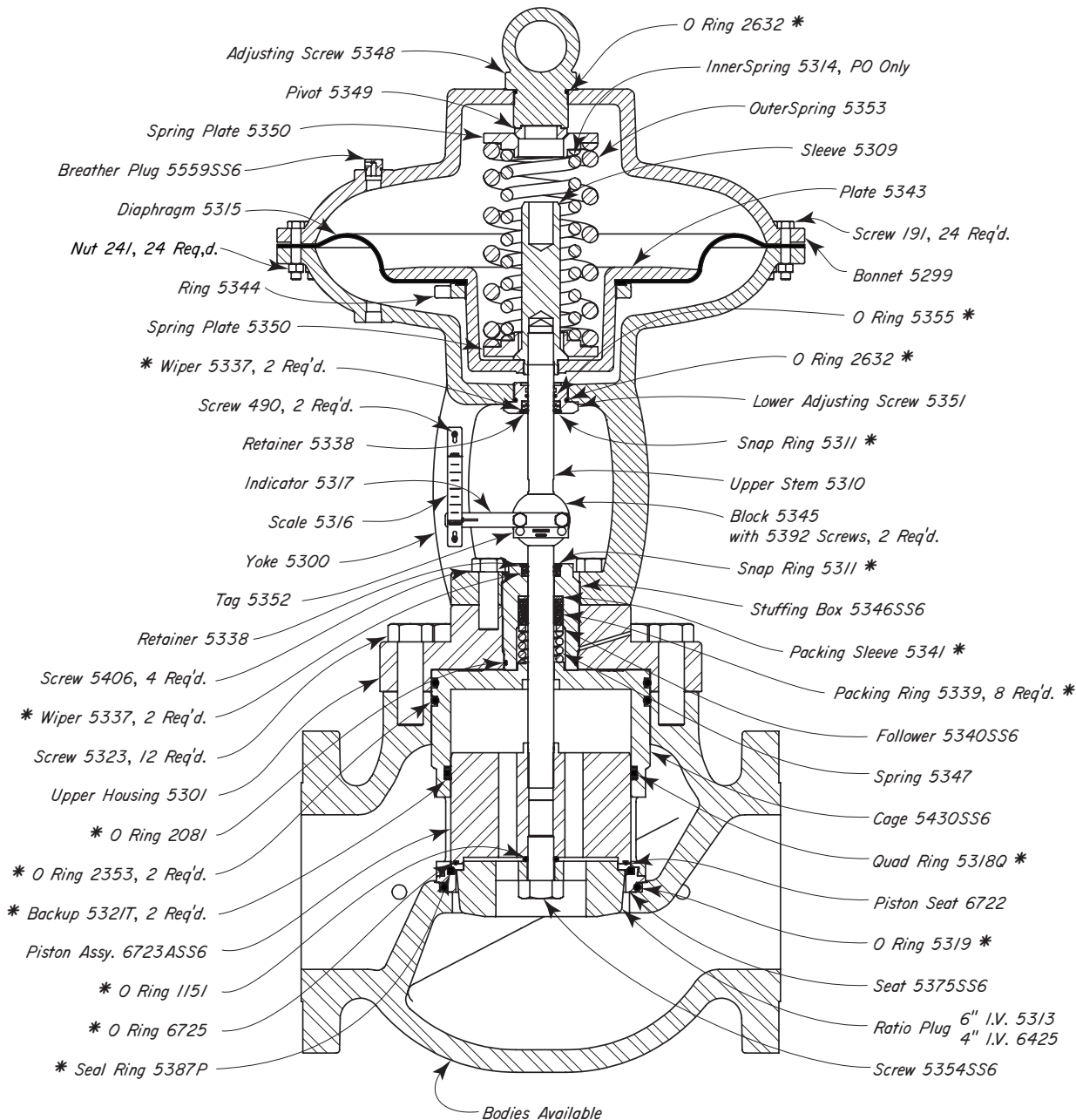
For BOTTOM WORKS only refer to Bulletin No. E105354

For TOP WORKS only refer to Bulletin No. E106003

*These are recommended spare parts and are stocked as repair kits.

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PISTON BALANCED 6" STEEL BODY DUCTILE TOPWORKS



BODY TYPE	FLANGED		
	SIZE	BODY	ANSI CLASS
THRU	6"	5302	300 RF
	6"	5322	600 RF

THRU VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	VALVE	MAX W.P.	KIT
EIA	6" FLGD.	6150 FMT PB 300 RF* 6 IV	740	RWD
EIB	6" FLGD.	6150 FMT PB 600 RF* 6 IV	1480	RWD

*For working pressure vs. working temperature see ASME B16.34;
For flanges & flanged fittings see ASME B16.5.

NOTES:

NOTE: All standard HPCV's have a Cat. No. Seats, stems, cages, stuffing boxes and valve bodies are available in 316 stainless steel. Inner valves can be made from a wide selection of materials. Specify when ordering.
Dimensions refer to E1:100.3

For BOTTOM WORKS only refer to Bulletin No. E105355
For TOP WORKS only refer to Bulletin No. E106024

*These are recommended spare parts and are stocked as repair kits.

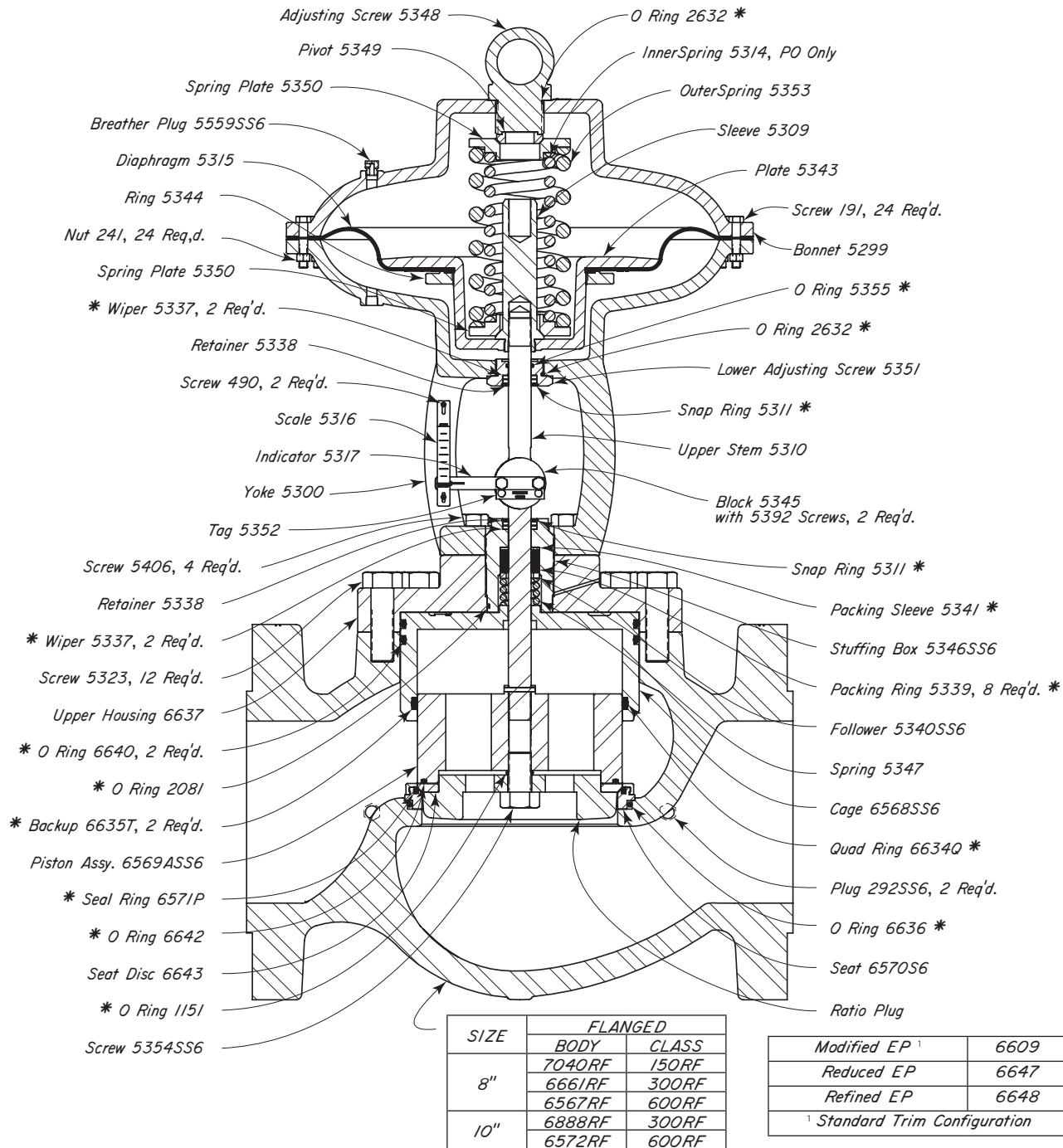
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HIGH PRESSURE CONTROL VALVES

KIMRAY INC.®

PISTON BALANCED

8" & 10" STEEL BODY DUCTILE TOPWORKS



THRU VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	VALVE	MAX W.P.	KIT
EIM	8" FLGD.	8150 FMT PB 600 RF ^a 8 IV	1480	RWF
EIN	8" FLGD.	8150 FMT PB 300 RF ^a 8 IV	740	RWF
MFT	8" FLGD.	8150 FMT PB 150 RF ^a 8 IV	285	RWF
MFU	8" FLGD.	8150 FMT PB 150 RF ^a 6 IV	285	RWF
EIT	10" FLGD.	10150 FMT PB 600 RF ^a 8 IV	1480	RWF
EIX	10" FLGD.	10150 FMT PB 300 RF ^a 8 IV	740	RWF

^aFor working pressure vs. working temperature see ASME B16.34;
For flanges & flanged fittings see ASME B16.5.

NOTES:

NOTE: All standard HPCV's have a Cat. No. Seats, stems, cages, stuffing boxes and valve bodies are available in 316 stainless steel. Inner valves can be made from a wide selection of materials. Specify when ordering.

Dimensions refer to E1:100.3

*These are recommended spare parts and are stocked as repair kits. To order repair kit, specify "8" HPCV PB Repair Kit, RWF"

Kimray is an ISO 9001- certified manufacturer.

APPLICATIONS:

For discharge of liquid or gas from vessels, separators, treaters, knockouts and other similar liquid accumulators.

For back pressure or pressure reducing applications with pressure pilots.

FEATURES:

- Compact design
- Valve travel indicator
- Field reversible topworks
- PTFE packed stuffing box
- Piston balanced seat assembly
- Live-load packing

ACTUATOR:

MATERIAL:

ASTM A-398 Ductile Iron

EFFECTIVE DIAPHRAGM AREA:

120 square inches






WORKING PRESSURE:

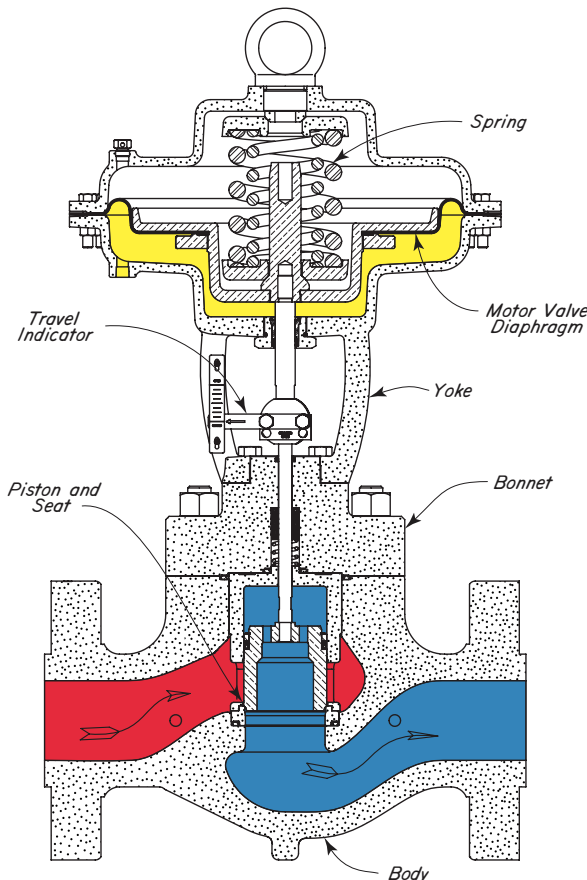
6-30 psig normal
45 psig maximum

SHELL MATERIALS:

Body: ASTM A-216 WCB

Bonnet: ASTM A-108 C1018

-  Motor Valve Diaphragm Assembly
-  Motor Valve Piston Assembly
-  Upstream Pressure
-  Motor Valve Diaphragm Pressure
-  Downstream Pressure



SPRINGS:

Unless otherwise specified, all PISTON BALANCED HPCV's will be furnished with 30 lb. springs.

Top Adjusting Screw may be adjusted to vary the spring tension slightly; this affects pressure required to actuate valve.

STEM TRAVEL:

1³/₈" nominal

STANDARD TRIM SPECIFICATIONS:

- 17-4 PH cage
- 17-4 PH valve plug assembly
- 17-4 PH seat
- Metal-to-Metal seal ANSI Cl. IV
- (Other material available on request)

TEMPERATURE RATING:

-20 to 450 °F

FLOW DIRECTION:

Flow Down

SEALS:

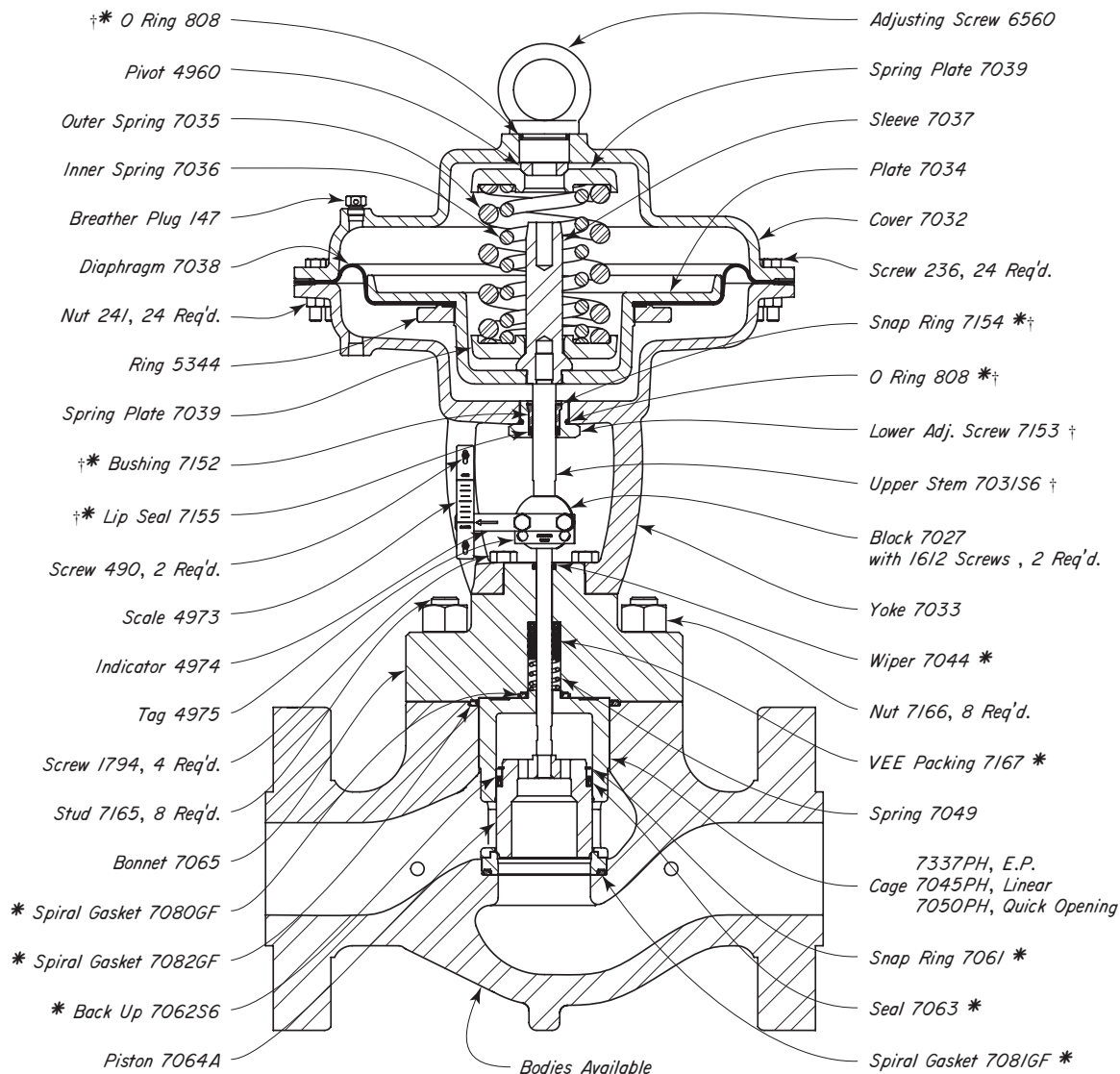
Graphoil

Trim Type	Cv VALUES										Cf
	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	
Quick Opening	19.80	40.40	62.59	84.82	102.03	111.55	118.50	122.29	124.98	125.17	.75
Nominal	16.40	27.42	39.28	55.75	71.88	85.25	95.91	104.58	111.14	113.57	.75
Equal Percentage	0.48	3.84	7.90	12.67	17.01	26.11	47.57	70.38	91.35	107.30	.75



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SEVERE SERVICE
STEEL BODY DUCTILE TOPWORKS



BODY TYPE	FLANGED	
	BODY	ANSI CLASS
THRU	7029RF	900 RF
	7029RTJ	900 RTJ
	7028RF	1500RF
	7028RTJ	1500RTJ

THRU VALVES AVAILABLE:

PART NO.	BODY CONNECTION	MODEL NO.	OPER. PRES.	MAX W.P.	REP. KIT
MGV	3" 900 RF	FMT CC PB 3 IV EP	0-2220	2220	RZU
MGVLIN	3" 900 RF	FMT CC PB 3 IV LINEAR	0-2220	2220	RZU
MGVQO	3" 900 RF	FMT CC PB 3 IV QUICK OPEN	0-2220	2220	RZU
MGW	3" 900 RTJ	FMT CC PB 3 IV EP	0-2220	2220	RZU
MGWLIN	3" 900 RTJ	FMT CC PB 3 IV LINEAR	0-2220	2220	RZU
MGWQO	3" 900 RTJ	FMT CC PB 3 IV QUICK OPEN	0-2220	2220	RZU
MGX	3" 1500 RF	FMT CC PB 3 IV EP	0-3705	3705	RZU
MGXLIN	3" 1500 RF	FMT CC PB 3 IV LINEAR	0-3705	3705	RZU
MGXQO	3" 1500 RF	FMT CC PB 3 IV QUICK OPEN	0-3705	3705	RZU
MGY	3" 1500 RTJ	FMT CC PB 3 IV EP	0-3705	3705	RZU
MGYLIN	3" 1500 RTJ	FMT CC PB 3 IV LINEAR	0-3705	3705	RZU
MGYQO	3" 1500 RTJ	FMT CC PB 3 IV QUICK OPEN	0-3705	3705	RZU

NOTES:

*These are recommended spare parts and are stocked as repair kits.

†These parts are stocked and purchased as an assembly

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APPLICATIONS:

Allows a wider spring adjustment range for discharge of liquid or gas from vessels, separators, treaters, knockouts and similar liquid accumulators.

Allows a finer control when used with back pressure and pressure reducing controllers.

Used as an operator on 1" HPCV, 2" HPCV or 1" SMS.

FEATURES:

- All steel
- Compact design
- Valve travel indicator
- Adjustable Topworks

TOPWORKS:

-65 Topworks have an effective diaphragm area of approximately 65 square inches.

SPRINGS:

-65 Topworks are furnished with a spring designed for 10 to 30 psig diaphragm pressure.

Top Adjusting Screw may be adjusted to vary the spring tension slightly; this affects pressure required to actuate valve.

STEM TRAVEL:

3/4" maximum

ACTUATOR WORKING PRESSURE:

25 psig normal

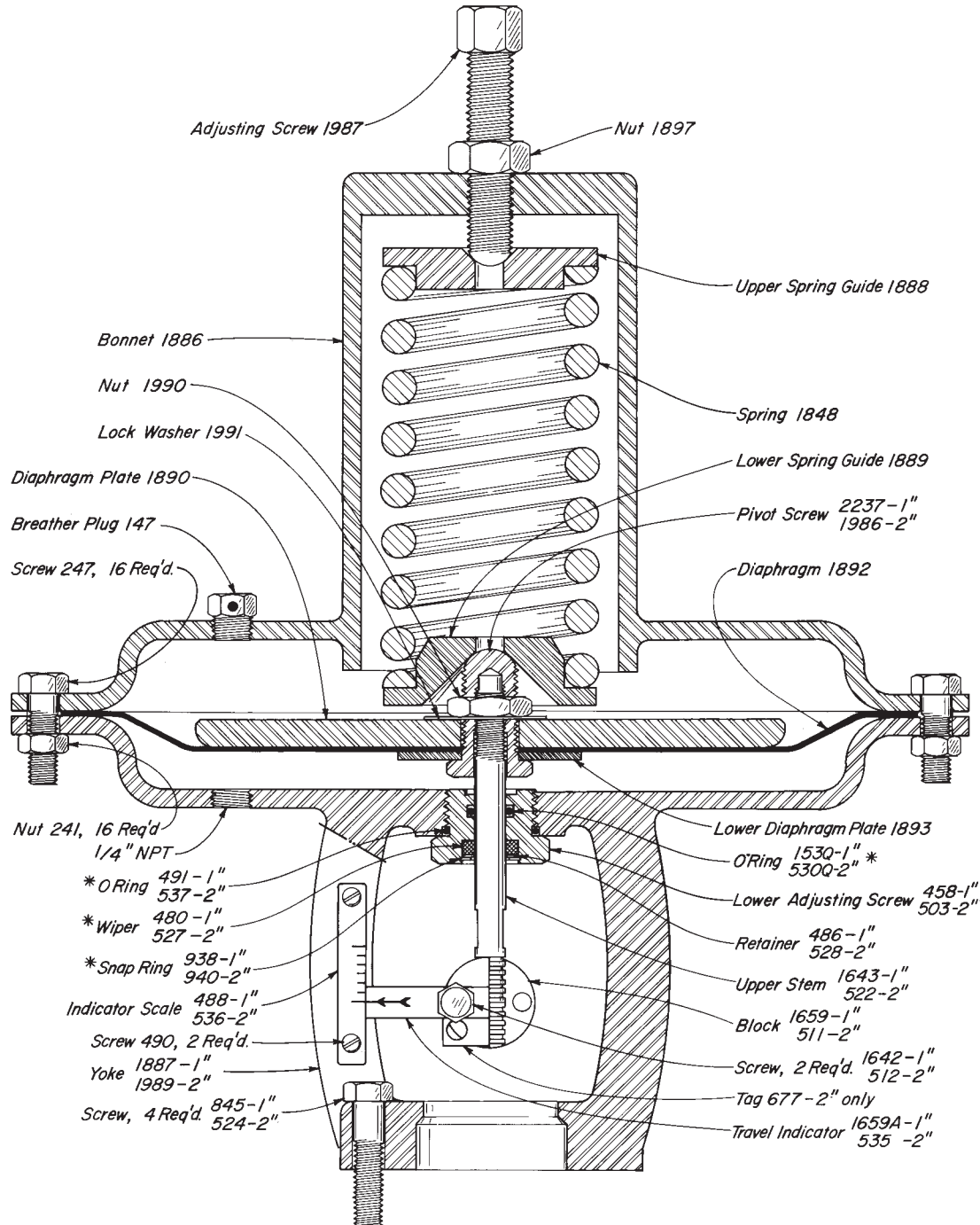
45 psig maximum



HIGH PRESSURE CONTROL VALVES

KIMRAY INC.®

1" & 2" -65 TOPWORKS
STEEL



THRU VALVES AVAILABLE:

CAT. NO.	LINE SIZE	TOPWORKS	OPER. PRES.	MAX W.P.	KIT
EAU	1"	1" -65 TOPWORKS	30	45	RHV
EBW	2"	2" -65 TOPWORKS	30	45	RHW

NOTES:

For dimensions, refer to Table of Contents.

*These are recommended spare parts and are stocked as repair kits.

APPLICATIONS:

- Used on 2" HPCV's.
- For closing valves manually when supply is not available.
- For closing valves manually when there is pressure on the diaphragm.
- For limiting valve stem travel in the opened or closed direction.

FEATURES:

- Compact design
- Valve travel indicator
- Adjustable Topworks
- Sealed bearings

TOPWORKS:

MVP's are furnished with a spring designed for 30 psig diaphragm pressure.

STEM TRAVEL:

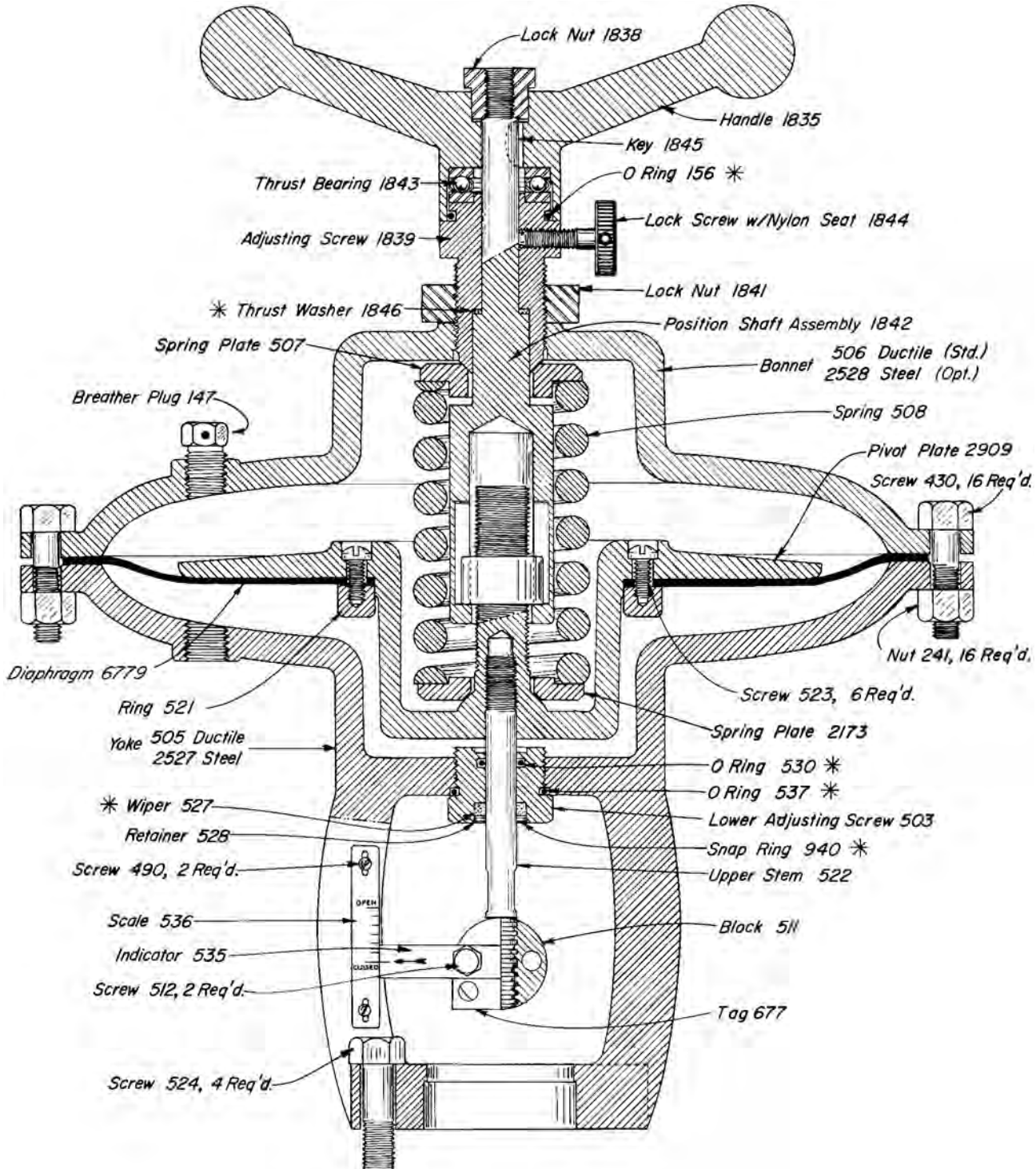
3/4" maximum

ACTUATOR WORKING PRESSURE:

- 30 psig normal
- 45 psig maximum



MANUAL VALVE POSITIONER DUCTILE & STEEL



THRU VALVES AVAILABLE:

CAT. NO.	LINE SIZE	TOPWORKS	OPER. PRES.	MAX W.P.	KIT
EBX	2"	2" MVP	30	45	RFH

NOTES:

For dimensions, refer to Table of Contents.

*These are recommended spare parts and are stocked as repair kits.

APPLICATIONS:

Used as an operator on KIMRAY HPCV's where valve opening must be set independent of the pressure drop across the valve orifice.

Use for linear positioning of the inner valve of KIMRAY HPCV's where the positioning signal is a pressure.

FEATURES:

- Linear Stem movement in response to Sense line Pressure
- Maintains stem position through changes in force on stem
- Simple construction, no adjustments required
- Rapid response
- Insensitive to Supply Pressure changes
- Standard HPCV Topworks can be easily converted to Pneumatic Valve Positioner

SUPPLY PRESSURE:

35 to 45 psig

SENSE LINE PRESSURE:

3 to 17 psig with 20 lb. spring (Std.)

5 to 23 psig with 30 lb. spring (Opt.)

STEM TRAVEL:

3/4" maximum

OPERATION:

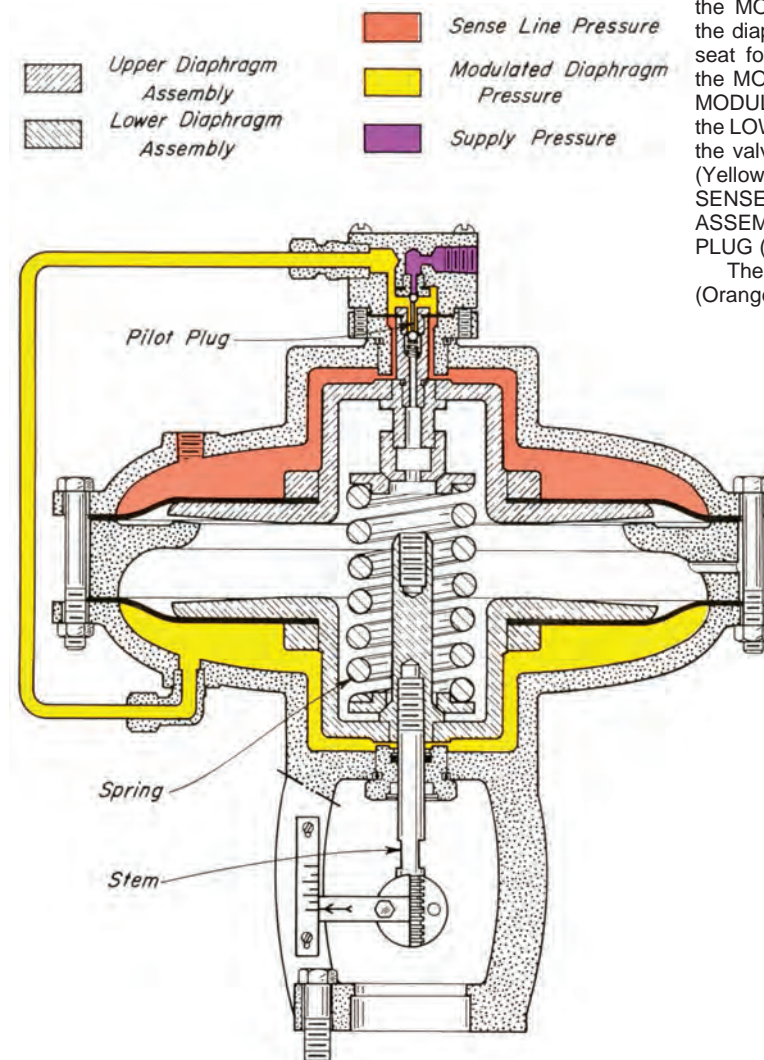
The UPPER DIAPHRAGM ASSEMBLY and the LOWER DIAPHRAGM AND STEM ASSEMBLY (Crosshatched) are the only moving units in the Valve Positioner. The PILOT PLUG consists of two stainless balls rigidly connected together. The upper seat for the PILOT PLUG is the SUPPLY PRESSURE inlet to the MODULATED DIAPHRAGM PRESSURE (Violet to Yellow). The lower seat for the PILOT PLUG is the MODULATED DIAPHRAGM PRESSURE vent (Yellow to Atmosphere).

The SPRING separates the UPPER DIAPHRAGM PLATE and the LOWER DIAPHRAGM PLATE. It is opposed on the top by the SENSE LINE PRESSURE (Orange) and on the under side by the MODULATED DIAPHRAGM PRESSURE (Yellow).

Assume the SENSE LINE PRESSURE (Orange) is increased. This forces the UPPER DIAPHRAGM ASSEMBLY downward and the upper seat for the PILOT PLUG (Violet to Yellow) is opened. This allows SUPPLY PRESSURE (Violet) to provide a MODULATED DIAPHRAGM PRESSURE (Yellow) under the LOWER DIAPHRAGM ASSEMBLY. As the MODULATED DIAPHRAGM PRESSURE (Yellow) increases the SPRING is compressed and the movement of the LOWER DIAPHRAGM ASSEMBLY opens the valve. When the MODULATED DIAPHRAGM PRESSURE (Yellow) has increased enough to both open the valve and offset the SENSE LINE PRESSURE (Orange) the UPPER DIAPHRAGM ASSEMBLY is forced upward until the upper seat of the PILOT PLUG (Violet to Yellow) is closed.

When the SENSE LINE PRESSURE (Orange) is decreased the MODULATED DIAPHRAGM PRESSURE (Yellow) forces the diaphragm assemblies to move upward and open the lower seat for the PILOT PLUG (Yellow to Atmosphere) and vents the MODULATED DIAPHRAGM PRESSURE (Yellow). As the MODULATED DIAPHRAGM PRESSURE (Yellow) decreases the LOWER DIAPHRAGM ASSEMBLY moves downward closing the valve. When the MODULATED DIAPHRAGM PRESSURE (Yellow) has decreased enough to compensate for the reduced SENSE LINE PRESSURE (Orange) the UPPER DIAPHRAGM ASSEMBLY is forced downward until the lower seat of the PILOT PLUG (Yellow to Atmosphere) is closed.

The unique action of both the SENSE LINE PRESSURE (Orange) and the MODULATED DIAPHRAGM PRESSURE (Yellow) opposing the SPRING causes the valve positioner to produce a linear response to the SENSE LINE PRESSURE. This POSITION/SENSE LINE PRESSURE response characteristic is linear without regard for the force on the valve stem within the operating limits of the positioner.

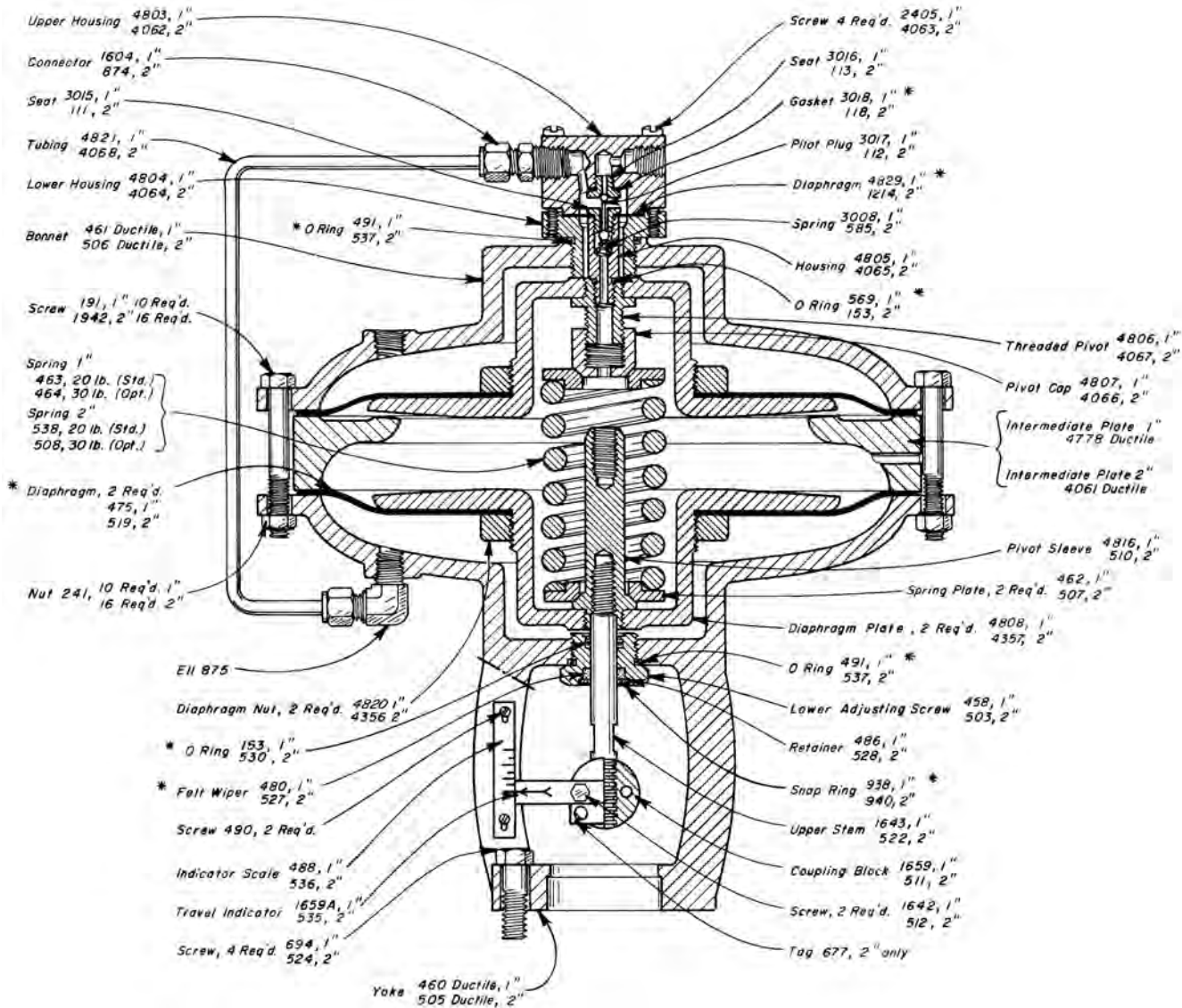


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HIGH PRESSURE CONTROL VALVES

KIMRAY
INC.®

PNEUMATIC VALVE POSITIONER DUCTILE & STEEL



TOPWORKS AVAILABLE:

CAT. NO.	LINE SIZE	TOPWORKS	OPER. PRES.	MAX W.P.	KIT
EBV	1"	13 PVP	3-17	45	RRD
EBM	2"	23 PVP	3-17	45	RRE

NOTES:

For dimensions refer to Table of Contents.
*These are recommended spare parts and are stocked as repair kits.

Kimray is an ISO 9001- certified manufacturer.

APPLICATIONS:

Used on all Kimray HPCV topworks or any 30psig and lower diaphragm operated control valve.

Used for field automation where electrical signals or communications are used to actuate a single-acting spring return control valve.

FEATURES:

- Low current consumption
- Class I Div 1 Explosion Proof enclosure
- 3/4" electrical conduit connection
- Discrete Inputs: Compatible with switches, relay contacts, and most flow computers, plunger-lift controllers, scada controllers, RTUs, PLCs, etc..
- MODBUS RTU communication: read actuator status and control remotely over RS-485
- Fail-safe or Fail-in-place options

SPECIFICATIONS:

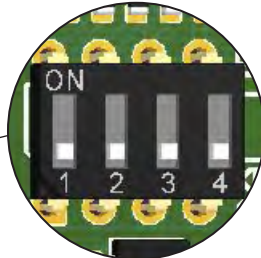
Pressure: 30 PSIG max

Temperature: -40° to +60°C (-40° to +140°F)

Voltage: 12VDC (11 - 14VDC) or 24VDC (22 - 26VDC)

Current: 4A Maximum

Current - Typical applications				
	12 FS	12 FIP	24 FS	24 FIP
Open	3 A	2.6 A	1.4 A	1.2 A
Hold Open	0.3 A	10 mA	0.2 A	10 mA
Closing	10 mA	0.3 A	10 mA	0.2 A
Hold Close	10 mA	10 mA	10 mA	10 mA



DIP SWITCH SETTINGS	ON	OFF
1	Calibration Mode	Operation Mode
2	Pressure to CLOSE valve	Pressure to OPEN valve
3	20 PSI	30 PSI (Default)
4	NC Solenoid	NO Solenoid

MANUFACTURING:

The EHA is produced at:
Kimray, Inc. 52 NW 42nd St, Oklahoma City, Oklahoma, USA.

OPERATION:

The Electro-Hydraulic Actuator (EHA) is used to pressurize and release any single-acting spring-return diaphragm control valve. The oil reservoir is comprised of the spring-containing side of the valve actuator and an additional reservoir attached to the top of the valve actuator. This additional reservoir is used for adding hydraulic oil and to serve as a visual indicator of hydraulic oil level. The other side of the diaphragm is used to contain pressure.

The EHA operates by moving hydraulic oil from one side of the diaphragm to the other through a manifold. A control circuit is used to operate a pump to build pressure, which is monitored via a pressure transducer. A solenoid valve allows the control valve spring to relieve pressure.

When a discrete input is received at terminal D1 of the control circuit, the valve actuator begins to pressurize until the set maximum pressure is achieved. When a discrete input is received at terminal D2, the valve actuator begins to depressurize.

By using a normally open solenoid valve, the EHA features a mechanical fail-safe in the event of power loss. A normally-closed solenoid will create fail-in-place operation.

INSTALLATION:

For full installation instructions, please refer to Kimray document IM0001 available from www.kimray.com

HYDRAULIC OIL: Only use Kimray KIMZOIL HA1

WIRING:

- VIN - connect to +12V or +24V supply terminal
- GND - connect to +0V supply terminal
- D1/G - connect to dry contacts for OPEN function
- D2/G - connect to dry contacts for CLOSE function
- A/B/C - connect to RS-485 communication wires

WIRE GAUGE: Power inputs (VIN/GND) should be sized 12-20 AWG to minimize voltage drop. All other signals can be sized 12-30 AWG

NOTE: Wiring to or from this device, which leaves or enters the system enclosure, must utilize wiring methods suitable for Class I, Division 1 Hazardous Locations

WARNING: Explosion Hazard. Do not connect or disconnect this equipment unless power has been removed or the area is known to be nonhazardous.

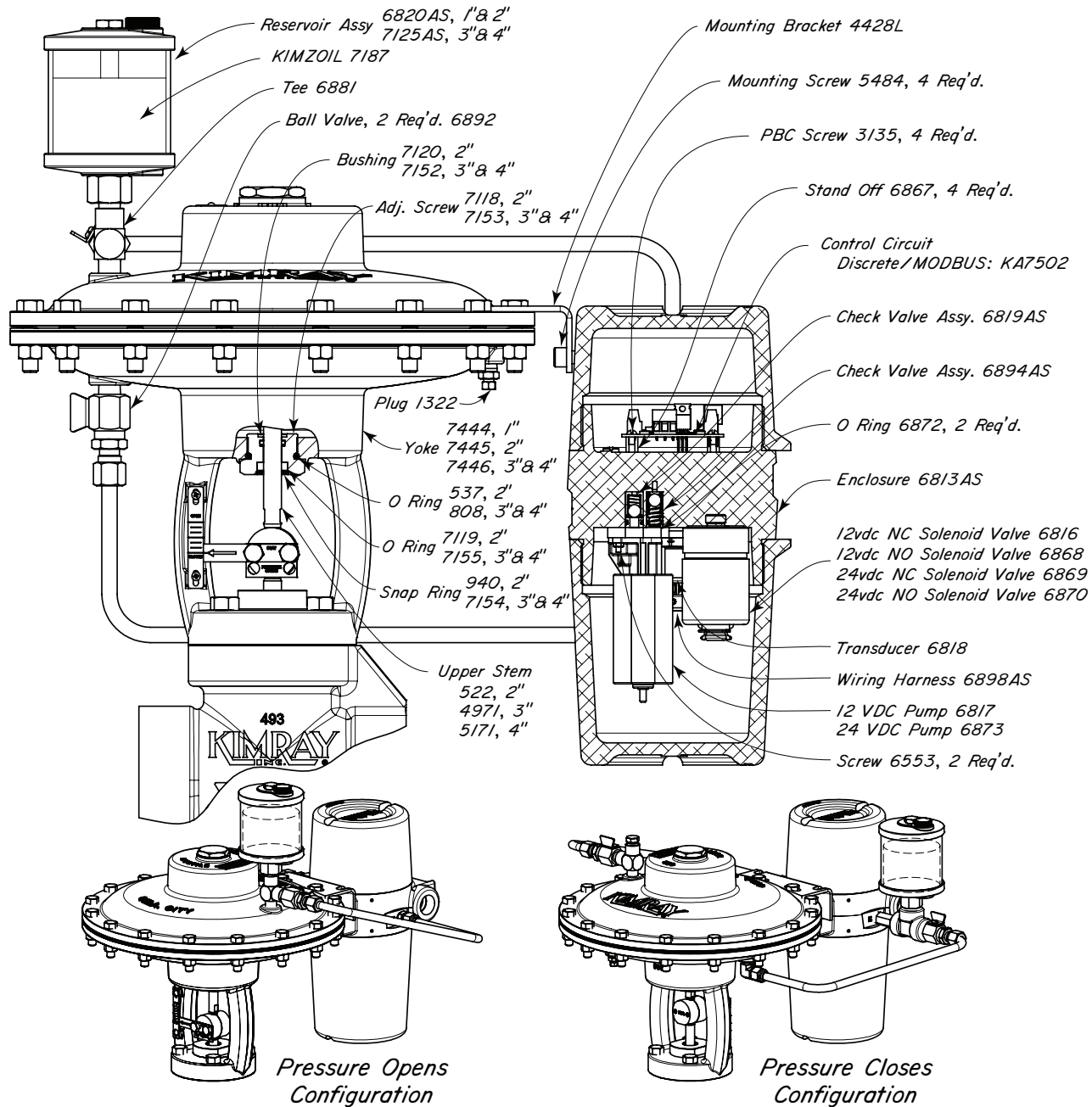


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HIGH PRESSURE CONTROL VALVES

KIMRAY INC.®

ELECTRO HYDRAULIC ACTUATOR ALUMINUM



ELECTRO-HYDRAULIC CONTROLLERS:

CAT. NO.	DESC.	OPER. PRESS.	CONTROL VOLTAGE
YHD	EHA 12 FS DM	30 psig	11-14 VDC
YHD24	EHA 24 FS DM	30 psig	22-26 VDC
YHE	EHA 12 FIP DM	30 psig	11-14 VDC
YHE24	EHA 24 FIP DM	30 psig	22-26 VDC

Codes are for Actuator only
Can also be purchased mounted on valve as shown

APPROVALS:



Class I, Div 1, Groups C and D;
Class II, Div 1, Groups E, F, and G;
Class III; T6

Adjusting Screw assembly may be purchased for valves equipped with old style Adjusting Screws
for 2 inch valve order part number 7118AS
for 3 & 4 inch valves order part number 7153AS

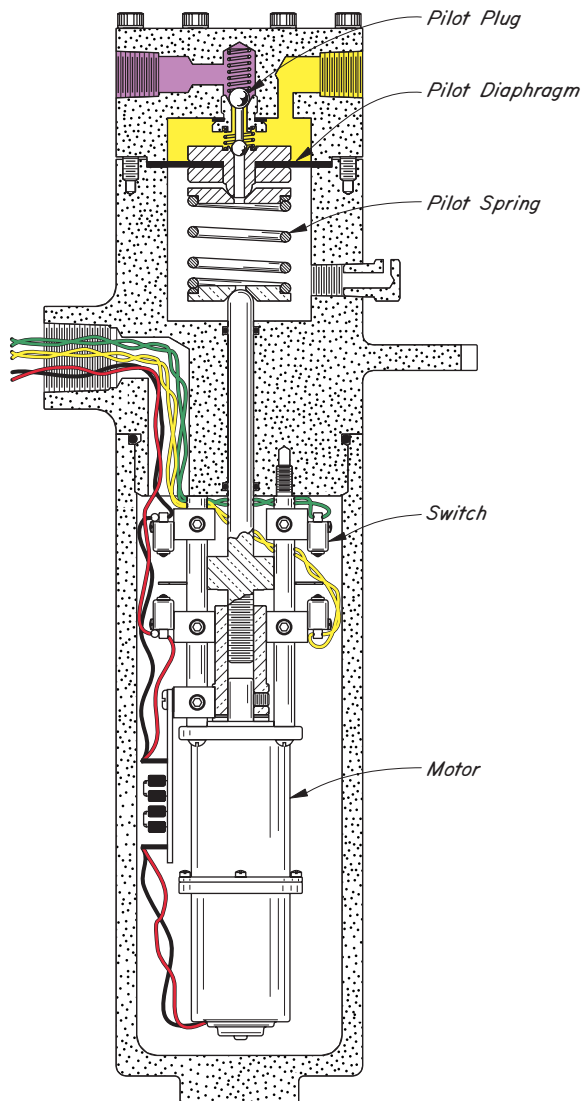
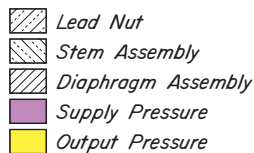
Kimray is an ISO 9001:2008- certified manufacturer.
API Specification Q1 (ISO/TS 29001:2007)

APPLICATIONS:

- Voltage to pressure converter
- Converts 12 Volt DC signal from relay or computer to a pneumatic signal for actuating a valve positioner

FEATURES:

- Motor over-travel protection switches
- Positioner full travel indication switches
- Explosion proof design
- Produces a linear output proportional to the pressure on the Pilot Spring
- Factory Calibrated for 0-15 psig, 0-30 psig or 0-100 psig Output Pressure range
- At loss of electrical signal Output Pressure and the resulting valve position remain the same
- Motor commutator noise filter
- Reverse EMF surge suppression



SPECIFICATIONS:

- Input Signal: 12 VDC pulse nominal, min. 11 VDC, max. 16 VDC
- Current
 - 15EPC: 225 mA sustained max. 375 mA peak
 - 30EPC: 225 mA sustained max. 360 mA peak
 - 100EPC: 385 mA sustained max. 520 mA peak
- 1/2" Electrical conduit connection
- Pneumatic connections 1/4" NPT
- Max. Supply Pressure (15EPC= 15 psig, 30EPC= 30 psig, 100EPC= 100 psig) marked "SUPPLY"
- Output Pressure signal (15EPC= 0-15 psig, 30EPC= 0-30 psig, 100EPC= 0-100 psig), marked "OUTPUT"
- Hazardous area rating
CSA, Explosion proof, Certificate (179619 / 1578429)
Class 1, Group C & D, T6 @ Ta = 60°C

MATERIALS:

- Body - Anodized Aluminum
- Springs - Steel or Zinc plated
- Diaphragm - Buna-N
- Valve Element - 316 SS
- Valve Seats - 303 SS

OPERATION:

The EPC consists of a DC ELECTRIC MOTOR driving a Stem Assembly to operate a pneumatic pilot. The MOTOR is protected from over-travel by a pair of limit SWITCHES. Another pair of SWITCHES provide signals that indicate full travel.

The MOTOR turns the Lead Nut, applying pressure through the Stem Assembly to the PILOT SPRING and Diaphragm Assembly which is opposed by the Output Pressure (Yellow) above the pilot diaphragm. The PILOT PLUG consists of two stainless steel balls rigidly connected together. The upper seat for the PILOT PLUG is the Supply Pressure inlet (Violet to Yellow). The lower seat for the PILOT PLUG is the Output Pressure vent (Yellow to Atmosphere) through the breather plug.

When a positive 12 VDC is applied to the BLACK LEAD and Ground to RED, the MOTOR moves the Stem Assembly upward, increasing force against the PILOT SPRING and moves the Diaphragm Assembly upward, first to close the lower seat of the PILOT PLUG (Yellow to Atmosphere), then to open the upper seat of the PILOT PLUG (Violet to Yellow). This results in an increase in Output Pressure (Yellow). Pressure will remain the same until a new input voltage is applied.

When a positive 12 VDC is applied to the RED LEAD and Ground to BLACK, the Motor moves the Stem Assembly downward, releasing force from the PILOT SPRING and allowing Output Pressure (Yellow) to force the Diaphragm Assembly downward, first to close the upper seat of the PILOT PLUG (Violet to Yellow), then to Open the lower seat of the PILOT PLUG (Yellow to Atmosphere). This results in relief of Output Pressure (Yellow) through the breather plug. Pressure will remain the same until a new input voltage is applied.

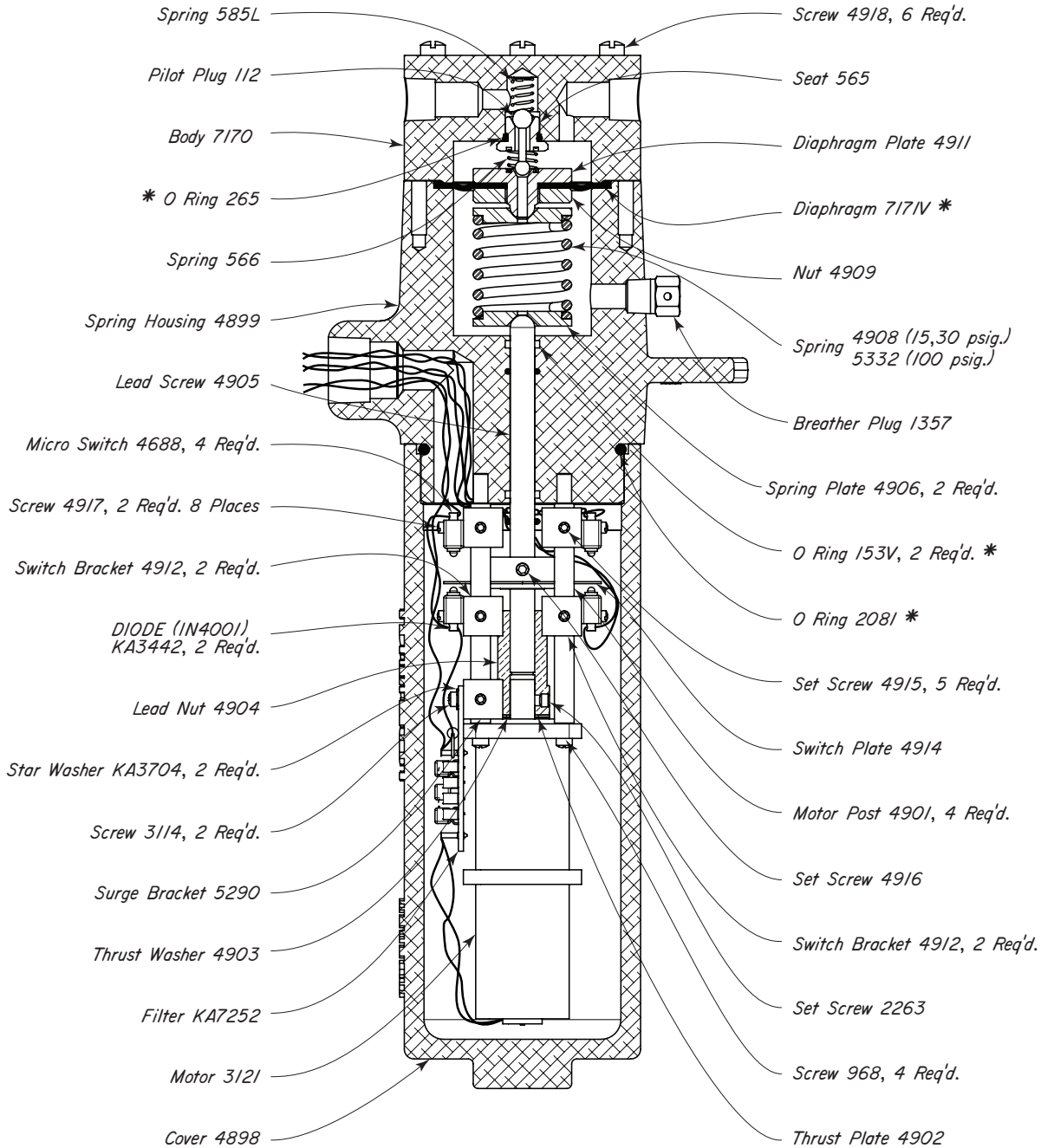


Kimray is an ISO 9001- certified manufacturer.

HIGH PRESSURE CONTROL VALVES

KIMRAY INC.®

ELECTRO-PNEUMATIC CONTROLLER ALUMINUM



ELECTRO-PNEUMATIC CONTROLLERS:

CAT. NO.	DESC.	OPER. PRESS.	CONTROL VOLTAGE	REPAIR KIT
YHA	15 EPC	15	12 VDC	RSS
YHB	30 EPC	30	12 VDC	RSS
YHC	100 EPC	100	12 VDC	RSS

INSTALLATION:

ELECTRICAL CONNECTIONS:

RED (- Open)(+ Close)	}	Open / Close Control
BLACK (+ Open)(- Close)		
YELLOW N/O	}	Closed Position Switch
BROWN COM		
ORANGE N/C		
GREEN N/O	}	Open Position Switch
BROWN COM		
ORANGE N/C		

PNEUMATIC CONNECTIONS: (1/4" NPT Female)

"I" - Input
"O" - Output

Note: A conduit seal shall be installed to maintain CSA explosion proof certification.

Kimray is an ISO 9001- certified manufacturer.

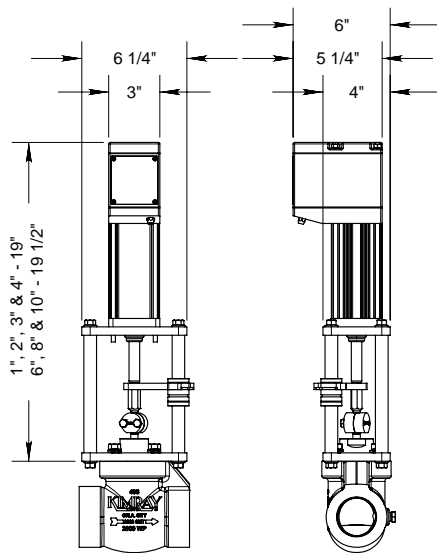
APPLICATION:

For Kimray Control Valves with the Kimray TRITEX II:

- Flow control valve
- Pressure control upstream/downstream/differential
- Choke valve
- Compressor controls
- Gas lift valve
- Dump valve

TECHNICAL FEATURES:

Voltage	12-48 VDC
I/O	4/3 isolated digital 1/1 isolated 4-20 mA
Rating	Class 1, Division 2, Groups A,B,C & D
Connection	1/2" NPT
Temp	-40° F to 149° F (-40° C to 65° C)
Force	Continuous to 872 lbf Peak to 1190 lbf
Stroke	3" max
Speed	up to 5 in./sec.
Duty Cycle	100%
Life	100M + strokes



ACTUATORS AVAILABLE:

PART NO.	DESCRIPTION	VOLTAGE
KSETDM0750301	TRITEX II ACTUATOR	12V-48V

BRACKETS AVAILABLE:

PART NO.	BRACKET SIZE	DESCRIPTION
KSMKI1EX30KITUM	1"	TRITEX II MOUNTING KIT
KSMKI2EX30KITUM	2"	TRITEX II MOUNTING KIT
KSMKI3EX30KITUM	3"- 4"	TRITEX II MOUNTING KIT
KSMKICV3EX30KIT	3" SEV	TRITEX II MOUNTING KIT
KSMKI6EX30KITUM	6"- 10"	TRITEX II MOUNTING KIT

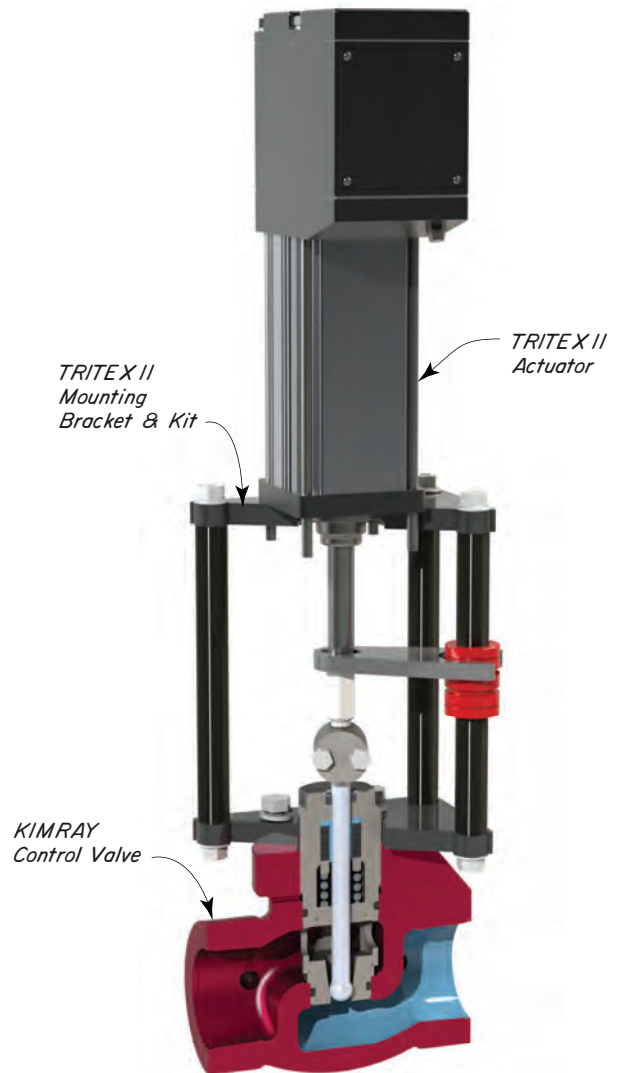
CABLES AVAILABLE:

PART NO.	DESCRIPTION	LENGTH
KSET49795	COMMUNICATION CABLE	6 FOOT
KSET49796	COMMUNICATION CABLE	15 FOOT

Current Revision:
Add dimensions for other sizes

OPERATION:

The TRITEX II DC LINEAR ACTUATOR uses a roller screw attached to a servo motor to convert the rotary motion of the motor directly to a linear force. The control and positioner used in the actuator provide closed-loop feedback, eliminating the need for limit switches, torque switches or any mechanical means of feedback. The electronics provide a 4-20 mA input and output, as well as digital input and output. The result is speed, precision and a long-lasting actuator with little to no maintenance.



Kimray is an ISO 9001- certified manufacturer.

APPLICATIONS:

Utilizes (any) quarter-turn actuator with ISO-5211 connection in conjunction with Kimray HPCV. To control level, flow, pressure, temperature of process fluid.

FEATURES:

- Open-yoke design
- Standard coupling block and mounting hardware to valve
- Weather-tight, maintenance-free design

CONNECTIONS:

- R2L-1: ISO F05, 14MM SQ
- R2L-2: ISO F07, 14MM SQ

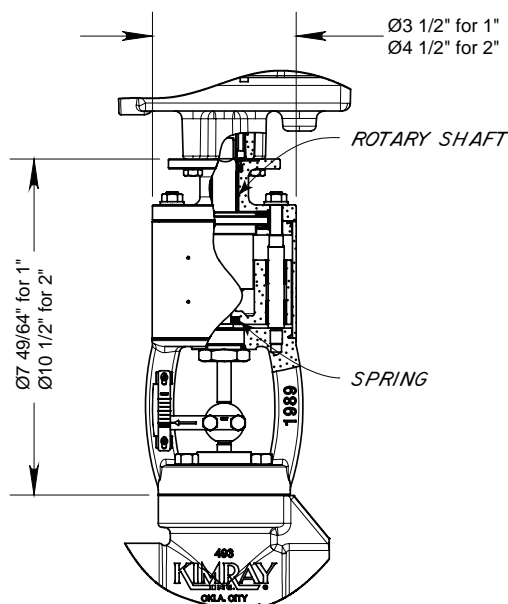
VALVCON ROTARY ACTUATOR (KSRADCWX):

- ON/OFF and Modulating control
- Power input is UNIVERSAL
 - 12/24VDC
 - 24VAC
 - 115/230VAC
- CL I, Div. 1 Explosion Proof Enclosure
- 100% duty cycle
- Battery backup included for fail-safe operation
 - Configurable for fail open, closed or position
 - Park or Continue operation upon power loss
- Manual override – operates with wrench (Handwheel available)
- Inputs
 - 4-20mA
 - 0-10V
 - Resistive control
 - On/off – 2 & 3 wire control
- Feedback
 - Limit switches
 - 0-10V or 4-20mA
 - Battery monitor
- Integral heater for condensation and battery protection
- Options
 - Modbus RS485
 - Handwheel for manual override

OPERATION:

Spiral rotation of the ROTARY SHAFT by means of a rotary actuator is translated into linear motion, opening and closing the valve. The stroke length is achieved with 90° rotation of the shaft, clockwise to close. As the plug contacts the seat, a series of springs become loaded to ensure valve closure in the event of seat creep or wear.

	230VAC	115VAC	24VAC	24VDC	12VDC
CYCLE TIME (SEC/90°)	14	14	13	13	17
CURRENT DRAW (AMPS)	0.5	0.6	2.5	1.7	2.8

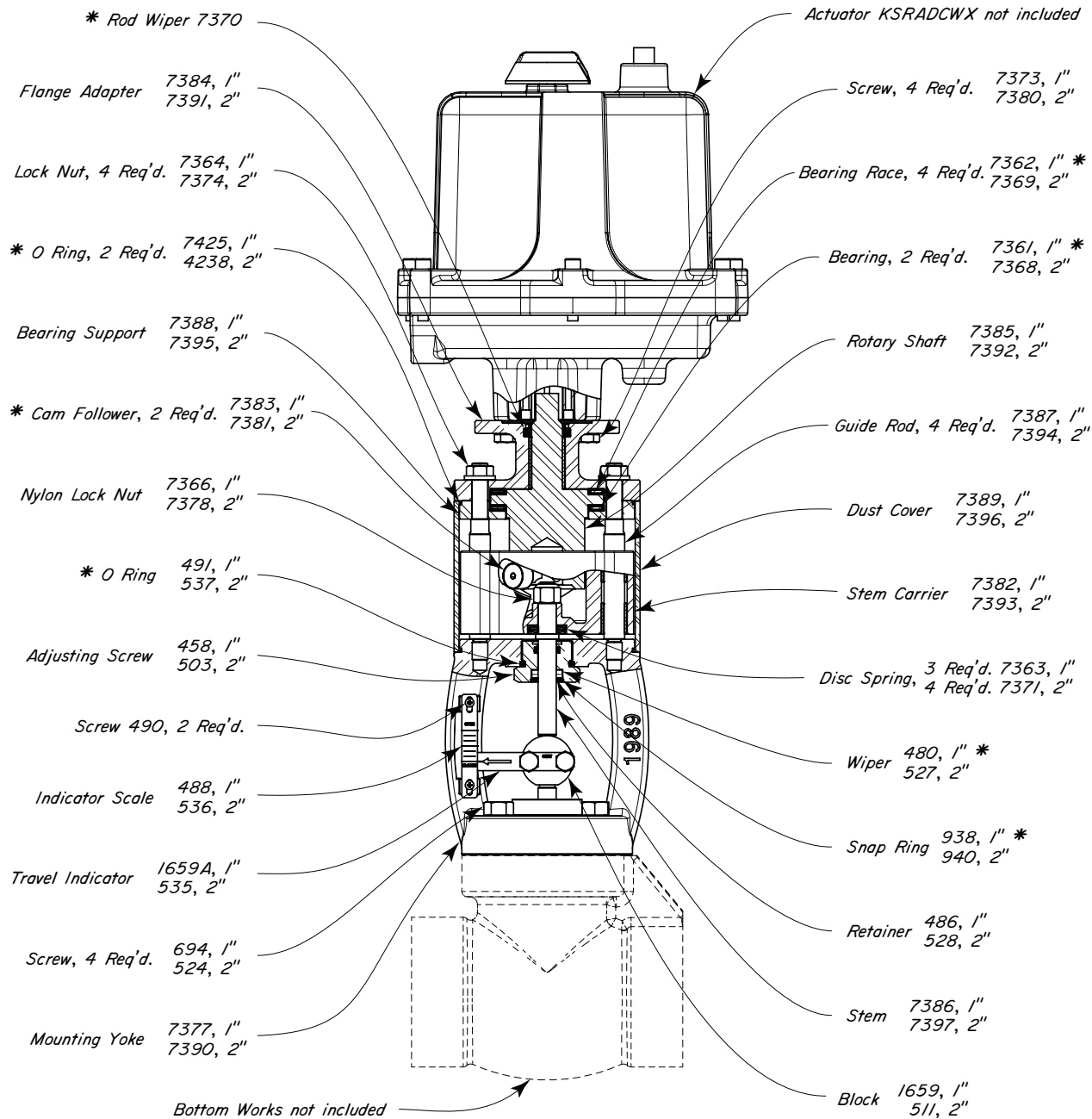


Kimray is an ISO 9001- certified manufacturer.

HIGH PRESSURE CONTROL VALVES

KIMRAY INC.®

R2L ACTUATOR / ADAPTOR DUCTILE



ADAPTERS AVAILABLE:

PART NO.	VALVE SIZE	MODEL NO.	ISO 5211	SHAFT	REP. KIT
YHN	1"	R2L-1 HPCV ADAPTER	F05	14MM SQ	RXD
YHO	2"	R2L-2 HPCV ADAPTER	F07	14MM SQ	RXE

ELECTRIC ACTUATORS AVAILABLE:

PART NO.	ACTUATOR DESCRIPTION	VOLTAGE	ISO 5211	TORQUE
KSRADCWX	VALVCON ADC	MULTI	F05/07	600 in lb

NOTES:

*These parts are recommended spare parts and are stocked as repair kits.

Kimray is an ISO 9001- certified manufacturer.

APPLICATIONS:

This valve can be used to meter or control flow of liquids and/or gases on meter runs, flow lines, or may be used as a choke under low pressure drop conditions where freezing is not a problem.

Used any time a reference control point is required in 64^{ths} of an inch opening.

FEATURES:

- Compact design
- O Ring sealed seat
- Teflon packed stuffing box
- Ball-in-Cone seat design
- Easily adjusted
- Large adjusting knob
- Large adjusting screw

CERTIFICATIONS:

Canadian Registration Number (CRN):
0C15021.24567890NTY

STEM TRAVEL:

- 1" Meter Valve 1/2" maximum
- 2" Meter Valve 3/4" maximum

OPERATIONS:

Rotation of the adjusting knob raises or lowers the valve plug relative to the valve seat. Six full turns are required to fully open the valve. Opening is graduated in 64^{ths}.

WORKING PRESSURE:

- 1" 4000 psig
- 2" 2000 and 4000 psig

MAXIMUM PRESSURE DROP:

- 1" All Sizes 4000 psig
- 2" 7/16" EP Seat 4000 psig
- 2" 5/8" EP Seat 3000 psig
- 2" 7/8" EP Seat 1500 psig

INNER VALVE SIZES:

- 1" Equal Percentage Seats 1/4", 1/2"
- 2" Equal Percentage Seats 7/16", 5/8" and 7/8"

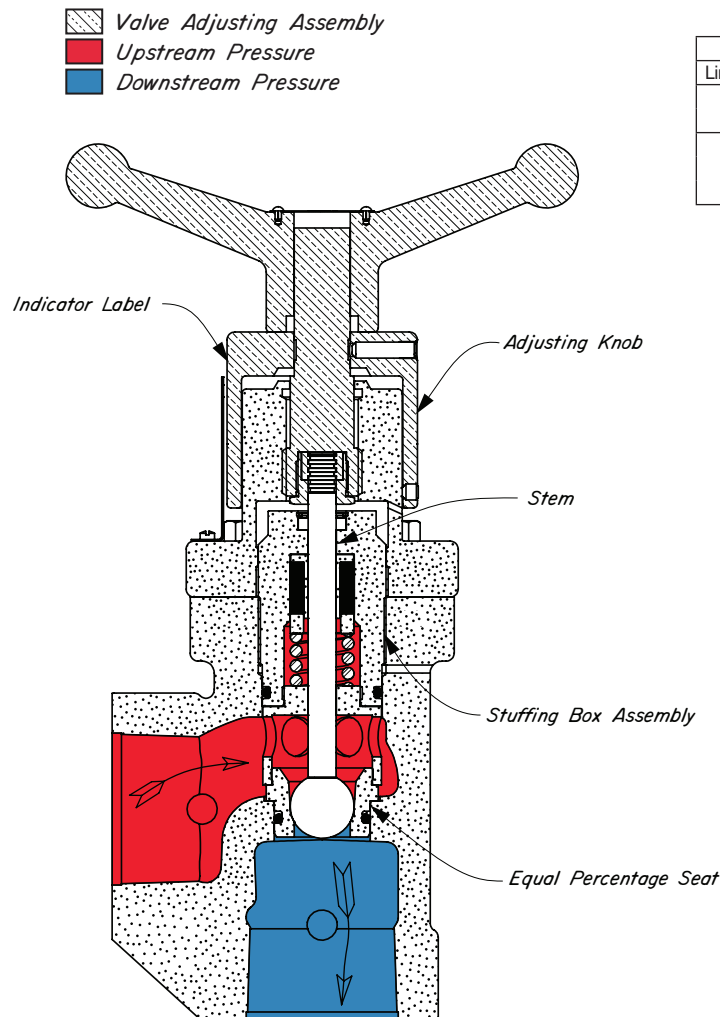
CAPACITIES:

Refer to Table of Contents

INNER VALVE SPECIFICATIONS:

1" & 2" MV-Standard valve plug for 7/16" consists of a carbide ball rigidly connected to a 303 stainless steel stem. Standard valve plugs for 5/8" and 7/8" consist of a hardened high chrome alloy ball rigidly connected to a 303 stainless steel stem. Standard seats are made of heat treated tool steel.

Inner valves can be made from a wide selection of materials. Specify when ordering.



Cf & Cv VALUES				
Line Size	Trim Type	Trim Size	Cf	Cv
1"	Equal Percentage	1/4"	0.66	1.99
		1/2"	0.78	6.49
2"	Equal Percentage	7/16"	0.60	5.44
		5/8"	0.58	10.76
		7/8"	0.66	17.40

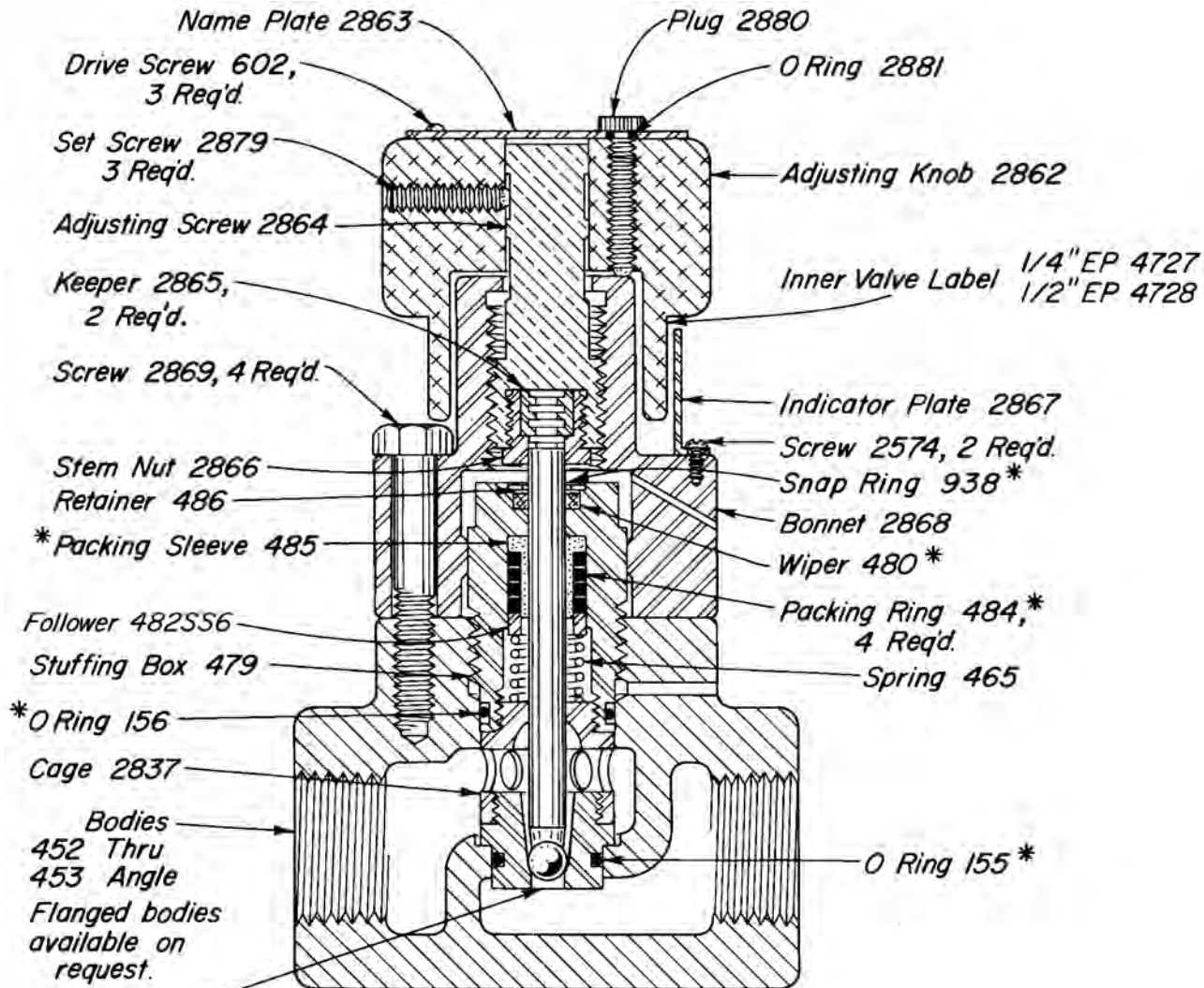


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HIGH PRESSURE CONTROL VALVES

KIMRAY[®]

1" METERING VALVE STEEL



Inner Valves

E.P. Inner Valves	
Size	Trim Set No.
1/4"	T4730MV
1/2"	T4732MV

THRU VALVES AVAILABLE:

CAT. NO.	INNER VALVE	VALVE	MAX W.P.	KIT
EGA	1/4"	1400 SMVT 1/4 EP IV	4000	RSH
EGB	1/2"	1400 SMVT 1/2 EP IV	4000	RSH

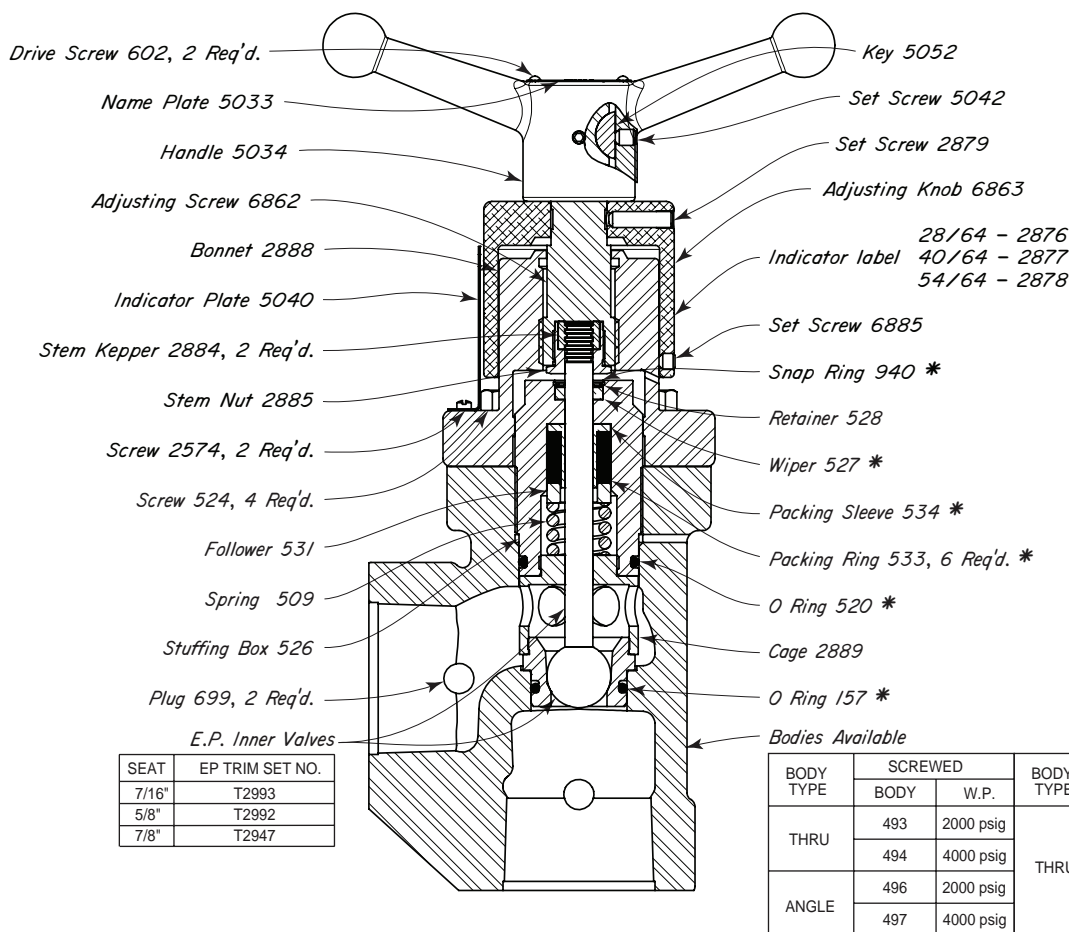
NOTES:

All standard Metering Valves have a Cat. No. Seats, stems, cages, stuffing boxes and valve bodies are available in 316 stainless steel upon special request. Inner valves can be made from a wide selection of materials. Specify when ordering.

Flanged bodies are available. All bodies are available with a 1/4" NPT tapped hole upstream and downstream. Specify when ordering.

*These are recommended spare parts and are stocked as repair kits.

Kimray is an ISO 9001- certified manufacturer.



THRU VALVES AVAILABLE:

CAT. NO.	INNER VALVE	VALVE	MAX W.P.	KIT
EEJ	1/4"	2200 SMVT 1/4 IV	2000	RSE
EEL	7/16"	2200 SMVT 7/16 IV	2000	RSE
EEN	5/8"	2200 SMVT 5/8 IV	2000	RSE
EEP	7/8"	2200 SMVT 7/8 IV	2000	RSE
EET	5/8"	2400 SMVT 5/8 IV	4000	RSE
EEW	7/8"	2400 SMVT 7/8 IV	4000	RSE
MAQ	7/16"	2500 FMVT 2500RTJ ^a	5000	RSE

All standard Metering Valves have a Cat. No. Seats, stems, cages, stuffing boxes and valve bodies are available in 316 stainless steel. Inner valves can be made from a wide selection of materials. Specify when ordering.

*These are recommended spare parts and are stocked as repair kits.

Current Revision:
Add "EP" to trim set table

ANGLE VALVES AVAILABLE:

CAT. NO.	INNER VALVE	VALVE	MAX W.P.	KIT
EEK	7/16"	2200 SMVA 7/16 IV	2000	RSE
EEM	5/8"	2200 SMVA 5/8 IV	2000	RSE
EEO	7/8"	2200 SMVA 7/8 IV	2000	RSE
EES	5/8"	2400 SMVA 5/8 IV	4000	RSE
EEV	7/8"	2400 SMVA 7/8 IV	4000	RSE

Flanged and socket weld bodies are available. All bodies are available with a 1/4" NPT tapped hole upstream and downstream. Specify when ordering.

For dimensions, refer to Table of Contents. Flanged dimensions available upon request.

^aFor working pressure vs. working temperature see ASME B16.34;

For flanges & flanged fittings see ASME B16.5.

Kimray is an ISO 9001- certified manufacturer.

NOTES:



Kimray is an ISO 9001- certified manufacturer.

APPLICATIONS:

This valve can be used to meter or control flow of liquids and/or gases on meter runs, flow lines, or may be used as a choke under low pressure drop conditions where freezing is not a problem.

Used any time a reference control point is required in 64^{ths} of an inch opening.

CERTIFICATIONS:

Canadian Registration Number (CRN):
0C10903.24567890NTY (2" HPCV PB MV)
0C15019.24567890NTY (3" HPCV PB MV)

FEATURES:




- Compact design
- O Ring sealed seat
- Teflon packed stuffing box
- Easily adjusted
- Large adjusting knob
- Large adjusting screw

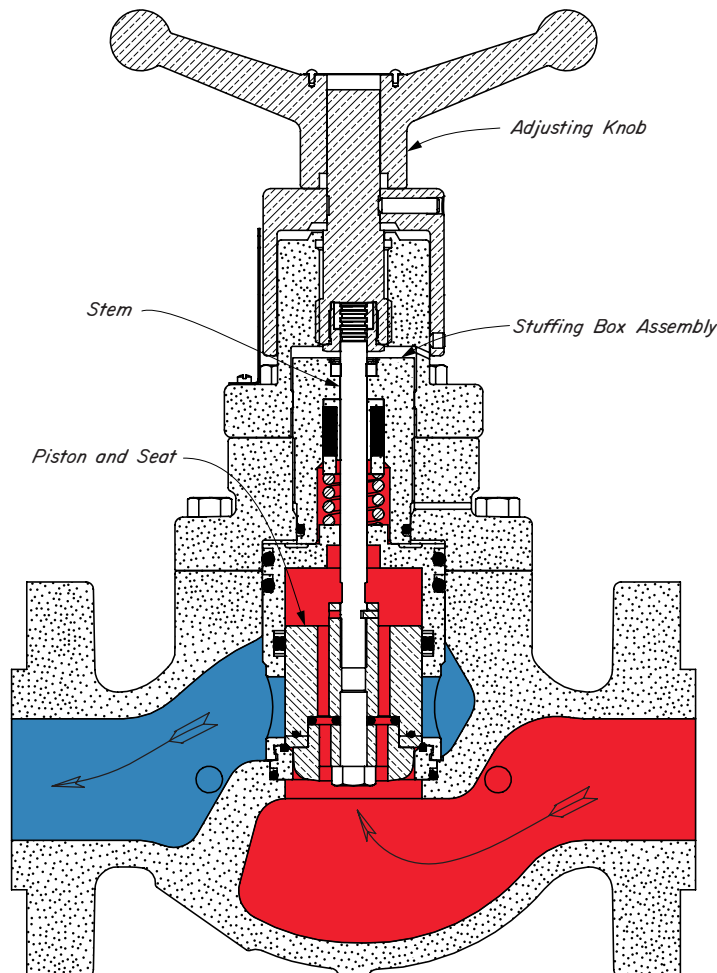
CERTIFICATIONS:

Canadian Registration Number (CRN):
0C15021.24567890NTY

STEM TRAVEL:

2" HPCV PB - 3/4" nominal
3" HPCV PB - 1 3/8" nominal

 Valve Adjusting Assembly
 Upstream Pressure
 Downstream Pressure



OPERATIONS:

Rotation of the adjusting knob raises or lowers the valve plug relative to the valve seat. Six full turns are required to fully open the valve. Opening is graduated in 64^{ths}.

WORKING PRESSURE:

2" HPCV PB - 1500, 4000 psig
3" HPCV PB - 1500 psig

INNER VALVE SIZES:

2" HPCV PB - 1 1/2" & 2" Equal Percentage
3" HPCV PB - 2" & 3" Equal Percentage

STANDARD TRIM SPECIFICATIONS:

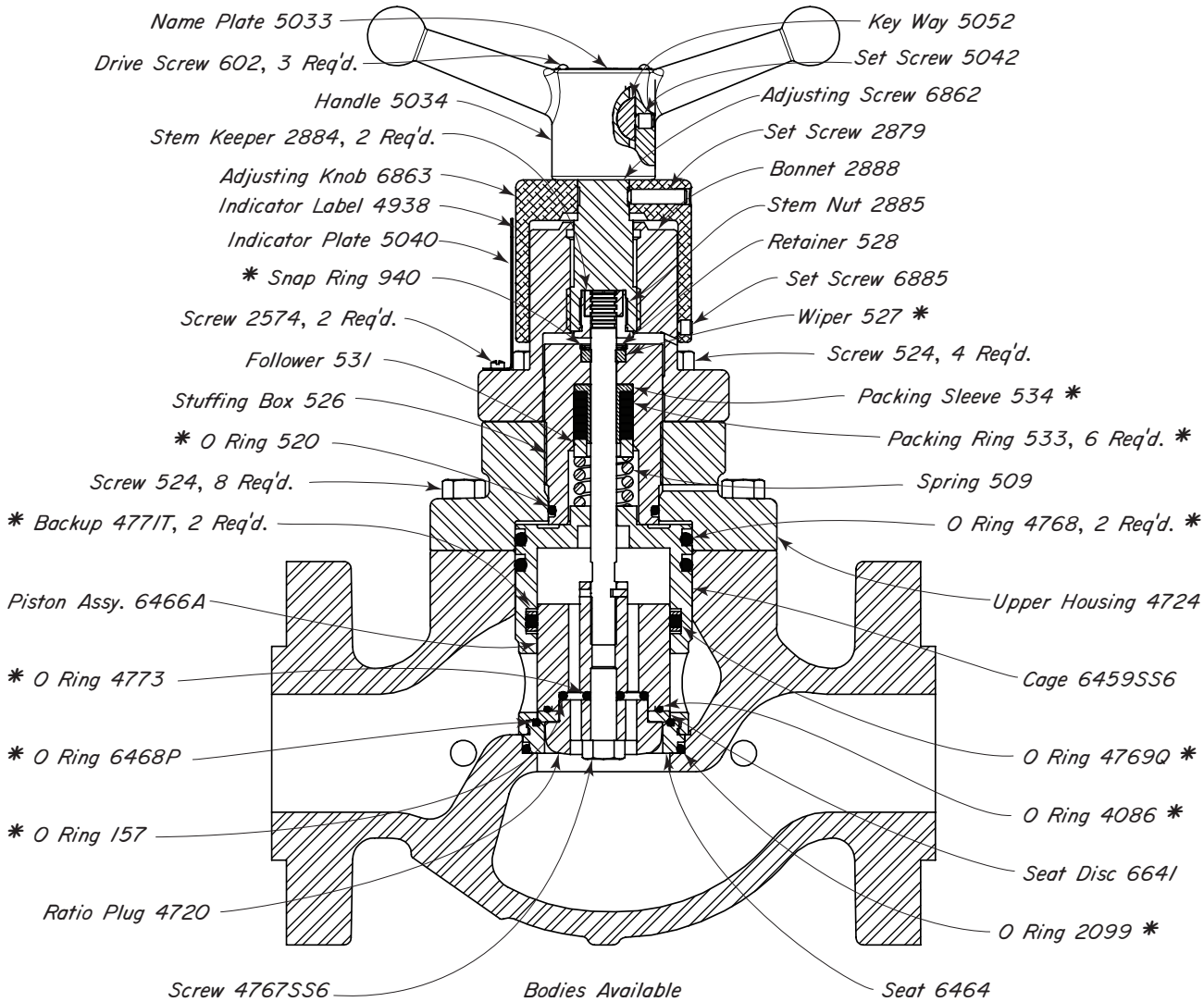
316 stainless steel cage
D-2 tool steel valve plug assembly
D-2 tool steel seat
Polyurethane seal with Metal-to-Metal back-up
(Other material available on request)

Cf & Cv VALUES				
Line Size	Trim Type	Trim Size	Cf	Cv
2"	Equal Percentage	1 1/2"	0.75	28.6
		2"	0.76	57.0
3"	Equal Percentage	2"	0.75	52.6
		3"	0.76	107.0



Kimray is an ISO 9001- certified manufacturer.

2" PISTON BALANCED METERING VALVE STEEL



Bodies Available

BODY TYPE	SCREWED		FLANGED	
	BODY	W.P.	BODY	W.P.
THRU	4813	1500 lbs.	4712	600 RF
	4764	4000 lbs.	4713	600 RTJ
			4714	1500 RF
			4715	1500 RTJ

THRU VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	VALVE	MAX W.P.	REPAIR KIT
EFE	2" SCRD.	2150 SMVT PB 2 IV	1500	RSN
EGF	2" SCRD.	2400 SMVT PB 2 IV	4000	RSN
EGE	2" FLGD.	2150 FMVT PB 600RF	1480	RSN
MBK	2" FLGD.	2150 FMVT PB 1500RF	3705	RSN

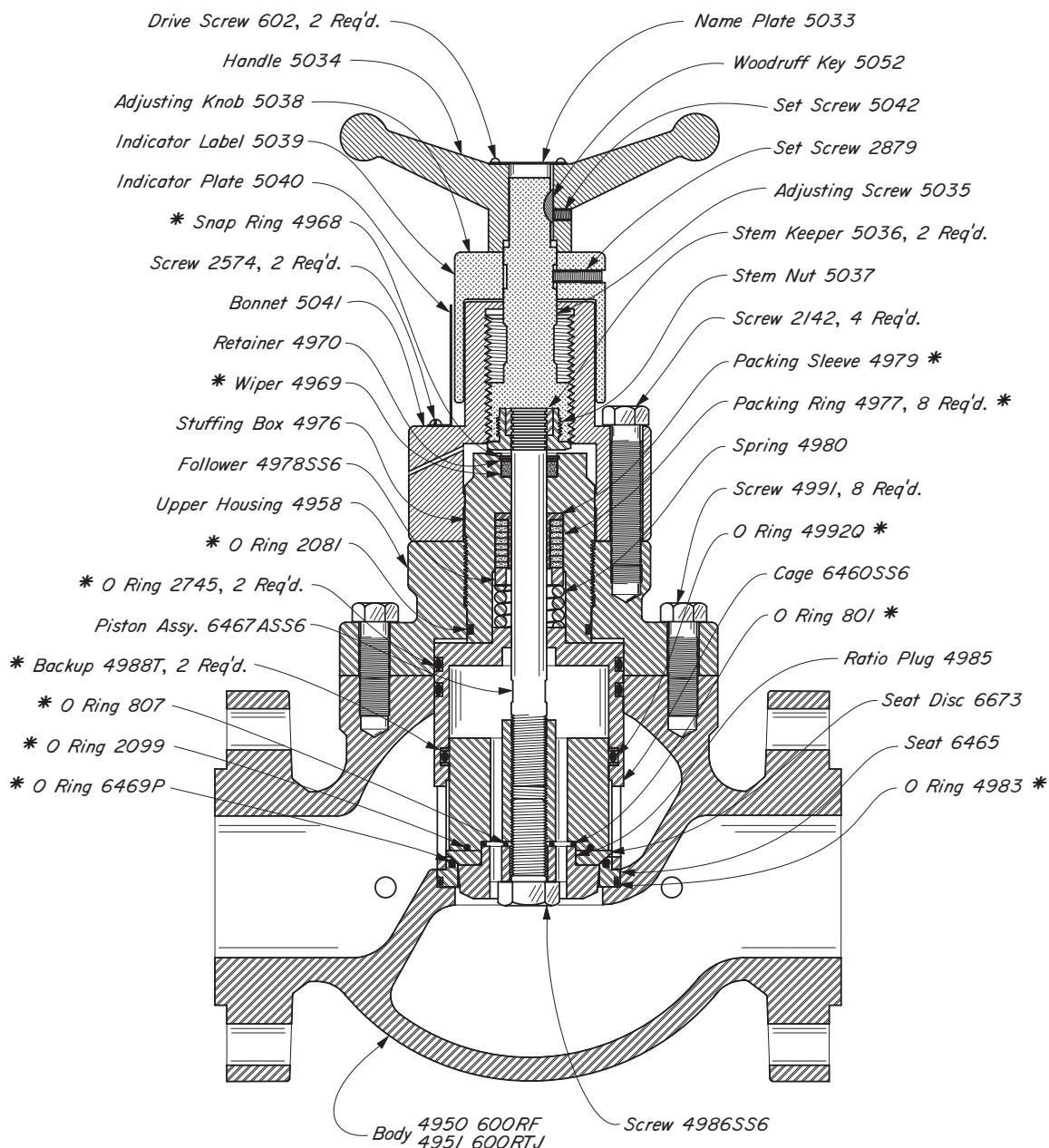
NOTES:

All standard Metering Valves have a Cat. No. seats, stems, cages, stuffing boxes and valve bodies are available in 316 stainless steel upon special request. Inner valves can be made from a wide selection of materials. Specify when ordering.

Flanged bodies are available. All bodies are available with a 1/4" NPT tapped hole upstream and downstream. Specify when ordering.

*These are recommended spare parts and are stocked as repair kits.

3" PISTON BALANCED METERING VALVE STEEL



THRU VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	VALVE	MAX W.P.	REPAIR KIT
EGL	3" FLGD.	3150 FMVT PB 600 RF	1480	RSO
EGM	3" FLGD.	3150 FMVT PB 600 RTJ	1480	RSO

NOTES:

All standard Metering Valves have a Cat. No. seats, stems, cages, stuffing boxes and valve bodies are available in 316 stainless steel upon special request. Inner valves can be made from a wide selection of materials. Specify when ordering.

Flanged bodies are available. All bodies are available with a 1/4" NPT tapped hole upstream and downstream. Specify when ordering.

*These are recommended spare parts and are stocked as repair kits.

NOTES:



Kimray is an ISO 9001- certified manufacturer.

APPLICATIONS:

For the discharge of liquid from vessels where freezing may occur due to high pressure drop. The inner valve is located to utilize vessel heat to help prevent freezing.

Recommended for use as a pressure opening valve only in non-freeze applications. Excessive diaphragm pressure would be required for pressure closing service.

The -65 allows a wider spring adjustment range for the discharge of liquid from vessels where freezing may occur due to high pressure drop.

FEATURES:

- Compact design
- Carboloy valve plug
- O Ring sealed seat
- Valve travel indicator
- Teflon packed stuffing box
- Can be used as a standard 1" angle valve by reversing the direction of flow.
- Easy removal of seat
- 1" NPT inlet and outlet
- 2" NPT vessel mounting

TOPWORKS:

Standard topworks have an effective diaphragm area of approximately 30 square inches.

-65 Topworks have an effective diaphragm area of approximately 65 square inches.

SPRINGS:

Standard SMS is furnished with a spring designed for 30 psig diaphragm pressure.

-65 SMS is furnished with a spring designed for 10 to 30 psig diaphragm pressure.

Top adjusting screw may be adjusted to vary spring tension slightly; This affects pressure required to actuate valve.

STEM TRAVEL:

- SMS - 1/2" maximum
- 65 SMS - 3/4" maximum

CAPACITIES:

Refer to Table of Contents.

STEM TRAVEL:

- SMS - 1/2" maximum
- 65 SMS - 3/4" maximum

ACTUATOR WORKING PRESSURE:

- 30 psig normal
- 45 psig maximum

WORKING PRESSURE:

- 4000 psig maximum

MAXIMUM PRESSURE DROP:

- SMS - 1/4" - 2000 psig maximum
- 3/8" - 800 psig maximum
- 1/2" - 450 psig maximum
- 65 SMS - 1/4", 3/8" and 1/2" - 4000 psig maximum

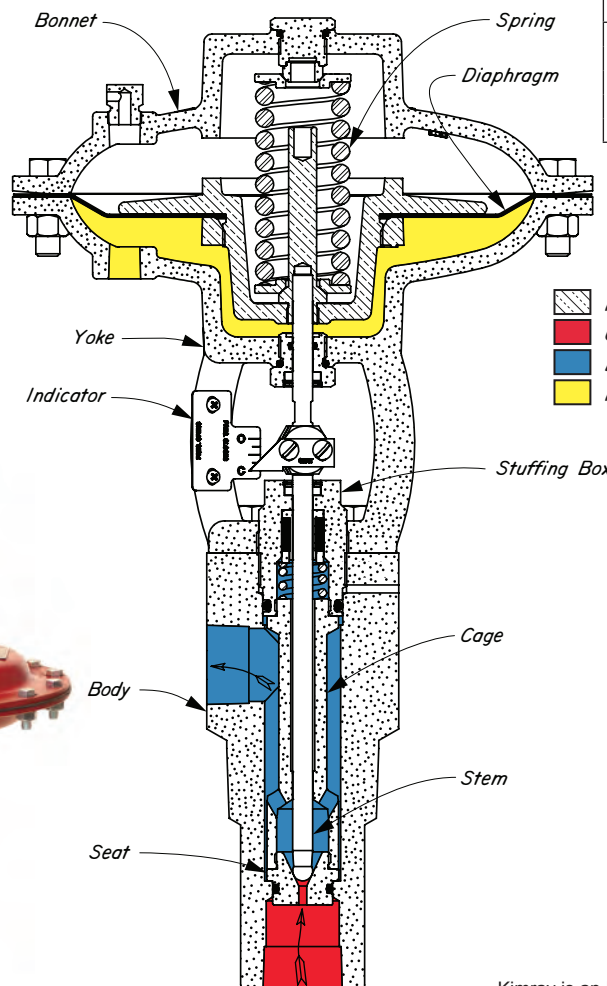
INNER VALVE SIZES:

- 1/4", 3/8" and 1/2"

INNER VALVE SPECIFICATIONS:

Standard valve plugs consist of a carbide ball rigidly connected to a 303 stainless steel stem. Standard seats are made of heat treated tool steel.

Inner valves can be made from a wide selection of materials. Specify when ordering.



Cf & Cv VALUES				
Line Size	Trim Type	Trim Size	Cf	Cv
1"	Carbide	1/4"	0.76	1.85
		3/8"	0.71	4.15
	Nominal	1/4"	0.72	2.11
		3/8"	0.74	3.96
		1/2"	0.77	6.34

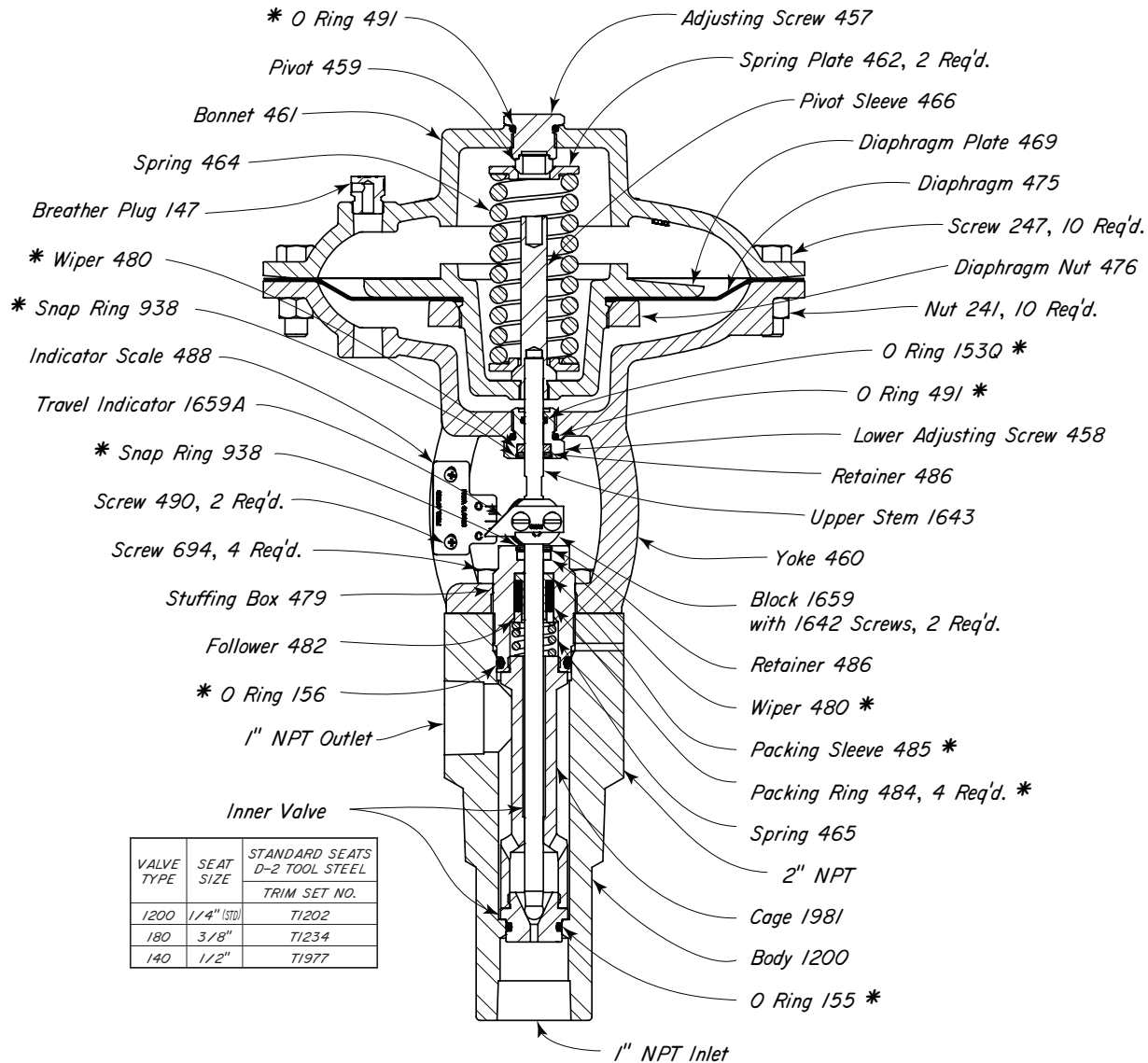


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HIGH PRESSURE CONTROL VALVES

KIMRAY INC.®

NON-FREEZE DUMP VALVE STEEL BODY DUCTILE TOPWORKS



THRU VALVES AVAILABLE:

CAT. NO.	INNER VALVE	VALVE	PRES. DROP	MAX W.P.	KIT
EBA	1/4"	1200 SMS PO 1/4 IV	2000	4000	RFA
EBB	3/8"	180 SMS PO 3/8 IV	800	4000	RFA
EBF	1/2"	140 SMS PO 1/2 IV	450	4000	RFA

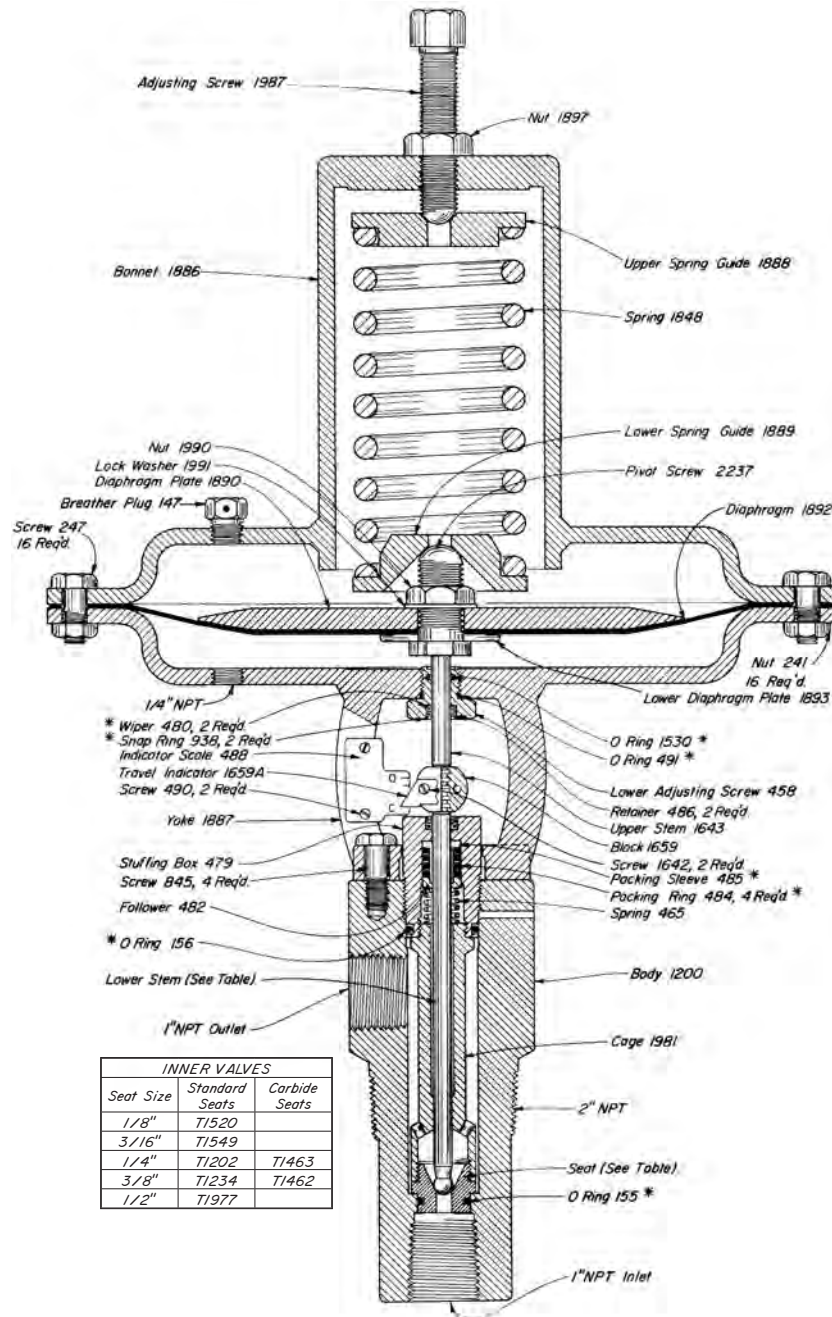
NOTES:

For dimensions refer to Table of Contents.

*These are recommended spare parts and are stocked as repair kits.

All standard SMS's have a Cat. No. Seats, stems, cages, stuffing boxes and valve bodies are available in 316 stainless steel. Inner valves can be made from a wide selection of materials. Specify when ordering.

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THRU VALVES AVAILABLE:

CAT. NO.	INNER VALVE	VALVE	PRES. DROP	MAX W.P.	KIT
EBC	1/4"	1400-65 SMS PO 1/4 IV	4000	4000	RFA
EBD	3/8"	1400-65 SMS PO 3/8 IV	4000	4000	RFA
EBE	1/2"	1400-65 SMS PO 1/2 IV	4000	4000	RFA

NOTES:

For dimensions refer to Table of Contents.

*These are recommended spare parts and are stocked as repair kits. To order repair kits specify: "1" HPCV Repair Kit, RFA."

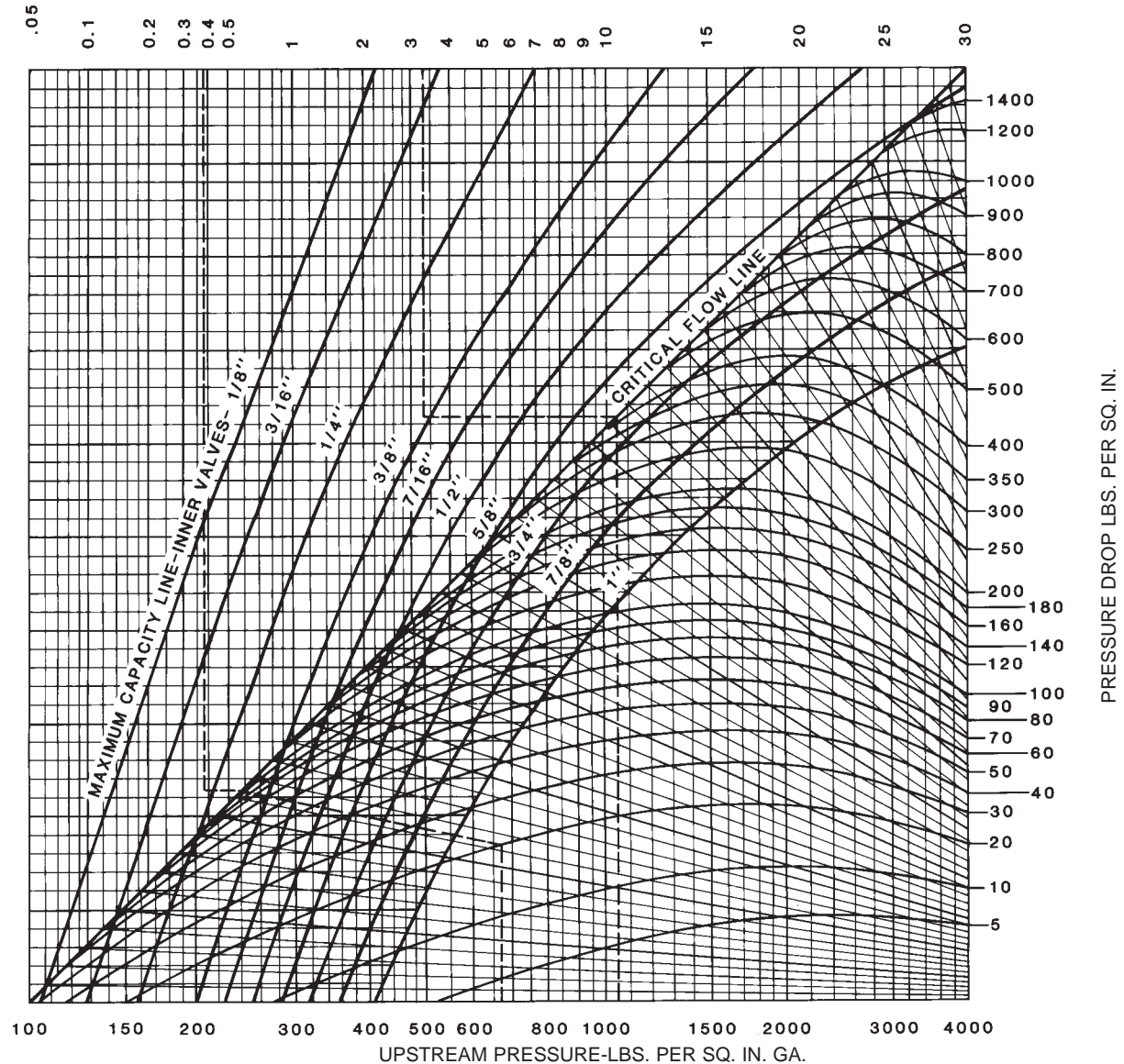
All standard -65 SMS's have a Cat. No. Seats, stems, cages, stuffing boxes and valve bodies are available in 316 stainless steel. Inner valves can be made from a wide selection of materials. Specify when ordering.

NOTES:



Kimray is an ISO 9001- certified manufacturer.

VOLUME-MILLIONS CU. FT. PER 24 HOURS - 65 SP. GR. AT 14.4 & 60°



Gas capacities are based on pressures taken immediately upstream from the valve in a wide open position. Indicated volumes have been corrected for supercompressibility.

HOW TO USE CHART: PRESSURE DROP LESS THAN CRITICAL FLOW with: UPSTREAM PRESSURE 670 pounds gauge; PRESSURE DROP 20 pounds; VOLUME 380,000 Cu. Ft. per 24 hours.

Locate 670 at bottom of chart. Project a vertical line to intersect the 20 pound PRESSURE DROP line, and using sloping GUIDE LINES, project this point to the CRITICAL FLOWLINE. A horizontal line drawn through this point intersects all INNER VALVE lines at the maximum capacity is 0.43 millions of 430,000 Std. Cu. Ft. per 24 hours. A 3/8" is 0.78 and a 1/2" is 1.43. Select the inner valve size for the desired over-capacity.

CRITICAL FLOW with: UPSTREAM PRESSURE 1050 pounds gauge. PRESSURE DROP 600 pounds. VOLUME 3.3 millions per 24 hours.

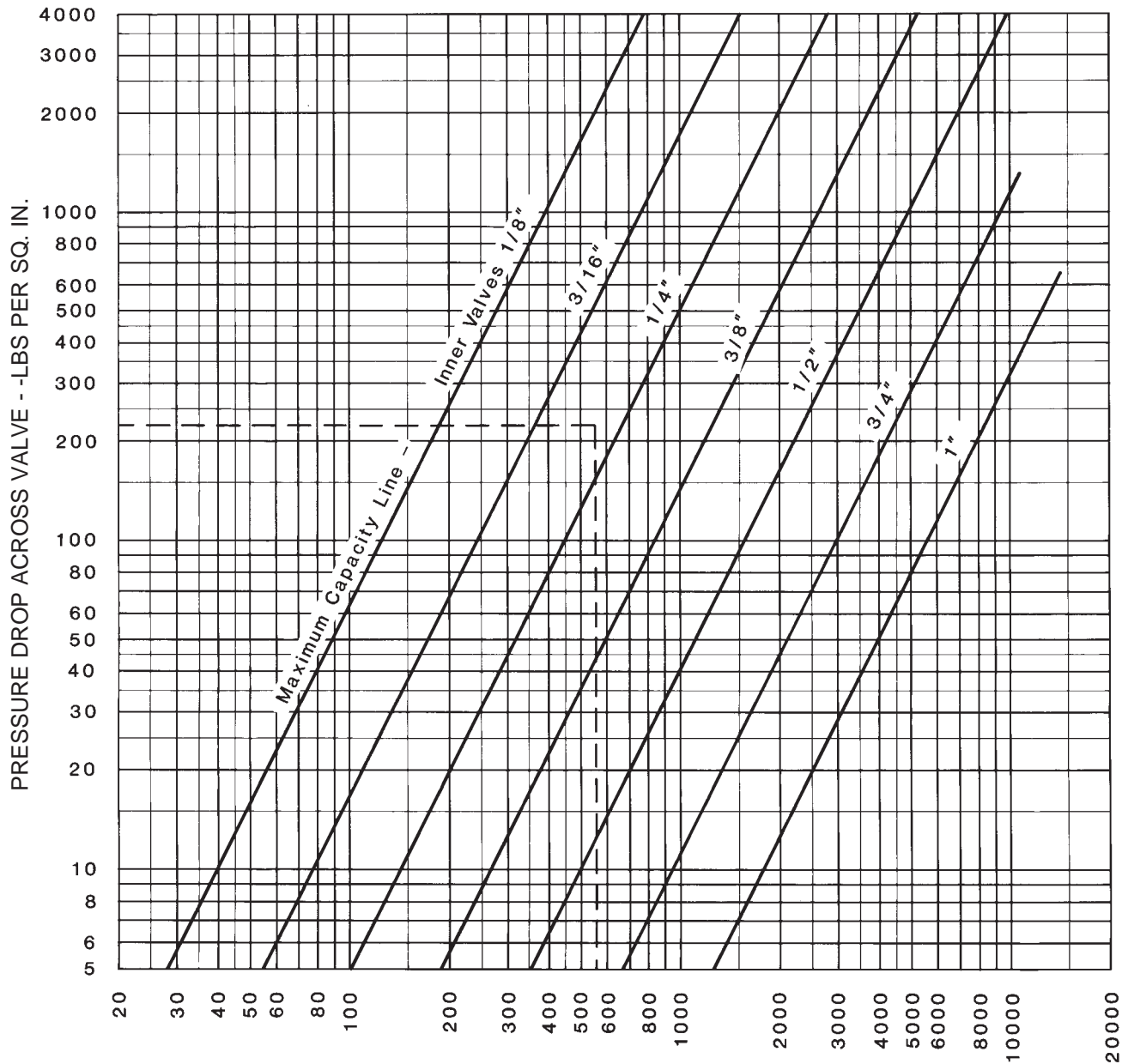
Locate 1050 at bottom of chart. Project a vertical line to intersect the CRITICAL FLOW LINE. A horizontal line drawn through this point intersects all INNER VALVE LINES at the maximum capacity of each for the above conditions. A 3/8" inner valve maximum capacity is 3.4 millions and a 1/2" is 6.4 millions. Select the inner valve size for the desired over-capacity.

*For Gravity correction multiply above capacities by $\sqrt{.65/G}$; where G equals specific gravity of gas.

See Liquid Capacity Chart for maximum pressure drops on large inner valves.

Flow rates are for steady flow conditions over a 24-hour period. Corrections should be made to deal with intermittent flow conditions.

STEADY FLOW RATE - BARRELS WATER PER 24 HOURS



A good rule to follow when sizing liquid valves discharging from any kind of accumulator is to assume a volume at least twice that expected under steady flow conditions.

HOW TO USE CHART: Assume that it is desired to handle 275 barrels of water per day under steady flow conditions with a 225 psig pressure drop across the valve. Using the rule above we will use a volume of 550 barrels. The intersection of the 550 barrel line and the 225 psig pressure drop line lies between the 3/16" and 1/4" inner valve lines. Since the inner valve lines indicated maximum capacities, we must therefore select the 1/4" inner valve size to handle this volume.

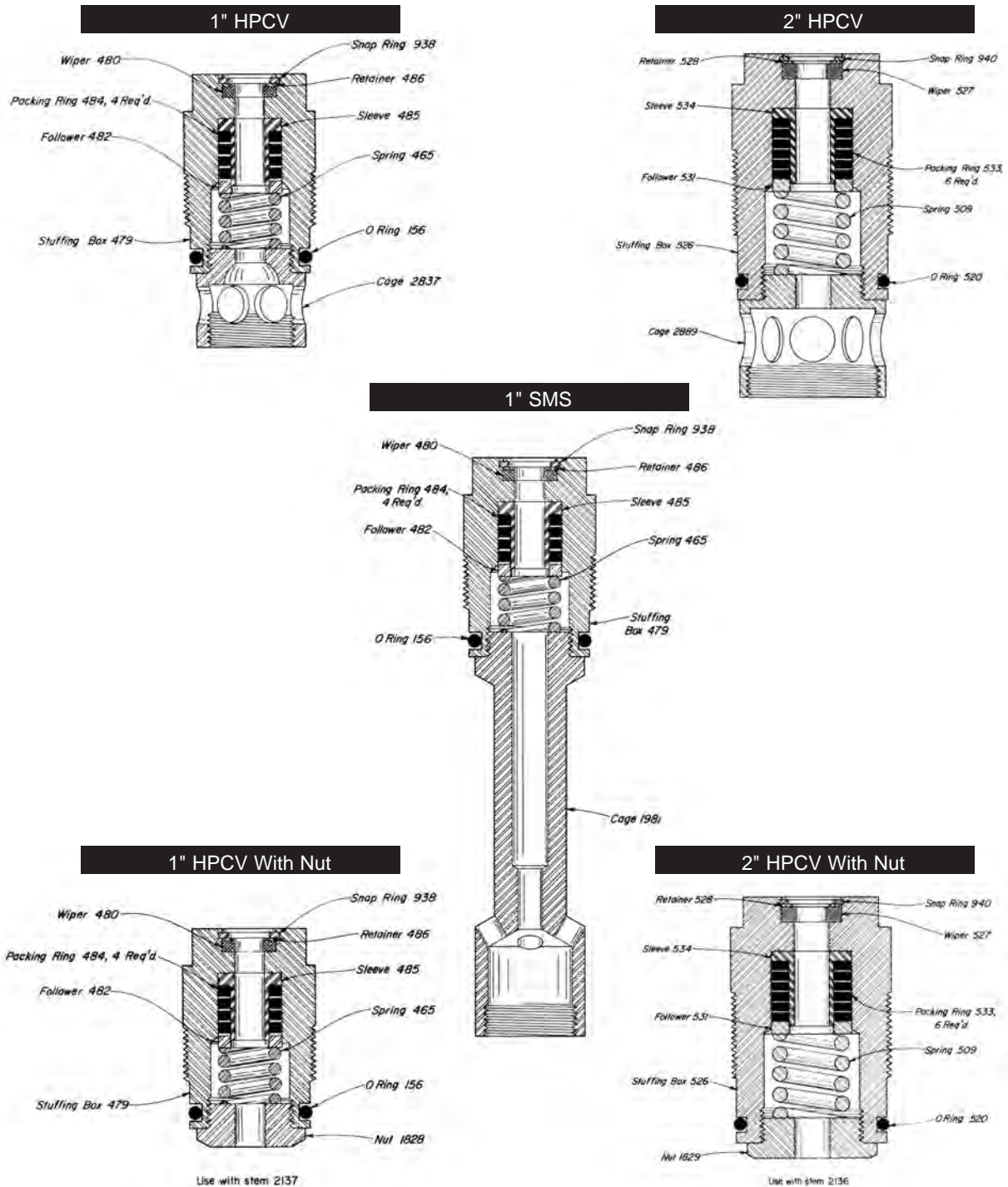
*For gravity correction multiply above capacities by $1/\sqrt{G}$; where G equals specific gravity of flowing liquid.

MAXIMUM PRESSURE DROP for LARGE INNER VALVES

1" CONTROL VALVES			2" CONTROL VALVES		
I.V.	THROTTLE	RELIEF	I.V.	THROTTLE	RELIEF
1/2"	1200	2400	1"	650	1300
3/8"	1850	3700	3/4"	1350	2700

Above values are for valves furnished with standard springs for 20 psig diaphragm pressure.

NOTE: Flow rates are for steady flow conditions over a 24-hour period. Corrections should be made to deal with intermittent flow conditions.



STUFFING BOXES AVAILABLE:

CAT. NO	STUFFING BOXES	MAX W.P.
EAV	SMS VALVES	4000
EAW	1" HPCV	4000
EAX	1" HPCV w/NUT	4000
EBY	2" HPCV	4000
EBZ	2" HPCV w/NUT	4000

Current Revision:
Change Motor valve to Control valve

NOTES:

Stuffing box assemblies are available in 316 stainless steel. Cage 1981 is also available in heat treated tool steel. Specify when ordering.

Kimray is an ISO 9001- certified manufacturer.

VALVE LINE SIZE	INNER VALVE SIZE	MATERIAL	ELASTOMERS	SEAT	RATIO PLUG	CATALOG CODE
2"	2"	D-2 STEEL	BUNA-N	6464	4720	EFB
		D-2 STEEL	AFLAS	6464	4720	EFBAF
		D-2 STEEL	VITON	6464	4720	EFBV
		S6	BUNA-N	6464SS6	4720SS6	EFBSS6
		S6	AFLAS	6464SS6	4720SS6	EFBS6AF
		S6	VITON	6464SS6	4720SS6	EFBS6V
		17-4PH	BUNA-N	6464PH	4720PH	EFBPH
		S6	HSN	6464SS6	4720SS6	EFBS6HSN
		ZIRCONIA	BUNA-N	6464	4720	EFBZR
	2" QUICK OPENING	D-2 STEEL / S6	BUNA-N	6464	6672SS6	EFBQOV
		D-2 STEEL / ZIRCONIA	BUNA-N	6464	6641ZR	EFBQOZR
	1 1/2"	D-2 STEEL	BUNA-N	6464	4927	EFR
		S6	BUNA-N	6464SS6	4927SS6	EFRSS6
		S6	AFLAS	6464SS6	4927SS6	EFRS6AF
		S6	HSN	6464SS6	4927SS6	EFRS6HSN
		ZIRCONIA	BUNA-N	6464	4927	EFRZR
3"	3"	D-2 STEEL	BUNA-N	6465	4985	EFC
		S6	BUNA-N	6465SS6	4985SS6	EFCSS6
		S6	VITON	6465SS6	4985SS6	EFCSS6V
		17-4PH	BUNA-N	6465PH	4985PH	EFCPH
		S6	AFLAS	6465SS6	4985SS6	EFCSS6AF
		S6	HSN	6465SS6	4985SS6	EFCSS6HSN
		D-2 STEEL	VITON	6465	4985	EFCV
		ZIRCONIA	BUNA-N	6465	4985	EFCZR
	3" QUICK OPENING	17-4PH / D2	BUNA-N	6465PH	7094	EFCQOPH
		D-2 STEEL	BUNA-N	6465	5123	EHZ
	2"	D-2 STEEL	VITON	6465	5123	EHZV
		S6	BUNA-N	6465SS6	5123SS6	EHZS6
		S6	HSN	6465SS6	5123SS6	EHZS6HSN
		S6	VITON	6465SS6	5123SS6	EHZS6V
		D-2 STEEL	BUNA-N	5583	5139	EFF
4"	4"	D-2 STEEL	VITON	5583	5139	EFFV
		S6	BUNA-N	5583SS6	5139SS6	EFFSS6
		S6	VITON	5583SS6	5139SS6	EFFS6V
		S6	HSN	5583SS6	5139SS6	EFFS6HSN
		ZIRCONIA	BUNA-N	5583	5139	EFFZR
	3"	D-2 STEEL	BUNA-N	5583	5255	EVK
		D-2 STEEL	VITON	5583	5255	EVKV
		S6	BUNA-N	5583SS6	5255SS6	EVKSS6
		S6	VITON	5583SS6	5255SS6	EVKSS6V
		D-2 STEEL	BUNA-N	5375SS6	5313	EFQ
6"	6"	S6	BUNA-N	5375SS6	5313	EFQS6
		S6	AFLAS	5375SS6	5313SS6	EFQS6AF
		S6	VITON	5375SS6	5313SS6	EFQS6V
	4"	S6 / D-2 STEEL	BUNA-N	5375SS6	6425	MGE
		S6 / D-2 STEEL	AFLAS	5375SS6	6425	MGEAF
		S6 / D-2 STEEL	HSN	5375SS6	6425	MGEHSN
		S6 / D-2 STEEL	VITON	5375SS6	6425	MGEV
		S6	BUNA-N	5375SS6	6425SS6	MGES6
		S6	AFLAS	5375SS6	6425SS6	MGES6AF
		S6	VITON	5375SS6	6425SS6	MGES6V
8" & 10"	8"	S6 / D-2 STEEL	BUNA-N	6570S6	6609	EIC
		S6	BUNA-N	6570S6	6609SS6	EICS6
		S6	HSN	6570S6	6609SS6	EICS6HSN
	6"	S6 / D-2 STEEL	BUNA-N	6570S6	6647	MGI
		S6	BUNA-N	6570S6	6647SS6	MGIS6
		S6	HSN	6570S6	6647SS6	HGIS6HSN
		S6	VITON	6570S6	6647SS6	HGIS6V

Kimray is an ISO 9001- certified manufacturer.

VALVE	FLOW CHARACTERISTIC	MATERIAL	INNER VALVE SIZE				
			1/8"	3/16"	1/4"	3/8"	1/2"
1" SMA & 1" SMT	LINEAR FLOW	TOOL STEEL ^{*a}	T2842	T2841	T2840	T2838	T2839
		17-4PH ^d			T2840PH	T2838PH	T2839PH
		316SS ^c	T2842SS6	T2841SS6	T2840SS6	T2838SS6	T2839SS6
	SNAP	CARB. INSERT	T2856	T2855	T2854	T2853	T5307
		17-4PH ^d	T2856PH				
	EQUAL PERCENTAGE	TOOL STEEL [*]	T6400		T4730 ^a		T4732 ^a
		316SS ^c	T6400SS6		T4730SS6		T4732SS6
		ZIRCONIA			T4730ZR		T4732ZR
1" SMS	LINEAR FLOW	TOOL STEEL ^{*a}			T1202	T1234	T1977
		316SS ^c			T1202SS6	T1234SS6	T1977SS6
	SNAP	CARB. INSERT ^a			T1463	T1462	T5325
	EQUAL PERCENTAGE	TOOL STEEL ^{*a}			T4730MV		T4732MV
		316SS ^c			T4730SS6MV		T4732SS6MV
		ZIRCONIA			T4730ZRMV		T4732ZRMV
VALVE	FLOW CHARACTERISTIC	MATERIAL	INNER VALVE SIZE				
			1/4"	3/8"	1/2"	3/4"	1"
2" SMA & 2" SMT	LINEAR FLOW	TOOL STEEL [*]	T2895 ^a	T2896 ^a	T2897 ^a	T2898 ^b	T2899 ^b
		17-4PH ^d		T2896PH	T2897PH		
		316SS ^c		T2896SS6	T2897SS6	T2898SS6	T2899SS6
		ZIRCONIA					T2899ZR
	SNAP	CARB INSERT	T2890	T2891	T2892	T4690	T4691
		ZIRCONIA		T2891ZR		T4690ZR	
VALVE	FLOW CHARACTERISTIC	MATERIAL	INNER VALVE SIZES				
			1/4"	7/16"	5/8"	7/8"	1"
2" SMA & 2" SMT	EQUAL PERCENTAGE	TOOL STEEL [*]	T6404	T2993 ^a	T2992 ^b	T2947 ^b	
		17-4PH ^d	T6404PH			T2947PH	
		316SS ^c	T6404SS6	T2993SS6	T2992SS6	T2947SS6	
		ZIRCONIA		T2993ZR	T2992ZR	T2947ZR	
2" MV	EQUAL PERCENTAGE	TOOL STEEL ^{*a}	T6404MV	T2993MV	T2992MV	T2947MV	
		17-4PH ^d				T2947PHMV	
		316SS ^c	T6404S6MV	T2993S6MV	T2992S6MV	T2947S6MV	
		ZIRCONIA		T2993ZRMV	T2992ZRMV	T2947ZRMV	

^aCarbide ball rigidly connected to a 303SS stem

^bHardened high chrome alloy ball connected to a 303SS stem

^cOne piece 316SS steel stem

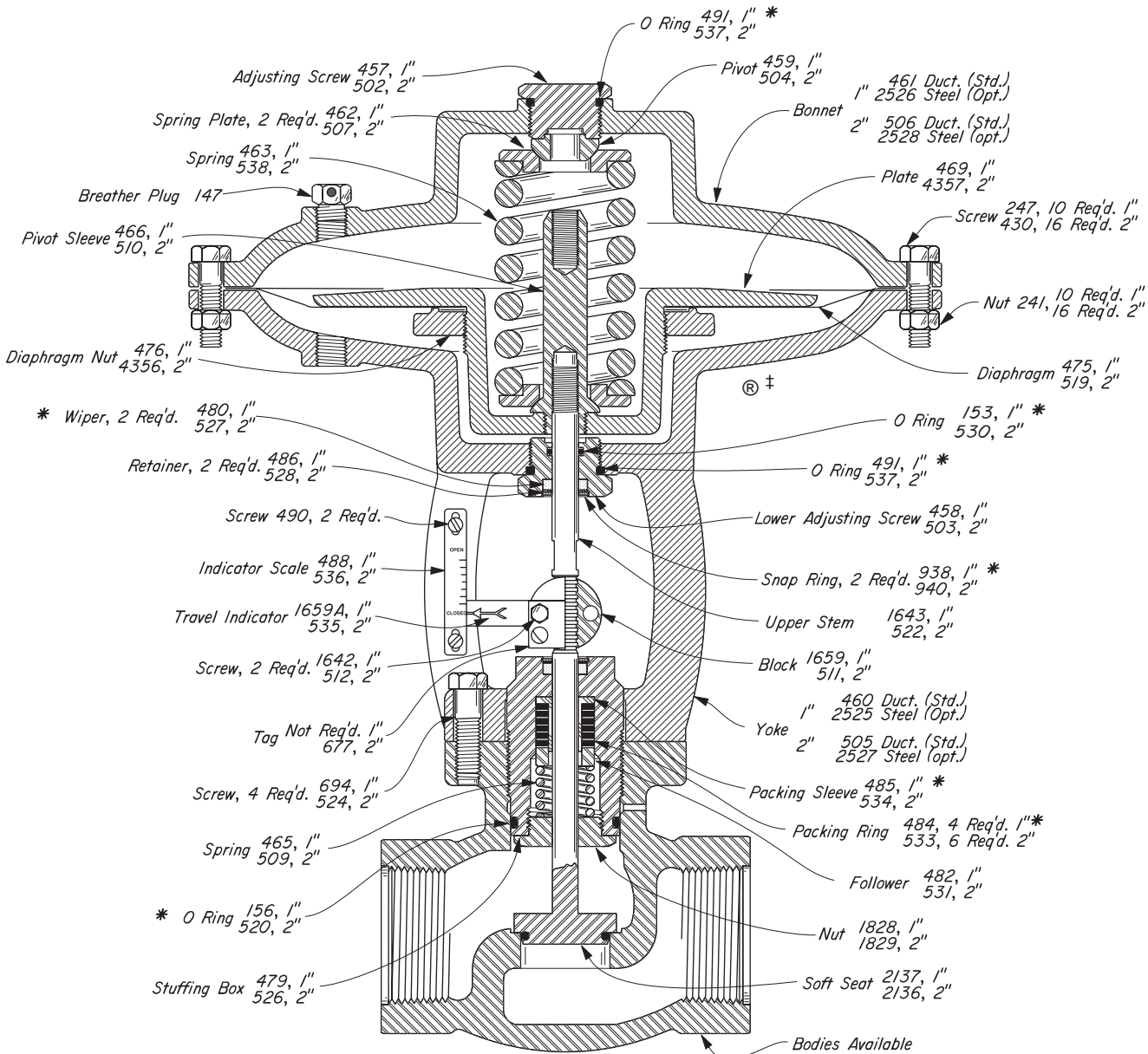
^dOne piece 17-4 PH SS steel stem

^{*}Seat and Plug furnished with Standard HPCV

HIGH PRESSURE CONTROL VALVES

KIMRAY INC.®

1" & 2" HPCV OVERSIZED SOFT SEATS
STEEL BODY DUCTILE TOPWORKS



BODY TYPE	SCREWED		
	SIZE	BODY	W.P.
THRU	1"	452	4000 lbs.
	2"	493	2000 lbs.
ANGLE	1"	453	4000 lbs.

THRU VALVES AVAILABLE:

CAT. NO.	INNER VALVE	VALVE	PRES. DROP.	MAX W.P.	KIT
EBK	1"	1400 SMT PO 1 IV	300	4000	RFA
EAD	1"	1400 SMA PO 1 IV	300	4000	RFA
EFS	1-1/2"	2200 SMT PO 1-1/2 IV	300	2000	RFE

Flanged bodies are available. Specify when ordering.
For dimensions refer to Table of Contents. Flanged dimensions available on request.

*These are recommended spare parts and are stocked as repair kits.

APPLICATIONS:

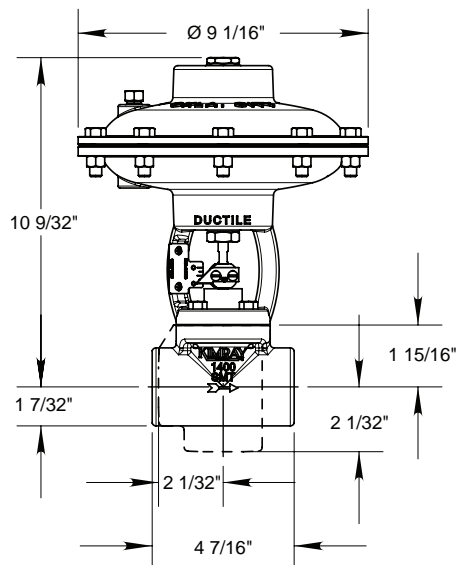
For increased flow at low operating pressure. Maximum pressure drop is 300 psig For on - off service only.

FEATURES:

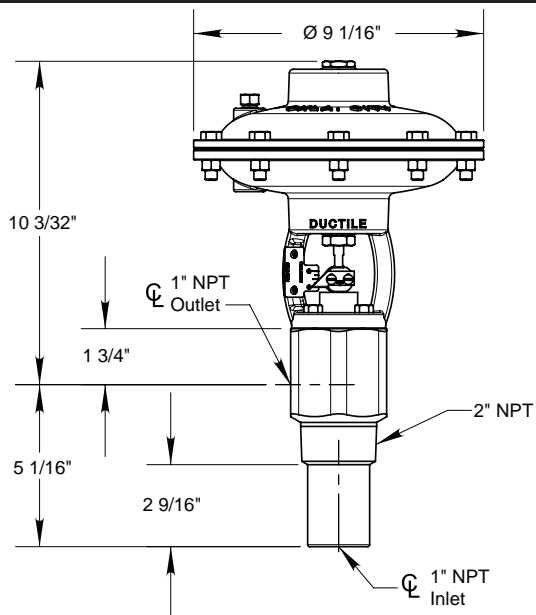
Increased capacity
Uses standard valve body
Teflon seal

Kimray is an ISO 9001- certified manufacturer.

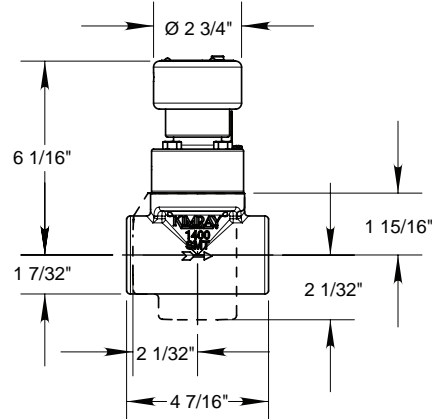
1" HPCV



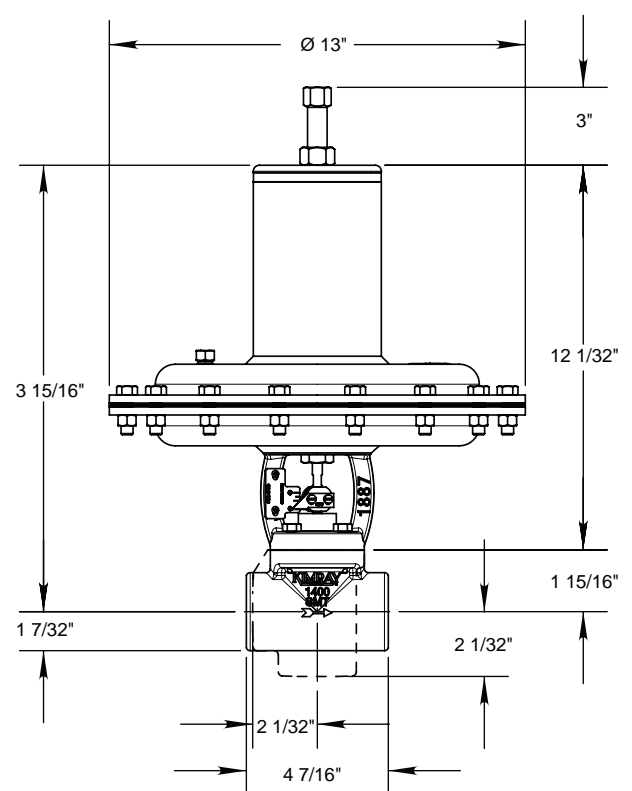
1" SMS



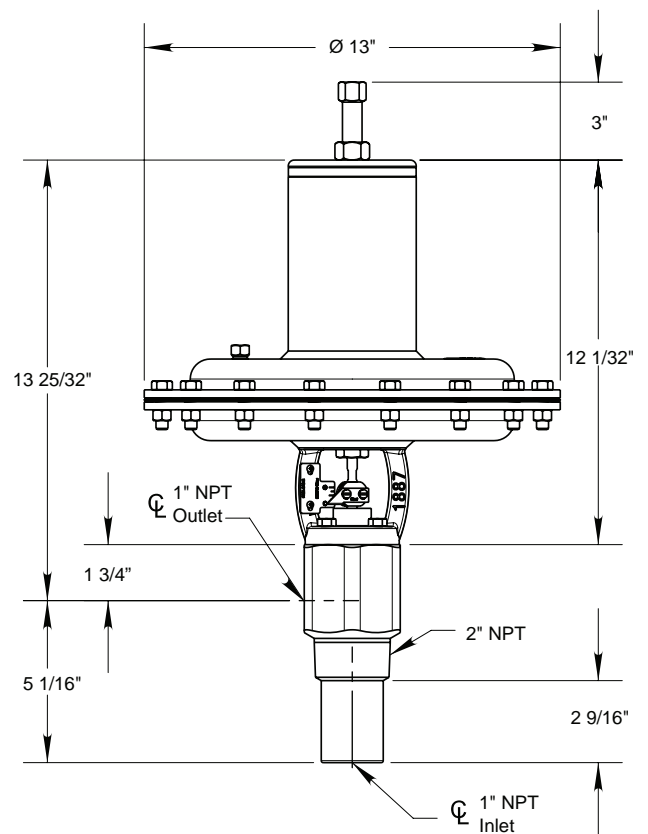
1" SMVA/T



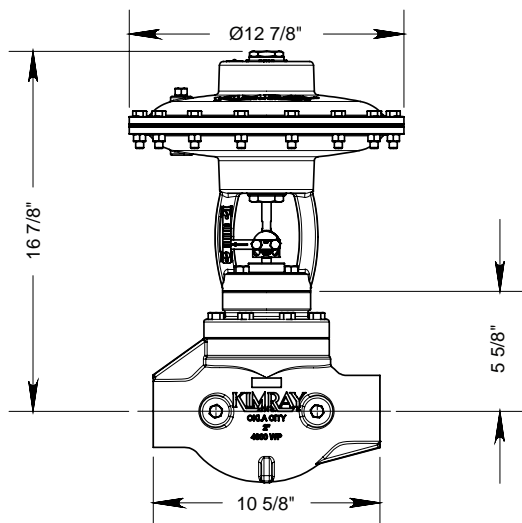
1" HPCV -65 TOPWORKS



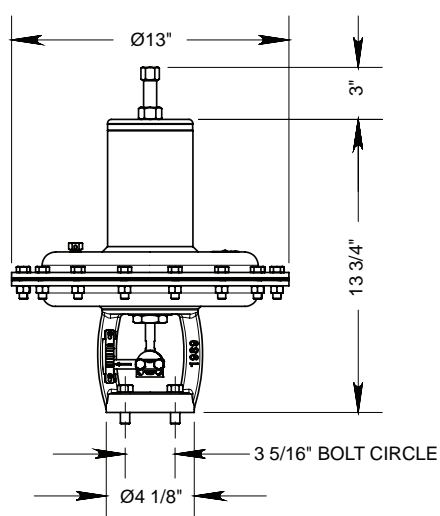
1" SMS -65 TOPWORKS



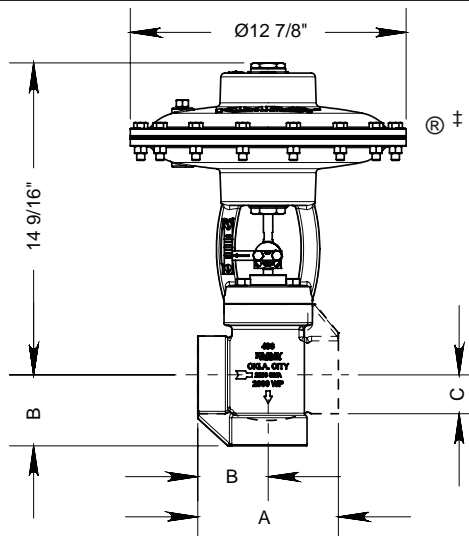
2" HPCV PB



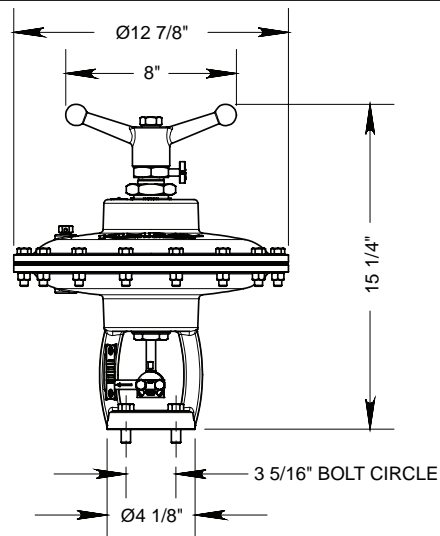
2" -65 TOPWORKS



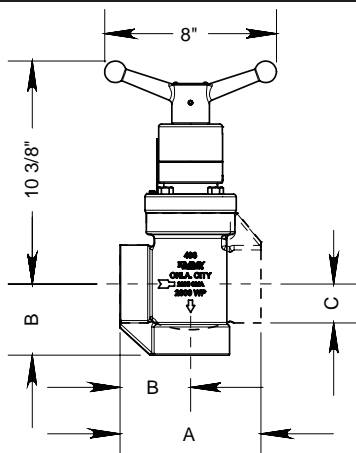
2" HPCV



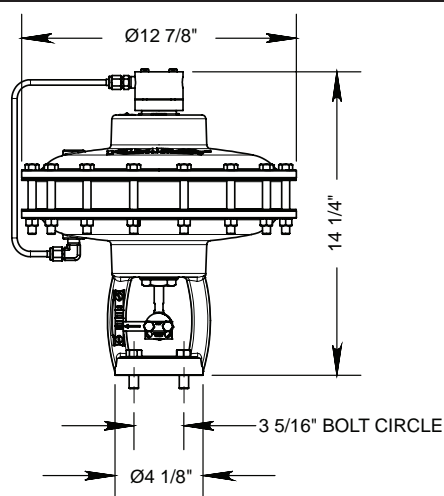
2" MVP TOPWORKS



2" SMVA/T TOPWORKS

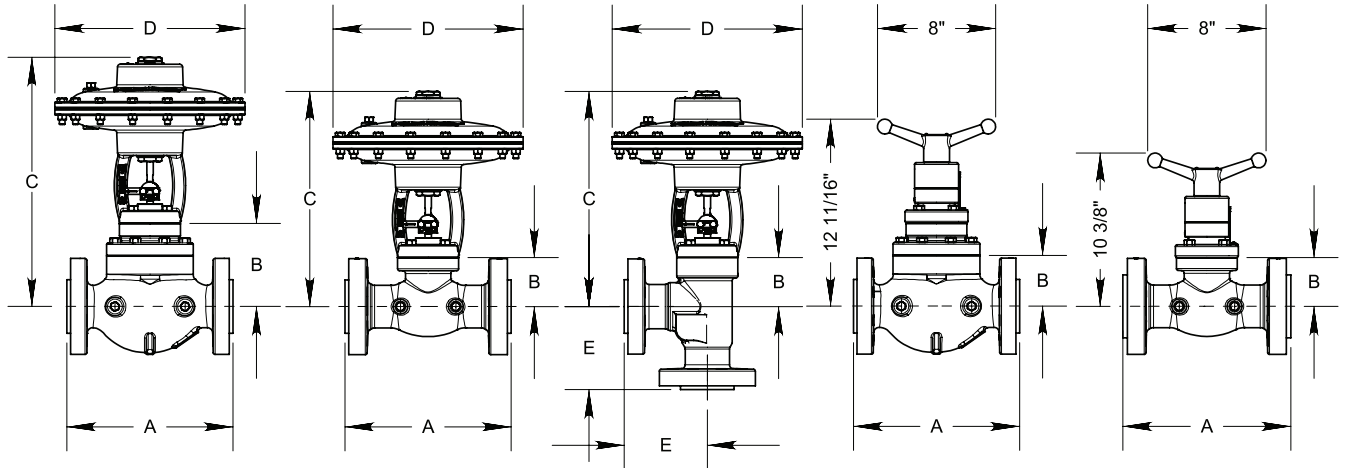


2" PVP TOPWORKS



MODEL NO.	A	B	C
2200	6 9/16"	3 1/4"	2 1/8"
2400	6 7/8"	3 15/32"	2 1/4"

All dimensions are in inches
Flanged body dimensions available on request.



	SIZE	BODY STYLE	A	B	C	D	E
STANDARD	1"	150RF	7 1/4"	1 15/16"	10 1/2"	9 1/8"	
		150RTJ	7 5/8"	1 15/16"	10 1/2"	9 1/8"	
		300RF	7 3/4"	1 15/16"	10 1/2"	9 1/8"	
		300RTJ	8 1/8"	1 15/16"	10 1/2"	9 1/8"	
		600RF	8 1/4"	1 15/16"	10 1/2"	9 1/8"	
		600RTJ	8 1/4"	1 15/16"	10 1/2"	9 1/8"	
		1500RF	10 3/4"	1 15/16"	10 1/2"	9 1/8"	
		1500RTJ	10 3/4"	1 15/16"	10 1/2"	9 1/8"	
	2"	150RF	10"	3 3/16"	14 1/2"	12 7/8"	5"
		150RTJ	10 3/8"	3 3/16"	14 1/2"	12 7/8"	5"
		300RF	10 1/2"	3 3/16"	14 1/2"	12 7/8"	5 1/2"
		300RTJ	11"	3 3/16"	14 1/2"	12 7/8"	5 1/4"
		600RF	11 1/4"	3 3/16"	14 1/2"	12 7/8"	5 5/8"
		600RTJ	11 3/8"	3 3/16"	14 1/2"	12 7/8"	5 5/8"
		1500RF	13 3/8"	3 3/16"	14 1/2"	12 7/8"	7 13/32"
		1500RTJ	13 1/2"	3 3/16"	14 1/2"	12 7/8"	7 13/32"
		2500RTJ	16 3/8"	3 3/16"	14 1/2"	12 7/8"	
PISTON BALANCED	2"	150RF	10"	5 5/8"	17"	12 7/8"	
		300RF	10 1/2"	5 5/8"	17"	12 7/8"	
		600RF	11 1/4"	5 5/8"	17"	12 7/8"	
		1500RF	13 3/8"	5 5/8"	17"	12 7/8"	
		1500RTJ	13 1/2"	5 5/8"	17"	12 7/8"	
	3"	150RF	11 3/4"	7 1/4"	27"	15 3/4"	
		300RF	12 1/2"	7 1/4"	27"	15 3/4"	
		600RF	13 1/4"	7 1/4"	27"	15 3/4"	
		600RTJ	13 3/8"	7 1/4"	27"	15 3/4"	
	4"	150RF	13 7/8"	11"	30"	15 3/4"	
		300RF	14 1/2"	11"	30"	15 3/4"	
		600RF	15 1/2"	11"	30"	15 3/4"	
	6"	150RF	17 3/4"	11 3/16"	34 1/2"	20 7/16"	
		300RF	18 5/8"	11 3/16"	34 1/2"	20 7/16"	
		600RF	20 1/16"	11 3/16"	34 1/2"	20 7/16"	
	8"	150RF	21 3/8"	11 5/16"	34 1/2"	20 1/2"	
		300RF	22 3/8"	11 5/16"	34 1/2"	20 1/2"	
		600RF	24"	11 5/16"	34 1/2"	20 1/2"	
	10"	150RF	26 1/2"	11 5/16"	34 1/2"	20 1/2"	
		300RF	27 7/8"	11 5/16"	34 1/2"	20 1/2"	
		600RF	29 9/16"	11 5/16"	34 1/2"	20 1/2"	
SEVERE SERVICE	3"	1500RF	18 1/8"	8 15/16"	26 13/16"	16 1/4"	
		900RF	17 7/16"	8 15/16"	26 13/16"	16 1/4"	

NOTES:



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