

MOTOR VALVES BALANCED SERIES



SECTION E3

KIMRAY[®]

INC.

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BALANCED MOTOR VALVES

Kimray balanced motor valves are designed to control flow in liquid or gas systems up to 400 psig. Utilizing a 10 to 30 psig. pneumatic actuating signal. These motor valves can be used for oil and water dump valves on high pressure separators, emulsion treaters, and other similar liquid accumulators or metering vessels.

DIAPHRAGM BALANCED

Diaphragm operated motor valves for control of low pressure water or oil in separators, meters, and water knockouts where as little as a 10 psig pneumatic signal is available. Maximum operating pressure: 125 psig.

MA DB PO _____ 10.1
MA DB PC _____ 10.5

PISTON BALANCED

Diaphragm operated motor valves for control of medium pressure water or oil in separators, meters, and water knockouts where as little as a 10 psig. pneumatic signal is available and where freezing occurs due to higher pressure drop. 125, 250, 400 psig. Maximum operating pressures: 125, 250, 400 psig.

MA PB PO _____ 20.1
MA PB PC _____ 20.5

PISTON BALANCED THROTTLING

Diaphragm operated motor valves designed to control flow or pressure in liquid or gas systems up to 400 psig with 15 to 30 psig pneumatic actuating signal. Can be used for oil or water dump valves and for throttling service in back pressure or pressure reducing applications when installed with pressure pilots.

PBT PO _____ 25.1
PBT PC _____ 25.5

CAPACITY CHARTS

LIQUID CAPACITY 30.1

CAGE & HARD SEAT

CAGE & HARD SEAT 40.1

DIMENSIONS

VALVE DIMENSIONS 50.1

OTHER APPLICATIONS

OTHER APPLICATIONS.....60.1
MICROSWITCH Bulletin No. E385224
60 psig WATER VALVES.....Bulletin No. E385225
TREATER SERVICE..... Bulletin No. D84333

ORDERING INFORMATION

To order a standard Balanced Series Motor Valve, refer to Valves Available chart on each parts reference page. Determine which BSMV is needed and order by "Cat. No."

BSMV's are available in a choice of either gray iron, ductile iron, or steel cast bodies and diaphragm housings. Valve stem is a type 303 stainless. Cage and Seat is available with a hardened removable seat.

To order BSMV's with materials or features not listed in "Valves Available" chart, contact the KIMRAY Inc. Authorized Distributor in your area

ELASTOMERS**AFLAS® is a trade mark of Asahi Glass Co****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

APPLICATIONS:

As oil or water valve for separators, meters, water knockouts where a reduced signal pressure is available.

FEATURES:

- Diaphragm balanced single seat.
- 10 psig minimum diaphragm pressure.
- Reinforced oil resistant synthetic rubber diaphragms and seats.
- Easy to service and repair.
- Available for pressure opening or pressure closing service.

CERTIFICATIONS:

Canadian Registration Number (CRN):
 0C15804.24567890NTY (Ductile)
 0C15621.24567890NTY (Steel)

SUPPLY PRESSURE:

10 to 35 psig.





OPERATION TEMPERATURE:

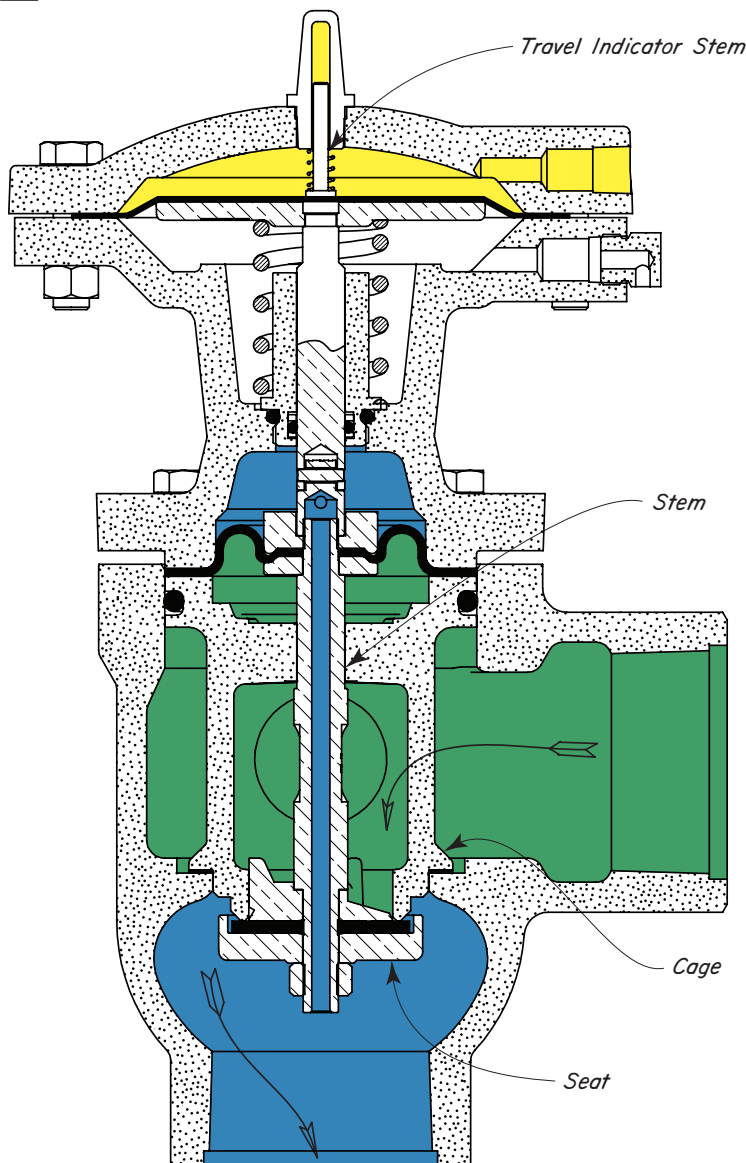
Standard - 225°F. Max.
 Heat Modified - 350°F. Max.

CAPACITY:

Refer to Table of Contents.

Cf & Cv VALUES			
Line Size	Trim Size	Cf	Cv
2"	1.50"	0.79	23.3
3"	2.25"	0.79	43.8
4"	3.00"	0.79	70.1
6"	4.88"	0.79	277.0

-  Stem and Seat Assembly
-  Motor Valve Diaphragm Pressure
-  Upstream Pressure
-  Downstream Pressure

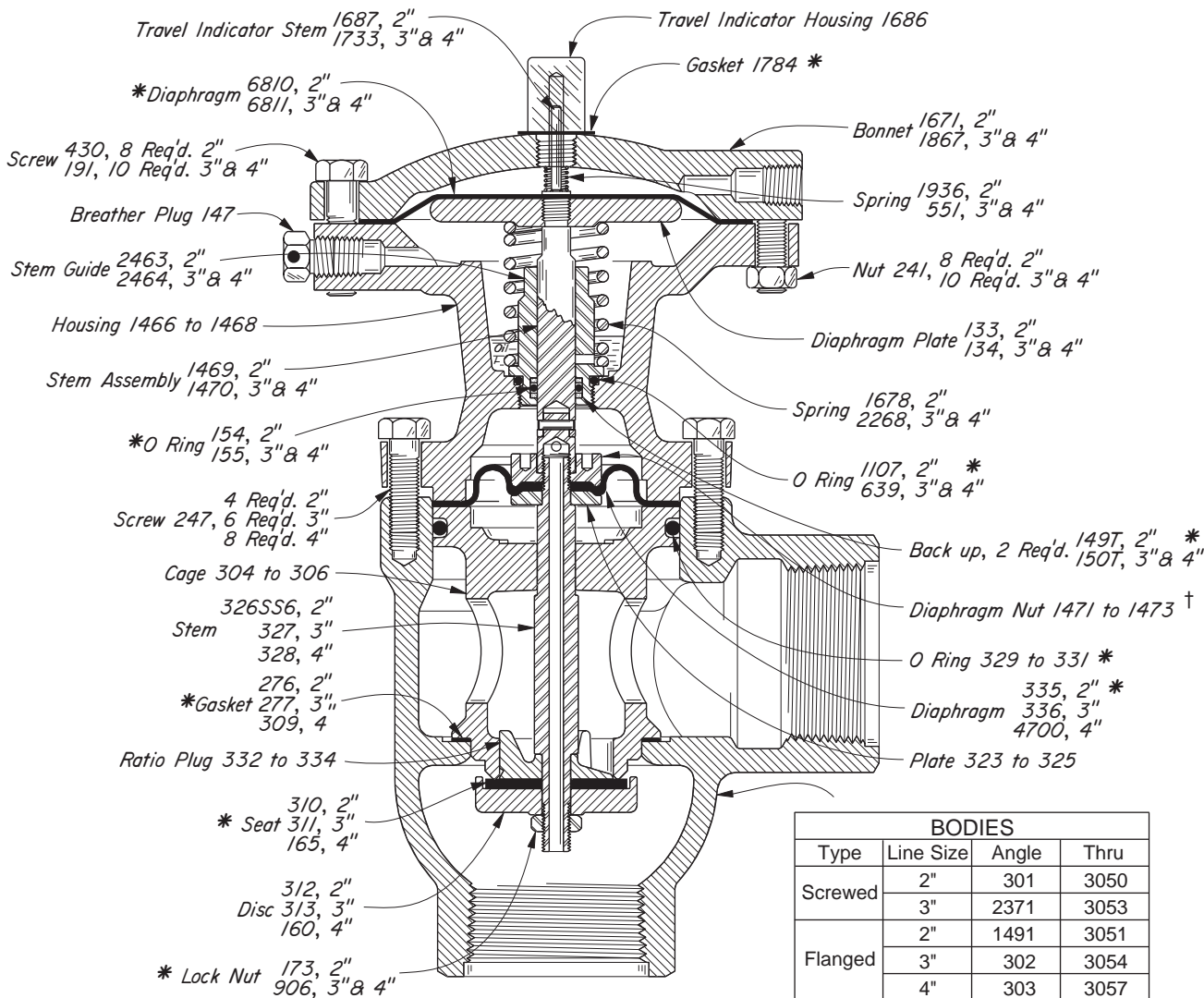


Kimray is an ISO 9001- certified manufacturer.

BALANCED MOTOR VALVES

DIAPHRAGM BALANCED PRESSURE OPEN DUCTILE IRON

KIMRAY INC.®



BODIES			
Type	Line Size	Angle	Thru
Screwed	2"	301	3050
	3"	2371	3053
Flanged	2"	1491	3051
	3"	302	3054
	4"	303	3057
Grooved	3"	2372	-----

ANGLE VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
EJA1	2" SCRD.	212 SMA DB PO w/o TI	125	175	RFL
EJA	2" SCRD.	212 SMA DB PO w/TI	125	175	RFL
EJC	2" FLGD.³	212 FMA DB PO w/TI	125	175	RFL
EJG	3" SCRD.	312 SMA DB PO w/TI	125	175	RFR
EJI	3" FLGD.³	312 FMA DB PO w/TI	125	175	RFR
EJK	3" GRVD.	312 GMA DB PO w/TI	125	175	RFW
EJM	4" FLGD.³	412 FMA DB PO w/TI	125	175	RFW

³Companion flanges, nuts, bolts and gaskets are furnished at extra cost. Refer to Section "Y" for ordering.

†To remove Diaphragm Nut 1471, use Spanner Wrench 1471SNW. To remove Diaphragm Nut 1472, use Spanner Wrench 1472SNW. Spanner Wrench not required, for removal of Diaphragm Nut 1473.

For dimensions refer to Table of Contents.

THRU VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
EWA	2" SCRD.	212 SMT DB PO w/TI	125	175	RFL
EWC	2" FLGD.³	212 FMT DB PO w/TI	125	175	RFL
EWG	3" SCRD.	312 SMT DB PO w/TI	125	175	RFR
EWI	3" FLGD.³	312 FMT DB PO w/TI	125	175	RFR
EWM	4" FLGD.³	412 FMT DB PO w/TI	125	175	RFW

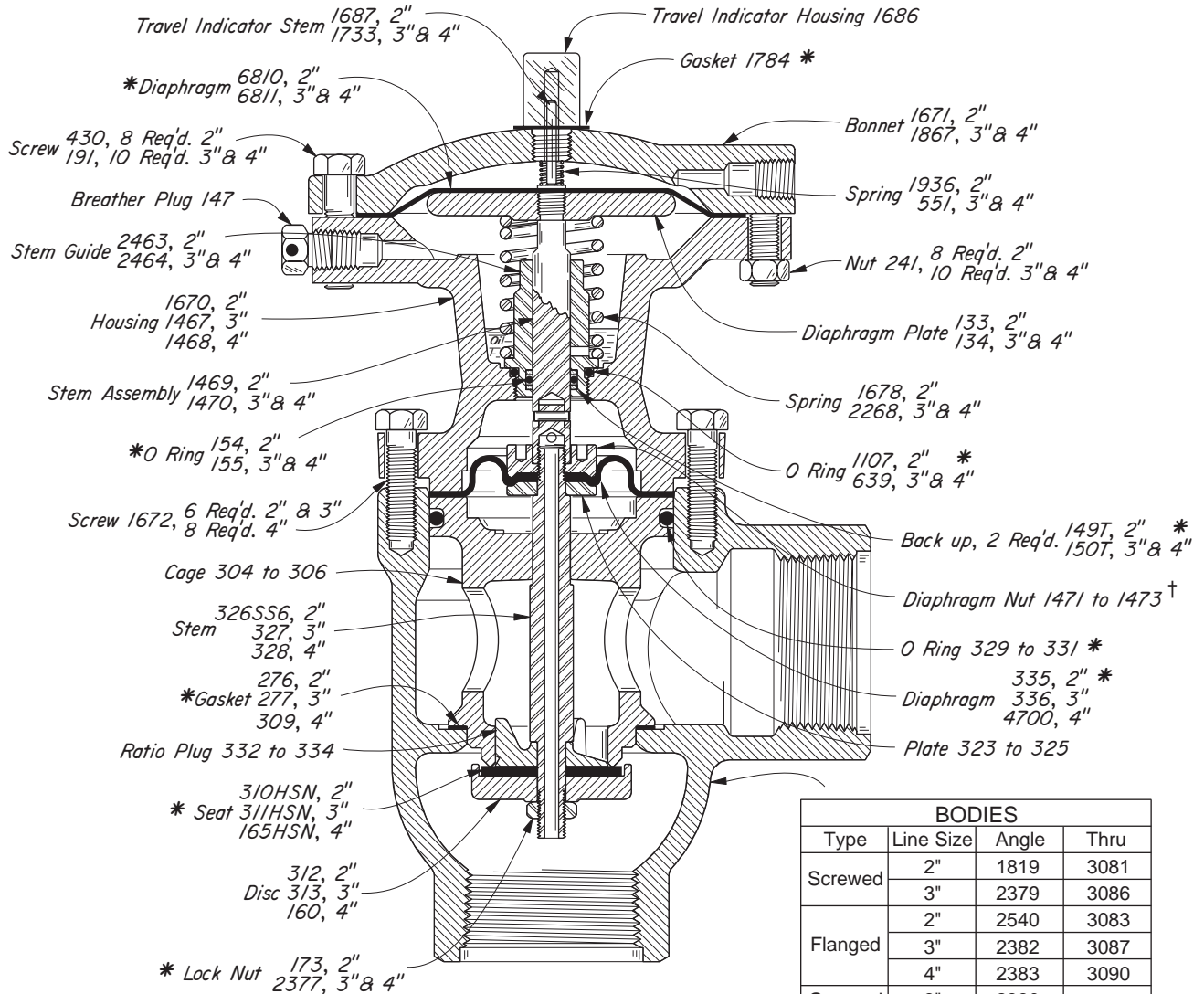
³Companion flanges, nuts, bolts and gaskets are furnished at extra cost. Refer to Section "Y" for ordering.

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

NOTE: Cage and removable hard seat is available on new valves at extra cost. Refer to Table of Contents for Cage and Hard Seats available. When ordering specify valve model, then add "with removable seat" w/TI

Kimray is an ISO 9001- certified manufacturer.

DIAPHRAGM BALANCED PRESSURE OPEN DUCTILE IRON



BODIES			
Type	Line Size	Angle	Thru
Screwed	2"	1819	3081
	3"	2379	3086
Flanged	2"	2540	3083
	3"	2382	3087
	4"	2383	3090
Grooved	3"	2380	-----

ANGLE VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
EKI	2" SCRD.	212 SMA DB PO-D w/TI	125	400	RFL
EKK	2" FLGD.	212 FMA DB PO-D w/TI	125	250	RFL
EKO	3" SCRD.	312 SMA DB PO-D w/TI	125	250	RFR
EKQ	3" FLGD.	312 FMA DB PO-D w/TI	125	250	RFR
EKS	3" GRVD.	312 GMA DB PO-D w/TI	125	250	RFR
EKU	4" FLGD.	412 FMA DB PO-D w/TI	125	250	RFW

†To remove Diaphragm Nut 1471, use Spanner Wrench 1471SNW. To remove Diaphragm Nut 1472, use Spanner Wrench 1472SNW. Spanner Wrench not required, for removal of Diaphragm Nut 1473.

For dimensions refer to Table of Contents.

THRU VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
EXI	2" SCRD.	212 SMT DB PO-D w/TI	125	400	RFL
EXK	2" FLGD.	212 FMT DB PO-D w/TI	125	250	RFL
EXO	3" SCRD.	312 SMT DB PO-D w/TI	125	250	RFR
EXQ	3" FLGD.	312 FMT DB PO-D w/TI	125	250	RFR
EXU	4" FLGD.	412 FMT DB PO-D w/TI	125	250	RFW

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

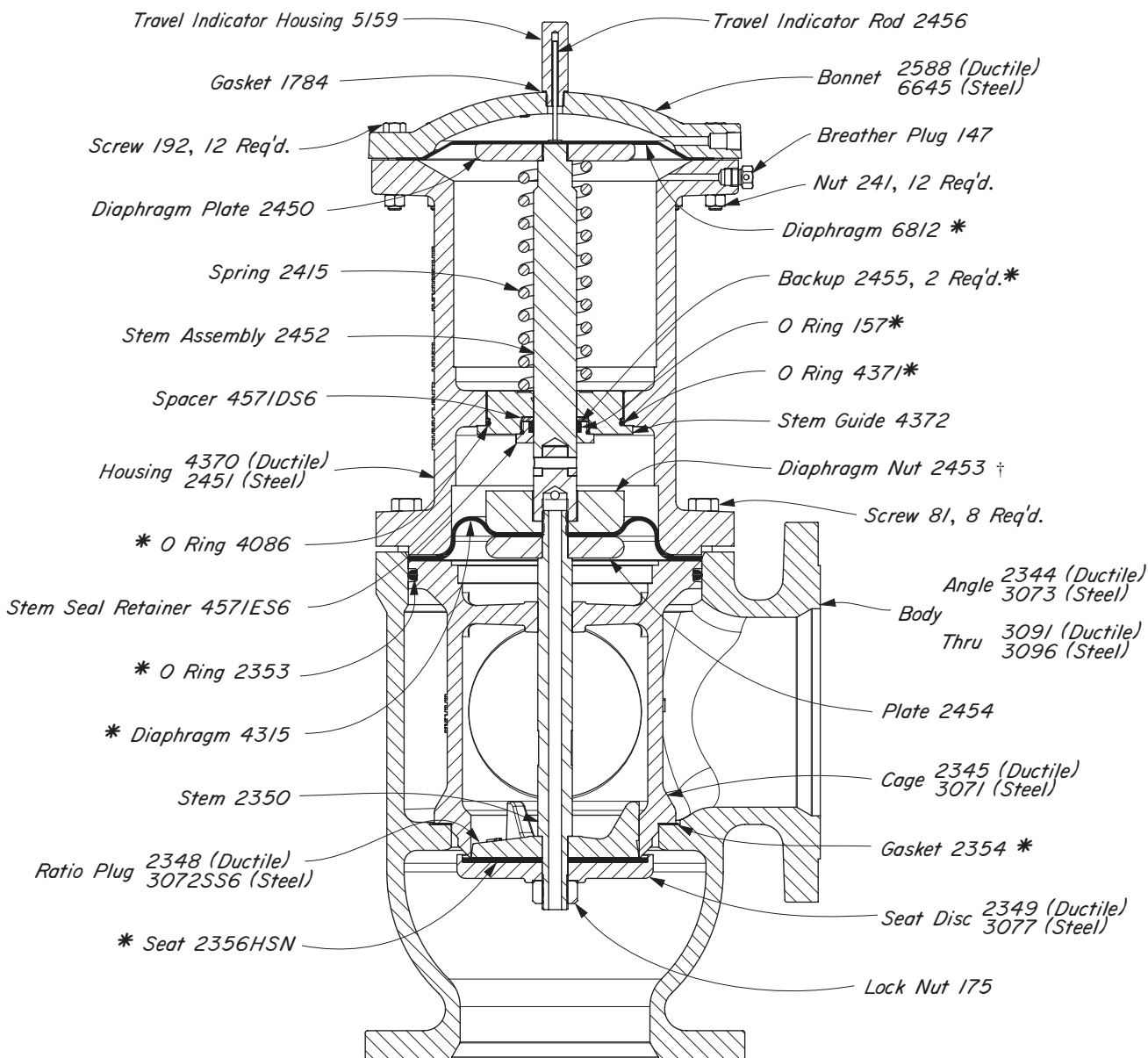
NOTE: Cage and removable hard seat is available on new valves at extra cost. Refer to Table of Contents for Cage and Hard Seats available. When ordering specify valve model, then add "with removable seat."

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BALANCED MOTOR VALVES

DIAPHRAGM BALANCED PRESSURE OPEN
DUCTILE IRON, STEEL

KIMRAY[®]



ANGLE VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
EKX	6" FLGD.	612 FMA DB PO-D w/TI	125	250	RGB
EKY	6" FLGD.	612 FMA DB PO-S w/TI	125	250	RGB
EXX	6" FLGD.	612 FMT DB PO-D w/TI	125	250	RGB
EXY	6" FLGD.	612 FMT DB PO-S w/TI	125	250	RGB

THRU VALVES AVAILABLE

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
EKX	6" FLGD.	612 FMA DB PO-D w/TI	125	250	RGB
EKY	6" FLGD.	612 FMA DB PO-S w/TI	125	250	RGB
EXX	6" FLGD.	612 FMT DB PO-D w/TI	125	250	RGB
EXY	6" FLGD.	612 FMT DB PO-S w/TI	125	250	RGB

†To remove Diaphragm Nut 2453, use Seat Wrench 706HTSW.

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

For dimensions refer to Table of Contents.

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DIAPHRAGM BALANCED PRESSURE CLOSED

APPLICATIONS:

As oil or water valve for separators, meters, water knockouts where a reduced signal pressure is available.

FEATURES:

- Diaphragm balanced single seat.
- 10 psig minimum diaphragm pressure.
- Reinforced oil resistant synthetic rubber diaphragms and seats.
- Easy to service and repair.
- Available for pressure opening or pressure closing service.

CERTIFICATIONS:

Canadian Registration Number (CRN):
OC15804.24567890NTY (Ductile)

SUPPLY PRESSURE:

10 to 35 psig.





OPERATION TEMPERATURE:

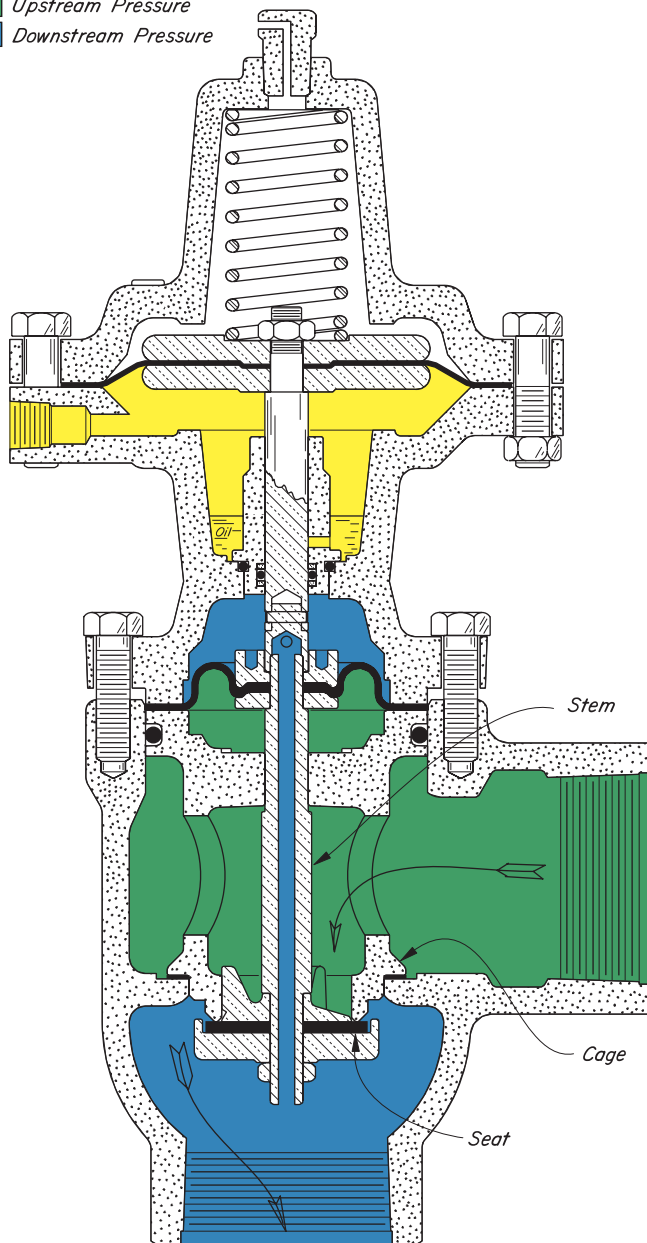
Standard - 225°F. Max.
Heat Modified - 350°F. Max.

CAPACITY:

Refer to Table of Contents.

Cf & Cv VALUES			
Line Size	Trim Size	Cf	Cv
2"	1.50"	0.79	23.3
3"	2.25"	0.79	43.8
4"	3.00"	0.79	70.1
6"	4.88"	0.79	277.0

-  Diaphragm Assembly
-  Diaphragm Pressure
-  Upstream Pressure
-  Downstream Pressure

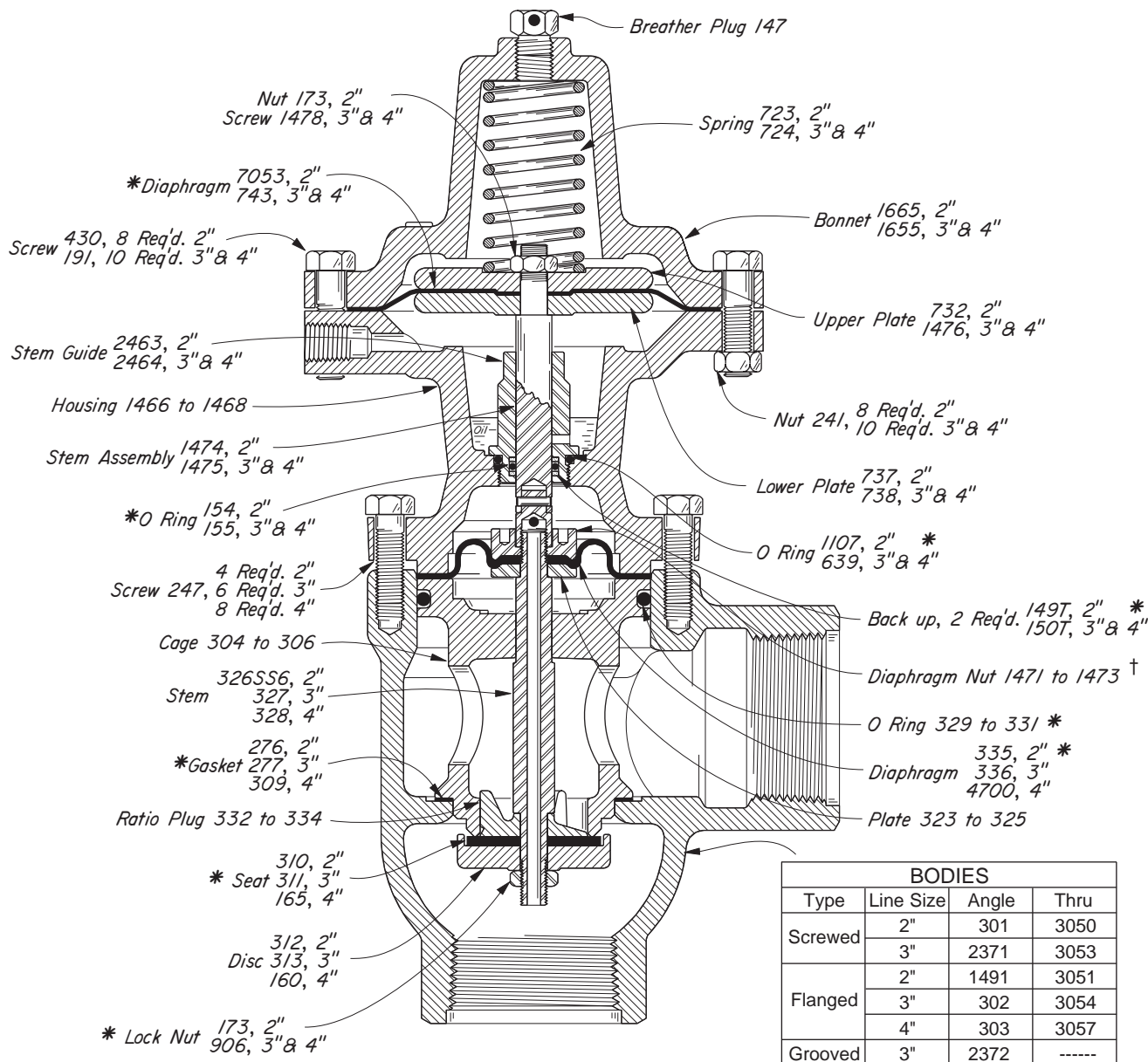


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BALANCED MOTOR VALVES

KIMRAY INC.®

DIAPHRAGM BALANCED PRESSURE CLOSED DUCTILE IRON



ANGLE VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
EJB	2" SCRD.	212 SMA DB PC w/ TI	125	175	RFM
EJD	2" FLGD. ^a	212 FMA DB PC w/ TI	125	175	RFM
EJH	3" SCRD.	312 SMA DB PC w/ TI	125	175	RFS
EJJ	3" FLGD. ^a	312 FMA DB PC w/ TI	125	175	RFS
EJL	3" GRVD.	312 GMA DB PC w/ TI	125	175	RFS
EJN	4" FLGD. ^a	412 FMA DB PC w/ TI	125	175	RFX

^aCompanion flanges, nuts, bolts and gaskets are furnished at extra cost. Refer to Section "Y" for ordering.

†To remove Diaphragm Nut 1471, use Spanner Wrench 1471SNW. To remove Diaphragm Nut 1472, use Spanner Wrench 1472SNW. Spanner Wrench not required, for removal of Diaphragm Nut 1473.

For dimensions refer to Table of Contents.

THRU VALVES AVAILABLE:

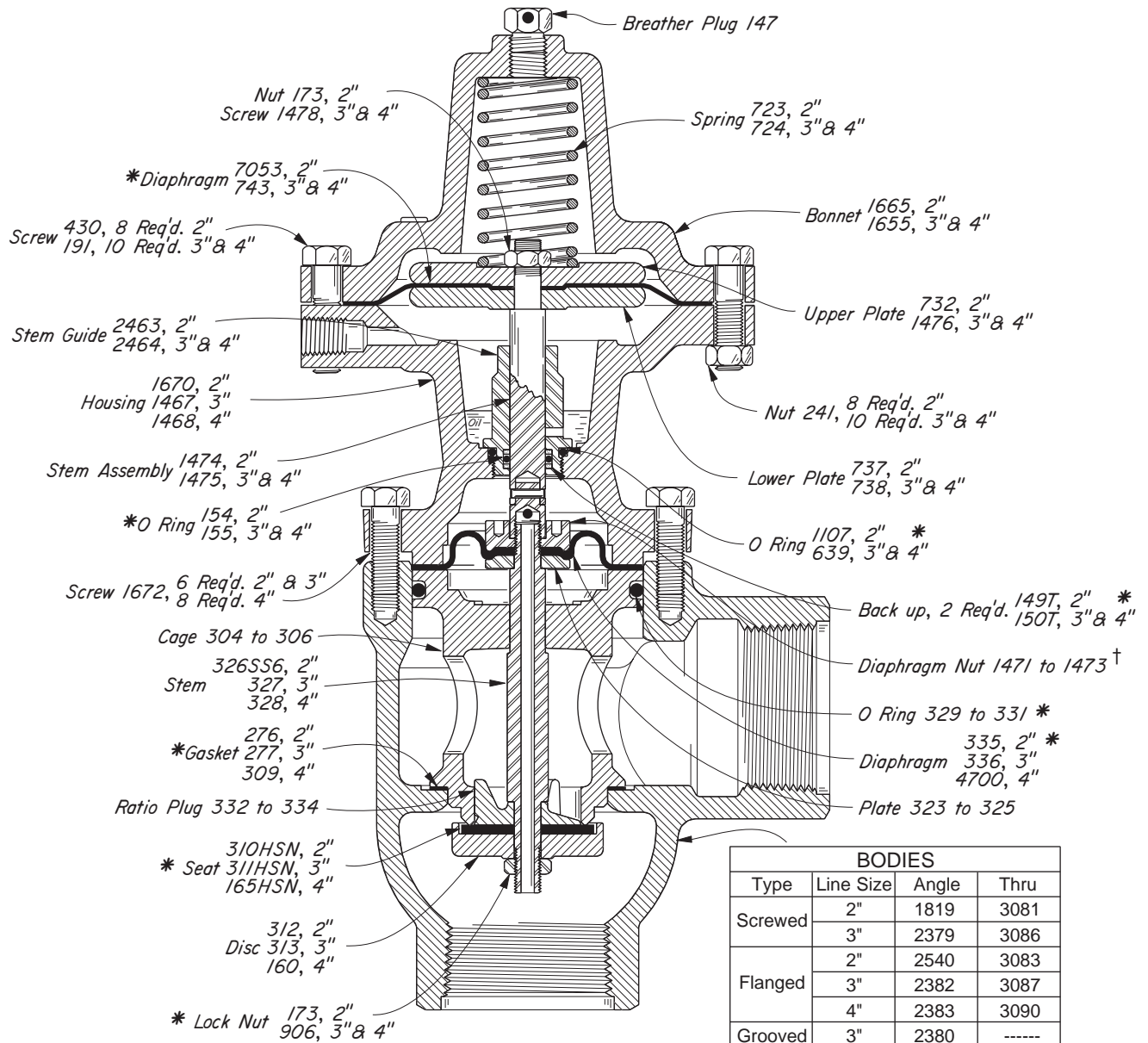
CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
EWB	2" SCRD.	212 SMT DB PC w/ TI	125	175	RFM
EWD	2" FLGD. ^a	212 FMT DB PC w/ TI	125	175	RFM
EWH	3" SCRD.	312 SMT DB PC w/ TI	125	175	RFS
EWJ	3" FLGD. ^a	312 FMT DB PC w/ TI	125	175	RFS
EWN	4" FLGD. ^a	412 FMT DB PC w/ TI	125	175	RFX

^aCompanion flanges, nuts, bolts and gaskets are furnished at extra cost. Refer to Section "Y" for ordering.

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

Cage and removable hard seat is available on new valves at extra cost. Refer to Table of Contents for Cage and Hard Seats available. When ordering specify valve model, then add "with removable seat."

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ANGLE VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
EKJ	2" SCRD.	212 SMA DB PC-D w _o TI	125	400	RFM
EKL	2" FLGD.	212 FMA DB PC-D w _o TI	125	250	RFM
EKP	3" SCRD.	312 SMA DB PC-D w _o TI	125	400	RFS
EKR	3" FLGD.	312 FMA DB PC-D w _o TI	125	250	RFS
EKT	3" GRVD.	312 GMA DB PC-D w _o TI	125	250	RFS
EKW	4" FLGD.	412 FMA DB PC-D w _o TI	125	250	RFX

†To remove Diaphragm Nut 1471, use Spanner Wrench 1471SNW. To remove Diaphragm Nut 1472, use Spanner Wrench 1472SNW. Spanner Wrench not required, for removal of Diaphragm Nut 1473.

For dimensions refer to Table of Contents.

THRU VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
EXJ	2" SCRD.	212 SMT DB PC-D w _o TI	125	400	RFM
EXL	2" FLGD.	212 FMT DB PC-D w _o TI	125	250	RFM
EXP	3" SCRD.	312 SMT DB PC-D w _o TI	125	400	RFS
EXR	3" FLGD.	312 FMT DB PC-D w _o TI	125	250	RFS
EXW	4" FLGD.	412 FMT DB PC-D w _o TI	125	250	RFX

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

Cage and removable hard seat is available on new valves at extra cost. Refer to Table of Contents for Cage and Hard Seats available. When ordering specify valve model, then add "with removable seat."

NOTES:



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APPLICATIONS:

Pilot operated oil or water valve for separators, meters, and water knockouts where a reduced signal pressure is available, and where freezing occurs due to a higher pressure drop.

FEATURES:

- Piston balanced single seat
- 10 psig minimum diaphragm pressure
- Standard 303 stainless valve stem
- Reinforced oil resistant synthetic rubber diaphragms and seats
- Easy to service and repair
- Available for pressure opening or pressure closing service

CERTIFICATIONS:

Canadian Registration Number (CRN):
 0C15804.24567890NTY (Ductile)
 0C15621.24567890NTY (Steel)

SUPPLY PRESSURE:

10 to 35 psig.





OPERATION TEMPERATURE:

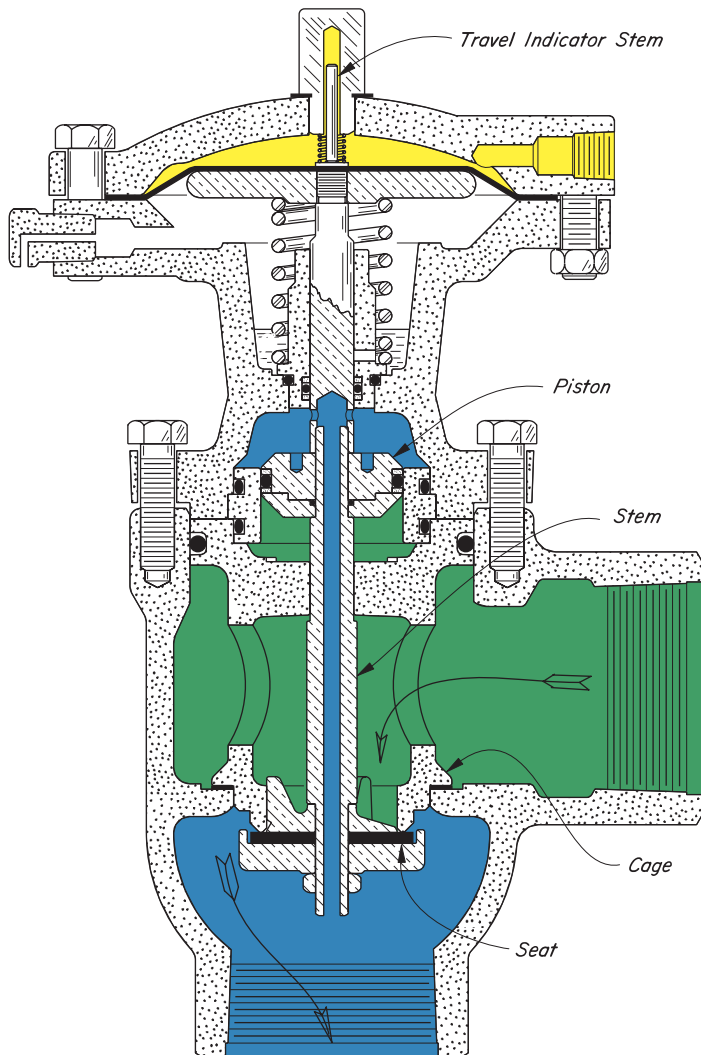
Standard - 225°F. Max.
 Heat Modified - 350°F. Max.

CAPACITY:

Refer to Table of Contents.

Cf & Cv VALUES			
Line Size	Trim Size	Cf	Cv
2"	1.50"	0.79	23.3
3"	2.25"	0.79	43.8
4"	3.00"	0.79	70.1
6"	4.88"	0.79	277.0

-  Stem and Seat Assembly
-  Motor Valve Diaphragm Pressure
-  Upstream Pressure
-  Downstream Pressure

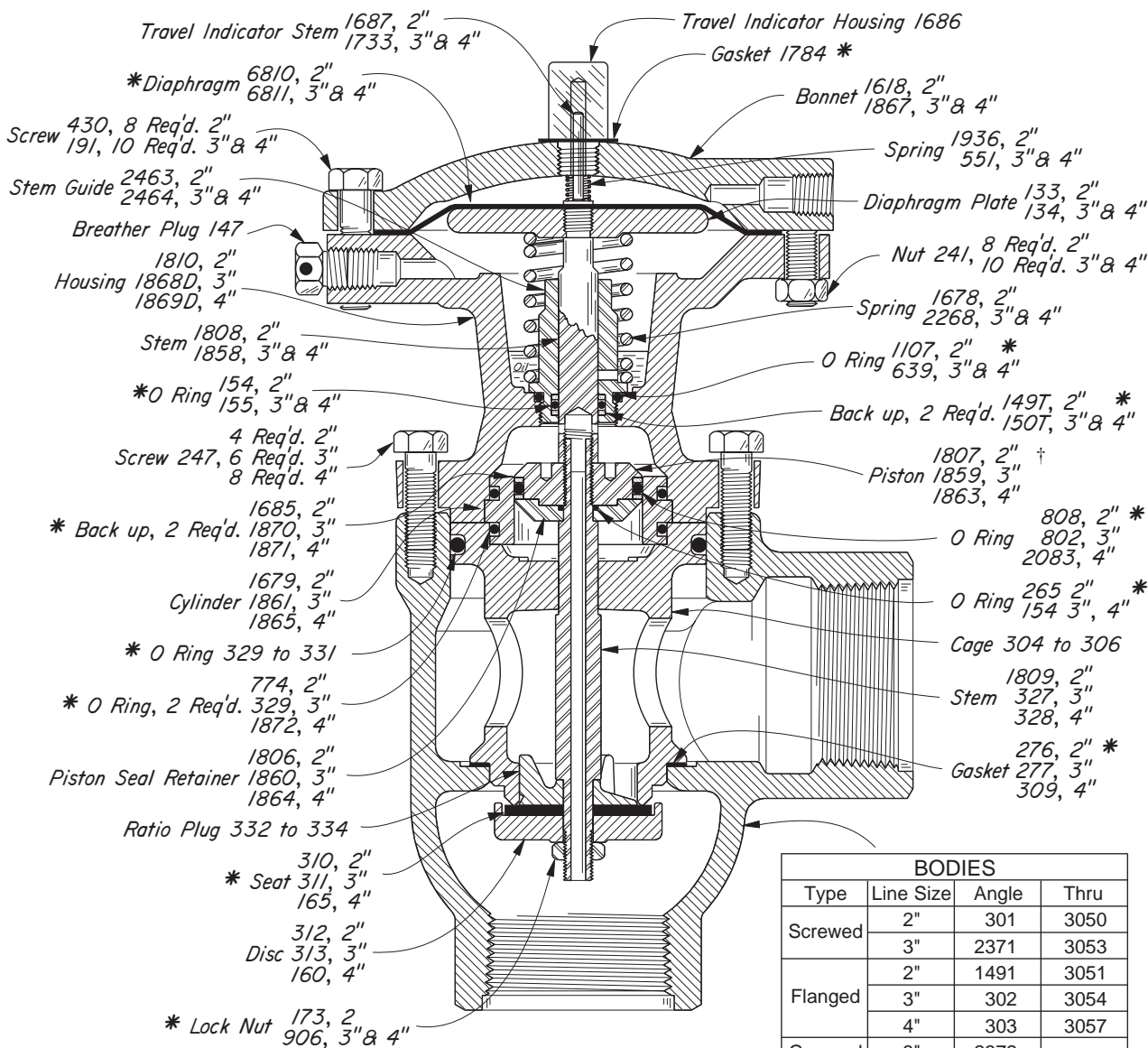


Kimray is an ISO 9001- certified manufacturer.

BALANCED MOTOR VALVES

KIMRAY INC.®

PISTON BALANCED PRESSURE OPEN DUCTILE IRON



BODIES			
Type	Line Size	Angle	Thru
Screwed	2"	301	3050
	3"	2371	3053
Flanged	2"	1491	3051
	3"	302	3054
	4"	303	3057
Grooved	3"	2372	-----

ANGLE VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
EJR	2" SCRD.	212 SMA PB PO w/TI	175	175	RFN
EJT	2" FLGD.ª	212 FMA PB PO w/TI	175	175	RFN
EJX	3" SCRD.	312 SMA PB PO w/TI	175	175	RFT
EJZ	3" FLGD.	312 FMA PB PO w/TI	175	175	RFT
EKB	3" GRVD.	312 GMA PB PO w/TI	175	175	RFT
EKD	4" FLGD.ª	412 FMA PB PO w/TI	175	175	RFZ

ªCompanion flanges, nuts, bolts and gaskets are furnished at extra cost. Refer to Section "Y" for ordering.

†To remove Piston 1807, use Spanner Wrench 1471SNW. To remove Pistons 1859 and 1863, use Spanner Wrench 1859SNW. Note: Drawing depicts 2" valve. Piston design varies, install with Spanner Wrench holes on top.

For dimensions refer to Table of Contents.

THRU VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
EWR	2" SCRD.	212 SMT PB PO w/TI	175	175	RFN
EWT	2" FLGD.ª	212 FMT PB PO w/TI	175	175	RFN
EWX	3" SCRD.	312 SMT PB PO w/TI	175	175	RFT
EWZ	3" FLGD.ª	312 FMT PB PO w/TI	175	175	RFT
EXD	4" FLGD.ª	412 FMT PB PO w/TI	175	175	RFZ

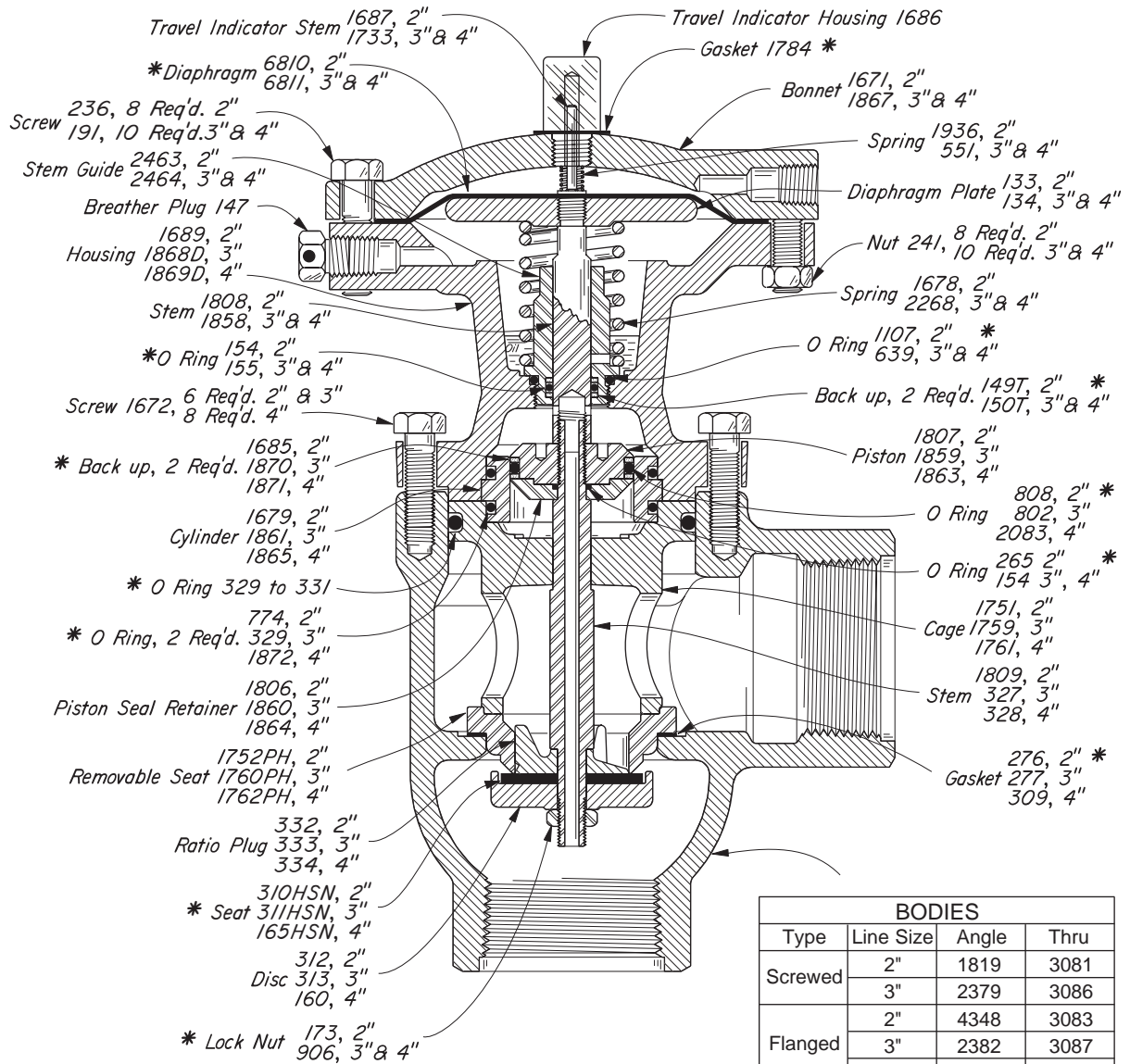
ªCompanion flanges, nuts, bolts and gaskets are furnished at extra cost. Refer to Section "Y" for ordering.

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

Cage and removable hard seat is available on new valves at extra cost. Refer to Table of Contents for Cage and Hard Seats available. When ordering specify valve model, then add "with removable seat."

Kimray is an ISO 9001- certified manufacturer.

PISTON BALANCED PRESSURE OPEN DUCTILE IRON



BODIES			
Type	Line Size	Angle	Thru
Screwed	2"	1819	3081
	3"	2379	3086
Flanged	2"	4348	3083
	3"	2382	3087
	4"	2383	3090
Grooved	3"	2380	-----

ANGLE VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
ELA	2" SCRD.	250 SMA PB PO-D w/TI	500	500	RFP
ELC	2" FLGD.	225 FMA PB PO-D w/TI	250	250	RFP
ELG	3" SCRD.	325 SMA PB PO-D w/TI	250	250	RTR
ELI	3" FLGD.	325 FMA PB PO-D w/TI	250	250	RTR
ELK	3" GRVD.	325 GMA PP PO-D w/TI	250	250	RTR
ELM	4" FLGD.	425 FMA PB PO-D w/TI	250	250	RTT

†To remove Piston 1807, use Spanner Wrench 1471SNW. To remove Pistons 1859 and 1863, use Spanner Wrench 1859SNW. Note: Drawing depicts 2" valve. Piston design varies, install with spanner wrench holes on top.

For dimensions refer to Table of Contents.

THRU VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
EYA	2" SCRD.	250 SMT PB PO-D w/TI	500	500	RFP
EYC	2" FLGD.	225 FMT PB PO-D w/TI	250	250	RFP
EYG	3" SCRD.	325 SMT PB PO-D w/TI	250	250	RTR
EYI	3" FLGD.	325 FMT PB PO-D w/TI	250	250	RTR
EYM	4" FLGD.	425 FMT PB PO-D w/TI	250	250	RTT

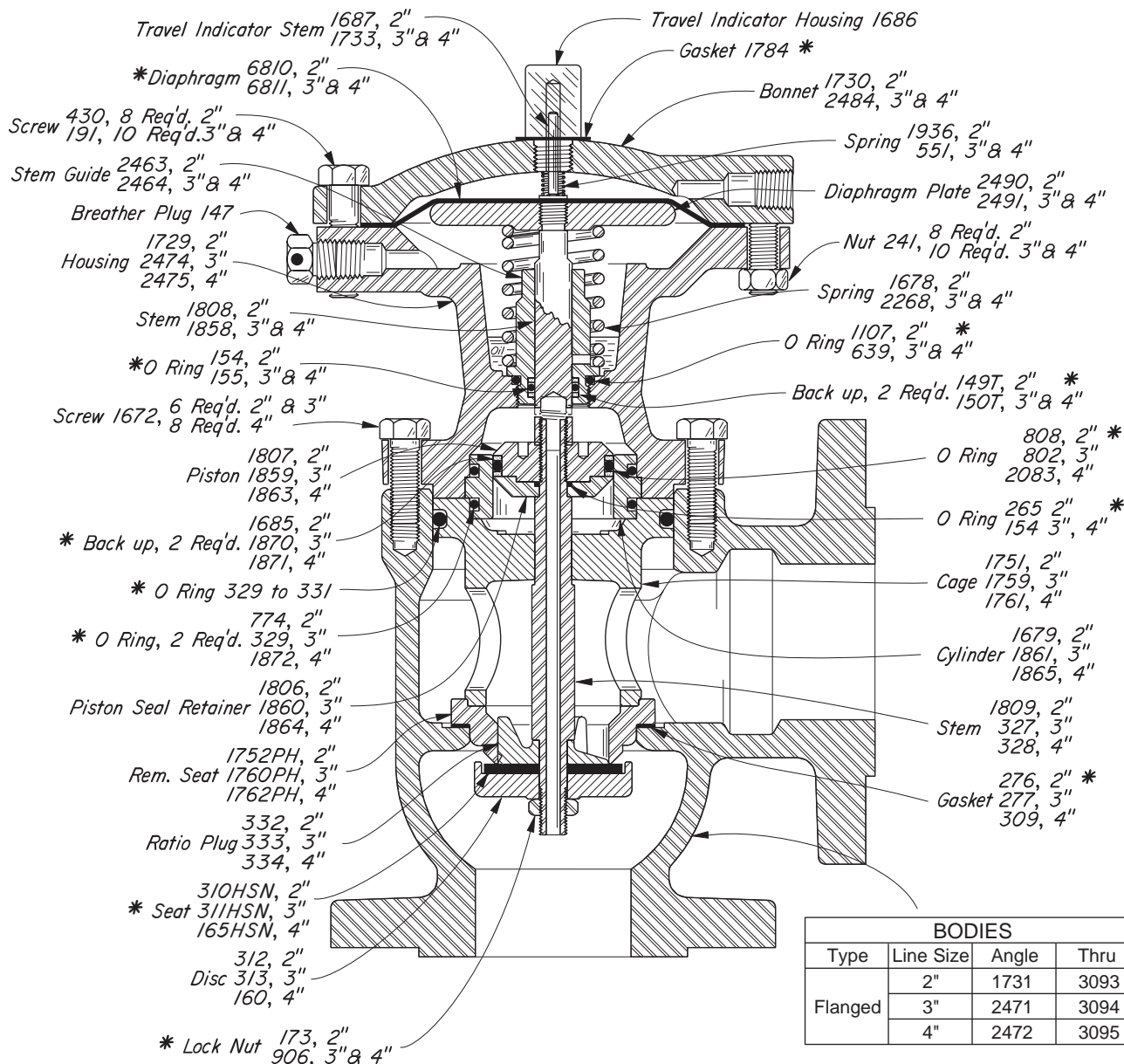
*These are recommended spare parts and are stocked as repair kits.

Kimray is an ISO 9001- certified manufacturer.

BALANCED MOTOR VALVES



PISTON BALANCED PRESSURE OPEN STEEL



ANGLE VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
ELR	2" FLGD.	228 FMA PB PO-S w/TI	285	285	RFP
ELT	3" FLGD.	328 FMA PB PO-S w/TI	285	285	RTR
ELW	4" FLGD.	428 FMA PB PO-S w/TI	285	285	RTT

THRU VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
EYR	2" FLGD.	228 FMT PB PO-S w/TI	285	285	RFP
EYT	3" FLGD.	328 FMT PB PO-S w/TI	285	285	RTR
EYW	4" FLGD.	428 FMT PB PO-S w/TI	285	285	RTT

†To remove Piston 1807, use Spanner Wrench 1471SNW. To remove Pistons 1859 and 1863, use Spanner Wrench 1859SNW. Note: Drawing depicts 2" valve. Piston design varies, install with spanner wrench holes on top

For dimensions refer to Table of Contents.

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

APPLICATIONS:

Pilot operated oil or water valve for separators, meters, and water knockouts where a reduced signal pressure is available, and where freezing occurs due to a higher pressure drop.

FEATURES:

- Piston balanced single seat
- 10 psig minimum diaphragm pressure
- Standard 303 stainless valve stem
- Reinforced oil resistant synthetic rubber diaphragms & seats
- Easy to service and repair
- Available for pressure opening or pressure closing service

CERTIFICATIONS:

Canadian Registration Number (CRN):
 0C15804.24567890NTY (Ductile)
 0C15621.24567890NTY (Steel)

SUPPLY PRESSURE:

10 to 35 psig.

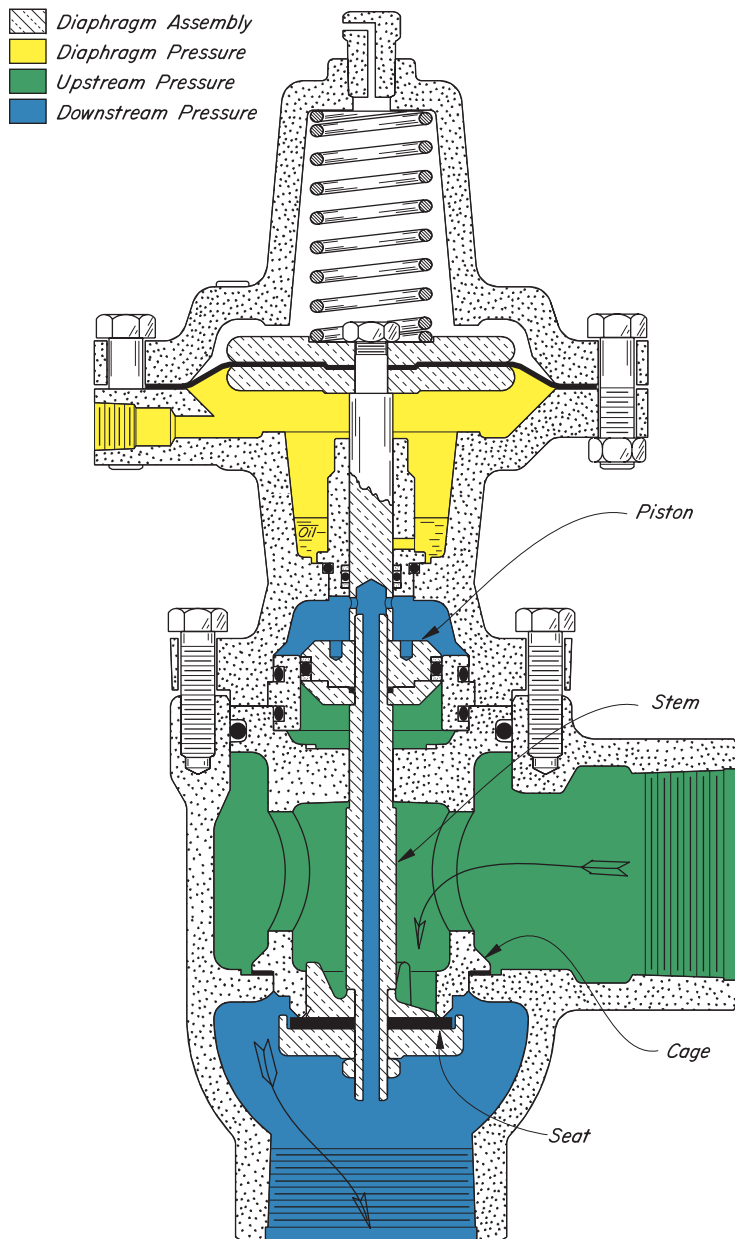
OPERATION TEMPERATURE:

Standard - 225°F. Max.
 Heat Modified - 350°F. Max.

CAPACITY:

Refer to Table of Contents.

Cf & Cv VALUES			
Line Size	Trim Size	Cf	Cv
2"	1.50"	0.79	23.3
3"	2.25"	0.79	43.8
4"	3.00"	0.79	70.1
6"	4.88"	0.79	277.0

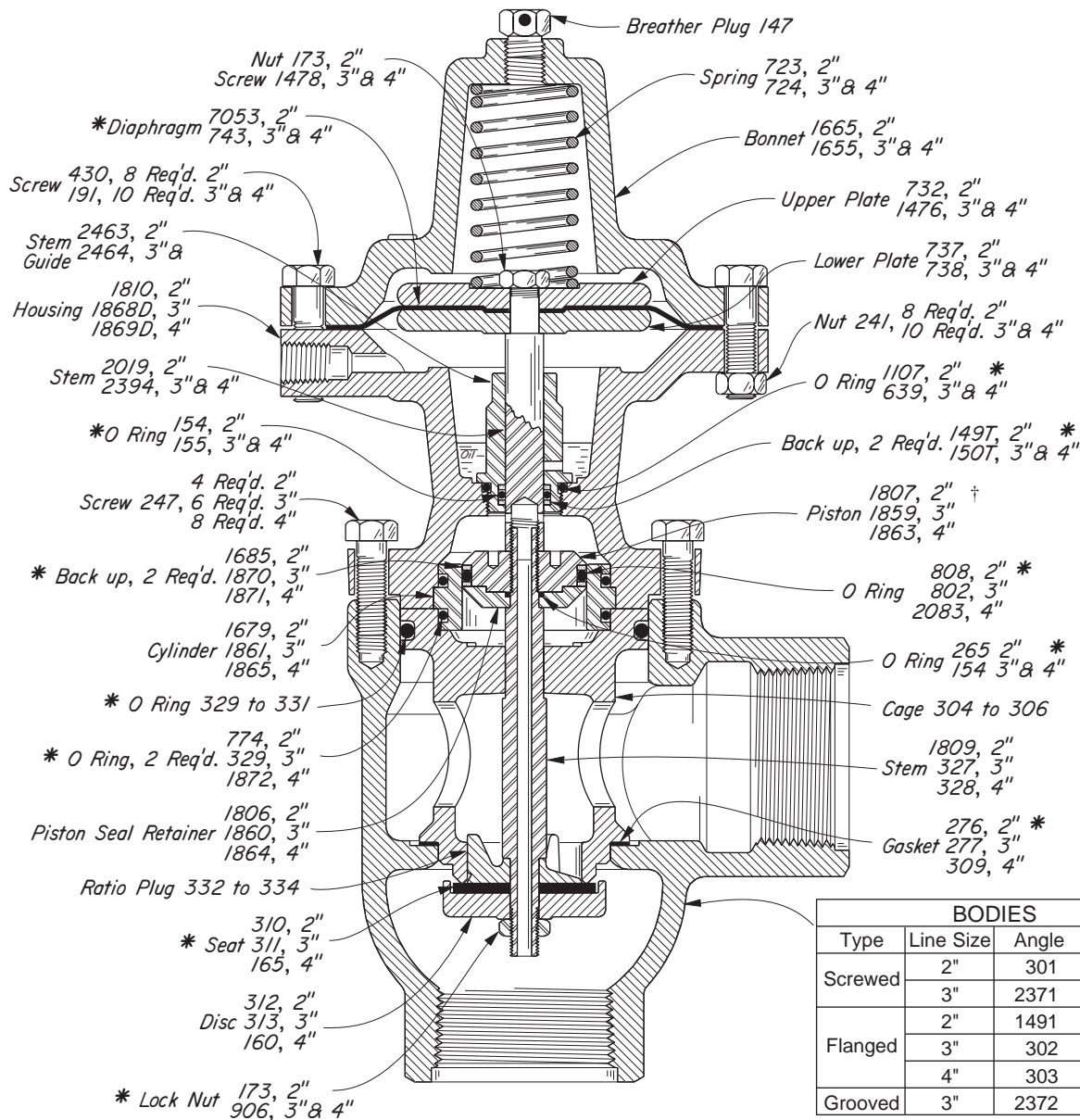


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BALANCED MOTOR VALVES

PISTON BALANCED PRESSURE CLOSE
DUCTILE IRON

KIMRAY
INC.®



BODIES			
Type	Line Size	Angle	Thru
Screwed	2"	301	3050
	3"	2371	3053
Flanged	2"	1491	3051
	3"	302	3054
	4"	303	3057
Grooved	3"	2372	-----

ANGLE VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
EJS	2" SCRD.	212 SMA PB PC <small>wo/TI</small>	175	175	RFO
EJU	2" FLGD. ^a	212 FMA PB PC <small>wo/TI</small>	175	175	RFO
EJY	3" SCRD.	312 SMA PB PC <small>wo/TI</small>	175	175	RFU
EKA	3" FLGD. ^a	312 FMA PB PC <small>wo/TI</small>	175	175	RFU
EKC	3" GRVD.	312 GMA PB PC <small>wo/TI</small>	175	175	RFU
EKE	4" FLGD. ^a	412 FMA PB PC <small>wo/TI</small>	175	175	RFY

*Companion flanges, nuts, bolts and gaskets are furnished at extra cost. Refer to Section "Y" for ordering.

†To remove Piston 1807, use Spanner Wrench 1471SNW. To remove Pistons 1859 and 1863, use Spanner Wrench 1859SNW. Note: Drawing depicts 2" valve. Piston design varies, install with Spanner Wrench holes on top.

For dimensions refer to Table of Contents.

THRU VALVES AVAILABLE:

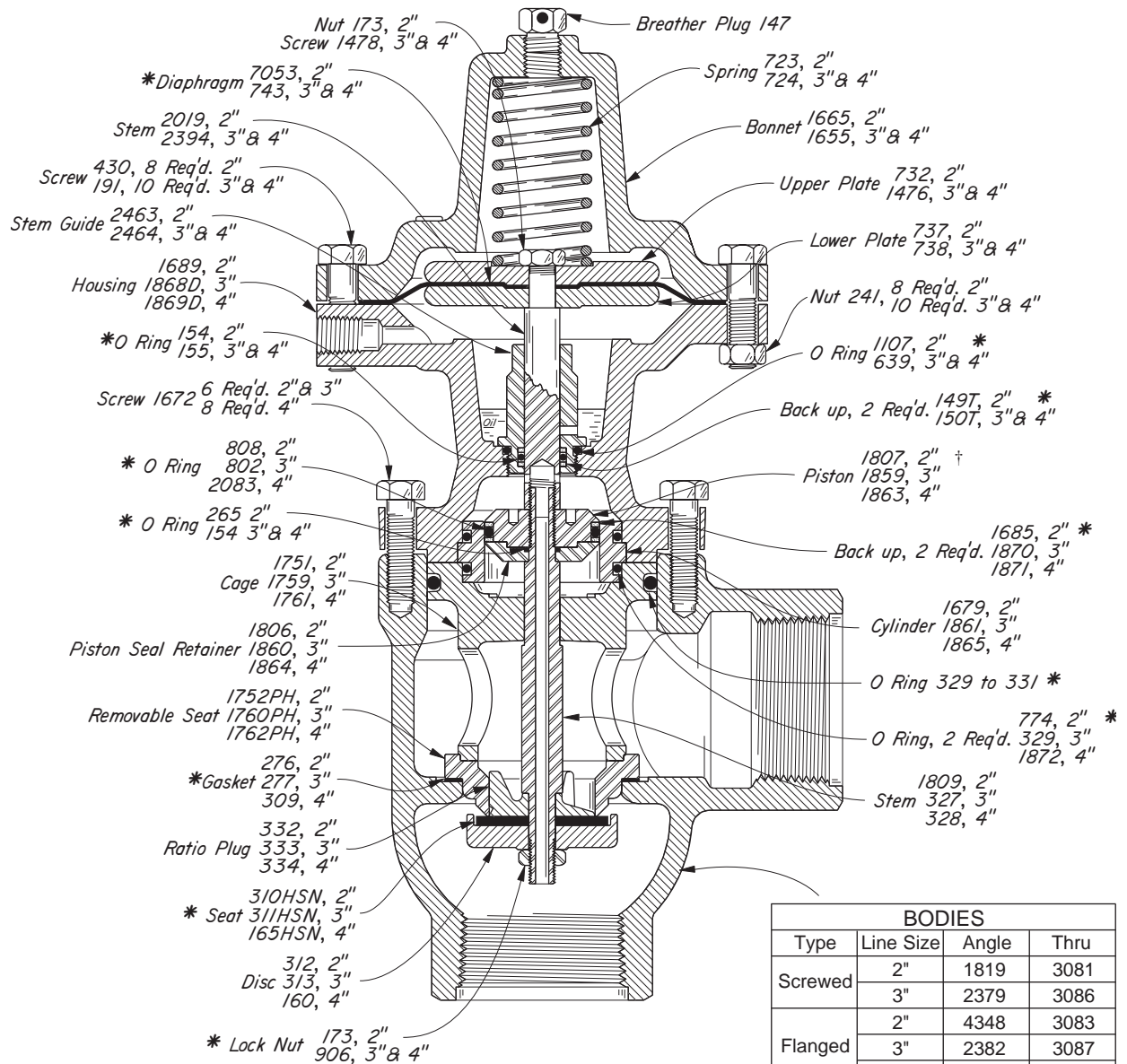
CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
EWS	2" SCRD.	212 SMT PB PC w_o/TI	175	175	RFO
EWU	2" FLGD. ^a	212 FMT PB PC w_o/TI	175	175	RFO
EWY	3" SCRD.	312 SMT PB PC w_o/TI	175	175	RFU
EXA	3" FLGD. ^a	312 FMT PB PC w_o/TI	175	175	RFU
EXE	4" FLGD. ^a	412 FMT PB PC w_o/TI	175	175	RFU

^aCompanion flanges, nuts, bolts and gaskets are furnished at extra cost. Refer to Section "Y" for ordering.

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

Cage and removable hard seat is available on new valves at extra cost. Refer to Table of Contents for Cage and Hard Seats available. When ordering specify valve model, then add "with removable seat."

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ANGLE VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
ELB	2" SCRD	250 SMA PB PC-D w/TI	500	500	RFQ
ELD	2" FLGD	225 FMA PB PC-D w/TI	250	250	RFQ
ELH	3" SCRD	325 SMA PB PC-D w/TI	250	250	RTS
ELJ	3" FLGD	325 FMA PB PC-D w/TI	250	250	RTS
ELL	3" GRVD	325 GMA PB PC-D w/TI	250	250	RTS
ELN	4" FLGD	425 FMA PB PC-D w/TI	250	250	RTU

†To remove Piston 1807, use Spanner Wrench 1471SNW. To remove Pistons 1859 and 1863, use Spanner Wrench 1859SNW. Note: Drawing depicts 2" valve. Piston design varies, install with Spanner Wrench holes on top.

For dimensions refer to Table of Contents.

THRU VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
EYB	2" SCRD	250 SMT PB PC-D w/TI	500	500	RFQ
EYD	2" FLGD	225 FMT PB PC-D w/TI	250	250	RFQ
EYH	3" SCRD	325 SMT PB PC-D w/TI	250	250	RTS
EYJ	3" FLGD	325 FMT PB PC-D w/TI	250	250	RTS
EYN	4" FLGD	425 FMT PB PC-D w/TI	250	250	RTU

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

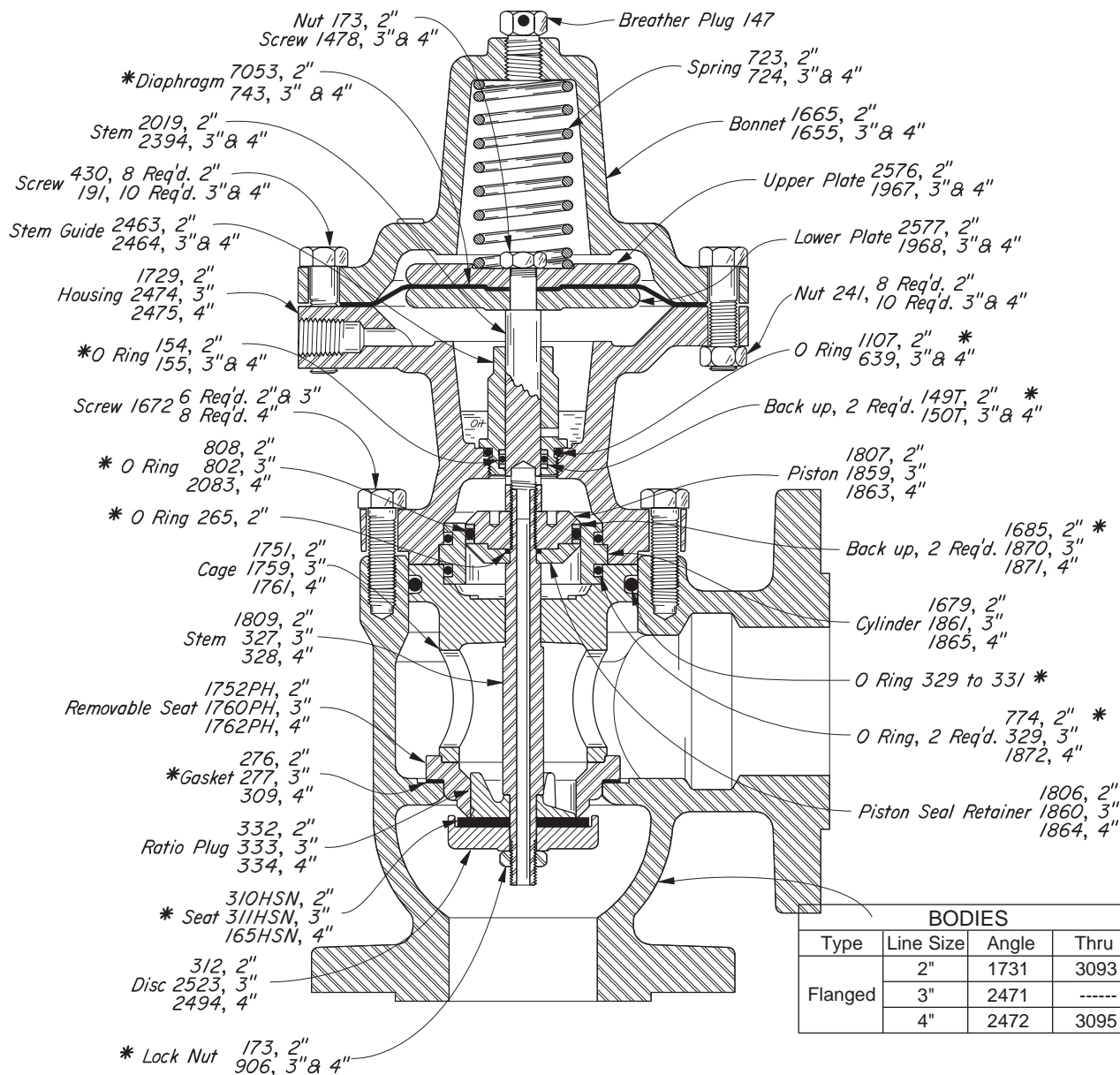
NOTE: Cage and removable hard seat is available on new valves at extra cost. Refer to Table of Contents for Cage and Hard Seats available. When ordering specify valve model, then add "with removable seat."

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BALANCED MOTOR VALVES

KIMRAY INC.®

PISTON BALANCED PRESSURE CLOSE STEEL



BODIES

Type	Line Size	Angle	Thru
Flanged	2"	1731	3093
	3"	2471	-----
	4"	2472	3095

ANGLE VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
ELS	2" FLGD.	228 FMA PB PC-S w/TI	285	285	RFQ
ELU	3" FLGD.	328 FMA PB PC-S w/TI	285	285	RTS
ELX	4" FLGD.	428 FMA PB PC-S w/TI	285	285	RTU

THRU VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
EYS	2" FLGD.	228 FMT PB PC-S w/TI	285	285	RFQ

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

†To remove Piston 1807, use Spanner Wrench 1471SNW. To remove Pistons 1859 and 1863, use Spanner Wrench 1859SNW. Note: Drawing depicts 2" valve. Piston design varies, install with Spanner Wrench holes on top.

For dimensions refer to Table of Contents.

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APPLICATION:





For control of 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.

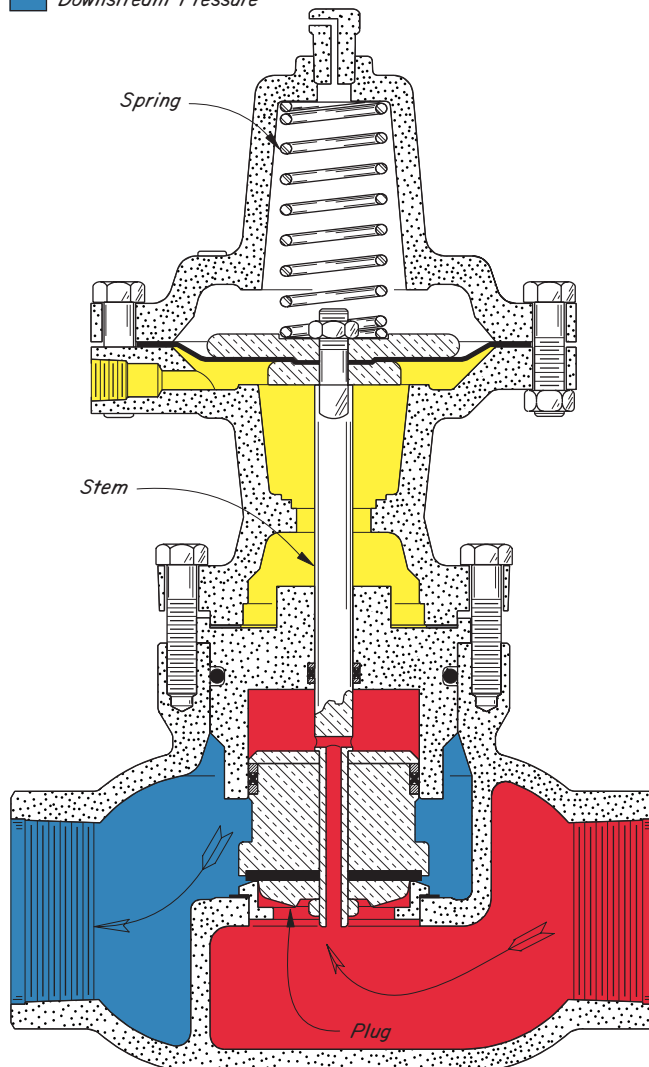
FEATURES:

- Soft seat
- Bubble tight shut-off at full range of pressure
- Piston balanced seat assembly
- Full line size opening
- 30 psig max. required actuating pressure
- Trim contoured for throttle or on/off service

CERTIFICATIONS:

- Canadian Registration Number (CRN):
0C15804.24567890NTY (Ductile)
0C15621.24567890NTY (Steel)

-  Diaphragm Assembly
-  Diaphragm Pressure
-  Upstream Pressure
-  Downstream Pressure



OPERATION:

The Diaphragm Assembly is the only moving unit in the valve. The SPRING loads the Diaphragm Assembly closing the valve if there is no Diaphragm Pressure (Yellow). The communicating hole in the lower portion of the STEM balances the forces Upstream Pressure (Red) applies to the PLUG preventing Upstream Pressure (Red) from forcing the valve open.

An increase in the Diaphragm Pressure (Yellow) overcomes the spring force, and moves the Diaphragm Assembly upward opening the valve.

A decrease in the Diaphragm Pressure (Yellow) allows the SPRING to move the Diaphragm Assembly downward closing the valve.

SUPPLY PRESSURE:

10 to 35 psig

OPERATION TEMPERATURE:

225°F. Max.

Cf & Cv VALUES			
Line Size	Trim Size	Cf	Cv
2"	2.00"	0.75	47.0
3"	3.00"	0.75	89.0
4"	4.00"	0.75	160.0

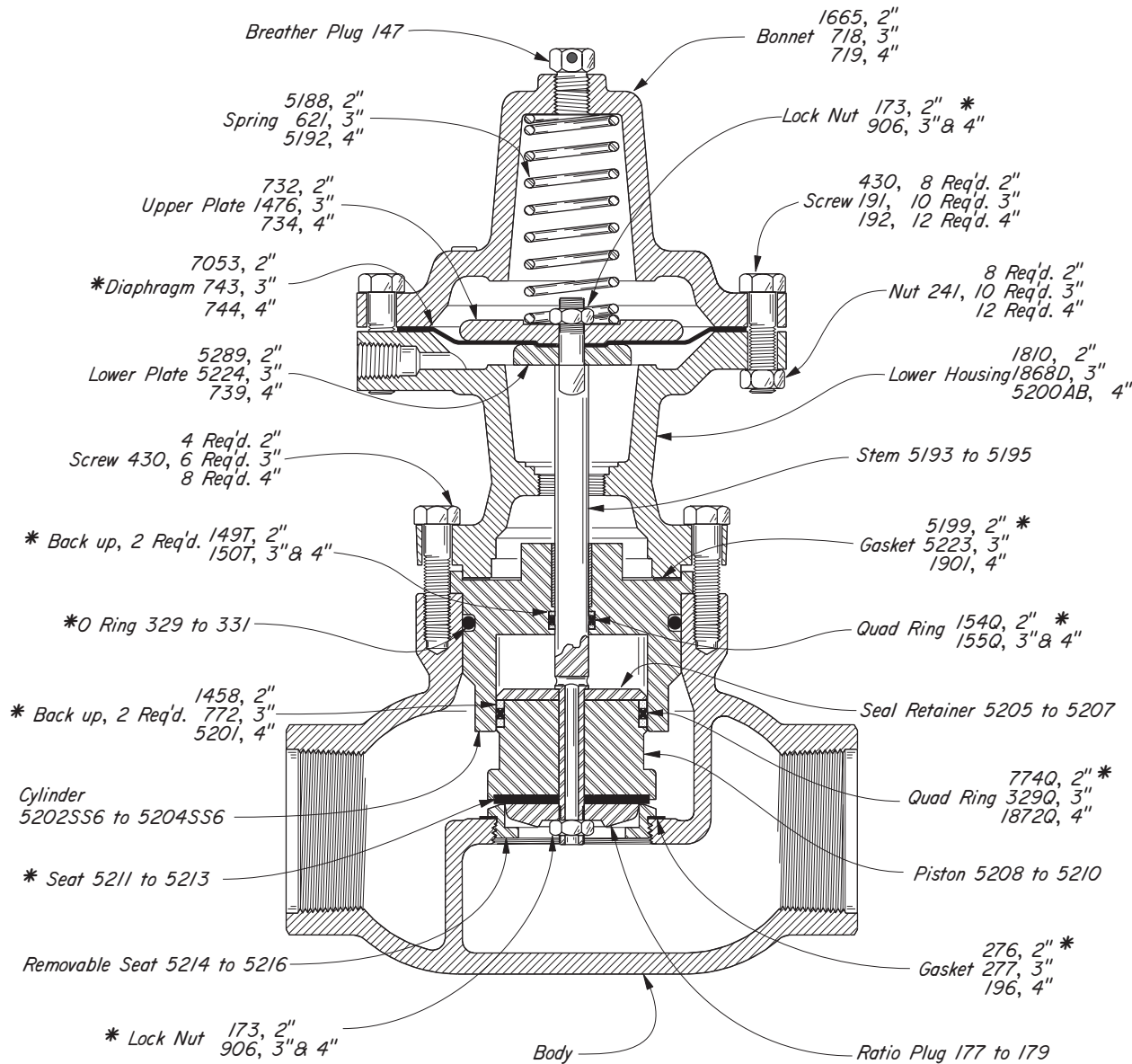


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BALANCED MOTOR VALVES

KIMRAY INC.®

PISTON BALANCED THROTTLING PRESSURE OPEN DUCTILE IRON



LINE SIZE	BODIES	
	SCREWED	FLANGED
2"	5217	5218
3"	5219	5220
4"		5222

THRU VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
EMM	2" SCRD.	212 SMT PBT PO	175	175	RUM
EMN	2" FLGD.³	212 FMT PBT PO	175	175	RUM
EMO	3" SCRD.	312 SMT PBT PO	175	175	RUN
EMP	3" FLGD.³	312 FMT PBT PO	175	175	RUN
EMQ	4" FLGD.³	412 FMT PBT PO	175	175	RUO

³Companion flanges, nuts, bolts and gaskets are furnished at extra cost. Refer to Section "Y" for ordering.

NOTES:

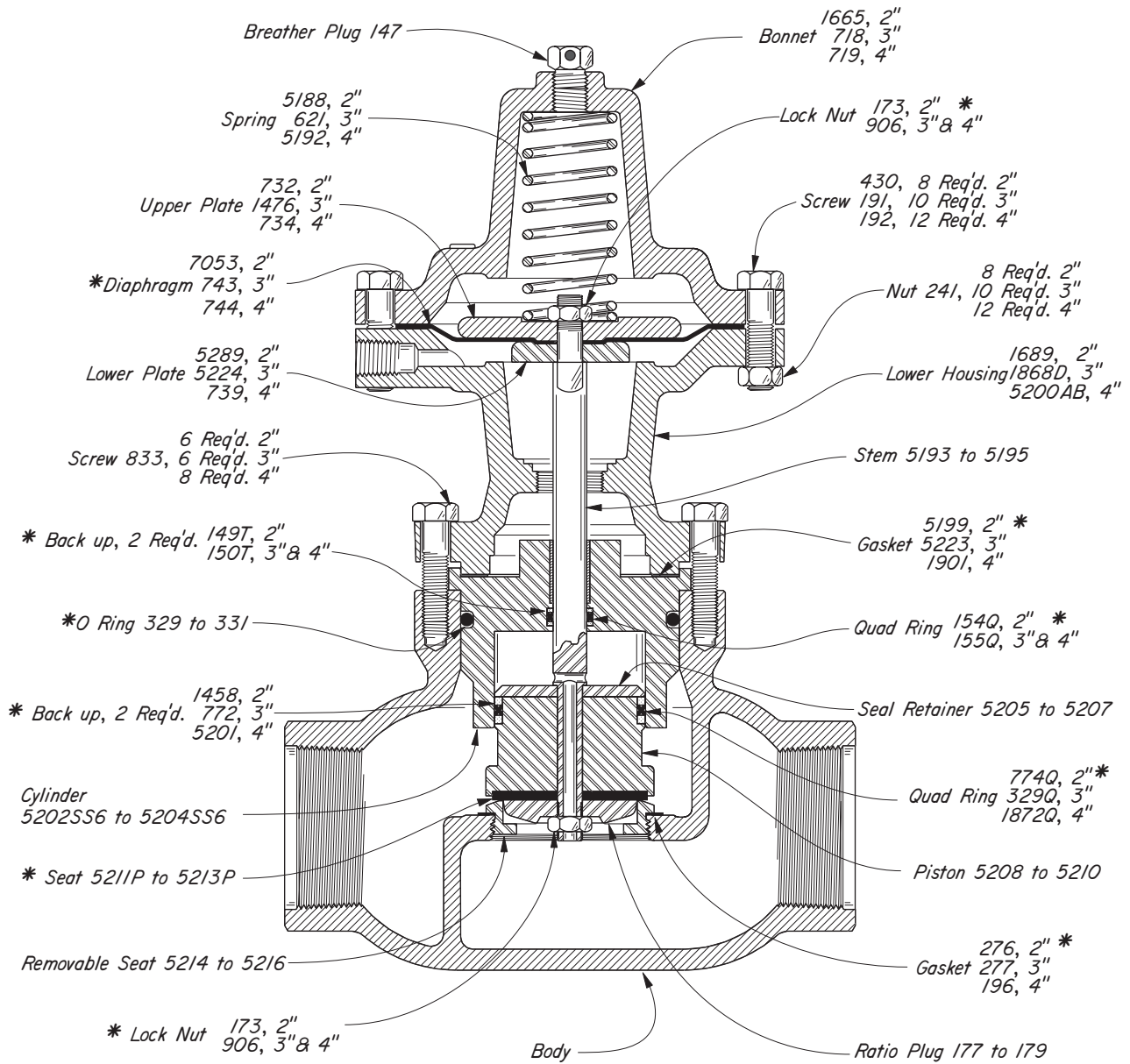
For dimensions, refer to Table of Contents.

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

The numbers of a series assigned to a part indicate different line sizes. For example: Ratio Plug 177-2", 178-3", 179-4"

Kimray is an ISO 9001- certified manufacturer.

PISTON BALANCED THROTTLING PRESSURE OPEN DUCTILE IRON



LINE SIZE	BODIES	
	SCREWED	FLANGED
2"	5217D	5218
3"	5219D	5220D
4"		5222D

THRU VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
EMS	2" SCRD.	250 SMT PBT PO-D	500	500	RUM-P
EMT	2" FLGD.	225 FMT PBT PO-D	250	250	RUM-P
EMU	3" SCRD.	325 SMT PBT PO-D	250	250	RUN-P
EMV	3" FLGD.	325 FMT PBT PO-D	250	250	RUN-P
EMW	4" FLGD.	425 FMT PBT PO-D	250	250	RUO-P

NOTES:

For dimensions, refer to Table of Contents.

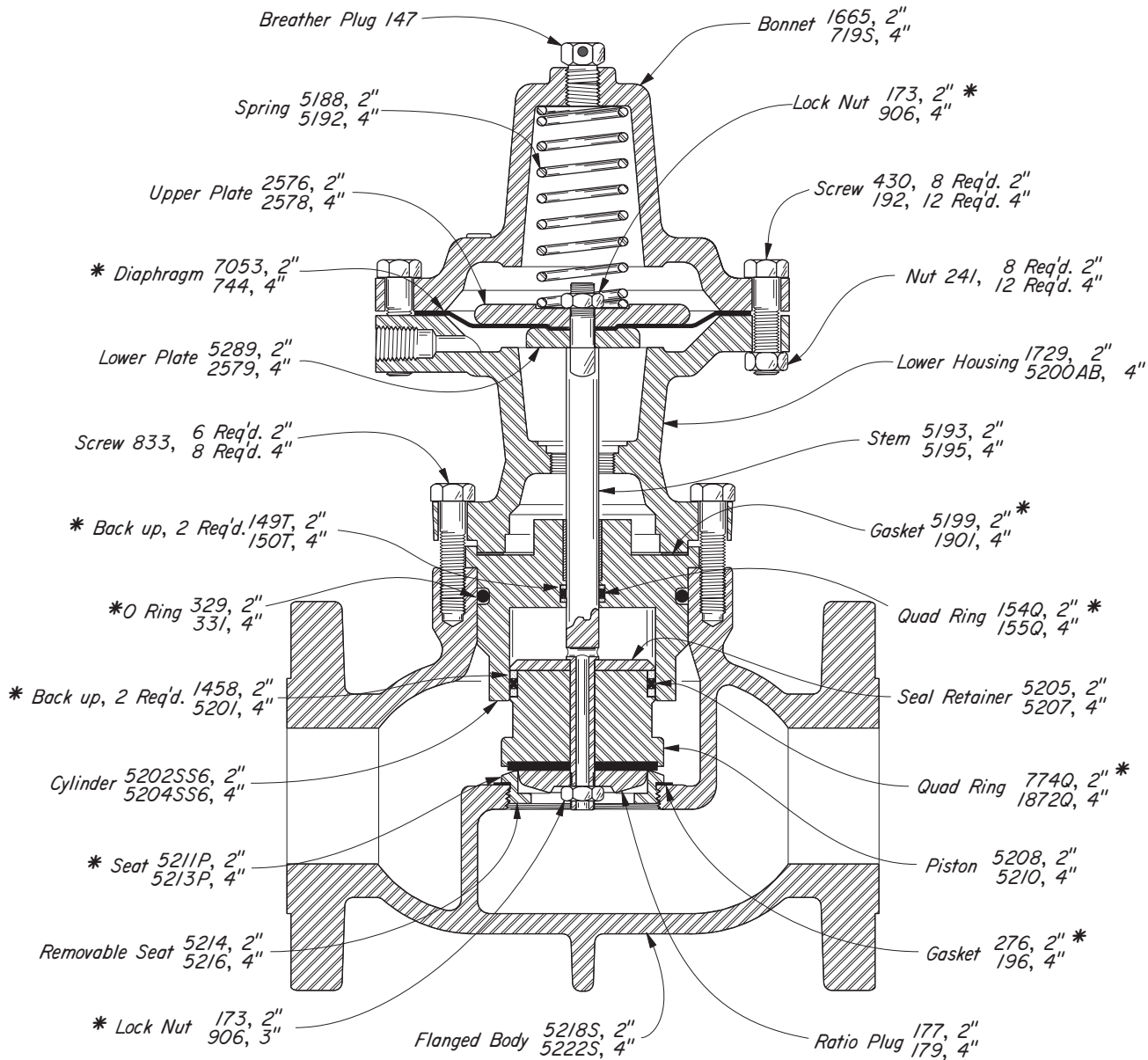
*These parts are recommended spare parts and are stocked as repair kits.

The numbers of a series assigned to a part indicate different line sizes. For example: Ratio Plug 177-2", 178-3", 179-4"

BALANCED MOTOR VALVES

PISTON BALANCED THROTTLING PRESSURE OPEN STEEL

KIMRAY[®]



THRU VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
EMX	2" FLGD.	228 FMT PBT PO-S	285	285	RUM-P
EMZ	4" FLGD.	428 FMT PBT PO-S	285	285	RUO-P

NOTES:

For dimensions, refer to Table of Contents.

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

Kimray is an ISO 9001- certified manufacturer.

APPLICATION:

For control of 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:

- Soft seat
- Bubble tight shut-off at full range of pressure
- Piston balanced seat assembly
- Full line size opening
- 30 psig max. required actuating pressure
- Trim contoured for throttle or on/off service

CERTIFICATIONS:

- Canadian Registration Number (CRN):
- 0C15804.24567890NTY (Ductile)
- 0C15621.24567890NTY (Steel)

OPERATION:

The Diaphragm Assembly is the only moving unit in the valve. The Spring loads the Diaphragm Assembly opening the valve if there is no Diaphragm Pressure (Yellow). The communicating hole in the lower portion of the Stem balances the forces Upstream Pressure (Red) applies to the plug preventing Upstream Pressure (Red) from forcing the valve open.

An increase in the Diaphragm Pressure (Yellow) overcomes the Spring force, and moves the Diaphragm Assembly downward closing the valve.

A decrease in the Diaphragm Pressure (Yellow) allows the Spring to move the Diaphragm Assembly upward opening the valve.

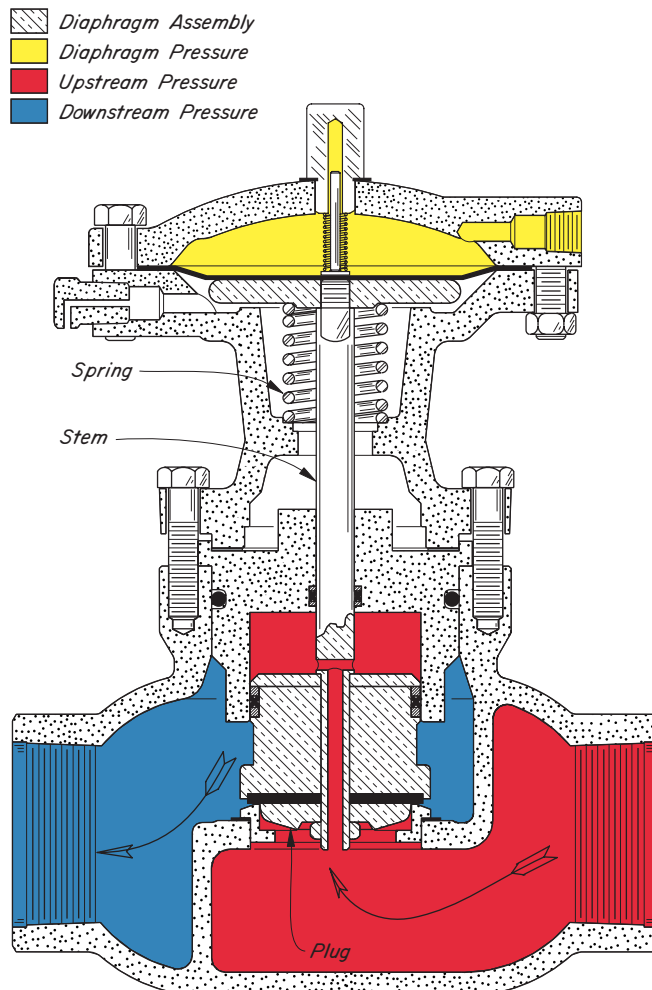
SUPPLY PRESSURE:

10 to 35 psig

OPERATION TEMPERATURE:

225°F. Max.

Cf & Cv VALUES			
Line Size	Trim Size	Cf	Cv
2"	2.00"	0.75	47.0
3"	3.00"	0.75	89.0
4"	4.00"	0.75	160.0

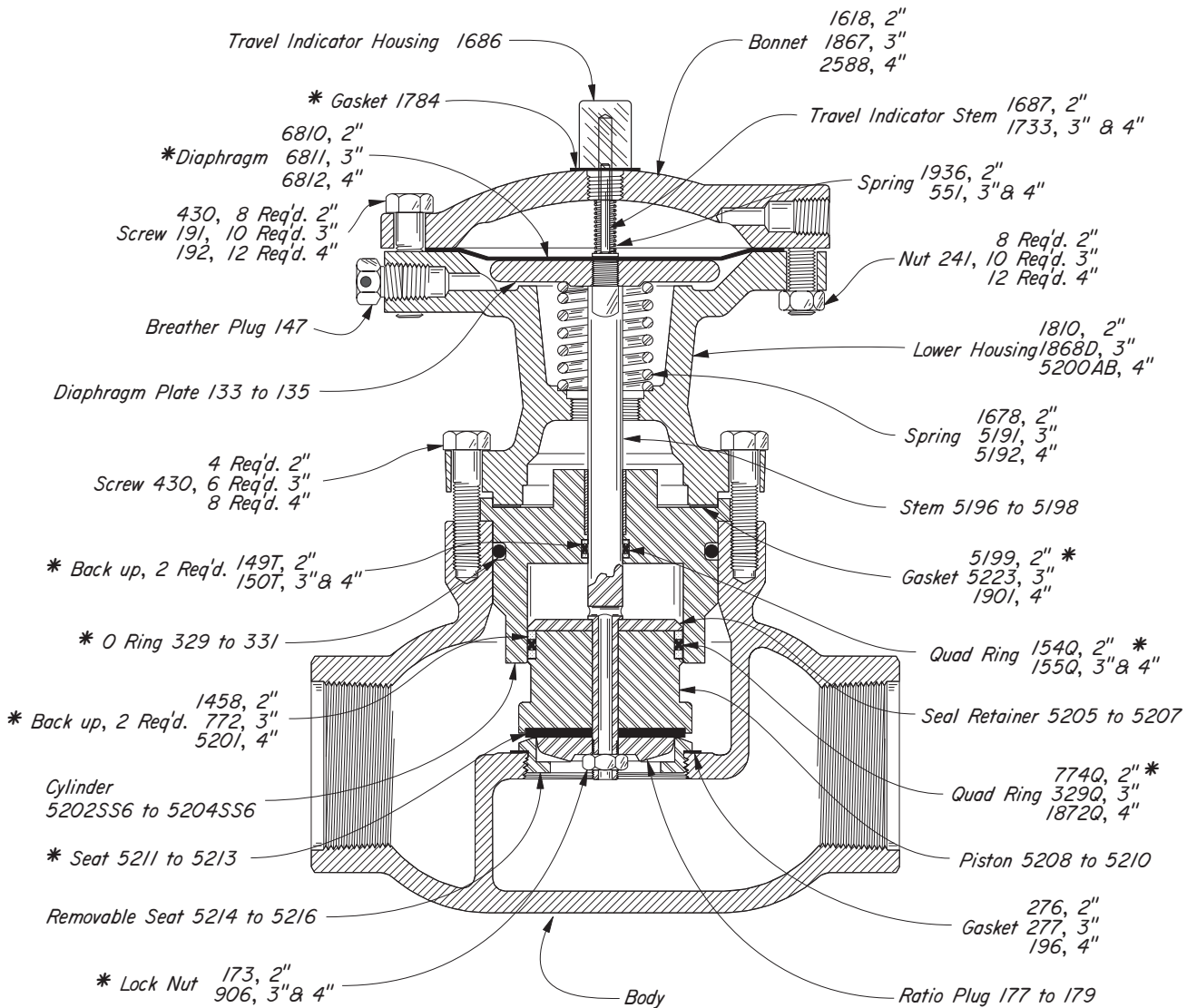


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BALANCED MOTOR VALVES

KIMRAY INC.®

PISTON BALANCED THROTTLING PRESSURE CLOSE DUCTILE IRON



LINE SIZE	BODIES	
	SCREWED	FLANGED
2"	5217	5218
3"	5219	5220
4"	----	5222

THRU VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
EUM	2" SCR.D.	212 SMT PBT PC	175	175	RUW
EUN	2" FLGD. ^a	212 FMT PBT PC	175	175	RUW
EUO	3" SCR.D.	312 SMT PBT PC	175	175	RUX
EUP	3" FLGD. ^a	312 FMT PBT PC	175	175	RUX
EUQ	4" FLGD. ^a	412 FMT PBT PC	175	175	RUY

^aCompanion flanges, nuts, bolts and gaskets are furnished at extra cost.
Refer to Section "Y" for ordering.

NOTES:

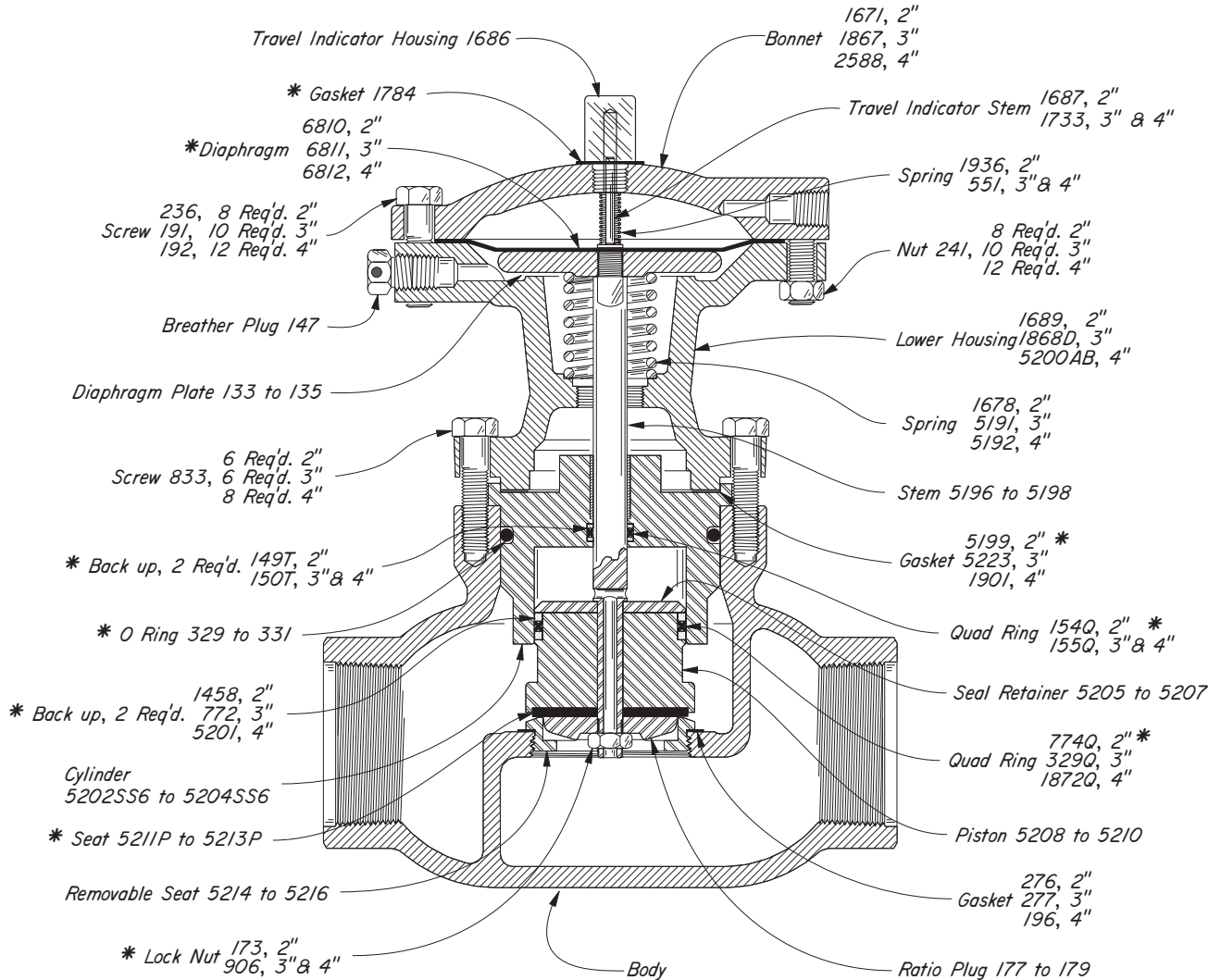
For dimensions, refer to Table of Contents.

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

The numbers of a series assigned to a part indicate different line sizes. For example: Ratio Plug 177-2", 178-3", 179-4"

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PISTON BALANCED THROTTLING PRESSURE CLOSE DUCTILE IRON



LINE SIZE	BODIES	
	SCREWED	FLANGED
2"	5217D	5218
3"	5219D	5220D
4"	----	5222D

THRU VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
EUS	2" SCRD.	250 SMT PBT PC-D	500	500	RUW-P
EUT	2" FLGD.	225 FMT PBT PC-D	250	250	RUW-P
EUU	3" SCRD.	325 SMT PBT PC-D	250	250	RUX-P
EUV	3" FLGD.	325 FMT PBT PC-D	250	250	RUX-P
EUW	4" FLGD.	425 FMT PBT PC-D	250	250	RUY-P

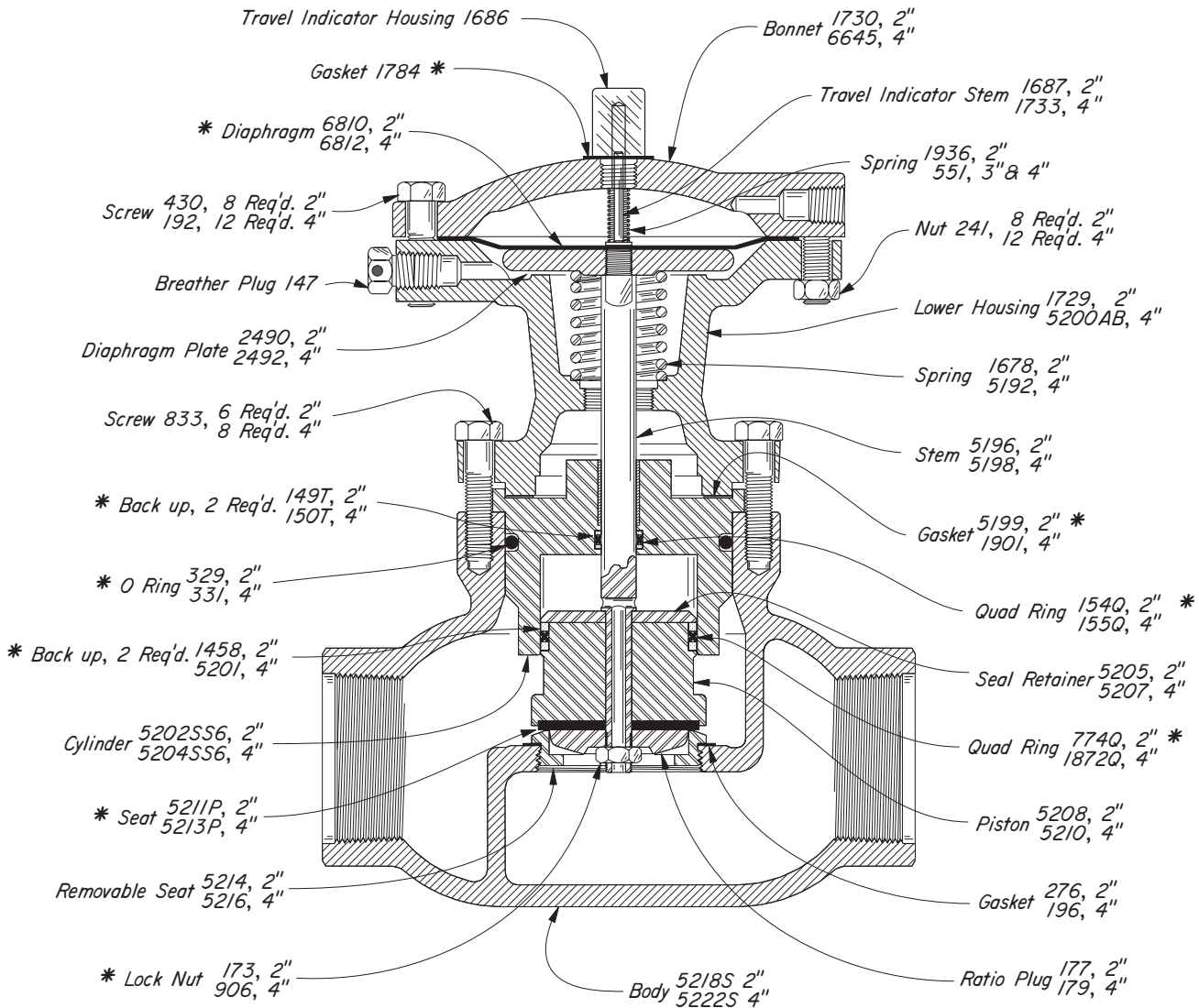
NOTES:

For dimensions, refer to Table of Contents.

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

The numbers of a series assigned to a part indicate different line sizes. For example: Ratio Plug 177-2", 178-3", 179-4"

PISTON BALANCED THROTTLING PRESSURE CLOSE STEEL



THRU VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	MOTOR VALVE	OPER. PRES.	MAX W.P.	KIT
EUX	2" FLGD.	228 FMT PBT PC-S	285	285	RUW-P
EUZ	4" FLGD.	428 FMT PBT PC-S	285	285	RUY-P

NOTES:

For dimensions, refer to Table of Contents.

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

CAPACITY-Bbls. Water/Day, Steady Flow

PRESSURE DROP ACROSS VALVE PSIG	VALVE SIZE - INCHES			
	2	3	4	6
1	800	1,500	2,400	9,500
2	1,150	2,100	3,400	13,450
3	1,400	2,600	4,150	16,450
4	1,600	3,000	4,800	19,000
5	1,800	3,350	5,350	21,250
10	2,550	4,750	7,600	30,050
15	3,100	5,800	9,300	36,800
20	3,600	6,700	10,750	42,500
30	4,400	8,200	13,150	52,000
40	5,100	9,500	15,200	60,050
50	5,700	10,600	16,950	67,150
60	6,250	11,600	18,600	73,550
70	6,750	12,550	20,100	79,450
80	7,200	13,400	21,450	84,950
90	7,650	14,200	22,750	90,100
100	8,050	15,000	24,000	94,950
120	8,850	16,400	26,300	104,050
140	9,550	17,750	28,400	112,350
160	10,200	18,950	30,350	120,150
180	10,800	20,100	32,200	127,400
200	11,400	21,200	33,950	134,300
220	11,950	22,200	35,600	140,850
240	12,500	23,200	37,200	147,150
260	13,000	24,150	38,700	153,150
280	13,500	25,050	40,150	158,900
300	13,950	25,950	41,550	164,500
325	14,500	27,000	43,250	171,200
350	15,050	28,050	44,900	177,700
375	15,600	29,000	46,500	183,900
400	16,100	29,950	48,000	189,950

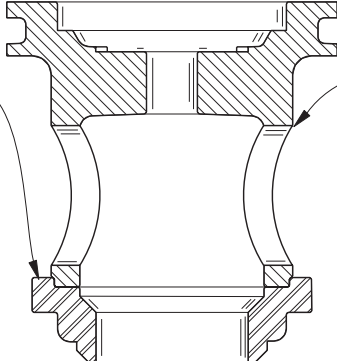
For gravity correction, multiply the above figures by $\sqrt{\frac{1}{G}}$
 Where "G" is the specific gravity of the flowing liquid.
 NOTE: Flow rates are for steady flow conditions
 over a 24 hour period. Corrections should be made
 to deal with intermittent flow conditions.

NOTES:



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Removable Seat				Cage		
LINE SIZE	STD 17-4	D-2 STEEL	316 STEEL	LINE SIZE	CAST DUCT.	CAST STEEL
2"	1752PH	-----	1752SS6	2"	1751	3097
3"	1760PH	1760	1760SS6	3"	1759	3098
4"	1762PH	1762	1762SS6	4"	1761	3099
6"	2358PH	2358	2358SS6	6"	2357	-----



The diagram shows a cross-section of a balanced motor valve. Two arrows point to specific components: one labeled 'Removable Seat' pointing to the lower seat assembly, and another labeled 'Cage' pointing to the upper cage assembly. The valve body is shown in a cross-section with hatching indicating different materials or sections.

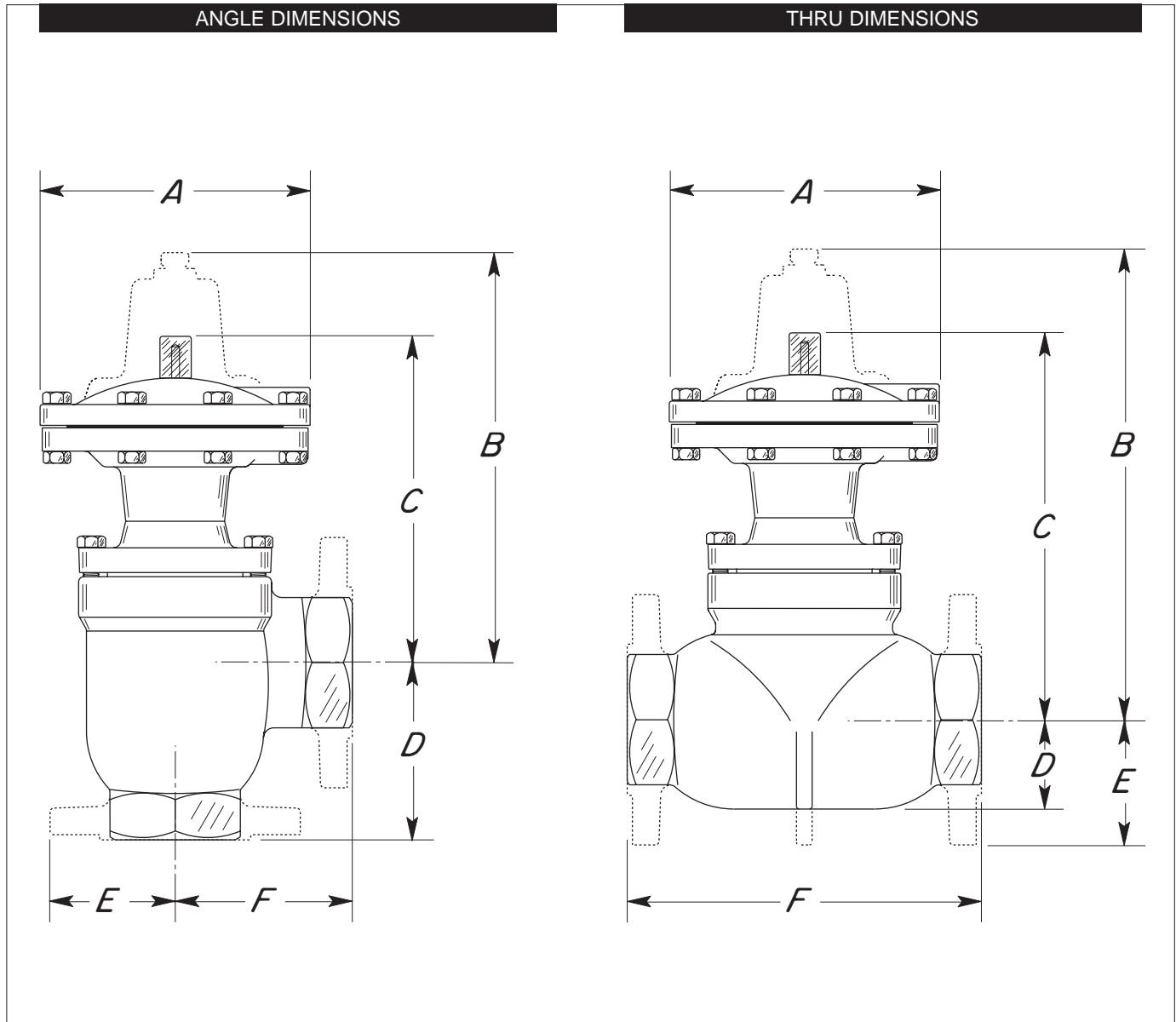
NOTES:

Removable seat and cage is standard in Piston Balanced Motor Valves. But is optional in Diaphragm Balanced Motor Valve. To order specify valve model, then add "with removable seat."

NOTES:



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VALVE	A	B	C	D	E	F
2" S/FMA	6 1/2	9	8 1/2	4 1/4	3	4 1/4
3" S/FMA	8 1/2	11 3/4	10 1/4	5 1/2	3 3/4	5 1/2
4" FMA	8 1/2	12 1/2	11	6 1/2	4 1/2	6 1/2
6" FMA	10 3/4	—	19 3/4	10 1/4	5 1/2	7 11/16

VALVE	A	B	C	D	E	F
2" SMT	6 1/2	10 3/8	9 7/8	2 1/8	—	8 1/2
2" FMT	6 1/2	10 3/8	9 7/8	—	3	9
3" SMT	8 1/2	13 5/16	11 9/16	2 7/8	—	12
3" FMT	8 1/2	13 5/16	11 9/16	—	3 3/4	12 3/16
4" FMT	8 1/2	14 7/8	13 3/8	—	4 1/2	15 1/8
6" FMT	10 3/4	—	19 3/4	—	5 1/2	22

NOTES:



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