MILLIKEN®

a MUELLER brand

MILLCENTRIC®

Balancing Plug Valve

MUELLER

MILLIKEN®

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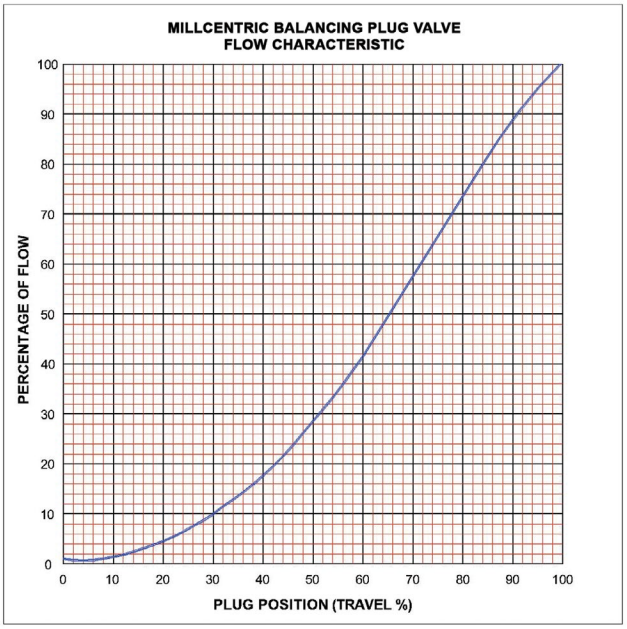
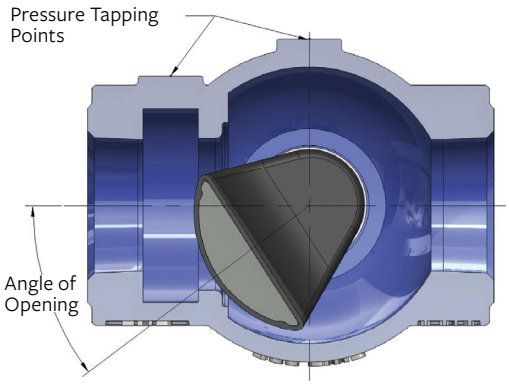
BALANCING SERVICE

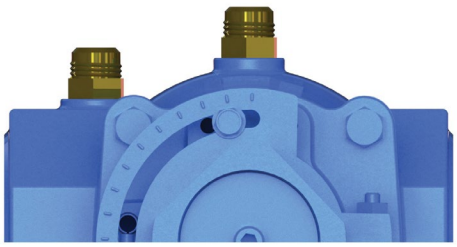
Regulation of multi-circuit chilled water and hot water systems is essential to achieve design performance. Millcentric® valves have excellent throttling characteristics through full travel and are ideally suited for balancing duty. Two (2) pressure tapping points are provided on the valve body, and check valves, pet cocks, or PT plugs can be fitted as requested.

An adjustable memory stop is included as standard on all wrench operated valves, and memory stop gear operators should be provided on all valves requiring gears. After the desired signal has been attained during the balancing procedure, the memory stop or memory gear can be adjusted so that the valve may then be used for isolation purposes and re-opened to the balancing position.

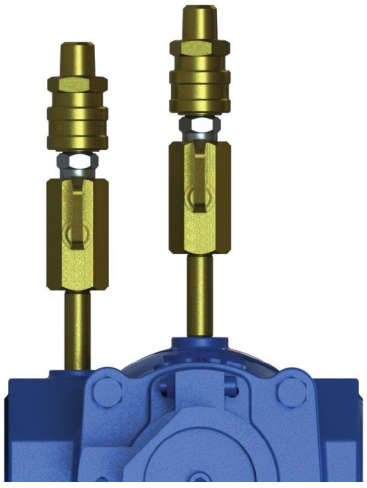
In order to retain the plug at the required position, an adjustable torque collar is provided as standard on wrench operated valves, and gear operators can be supplied on all valve sizes. The adjustable torque collar and gear operator prevent any rotational movement of the plug due to flow, and particularly under high velocity flow, assists in preventing slamming and subsequent pressure surges.







Valves can be supplied with either two (2) check valves (illustrated above) or two (2) hand operated pet cocks (illustrated below) to be used in conjunction with a portable differential meter to measure the pressure drop across the valve when balancing a hot or chilled water system. PT plugs are also available upon request.



VALVE SPECIFICATION

OVERVIEW OF VALVE DETAILS

The Milliken® criteria of quality, reliability, safety and value are embodied in the Millcentric® balancing valve, setting higher standards for dependable performance with excellent features achieved by the utilization of the very latest design and manufacturing techniques.

- Computer Aided Design
- High Integrity Casting
- CNC manufacturing delivers consistent sizes on all components

All complemented by a rigorous Quality Control System

BODY

Millcentric® valve body casting is in ASTM A126 CL B cast iron for class 125 valves on sizes 2-1/2″ and larger, and ASTM A536 65-45-12 ductile iron for class 250 valves and 1/2″ - 2″ valves, using high pressure molding techniques. Flanged, grooved, and threaded ends are available. Grooved ends meet ANSI AWWA C-606 for ductile or steel pipe.

SEAT

The Millcentric® valve incorporates as standard, on 3″ and larger, a 1/8″ thick welded 99% nickel seat for corrosion and erosion resistance specifically profiled for low torque and extended seat life. 2-1/2″ and smaller sizes are furnished with an overlay of corrosion and abrasion resistant epoxy.

STEM SEAL

High integrity sealing by combining the advantages of a resilient and abrasion resistant U-cup seal. From vacuum to high pressure, the self-adjusting seal system gives positive, trouble-free service and is retained independently of the plug stem or external torque device, thereby eliminating periodic maintenance.

BEARINGS

The plug rotates in permanently lubricated stainless steel bearings, located in the body and bonnet, along with upper and lower PTFE thrust washers, which ensure consistently low operating torque.

PLUG

Supported on integral trunnions, the plug is totally encapsulated with an elastomer that is molded. High integrity sealing is achieved by a variety of elastomers which protect the plug right up to the trunnions. When assembled, the light compression of the elastomers onto the PTFE thrust washers prevents entry of abrasive materials in the bearings.

BONNET SEAL

Superior “O” ring sealing with metal / metal contact means lower bolting stresses compared with compression gaskets.

FLOW

The port design (round on 1/2″- 12″ and rectangular on 14″ and larger) with streamlined internal contours gives the highest industry capacity straight through flow in the full open position, reducing turbulence and pressure drop.

TRAVEL STOPS

Adjustable open and closed travel stops are fitted as standard on both wrench and gear operated Millcentric® valves.

FLOW CHARTS

Certified flow charts to be supplied when requested. The flow data testing is completed by a 3rd party testing facility.

DESIGN AND CONSTRUCTION

Milliken® balancing valves are designed specifically for balancing hot and chilled water systems in multi-story commercial buildings, schools, hospitals, or any facility that uses hot or chilled water for heating and cooling.

The balancing valves provide an accurate means of adjusting and reading flow in condenser and hot or chilled water systems. These valves maintain the desired flow, balance point and temperature throughout the building.

The valves are constructed to allow the required flow to be balanced by using the flow curve charts and the use of memory stops on either wrench or gear operated valves, and also allows the valves to be shut off and returned to the memorized open position.

The valves are designed to allow smooth flow through the valves. The plugs are completely elastomer coated, supported on oil impregnated stainless steel bearings for long maintenance free life. Flow measurement is by upstream and downstream Schrader fittings, PT plugs, or hand operated pet cocks for use with differential meters.

All sizes have been rigorously flow tested for repeatability of flow, and comprehensive flow charts are available.

TECHNICAL DATA

ORDERING INFORMATION

Valve Types	**Designation**
Threaded NPT Ductile Iron (1/2″ - 2″)	613A
ANSI 125 Flanged Ductile Iron (2″ and 3″)	611A
ANSI 125 Flanged Cast Iron	601
ANSI 125 Flanged Ductile Iron	611
ANSI 250 Flanged Ductile Iron, Raised Face	602
ANSI 125 Grooved for Steel Pipe	606S
ANSI 125 Grooved for Ductile Iron	606D
ANSI 150 Flanged Ductile Iron, Raised Face	621
Seat	
Nickel Seat (3″ and larger)	N
Epoxy Seat (1/2″ - 2-1/2″)	E
Elastomer Trim	
EPDM	O
Buna-Nitrile	1
Neoprene	3
Manual Operators / Options	
Above Ground Gear & Handwheel	AGHW
Memory Stop Gear & Handwheel	MGHW
Lever/Wrench (8″ and smaller)	L
Direct Nut (8″ and smaller)	TC
Drilled & tapped with (2) Schrader fittings	BAL
Drilled & tapped with (2) Pet cocks	PC

Example: 4″ 601NOMGHWBAL – ANSI 125 Flanged, Nickel Seat, EPDM plug, with Memory Stop Gear & Handwheel, Drilled & tapped with Schrader fittings

Notes: Valves are only tested for bidirectional shutoff if specified at time of order. Contact factory for bidirectional ratings. We recommend valves for bidirectional service, Class 150 and Class 250 valves to have gear operators.

PRESSURE RATING

1/2″ - 2″ (613A)	NPT	400 psi
2″ - 12″	ANSI 125	175 psi
14″ & larger	ANSI 125	150 psi
12″ & smaller	ANSI 250	400 psi
14″ & larger	ANSI 250	300 psi
20″ & smaller	ANSI 150	285 psi

Body Hydrotest = 150% of rated pressure
Seat Test = 100% of rated pressure
Testing per AWWA C517

AVAILABLE ELASTOMERS

Nitrile

A general purpose material sometimes referred to as BUNA-N or HYCAR with a -20°F to 212°F temperature range. Used on sewage, water, hydrocarbon and mineral oils.

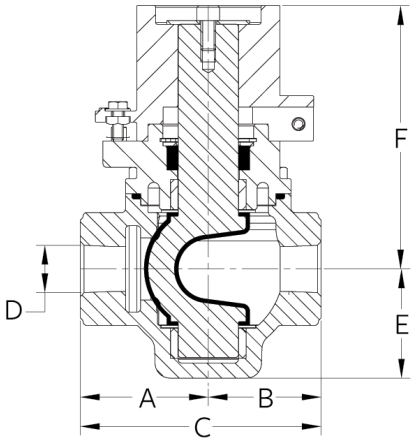
EPDM

An excellent polymer for use on chilled water through to LP steam applications having a temperature range of -35°F to 250°F. Resistance to many acids, alkalies, detergents, phosphate esters, alcohols and glycols is an added benefit.

Neoprene

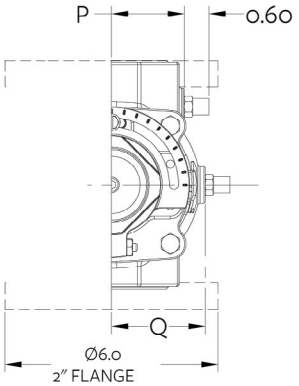
This versatile material shows outstanding resistance to abrasion and ozone. Chemical resistance to a wide range of petroleum base products and dilute acids and alkalies. Temperature range -20°F to 225°F.

613A / 611A THREADED END / FLANGED (2" ONLY) WRENCH OPERATED

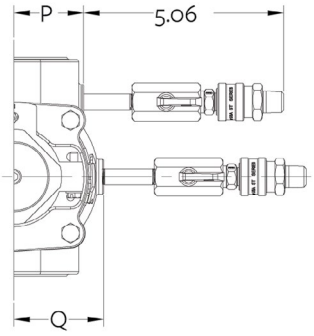


	THREADED ENDS						FLANGED ENDS
Size	1/2	3/4	1	1-1/4	1-1/2	2	2
A	2.13	2.13	2.13	3.00	3.00	3.00	-
B	1.88	1.88	1.88	2.50	2.50	2.50	-
C	4.00	4.00	4.00	5.50	5.50	5.50	7.00
D	1/2" NPT	3/4" NPT	1" NPT	1-1/4" NPT	1-1/2" NPT	2" NPT	2"
E	1.81	1.81	1.81	2.50	2.50	2.50	3.06
F	4.38	4.38	4.38	5.00	5.00	5.00	5.00
P	1.25	1.25	1.25	1.75	1.75	1.75	1.75
Q	1.63	1.63	1.63	2.25	2.25	2.25	2.25
Weight (approx.)	7.50	7.25	7.00	13.00	11.75	10.00	18.00

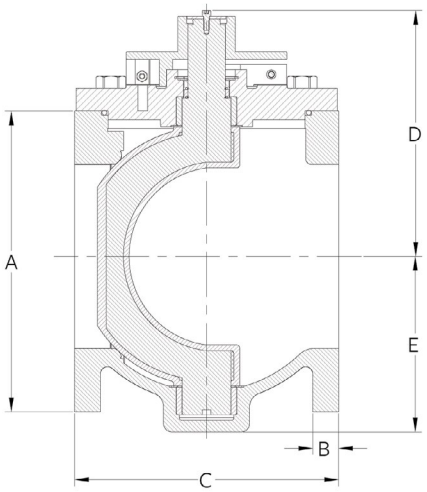
1/2" – 2"



SCHRADER FITTING



PET COCK FITTING

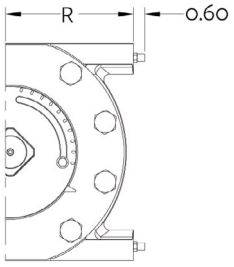


601 / 611

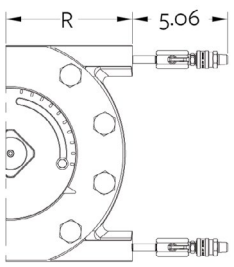
FLANGED END - ANSI 125

Size	2.50	3	4	5	6	8
A	7.00	7.50	9.00	10.00	11.00	13.50
B	.69	.75	.94	.94	1.00	1.13
C	7.50	8.00	9.00	10.00	10.50	11.50
D	6.19	6.19	7.25	8.38	8.38	10.69
E	3.50	3.75	4.50	5.75	5.75	7.63
R	2.25	2.25	4.50	5.00	5.50	6.75
Weight (approx.)	30	40	70	105	115	190

4" – 8"

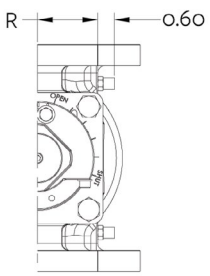


FLANGED END
SCHRADER FITTING

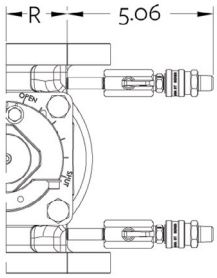


FLANGED END
PET COCK FITTING

2-1/2" – 3"



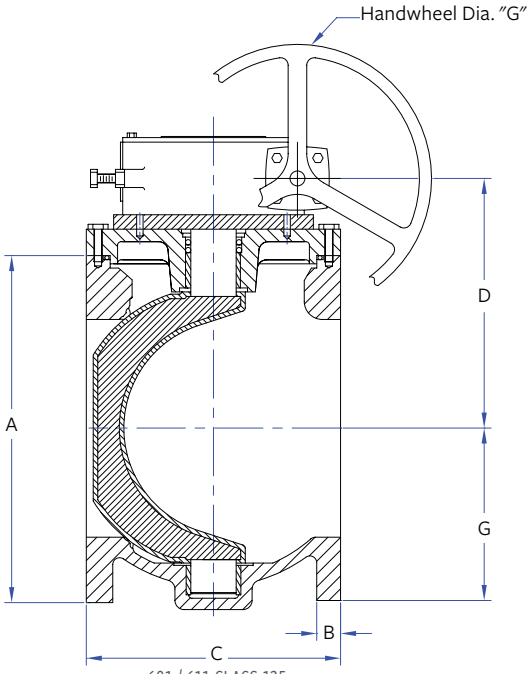
FLANGED END
SCHRADER FITTING



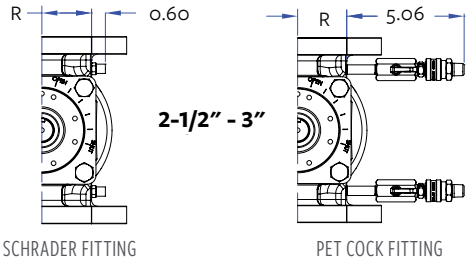
FLANGED END
PET COCK FITTING

NOTE: Drawings are for information purposes only; please request certified drawings before preparing piping diagrams

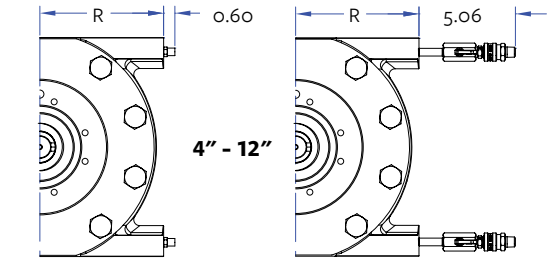
601 / 611 CLASS 125 FLANGED END GEAR OPERATED



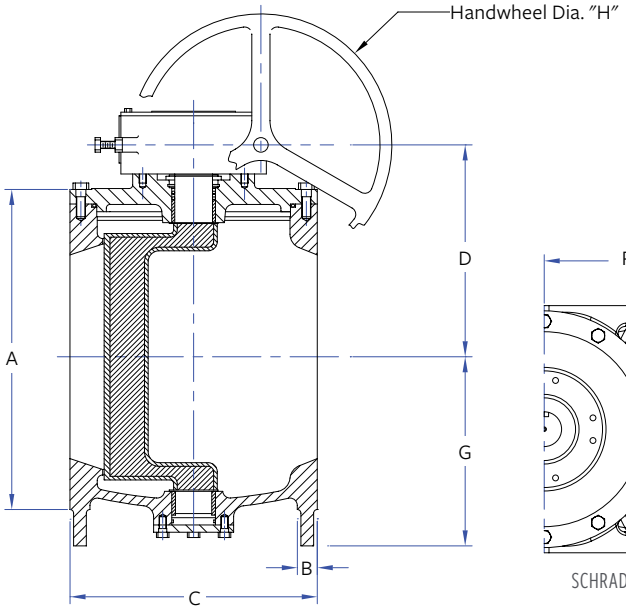
601 / 611 CLASS 125

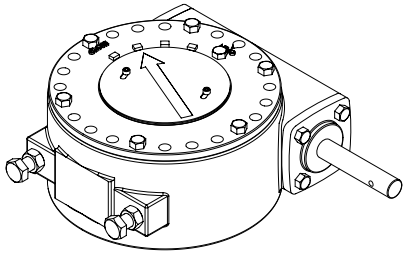


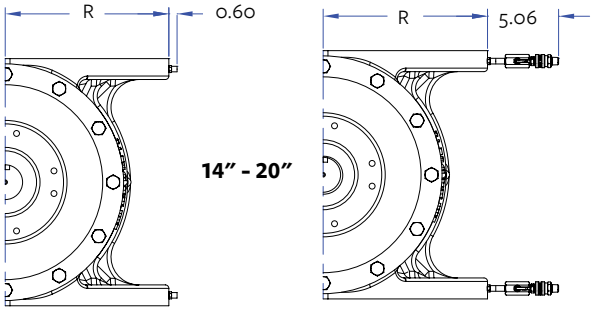
SCHRADER FITTING PET COCK FITTING



SCHRADER FITTING PET COCK FITTING




MEMORY GEAR
ISOMETRIC VIEW



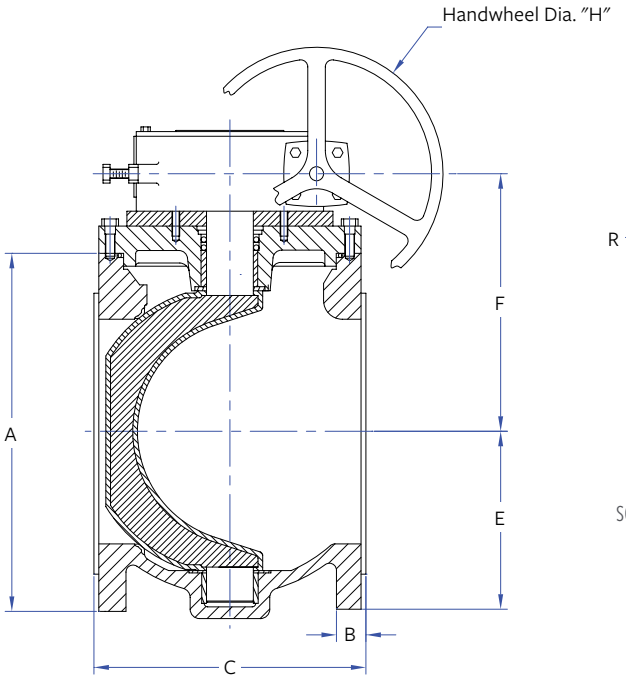
SCHRADER FITTING PET COCK FITTING

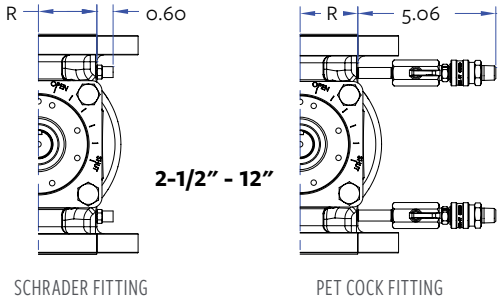
FLANGED END - ANSI 125

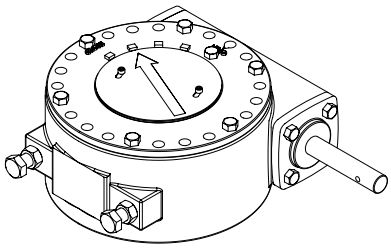
Size	2.50	3	4	5	6	8	10	12	14	16	18	20
A	7.00	7.50	9.00	10.00	11.00	13.50	16.00	19.00	21.00	23.50	25.00	27.50
B	.69	.75	.94	.94	1.00	1.13	1.19	1.25	1.38	1.44	1.56	1.69
C	7.50	8.00	9.00	10.00	10.50	11.50	13.00	14.00	17.00	17.75	21.50	23.50
D	5.16	5.16	6.31	7.63	7.63	9.63	11.25	12.88	14.56	15.81	16.36	17.63
G	3.50	3.75	4.50	5.75	5.75	7.63	8.88	10.00	13.00	14.00	15.00	16.00
H	6.00	6.00	6.00	6.00	6.00	12.00	12.00	12.00	18.00	18.00	18.00	18.00
R	2.25	2.25	4.50	5.00	5.50	6.75	8.00	9.50	10.50	11.75	12.50	13.75
Weight (approx.)	40	50	95	130	140	220	345	440	905	1030	1355	1880

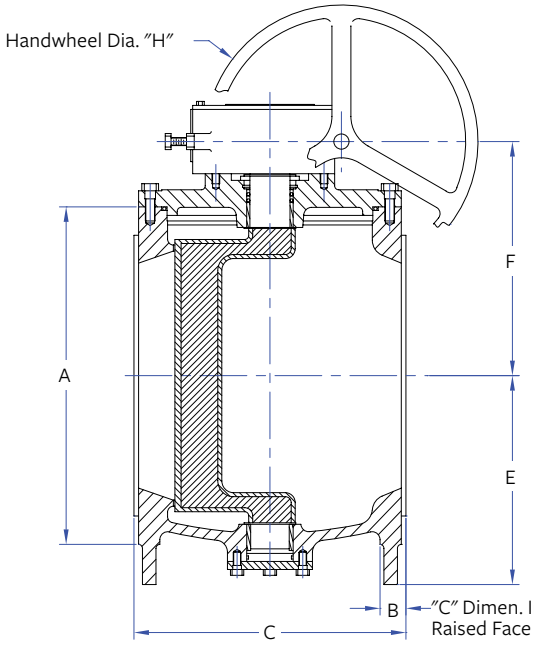
Flanged valves meet ANSI B16.1
Weight includes gear operator
NOTE: Drawings are for information purposes only; please request certified drawings before preparing piping diagrams

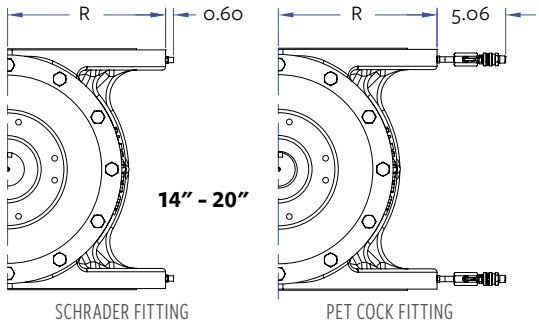
602 CLASS 250 FLANGED END GEAR OPERATED











FLANGED END - ANSI 250

Size	2.50	3	4	5	6	8	10	12	14	16	18	20
A	7.50	8.25	10.00	11.00	12.50	15.00	17.50	20.50	23.00	25.50	28.00	30.50
B	1.00	1.13	1.25	1.38	1.44	1.63	1.88	2.00	2.12	2.25	2.38	2.50
C	9.50	11.13	12.00	15.00	15.88	16.50	18.00	19.75	18.50	19.38	23.13	25.00
E	3.50	3.75	4.50	5.75	5.75	7.63	8.88	10.00	13.00	14.00	15.00	16.00
F	5.16	5.16	6.31	7.63	7.63	9.63	11.25	12.88	14.56	15.81	16.36	17.63
H	6.00	6.00	6.00	6.00	6.00	12.00	12.00	12.00	18.00	18.00	18.00	18.00
R	2.25	2.25	2.88	3.50	3.69	5.00	6.19	7.38	11.50	12.75	14.00	15.25
Weight (approx.)	80	90	150	190	200	310	398	590	980	1125	1830	2060

All above gear operators as standard
Weight includes gear operator
NOTE: Drawings are for information purposes only; please request certified drawings before preparing piping diagrams

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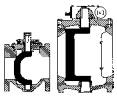
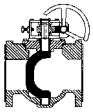
Product Guide



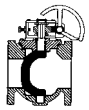
SERIES 600/601
Eccentric Plug Valve
Flanged and MJ

- Welded Nickel Seat
- Stainless Steel Bearings
- ANSI-B16.1 Flanges
- Solid Ductile Iron Plug
- Low Pressure Drop
- Flanged & MJ Ends
- Sizes 2″ - 72″ FL
- Sizes 3″ - 48″ MJ



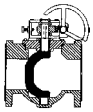
SERIES 601SS
Eccentric Plug Valve

- Integral Stainless Seat
- Stainless Bearings
- Stainless Steel Body
- ANSI B16.5 Class 150 Flanges
- Solid Stainless Steel Plug
- Low Pressure Drop
- Size: 1/2″ - 24″



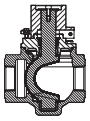
SERIES 601RL
Eccentric Plug Valve
Rubber Lined

- Soft or Hard Rubber Lining
- Stainless Steel Bearings
- ANSI B16.1 Flanges
- Solid Ductile Iron Plug
- Low Pressure Drop
- Sizes 3″ - 54″
- Metal Plugs Available – *Consult Factory*



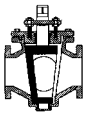
SERIES 602
Eccentric Plug Valve
High Pressure

- Ductile Iron Body
- ANSI B16.1 Flanges
- MJ AWWA C111
- Welded Nickel Seat
- Solid Ductile Iron Plug
- Low Pressure Drop
- Sizes 2″ - 72″ FL
- Sizes 3″ - 48″ MJ



SERIES 613A
Eccentric Plug Valve
Threaded End

- Ductile Iron Construction
- Round Port
- Stainless Steel Bearings
- Low Pressure Drop
- Memory Stop
- NPT End Connections
- Sizes 1/2″ - 2″

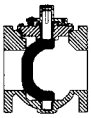


SERIES 604E
Eccentric Plug Valve
Three Way Valve

- Epoxy Seat
- Solid Ductile Iron Plug
- Stainless Steel Bearings
- Low Pressure Drop
- Lift & Turn NOT Required
- High Solids & Flow Capacity
- Sizes 3″ - 16″

SERIES 606
Eccentric Plug Valve
Grooved End

- Welded Nickel Seat
- Stainless Steel Bearings
- AWWA C-606 Grooved
- Solid Ductile Iron Plug
- Low Pressure Drop
- Ductile or Steel Pipe
- Sizes 3″ - 24″

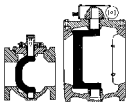


SERIES 611/610
Eccentric Plug Valve
Flanged and MJ

- Ductile Iron Body
- ANSI B16.1 Flanges
- MJ AWWA C111
- Welded Nickel Seat
- Solid Ductile Iron Plug
- Low Pressure Drop
- Sizes 2″ - 72″ FL
- Sizes 3″ - 48″ MJ

MODEL 625
Eccentric Plug Valve

- Available in Threaded and Flanged Ends
- Rated for 175 psi
- Sizes 1/2″ - 4″
- UL / CGA Listed



SERIES 600FP/601FP
Eccentric Plug Valve

- Full / 100% PORT
- Welded Nickel Seat
- Stainless Steel Bearings
- ANSI-B16.1 Flanges
- Solid Ductile Iron Plug
- Low Pressure Drop
- Flanged & MJ Ends
- Sizes 2″ - 48″ FL
- Sizes 3″ - 48″ MJ

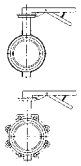


FIGURE 396/397
General Service Butterfly Valve

- Meets MSS SP 67
- Ductile Iron Body
- DI-NP Disc
- Other Materials Upon Request
- Wrench or Gear Operated Available
- 2″ - 48″ Size Range

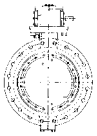


FIGURE 510A/511A
AWWA Butterfly Valve

- Complies with AWWA C-504
- Class 150B Flanged or MJ
- Cast Iron Body and Disc
- Seat in Body
- Flow Through Disc on 24″ and Larger
- Epoxy Paint on All Sizes Standard
- 3″ - 72″

SERIES 8500
AWWA Swing Check

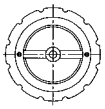
- Full Waterway
- Ductile Iron Construction
- Weight or Spring
- Air Cushion
- SS Body Seat Ring
- Buna Disc Insert
- Sizes 3″ - 24″

SERIES 8000
AWWA Swing Check

- Full Waterway
- Weight or Spring
- Bronze / SS Body Seat Ring
- Bronze / Buna / EPDM Disc Insert
- Sizes 2″ - 36″

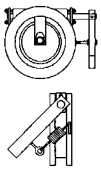
SERIES 9000
AWWA Swing Check

- Clear Waterway
- Weight or Spring
- Air or Oil Cushion
- Bronze / SS Body Seat Ring
- Bronze / Buna / EPDM Disc Insert
- Sizes 3″ - 72″



SERIES 720A
Wafer Check Valve

- Center Guided
- Check Valve
- Rated for 250 psi
- SS Disc / EPDM Seat
- Sizes 2″ - 12″



SERIES 700
Wafer Check Valve

- ANSI Class 125 / 150
- High Flow Capacity
- Narrow Face-to-Face
- Sizes 3″ - 12″
- 316 SS Internals
- Disc Position Indicator

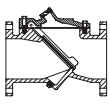


FIGURE 851
Flex Check

- Million Cycle Certification
- Complete Ductile Iron Construction
- 250 psi Pressure Rating
- Fully Epoxy Lined Interior
- No Internal Shafts, Bearings or Bushings
- No External Levers, Weights or Springs
- Mechanical Indicator (3″ - 16″)
- 2″ - 24″ Size Range
- Backflush Devices
- Proximity Switches

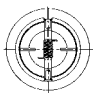


FIGURE 740A
Double Disc Check Valve

- Wafer Pattern Check Valve Rated for 250 psi
- Available in Sizes 2″ - 36″ With a SS Disc / EPDM Seat

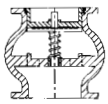


FIGURE 821A
Global Style Check Valve

- Center Guided Check Valve
- SS Disc / EPDM Seat and is Available in Sizes 2″ - 24″

For more information about us or to view our full line of water products, please visit www.millikenvalve.com or call Milliken customer service at 1.800.423.1323.

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