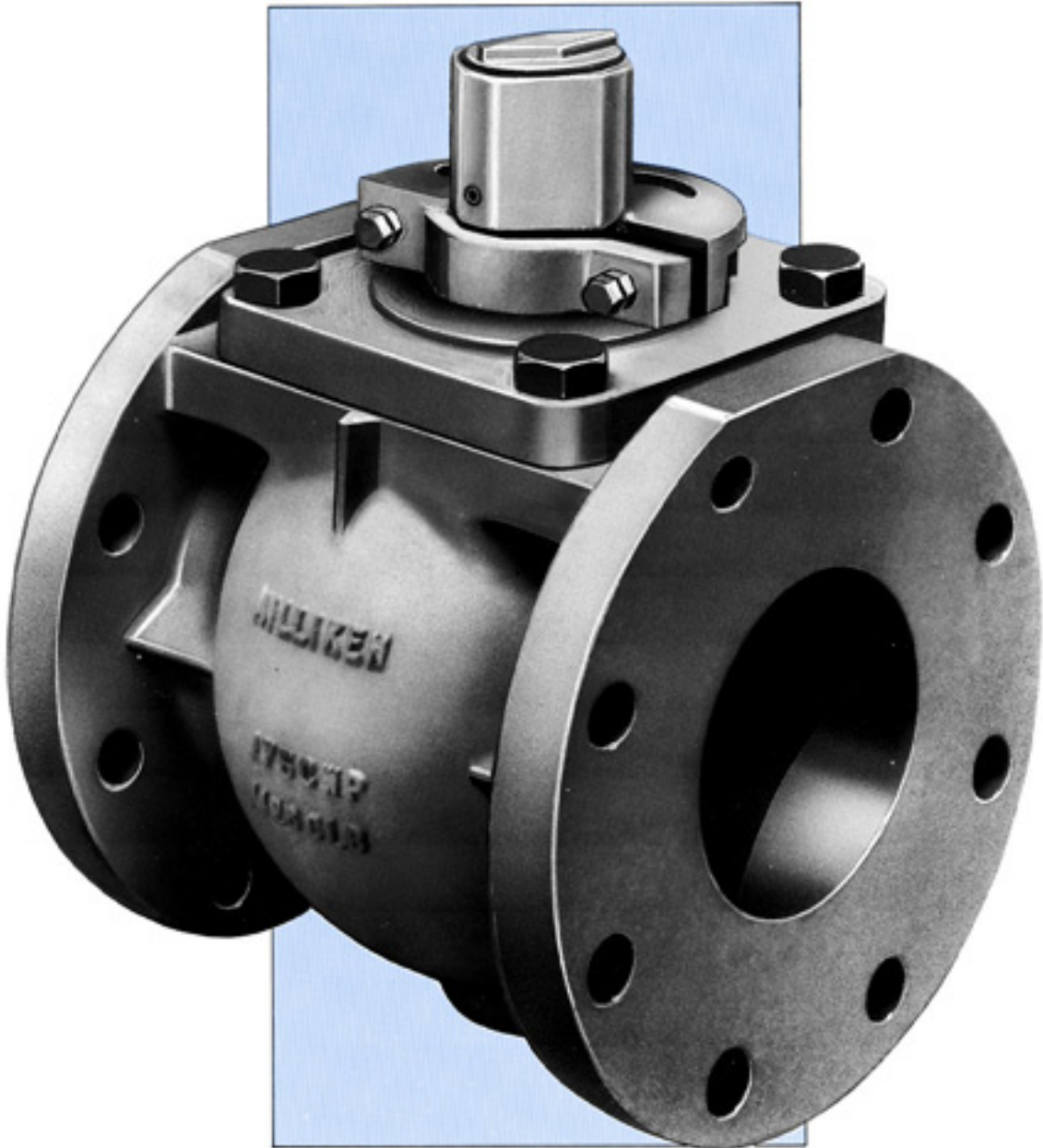


MILLIKEN

MILLCENTRIC

— ECCENTRIC PLUG VALVE —



MILLIKEN

MILLCENTRIC

ECCENTRIC PLUG VALVE

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

BODY

Conforming to AWWA C504 wall thickness, the Millcentric valve body casting is in ASTM A126 CL B cast iron using high pressure molding techniques. Alternative flanged, grooved or mechanical joint ends are available.

Flange diameter, thickness and drilling conform to ANSI B16.1 Class 125 or 250.

Grooved ends meet AWWA C-606 for ductile or steel pipe. Mechanical joints to AWWA C111 (ANSI A21.11).

SEAT

The Millcentric valve incorporates as standard, on 3" and larger, a welded 90% nickel seat for corrosion and erosion resistance specially profiled for low torque and extended seat life.

An alternative corrosion resistant epoxy seat is available for general service duties.

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 sealing system (per AWWA C504) gives positive, trouble-free service and is retained independently of the plug stem or external torque device.

BEARINGS

The plug rotates in permanently lubricated 316 grade stainless steel bearings on 20" and smaller, and permanently lubricated bronze bearings on 24" and larger, located in the body and bonnet, along with upper and lower PTFE thrust washers, which ensure consistently low operating torque.

- Computer Aided Design
- High integrity casting
- CNC manufacturing delivers consistent sizes on all components

All complemented by rigorous Quality Control System

PLUG

Supported on integral trunnions, the plug face is covered with an elastomer that is molded 2½"-12" and vulcanized on 14" and larger to the casting providing tight shut off even under vacuum conditions. High integrity corrosion-free sealing is achieved by a variety of abrasion resistant elastomers which protect the plug right up to the trunnions. When assembled, the light compression of the elastomers onto PTFE thrust washers, prevents entry of abrasive materials into the bearings.

BONNET SEAL

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

FLOW

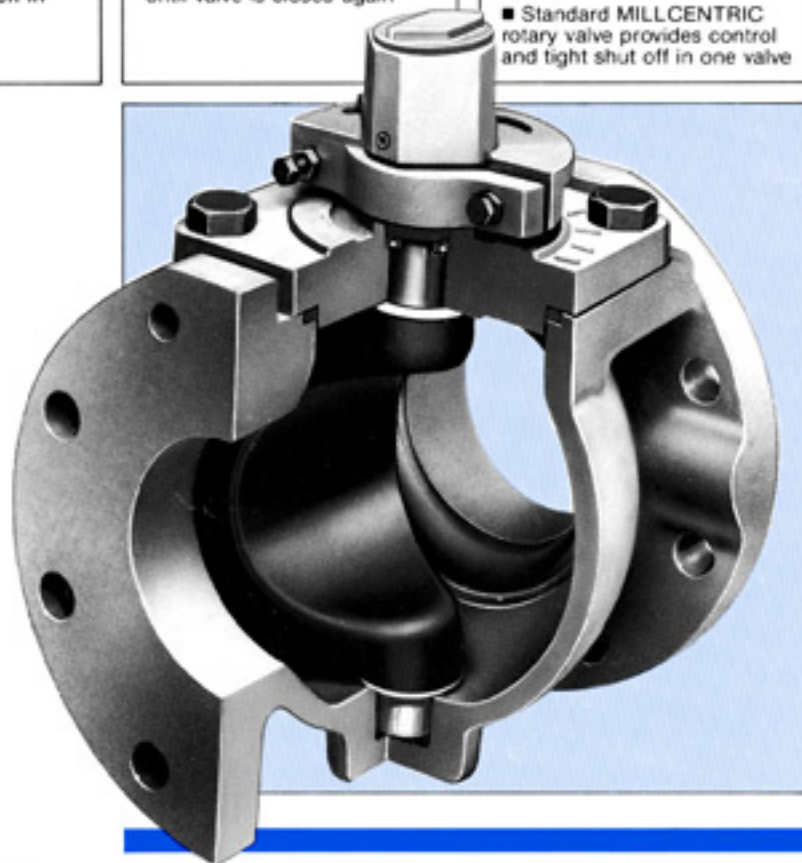
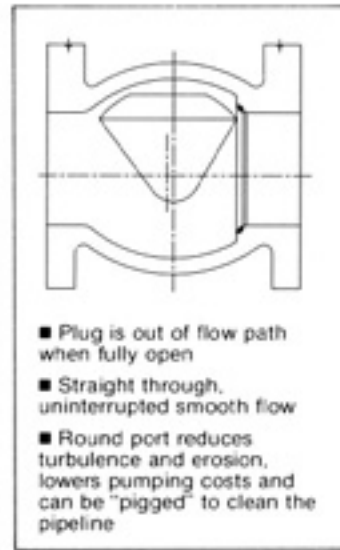
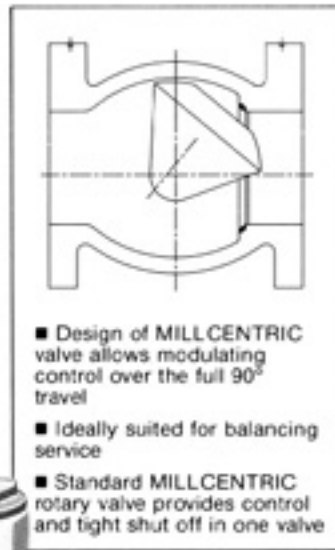
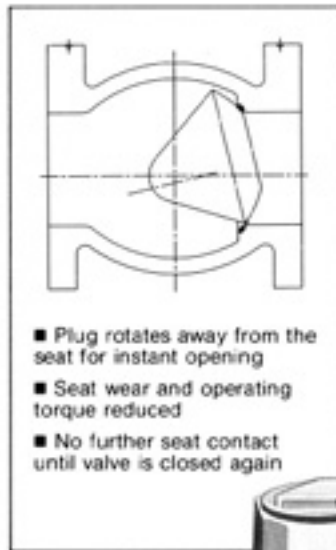
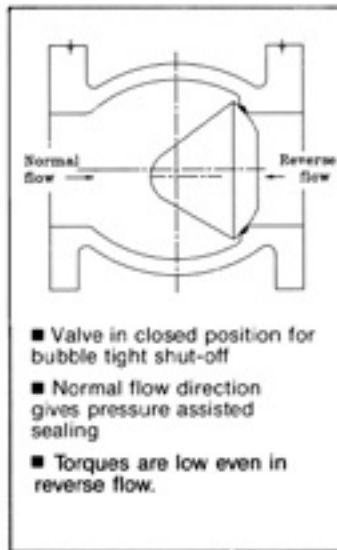
The port design (round on 2½"-12" and rectangular on 14" and larger) with streamlined internal contours gives high capacity straight through flow in the full open position, reducing turbulence and pressure drop and the effect of erosive media. Handling of sludges and slurries is therefore enhanced.

INTERCHANGEABLE

Because of common face to face dimensions with wedge gate valves (3"-12"), fitting the tight shut-off rotary MILLCENTRIC valve into existing systems is accomplished without pipeline modifications.

TRAVEL STOPS

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



INSTALLATION

The MILLCENTRIC valve is suitable for flow and shut-off in either direction. Seat end downstream is the preferred orientation and any reverse flow requirement should be stated at the time of order. For use on fluids with suspended solids, installation with the seat upstream and the valve stem horizontal may be preferable; plug rotation to the top of the valve will ensure smooth operation.

IN-LINE MAINTENANCE

In the unlikely event of gland leakage, the stem seals can be easily replaced without removing the bonnet. Access to the body for cleaning or inspection does not require removal from the line.

MODULAR CONSTRUCTION

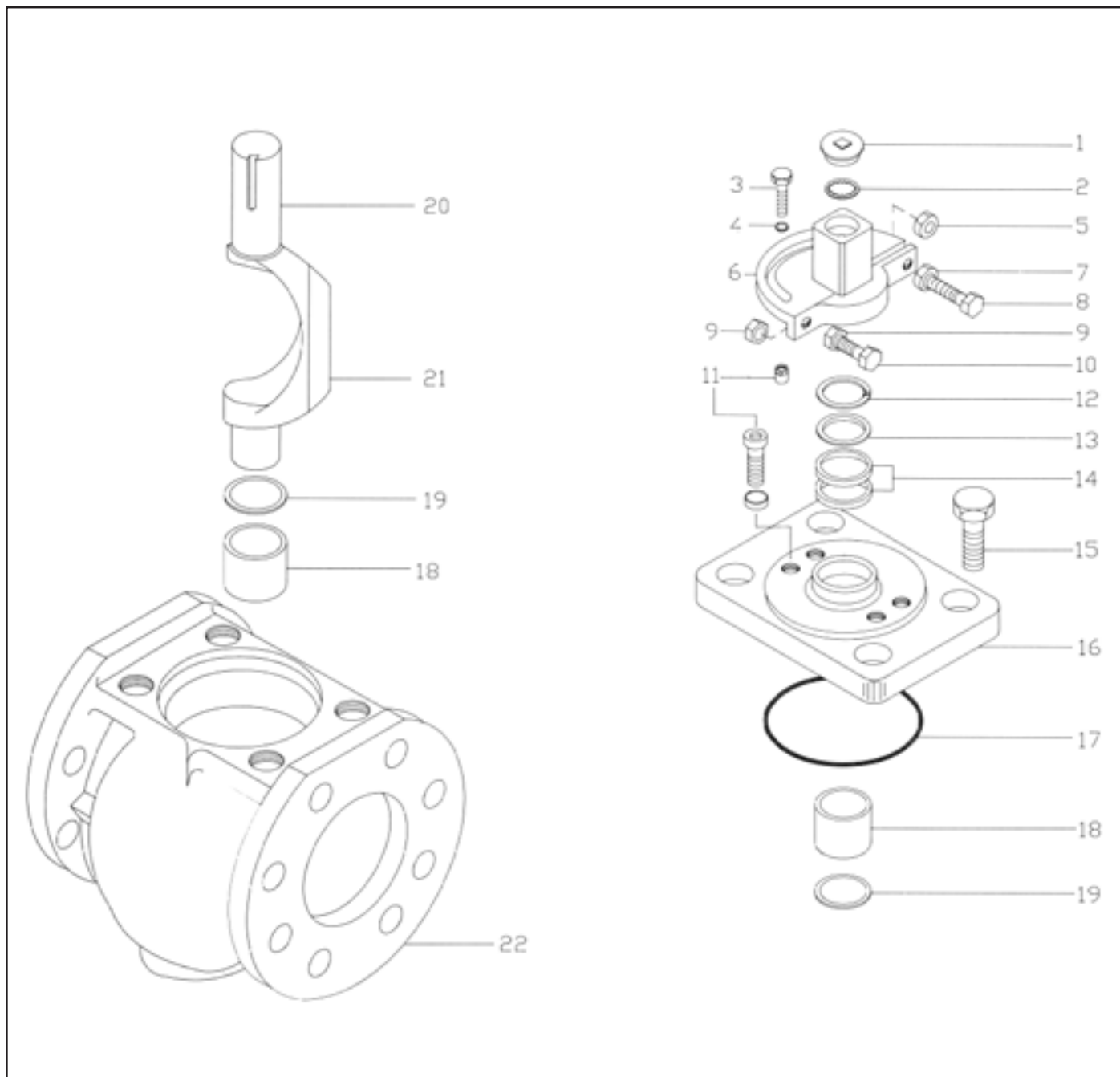
Design of the bonnet and stem allows for on-site adaptation of gear operators, power actuators, or extension devices on to standard valves. Conversion can be easily undertaken without removing the valve bonnet, thereby minimizing downtime.

POWER OPERATION

Pneumatic, electric or hydraulic operation is available, complete with accessories such as limit switches, solenoid valves and positioners when required.

MATERIALS OF CONSTRUCTION

Item	Component	Material	Specification	Item	Component	Material	Specification
1	Indicator Cap	Plastic		12	Snap Ring	Spring Steel	
2	Star Nut	Steel		13	Washer	Brass	ASTM B-138-675
3	Open Stop	Steel		14	U-Cup Seal	Elastomer	Same as Plug
4	Washer	Steel		15	Capscrew	Steel	
5	Nut	Steel		16	Bonnet	Cast Iron	ASTM A-126 Class B
6	Torque Collar	Ductile Iron	ASTM A-536	17	"O" Ring	Elastomer	Same as Plug
7	Lock Nut	Steel		18	Journal Bearing	Stainless Steel Bronze	ANSI 316 SAE 841
8	Torque Bolt	Steel		19	Thrust Washer	PTFE	
9	Lock Nut	Steel		20	Plug	Ductile Iron Cast Iron	ASTM A-536 ASTM A-126 CLB
10	Closed Stop	Steel		21	Plug Coating	Elastomer	As Specified
11	Travel Stop			22	Body	Cast Iron	ASTM A-126 Class B



ELASTOMERS AVAILABLE FOR MILLCENTRIC VALVE

Natural rubber is also available.

Nitrile

A general purpose material sometimes referred to as BUNA-N or HYCAR with a -20°F to 225°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, alkalis, 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 based products and dilute acids and alkalis. Temperature range -20°F to 225°F.

Viton

Retention of mechanical properties at high temperature is an important feature of this elastomer: temperature range is -10°F to 400°F. It also has excellent resistance to oils, fuels, lubricants and most mineral acids and aromatic hydrocarbons.

PRESSURE RATING

12" and smaller	ANSI 125	175 psi
14" and larger	ANSI 125	150 psi
12" and smaller	ANSI 250	400 psi
14"-36"	ANSI 250	300 psi
Body Hydrotest = 200% of rated pressure		
Seat Test = 120% of rated pressure		

MILLCENTRIC VALVE - SERIES 600

ORDERING INFORMATION

Valve Types	Designation
Mechanical Joint	600
ANSI 125 Flanged	601
ANSI 250 Flanged	602
ANSI 125 Grooved End for Steel Pipe	606S
ANSI 125 Grooved End for Ductile Iron Pipe	606D
Seat	
Nickel	N
Epoxy	E
Elastomer Trim	
EPDM	0
Nitrile (Buna)	1
Viton	2
Neoprene	3
Natural	4

Gear Operators

Buried Gear with 2" nut	BG
Above Ground Gear with Indicator and Handwheel	AG
Memory Stop Gearbox with Handwheel	MG

Example: 4" 601 N3AG

4" ANSI 125 Flanged with Nickel Seat, Neoprene Elastomer and Above Ground Gear with Indicator and Handwheel

VALVES ARE ONLY SUPPLIED FOR BI-DIRECTIONAL SHUT-OFF IF SPECIFIED AT TIME OF ORDER.

ELASTOMER SELECTION CHART

The chart below is to assist in the selection of elastomers for some common fluids. It doesn't mean other elastomers are not suitable within varying limits. Temperature, concentration, and mixture all affect chemical attack. If there is any

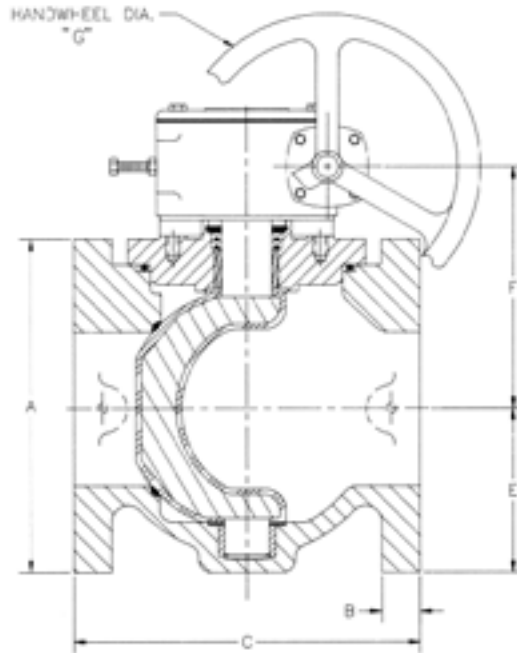
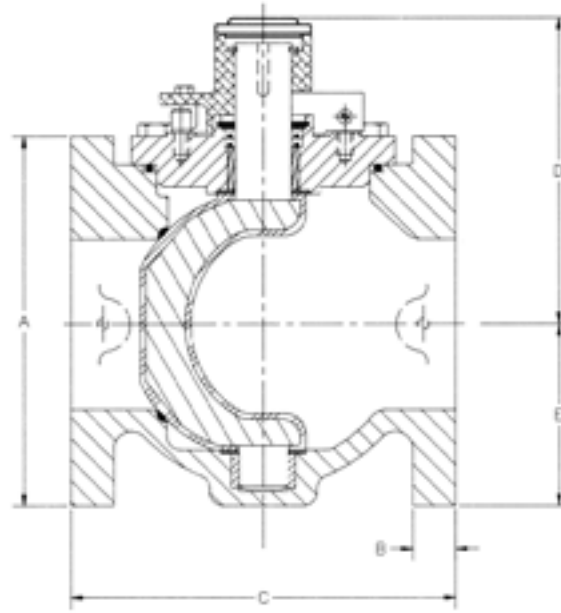
doubt regarding compatibility, specific conditions should be referred to engineering for recommendations. The chart below is to serve as a guide only.

Service	Elastomer	Average Useful Temp. Range	Service	Elastomer	Average Useful Temp. Range	Service	Elastomer	Average Useful Temp. Range
Acetone	EPDM	-35 F to 250 F	Caustic Soda	EPDM	-35 F to 250 F	Oil, Animal	Nitrile	-20F to 212F
Air	EPDM	-35 F to 250 F	Cement Slurry	EPDM	-35 F to 250 F	Oil, Mobil Therm Light	Viton	10F to 250F
Air w/Oil	Nitrile	0 F to 212 F	Copper Sulphate	EPDM	-35 F to 250 F	Oil, Mobil Therm 600	Viton	10F to 250F
Alcohol, Amyl	EPDM	0 F to 212 F	Creosote (Coal)	Nitrile	-20 F to 212 F	Oil, Mobil Therm 603	Nitrile	-20F to 212F
Alcohol, Aromatic	Viton	10 F to 250 F	Coal Slurry	Nitrile	-20 F to 212 F	Oil, Lubricating	Nitrile	-20F to 212F
Alcohol, Butyl	Neoprene	-20 F to 225 F	Diesel Fuel No 1	Nitrile	-20 F to 212 F	Oil, Vegetable	Nitrile	-20F to 212F
Alcohol, Denatured	Nitrile	-20 F to 212 F	Diethylene Glycol	EPDM	-35 F to 250 F	Paint, Latex	Nitrile	-20F to 212F
Alcohol, Ethyl	EPDM	-35 F to 250 F	Ethylene Glycol	EPDM	-35 F to 250 F	Phosphate Ester	EPDM	-35F to 250F
Alcohol, Grain	Nitrile	-20 F to 225 F	Fatty Acid	Nitrile	-20 F to 212 F	Propane	Nitrile	-20F to 212F
Alcohol, Isopropyl	Neoprene	-20 F to 225 F	Fuel Oil No 2	Nitrile	-20 F to 212 F	Rape Seed Oil	EPDM	-35F to 250F
Alcohol, Methyl	EPDM	-35 F to 250 F	Fertilizer Liquid (H,N,O)	EPDM	-35 F to 250 F	Sewage (w/ols)	Nitrile	-20F to 212F
Ammonia Anhydrous	Neoprene	-20 F to 225 F	Gasoline, Keg	Nitrile	-20 F to 212 F	Sodium Hydroxide 20%	EPDM	-35F to 250F
Ammonium Nitrate	EPDM	-35 F to 250 F	Gas, Natural	Nitrile	-20 F to 212 F	Starch	EPDM	-35F to 250F
Ammonia Water	EPDM	-35 F to 250 F	Glue, Animal	Nitrile	-20 F to 212 F	Steam to 300F	EPDM	-35F to 300F
Animal Fats	Nitrile	-20 F to 212 F	Green Liquor	EPDM	-35 F to 250 F	Stoddard Solvent	Nitrile	-20F to 80F
Black Liquor	EPDM	-35 F to 250 F	Hydraulic Oil (Petrol)	Nitrile	-20 F to 212 F	Sulphuric Acid 10%-50%	Neoprene	-35F to 158F
Blast Furnace Gas	Neoprene	-20 F to 225 F	Hydrogen	Nitrile	-20 F to 212 F	Sulphuric Acid 100%	Viton	10F to 300F
Butane	Nitrile	-20 F to 212 F	JF4, JFS	Viton	0 F to 300 F	Tetrachloroethylene Dry	Viton	10F to 250F
Bunker Oil "C"	Nitrile	-20 F to 212 F	Kerosene	Nitrile	-20 F to 212 F	Triethanol Amine	EPDM	-35F to 300F
Calcium Chloride	EPDM	-35 F to 250 F	Ketone	EPDM	-35 F to 250 F	Varnish	Viton	10F to 300F
Carbon Dioxide	EPDM	-35 F to 250 F	Lime Slurry	EPDM	-35 F to 250 F	Water, Fresh	EPDM	-35F to 250F
Carbon Monoxide (Cold)	Neoprene	-20 F to 150 F	Methane	Nitrile	-20 F to 212 F	Water, Salt	EPDM	-35F to 250F
Carbon Monoxide (Hot)	Viton	10 F to 300 F	Methyl Ethyl Ketone	EPDM	-35 F to 250 F	Xylene	Viton	10F to 300F
Carbon Tetrachloride	Viton	10 F to 300 F	Napha (Benzol)	Nitrile	-20 F to 212 F			

FLANGED END

FIG. 601

175 PSI

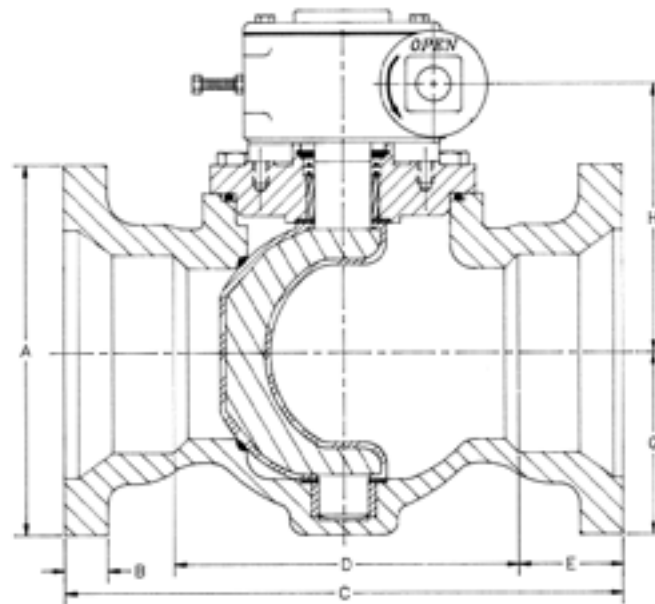
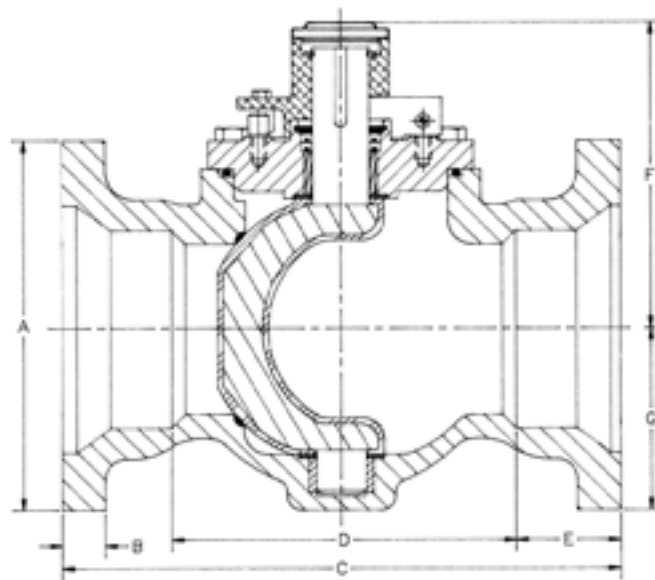


FLANGED END - ANSI 125									
Size	2.50	3	4	5	6	8	10*	12*	14*
A	7.0	7.5	9.0	10.0	11.0	13.5	16.0	19.0	21.0
B	0.68	0.75	0.93	0.93	1.00	1.12	1.18	1.25	1.38
C	7.50	8.00	9.00	10.00	10.50	11.50	13.00	14.00	17.00
D	6.18	6.18	7.25	8.38	8.38	10.68	--	--	--
E	3.50	3.75	4.50	5.75	5.75	7.62	8.88	10.00	13.00
F	5.38	5.59	6.31	7.56	7.56	9.63	11.63	13.31	13.31
G	6.00	6.00	6.00	6.00	6.00	12.00	12.00	12.00	12.00
WEIGHT (approx.)							**	**	**
	30	40	70	105	115	190	345	440	510

*10" & above have gear operators as standard

** Weight includes gear operator

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



MECHANICAL JOINT END							
Size	3	4	6	8	10*	12*	14*
A	7.68	9.0	11.12	13.38	15.62	17.93	20.31
B	0.93	1.0	1.06	1.12	1.18	1.38	1.31
C	11.5	14.25	15.75	17.38	19.38	20.75	24.50
D	6.5	9.25	10.75	12.38	14.38	15.75	17.50
E	2.5	2.5	2.5	2.5	2.5	2.5	3.5
F	6.18	7.25	8.38	10.68	--	--	--
G	3.84	4.5	5.75	7.62	8.88	10.0	13.00
H	5.62	6.31	7.56	10.12	11.62	13.31	13.31
WEIGHT (approx.)					**	**	**
	50	80	125	200	360	480	575

*10" & above have gear operators as standard

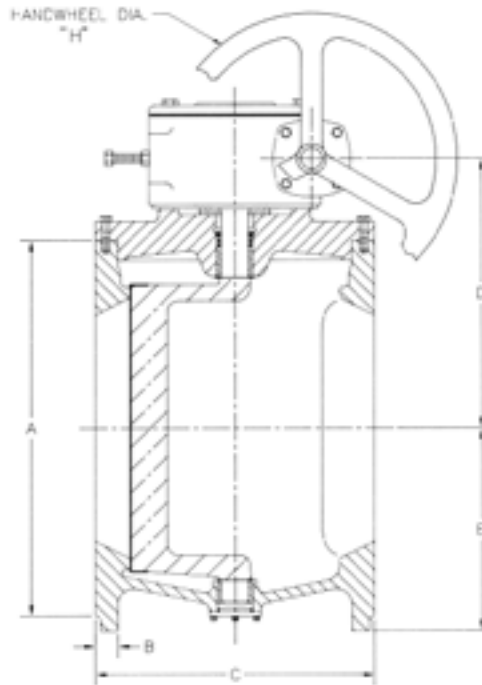
** Weight includes gear operator

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

FLANGED END

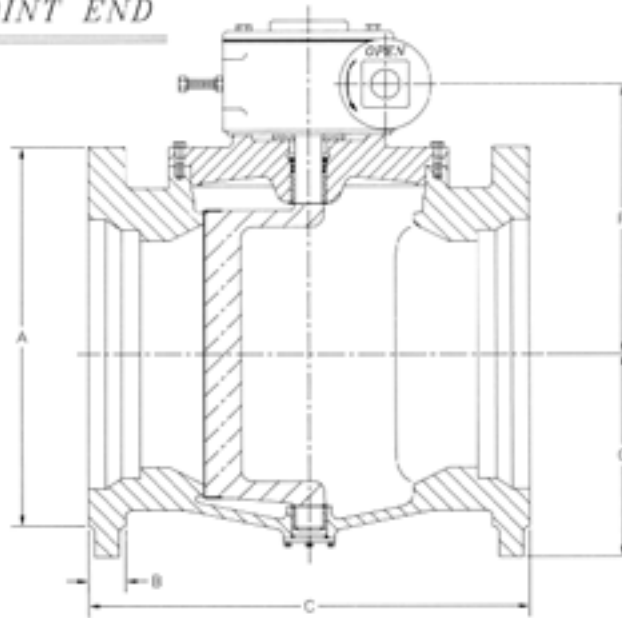
150 PSI

FIG. 601



MECHANICAL JOINT END

FIG. 600



FLANGED END - ANSI 125/150										
Size	14	16	18	20	24	30	36	42	48	54
A	21.0	23.25	25.0	27.5	32.0	38.75	46.0	53.0	59.5	66.25
B	1.38	1.43	1.56	1.68	1.88	2.12	2.38	2.62	2.75	3.00
C	17.0	17.75	21.5	23.5	42.0	51.0	60.0	72.0	84.0	96.0
D	15.06	15.81	17.0	20.43	22.88	27.59	33.0	37.62	37.62	37.62
E	13.0	14.0	15.0	16.0	21.62	24.75	29.0	29.0	35.0	36.0
H	18.0	18.0	18.0	18.0	24.0	24.0	24.0	30.0	30.0	30.0
WEIGHT (approx.)	905	1030	1355	1880	3800	5200	6950	10160	13350	15100

MECHANICAL JOINT END									
Size	14	16	18	20	24	30	36	42	48
A	20.31	22.56	24.84	27.0	31.5	39.12	46.0	53.0	60.0
B	1.31	1.38	1.43	1.5	1.62	1.68	2.0	2.0	2.0
C	24.5	27.25	29.25	31.0	42.0	51.0	60.0	72.0	84.0
F	15.06	15.81	17.0	20.43	22.88	26.93	33.0	37.62	37.62
G	13.0	14.0	15.0	16.0	21.62	24.75	29.0	29.0	36.0
WEIGHT (approx.)	905	1030	1355	1880	3800	5200	6950	10160	13350

Flanged valves meet ANSI B16.1

M.J. valves meet ANSI 21.11 & AWWA C-111

Weight includes gear operator

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

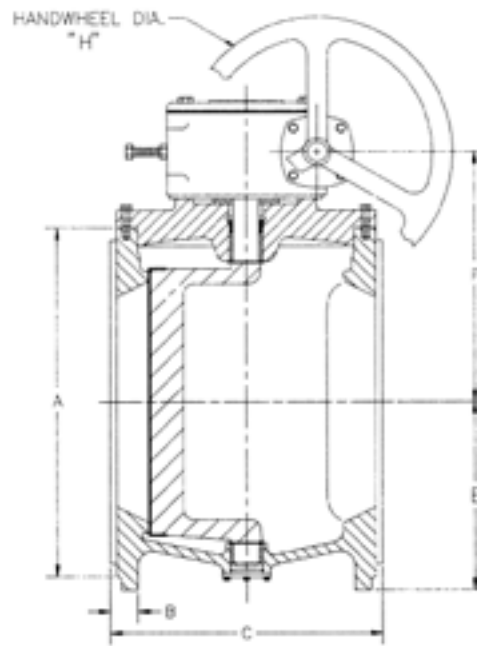
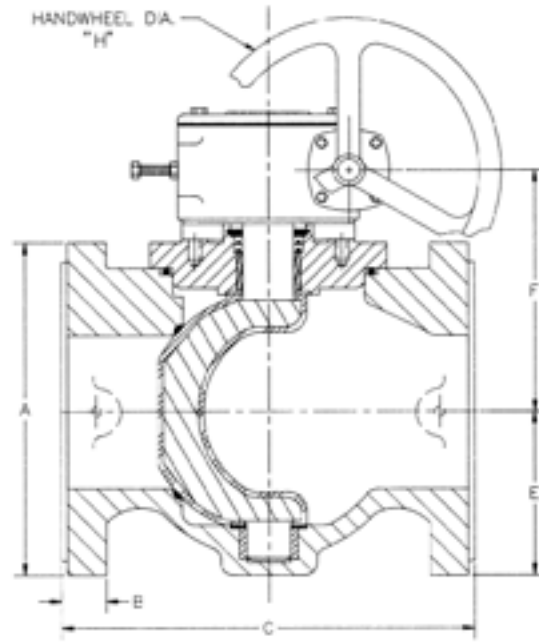
NOTE: Dimensions on 60" and larger available upon request.

FLANGED END

FIG. 602

2 1/2"-12" 400 PSI

14"-36" 300 PSI



"C" Dimen. includes 1/16" raised face

FLANGED END - CLASS 250															
Size	2.50	3	4	5	6	8	10	12	14	16	18	20	24	30	36
A	7.50	8.25	10.0	11.0	12.5	15.0	17.5	20.5	23.0	25.5	28.0	30.5	36.0	43.0	50.0
B	1.06	1.12	1.25	1.38	1.43	1.62	1.88	2.00	2.12	2.25	2.38	2.50	2.75	3.00	3.38
C	9.50	11.12	12.00	15.00	15.88	16.50	18.00	19.75	18.50	19.38	23.12	25.00	42.88	51.88	61.00
E	3.50	3.75	4.50	5.75	5.75	8.25	8.88	10.00	13.00	14.00	15.00	16.00	21.62	24.75	29.00
F	6.00	6.09	7.06	8.31	8.31	10.13	13.88	14.75	15.06	15.81	17.00	20.43	22.88	27.59	33.00
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	24.00	24.00	24.00
WEIGHT (approx.)	40	80	120	162	170	275	398	590	980	1125	1830	2060	4160	5700	7670

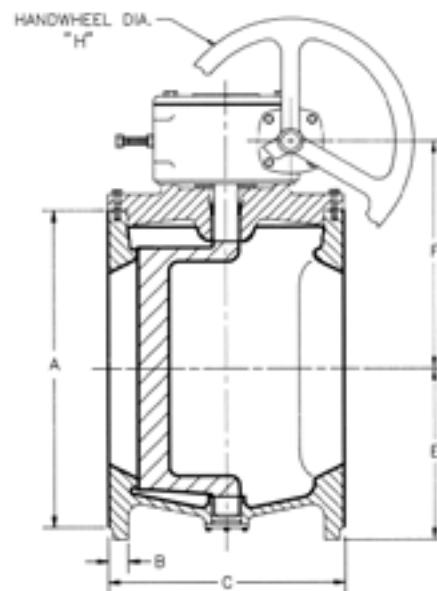
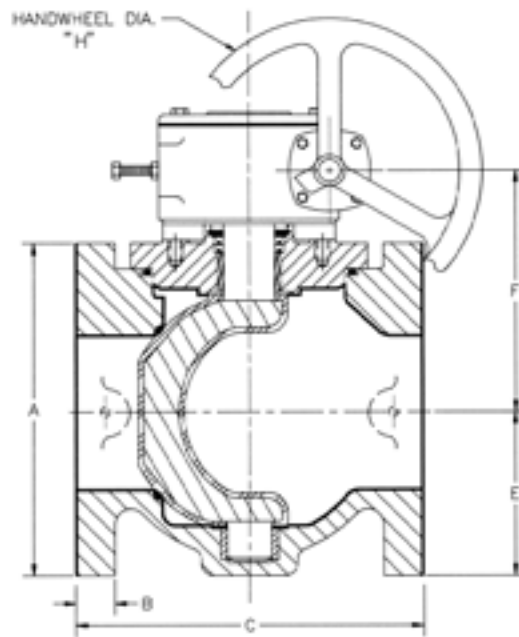
All above have gear operators as standard
Weight includes gear operator

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

FLANGED END

FIG. 601RL

2 1/2"-12" 175 PSI
14" and larger 150 PSI



FLANGED END - ANSI 125 RUBBER LINED																
Size	2.50	3	4	5	6	8	10	12	14	16	18	20	24	30	36	42
A	7.0	7.5	9.0	10.0	11.0	13.5	16.0	19.0	21.0	23.25	25.0	27.5	32.0	38.75	46.0	53.0
B	0.80	0.88	1.05	1.05	1.12	1.25	1.30	1.38	1.50	1.55	1.68	1.80	2.00	2.25	2.50	2.93
C	7.75	8.25	9.25	10.25	10.75	11.75	13.25	14.25	17.25	18.00	21.75	23.75	42.25	51.25	60.25	72.25
E	3.50	3.75	4.50	5.75	5.75	7.62	8.88	10.00	13.00	14.00	15.00	16.00	21.62	24.75	29.00	31.25
F	6.00	6.09	7.06	8.31	8.31	10.13	15.50	17.19	15.06	15.81	17.00	20.43	22.88	27.59	33.00	37.62
H	6.00	6.00	6.00	6.00	6.00		12.00	12.00	18.00	18.00	18.00	18.00	24.00	24.00	30.00	30.00
WEIGHT (approx.)	30	70	100	135	145	240	345	440	905	1030	1355	1880	3800	5200	6950	10160

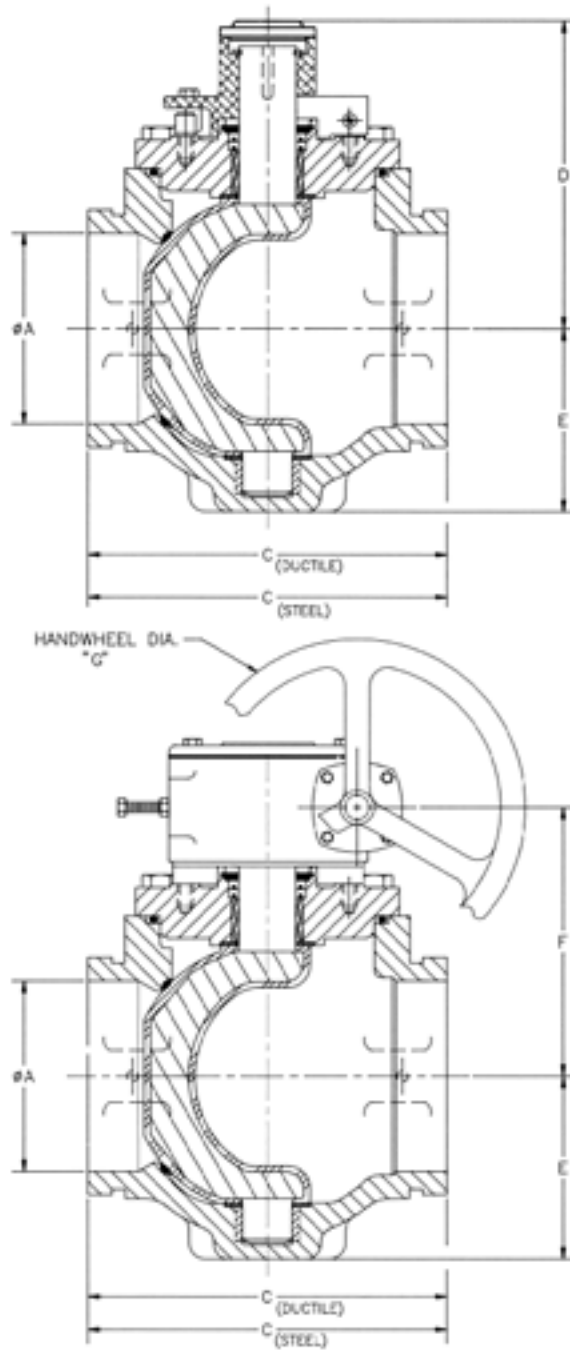
All above have gear operators as standard
Weight includes gear operator

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

GROOVED END

FIG. 606

175 PSI



GROOVED END - AWWA 606									
Size	2.50	3	4	5	6	8	10*	12*	14*
A	2.5	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0
C - duct.	N/A	N/A	10.25	N/A	12.5	14.00	16.56	18.00	21.63
C - steel	8.50	8.50	10.13	12.38	12.38	13.88	16.44	18.00	21.50
D	6.18	6.18	7.25	8.38	8.38	10.68	--	--	--
E	3.50	3.75	4.50	5.75	5.75	7.62	8.88	10.00	10.00
F	5.38	5.59	6.31	7.56	7.56	9.63	11.63	13.31	13.31
G	6.00	6.00	6.00	6.00	6.00	12.00	12.00	12.00	18.00
WEIGHT (approx.)							**	**	**
	20	30	50	70	80	145	325	420	460

*10" & above have gear operators as standard

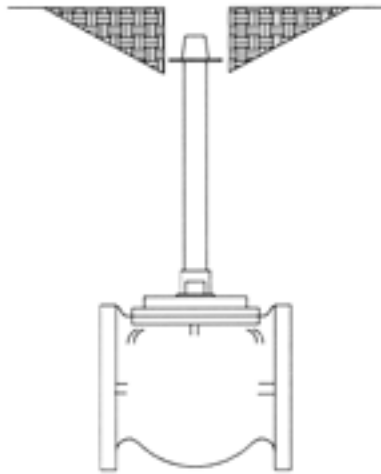
** Weight includes gear operator

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

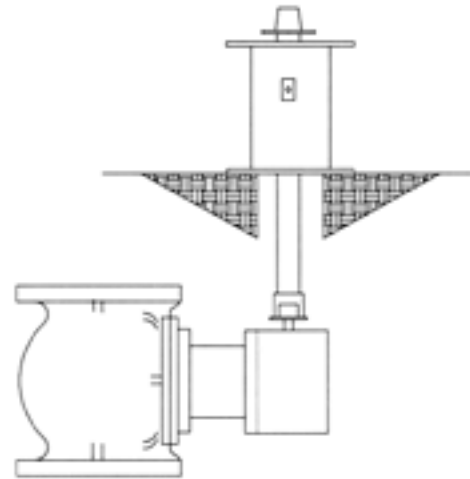
ADAPTATION

A range of extended stems & floor mounted stands for remote operation, particularly in buried service, are available.

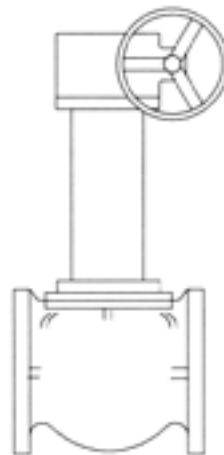
Chainwheel operation & locking devices are readily incorporated onto the MILLCENTRIC valve.



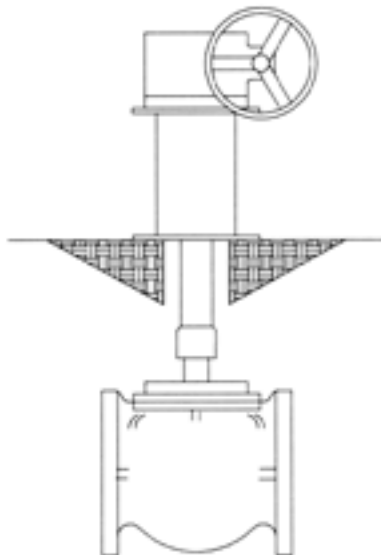
Valve with extended stem



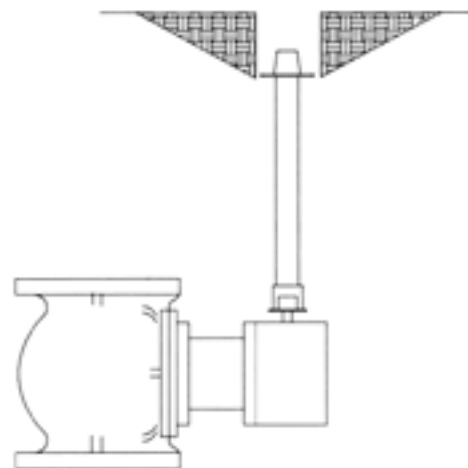
Valve with indicating floorstand



Valve with extended bonnet



Valve with non-indicating floorstand



Valve with extended stem & buried gear

MILLIKEN VALVE COMPANY, INC.

TERMS AND CONDITIONS OF SALE

ACCEPTANCE

The terms and conditions contained herein and attached hereto shall apply to all sales by Seller and no understanding, agreement, term, condition or trade custom or variance herewith shall be binding on the Seller. Any prior terms in Buyer's documents are specifically objected to and rejected. Any proposal for additions or different terms or any attempt by Buyer to vary in any degree any of these terms in Buyer's acceptance by Purchase Order or otherwise is objected to and shall not operate as a rejection of this offer to sell unless such variance is in the terms of description, quantity or price of goods, but shall be deemed accepted by Buyer without said additional or different terms, if this document is to be deemed an acceptance of a prior offer by Buyer such acceptance is expressly conditioned on Buyer's assent to any additional or offering terms contained herein.

The seller shall not be bound by any contract until approved in writing by an officer of the Seller at the Seller's principal place of business. The contract when so approved shall supersede all previous communications either oral or written. No modification shall be binding upon the parties unless such modification shall be in writing duly executed by the Buyer and approved by an executive officer of Seller.

RISK OF LOSS

Unless specifically agreed in writing, all freight damages shall be paid by Buyer and risk of loss or damage to the goods passes to Buyer upon delivery of the goods by Seller to the carrier regardless of FOB designations. Seller reserves the right to select the means of transportation and routing and to ship loads of any quantity without charge to Seller. Seller retains a security interest in the goods or any replacements thereof regardless of the mode or attachment to realty or other property until final payment in cash has been made therefore. Any damage or loss of goods during shipment must be reported to the carrier and to Seller before the unloading of such goods. Any claims for such damage or loss must be presented to Seller within 90 days of delivery.

DELIVERY

Any delivery dates or schedules quoted by Seller shall be interpreted as estimates only and in no event shall such dates be construed as falling within the meaning of "time is of the essence".

NO SET OFF

Neither Buyer or any affiliated company, surety or assignee, shall have the right to set off against any amounts which may become payable to Seller under this contract or otherwise, for amounts which the Seller may allegedly or in fact owe the Buyer or any affiliated company, surety or assignee, whether arising under this contract or otherwise.

PATENTS

Seller shall defend any suit or proceeding brought against the Buyer and shall pay any adverse judgment entered therein so far as such suit or proceeding is based upon a claim that the use of the goods or any part thereof manufactured by the Seller and furnished under this contract constitutes infringement of any U.S. patent, providing the Seller is promptly notified in writing and given authority, information and assistance for defense of same; and the Seller shall at its option, procure for the Buyer the right to continue to use said goods, or to modify it so that it becomes non-infringing, or to replace the same with non-infringing equipment or to remove said equipment and to refund the purchase price. The foregoing shall not be construed to include any agreement by the Seller to accept any liability whatsoever in respect to patents or inventions including more than the goods furnished hereunder, or in respect of patents for methods and processes to be carried out with the aid of said goods, except those which are inherent in the goods as furnished. The foregoing states the entire liability of Seller with regard to patent infringement.

If any goods shall be sold by the Seller to meet Buyer's specifications or requirements, Buyer agrees to defend, protect, indemnify and save harmless the Seller from any loss, damage, or injury arising out of the claim, suit or action of law or in equity for actual or alleged infringement of any patent of the U.S. or any foreign country because of such specifications or requirements in the sale of such goods and to defend such suit or actions which may be brought against the Seller.

CONFIDENTIAL INFORMATION

All drawings, designs, specifications and technical information prepared or submitted by Seller are confidential documents which are the sole property of Seller and shall not be used or turned over directly or indirectly in whole or in part to any person or persons not authorized by Seller in writing to inspect, possess or use same.

LIMITATION OF LIABILITY

IN NO EVENT SHALL THE TOTAL LIABILITY OF THE SELLER ARISING OUT OF THE PERFORMANCE OR BREACH OF THIS CONTRACT, WHETHER BASED ON CONTRACT, WARRANTY, NEGLIGENCE, INDEMNITY, STRICT LIABILITY OR OTHERWISE, EXCEED THE PURCHASE PRICE OF THE UNIT OF EQUIPMENT UPON WHICH SUCH LIABILITY IS BASED.

THE SELLER SHALL, IN NO EVENT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, INDIRECT, SPECIAL OR PUNITIVE DAMAGES ARISING OUT OF THIS CONTRACT OR ANY BREACH THEREOF, OR ANY DELAY IN DELIVERY OR DEFECT IN THE GOODS, PURCHASED HEREUNDER WHETHER BASED UPON LOST PROFITS OR REVENUE, WORK STOPPAGE, IMPAIRMENT OF OTHER GOODS, LOSS BY REASON OF SHUT-DOWN OR NON-OPERATION OR INCREASED EXPENSES OF OPERATION OR OTHERWISE, AND WHETHER OR NOT SUCH LOSS OR DAMAGE IS BASED ON CONTRACT, WARRANTY, NEGLIGENCE, INDEMNITY, STRICT LIABILITY OR OTHERWISE.

Seller shall not be responsible for any loss or damage resulting from any delay in delivery or failure to perform, due to war, riots, civil insurrection or acts of the common enemy, fire, floods, strikes or other labor difficulties, acts of civil or military authority, including governmental laws, orders, priorities, regulations, acts of the purchaser, embargo, any shortage, wreckage or delay in transportation, inability to obtain necessary labor, materials or manufacturing facilities, faulty forgings or castings or other causes beyond the reasonable control of the Seller. In the event of delay in performance due to any such cause, the estimated date of delivery or time for completion will be adjusted to reflect such delay. The Buyer's acceptance of the goods shall constitute a waiver of all claims for delay.

TAXES

The price does not include any federal, state, or local property license, privilege, sales, use, value added, excise, gross receipts, or other like taxes which may be now or hereafter applicable to, measured by or imposed upon or with respect to this transaction, the goods, their sale, value, or any service performed in connection therewith. Any such taxes shall be added to the price quoted herein, unless exemption or resale certificate acceptable to the taxing authority is furnished to Seller; if an exemption certificate previously accepted by seller is not recognized by the taxing authority involved, Buyer will immediately upon notice of the same pay to Seller the amount of the tax together with all penalties and interest thereon. Buyer shall also be liable to Seller for any expenses, including legal expenses, by reason of any delay or failure to pay as provided above.

WARRANTY

Seller warrants that the goods manufactured by it and delivered, or the services provided shall be free from significant defects in material and workmanship for a period of one year from the date of shipment of goods, or a period of 60 days from the completion of any service provided the goods or equipment are used with the service or pressure range for which they were manufactured. Seller shall, at its option, repair or replace any nonconformity by suitable repair or replacement FOB Seller's Plant, or by refunding the purchase price. Buyer shall bear all responsibility and expense incurred for removal, reinstallation, and shipping in connection with any part supplied under the foregoing warranty. Repair or replacement as set forth herein shall be the buyer's sole remedy, whether such claims are based on breach of warranty, negligence, or other theories.

This warranty shall apply only if the goods were installed in their "as shipped" condition and were installed, maintained, and operated in accordance with any specific recommendation of Seller. This warranty does not cover deterioration by corrosion or aging of parts, including stress corrosion. Repairs or alterations not authorized in writing by Seller shall void this warranty. Any material, equipment or part furnished by Seller but manufactured by others shall only carry whatever warranty the manufacturer thereof has conveyed to Seller and which can be passed on to the Buyer.

Compliance with the foregoing shall constitute fulfillment of all liabilities of Seller for any defect or nonconformity whether arising in contract, warranty, negligence, indemnity, strict liability or otherwise.

THE FOREGOING IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED. SELLER DISCLAIMS THE IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR PURPOSE.

DESIGN

Due to our policy of continuous product improvement, we reserve the right to change or modify design without incurring any obligation to furnish or install such changes or modifications on products previously or subsequently sold. Seller reserves the right to furnish substitutes for materials which cannot be reasonably obtained because of any restrictions, voluntary or compulsory, established by or in connection with any governmental authority.

ENGINEERING SERVICE

Upon request MILLIKEN VALVE COMPANY may provide engineering and/or technical information about its products and their use; and if feasible may provide personnel to assist purchaser in effecting field installation and/or field service. Such information, service, or assistance so provided, whether with or without charge, shall be advisory only, and purchaser agrees to hold MILLIKEN VALVE COMPANY harmless from claims for loss from any cause resulting from such advisory or service activity.

QUOTATIONS AND PRICES

Quotations are for acceptance within 30 days or for the period of time specifically stated in the quotation. Prices are subject to change without notice. Prices are FOB factory subject to seller's usual freight allowances, if any. Orders requiring export packaging shall be subject to additional charges determined by Seller, \$25.00 minimum.

TERMS

Terms of payment are Net 30 days. Unpaid balance beyond 30 days shall bear interest at the rate of 2% per month or the lawful maximum.

MINIMUM BILLING

Minimum billing of \$200.00 (\$50.00 for parts) net will be charged per order or any partial shipment requested by customer. Change orders and/or "add on" supplements are subject to additional billings commensurate with the cost and will receive individual consideration insofar as minimum billing, freight allowance and discount are concerned.

RETURNS, CANCELLATIONS, AND CLAIMS

No material may be returned for credit or adjustment without permission and return tagging instructions in writing from our General Office.

On all material approved for return for credit, handling, restocking costs, if any, and costs to recondition for resale as new will be charged. Orders for items of special design, size, or material will not be accepted for credit nor will cancellation of such orders be accepted except upon written agreement to allow for payment for expenses incurred by MILLIKEN VALVE COMPANY covering special work which has been performed or material that has been ordered.

Claims for errors, corrections, shortages or deductions for erroneous charges must be made in writing within ten days after receipt of products and must refer to date and number of invoice. In making claims for shortages of products or any overcharges, the original paid freight bill must accompany each claim which in case of shortage should bear notification to the effect. Seller shall be obligated to substantially perform hereunder only and shall not be liable for any non-material or insubstantial breach or violation hereof and shall not be responsible or liable to Buyer for any claimed breach or violation of this Agreement unless notified in writing by the Buyer thereof within ten days after such breach or violation is known or could have been known to Buyer by reasonable inspection, but in no event shall Seller, except as specifically provide herein, be liable therefore, whether such breach is patent or latent for any notice of claim received more than one year after the date of shipment. Approval by Buyer's inspector of work in progress shall be conclusive and binding on Buyer with respect to such work.

ASSIGNMENT

Buyer shall not assign or transfer this contract without prior written consent of the Seller.

GOVERNING LAW

This contract shall be interpreted and enforced in accordance with the laws of the Commonwealth of Pennsylvania. Clerical and stenographical errors herein are subject to correction.

PROPOSED TECHNICAL SPECIFICATION Rubberlined Eccentric Plug Valves

Valves shall be of the non-lubricated eccentric type with an elastomer covering all seating surfaces. Flanged valves shall be manufactured in accordance with **ANSI B16.1** including facing, drilling and flange thickness. Ports shall be round with a minimum of 81% port area on sizes 2^{1/2}" through 12" to facilitate "pigging" when required. Valves 14" and larger shall be of a rectangular port design with a minimum of 81% port area.

Valve bodies shall be of **ASTM A-126 Class B** cast iron. The interior of the valve bodies shall be covered with a suitable elastomer with a minimum thickness of 1/8". The elastomer shall extend through the valve flow way and onto the flanges to ensure a positive seal.

Plugs shall be of **ASTM A-536 Grade 65-45-12** for valves 20" and smaller, and ASTM A126 Class B for valves 24" and larger, in compliance with **AWWA C-504-87, Section 2.2.2**. The plugs shall be of one piece solid construction with PTFE thrust bearings on the upper and lower bearing journals to reduce torque and prevent dirt and grit from entering the bearing and seal area. No exposed portion of the plug stem shall be in contact with the flow way.

Valves shall be furnished with replaceable sleeve type bearings conforming to **AWWA C-504-87, Section 3.6.1** and **AWWA C-507-85, Section 3.2.4**. Bearings shall be of sintered, oil impregnated type 316 stainless steel **ASTM A-743 Grade CF-8M** on 20" and smaller, and permanently lubricated bronze bearings on 24" and larger. Valve shaft seals shall be of the "U" cup type in accordance with **AWWA C-504-87, Section 3.7.2**. Seals shall be self adjusting and repackable without removing the bonnet from the valve.

Wrench operated valves 2^{1/2}"-8" shall be capable of being converted to worm gear or automated operation without removing the bonnet or plug from the valve. All wrench operated valves shall be equipped with a 2" square nut for use with removeable levers or extended "T" handles.

Worm gear operators, where required, shall be of heavy duty construction with the ductile iron quadrant supported on the top and bottom by oil impregnated bronze bearings. The worm gear and shaft shall be manufactured of hardened steel and run on high efficiency roller bearings.

Valves shall be designed and manufactured to shut off bubble tight at 175 psi with the seat downstream for valves 2^{1/2}" through 12" and at 150 psi with the seat downstream for valves 14" and larger.

Each valve shall be given a hydrostatic and seat test with the test results being certified when required by the customer. Certified copies of Proof-of-Design test reports shall be furnished as outlined in **AWWA C-504-87, Section 5.2.4** when requested.

Plug valves shall be **Series 601RL** as manufactured by **Milliken Valve Company of Bethlehem, Pennsylvania**.

PROPOSED TECHNICAL SPECIFICATION ANSI Class 250 Eccentric Plug Valves

Valves shall be of the non-lubricated eccentric type with an elastomer covering all seating surfaces. The elastomer shall be suitable for the service intended. Flanged valves shall be manufactured in accordance with **ANSI B16.1 Class 250** including facing, drilling and flange thickness. Ports shall be round with a minimum of 81% port area on sizes 2½” through 12” to facilitate “pigging” when required. Valves 14” and larger shall be of a rectangular port design with a minimum of 81% port area.

Valve bodies shall be of **ASTM A-536 Grade 65-45-12** ductile iron for valves 2½”-12” and **ASTM A-536 65-45-12** for valves 14” and larger. Valves 3” and larger shall be furnished with a welded-in overlay seat of not less than 90% nickel in accordance with **AWWA C-507-85, Section 3.2.3.5**. Sprayed, plated or screwed-in seats are not acceptable.

Plugs shall be of **ASTM A-536 Grade 65-45-12** in compliance with **AWWA C-504-87, Section 2.2.2**. The plugs shall be of one piece solid construction with PTFE thrust bearings on the upper and lower bearing journals to reduce torque and prevent dirt and grit from entering the bearing and seal area.

Valves shall be furnished with replaceable sleeve type bearings conforming to **AWWA C-504-87, Section 3.6.1** and **AWWA C-507-85, Section 3.2.4**. Bearings shall be of sintered, oil impregnated type 316 stainless steel **ASTM A-743 Grade CF-8M** on 20” and smaller, and permanently lubricated bronze bearings on 24” and larger. Valve shaft seals shall be of the “U” cup type in accordance with **AWWA C-504-87, Section 3.7.2**. Seals shall be self adjusting and repackable without removing the bonnet from the valve.

Worm gear operators shall be of heavy duty construction with the ductile iron quadrant supported on the top and bottom by oil impregnated bronze bearings. The worm gear and shaft shall be manufactured of hardened steel and run on high efficiency roller bearings.

Valves shall be designed and manufactured to shut off bubble tight at 400 psi for valves 2½”-12” and 300 psi for valves 14”-36” with pressure behind the plug.

Each valve shall be given a hydrostatic and seat test with the test results being certified when required by the customer. Certified copies of Proof-of-Design test reports shall be furnished as outlined in **AWWA C-504-87, Section 5.2.4** when requested.

Plug valves shall be **Series 602** as manufactured by **Milliken Valve Company of Bethlehem, Pennsylvania**.

PROPOSED TECHNICAL SPECIFICATION Eccentric Plug Valves 2½”-72”

Valves shall be of the non-lubricated eccentric type with an elastomer covering all seating surfaces. The elastomer shall be suitable for the service intended. Flanged valves shall be manufactured in accordance with **ANSI B16.1 Class 125/150**, including facing, drilling and flange thickness. Mechanical joint ends shall be in compliance with **AWWA/ANSI C-111-92**. Ports shall be round with a minimum of 81% port area on sizes 2½” through 12” to facilitate “pigging” when required. Valves 14” and larger shall be of a rectangular port design with a minimum of 81% port area.

Valve bodies shall be of **ASTM A-126 Class B** cast iron in accordance with **AWWA C-504-87 Section 5.2.1**. Valves 3” and larger shall be furnished with a welded-in overlay seat of not less than 90% nickel in accordance with **AWWA C-507-85 Section 3.2.3.5**. Sprayed, plated or screwed-in seats are not acceptable.

Plugs shall be of **ASTM A-536 Grade 65-45-12** for valves 20” and smaller, and **ASTM A126 Class B** for valves 24” and larger, in compliance with **AWWA C-504-87 Section 2.2.2**. The plugs shall be of one piece solid construction with PTFE thrust bearings on the upper and lower bearing journals to reduce torque and prevent dirt and grit from entering the bearing and seal area.

Valves shall be furnished with replaceable sleeve type bearings conforming to **AWWA C-504-87, Section 3.6.1** and **AWWA C-507-85, section 3.2.4**. Bearings shall be of sintered, oil impregnated type 316 stainless steel **ASTM A-743 Grade CF-8M** on 20” and smaller, and permanently lubricated bronze bearings on 24” and larger. Valve shaft seals shall be of the “U” cup type in accordance with **AWWA C-504-87, Section 3.7.2**. Seals shall be self adjusting and repackable without removing the bonnet from the valve.

Wrench operated valves 2½”-8” shall be capable of being converted to worm gear or automated operation without removing the bonnet or plug from the valve. All wrench operated valves shall be equipped with a 2” square nut for use with removeable levers or extended “T” handles.

Worm gear operators, where required, shall be of heavy duty construction with the ductile iron quadrant supported on the top and bottom by oil impregnated bronze bearings. The worm gear and shaft shall be manufactured of hardened steel and run on high efficiency roller bearings.

Valves shall be designed and manufactured to shut off bubble tight at 175 psi for valves 2½” through 12” and at 150 psi for valves 14” and larger.

Each valve shall be given a hydrostatic and seat test with the test results being certified when required by the customer. Certified copies of Proof-of-Design test reports shall be furnished as outlined in **AWWA C-504-87, Section 5.2.4** when requested.

Plug valves shall be Millcentric Series **601/600** as manufactured by **Milliken Valve Company of Bethlehem, Pennsylvania**.



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