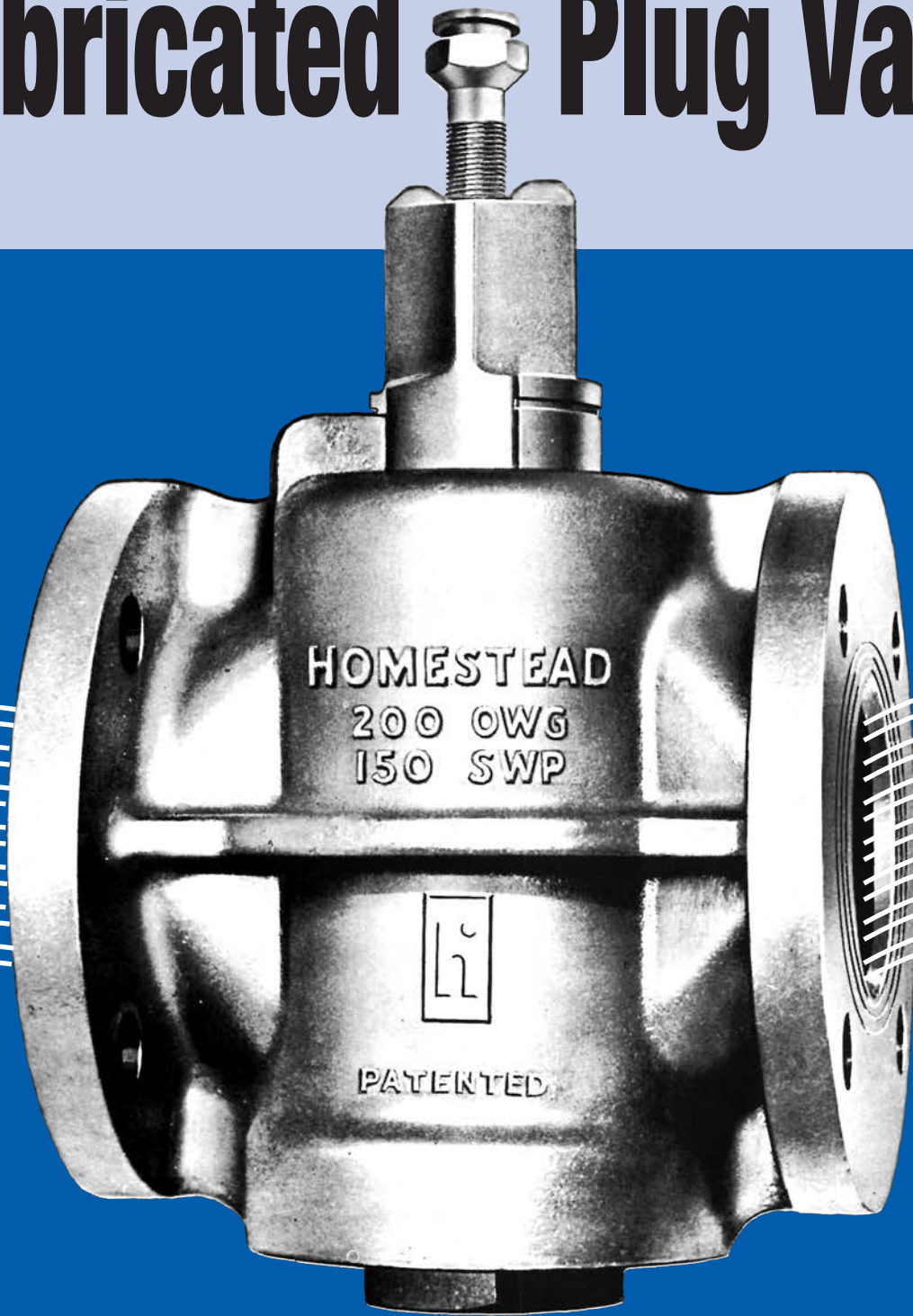


HOMESTEAD[®]

Lubricated Plug Valves





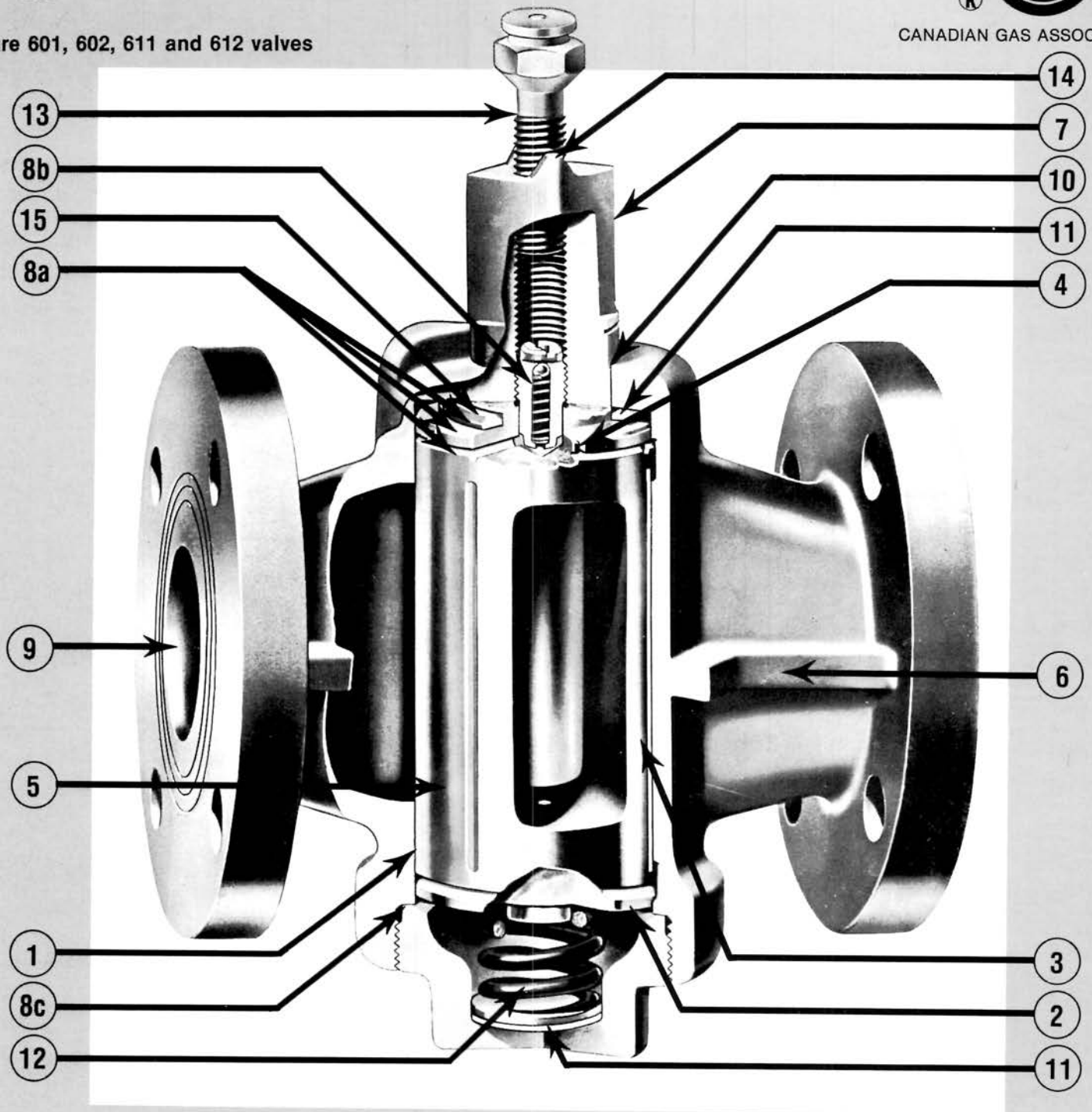
HOMESTEAD LUBRICATED PLUG VALVES

(PATENTED)



CANADIAN GAS ASSOCIATION

figure 601, 602, 611 and 612 valves



It is easy to see that the Homestead Lubricated Plug Valve has the features most wanted and needed for *really low-cost fluid control!* A controlled high pressure lubricant system...a built-in means for moving the plug to prevent sticking...closely mated sealing surfaces...and a triple seal around the

stem...are but a few of the many points that can mean lower cost per year valve service for you. Consider each point carefully. Try a few of these valves under your own service conditions. Then you will know the true meaning of valve economy.

In keeping with our continuing program of product improvement we reserve the right to make design changes without notice.



**WHY
HOMESTEAD
LUBRICATED
PLUG VALVES
give most for
your
VALVE
DOLLAR**

- 1. Their design assures extra long valve life.** Clearance between plug and body is so close, and so uniform that the chemical seal can easily give the valve many times longer leakless service than any other valves. Even with over 300 pounds lubricant pressure, there is practically no seepage of lubricant into line to contaminate fluids, clog orifices or meters, or ruin rubber diaphragms.
- 2. They are positively prevented from sticking** by Homestead's exclusive controlled pressurized lubricant system which moves the plug downward, piston-like, during each lubrication. Spring and line pressure instantly return the plug to stem-sealed position.
- 3. Thorough penetration of lubricant to vital surfaces is guaranteed** by the high pressure lubricant system. Chemical seal is forced through lubricant grooves, over all sealing surfaces, and into complete sealing rings around ports. During lubrication, lubricant pressure increases in proportion to the increase of line pressure to insure effective lubrication.
- 4. Metering grooves prevent pressure build-up** on top of plug before all lubricant grooves are filled. The high pressure developed within this exclusive orifice-controlled lubricant system, guarantees complete coverage of all sealing surfaces —assures added valve life.
- 5. Sealing surfaces are protected** in both open and closed positions from the corrosive, abrasive, or erosive effect of line fluids.
- 6. They are simple, dependable, and minimize human error.** They require no mechanical adjustments of packing glands, nuts, etc. Bodies are extra strong to withstand line strain and lubricant pressure.
- 7. They operate quickly.** A quarter-turn of the plug fully opens or closes valve.
- 8. Leakage is prevented to outside of valve by:**
 - (a) a reinforced *Teflon stem seal and two rings of lubricant;
 - (b) a spring loaded ball and lubricant sealed check valve with thread seal; and
 - (c) a positive metal to metal seal at bonnet.Reinforced Teflon stem seal resists cold flow.
- 9. They give full flow with minimum pressure drop.** Port areas are equal to 100% of the area of standard pipe. Where restricted flow is permissible venturi types are available, and at worthwhile savings in first cost.
- 10. They prevent waste of lubricant** by extruding a ring of lubricant around the stem when system is full. This telltale ring of lubricant serves as a stop signal to the man lubricating the valve.
- 11. They are comparatively easy to turn,** because the cylindrical plug offers minimum resistance to turning; and it is floated between a low friction reinforced Teflon ring at top, and a Teflon disc at bottom.
- 12. Less maintenance is assured.** Spring rotates with plug on Teflon and steel discs. Elimination of torsional stress, and round cross section spring construction which more evenly distributes strain, prevents spring breakage. Spring is subjected only to compression, for which it is designed.
- 13. Dirt is prevented from being forced into lubricant system** by practically full threaded combination lubricant screw and button head fitting. Clean lubricant is just as important in a valve as in any other machine.
- 14. Indicator on top of stem shows position of ports in plug.**
- 15. A positive sealing pressure of as much as 500 pounds** (spring pressure plus line pressure) is applied to stem seal.

*Teflon® DuPont Co.

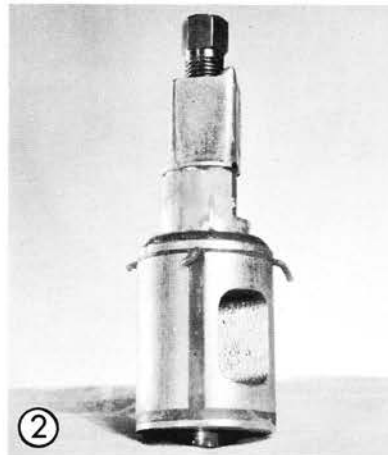
***SEE HOW** *Controlled*
PRESSURIZED LUBRICATION

GUARANTEES LOWEST COST SERVICE FROM

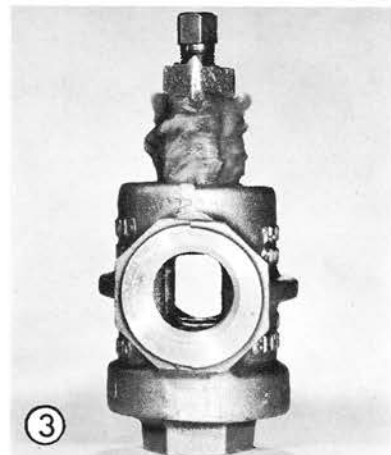
HOMESTEAD[®] lubricated PLUG VALVES



① This plug was removed from a Homestead Valve just after starting lubrication, and before all sealing areas were filled with lubricant. Note that pressurized lubricant continues to extrude through feeder holes. Momentary downward movement of plug at start of each lubrication, gives assurance that plug is always free to turn.



② The plug was again withdrawn from the valve body just after a ring of lubricant around the stem indicated that the lubricant system was full. Note that all lubricant grooves are filled. The entire plug surface is coated with lubricant. Lubricant is well packed in the stem sealing area above the plug.



③ Now valve has been purposely over-lubricated as indicated by excess lubricant around stem. Note that with *controlled* pressurized lubrication there is no extrusion or seepage of lubricant into valve port opening. This means no waste, no contamination of line fluids, no clogging of low pressure lines with lubricant, or fouling of meters, orifices, etc.



④ Also, in the Homestead Valve with *controlled* lubrication, you will note that even though the valve has been over-lubricated, lubricant comes only to the bottom edge of the plug, and is not wasted by discharging in quantity into the bottom chamber.



⑤ Now, see for yourself the risk involved when a valve which does *not* have Homestead's *controlled* Pressurized Lubrication, is over-lubricated. Note lubricant has been forced into the port opening. It can contaminate line fluids, foul meters or orifices, or even block low pressure lines!

These are but a few of the many advantages of Homestead's controlled pressurized lubrication that guarantee lowest cost valve service.

* Unretouched photos.

HOMESTEAD
 LUBRICATED
 PLUG
 VALVE



DEFINITIONS

“Rectangular Port”—Homestead Lubricated Plug Valves have rectangular shaped ports through the plug and body. The area of the port is either equal to 100% of the area of standard pipe, or restricted (standard opening); but in either case it is clearly marked for the various figure numbers.

“100% Area” (Full Port)—means the area through the valve is equal to or greater than the area of standard pipe.

“Standard Opening”—means that the area through the valve is less than the area of standard pipe, and therefore these valves should be used only where restriction of flow is unimportant.

“Round Port”—means that the valve has a full round opening through the plug and body, of the same size and area as standard pipe.

“Diamond Port”—means the opening through the plug is diamond shaped. All diamond port valves are restricted flow type.

“WOG”—Water, oil, gas (cold working pressures).

“SWP”—steam working pressure.

“ANSI”—American National Standards Institute

“CWP”—Cold Working Pressure

SPECIFICATIONS

All Valves in this Reference Book Equal or Exceed the Requirements of the Following Specifications:

Semi-Steel-125#

1. ANSI B2.1 - American Standard Taper Pipe Threads.
2. Faced and drilled in accordance with ANSI B16.1 125# Cast Iron Pipe Flanges and Flanged Fittings.
3. ANSI B16.10 - Face to Face Dimensions of Ferrous Flanged End Valves; Class 125. Multiple port and round port valves not covered by this specification.
4. ASTM-A-126 Grade B - Body and Plug Material.

METALS, TYPES AND SIZES

Homestead Lubricated Plug Valves are cast in ASTM A126 CLB. Inquiries for quantities of valves in metals other than semi-steel, and port arrangements other than those shown in this catalog, are welcome.

HOW TO SPECIFY

(Sample specification for the convenience of Engineers, Architects, and Contractors in writing valve specifications)

“Valves are to be of the lubricated plug type, without taper, and with close tolerance between the plug and body sealing surfaces. Valves are to have a stem seal of reinforced Teflon. Valves must have a leakproof, spring loaded ball and lubricant sealed check valve; and combination lubricant screw and button head fitting to prevent foreign matter from being forced into lubricant system. Valve plugs are to be floated on low-friction teflon surfaces for extra ease of turning—the lower surface to also act as a means of minimizing torsional stress in the spring—and are to have port area equal to 100% of the area of standard pipe (or standard opening if desired). Valves are to be so constructed that lubricant system has sufficient pressure to force lubricant over all seating surfaces. Extruded lubricant around stem is to be positive indication that lubricant system is full, and that there has been a minimum contamination of line fluids. Valves are for use on lines handling _____ (fluid) at _____°F. temperatures, and _____# pressure; and are to be as manufactured by Homestead Valve Division.

Note: Please be sure to include with the specifications, quantity, size, and figure number of each type of valve; the number and type of wrenches desired; and a sufficient supply of lubricant for the various sized valves, and for different fluids or service conditions.

INFORMATION NEEDED ON ORDER

Your local “Homestead” Distributor is willing and well equipped to help solve your valve problems. He carries a stock of popular sizes and types of Homestead Lubricated Plug Valves to meet your immediate needs. Order by figure number, and please be sure to give all necessary facts, such as: pipe size, fluid, pressure, temperature, number of wrenches, extra lubricant, etc., on order.

SPECIAL VALVES, ACCESSORIES and FIGURE NUMBER INDEX



Gas safety control lubricated plug valve tapped for by-pass connections.



3-Way screwed lubricated valve with male and/or female threaded side opening.



Wrench operated Lubricated Plug Valve with adjustable stop for balancing or throttling service.



Gas safety control Homestead Lubricated Plug Valve.

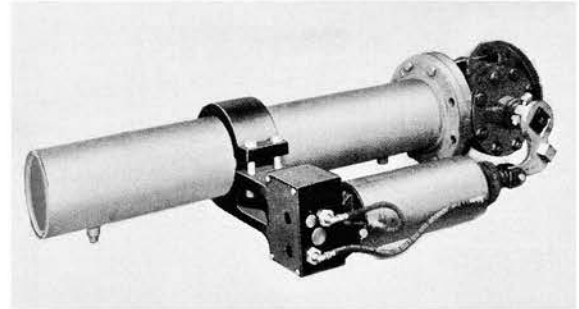
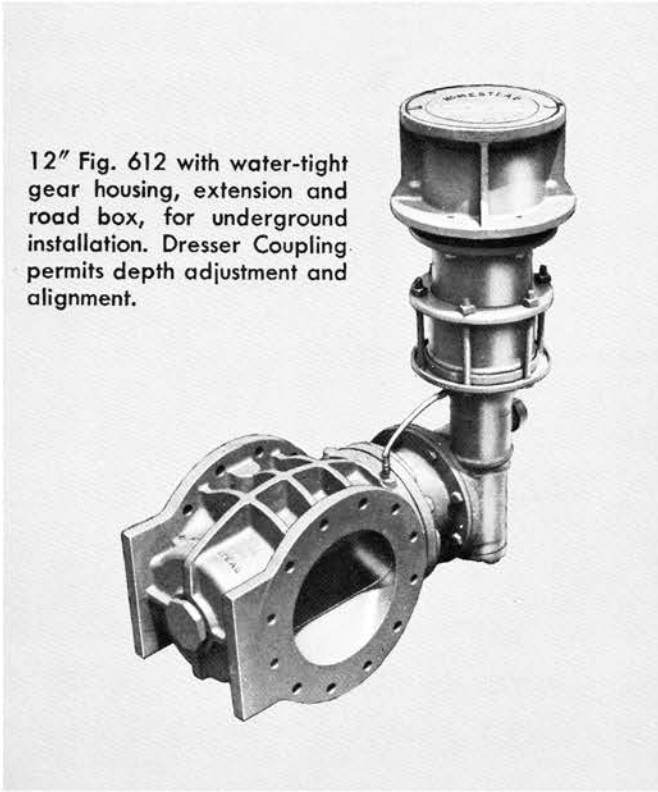
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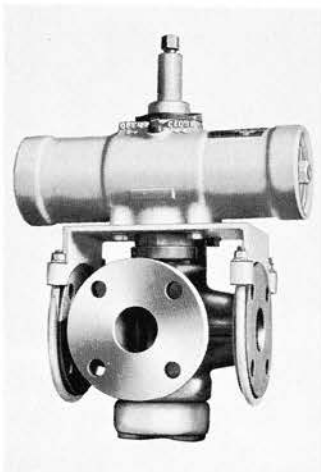
Mechanisms for power operation or remote control of any size and type of Homestead Lubricated Plug Valve can be furnished to operate with air, oil, or water. Give fluid, operating pressure available, number of operations per hour, line pressure, position of cylinder, size and type of valve.

12" Fig. 612 with water-tight gear housing, extension and road box, for underground installation. Dresser Coupling permits depth adjustment and alignment.

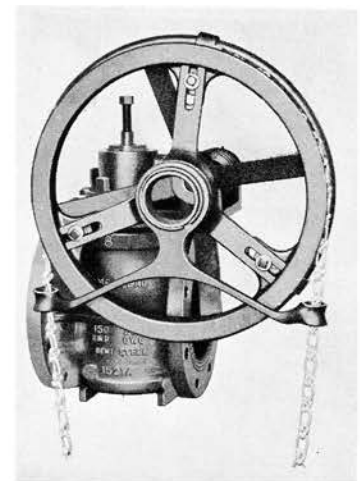


Single Piston with Built-in Controls

CHAIN WHEELS: Worm and gear operated valves installed overhead, may be equipped with chain wheels to operate from the floor below. When ordering chain wheels, please give Figure Number and size of valve; also distance from floor to center line of valve.



Tandem Pneumatic
or Hydraulic Actuator



Chain Wheel Operated
Valve

**200 lb. WOG
150 lb. SWP**

Test: Air under water 200 p.s.i.g.
U.L. Listed
1/2" thru 4"



CSA: CONSULT FACTORY
FOR SIZES LISTED

**100% Pipe Area
Semi-Steel**

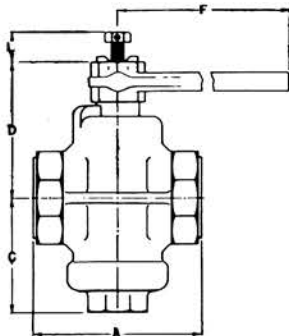
Straightway-Wrench Operated
Rectangular Port
U.L. Listed
1" thru 6"



Fig. 601 – Semi-Steel, Screwed

Fig. 602 – Semi-Steel, Flanged
†Fig. 622 – Semi-Steel, Flanged

DIMENSIONS	SIZE – INCHES											
		1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"
End to end	A	3 3/4	3 3/4	4 1/4	5	5	6	6 3/4	7 5/8	10	–	–
Face to face	A	–	–	5 1/2	6	6 1/2	7	7 1/2	8	9	10	10 1/2
Face to face (Fig. 622 only)	A	–	–	5 1/2	6	6 1/2	7 1/2	8 1/4	9	12	14	15 1/2
Flange diameter	G	–	–	4 1/4	4 5/8	5	6	7	7 1/2	9	10	11
Flange thickness	E	–	–	7/16	1/2	9/16	5/8	11/16	3/4	15/16	15/16	1
Number of drilled holes in flange	Y	–	–	4	4	4	4	4	4	8	4†	4†
Number of tapped holes in flange	X	–	–	–	–	–	–	–	–	–	4†	4†
Center to top of stem	D	2 29/32	2 29/32	3 5/16	4	4	5 1/8	5 13/32	6 17/32	7 3/4	8 11/16	9 15/32
Length of lubricant screw	L	1 9/16	1 9/16	1 9/16	1 9/16	1 9/16	2 1/2	2 1/2	2 1/2	3 5/8	3 5/8	3 5/8
Lubricant stick diameter	–	3/8	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	1/2	1/2
Standard wrench size	–	F	F	G	G	G	E	E	L	N	N	N
Center of port to bottom	C	2 11/32	2 11/32	2 5/16	3 3/8	3 3/8	3 29/32	4 3/16	4 29/32	6 1/32	7	8
Dimen. of square on stem	–	25/32	25/32	29/32	29/32	29/32	17/32	17/32	1 1/2	2	2	2
Extreme width of scrd. body	–	2 5/8	2 5/8	2 7/8	3 3/8	3 5/8	4 3/8	5	6 1/4	7 1/4	–	–
Extreme width of flgd. body	–	–	–	4 1/4	4 5/8	5	6	7	7 1/2	9	10	11
Weight, pounds – Fig. 601	–	4 1/4	4 1/4	5 1/2	9	9 3/4	17	25 1/2	40	73	–	–
Weight, pounds – Fig. 602	–	–	–	8 1/2	14	14 1/4	23	34	47	80	118	145



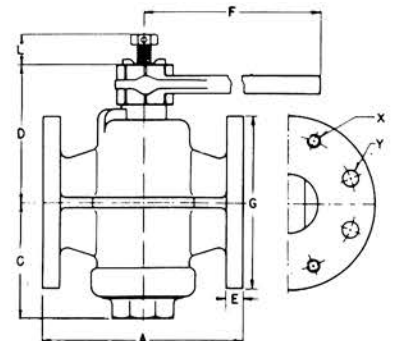
†Fig. 622 has long face to face dimension.

†5" and 6" sizes of Fig. 622 have 8 drilled holes and no tapped holes in flanges.

Face to face dimensions are in accordance with ANSI B 16.10. Except Fig. No. 622.

Flanges are drilled to 125 pound ANSI B16.1. Drilling other than standard is extra. Prices include drilling, and no reduction is made for valves not drilled.

Combination Buttonhead Fitting and Lubricant Screw (pictured on page 26) is standard on all valves.



**Standard Opening
Semi-Steel**

Straightway – Wrench Operated
Rectangular Port

U.L. Listed
1" thru 4"



Fig. 611 – Semi-Steel, Screwed



CSA: CONSULT FACTORY
FOR SIZES LISTED

**200 lb. WOG
150 lb. SWP**

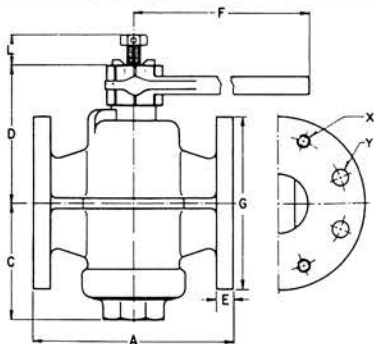
Test: Air under water 200 p.s.i.g.

U.L. Listed
1" thru 6"



Fig. 612 – Semi-Steel, Flanged

DIMENSIONS	SIZE – INCHES										
	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"	
End to end	A 4 1/4	5	5	6	6 3/4	7 5/8	9	–	–	–	
Face to face	A 5 1/2	6	6 1/2	7	7 1/2	8	9	10 1/2	10 1/2	11 1/2	
Flange diameter	G 4 1/4	4 5/8	5	6	7	7 1/2	9	10	11	13 1/2	
Flange thickness	E 7/16	1/2	9/16	5/8	11/16	3/4	15/16	1	1	1 1/8	
Number of drilled holes in flange	Y 4	4	4	4	4	4	8	8	8	8	
Number of tapped holes in flange	X –	–	–	–	–	–	–	–	–	–	
Center to top of stem (Fig. 611)	D 2 29/32	3 5/16	3 5/16	4	5 1/8	5 13/32	6 17/32	–	–	–	
Center to top of stem (Fig. 612)	D 2 29/32	3 5/16	3 1/2	4	5 1/8	5 13/32	6 17/32	7 3/4	7 3/4	9 3/16	
Length of lubricant screw	L 1 9/16	1 9/16	1 9/16	1 9/16	2 1/2	2 1/2	2 1/2	3 5/8	3 5/8	3 5/8	
Lubricant stick diameter	– 3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	1/2	1/2	
Standard wrench size	– F	G	G	G	E	E	L	N	N	N	
Center of port to bottom	C 2 11/32	2 5/16	2 5/16	3 1/8	3 29/32	4 3/16	4 29/32	6 1/32	6 1/32	6 1/2	
Dimen. of square on stem	H 2 5/32	2 29/32	2 29/32	2 29/32	1 7/32	1 7/32	1 1/2	2	2	2	
Extreme width of Scrd. body	R 2 7/8	3 1/2	3 3/8	3 7/8	5	5 5/8	6 3/8	–	–	–	
Extreme width of Flgd. body	R 4 1/4	4 5/8	5	6	7	7 1/2	9	10	11	13 1/2	
Weight, lb. – Fig. 611	– 4 1/2	7 1/4	7 1/4	13 1/4	19 1/2	33 3/4	58 1/2	–	–	–	
Weight, lb. – Fig. 612	– 7 1/2	10 1/2	10 1/2	19	29 1/2	39	61 1/2	88	100	172	

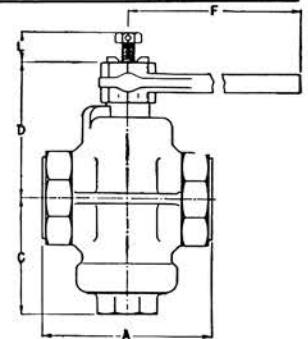


For 8" and larger sizes also see Fig. 612-A.

Face to face dimensions are in accordance with ANSI B16.10.

Flanges are drilled to 125 pound ANSI B16.1. Drilling other than standard is extra. Prices include drilling; and no reduction is made for valves not drilled.

Combination Buttonhead Fitting and Lubricant Screw (pictured on page 26) is standard on all valves.



**200 lb. WOG
150 lb. SWP**

Test: Air under water 200 p.s.i.g.

**Standard Opening
Semi-Steel**
Straightway – Wrench Operated
Rectangular Port

NOTE: Valves 14" and larger are figure 612A. Pressure rating is 150 CWP; Hydrostatic test pressure is 300 PSIG.



Fig. 612-A – Semi-Steel, Flanged;

DIMENSIONS	SIZE – INCHES									
	6"	8"	*10"	*12"	*14"	*16"	*18"	*20"	*24"	
Face to face	A	10½	11½	13	14	15	30	34	36	42
Flange diameter	G	11	13½	16	19	21	23½	25	27½	32
Number of drilled holes in flange	Y	6	6	10	8	8	16	16	20	20
Number of tapped holes in flange	X	2	2	2	4	4	–	–	–	–
Flange thickness	E	1	1½	1¾	1¼	1¾	1¾	1¾	1¾	2
Center to top of stem	D	9¼	10¾	12½	13¾	15¾	18¾	18¾	20¾	23¾
Length of lubricant screw	L	3½	3½	3½	4½	4½	4½	4½	4½	4½
Lubricant stick diameter	–	½	½	½	⅝	⅝	⅝	⅝	⅝	⅝
Standard wrench size	–	N	N	N	P	P	–	–	–	–
Center of port to bottom	C	5¾	6¾	8¾	10	11¾	12¾	15	16¾	19¾
Dimension of square on stem	H	2	2	2	2¾	2¾	–	–	–	–
Extreme width of body	R	7¼	13½	16	19	21	23½	25	27½	32
Weight, pounds	–	–	195	305	502	–	–	–	–	–

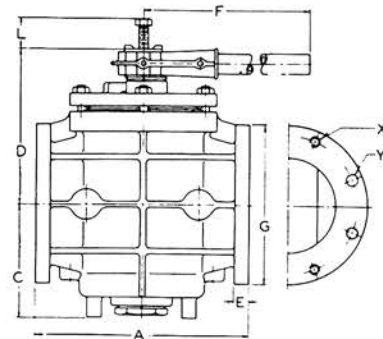
*Recommend 612G in these sizes.

Face to face dimensions are in accordance with ANSI B16.10 up to 14".

Flanges are drilled to 125 pound ANSI B 16.1. Drilling other than standard is extra. Prices include drilling; and no reduction is made for valves not drilled.

Sides of valve bodies may be tapped for by-pass lines.

Combination Buttonhead Fitting and Lubricant Screw (pictured on 26) is standard on all valves.



**100% Pipe Area
& Standard Opening
Semi-Steel**

Straightway – Rectangular Port

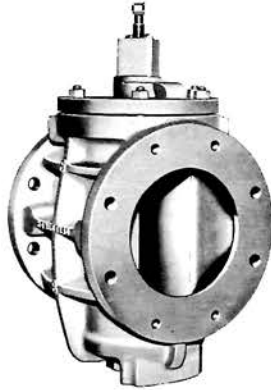


Fig. 602-A – Semi-Steel, Flanged

**200 lb. WOG
150 lb. SWP**

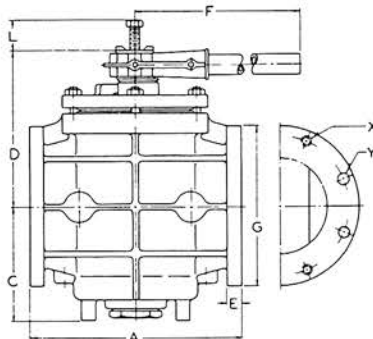
Test: Air under water 200 p.s.i.g.

NOTE: Valves 14" and larger are figure 622A. Pressure rating is 150 CWP; Hydrostatic test pressure is 300 PSIG.



†Fig. 622-A – Semi-Steel, Flanged

DIMENSIONS	SIZE – INCHES																
	Fig. 602-A									†Fig. 622-A							
	4"	5"	6"	8"	10"†	*12"‡	*14"‡	*16"‡	*18"‡	4"	5"	6"	8"	10"	*12"	*14"	*16"
Face to Face	A 9	10	10½	11½	13	14	15	30	34	12	14	15½	18	21	24	27	30
Flange diameter	G 9	10	11	13½	16	19	21	23½	25	9	10	11	13½	16	19	21	23½
Flange thickness	E 1⅞	1⅞	1	1⅞	1⅞	1¼	8	16	16	1⅞	1⅞	1	1⅞	1⅞	1¼	1⅞	1⅞
Number of drilled holes in Flg.	Y 4	4	4	4	8	8	4	—	—	8	8	8	8	12	12	12	16
Number of tapped holes in Flg.	X 4	4	4	4	4	4	1⅞	1⅞	1⅞	—	—	—	—	—	—	—	—
Center to top of stem	D 8⅞	9⅞	10⅞	12	14⅞	14⅞	17⅞	18⅞	20⅞	8⅞	9⅞	10⅞	12½	14⅞	17⅞	18⅞	20⅞
Length of lubricant screw	L 3⅞	3⅞	3⅞	4½	4½	4½	4½	4½	4½	3⅞	3⅞	3⅞	4½	4½	4½	4½	4½
Lubricant stick diameter	— ½	½	½	⅝	⅝	⅝	⅝	⅝	⅝	½	½	½	⅝	⅝	⅝	⅝	⅝
Standard wrench size	— N	N	N	P	P	P	—	—	—	N	N	N	P	P	—	—	—
Center of port to bottom	C 6½	7⅞	8⅞	9⅞	11¾	11¾	13¾	15	16⅞	1⅞	7⅞	8⅞	9⅞	11¾	12⅞	15	16⅞
Dimension of square on stem	— 2	2	2	2⅞	2⅞	2⅞	—	—	—	2	2	2	2⅞	2⅞	—	—	—
Extreme width of body	— 7¼	10	11	12⅞	17	18	21	23½	25	7¼	9¾	11	15½	17	19	21	23¾
Weight, pounds	—	—	183	305	525	708	—	—	—	—	—	205	440	655	860	1127	1690



†Fig. 622-A has long face to face dimension.

‡These sizes Fig. 602-A have reduced opening, less than 100% pipe area.

*12" and larger sizes are for power unit operation only.

Face to face dimensions are in accordance with ANSI B16.10 up to 14" valves. Except Fig. No. 622A.

Flanges are drilled to 125 pound ANSI B16.1. Drilling other than standard is extra. Prices include drilling, and no reduction is made for valves not drilled.

Sides of valve bodies may be tapped for by-pass lines.

Combination Buttonhead Fitting and Lubricant Screw (pictured on page 26) is standard on all valves.

**200 lb. WOG
150 lb. SWP**

Test: Air under water 200 p.s.i.g.
Hydrostatic 400 p.s.i.g.

NOTE: Valves 14" and larger are figure 612G. Pressure rating is 150 CWP; Hydrostatic test pressure is 300 PSIG.

**Standard Opening
Semi-Steel**

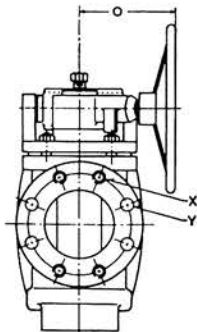
Straightway – Worm & Gear Operated
Rectangular Port



**Valves now supplied
with enclosed gearing.
Dimensions D-H-L-K-O
Consult Factory.**

Fig. 612G - Semi-Steel

DIMENSIONS	SIZE – INCHES									
	6"	8"	10"	12"	14"	16"	18"	20"	24"	
Face to face	A	10 ¹ / ₂	11 ¹ / ₂	13	14	15	30	34	36	42
Flange diameter	G	11	13 ¹ / ₂	16	19	21	23 ¹ / ₂	25	27 ¹ / ₂	32
Number of drilled holes	Y	6	6	10	10	8	16	16	20	20
Number of tapped holes	X	2	2	2	2	4	–	–	–	–
Flange thickness	E	1	1 ¹ / ₈	1 ³ / ₁₆	1 ¹ / ₄	1 ³ / ₈	1 ⁷ / ₁₆	1 ⁹ / ₁₆	1 ¹¹ / ₁₆	2
Center of port to top of stem	D	9 ⁵ / ₁₆	11 ⁵ / ₈	12 ¹⁵ / ₁₆	14 ¹ / ₂	15 ¹⁵ / ₁₆	18 ⁷ / ₈	18 ³ / ₈	20 ⁹ / ₁₆	23 ⁹ / ₁₆
Length of lubricant screw	L	3 ⁵ / ₈	4 ¹ / ₂	4 ¹ / ₂	4 ¹ / ₂	4 ¹ / ₂	4 ¹ / ₂	4 ¹ / ₂	4 ¹ / ₂	4 ¹ / ₂
Lubricant stick diameter	–	1 ¹ / ₂	5 ⁵ / ₈	5 ⁵ / ₈	5 ⁵ / ₈	5 ⁵ / ₈	5 ⁵ / ₈	5 ⁵ / ₈	5 ⁵ / ₈	5 ⁵ / ₈
Center of port to center of shaft	H	8 ³ / ₁₆	10 ³ / ₁₆	11 ¹³ / ₃₂	13	14 ⁵ / ₁₆	16 ⁷ / ₈	16 ⁵ / ₁₆	18 ⁷ / ₁₆	21 ⁷ / ₁₆
Center valve to center handwheel	K	4 ⁵ / ₁₆	6 ⁵ / ₈	6 ⁵ / ₈	6 ⁵ / ₈	7 ⁵ / ₈	11 ⁹ / ₁₆	11 ⁹ / ₁₆	11 ⁹ / ₁₆	11 ⁹ / ₁₆
Center of port to bottom	C	5 ¹³ / ₁₆	6 ³ / ₄	8 ³ / ₄	10	11 ³ / ₈	12 ¹ / ₄	15	16 ¹⁵ / ₁₆	19 ¹⁵ / ₁₆
Center of body to handwheel	O	8 ¹ / ₄	10 ⁵ / ₈	10 ⁵ / ₈	12 ¹ / ₄	13 ¹ / ₈	15 ⁹ / ₁₆	16	16	18 ¹ / ₂
Handwheel diameter	Q	18	18	18	18	27	27	38	38	38
Turns of handwheel to open valve	–	7 ¹ / ₂	9	9	9	9 ¹ / ₂	17	17	17	17
Weight, pounds	–	143	–	340	539	600	1321	1736	2376	2810

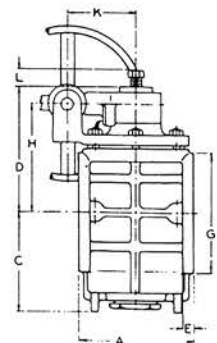


Face to face dimensions are in accordance with ANSI B16.10 up to 14".

Flanges are drilled to 125 pound ANSI B16.1. Drilling other than standard is extra. Prices include drilling; and no reduction is made for valves not drilled.

Sides of worm and gear operated valves may be tapped for by-pass lines.

Combination Buttonhead Fitting and Lubricant Screw (pictured on page 26) is standard on all valves.



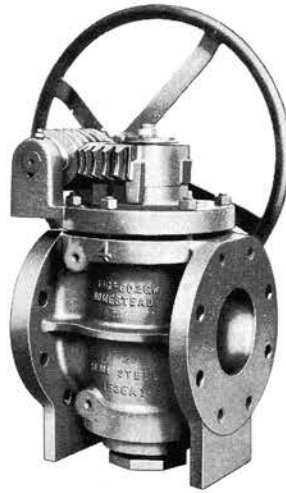
**100% Pipe Area
& Standard Opening
Semi-Steel**

Straightway – Worm & Gear Operated
Rectangular Port

**200 lb. WOG
150 lb. SWP**

Test: Air under water 200 p.s.i.g.

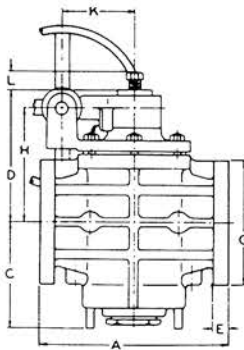
NOTE: Valves 14" and larger are figure 622G. Pressure rating is 150 CWP; Hydrostatic test pressure is 300 PSIG.



**Valves now supplied
with enclosed gearing.
Dimensions D-H-L-K-O
Consult Factory.**

Fig. 602G - Semi Steel
‡Fig. 622G - Semi-Steel

DIMENSIONS	SIZE - INCHES															
	Fig. 602-G									‡Fig. 622-G						
	4"	5"	6"	8"	10"†	12"†	14"†	16"†	18"†	6"	8"	10"	12"	14"	16"	18"
Face to face	A 9	10	10½	11½	13	14	15	30	34	15½	18	21	24	27	30	34
Flange diameter	G 9	10	11	13½	16	19	21	23½	25	11	13½	16	19	21	23½	25
No. of drilled holes in flange	Y 4	4	4	4	8	8	8	16	16	8	8	12	12	12	16	16
No. of tapped holes in flange	X 4	4	4	4	4	4	4	—	—	—	—	—	—	—	—	—
Flange thickness	E 1½	1½	1	1½	1½	1¼	1½	1½	1½	1	1½	1½	1¼	1½	1½	1½
Center to top of stem	D 8½	10½	11½	12½	15½	15½	17½	18½	20½	11½	13½	15½	17½	18½	20½	23½
Length of lubricant screw	L 3½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½
Lubricant stick diameter	—	½	½	½	¾	¾	¾	¾	¾	—	¾	¾	¾	¾	¾	¾
Center of port to center of shaft	H 7½	9	9 ²⁵ / ₃₂	11	13 ¹⁵ / ₁₆	13 ¹⁵ / ₁₆	15½	16½	18½	9 ²⁵ / ₃₂	11½	13 ¹⁵ / ₁₆	15½	16½	18½	21½
Cntr. of valve to cntr. of handwheel	K 4¾	6½	6½	6½	7½	7½	11 ⁹ / ₁₆	11 ⁹ / ₁₆	11 ⁹ / ₁₆	6½	6½	7½	11 ⁹ / ₁₆	11 ⁹ / ₁₆	11 ⁹ / ₁₆	11 ⁹ / ₁₆
Center of port to bottom	C 6½	7 ⁷ / ₁₆	8½	9 ¹⁵ / ₁₆	11 ⁹ / ₁₆	11¼	13¼	15	16 ¹⁵ / ₁₆	8 ¹³ / ₃₂	9 ¹¹ / ₁₆	11 ⁹ / ₁₆	13¼	15	16 ¹⁵ / ₁₆	19 ¹⁵ / ₁₆
Center of body to handwheel	O 8¼	10½	10½	10½	13½	13½	15½	16	16	10½	10½	13½	15½	16	16	16
Handwheel diameter	Q 18	18	18	18	27	27	38	38	38	18	18	27	27	38	38	38
Turns of handwheel to open valve	—	7½	9	9	9½	9½	17	17	17	9	9	9½	17	17	17	17
Weight, pounds	—	123	218	245	349	525	708	—	—	—	490	871	1076	1343	1990	2510



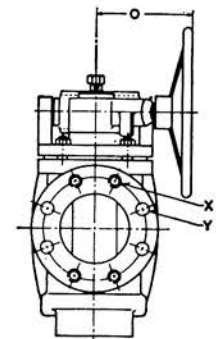
‡Fig. 622-G has longer face to face dimensions.

†These sizes Fig. 602-G have reduced opening, less than 100% pipe area.

Flanges are drilled to 125 pound ANSI B16.1. Drilling other than standard is extra. Prices include drilling; and no reduction is made for valves not drilled.

Sides of gear operated valves may be tapped for by-pass lines.

Combination Buttonhead Fitting and Lubricant Screw (pictured on page 26) is standard on all valves.



HOMESTEAD LUBRICATED PLUG VALVES

200 lb. WOG
150 lb. SWP

Test: Air under water 200 p.s.i.g.

Round Port
100% Pipe Area

Straightway - Wrench Operated
Semi-Steel



Fig. 651 - Semi-Steel, Screwed



Fig. 652 - Semi-Steel, Flanged

DIMENSIONS	SIZE - INCHES													
	Fig. 651 & 652									Fig. 652-A ††				
	3/8" & 1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	4"	6"	†8"	†10"	
End to end	A	3 5/8	4 5/8	4 5/8	5 1/8	5 3/4	7 1/2	8	8 7/8	11 1/2	-	-	-	
Face to face	A	-	-	5 1/2	6	6 1/2	7 1/2	8 1/4	9	12	12	18	22	26
Flange diameter	G	-	-	4 1/4	4 5/8	5	6	7	7 1/2	9	9	11	13 1/2	16
No. drilled holes	Y	-	-	4	4	4	4	4	4	4	4	8	8	12
No. tapped holes	X	-	-	-	-	-	-	-	4	4	4	-	-	-
Flange thickness	E	-	-	7/16	1/2	9/16	5/8	11/16	3/4	15/16	15/16	1	1 1/8	1 3/16
Center to top of stem	D	2 1/2	3 5/16	3 5/16	3 5/8	3 7/8	5 9/32	5 21/32	6 15/32	8 7/8	8 7/8	10 7/8	12 11/32	14 7/8
Length of lubricant screw	L	1 9/16	1 9/16	1 9/16	1 9/16	1 9/16	2 1/2	2 1/2	2 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2
Lubricant stick diameter	-	3/8	3/8	3/8	3/8	3/8	1/2	1/2	1/2	5/8	5/8	5/8	5/8	5/8
Standard wrench size	-	F	G	G	G	L	L	N-24"	P-36"	P-36"	P-52"	P-52"	P-52"	-
Center of port to bottom	C	2 1/32	2 15/32	2 15/32	2 15/16	3 1/8	3 17/32	4 5/16	4 11/16	6 1/4	6 1/4	7 11/16	9 29/32	9 7/8
Dimen. of square on stem	H	2 5/32	2 9/32	2 9/32	2 9/32	1 1/2	1 1/2	2	2 7/16	2 7/16	2 7/16	2 7/16	2 7/16	-
Extreme width Scrd. body	R	2 5/8	3 1/2	3 1/2	4 5/8	5	6	6 3/4	8	-	10 3/4	-	-	-
Extreme width Flgd. body	R	-	-	4 1/4	4 5/8	5	6	7	8	10 3/4	10 3/4	14 1/8	20	22 3/8
Weight, lb. - Fig. 651	-	5	8	8	10 1/2	15	27	42	62	139	170	-	-	-
Weight, lb. - Fig. 652	-	-	-	10 1/4	14 1/2	20	33	51	70	152	182	372	815	1146

Fig. #652, 652A has long face to face dimension.

† Not recommended for hand operation at pressures over 75-100 pounds.

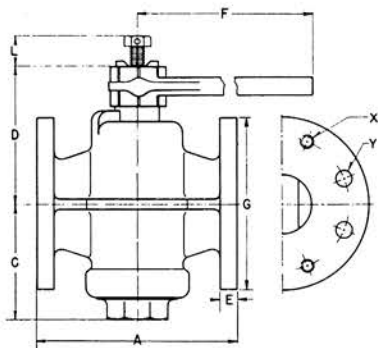
‡ For power unit operation only.

††Note: All sizes of Fig. 652-A have bolted caps.

Round port Homestead Lubricated Plug Valves have a full round opening through the plug and body equal in diameter to the valve size. For example, 2" valve has 2" diameter port.

Flanges are drilled to 125 pound ANSI B16.1. Drilling other than standard is extra. Prices include drilling; and no reduction is made for valves not drilled.

Combination Buttonhead Fitting and Lubricant Screw (pictured on page 26) is standard on all valves.



**Round Port
100% Pipe Area**

Straightway – Worm & Gear Operated
Semi-Steel

**200 lb. WOG
150 lb. SWP**

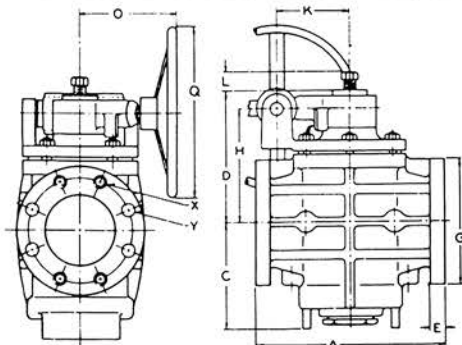
Test: Air under water 200 p.s.i.g.



**Valves now supplied
with enclosed gearing.
Dimensions D-H-L-K-O
Consult Factory.**

Fig. 652-G — Semi-Steel

DIMENSIONS	SIZE – INCHES					
		4"	6"	8"	10"	12"
Face to face	A	12	18	22	26	30
Flange diameter	G	9	11	13½	16	19
Number drilled holes	Y	4	8	8	12	12
Number tapped holes	X	4	—	—	—	—
Flange thickness	E	15/16	1	1 1/8	1 3/16	1 1/4
Center of port to top of stem	D	9 1/2	10 31/32	13 17/32	14 7/8	17 23/32
Length of lubricant screw	L	4 1/2	4 1/2	4 1/2	4 1/2	6 3/4
Lubricant stick diameter	—	5/8	5/8	5/8	5/8	5/8
Center of port to center of shaft	H	7 7/8	9 11/32	11 13/32	12 3/4	15 11/32
Center of valve to center of handwheel	K	6 5/8	7 5/8	11 9/16	11 9/16	16 31/32
Center of body to outside of gear	—	—	—	—	—	—
Center of port to top of handwheel	—	—	—	—	—	—
Gear diameter	—	—	—	—	—	—
Center of port to bottom	C	6 1/4	7 11/16	9 1/8	11 1/4	14 1/8
Center of body to handwheel	O	10 5/8	13 1/4	16	16	18
Handwheel diameter	Q	18	27	38	38	38
Turns of handwheel to open valve	—	9	9 1/2	17	17	18 1/2
Weight, pounds – Semi-steel	—	241	459	969	1321	1620



Round port Homestead Lubricated Plug Valves have a full round opening through the plug and body equal in diameter to the valve size. For example, 4" valve has 4" diameter port.

Flanges are drilled to 125 pound ANSI B16.1. Drilling other than standard is extra. Prices include drilling; and no reduction is made for valves not drilled.

Sides of valves may be tapped for by-pass lines.

Combination Buttonhead Fitting and Lubricant Screw (pictured on page 26) is standard on all valves.

200 lb. WOG
150 lb. SWP

Test: Air under water 200 p.s.i.g.

Three-Way
Semi-Steel

100% Pipe Area – & Standard Opening
Wrench Operated – Rectangular Port

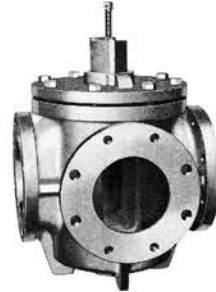
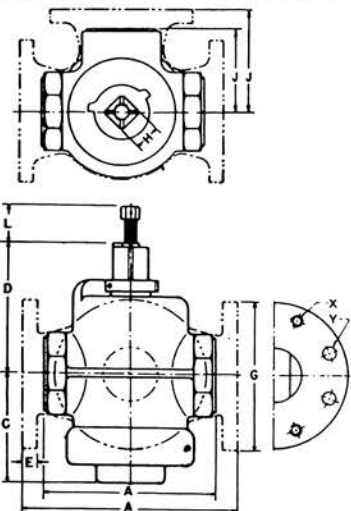


Fig. 603 – (two-port plug) 100% Pipe Area; Screwed

Fig. 605 – (three-port plug) 100% Pipe Area; Screwed

Fig. 604 – (two-port plug) 100% Pipe Area; Flanged
Fig. 606 – (three-port plug) 100% Pipe Area; Flanged

DIMENSIONS	SIZE – INCHES												
	Fig. 603-604-605-606												686,688†
	$\frac{3}{8}$ " $8\frac{1}{2}$ "	$\frac{3}{4}$ "	1"	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	2"	2 $\frac{1}{2}$ "	3"	4"	*5"	*6"	*8"	*10"
End to end, Fig. 603 or 605	A 3 $\frac{3}{8}$	4 $\frac{3}{8}$	4 $\frac{3}{8}$	6	6	6 $\frac{3}{4}$	8	9 $\frac{1}{2}$	11	–	–	–	–
Face to face, Fig. 604 or 606	A	–	7	–	8	9	10	11	13	15	16	18	22
Flange diameter	G	–	4 $\frac{1}{4}$	–	5	6	7	7 $\frac{1}{2}$	9	10	11	13 $\frac{1}{2}$	16
Number of drilled holes	Y	–	4	–	4	4	4	4	8	8	4	4	12
Number of tapped holes	X	–	–	–	–	–	–	–	–	–	4	4	–
Flange thickness	E	–	$\frac{7}{16}$	–	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{15}{16}$	$\frac{15}{16}$	1	1 $\frac{1}{8}$	1 $\frac{3}{16}$
Center to top of stem	D 2 $\frac{3}{4}$	3 $\frac{15}{32}$	3 $\frac{15}{32}$	4 $\frac{7}{32}$	4 $\frac{7}{32}$	5 $\frac{5}{16}$	5 $\frac{9}{32}$	6 $\frac{11}{16}$	7 $\frac{3}{4}$	9 $\frac{25}{32}$	11 $\frac{1}{8}$	12 $\frac{25}{32}$	12 $\frac{25}{32}$
Length of lubricant screw	L 1 $\frac{9}{16}$	1 $\frac{9}{16}$	1 $\frac{9}{16}$	1 $\frac{9}{16}$	1 $\frac{9}{16}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	3 $\frac{1}{4}$	3 $\frac{3}{8}$	3 $\frac{3}{8}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$
Lubricant stick diameter	–	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{5}{8}$
Standard wrench size	–	F	G	G	G	E	E	N	N	N	P	P	P
Center of port to bottom	C 2 $\frac{7}{32}$	2 $\frac{11}{16}$	2 $\frac{11}{16}$	3 $\frac{15}{32}$	3 $\frac{15}{32}$	3 $\frac{7}{8}$	4 $\frac{9}{32}$	5 $\frac{5}{32}$	6 $\frac{5}{16}$	8 $\frac{1}{8}$	9 $\frac{5}{32}$	10 $\frac{1}{4}$	10 $\frac{1}{4}$
Dimen. of square on stem	H 2 $\frac{5}{32}$	2 $\frac{9}{32}$	2 $\frac{9}{32}$	2 $\frac{9}{32}$	2 $\frac{9}{32}$	1 $\frac{3}{16}$	1 $\frac{3}{16}$	2	2	2	2 $\frac{7}{16}$	2 $\frac{7}{16}$	2 $\frac{7}{16}$
Center to side opening, Screwed	J 1 $\frac{13}{16}$	2 $\frac{3}{16}$	2 $\frac{3}{16}$	3	3	3 $\frac{3}{8}$	4	4 $\frac{3}{4}$	5 $\frac{1}{2}$	–	–	–	–
Center to side opening, Flanged	J	–	3 $\frac{1}{2}$	–	4	4 $\frac{1}{2}$	5	5 $\frac{1}{2}$	6 $\frac{1}{2}$	7 $\frac{1}{2}$	8	9	11
Weight, pounds – Screwed	–	4	8	8	15	15	24 $\frac{1}{2}$	38	68	112	–	–	–
Weight, pounds – Flanged	–	–	–	13 $\frac{3}{4}$	21	23	36	52	79	148	248	356	515
													725



Sizes larger than 4" furnished with bolted cap for manual gearing. Specify if required.

Face to face and center of run opening are same as A.S.M.E. 125 pound Flanged Cast Iron Standard "T" dimensions.

Flanges are drilled to 125 pound ANSI B16.1. Drilling other than standard is extra. Prices include drilling; no reduction is made for valves not drilled.

Three-way lubricated valves are available with either two-port or three-port plugs, and with stop rings to limit plug travel to 90°, 180°, or 270° turns. When ordering please refer to page 18, and specify style of port positions desired.

These valves are used as "flow changers," and are not intended to be used as mid-position shut-off valves.

Combination Buttonhead Fitting and Lubricant Screw (pictured on page 26) is standard on all valves.

Valves can also be furnished with transflow port plug is required.

†Standard Opening.

**Three-Way
Semi-Steel**

100% Pipe Area – & Standard Opening
Worm & Gear Operated
Rectangular Port

**200 lb. WOG
150 lb. SWP**

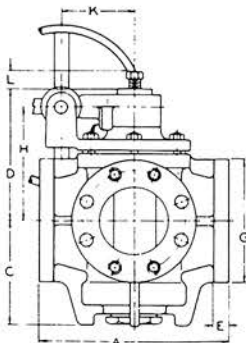
Test: Air under water 200 p.s.i.g.



Valves now supplied
with enclosed gearing.
Dimensions D-H-L-K-O
Consult Factory.

Fig. 604G – (two-port plug) 100% Pipe Area;
Flanged;
Fig. 606G – (three-port plug) 100% Pipe Area;
Flanged;

DIMENSIONS	SIZE – INCHES					
	Fig. 604 & 606-G				686,688G†	
	4"	5"	6"	8"	10"	
Face to face	A	13	15	16	18	22
Flange diameter	G	9	10	11	13½	16
Number drilled holes in flange	Y	6	8	4	4	12
Number tapped holes in flange	X	2	—	4	4	—
Flange thickness	E	1 ⁵ / ₁₆	1 ⁵ / ₁₆	1	1 ¹ / ₈	1 ³ / ₁₆
Center of port to top of stem	D	9 ³ / ₄	11 ¹ / ₁₆	12 ³ / ₁₆	13 ⁹ / ₁₆	13 ⁹ / ₁₆
Length of lubricant screw	L	4½	4½	4½	4½	4½
Lubricant stick diameter	—	5/8	5/8	5/8	5/8	5/8
Center of valve to center of handwheel	H	8 ³ / ₁₆	9 ⁷ / ₁₆	10 ¹⁷ / ₃₂	11 ¹⁵ / ₁₆	11 ¹⁵ / ₁₆
Center of port to center of shaft	K	6 ⁵ / ₈	6 ⁵ / ₈	7 ⁵ / ₈	7 ⁵ / ₈	7 ⁵ / ₈
Center to side opening	J	6½	7½	8	9	9
Center of port to bottom	C	6 ⁷ / ₈	8 ¹ / ₈	9 ⁵ / ₃₂	10 ¹ / ₄	10 ¹ / ₄
Center of body to handwheel	O	10 ⁵ / ₈	10 ⁵ / ₈	13 ¹ / ₈	13 ¹ / ₈	13 ¹ / ₈
Handwheel diameter	Q	18	18	27	27	27
Turns of handwheel to turn plug 90°	—	9½	9	9½	9½	9½
Weight, pounds – Semi-steel	—	275	—	470	665	815



Face to face and center of run to side opening are ANSI B16.1 125 pound Flanged Cast Iron Standard "T" dimensions.

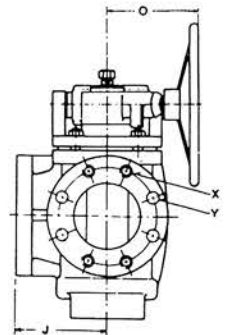
Flanges are drilled 125 pound ANSI B16.1. Drilling other than standard is extra. Prices include drilling; and no reduction is made for valves not drilled.

Three-way gear operated lubricated valves are available with either two-port or three-port plugs, and with gear segments to limit plug travel to 90°, 180°, 270°, or 360° without limiting stops. When ordering please refer to page 18, and specify style of port positions desired. These valves are used as "flow changes" and are not intended for use as mid-position shut-off valves.

Combination Buttonhead Fitting and Lubricant Screw (pictured on page 26) is standard on all valves.

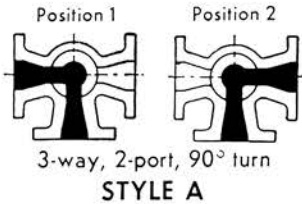
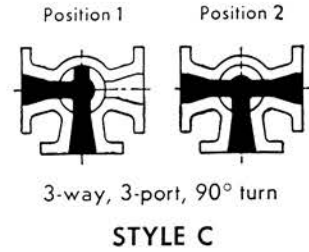
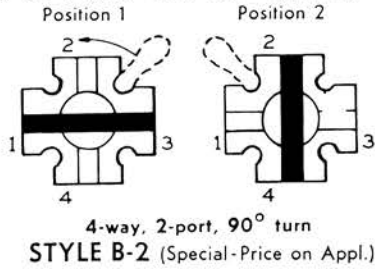
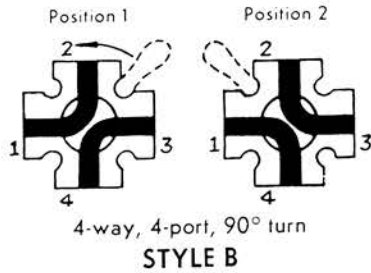
Valves can also be furnished with transflow port plug if required.

†Standard Opening.

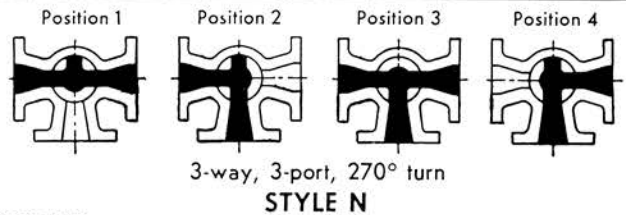
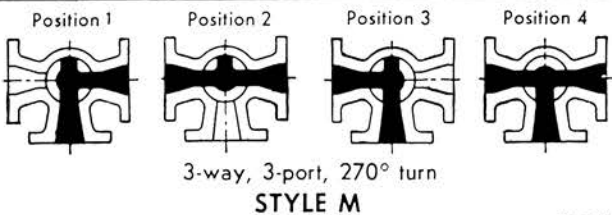
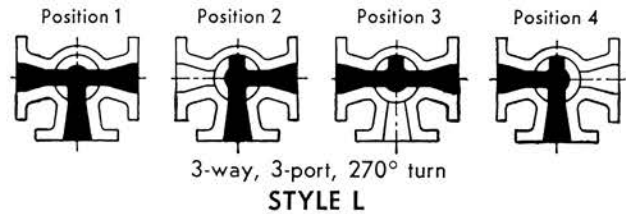
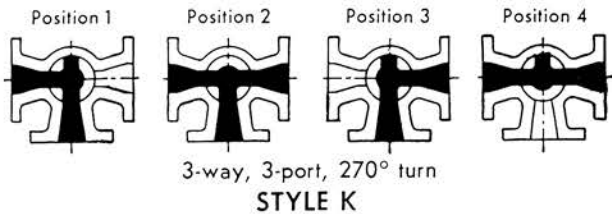
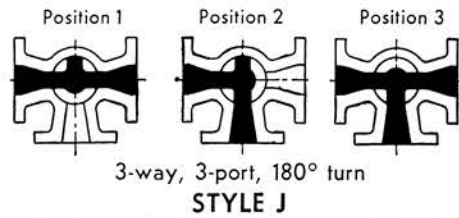
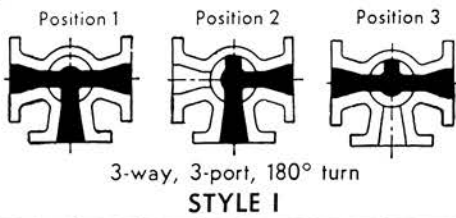
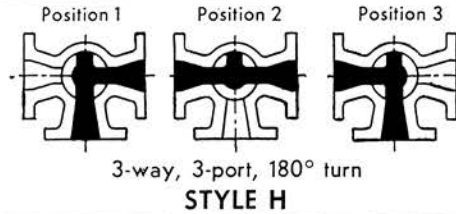
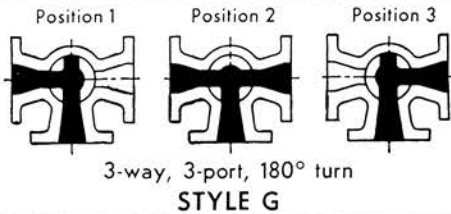
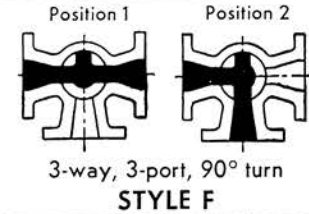
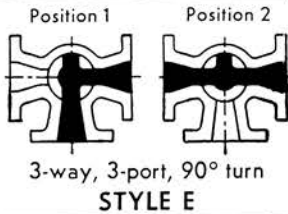
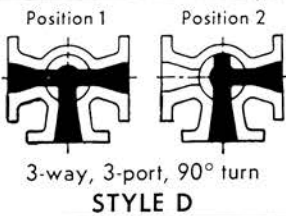
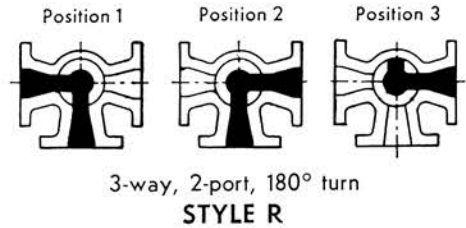
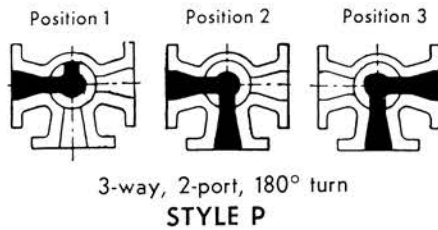


Three-way and Four-way Valve Port Positions

(VIEW IS FROM TOP OF VALVE)



Also available in 3-way, 2-port, for 180° turn, right or left hand operation.



HOW TO ORDER

When ordering three-way valves specify the size and figure number of the valve, plus the style letter of the port position desired. **Example:** 3"—figure 606, Style C. Three-way and four-way valves can be furnished without stop-rings to allow a full 360° turn. Three types of stop-rings are shown on page 25.

**Four-Way
Semi-Steel**

Standard Opening – Wrench Operated
Rectangular Port

**200 lb. WOG
150 lb. SWP**

Test: Air under water 200 p.s.i.g.

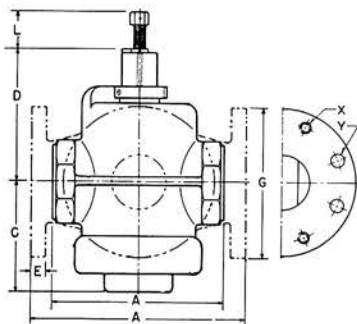


Fig. 607 – Screwed



Fig. 608 – Flanged

DIMENSIONS	SIZE – INCHES										
	$\frac{3}{8}$ " & $\frac{1}{2}$ "	$\frac{3}{4}$ "	1"	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	2"	2 $\frac{1}{2}$ "	3"	4"	6"*	
End to end, Fig. 607	A	3 $\frac{5}{8}$	4 $\frac{3}{8}$	4 $\frac{3}{8}$	6	6	6 $\frac{3}{4}$	8	9 $\frac{1}{2}$	11	–
Face to face, Fig. 608	A	–	–	7	–	8	9	10	11	13	16
Flange diameter	G	–	–	4 $\frac{1}{4}$	–	5	6	7	7 $\frac{1}{2}$	9	11
Number of drilled holes	Y	–	–	4	–	4	4	4	4	8	4
Number of tapped holes	X	–	–	–	–	–	–	–	–	–	4
Flange thickness	E	–	–	$\frac{7}{16}$	–	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{15}{16}$	1
Center to top of stem	D	2 $\frac{3}{4}$	3 $\frac{15}{32}$	3 $\frac{15}{32}$	4 $\frac{7}{32}$	4 $\frac{7}{32}$	5 $\frac{5}{16}$	5 $\frac{19}{32}$	6 $\frac{11}{16}$	7 $\frac{3}{4}$	11 $\frac{7}{8}$
Length of lubricant screw	L	1 $\frac{9}{16}$	1 $\frac{9}{16}$	1 $\frac{9}{16}$	1 $\frac{9}{16}$	1 $\frac{9}{16}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	3 $\frac{5}{8}$	3 $\frac{5}{8}$
Lubricant stick diameter	–	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
Standard wrench size	–	F	G	G	G	G	E	E	N	N	P
Center of port to bottom	C	2 $\frac{7}{32}$	2 $\frac{11}{16}$	2 $\frac{11}{16}$	3 $\frac{15}{32}$	3 $\frac{15}{32}$	3 $\frac{7}{8}$	4 $\frac{9}{32}$	5 $\frac{5}{32}$	6 $\frac{5}{16}$	9 $\frac{5}{32}$
Dimen. of square on stem	H	2 $\frac{5}{32}$	2 $\frac{9}{32}$	2 $\frac{9}{32}$	2 $\frac{9}{32}$	2 $\frac{9}{32}$	1 $\frac{3}{16}$	1 $\frac{3}{16}$	2	2	2 $\frac{7}{16}$
Center to side opening, Screwed	J	1 $\frac{13}{16}$	2 $\frac{3}{16}$	2 $\frac{3}{16}$	3	3	3 $\frac{3}{8}$	4	4 $\frac{3}{4}$	5 $\frac{1}{2}$	–
Center to side opening, Flanged	J	–	–	3 $\frac{1}{2}$	–	4	4 $\frac{1}{2}$	5	5 $\frac{1}{2}$	6 $\frac{1}{2}$	8
Weight, pounds – Screwed	–	4	8	8 $\frac{1}{4}$	16 $\frac{1}{2}$	16	26	40	68	122	–
Weight, pounds – Flanged	–	–	–	16	–	36	42	62	89	160	410



*6" Size has bolted cap; is also available for enclosed manual gear operation as Fig. 608G.

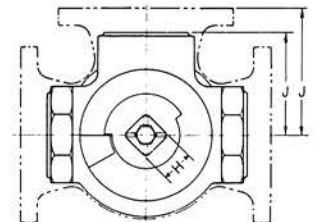
Face to face and center of run to side openings are same as A.S.M.E. 125 pound Flanged Cast Iron Standard "Cross-over" dimensions.

Flanges are drilled to 125 pound ANSI B16.1. Drilling other than standard is extra. Prices include drilling; and no reduction is made for valves not drilled.

Four-way lubricated valves are available with four-port plugs; with stop rings to limit plug travel to 90°. When ordering please refer to page 18.

These valves are used as "flow changers," and are not intended to be used as mid-position shut-off valves.

Combination Buttonhead Fitting and Lubricant Screw (pictured on page 26) is standard on all valves.



**200 lb. WOG
150 lb. SWP**

Test: Air under water 200 p.s.i.g.

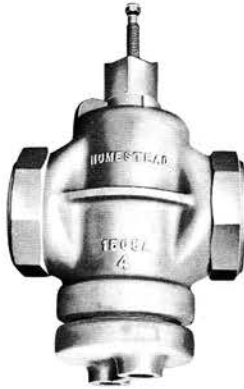


Fig. 601-SJ – Semi-Steel, Screwed



Sectioned bonnet for steam jacketed valves. See page 25 for part number of steam-jacketed bonnets.

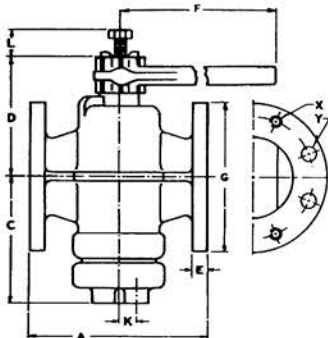
**Steam-Jacketed
100% Pipe Area
Semi-Steel**

Rectangular Port



Fig. 602-SJ – Semi-Steel, Flanged

DIMENSIONS	SIZE – INCHES											
		1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"
End to end	A	3 3/4	3 3/4	4 1/4	5	5	6	6 3/4	7 5/8	10	–	–
Face to face	A	–	–	5 1/2	6	6 1/2	7	7 1/2	8	9	10	10 1/2
Flange diameter	G	–	–	4 1/4	4 5/8	5	6	7	7 1/2	9	10	11
Flange thickness	E	–	–	7/16	1/2	9/16	5/8	11/16	3/4	15/16	15/16	1
Number of drilled holes	Y	–	–	4	4	4	4	4	4	8	4	4
Number of tapped holes	X	–	–	–	–	–	–	–	–	–	4	4
Center to top of stem	D	2 29/32	2 29/32	3 5/16	4	4	5 1/8	5 13/32	6 17/32	7 3/4	8 11/16	9 15/32
Length of lubricant screw	L	1 9/16	1 9/16	1 9/16	1 9/16	1 9/16	2 1/2	2 1/2	2 1/2	3 5/8	3 5/8	3 5/8
Lubricant stick diameter	–	3/8	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	1/2	1/2
Standard wrench size	–	F	F	G	G	G	E	E	L	N	N	N
Center of port to bottom	C	3 7/32	3 7/32	3 7/32	4 1/8	4 1/8	5 1/32	5 11/32	6 13/32	7 19/32	8 5/8	9 5/8
Dimen. of square on stem	H	25/32	25/32	29/32	29/32	29/32	17/32	17/32	1 1/2	2	2	2
Jacket port cntr. to bonnet cntr.	K	1 1/16	1 1/16	1 1/16	29/32	29/32	29/32	1 7/32	1 5/8	1 15/16	2 1/2	2 7/8
Size of pipe tap in jacket	–	3/8	3/8	3/8	3/8	3/8	1/2	1/2	1/2	3/4	3/4	3/4
Extreme width of scrd. body	R	2 5/8	2 5/8	2 7/8	3 5/8	3 5/8	4 3/8	5	6 1/4	7 1/4	–	–
Extreme width of flgd. body	R	–	–	4 1/4	4 5/8	5	6	7	7 1/2	9	10	11
Weight, pounds – Screwed	–	–	–	6 1/2	9 1/4	10 1/2	19 1/2	27 1/4	40	80	–	–
Weight, pounds – Flanged	–	–	–	9	14 1/2	15	24	35	51	83	125	154

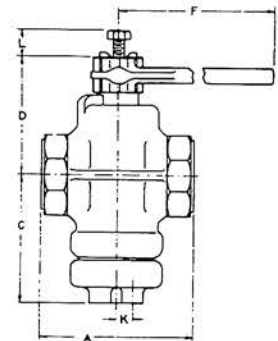


Note: All Homestead Lubricated Plug Valves in sizes 1/2" to 6" inclusive, with 100% pipe area, and 1" through 8" standard opening in straightway; and through 6" in three-way or four-way design, may be had with steam-jacketed bonnets. Specify by adding letters "SJ" to Fig. No. desired.

Face to face dimensions are in accordance with ANSI B16.10.

Flanges are drilled to 125 pound ANSI B16.1. Drilling other than standard is extra. Prices include drilling; and no reduction is made for valves not drilled.

Combination Buttonhead Fitting and Lubricant Screw (pictured on page 26) is standard on all valves.



**Diamond Port
Standard Opening**

*Full port body with diamond port plug
Straightway – Wrench Operated
Semi-Steel

**200 lb. WOG
150 lb. SWP**

Test: Air under water 200 p.s.i.g.



Fig. 641 – Semi-Steel, Screwed

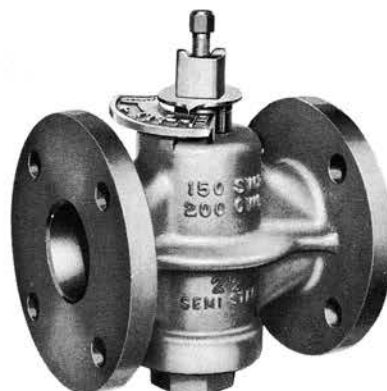
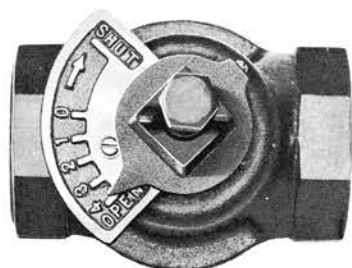


Fig. 642 – Semi-Steel, Flanged

DIMENSIONS	SIZE – INCHES											Fig. 642-A		
	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"*	5"*	6"*	*8" ‡	*10" ‡	
End to end	A	3 3/4	3 3/4	4 1/4	5	5	6	6 3/4	7 5/8	10	–	–	–	–
Face to face	A	–	–	5 1/2	6	6 1/2	7	7 1/2	8	9	10	10 1/2	11 1/2	13
Flange diameter	G	–	–	4 1/4	4 5/8	5	6	7	7 1/2	9	10	11	13 1/2	16
Number drilled holes	Y	–	–	4	4	4	4	4	4	8	4	4	4	8
Number tapped holes	X	–	–	–	–	–	–	–	–	–	4	4	4	4
Flange thickness	E	–	–	7/16	1/2	9/16	5/8	11/16	3/4	15/16	1	1 1/16	1 1/8	1 3/16
Center to top of stem	D	2 29/32	2 29/32	3 5/16	4	4	5 1/8	5 13/32	6 17/32	7 3/4	8 11/16	9 15/32	12	14 11/16
Length of lubricant screw	L	1 9/16	1 9/16	1 9/16	1 9/16	1 9/16	2 1/2	2 1/2	2 1/2	3 5/8	3 5/8	3 5/8	4 1/2	4 1/2
Lubricant stick diameter	–	3/8	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	1/2	1/2	5/8	5/8
Standard wrench size	–	F	F	G	G	G	E	E	L	N	N	N	P	P
Center of port to bottom	C	2 11/32	2 11/32	2 5/16	3 3/8	3 3/8	3 29/32	4 3/16	4 29/32	6 1/32	7	8	9 15/16	11 3/4
Dimen. of square on stem	H	25/32	25/32	29/32	29/32	29/32	17/32	17/32	1 1/2	2	2	2	2 7/16	2 7/16
Extreme width of Scrd. body	R	2 1/32	2 1/32	2 7/8	3 5/8	3 5/8	4 3/4	5	6 1/4	7 1/4	–	–	–	–
Extreme width of Flgd. body	R	–	–	4 1/4	4 5/8	5	6	7	7 1/2	9	10	11	13 1/2	17
Weight, lb. semi-steel – Scrd.	–	4 1/2	4 1/2	6	10	10	18 1/2	26 3/4	43	75	–	–	–	–
Weight, lb. semi-steel – Flgd.	–	–	–	–	–	14 1/2	23 1/2	36 3/4	50	85	132	168	275	410



Dial Indicators may also be had on rectangular port valves.

*These sizes available with enclosed manual gear actuator

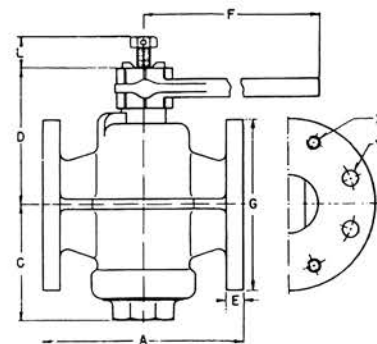
‡8" and 10" sizes have bolted bonnets.

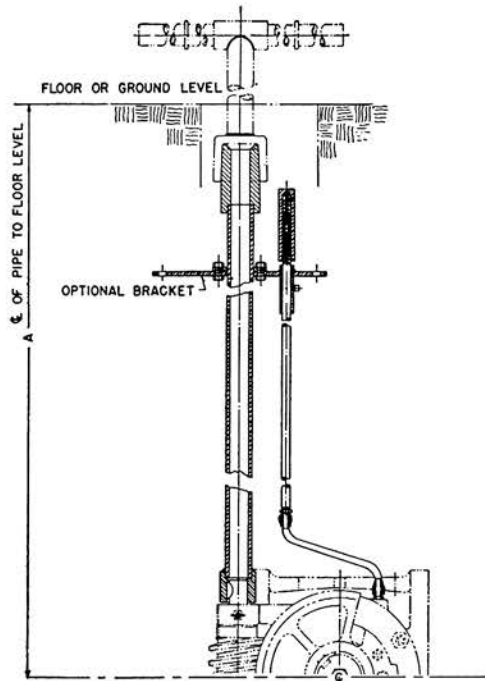
Optional dial indicators are available on all valves. Specify if required.

Face to face dimensions are in accordance with ANSI B16.10.

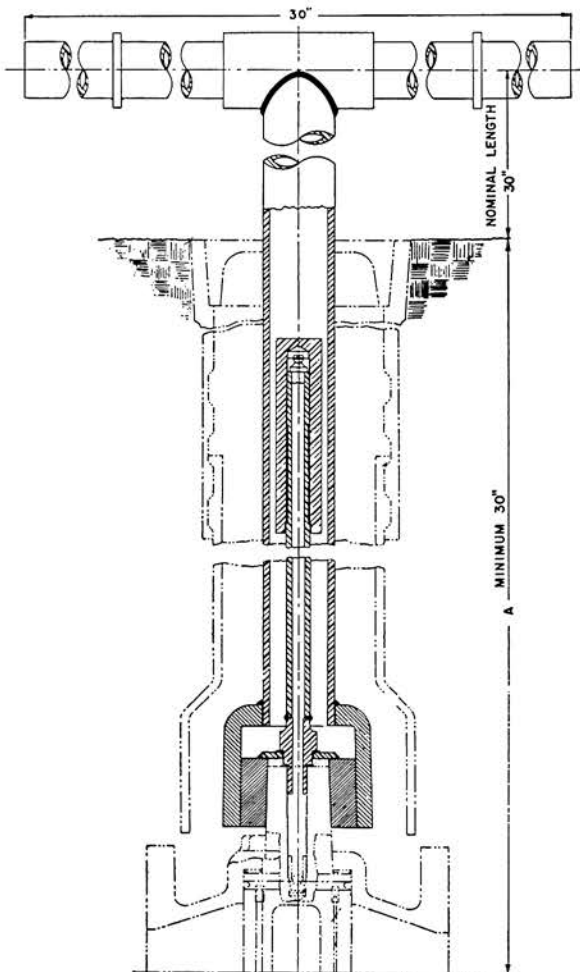
Flanges are drilled to 125 pound ANSI B16.1. Drilling other than standard is extra. Prices include drilling; and no reduction is made for valves not drilled.

Combination Buttonhead Fitting and Lubricant Screw (pictured on page 26) is standard on all valves.





High-Head Extension for "T" wrench operated worm and gear valve. "T" wrench not included in price of unit.



Low-Head Extension with 2" square socket wrench. Socket wrench not included in price of unit.

HIGH-HEAD EXTENSIONS

High-Head Extensions are available for the control of wrench-operated and worm and gear operated Homestead Lubricated Plug Valves installed below ground or floor level. Extension permits valve operation from above by tee-handled socket wrench, lever, or hand-wheel. The high-head extension includes the lube extension pipe and the stem extension pipe. Valve may be lubricated from the operating level by hand or pressure gun. An alternate lubrication system is included with the worm and gear extension assembly only. When ordering High-Head extensions, specify size and figure number of valve, and give dimension "A" (distance from ground or floor level to center of valve).

LOW-HEAD EXTENSIONS

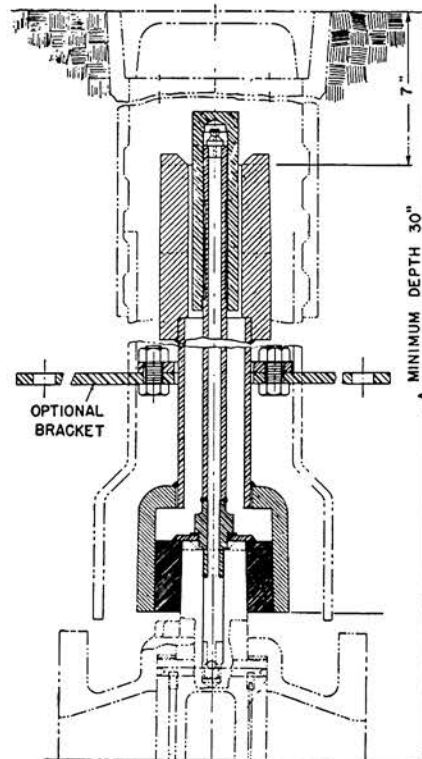
Low-Head Extensions are available for control of wrench-operated or worm and gear operated Homestead Lubricated Plug Valves installed below ground or floor level. A tee-handled, hollow-stemmed socket wrench with adapter is used to operate the valve, and lubrication is done from above ground by means of a lubrication extension pipe. Lubricant fitting in upper end of extension pipe permits lubrication by hand or pressure gun. In ordering Low-Head Extensions, please give size and figure number of valve, and Dimension "A" (distance from floor or ground to center of valve).

FLOOR STANDS

A floor stand with an indicating device to show whether valve is open or closed can be fitted to all wrench-operated and worm-and-gear operated Homestead Lubricated Plug Valves. If it is impossible to line up floor stand and valve, a floor stand with universal joint is available. Floor stands may be had in welded construction as shown in sketch, or as an integral casting. When ordering floor stands, give valve size, figure number and Dimension "A." For floor stands with universal, give dimensions A, H, and I.

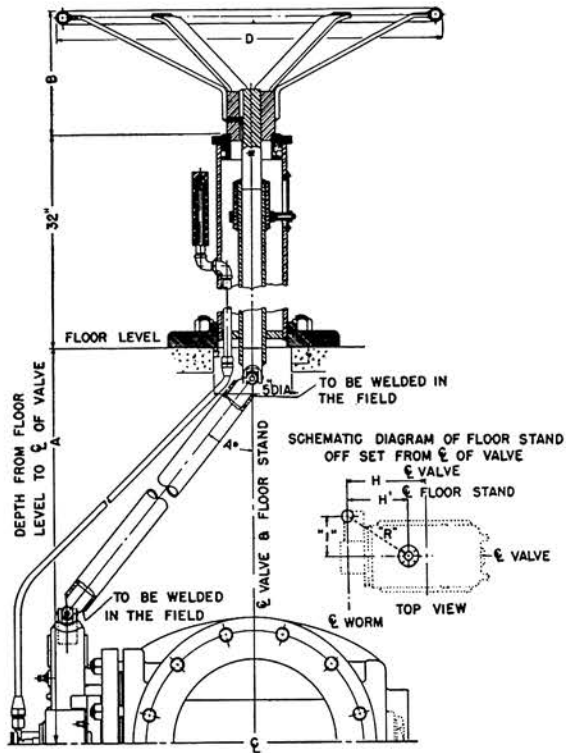
ADAPTER SQUARE

Adapter square dimension is 2" for full port valves up to 6" and venturi type to 8". All larger size valves require a 2-7/16" adapter square.

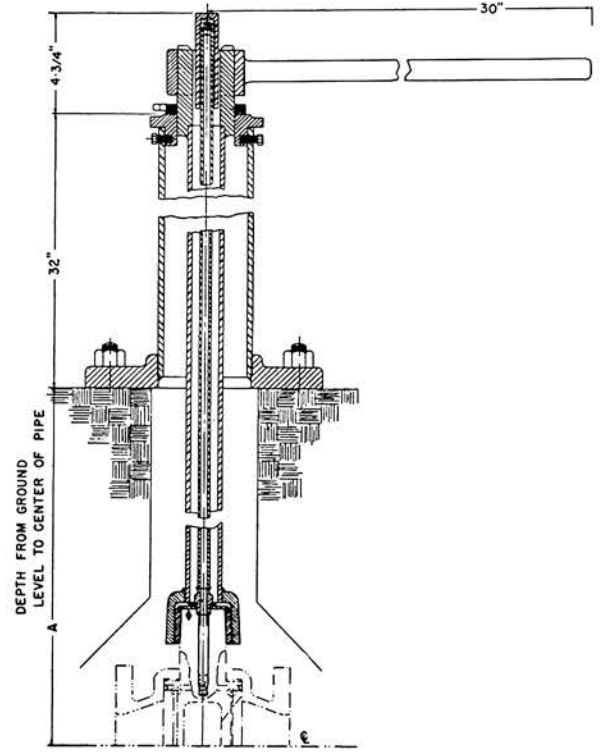


High-Head Extension for wrench-operated valve

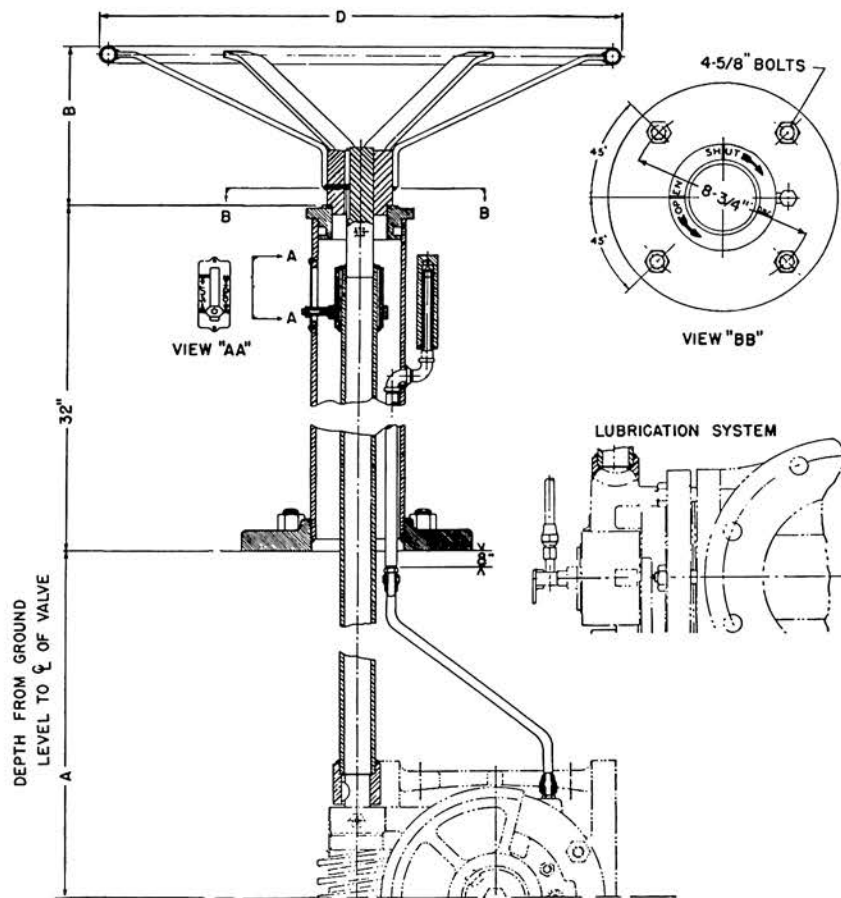
EXTENSIONS and FLOOR STANDS



Floor Stand with Universal.



Floor Stand with wrench operation.



Floor Stand for worm and gear operated valve.



Floor Stand

WRENCHES AND LOCKING DEVICES



Wrench sizes E, F, G and L

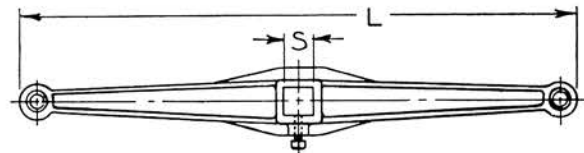
Wrench sizes N and P.

WRENCH SIZE AND DIMENSIONS				VALVE SIZES STRAIGHT WAY			VALVE SIZES 3-WAY & 4-WAY	
Size	Square	Length	Approx. Wt. - Lbs.	Full Port and Diamond Port	Round Port	Reduced Port 602	Standard Opening 612	Full Port 603-606
F	1 ³ / ₁₆	8 ¹ / ₈	1 ¹ / ₄	1/2-3/4	1/2	—	1	1/2
G	1 ⁵ / ₁₆	9 ⁹ / ₁₆	1 1/2	1 to 1 1/2	3/4 to 1/2	—	1 1/4 to 2	3/4 to 1 1/2
E	1 1/4	10 1/2	2 3/4	2 to 2 1/2	—	—	2 1/2 to 3	2 to 2 1/2
L	1 7/32	17 ²⁷ / ₃₂	3 1/2	3	2-2 1/2	—	4	—
N	2 ¹ / ₃₂	**	**	4-5-6	3†	—	5-6-8-10	3-4
P	2 ¹ / ₃₂	**	**	8-10	4*-6-8	10-12	12-14	6-8

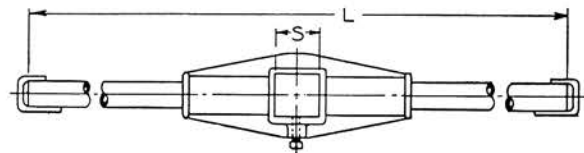
†N-24 *P-36 **Size optional—order in inches.

DOUBLE END WRENCH SIZE AND DIMENSIONS					
Size	FF	EE	LL	NN	PP
Square	1 ³ / ₁₆	1 1/4	1 ¹⁷ / ₃₂	2 ¹ / ₃₂	2 ¹⁵ / ₃₂
Length	16 1/4	19 1/4	**	**	**
Approx. Wt.-Lb.	1 3/8	4 3/8	8 1/2	15	35

**Size optional—order in inches.



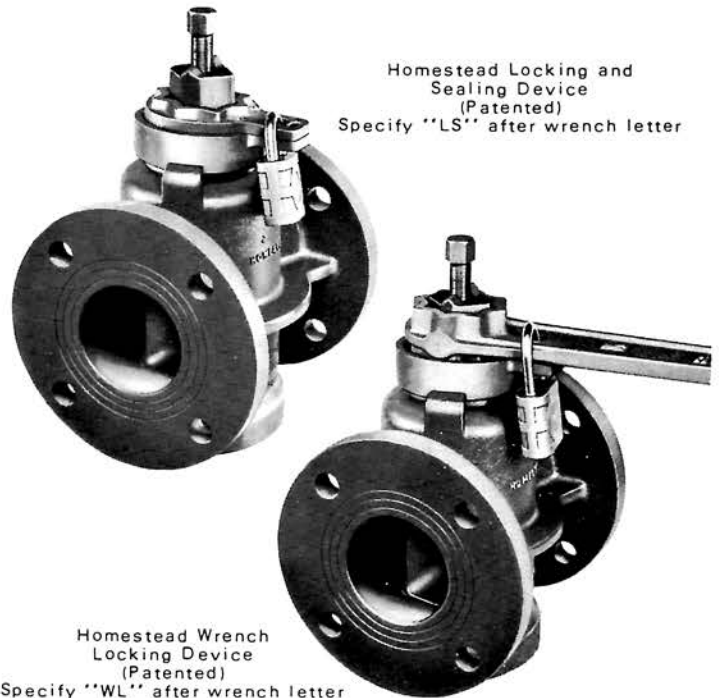
Double-end wrench sizes FF and EE



Double-end wrench sizes LL, NN, and PP.

LOCKING & SEALING & WRENCH LOCKING DEVICES				
Valve Size	Fig No.	Locking & Sealing Device	Wrench Locking Device	
		LSD #1	N/A	
1/2"	601, 641, 651	44860	N/A	
3/4"	601, 641	C 44860	N/A	
1"	611, 612		N/A	
1 1/4"	651, 652	LSD #2	N/A	
1 1/2"	651, 652	44857	N/A	
3/4"	651	LSD #3	N/A	
1"	601, 602, 641, 651, 652	#45696	N/A	
1 1/4"	601, 602, 611, 612, 641	Dwg # C 45696	N/A	
1 1/2"	601, 602, 611, 612, 641, 642	Dwg # SK-1110-1	Dwg # SK-1110	
2"	611, 612		E-WL	
2"	601, 602, 641, 642		E-WL	
2 1/2"	601, 602, 611, 612, 641, 642	E-LS	E-WL	
3"	611, 612	1900394101	E-WL	
2", 2 1/2"	651, 652	Dwg # SK-1110-1	Dwg # SK-1110	
3"	601, 602, 641, 642	L-LS	L-WL	
4"	611, 612	1900395101	L-WL	
3"	651, 652	Dwg # SK-1110-1	Dwg # SK-1110	
4"	601, 602, 641, 642		N-WL	
5"	602, 602A, 612, 642		N-WL	
6"	602, 602A, 612, 612A, 642, 622A	1900396101	1900386101	
8"	612, 612A	Dwg # SK-1110-1	Dwg # SK-1110	
10"	612A		N-WL	
4"	651A, 652		N-WL	
6"	652A	Dwg # SK-1110-1	Dwg # SK-1110	
8"	602A, 622A, 642A, 652A	P-LS	P-WL	
10"	602A, 622A, 642A	1900398101	P-WL	
12"	602A, 622A, 612A			

LOCKING DEVICES may be added without valve modification. For straightway valves, locking device sizes are the same as the corresponding wrench size. Specify by letter.



Homestead Locking and Sealing Device (Patented) Specify "LS" after wrench letter

Homestead Wrench Locking Device (Patented) Specify "WL" after wrench letter

Sizes requiring "N" or "P" wrench have pin and lock arrangement.

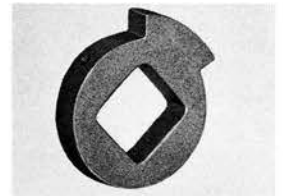
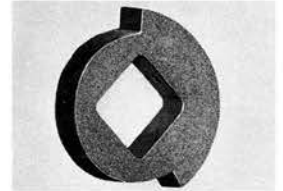
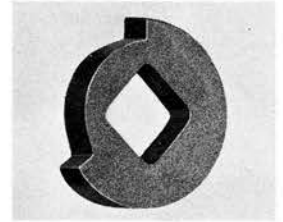
In some instances pictures shown do not represent the lubrication fitting currently being sold.

PARTS

VALVE SIZE, (Inches)	†PART NUMBERS FOR SEMI-STEEL STEAM JACKET BONNETS			
	Straightway Rectangular Port, 100% Pipe Area	Straightway Rectangular Port Standard Opening (Fig. 611,612)	Straightway Round Port	3-Way 100% Pipe Area & 4-Way
1/2	—	—	1953-A	—
3/4	1953-A	—	1953-G-010	1953-G-010
1	1952-Y-010	1953-A-010	1953-G-010	1953-G-010
1 1/4	1953-G-012	1952-Y-012	1953-D-012	1953-D-012
1 1/2	1953-G-015	1952-Y-015	1953-H-015	1953-D-015
2	1953-D-020	1953-G-020	1953-E-020	1953-H-020
2 1/2	1953-H-025	1953-D-025	1463-A-025	1953-E-025
3	1953-E-030	1953-H-030	1720-B	1463-A-030
4	1463-A-040	1953-E-040	—	1953-F-040
5	1720-A-050	1463-A	—	—
6	1953-F-060	1463-A	—	*1702-C
8	—	1720-A-080	—	—

†Part numbers listed are for integral body design (no bolted caps)
*Steam chest bolted to valve base; bolted cap body design.

STOP RINGS FOR 3-WAY AND 4-WAY VALVES

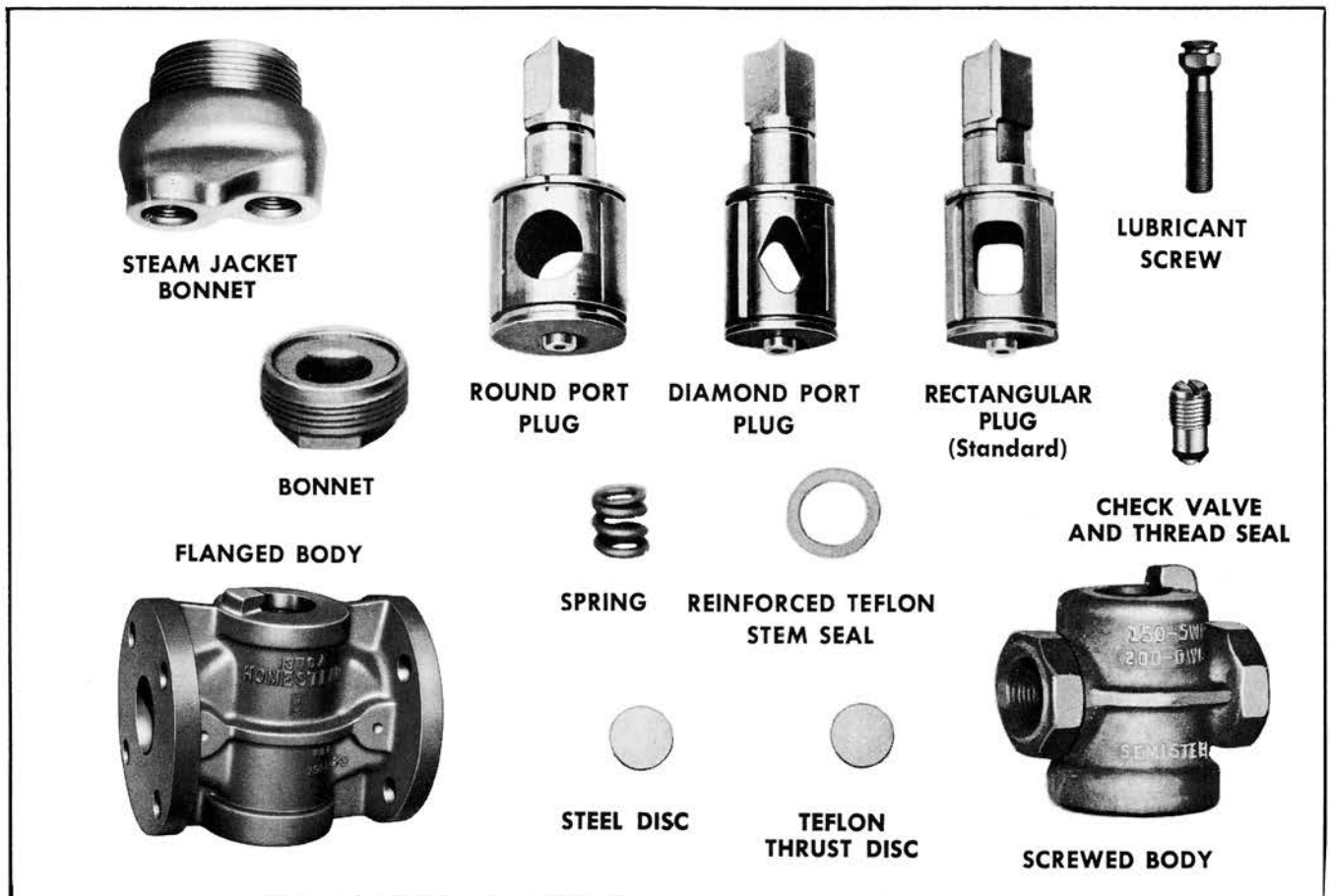


270° turn



Adapter

ADAPTERS: Adapters may be had for all sizes and types of wrench operated valves with stem square dimensions less than 2". All adapters have 2" square head so that they may be operated with a size "N" wrench or socket wrench.





**Combination
Buttonhead
Fitting and
Lubricant Screw
(Standard Equipment)**

Homestead Lubricated Plug Valves are all furnished with combination buttonhead fitting and lubricant screw unless otherwise specified. If desired, valves will be furnished with choice of standard or giant buttonhead, or hydraulic fitting, at no extra cost.



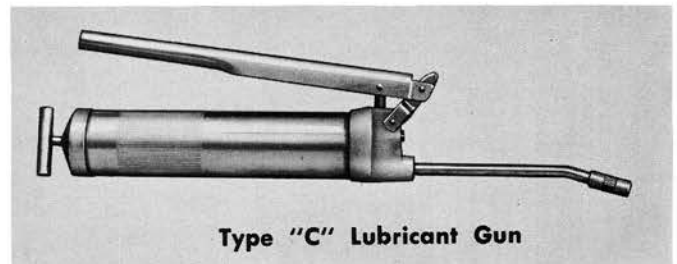
**Giant
Buttonhead
Fitting**



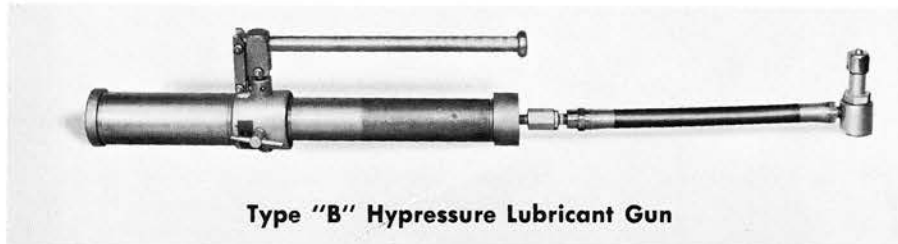
**Standard
Buttonhead
Fitting**



Type "A" Lubricant Gun



Type "C" Lubricant Gun



Type "B" Hypressure Lubricant Gun



**Optional Straight Head for
Type "A," "B" or "C" Guns**

Type "A" Hypressure Lubricant Gun — For use with either stick or bulk lubricant. Lubricant is fed by turning threaded plunger. Weight 11 lb., 4 oz.

Type "B" Hypressure Lubricant Gun—For use with either stick or bulk lubricant. Pressure is built up hydraulically. Built-in safety features protect the gun and the valve being lubricated from possible excessive pressures. Loads quickly and cleanly without the use

of wrenches and tools. To load, by-pass valve is opened to relieve pressure; charging cap is removed; piston is returned to bottom of cylinder and by-pass valve is closed. Lubricant is then inserted in cylinder, and charging cap replaced. Weight 15 lb. 8 oz.

Where numerous valves are on services requiring the same lubricant, the job is done easier, faster and more economically with a Homestead Lubricant Gun. It pays to have a gun available for each type of lubricant being used. Order them with your next order for lubricants.

STANDARD LUBRICANT FEATURES

Sealant No.		*Temp. Range Degres F.		Color	Principal Uses	Solvent
Stick	Bulk	From	To			
6	6-S	+ 32°	+ 275°	Gray	Hot Water Services	Naptha
400		+ 20°	+ 130°	Red	Acids and Alkalies.	Naptha
	400-S	0°	+ 110°			
400-A		+ 20°	+ 130°	Amber	Aqueous solutions of acids, alkalies and amines.	Naptha
	400-AS	0°	+ 110°			
450		+ 20°	+ 130°	White	Food products.	Naptha
	450-S					
600	600-S	0°	+ 120°	Brown	Hydrocarbon services.	Perchlor-ethylene
650		0°	+ 180°	Green	Hydrocarbons, L.P.G., and Natural Gas	Chlorethane
	650-S	- 20°	+ 150°			
711	711-S	- 10°	+ 150°	Clear	Internal combustion fuels.	Chlorethane
750		+ 20°	+ 400°	Black	Asphalt & hot oil services.	Naptha
800			+ 250°	White	Hydrocarbons and aromatics.	Perchlor-ethylene
	800-S	- 10°	+ 200°			
900		+ 10°	+ 240°	Black	Hydrocarbons, aromatics and asphalt.	Perchlor-ethylene
	900-S	0°	+ 200°			

SIZES AVAILABLE — STICK OR BULK

Homestead lubricants are furnished in the following sizes:

- Size B — 3/8" dia. — 24 sticks per box
- Size C — 1/2" dia. — 24 sticks per box
- Size D — 5/8" dia. — 24 sticks per box
- Size K — 1-1/2" dia. — 12 sticks per box
- Size J — 1-3/8" dia. — 16 sticks per box

*NOTE: Temperature range that appears are the limits that the valve can seal effectively while at operating pressures. Operating pressures vary according to valve size, material of construction, and valve service temperatures according to ANSI B16.1 for iron and B16.5 for steel valves. The lubricant will perform at the pressure limitations set forth by these industry standards within the temperature range indicated.

HOW TO ORDER

A lubricant in addition to sealing must also protect the valve against effects of the fluid being handled. Any conditions which melt or wash away lubricants may cause valve failure. It is therefore important that characteristics of the fluid being handled be considered when ordering lubricants. Be sure to give the following information on your lubricant order:

1. Fluid handled (if acid, give degree of concentration)
2. Temperature
3. Pressure

HOW TO LUBRICATE

Homestead Lubricated Valves may be lubricated in either the open or closed positions, by means of the lubricant screw or a pressure gun. **Standard lubricant fittings may be used in place of the lubricant screw without need of an adapter.**

To lubricate the Homestead Lubricated Plug Valve, simply:

1. Turn down lubricant screw, or apply pressure gun, to feed lubricant into valve.
2. If possible, rotate plug back and forth while lubricant is being fed into valve.
3. Stop feeding lubricant when lubricant appears around stem.

Use only the suggested Homestead Lubricant.

Unless lubricant number or service* conditions are given on order valves shipped from the factory will be filled with 650 lubricant. Before putting valve into service, fill with proper lubricant until valve is completely purged. Continue to feed new lubricant into valve until no trace of assembly lubricant can be seen around stem.

HOMESTEAD PLUG VALVE LUBRICANTS

RECOMMENDATION CHART*

Service	Lubricants	Service	Lubricants	Service	Lubricants
Absorption Oil	800	Cellulose Nitrate	400-A	Hot Water	6-S
Acetone	400-A	Cement Slurries	400-A	Hydraulic Oil	800
Acetylene	400	Chalk Solutions	400-A	Hydrogen	400-A
Acrolein	400	Charcoal Water	400-A	Isobutane	800
Air	900	Chilled Water	400-A	Iso-Octane	711-S
Air Dryers	400-A	Chocolate	450	Isopropyl Acetate	800
Alcohol, Ethyl	450	Chromic Acid	400	Isopropyl Alcohol	450
Alcohol, Methyl	400-A	Clay Slip	400-A	Jet Fuel	711-S
Alcohol, Propyl	400-A	Coal Gas	800	Kerosene	800
Aldehydes and Water	400	Coal Slurry	400-A	Kerosene and Naptha	800
Al. Chloride, 100%	400	Coal Tar	800	Kerosene and Water	800
Aluminum Hydroxide	400	Coal Tar Oil	900	Lard	450
Ammonia Gas, Liquid	400-A	Coal Tar Paint	900	Latex	650
Ammonia, Anhydrous	400-A	Cocoonut Oil	400-A	Lead Carbonate in Oil	650
Ammonia and Creosote	400-A	Cod Liver Oil	450	Light Naptha	650
Ammonia Liquor (Crude)	400-A	Coke Oven Gas	400-A	Light Naptha & Steam	650
Ammonia and Tar	400-A	Colloidian	800	Light Oil (Coal Tar)	650
Ammonium Hydroxide	400-A	Copper Acetate	400-A	Lignin in Solution	400-A
Ammonium Phosphate	400-A	Copper Cyanide	400-A	Lime (Milk of Lime)	400-A
Ammonium Sulfate	400	Corn Oil	450	Lime Sulfur	400
Ammonium Sift. Liquor	400	Corn Syrup	450	Linseed Oil	800
Ammonium Sulfide	400	Cottonseed Oil	450	Liquified Petroleum Gas	650
Amyl Acetate	800	Creosote	900	Lubricating Oil (Min.)	650
Amyl Chloride	800	Cresol	400-A	Lubricating Oil (Veg.)	400-A
Aniline	800	Cresylic Acid	400-A	Lye, 20%	400-A
Aniline Dyes	800	Crotonaldehyde	800	Magma	400-A
Aniline Oil	800	Crude Oil	650	Magnesia Slurry	400-A
Animal Oil	650	Cumene	800	Magnesium Silicate	400
Anthracene Oil	800	Cutting Oil	800	Magnesium Hydroxide	400
Argon Gas	400-A	Denatured Alcohol	450	Magnesium Sulfate	400
Aromatic Solvents	800	Diesel Fuel	800	Manufactured Gas	650
Arsenic Oxide	400	Diethanolamine	400	Mash (Distillery)	450
Asphalt	900	Dipentene	800	Mercury	800
Asphalt Emulsions	900	Disodium Phosphate	400	Methane	800
Asphalt Paints	800	Distilled Water	400-A	Methanol	450
Banana Oil	800	Doctor Solution	400-A	Methyl Chloride	800
Barium Carbonate	400	Dowtherm	800	Methylene Chloride	800
Barium Hydroxide	400	Drilling Mud	400-A	Milk of Lime	400-A
Barium Nitrate	400	Drinking Water	450	Milk of Magnesia	450
Barium Sulfate	400	Drip Cocks (Gas)	650	Mineral Oil	800
Barium Sulfide	400	Dyes, Oil Soluble	800	Mine Water	400-A
Beet Sugar Liquids	400	Dyes, Water Soluble	400-A	Mononethanolamine	400-A
Benzaldehyde, 100%	800	Fertilizer Solutions	400-A	Molasses	450
Benzene	900	Fish Oil	800	Monochlorobenzene	800
Benzoate of Soda	400	Flue Gas	800	Mud	400-A
Benzol	900	Foamite	400-A	Muriate of Potash	400-A
Benzol Vapors & Steam	900	Freon	650	Naptha	800
Bituminous Paints	800	Fuel Oil	800	Napthalene	800
Black Liquor	400-A	Fuel Oil and Gasoline	711-S	Naptha and Oil	800
Black Liquor Evaporates	400-A	Fuel Oil and Pitch	900	Naptha and Paint	800
Blast Furnace Gas	400-A	Fuel Oil and Tar	900	Naptha and Steam	800
Bleach Liquors	400	Furfural	400-A	Naptha Vapors	800
Boiler Feed Water	400-A	Furfural and Oil	400-A	Naptha and Water	800
Bone Oil	400-A	Gallic Acid	400	Natural Gas	650
Borax	400-A	Gas and Water	400-A	Nickel Plating Solution	400
Bottle Gas	800	Gas and Ammonia	400-A	Nitrobenzene	800
Brake Fluid	900	Gas (Fuel)	650	Nitrobenzene & Water	800
Bunker "C" Oil	800	Gas (Hydrocarbon)	650	Nitrogen	400-A
Butadiene	800	Gas (Manufactured)	650	Nitromethane	800
Butane	800	Gas (Natural)	650	Nitrous Oxide	400-A
Calcium Arsenate	400	Gas Oil	800	Oakite	400
Calcium Carbide	400-A	Gasoline, Refined	711-S	Oil, Crude	650
Calcium Chlorate	400-A	Gasoline and Grease	711-S	Oil, Edible	450
Calcium Citrate	400-A	Gasoline and Inhibitor	711-S	Oil, Mineral Lubricating	650
Calcium Chloride	400-A	Gasoline and Oil	711-S	Oil, Petroleum	650
Calcium Hydrochloride	400-A	Gasoline and Steam	711-S	Oil, Animal	400-A
Calcium Hydroxide	400-A	Gasoline and Water	711-S	Oil Gas	650
Calcium Oxide	400-A	Gelatin	450	Oil and Steam	900
Calcium Sulfate	400-A	Gin	450	Oil and Water	650
Cane Juice	400-A	Glaubers Salt	400	Oleomargarine	450
Cane Sugar Liquid	400-A	Glucose	450	Paint	800
Carbide	400-A	Glue	650	Paint Thinner	800
Carbolic Acid	900	Grain Alcohol	450	Phthalic Anhydride	400-A
Carbon Dioxide, 100%	800	Grease, Mineral	650	Peanut Oil	450
Carbon Monoxide	800	Grease, Vegetable	400-A	Pentane	711-S
Carnauba Wax	800	Green Liquor	400	Petroleum	650
Casein	650	Green Soup	400	Petroleum Gas	900
Casein Paint	650	Gypsum	400		
Casing Head Gas	650	Helium	400-A		
Castor Oil	400-A	Heptane	800		
Cellosolve, Methyl	900	Hexane	800		
Cellulose Acetate	900				

Petroleum Residue Oil	900
Petroleum Solvent	800
Pine Gum	800
Pitch	900
Pitch and Fuel Oil	900
Plaster of Paris	400-A
Polyester Resin & Styrene	800
Potash	400-A
Potassium Bichromate	400-A
Potassium Carbonate	400-A
Potassium Chloride	400-A
Potassium Nitrate	400-A
Potassium Sulfide	400-A
Producer Gas	900
Propane Gas, Dry	800
Propane Gas, Wet	900
Propane & Cresylic Acid	800
Propyl Acetate	800
Propyl Alcohol	450
Propylene, Liquid	800
Propylene, Vapor	800
Propylene Oxide	800
Pulp, Wood	400-A
Rape Seed Oil	650
Red Lead in Oil	800
Refinery Gas	900
Resin	400
Resin and Alcohol	400
Road Tar	900
Roofing Pitch	900
Rubber Compounds	800
Rubber Solvent	800
Sal Soda	400-A
Sand and Water	400-A
Sewage	400-A

Sewage Gas	400-A
Shellac	400
Slop, Brewery	450
Soap, Liquor	400-A
Soap Solution	400
Soap Stock	400
Soapstone	650
Soda Ash	400-A
Soda, Crude	450
Sodium Arsenate	450
Sodium Bicarbonate	450
Sodium Bichromate	450
Sodium Borate	400
Sodium Carbonate	400
Sodium Chloride	400
Sodium Chromate	400
Sodium Cyanide	400
Sodium Formate	400
Sodium Hydroxide, 20%	400-A
Sodium Nitrate	400
Sodium Plumbate	400
Sodium Phosphate	400
Sodium Silicate	400
Sodium Sulfate	400
Sodium Sulfide	400
Soluble Oil	800
Soya Bean Oil	450
Spent Soap Lye	400-A
Steam	6-S
Stoddard Solvent	800
Styrene	800
Sugar of Lead	400-A
Sulfur, Molten	400
Sulfur Dichloride	800
Sulfur Dioxide	400
Sulfuric Acid, 95%	400
Syrup	450

Tall Oil	400-A
Tallow	400-A
Tannic Acid	400
Tar	800
Tar and Ammonia	400-A
Tar Oil	800
Tar Residue	800
Tar and Water	800
Toluene	900
Toluol	900
Toluol and Steam	900
Toluol and Water	900
Triethanalomine	400-A
Trisodium Phosphate	400-A
Tung Oil	400-A
Turpentine	800
Turp. and Linseed Oil	800
Waste Water	400-A
Water, Fresh	400-A
Water and Alcohol	400-A
Water, Chilled	6-S
Water Gas	400-A
Water Gas and Tar	400-A
Water Glass	400-A
Water and Glycol	6-S
Water, Hot (275°)	6-S
Wax Emulsions	400-A
Whale Oil	450
White Liquor	400-A
Wood Alcohol	450
Wood Pulp	400-A
Xylene	800
Xylene and Water	800
Xylol	800

* In most applications the above lubricants will function as listed, we do not warrant the above in all applications. If you have a special problem call the factory.

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 at 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 to Buyer to vary, in any degree, any of these terms in Buyers' 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 the 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 differing 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 supercede 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 at 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 OF 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, 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 use, 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 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 services provided the goods or equipment are used within 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. 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 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, Olson Technologies may provide engineering and/or technical information about its products and their uses; 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 Olson Technologies harmless from claims for loss from any cause resulting from such advisory or service activity.

QUOTATIONS & 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 whichever is less.

MINIMUM BILLING

Minimum billing of \$200 (\$50 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 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 Olson Technologies 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 provided 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.

NOTES



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