



## **Valve Division**

A Division of Olson Technologies, Inc.



# **Homestead**

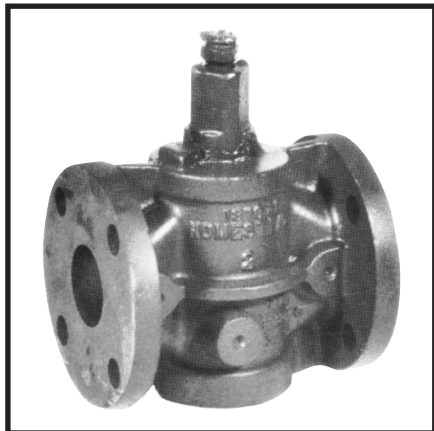
# **Plug Valve**



# **Service**

# **Manual**

**Homestead Plug Valve Sealants  
Sealant Injection Method and Equipment**



*The maintenance procedures detailed in this manual are intended to assist in obtaining optimum performance of your high quality Homestead Lubricated Plug Valve.*

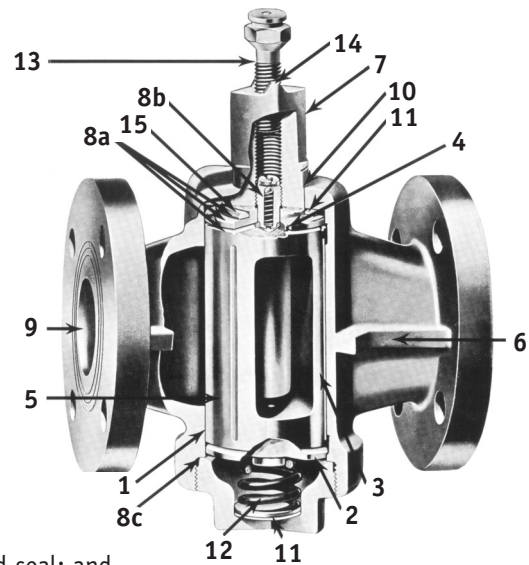
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1. Their design assures extra long valve life. Clearance between plug and body is so close, and so uniform that the chemical seal can easily give the valve many times longer leakless service than any other valves. Even with over 300 pounds lubricant 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 a 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.



## Homestead Plug Valve Sealants

Homestead plug valve sealants are specifically formulated for various service applications. Selection of sealants in accordance with the sealant recommendation chart on page 9 is essential for maximum performance and efficiency of your Homestead plug valves. This sealant chart designates applicable service conditions (chemical and/or temperature) for which the various sealants are suitable.

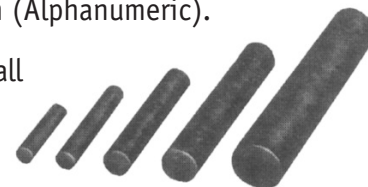


**HOMESTEAD LUBRICANT**

## Stick/Bulk Grade Sealants

Homestead plug valve sealants are available in stick, cartridge and bulk form. The chart on pages 10 and 11 details appropriate sealant number ordering information (Alphanumeric).

Stick grade sealant is generally used in applications involving small numbers of valves or wide dispersion of valves. Moreover, stick grade sealant is particularly suitable for high pressure/high temperature applications. Bulk grade sealant is of soft consistency, being more suited for low temperature service and usage in larger size valves. Additionally, bulk grade sealant is formulated for normal use in pressure pumping injection equipment.



**STICK SEALANT**

## Assembly Sealant/Factory Service

Homestead plug valves, as received by the customer, are factory serviced with #650 general purpose sealant, unless otherwise specified. This "Assembly" sealant is a multi-purpose sealant, suitable for hydrocarbons, L.P.G. and Natural Gas (etc.). If possible, it is recommended that customer orders indicate line fluid, pressure and temperature. Olson Technologies can then inject the valve with the proper sealant at the factory. There is no additional charge for this factory injection unless a special purpose sealant is required. Refer to pages 10 and 11 for sealant recommendations.

## Installation Service

Valves are shipped from the factory fully charged with sealant. The sealant tag attached to the valve indicates which sealant was used for injection at the factory. However, after installation, it is recommended that the valves be serviced with the proper sealant.

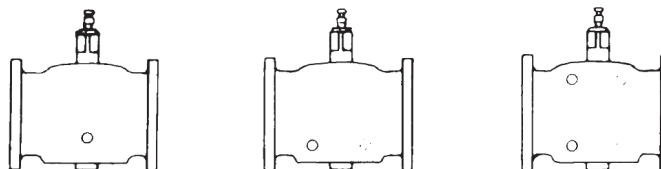
This injection will renew the lubricant seal and replace any sealant that may have been lost in transit or storage. Refer to sealant maintenance for servicing recommendations thereafter.

## Body Lube Fittings

Body sealant injection fittings are provided on valves which are six inch or larger (Full port area valves) and eight inch or larger (Reduced port valves). The number and specific location of these fittings depend on the particular service application. If service applications are not specified by customer, factory will supply (1) one or (2) two bottom fittings (Depending on valve size and style). Note: Large valves may require three or more fittings.

It is important to note that these fittings are provided to facilitate proper distribution of the sealant throughout the valve sealant channels. If sealant is not injected through these body fittings then leakage may result from inadequately lubricated areas. Proper servicing procedures require that the valve be lubricated first through these fittings starting at bottom, then working upwards. A couple of pumps applied to the pressure gun (Type A or Type B) are normally adequate for proper sealant injection through these fittings.

Note: If excess sealant is injected through these fittings, sealant can be discharged into port areas.



**BODY LUBE FITTINGS**

## Sealant Injection Equipment & Accessories

### Combination Sealant Screw

Homestead lubricated plug valves are all furnished with the combination giant buttonhead fitting and sealant screw unless otherwise specified. Sealant screw is equipped with a spring loaded check valve and permits either usage of manual stick sealant or that of gun injection. Thus no change of hydraulic fittings is required for sealant injection by either method.

### Sealant Injection Equipment

Combination sealant screw/giant buttonhead fitting

(Standard Equipment)

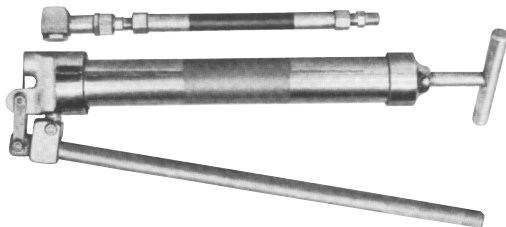
Old style sealant screw

### Hydraulic Fittings

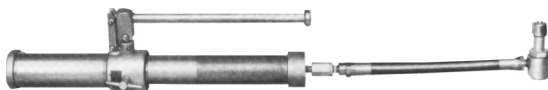
- A. Giant Buttonhead Fitting
- B. Standard Buttonhead Fitting
- C. Hydraulic Fitting

### Lubrication Accessories

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 fitting at no extra cost.



TYPE "A" and "AS" LUBRICANT GUN



TYPE "B" HYPRESSURE LUBRICANT GUN



OPTIONAL STRAIGHT HEAD FOR TYPE "A" "AS" OR "B" GUNS



GIANT BUTTONHEAD  
FITTING



STANDARD BUTTONHEAD  
FITTING



\*COMBINATION BUTTONHEAD FITTING AND  
LUBRICANT SCREW (STANDARD EQUIPMENT)

## Type "A" Gun – Screw Primed Gun

A heavy duty lever gun for use with either stick or bulk sealant. Approximate weight 11 lbs. 4 oz.

## Type "AS" Gun – Screw Primed Gun

A heavy duty lever gun for use with cartridge sealant. Approximate weight 11 lbs. 4 oz.

## Type "B" Hypressure Gun

An extra heavy duty gun, self-priming, suitable for use with either sticks or bulk sealant. Built-in safety features protect the gun and the valve from possible excessive pressures. 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. Sealant is then inserted in cylinder, and charging cap replaced. Approximate weight 15 lbs. 8 oz.

## Giant Buttonhead Coupler/Hose Assembly

For usage with type "A", "AS", or "B" guns.

## Sealant Screw and Stick Sizes

| Valve Style              | Size                   | Combination Sealant Screw |                |                        |                    |
|--------------------------|------------------------|---------------------------|----------------|------------------------|--------------------|
|                          |                        | Part Number               | Screw Diameter | Sealant Stick Diameter | No. Sticks Per Box |
| Fig. 611/612             | 1", 1 1/4", 1 1/2", 2" | 1546130102                | 1/4" Pipe      | 3/8"                   | 24                 |
| Fig. 611/612             | 2 1/2" - 8"            | 1546120102                | 3/8" Pipe      | 1/2"                   | 24                 |
| Fig. 612A                | 6", 8", 10"            | 1546120102                | 3/8" Pipe      | 1/2"                   | 24                 |
| Fig. 612A                | 12" - 24"              | 1546140102                | 1/2" Pipe      | 5/8"                   | 24                 |
| Fig. 601/602             | 1/2" - 1 1/2"          | 1546130102                | 1/4" Pipe      | 3/8"                   | 24                 |
| Fig. 602/622             |                        |                           |                |                        |                    |
| 602A/622A                | 2" - 6"                | 1546120102                | 3/8" Pipe      | 1/2"                   | 24                 |
| Fig. 602A/622A           | 8" - 18"               | 1546140102                | 1/2" Pipe      | 5/8"                   | 24                 |
| Fig. 651/652             | 3/8" - 1 1/2"          | 1546130102                | 1/4" Pipe      | 3/8"                   | 24                 |
| Fig. 651/652             | 2", 2 1/2", 3"         | 1546120102                | 3/8" Pipe      | 1/2"                   | 24                 |
| Fig. 651/652             | 4" - 10"               | 1546140102                | 1/2" Pipe      | 5/8"                   | 24                 |
| Fig. 641/642             | 1/2" - 1 1/2"          | 1546130102                | 1/4" Pipe      | 3/8"                   | 24                 |
|                          | 2" - 6"                | 1546120102                | 3/8" Pipe      | 1/2"                   | 24                 |
|                          | 8" - 10"               | 1546140102                | 1/2" Pipe      | 5/8"                   | 24                 |
| Fig. 603/604/<br>605/606 | 3/8" - 1 1/2"          | 1546130102                | 1/4" Pipe      | 3/8"                   | 24                 |
|                          | 2" - 6"                | 1546120102                | 3/8" Pipe      | 1/2"                   | 24                 |
|                          | 8"                     | 1546140102                | 1/2" Pipe      | 5/8"                   | 24                 |
| Fig. 607/608             | 3/8" - 1 1/2"          | 1546130102                | 1/4" Pipe      | 3/8"                   | 24                 |
|                          | 2" - 6"                | 1546120102                | 3/8" Pipe      | 1/2"                   | 24                 |

***Disassembly***

- 1) Remove wrench or gear actuator.
- 2) Remove snap-ring retainer and valve stop ring.
- 3) Match mark cap/body mounting surface to ensure proper re-assembly alignment. Remove bolted cover plate (cap) on top entry valves. Remove cap/body sealing gasket.
- 4) Remove bonnet and associated spring, teflon washer and steel disc. This bonnet is securely tightened at the factory, so usage of an impact wrench or application of hammer blows on the pipe wrench being used may be required to loosen it. Caution: Care must be exercised to prevent damage or damage to the valve itself.
- 5) Remove the valve plug and teflon head seal. If the plug is difficult to remove, place a piece of hard wood across the top to the stem. Hammer the wood with a sledge or appropriate mallet, taking care not to damage the plug. On top entry valves, a jack screw can be used to withdraw the plug, if necessary.
- 6) Clean or inspect parts as necessary.

***Assembly***

- 1) Install teflon head seal on plug; ensure that the wider surface contact area of seal is positioned against the plug surface.
- 2) Install plug in valve body.
- 3) Install teflon and steel discs in bonnet recess. Ensure that teflon disc is against bonnet surface followed by steel disc.
- 4) Position spring on top of steel disc.
- 5) Install bonnet assembly in valve body against valve plug. Usage of an impact wrench or hammer blows on the wrench are required to properly seal the bonnet/body joint.
- 6) If the valve is top entry style, install the cap/body gasket, then install the bolted cap, lining match marks up accordingly.
- 7) Install stop ring and retainer if supplied.
- 8) Load valve with sealant, per servicing instructions on page 7 or 8.

A) Periodic application of sealant to Homestead plug valves is the only recommended maintenance necessary under normal operating conditions. Sealant is essential to proper operation of the valve. It functions to not only seal the valve but protect the valve metal sealing surfaces from corrosion. As the sealant provides the tight renewable seal, it requires replacement when depleted due to conditions of pressure, temperature and/or frequency of operation. Frequency of servicing depends on the specific application as well as frequency of operation.

Valves which remain in either the open or closed position for a year or so should be re-lubricated at least once every six months so that the sealant in the valve is kept fresh and pliable. Moreover, working the plug, not necessarily the full turn, but partially will aid in keeping the valve in satisfactory operating condition. Compliance with the above will help assure the efficiency of the valve so that when it is time to operate the valve it will operate freely.

Valves which are cycled many times a day may need daily sealant injection. Valves operated only a few times a day may require weekly or semi-weekly sealant injection. Monthly sealant injection may be necessary in applications where valves are cycled several times a week.

Sealant usage of a lubricated plug valve varies widely. Severe service conditions such as high pressure, high temperature or fluid with suspended solids may demand a more frequent sealant injection program. In addition, actuator cycle time may necessitate a more frequent sealant injection. A slowly actuated valve which spends a lot of time in the intermediate position will use more sealant than service of an actuator which quickly opens and closes the valve. A regular sealant service program will maintain the valve in good operating condition and aid in obtaining optimum valve performance.

## ***If sealing problems occur, check the following:***

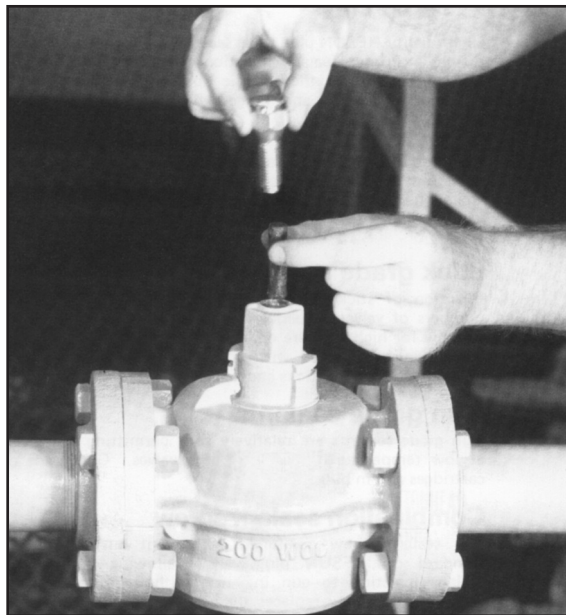
- 1) That the valve is properly lubricated, i.e. the valve is fully injected with sealant. Inject the valve with sealant and check for the telltale ring (or movement thereof) of sealant around the valve stem. (Please note that just visually inspecting the valve and observing a pliable telltale ring present is not always a true indication of the valve sealant condition. Sealant may be totally absent in sealant grooves of plug/body with no sealant film present on the valve plug. Therefore, the injection, as mentioned above, is necessary for a proper check of sealant condition.)
- 2) That the sealant is suitable for the application. Refer to the sealant selection chart for verification. If mixed service conditions apply, consult factory for a recommendation. Generally, select a sealant recommended for the predominant part of the mixture.
- 3) If the valve has been highly damaged from wear due to lack of periodic sealant injection or chemical dissolution of the sealant itself.
- 4) That the valve has been properly installed and no damage from nearby piping components, line strain, etc. are evident.

### ***B) Stick service procedure (Manual Injection)***

- 1) Place valve in fully open/closed position. (Recommended position is open since valve will lubricate under pressure much easier.)
- 2) Remove combination sealant screw and insert the appropriate size/type sealant stick into the stem.
- 3) Replace the sealant screw and slowly turn the screw until the telltale ring of sealant is observed around the valve stem at neck of the valve.

Note: Larger valves MAY require several sticks of sealant due to the capacity of the sealant injection system.

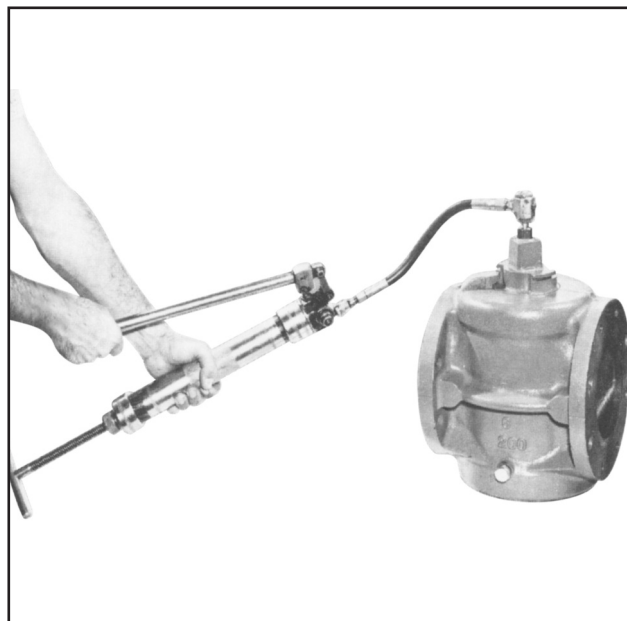
- 4) Rotate valve to opposite position of that originally set in step 1. Repeat step 3.
- 5) Add sealant as necessary to obtain telltale sealant ring.
- 6) Rotate plug several times to properly distribute the sealant about the valve plug.
- 7) Repeat above steps as necessary.



### C) Gun Service Procedure

- 1) Place valve in fully open/closed position. (Open position recommended for easy servicing.)
- 2) On valves supplied with only the combination giant buttonhead sealant screw, connect the grease gun giant buttonhead coupler to this combo screw/fitting and slowly pump sealant until signs of the telltale ring are shown.
- 3) On larger valves which are supplied with body sealant injection fittings, connect grease gun to body sealant fittings. Pump sealant several times with pressure gun (see body lube fittings).
- 4) Connect grease gun to the other body fitting/s, if present, and proceed as in step 3, pumping sealant (until the telltale ring is displayed). (See body lube fittings.)
- 5) Rotate valve to position opposite that of valve in step 1. Repeat steps 2, 3, and 4, as applicable.
- 6) Turn valve plug several times to obtain an adequate smear of sealant for valve sealing.
- 7) On valves with body lube fitting/s, inject a small amount of sealant into stem fitting to ensure an adequate filled system.
- 8) Repeat the above servicing steps as required.

\*NOTE: If valve is in closed position and under line pressure, lubricate valve only until leakage stops.



## Standard Lubricant Features

| <i>Sealant Number</i><br><i>Stick Bulk</i> |        | <i>*Temp. Range Degrees F.</i><br><i>From To</i> |       | <i>Color</i> | <i>Principal Uses</i>                           | <i>Solvent</i>   |
|--------------------------------------------|--------|--------------------------------------------------|-------|--------------|-------------------------------------------------|------------------|
| 6                                          | 6-S    | +32°                                             | +275° | Gray         | Hot Water Services                              | Naphtha          |
| 400                                        |        | +20°                                             | +130° | Red          | Acids and Alkalies                              | Naphtha          |
|                                            | 400-S  | 0°                                               | +110° |              |                                                 |                  |
| 400-A                                      |        | +20°                                             | +130° | Amber        | Aqueous solutions of acids, alkalies and amines | Naphtha          |
|                                            | 400-AS | 0°                                               | +110° |              |                                                 |                  |
| 450                                        |        | +20°                                             | +130° | White        | Food Products                                   | Naphtha          |
|                                            | 450-S  |                                                  |       |              |                                                 |                  |
| 600                                        | 600-S  | 0°                                               | +120° | Brown        | Hydrocarbon services                            | Perchlorethylene |
| 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                      | Naphtha          |
| 800                                        |        |                                                  | +250° | White        | Hydrocarbons and aromatics                      | Perchlorethylene |
|                                            | 800-S  | -10°                                             | +200° |              |                                                 |                  |
| 900                                        |        | +10°                                             | +240° | Black        | Hydrocarbons, aromatics and asphalt             | Perchlorethylene |
|                                            | 900-S  | 0°                                               | +200° |              |                                                 |                  |

Note: The Homestead lubricated plug valves may be used at temperatures exceeding the above table, but at a reduced pressure value. Please consult factory for applications outside the designated temperature range.

The sealants recommended above for use in Homestead plug valves are specifically formulated for cylindrical parallel style plug valves. Moreover, these chemical compounds are manufactured to meet the proper adhesion, cohesive and viscosity requirements essential to proper performance of the valves.

# Homestead Plug Valve Lubricants Recommendation Chart\*

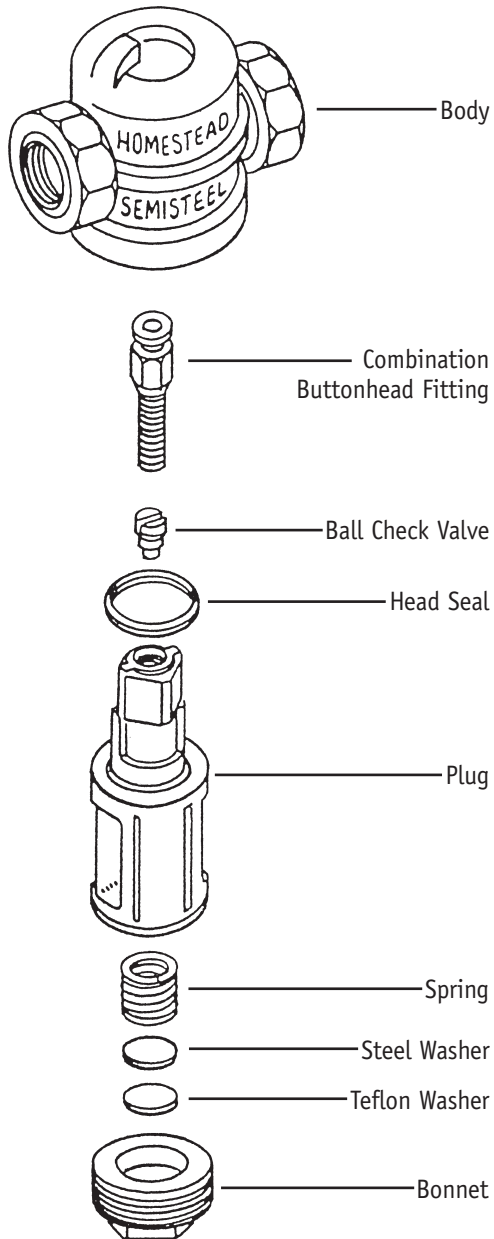
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| SERVICE                     | LUBRICANTS | SERVICE                      | LUBRICANTS | SERVICE                    | LUBRICANTS | SERVICE                     | LUBRICANTS |
|-----------------------------|------------|------------------------------|------------|----------------------------|------------|-----------------------------|------------|
| <b>A</b>                    |            |                              |            |                            |            |                             |            |
| Absorption Oil.....         | 800        | Benzol Vapors & Steam.....   | 900        | Coal Tar Paint.....        | 900        | Gas (Fuel).....             | 650        |
| Acetone.....                | 400-A      | Bituminous Paints.....       | 800        | Coconut Oil.....           | 400-A      | Gas (Hydrocarbon).....      | 650        |
| Acetylene.....              | 400        | Black Liquor.....            | 400-A      | Cod Liver Oil.....         | 450        | Gas (Manufactured).....     | 650        |
| Acrolein.....               | 400        | Black Liquor Evaporates..... | 400-A      | Coke Oven Gas.....         | 400-A      | Gas (Natural).....          | 650        |
| Air.....                    | 900        | Blast Furnace Gas.....       | 400-A      | Collodian.....             | 800        | Gas Oil.....                | 800        |
| Air Dryers.....             | 400-A      | Bleach Liquors.....          | 400        | Copper Acetate.....        | 400-A      | Gasoline, Refined.....      | 711-S      |
| Alcohol, Ethyl.....         | 450        | Boiler Feed Water.....       | 400-A      | Copper Cyanide.....        | 400-A      | Gasoline and Grease.....    | 711-S      |
| Alcohol, Methyl.....        | 400-A      | Bone Oil.....                | 400-A      | Corn Oil.....              | 450        | Gasoline and Inhibitor..... | 711-S      |
| Alcohol, Propyl.....        | 400-A      | Borax.....                   | 400-A      | Corn Syrup.....            | 450        | Gasoline and Oil.....       | 711-S      |
| Aldehydes and Water.....    | 400        | Bottle Gas.....              | 800        | Cottonseed Oil.....        | 450        | Gasoline and Steam.....     | 711-S      |
| Al. Chloride, 100%.....     | 400        | Brake Fluid.....             | 900        | Creosote.....              | 900        | Gasoline and Water.....     | 711-S      |
| Aluminum Hydroxide.....     | 400        | Bunker "C" Oil.....          | 800        | Cresol.....                | 400-A      | Gelatin.....                | 450        |
| Ammonia Gas, Liquid.....    | 400-A      | Butadiene.....               | 800        | Cresylic Acid.....         | 400-A      | Gin.....                    | 450        |
| Ammonia, Anhydrous.....     | 400-A      | Butane.....                  | 800        | Crotonaldehyde.....        | 800        | Glaubers Salt.....          | 400        |
| Ammonia and Creosote.....   | 400-A      | <b>C</b>                     |            | Crude Oil.....             | 650        | Glucose.....                | 450        |
| Ammonia Liquor (Crude)..... | 400-A      | Calcium Arsenate.....        | 400        | Cumene.....                | 800        | Glue.....                   | 650        |
| Ammonia and Tar.....        | 400-A      | Calcium Carbide.....         | 400-A      | Cutting Oil.....           | 800        | Grain Alcohol.....          | 450        |
| Ammonium Hydroxide.....     | 400-A      | Calcium Chlorate.....        | 400-A      | <b>D</b>                   |            | Grease, Mineral.....        | 650        |
| Ammonium Phosphate.....     | 400-A      | Calcium Citrate.....         | 400-A      | Denatured Alcohol.....     | 450        | Grease, Vegetable.....      | 400-A      |
| Ammonium Sulfate.....       | 400        | Calcium Chloride.....        | 400-A      | Diesel Fuel.....           | 800        | Green Liquor.....           | 400        |
| Ammonium Slft. Liquor.....  | 400        | Calcium Hydrochloride.....   | 400-A      | Diethanolamine.....        | 400        | Green Soup.....             | 400        |
| Ammonium Sulfide.....       | 400        | Calcium Hydroxide.....       | 400-A      | Dipentene.....             | 800        | Gypsum.....                 | 400        |
| Amyl Acetate.....           | 800        | Calcium Oxide.....           | 400-A      | Disodium Phosphate.....    | 400        | <b>H</b>                    |            |
| Amyl Chloride.....          | 800        | Calcium Sulfate.....         | 400-A      | Distilled Water.....       | 400-A      | Helium.....                 | 400-A      |
| Aniline.....                | 800        | Cane Juice.....              | 400-A      | Doctor Solution.....       | 400-A      | Heptane.....                | 800        |
| Aniline Dyes.....           | 800        | Cane Sugar Liquid.....       | 400-A      | Dowtherm.....              | 800        | Hexane.....                 | 800        |
| Aniline Oil.....            | 800        | Carbide.....                 | 400-A      | Drilling Mud.....          | 400-A      | Hot Water.....              | 6-S        |
| Animal Oil.....             | 650        | Carbolic Acid.....           | 900        | Drinking Water.....        | 450        | Hydraulic Oil.....          | 800        |
| Anthracene Oil.....         | 800        | Carbon Dioxide, 100%.....    | 800        | Drip Cocks (Gas).....      | 650        | Hydrogen.....               | 400-A      |
| Argon Gas.....              | 400-A      | Carbon Monoxide.....         | 800        | Dyes, Oil Soluble.....     | 800        | <b>I</b>                    |            |
| Aromatic Solvents.....      | 800        | Carnauba Wax.....            | 800        | Dyes, Water Soluble.....   | 400-A      | Isobutane.....              | 800        |
| Arsenic Oxide.....          | 400        | Casein.....                  | 650        | <b>F</b>                   |            | Iso-Octane.....             | 711-S      |
| Asphalt.....                | 900        | Casein Paint.....            | 650        | Fertilizer Solutions.....  | 400-A      | Isopropyl Acetate.....      | 800        |
| Asphalt Emulsions.....      | 900        | Casing Head Gas.....         | 650        | Fish Oil.....              | 800        | Isopropyl Alcohol.....      | 450        |
| Asphalt Paints.....         | 800        | Castor Oil.....              | 400-A      | Flue Gas.....              | 800        | <b>J</b>                    |            |
| <b>B</b>                    |            | Cellosolve, Methyl.....      | 900        | Foamite.....               | 400-A      | Jet Fuel.....               | 711-S      |
| Banana Oil.....             | 800        | Cellulose Acetate.....       | 900        | Freon.....                 | 650        | <b>K</b>                    |            |
| Barium Carbonate.....       | 400        | Cellulose Nitrate.....       | 400-A      | Fuel Oil.....              | 800        | Kerosene.....               | 800        |
| Barium Hydroxide.....       | 400        | Cement Slurries.....         | 400-A      | Fuel Oil and Gasoline..... | 711-S      | Kerosene and Naphtha.....   | 800        |
| Barium Nitrate.....         | 400        | Chalk Solutions.....         | 400-A      | Fuel Oil and Pitch.....    | 900        | Kerosene and Water.....     | 800        |
| Barium Sulfate.....         | 400        | Charcoal Water.....          | 400-A      | Fuel Oil and Tar.....      | 900        | <b>L</b>                    |            |
| Barium Sulfide.....         | 400        | Chilled Water.....           | 400-A      | Furfural.....              | 400-A      | Lard.....                   | 450        |
| Beet Sugar Liquids.....     | 400        | Chocolate.....               | 450        | Furfural and Oil.....      | 400-A      | Latex.....                  | 650        |
| Benzaldehyde, 100%.....     | 800        | Chromic Acid.....            | 400        | <b>G</b>                   |            | Lead Carbonate in Oil.....  | 650        |
| Benzene.....                | 900        | Clay Slip.....               | 400-A      | Gallic Acid.....           | 400        | Light Naphtha.....          | 650        |
| Benzoate of Soda.....       | 400        | Coal Gas.....                | 800        | Gas and Water.....         | 400-A      |                             |            |
| Benzol.....                 | 900        | Coal Slurry.....             | 400-A      | Gas and Ammonia.....       | 400-A      |                             |            |
|                             |            | Coal Tar.....                | 800        |                            |            |                             |            |
|                             |            | Coal Tar Oil.....            | 900        |                            |            |                             |            |

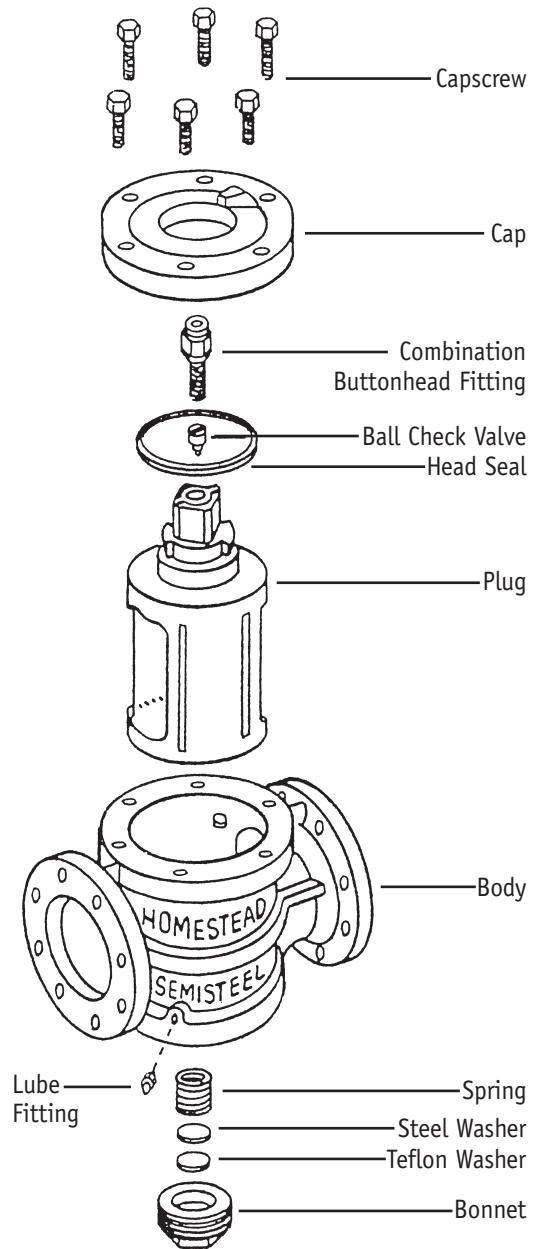
# Homestead Plug Valve Lubricants continued

| SERVICE                      | LUBRICANTS               | SERVICE                    | LUBRICANTS                    | SERVICE                | LUBRICANTS              | SERVICE                | LUBRICANTS                 |                       |                                                                                                                                                                              |  |  |  |
|------------------------------|--------------------------|----------------------------|-------------------------------|------------------------|-------------------------|------------------------|----------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| Light Naphtha & Steam.....   | 650                      | <b>O</b>                   |                               | Resin.....             | 400                     | <b>T</b>               |                            |                       |                                                                                                                                                                              |  |  |  |
| Light Oil (Coal Tar).....    | 650                      |                            |                               | Resin and Alcohol..... | 400                     |                        | Tall Oil.....              | 400-A                 |                                                                                                                                                                              |  |  |  |
| Lignin in Solution.....      | 400-A                    |                            | Oakite.....                   | Road Tar.....          | 900                     |                        | Tallow.....                | 400-A                 |                                                                                                                                                                              |  |  |  |
| Lime (Milk of Lime).....     | 400-A                    |                            | Oil, Crude.....               | Roofing Pitch.....     | 900                     |                        | Tannic Acid.....           | 400                   |                                                                                                                                                                              |  |  |  |
| Lime Sulfur.....             | 400                      |                            | Oil, Edible.....              | Rubber Compounds.....  | 800                     |                        | Tar.....                   | 800                   |                                                                                                                                                                              |  |  |  |
| Linseed Oil.....             | 800                      |                            | Oil, Mineral Lubricating..... | Rubber Solvent.....    | 800                     |                        | Tar and Ammonia.....       | 400-A                 |                                                                                                                                                                              |  |  |  |
| Liquified Petroleum Gas..... | 650                      |                            | Oil, Petroleum.....           | <b>S</b>               |                         |                        | Tar Oil.....               | 800                   |                                                                                                                                                                              |  |  |  |
| Lubricating Oil (Min.).....  | 650                      |                            | Oil, Animal.....              |                        | Sal Soda.....           | 400-A                  | Tar Residue.....           | 800                   |                                                                                                                                                                              |  |  |  |
| Lubricating Oil (Veg.).....  | 400-A                    |                            | Oil Gas.....                  |                        | Sand and Water.....     | 400-A                  | Tar and Water.....         | 800                   |                                                                                                                                                                              |  |  |  |
| Lye, 20%.....                | 400-A                    |                            | Oil and Steam.....            |                        | Sewage.....             | 400-A                  | Toluene.....               | 900                   |                                                                                                                                                                              |  |  |  |
| <b>M</b>                     |                          |                            | Oil and Water.....            |                        | Sewage Gas.....         | 400-A                  | Toluol.....                | 900                   |                                                                                                                                                                              |  |  |  |
|                              |                          |                            | Oleomargarine.....            |                        | Shellac.....            | 400                    | Toluol and Steam.....      | 900                   |                                                                                                                                                                              |  |  |  |
|                              | Magma.....               | 400-A                      | <b>P</b>                      |                        | Slop, Brewery.....      | 450                    | Toluol and Water.....      | 900                   |                                                                                                                                                                              |  |  |  |
|                              | Magnesia Slurry.....     | 400-A                      |                               |                        | Soap, Liquor.....       | 400-A                  | Triethanolmine.....        | 400-A                 |                                                                                                                                                                              |  |  |  |
|                              | Magnesium Silicate.....  | 400                        |                               |                        | Soap Solution.....      | 400                    | Trisodium Phosphate.....   | 400-A                 |                                                                                                                                                                              |  |  |  |
|                              | Magnesium Hydroxide..... | 400                        |                               |                        | Soap Stock.....         | 400                    | Tung Oil.....              | 400-A                 |                                                                                                                                                                              |  |  |  |
|                              | Magnesium Sulfate.....   | 400                        |                               |                        | Soapstone.....          | 650                    | Turpentine.....            | 800                   |                                                                                                                                                                              |  |  |  |
|                              | Manufactured Gas.....    | 650                        |                               |                        | Soda Ash.....           | 400-A                  | Turp. and Linseed Oil..... | 800                   |                                                                                                                                                                              |  |  |  |
|                              | Mash (Distillery).....   | 450                        |                               |                        | Soda, Crude.....        | 450                    | <b>W</b>                   |                       |                                                                                                                                                                              |  |  |  |
|                              | Mercury.....             | 800                        |                               |                        | Sodium Arsenate.....    | 450                    |                            | Waste Water.....      | 400-A                                                                                                                                                                        |  |  |  |
| Methane.....                 | 800                      |                            |                               |                        | Sodium Bicarbonate..... | 450                    |                            | Water, Fresh.....     | 400-A                                                                                                                                                                        |  |  |  |
| Methanol.....                | 450                      | Sodium Bichromate.....     |                               |                        | 450                     | Water and Alcohol..... |                            | 400-A                 |                                                                                                                                                                              |  |  |  |
| Methyl Chloride.....         | 800                      | Sodium Borate.....         |                               |                        | 400                     | Water, Chilled.....    |                            | 6-S                   |                                                                                                                                                                              |  |  |  |
| Methylene Chloride.....      | 800                      | Sodium Carbonate.....      |                               |                        | 400                     | Water Gas.....         |                            | 400-A                 |                                                                                                                                                                              |  |  |  |
| Milk of Lime.....            | 400-A                    | Sodium Chloride.....       |                               |                        | 400                     | Water Gas and Tar..... |                            | 400-A                 |                                                                                                                                                                              |  |  |  |
| Milk of Magnesia.....        | 450                      | Sodium Chromate.....       |                               |                        | 400                     | Water Glass.....       |                            | 400-A                 |                                                                                                                                                                              |  |  |  |
| Mineral Oil.....             | 800                      | Sodium Cyanide.....        |                               |                        | 400                     | Water and Glycol.....  |                            | 6-S                   |                                                                                                                                                                              |  |  |  |
| Mine Water.....              | 400-A                    | Sodium Formate.....        |                               |                        | 400                     | Water, Hot (275°)..... |                            | 6-S                   |                                                                                                                                                                              |  |  |  |
| Mononethanolamine.....       | 400-A                    | Sodium Hydroxide, 20%..... |                               |                        | 400-A                   | Wax Emulsions.....     |                            | 400-A                 |                                                                                                                                                                              |  |  |  |
| Molasses.....                | 450                      | Sodium Nitrate.....        |                               |                        | 400                     | Whale Oil.....         |                            | 450                   |                                                                                                                                                                              |  |  |  |
| Monochlorobenzene.....       | 800                      | Sodium Plumbate.....       |                               |                        | 400                     | White Liquor.....      | 400-A                      |                       |                                                                                                                                                                              |  |  |  |
| Mud.....                     | 400-A                    | Sodium Phosphate.....      |                               |                        | 400                     | Wood Alcohol.....      | 450                        |                       |                                                                                                                                                                              |  |  |  |
| Muriate of Potash.....       | 400-A                    | Sodium Silicate.....       |                               |                        | 400                     | Wood Pulp.....         | 400-A                      |                       |                                                                                                                                                                              |  |  |  |
| <b>N</b>                     |                          | Sodium Sulfate.....        |                               |                        | 400                     | <b>X</b>               |                            |                       |                                                                                                                                                                              |  |  |  |
|                              |                          | Sodium Sulfide.....        |                               |                        | 400                     |                        | Xylene.....                | 800                   |                                                                                                                                                                              |  |  |  |
|                              | Naphtha.....             | 800                        |                               |                        | Soluble Oil.....        |                        | 800                        | Xylene and Water..... | 800                                                                                                                                                                          |  |  |  |
|                              | Naphthalene.....         | 800                        |                               |                        | Soya Bean Oil.....      |                        | 450                        | Xylol.....            | 800                                                                                                                                                                          |  |  |  |
|                              | Naphtha and Oil.....     | 800                        |                               |                        | Spent Soap Lye.....     |                        | 400-A                      |                       |                                                                                                                                                                              |  |  |  |
|                              | Naphtha and Paint.....   | 800                        |                               |                        | Steam.....              |                        | 6-S                        |                       |                                                                                                                                                                              |  |  |  |
|                              | Naphtha and Steam.....   | 800                        |                               |                        | Stoddard Solvent.....   |                        | 800                        |                       |                                                                                                                                                                              |  |  |  |
|                              | Naphtha Vapors.....      | 800                        |                               |                        | Styrene.....            |                        | 800                        |                       |                                                                                                                                                                              |  |  |  |
|                              | Naphtha and Water.....   | 800                        |                               |                        | Sugar of Lead.....      |                        | 400-A                      |                       |                                                                                                                                                                              |  |  |  |
|                              | Natural Gas.....         | 650                        |                               |                        | Sulfur, Molten.....     |                        | 400                        |                       |                                                                                                                                                                              |  |  |  |
| Nickel Plating Solution..... | 400                      | Sulfur Dichloride.....     |                               |                        | 800                     |                        |                            |                       |                                                                                                                                                                              |  |  |  |
| Nitrobenzene.....            | 800                      | Sulfur Dioxide.....        |                               |                        | 400                     |                        |                            |                       |                                                                                                                                                                              |  |  |  |
| Nitrobenzene & Water.....    | 800                      | Sulfuric Acid, 95%.....    |                               |                        | 400                     |                        |                            |                       |                                                                                                                                                                              |  |  |  |
| Nitrogen.....                | 400-A                    | Syrup.....                 |                               |                        | 450                     |                        |                            |                       |                                                                                                                                                                              |  |  |  |
| Nitromethane.....            | 800                      |                            |                               |                        |                         |                        |                            |                       |                                                                                                                                                                              |  |  |  |
| Nitrous Oxide.....           | 400-A                    |                            |                               |                        |                         |                        |                            |                       |                                                                                                                                                                              |  |  |  |
| <b>N</b>                     |                          |                            |                               |                        | <b>R</b>                |                        |                            |                       | <i>* 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.</i> |  |  |  |
|                              |                          |                            |                               |                        |                         |                        |                            |                       |                                                                                                                                                                              |  |  |  |
|                              |                          |                            |                               |                        |                         |                        |                            |                       |                                                                                                                                                                              |  |  |  |
|                              |                          |                            |                               |                        |                         |                        |                            |                       |                                                                                                                                                                              |  |  |  |
|                              |                          |                            |                               |                        |                         |                        |                            |                       |                                                                                                                                                                              |  |  |  |
|                              |                          |                            |                               |                        |                         |                        |                            |                       |                                                                                                                                                                              |  |  |  |
|                              |                          |                            |                               |                        |                         |                        |                            |                       |                                                                                                                                                                              |  |  |  |
|                              |                          |                            |                               |                        |                         |                        |                            |                       |                                                                                                                                                                              |  |  |  |
|                              |                          |                            |                               |                        |                         |                        |                            |                       |                                                                                                                                                                              |  |  |  |
|                              |                          |                            |                               |                        |                         |                        |                            |                       |                                                                                                                                                                              |  |  |  |

## Bottom Entry Construction



## Top Entry Construction



# **HOMESTEAD® VALVE DIVISION**

**A DIVISION OF OLSON TECHNOLOGIES, INC.**

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