



WATER PRODUCTS  
AWWA Butterfly Valves - Eccentric Plug Valves

# Series 120 Eccentric Plug Valves

## Installation, Operation and Maintenance



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#### Contents

General.....	3
Unloading.....	3
Storage.....	3,4
Connections.....	4
Orientation.....	4,5
Installation.....	5
Operation-Manual Actuation.....	6
Operation-Power Actuation.....	6
Maintenance - Valve.....	6
Maintenance – Manual Gear.....	7
Packing Replacement.....	7,8
Removing Valve.....	8
Disassembly.....	8
Reassembly.....	9
Adjusting manual gear open/close position stops.....	10
Trouble Shooting.....	11
Spare Parts.....	11
Parts Ordering Instructions.....	12
Drawings with parts list.....	13,14



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### Installation, Operation and Maintenance

#### GENERAL

The Homestead Series 120 Eccentric Plug Valve is asymmetrical in design and will better seal against higher pressures when the line pressure is applied from the end opposite the seat end of the valve. If sealing against pressure applied from the seat end is critical (i.e. head pressure in HVAC systems), valves tested for this condition should be used.

#### UNLOADING

Improper lifting of the valve may cause damage. Do not lift the valve using the actuator, plug stem or body opening. Use eye bolts or rods through the flange holes and attach slings or chain.

#### STORAGE

Valves are shipped in the open position and should be stored in this position until ready for installation.

Flange end protectors, if supplied, should be kept on the valves until they are ready for installation. Mechanical joint ends should be protected to prevent damage to the pipe seating area.

Valves should be stored in a manner where foreign material is prevented from entering the inside of the valve. Exposure to direct sunlight on the plug elastomer should be avoided.



## Series 120 Eccentric Plug Valves

### Installation, Operation and Maintenance

#### STORAGE (continued)

Electric, pneumatic and hydraulic valve actuators should be cared for in accordance with the storage recommendations of the actuator manufacturer.

#### CONNECTIONS

Mating flanges must comply with ASME/ANSI B16.1, Class 125 or ASME/ANSI B16.5, Class 150. Mechanical joint connections must comply with ANSI A21.11/AWWA C111.

#### ORIENTATION

Although the valves are designed to operate in any position, it is recommended that the valve be installed as follows:

- Liquids & Gases Service:  
Install the valve with the seat end downstream of the greater pressure.
- Pump Discharge Service:  
Install the valve with the seat end towards the pump.
- Suspended Solids Service:
  - Vertical Pipeline – install the valve with the plug in the horizontal position, with the seat end at the top.
  - Horizontal Pipeline – install the valve with the plug in the horizontal position, opening in the upward direction.



## Series 120 Eccentric Plug Valves

### Installation, Operation and Maintenance

#### ORIENTATION (continued)

##### Note:

The word "Seat" is cast on the outside of the flange on the seat end of the valve.

#### INSTALLATION

1. Prior to installation, all foreign material that could damage the resilient seat should be removed from the valve, adjacent pipe areas and pipeline.
2. Prepare the faces of the mating flanges by thoroughly cleaning with a suitable solvent.
3. Position the valve between the mating flanges of the pipeline.
4. Align the upstream gasket to the body holes and the corresponding bolt holes of the pipeline flange.
5. Insert (2) bolts at the bottom of the flange to aid in supporting and aligning the valve.
6. Insert the remaining bolts around the flange and lightly tighten.
7. Repeat this procedure on the downstream flange.
8. Final tightening of all bolts should be done by tightening those bolts opposite each other in alternate sequence.



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### Installation, Operation and Maintenance

#### OPERATION – MANUAL ACTUATION

Verify that the valve is operating properly by manually cycling. The valve plug should operate freely. If the valve is electrically, pneumatically or hydraulically actuated, use the manual override system to perform this operation. The normal rotational direction of the valve is “clockwise to close”.

#### OPERATION – POWER ACTUATION

Check the source of supply and verify that all necessary pneumatic or electrical connections are compatible with the actuator requirements. After connection of the actuator power supply, cycle the valve several times to determine whether the connections are correct and that the valve is performing properly. All stops, limit switches and torque switches are set at the factory and should require no adjustment.

#### MAINTENANCE - Valve

The Homestead Series 120 valve has been designed for long service life. Outside of periodic adjustment or replacement of the packing, this valve does not require routine maintenance.



## Series 120 Eccentric Plug Valves

### Installation, Operation and Maintenance

#### MAINTENANCE – Manual Gear

The manual gear units are factory lubricated with grease and should not require maintenance. If relubrication is required, a lithium based grease should be used.

#### PACKING REPLACEMENT

1. Remove the packing gland nuts from the studs.
2. Slide the packing gland up the plug stem.
3. Completely remove the old packing from the chamber in the bonnet. Be careful not to score the surface of the plug stem or the packing chamber as this may create a leak path.
4. Cut each new packing ring in one spot diagonally with a sharp knife.
5. Place new packing rings one at a time around the plug stem and into the packing chamber. Be certain that the male base ring is installed first, followed by the inner rings, then the female top ring. Be certain to stagger the cut joints.
6. Slide the packing gland down into the packing chamber on top of the new rings.
7. Replace the packing gland nuts on the studs. Tighten slowly until they engage the packing gland, then tighten one more turn. Be certain that each nut is tightened evenly.



## Series 120 Eccentric Plug Valves

### Installation, Operation and Maintenance

#### PACKING REPLACEMENT (continued)

8. Restore the pipeline pressure and check for leakage. If needed, tighten each packing nut evenly until the leakage stops. Do not over-tighten.

#### REMOVING VALVE

1. Improper lifting of the valve may cause damage. Do not lift the valve using the actuator, plug stem or body opening. Use eye bolts or rods through the flange holes and attach slings or chain.
2. Support the valve before removing flange or mechanical joint connections, then remove valve from pipeline.

#### DISASSEMBLY

1. Relieve the pipeline pressure and close the valve.
2. If power actuated, disconnect the air or electric supply.
3. Remove the actuator assembly.
4. Mark the body, plug stem and bonnet positions to help with alignment during reassembly.
5. Remove the bonnet bolts and remove bonnet.
6. Remove the packing gland and packing.
7. Remove the plug.
8. Remove the upper and lower bearings.



## Series 120 Eccentric Plug Valves

### Installation, Operation and Maintenance

#### REASSEMBLY

1. Insert the lower bearing into the valve body.
2. Lubricate the lower plug stem journal with Mobilgrease FM 101 or equal.
3. Insert the plug into the valve body placing the lower journal into the lower bearing.
4. Insert the upper bearing into the valve bonnet.
5. Lubricate the upper plug stem journal with Mobilgrease FM 101 or equal.
6. Place the bonnet on the valve using the alignment marks.
7. Turn plug to the closed position using the alignment marks.
8. Tighten the bonnet bolts
9. Install the packing and packing gland. Tighten gland nuts until they contact the gland, then turn one additional turn.
10. Install the actuator.
11. Restore the pipeline pressure and check for leaks.
12. If required, tighten the packing gland nuts only until the leaks stop. Do not over tighten.

## Series 120 Eccentric Plug Valves

### Installation, Operation and Maintenance

#### ADJUSTING ACTUATOR CLOSED POSITION STOPS

1. Relieve pipeline pressure and draw down water in the pipeline.
2. Loosen the nut on the Closed (right) position stop screw.
3. Back out the stop screw three turns CCW.
4. Close the valve until the disc can be felt fully contacting the seat.
5. Turn the stop screw CW until contact with the internal stop can be felt.
6. Tighten the stop screw nut.

#### ADJUSTING ACTUATOR OPEN POSITION STOPS

1. Relieve pipeline pressure and draw down water in the pipeline.
2. Loosen the nut on the Open (left) position stop screw.
3. Back out the stop screw three turns CCW.
4. Open the valve until the gearbox indicator points to open.
5. Turn the stop screw CW until contact with the internal stop can be felt.
6. Tighten the stop screw nut.



## Series 120 Eccentric Plug Valves

### Installation, Operation and Maintenance

#### TROUBLE SHOOTING

<u>Problem</u>	<u>Possible Cause</u>	<u>Solution</u>
Valve will not open.....	Obstruction in line.....	Remove obstruction
Valve will not close.....	Excessive line pressure.....	Reduce line pressure
“	Plug elastomer damage.....	Replace plug
Valve leaks through.....	Improper stop adjustment.....	Adjust closed stop
“	Obstruction in line.....	Remove obstruction
“	Excessive line pressure.....	Reduce line pressure
“	Plug elastomer damage.....	Replace plug
Valve leaks at stem.....	Improper packing adjustment...	Tighten packing rings
“	Damaged packing.....	Replace packing

#### SPARE PARTS

<u>Item</u>	<u>Qty per Valve</u>
Set v-ring packing.....	1
Radial bearings.....	2
Thrust bearings.....	2
O-ring seal.....	1
Plug.....	1



## Series 120 Eccentric Plug Valves

### Installation, Operation and Maintenance

#### HOW TO ORDER PARTS

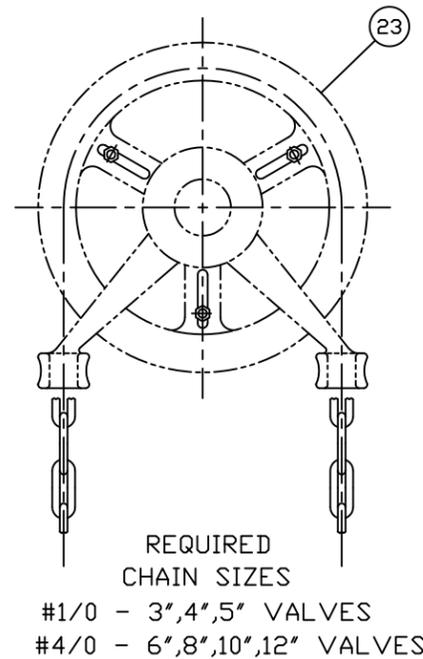
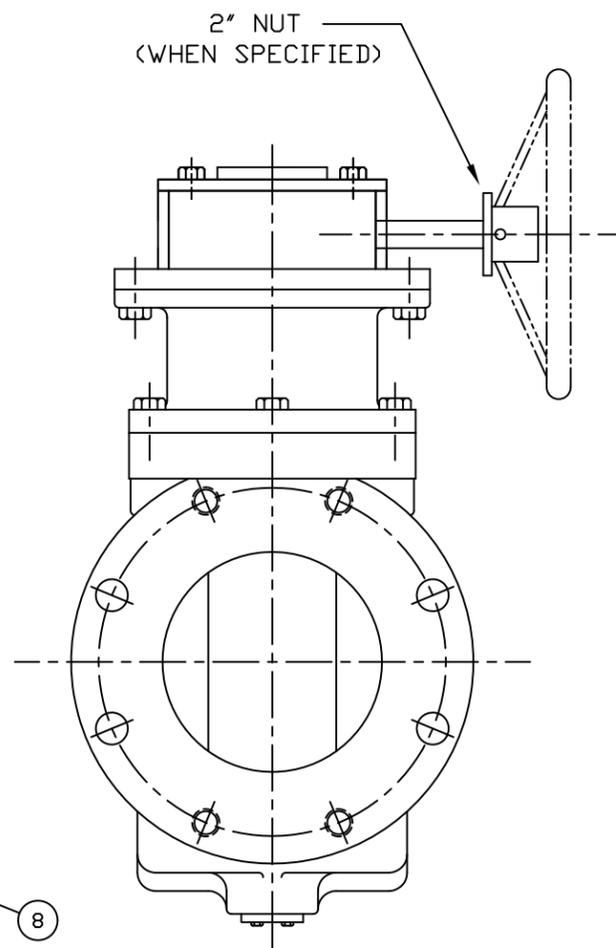
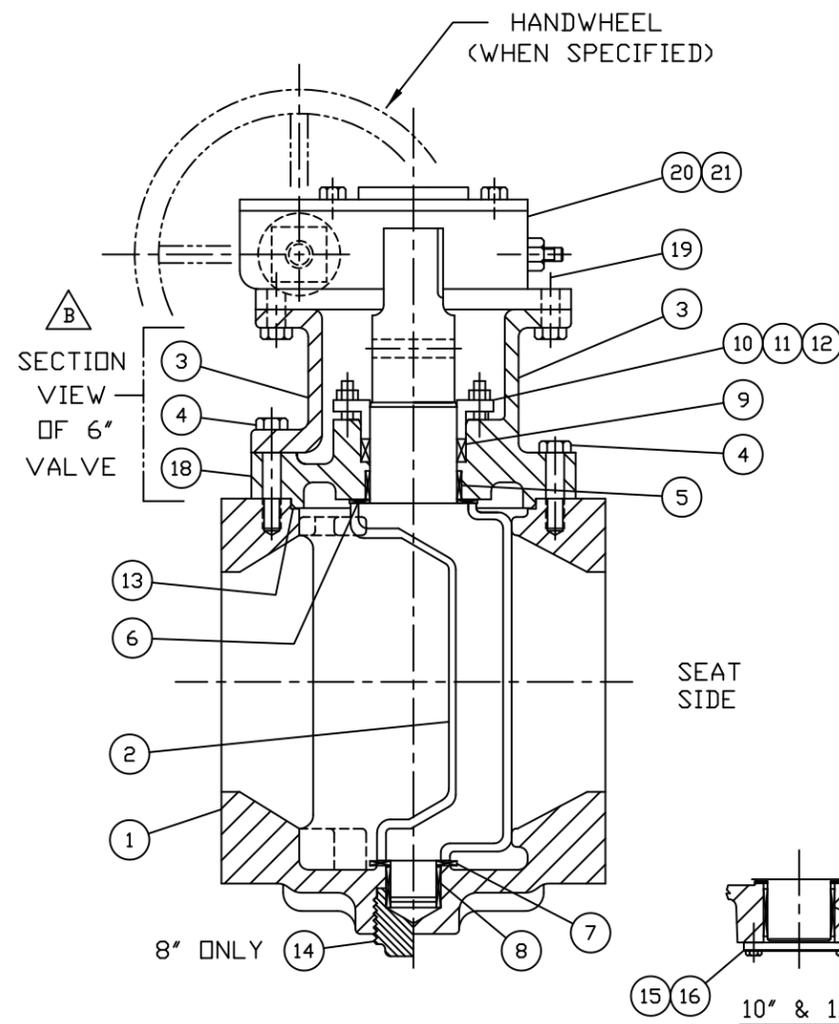
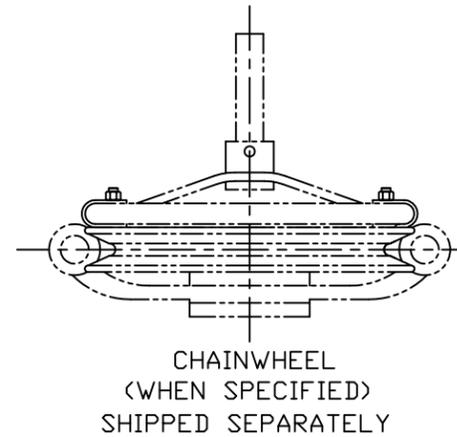
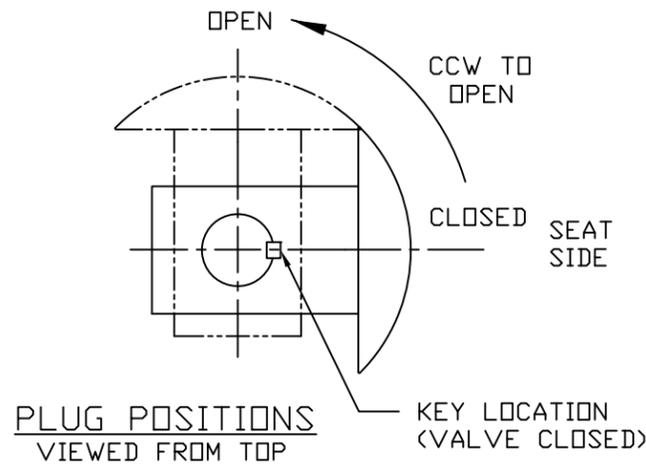
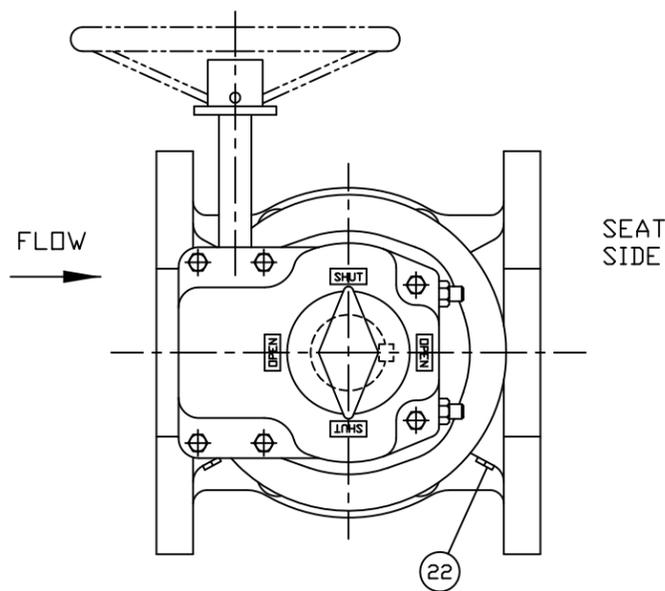
Phone: 610-770-1100

Fax: 610-770-1108

Email: [sales@homesteadvalve.com](mailto:sales@homesteadvalve.com)

Please include the following with your inquiry:

- Valve size
- Valve model number
- Operating service
- Original PO#
- Detailed description of part



**NOTES:**

- VALVES ARE MANUFACTURED IN ACCORDANCE WITH ANSI/AWWA C517-09, "RESILIENT-SEATED CAST IRON ECCENTRIC PLUG VALVES."
- END FLANGE DIMENSIONS AND DRILLING ARE IN ACCORDANCE WITH ASME/ANSI B16.1, CLASS 125 FOR CAST IRON PIPE FLANGES AND FLANGE FITTINGS.
- PAINT: BLUE - SEMI-GLOSS METAL PRIMER
- ELASTOMERS AVAILABLE: BUNA-N  
EPDM  
NEOPRENE  
VITON

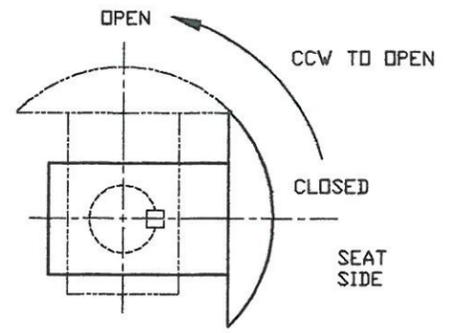
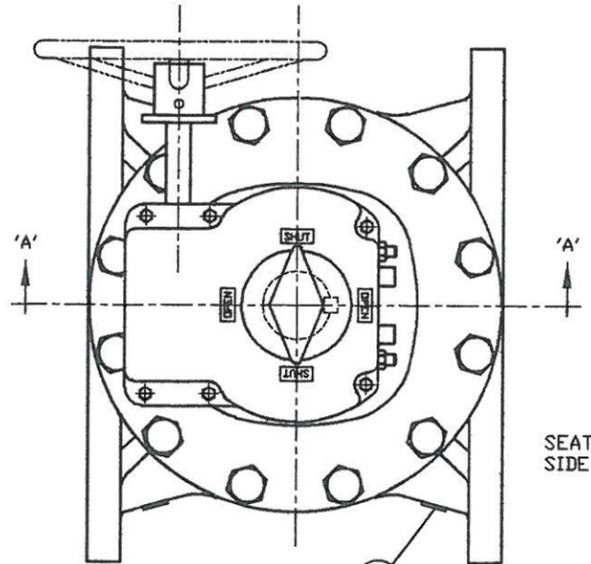
ALL DIMENSIONS IN INCHES

23	CHAINWHEEL ASSY	WHEN SPECIFIED
22	PIPE PLUG	A126 CLB
21	KEY	STEEL
20	GEAR	COMMERCIAL
19	CAP SCREW	STEEL, ZINC PLATED
18	COVER PLT (6")	A126 CLB
17	CAP SCREW (10"&12")	STEEL, ZINC PLATED
16	SEAL (10"&12")	SEE NOTE 4
15	BOTTOM PLT (10"&12")	A126 CLB
14	BOTTOM PLUG (8")	A126 CLB
13	SEAL	SEE NOTE 4
12	HEX NUT	STEEL, ZINC PLATED
11	STUD	STEEL, ALLOY
10	PACKING GLAND	A126 CLB
9	PACKING	V-RING, SEE NOTE 4
8	RADIAL BEARING	PERM. LUBRICATED 316SS
7	THRUST BEARING	PTFE
6	THRUST BEARING	PTFE
5	RADIAL BEARING	PERM. LUBRICATED 316SS
4	CAP SCREW	STEEL, ZINC PLATED
3	MTG BRACKET	A126 CLB
2	PLUG 10",12"	A536 65-45-12/NOTE 4
	PLUG 3",4",5",6",8"	A126 CLB/SEE NOTE 4
1	BODY	A126 CLB/NICKEL SEAT
NO.	PART NAME	MATERIAL

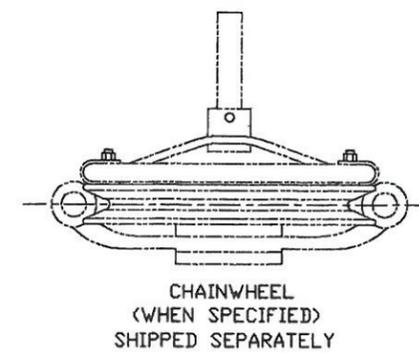
PARTS LIST

**HOMESTEAD® VALVES**  
A DIVISION OF OLSON TECHNOLOGIES, INC.  
160 WALNUT ST. ALLENTOWN, PA. 18102 (610) 770-1100

				TITLE
C	S1600	RH	7/19/14	3"-12" ECCENTRIC PLUG VALVE w/ GEAR
B	S1421	RH	DED 5/10/12	
A	S1335	RH	DED 9/10/11	NUMBER
REV	ISSUE	BY	APPR	DATE
				SK-4138

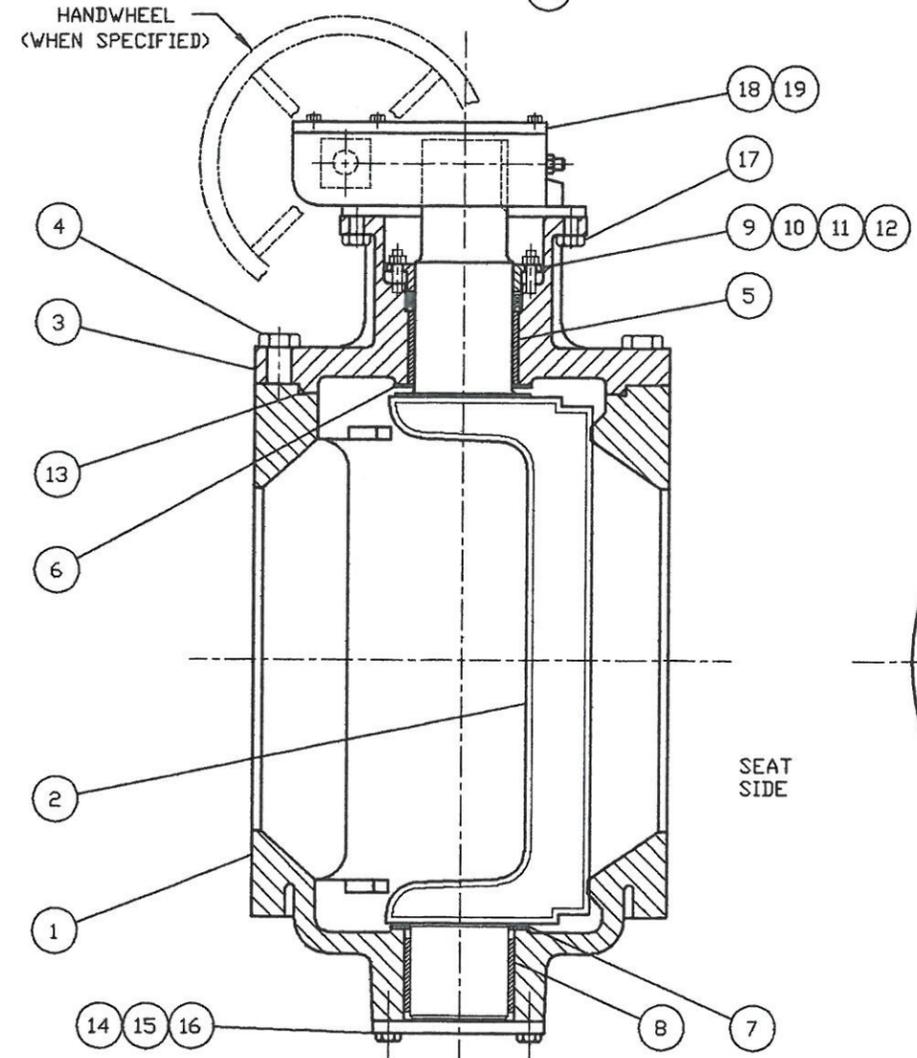


PLUG POSITIONS  
VIEWED FROM TOP

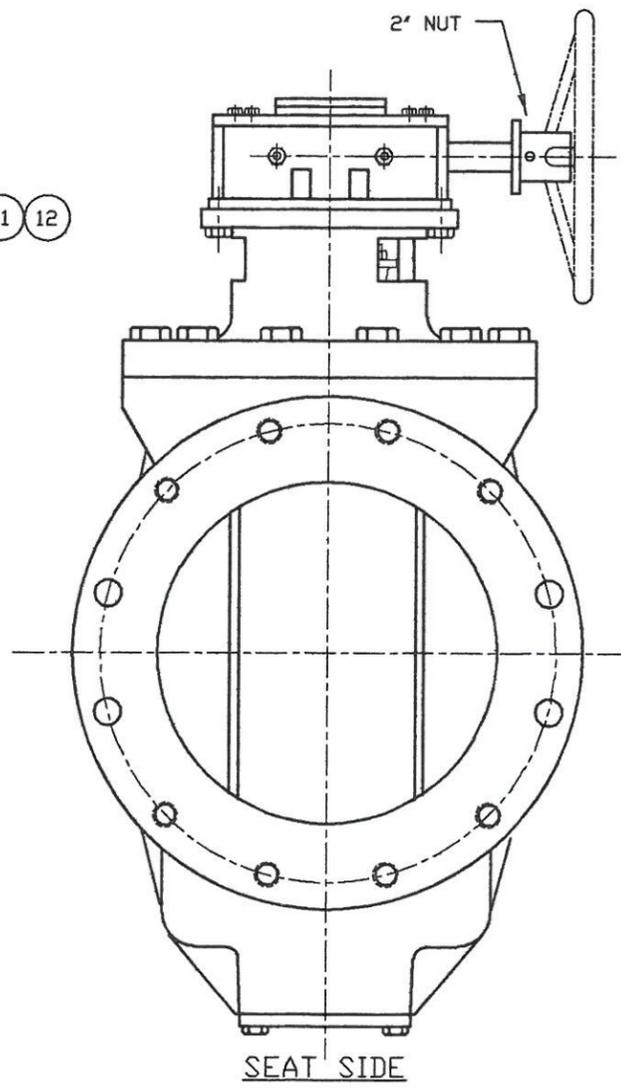


NOTES:

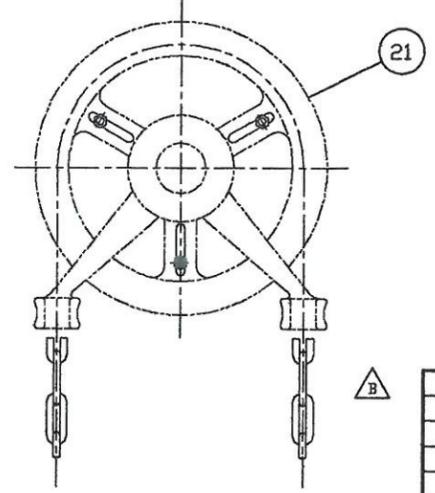
1. VALVES ARE MANUFACTURED IN ACCORDANCE WITH ANSI/AWWA C517-09, RESILIENT-SEATED CAST IRON ECCENTRIC PLUG VALVES
2. VALVES ARE RATED AT 150 PSI CWP AND APPLICABLE FOR SERVICE TEMPERATURES FROM 33° THROUGH 125°F
3. END FLANGE DIMENSIONS AND DRILLING ARE IN ACCORDANCE WITH ASME/ANSI B16.1, CLASS 125 FOR CAST IRON PIPE FLANGES AND FLANGE FITTINGS.
4. VALVES ARE TESTED IN ACCORDANCE WITH ANSI/AWWA C517-09 AS FOLLOWS:  
LEAKAGE TEST:  
DIRECT PRESSURE: 150 PSI FOR 30 SECONDS  
HYDROSTATIC TEST: 225 PSI FOR 60 SECONDS
5. PAINT: BLUE - SEMI-GLOSS METAL PRIMER
6. VALVE SEATS ARE NICKEL
7. ELASTOMERS AVAILABLE IN NITRILE, EPDM, NEOPRENE



SECTION 'A-A'



SEAT SIDE



21	CHAINWHEEL ASSY	WHEN SPECIFIED
20	PIPE PLUG	IRON
19	KEY	STEEL
18	GEAR	w/HANDWHEEL OR 2" NUT
17	CAPSCREW	STEEL, ZINC PLATED
16	CAPSCREW	STEEL, ZINC PLATED
15	SEAL	SEE NOTE 7
14	COVER PLATE	A126 CLB
13	SEAL	SEE NOTE 7
12	HEX NUT	STEEL, ZINC PLATED
11	STUD	STEEL, ZINC PLATED
10	PACKING GLAND	A126 CLB
9	PACKING	V-RING, SEE NOTE 7
8	BOT RADIAL BRG	316 SS
7	BOT THRUST BRG	PTFE
6	TOP THRUST BRG	PTFE
5	TOP RADIAL BRG	316 SS
4	CAPSCREW	STEEL, ZINC PLATED
3	MTG BRACKET	A126 CLB
2	PLUG	A536 65-45-12/NOTE 7
1	BODY	A126 CLB
NO.	PART NAME	MATERIAL

PARTS LIST		
HOMESTEAD VALVES		
A DIVISION OF OLSON TECHNOLOGIES, INC.		
160 WALNUT ST. ALLENTOWN, PA. 18102 (610) 770-1100		
TITLE	14"-24" ECCENTRIC PLUG VALVE w/ GEAR	
REV	ISSUE	NUMBER
B	S1421 RH 5/10/12	SK-4136
A	S1335 RH DED 6/10/11	
BY	APPR	DATE