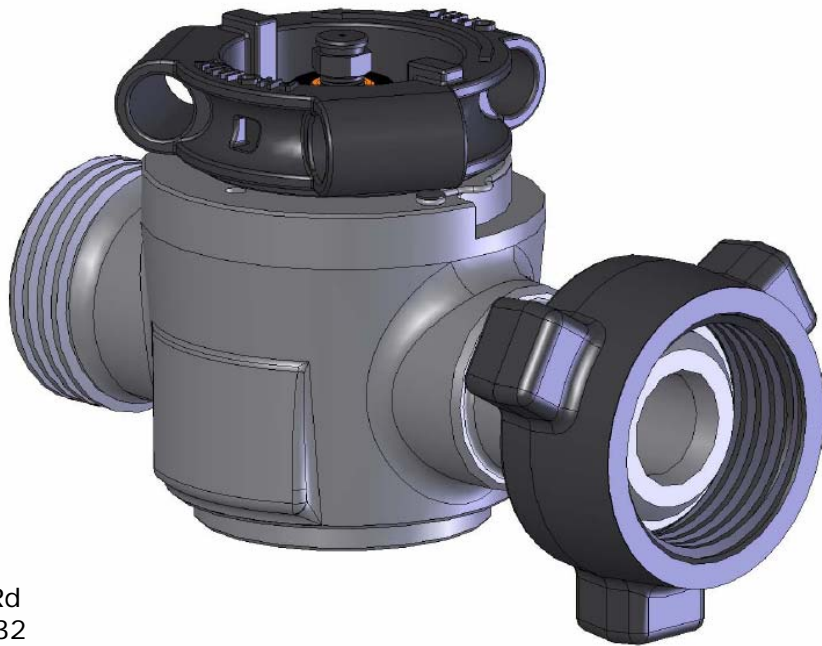


TE Valve Technical Manual



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1.0 Overview

The Phoinix Global TE plug valve is a straight pocket, quarter turn plug valve. All components are manufactured to API 6A specifications and engineered to provide excellent service over the life of the product.

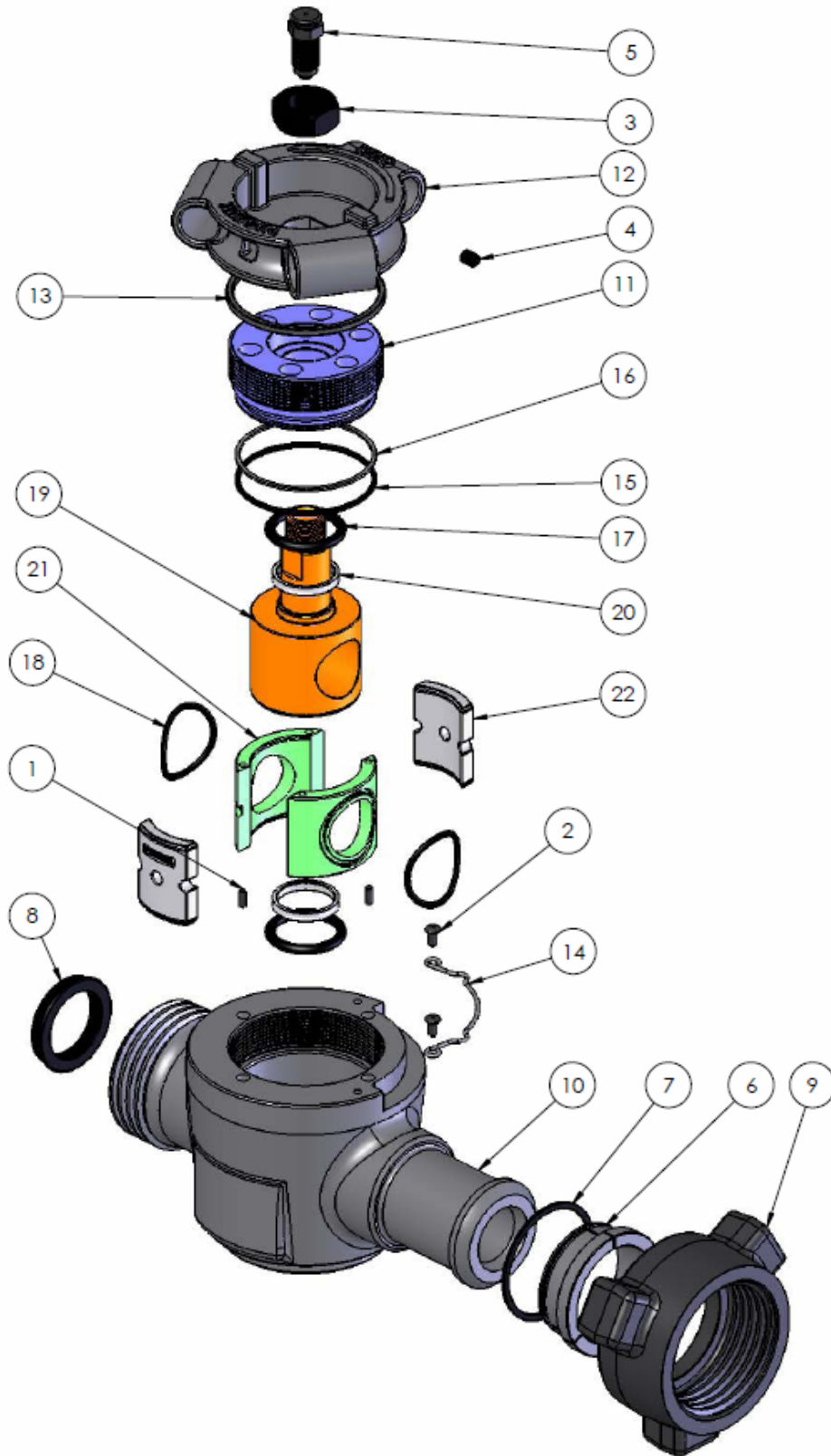
Various sizes are available from 1" & 2" in hammer union and in flanged configurations.

Consult Phoinix Global Product Manual for a complete listing of currently supplied valves.

2.0 Parts List

All top entry valves have generally the same parts in different sizes. Phoinix Global uses the following names for valve components designated by size. The following image and table is a 2" 1502 top entry valve with part numbers and names.

<u>Type</u>	<u>Component #</u>	<u>Description</u>
1	F-DP0.19X0.50	DOWELL PIN, 3/16"DIA x 0.50"LONG GROOVED 305SS
2	F-DS-#14X0.50	DRIVE SCREW, ROUND HEAD #14 x 1/2" STAINLESS
3	F-HNL1.125-12-G8	HEX NUT-LOCKING, 1 1/8"-12 NYLOCK GRADE 8
4	F-SS0.375X0.50	SET SCREW, SOCKET HD 3/8"-16 x 0.50"LONG CUP-POINT
5	GF001	GREASE FITTING, 3/4"-16 GIANT BUTTON HEAD H2S
6	UNRC2	NUT RETAINER, 2"1502 15K (SET OF 3)
7	URRC2	RETAINER RING, 2"1502
8	USR2-S01	SEAL RING, 2"602/1002/1502 STD BUNA 80-90
9	UWN-2C-D-S	WINGNUT, 2"1502 STD 15K DETACHABLE
10	VB2T-2CFM-S01	VLV BODY-TE, 2"x2"1502FM STD 15K
11	VBC2T-S01	VALVE BODY CAP-TE, 2" STD
12	VH2T	VALVE HANDLE 2" TE-STYLE
13	VH2T-GASKET	VALVE HANDLE GASKET, 2" TE-STYLE
14	VH2T-SPRING	VALVE HANDLE SPRING, 2" TE-STYLE
15	VOR2T-BC-S01	VALVE O-RING, 2"TE STD BUNA 90 (BODY CAP)
16	VOR2T-BC-S01P	VALVE O-RING, 2"TE STD BUNA 90 (BODY CAP) *PAR-BACK
17	VOR2T-PS-S01	VALVE O-RING, 2"TE STD BUNA 90 (PLUG SEAL)
18	VOR2T-SEG-S01	VALVE O-RING, 2"TE STD BUNA 90 (SEGMENT)
19	VP2T-S01	PLUG-TE, 2" STD
20	VPSR2T	VALVE PLUG SEAL RING, 2"TE
21	VSEG2T-S01	SEGMENT-TE, 2" STD
22	VSSEG2T-S01	SIDE SEGMENT-TE, 2"



Phoinix Global 2" 1502 Top Entry Exploded View

3.0 ASSEMBLY PROCEDURE

NOTE: It is imperative that the workstation being used to assemble the valve be clean and free of anything that could possibly contaminate the grease such as metal shavings, dirt, rust, old paint, etc. Do not sand or deburr near the workstation.

Step 1:
Check surfaces around the valve bore inside the valve pocket for sharp edges that could cause cutting of the insert o-rings.



Step 2:
Screw the clean **body cap (11)** all the way into the valve body to make sure the threads are not damaged. After inspection, remove the **body cap (11)**.



Step 3:
Grease the sealing groove and install the body cap **par-back ring (16)** on the side of the groove away from the pressure and the curved face towards the pressure. **Note: 1" TE valve does not use a par-back ring.**



Step 3:
Install the **body cap o-ring (15)**
into the groove so that it sits on
the curved side of the **par-back
o-ring (16)** towards the pres-
sure.

Par-bak on bottom curved
surface facing up



Check the **dowel pins (1)** in the
bottom of the valve body pocket
to make sure they are not bent or
broken.



Lubricate the valve pocket with
multipurpose grease.



Check the surface finish of the **segment set (21)** making sure they do not have any scratches, dings, nicks, or sharp edges that could affect the sealing area.



Inspect the **o-rings (18)** for any possible nonconformity.



Coat the **o-rings (18)** with stick grease and install onto the **segment set (21)**.



Place the set into the valve body, making sure to engage the **dowel pin (1)**.



Place the **side segments (22)** into the valve body between the **segment set (21)**.



Make sure the tops of all four pieces are at the same height.



Check the **plug (19)** outside diameter for surface defects such as nicks, dings, scratches, etc. that could possibly affect the sealing area.



Install the upper and lower **plug seal rings (20)** and **plug o-rings (17)** on to the ends of the **plug (19)**.





Apply grease to both seals– top and bottom.



Apply a thin film of grease to the entire O.D. of the **plug (19)**.



Push the assembled plug with seals into the valve body, making sure it is properly aligned with the **segment set (21)** and **side segments (22)** until it is seated all the way down. Make sure the valve is in the open position.



Apply thread compound to the threads on the **valve body (10)** and **body cap (11)**, along with a light coat on the body cap sealing surfaces.



Tighten the **body cap (11)** until snug.



Hit wrench with hammer a couple times to make sure it is firmly seated.



Add **valve handle gasket (13)** to **valve handle (12)**.



Install the **valve handle (12)** to the end of the **plug (19)**.



Install the **valve handle (12)** to the end of the **plug (19)** with **lock nut (3)**.



Secure the **valve handle (12)** with the **lock-nut (3)**.



Apply thread compound to the threads on the **grease fitting (5)**.

NOTE: Do not use Teflon tape on the grease fitting.



Install the **grease fitting (5)** and torque to 135 ft-lbs.



Open the valve with the **valve handle (12)** and pump grease through the **grease fitting (5)** to approximately 3000 psi. Open and close the valve to release grease pressure. Repeat this step a second time.



Remove excess grease from valve bore.



Ensure that the plug, segment set, and valve bore are properly aligned.



Align plug in open position and adjust **set screw (2)** to achieve proper stop.



4.0 DISASSEMBLY PROCEDURE

A valve is typically disassembled to install a repair kit or to simply clean and inspect the valve. To install a repair kit or disassemble a valve:

1. Remove the **grease fitting (5)**, **lock nut (3)** and **valve handle (12)**.
2. Unscrew (turning counter-clockwise) the **body cap (11)**.
3. Remove the **plug (19)** along with upper and lower **plug seal rings (20)** and **plug o-rings (21)**.
4. Remove the **side segments (22)**.
5. Remove the **segment set (21)**.
6. Remove the **segment set o-rings (18)** and **body cap o-rings (16)**.
7. Clean all of the old lubricant and debris from the parts and internal valve body.
8. Inspect all sealing surfaces for dings and scratches in the **valve body (10)**, plug seal locations, and the **body cap (11)**. This should be done on new parts as well to verify that the parts haven't been damaged in transit.
9. All scratches and dings should be lightly sanded with 600 grit sand paper. Verify that the **body cap (11)** doesn't have any dings or sharp edges that could cut the **body cap o-rings (16)**. Lightly polish with sand paper as necessary.
10. Inspect all threads on the **valve body (10)** and the **body cap (11)**. Any minor dings should be removed with sand paper.
11. Install repair kit or reinstall parts using the assembly procedure.

5.0 Maintenance

A strict policy of greasing a valve is required to ensure proper operation.

Lack grease in valves is the single largest cause of:

- Leaking valves
- Hard actuation
- Scarred internals
- Corroded surfaces

Phoinix Global recommends that valves be greased every 5 actuations or every job, whichever comes first.

Additionally, specific applications may require more greasing based on actual experience with the products in actual operating environments. For instance, abrasive flow streams, high temperatures, high flow rates, corrosive flow streams, and fluid streams that act as solvents will warrant a more frequent greasing regimen than operations where these conditions are not present.

Approximate Grease Requirements by valve size:

<u>Valve Size</u>	<u>Stick Grease Amounts</u>
1"	1/3
2"	1/2
3"	1
4"	1

Phoinix Global Recommends the following greases:

For General use: Val-Tex #972

For acid, CO2 and Solvents use: Val-Tex #302

6.0 Storage

Recommended shelf life storage:

- 0 to 3 months – nothing required
- 3 to 6 months – re-grease and operate by rotating plug. Make sure operation is smooth and free of grinding or scraping.
- 6 or more months – Disassemble, clean, and rebuild and test. Replace all seals.

After use:

Equipment should be disassembled and cleaned after each use to ensure a long life. Corrosive products left in a valve will greatly reduce the life of the valve.