Repair

- Clean all disassembled parts to ensure that no debris, oil stains, rust. After cleaning, check: Are there traces of metal, non–metallic parts for deformation and failure. If traces gently apply a fine–tooth Assorted rasp off the metal trace file, and then polished with metallographic sandpaper and wipe clean. Nonmetallic found deformed failure, should be replaced in a timely manner.
- Each repair all parts of the body respond to a magnetic particle inspection, the results should meet required regulations and repair shop should be recorded in a timely manner, and save.

Malfunction, The reason and Workaround

Malfunction	The Reason	Work Around
The Thread Leaking Valve Cover	1. The valve cover is not tightened.	Retighten place
	2. The valve cap O–ring aging	Replace the O–rings
	3. The valve cover is damaged or frayed.	Replace the valve cover (must be my factory production)
	4. On 2" the plug, did not install the O–ring support ring or support ring installation errors.	O–rings mounted on the support ring, with a concave surface contact O–ring, O–ring at the bottom, at the top of the support ring.
	5.The top edge of the aperture body cavity depth abrasions.	If necessary, replace the valve body with scars or pits 400 grit sandpaper polished sealing surface.
Shut–off Valves, Flow Path Visible Leakage	1. Install a different arc chip seal factory production.	Must be replaced in the same factory production arc pieces.
	2. Seal the sealing surface arc piece or body is bruised or played a concave points.	Polished with 400 grit paper to repair or replace the seal sealing surface arc piece or body.
	3. Cock scratched or worn, corroded or the inner and outer surfaces of the inner surface of the sealing sheet	Replace the cock.
	4. Arc valve dirt, so that the inner surface of the plug and seal arc pieces, the body cavity with a square ring is not in close contact.	Dismantled parts, cleaning everything. If the surface of the valve body scratches, pits too much, replace the valve.
	5. Not properly installed or damaged seals when installing arc piece, the position of the chip seal leakage arc.	Reinstall the seal arc piece, replaceable seal arc sheet if necessary.
	6. Square seals aging, wear or damage.	Replace the square ring.
	7. Cap cocks installed incorrectly, forced cock tilt.	You must use original factory production cock cap.
Leakage From the Bottom	1. The valve cover or cap cocks with other parts do not match.	Install all the accessories from original manufacturer.
	2. Cock at the bottom O–ring or the supporting ring deformation aging or damage.	Remove and re–install the O–ring and the support ring.
Top Cock Leakage	1. O–ring at the top of the plug and the support ring is damaged or aging can not be completely sealed.	Reinstall the O–ring and the support ring.
	2. The valve cover is not tightened, or shoulder of a foreign body obstruction valve cover properly tightened.	Retighten. Valve cover in place.
	3. The valve cover damage or wear.	Replacement.
Valve Can Not Be Fully Opened or Closed	1. Cock cap is damaged or worn, it may make the plug cap and the body is not complete.	Removing and installing a new faucet cap.
	2. The valve body surface dirty.	Re–cleaning–related parts, reassembly.
	3. The detent spring pin cap interfere with the cock.	Pinpoint the correct location on tight pin.
Softening or Sticky Ring Expansion	Nitrile rubber and nylon seals can not contact with these solutions as toluene or xylene.	Seals must be updated.

GEPEC AMERICAS

GEPEC AMERICAS LLC is one of Oil & Gas Exploration Solutions Providers of specialized in Mud pump & Consumable parts and Fracturing pump & Expendable parts, High pressure control lines and etc..

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PLUG VALVE

Product Overview

GEPEC® Plug valve products the specification level for PLS3, performance levels for PR2, and widely used in cementing and fracturing equipment.

1. High pressure plug valve is a very important fitting for cementing, well cementing and crushing and is also applicable to control other high pressure fluid. Plug valve is combined by valve body, seal arcing segment, plug cock, and etc.
2. The low torque and high pressure plug valve designed and manufactured by our company are all made by high quality and high strength structural alloy steel. Strict heat treatment ensures even metallographic structure and loading capacity. The materials completely conform to USA ASTM and AISI standards and products technical index fully matches with API Spec 6A standard. Product joints can be connected by joint thread, pipeline thread, butt welding or non–pressure sealing end.
3. There buckle models are provided for the terminal of plug valve, union plug valve, LP female connection and LP external thread. In according to users' needs, we can design the high pressure plug valve with a base.
4. High pressure plug valve has different specifications: 1", 2", 3" and different cold working pressures: 42Mpa(6000Psi), 70Mpa (10000Psi), 105Mpa(15000Psi). Plug valve and maintenance package used under normal temperature, low temperature and sulfurous gas environment are available.

Design Features

Plug valve from the valve body, cocks, seals and other parts arc pieces (see the specific one). Its working principle is: by adjusting the position of the tap handwheel for control flow size. Between the body and cock, sealed arc chip seal, seal arc due to the high precision sheet, and using a special grinding process to ensure that products in the high–pressure working conditions are not leaking.

Product Overview

1. Stable pressure–bearing: equipped with changeable elastic nitrile rubber sealing ring, firm wall thickness,it is able to bear pressure under high pressure line.
2. Convenient to exchange: union joints on both ends and can be exchanged with LP, UN internationally due to inch size is applied.

❸ Simple maintenance: it is unnecessary to dissemble from pipeline to maintain or repair plug valve, and no need to use special tools in case of disassembling.

❹ Good sealing and preservation: the plug cock is fine finished by special coating technology.

❺ Visible valve position: the symbols of fully open and close of valve are clearly marked on the plug cock cap. The tripping spring restricts valve in proper positions.

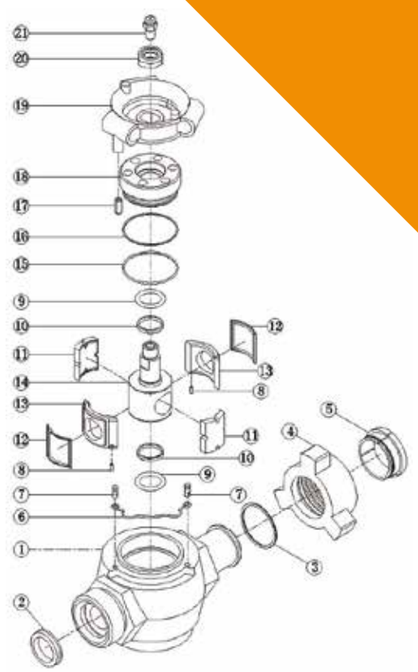
Main Technical Parameters of Plug valve

❶ High Pressure Plug Valve

Specifications	Buckling Size	Cold Working Pressure	Terminal Connection Type	Buckle Model
			Internal thread ,External thread（LP/NU）	
SF42 SF70 SF105	1"×2" 2"×2" 3"×3"	42 Mpa (6000 psi) 70 Mpa (10000 psi) 105 Mpa (15000 psi)	Union Fig.1002 Union Fig.1502 Union Fig. 602	M×M M×F F×F

Remark: ① "F" –threaded joint, "M" –sphere joint; "LP" –pipe thread, "UN" –un–thickening tubing thread

❷ Example:2" Fig 1502 (FXM) Structure of union plug valve



❸ Parts list of (FXM) high pressure Fig plug valve

No.	Name	Qty
1	Valve Body	1
2	Sealing Washer	1
3	Spring Rand	1
4	Wing Union	1
5	Rand	3
6	Retaining Spring	1
7	Retaining Pin	2
8	Locating Pin	2
9	O–shaped Sealing Ring	2
10	Sealing Ring Support Band	2
11	Side Arcing Shim	2
12	Square Sealing Ring	2
13	Sealing Arcing Shim	2
14	Plug Cock	1
15	Valve Deck Sealing Ring	1
16	Support Band of Valve Deck Sealing Ring	1
17	Elastic Cylindrical Pin	1
18	Valve Deck	1
19	Plug Cock Cap	1
20	Locknut	1
21	Grease Fitting	1

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Precautions

- The operator shall take into account the drilling / or production operations will feel the temperature of the device, select the appropriate temperature.
- Plug valves have undergone a rigorous hydrostatic testing and nondestructive testing at the factory. after disassemble or repair, you must be hydrostati cally tested. Rated working pressure test pressure regulator 10 minutes, without leakage (Note: pressure test should be drained before the air in the system).
- Install Plug valve, the operator should wear protective goggles to prevent the installation of a small debris flying eye injury.

❹ High pressure plug valve maintenance package parts are shown as 9,10,11,12,13,14,15,16 and 21 in structure of high pressure plug valve.

List of fig plug valve maintenance package

(overseas products in the same specification can be replaced by maintenance package)

Name	1" × 2"Plug Valve			2" × 2"Plug Valve			3" × 3"Plug Valve		
Qty.	105 Mpa 15000 psi	70 Mpa 10000 psi	42 Mpa 6000 psi	105 Mpa 15000 psi	70 Mpa 10000 psi	42 Mpa 6000 psi	105 Mpa 15000 psi	70 Mpa 10000 psi	42 Mpa 6000 psi
O–shaped Sealing Ring	2	2	2	2	2	2	2	2	2
Sealing Ring Support Band	2	2	2	2	2	2	2	2	2
Side Arcing Shim	2	2	2	2	2	2	2	2	2
Square Sealing Ring	2	2	2	2	2	2	2	2	2
Sealing Arcing Shim	2	2	2	2	2	2	2	2	2
Plug Cock	1	1	1	1	1	1	1	1	1
Valve Deck Sealing Ring	1	1	1	1	1	1	1	1	1
Support Band of Valve Deck Sealing Ring	1	1	1	1	1	1	1	1	1
Grease Fitting	1	1	1	1	1	1	1	1	1

Caveat

- Do not use in excess of the rated working pressure conditions.
- Plug valve design operating temperature of –46 ℃ ~ 121 ℃, when the ambient temperature is below –46 ℃, or contact the fluid temperature is higher than 121 ℃, you should immediately discontinue use.
- Plug valve can not be removed in the system working pressure.
- Tighten Hammer Union, the impact force or use of force does not make tightened Hammer Union deformed or damaged.