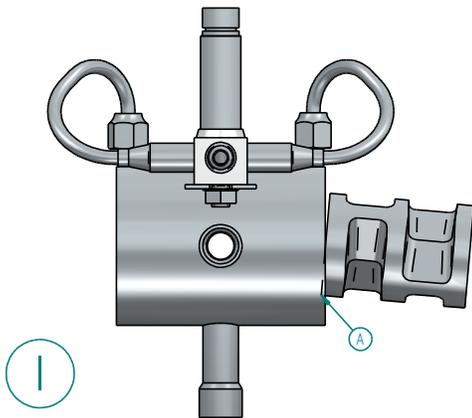


## Installation Advisory

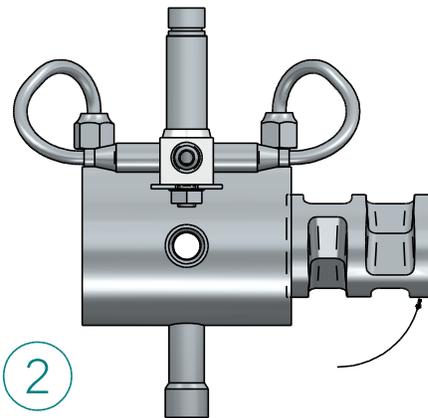
*For 100, 300, 400, 500, 1300, 1700 series valves (symmetric spools)*

1. The valve may be mounted in any position. However, if there is a lot of oil circulating in the system and the discharge of the valve is vertically upwards, the valve can become full of oil and take up to 2 minutes or more to shift.
2. All valves are pressure tested to 450 PSI after assembly.
3. All valves are tested for function for a minimum of 16 cycles total at 25 psi, 100 psi, and 300 psi.
4. Very rarely will a valve have to be taken out of the system as any repair or adjustment can be made while it is still installed. (This does not include #103 size valves which are semi hermetic.)
5. Remember, the two interchange ports can go from minus 40 degree Fahrenheit to over 200 degree Fahrenheit. And, as they are copper, they will expand and contract a great deal. So, do not trap the lines or you will potentially bind the valve, stopping the spool from shifting. (This is the most common problem in new systems.)
6. Do not force any lines into the valve as this could cause binding. The lines should fit into valve and adjacent fittings loosely and then be brazed in place.
7. Do not use any wet rags to cool the valve. The moisture will be drawn into the valve causing rusting.
8. 300 degree Fahrenheit will not hurt the valve. However, this temperature is the maximum for the o-rings.
9. Make sure that both ends of the valve can be accessed to service the valve. To remove the slave pilot, the service person will need to get at both ends of the spool. Note, we do not recommend totally removing the spool, because it is exceedingly difficult to re-enter the spool after it has been removed.
10. If you wish to mount the valve with clamps the best line to clamp is the suction line, as this line has the most consistent temperature and therefore is the most stable.
11. Do not put clamps around the valve body, as they may distort it. If you want to support the body of the valve, rest it on a convenient type of bracket.

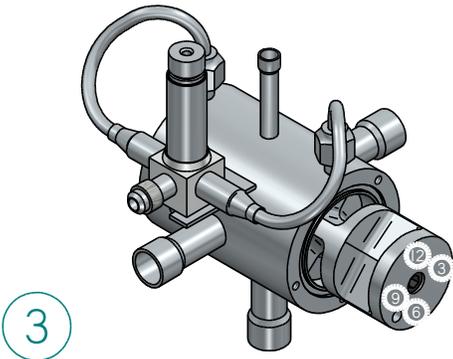
12. **Should a valve not operate when installed, first, remove gas from system. Loosen screws on both end caps to release any trapped gas. Then remove both end caps and try to move the spool by hand. If you are unable to move it manually, all lines should be heated up 10” away from the valve, with a rosebud tip, to approximately 1000 degree Fahrenheit. This should relax the lines and free up the spool.**
13. Always purge lines and valve with Nitrogen when brazing or heating to prevent oxidization.
14. Any deformation of the valve during installation will not be permanent. So when the lines are being relived of stress, the valve will go back to its original shape and the spool will be free to move.
15. If the valve appears reluctant to shift during low differentials it is most likely in a stressed condition. (See paragraph 12.)
16. Do not remove the spool from the body completely, take it out a maximum of 2/3 and it will be easy to push back in.
17. Very rarely will a valve have to be taken out of the system as any repair or adjustment can be made while it is still installed.
18. All service work on the valve may be performed with the spool a maximum of 2/3 out and will then be easy to push back in.
19. If the spool has to be removed from the body, it will be very difficult to re-enter. It is fitted to a very close tolerance. However, if the spool has been taken out, follow instructions in paragraph 23. and 24. to successfully re-enter the spool.
20. Do not place spool directly on any metal table – use a cloth under the valve.
21. Do not force a spool into a body if it has been even slightly damaged as this may score the body and ruin the valve.
22. Under no circumstances should the body or spool be sanded as the spool is fitted to a very close tolerance and should remain within those tolerances.
23. To re-enter a spool for a body that is in the HORIZONTAL position see Illustration 1: Re-entering Spool in Horizontal Position. Please visit [www.pevalve.com](http://www.pevalve.com) to watch a video of this procedure.  
**WARNING: Do not use a metal tool to tap on spool.** Any ding in the spool will have to be stoned off before trying to re-enter the spool. (Nylon or UHMW mallets are available in the service kit.)



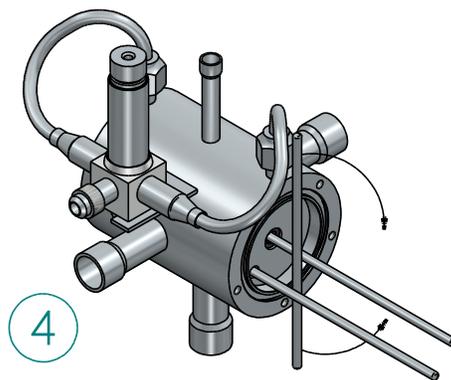
1 To re-enter a spool for a body that is in the horizontal position, lightly lubricate inside of valve with mineral oil near the end spool will be entering. Then carefully place the lower edge of the OD of the spool into the body .015" to .030" (A).



2 Then raise the other end of the spool until it is parallel with the body.



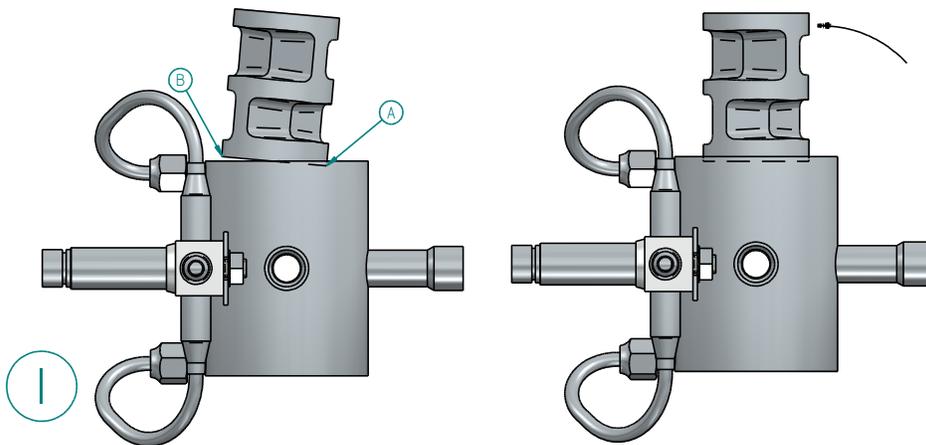
3 Treating the outside face of the spool like a clock, lightly tap the outer rim (in a precise manner) first at 12 o'clock, then 6 o'clock. If the spool moves slightly at 6 o'clock, then tap again at 12 o'clock, 3 o'clock, or 9 o'clock until the spool moves again. When the spool moves again, remember the last place that was tapped and tap the opposite side of the rim. (If it gets stuck, tap the other end until spool comes out of the body.)



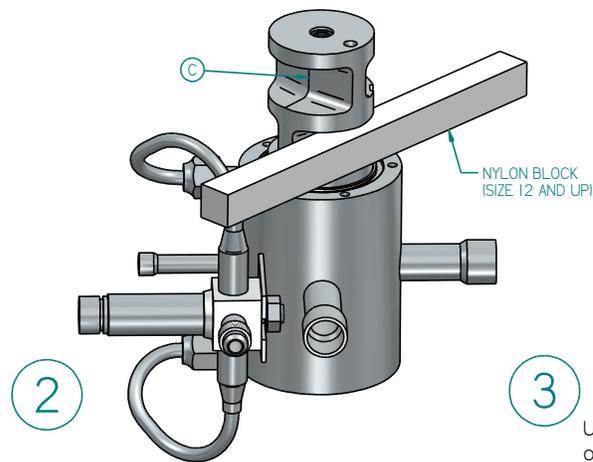
4 If you need to rotate the spool after it has been inserted, place one rod into the index pin hole and another rod in the slave pilot hole. Use another rod or screw driver to twist the spool into position.

### *Illustration 1: Re-entering Spool in Horizontal Position*

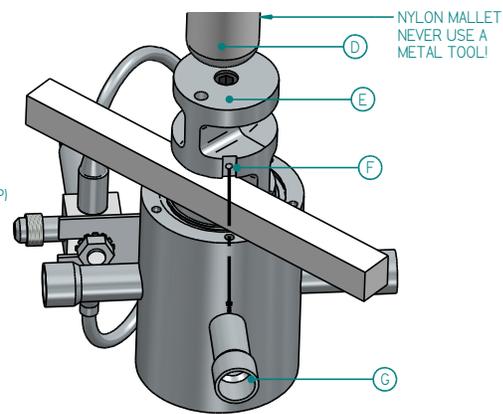
24. To re-enter a spool for a body that is in the VERTICAL position see Illustration 2: Re-enter Spool in Vertical Position. Please visit [www.pevalve.com](http://www.pevalve.com) to watch a video of this procedure. **WARNING: Do not use metal tool to tap on spool.** Any ding in the spool will have to be stoned off before trying to re-enter the spool. (Nylon or UHMW mallets are available in the service kit.) Place provided square material in slot to stop spool from suddenly going in all the way and seriously injuring fingers.



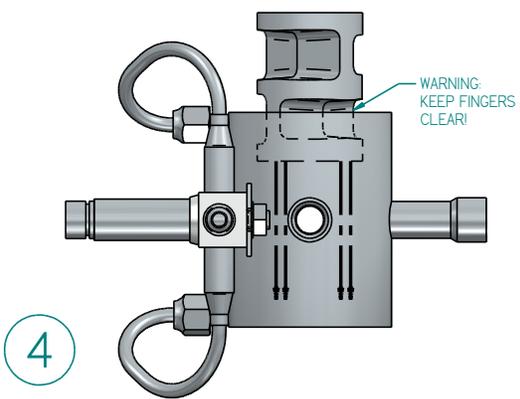
To re-enter a spool for a body that is in the vertical position, lightly lubricate inside of valve near the top. Make sure spool is free of burrs, then rotate the spool so the index pin is in the correct location (see diagrams in catalog). Slot (F) is lined up with discharge port (G) (except in 1300 series). Carefully place edge (A) of the spool into the body then edge (B).



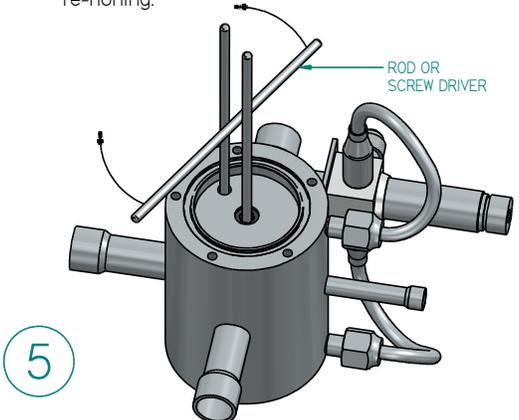
For valves size 12 to 21, place nylon block in spool slot to prevent spool from seriously injuring fingers on edge (C).



Use a nylon mallet to lightly tap location (D) which is opposite the first edge that was inserted (A). Then lightly tap alternating between location (E) and (D) until spool slides in (or against nylon block).  
**WARNING:** If you knock to far in one direction, it could dig the inside of the valve and therefore require re-honing.



Pull block out of the way. When spool starts to drop, pull hand and fingers clear. Spool will drop suddenly.



If you need to rotate the spool after it has been inserted, place one rod into the index pin hole and another rod in the slave pilot hole. Use another rod or screw driver to twist the spool into position.

**Illustration 2: Re-enter Spool in Vertical Position**