# Lubrication fittings

## The how (and why) of maintenance Part 8

*By Ingolf Fra Holmslet*

***Lubrication fittings are important when it comes to prolonging the life span of a valve. There are a large variety of lubrication fittings or grease fittings but not all are suitable for all applications.***

To be able to perform maintenance on valves; inject valve cleaner, lubricant or sealing component, there is a need for injection points that connect the lubrication channels in the body and to the seat, as illustrated in Figure 42. On a trunnion ball valve there should be an inner check valve installed on the inside of the lubrication fitting, as illustrated in Figures 42 and 43. The pressure from the inlet pipe goes directly up the lubrication channel and stops at the check valve in Figure 43 but in Figure 44 the pressure from the pipe goes directly towards the lubrication fitting as a single point of barrier.
There are a large variety of lubrication fittings, or grease fittings as most call them, but unfortunately some of them should not be used in high pressure or hydrocarbon systems. The fittings illustrated in

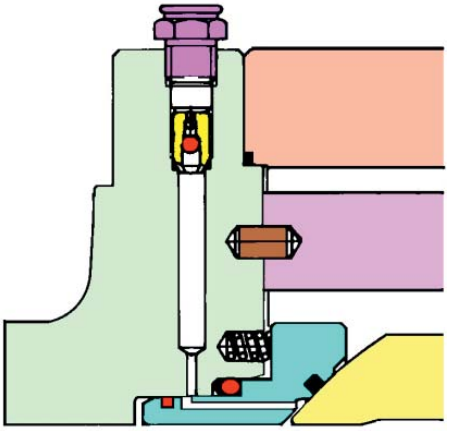


*Figure 42*

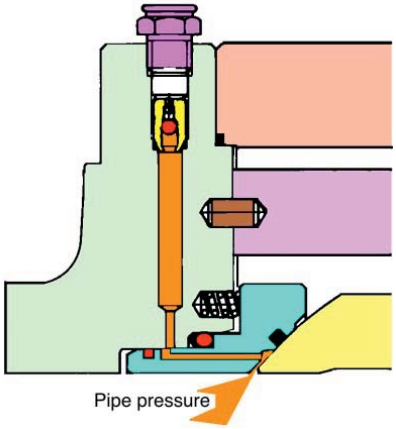



*Figure 43*

Figures 42 – 44 are of the type that are absolutely not recommended in these applications. Most of you will probably see why: There is no cap on the outside of the fitting. If there should be corrosion or damage to the check valve and the internals of the fitting, or some mechanical damage by equipment bumping into the fitting on the outside, you could have a major problem. The illustration in Figure 44 is one that is absolutely prohibited! But I have seen it on old plants (which is even worse).
Looking at Figure 45 you can see the fitting consists of a body, a check valve and a cap

***it is always the downstream side of a parallel gate which is the main seal***

with vent holes. Before doing maintenance on the valve the cap is loosened and the check valve is tested before the cap is taken off. If a leak should occur one can tighten the cap and no damage is done.

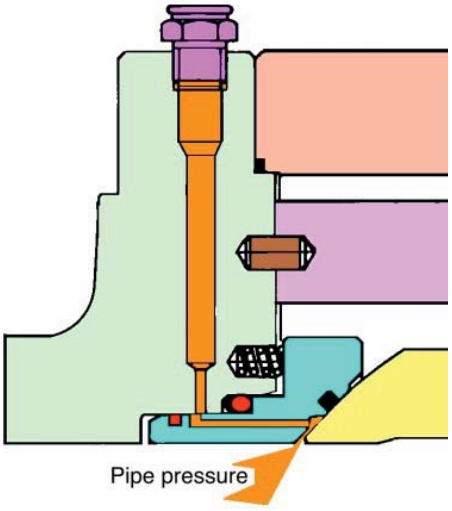



*Figure 44*

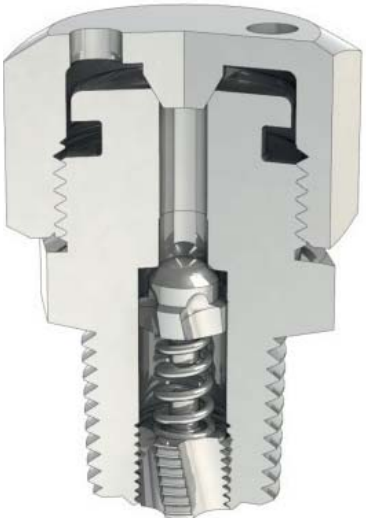


*Figure 45*

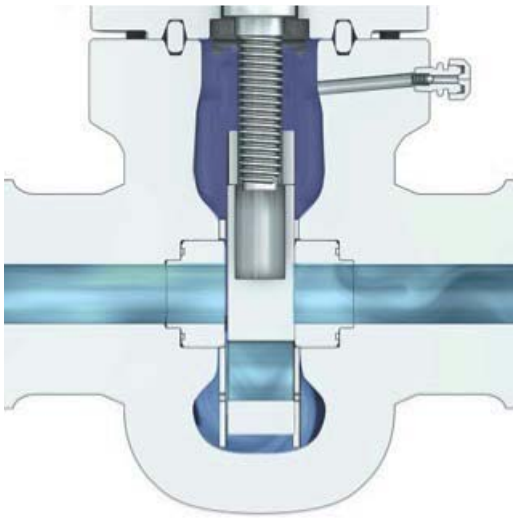


*Figure 46*

Before we go on further we should look at the difference in the setup of lubrication fittings in the parallel gate valve and the ball valve. Looking at Figure 46, illustrating a solid slab parallel gate valve, one can see that the lubrication fittings are connected to the cavity of the valve and if there are fittings installed to the seats of a parallel gate valve the channels from the fittings will always enter on the cavity side of the seal area of the seat. The reason for this being that it is always the downstream side of a parallel gate which is the main seal, as compared to the trunnion ball valve, which seals from the upstream side. Having a parallel gate valve with spring energized seats that seals on both up and downstream side (radial seals on the seats) will act as a barrier towards the lubrication

## *My personal opinion is that NPT should be banned on all new equipment*

fitting, and in the most cases there will be no inner check on the inside of the fitting. But if the valve is equipped with seats that only seal on the downstream side then the pressure from the inlet side of the valve will not be stopped by the upstream seat, consequently there should be an inner check on the inside of the fitting. As far as my experience goes, there is often a mixture of everything, made by personnel changing equipment without knowing the basics. Going back to the trunnion ball valve and looking at Figure 47, it clearly has no inner check. The fitting illustrated in Figure 47 is two pieces, so called double block fitting, normally consisting of two inner checks and a mechanically locked seat. To be able to inject anything into this fitting one

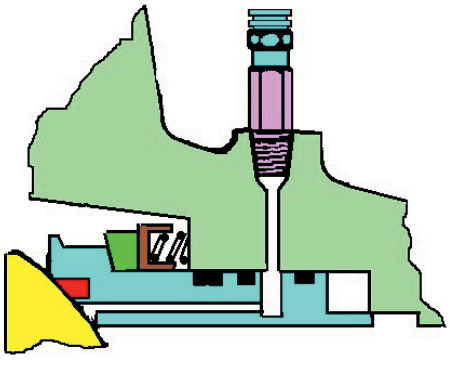


*Figure 47*

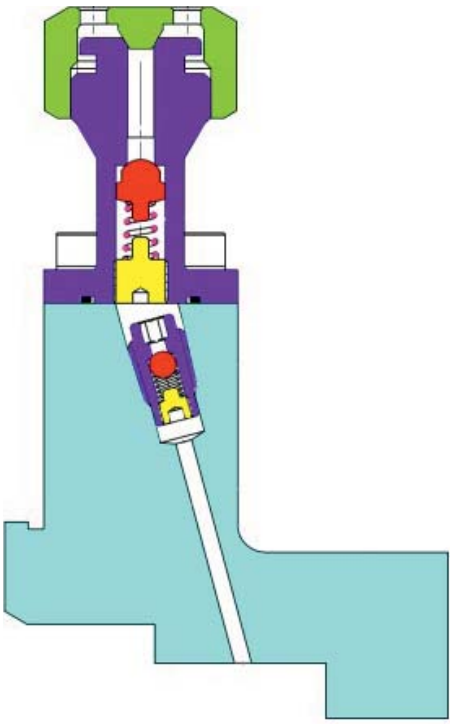


*Figure 48*

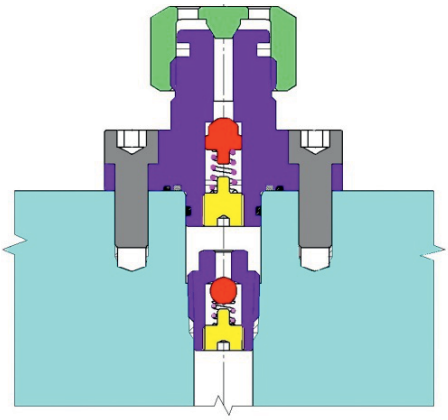


*Figure 49*

must unscrew the blue part ½" – 1 turn (lifting the seat) before injecting anything. But even though there are two check balls and a mechanically locked seat, I am not too happy about being without an inner check. There are two reasons for this: Firstly, what happens if the relatively long fitting is accidentally hit by a heavy object and broken off? Secondly, as I have stated previously on several occasions, I don´t like NPT. In fact, my personal opinion is that NPT should be banned on all new equipment. It´s like still using a floppy disk on the computer. Some may still do, who knows? But it´s obsolete just like, in my opinion, the NPT connection is obsolete. I know that many will state that we still need the NPT connection. But going to Italy in Erba you will find the manufacturer of the components illustrated in Figure 48, 49 and 50.

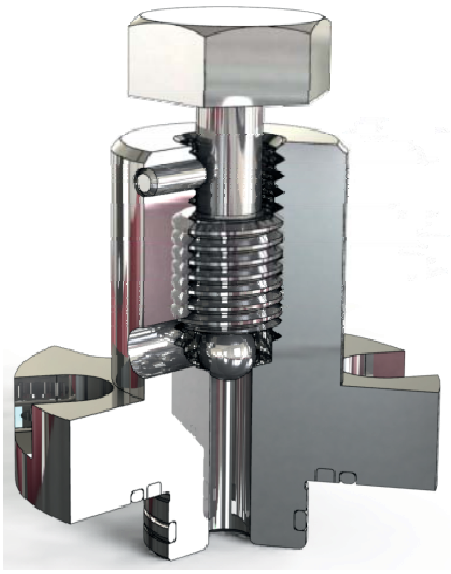


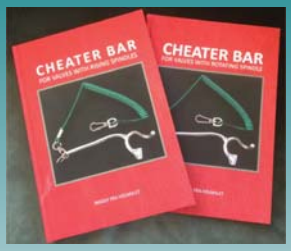
*Figure 50*

Looking at Figure 48 you can see a class 150 fitting bolted on the flange with the inner check threaded down the inside, all installed on the flange of a three piece valve. Figure 49 illustrates a class 600 lubrication fitting bolted on to a top entry ball valve. In Figure 50 the bleeder is also installed by the means of bolts. As you know, we don´t use floppy disks anymore, and there is absolutely no reason for using NPT threads to connect equipment on high pressure and hydrocarbon equipment. NPT is just not adequate in the 21st century. That is just my personal opinion but I know it´s shared by many.

***To be continued...***

*Norwegian consultant and valve instructor, Ingolf Fra Holmslet writes a series of articles for Valve World.*

*Klyde Consultants AS*
*www.valve.no*
*ingolf@valve.no*




The two books: *Cheater* bar for valves *with rotating spindle and Cheater bar for valves with rising spindles* are written by Ingolf Fra Holmslet and can be ordered from his web page www.valve.no