



MicroBulk Systems

Technical Service Bulletin

Component Change

TSB-MBS-1013

Date: March 29, 2017

Subject: Habonim Extended Stem Ball PB Valve on Perma-Cyl Vessels

Products

Affected: In late February of this year, certain models of the Perma-Cyl[®] MicroBulk Storage System had the short stem cryogenic ½ inch Worcester ball valve changed to an extended stem (6 inch) cryogenic Habonim ball valve. This valve was chosen after extensive liquid testing and cycle testing by Chart. The Perma-Cyl models effected are those with external pressure build vaporizers that have the A 401 style regulator located at the bottom of the tank (see photos on page 2). Since this line often builds up large quantities of ice, the thought was that an extended stem valve would be a good improvement.

Description: Shortly after the subject valve was fielded, Chart started receiving complaints that these valves were leaking through the body seals after they were exposed to a cryogenic liquid. The valves proved to be bubble tight when the tank was leak tested at Chart, and also showed no signs of a leak when pressure tested in the field before exposing them to liquid. The leaks on some of these valves were able to be stopped by tightening the body bolts, but this did not work on all of them and the valve had to be replaced. After the problem was identified, Chart started to liquid test every valve at 450 psig. When leaks were found the valve was pulled. The root cause appears to be that the body bolts did not have the proper torque spec from the factory. Subsequently, the valve distributor has started to check the torque spec on every valve before sending it to Chart. Once received, Chart is then liquid testing each valve at 450 psig before installing it on a tank. All valves that have been both torque checked and liquid tested are marked with a Duncan sticker (see photo on page 2). The valves with leaks are being evaluated by the Habonim engineers in order to see if there are any tolerance issues in the valve body itself and the seal material.

Resolution: Any Habonim valve that does not have the Duncan sticker at the bottom of the valve stem, should be removed from the tank and replaced. Chart will issue an RMA and send out a replacement valve. Valves with or without the Duncan sticker that are currently in service and show no signs of leaks are okay to keep in service. For tanks currently in process, Chart has decided to go back to the original short stem cryogenic Worcester valve for the short term and eventually change to an extended stem version of this same Worcester valve. The Worcester valve is a direct replacement for the extended stem Habonim valve and should fit using the same pipe fittings. Installation instructions for changing out this valve are included in this bulletin. Chart also suggests running some cryogenic liquid through the valve during the first fill to insure there are no leaks prior to completely filling the tank.



Old Style short stem cryogenic Worcester Valve. p/n 1712202



New style Habonim Valve with Duncan inspection sticker. p/n 21070662



Extended stem cryogenic Worcester Valve. p/n 20897965

Contact: If you have questions or concerns relative to this action, please contact your Chart Customer Service Representative at (800) 400-4683.

Changing out a Habonim valve

Listed below are the required parts.

1- Worcester Cryogenic Valve (Ext. stem or short stem)

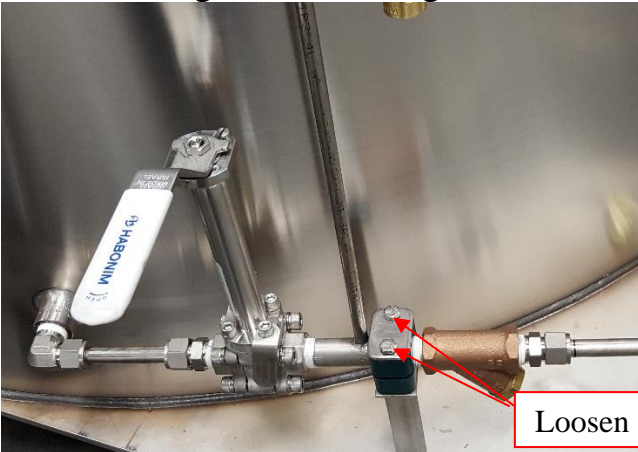


Part Number 20897965



Part Number 1712202

After draining the tank, using 7/16 wrench loosen and remove the two Stauff clamp bolts.



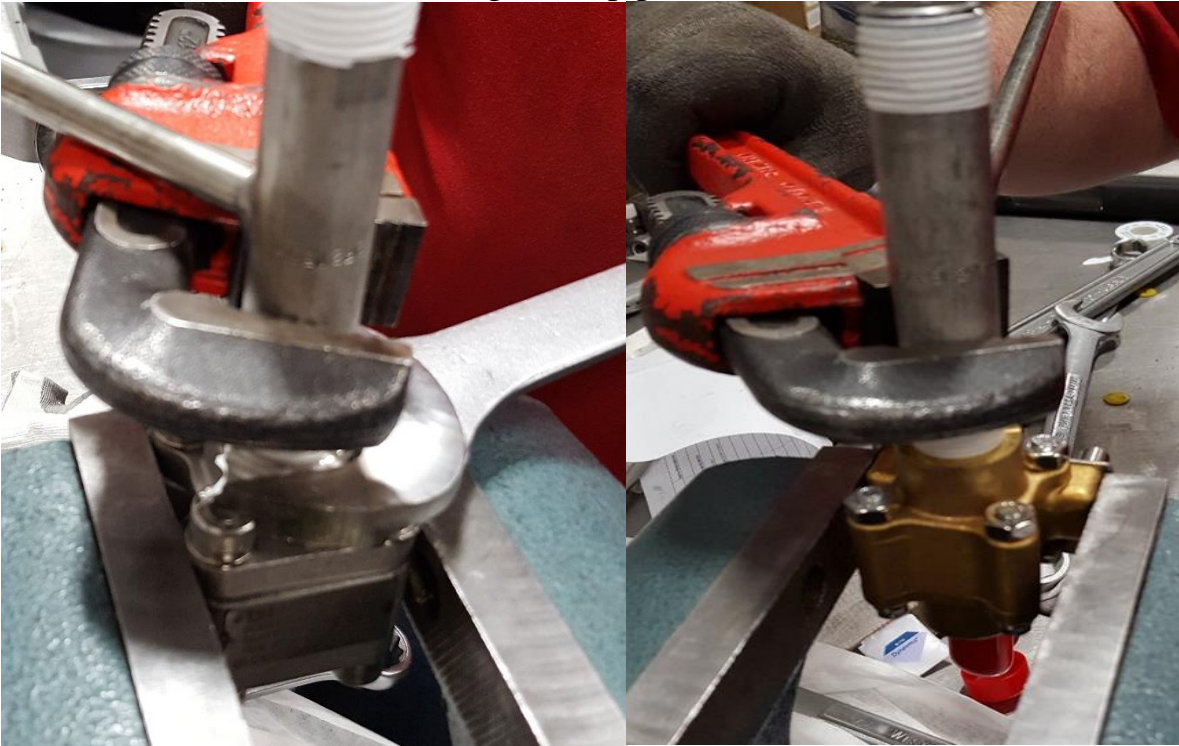
Loosen Stauff clamp

Next loosen the Swagelok fittings.



Remove Swagelok Fittings

Remove the assembly from the tank. Place valve assembly in the vice, remove the fitting and the relief valve nipple. Valves with screwed ends should be treated as a single unit and should not be dismantled when installing in the pipeline.



The flow arrow on the valve should be pointing towards the relief nipple.

Clean all threads. Apply the appropriate thread tape to the nipple and the compression fitting. Install fittings into the valve as pictured. When tightening the valve, apply a bench vice or a pipe wrench to the end connector closest to the pipe fitting being worked using standard piping practices. (Note: see photo on how the valves are held in the bench vice.)

Reattach the tube to the outlet of the strainer, and then tighten the nut a quarter turn past hand tight. Tighten your Stauff clamp back down and leak check.



Outlet of strainer



The short stem Worcester ball valve is to be installed in this position to avoid interference with the relief valve tube and outer shell.



The extended stem Worcester ball valve is to be installed in this position to avoid interference with the relief valve tube and outer shell. The valve is angled approximately 20-25 degrees from horizontal. The maximum incline for the extended stem valve is 45 degrees from horizontal.