



8" END PORT PRESSURE VESSEL

MEMBRANE SHIMMING PROCEDURE

BEL COMPOSITE IBERICA S.L.

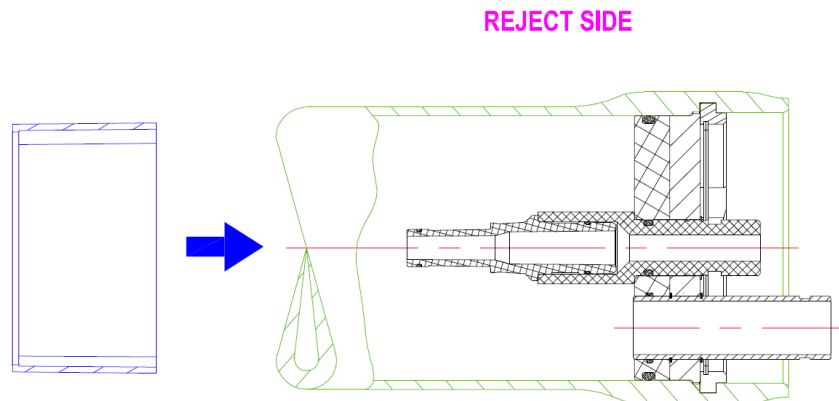
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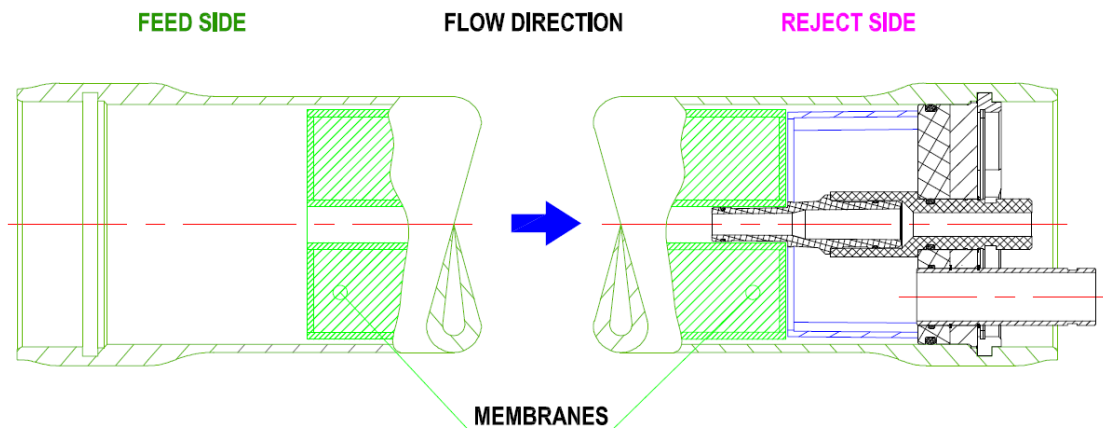
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ANNEX 3 - Shimming procedure

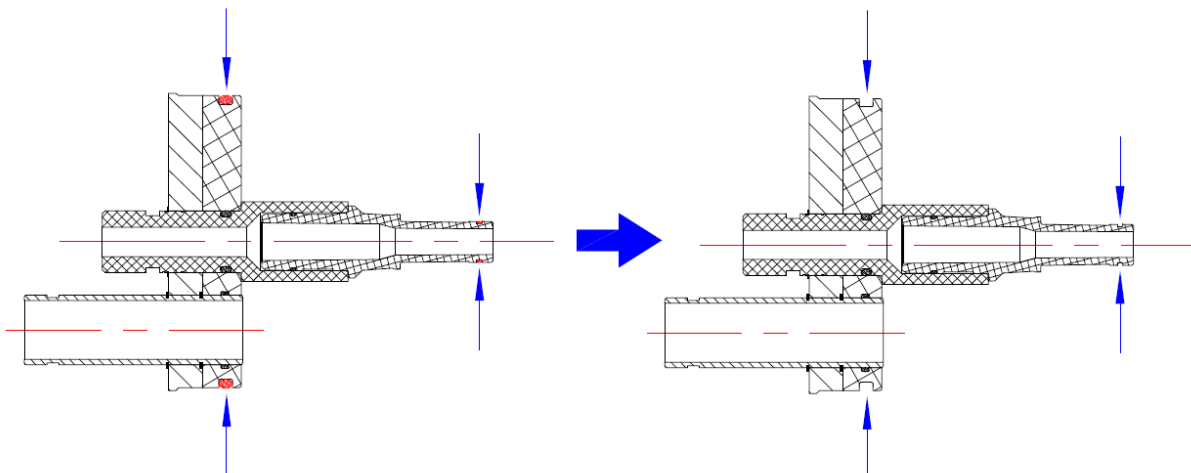
1.- Close the vessel on the reject side and set the thrust ring in the vessel (reject side)



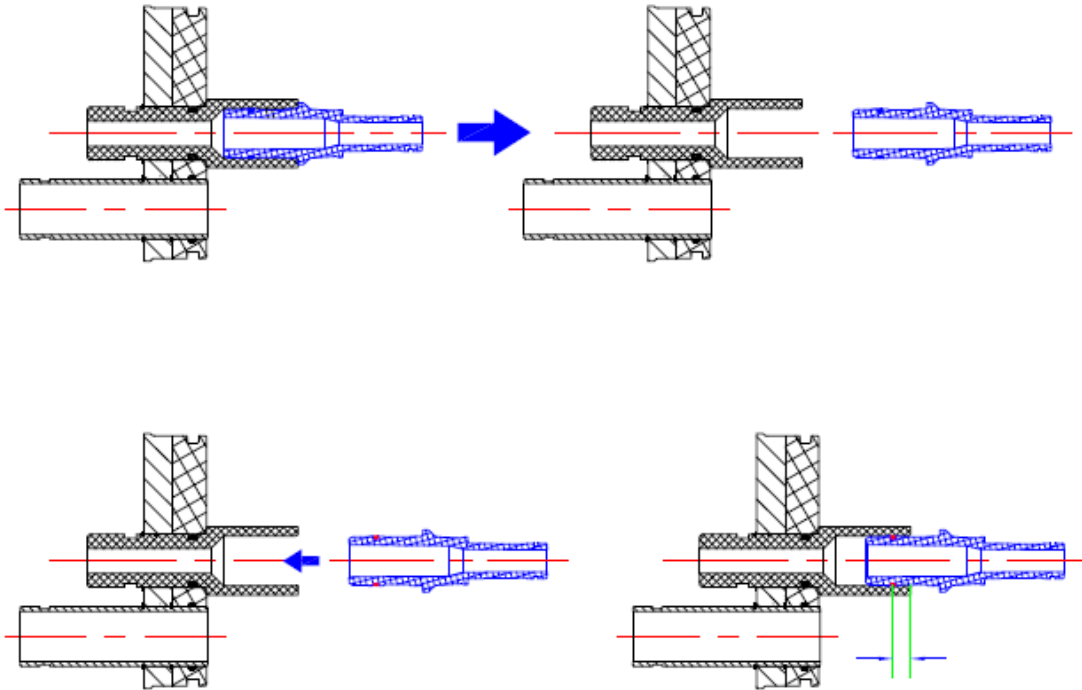
2.- Load the membranes from feed side to reject side.



3.- Remove the O-rings from the adapter (membrane side) and O-ring from the sealing plate of the end cap.

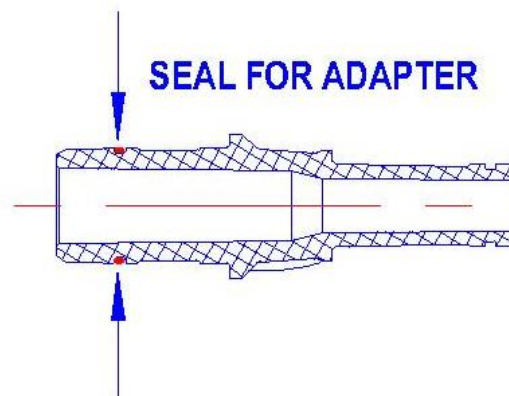


4.- Remove the adapter without O-rings (*in the membrane side of the adapter*) from the end cap and re-insert it again, pushing it until the edge of the seal for adapter reach the end cap hole to place it.



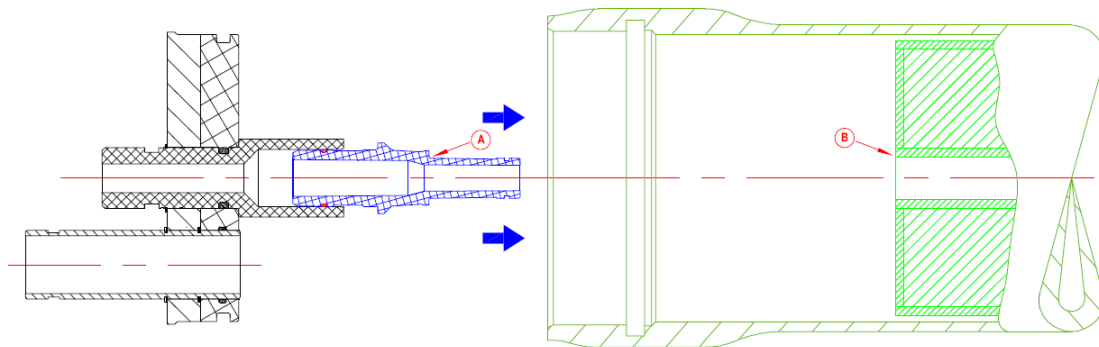
NOTE 1: Keep the adapter O-ring at the end cap side.

NOTE 2: Apply some lubricant (glycerin) on the adapter O-ring, at the end cap side, as it is shown in the next figure.



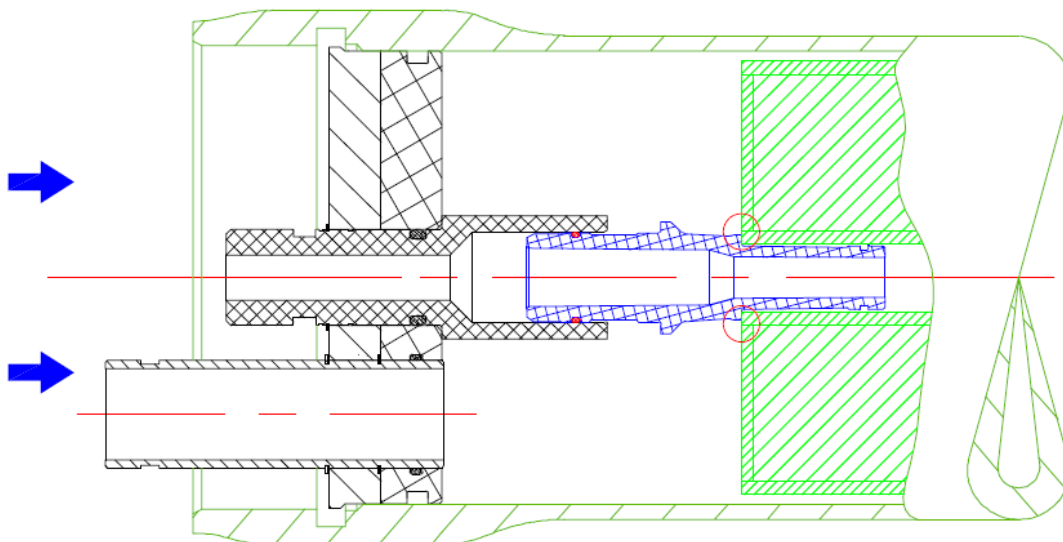
NOTE 3: Do not push the adapter too much into the end cap hole

5.- Insert the kit end cap – adapter into the vessel.



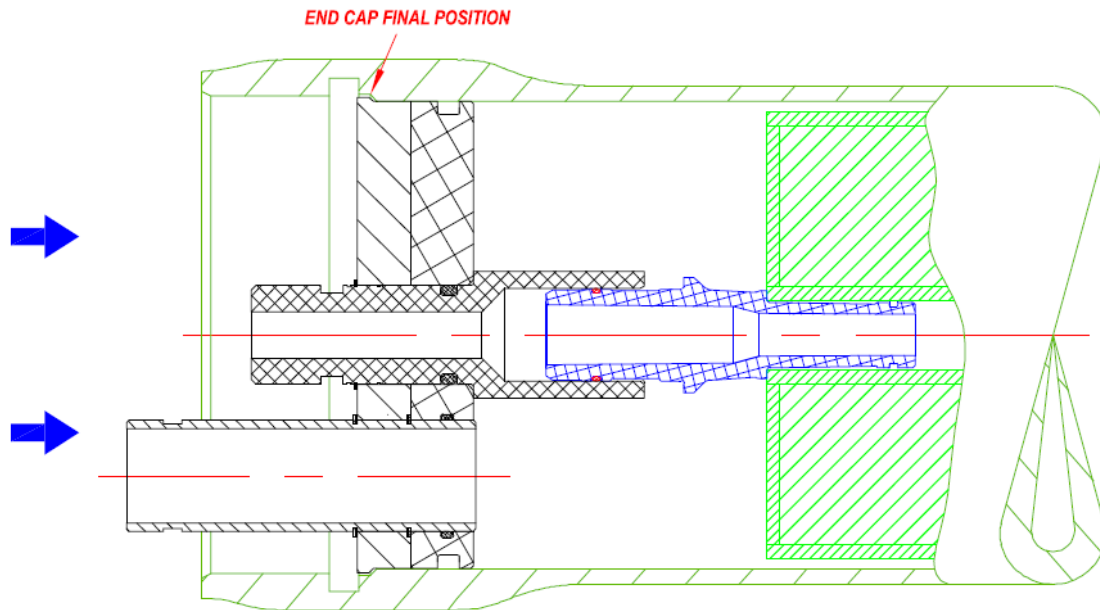
NOTE 4: insert the kit slowly until the point "a" be in contact with point "b", as it is shown in the above figure.

6.- As the adapter has no O-ring in the membrane side, the adapter will be placed into the membrane permeate tube without any resistance.



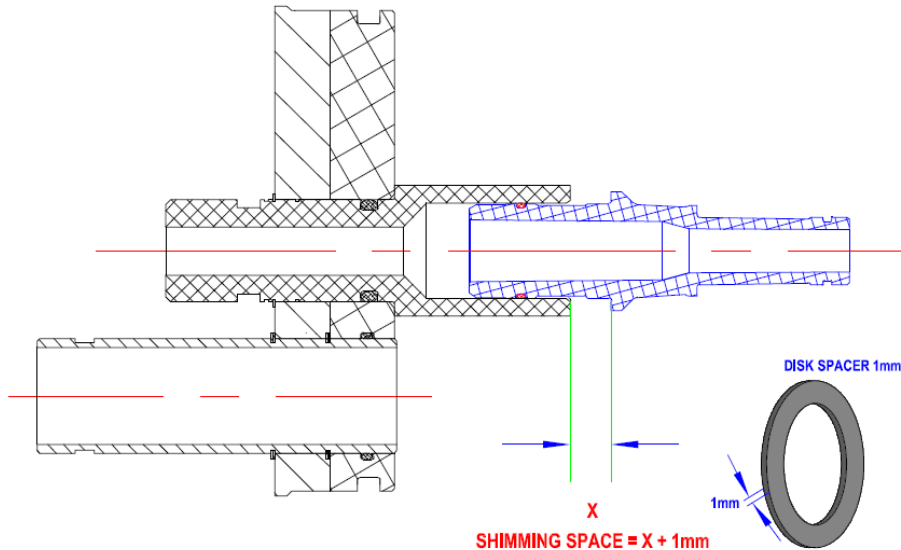
NOTE 5: The adapter will keep the same position into de end cap hole

7.- Keep on pushing the end cap until it reach its final position into the vessel.



NOTE 6: In the process of pushing the adapter will move into the end cap hole.

8.- Remove the kit end cap – adapter and measure the distance "x".



In order to avoid any possible mismatch with the tolerances of the pieces involved, we will add one additional 1 mm shimming disk.

The distance "**x+1mm**" is the real space to be shimmed with disk spacers

11.- Repeat the operation with every vessel to obtain the real shimming distance for every vessel.