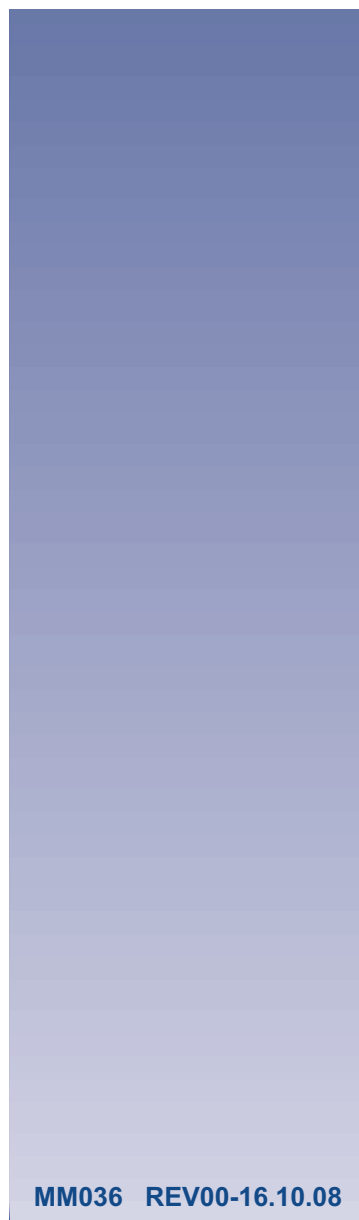
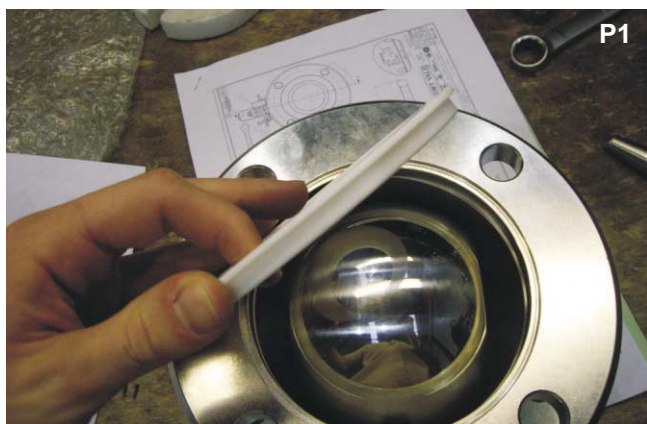




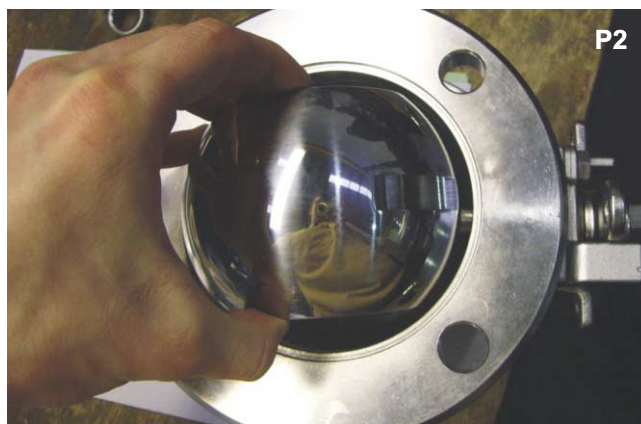
Ball Valve Dismantling.



**3" FULL BORE
BALL VALVE**



Remove the front seal from valve body.



Using the ball valve handle, rotate the ball until the slot is inline with the axis of the valve. This will allow the ball to be carefully removed from the valve body.



Remove the bottom ball seal from the valve body.



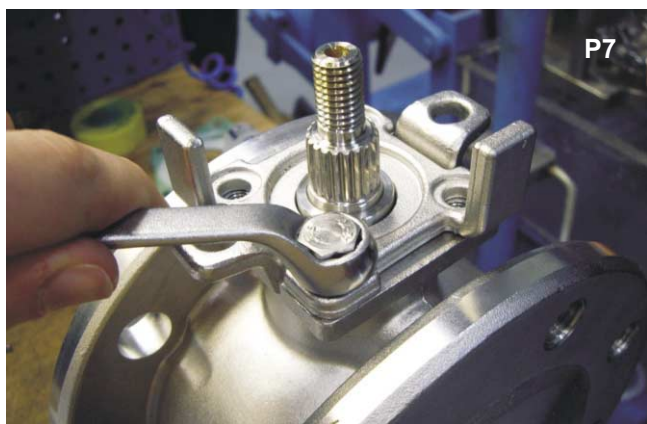
Holding the valve handle and using a 19mm remove the M12 lock nut.



Remove the M12 washer.



Remove the two Belleville washers noting the orientation.



Remove the four M8 bolts securing the stuffing clamp in place.



Remove the four M8 spring washers.



Remove the stuffing clamp.



Remove the top stuffing bush.



Gently tap the spindle to free from bore.



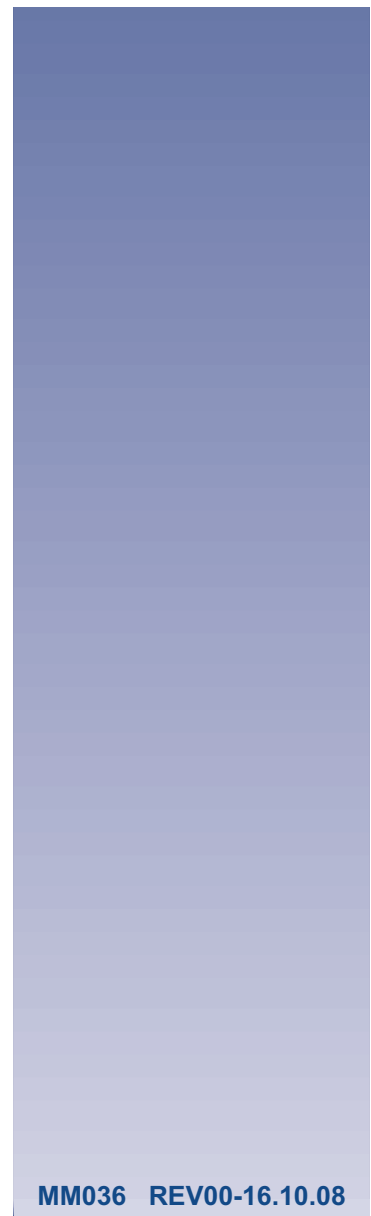
Once free from bore remove the spindle from the valve body.



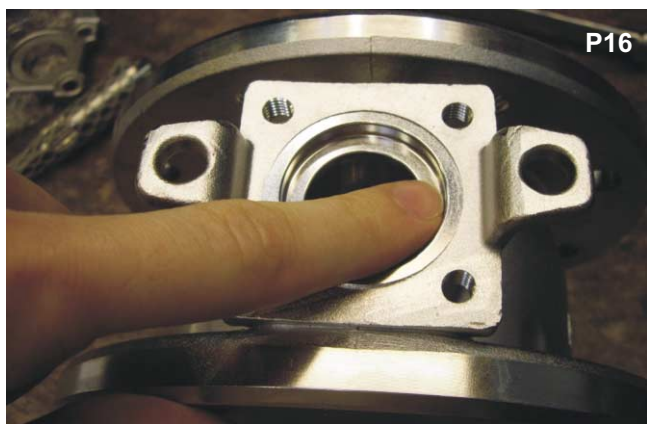
Once the spindle has been removed, remove the remaining stuffing collar and PTFE 'o' rings. Ensure no marks are left in the spindle bore.



Ball Valve Re-assembly.



**3" FULL BORE
BLACKO BALL VALVE**



Examine the spindle housing for damage both in the top and bottom bore.



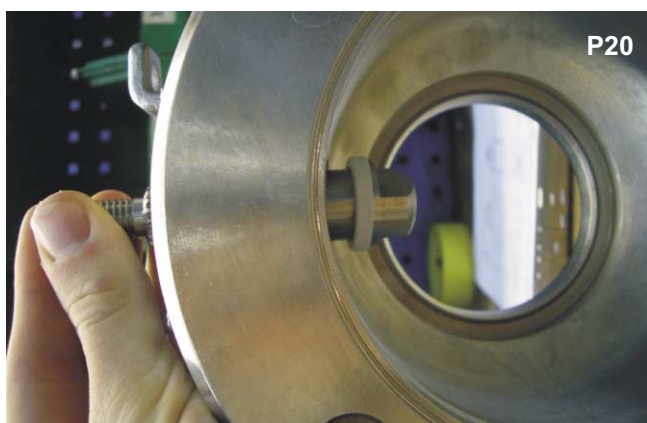
Examine the valve spindle for damage along the diameter where the seal will be located.



Check the ball for excessive wear, scratching or damage around the sealing areas at both ends of the ball.



Slide the bottom bearing over the valve spindle with the recess over the head of the spindle.



Insert the spindle into the housing from the inside of the valve body.



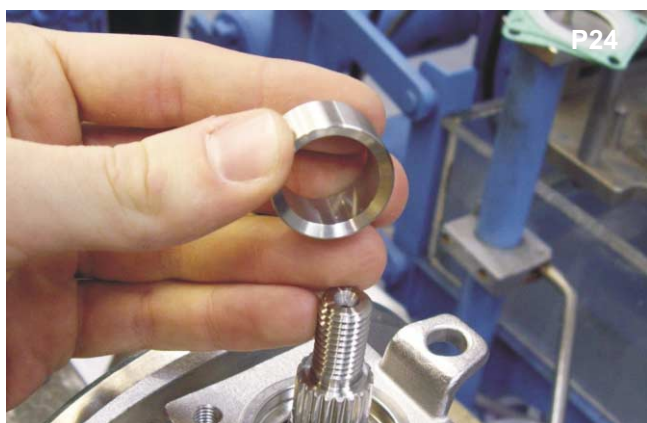
A tool like the one shown above (which is simply a 4.5" diameter piece of PTFE bar with a cut out for the spindle to locate on) must now be used to stop the spindle falling out.



Push the PTFE 'o' ring over the 'o' ring expander tool, which can be purchased from Fort Vale. Keep the 'o' ring on the biggest diameter.



Put the expanding tool over the spindle and push the 'o' ring down until it can move no further. This will require a separate seal pusher to fit over the 'o' ring expanding tool.



Ensure the correct orientation when inserting the stuffing collar. The bevelled edge must locate on the PTFE o ring.



Insert the second PTFE 'o' ring again using the expanding tool



Replace the top stuffing collar.



Replace the clamp plate, the orientation of the clamp plate determines on which handing is required.



Replace the four M8 spring washers.



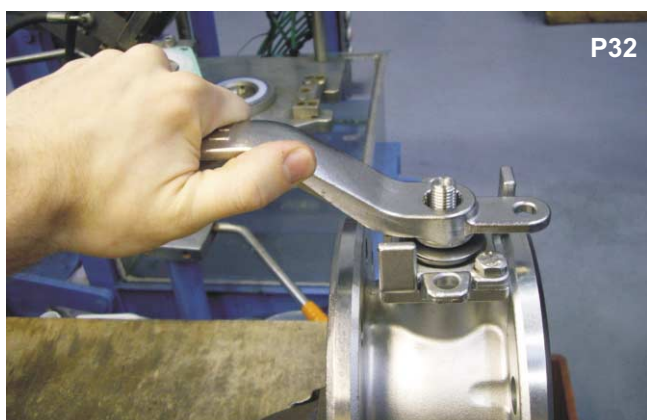
Using a 13mm wrench hand tighten the clamp plate bolts.



Replace the first Belleville washer, this must be placed dished side down as shown.



Replace the second Belleville washer dished side up as shown.



Replace the valve handle, ensuring the orientation of the spindle and handle. With the handle in the closed position the flats of the spindle should be in line with the body axis.



Replace the M12 washer.



Holding the valve handle tighten up the M12 nut using a 19mm A/F wrench.



Ensure the back seal is in the correct orientation. Inspect the valve body for any dirt and foreign objects.



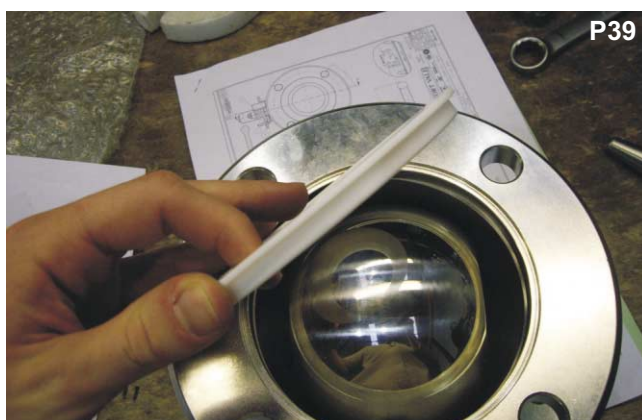
Ensure the back seal is fully located in the back groove.



Roll the ball into the valve body.



Slight adjustment of the stuffing clamp may be required to ensure the ball is correctly aligned in the valve body and seats. Once adjusted fully tighten up the clamp plate bolts which had previously been hand tightened using a 13mm A/F wrench.



Replace the front ball seal.