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ASSEMBLY PROCEDURES - 100mm Pneumatic Flush Valve Gasket Seat

Tooling required

EP2 grease
Bench vice with aluminium jaws
Ring spanner 13mm
Ring spanner 17mm
Ring spanner 19mm
Allen cap screw no 8
Torque wrench

Assembly Jigs required

Pneumatic flush valve spring assembly

Testing Jigs required

Outlet flange testing jig TEST FL 150 (shell & seat tightness 200kPa)
Main flange testing jib TEST FL 190 (shell tightness 20kPa)

ASSEMBLY PROCEDURE

Spindle Assembly

1 Fit the spidle (#12) into the sealing disc (#13). Fit PTFE gasket (#14) over the spindle (#12) and onto the sealing disc (#13) followed by (#15) spindle retainer.
2 Fit the spring washers (#16) onto the M10 x 20mm bolts (#17) and insert and hand tighten the bolts into the sealing disc (#13)
3 Secure the spidle assembly into the bench vice (with aluminium jaws).Tighten and secure M10 bolts (#17) with 17mm ring spanner followed by torque wrench (set at 70Nm).

Spindle Flange Assembly

4 Fit and secure 35mm long stud (#21) opposite each other followed by 60mm long stud (#22) using a 17mm ring spanner.
5 Fit the 3 x 21 Viton o-ring (#39) into the o-ring groove on the spindle flange (#18). Fit the dust seal (#19) into the dust seal groove in the spindle flange.
6 Fit the 1/8" BSP straight air fitting (#45) to the spindle flange (#18)

Top Gland Assembly

7 Fit top gland outer bush (#42) onto top gland (#10)
8 Insert and secure top gland inner bush (#43) into top gland (#10)

Fitment and assembly of Main body, Spindle Assembly and Top Gland Assembly

9 Fit main body over the spindle assembly. Fit the 3.53 x 28.17 Viton encapsulated o-ring (#40) over the spindle and secure the o-ring in the bottom of the gland box.
10 Fit the inner PTFE shaft bush (#37) into the shaft bush (#36) fit the outer PTFE shaft bush (#38) onto the shaft bush.
11 Fit the shaft bush assembly over the spindle (#12) and secure the shaft bush in the gland box (#6).
12 Fit the 3 x 21 Viton encapsulated o-ring (#28) over the spindle followed by the shaft washer (#40)
13 Fit the PTFE bush (#7) over the spindle and secure the PTFE bush in the gland box (#9)
14 Fit the PTFE yarn (#8) around the spindle and secure the PTFE yarn in the gland box (#6) followed by the PTFE bush (#7)
15 Fit the top gland assembly over the spindle and secure the top gland in the gland box (#6).

Fitment and assembly of Main Body and Spindle Flange Assembly

16 Fit M10 nut (#44) on both studs (#22) and adjust the nut to the bottom of the thread (hand tighten only). Place the dust seal plate (#20) over both studs (#21) and fit the spindle shaft assembly over the shaft (#12) while holding the dust seal plate (#20) in place and securing both studs (#21) into the gland box ear (#9)

17 Fit spring washer (#16) and M10 nut (#44) on studs (#21) and tighten with ring spanner 17mm. Fit M10 nut (#44) on studs (#22) (leave gap between nut and top gland for testing and adjustment)

Fitment and assembly of Main Body and Actuator Assembly

18 Place spring (#23) over spindle (#12) followed by spring (#24) and place the actuator piston (#27) on top of the spring assembly.

19 Fit the guide pin through the actuator piston and tighten the guide pin into the spindle (#12) with the ring spanner 12mm. Place the guide plate on top the actuator piston and fit the threaded rod through the guide plate and spindle flange. Secure the threaded rod with the M10 flat washer and M10 nut. Use ring spanner 17mm to tighten M10 nuts on rods until both springs are compressed and the actuator piston sits on top of the spindle. Remove guide pin using 12mm ring spanner.

20 Fit 19mm open end wrench on the wrench cutouts on the spindle (#12) located on the spindle in the main valve body. Thread the thread tape around the M10 allen cap screw (#35), insert into the actuator piston and tighten with torque wrench (set at 50Nm) while holding the 19mm open end wrench in place. Remove both threaded rods

Fitment and Assembly of Actuator Piston Pot

21 Fit both 5.33 x 94.62 Viton o-ring in actuator piston (#27) top and bottom groove. Apply a small amount of EP2 grease onto the 5.33 x 94.62 Viton o-rings and also on the inside of the piston pot.

22 Fit the 3.0 x 113.0mm Viton o-ring in the piston pot groove. Fit the piston pot over the actuator piston (#27)

23 Insert the M10 x 40mm bolts (#30) into the piston pot holes followed by the spring washer (#16) and M10 nut (#44) tighten with ring spanner 17mm.

24 Fit the 1/8 BSP elbow air fitting to the piston pot and tighten with 13mm open end wrench spanner.

TESTING PROCEDURES - 100mm Pneumatic Flush Valve Gasket Seat

1 Adjust the packing of the gland box evenly on both sides of the top gland. Do not over-tighten. Test the opening/closing function of the sealing disc 4 - 5 cycles at 600kPa

2 Fit and secure the main flange of the flush valve to the "TEST FL 190" jig with washers and nuts - ensure nuts are fully and securely fastened to the jig

3 Insure sealing disc is in the close position

4 Test the Seat tightness at 20kPa for 5 minutes

5 Check for leaks

a - interal sealing area - sealing disc/main body sealing area

6 Fit and secure the outlet flange of the flush valve to the "TEST FL 150" jig with washers and nuts - ensure nuts are fully and securely fastened to the jig

7 Insure the sealing disc is in the close position

8 Test the Shell and Seat tightness at 200kPa for 5 minutes

9 Check for leaks

a - all welding

b - external sealing area - sealind disc/main body sealing area

c - gland box (if there is leakage at the gland box release the testing pressure and tighten the top gland redo testing step 6 - 9)

As per EN12266-1:2012 and EN122662:2012 testing regulations Table A.5

"A" No visually detectable leaks for the duration of the test

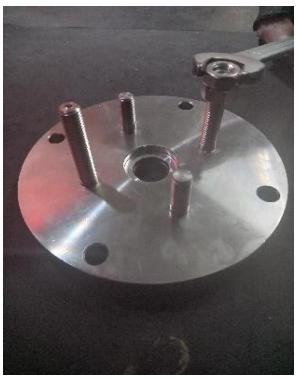
ASSEMBLY & TESTING PROCEDURES - 100mm Pneumatic Flush Valve Gasket Seat





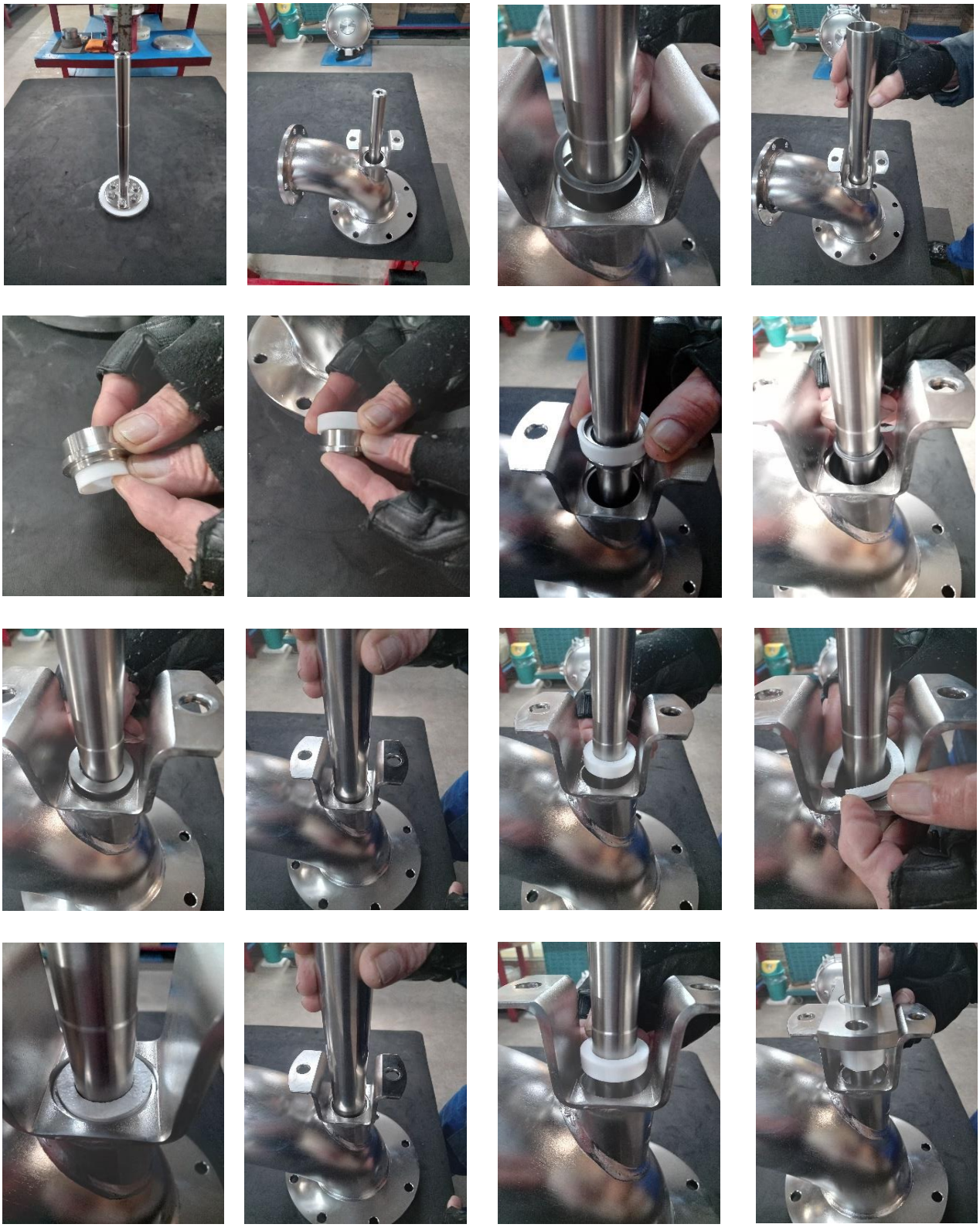


1 - 3 Spindle assembly




4 - 6 Spindle flange assembly


7 - 8 Top gland assembly



9 - 15 Main body, spindle assembly and top gland assembly








16 - 17 Main body and spindle flange assembly















18 - 20 Main body and actuator assembly

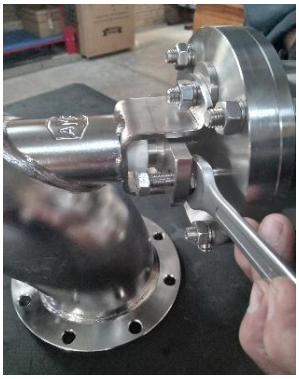









21 - 24 Piston pot assembly




Operability testing opening/closing of sealing disc



Test 1: Seat tightness @ 20kPa



Test 2: Shell tightness @ 200kPa and Seat tightness @ 200kPa