Allgemeine Maschinen Fabrik (Northwest) CC
20 Meul Streetl George Industria, 6529
P.O. Box 1819, George, 6530
T - 0027 44 873 4649/56
sales@amf.co.za

ASSEMBLY PROCEDURES - 100mm Bottom Valve Pressure Compensated

Tooling required

Rubber mallet
Loctite Blue
EP2 grease
Bench vice with aluminium jaws
Ring spanner 13mm
Ring spanner 22mm
Ring spanner 27mm
Allen cap screw no 2
Allen cap screw no 4

Assembly Jigs required

100mm BOV actuator spanner/main piston spanner
Combined 80/100mm* BOV assembly jig
(* 100mm version is assembled using the four outer holes on spindle plate)

Testing Jigs required

Outlet flange testing jig TEST FL 150 (shell & seat tightness 500kPa)
Main flange testing jib TEST FL 190 (shell tightness 27kPa)

ASSEMBLY PROCEDURE

Actuator Assembly

1 Fit BS114 o-ring (#8) into top of the actuator housing (#7). Fit BS114 o-ring (#8) into the M36 plug (#9) followed by (#10) M36 plug PTFE bush.
2 Screw the M36 plug into the top of the actuator housing
3 Secure the 100mm BOV spanner into the bench vice (with aluminium jaws). Fit the actuator housing into the 100mm BOV spanner, use ring spanner 27mm to tighten the M36 plug. Do not over-tighten.
4 Remove the actuator housing from the spanner
5 Fit 3.53 x 55.55 Viton encapsulated o-ring (#11) onto the top groove of the piston (12) and then the Viton o-ring (#14) to the bottom groove
6 Insert the piston rod (#12&13) into the actuator housing, tap the back of the piston with the rubber mallet to ensure it is all the way in
7 Fit the 3.0 x 60.0 Viton o-ring (#16) onto the M65.5 plug (#15)
8 Secure the actuator housing into the 100mm BOV spanner, screw in the M65.5 plug and tighten with the ring spanner 22mm
9 Fit the 1/8" BSP elbow air fitting to the M65.5 plug and tighten with ring spanner 13mm
10 Test complete acuator with air to ensure the o-rings on the piston are sealing properly. Submerge the actuator in water - stream of bubbles through the exhaust hole means the seals are not sealing properly
11 Fit 3.53 x 55.55 Viton encapsulated o-ring (#11) on the top of the actuator housing
12 Apply a small amount of EP2 grease onto the thread of the complete actuator, insert into glandbox (#5), use the 100mm BOV spanner to tighten the actuator into the gland box, tap the spanner gently with the rubber mallet. Do not overtighten or force - this will cause the threads to seize.

Main piston and ring assembly

13 Fit o-ring (#19) to main piston (#17) and screw on main piston ring (#20)
14 Insert and tighten small grub screws (#28) into the main piston/ring using allen cap screw no 2

Fitment and assembly of main body; main piston, spring and cage

15 Fit the main flange of the bottom valve over the four legs of the "80/100 BOV assembly jig", secure it to the jig using 2 x washer and 2 x nuts on two opposing jig legs.
16 Place the main piston (with the main piston ring side facing downwards) onto the sealing area between the four bottom valve cage legs.
17 Place the Spring (#21) in the centre of the main piston.
18 Spray soap water on the inside of the cage (#22) and top of the main piston and o-ring for lubrication to aid fitting the main piston into the cage.
19 Place the cage (#22) directly ontop of the spring, ensure the four cage leg holes are directly above the slots of the cage.
20 Fit the top half of the "80/100 BOV assembly jig" to the main flange of the bottom valve with the remainig 2 x nuts.
21 Ensure the polypropylene spacer is fitted over the centre of the cage, while holding the parts in place, close the jig by turning the handle clockwise until the slots of the cage fit over the four valve legs.
22 Turn the cage in a clockwise direction to lock the cage into place.
23 Release the jig by turning the handle anti-clockwise and remove the jig off the bottom jig.
24 Remove the bottom valve from the jig.

AFTER TESTING - fit and secure strainer and strainer plate

25 Place bottom valve onto "80/100 BOV assembly jig", secure into place with 2 x washers and nuts.
26 Place the strainer (#24) into strainer recess on the main flange, then strainer plate (#25), fit into place using 4 x spring washer (#26) and 4 x allen cap screws (#27) using allen key no 4.

TESTING PROCEDURES - 100mm Bottom Valve Pressure Compensated

1 Test the opening/closing function of the main piston 4 - 5 cycles at 600kPa

2 Fit and secure the outlet flange of the bottom valve to the "TEST FL 150" jig with washers and nuts - ensure nuts are fully and securely fastened to the jig
3 Insure the main piston is in the closed position
4 Test the Shell and Seat tightness at 500kPa for 5 minutes
5 Check for leaks
a - all welding and shear off groove
b - external sealing area - main piston/main body sealing area
c - actuator/gland box

6 Fit and secure the main flange of the bottom valve to the "TEST FL 190" jig with washers and nuts - ensure nuts are fully and securely fastened to the jig
7 Insure main piston is in the closed position
8 Test the Seat tightness at 27kPa for 5 minutes
9 Check for leaks
a - interal sealing area - main piston/main body sealing area

As per EN12266-1:2012 and EN122662:2012 testing regulations Table A.5 and Annex B.1. acceptance criteria:

"A" No visually detectable leaks for the duration of the test
"B.1.3." Move obturator between open and closed positions

ASSEMBLY & TESTING PROCEDURES - 100mm Bottom Valve Pressure Compensated





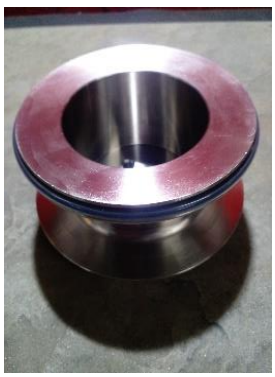









1 - 12 Actuator assembly




13 - 14 Main piston assembly











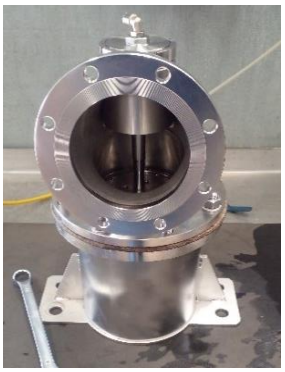
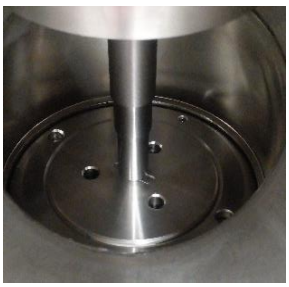

15 - 25 Main body, main piston, spring and cage assembly


Test 1: Operability testing opening/closing of main piston




Test 2: Shell tightness @ 500kPa and Seat tightness @ 500kPa




Test 3: Seat tightness @ 27kPa




18 - 19 Strainer and strainer plate fitment