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 Chemical Butterfly Valve

Tooling required

Thread tape
Bench vice with aluminium jaws
Internal circlip pliers
Ring spanner 10mm
Swivel socket spaner 10mm
Allen key no 4
Allen key no 8
Pliers

Assembly Jigs required

Combined Butterfly valve o-ring/bush tool
Butterfly valve circlip tool
Chemical Butterfly valve centering sealing disc jig

Testing Jigs required

Main body TEST FL 150 jig
Main body TEST FL 150/150 (seat tightness 27kPa)
Main body TEST FL 150/150 (seat tightness 600kPa)

ASSEMBLY PROCEDURE

Fitment of bottom shaft assembly into main body

1 Insert and secure the butterfly valve main body (#1) into the bench vice so that the base of the body is facing upwards
2 Insert the bottom shaft PTFE bush (#8) into the main body from the outer side
3 Insert the bottom shaft (#9) into the main body from the inner side
4 Thread the thread tape around the large grub screw (#10), insert into main body and tighten with torque wrench (set at 50Nm)

Fitment of top shaft assembly into main body

5 Turn the main body (#1) around and secure the butterfly valve main body into the bench vice
6 Use the "bush" end of the "o-ring/bush" tool to insert the top shaft PTFE spacer (#2) into the main body
7 Use the "o-ring" side of the same tool to insert and correctly fit o-rings (#3) first then o-ring (#4)
8 Insert PTFE bush (#5) and use the "o-ring circlip tool" to ensure all seals are inserted all the way down
9 Fit PTFE bush (#12) to top shaft (#6) and insert the top shaft into the main body (#1)
10 Use the circlip tool to ensure the top shaft is in place and the circlip groove is visible
11 Using the internal circlip pliers, insert the circlip (#7) into the groove - IMPORTANT that the circlips is inserted correctly against the inside diameter of the groove. Use the circlip tool to ensure the circlip is lying flat on top of the top shaft (NOTE: never re-use circlips)

Main body, sealing disc assembly and alignment

12 Insert and tighten the studs (#15) into the sealing disc (#11) using ring spanner 10mm
13 Place the sealing disc centering jig on clean, flat surface. Fit the sealing disc assembly into the sealing disc centering jig (studs facing upwards)
14 Place the main body (with "outflow arrow" facing downwards) over the sealing disc assembly with the top and bottom shafts fitting in between the top and bottom shaft plates (#16) to ensure correct alignment
15 Place the 4 x spring washers (#17) and 4 x nuts (#18) onto the studs and fully tighten the nuts (#18) using ring spanner 10mm
16 Remove main body from the sealing disc centering jig

Fitment of main body, PTFE seal ring, PTFE seal insert and cover plate

17 Place the main body (#1) on clean, flat surface (with "outflow arrow" facing downwards)
18 Fit the PTFE seal ring (#14) into the main body (#1) followed by the PTFE seal insert (#34)
19 Fit the 3.53 x 123.00 viton o-ring (#13) onto the groove of the cover plate (#35)
20 Spray soap water on to the cover plate (#35) and o-ring (#13)
21 Insert the cover plate into the main body (#1) insure the cover plate is aligned with the main body before the cover plate is fitted in position

Fitment of handle assembly to main body

22 Insert and secure the butterfly valve main body (#1) into the bench vice
23 Fit the handle lock plate (#21) to the gland box plate (#20) and secure using 2 x allen cap screws (#31), 2 x flat washers (#30), 2 x spring washer (#23) and 2 x nuts (#24) hand tighten only
24 Fit the spring (#36) over the handle pin (#26) and insert the handle pin into the handle (#25/29)
25 Fit the handle (#25/29) to the top shaft (#6) and secure and fasten the handle with allen cap screw (#33) and handle center washer (#32) using allen key no 4
26 Ensure the sealing disc (#11) is aligned and centered in the close position
27 Fully tighten the handle lock plate in place using allen key no 8 and ring spanner 13mm
28 Fit the handle latch (#27) over the handle (#25/29) and secure in place using split pin (#28) and pliers

TESTING PROCEDURES - 100mm Chemical Buttefly Valve

1 Fit and secure the "TEST FL 150/150" jig to the "TEST FL 150" jig with washers and nuts.
2 Fit the butterfly valve with the "outflow" arrow/sealing disc with the shaft plates facing outwards onto the "TEST FL 150/150" jig with washers and nuts - ensure nuts are fully and securely fastened to the jig
3 Test the seat tightness at 27kPa for 5 minutes
4 Check for leaks:
a - top shaft
b - bottom shaft
c - sealing disc/main body sealing area

4 Turn the butterfly valve around and fit and secure to the jig
Test the seat tightness at 600kPa for 5 minutes
Check for leaks:
a - top shaft
b - bottom shaft
c - sealing disc/main body sealing area

As per EN12266-1:2012 and EN1266-2:2012 testing regulations Table A.5 and Annex B.1 acceptance criteria:

"A"	No visually detectable leaks for the duration of the test
"B1.3"	Move obturator between open and closed positions






1 - 4 Fitment of Bottom Shaft & Grub screw



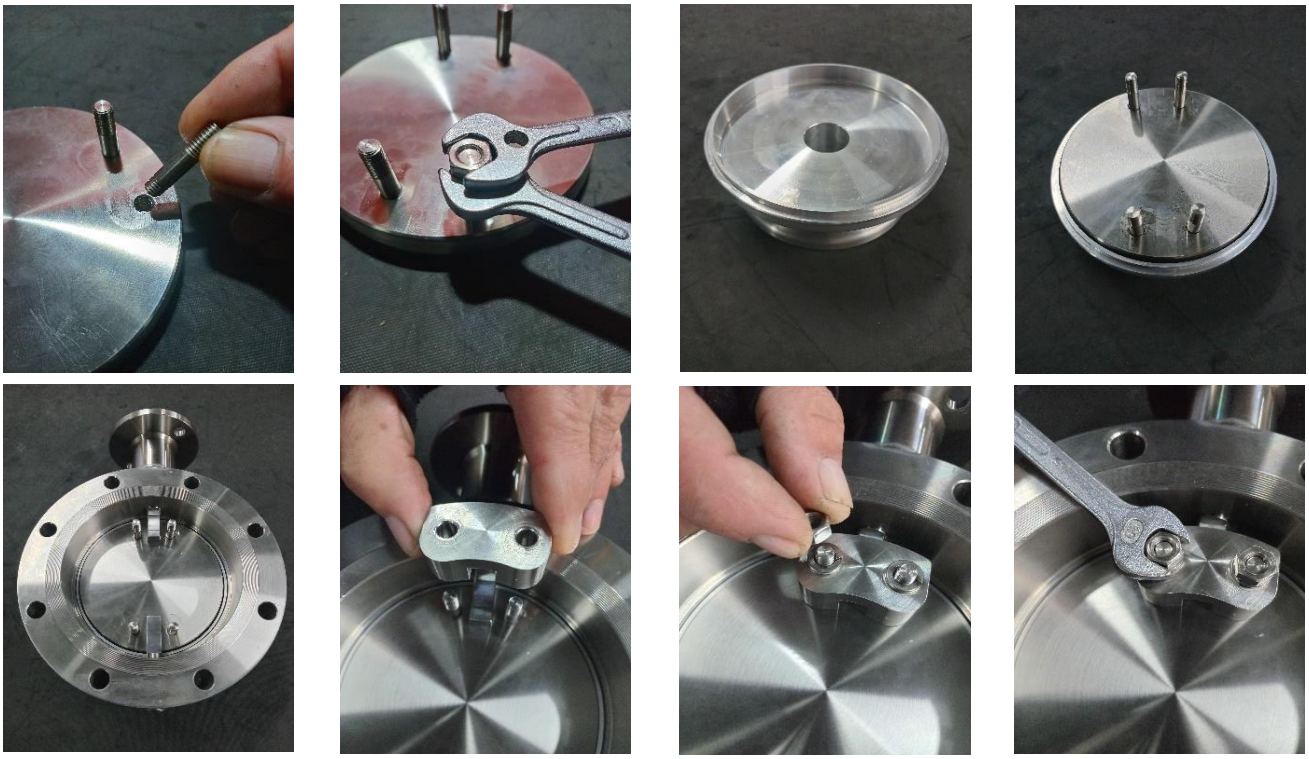








5 - 11 Fitment of Top Shaft & Circlip



12 - 16 Main Body, Sealing Disc Assembly & Alignment

17 - 21 Fitment of main body, PTFE seal ring, PTFE seal insert and cover plate

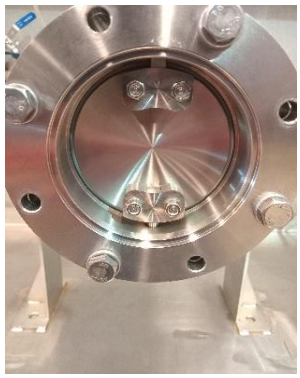






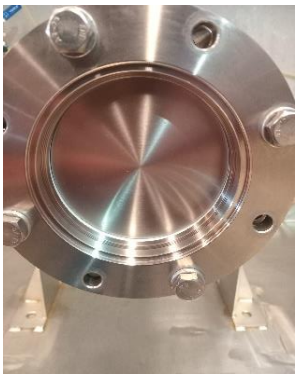

22 - 28 Fitment of Handle Assembly






Test 1: Seat Tightness @ 27kPa for 5 minutes






Test 2: Seat Tightness @ 600kPa for 5 minutes