MANUAL
AL 35-55A

1. Use

1.1 Life of valve can be maximized if the valve is used within the rated range, in accordance with pressure, temperature, and corrosion data.

2. Manual operation

2.1 To open or close the valve, turn the handle ¼ turn (90 degrees).

A. Valve in Open Position - the handle is in parallel (in-line) with the valve or pipeline.

B. Valve in Closed Position - the handle is perpendicular (crossed) with the valve or pipeline.

3. Disassembling & cleaning the valve

3.1 Ball valves can trap fluids in ball cavity when it is in closed position.

3.2 If the valve has been used in hazardous media, it must be decontaminated before disassembly.

A. Relieve the line pressure.

B. Place valve in half-open position and flush the line to remove any hazardous material from valve.

C. All persons involved in the removal and disassembly of the valve should wear the proper protective clothing, such as face shield, glove, apron, etc.

4. Replacing the thrustwasher, packing, and seats

4.1 Before replacing the thrust washer and the packing, the pipeline must be de-pressurized.

4.2 Maintenance of parts is easy, even if the valve is installed in the line

By removing one body bolt and loosening the other three, valve body can be swung out. Seats, gaskets and ball can be replaced without disturbing pipe alignment.

5. General information for on-site installation

5.1 The valve may be fitted in any position on the pipeline.

5.2 To prevent damage to the seats and ball surface, the pipeline must be flushed, free of dirt, burrs, and welding residues before installing the valve.

6. Installation of threaded valves

5.1 Use conventional sealant, such as hemp core, Teflon, etc. on the threads.

5.2 Apply wrench only on the hexagon of the valve ends. Tightening by using the valve body or lever can seriously damage the valve.

5.3 In some applications, screwed valves are back welded on site, These valves must be treated as per instructions for weld end valves before back welding.

7. Installation of weld-end valves

7.1 Tack-weld the valve on the pipe in four points on both end caps.

7.2 With the valve in open position (lever to be parallel to the axis of the pipe), loosen all nuts on the body bolts.

Remove all the bolts except one.

Swing the body outside the pipe.

7.3 Turn the handle to the half open position to assist in the removal of the seats.

7.4 Turn handle in closed position and remove ball.

7.5 Place all removed parts in a clean and secure place.

7.6 Replace the body and the removed bolt. Tighten all nuts slightly. To prevent any leakage to the body joints after welding, make sure that the body and the end caps remain perfectly parallel.

7.7 Finish welding both end caps onto the pipe.

7.8 After the pipeline and valve cools, clean end caps then remove the previous replace bolt. Swing out the body. Turn the valve to closed position, then replace the ball. Turn valve in open position and replace seats.

7.9 After the seats and the ball are replaced, swing back the body, replace the removed bolt, and tighten the bolt according to the following chart.

Bolt tightening specifications

The body bolts of the valve should be tightened evenly. Tighten one-side snugly, then the one diagonal across. Repeat for the other bolts, bringing them all down tightly in sequence.

DN	Inch	Torque - UNC body bolt				Torque - Metric body bolt			
		Thread	Lbf-in	Kgf-cm	Nm	Thread	Lbf-in	Kgf-cm	Nm
8	1/4	1/4 - 20 UNC	74 - 87	85 - 100	8,3 - 9,8	M6	74 - 87	85 - 100	8,3 - 9,8
10	3/8	1/4 - 20 UNC	74 - 87	85 - 100	8,3 - 9,8	M6	74 - 87	85 - 100	8,3 - 9,8
15	1/2	5/16 - 18 UNC	95 - 113	110 - 130	10,8 - 12,7	M8	95 - 113	110 - 130	10,8 - 12,7
20	3/4	5/16 - 18 UNC	104 - 122	120 - 140	11,8 - 13,7	M8	104 - 122	120 - 140	11,8 - 13,7
25	1	5/16 - 18 UNC	113 -139	130 - 160	12,7 - 15,7	M8	113 -139	130 - 160	12,7 - 15,7
32	1 1/4	3/8 - 16 UNC	174 - 217	200 - 250	19,6 - 24,5	M10	174 - 217	200 - 250	19,6 - 24,5
40	1 1/2	7/16 - 14 UNC	286 - 312	330 - 360	32,3 - 35,3	M10	286 - 312	330 - 360	32,3 - 35,3
50	2	7/16 - 14 UNC	304 - 347	350 - 400	34,3 - 39,2	M12	304 - 347	350 - 400	34,3 - 39,2
65	2 1/2	M14	365 - 417	420 - 480	41,2 - 47,0	M14	365 - 417	420 - 480	41,2 - 47,0
80	3	M16	434 - 477	500 - 550	49,0 - 53,9	M16	434 - 477	500 - 550	49,0 - 53,9
100	4	M16	451 - 495	520 - 570	51,0 - 55,9	M16	451 - 495	520 - 570	51,0 - 55,9

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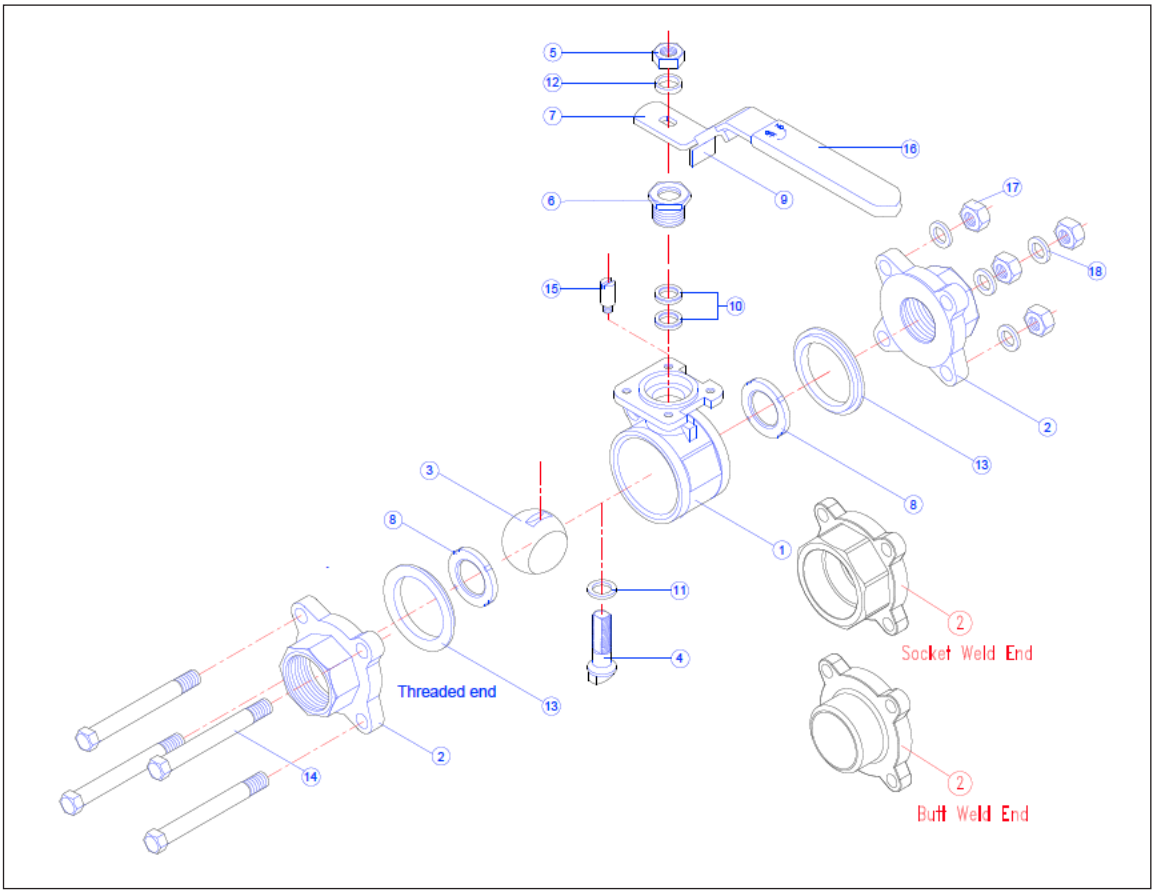
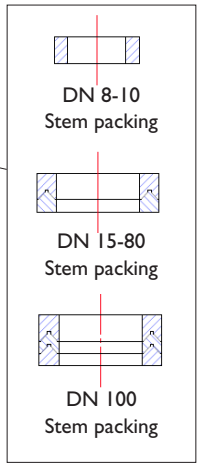


Material specification

No	Qty	Part	Material
1	1	Body	Stainless steel CF8M
2	2	End cap	Stainless steel CF8M
3	1	Ball	Stainless steel SS 316
4	1	Stem	Stainless steel SS 316
5	1	Stem nut	Stainless steel SS 304
6	1	Gland nut	Stainless steel SS 304
7	1	Handle	Stainless steel SS 304
8	2	Seat	PTFE
9	1	Locking device	Stainless steel SS 304
10	1 set	Stem packing	PTFE
11	1	Stem seal	RTFE
12	1	Stem washer	Stainless steel SS 304
13	2	Joing gasket	PTFE
14	*	Bolt	Stainless steel SS 304
15	1	Stop pin	Stainless steel SS 304
16	1	Handle sleeve	Vinyl
17	**	Bolt nut	Stainless steel SS 304
18	**	Bolt washer	Stainless steel SS 304

* DN 8-50 4 pcs, DN 65-80 4 pcs, DN 100 6 pcs
** DN 8-50 4 pcs, DN 65-80 8 pcs, DN 100 12 pcs

Each repair kit (Teflon set) includes following parts ;
1. Seat (No. 8) x 2pcs
2. Stem packing (No. 10) * Remark 1
3. Stem Seal (No.11) x 1pc
4. Joint Gasket (No. 13) x 2 pcs



It's necessary to take apart ball valve for maintenance under the following leaking situation:

1. Stem Leaking: Tighten Stem Nut according to Tighten Torque, see table. If stem is still leaking continuously, thus, it's necessary to take apart ball valve and change Stem Packing (No. 10).

2. Joint Gasket Leaking: Tighten bolt, bolt nut according to Tighten Torque (see table). If gasket is still leaking continuously, thus, it's necessary to take apart ball valve and change Joint Gasket (No. 13).

3. Seat Leaking: Check ball valve if in "Normally Closed" position first. If seat is still leaking continuously, thus, it's necessary to take apart ball valve and change Seat (No. 8).

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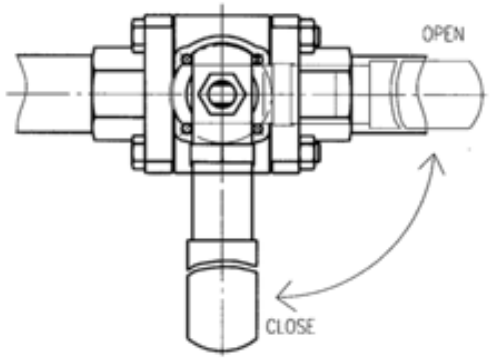
Stem nut Tightening Torque

DN	Nm
8	10,8 - 11,8
10	10,8 - 11,8
15	13,7 - 14,7
20	13,7 - 14,7
25	49,0 - 53,9
32	49,0 - 53,9
40	78,4 - 88,2
50	78,4 - 88,2
65	137,2 - 156,8
80	137,2 - 156,8
100	196,0 - 215,6

The Steps for Maintenance Instruction

1. While ball valve still in pipe line, it's necessary to relieve the line pressure first. Then make ball valve in "normally open" & "normally closed" once again, and let the remaining pressure inside body be out of pipe lines, in order to avoid any accidents to occur.
2. Loosen all Bolts (No. 14), Bolt Washer (No. 18), Bolt Nut (No. 17) on End Cap (No. 2).
3. While taking off body away from end caps, pay attention to seats & other parts which are "Not Falling Down".
4. Take out Seat (No. 8) and Joint Gasket (No. 13) from body.
5. Turn the handle in "closed" position, take out Ball (No. 3) from body and pay attention to "Not Falling Down" while taking the ball out. Put ball in clean and safe place in order to install back.
6. Loosen Handle Nut (No. 5), take off Stem Washer (No. 12) and Handle (No. 16), loosen Gland Nut (No. 6) and take off Stem Packing (No. 10).
7. All taken-out parts need to put in clean and safe place.
8. Push Stem (No. 4) downward and take off it.
9. Take off Stem Seal (No. 11).
10. To clean and check up the stem if any damage.
11. Put new stem seal on stem, then put into body.
12. Put new packing into body, then put gland nut back .
13. Refer to Stem Nut Tightening Torque (Table 1), tighten stem nut accordingly.
14. Put back handle and stem washer.
15. Then screw the handle nut.
16. Pay attention to the handle which must be in "closed" position, then put ball into body.
17. Change to use new joint gasket and seat, put seat into gasket and then install them together on body (on both sides).
18. Put body back between two end caps.
19. Put on bolt, bolt washer and screw bolt nut on bolt tightly by hands. Then make BV in "open" & "closed" position within 3~5 times (see below drawing), and finally put BV in "closed" position.



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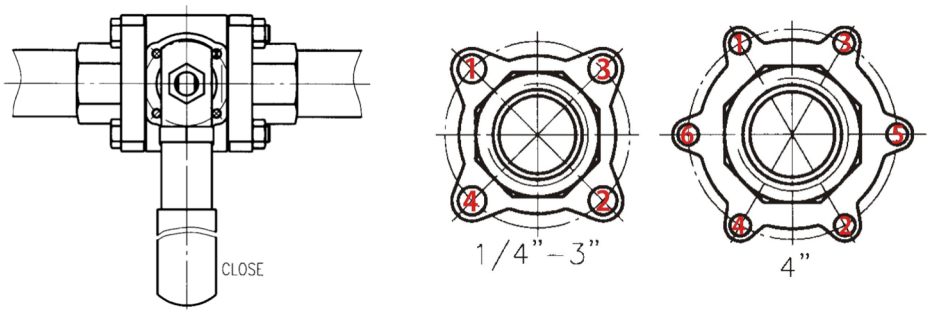
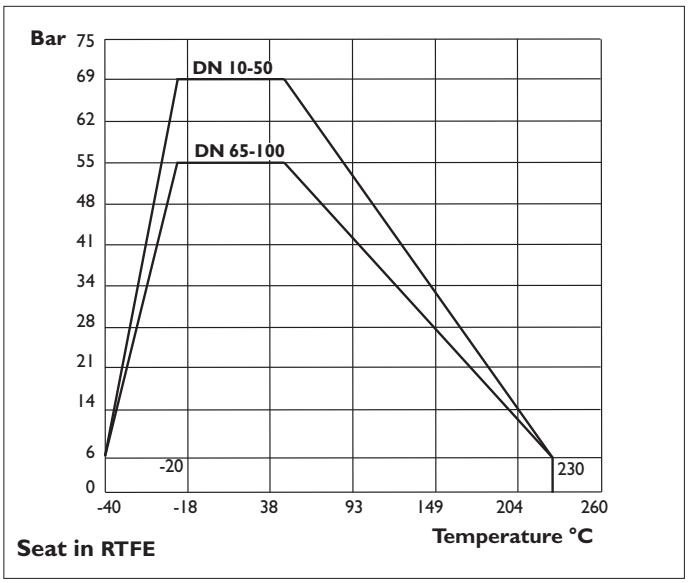
20. After make sure BV in "closed" position (see below left drawing). Refer to 1,2,3,4… orderly (see below right drawings), screw bolt nut on bolt tightly according to Body Bolt Tightening Torque (Table 2).



21. After finish assembling, check the ball valve if could open & close smoothly and then do a piping test.

Pressure / Temperature



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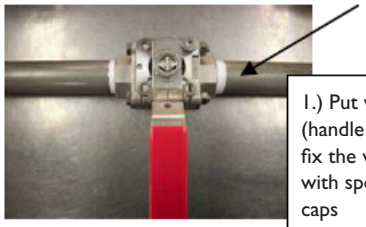
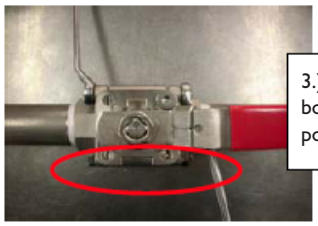
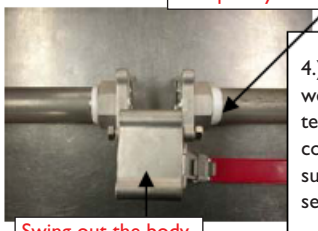


1.) Put valve in close position first (handle and pipe are in vertical position), fix the valve on the pipe temporarily with spot welding on four points of end caps

2.) Then, turn the valve in open position (handle and pipe are in parallel position)



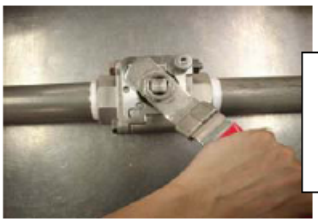
3.) Use a tool to take off three bolts, and keep one bolt in loose position.



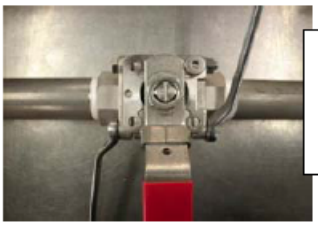
4.) Swing body outside of pipe, and weld the ends on pipe completely, pay attention and keep off the contact of end joint and seats during such process, in order to avoid the seals being burned and damaged.

5.) After cooling, clean the surface of whole ends and body. And swing body back to original position, then put back bolts and nuts to original position as well.

6.) Adjust body and ends by hand, and make sure they're in alignment. Use a tool to screw bolts and nuts together, and avoid the displacement to occur between body and ends.



7.) Open and close valve within 3~5 times repeatedly, and finally put valve in close position.



8.) Use tools to screw bolts and nuts together tightly (in diagonal line) according to standard torque.

9.) After assembling, check if the valve can open or close smoothly ? Then, do a piping test.

Remark

• Do not connect the system before valve pipeline installation to the earthing connection has been tested, examined and approved by the customer.

• There shall be no existence of the explosive atmosphere inside the pipeline.

• Other limitations, pls. refer to Statement issued by TÜV Rheinland, Report No. 16804569, Clause 5.

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