

# MANUAL

## Ball valve AL 35-88

### 1. USE

1.1 Maximum results and long life of the valves can be maintained under normal working conditions and according with pressure/temperature rating and corrosion data chart.

### 2. MANUAL OPERATION

2.1 The opening and closing of the valve is done by turning the lever a ¼" turn (90 degrees).

A. Valve in Open Position – the lever is in line with the valve or pipeline.

B. Valve in Closed Position – the lever is at right angle with the valve or pipeline.

### 3. DISASSEMBLY & CLEANING PROCEDURE

Caution: Ball valves can trap fluids in the ball cavity when closed.

3.1 If the valve has been used to control hazardous fluids, it must be decontaminated before disassembly. It is recommended that the following steps are taken for safe removal and reassembly.

Relief the line pressure. Place valve in half-open position and flush the line to remove any hazardous material from the valve. All persons involved in the removal and disassembly of the valve should wear the proper protective clothing, such as face shield, gloves, etc.

Maintenance of parts is easy, even if the valve is installed in the line: By removing all the body bolts except one and loosening the remain one, valve body can be swung out. Seats, gaskets and ball can be replaced without disturbing pipe alignment. On threaded lines, valve can be screwed on without the use of unions, as the three-piece construction makes valve ends free, by removing the bolts.

### 4. GENERAL INFORMATION FOR INSTALLATION

4.1 The valve can be installed in any position on the pipeline.

4.2 Before installation of the valves, the pipe must be flushed clean of dirt, burrs and welding residues, or the seats and ball surface will be damaged.

4.3 The pipe must be free from tension.

### 5. 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 backwelded on site. These valves must be treated as per instructions for weld end valves before backwelding.

### 6. INSTALLATION OF WELD-END VALVES

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

6.2 With the valve in the open position, (lever to be parallel to the axis of the pipe), remove all the body bolts except one. Loosen the nut on the remaining bolt. Swing the body outside the pipe.

6.3 Finish welding both end caps on the pipe.

6.4 When cooled down, clean both end caps and body surface.

6.5 Swing the body back in position and replace the bolts. Tighten all nuts slightly. This operation is very important, to keep body and end caps perfectly parallel, thus preventing distortion of the end caps.

6.6 Tighten body bolts evenly. Make sure that maximum tightening torque is observed.

6.7 Check proper operation of the valve.

### 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.

Valve size	Breakaway Torque Nm		Cv	
	Full bore	Reduced bore	Full bore	Reduced bore
1/4"	5	-	8	-
3/8"	5	-	8	-
1/2"	5	5	12	8
3/4"	8	5	32	12
1"	10	8	56	32
1 1/4"	21	10	82	56
1 1/2"	26	21	120	82
2"	38	26	240	120
2 1/2"	42	38	315	240
3"	62	42	580	315
4"	72	62	810	810

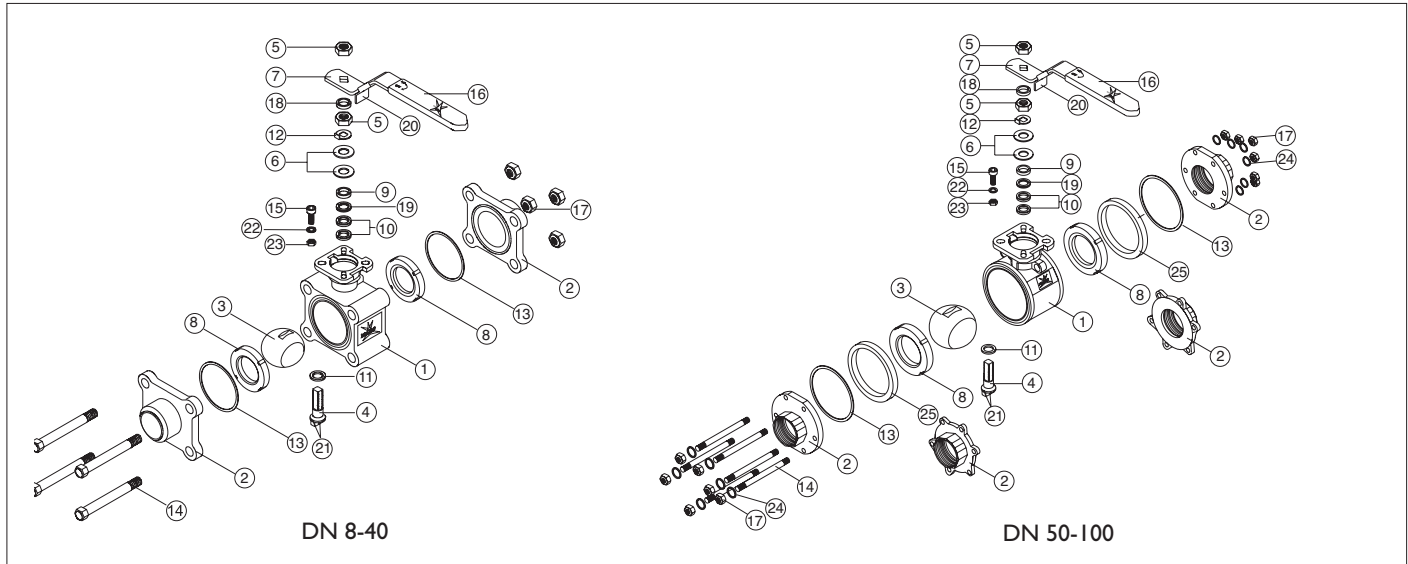
### TORQUE OF BODY BOLT

Valve size	Torque of body bolt Nm
1/4"	10 - 11
3/8"	10 - 11
1/2"	11 - 15
3/4"	14 - 18
1"	19 - 23
1 1/4"	22 - 25
1 1/2"	37 - 41
2"	41 - 45
2 1/2"	46 - 49
3"	48 - 54
4"	54 - 57

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### Material specification



Pos	Part	Material	Qty
1	Body	Stainless steel CF8M	1
2	End cap	Thread: Stainless steel CF8M. Weld: CF3M	2
3	Ball	Stainless steel SS 316	1
4	Stem	Stainless steel SS 316	1
5	Locking nut	Stainless steel SS 304	2
6	Belleville washer	Stainless steel SS 301	2
7	Handle	Stainless steel SS 304	1
8	Seat	TFM1600 (modified PTFE)	2
9	Gland bush	Stainless steel SS 304	1
10	Gland packing	PTFE	DN 8-50: 2 pcs. DN 65-100: 3 pcs.
11	Stem seal	RPTFE	1
12	Lock saddle	Stainless steel SS 304	1
13	Joint gasket	PTFE	2
14	Bolt	Stainless steel SS 304	DN 8-40: 4 pcs. DN 50-100: 6 pcs
15	Stop pin	Stainless steel SS 304	1
16	Handle sleeve	Vinyl	1
17	Bolt nut	Stainless steel SS 304	DN 8-40: 4 pcs. DN 50-100: 6 pcs
18	Stem washer	Stainless steel SS 304	1
19	Gland packing	RPTFE	1
20	Locking device	Stainless steel SS 304	1
21	Anti-static device	Stainless steel SS 316	DN 8-50: 1 pcs. DN 65-100: 2 pcs.
22	Washer	Stainless steel SS 304	1
23	Pin nut	Stainless steel SS 304	1
24	Washer	Stainless steel SS 304	12
25	Seat ring (DN 65-100 only)	CF8M	2
26	O-ring	Viton	1

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