

Carbon Steel / Stainless Steel Ball Valve Series 76a ANSI - Version

Application:

Tight-closing ball valve, especially with high process demand in chemical plants:

- nominal diameters DN 1/2" to 12",
- nominal pressures ANSI 150 and 300 lbs,
- temperatures -10°C to 200°C.

Ball valve series 76a is also available in DN 15 up to DN 300 acc. to DIN. Details on request.

The control equipment consists of a ball valve and a pneumatic quarter-turn actuator or a hand-lever. The valves, which are of modular construction have the following features:

- valve body made of stainless steel or cast iron,
- ball and shaft made of stainless steel,
- exchangeable bore seal in PTFE,
- stem sealing by means of a cup spring live-loaded packing,
- blowout-proof stem,
- fire-safe version acc. to British Standard BS 6755 Part 2,
- face to face serie 1 acc. to ANSI B16.10,
- connecting flange for actuators acc. to DIN ISO 5211.

Versions:

Ball valve Series 76a alternatively in the following designs:

- ball valve with hand-lever,
- ball valve with gear-box
- ball valve with pneumatic quarter-turn actuator, (for details see respective data sheet).

Special designs:

- body and further components in special material
- double stuffing box with leakage detecting connection,
- double bearing assembly
- heating jacket
- flange groove according to DIN 2512,
- control ball valve due to characteristic seating
- metallic seating
- high temperature version

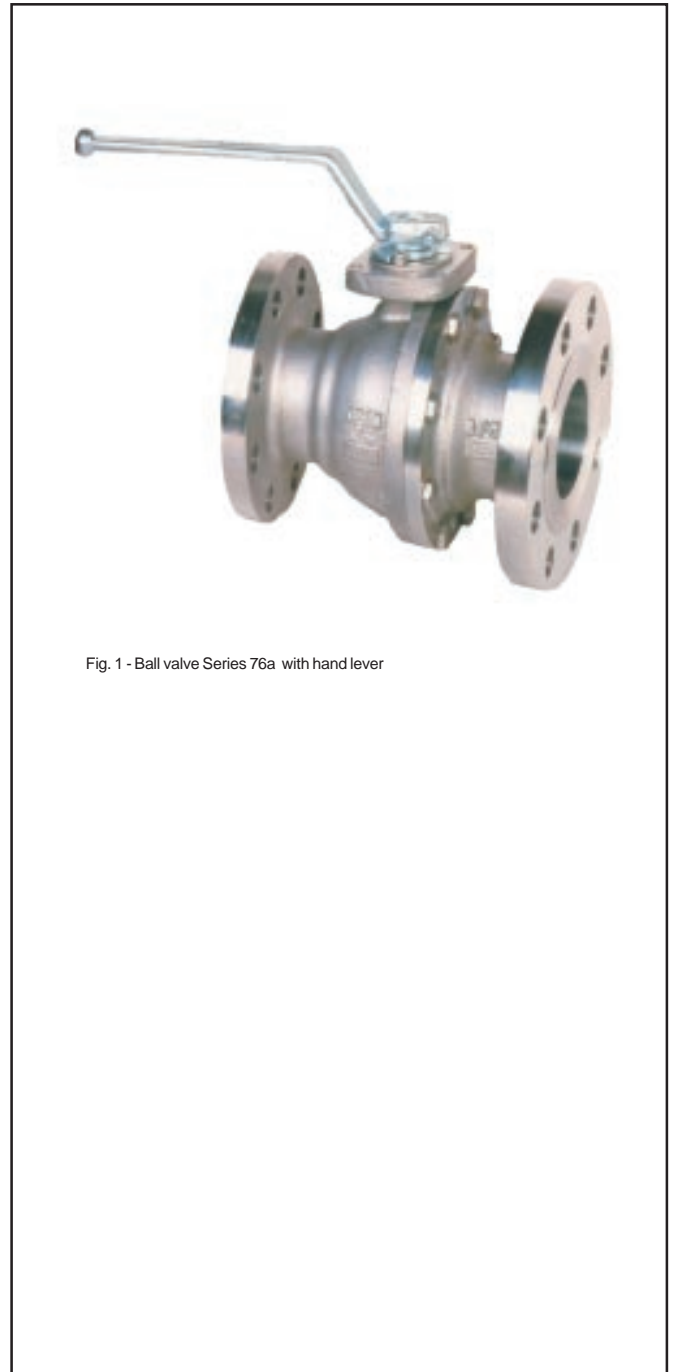


Fig. 1 - Ball valve Series 76a with hand lever

Ball valve Series 76a

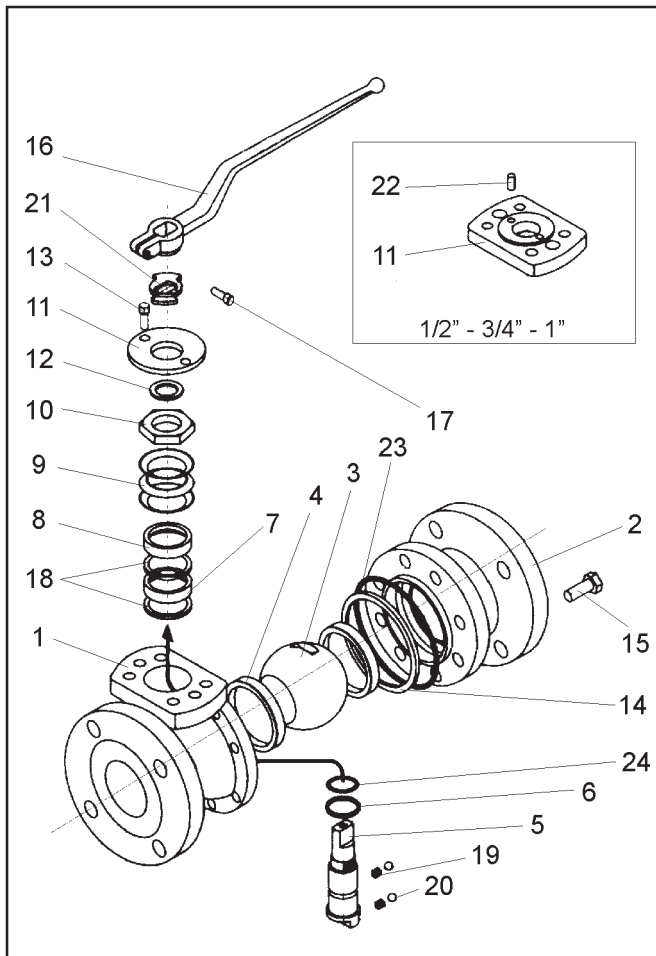


Fig. 2 - Ball valve explosion drawing

Pos.	Description	Pos.	Description
1	Main body	13	Screw
2	Body	14	Body seal
3	Ball	15	Screw
4	Set of sealing rings	16	Hand lever
5	Control shaft	17	Screw
6	Thrust washer	18	Bearing ring
7	Packing ring	19	Spring washer
8	Thrust washer	20	Ball
9	Spring washer	21	Stop plate
10	Nut	22	Stop pin
11	Cover	23	Body seal
12	Cover ring	24	O-ring

Table 1 - Parts list

Additional equipment and add-on pieces:

For the control valves, the following accessories are available either individually or in combination:

- extension to stem,
 - pneumatic and electric quarter-turn actuators
 - positioner (with optional control ball valve),
 - limit switches,
 - solenoid valves
 - filter regulator,
- further accessories are available on request for customer specifications

Principle of operation:

The ball valves of the series 76a permit full flow through the valve in either direction.

The ball (3) with its cylindrical passage rotates around the middle axis. The opening angle of the ball determines the flow through the free area between the body (1) and passage.

The stem is externally equipped with a hand lever. Optionally a pneumatic actuator or gear operator can be fitted.

The sealing of the ball (3) is provided by exchangeable seat rings (4). The ball stem is sealed by a PTFE-packing. The live-loading is carried out by cup springs (9) positioned above the packing.



Note: Before using the ball valve in hazardous areas, check whether this is possible according to ATEX 94/9/EC. See Operating Instructions.



Fail-safe position: Depending on how the pneumatic actuator is mounted to the valve, the ball valve has two fail-safe positions which become effective when the air pressure in the actuator is relieved or when the supply air fails:

- **Ball valve with actuator “Spring closes”:**
Upon air failure, the ball valve is closed. The valve opens when the signal pressure increases, acting against the force of the springs.
- **Ball valve with actuator “Spring opens”:**
Upon air failure, the ball valve is opened. The valve closes when the signal pressure increases, acting against the force of the springs.

General technical data:

Nominal diameter	1/2" to 12"
Nominal pressure	ANSI 150 / 300 lbs
Temperature range	-10°C to 200°C
Ball sealing	PTFE
Leakage rate	Leakage rate acc. BS 6755 part 1
Flanges	ANSI Class 150 and 300
Stuffing box packing	live loaded PTFE - V-ring packing

Table 2 - technical data

Materials:

	Steel version	Precious steel version
Main body	A 216 WCC	A 351 CF8M
Body	A 216 WCC	A 351 CF8M
Ball	A 351 CF8M	
Control shaft	AISI 316	
Seat rings	PTFE	
Spring washer	AISI 301	
Thrust ring	AISI 316	
Bearing ring	PTFE with carbon	
Packing ring	Graphit	
Body seal	Graphit	

Table 3 - Materials (WN = Material Number acc. to DIN)

Advantages of the cup spring live-loaded sealing system:

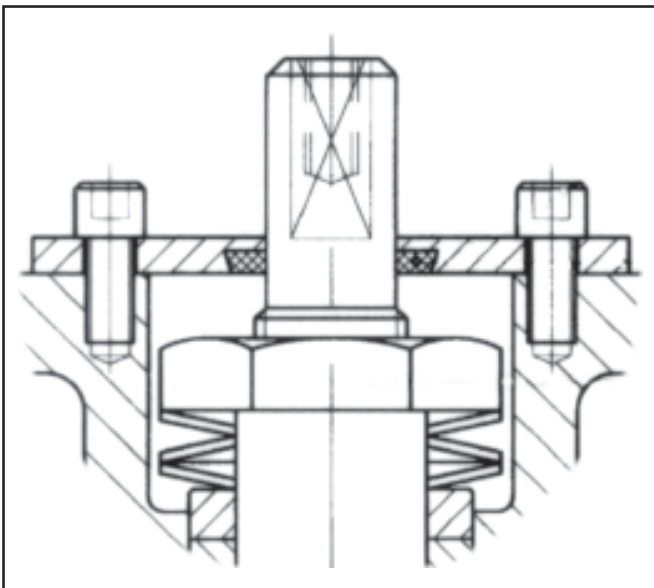


Fig. 3 – Cup spring live-loaded packing

- maintenance-free and self-adjustable,
- highest level of tightness, even under extreme pressure and temperature fluctuations,
- longer service life,
- **all in all: extremely economic!**

Pressure-Temperature diagram:

The area of application is determined by the pressure-temperature diagram. Process data and the process medium can affect the values in the diagram.

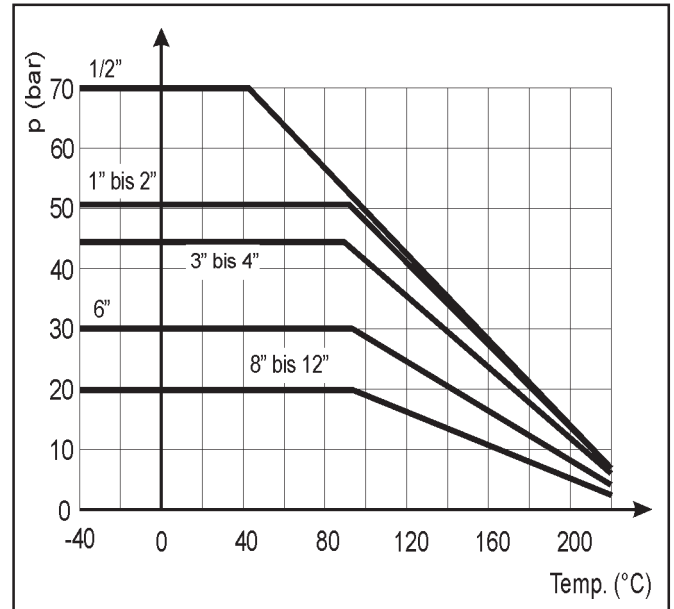


Fig. 4 - Pressure-Temperature diagram

Torque and breakaway torques:

DN	1/2"	3/4"	1"	1 1/2"	2"	2 1/2"
ANSI 150	9	11	16	32	48	62
ANSI 300	14	16	19	42	70	90

DN	3"	4"	6"	8"	10"	12"
ANSI 150	103	145	400	720	1100	1650
ANSI 300	150	216	525	1200	1600	1800

Table 4 - Breakaway torque Mdl

The breakaway torques specified are average values which were measured with air at 20°C with the corresponding differential pressures. Operating temperature, process medium and long operating times may affect the permissible torques and breakaway torques considerably.

kv - value:

DN	1/2"	3/4"	1"	1 1/2"	2"	2 1/2"
Kv	20	44	88	200	310	480

DN	3"	4"	6"	8"	10"	12"
Kv	960	1700	4100	8400	13000	20300

Table 5 - kv-value

Dimensions and weights:

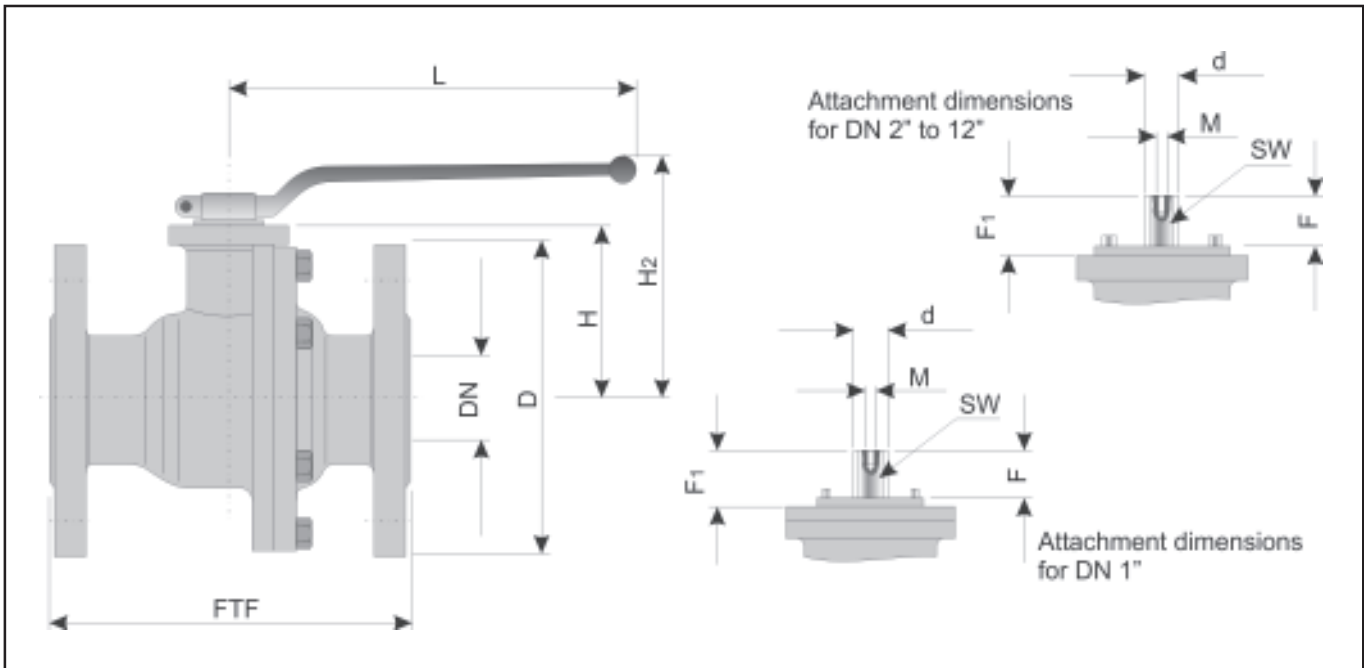


Fig. 5 - Dimensional drawing

DN	1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	
ANSI 150 lbs	FTF	108	117	127	165	178	190	203	229	394	457	533	610
	ØD	89	99	108	127	152	178	191	229	279	343	406	483
	weight	2,5	3,3	4,2	7,4	10,6	17	22	32	81	115	240	325
ANSI 300 lbs	FTF	140	152	165	191	216	-	283	305	403	502	568	648
	ØD	95	118	124	156	165	-	210	254	318	381	445	521
	weight	3	4,5	5	10,5	12,5	-	27	44	100	172	284	400
H	52	54	60	75	84	96	114	128	175	245	285	336	
H ₂	103	105	111	129	138	150	187	201	268	338	-	-	
L	185	185	185	300	300	300	355	355	680	750	-	-	
Ød	12	12	16	20	20	20	25	25	34	42	42	42	
F	13	13	19	22	22	22	24	24	35	40	40	40	
F ₁	16	16	22	25	25	25	27	27	38	43	43	43	
M	M4	M4	M4	M6	M6	M6	M8	M8	M8	M8	M8	M8	
SW	8	8	10	14	14	14	19	19	26	32	32	32	
DIN ISO Connection	F05	F05	F05	F07	F07	F07	F10	F10	F12	F14	F14	F14	

Table 6 - Dimensions in mm and weights in kg

Selection and sizing of the ball valve:

1. Calculation of the required nominal diameter
2. Selection of the valve in accordance with table 2, table 3 and the Pressure-Temperature-diagram
3. Selection of the appropriate actuator
4. Additional equipment

Ordering text:

Ball valve Series 76a,
 DN / PN , optional special version
 Manual gear actuator
 or actuator (brand name):
 Supply pressure: bar
 fail-safe position:
 Limit switch (brand name):
 Solenoid valve (brand name):
 Positioner:
 Others:

For your special requirements please contact our technical sales department.

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Values subject to change