

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

Application:

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

- nominal diameters DN 15 to DN 300,
- nominal pressures PN 10 up to PN 40,
- temperatures -10°C to 200°C.

Ball valve series 76a is also available in 1/2" up to 12" acc. to ANSI 150 and 300 lbs. 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 acc. to DIN 558-1,
- 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

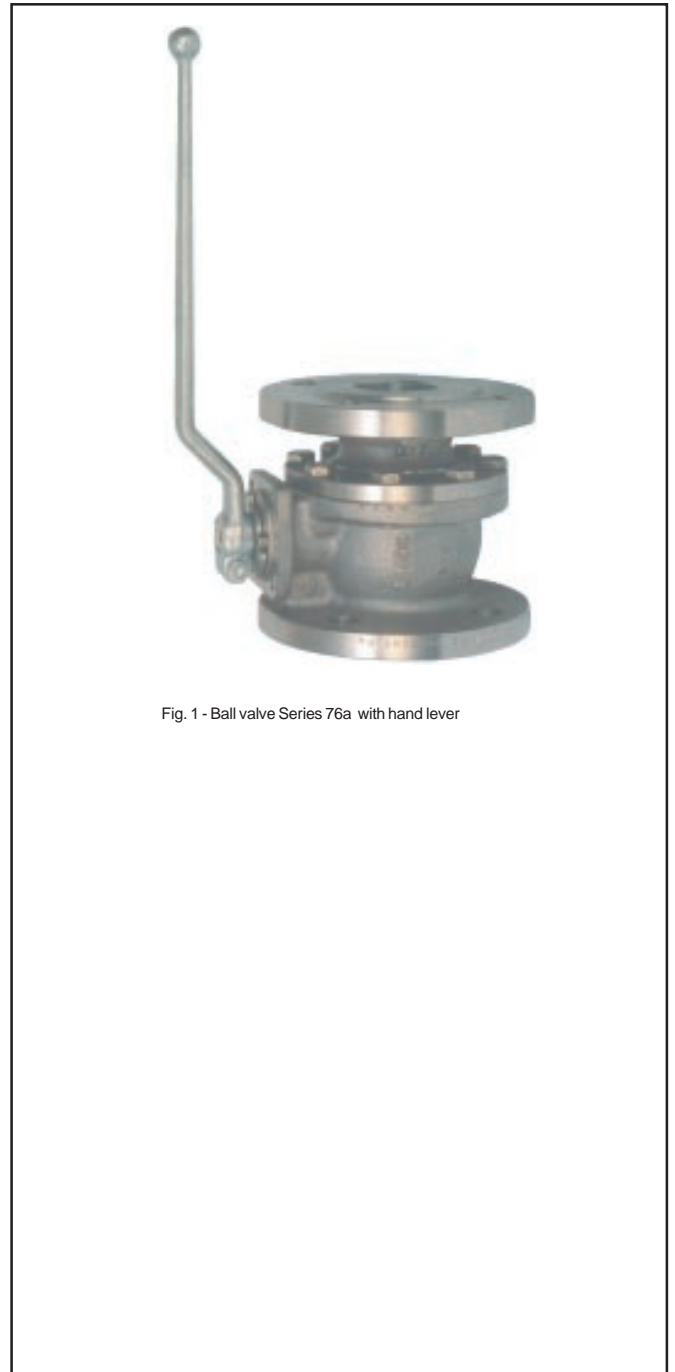


Fig. 1 - Ball valve Series 76a with hand lever

Ball valve Series 76a

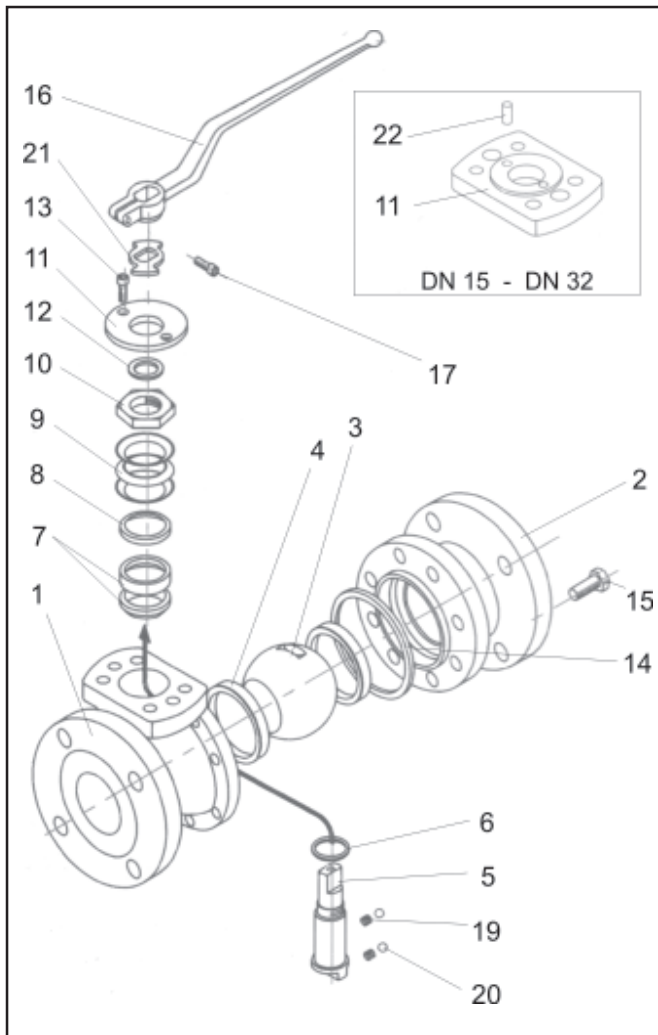


Fig. 2 - Ball valve explosion drawing

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

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	DN 15 to DN 300
Nominal pressure	PN 10 to PN 40
Temperature range	-10°C to 200°C
Ball sealing	PTFE
Leakage rate	Leakage rate A acc. to DIN EN 12266-1, test P12 (Leakage rate 1 BO acc to DIN 3230 Part 3)
Flanges	acc. to DIN EN 1092-1 (DIN 2526)
Packing	live loaded PTFE - V-ring packing

Table 2 - technical data

Materials:

	Cast iron version	Steel version	Precious steel version
Main body	GG 25	WN 1.0619	WN 1.4408
Body	GG 25	WN 1.0619	WN 1.4408
Ball	WN 1.4027	WN 1.4408	
Control shaft	WN 1.4021	WN 1.4401	
Seat rings	PTFE		
Spring washer	WN 1.4310		
Thrust ring	WN 1.4021	WN 1.4401	
Packing ring	PTFE		
Body seal	PTFE		

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

Advantages of the cup spring live-loaded sealing system:

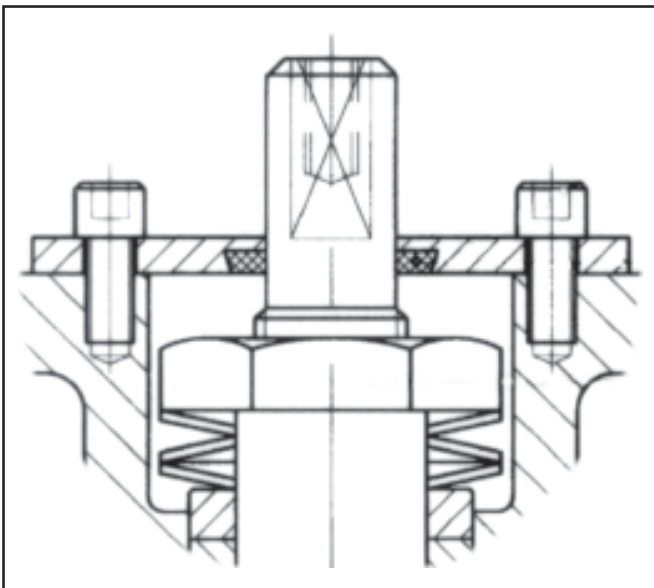


Fig. 3 – Cup spring live-loaded packing

- 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.

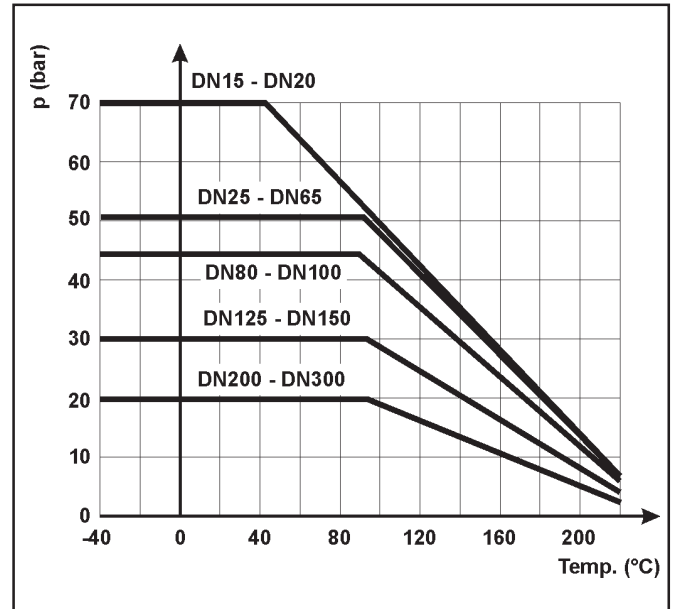


Fig. 4 - Pressure-Temperature diagram

Torque and breakaway torques:

DN	15	20	25	32	40	50	65
Mdl in Nm	8	10	14	23	31	46	55

DN	80	100	125	150	200	250	300
Mdl in Nm	85	110	240	380	540	950	1200

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	15	20	25	32	40	50	65
Kv	18	38	60	105	170	255	480

DN	80	100	125	150	200	250	300
Kv	910	1500	2450	3900	8400	13800	20300

Table 5 - kv-value

Dimensions and weights:

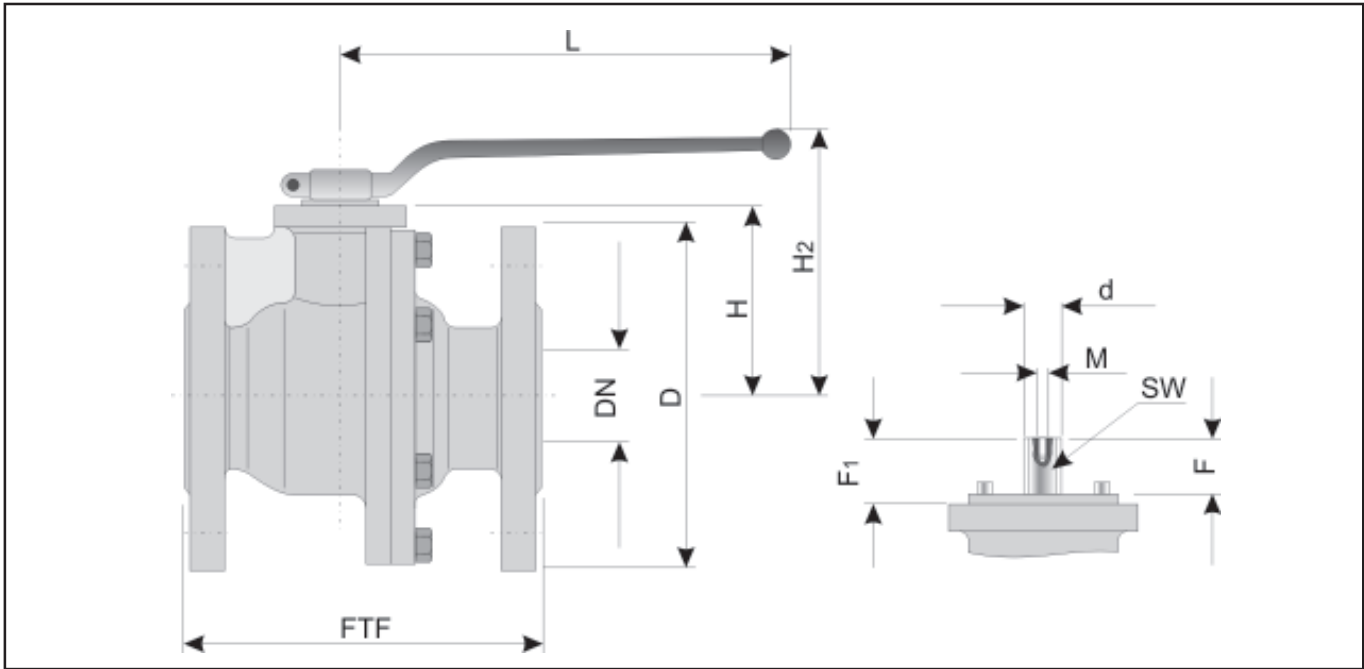


Fig. 5 - Dimensional drawing

DN	15	20	25	32	40	50	65	80	100	125	150	200	250	300	
FTF	serie 1	130	150	160	180	200	230	290	310	350					
	serie 14	115	120	125	130	140	150	170	180	190					
	serie 15										325	350	400	450	500
ØD	PN 16	95	105	115	140	150	165	185	200	220	250	285	340	405	460
	PN 40	95	105	115	140	150	165	185	200	235	270	300	375	450	515
H	52	54	60	65	75	83	96	114	128	158	175	245	285	336	
H ₂	100	102	110	115	129	137	150	187	201	247	264	334	-	-	
L	185	185	185	185	293	293	293	350	350	680	680	750	-	-	
Ød	12	12	16	16	20	20	20	25	25	34	34	42	42	42	
F	13	13	19	19	22	22	22	24	24	35	35	40	40	40	
F ₁	16	16	22	22	25	25	25	27	27	38	38	43	43	43	
M	M4	M4	M4	M4	M6	M6	M6	M8	M8	M8	M8	M8	M8	M8	
SW	8	8	10	10	14	14	14	19	19	26	26	32	32	32	
DIN ISO	F05	F05	F05	F05	F07	F07	F07	F10	F10	F12	F12	F14	F14	F14	
Weight	serie 1	3	4	5	7	9	12	19	26	33					
	serie 14	3	3	4	6	8	11	15	20	29					
	serie 15										58	75	137	220	290

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