Pfeiffer
Chemie-Armaturenbau GmbH

Multi-port ball valves in horizontal and vertical versions Series 26l, 26t, 26v, 26x

Application:

Tight-closing multi-port ball valve made of stainless steel for aggressive media, especially with high process demand in chemical plants:

- Nominal sizes DN 15 to DN 200 and 1/2" to 8"
- Nominal pressure PN 16 to 40 and ANSI Cl.150 and Cl.300
- Temperatures –10 °C to 200 °C (14°F to 392°F)

The control valve consists of a multi-port ball valve and a pneumatic part-turn actuator, manual gear or manually operated lever.
The control valves, which are designed in the modular construction, have the following features:

- **Body versions**
  - Horizontal 3-way version with L-port **Series 26l**
  - Horizontal 3-way version with T-port **Series 26t**
  - Vertical 3- way version with L-port **Series 26v**
  - Horizontal 4-way version **Series 26x**

- **Special features of Series 26l and Series 26t**
  - Horizontal version with horizontal third outlet
  - DN 100 and larger with trunnion-mounted ball
  - 90° or 180° operation

- **Special features of Series 26v**
  - Vertical version with vertical third outlet
  - 180° operation

- **Special features of Series 26x**
  - Horizontal version with horizontal third and fourth outlets
  - DN 100 and larger with trunnion-mounted ball
  - 90° operation

- **Further features**
  - Exchangeable port seal made of TFM
  - Shaft sealing by means of live-loaded V-ring packing
  - Blowout-proof shaft
  - Connecting flange for actuators acc. to DIN ISO 5211
  - Face-to-face dimensions, Series 1 acc. to EN 558-1 (F1 acc. to DIN 3202)
  - ISO port, light-duty series

Fig. 1 - Horizontal Series 26l / t 3-way Ball Valve with Series 31a AT Part-turn Actuator

Fig. 2 - Vertical Series 26v 3-way Ball Valve with Series 31a AT Part-turn Actuator

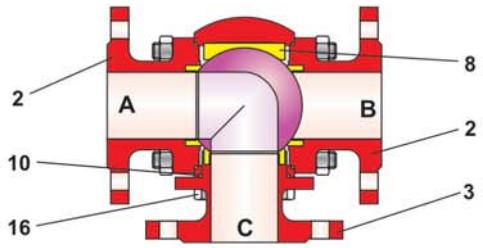


Fig. 3 - **Series 26l**
Horizontal 3-way ball valve with L-port

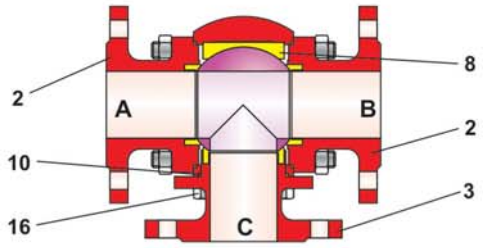


Fig. 4 - **Series 26t**
Horizontal 3-way ball valve with T-port

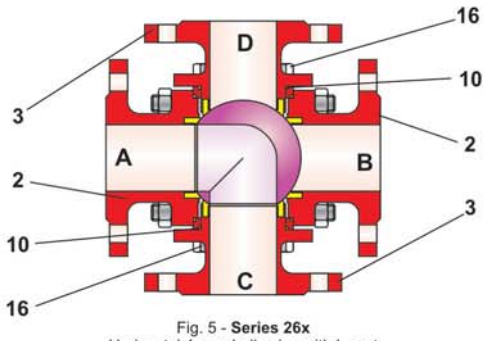


Fig. 5 - **Series 26x**
Horizontal 4-way ball valve with L-port

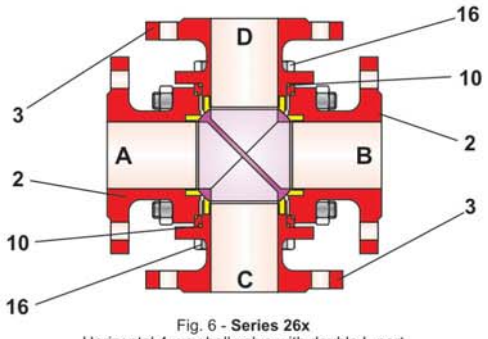
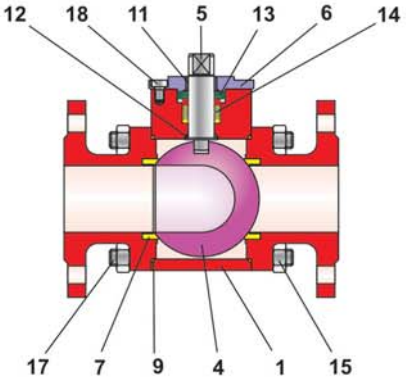


Fig. 6 - **Series 26x**
Horizontal 4-way ball valve with double L-port



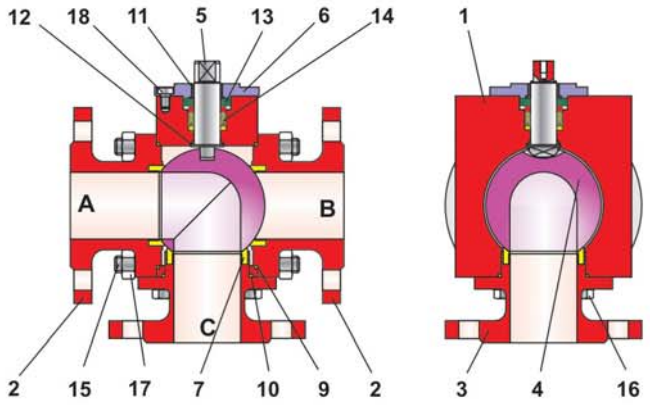


Fig. 7 - **Series 26v** Vertical 3-way ball valve with L-port

Item	Description
1	Main body
2	Body flange
3	Outlet flange
4	Ball
5	Control shaft
6	Stuffing box flange
7	Set of seat rings
8	Counter bearing
9	Body gasket
10	Body gasket
11	Bearing bushing
12	Bearing bushing
13	Set of spring washers
14	V-ring packing
15	Stud bolt / Hex bolt
16	Stud bolt / Hex bolt
17	Hex nut
18	Fillister head screw

Table 1 - List of parts

Tabelle 5 - Maße in mm und Gewichte in kg

Version:

Multi-port ball valve optionally in the following versions:

- Multi-port ball valve with lever
- Multi-port ball valve with manual gear
- Multi-port ball valve with pneumatic
  - **90°** part-turn actuator (**Series 26l, 26t** and **26x**)
  - **180°** part-turn actuator, also centered (**Series 26v**)

  (refer to the corresponding data sheet for more details)

Special versions:

- 5/4-way ball valve (DN 25 and larger)
- Special flow pattern
- Special flange version
- Dead spaces minimized
- Sterile connection
- Heating jacket
- Rinsing connections
- Low and high-temperature versions
- Special seat rings

Additional equipment and accessories:

The following accessories are available either individually or in combination for the ball valves:

- Shaft extension (100 mm or longer)
- Pneumatic and electric part-turn actuators
- Positioners
- Limit switches
- Solenoid valves
- Air pressure reducing stations with filters

Further accessories are available on request for customer specifications.

Advantages of the live-loaded sealing system:

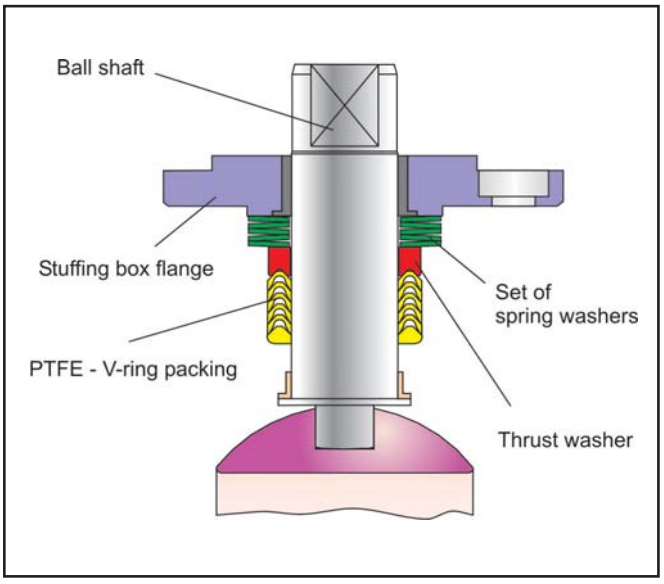


Fig. 8 – Live-loaded V-ring packing

- Maintenance-free and self-adjusting
- Highest level of sealing, even under extreme pressure and temperature fluctuations
- Longer service life
- Reduced increase in torque at rising temperatures, therefore requiring smaller actuators for automation
- Sealing to atmosphere acc. to TA-Luft 2002

- **All in all: extremely economic!**

Optional materials:

- Special austenic steel
- Duplex steels
- Hastelloy
- Titanium
- Other alloys on request

Principle of operation:

The process medium can flow through the full port in the multi-port ball valves of the **Series 26l**, **Series 26t**, **Series 26v** and **Series 26x**.

The ball (4) rotates around the shaft (5).

The rotary angle of the ball determines the flow rate across the free area between the main body (1), body flange (2) and the outlet flange (3).

Possible flow pattern configurations are described on the next page.

The ball (4) is sealed by of exchangeable seat rings (7).

The ball shaft (5) is fitted with a lever. Optionally, a pneumatic actuator or a manual gear can be fitted.

The ball shaft is sealed by a PTFE V-ring packing (13) which is live-loaded by Belleville spring washers (12) located 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 <**BA 26l**>.

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.
The position of the ball is to be determined accordingly.

Flow patterns:

By using different ball port configurations, horizontal and vertical flow paths are achievable by the various flow patterns.

Special flow patterns are also possible.

- **Flow patterns for Series 26l 3-way Ball Valve:**

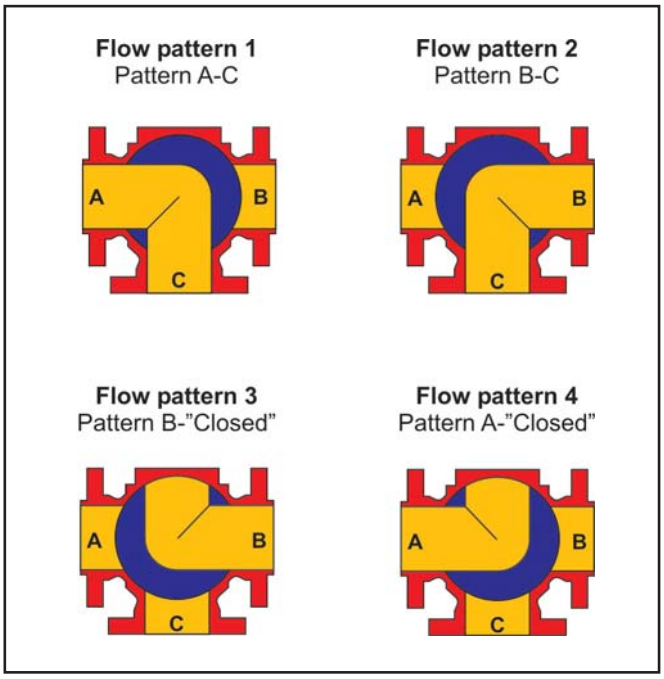


Fig. 9 – Schematics of the port configurations

- **Flow patterns for Series 26t 3-way Ball Valve:**

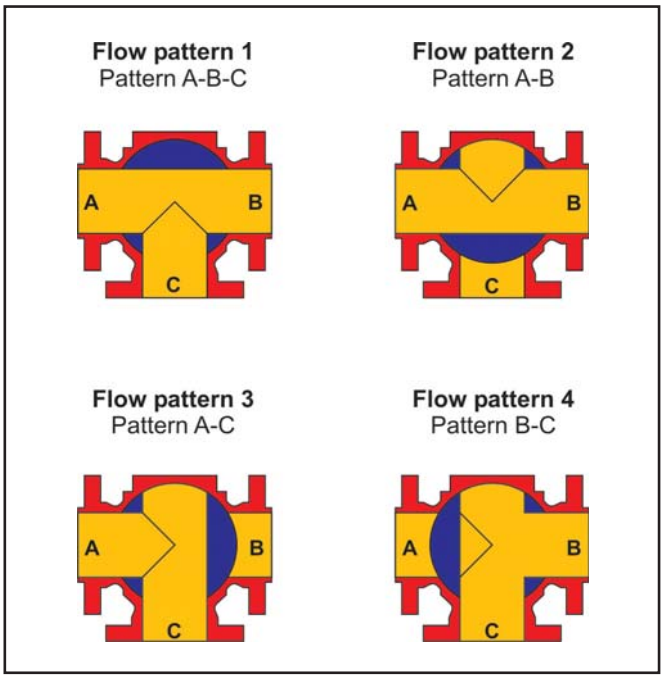


Fig. 10 - Schematics of the port configurations

- **Flow patterns for Series 26v 3-way Ball Valve:**

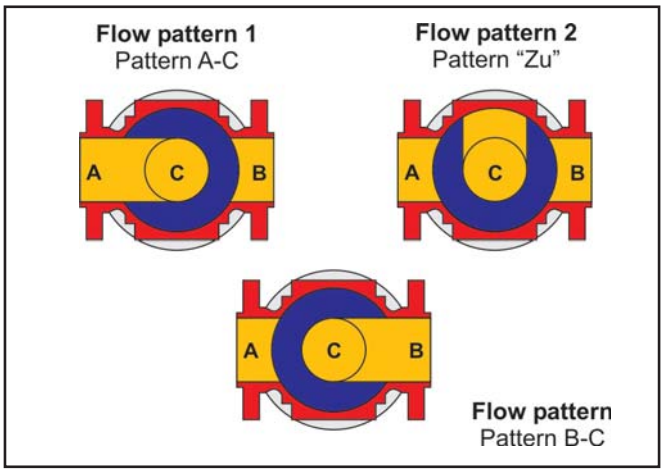


Fig. 11 - Schematics of the port configurations

- **Flow patterns for Series 26x 4-way Ball Valve with L-port:**

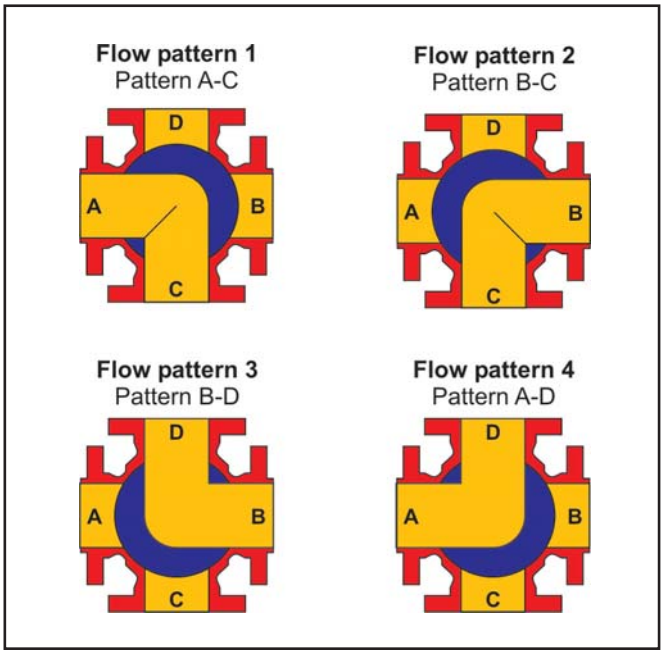


Fig. 12 - Schematics of the port configurations

- **Flow patterns for Series 26x 4-way Ball Valve with double L-port:**

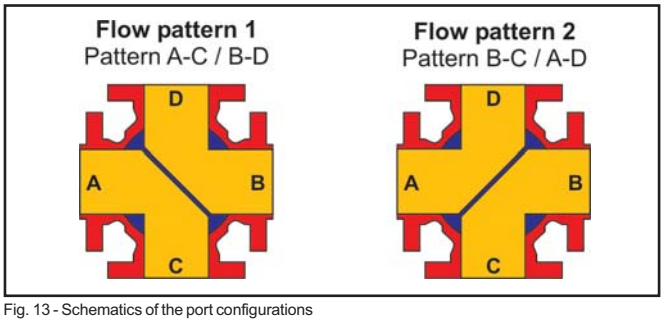


Fig. 13 - Schematics of the port configurations

General technical data:

Nominal size	DN 15 to DN 200 as well as 1/2" to 8"
Nominal pressure	PN 16 to 40 as well as ANSI CL.150 and CL.300
Temperature range	-10°C to 200°C (14°F to 392°F)
Leakage rate	Leakage rate A acc. to DIN EN 12266-1, Test P12 (Leakage rate 1 BO acc. DIN 3230 Part 3)
Flange	DIN EN 1092-1 und ANSI B16.5
Face to face	DIN EN 558-1, Series 1 (DIN 3202, F1)
Permissible working pressure	see Pressure-Temperature diagram
Stuffing box packing	PTFE V-ring packing loaded by Belleville washers

Table 2 – Technical data

Materials:

Main body	1.4408 / 1.4571
Body flange	1.4408 / 1.4571
Outlet flange	1.4408 / 1.4571
Ball	1.4408 / 1.4571
Control shaft	1.4462
Seat rings	TFM
Counter bearing	PTFE
Body sealing	PTFE
Stuffing box packing	PTFE V-ring packing loaded by Belleville washers (1.8159, Delta Tone)
lower Bearing bushing	PTFE with 25% glass
upper Bearing bushing	PTFE with 25% carbon

Table 3 - Materials

Torque and breakaway torques:

Differential pressure Δp in bar			0	10	16	25	40
DN	Inch	$Md_{max.}$ in Nm	Breakaway torque Md_{l} in Nm				
15	1/2"	81	12	16	18	22	28
25	1"	338	20	28	34	42	56
40	11/2"	645	40	64	78	100	136
50	2"	645	50	86	110	142	200
80	3"	998	140	236	292	380	524
100	4"	998	220	370	460	594	766
150	6"	4201	460	796	996	1300	1800
200	8"	4201	460	796	996	1300	1800

Table 4 - Torques

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

Note: The torque can double or increase even more for versions free of oil and grease or when used with abrasive media.

Dimensions and weights:

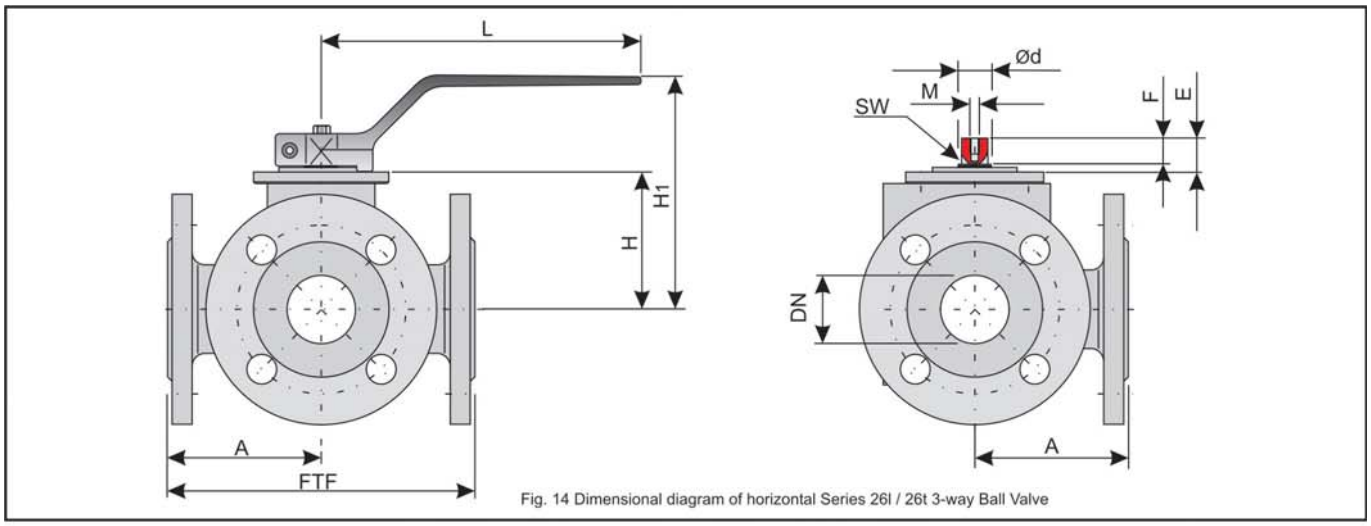


Fig. 14 Dimensional diagram of horizontal Series 26l / 26t 3-way Ball Valve

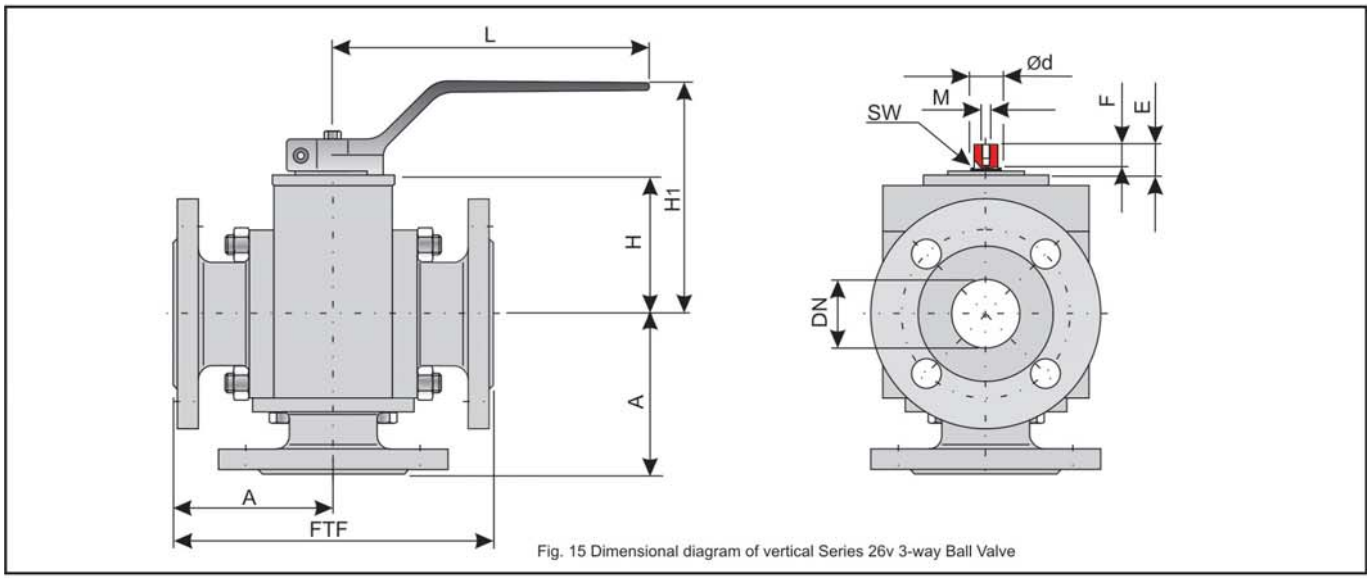


Fig. 15 Dimensional diagram of vertical Series 26v 3-way Ball Valve

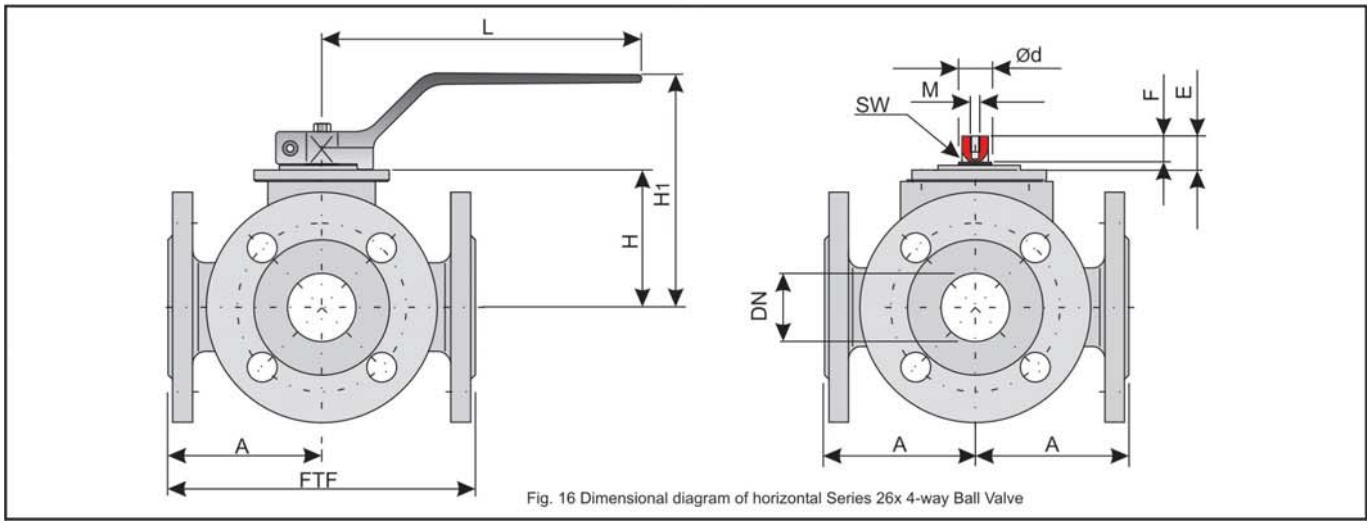


Fig. 16 Dimensional diagram of horizontal Series 26x 4-way Ball Valve

DN		15 / 1/2"	25 / 1"	40 / 1 1/2"	50 / 2"	80 / 3"	100 / 4"	150 / 6"	200 / 8" [1]
FTF	PN 16	-	-	-	-	-	350	480	600
	PN 40	130	160	200	230	310	350	480	600
	ANSI CL. 150	165	216	241	292	356	432	539	660
	ANSI CL. 300								
A	PN 16	-	-	-	-	-	175	240	300
	PN 40	65	80	100	115	155	175	240	300
	ANSI CL. 150	82.5	108	120.5	146	178	216	279.5	330
	ANSI CL. 300								
H		47.5	60	90	100	136	156	221	221
H_1		101	112.5	151.5	161.5	187.5	195.5	- [2]	- [2]
E		14	19	22	22	26	26	36	36
F		9	14	17	17	19	19	30	30
M		M5	M6	M6	M6	M8	M8	M10	M10
L		151	155	207	207	350	350	- [2]	- [2]
SW		9	14	17	17	19	19	30	30
Ød		12	18	22	22	27	27	42	42
DIN ISO Connection		F03	F05	F07	F07	F10	F10	F14	F14
Weight in kg	PN 16	-	-	-	-	-	91	181	208
	PN 40	5	8	15	24	52	97	185	225
	ANSI CL. 150	6	10	18	28	61	99	196	230
	ANSI CL. 300	7	11	21	31	65	108	207	241

Table 5 - Dimensions in mm and weights in kg

[1] DN 200/8" is retracted to 150 mm
[2] DN 150 and larger only with manual gear

Pressure-Temperature diagram:

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

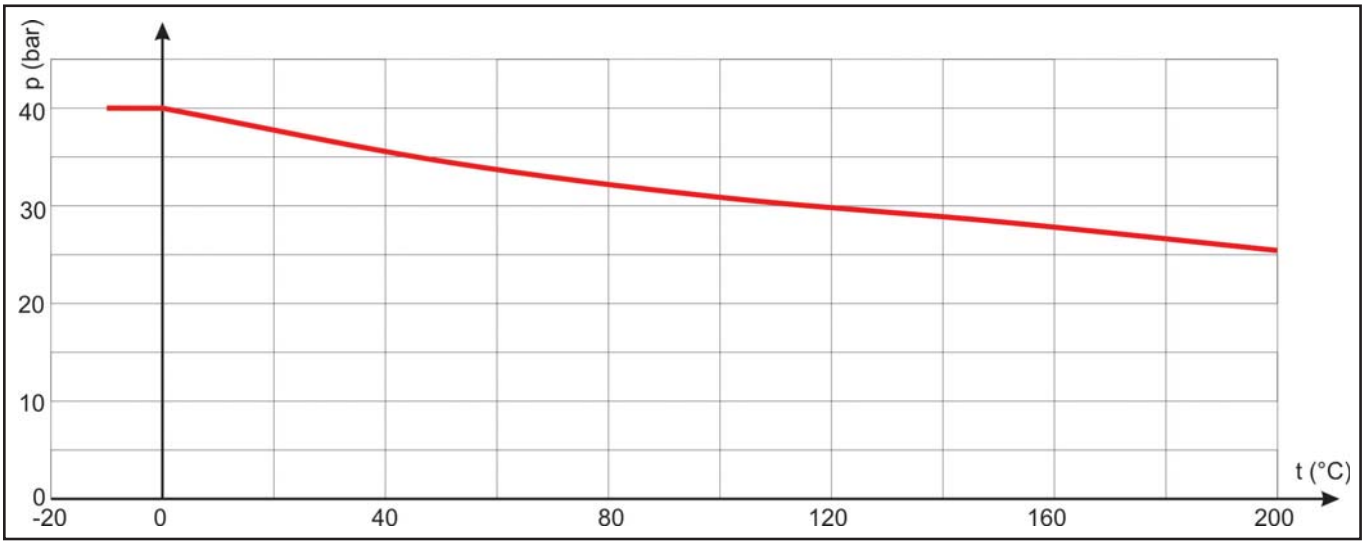


Fig. 17 - Pressure-Temperature diagram

Selection and sizing of the ball valve:

1. Determine the required nominal size
2. Determine the flow pattern
3. Select valve using Table 2, Table 3 and the Pressure-Temperature diagram
4. Select the actuator
5. Select additional equipment

Ordering text:

Multi-port ball valve,
Type: Series 26l / 26t / 26v / 26x,
DN . . . . ,
PN . . . . ,
Optional special version

Actuator (brand name): . . . .
Supply pressure: . . . . bar,
Fail-safe position: . . . .

Limit switch (brand name): . . . .
Solenoid valve (brand name): . . . .
Positioner (brand name: . . . .

Others: . . . .

Note: All details relevant for the order as well as versions different from those in the technical specifications can be taken from the corresponding order confirmation, if required.

Please contact our technical sales team for your special requirements

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