



## BR 26I, BR 26t, BR 26v, BR 26x · Multi-port Ball valve Ball valve in horizontal and vertical version



### Applications

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

- **Nominal size DN 15 to DN 200 and NPS½ to NPS8**
- **Nominal pressure PN 16 to PN 40 and cl150 and cl300**
- **Temperatures -10°C bis +200°C (14°F bis 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 BR 26I
  - Horizontal 3-way version with T-port BR 26t
  - Vertical 3-way version with L-port BR 26v
  - Horizontal 4-way version BR 26x
- **Special features of BR 26I and BR 26t**
  - Horizontal version with horizontal third outlet
  - DN 100 and larger with trunnion-mounted ball
  - 90° or 180° operation
- **Special features of BR 26v**
  - Vertical version with vertical third outlet
  - 180° operation
- **Special features of BR 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
  - ISO port, light-duty series



**Fig. 1:** Horizontal BR 26I / 26t 3-way Ball valve with BR 31a Quarter-turn Actuator



**Fig. 2:** Vertical BR 26v 3-way Ball valve with BR 31a Quarter-turn Actuator

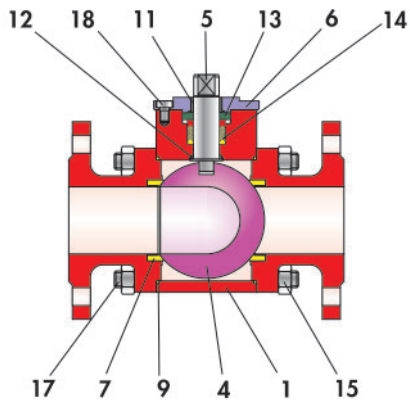


Fig. 3: BR 26l, horizontal 3-way ball valve with L-port

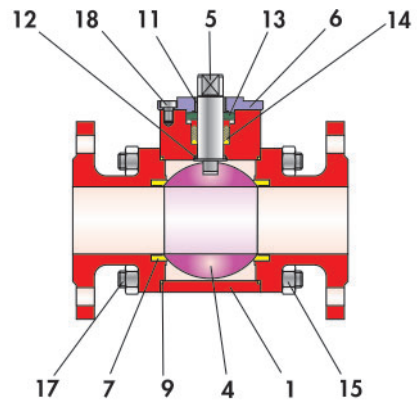
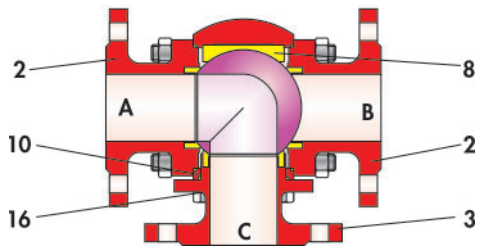


Fig. 4: BR 26t, horizontal 3-way ball valve with T-port

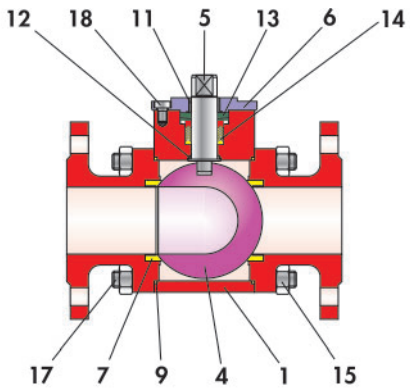
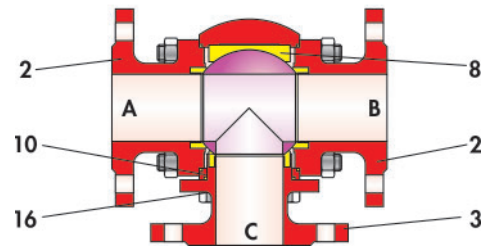


Fig. 5: BR 26x, horizontal 4-way ball valve with L-port

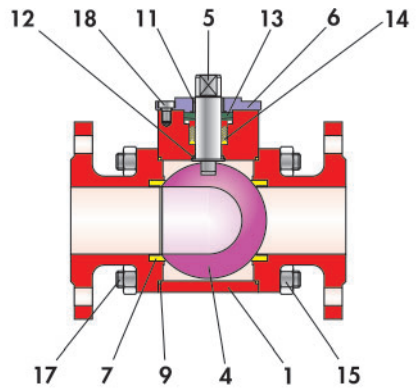
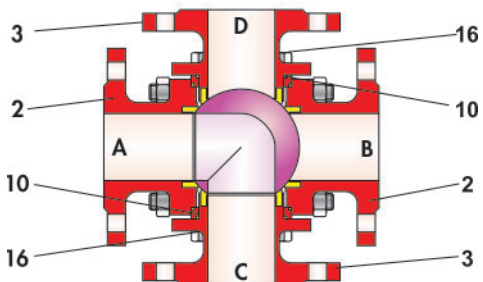


Fig. 6: BR 26x, horizontal 4-way ball valve with double L-port

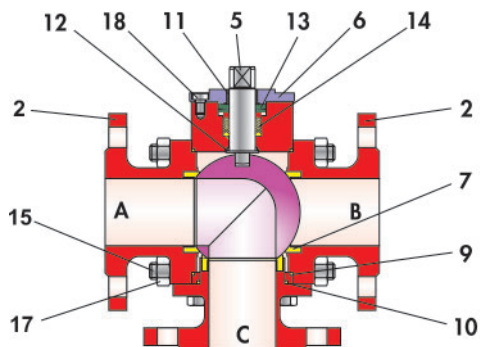
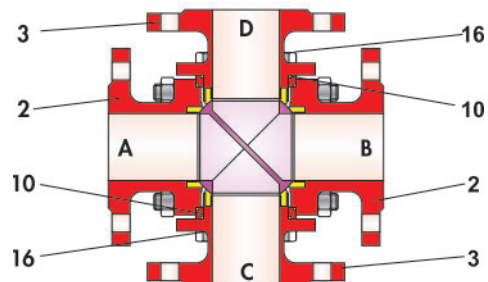
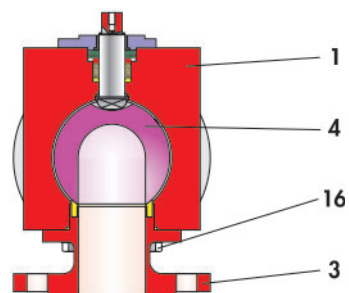


Fig. 7: BR 26v, vertical 3-way ball valve with L-port



**Table 1:** List of parts

Item	Description
1	Main body
2	Body flange
3	Outlet flange
4	Ball
5	Control shaft
6	Stuffing box flange
7	Seat ring
8	Counter bearing
9	Body sealing

Item	Description
10	Body sealing
11	Bearing bushing
12	Bearing bushing
13	Set of spring washers
14	V-ring packing
15	Stud bolt / Screw
16	Stud bolt / Screw
17	Nut
18	Screw

## 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 ( BR 26l, 26t and 26x )
    - 180° part-turn actuator, also centred (BR 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

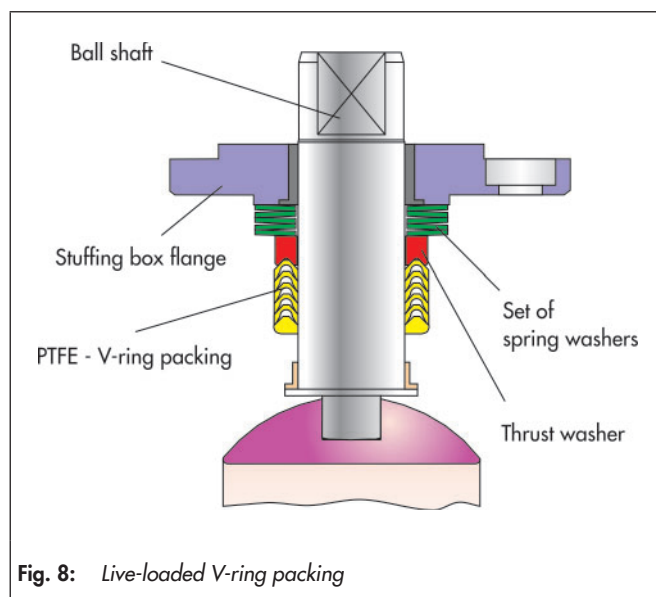
## Additional equipment and accessories

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 austenitic 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 BR 26l, BR 26t, BR 26v and BR 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.

### **i** Info

Before using the ball valve in hazardous areas, check whether this is possible according to ATEX 2014/34/EU. See Operating Instructions ► BA26l.

## Fail-safe position

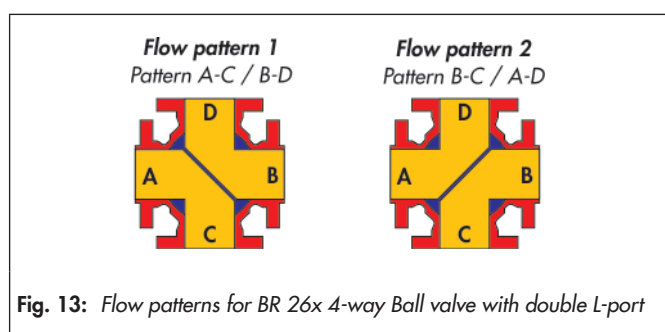
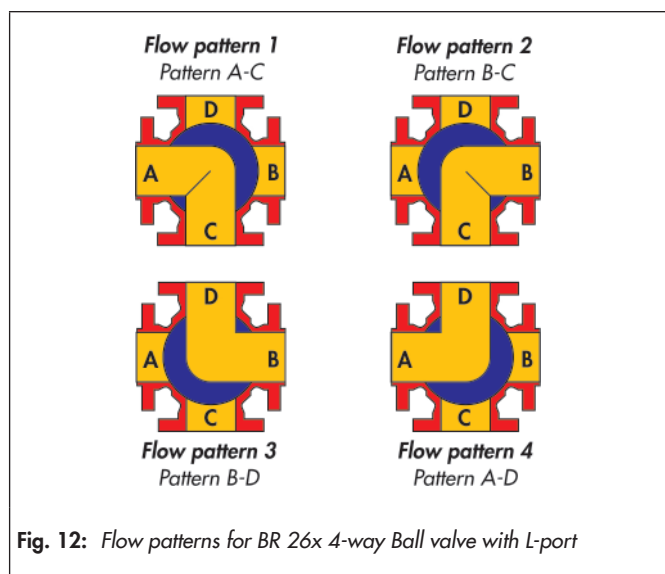
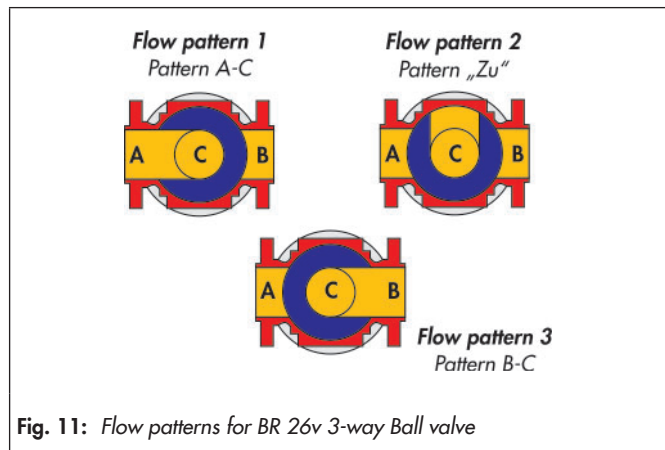
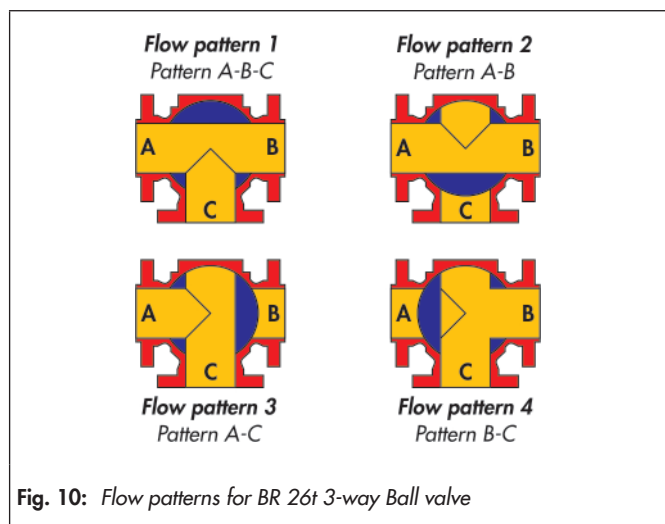
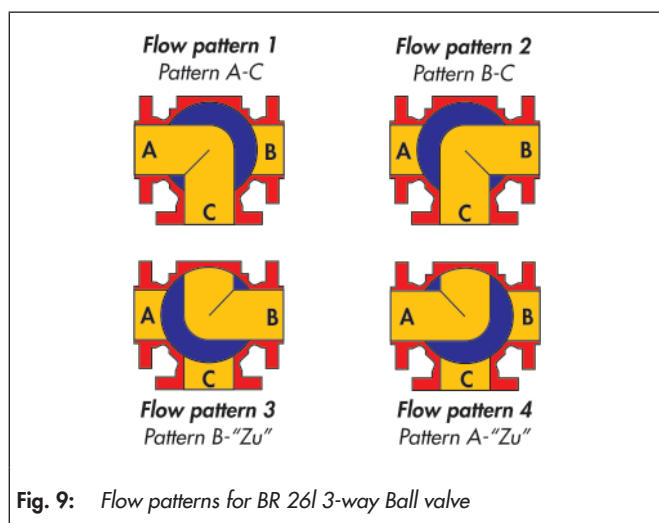
Depending on how the pneumatic actuator is mounted to the valve, the ball valve has two fail-safe positions which become effective when the air pressure in the actuator is relieved or when the supply air fails.

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.



**Table 2: General technical data**

Nominal size	DN 15 to DN 200 and NPS½ to NPS8"
Nominal pressure	PN 16 to PN 40 as well as cl150 and cl300
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, Series 1 ( DIN 3202, F1 )
Permissible working pressure	see Pressure-Temperature diagram
Stuffing box packing	PTFE V-ring packing loaded by Belleville washers

**Table 3: 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)
Bottom bearing bushing	PTFE with 25% glass
Top bearing bushing	PTFE with 25% carbon

**Table 4: Torque and breakaway torques**

Differential pressure		$\Delta p$ in bar	0	10	16	25	40
DN	NPS	Mdmax. in Nm	Breakaway torque Mdl in Nm				
15	½	81	12	16	18	22	28
25	1	338	20	28	34	42	56
40	1½	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

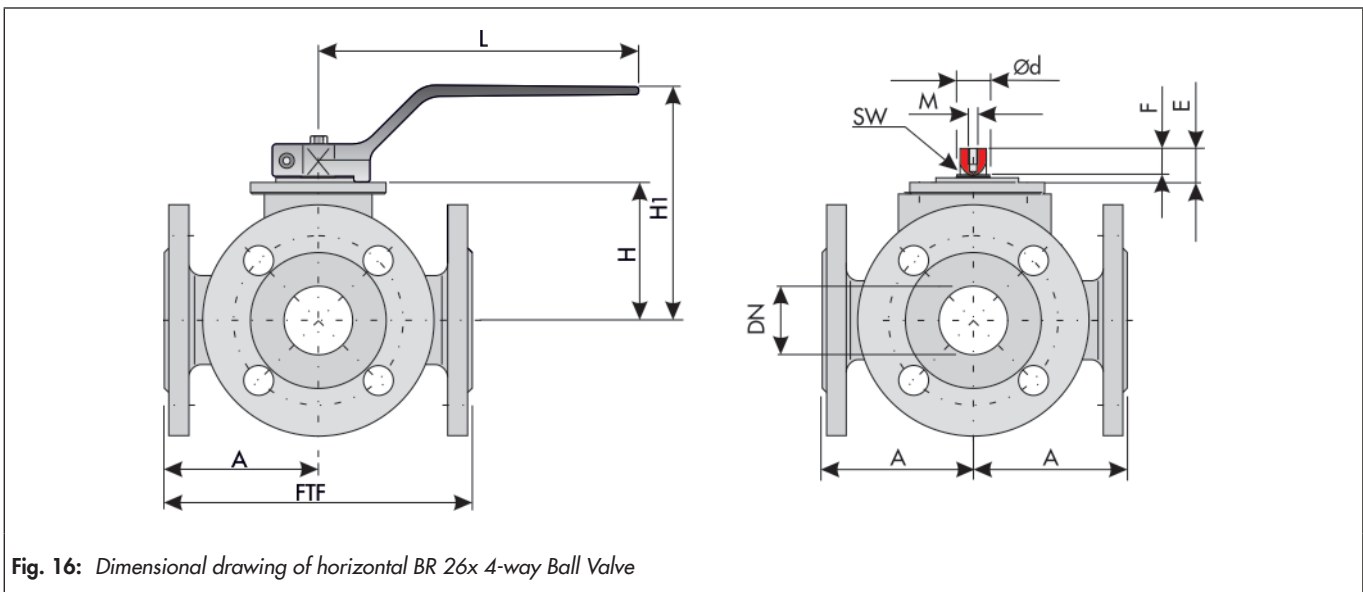
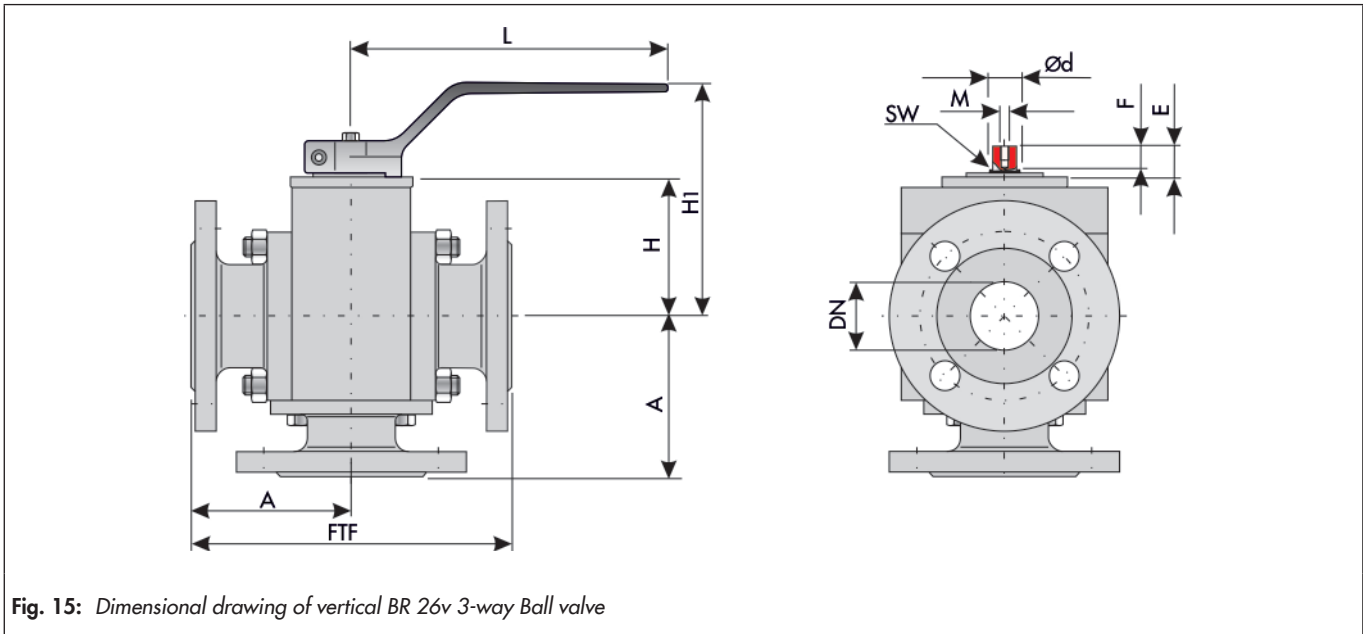
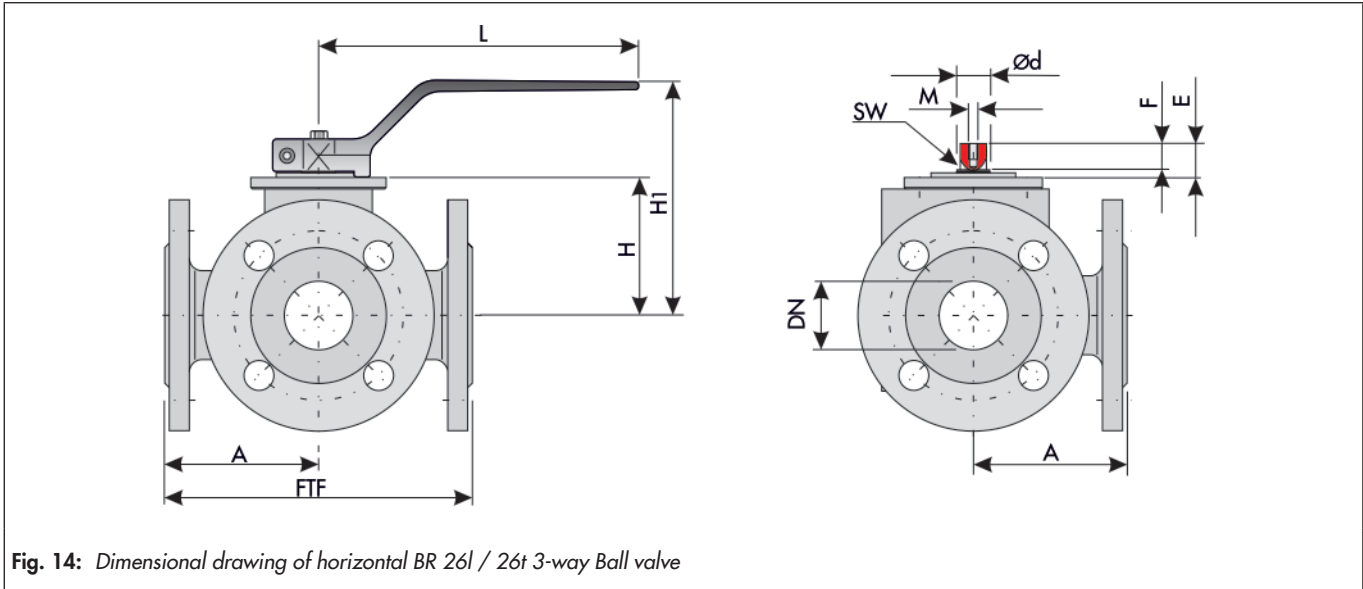
The breakaway torques specified are average values which were measured at 20°C.

Operating temperature, process medium and long operating times may affect the permissible torques and breakaway torques.

**i 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



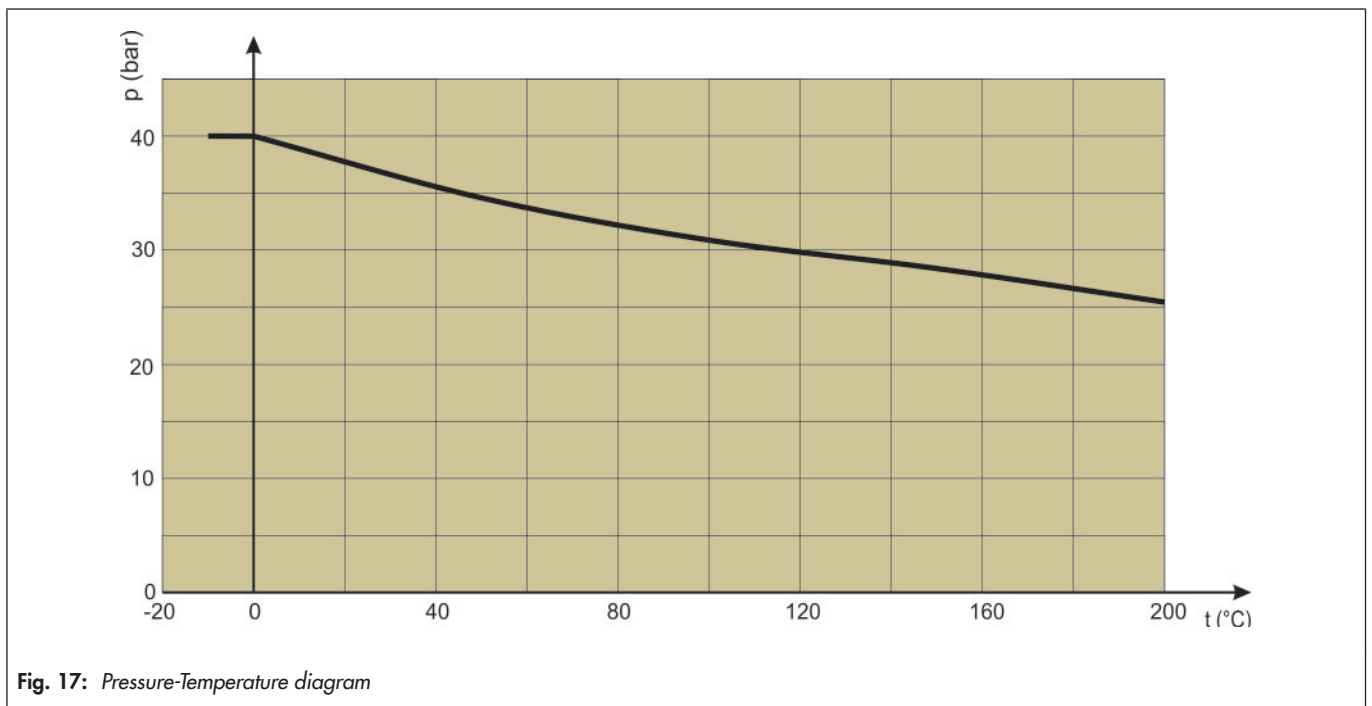
**Table 5: Dimensions in mm and Weights in kg**

DN / NPS		15 / ½	25 / 1	40 / 1½	50 / 2	80 / 3	100 / 4	150 / 6	200 / 8
FTF	PN 16	-	-	-	-	-	350	480	600
	PN 40	130	160	200	230	310	350	480	600
	d150	165	216	241	292	356	432	559	660
	d300								
A	PN 16	-	-	-	-	-	175	240	300
	PN 40	65	80	100	115	155	175	240	300
	d150	82.5	108	120.5	146	178	216	279.5	330
	d300								
H	47.5	60	90	100	136	156	221	221	
H1	101	112.5	151.5	161.5	187.5	195.5	- 1)	- 1)	
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	- 1)	- 1)	
SW	9	14	17	17	19	19	30	36	
Ød	12	18	22	22	27	27	42	42	
DIN ISO Connection		F03	F05	F07	F07	F10	F10	F14	F16
Weight in kg	PN 16	-	-	-	-	-	91	181	208
	PN 40	5	8	15	24	52	97	185	225
	d150	6	10	18	28	61	99	196	230
	d 300	7	11	21	31	65	108	207	241

1) DN 150 and larger only with manual gear

### Pressure-Temperature diagram

The operating range is given by the pressure-temperature diagram. Process data and medium may influence 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: BR 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: . . . .

## Associated data sheets

- for pneumatic Multi-turn actuator ▶ TB 30a
- for pneumatic Quarter-turn actuator ▶ TB 31a

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### **Note**

*All relevant details regarding the version ordered, which deviate from the specified version in this technical description data, can be taken if required, from the corresponding order confirm*

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