



BR 29b · Multi-way Diverting Valve With Large Curved Radius · DIN- and ANSI-Version



Applications

Stainless steel-pigging valve system. As diverting, and with pig stopper for outlet metering system:

- **Nominal diameters DN 50 to 200 und NPS2 to 8**
- **Nominal pressure PN 25, PN 40 as well as cl150 and cl300**
- **Temperatures -10 °C to +200 °C (14 °F to 392 °F)**

The valve consists of a main body with up to 8 screwed-on side bodies.

The valves in modular assembly design, have the following special features:

- Inside diameter of piping, according to DIN 2430
- Large flexion radius (4D)
- Double mounted ball
- Spring loaded seating rings
- Control shaft, sealed with a V-ring packing, pre-loaded with spring washers
- Blow out proof shaft
- Anti-static version with conductive shaft bearing
- Piggable flanges in the passage of the ball valve to DIN 2430-2 with projection. Non-piggable flanges are designed in accordance with DIN EN 1092-1 with sealing strip B1 or according to customer-specific requirements.
- Connections for actuators, according to DIN ISO 521 1

Versions

The valve is a multi-way ball valve, with a unique constructed ball, which enables the best possible pig cleaning.

The valve can be equipped with an actuator, and incremental controlled coupling for positioning.

Even in different positions, the lower connector is still linked to each one of the connectors at the top.

The valve performs the following functions for the different types of designs:

- **In One-pigging system:**
 - As diverting between different tank farms
 - With integrated pig stopper as outlet metering
- **In Two-pigging system:**
 - As diverting between different tank farms

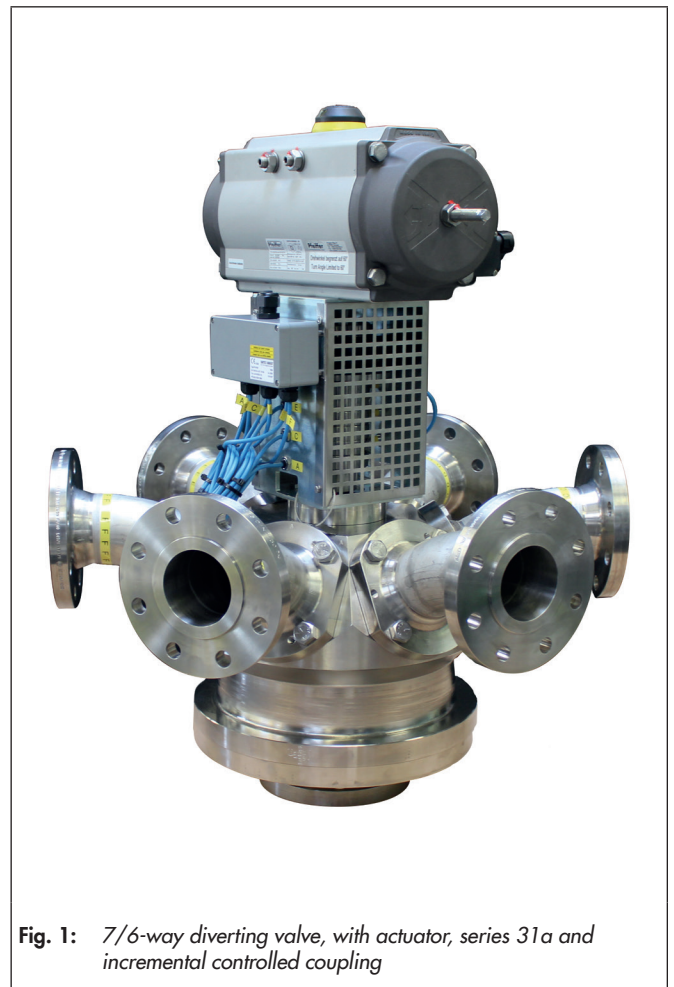


Fig. 1: 7/6-way diverting valve, with actuator, series 31a and incremental controlled coupling

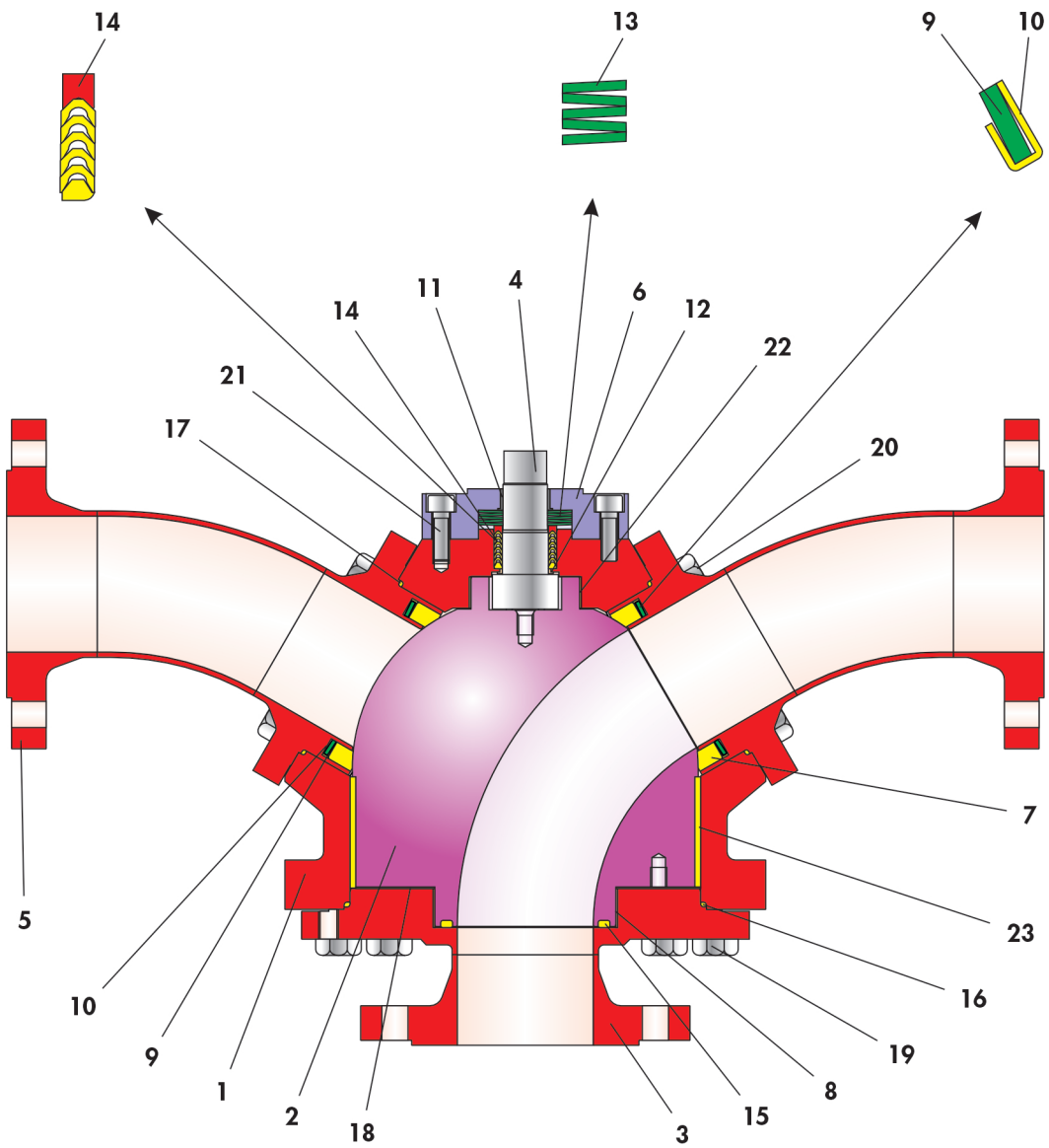


Fig. 2: Sectional drawing of diverting valve, series 29b

Table 1: List of parts

Item	Description
1	Main body
2	Ball
3	Base flange
4	Shaft
5	Side body
6	Gland flange
7	Sealing ring
8	Bearing bush
9	Disc spring
10	Disc spring coating
11	Bearing bush
12	Bearing bush

Item	Description
13	Disc spring set
14	V-ring packing
15	O-ring
16	O-ring
17	O-ring
18	Washer
19	Screw
20	Screw
21	Screw
22	Bearing sleeve
23	Cavity sleeve

Special versions

- Minimised cavity with PTFE-strips
- Different connecting designs
- With integrated pig stopper

Additional equipment and add-on pieces

The following accessories are available for the diverting valve, either separately or in combination:

- Manual gearbox
- Shaft extension (100 mm)
- Interchangeable pneumatic, or electric actuator with incremental controlled coupling
- Limit switch
- Solenoid valves
- Positioner
- Air pressure supply regulator / filter

Further accessories are available acc. to customer specifications.

Principle of operation

The principle function of the multi-way diverting pigging valve, series 29b is to divert the media in the pigging pipe system or to connect different tank farms.

The ball (2) with its cylindrical passage slew around the middle axis. The opening angle of the ball determines the flow direction in the pig piping.

The ball (2) is sealed by exchangeable seat rings (8).

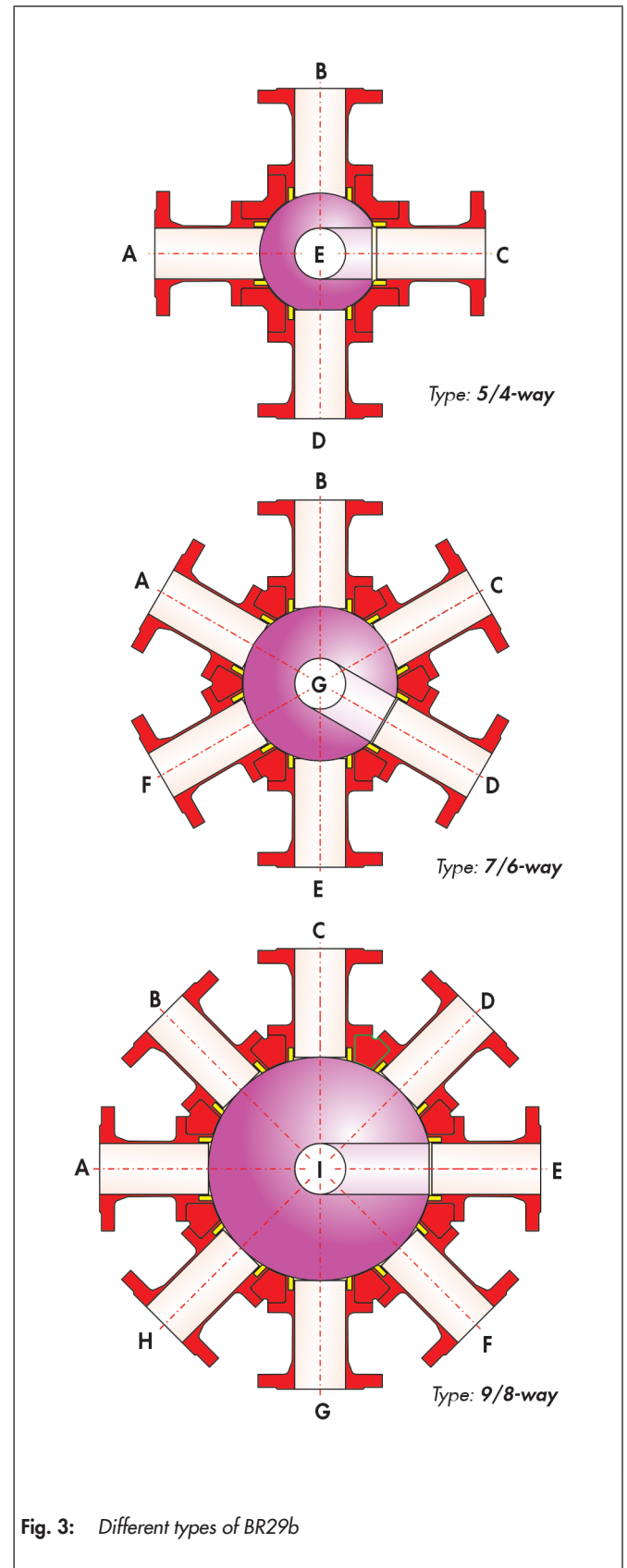
The ball shaft is sealed by a PTFE V-ring-packing (15) which is spring supported by disc springs (14) positioned above the packing.

The control shaft is externally equipped with a hand-lever, or a pneumatic actuator.

i Info

Before using the valve in hazardous areas, check whether this is possible according to ATEX 2014/34/EU by referring to the mounting and operating instructions ► EB 29b.

Versions



Control- and safety positions

The setup position, and the control functions of the actuator are variable.

Depending on the specific customer requirements, the multi-way diverting valve are constructed and equipped. The design of a double-acting actuator with "STOP" safety position is preferable.

Detailed specifications regarding the control and safety positions can be found in the instructions EB 29b_EN.

Optional material combination

- Shaft and ball on request
- Sealing rings in PTFE-compounds
- Sealing in graphite
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Advantages of spring supported sealing system

- Maintenance free
- Two active seat rings
- Highest level of sealing effectiveness, even by extreme pressure- and temperature variations
- Longer service life
- lower torque increase by rising temperature, therefore smaller actuators required
- **All in all:**
Extremely economic!

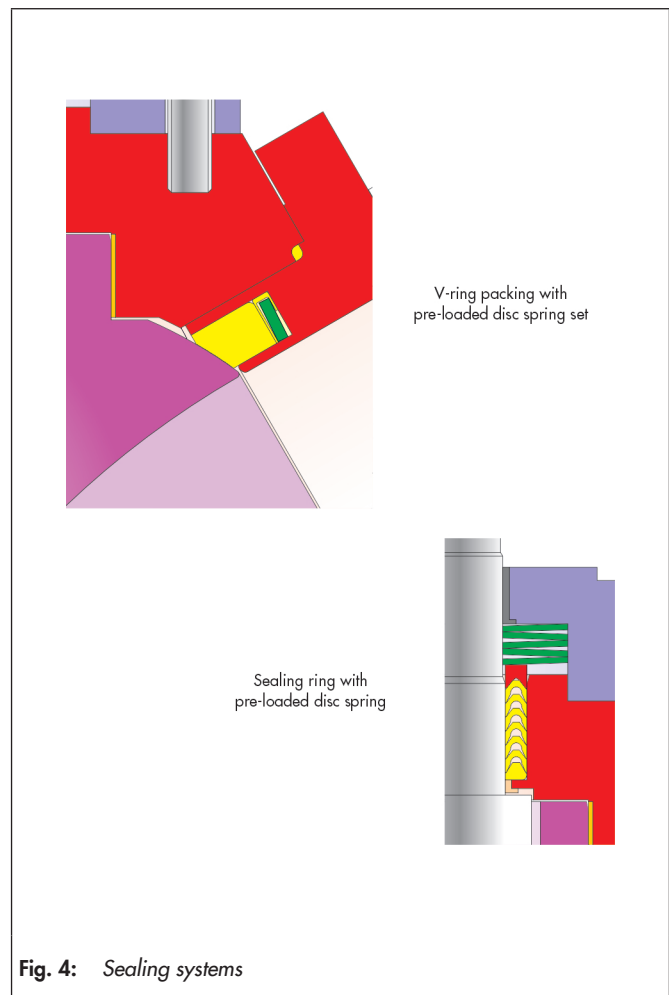


Fig. 4: Sealing systems

Table 2: General technical data

	DIN	ANSI
Nominal size	DN 50 ... 200	NPS2 ... 8
Nominal pressure	PN 25 ... 40	d150 ... 300
Temperature range	-10 °C ... +200 °C (14 °F ... 392 °F)	
Ball sealing	M-PTFE	
Leakage rate	Leakage rate A acc. to DIN EN 12266-1, P12	
Flanges	DIN 2430-2	
Packing	PTFE- V-ring packing with pre-loaded spring washers	

Table 3: Materials

	DIN	ANSI
Main body	1.4571 / 1.4408	A182 F316 / A351 CF8M
Side body	1.4571 / 1.4408	A182 F316 / A351 CF8M
Ball	1.4571 / 1.4408	A182 F316 / A351 CF8M
Shaft	1.4462	ASTM A182 Gr. F51
Sealing rings	M-PTFE	
Disc spring	1.4310 coated with PTFE	
Packing	PTFE V-ring packing with disc springs in 1.8159, Delta Tone	
Lower bearing bush	PTFE with 25% glass	
Upper bearing bush	PTFE with 25% carbon	
Bearing bush (Ball)	PTFE / 50% VA-filled	
Body sealing	PTFE	

Torque and breakaway torque

Table 4: Max. permissible torque, required torque and breakaway torque

Nominal size		adm. Torque max. adm. in Nm	Starting torque max. adm in Nm	Breakaway torque max. break in Nm
DN	NPS			
50	2	490	130	170
80	3	745	170	220
100	4	1200	260	330
150	6	2400	430	520
200	8	On request		

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

Operating temperature, process media, and long operating periods may affect the permissible torque and breakaway torques considerably.

Dimensions and weights

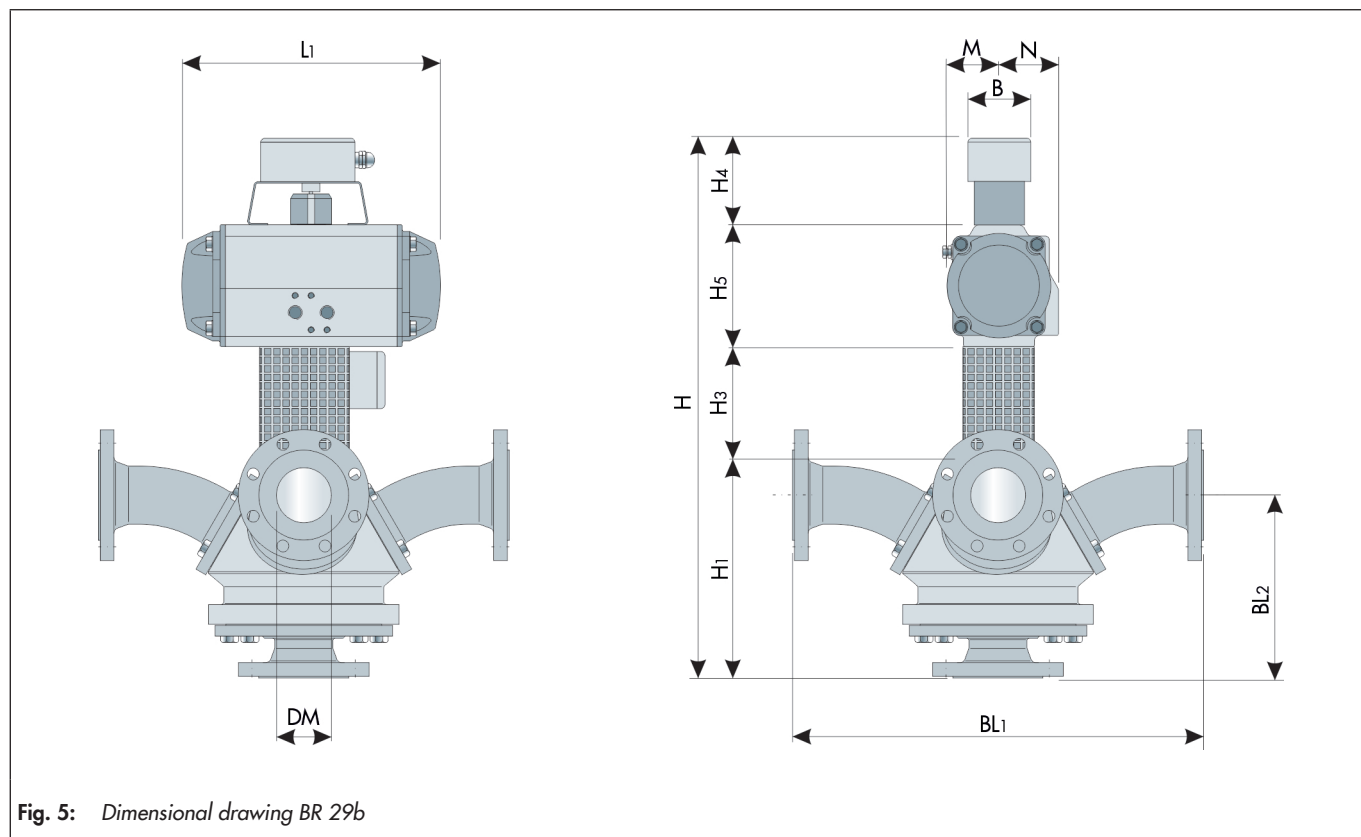


Fig. 5: Dimensional drawing BR 29b

Table 5: Dimensions in mm and weights in kg of the ball valve in DIN version

Nominal size	DN 50 / NPS2	DN 80 / NPS3	DN 100 / NPS4	DN 150 / NPS6	DN 200 / NPS8
DM	54.5	82.5	107.1	159.3	On request
BL1	420	630	750	1100	
BL2	204	280	330	490	
H1	260	334	390	585	
Actuator DAP	150	300	600	1200	
H	H1 + H3 + H4 + H5				
H3	200	200	200	200	
H4	110	110	110	110	
B	80	80	80	80	
DIN ISO connection	F07	F10	F14	F16	
Weight in kg	65	150	260	450	

Actuator DAP	150	300	600	1200	
L1	259	345	422.5	528	On request
H5	127	157	196	245	
M	55.5	69.5	88	110	
N	63	77	93	111.5	
Weight in kg	5.15	9.97	17.8	34.3	

Pressure-temperature diagram

The range of application is determined by the pressure-temperature diagram.

Process data and medium can affect the values of the diagram.

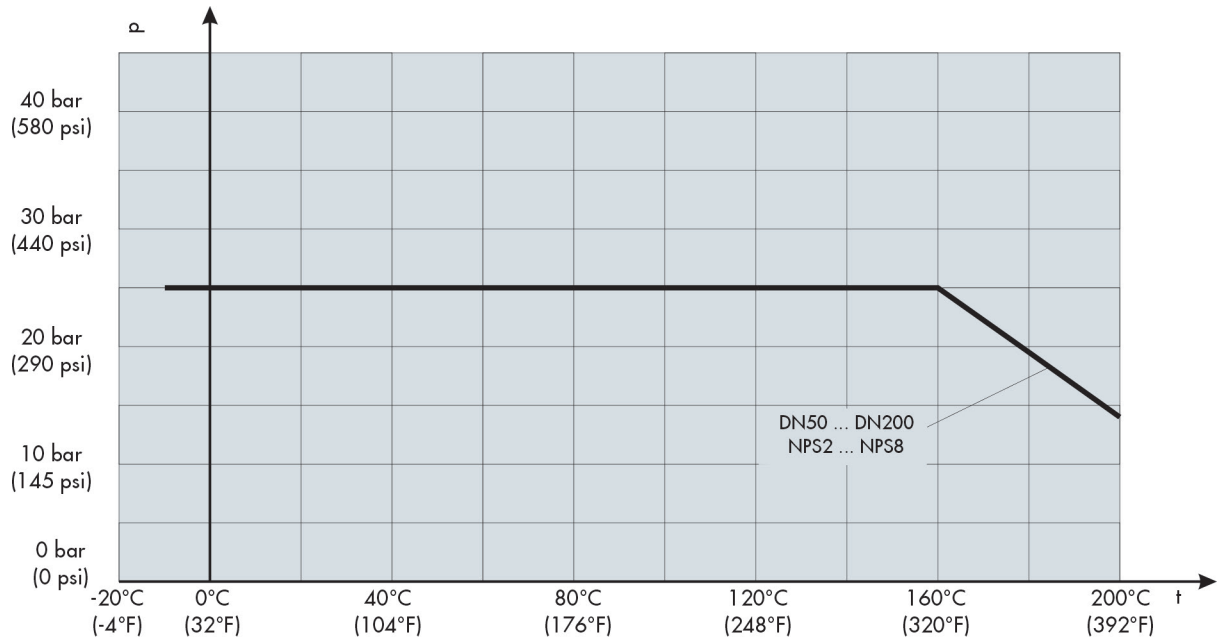


Fig. 6: Druck-Temperatur Diagramm PN25

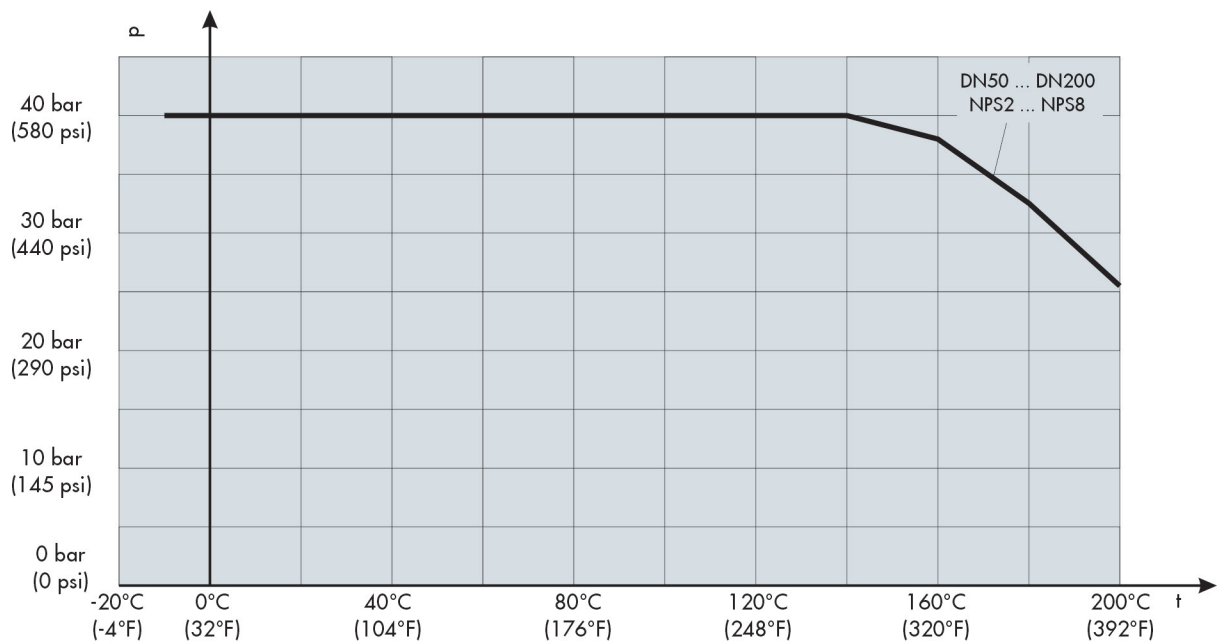


Fig. 7: Druck-Temperatur Diagramm PN40

Selection and sizing of the diverting valve

1. Determine the nominal diameter.
2. Select the valve acc. to table 2, table 3 and the pressure-temperature diagram Fig. 6 - 7.
3. Select the actuator acc. table 5.
4. Select additional equipment / accessories.

Ordering text

BR 29b multi-way Diverting Valve in stainless steel

Nominal size: DN/NPS:

Nominal pressure: PN/Class

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 documents

Associated Mounting and Operating Instructions ▶ EB 29b

Associated Safety Manual ▶ SH 29a

For pneumatic actuators ▶ TB 31a

i Info

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 confirmation.
