



BR 28a/x · Cavity-free Piggable Metering Valve DIN- and ANSI-Version



Applications

Stainless steel ball valve, consisting of a piggable T-piece and integrated metering ball valve for dosing in piggable pipework:

- **Nominal diameter 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 ball valve consists of a welded main body with integrated side ball body, and the screwed-on main body of the metering valve.

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

- Inside diameter of pipe, according to DIN 2430
- Seat rings, spring-loaded on one side
- Floating ball, i.e. sealed by both seat rings
- Control shaft sealed by a V-ring packing loaded by disc spring set
- 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 5211

Versions

The valve consists of a T-piece, which, because of its unique construction enables completely cavity-free pigging, and performs the following functions according to various versions:

- In the **one-pig system**:
 - As media inlet
 - With optional, special blind flange as end station with media inlet and media outlet
- In the **two-pig system**:
 - With optional, special blind flange as end station with media inlet and media outlet
 - With optional „stopper ball valve“ BR 28y as product inlet and outlet
 - To meter, for additional substances directly into the media flow



Fig. 1: BR 28a/x Metering valve with BR 31a quarter-turn actuator

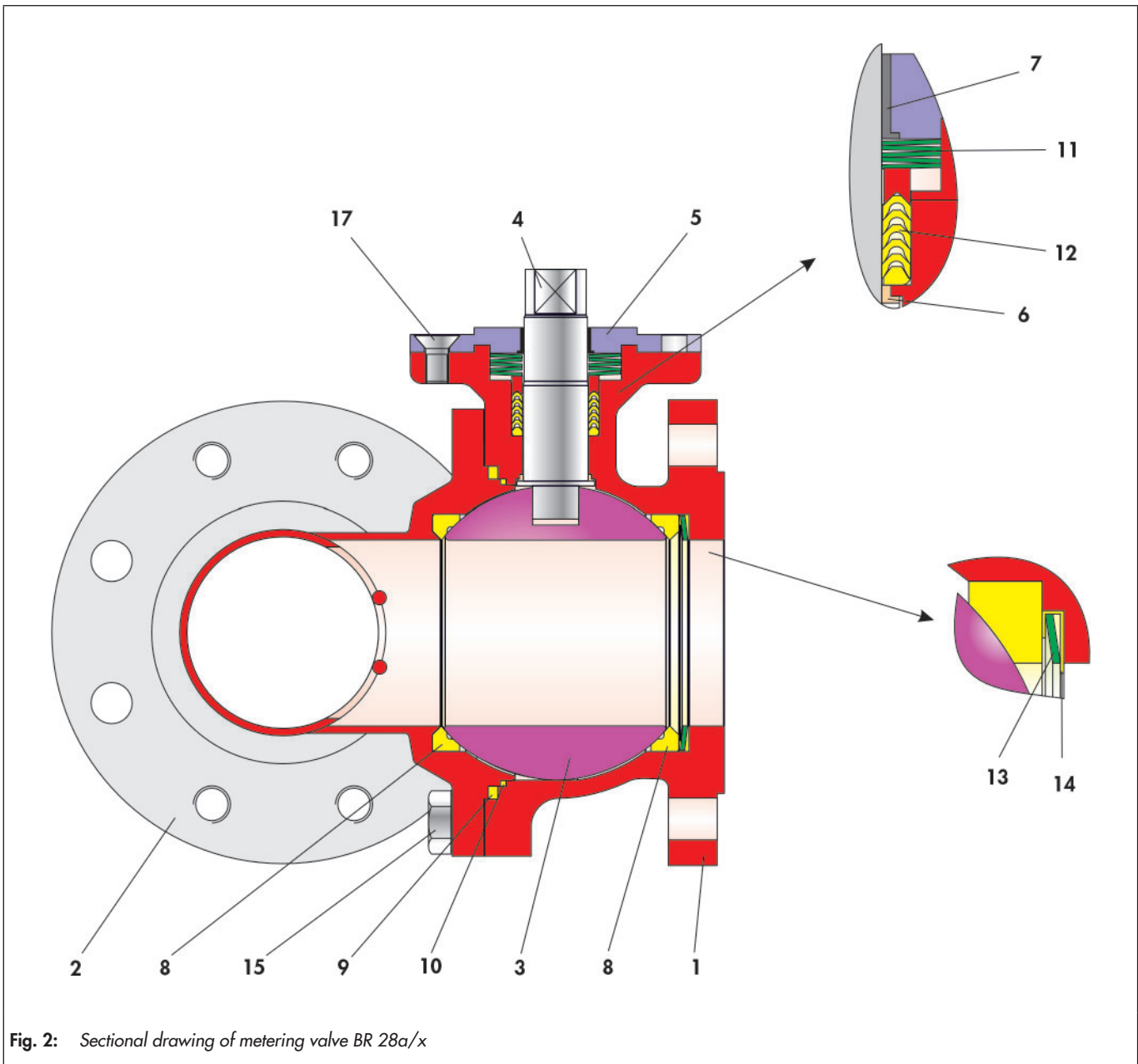


Fig. 2: Sectional drawing of metering valve BR 28a/x

Table 1: List of parts

Item	Description
1	Main body
2	Side body
3	Ball
4	Control shaft
5	Stuffing box flange
6	Bearing bush
7	Bearing bush
8	Seat ring
9	Sealing

Item	Description
10	Sealing
11	Disc spring set
12	V-ring packing
13	Disc spring
14	Disc spring jacket
15 ¹⁾	Screw / Stud bolt
16 ¹⁾	Nut
17	Screw

¹⁾ Depending on the nominal width, stud bolts can be fitted with nuts or screws.

Special versions

- With pigging signal strips by automatic systems, for mounting magnetic-inductive pigging sensors
- With a special blind flange, to form an end-station for Two-pig systems
- With pigging sensors for manual detection
- With "stopper ball valve" as product inlet and outlet

Additional equipment and add-on pieces

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

- Hand-lever (90°)
- Manual gear-box (90°)
- Shaft extension (100 mm standard)
- Pneumatic and electric quarter-turn actuators
- Limit switch
- Solenoid valves
- Positioner
- Supply air pressure regulator/filter

Further accessories are available according to customer specifications.

Principle of operation

The BR 28a/x metering valves are used for metering the medium in a pig piping system.

There is no constriction of the pig piping.

The ball (3) with its cylindrical passage slew around the control shaft.

The opening angle of the ball valve determines the flow rate between the body (1), and ball passage.

The sealing of the ball (3) is with interchangeable seat rings (6 and 7).

The control shaft is sealed with a maintenance free PTFE - V-packing (10), which is pre-loaded by a disc spring set (11) located above the packing.

The control shaft is externally equipped with a manual gearbox, or optionally with a pneumatic quarter turn 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 28a/x.

Fail-safe position

Because of the valve application in a pigging pipe-system, the safety position „Spring closes“ should be preferred at all times.

• Ball valve with actuator „Spring closes“

Upon air failure, the metering valve is closed. The valve opens when the signal pressure increases, acting against the force of the springs.

Optional material combination

- Control shaft and ball on request
- Seat rings in PTFE-compounds
- Sealing in graphite

Advantages of spring supported sealing system

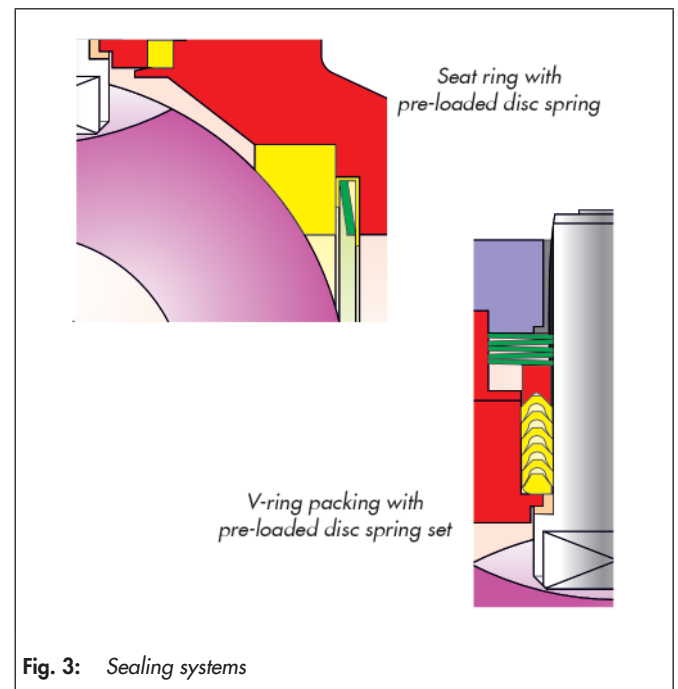


Fig. 3: Sealing systems

- Maintenance free and self adjusting
- 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 for automation
- **All in all:**
Extremely economic!

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	PTFE	
Leakage rate	Leakage rate A acc. to DIN EN 12266-1, P12	
Flanges	DIN 2430-2 (VS) / DIN EN 1092-1, form variable	DIN 2430 / ASME B16.5
Packing	PTFE- V-ring packing with pre-loaded disc spring set	

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	1.4408 / 1.4571	A182 F316 / A351 CF8M
Shaft	1.4462	ASTM A182 Gr. F51
Sealing rings	PTFE	
Disc spring	1.4401 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	
Body sealing	PTFE	

Torque and breakaway torque

Table 4: Torque and breakaway torque

Pressure difference		Δp in bar		0	2	4	6	8	10	16	25	
Nominal diameter		M _{dmax.} in Nm		M _d in Nm	Breakaway torque M _d in Nm							
DN	NPS	1.4462	1.4542									
50	2			17	25	28	32	36	40	43	55	71
80	3			49	70	79	89	98	108	118	146	190
100	4			77	110	125	140	155	170	185	230	297
125	5			On request								
150	6			161	230	263	297	330	364	398	498	650
200	8			On request								

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 periods may affect the permissible torque and breakaway torques considerably.

Dimensions and weights

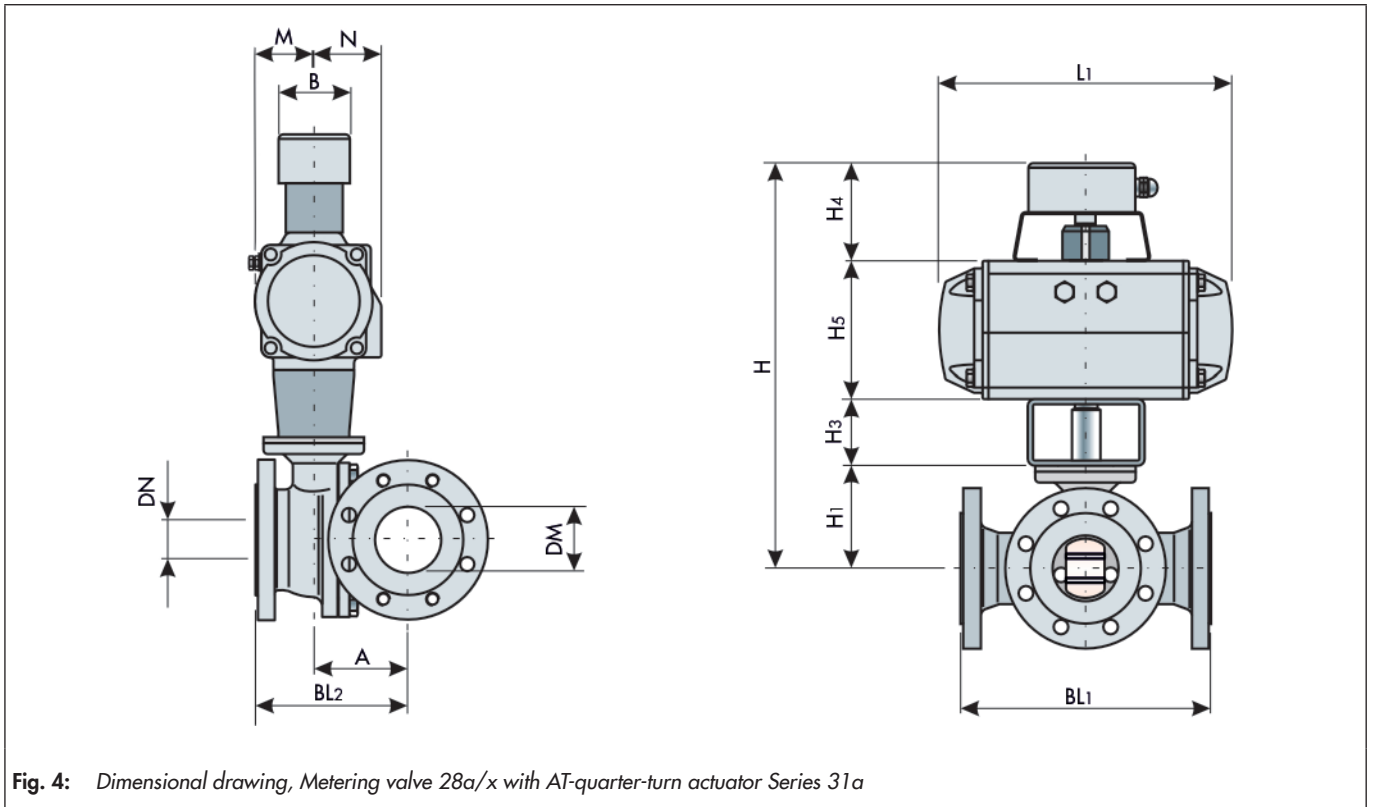


Fig. 4: Dimensional drawing, Metering valve 28a/x with AT-quarter-turn actuator Series 31a

Table 5: Dimensions and Weights

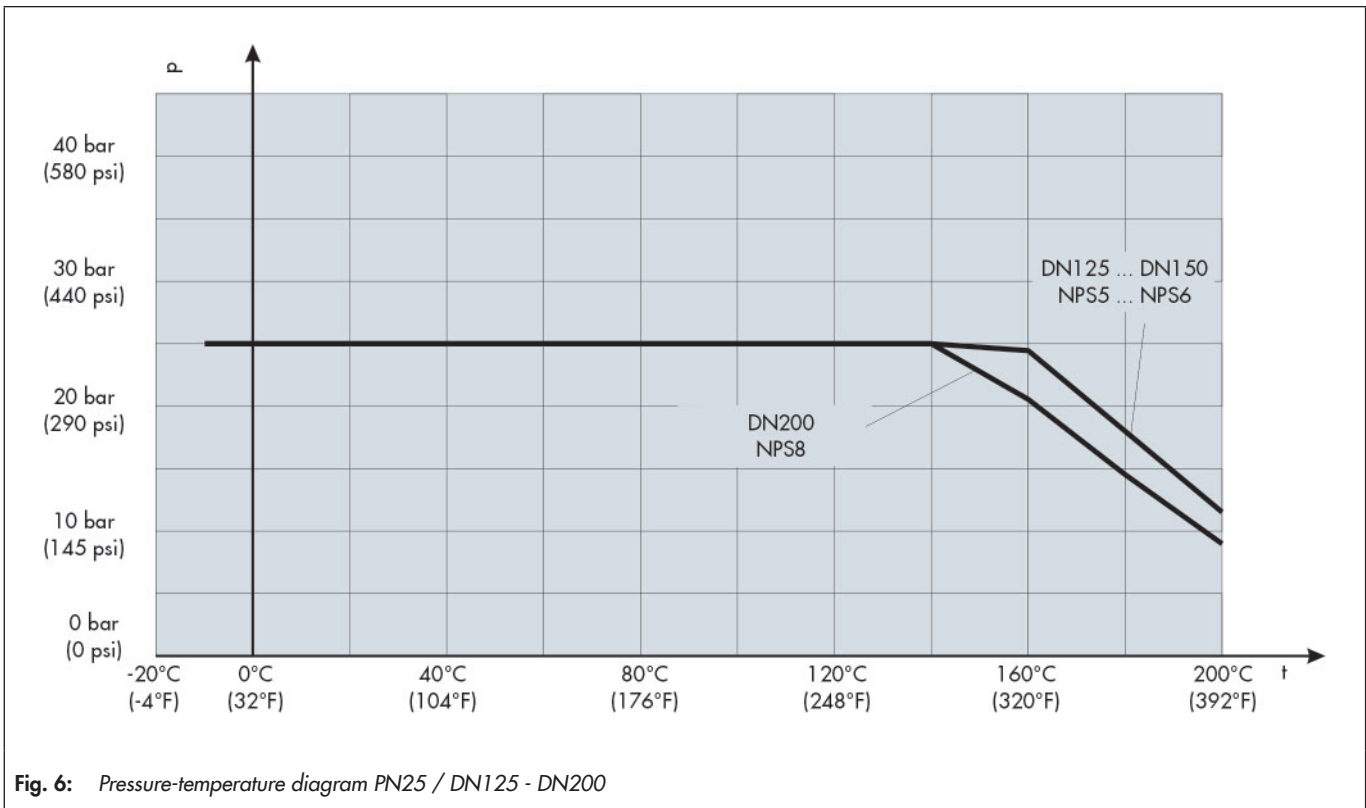
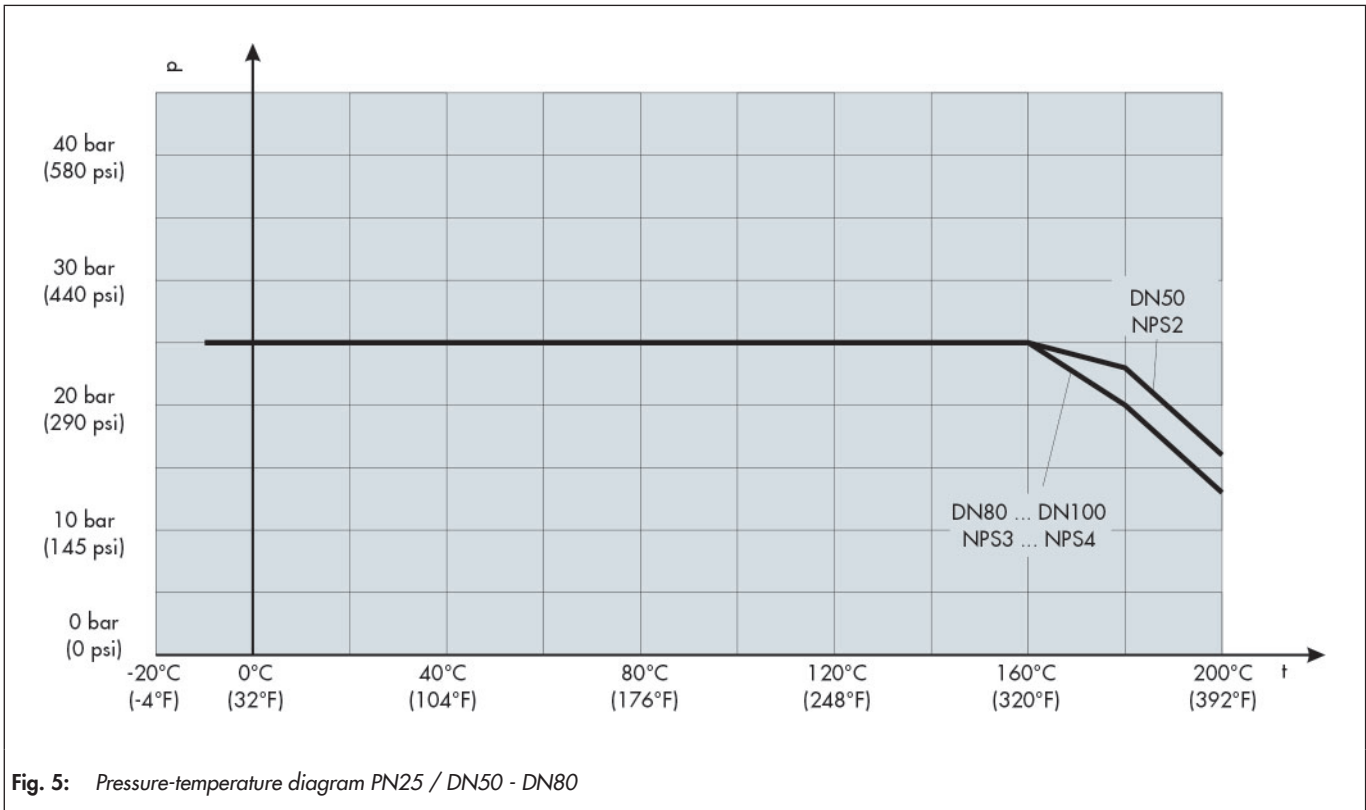
Nominal size	DN 50	DN 80	DN 100	DN 125	DN 150	DN 200
	NPS2	NPS3	NPS4	NPS5	NPS6	NPS8
DM	54.5	82.5	107.1	Auf Anfrage	159.3	Auf Anfrage
BL1	230	310	350		480	
BL2	-	-	-		-	
A	-	-	-		-	
H1	91	130.5	143.5		209	
Actuator SRP	100	220	450		1200	
H	H1 + H3 + H4 + H5					
H3	60	80	80	Auf Anfrage	90	Auf Anfrage
H4	110	110	110		110	
B	80	80	80		80	
DIN ISO connection	F05	F07	F12		F14	
Weight in kg	25	40	55		125	

Actuator SRP	100	220	450	1200
L1	241	304	394.5	528
H5	115	145	177	245
M	49.5	64	80	110
N	56.5	72	86	111.5
Weight in kg SRP	4.3	9.2	16.6	42

Actuator BR 31a for 5 bar air supply

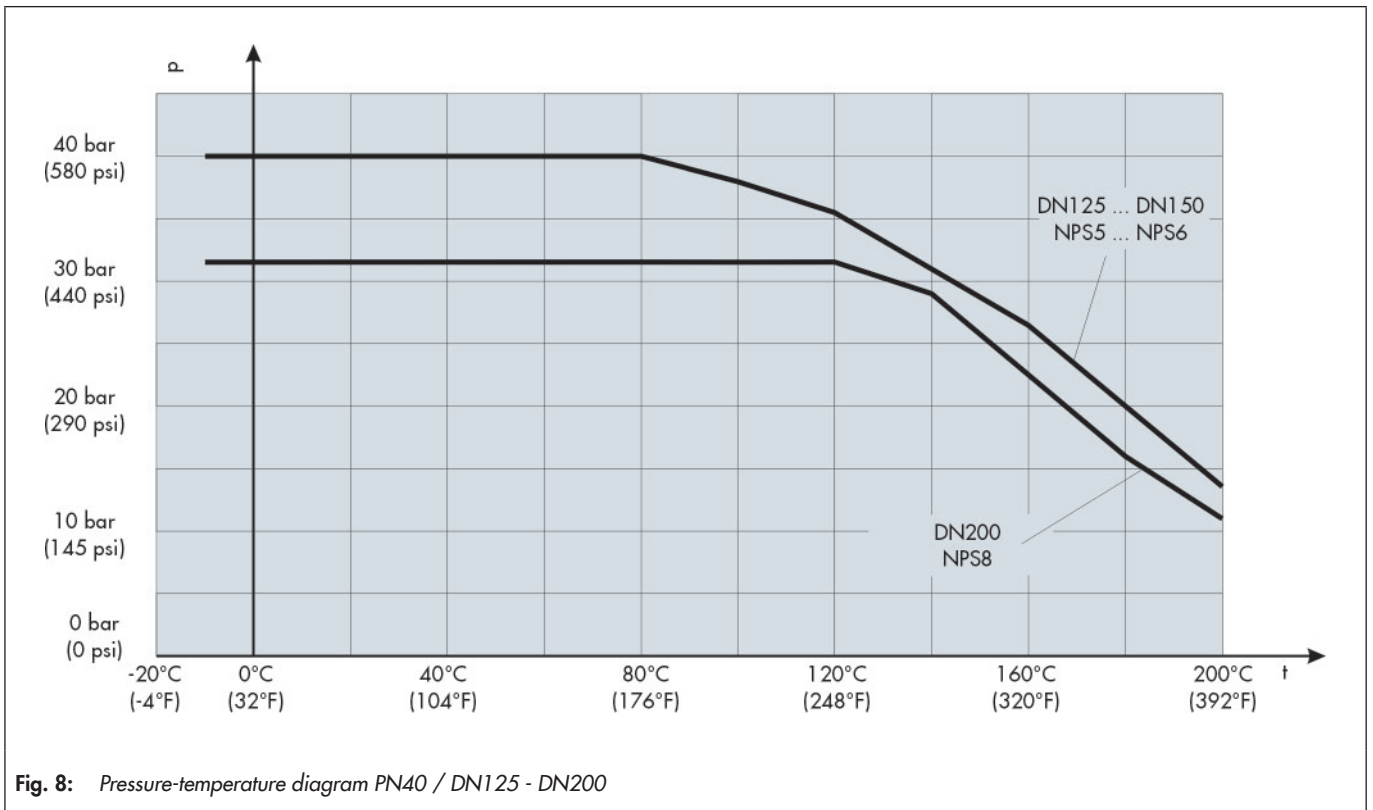
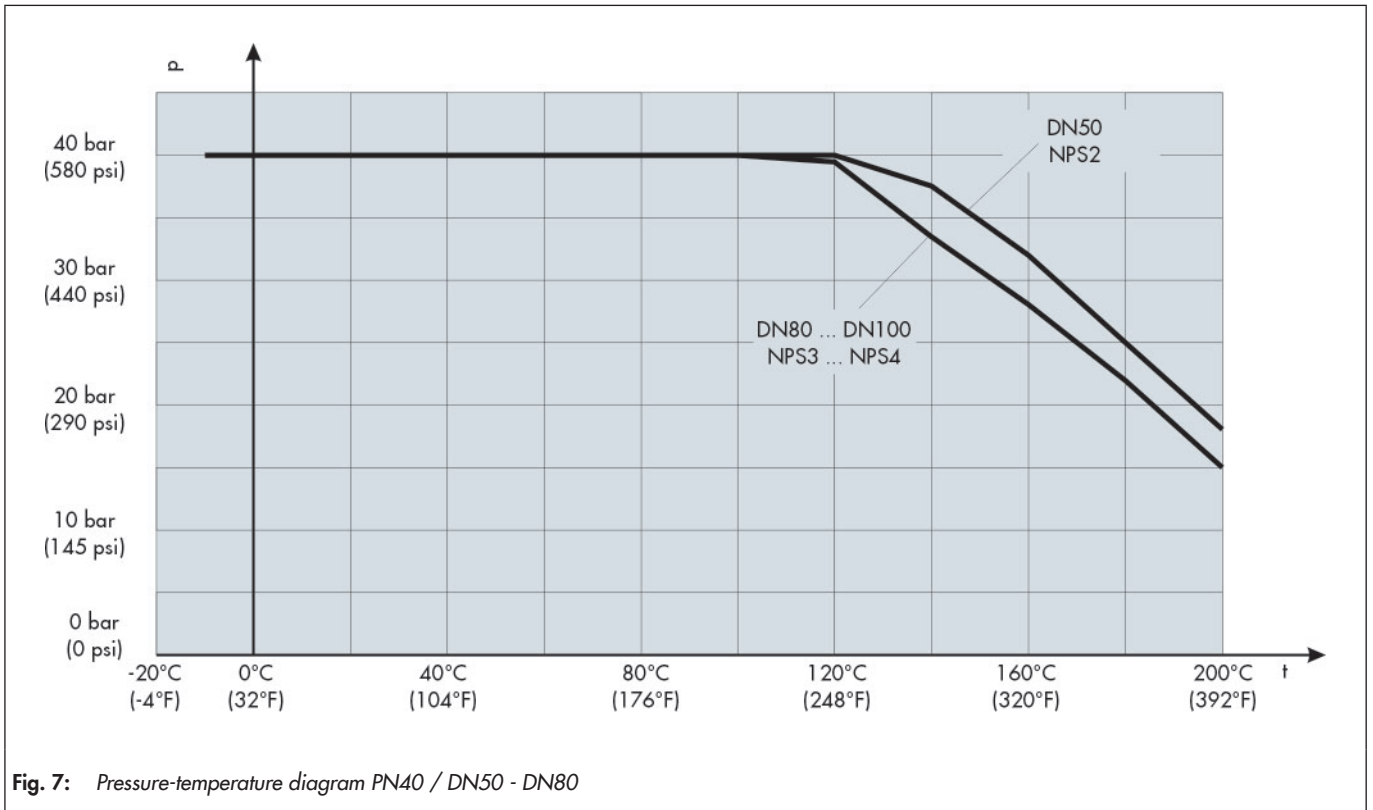
Pressure-temperature diagram

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



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.



Selection and sizing of the metering valve

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

Ordering text

Metering valve in stainless steel: BR 28a/x
Nominal size: DN/NPS
Nominal pressure: PN/Class
Optional special version:
Actuator (brand name):
Supply pressure: bar/psi
Fail-safe position:
Limit switch (brand name):
Solenoid valve (brand name):
Positioner (brand name):
Others:

Associated documents

Associated Mounting and Operating Instructions ► EB 28ax
Associated Safety Manual ► SH 28a
For pneumatic actuators ► TB 31a

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.
