

Cavity free piggable Metering valve Series 28a/x

Application:

Stainless steel - valve consisting of a piggable T-piece with intergrated metering ball:

- Nominal diameters DN 50 up to DN 150
- Nominal pressure PN 25 / PN 40
- Temperature up to 200°C.

The valve consists of a welded main body with intergrated side ball body, and the screwed-on main body of the metering valve.

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

- Inside diameter of piping, according to DIN 2430
- Sealing rings, spring loaded, on one side,
- Floating ball, i.e. sealed by both seating rings,
- Control shaft sealed by V-ring packing, loaded by spring washers,
- Blow out proof control shaft,
- Anti static version with conductive shaft bearing,
- Flange with raised face either form B1 or B2 acc. DIN EN 1092-1, clearance-free with special flanges with male face/female face, specially for pigging equipment or specifically designed according to customer requirements,
- Connections for actuators acc. DIN ISO 5211,

Versions:

The valve consists of a T-Stück, which because of the intergrated ball valve enables an almost cavity-free pigging, and performs the following functions according to various versions:

- in 1- Pig system: - as medium inlet,
- in 2- Pig system: - with option, special blind flange as end station with medium inlet and medium outlet,
- as metering for additional substances, direct in the medium flow.

Special versions:

- with pigging signal strips by automatic. systems, for mounting magnetic-inductive pigging sensors,
- with pigging sensors for manual detection,
- with a special blind flange, to form an end-station for 2-Pig systems.

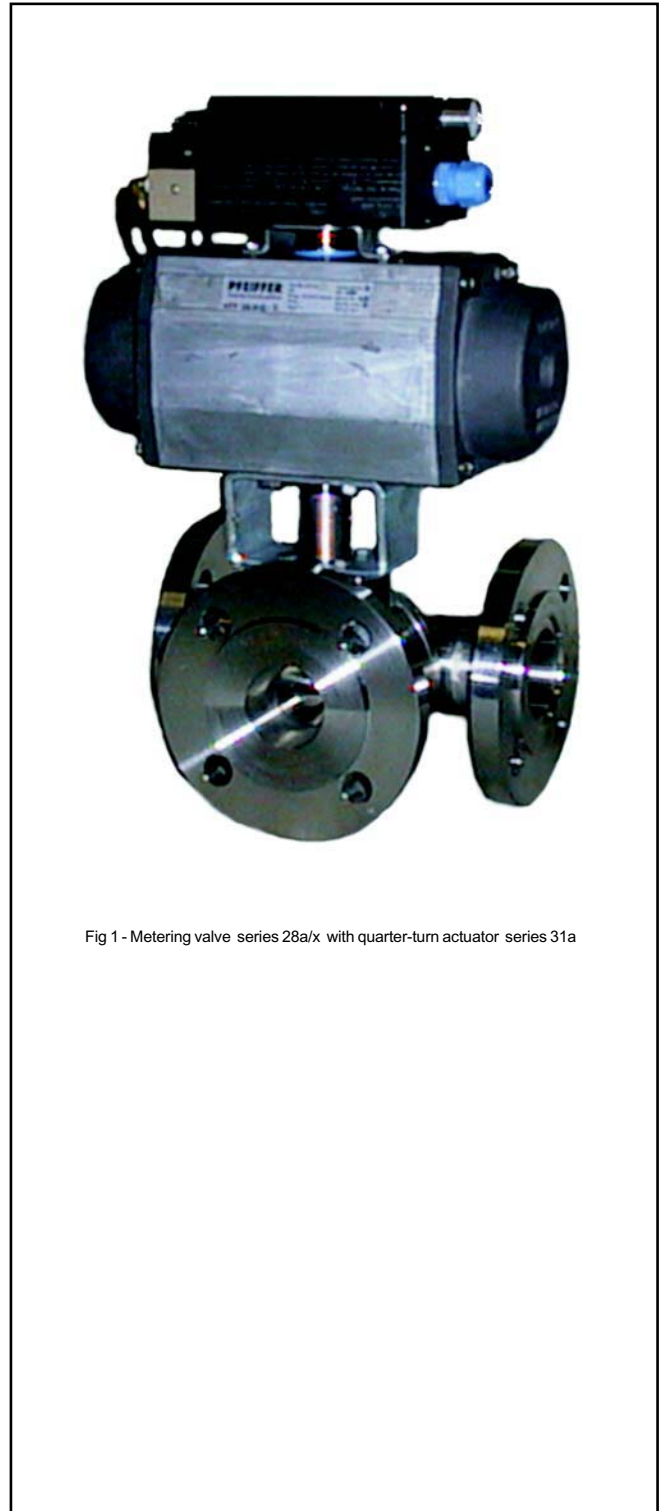


Fig 1 - Metering valve series 28a/x with quarter-turn actuator series 31a

Metering valve Series 28a/x

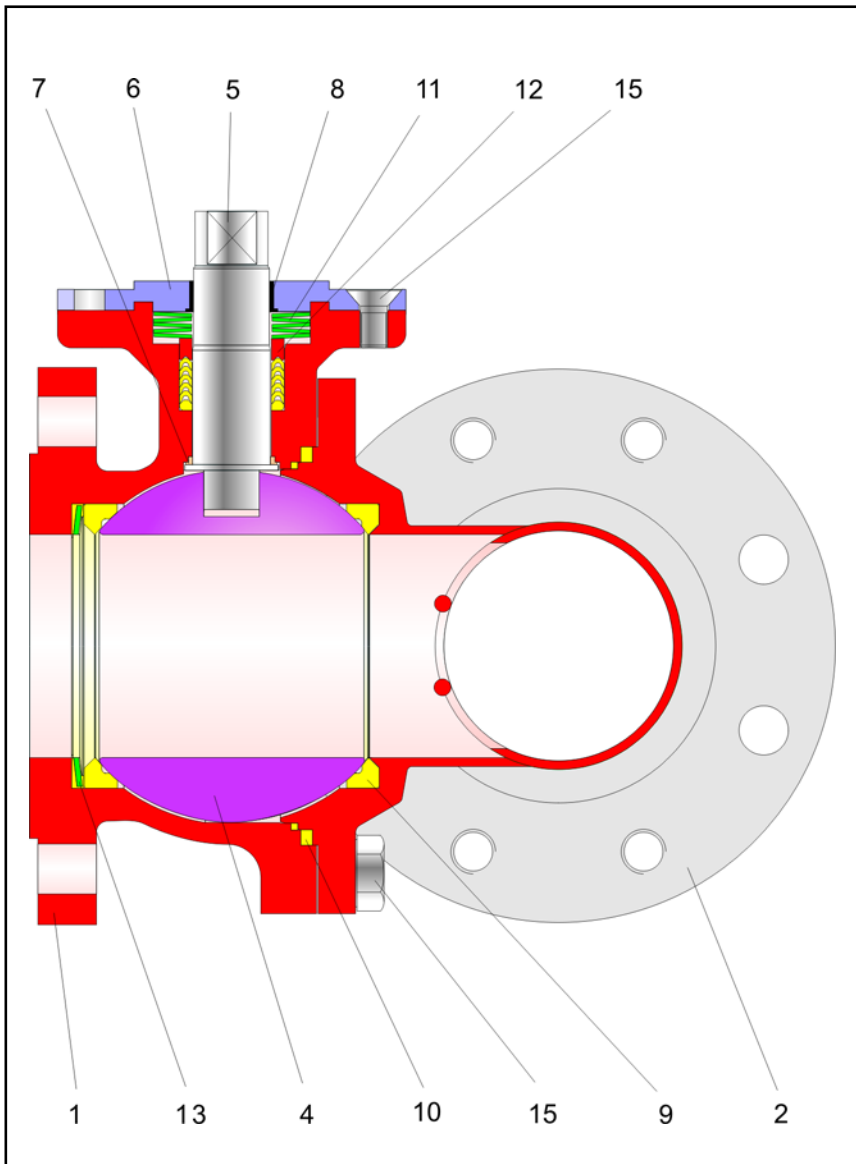


Fig. 2 - Sectional drawing of metering valve Series 28a/x

Additional equipment and mounting parts:

The following accessories are available, either separately or in combination:

- Hand-lever (90°)
- Manual gear box (90°)
- Control shaft extension (100mm),
- Interchangeable pneumatic and electric quarter-turn actuators,
- limit switch,
- Solenoid valves,
- Supply air pressure regulator/filter,

Further accessories are available according to customer specifications.

Principle of operation:

The series 28a/x are used for metering the medium in a pig piping system. There is no constriction or narrowing of the pig piping.

The ball (4) with its cylindrical passage, rotates around the middle axis. The opening angle of the ball valve determines the flow rate between the Body (1) and the ball passage.

The control shaft is externally equipped either fitted with a manual gear-box or optionally with a pneumatic quarter turn actuator.

The sealing of the ball (4) is provided by exchangeable seat rings (9). The control shaft is sealed with a maintenance free PTFE V-ring packing (10), which is loaded with spring washers (11) located above the packing.

Pos.	Description	Pos.	Description
1	Main body	9	Sealing ring set
2	Body	10	Body sealing
4	Ball	11	Set of spring washers
5	Control shaft	12	V-ring packing
6	Stuffing box flange	13	Spring washer
7	Bearing bush	14	Screw
8	Bearing bush	15	Screw

Table 1 - Part list



Note: Before using the ball metering valve in hazardous-areas check whether this is possible according to ATEX 94/9/EG please refer to operating instructions! <BA 28a>

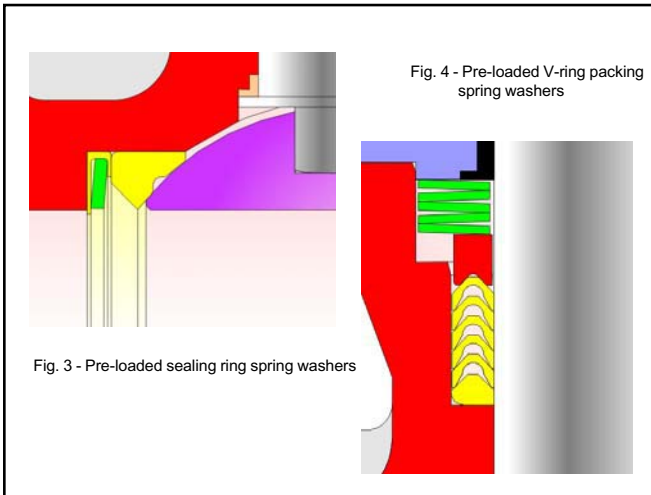


Fail-safe position:

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

- Ball valve with actuator „**Spring closes**“:
On failure of air supply, the ball valve will close. The opening of the ball valve occurs by increasing air supply against the force of the springs.

Advantages of the pre-loaded sealing system:



- maintenance free and self adjusting,
- two active seat rings,
- highest sealing effectiveness, even by extreme pressure- and temperature variations,
- longer service time,
- reduced increase in torque by rising temperature therefore smaller actuator required,
- **Conclusion:**
higher level of efficiency and extremely economical!

General technical data:

Nominal diameter	DN 50 to DN 150
Nominal pressure	PN 25 / 40
Temperature range	up to 200°C
Ball sealing	TFM (PTFE)
Leakage rate	Leakage rate A acc. DIN EN 12266-1, Test P12 (Leak rate 1 BO acc. DIN 3230 Part 3)
Flanges	DIN EN 1092-1, various forms
Packing	PTFE - V-ring packing loaded by spring washers

Table 2 - technical - data

Materials:

Main body	1.4571
Body	1.4571
Ball	1.4408
Control shaft	1.4571
Seat ring	TFM (PTFE)
Spring washer	WN 1.4401 lined with white PTFE
Packing	PTFE - V-ring-packing with spring washer made from 1.8159
lower bearing bushing	PTFE with 25% glass
top bearing bushing	PTFE with 25% carbon
Body gasket	PTFE / EPDM

Table 3 - Materials

Optional material:

- Control shaft and ball on request,
- sealing rings in PTFE-compounds,
- metal sealing system,
- sealing in graphite.

Pressure - Temperature - diagram:

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

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

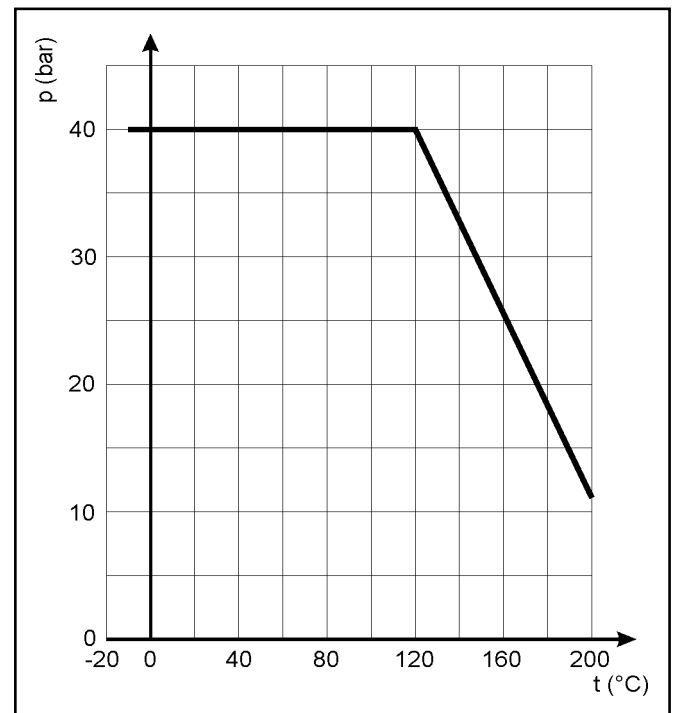


Fig. 5 - Pressure-Temperature-diagram

Torque and beakaway torque:

DN	Pressure difference Δp in bar		Md in Nm	Mdl in Nm							
	0	2		4	6	8	10	16	25		
50	226	497	17	25	28	32	36	40	43	55	71
80	437	961	49	70	79	89	98	108	118	146	190
100	749	1647	77	110	125	140	155	170	185	230	297
150	1497	3293	161	230	263	297	330	364	398	498	650

Table 4 - max. permissible torque, required torque and breakaway torque

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:

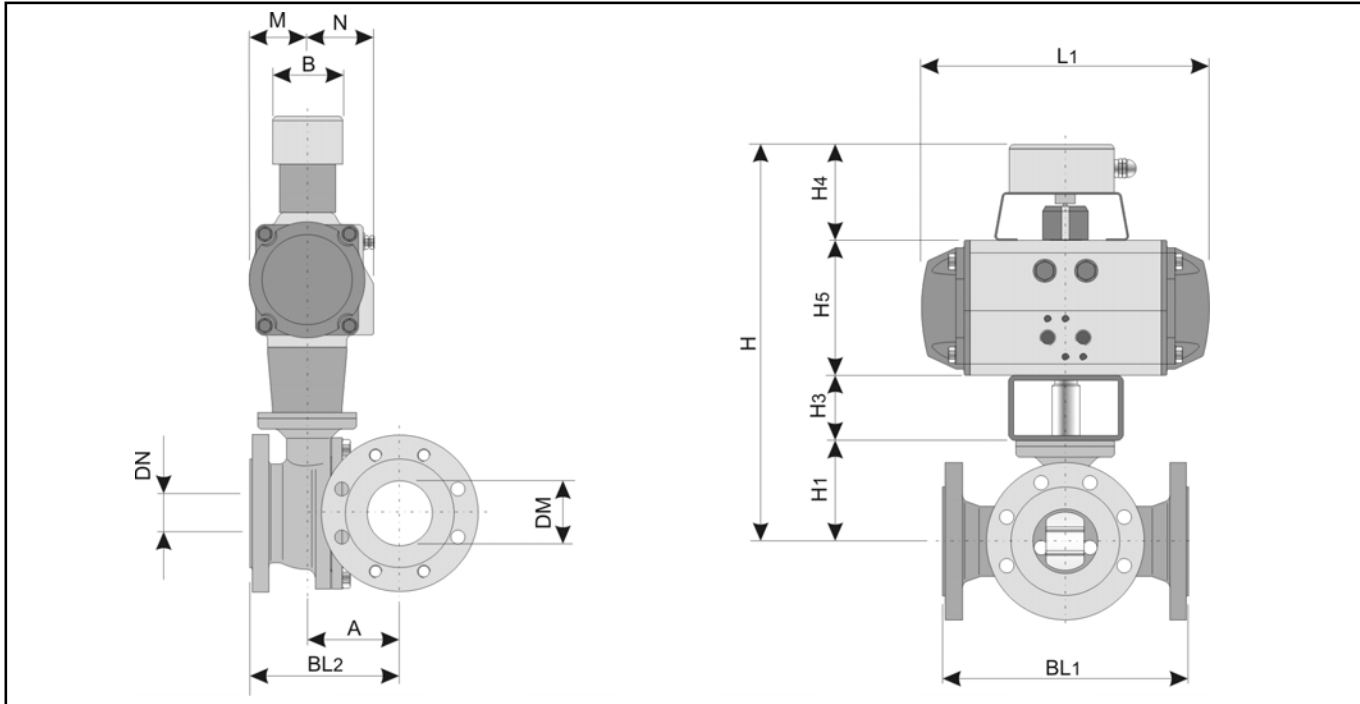


Fig. 6 - Dimensional drawing, metering valve with AT-quarter-turn actuator series 31a

DN	50	80	100	150
DM	54.5	82.5	107.1	159.3
OL1	230	310	350	480
OL2				
A				
H1	91	130.5	143.5	209
Actuator SRP	100-5	220-5	450-5	1200-5
H	H1 + H3 + H4 + H5			
H3	60	80	80	90
H4	110	110	110	110
W	80	80	80	80
DIN/ISO Connection	F05	F07	F12	F14
Weight in kg	25	40	55	125

Actuator SRP	100-5	220-5	450-5	1200-5
L1	247.5	315	408.5	543
H5	115	145	177	245
M	49.5	64	80	110
N	56.8	77	91.5	112
Weight SRP	4.3	9.6	17.5	43.5

Table 5 - Dimensions in mm and Weights in kg, Actuator series 31a for 5 bar air supply

Selection and sizing of the metering valve:

1. Determine the required nominal diameter.
2. Select the valve in accordance with table 2, table 3 and the Pressure-Temperature-diagram.
3. Select of the actuator acc. to table 4.
4. Select additional equipment/accessories

Ordering text:

Metering valve type: Series 28a/x,
 DN / PN , poss. special version
 Actuator (manufacturer):
 Signal pressure: bar,
 Limit switch (manufacturer):
 Solenoid valve (manufacturer):
 Others:

For your special requirements, please contact our technical sales department.

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Specifications are subject to change without notice