

# Piggable Ball Valve in flanged- and block versions Series 28y

## Application:

Stainless steel - Ball valve functioning as shut-off - and stopper ball valve in piggable systems or as virtually cavity-free shut off valve mounted on piggable T-Pieces ( Series 28x ) and end line stations (Series 28z).

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

The ball valve is designed as a two pieced ball valve, available as flanged ball valve for mounting between DIN-flanges or as block ball valve with threaded bores. The valves in modular-assembly design have the following special features:

- Inside diameter of pipe, according to DIN 2430,
- Seat rings pre-loaded on one side,
- Floating ball, i.e. sealed by both seating rings,
- Control shaft sealed by a 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 form B2 acc. DIN EN 1092-1, clearance-free with special flanges with male face/female face specially for piggable equipment or specifically designed according to customer requirements,
- Mounting flanges for accessories acc. DIN ISO 5211.

## Versions:

Series 28y Ball valve optionally in the following versions:

- Ball valve with hand-lever or manual gearbox,
- Ball valve with pneumatic multi turn actuator (refer to respective data sheet for details).

For the various types of plant, the valve performs the following functions:

- In the piggable pipeline: - as piggable shut-off valve,  
- as piggable stopper ball valve,
- On T-pieces/tail pieces: - as virtually cavity-free shut-off valve.

## Special versions:

- With contamination safeguard, to automatically detect leakage from the ball valve,
- Different inside diameters



Fig. 1 - Piggable Ball valve series 28y  
with AT-quarter-turn Actuator Series 31a and manual gearbox

# Piggable ball valve series 28y

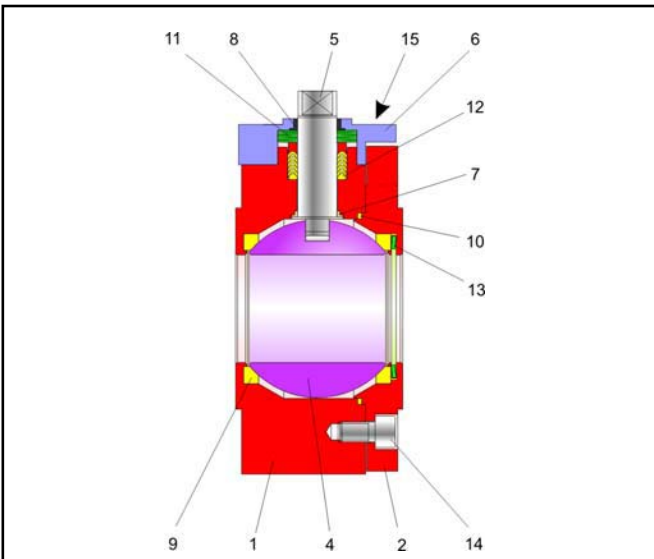


Fig 2 - Sectional drawing of a piggable Block ball valve Series 28y

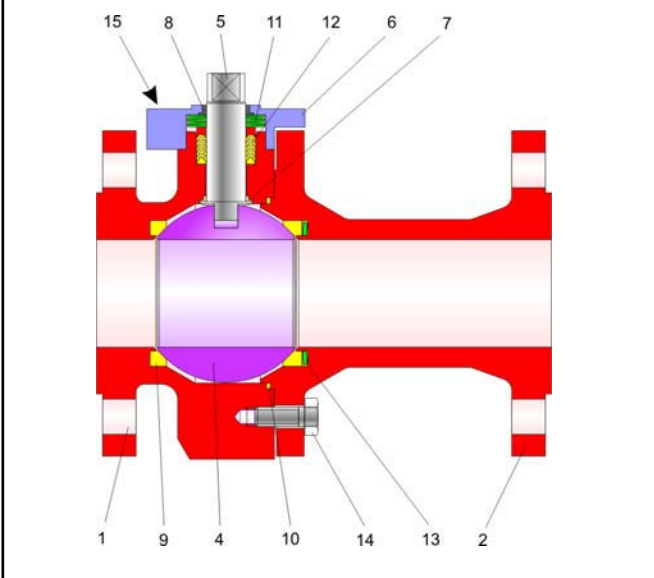


Fig. 3 - Sectional drawing of a flange ball valve Series 28y

## Additional equipment and mounting parts:

The following accessories are available either separately in combination for the control valve:

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

further accessories are available according to customer specifications.

## Principle of operation:

The series 28y piggable ball valve permits full through flow in both directions.

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

The control shaft is externally equipped with a hand-lever (18). Optionally, a pneumatic actuator or gear-box can be fitted.

The sealing of the ball (4) is provided by interchangeable seat rings (9).

The ball stem is sealed by a PTFE-V-packing (12), which is loaded by spring washers (11) located above the packing.



### Note:

Before using the ball valve in hazardous areas, check whether this is possible according to ATEX 94/9/EG.

Refer to operating instructions <BA 28y>.



### Fail-safe position:

Depending on how the pneumatic quarter turn 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 air supply fails:

#### • Ball valve with actuator „Spring closes,,:

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

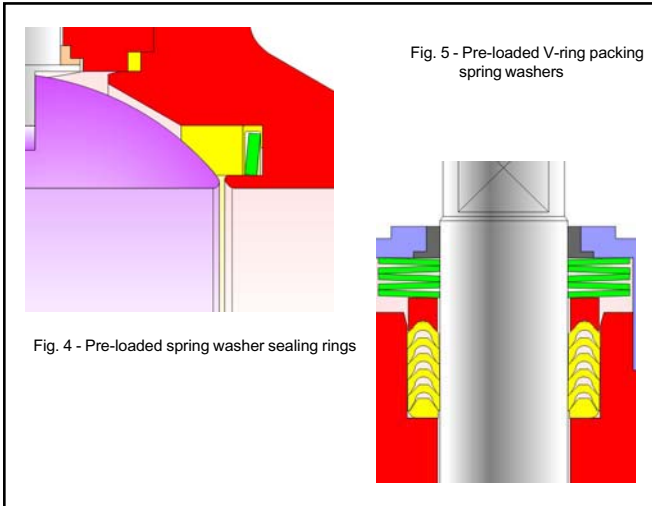
#### • Ball valve with actuator „Spring opens,,:

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Pos.	Description	Pos.	Description
1	Main body	9	Set of sealing rings
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 bushing	14	Screw
8	Bearing bushing	15	Screw

Table 1 - Parts list

## Advantages of the pre-loaded sealing system:



- 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,
- **Conclusion:**  
**higher level of Efficiency, and economical!**

## General technical Data:

Nominal diameters	DN 50 to DN 150
Nominal pressure	PN 25
Temperature range	Up to 200°C
Ball Sealing	TFM (PTFE)
Leakage rate	Leakage rate A acc. DIN EN 12266-1, Test P12 (Leakage 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 / 1.4408
Body	1.4571 / 1.4581
Ball	1.4571
Control shaft	1.4571
Seat ring	TFM (PTFE)
Spring washer	1.4122 lined with white PTFE
Packing	PTFE - V-Ring-Packing with spring washes made of 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 combination:

- Control shaft and Ball on request,
- Seat 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.

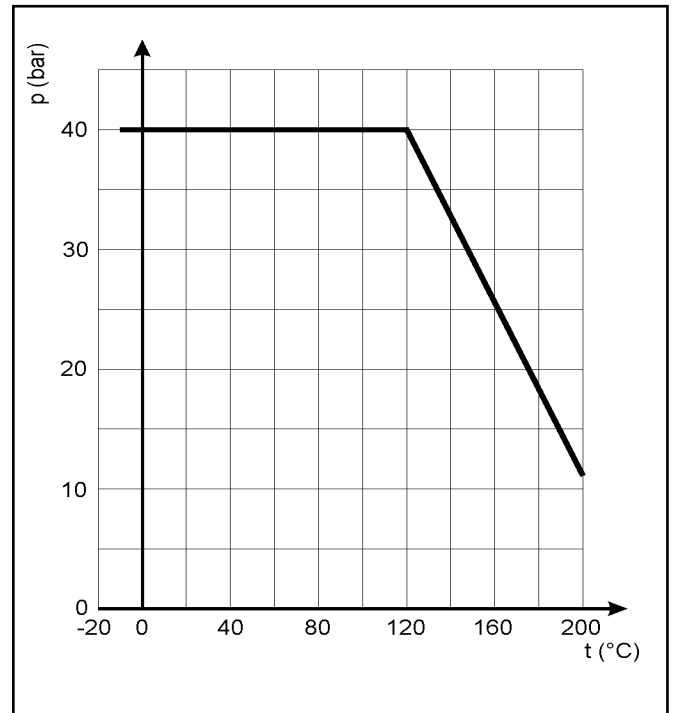


Fig. 6 - Pressure-Temperature-diagram

## Torque and breakaway torques:

DN	Mdmax. in Nm		Md in Nm	Mdl in Nm							
	1.4571	1.4542		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 times may affect the permissible torques and breakaway torques considerably.

The listed max. permissible operating torques are valid for the standard materials in table 3.

## Dimensions and Weights:

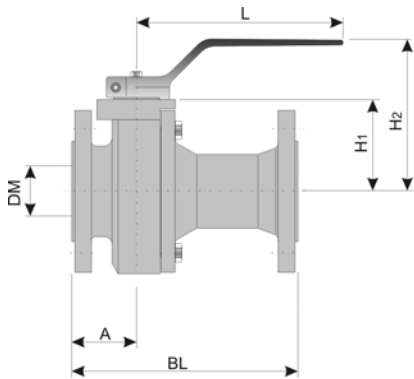


Fig. 7 - Dimensional drawing  
Flanged ball valve with Hand-lever

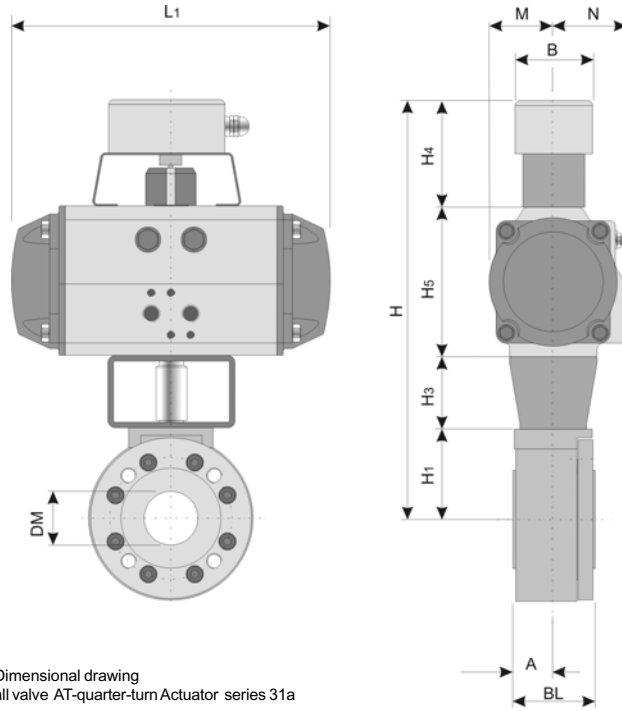


Fig. 8 - Dimensional drawing  
Block ball valve AT-quarter-turn Actuator series 31a

DN		50	80	100	150
DM		54.5	82.5	107.1	159.3
Flange-ball valve	OL	230	310	350	480
	A	65	85	98	165
	Weight	12	28	48	110
Block-ball valve	OL	83	114	190	250
	A	40	55	90	120
	Weight	8	18	33	70
H1		93,5	118,5	165	225
H2		161	186,5	233	-
L		350	350	350	-
Actuator	DAP	100	220	450	900
	SRP	150-5	450-5	900-5	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		F07	F07	F07	F14

DAP/SRP	100	220	450	900	1200
L1	247.5	315	408.5	487	543
H5	115	145	177	220.5	245
M	49.5	64	80	99	110
N	56.8	77	91.5	105	112
Weight DAP	3.8	8.4	14.5	25	35.5
Weight SRP	4.3	9.6	17.5	30.5	43.5

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

### Selection and sizing of the ball valve:

1. Determine the nominal diameter.
2. Select the valve over Table 2, Table 3 and the pressure-Temperature-diagram.
3. Select the actuator over Table 4.
4. Select additional equipment/accessories

### Ordering text:

Piggable Ball valve Series 28y,  
 DN . . . . / PN . . . . , optional special version  
 Actuator (manufacturer): . . . .  
 Signal pressure: . . . . bar,  
 Fail-safe position: . . . .  
 Limit switch (manufacturer): . . . .  
 Solenoid valve (manufacturer): . . . .  
 Others: . . . .

For your special requirements please contact our technical sales department.

## Pfeiffer Chemie-Armaturenbau GmbH

Hooghe Weg 41 • 47906 Kempen

Telephone: +49 (0)2152 / 2005-0 • Telefax: +49 (0)2152 / 1580

E-Mail: [vertrieb@pfeiffer-armaturen.com](mailto:vertrieb@pfeiffer-armaturen.com) • Internet: [www.pfeiffer-armaturen.com](http://www.pfeiffer-armaturen.com)

Specifications subject to change without notice