Suministros Industriales

BVA

Lined Standard ASME/ANSI Ball Valves

Fields of application

The design of the ball valves series BVA is based on more than 30 years of application experience with lined ball valves. They provide an excellent ratio of economic and operational performance in a wide variety of process applications.

The Richter ball valve BVA is designed

- as shut-off and automated valves for corrosive and hazardous media,
- where stainless steel, special metals, PVDF etc. are not sufficiently corrosion-resistant,
- as alternative to valves made of exotic special metals and
- serve as reliable alternative to lined plug valves due to higher flow rates, much lower torques and minimum maintenance.

Product features

- **PFA-lined one-piece ball/stem unit,** optional Al_2O_3 ceramic ball
- **Full ports of BVA sizes 1" and 2" to ASME/ANSI** result in high flow rates, minimum pressure losses and a more efficient piping system.
- **BVA sizes 3", 4" and 6"** to ASME/ANSI with reduced port feature a compact design with smaller valve body envelope and lowest possible torque for economic actuation.
- Locking devices
- Gear operators on request

Type code	manual actuation	remote actuation
• ASME/ANSI ball valve	BVA/...	BVAP/...
• Lining PFA fluoroplastic	.../F	

Efficient alternative to plug valves

- Plug valves provide some ²/₃ of full port ball valve flow only whereas full port ball valves allow for downsizing of pipeline system by at least 1 size. Reduced port ball valves provide flows equal to plug valves.
- Plug valves require 100-350 % more torque, therefore in most cases larger actuator needed.
- The plug is seated in the body lining instead of seat rings. Wear and tear requires body or complete valve ("throw away valve") to be exchanged. No ceramic option.
- Plug valves have conventional packing-type stem sealing, not self-adjusting, not maintenance-free.
- Cavity volume underneath plug
- Plug core usually made of ductile iron unlike ball valves with SS ball core

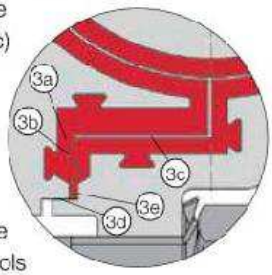
a) Standard one-piece PFA lined ball/stem unit
b) optional Al_2O_3 ceramic ball for solid-containing fluids

Reliable body and seat sealing

① **3 mm (⅛") thick virgin PFA body lining**
- High permeation resistance
- Vacuum-proof anchored
- Translucent, optimum quality assurance

② **Pressure-bearing body made of ductile cast iron** EN-JS 1049 (0.7043)/ASTM A395, absorbs system and pipe forces.

③ **Permanent body flange sealing**
- Effective even under the most frequent thermal cycle conditions
- Sealing zone (3a) with **full lining thickness**
- **Labyrinth-like sealing** (3b) maximizes surface pressure.
- **Body pieces position themselves properly** by means of the cup and cone shapes (3c) of each piece. **Metal centering** (3d) withstands lateral and angular pipe forces.
- **Almost metal-to-metal flange contact** (3e) in the circumference area controls the effects of temperature variations.



④ **One-piece ball/stem design**
- Stainless steel core
- Eliminates individual plastic lined mating parts for higher pressure/temperature ratings and optimises operational safety.
- Al_2O_3 (99,7 %) ceramic ball option

⑤ **Energised PTFE seat rings** provide a permanent spring load onto the ball and ensure of gas-tight sealing.

⑥ **Time-tested maintenance-free stem seal**
- Outstanding long-life seal performance
- Gas-tight to EN 12266, leakage rate A
- Spring gland follower ensures of tightness even with changing conditions.
- Visual inspection of sealing load
- Manually adjustable from outside

⑦ **Universal ISO 5211 mounting dimensions**

⑧ **External corrosion protection**
Body epoxy coated. Packing gland, lever, lever stop, nuts and bolts stainless steel. Optional ASTM A193/B7M bolting.

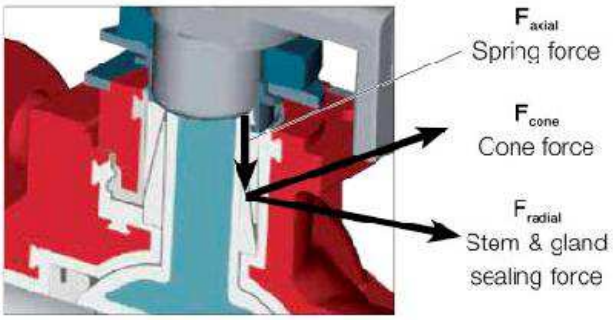
RICHTER Process Pumps & Valves

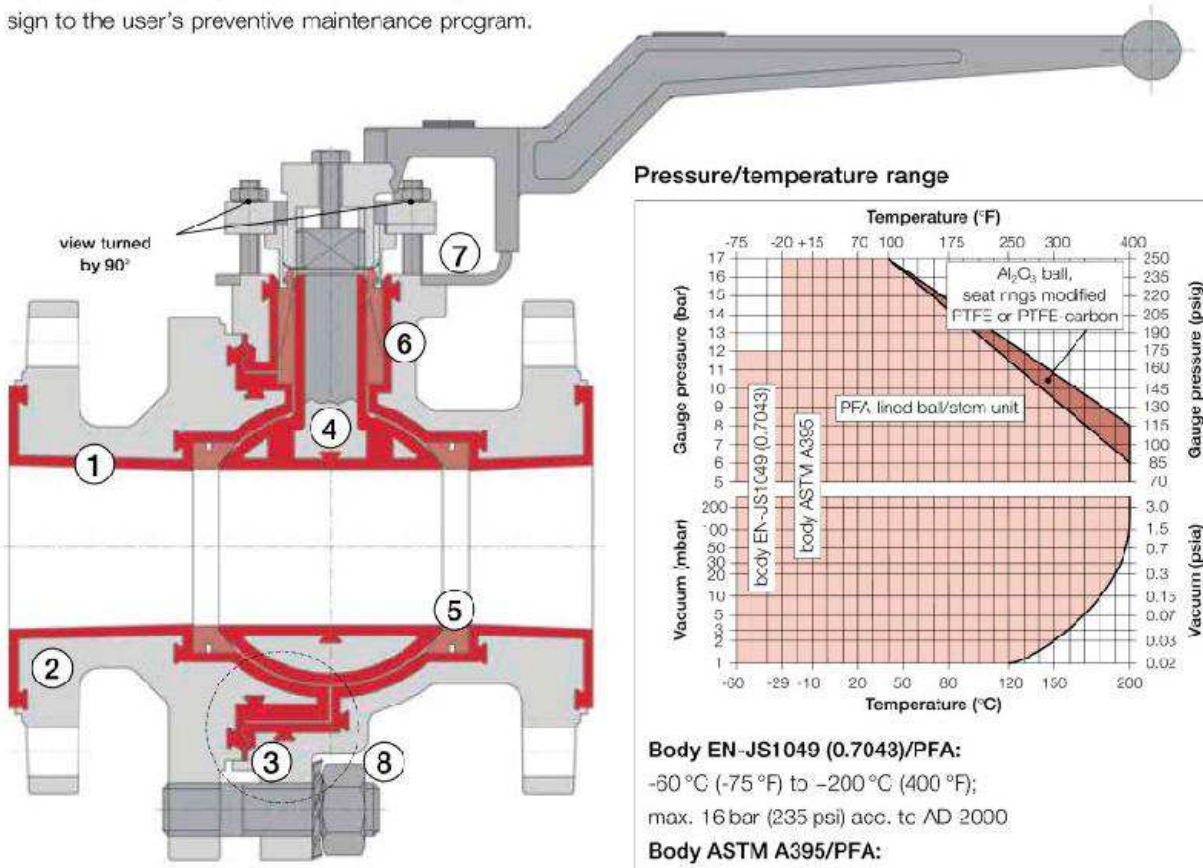
Innovative cone shape stem seal design

The PTFE packing insert translates a low axial thrust into a higher radial sealing force by means of the law of cone. The packing gland is designed with a diameter as small as possible. The result: outstanding stem seal performance under the most challenging conditions, permanent preload controlled manual adjustability at any time.

An added benefit is the ability to monitor the live loaded condition of the stem seal simply by inspecting the "gap" between the packing followers, thus lending this design to the user's preventive maintenance program.

Stem seal design





Pressure/temperature range

Body EN-JS1049 (0.7043)/PFA:

-60 °C (-75 °F) to -200 °C (400 °F);

max. 16 bar (235 psi) acc. to AD 2000

Body ASTM A395/PFA:

-29 °C (-20 °F) to -200 °C (400 °F);

max. 17.2 bar (250 psi) acc. to ASME B16.42

For low temperature applications observe local rules!

A special material is used for the metal core of the ball/stem and stem seal in case of operating temperatures below -10 °C (15 °F).

Flow rates

Valve size DVA (inch)	K_v (m^3/h)	C_v (US gpm)
1"	60	70
1½"	190	221
2" & 3"	280	326
4"	587	684
6"	1250	1456
–	2800	3262

Ball Valve see series KN/KNA

Operating torques PFA-lined ball/stem unit

Δp bar (psi)										
3 (45)		6 (85)		10 (145)		17.2 (250)		max. adm.	
Nm	in-lbs	Nm	in-lbs	Nm	in-lbs	Nm	in-lbs	Nm	in-lbs
8	71	8	71	8	71	10	89	70	620
20	177	20	177	20	177	25	221	225	1990
25	221	25	221	25	221	30	268	225	1990
50	443	50	443	62	549	83	735	500	4425
80	708	80	708	92	814	120	1062	500	4425
200	1770	230	2036	270	2390	315	2788	2200	19470

Operating torques Al_2O_3 ceramic ball

Δp psi (bar)									
3 (45)		6 (85)		10 (145)		17.2 (250)		max. adm.	
Nm	in-lbs	Nm	in-lbs	Nm	in-lbs	Nm	in-lbs	Nm	in-lbs
10	89	10	89	10	89	12	106	32	283
20	177	20	177	20	177	25	221	80	708
25	221	25	221	25	221	30	266	120	1062
60	531	60	531	72	637	95	841	250	2215
90	797	130	1151	150	1328	200	1770	350	3098
350	3098	400	3540	580	5133	770	6815	1200	10620

Torques measured with water 20 °C (68 °F). Depending on the medium, e.g. gases or viscous resp. crystalizing liquids, the torques could increase.