

## Neles™ PFA lined ball valve PB2 series

PB2 series PFA lined ball valve is a full bore design to minimize pressure loss and provide maximum flow capacity. The flow port and internal parts are fully covered with PFA for excellent corrosion resistance. Spring loaded V-ring packing provides extremely long cycle life with minimum maintenance. The ISO mounting pad makes it easy for actuator automation.



### Technical description

- Sizes DN 15 to 150 (NPS 1/2 to 6)
- ASME Class 150
- Two-piece body construction
- Live-loaded stem packing
- Bi-directional bubble-tight shut-off

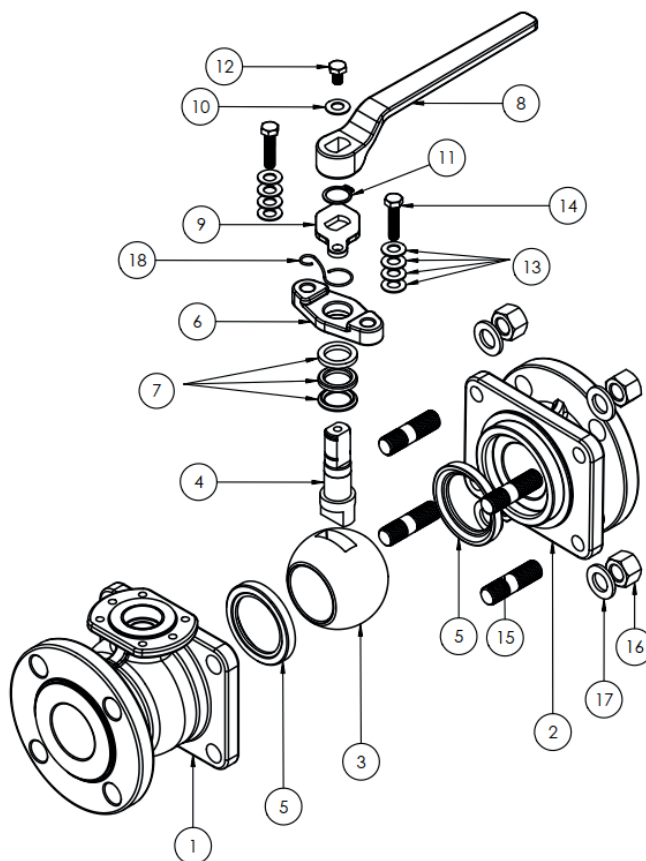
#### Features

- ISO 5211 mounting pad for direct mounting of handle, gear operator, manual override, or actuator
- Internal entry blow-out proof stem design
- Spring loaded stem seal provides long cycle life and low emissions with minimal maintenance
- Anti-static grounding between stem and body
- Lockable handle for manual operation
- Liner thickness no less than 2.5 mm
- 15 Kv spark test is 100% done to check liner porosity
- 100% visual inspection on lining parts of each valve to avoid pin holes, porosity, cracks or surface discontinuities

#### Applications

- Sulfuric acid
- Nitric acid
- Hydrochloric acid
- Phosphoric acid
- Chlorine
- Bromine
- Sea water
- Brine

## Exploded view and parts list



## Bill of material and parts list

Part no.	Part name	Material	
		Ductile iron	Stainless steel
		D2	S4
1	Body	ASTM A395 Ductile Iron+PFA	ASTM A351 CF8+PFA
2	Cap	ASTM A395 Ductile Iron+PFA	ASTM A351 CF8+PFA
3	Ball	ASTM A351 CF8+PFA or ASTM A276 304+PFA	
4	Stem	ASTM A276 304+PFA	
5	Seat	TFM 1600	
6	Gland	ASTM A351 CF8	
7	Gland packing	PTFE	
8	Handle	ASTM A216 WCB	ASTM A351 CF8
9	Stop plate	ASTM A276 304	
10	Washer	ASTM A276 304	
11	C-ring	ASTM A276 304	
12	Bolt	ASTM A193 Gr. B8	
13	Washer	ASTM A276 304	
14	Gland bolt	ASTM A193 Gr. B8	
15	Body bolt	ASTM A193 Gr. B8	
16	Body nut	ASTM A194 Gr.8	
17	Washer	ASTM A276 304	
18	Anti-static spring	ASTM A313 302	

## Technical specifications

Nominal diameter: NPS 1/2 – 6  
 Pressure rating: Class 150  
 Flange accommodation: ASME B16.5

Face to face length: ASME B16.10  
 Leakage rate: API598  
 Standards followed: ASME B16.34, ASME B16.10

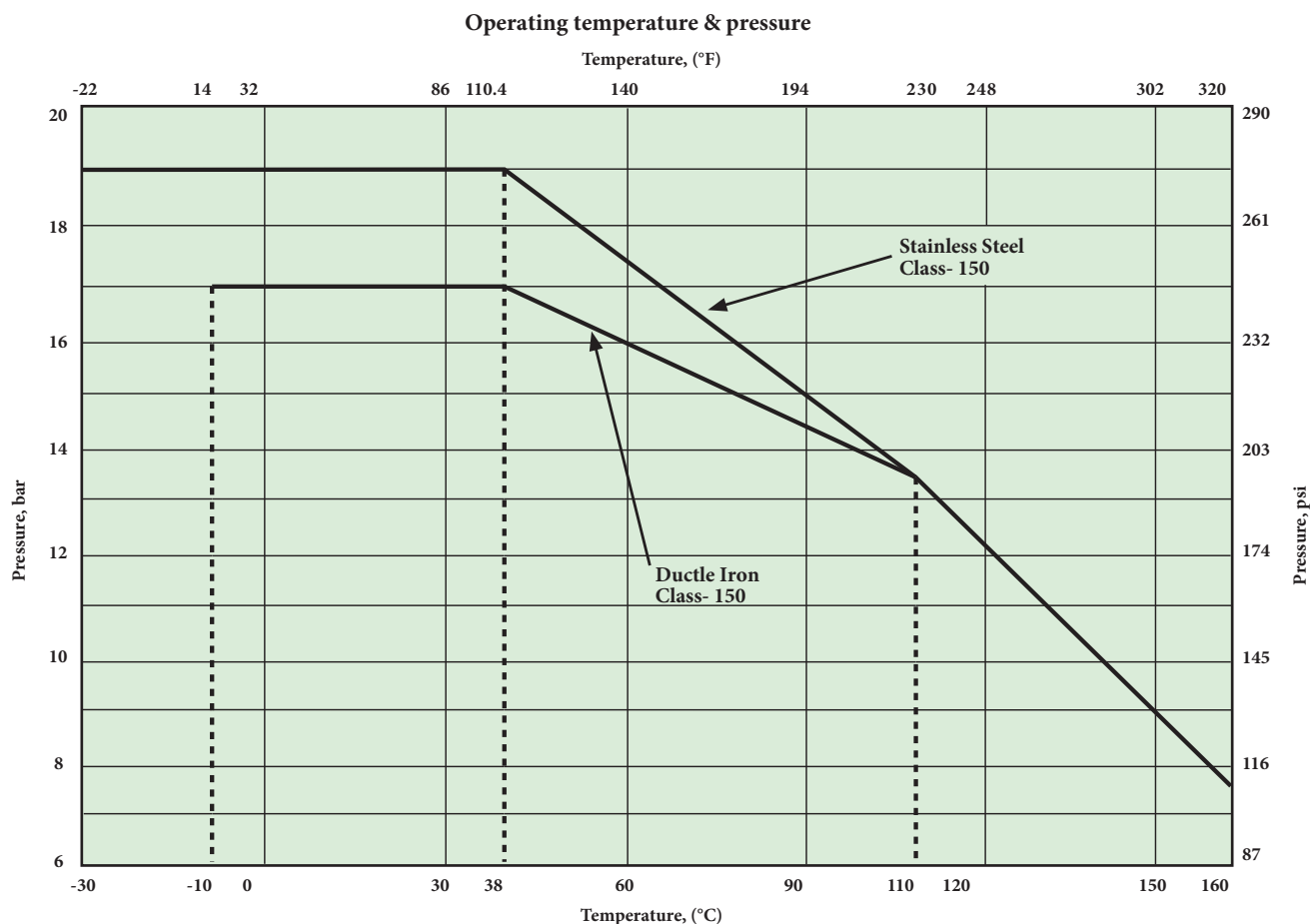
## Flow data

The table at right provides flow coefficients for PB2 series valves covered in this bulletin. Cv values represent the flow of water at +600 °F through the valve in US gallons per minute at a pressure drop of 1 psi. The metric equivalent, Kv, is the flow of water at +160 °C through the valve in cubic meters per hour at a pressure drop of 1 kg/cm<sup>2</sup>.

Valve size NPS	Cv	Kv
1/2	19	16
3/4	45	39
1	88	76
1 1/2	257	220
2	425	368
2 1/2	783	677
3	1053	902
4	2130	1843
6	3920	3359

## Operating temperature & pressure

Valve ratings, indicated by solid lines in the chart, are based on differential pressure with the valve ball in the fully closed position. The dotted lines indicate temperatures where the pressure ratings change. The solid lines are the valve rating as established by the body material, seat and seal materials, and lining material. Ductile iron valves are rated to a minimum temperature of -10 °C. Low temperature limit for the TFM seat is -30 °C.



## Valve torque data

Use this torque chart as a guide for actuator selection. The recommended minimum actuator torque includes a safety factor and is suitable for the maximum differential pressure of the fluid that the valve can withstand.

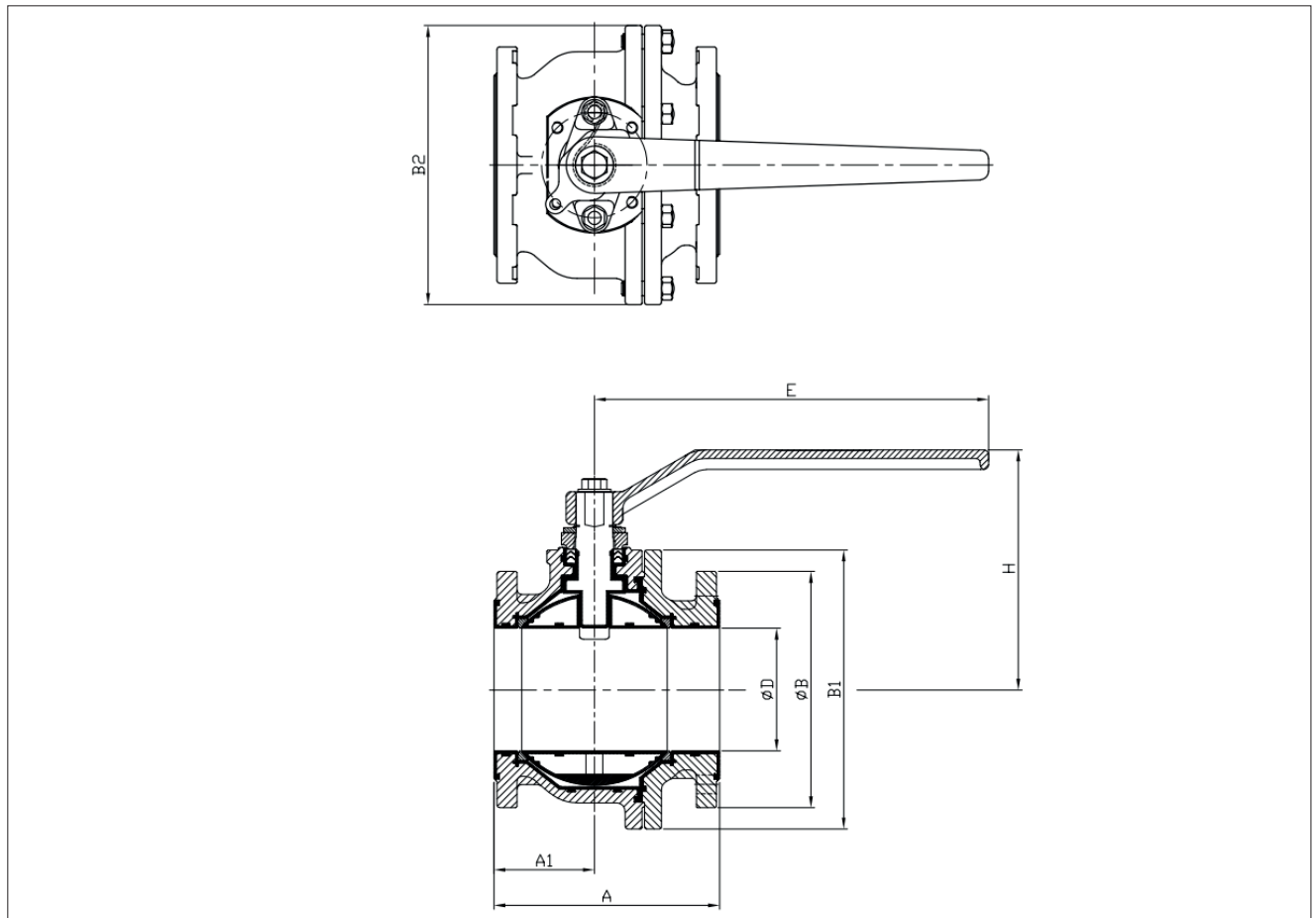
Valve size NPS	Recommended actuator torque		
	Nm	ft-lb	kgf.cm
1/2	6	4	56
3/4	7	6	70
1	8	6	84
1.5	21	15	210
2	35	25	350
2.5	48	35	490
3	62	45	630
4	76	56	770
6	364	269	3705

## Actuator selection

Selected rack and pinion actuator sizes in the chart are based on 4 barg minimum air supply pressure. Selected spring return actuator size is suitable for fail open or fail close configuration.

Valve size NPS	Recommended actuator model 4 bar air supply	
	RNP DN00	RNP SR40
1/2	RNP 40	RNP 50
3/4	RNP 40	RNP 50
1	RNP 40	RNP 50
1.5	RNP 63	RNP 80
2	RNP 63	RNP 90
2.5	RNP 80	RNP 100
3	RNP 80	RNP 100
4	RNP 90	RNP 110
6	RNP 150	RNP 200

## Dimensions



Valve size NPS	Dimensions								ISO5211	Weight Kg
	ΦD	A	A1	ΦB	B1	B2	H	E		
1/2"	15	108	48.1	88.9	65.8	106	83	145	F04	2.6
3/4"	20	117	50.8	98.6	67.9	108	84	145	F04	3
1"	25	127	53.6	108	85.3	113	101	165	F05	4.5
1 1/2"	40	165	76.5	127	106.4	145	128	225	F07	8.8
2"	50	178	81.2	152.4	119.1	148	136	225	F07	11.4
2 1/2"	65	190	88.3	177.8	158.5	179	168	350	F07	16
3"	80	203	101.5	190.5	186.2	230	177	350	F07	21.7
4"	100	229	91.5	228.6	228	228	233	400	F10	33.7
6"	145	267	118.9	279.4	332	332	288	466.5	F12	71.7

## How to order

1	2	3	4	5	6	7	8	9
PB2	C	A	01	D2	Z	T	A	-

1. sign	Valve series & style
PB2	PFA lined ball valve, full bore, Face-to-face: ASME B16.10

2. sign	Pressure rating
C	ASME Class 150

3. sign	Construction
A	Standard construction, PFA lining.

4. sign	Size NPS
0H	1/2"
3Q	3/4"
01	1"
1H	1 1/2"
02	2"
2H	2 1/2"
03	3"
04	4"
06	6"

5. sign	Material of body & trim		
	Body	Ball	Stem
S4	CF8+PFA	304+PFA	304+PFA
D2	DI+PFA	304+PFA	304+PFA

6. sign	Material of seat
Z	TFM 1600

7. sign	Packing material
T	PTFE Live loaded packing

8. sign	Version
A	Model A

9. sign	Additional requirement
-	No
LD	Locking device



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