

Sanitary Check Valves

- *Biotech*
- *Pharmaceutical*





Sanitary Check Valves

for use in biotech and pharmaceutical applications

SANITARY CHECK VALVES USE NO INTERNAL SPRINGS

PBM sanitary check valves are specifically designed for use in biotech and pharmaceutical applications. The valves feature a spring-less design which eliminates the concern of media entrapment and particulate generation associated with spring-loaded designs.

- 1/2" through to 4" (DN 15 - DN 100) vertical and horizontal design, larger sizes available
- Available in 316L, Hastelloy, AL6XN and other materials available
- Body interior is polished to 20 Ra (.51 μm) or better
- Sanitary clamp ends standard; extended sanitary tube weld ends upon request
- Innovative poppet design eliminates the use of a spring and guide
- No cracks, crevices, or other localized depressions which could otherwise trap fluid.
- Applicable for liquid and low pressure steam service
- Elastomer materials are FDA compliant, USP Class VI

U.S. Patent 8,794,256



Specification

PBM Sanitary Check Valve, Vertical installation Model VC / Horizontal Installation Model HC, Body and end shall be constructed of bar stock material 316L stainless, Hastelloy® C-276 or C-22®, AL6XN®, or other materials with all internal surfaces 20 Ra or better. Check valve shall use no internal springs or guides. Poppet shall be constructed of PTFE. Vertical and horizontal valves shall be of split body design using sanitary clamp and USP Class VI gasket. All materials shall be FDA compliant. Elastomers shall be USP Class VI. End connections shall be specified as sanitary clamp or extended butt weld for US gauge tubing. Extended butt weld in 316L material has 0.005 to 0.017% sulfur control. Valve body shall include marking designating direction of flow.

Vertical Installation: PBM Model VC (material) (size) (end connections) (poppet material) (polish)
Horizontal Installation: PBM Model HC (material) (size) (end connections) (poppet material) (polish)

VERTICAL CHECK VALVE

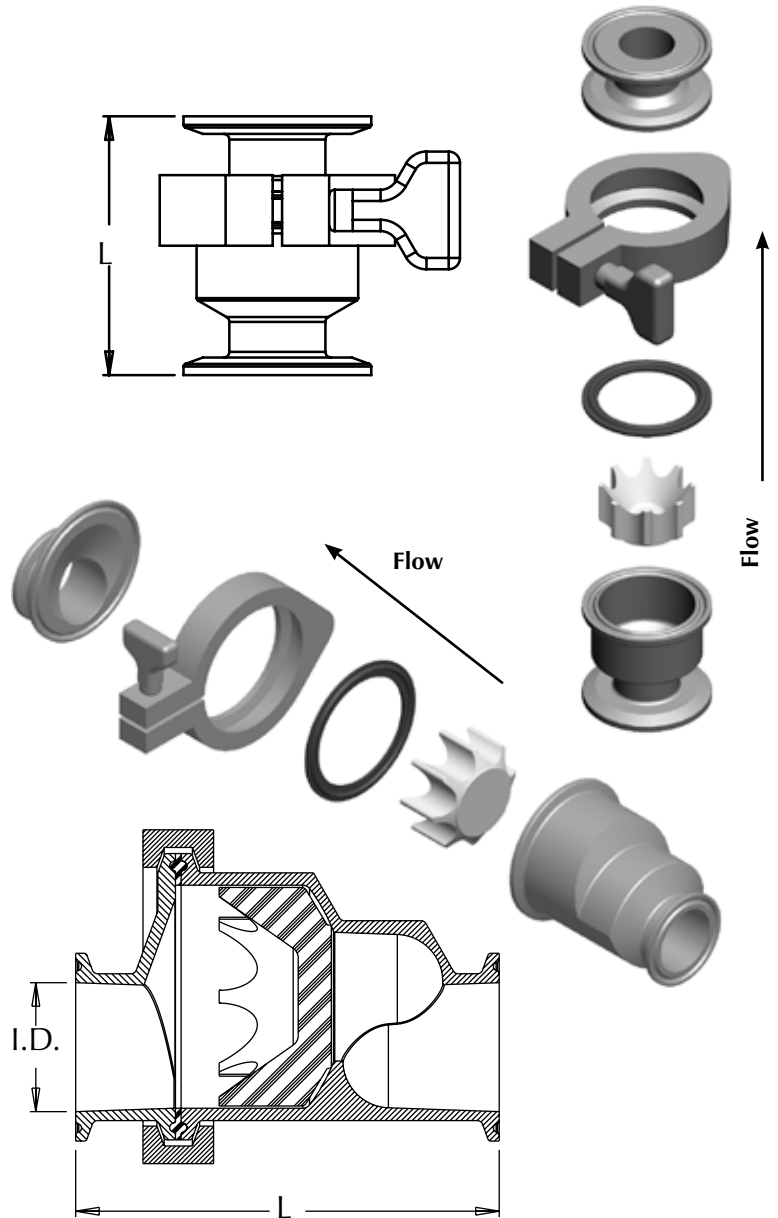
Valve Size	ID		OD		L			
	Buttweld Ends				X- Clamp		F- Weld	
	inches	mm	inches	mm	inches	mm	inches	mm
1/2" DN 15	0.37	9.4	0.50	12.7	2.25	57.2	5.25	133.4
3/4" DN 20	0.62	15.7	0.75	19.1	2.50	63.5	5.50	139.7
1" DN 25	0.87	22.1	1.00	25.4	2.75	69.9	5.75	146.1
1-1/2" DN 40	1.37	34.8	1.50	38.1	3.50	88.9	6.50	165.1
2" DN 50	1.87	47.5	2.00	50.8	4.0	101.6	7.00	177.8
2-1/2" DN 65	2.37	60.2	2.50	63.5	6.50	165.1	10.00	254
3" DN 80	2.87	72.9	3.00	76.2	6.50	165.1	10.00	254
4" DN 100	3.83	97.3	4.00	101.6	7.50	190.5	11.50	292.1

Note: All tube end valves have tangent length on each end per BPE.

HORIZONTAL CHECK VALVE

Valve Size	ID		OD		L			
	Buttweld Ends				X- Clamp		F- Weld	
	inches	mm	inches	mm	inches	mm	inches	mm
1/2" DN 15	0.37	9.4	0.50	12.7	2.75	69.9	5.75	146.1
3/4" DN 20	0.62	15.7	0.75	19.1	3.50	88.9	6.50	165.1
1" DN 25"	0.87	22.1	1.00	25.4	3.50	88.9	6.50	165.1
1-1/2" DN 40	1.37	34.8	1.50	38.1	4.50	114.3	7.50	190.5
2" DN 50"	1.87	47.5	2.00	50.8	5.50	139.7	8.50	215.9
2-1/2" DN 65	2.37	60.2	2.50	63.5	9.50	241.3	13.00	330.2
3" DN 80	2.87	72.9	3.00	76.2	9.50	241.3	13.00	330.2
4" DN 100	3.83	97.3	4.00	101.6	11.00	279.4	15.00	381.0

Note: All tube end valves have tangent length on each end per BPE.



Ordering Codes for PBM Sanitary (Springless) Check Valves

Product Style		Materials		Size		Upstream End Connection		Downstream End Connection		Poppet & Gasket		Polish (Mech. unless noted)		
VC	Vertical Check Valve	HL	316L S/S (Standard)	C	1/2"	F	Ext tube buttweld	-	Same as Upstream	T	PTFE / EPDM	A	20 Ra ID (standard)	
		C-	Hastelloy® C-276	D	3/4"	X	clamp - tube	F	Ext tube buttweld	S	PTFE / Viton	B	32 Ra OD	
HC	Horizontal Check Valve	P-	AL6XN®	E	1"			X	clamp - tube	C	PTFE / PTFE	C	20 Ra ID / 32 Ra OD	
		Y-	Hastelloy® C-22®	G	1-1/2"								D	15 Ra ID
				H	2"								E	10 Ra ID
				J	2-1/2"								F	20 Ra ID after EP
				K	3"								G	15Ra ID after EP
				L	4"								H	10Ra ID after EP
												I	5Ra ID	
												K	5Ra ID / 32Ra OD	
												L	20Ra ID / 32Ra OD / EP	
												M	EP ID & OD	
												N	10Ra ID / 32Ra OD	
												O	15Ra ID / 32Ra OD / EP	
												Q	15Ra ID / 32Ra OD	
												S	10Ra ID / 32Ra OD / EP	

Cold Working Pressure CWP

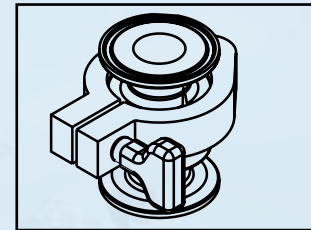
- 2" and smaller, full vacuum to 235 psig
- 2-1/2" - 3", full vacuum to 150 psig
- 4", full vacuum to 100 psig

Temperature Range = -10°F to +300°F (-23°C to 149°C)

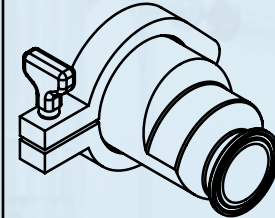
Crack Pressure = 0.1 psi

Rated up to 300°F (149°C) saturated steam at 55 psig (3.8 bar)

Applications: Gas, Liquid, Low pressure steam



Vertical (VC)



Horizontal (HC)

Cv (gpm)

Cv is defined as the number in U.S. gallons of water per minute, at ambient temperature, that will flow through a valve at 1 psi pressure drop.

Size		Vertical Check (CV)	Horizontal Check (HV)
1/2"	DN 15	2.3	2.3
3/4"	DN 20	6.2	6.2
1"	DN 25	13	13
1-1/2"	DN 40	29	29
2"	DN 50	51	51
2-1/2"	DN 65	72	72
3"	DN 80	95	95
4"	DN 100	170	170

Component	Material	Specification
Body (VC & HC)	316L Stainless steel	Bar Stock: A479, S31603
Bonnet (HC only)	Hastelloy® C-276	Bar Stock: B574, N10276
	AL6XN®	Bar Stock: B691, N08367
	Hastelloy® C-22®	Bar Stock: B574, N06022
Poppet	PTFE	Virgin PTFE, USP Class VI
Body Clamp gasket (vertical)	Viton, PTFE, EPDM	USP Class VI
Body Clamp	304 Stainless Steel	CF8 or F304

Testing: Maximum Allowable Leakage Rates

Size		PTFE Poppet
1/2", 3/4", 1"	DN 15, 20, 25	5 drops/min @ 3 psi (.2 bar)
1-1/2"	DN 40	8 drops/min @ 3 psi (.2 bar)
2"	DN 50	10 drops/min @ 3 psi (.2 bar)
2-1/2" - 3"	DN 65, 80	15 drops/min @ 3 psi (.2 bar)
4"	DN 100	20 drops/min @ 3 psi (.2 bar)

Standard Surface Finish

Component	ID Finish	OD Finish	Type
Body, End*	20 Ra max	63 Ra max	Standard finish, Mechanical
PTFE poppet	-	-	Standard finish, Mechanical

*Optional finer finishes and electropolish available



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