Cast steel bellows seal bolted bonnet globe valves NUCLEAR

QS Quick sheet

Available for nuclear class 1, 2, and 3 and safety related applications.

Flanged or butt weld 2-8" (50-200 mm) ASME classes 150, 300, 600 with optional provision for seal welding

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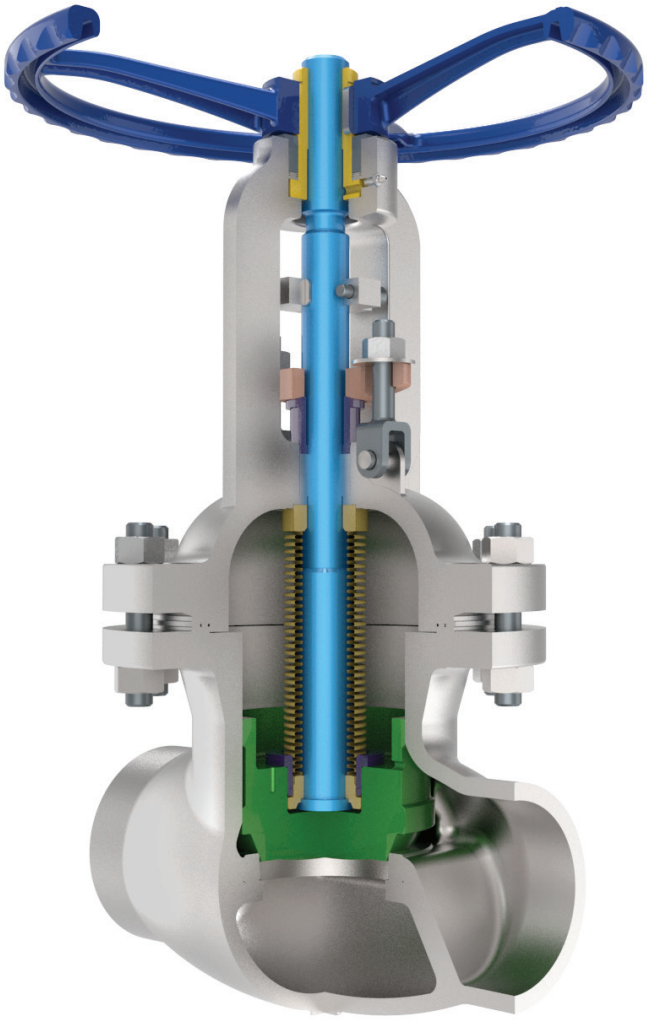

Design features

- Long cycle life bellows (3000 cycles) in Gr. 321 (stainless), or Inconel.
- Bolted body-bonnet joints for fast serviceability. Fully enclosed spiral wound Gr. 316 (stainless) graphite gaskets.
- Non-rotating stem prevents torsion of bellows.
- Two-secondary stem seals:
  a) Back seat in open position.
  b) Graphite packing.
- Bellows monitoring port (optional). A plug can be connected to the space above the bellows to monitor performance.
- Seat and disc hardfaced with Stellite 6, ground and lapped.

Available in SA/216 Gr. WCB, A 217 Gr. WC6, SA/A 352 Gr. LCB and SA/A 351 Gr. CF8M.

Class	Figure number
150	0074V
300	1074V
600	2074V

Dimensions and weights

Size: in mm	Class 150					Class 300					Class 600				
	Center to top Closed	Center to top Open	End to End	Weight lb kg		Center to top Closed	Center to top Open	End to End	Weight lb kg		Center to top Closed	Center to top Open	End to End	Weight lb kg	
			BW or FL	BW	FL			BW or FL	BW	FL			BW or FL	BW	FL
2 50	14.35 364	14.98 380	8.00 203	50 23	57 26	14.35 364	14.98 380	10.50 267	54 25	62 28	17.64 448	18.14 461	11.50 292	81 37	93 42
2½ 65	14.72 374	15.34 390	8.50 216	56 26	60 27	14.72 374	15.34 390	11.50 292	65 30	74 34	18.00 457	19.43 494	13.00 330	120 54	131 59
3 80	17.07 433	17.82 453	9.50 241	85 39	105 48	17.07 433	17.82 453	12.50 318	91 41	117 53	24.30 617	25.03 636	14.00 356	175 79	195 88
4 100	21.16 537	22.16 563	11.50 292	124 56	156 71	21.16 537	22.16 563	14.00 356	134 61	175 79	27.72 704	28.75 730	17.00 432	288 131	360 163
6 150	23.76 604	25.01 635	16.00 406	246 116	286 130	23.76 604	25.01 635	17.50 445	267 121	343 156	38.82 986	40.32 1024	22.00 559	560 254	660 299
8 200	28.85 733	30.46 774	19.50 495	413 187	443 201	31.98 812	33.59 853	22.00 559	455 206	573 260	51.56 1310	53.56 1360	26.00 660	1418 643	1588 720

Standard materials

Part	Carbon steel	Stainless steel
Body/bonnet	SA/A 216 Gr. WCB	SA/A 351 Gr. CF8M
Stem	Gr. 13 CR	Gr. 316
Disc[1]	CA-15 or 13CR or A 105 HF	CF8M HFor F316 HF
Bellows	Gr. 321 (stainless), Inconel	
Bellows fitting	Gr. 321 (stainless)	
Packing	Graphite	
Seat	Integral hardfaced Stellite 6	
Stem nut	Austenitic Ductile Iron A439 Gr D-2C	

Pressure/Temperature ratings

Material	Temp. °F °C	Working pressure psig bar			Shell Test Pressure psig bar		
		150	300	600	150	300	600
SA/A216 Gr.WCB	100 38	285 20	740 51	1480 102	450 31	1125 78	2225 153
	800 427	80 5.5	410 28	825 57			
SA/A 351 Gr. CF8M	100 38	275 19	720 50	1440 99	425 29	1100 76	2175 150
	1000 538	20 1.4	350 24	700 48			

How to order bellows seal valves

Type of connection	Size of connection			Pressure rating	Type		Body/bonnet style			Body material		Trim	
A	B		–	C	D		E		–	F		G	
B	1	0		0	0	7	4	R		0	2	M	S

Example: is a NPS 3 ASME Class 150 bolted bonnet bellows seal globe valve in cast carbon steel with a butt weld connection.

The figure numbers shown on this key are designed to cover essential features of Velan valves.
Please use figure numbers to ensure prompt and accurate processing of your order. A detailed description must accompany any special orders.

A TYPE OF CONNECTION

B	Butt weld ends	**W**	Socket weld ends
F	Flanged, B16.5	**X**	Butt weld (intermediate class)
S	Thread NPT		

B SIZE OF CONNECTION

Sizes shown in NPS (DN). Customers have the choice of specifying valve size as part of the valve figure number (**B**) using the numbers below, or indicating valve size separately.

EXAMPLES:
F08-2074B-13MS (valve size is part of figure number)
2F-2074B-13MS (valve size is shown separately)

2	⅜ (10)	**06**	1¼ (32)	**10**	3 (80)	**08**	2 (50)	**12**	4 (100)	**15**	8 (200)
03	½ (15)	**07**	1½ (40)	**11**	3½ (90)	**09**	2½ (65)	**13**	5 (125)	**16**	10 (250)
04	¾ (20)	**08**	2 (50)	**12**	4 (100)	**10**	3 (80)	**14**	6 (150)	**18**	12 (300)
05	1 (25)	**09**	2½ (65)	**13**	5 (125)	**11**	3½ (90)				

C PRESSURE RATING

0	150	**1**	300	**2**	600/800	**3**	1500	**4**	2500	**5**	4500	**6**	400	**7**	900

D VALVE TYPE

05	Conventional port gate	**07**	Conventional port stop globe	**18**	Extended body gate
06	Full port gate	**17**	IREB gate		

E BODY / BONNET STYLE

4	Vertical	**R**	Bolted bonnet bellows seal
6	Inclined y-pattern	**S**	Y-pattern bellows seal, non-rotating stem
		T	Welded bellows seal
		V	Cast bolted bonnet bellows seal

F BODY MATERIAL[1]

02	WCB	**13**	SS F316[3][4]	**25**	LCB
05	CrMo F11, WC6	**14**	SS F316L[4]		

G TRIM (standard trims)[5]

Code		Wedge/disc surface[6]	Seat surface[6]	Stem	Bellows[7] (if applicable)
MS	Standard	CoCr alloy	CoCr alloy	316/316L	321
MY	Standard	CF8M or 316	CoCr alloy	316/316L	321
TS	Standard	CoCr alloy	CoCr alloy	13 Cr (410)	321
TY	Standard	13 Cr (410 or CA15)	CoCr alloy	13 Cr (410)	321
AS		CoCr alloy	CoCr alloy	321	321
CS		Alloy 20	CoCr alloy	Alloy 20	
HC		Hastelloy® C	CoCr alloy	Hastelloy® C	Hastelloy® C
HM		HF-acid trim[11]	HF-acid trim[11]	HF-acid trim[11]	–
MC		CF8M or 316 with CTFE insert[12]	CoCr alloy	316	
PA		Norem®	CoCr alloy	630	Inconel ®625
US		CoCr alloy	CoCr alloy	SS 616HT	
UY		13 Cr (410 or CA15)	CoCr alloy	SS 616HT	
XX		Monel®	Monel®	Monel®	–
XY		Monel®	CoCr alloy	Monel®	–

(1) Must specify grade.

(2) Material Code "10" (F316H) has a minimum carbon content of 0.04% must be used when temperatures are above 1000°F (538°C).

(3) Material Code "13" (F316) is not suitable for temperatures above 1000°F (538°C).

(4) Material Codes "10" (F316H), "13" (F316), and "14" (F316L) are dual certified. If dual certification is required, F316 should be procured with a note that the valves should be dual certified with F316L. If this is specified on the order, then the MTR will state that the F316 valve will meet the chemical and mechanical properties of Dual Certified F316L.

(5) For a more detailed list of available trims, contact Velan.

(6) Base material is either the same as the body or solid trim at manufacturer's option.

(7) Bellows material shown as standard, Inconel ®can be used in lieu of 321 and Hastelloy® C in lieu of Inconel, where design and/or pressure class applicable.

Note:
CoCr alloy refers to cobalt chrome hardfacing alloys as supplied by Kennametal Stellite™ and other approved manufacturers.
CoCr alloy refers to cobalt-chrome alloys in Grade 6 (e.g. AWS CoCr-A, UNS 30006 & 30106) or Grade 21 (e.g. AWS CoCr-E, UNS 30021).