Butterfly Control Valves

Model VBL

OVERVIEW

Model VBL Butterfly Control Valves are mainly used for the control of fluids flowing in large volume at low differential pressure. The unit offers added advantages such as simple structure and low cost.

SPECIFICATIONS

Body

Type
Wafer-type butterfly valve

Nominal size
80 to 1000 mm

Pressure rating
JIS 2K, 5K, 10K
(For relations with valve sizes, refer to Table 2)

End connection
Wafer type

Material
Cast iron (FC 200), Carbon steel (SCPH2), Stainless steel (SCS13, 14)

Packing
PTFE yarn packing

Note) PTFE: Polytetrafluoroethylene

Trim

Material

Valve plug
- Vane..... Cast iron (FC 200)
  Carbon steel (SCPH 2)
  Stainless steel (SCS 13, SCS 14)
- Valve stem....Stainless steel (SUS304 or SUS316)
- Plain metal....Bronze (BC)
  PTFE
  Stainless steel (SUS304 or SUS316 with hard chrom plating, Kanigen plating, or stellite armoring)

Note) For fluid operating temperatur renges, refer to Table 3.

Actuator

Type
Spring type G-O-Motor (direct action)

Spring range
20 to 98 kPa {0.2 to 1.0 kgf/cm^2}

Supply pressure
140 kPa {1.4 kgf/cm^2}

Air connection
Rc1/4 or 1/4NPT internal thread

Ambient temperature
0 to +70°C

Valve action
Air-to-close or air-to-open (Valve action is detemined by the position of key groove provided in the connecting part between the actuator and the stem.)

Rotating angle of vane
0 to + 60°

Optional accessories

Positioner, pressure regulator with filter, hand wheel, Limit switch, Motion transmitter, Booster relay, Lock-up valve and other available.

Note) For the optional items, refer to specification sheets and installation drawings of respective valves.

Additional specifications (by special order)

- Special inspection
  Material inspection (Material certificate), non-destructive inspection.
- Oil/water free treatment
- Stainless steel atmosphere-exposed nuts and bolts.
- Special air piping and joints
- Saline damage countermeasures
- Tropical proof specifications

Performance

Rated Cv value

Refer to Table 1

Flow characteristics

Refer to Figure 1

Inherent rangeability

20 : 1

Allowable differential pressure

Refer to Table 4

Leakage specification

Refer to Table 1

Hysteresis error

Within 1% F.S.

Linearity

Within ±1% F.S.

Dimensions

Refer to Figure 2 and Table 5

Weight

Refer to Table 5

Finish

Blue (Munsell 10B5/10) or silver, or other specified colours

Table 1 Cv value and seat leakage rate (percentage to rated Cv value)

Nominal size (mm)	Rated Cv Value	Leakage (%)	Nominal size (mm)	Rated Cv Value	Leakage (%)
80	160	8.2	500	6,800	2.4
100	280	5.8	550	8,200	2.2
125	450	4.5	600	9,800	2.0
150	610	4.0	650	11,400	1.9
200	1,040	3.0	700	13,300	1.8
250	1,700	3.2	750	15,300	1.7
300	2,480	2.7	800	17,300	1.5
350	3,300	3.4	900	21,900	1.4
400	4,350	3.0	1,000	27,000	1.3
450	5,500	2.7			

Table 2 Connection staandard

Connection standard	Nominal size (mm)
JIS 2K	450 to 1000
JIS 5K	80 to 400
JIS 10K	80 to 550

Table 3 Materials and fluid operating temperature ranges

Material				Fluid operating temperature range (°C)
Body	Vane	Valve stem	Plain metal	
Cast iron (FC 200)	Cast iron (FC 200)	Stainless steel (SUS304, SUS316)	Bronze (BC)	0 to 150 (With Teflon-inserted plain metal : 0 to 70)
Carbon steel (SCPH 2)	Carbon steel (SCPH 2)		PTFE	
Stainless steel (SCS 13, SCS 14)	Stainless steel (SCS 13, SCS 14)		Stainless steel (SUS304*, SUS316*)	

*Note) *: Stainless steel with hard chrome plating, Kanigen plating, or stellite armoring.*

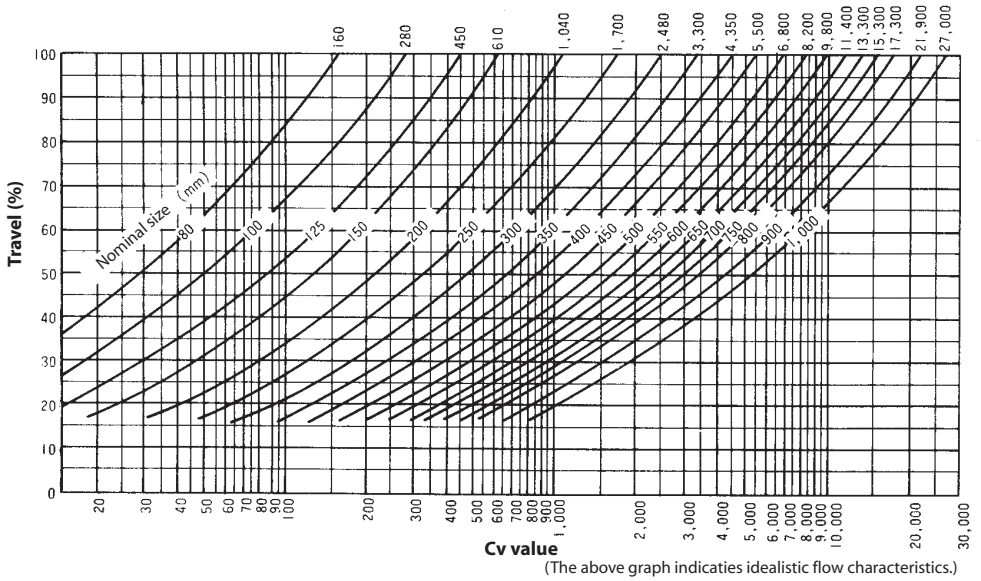

Figure 1 Flow characteristics

Table 4 Allowable differential pressure

Nominal size (mm)	Vane material	Maximum differential pressure kPa {kgf/cm^2}			Actuator mmodel No.
		Angle of vane opening			
		0° (Fully closed)	60° (Fully closed)		
			Air-to-close	Air-to-open	
80	△	8.0	260 {2.7}	260 {2.7}	GOM83S
	✔	8.0			
100	△	5.0	140 {1.4}	140 {1.4}	
	✔	5.0			
125	△	2.5	70 {0.7}	70 {0.7}	
	✔	3.0			
150	△	1.8	40 {0.4}	40 {0.4}	
	✔	2.3			
200	△	1.1	30 {0.3}	30 {0.3}	
	✔	1.5			
250	△	0.6	13 {0.13}	13 {0.13}	
	✔	1.0			
300	△	0.5	7 {0.07}	7 {0.07}	
	✔	0.6			
350	△	0.6	8 {0.08}	8 {0.08}	GOM103S
	✔	0.9			
400	△	0.4	5 {0.05}	5 {0.05}	
	✔	0.7			
450	△	0.3	4 {0.04}	6 {0.06}	
	✔	0.5			
500	△	0.2	3 {0.03}	4 {0.04}	
	✔	0.4			
550	△	0.16	2 {0.02}	3 {0.03}	
	✔	0.3			
600	△	0.14	2 {0.02}	4 {0.04}	GOM124S
	✔	0.28			
650	△	0.12	2 {0.02}	3 {0.03}	
	✔	0.23			
700	△	0.10	1.2 {0.013}	2.4 {0.024}	
	✔	0.19			
750	△	0.08	1.1 {0.011}	2.0 {0.020}	
	✔	0.16			
800	△	0.07	0.9 {0.009}	2.0 {0.020}	
	✔	0.14			
900	△	0.11	0.6 {0.006}	1.4 {0.014}	
	✔	0.11			
1,000	△	0.04	0.5 {0.005}	1.0 {0.010}	
	✔	0.08			

Note) Vane material : △; Cast iron (FC 200), ✔; Carbon steel (SCPH 2), stainless steel (SCS 13 or SCS 14)

DIMENSIONS

Table 5 External dimensions and weight [Unit: mm]

Nominal size (inches)	External dimensions (mm)					Actuator model No.	Connection	
	A*	B*	H*	T	Weight (kg)			
80	380	145	715	45	51	GOM 83S	JIS 5K	JIS 10K
100	385	150	715	45	52			
125	410	175	715	45	53			
150	420	185	720	45	54			
200	455	220	740	45	56			
250	480	245	770	45	61			
300	505	270	795	50	71			
350	550	310	920	55	113	GOM 103S		
400	570	330	945	55	124			
450	600	370	970	60	133			
500	625	395	995	60	142			
550	660	430	1020	60	150		JIS 2K	
600	710	450	1115	70	180	GOM 124S		
650	735	475	1140	70	190			
700	760	500	1165	70	206			
750	795	535	1190	70	235			
800	825	565	1215	80	275			
900	875	615	1230	80	350			
1,000	925	665	1240	80	500			

Note) **The dimensions of A, B, and H might vary depending on connections. The above figures show the larger ones.*

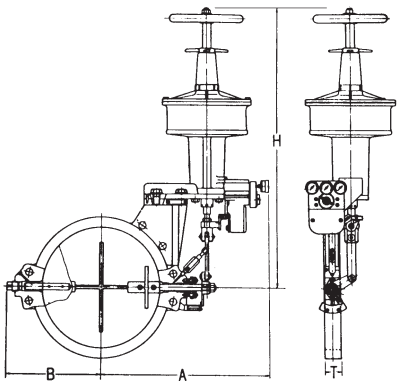

Figure 2 External Dimensions

Ordering Information

When ordering, please specify ;

1) Model Number: VBL
2) Nominal size
3) Type of end connections
4) Material of valve body, vane, valve stem, and plain metal
5) Type of actuator
6) Valve action (direct or reverse)
7) Accessories (positioner, pressure regulator with filter, etc.)
8) Special requirement of degreasing, copper prohibitive treatment, etc.
9) Name of flow medium
10) Normal flow and maximum required flow
11) Pressure of flow medium, upstream and downstream pressure at maximum and minimum, required flow
12) Temperature and specific gravity of flow medium
13) Viscosity of flow medium, inclusive or exclusive of slurry

Please, read 'Terms and Conditions' from following URL before the order and use.

http://www.azbil.com/products/bi/order.html

Specifications are subject to change without notice.

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