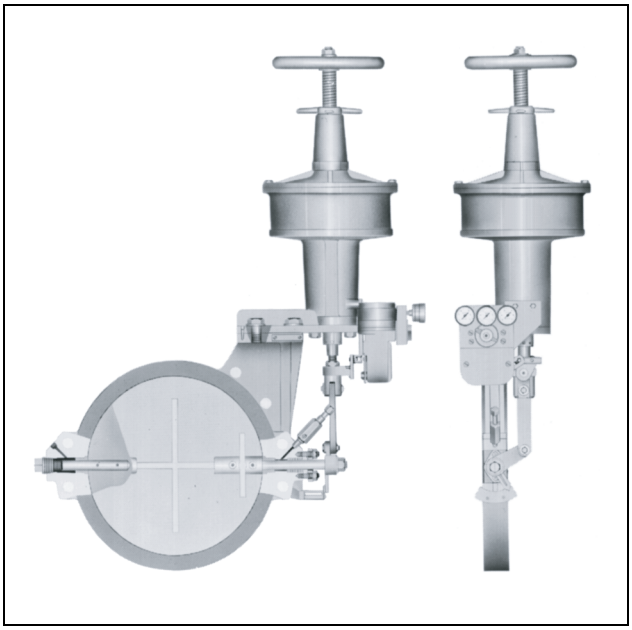
Medium-or Heavy-Duty Type Butterfly Control Valves

Model VBM, VBH

OVERVIEW

Butterfly Control Valves are normally used for the control of fluids flowing in large volume at low differential pressure. The unit offers added advantages in that it is low priced especially for large sizes, space required for mounting is small, and it is particularly efficient for controlling liquids containing slurries.



SPECIFICATIONS

Body

Type
Wafer-type butterfly valve

Material
Cast iron (FC 200), Carbon steel (SCPH 2), Stainless steel (SCS 13, 14)

Nominal size
100 to 550 mm

Pressure rating
JIS 10K

End connection
Wafer type

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 chrome plating)

Note) For body/trim material combinations and operating temperature, refer to Table 3.

Actuator

Type
Spring type (Direct action) or springless-type piston actuator (Direct or reverse action)

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

Supply pressure
- Spring type : 140 kPa {1.4 kgf/cm^2}
- Springless type : 200 kPa {2.0 kgf/cm^2}

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

Ambient temperature
0 to +70°C

Valve action
Valve action (direct or reverse) of spring type is determined by position of the key groove provided in the connecting port between the actuator and the stem. With springless type, actuator rotation (direct or reverse) determines valve action.

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 (SUS304) atmosphere-exposed nuts and bolts.
- Special air piping and joints
- Saline damage countermeasures
- Tropical-area use 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. (Spring type)
Within 2% F.S. (Springless type)

Linearity

Within ±1% F.S. (Spring type)
Within ±2% F.S. (Spring type)

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 Rated Cv value and seat leakage (percentage to rated Cv value)

Nominal size (mm)	Rated Cv Value	Leakage (%)	Nominal size (mm)	Rated Cv Value	Leakage (%)
80	160	8.2	300	2,480	2.7
100	280	5.8	350	3,300	3.4
125	450	4.5	400	4,350	3.0
150	610	4.0	450	5,500	2.7
200	1,040	3.0	500	6,800	2.4
250	1,700	3.2	550	8,200	2.2

Table 2 Type of combined actuator

Connection standard	Nominal size (mm)	Type of actuator	Remarks
VBM	100 to 550	Spring type or Springless type G-O-Motor	With Positioner or G-O-Pilot
VBH	100 to 550	Springless type G-O-Motor	With G-O-Pilot

Table 3 Body/trim material combinations and operating temperature range (°C)

Model No.	Material				Fluid operating temperature range (°C)
	Body	Vane	Valve stem	Plain metal	
VBM	Cast iron (FC 200) Carbon steel (SCPH 2) Stainless steel (SCS 13, SCS 14)	FC 200 (80 to 200mm) Carbon steel (SCPH 2) Stainless steel (SCS 13, SCS 14)	Stainless steel (SUS304, SUS316)	Bronze (BC) PTFE Stainless steel (SUS304*, SUS316*)	0 to 200 (With Teflon-inserted plain metal : 0 to 70)
VBH				Bronze (BC) Stainless steel (SUS304*, SUS316*)	0 to 200

*Note) *: Stainless steel with chrome plating, Kanizen plating, or Stellite coating.*

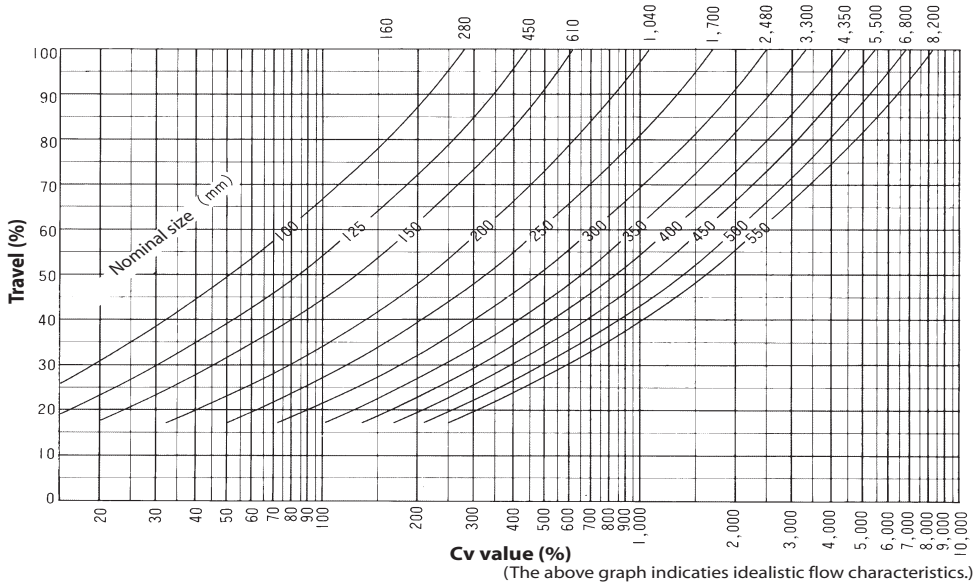


Figure 1 Flow characteristics

Table 4 Allowable differential pressure
Table 4-1 Model VBM

Actuator model. No.			Spring type		Springless type	
			GOM103S	GOM124S	GOM64LMS	GOM84LM
Nominal size (mm)	Angle of vane opening		Maximum differential pressure kPa {kgf/cm^2}			
100	0 ° (Fully closed)		981 {10.0}			
	60 ° (Fully opened)	Air-to-close	310 {3.2}			
		Air-to-open	340 {3.5}			
125	0 ° (Fully closed)		981 {10.0}			
	60 ° (Fully opened)	Air-to-close	150 {1.5}			
		Air-to-open	280 {2.9}			
150	0 ° (Fully closed)		981 {10.0} [810 {8.3}]			
	60 ° (Fully opened)	Air-to-close	98 {1.0}			
		Air-to-open	200 {2.0}			
200	0 ° (Fully closed)			981 {10.0} [460 {4.7}]	981 {10.0} [460 {4.7}]	
	60 ° (Fully opened)	Air-to-close		60 {0.6}	80 {0.8}	
		Air-to-open		80 {0.8}		
250	0 ° (Fully closed)			540 {5.5} [330 {3.4}]	620 {6.3} [330 {3.4}]	
	60 ° (Fully opened)	Air-to-close		30 {0.3}	50 {0.5}	
		Air-to-open		50 {0.5}		
300	0 ° (Fully closed)			290 {3.0} [240 {2.4}]	350 {3.6} [240 {2.4}]	
	60 ° (Fully opened)	Air-to-close		20 {0.2}	30 {0.3}	
		Air-to-open		30 {0.3}		
350	0 ° (Fully closed)			200 {2.0}		320 {3.3} [270 {2.8}]
	60 ° (Fully opened)	Air-to-close		10 {0.1}		50 {0.5}
		Air-to-open		30 {0.3}		
400	0 ° (Fully closed)			140 {1.4}		240 {2.5} [200 {2.1}]
	60 ° (Fully opened)	Air-to-close		7 {0.07}		30 {0.3}
		Air-to-open		20 {0.2}		
450	0 ° (Fully closed)			98 {1.0}		180 {1.8}
	60 ° (Fully opened)	Air-to-close		5 {0.05}		20 {0.2}
		Air-to-open		15 {0.15}		
500	0 ° (Fully closed)			70 {0.7}		130 {1.3}
	60 ° (Fully opened)	Air-to-close		4 {0.04}		15 {0.15}
		Air-to-open		10 {0.1}		
550	0 ° (Fully closed)			50 {0.5}		98 {1.0}
	60 ° (Fully opened)	Air-to-close		3 {0.03}		11 {0.11}
		Air-to-open		9 {0.09}		

Note) The data in [ ] are values for PTFE inserted plain metals..

Table 4-2 Model VBH

Nominal size (mm)	Maximum differential pressure kPa {kgf/cm^2}		Actuator model. No.
	Angle of vane opening		
	0 ° (Fully closed)	60 ° (Fully opened)	
100	981 {10.0}	880 {9.0}	GOM64LM
125	981 {10.0}	630 {6.4}	
150	981 {10.0}	410 {4.2}	
200	981 {10.0}	240 {2.5}	
250	540 {5.5}	124 {1.27}	GOM84LM
	981 {10.0}	72 {0.73}	
300	290 {3.0}	74 {0.75}	
	590 {6.0}	41 {0.42}	
350	340 {3.5}	83 {0.85}	GOM124LM
	740 {7.5}	31 {0.32}	
400	340 {3.5}	86 {0.88}	
	590 {6.0}	70 {0.71}	
450	200 {2.0}	47 {0.48}	
	390 {4.0}	24 {0.25}	
500	200 {2.0}	52 {0.53}	
	440 {4.5}	24 {0.25}	
550	120 {1.2}	29 {0.30}	
	200 {2.1}	20 {0.21}	

Note) See respective row for differential pressures at open and closed positions when two rows are shown for one valve size.

DIMENSIONS

Table 5 Face-to-face external dimensions and weight

Table 5-1 Model VBM [Unit: mm]

Nominal size (min)	External dimensions (mm)				Weight (kg)	Actuator model No.	
	A*	B	H*	T			
100	470	140	895	80	73	GOM 103S	
125	485	165	895	80	85		
150	480	180	895	80	87		
200	565	210	1075	80	80 (120)	GOM 64LM	GOM 124S
250	570	250	1075	90	100 (140)		
300	600	270	1075	90	105 (142)		
350	670	315	1140	100	145 (155)	GOM 84LM	
400	765	330	1170	100	190 (200)		
450	720	370	1170	100	215 (225)		
500	820	385	1140	110	245 (255)		
550	855	425	1140	110	275 (285)		

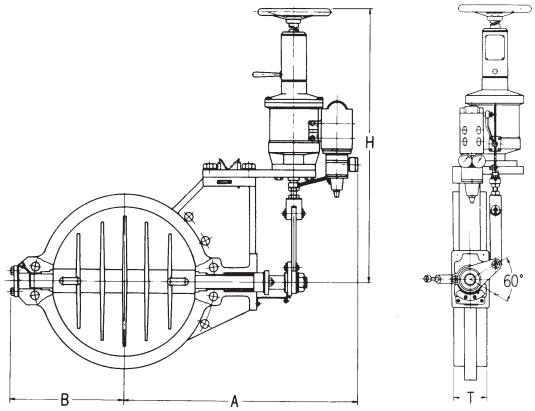


Figure 2-1 Model VBM

*Note) 1) *The dimensions of A and H vary depending on actuator. The above figures show the larger ones.*

2) The figures in parentheses are those with GOM124S.

Table 5-2 Model VBH [Unit: mm]

Nominal size (mm)	External dimensions (mm)				Weight (kg)	Actuator model No.
	A	B	H	T		
100	565	140	900	80	62	GOM 64LM
125	580	165	900	80	75	
150	575	180	900	80	78	
200	605	210	940	80	115	GOM 84LM
250	610	250	940	90	135	
300	640	270	940	90	140	
350	790	315	1000	100	170	GOM 124LM
400	880	330	1030	100	220	
450	840	370	1000	100	255	
500	835	385	1000	110	280	
550	970	425	1000	110	310	

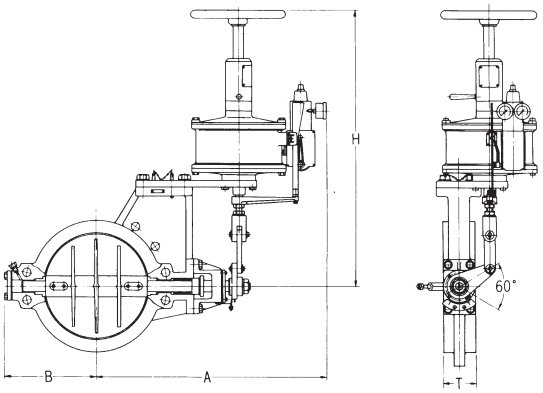


Figure 2-2 Model VBH

Ordering Information

When ordering, please specify ;

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

Note

Note

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.

Azbil Corporation

Advanced Automation Company

1-12-2 Kawana, Fujisawa
Kanagawa 251-8522 Japan
URL: http://www.azbil.com/

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