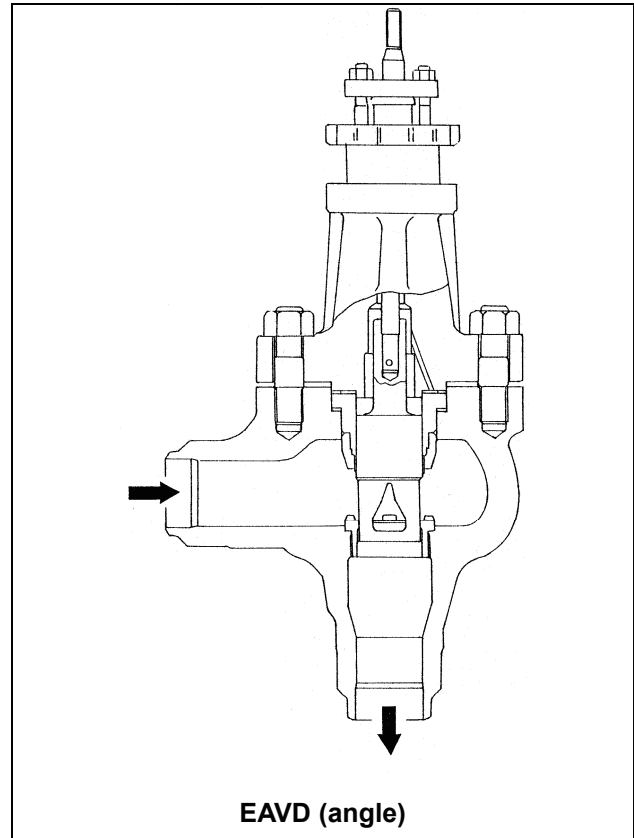


Special-Purpose Valve Model EGVD / EAVD Prevention Cage Control Valve

OVERVIEW

The cage control valve is used with a small actuator for high differential pressures because the unbalanced axial thrusts counteract each other by pressure equalization in the valve plug.

The valve plug prevents scale from depositing and torque vibration from occurring. In addition, it is held on the three points of the bonnet, cage, and seat ring, and this configuration is resistant to vibration and wear. The valve body has a top entry easy to disassemble, so trim section can be inspected and trim parts replaced. With its enhanced performance, the scale deposition prevention cage control valve is suitable for high-temperature, high-differential pressure water pipelines in a power plant that requires dynamic stability, low noise, cavitation / flashing resistance and reliability. (Patent secured)



SPECIFICATIONS**Body****Type**

EGVD straight
EAVD angle

Nominal size

2, 2½, 3, 4, 5, 6, 8 in.

Pressure rating

- JIS 20K, 30K, 40K
- ANSI Class 300, 600

End connection

- Flanged-end (RF)
- Welded-end SW (2 in.), BW (2½ to 8 in.)

Material

For combining the of valve body and trim materials, refer to Table 1.

Bonnet

General (0 to 200 °C)
High-temperature (200 to 350 °C)

Gland type

Bolted gland

Packing

Yarn packing
Graphite packing and others

Gasket**Type**

Serrated

Material

Stainless steel (SUS316) and others

Trim**Valve plug**

Modified linear (MV)
Equal percentage (%V)
Linear (LV)

Material

For Combining the valve body and plug and cage materials, refer to Table 1.

Actuator**Type**

Single acting diaphragm actuator (Model VA)

Action

Direct-action

Diaphragm

Cloth-chloroprene rubber

Spring range

20 to 180 kPa {0.2 to 1.8 kgf/cm²}
40 to 200 kPa {0.4 to 2.0 kgf/cm²}

Supply pressure

270 kPa {2.8 kgf/cm²}

Air connection

Rc 1/4 or 1/4 NPT

Note: On VA4D and VA5D, the valve comes with an Rc 1/4 adapter. (Rc 3/8 adapter also available)

Ambient temperature

-30 to 70 °C

Valve action

Direct-acting

(in combination with a direct-acting actuator)

Optional accessories

Handwheel (side or top); Positioner; Limit switch; Position transmitter; Volume booster; Air lock valve, and others; can be installed to order.

Additional Specifications

- Special inspections
Flow characteristic inspection; Material inspection (Material certificate); Nondestructive inspections

Performance**Rated Cv value**

Refer to Table 2.

Seat leakage rate

IEC534-4-1982 or JIS B2007-1993

Metal seat:

Standard

Class II : Leakage 0.5%

Option

Class III : Leakage 0.1%

Hysteresis error

Within 1% of F.S. (with positioner)

Within 3% of F.S. (without positioner)

Linearity

Within ± 1% of F.S. (with positioner)

Within ± 5% of F.S. (without positioner)

Inherent rangeability

50:1

Table 1. Combining the valve body, trim materials

Valve body material	Guide	Plug	Seat ring
SCPH21	SUS304	SUS304	SUS304
SCPH32	Hard chromium	Solid Stellite + Stellite	Stellite
SCPH61	Plating		

Table 2. Cv value and travel

Nominal size (in.)	2		2½		3			4			5			6			8		
Rated Cv value	32	32	50	32	50	70	50	70	130	70	130	200	130	200	290	200	280	510	
Rated travel (mm)	25		38		38			38			50			50			75		

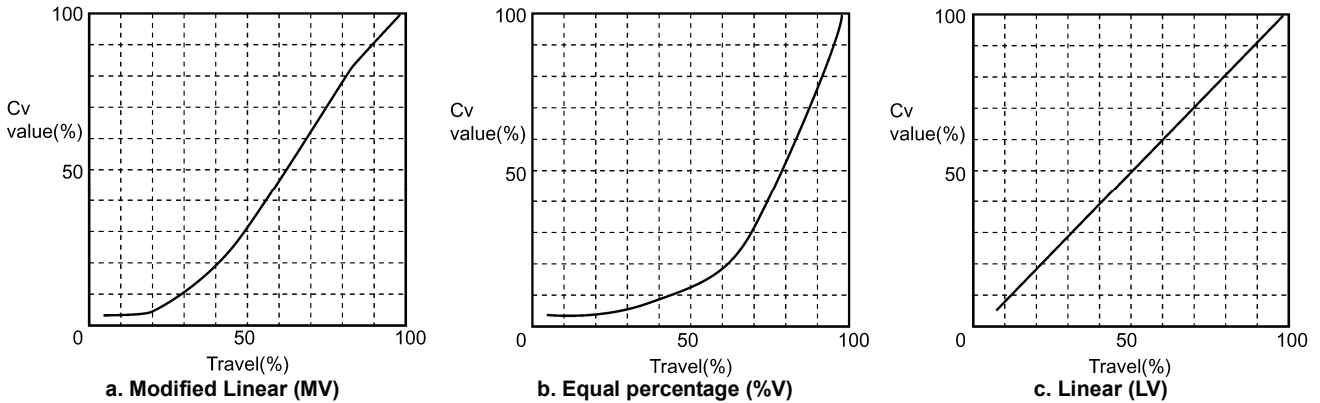


Figure 1. Flow characteristics

Note: The above graphs indicate typical flow characteristic.

*: The scale-deposition prevention cage valve is a product by a joint development with Toshiba Corporation.

Permissible differential pressure

Table 3. Direct-acting (air-to-close)

Actuator	Supply Pressure kPa {kgf/cm ² }	Spring range kPa {kgf/cm ² }	Differential pressure kPa {kg/ cm ² }								
			Nominal size (inch)/Rated Cv value								
			2		2½		3			4	
			32	32	50	32	50	70	50	70	130
VA2D	270 {2.8}	400~200 {0.4~2.0}	8240 {84}								
		20~180 {0.2~1.8}	9810 {100}								
VA3D	270 {2.8}	400~200 {0.4~2.0}	9810 {100}	9810 {100}	9810 {100}	9810 {100}	9810 {100}	9220 {94}	9810 {100}	9220 {94}	6860 {70}
		20~180 {0.2~1.8}	9810 {100}	9810 {100}	9810 {100}	9810 {100}	9810 {100}	9810 {100}	9810 {100}	9810 {100}	9020 {92}
VA4D	270 {2.8}	400~200 {0.4~2.0}		9810 {100}	9810 {100}	9810 {100}	9810 {100}	9810 {100}	9810 {100}	9810 {100}	9810 {100}
		20~180 {0.2~1.8}		9810 {100}	9810 {100}	9810 {100}	9810 {100}	9810 {100}	9810 {100}	9810 {100}	9810 {100}

Actuator	Supply Pressure kPa {Kgf/cm ² }	Spring range kPa {Kgf/cm ² }	Differential pressure kPa {kg/ cm ² }								
			Nominal size (inch)/Rated Cv value								
			5			6			8		
			70	130	200	130	200	290	200	290	510
VA3D	270 {2.8}	400~200 {0.4~2.0}	9220 {94}	6860 {70}	5590 {57}	6860 {70}	5590 {57}	4710 {48}			
		20~180 {0.2~1.8}	9810 {100}	9020 {92}	7260 {74}	9020 {92}	7260 {74}	5980 {61}			
VA4D	270 {2.8}	400~200 {0.4~2.0}	9810 {100}	9810 {100}	7848 {80}	9810 {100}	7848 {80}	6570 {67}	7848 {80}	6570 {67}	4900 {50}
		20~180 {0.2~1.8}	9810 {100}	9810 {100}	9810 {100}	9810 {100}	9810 {100}	8440 {86}	9810 {100}	8440 {86}	6390 {65}
VA5D	270 {2.8}	400~200 {0.4~2.0}							9810 {100}	8830 {90}	6770 {69}
		20~180 {0.2~1.8}							9810 {100}	9810 {100}	8630 {88}

Note: 1) The valve comes standard with a positioner.

2) Take care that the maximum permissible differential pressure does not exceed the highest working pressure in JIS B2201-1984 or ANSI B16.34-1981.

DIMENSIONS

Face-to-face dimensions

Table 4. EGV: Straight

Unit: mm

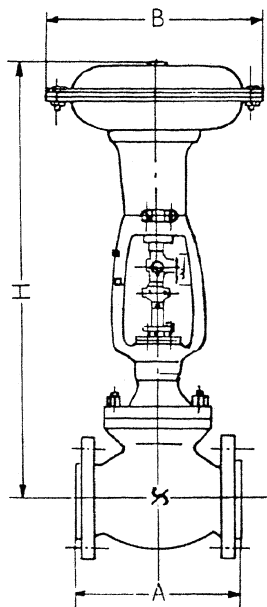
Normal size (in.)	A				
	JIS 16K RF	JIS 20KRF JIS 30KRF ANSI 300 RF	JIS 40K RF ANSI 600 RF	JIS 16K, 20K, 30K ANSI 300 SW/BW	JIS 40K ANSI 600 SW/BW
2	267	267	286	286(SW)	286(SW)
2½	292	292	311	311(BW)	311(BW)
3	318	318	337	337(BW)	337(BW)
4	368	368	394	394(BW)	394(BW)
5	425	425	457	425(BW)	457(BW)
6	473	473	508	473(BW)	508(BW)
8	568	568	610	568(BW)	610(BW)

Note: SW: Socket-welded end, BW: Butt-welded end

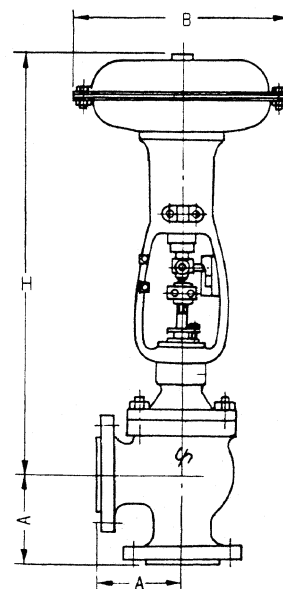
Table 5. EAVD: Angle

Unit: mm

Normal size (in.)	A				
	JIS 16K RF	JIS 20KRF JIS 30KRF ANSI 300 RF	JIS 40K RF ANSI 600 RF	JIS 16K, 20K, 30K ANSI 300 SW/BW	JIS 40K ANSI 600 SW/BW
2	133	133	143	143(SW)	143(SW)
2½	146	146	156	156(BW)	156(BW)
3	159	159	168	168(BW)	168(BW)
4	184	184	197	197(BW)	197(BW)
5	213	213	229	213(BW)	229(BW)
6	237	237	254	237(BW)	254(BW)
8	284	284	330	284(BW)	330(BW)



a. EGVD (straight)



b. EAVD (angle)

Figure 2. Face-to-face and external dimensions

Unit: mm

Table 5. Dimensions

Nominal size (in.)	Actuator	H				B
		Direct-action (air-to-close)		Reverse-action (air-to-open)		
		P	RF	P	RF	
2	VA2D	845	995	845	995	350
	VA3D	1010	1160	1010	1160	450
2½	VA3D	1055	1205	1055	1205	450
	VA4D	1220	1370	1335	1485	520
3	VA3D	1060	1210	1060	1210	450
	VA4D	1225	1375	1340	1490	520
4	VA3D	1080	1230	1080	1230	450
	VA4D	1245	1395	1360	1510	520
5	VA3D	1115	1265	1115	1265	450
	VA4D	1280	1430	1395	1545	520
6	VA3D	1145	1295	1145	1295	450
	VA4D	1310	1460	1425	1575	520
8	VA4D	1430	1575	1540	1690	520
	VA5D	1525	1670	1630	1780	620

Note: P: General bonnet, RF: High-temperature bonnet

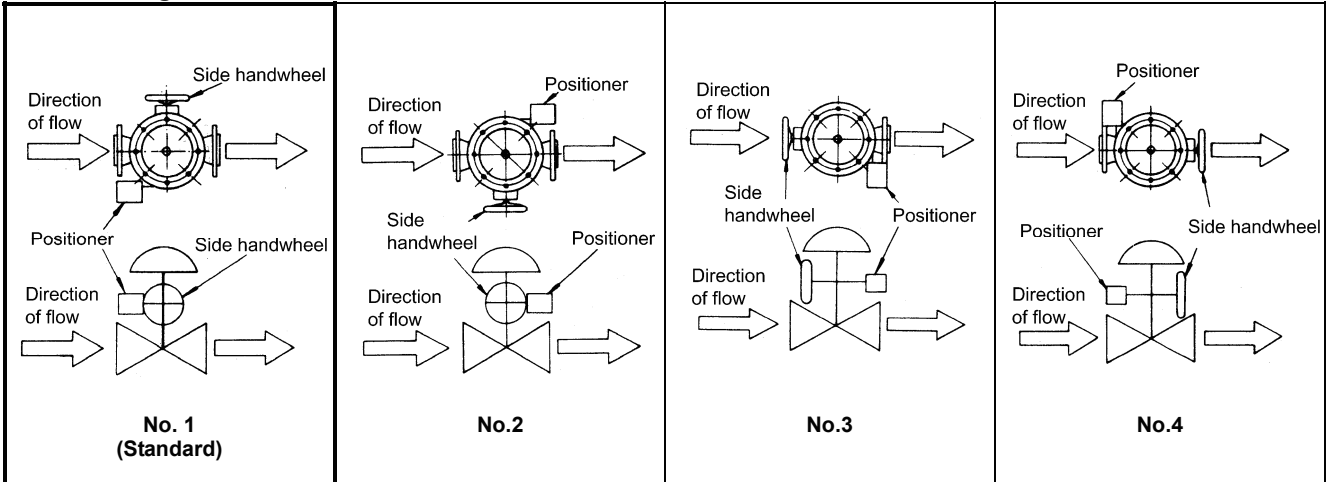
Table 6. Weight

Unit: kg

Nominal size (in.)	Actuator	Flanged end				Welded end	
		JIS 16k, 20K, 30k ANSI 300		JIS 40K, ANSI 600		JIS 16K, 20K 30K, 40K ANSI 300, 600 (SW)/(BW)	
		P	RF	PK	RF	P	RF
2	VA2D	54	57	71	74	59	62
	VA3D	82	85	91	102	87	90
2½	VA3D	93	96	138	141	93	97
	VA4D	168	171	213	216	168	172
3	VA3D	111	116	148	153	118	124
	VA4D	186	191	223	228	193	199
4	VA3D	138	143	178	183	135	145
	VA4D	213	218	253	258	210	220
5	VA3D	170	178	215	223	252	265
	VA4D	245	253	290	298	382	395
6	VA3D	240	250	300	310	321	336
	VA4D	315	325	375	385	395	410
8	VA4D	430	440	550	570	497	517
	VA5D	460	470	580	600	522	542

Note: P: General bonnet, RF: High-temperature bonnet

EGVD: Straight



EAVD: Angle

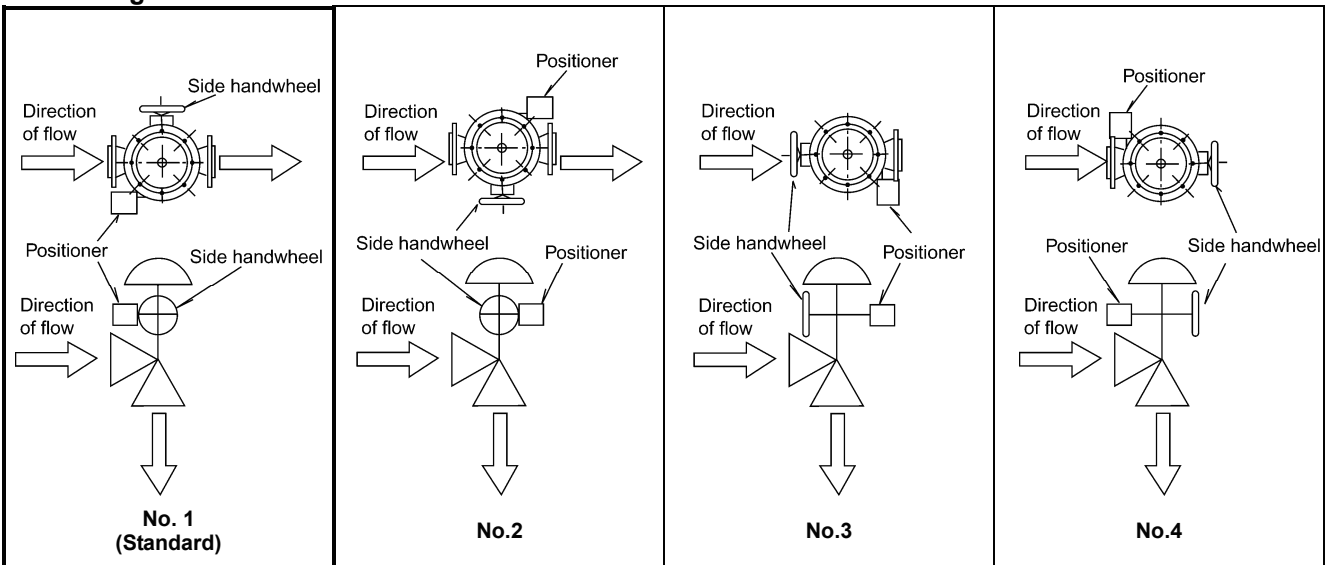


Figure 3. Installed position to piping

a) For an installed position other than the standard arrangement, specify the arrangement number.

Note

Please read the "Terms and Conditions" from the following URL before ordering or use:

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

Specifications are subject to change without notice.

azbil

Azbil Corporation
Advanced Automation Company

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

1st Edition: Issued in Apr. 1998
2nd Edition: Issued in July 2012

*No part of this publication may be reproduced or duplicated
without the prior written permission of Azbil Corporation.*