

Double eccentric control valve for process engineering and industrial applications

Valve size	DN 25 to DN 300	NPS 1 to NPS 12
Nominal pressure	PN 10 to PN 40	ANSI Class 150 and 300
Temperature	-100 to 400 °C	-148 to 752 °F

Valve body made of

- Cast/carbon steel or
- Stainless cast/carbon steel

Seat version

- Metal sealing, armored or unarmored
- Soft sealing

The valves can be equipped with different accessories, such as positioners, solenoid valves and other accessories according to VDI/VDE 3845.

Standard version

For temperatures from -100 to 400 °C (-148 to 752 °F)

Version

Sandwich-style body (no flanges)

- DN 25 to DN 300, PN 10/PN 16/PN 25/PN 40, face-to-face dimensions acc. to EN 558-1, Table 16, Series 36
- NPS 1 to NPS 12, Class 150/Class 300, face-to-face dimensions acc. to EN 558-2, Table 16, Series 36

Further versions

- TA-Luft packing/double packing
- Special materials for body and trim
- Noise-reducing features
- Flange version with tongue/groove according to EN 1092-1
- RF according to ANSI
- Versions for higher and lower temperatures on request



Fig. 1: VETEC Type 72.4 Rotary Plug Valve (example with mounted Type AT Actuator)

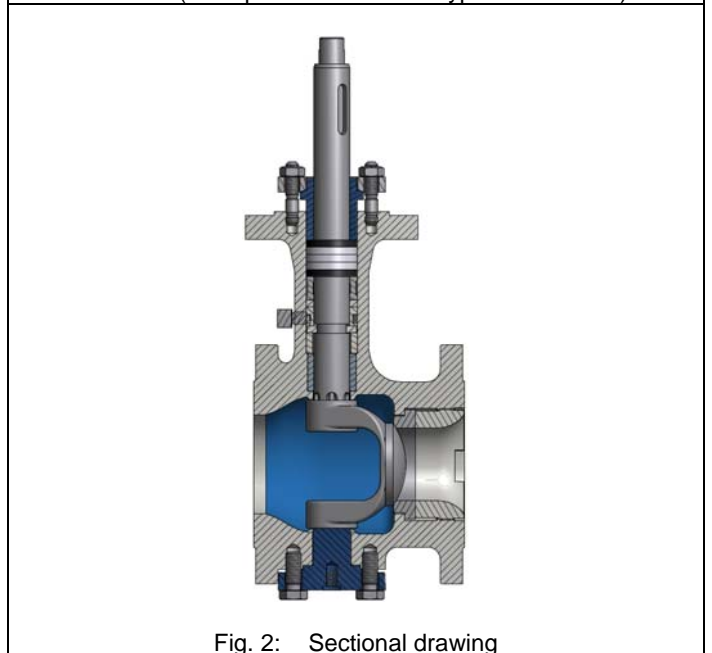


Fig. 2: Sectional drawing

Principle of operation

The shaft/plug arrangement is eccentric (Figs. 3 and 4). The double-eccentric design of the rotary plug valve is achieved in combination with the offset of the plug's pivot. When turning the plug shaft from closed position in opening direction, the double-eccentric design allows the plug to lift off the seat smoothly without initial breakaway torque. The valve is not opened suddenly and shows a stable control response even with small opening angles. The rotary plug valve can be used for both directions of flow.

For gases and vapors, the direction of flow is FTC (medium closes).

The flow coefficient depends on the opening angle of the valve.

Using positioners or cam disks, the natural characteristic of the rotary plug valve can be modified to achieve a linear or equal-percentage characteristic (Figs. 5 and 6).

Fail-safe action

In combination with the Type R/M/AT/S Rotary Actuators, the control valve has two fail-safe actions, which become effective when the piston is relieved of pressure or when the supply air fails.

Valve CLOSED without supply air: rotary plug valve is closed when the supply air fails.

Valve OPEN without supply air: rotary plug valve is opened when the supply air fails.

Installation

Observe the direction of flow indicated by the arrow on the valve body.

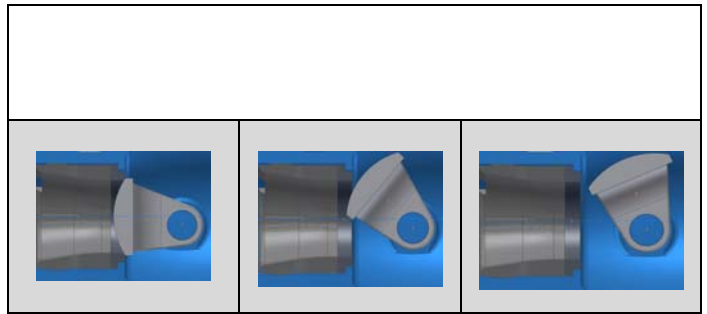


Fig. 3: Double-eccentric principle

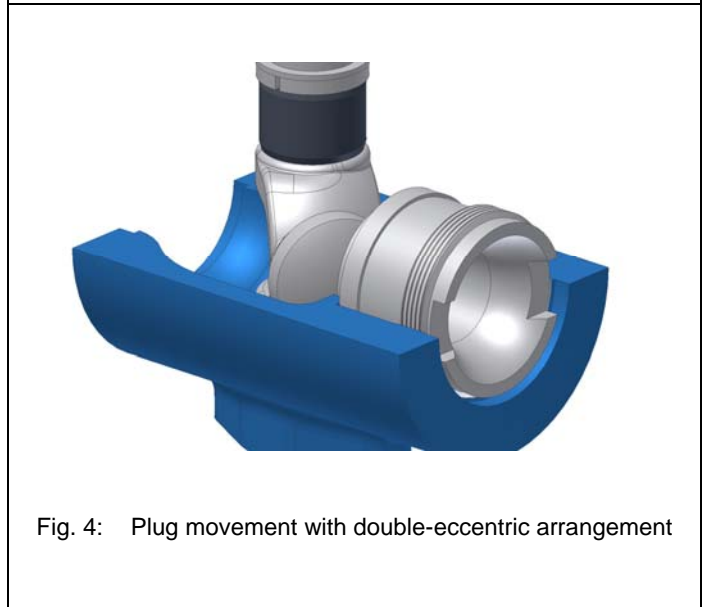


Fig. 4: Plug movement with double-eccentric arrangement

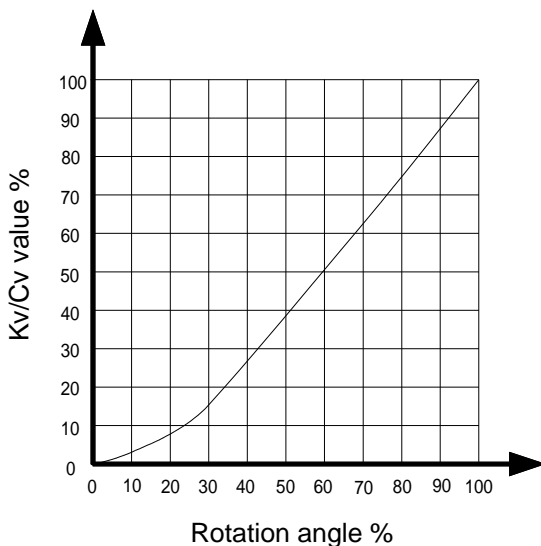


Fig. 5: Natural characteristic

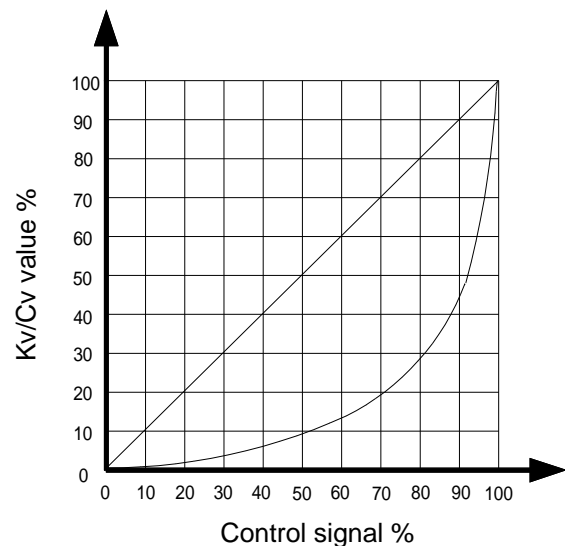


Fig. 6: Equal-percentage and linear characteristic

Table 1: Technical data

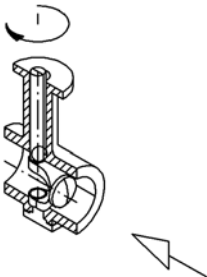
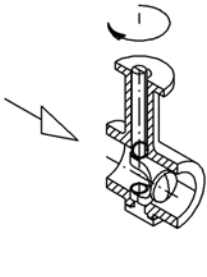
Type	72.4	
Valve size	DN 25 to DN 300	NPS 1 to NPS 12
Style	Flange	Flange
Flange pressure rating	PN 10/16/25/40	ANSI Class 150/Class 300
Max. operating pressure	40 bar	50 bar
Overall length	EN 558-1, Series 36	EN 558-2, Series 36
Flange bore/form	DIN EN 1591-1/DIN 2500	ASME B16.5
Seat ring	 <p>Direction of flow from the front: FTO</p>	 <p>Direction of flow from behind: FTC</p>
Characteristic	Equal percentage or linear (using cam disk or positioner characteristic) On/off valve	
Rangeability	200:1	
Temperature range	Medium: -100 to +400 °C	
Opening angle	75°	

Table 2: Materials

Body	1.0619/A216 WCC	1.4408/A351 CF8M
Shaft	1.4404	
Plug	1.4404/Stellite 6	
Trunnion bearing	1.4404	
Seat ring	1.4404 armored with carbide metal/seat with soft sealing	
Seat holder	1.4404	
PTFE ring on seat	PTFE	
O-ring on seat	FPM 80 VR1	
Bearing bushing	1.4404/plastic	
Packing	1.4404	
O-ring	FPM 80 VR1	
Screw plug	1.4404	
Screw plug seal	1.4404	
Trunnion bearing seal	Graphite/stainless steel/PTFE	
Packing	PTFE/graphite	

Table 3. Kvs and Cv coefficients

3a. seat with metal sealing FTO

DN	25	40	50	80	100	150	200	250	300	
NPS	1	1 1/2	2	3	4	6	8	10	12	
Flow rate										
100%	Kvs	16	36	70	220	360	720	1100	1950	2700
	Cv	18	42	81	254	416	832	1272	2254	3121
	Seat Ø (mm)	18	26	36	60	76	105	135	170	210
60%	Kvs	12	22	43	145	210	430	630	1230	1500
	Cv	14	25	50	168	243	497	728	1422	1734
	Seat Ø (mm)	16	21,5	29,5	50	60	86	106	146	163
40%	Kvs	10	16	31	105	150	275	390	850	900
	Cv	12	18	36	121	173	318	451	983	1040
	Seat Ø (mm)	14	18,5	25,5	44	53	73	88	126	133
25%	Kvs	4	12	19	70	100	185	245	500	640
	Cv	4,6	14	22	81	116	214	283	578	740
	Seat Ø (mm)	10	16	21	37	45	62	73	102	116

3b. seat with metal sealing FTC

DN	25	40	50	80	100	150	200	250	300	
NPS	1	1 1/2	2	3	4	6	8	10	12	
Flow rate										
100%	Kvs	16	36	70	210	340	660	810	1300	2100
	Cv	18	42	81	243	393	763	936	1503	2428
	Seat Ø (mm)	18	26	36	60	76	105	135	170	210
60%	Kvs	12	22	43	135	200	320	410	820	900
	Cv	14	25	50	156	231	370	474	948	1040
	Seat Ø (mm)	16	21,5	29,5	50	60	86	106	146	163
40%	Kvs	10	16	31	95	120	185	250	540	570
	Cv	12	18	36	110	139	214	289	624	659
	Seat Ø (mm)	14	18,5	25,5	44	53	73	88	126	133
25%	Kvs	4	12	19	56	90	125	160	320	410
	Cv	4,6	14	22	65	104	145	185	370	474
	Seat Ø (mm)	10	16	21	37	45	62	73	102	116

3c. seat with soft sealing **FTC**

DN	25	40	50	80	100	150	200	250	300
NPS	1	1 1/2	2	3	4	6	8	10	12

Flow rate

100%	Kvs	12	40	68	180	290	535	730	1220	2000
	Cv	14	42	79	208	335	618	844	1410	2312
	Seat Ø (mm)	16	26	35	54	70	98	128	160	204
60%	Kvs	11	22	43	135	200	320	410	820	900
	Cv	13	25	50	156	231	370	474	948	1040
	Seat Ø (mm)	15	21,5	29,5	50	60	86	106	146	163
40%	Kvs	10	16	31	105	120	185	250	540	570
	Cv	12	18	36	121	139	214	289	624	659
	Seat Ø (mm)	14	18,5	25,5	46	53	73	88	126	133
25%	Kvs	4	12	19	56	90	125	160	320	410
	Cv	4,6	14	22	65	104	145	185	370	474
	Seat Ø (mm)	10	16	21	37	45	62	73	102	116

Table 4: Weight in kg (without actuator)

DN	25	40	50	80	100	150	200	250	300
NPS	1	1½	2	3	4	6	8	10	12
Weight (kg)	6	10	12	22	33	65	90	136	168

Table 5: DIN face-to-face dimensions

	DN	25	40	50	80	100	150	200	250	300
PN 10	Length (mm)	102	114	124	165	194	229	243	297	338
PN 16										
PN 25										
PN 40										

Table 6: ANSI face-to-face dimensions

	NPS	1	1½	2	3	4	6	8	10	12
Class 150	Length (mm)	102	114	124	165	194	229	243	297	338
Class 300										

Order specifications:

Type	According to table
Valve size	DN ...
Nominal pressure	PN ...
Body material	According to table
Seat version	Metal or soft sealing
Characteristic	Equal percentage or linear
Kvs/Cv	According to table
Direction of flow	Standard: FTO (medium opens) Reverse: FTC (medium closes)
Actuator	Type
Type of mounting	Mounting location of actuator
Fail-safe action	when supply air fails Fail-close Fail-open
Max. differential pressure for	... bar
Supply air	... bar
Bench range	... bar
Accessories	e.g. positioners, limit switches, solenoid valve etc.
Others	e.g. special version, certificates, approvals etc.

VETEC Ventiltechnik GmbH Siemensstraße 12 · 67346 Speyer
Telefon: 06232 6412-0 · Fax: 06232 42479 · E-mail: vetec@vetec.de · Internet:
www.vetec.de
Sitz der Gesellschaft: 67346 Speyer · Registergericht: Amtsgericht Ludwigshafen
HRB 51677 · USt-IdNr.: DE149689913 · Geschäftsführer: Uwe Vogel