

Double eccentric control valve for process engineering and industrial applications.

Valve size	DN 25 to DN 500	NPS 1 to NPS 20
Nominal pressure	PN 63 to PN 160	ANSI Class 600 and 900
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

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

Flanged version

- DN 25, PN 63 to PN 160, face-to-face dimensions acc. to EN 558, Table 8, Series 2
- DN 40 to DN 500, PN 63 to PN 160, face-to-face dimensions acc. to EN 558, Table 3, Series 15
- NPS 1, Class 600, face-to-face dimensions acc. to EN 558, Table 17, Series 39
- NPS 1½ to NPS 20, Class 600 to Class 900, face-to-face dimensions acc. to EN 558, Table 3, Series 15

Further versions

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



Fig. 1: VETEC Type 73.7 Rotary Plug Valve (example with mounted Type R Actuator)

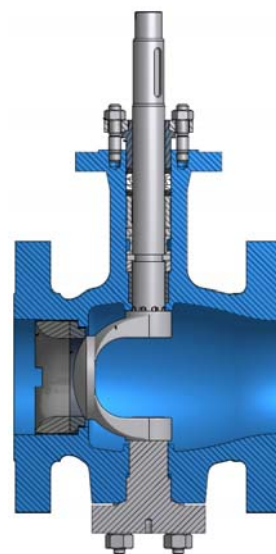


Fig. 2: Sectional drawing

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/other 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.

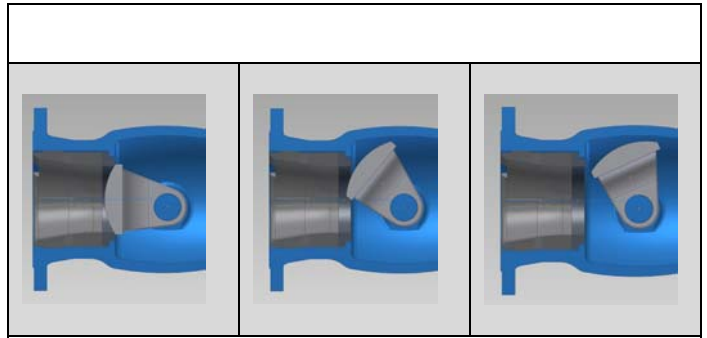


Fig. 3: Double-eccentric principle

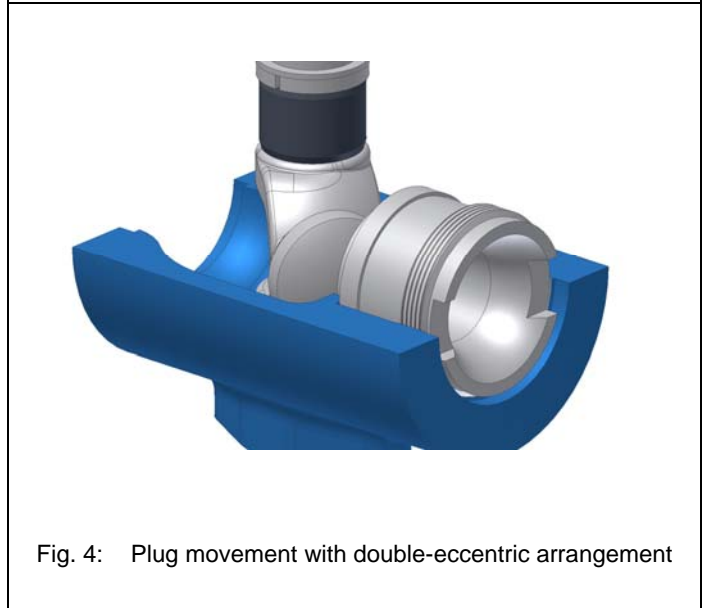


Fig. 4: Plug movement with double-eccentric arrangement

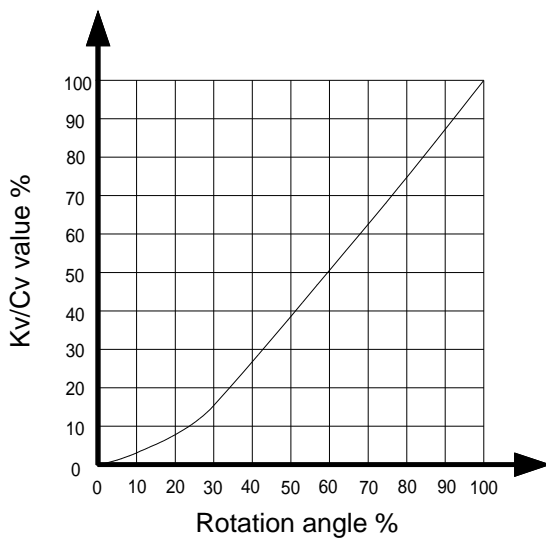


Fig. 5: Natural characteristic

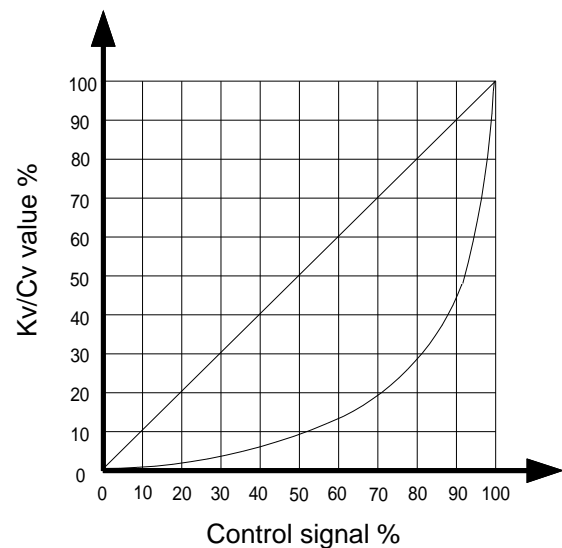


Fig. 6: Equal-percentage and linear characteristic

Table 1: Technical data

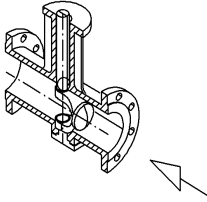
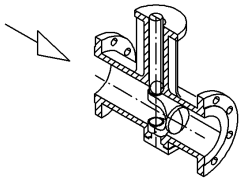
Type	73.7			
Valve size	DN 25 to DN 500		NPS 1 to NPS 20	
Style	Flange		Flange	
Flange pressure rating	PN 63/100/160		ANSI Class 600/Class 900	
Max. operating pressure	160 bar		160 bar	
Overall length	DN 25	DN 40 to DN 500	NPS 1 (Class 600 only)	NPS 1½ to NPS 20
	EN 558, Table 8, Series 2	EN 558, Table 3, Series 15	EN 558, Table 17, Series 39	EN 558, Table 3, Series 15
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 holder	1.4404	
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	400	500
NPS	1	1 1/2	2	3	4	6	8	10	12	16	20

Flow rate

100%	Kvs	16	36	70	220	360	720	1100	1950	2700	4700	6700
	Cv	18	42	81	254	416	832	1272	2254	3121	5434	7746
	Seat Ø (mm)	18	26	36	60	76	105	135	170	210	290	350
60%	Kvs	12	22	43	145	210	430	630	1230	1500	2700	3800
	Cv	14	25	50	168	243	497	728	1422	1734	3121	4393
	Seat Ø (mm)	16	21,5	29,5	50	60	86	106	146	163	225	271
40%	Kvs	10	16	31	105	150	275	390	850	900	1600	2300
	Cv	12	18	36	121	173	318	451	983	1040	1850	2659
	Seat Ø (mm)	14	18,5	25,5	44	53	73	88	126	133	184	221
25%	Kvs	4	12	19	70	100	185	245	500	640	1100	1250
	Cv	4,6	14	22	81	116	214	283	578	740	1272	1445
	Seat Ø (mm)	10	16	21	37	45	62	73	102	116	160	175

3b. seat with metal sealing FTC

DN	25	40	50	80	100	150	200	250	300	400	500
NPS	1	1 1/2	2	3	4	6	8	10	12	16	20

Flow rate

100%	Kvs	16	36	70	210	340	660	810	1300	2100	3400	4800
	Cv	18	42	81	243	393	763	936	1503	2428	3931	5549
	Seat Ø (mm)	18	26	36	60	76	105	135	170	210	290	350
60%	Kvs	12	22	43	135	200	320	410	820	900	1800	2700
	Cv	14	25	50	156	231	370	474	948	1040	2081	3121
	Seat Ø (mm)	16	21,5	29,5	50	60	86	106	146	163	225	271
40%	Kvs	10	16	31	95	120	185	250	540	570	1120	1600
	Cv	12	18	36	110	139	214	289	624	659	1295	1850
	Seat Ø (mm)	14	18,5	25,5	44	53	73	88	126	133	184	221
25%	Kvs	4	12	19	56	90	125	160	320	410	860	870
	Cv	4,6	14	22	65	104	145	185	370	474	994	1006
	Seat Ø (mm)	10	16	21	37	45	62	73	102	116	160	175

3c. Seat with soft sealing FTC

DN	25	40	50	80	100	150	200	250	300	400	500
NPS	1	1 1/2	2	3	4	6	8	10	12	16	20

Flow rate

100%	Kvs	12	40	68	180	290	535	730	1220	2000	2700	4800
	Cv	14	42	79	208	335	618	844	1410	2312	3121	5549
	Seat Ø (mm)	16	26	35	54	70	98	128	160	204	270	350
60%	Kvs	11	22	43	135	200	320	410	820	900	1800	2700
	Cv	13	25	50	156	231	370	474	948	1040	2081	3121
	Seat Ø (mm)	15	21,5	29,5	50	60	86	106	146	163	225	271
40%	Kvs	10	16	31	105	120	185	250	540	570	1120	1600
	Cv	12	18	36	121	139	214	289	624	659	1295	1850
	Seat Ø (mm)	14	18,5	25,5	46	53	73	88	126	133	184	221
25%	Kvs	4	12	19	56	90	125	160	320	410	860	870
	Cv	4,6	14	22	65	104	145	185	370	474	994	1006
	Seat Ø (mm)	10	16	21	37	45	62	73	102	116	160	175

Table 4: Weight [kg] (without actuator)

DN	25	40	50	80	100	150	200	250	300	400	500
NPS	1	1½	2	3	4	6	8	10	12	16	20
Weight (kg)	16	28	36	55	73	165	249	382	630	1209	2030

Table 5: DIN face-to-face dimensions

	DN	25	40	50	80	100	150	200	250	300	400	500
PN 63	Length (mm)	230	240	250	280	300	350	400	450	500	600	700
PN 100												
PN 160												

Table 6: ANSI face-to-face dimensions

	NPS	1	1½	2	3	4	6	8	10	12	16	20
Class 600	Length (mm)	210	240	250	280	300	350	400	450	500	600	700
Class 900		254										

Order specifications:

Type	According to table
Valve size	DN ...
Nominal pressure	PN ...
Body material	According to table
Seat version	Metal seal
Characteristic	Equal percentage or linear
Kvs/Cv	According to table
Direction of flow	Standard: FTO Reversed FTC
Actuator	Type
Type of mounting	Mounting location of actuator
Fail-safe action	when supply air fails Fail-close Fail-open
Max. differential pressure for actuator	... 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