



## Series 73 - Rotary Plug Valve Type 73.3 (High Pressure)

Double eccentric control valve for process engineering and industrial applications

<b>Valve size</b>	DN 25 to 250	NPS 1 to 10
<b>Nominal pressure</b>	PN 63 to 160	CL 600, 900, 1500*, 2500*
<b>Temperature</b>	-100 to +500 °C	-148 to 932 °F



\* Depending on valve size. Other pressure ratings on request.

### 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 500 °C -148 to 932 °F

### Version

Flanged version

- DN 25 to DN 250, PN 63 to PN 160, face-to-face dimensions acc. to EN 558, Table 2, Series 2

### Further versions

- TA-Luft packing/double packing
- High and low temperature insulating section IT1
- Double stuffing box with or without test connection
- Heating jacket
- Cleaning connections on plug, trunnion bearing, packing and/or shaft
- 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

### Configuration samples



Fig. 1: Type 73.3 with Type R Actuator

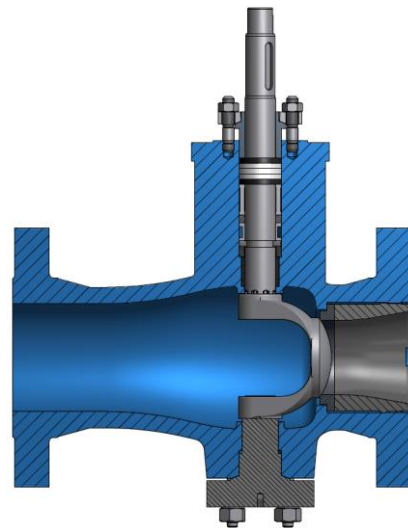


Fig. 2: Sectional drawing

## 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.

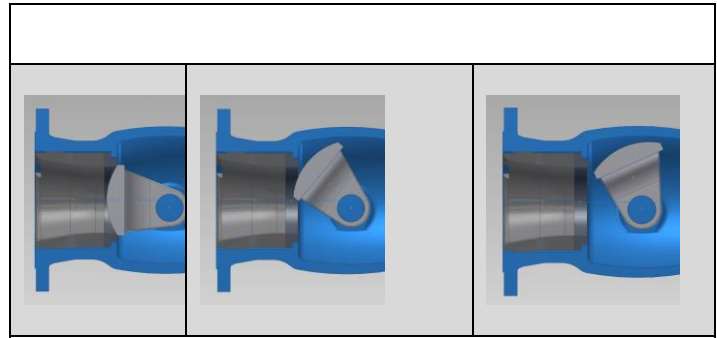


Fig. 3: Plug movement with double-eccentric arrangement

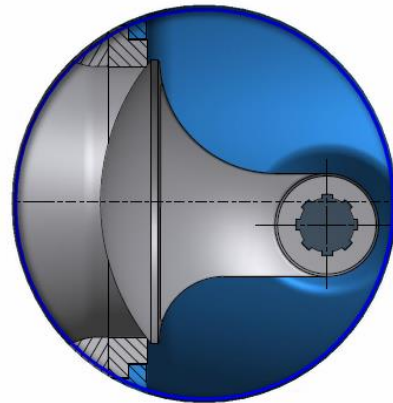


Fig. 4: Double-eccentric principle

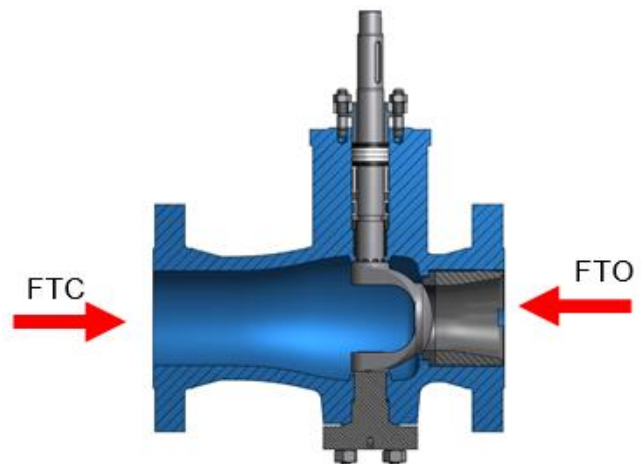


Fig. 5: Flow direction

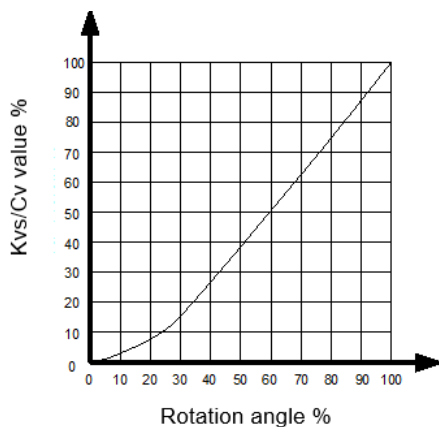


Fig. 6: Natural characteristic

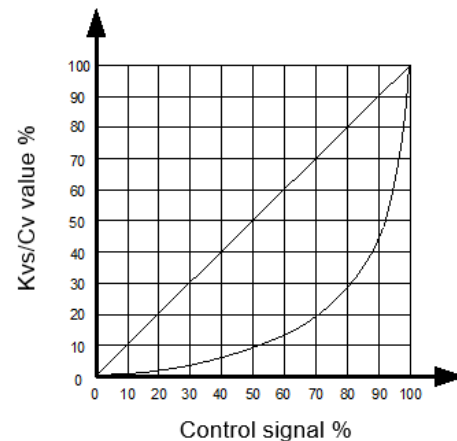
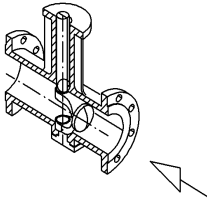
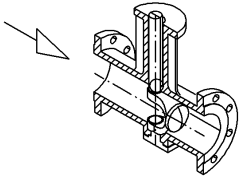


Fig. 7: Equal-percentage and linear characteristic

**Table 1: Technical data**

Type	73.3	
Valve size	DN 25 to DN 250	
Style	Flange	
Flange pressure rating	PN 63/100/160	
Max. operating pressure	160 bar	
Overall length	EN 558, Table 2, Series 2	
Flange bore/form	DIN EN 1591-1/DIN 2500	
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 positioner characteristic; inherent	
Rangeability	200:1	
Temperature range	Medium: -100 to +500 °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	
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**

<b>DN</b>	<b>25</b>	<b>40</b>	<b>50</b>	<b>80</b>	<b>100</b>	<b>150</b>	<b>200</b>	<b>250</b>
<b>NPS</b>	<b>1</b>	<b>1 1/2</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>6</b>	<b>8</b>	<b>10</b>

**Flow rate**

<b>100%</b>	<b>Kvs</b>	16	36	70	220	360	720	1100	1950
	<b>Cv</b>	18	42	81	254	416	832	1272	2254
	<b>Seat Ø mm</b>	18	26	36	60	76	105	135	170
<b>60%</b>	<b>Kvs</b>	12	22	43	145	210	430	630	1230
	<b>Cv</b>	14	25	50	168	243	497	728	1422
	<b>Seat Ø mm</b>	16	21,5	29,5	50	60	86	106	146
<b>40%</b>	<b>Kvs</b>	10	16	31	105	150	275	390	850
	<b>Cv</b>	12	18	36	121	173	318	451	983
	<b>Seat Ø mm</b>	14	18,5	25,5	44	53	73	88	126
<b>25%</b>	<b>Kvs</b>	4	12	19	70	100	185	245	500
	<b>Cv</b>	4,6	14	22	81	116	214	283	578
	<b>Seat Ø mm</b>	10	16	21	37	45	62	73	102

**3b. Seat with metal sealing FTC**

<b>DN</b>	<b>25</b>	<b>40</b>	<b>50</b>	<b>80</b>	<b>100</b>	<b>150</b>	<b>200</b>	<b>250</b>
<b>NPS</b>	<b>1</b>	<b>1 1/2</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>6</b>	<b>8</b>	<b>10</b>

**Flow rate**

<b>100%</b>	<b>Kvs</b>	16	36	70	210	340	660	810	1300
	<b>Cv</b>	18	42	81	243	393	763	936	1503
	<b>Seat Ø mm</b>	18	26	36	60	76	105	135	170
<b>60%</b>	<b>Kvs</b>	12	22	43	135	200	320	410	820
	<b>Cv</b>	14	25	50	156	231	370	474	948
	<b>Seat Ø mm</b>	16	21,5	29,5	50	60	86	106	146
<b>40%</b>	<b>Kvs</b>	10	16	31	95	120	185	250	540
	<b>Cv</b>	12	18	36	110	139	214	289	624
	<b>Seat Ø mm</b>	14	18,5	25,5	44	53	73	88	126
<b>25%</b>	<b>Kvs</b>	4	12	19	56	90	125	160	320
	<b>Cv</b>	4,6	14	22	65	104	145	185	370
	<b>Seat Ø mm</b>	10	16	21	37	45	62	73	102

### 3c. Seat with soft sealing    FTC

<b>DN</b>	<b>25</b>	<b>40</b>	<b>50</b>	<b>80</b>	<b>100</b>	<b>150</b>	<b>200</b>	<b>250</b>
<b>NPS</b>	<b>1</b>	<b>1 1/2</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>6</b>	<b>8</b>	<b>10</b>

#### Flow rate

<b>100%</b>	<b>Kvs</b>	12	40	68	180	290	535	730	1220
	<b>Cv</b>	14	42	79	208	335	618	844	140
	<b>Seat Ø mm</b>	16	26	35	54	70	98	128	160
<b>60%</b>	<b>Kvs</b>	11	22	43	135	200	320	410	820
	<b>Cv</b>	13	25	50	156	231	370	474	948
	<b>Seat Ø mm</b>	15	21,5	29,5	50	60	86	106	146
<b>40%</b>	<b>Kvs</b>	10	16	31	105	120	185	250	540
	<b>Cv</b>	12	18	36	121	139	214	289	624
	<b>Seat Ø mm</b>	14	18,5	25,5	46	53	73	88	126
<b>25%</b>	<b>Kvs</b>	4	12	19	56	90	125	160	320
	<b>Cv</b>	4,6	14	22	65	104	145	185	370
	<b>Seat Ø mm</b>	10	16	21	37	45	62	73	102

**Table 4: Weight in kg without actuator**

<b>DN</b>	<b>25</b>	<b>40</b>	<b>50</b>	<b>80</b>	<b>100</b>	<b>150</b>	<b>200</b>	<b>250</b>
<b>Weight kg</b>	16	27	34	56	77	173	261	369

**Table 5: DIN face-to-face dimensions**

	<b>DN</b>	<b>25</b>	<b>40</b>	<b>50</b>	<b>80</b>	<b>100</b>	<b>150</b>	<b>200</b>	<b>250</b>
<b>PN 63</b>	<b>Length mm</b>	230	260	300	380	430	550	650	775
<b>PN 100</b>									
<b>PN 160</b>									

**Table 6: ANSI face-to-face dimensions**

	<b>NPS</b>	<b>1</b>	<b>1½</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>6</b>	<b>8</b>	<b>10</b>
<b>Class 600</b>	<b>Length mm</b>	210	251	286	337	394	508	610	752
<b>Class 900</b>		254	305	368		457			

**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 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](mailto:vetec@vetec.de) · Internet:  
[www.vetec.de](http://www.vetec.de)  
Sitz der Gesellschaft: 67346 Speyer · Registergericht: Amtsgericht Ludwigshafen  
HRB 51677 · USt-IdNr.: DE149689913 · Geschäftsführer: Uwe Vogel