Data Sheet
Rotary Plug Valve Type 82.7

Double eccentric control valve for process engineering and industrial applications

Valve Size	**DN 25 to 250**	**NPS 1 to 10**
Nominal Pressure	**PN 10 to PN 40**	**CL 150 and 300**
Temperature Range of Medium	**–100 to +400 °C**	**–148 to +752 °F**

Valve Body Material

- Cast carbon steel
- Cast stainless steel
- Low temperature carbon steel
- Special alloys (Duplex, Hastelloy etc.)
- Other special materials on request

Seat version

- Metal sealing, armored or unarmored
- Soft sealing
- Standard seat factors 1 / 0.6 / 0.4 / 0.25

Standard version

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

Flanged version

- DN 25 to 250, PN10/ PN16/ PN25/ PN40, face-to-face dimensions acc. to EN 558, Table 16, Series 36
- NPS 1 to 10, CL 150 / CL 300, face-to-face dimensions acc. to EN 558, Table 16, Series 36

Further versions

- TA-Luft packing / double packing
- Special materials for body and trim
- Noise reduction devices for gaseous mediums
- Anti-cavitations devices for liquids
- Flange version with tongue/groove or male-face/female-face according to EN 1092-1
- RF and RTJ according to ANSI B16.5
- Versions for higher and lower temperatures on request

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

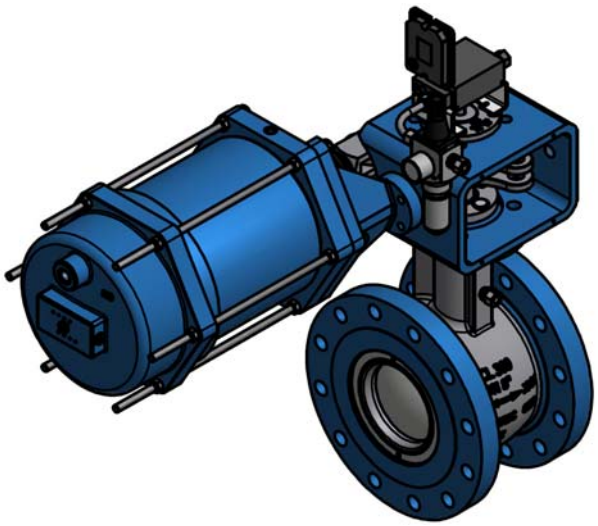


Fig. 1: VETEC Rotary Plug Valve – Type 82.7 (example with mounted Type R Actuator)

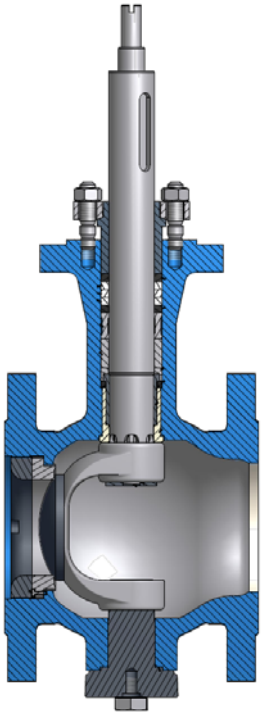


Fig. 2: VETEC Rotary Plug Valve Assembly Drawing

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 (flow to close).
The flow coefficient (Kv / Cv) 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. 6 and 7).

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 (FC): Rotary Plug Valve is closed when the supply air fails.
Valve OPEN (FO): Rotary Plug Valve is opened when the supply air fails.

Installation
An arrow on the valve will indicate the direction of flow the valve has been configured for (Fig.5).

For installing the valve into the pipeline we recommend a minimal distance of 6 nominal valve size (6 x NPS) in front of the valve and 6 nominal valve size (6 x NPS) behind the valve.

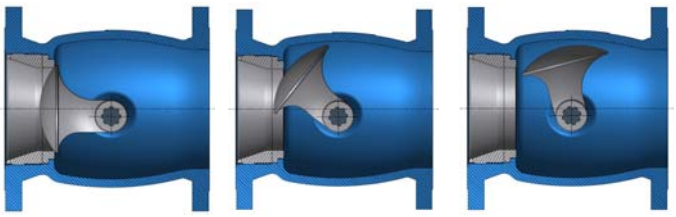


Fig. 3: Plug Movement with Double-Eccentric Arrangement

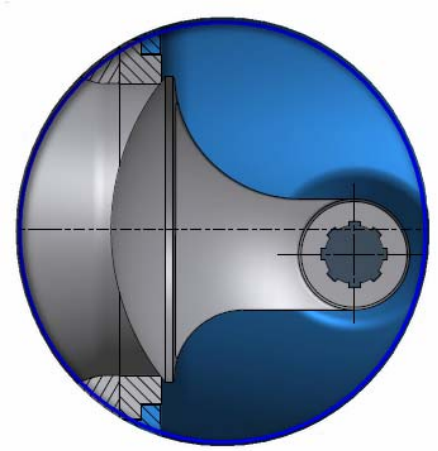


Fig. 4: Double-Eccentric Principle

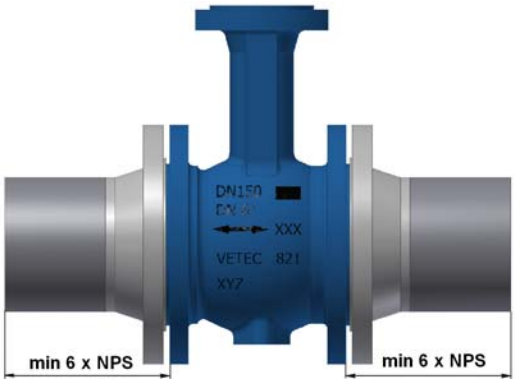


Fig. 5: Installation into the Pipeline

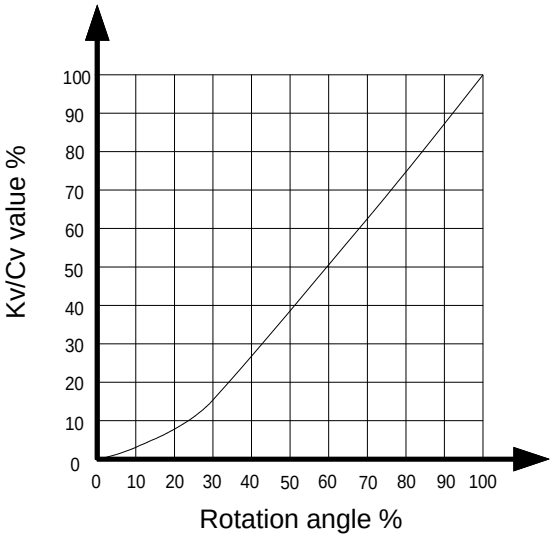


Fig. 6: Natural characteristic

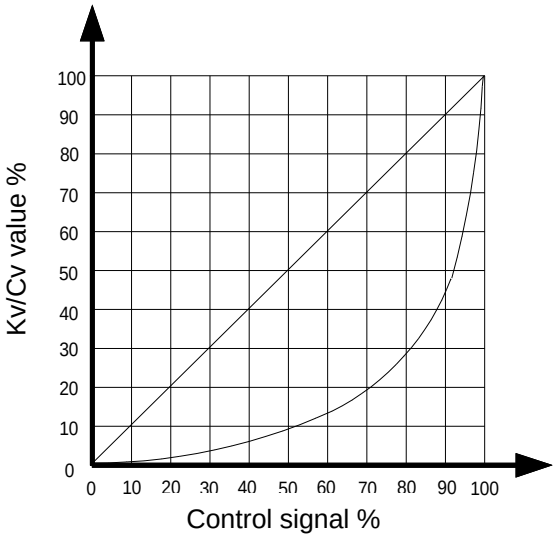


Fig. 7: Equal-percentage and linear characteristic

Table 1: Technical data

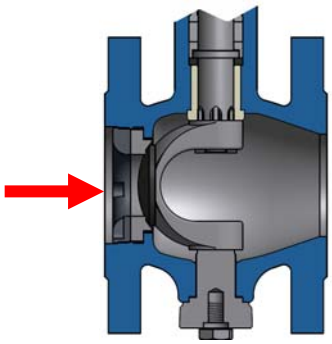
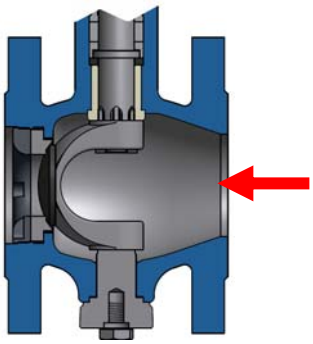
Valve Type	82.7	
Valve size	DN 25 to 250	NPS 1 to 10
Style	Flanged	Flanged
Flange pressure rating	PN 10 / 16 / 25 / 40	CL 150 / 300
Max. operating pressure	40 bar	50 bar
Overall length	EN 558, Series 36	EN 558, Series 36
Flange bore/form	DIN EN 1092-1	ASME B16.5
Flow direction	 Flow to open: FTO	 Flow to close: FTC
Characteristic	Equal percentage / linear / ON-OFF	
Rangeability	up to 200:1	
Temperature range of medium	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 Stellite / seat with soft sealing	
Seat holder	1.4404	
Soft sealing	PTFE / KTL	
Guide bushing	1.4404 / plastic	
Packing bushing	1.4404	
O-ring	FPM 80 VR1	
Sealing - Trunnion bearing	Graphite-VA / PTFE	
Packing	PTFE / Graphite	

Table 3. Kvs and Cvs Coefficients

3a. Seat Facing: metallic, FTO

DN [mm]		25	40	50	80	100	150	200	250
NPS [inch]		1	1½	2	3	4	6	8	10
Flow rate									
100%	Kvs	16	36	70	220	360	720	1100	1950
	Cvs	18	42	81	254	416	832	1272	2254
	Seat Ø [mm]	18	26	36	60	76	105	135	170
60%	Kvs	12	22	43	145	210	430	630	1230
	Cvs	14	25	50	168	243	497	728	1422
	Seat Ø [mm]	16	21,5	29,5	50	60	86	106	146
40%	Kvs	10	16	31	105	150	275	390	850
	Cvs	12	18	36	121	173	318	451	983
	Seat Ø [mm]	14	18,5	25,5	44	53	73	88	126
25%	Kvs	4	12	19	70	100	185	245	500
	Cvs	4,6	14	22	81	116	214	283	578
	Seat Ø [mm]	10	16	21	37	45	62	73	102

3b. Seat Facing: metallic, FTC

DN [mm]		25	40	50	80	100	150	200	250
NPS [inch]		1	1½	2	3	4	6	8	10
Flow rate									
100%	Kvs	16	36	70	210	340	660	810	1300
	Cvs	18	42	81	243	393	763	936	1503
	Seat Ø [mm]	18	26	36	60	76	105	135	170
60%	Kvs	12	22	43	135	200	320	410	820
	Cvs	14	25	50	156	231	370	474	948
	Seat Ø [mm]	16	21,5	29,5	50	60	86	106	146
40%	Kvs	10	16	31	95	120	185	250	540
	Cvs	12	18	36	110	139	214	289	624
	Seat Ø [mm]	14	18,5	25,5	44	53	73	88	126
25%	Kvs	4	12	19	56	90	125	160	320
	Cvs	4,6	14	22	65	104	145	185	370
	Seat Ø [mm]	10	16	21	37	45	62	73	102

3c. Seat Facing: soft, FTC

DN [mm]		25	40	50	80	100	150	200	250
NPS [inch]		1	1½	2	3	4	6	8	10
Flow rate									
100%	Kvs	12	36	68	180	290	535	730	1220
	Cvs	14	42	79	208	335	618	844	1410
	Seat Ø [mm]	16	26	35	54	70	98	128	160
60%	Kvs	11	22	43	135	200	320	410	820
	Cvs	13	25	50	156	231	370	474	948
	Seat Ø [mm]	15	21,5	29,5	50	60	86	106	146
40%	Kvs	10	16	31	105	120	185	250	540
	Cvs	12	18	36	121	139	214	289	624
	Seat Ø [mm]	14	18,5	25,5	46	53	73	88	126
25%	Kvs	4	12	19	56	90	125	160	320
	Cvs	4,6	14	22	65	104	145	185	370
	Seat Ø [mm]	10	16	21	37	45	62	73	102

Table 4: Weight [kg] (without Actuator)

DN [mm]	25	40	50	80	100	150	200	250
NPS [inch]	1	1½	2	3	4	6	8	10
Weight [kg]	8	13	16	35	43	85	140	190

Table 5: DIN Face-to-Face Dimensions

	DN	25	40	50	80	100	150	200	250
PN 10	Length [mm]	102	114	124	165	194	229	243	297
PN 16									
PN 25									
PN 40									

Table 6: ANSI Face-to-Face Dimensions

	NPS	1	1½	2	3	4	6	8	10
CL 150	Length [mm]	102	114	124	165	194	229	243	297
CL 300									

Order Specification

Type	According to table
Valve size	DN / NPS
Nominal pressure	PN / CL
Body material	According to table
Seat version	Metallic or soft seat facing
Characteristic	Equal percentage / linear / ON-OFF
Kvs / Cvs	According to table
Flow direction	FTO (flow to open) / FTC (flow to close)
Actuator	Type
Type of mounting	Mounting location of actuator
Fail-safe action	Fail-Close (FC) or Fail-Open (FO)
Max. differential pressure for actuator	... bar
Supply air	... bar
Bench range	... bar
Accessories	e.g. positioner, limit switch, solenoid valve etc.
Others	e.g. special version, certificates, approvals etc.

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