

# **K700 Series Pneumatic Eccentric Rotary Control Valve**



奥士奥控制阀门（上海）有限公司  
Valsev Control Valves (Shanghai) Co., Ltd

## K700 Series Pneumatic

### Eccentric Rotary Control

#### Valve

K700 series pneumatic eccentric rotary control valve (also known as cam deflection valve) is a type of control valve of novel structure, absorbing USA advanced technology. It combines advantages of single-seat valve, globe valve, butterfly valve and so on, featuring simple structure, small volume, light weight, large rated flow characteristics, good stability. As stem and trim just rotate, small friction occurs in operation, improving sealing performance of packing. When it's shut off and the trim and seat are in contact, trim flexible arm occurs tiny elastic deformation and elastic tension by thrust from actuator, making intimate contact between the trim and the seat, which is why eccentric rotary valve has small leakage. The valve has unobstructed flow passage, suitable for control of highly-concentrated medium and medium with particles, and widely used in automation process control for chemical, metallurgic industries and power station.



#### 1, Main Technical Parameters

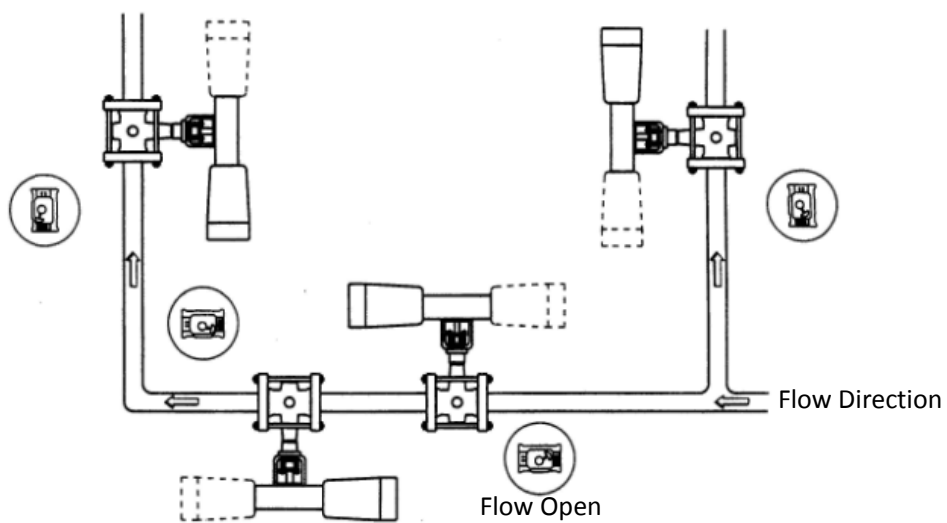
Rated Flow Coefficient Cv	Full	14	30	50	135	230	500	850	1300	1750
	60%	8.4	18	30	81	138	300	510	780	1050
	40%	536	12	20	54	92	200	340	520	700
Flow Characteristics		approximate linear: approximate equal percentage (equal percentage, linearequipping positioner								
Pressure Rating		ANSI 150、300、600								
Stroke		Corner 50 <sup>0</sup>								
Seat Leakage		ANSI B16. 104 CLASS IV (metal seat); CLASS VI (soft seat)								
Usage Temperature <sup>0</sup> C		-195 — +400								
Rangeability		100:1								
Actuator	Slipping Diaphragm	MT-1			MT-2		MT-3			
	Cylinder-type	MG-1			MG-2		MG-3		MG-4	
Connection Way		Wafer, flange; flange distance up to standard IEC534-3-2								

**Assembly Way**

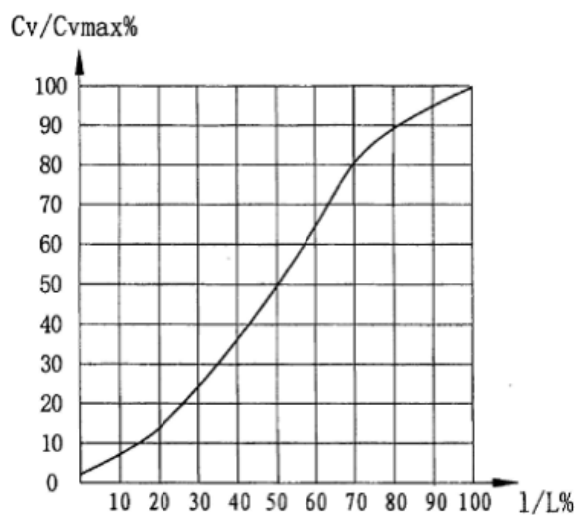
**Flow Open**

— air to open

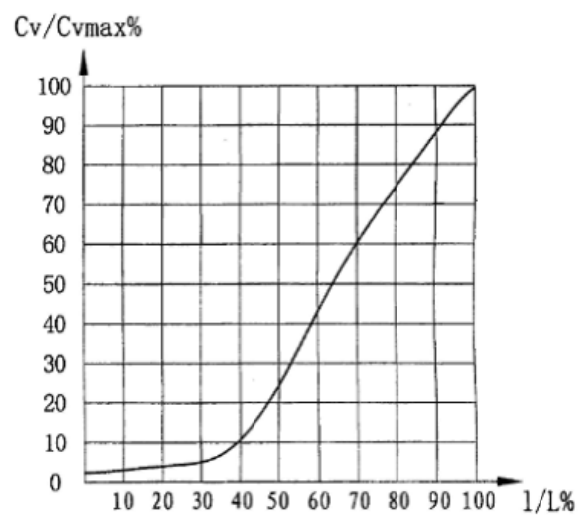
- - - air to close



## 2, Flow Characteristics



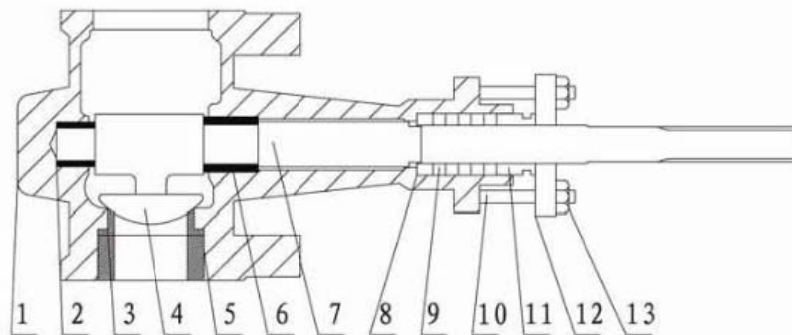
**Linear Flow Characteristics Curve**



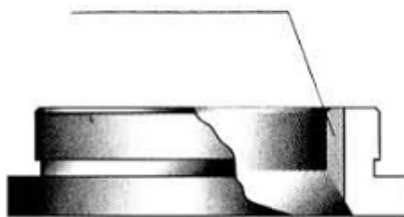
**Equal Percentage Flow Characteristics Curve**

### 3, Structure Material

No.	Name	Material
1	Body	WCB、CF8、CF8M、CF3M
2	Lower guide bushing	9Cr18、316+STL
3	Seat	304+STL、316+STL
4	Trim	304+STL、316+STL
5	Pressuring nut	304、316
6	Upper guide bushing	9Cr18、316+STL
7	Stem	304、316、17-4PH
8	Gasket	304、316
9	Packing	PTFE, graphite
10	Packing bolt	304
11	Packing gland	304
12	Plate	WCB、CF8
13	Nut	304

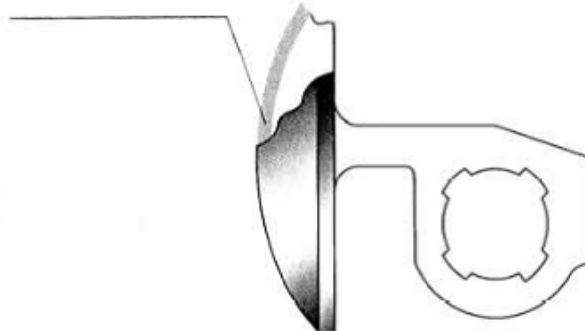


Stellite or Surface  
Supersonic Tungsten Carbide Spraying



**Seat Overlaying Hard Alloy**

Stellite or Surface  
Supersonic Tungsten Carbide Spraying



**Trim Overlaying Hard Alloy**

## 4, Allowable Pressure Differential

### (1) Metal Seat Structure

Unit Mpa

Size	Cv	Air-to-open flow-to-open	Air-to-open Flow-to-close or Air-to-close Flow-to-open											
			Air Pressure											
			0.14	0.18	0.21	0.25	0.28	0.32	0.35	0.39	0.42	0.46	0.49	0.53
1 "	14	7.0	7.0											
	5.6	10.2	10.0											
1 1/2 "	30	4.7	3.0	5.6										
	12	9.8	6.3	10.2										
2 "	50	2.5	1.6	3.5	4.2									
	20	5.2	3.3	7.0	7.0									
3 "	135	2.0	1.3	2.7	4.2									
	54	4.5	2.8	6.1	7.0									
4 "	230	1.0	0.63	1.4	2.2	3.1	3.9	4.1						
	92	2.2	1.4	3.0	4.9	6.8	7.0	7.0						
	500	0.63			0.35	0.91	1.4	2.1	2.5	3.1	3.7	4.2		
					0.35	0.91	1.4	2.1	2.5	3.1	3.7	4.2		
6 "					0.35	0.91	1.4	2.1	2.5	3.1	3.7	4.2		
					0.77	2.0	3.2	4.4	5.6	6.8	7.0			
					0.77	2.0	3.2	4.4	5.6	6.8	7.0			
					0.77	2.0	3.2	3.5	5.6	6.8	7.0			
8 "					0.18	0.42	0.7	1.0	1.3	1.5	1.8	2.1	2.4	2.5
					0.18	0.42	0.7	1.0	1.3	1.5	1.8	2.1	2.4	2.5
					0.18	0.42	0.63	1.0	1.3	1.5	1.8	2.1	2.4	2.5
					0.28	0.7	1.1	1.5	2.0	2.4	2.8	3.2	3.7	3.9
					0.28	0.7	1.1	1.5	2.0	2.4	2.8	3.2	3.7	3.9
					0.28	0.7	1.0	1.5	2.0	2.4	2.8	3.2	3.7	3.9
					0.42	1.1	1.8	2.5	3.2	3.9	4.5	5.2	5.9	6.3
					0.42	1.1	1.8	2.5	3.2	3.9	4.5	5.2	5.9	6.3
					0.42	1.0	1.5	2.5	3.2	3.9	4.5	5.2	5.9	6.3
					0.11	0.25	0.38	0.56	0.7	0.84	0.98	1.1	1.3	1.5
					0.11	0.25	0.35	0.56	0.7	0.84	0.98	1.1	1.3	1.5
					0.11	0.25	0.38	0.56	0.7	0.84	0.98	1.1	1.3	1.5
10 "					0.14	0.35	0.56	0.84	1.1	1.3	1.5	1.8	2.0	2.2
					0.14	0.35	0.56	0.84	1.1	1.3	1.5	1.8	2.0	2.2
					0.14	0.35	0.49	0.84	1.1	1.3	1.5	1.8	2.0	2.2
					0.25	0.63	0.98	1.3	1.7	2.1	2.5	2.8	3.2	3.6
					0.25	0.63	0.98	1.3	1.7	2.1	2.5	2.8	3.2	3.6
					0.25	0.63	0.84	1.3	1.7	2.1	2.5	2.8	3.2	3.6
12 "					0.14	0.21	0.32	0.39	0.49	0.56	0.63	0.7	0.84	
					0.14	0.21	0.32	0.39	0.49	0.56	0.63	0.7	0.84	
					0.14	0.21	0.32	0.39	0.49	0.56	0.63	0.7	0.84	
					0.14	0.21	0.32	0.39	0.49	0.56	0.63	0.7	0.84	
					0.07	0.21	0.35	0.49	0.63	0.7	0.84	0.98	1.1	1.3
					0.07	0.21	0.35	0.49	0.63	0.7	0.84	0.98	1.1	1.3
					0.07	0.21	0.32	0.49	0.63	0.7	0.84	0.98	1.1	1.3
					0.14	0.35	0.56	0.77	0.98	1.3	1.5	1.7	1.9	2.1
					0.14	0.35	0.56	0.77	0.98	1.3	1.5	1.7	1.9	2.1

**(2) Soft Seat Structure****Unit Mpa**

Size	Cv	Air-to-open Flow-to-close or Air-to-close Flow-to-open												
		Air-to-open flow-to-close	Air Pressure											
			0.14	0.18	0.21	0.25	0.28	0.32	0.35	0.39	0.42	0.46	0.49	0.53
1"	14 5.6	5.6 7.0	5.6 7.0											
1½"	30 12	3.5 7.0	1.6 3.7	4.9 7.0										
2"	50 20	1.8 3.7	0.7 0.16	2.6 5.3	4.2 7.0									
3"	135 54	1.4 3.4	0.62 1.6	2.1 4.8	3.5 5.6									
4"	230 92	0.7 1.6	0.25 0.7	1.1 2.3	1.8 4.0	2.6 5.6	3.4 5.6	3.5 5.6						
	500	0.42			0.14 0.14	0.63 0.63	1.2 1.2	1.7 1.7	2.2 2.2	2.7 2.7	3.2 3.2	3.5 3.5		
6"					0.14	0.63	1.2	1.7	2.2 2.2	2.7 2.7	3.2 3.2	3.5 3.5		
	200	1.1			0.42 0.42 0.42	1.5 1.5 1.5	2.7 2.7 2.7	3.7 3.7 3.7	4.8 4.8 4.8	5.6 5.6 5.6				
8"	850	0.14				0.28 0.28 0.28	0.52 0.52 0.52	0.77 0.77 0.63	1.1 1.1 1.1	1.3 1.3 1.3	1.5	1.8	2.1	
	510	0.28			0.07 0.07 0.07	0.46 0.46 0.46	0.84 0.84 0.84	1.2 1.2 0.96	1.6 1.6 1.6	2.0 2.0 2.0	2.4	2.8	3.2	
	340	0.49			0.14 0.14 0.14	0.77 0.77 0.77	1.4 1.4 1.4	2.0 2.0 1.5	2.6 2.6 2.6	3.2 3.2 3.2	3.8	4.4	4.9	
	1300					0.11 0.11 0.11	0.25 0.25 0.25	0.38 0.38 0.35	0.53 0.53 0.53	0.67 0.67 0.67	0.77	0.91	1.1	1.2
10"	780	1.1				0.21 0.21 0.21	0.42 0.42 0.42	0.63 0.63 0.63	0.84 0.84 0.84	1.1 1.1 1.1	1.3	1.5	1.7	1.9
	520	0.21				0.35 0.35 0.35	0.7 0.7 0.7	1.1 1.1 0.84	1.3 1.3 1.3	1.7 1.7 1.7	2.0	2.3	2.7	3.0
12"	1750					0.04 0.04 0.04	0.11 0.11 0.11	0.18 0.18 0.18	0.28 0.28 0.21	0.35 0.35 0.35	0.42 0.42 0.42	0.49	0.6	0.67
	1050					0.07 0.07 0.07	0.21 0.21 0.21	0.32 0.32 0.32	0.46 0.46 0.46	0.56 0.56 0.56	0.7	0.77	0.914	1.1
	700	0.07				0.18 0.18 0.18	0.35 0.35 0.35	0.56 0.56 0.49	0.56 0.56 0.56	0.77 0.77 0.77	0.91 0.91 0.91	1.3	1.5	1.8

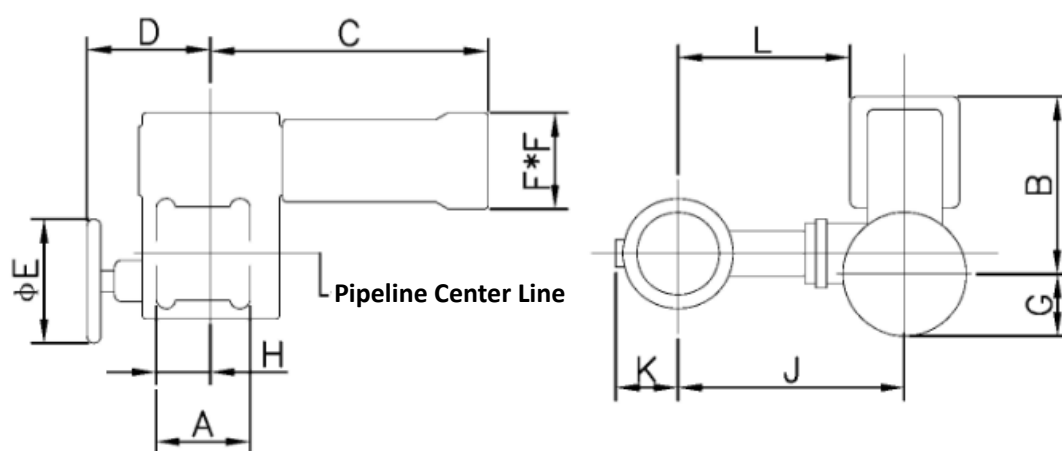
Note: 1, allowable pressure differential exceeds numerical values in the table, and cylinder actuator is advised.

2, allowable pressure differential does not exceed valve nominal pressure.

## 5, Accessories

As flow characteristics of K700 series pneumatic eccentric rotary control valve is approximate linear and approximate equal percentage, when precision is demanded a positioner is required, including air filter and redactor, otherwise according to process requirements, equipping electrical/pneumatic convertor, lock up valve, stroke switch, solenoid valve and so on. K700 series hand wheel and the valve are integral, which can be supplied when not being specified while placing an order.

### Dimensions and Weight



#### (1) Equipped with Rotary Diaphragm Actuator

Unit: mm

	A	B	C	D	E	F	G	H	J	K	L	
	Flangeless							Flangeless				
1 "	102	173	297	208	163	140	110	67	206	38	137	12
1½ "	114	175	300	211	163	140	110	62	234	51	165	14
2 "	124	175	300	211	163	140	110	62	239	66	170	16
3 "	165	262	434	229	163	175	118	97	333	84	244	35
4 "	194	264	437	229	163	175	118	106.5	356	109	267	48
6 "	229	330	533	302	254	218	197	127	432	147	323	86
8 "	243	333	536	305	254	218	197	147	470	203	361	127
10 "	297	335	538	310	254	218	197	167	547	251	465	156
12 "	338	338	541	312	254	218	197	184	610	277	500	184

**(2) Equipped with Cylinder Actuator****Unit: mm**

	A	B	C	D	E	F	G	H	J	K	L	
	Flangeless							Flangeless				
6 "	229	330	677	302	254	271	213	127	432	147	297	194
8 "	243	333	680	305	254	271	216	147.5	470	203	335	236
10 "	297	335	683	310	254	271	221	167	574	251	440	263
12 "	338	338	686	312	254	271	224	184	610	277	475	290

Note: K700 normally provided is flangeless, if flange connection is needed, please specify.

**(3) Control Valve and Pipeline Connection Double-end Bolt and Nut List (wafer)**

ANSI Standard Size	150#				300#				600#			
	M×L	b	Bolt No.	Nut No.	M×L	b	Bolt No.	Nut No.	M×L	b	Bolt No.	Nut No.
25	M14×185	30	4	8	M16×195	35	4	8	M18×210	40	4	8
40	M14×200	30	4	8	M20×225	40	4	8	M20×235	40	4	8
50	M16×225	35	4	8	M16×230 M16×95 <sup>+</sup>	40	7	14	M18×250 M18×105 <sup>+</sup>	40	7	14
							2	2			2	2
80	M18×270	35	4	8	M20×305 M20×130 <sup>+</sup>	40	7	14	M20×310 M20×140 <sup>+</sup>	40	7	14
							2	2			2	2
100	M18×295 M18×105 <sup>+</sup>	40	7	14	M20×320 M20×135 <sup>+</sup>	40	7	14	M22×355 M22×150 <sup>+</sup>	45	7	14
			2	2			2	2			2	2
150	M20×355 M20×120 <sup>+</sup>	40	7	14	M20×365 M20×150 <sup>+</sup>	45	11	22	M27×420 M27×170 <sup>+</sup>	50	11	22
			2	2			2	2			2	2
200	M20×365 M20×105 <sup>+</sup>	40	6	12	M24×405 M24×125 <sup>+</sup>	50	10	20	M30×460 M30×150 <sup>+</sup>	55	10	20
			4	4		45	4	4		45	4	4
250	M22×425 M22×110 <sup>+</sup>	40	8	16	M27×475 M27×130 <sup>+</sup>	50	12	24	M33×535 M33×165 <sup>+</sup>	65	12	24
			8	8		45	8	8		45	8	8
300	M22×470 M22×110 <sup>+</sup>	45	8	16	M30×525 M30×140 <sup>+</sup>	65	12	24	M33×580 M33×165 <sup>+</sup>	65	16	32
			8	8		45	8	8		50	8	8



JB Standard Size	PN16				PN40				PN64			
	M×L	b	Bolt No.	Nut No.	M×L	b	Bolt No.	Nut No.	M×L	b	Bolt No.	Nut No.
25	M12×180	30	4	8	M12×190	35	4	8	M16×205	35	4	8
40	M16×200	35	4	8	M16×220	35	4	8	M20×230	40	4	8
50	M16×220	35	4	8	M16×225 M16×95*	35	3 2	6 2	M18×240 M18×100*	40	3 2	6 2
80	M16×260 M16×95*	35	4	8	M16×305 M16×125*	40	7 2	14 2	M20×305 M20×140*	40	7 2	14 2
100	M16×290 M16×95*	40	7 2	14 2	M20×305 M20×135*	40	7 2	14 2	M22×355 M22×150*	45	7 2	14 2
150	M20×355 M20×120*	40	7 2	14 2	M22×355 M22×150*	45	7 2	14 2	M27×400 M27×170*	50	7 2	14 2
200	M20×365 M20×105*	40	6 4	12 4	M24×405 M24×125*	50 45	10 4	20 4	M30×440 M30×135*	55 45	10 4	20 4
250	M22×435 M22×110*	40	8 8	16 8	M27×465 M27×130*	55 45	8 8	16 8	M33×490 M33×140*	65 45	8 8	16 8
300	M22×470 M22×110*	45	8 8	16 8	M30×520 M30×140*	65 45	12 8	24 8	M33×545 M33×150*	65 45	16 8	24 8

Note: With mark “\*” is double-end bolt, “b” is minimum length of double-end bolt thread.

