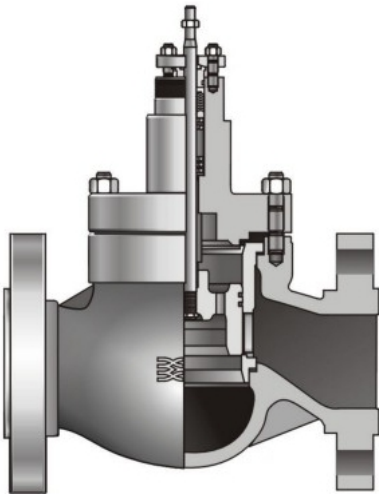
PARI WORLD

A





DTCB Cage-Type Control Valve (Improved Model)

DTCB cage-type control valve is an enhanced pressure-balancing control valve featuring a high-performance sealing ring installed on its valve cylinder. This design effectively improves the leak-tightness rating; the valve body's fluid passage is S-shaped streamline profile, and a flow-guiding vane is incorporated to ensure smooth fluid flow around the cylinder. The advantages include low pressure drop loss, high flow capacity, a wide adjustable range, precise flow characteristic curves, excellent dynamic stability, low noise levels, and minimal cavitation corrosion. This control valve is equipped with a multi-spring diaphragm actuator, offering a compact structure and substantial output force.

DTCB Cage-Type Control Valve (Improved Model)

valve body

Type	Direct-through single-seat cast steel spherical valve
Nominal diameter	40, 50, 65, 80, 100, 125, 150, 200, 250, 300mm
	ANSI 125、150、300、600
	JIS 10、16、20、30、40K
	PN 1.6、4.0、6.4MPa
Connection type	Flange types:FF, RF, RJ, LG;Flange standard ANSI B16.5, JB/T79.1 (PN 1.6 MPa),JB/T79.2 (convex–concave flanges)
	Welded type:SW (40–50 mm)
	Joint welding BW (65–100 mm)
Material	HT200 ZG251 ZGICr18Ni9
	ZGOCr17Ni12Mo21.25Cr0.5Mo
	5.0Cr0.5Mo SCPH21 SCPH61 Ti
Upper Valve Cover	Ambient temperature type (P): -17~+230°C
	Extended I type (E1): -45~+17°C,
	+230~+280°C
Cover type	Bolted clamping type
Filling	V-shaped PTFE packing; impregnated PTFE asbestos packing; graphite braided packing.

actuator (For details, please refer to Volume VII)

Type	LHA Multi-Spring Film Actuator
Membrane Material	EPDM rubber with nylon reinforcement
Spring Range	0.02~0.10,0.08~0.24MPa
Bleed pressure	0.14,0.16,0.28,0.40MPa
Air supply connector	Rc 1/4
Ambient temperature	-30~+70℃
Valve type	Air-on or Air-off mode

A

Attachment(configured as required) (See Volume VII for details)

Positioner; Air Filter and Pressure Reducing Valve; Handwheel Mechanism; Limit Switch; Solenoid Valve; Valve Position Transmitter; Pneumatic Accelerator; Position Hold Valve; Others.

function

Make known	Measure	Complies with ANSI B16.104 Class IV standard; operating below rated pressure
		Cv 0.01%–1%
Back	Difference	(with locator)
		±1% (with locator)
Line	Nature	±5% (without locator)
		Note: Standard V-shaped PTFE packing is used.

Valve internal components

Pressure-balanced valve spool.

Discharge characteristic: High-precision flow characteristic –**see Figure 1**

Metal valve seats and other components feature percentage-based (%) and linear (L)high-flow-rate characteristics; refer to **Figure 2**.

Scope of Work – Materials: Metal valve seats and other components with percentage (%) or linear (L)characteristics; reference diagram for operating temperature and pressure differential for S.T. Steel hardening – Figure 3-17-4 PH, 0Cr17Ni12Mo2Ti and hardened S.T. Steel alloys

Adjustable Extent

50:1

DTCB Cage-Type Control Valve (Improved Model)

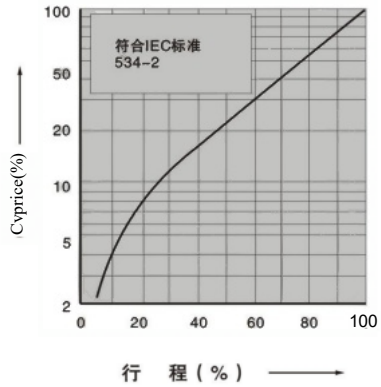
Cv value and stroke

Table 1.1

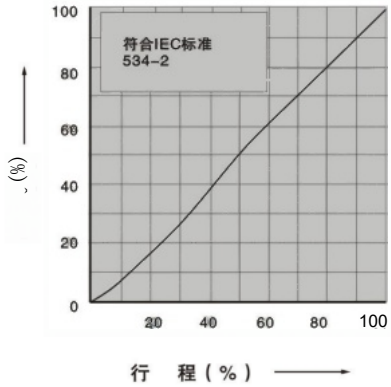
Nominal diameter (mm)			40			50			65			80			100		
Valve seat bore (mm)			25	32	40	32	40	50	40	50	65	50	65	80	65	80	100
Specified Cv	High-precision sleeve	Constant percentage	11	17	24	17	24	44	24	44	68	44	68	99	68	99	175
		Linear															
	High-capacity sleeve	Constant percentage	36			60			100			140			220		
		Linear	44			75			110			150			240		
Rated travel (mm)			25						38								

Table 1.2

Nominal diameter (mm)			125			150			200			250			300		
Valve seat bore (mm)			80	100	125	100	125	150	125	150	200	150	200	250	200	250	300
Specified Cv	High-precision sleeve	Constant percentage	99	175	275	175	275	360	275	360	650	395	640	1000	640	1000	1440
		Linear															
	High-capacity sleeve	Constant percentage						420			820						
		Linear						435			850						
Rated travel (mm)			50						75			100					

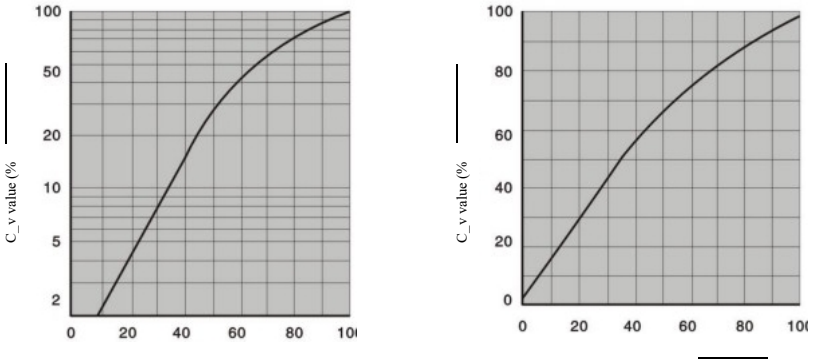


Constant percentage characteristic (%VF— metal valve seat)



Linear characteristics (L VF metal valve seat)

Figure 1 – High-Precision Sleeve Flow Rate Characteristic Curve



Constant percentage characteristic (%V– metal valve seat) Linear characteristic (L V metal valve seat)

Figure 2: Flow Rate Characteristic Curve for High-Capacity Sleeve

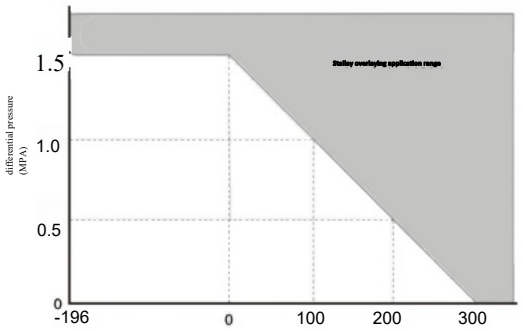


Figure 3: Working Range of Sitaili Surfacing Process

Note: 1. 17-4PH stainless steel (SCS24)does not require surfacing.

2、 For Cavitation, Flash Evaporation, Oil-Free Applications, or Control Valves That Are Frequently Kept Closed – Regardless of the Operating Temperature or Pressure Differential – It Is Recommended to Apply S.Tyle Alloy Surfacing.

Allowable Pressure Difference

A、 **Air-Actuated Valve**

Unit: MPa – Table 2.1

Actuator	Bleed pressure	Spring Range	Allowable pressure difference			
			Nominal diameter(mm)			
			40	50	65	80
LHA2D	0. 16	0. 02~0. 10	**4. 0**	3. 8	3. 29	2. 74
	0. 40	0. 08~0. 24	**4. 0**	**4. 0**	4. 0	4. 0
LHA3D	0. 16	0. 02~0. 10	**4. 0**	**4. 0**	4. 0	4. 0
	0. 40	0. 08~0. 24	**4. 0**	4. 0	4. 0	4. 0
LHA4D	0. 16	0. 02~0. 10			4. 0	4. 0
	0. 40	0. 08~0. 24			4. 0	4. 0

A

Allowable pressure difference

Unit:MPa Table 2-2

Actuator	Bleed pressure	Spring Range	Locator	Allowable pressure difference				
				Nominal diameter (mm)				
				100、125	150	200	250	300
LHA3D	0. 14	0. 02~0. 10	Yes or No	0. 74	0. 52			
	0. 16	0. 02~0. 10	Have	3. 7	2. 61			
	0. 40	0. 08~0. 24	Have	4. 0 10	4 7. 86			
LHA4D	0. 14	0. 02~0. 10	Yes or No	1. 28	0. 90	0. 74		
	0. 16	0. 02~0. 10	Have	4 6. 36	4 4. 5	3. 7		
	0. 40	0. 08~0. 24	Have	4 10	4 10	4 10		
LVA5D	0. 12	0. 02~0. 10	Not have				0. 61	0. 51
	0. 14		Have				1. 5	1. 3
	0. 26		Have				4. 0	4. 0

B、 Open-type valve

Unit: MPa – Table 3.1

Actuator	Bleed pressure	Spring Range	Allowable pressure difference			
			Nominal diameter (mm)			
			40	50	65	80
LHA2R	0. 28	0. 08~0. 24	4. 0	4. 0	4. 0	3. 84
			6. 81	5. 39	4. 6	
LHA3R	0. 28	0. 08~0. 24	4. 0	4. 0	4. 0	4. 0
			10. 0	9. 57	8. 17	6. 8
LHA4R	0. 28	0. 08~0. 24			4. 0	4. 0
					10. 0	10. 0

Note: 1. The numbers within the darkened box on the pressure differential gauge indicate that the valve is equipped with a standard-specification actuator. 2. The maximum allowable pressure difference shall not exceed the maximum value specified in ANSI B16.34 or JIS B2201.

3、The Number Above Within the Same Cell Represents the Allowable Pressure Differential for the Valve in Fully Open Position; the Number Below Represents the Allowable Pressure Differential for the Valve in Fully Closed Position. 4. All Pressure Differentials Listed in This Table Refer to Those Occurring When a Positioner is Installed.

Unit:MP a – Table 3 2

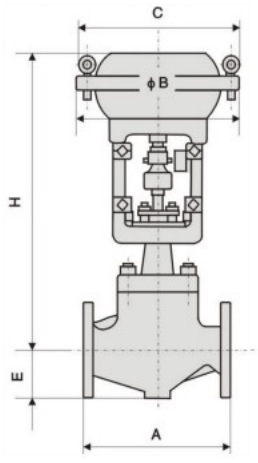
Actuator	Bleed pressure	Spring Range	Locator	Allowable pressure difference				
				Nominal diameter (mm)				
				100、125	150	200	250	300
LHA3R	0. 14	0. 02~0. 10	Yes or No	0. 74	0. 52			
	0. 28	0. 08~0. 24	Have	4. 0 5. 18	3. 67			
LHA4R	0. 14	0. 02~0. 10	Yes or No	1. 28	0. 90	0. 74		
	0. 28	0. 08~0. 24	Have	4 8. 97	4 6. 3	4 5. 1		
LVA5R	0. 14	0. 02~0. 10	Yes or No	1. 75	1. 23	1. 02	0. 61	0. 51
		※0. 04~0. 12	△	4 5. 2	3. 7	3. 07	1. 8	1. 5
	0. 28	0. 08~0. 24	Have	4 10	4 8		4. 0	3. 6

Note: ※The allowable pressure difference is the same for springs with a range of 0.04–0.20 MPa and springs with a range of 0.04–0.12 MPa.△ Indicates that a positioner is recommended.

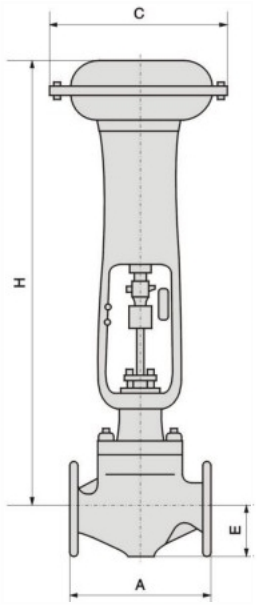
The numbers within the darkened box on the pressure differential gauge indicate that the valve is equipped with a standard-specification actuator.

Flange distance **Unit:mm– Table 4**

Nominal diameter	ANSI 125FF ANSI 150RF JIS 10KFF RF PN1.6 MPa	JIS 16K RF	ANSI 300 JIS 20K 30K RF PN4.0 MPa	ANSI 600 JIS 40K 30K RF PN6.4 MPa	JIS 16K LG	JIS 20K LG	JIS 30K LG	JIS 40K LG	ANSI 150 RJ	ANSI 300 RJ	ANSI 600 RJ	ANSI 300 LG	ANSI 600 LG	ANSI 150 SW BW	ANSI 600 SW BW
40	222	231	235	251	235	236	248	251	235	248	251	244	248	251	251
50	254	263	267	286	265	267	276	286	267	283	289	276	283	286	286
65	276	288	292	311	290	292	303	311	289	308	314	302	308	311	311
80	298	313	317	337	310	317	326	337	311	333	340	327	333	337	337
100	352	364	368	394	360	368	379	394	365	384	397	378	391	394	394
125	403		425	457					416	441	460				
150	451	465	473	508	475	473	486	508	464	489	511	483	505	473	508
200	543	560	568	610	570	568	580	610	556	584	613	578	606	568	610
250	673		708	752					686	724	756				
300	737		775	819					749	791	822				



LHA actuator



LVA5 actuator

Graph 4

DTCB Cage-Type Control Valve (Improved Model)

A

outline dimension Unit:mm– Table 5.1

Nominal diameter	Actuator	H	C	ΦB	E
40	LHA2D、R	500	281	267	70
	LHA3D、R	590	363	350	
50	LHA2D、R	500	281	267	80
	LHA3D、R	595	363	350	
65	LHA2D、R	575	281	267	90
	LHA3D、R	630	363	350	
	LHA4D、R	865	520	470	
80	LHA2D、R	580	281	267	100
	LHA3D、R	635	363	350	
	LHA4D、R	870	520	470	
100	LHA2D、R	610	281	267	115
	LHA3D、R	660	363	350	
	LHA4D、R	890	520	470	
	LVA5R	1420	–	620	
	LVA6R	1160	–	445	

Note: The H dimension on the table corresponds to the value when the control valve does not include a handwheel mechanism; If a top-mounted handwheel mechanism is installed, the dimension of the handwheel mechanism should be added accordingly – refer to the LHA Actuator Technical Parameters Table.

outline dimension Unit:mm Table 5-2

Nominal diameter	Actuator	H		C	ΦB	E
		Ambient Temperature Type (P)	High-temperature type			
125	LHA3D、R	772	922	363	350	165
	LHA4D、R	942	1092	520	470	
150	LHA3D、R	785	1020/1045	363	350	170
	LHA4D、R	955	1190/1215	520	470	
	LHA5R	1480	1740		620	
	LHA6R	1220	1480		445	
200	LHA4D、R	1090	1350	520	470	220
	LVA5R	1585	1850			
250	LVA5D、R	1760/1890	2015/2145		620	300
300	LVA5D、R	1810/1940	2020/2150			400

weight

Unit:kg– Table 6.1

Nominal diameter (mm)	Actuator	Flange connection			Welded connection
		ANSI 125150 JIS 10K	ANSI 300600 JIS 16.20.30.40 K		ANSI 150300600 JIS 16.、20、30K
		P			
40	LHA2D、R	31	39	44	36
	LHA3D、R	43	51	56	48
50	LHA2D、R	37	45	47	42
	LHA3D、R	39	57	59	54
65	LHA2D、R	43	48	65	48
	LHA3D、R	55	60	77	60
	LHA4D、R	86	91	108	91
80	LHA2D、R	53	63	85	63
	LHA3D、R	65	75	97	75
	LHA4D、R	96	106	128	106
100	LHA2D、R	63	78	113	75
	LHA3D、R	75	90	125	87
	LHA4D、R	106	121	156	118
	LVA5R	233	248	283	245
	LVA6R	248	263	298	260

Unit: Kg **Table 6.2**

Nominal diameter (mm)	Actuator	Flange connection						Welded connection	
		ANSI 125150 JIS 10 K		ANSI 300 JIS 16、20、30K		ANSI 600 JIS 40 K		ANSI 150、300、600 JIS 16、20、30K	
		Ambient Temperature Type (P)	High-temperature type	Ambient Temperature Type (P)	High-temperature type	Ambient Temperature Type (P)	High-temperature type	Ambient Temperature Type (P)	High-temperature type
125	LHA3D、R	132	140	142	150	187	195		
	LHA4D、R	168	176	178	186	223	231		
150	LHA3D、R	157	172	87	202	237	252	177	192
	LHA4D、R	188	203	218	233	268	283	208	223
	LVA5R	315	330	345	360	395	410	335	350
	LVA5R	330	345	360	375	410	425	350	365
200	LHA4D、R	268	288	318	338	438	458	308	328
	LVA5R	395	415	445	465	565	585	435	455
250	LVA5D	560	600	690	710	750	780		
	LVA5R	585	625	715	735	775	805		
300	LVA5D								
	LVA5R								

Please Specify This When Placing Your Order.

1、 model
2、 Nominal diameter × valve seat diameter
3、 Nominal pressure and flange connection type
4、 Valve body and internal valve component materials – surface hardening requirements
5、 Upper valve cover type
6、 Flow rate characteristics (high-precision, standard flow rate characteristics)
7、 Actuator model, air supply pressure
8、 Valve type
9、 appendix
10、 Special requirements: oil and copper use are prohibited, etc.
11、 Media Name
12、 Normal flow rate and required maximum flow rate
13、 Medium pressure; inlet and outlet pressures at maximum and minimum flow rates.
14、 Medium temperature and specific gravity
15、 Medium viscosity; whether the medium contains a suspension.