

DY-CODO □ CAGE TYPE DOUBLE SEATED CONTROL VALVE

The feature of this control valve is the simple construction which allows easy trim exchange in a short time without disconnecting the body from the piping during maintenance.

The cage has flow characteristic ports in its circumference. The plug guided by the cage has balance holes. With this arrangement, unbalanced forces are offset and the dynamic unbalanced force on the stem is stable over the whole range of the valve travel. This in turn reduces the load on the actuator to secure stable controllability.

As this control valve is a balancing type double seated one, it is possible to limit the leakage at full closure within 0.3%, from low temperature range up to high temperature range, by adopting materials of small thermal expansion difference for cage and valve plug.

Bodies are available in two types for most of the sizes and pressure ratings; S-series body (S : standard), and E-series body (E : enlarget).

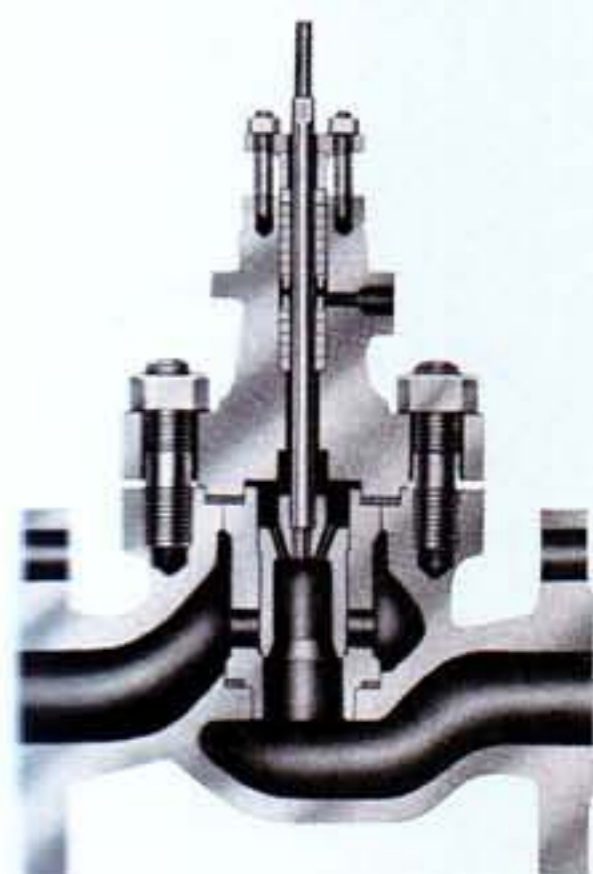


DY-CODO cage type double seated control valve

NOMINAL BORE mm (inch)		32 ^A (1 1/4 ^B)				40 ^A (1 1/2 ^B)					50 ^A (2 ^B)				65 ^A (2 1/2 ^B)								
RATING	JIS (K)	5 10	16 20	30 40	63		5 10	16 20	30 40	63 (100)		5 10	16 20	30 40	63 (100)		5 10	16 20	30 40	63 (100)			
	ANSI (Class)	125 150	300	600	900		125 150	300	600	900 1500		125 150	300	600	900 1500		125 150	300	600	900 1500			
	IEC (※1) (PN-bar)	10 16	25 40	64 100			10 16	25 40	64 100			10 16	25 40	64 100			10 16	25 40	64 100				
RATED (※2) Cv VALUE (Value by reduced valve plug)	Flow charac- teristics Eq % (Liner ※2 Quick opening)	S series body	(9.5) 18				(※2) (9.5 18) 26					(※2) [18 26] 36				(※2) [36 48 56] 72							
		E series body	21				(※2) 36					(※2) 55				(※2) 100							
DIMENSIONS (mm)	Height	Face to Face L (※3)		200	213	229	275	—	222	235	251	295	320	254	267	286	310	380	276	292	311	365	430
		G		50				—					55 60 65				70 75 70 75 80						
		H (※4)		708				—					715				800 796 818 812 905						
		Additional valve to H	With fin		100				—					100				100					
			With hand wheel	Top	185				—					185				215 215 276 215 276					
Side	0				—					0				0 0 0 0 0									
Km/X _T (※7)		0.82/0.69				0.82/0.69					0.79/0.66				0.81/0.68								
ALLOWABLE PRESSURE DROP (MPa)	Actuator size (J) mm	Off Balance (kPa)	275	20	1.4				1.2														
				40	2.0	2.8				2.0 2.4													
				60	4.9				4.0														
			355	20	2.0	3.0				2.0 2.4					2.0 1.4								
				40	4.9 5.9				4.8					4.0 2.0 2.8									
				60	10.6				4.9 8.7					4.9 6.9 4.9 5.3									
			410	20										2.8 2.0 2.4 1.8									
				40										5.5 4.8 2.0 3.5									
				60										10.2 4.9 8.3 4.9 6.3									
			465	20										2.8 2.2									
				40										5.5 4.4									
				60										10.2 7.9									
520	20																						
	40																						
	60																						
645	20																						
	40																						
	60																						
Mass (kg) (※6)		50	55	60	80	—	50	55	60	90	130	65	70	80	115	185	80	90	100	145	225		

(※1) IEC in the column of rating indicates the ratings of valve groups formed in terms of face-to-face dimension.
 (※2) Linear Cv value is larger than that of equal percent type by 10 to 20%. Quick open Cv value is larger than that of equal percent type by 10 to 30%. The Cv values of ANSI Class 1500 S body, and of ANSI Class 900 and 1500 E body are 65 to 85% of Cv values of ANSI Class 150~600.
 (※3) As for face-to-face dimension, new face-to-face dimensions according to IEC are given up to PN 100. However, for individual items, please refer to dimension indicated on the drawing for approval for the time being. When the same face-to-face dimension as that of a valve already delivered is required, please inform us the relevant serial number of the valve.

SPECIFICATIONS



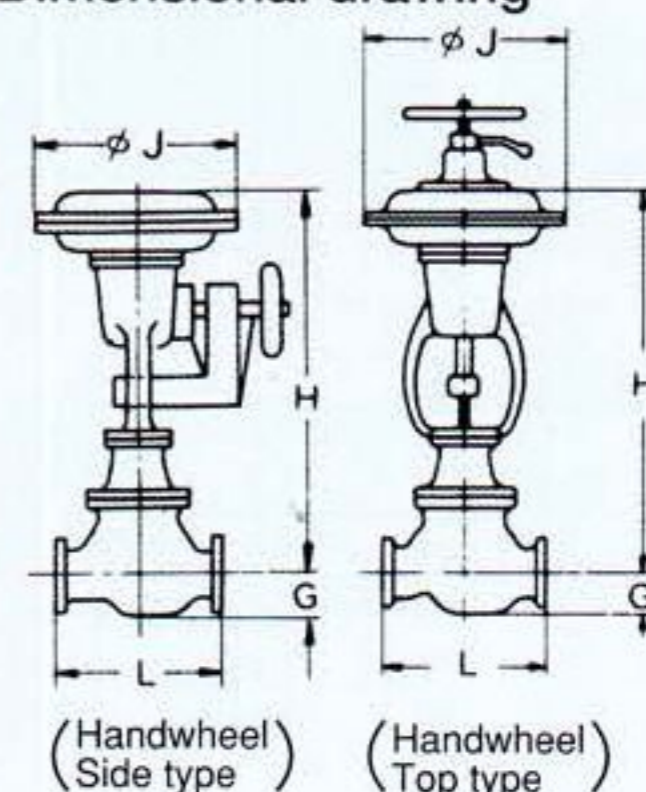
DY-CODOO

Type of valve body assembly	Double seated globe type valve of casting, with cage guided plug.
Pressure rating	JIS 5~63K or ANSI 125~1500
Normal bore	32~300 ^A
Service temperature range	-196~550°C (-321~1022°F)
Standard materials	<ul style="list-style-type: none"> • Valve body assembly FC200, FCD400, CAC403, CAC406, SCPH2, 11, 21, 32, 61, SCS13, 14 • Trim See Table 5.3 "Standard trim materials for cage type control valves" • Packing · Gasket (Asbestos Free) PTFE, graphite etc.

Cv valve	See the table below. Smaller rated Cv values not listed in the table can be manufactured with reduced size valve plug trim.
Flow characteristics	Equal percentage, Modified Parabolic, and Linear.
Performance	<ul style="list-style-type: none"> • Rangeability 50 : 1 • Leakage at full closure Not more than 0.3% of the rated Cv.
Maximum allowable pressure drop	Diaphragm type or cylinder type actuator can be mounted. Single action diaphragm pressure drop is used. Maximum pressure drop is shown in the table below.
Dimensions and mass	See the table below and the drawing in it.

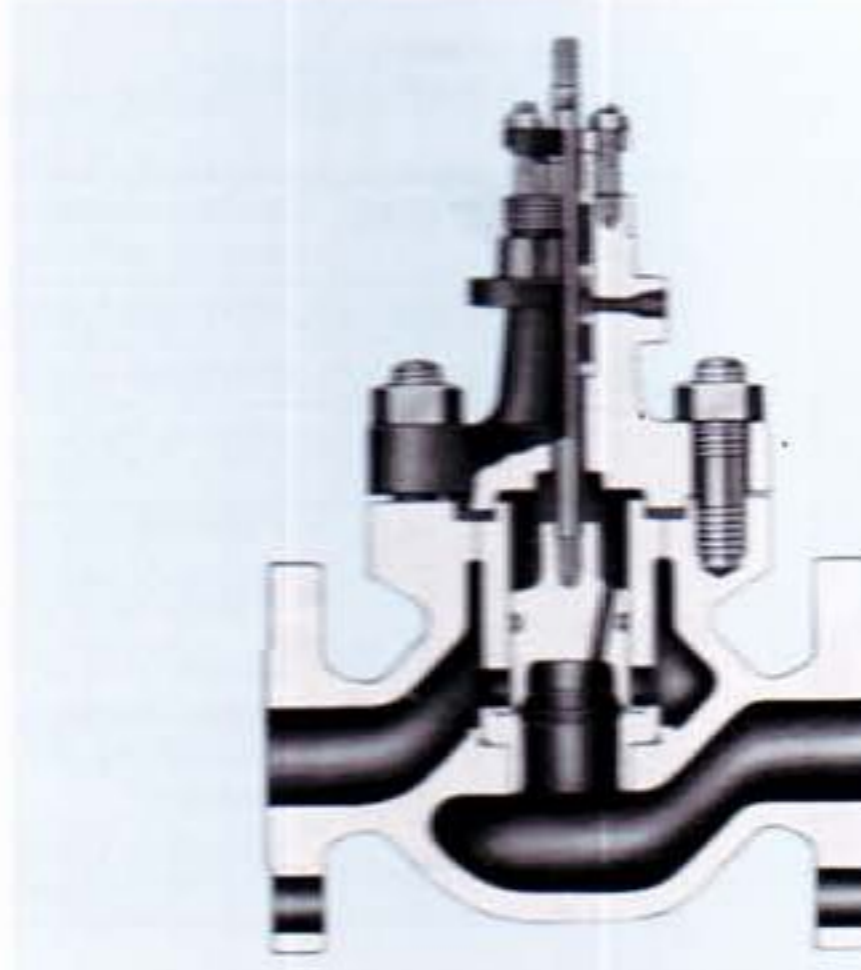
80 ^A (3 ^B)				100 ^A (4 ^B)				125 ^A (5 ^B)				150 ^A (6 ^B)				200 ^A (8 ^B)				250 ^A (10 ^B)				300 ^A (12 ^B)			
16	30	63	(100)	5	16	30	63 (100)	5	16	30	63 (100)	5	16	30	—	5	16	—	5	16	—	5	16	—	5	16	—
20	40	—	—	10	20	40	—	10	20	40	—	10	20	40	—	10	20	—	10	20	—	10	20	—	10	20	—
300	600	900	1500	125	300	600	900 1500	125	300	600	900 1500	125	300	600	—	125	300	—	125	300	—	125	300	—	125	300	—
25	64	—	—	10	25	64	—	10	25	64	—	10	25	64	—	10	25	—	10	25	—	10	25	—	10	25	—
40	100	—	—	16	40	100	—	16	40	100	—	16	40	100	—	16	40	—	16	40	—	16	40	—	16	40	—
56	72	96	(※2)	[72	96	125]	155 (※2)	[125	155	190]	250 (※2)	[190	275]	390	[276	390]	500	800	950								
130	(※2)	230	(※2)	275	(※2)	—	—	730	950	1200																	
298	317	337	375	470	352	368	394	445	550	403	425	457	510	690	451	473	508	—	543	568	—	673	708	—	737	775	—
80	85	90	—	—	100	105	—	—	110	115	120	—	125	—	—	170	—	—	215	—	—	260	—	—			
830	—	920	—	—	965	1090	—	—	1090	1270	—	1120	—	—	1325	—	—	1590	—	—	1640	—	—				
100	—	—	—	—	100	—	—	—	140	—	—	140	—	—	150	—	—	160	—	—	170	—	—				
215	—	276	—	—	276	330	—	—	330	522	—	330	—	—	522	—	—	528	—	—	528	—	—				
0	0	—	—	—	0	200	—	—	0	250	—	200	—	—	250	—	—	250	—	—	250	—	—				
0.80/0.67	—	—	—	—	0.81/0.68	—	—	—	0.78/0.66	—	—	0.78/0.66	—	—	0.77/0.65	—	—	0.81/0.68	—	—	0.82/0.69	—	—				
1.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				
2.0	2.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				
—	4.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				
—	1.4	—	—	—	1.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				
2.0	2.8	—	—	—	2.0	2.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				
4.9	5.1	—	—	—	4.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				
—	1.8	—	—	—	1.4	—	—	—	1.2	—	—	1.0	—	—	—	—	—	—	—	—	—	—	—				
—	3.6	2.0	—	—	2.8	2.0	—	—	2.4	—	—	2.0	—	—	—	—	—	—	—	—	—	—	—				
—	6.5	4.9	5.3	—	4.2	—	—	—	—	—	—	3.5	—	—	—	—	—	—	—	—	—	—	—				
—	—	—	—	—	1.7	—	—	—	1.4	—	—	1.2	—	—	0.9	—	—	—	—	—	—	—	—				
—	—	—	—	—	3.4	2.0	—	—	2.8	—	—	2.0	2.4	—	1.8	—	—	—	—	—	—	—	—				
—	—	—	—	—	6.1	—	—	—	4.9	—	—	4.2	—	—	2.0	3.2	—	—	—	—	—	—	—				
—	—	—	—	—	—	—	—	—	2.4	—	—	—	—	—	1.5	—	—	1.2	—	—	1.0	—	—				
—	—	—	—	—	—	—	—	—	4.8	—	—	—	—	—	2.0	3.0	—	2.0	2.4	—	2.0	—	—				
—	—	—	—	—	—	—	—	—	8.5	—	—	—	—	—	4.9	—	—	4.4	—	—	3.6	—	—				
105	115	125	155	250	160	170	190	250	380	260	275	305	360	640	310	325	360	—	490	510	—	710	730	—	870	890	—

Dimensional drawing



^④ H dimension gives the longest dimension of the valve with standard type bonnet. However, in cases of fin type bonnet or handwheel installation, add the respective [additional H value] of the table above to H.
^⑤ Allowable pressure drop and actuator shown in the table are for S series. Those for E series may differ slightly.
^⑥ Mass indicated is that of a valve with fin type bonnet, handwheel and positioner (=maximum mass).
^⑦ FL valve has a relationship with $FL^2 = Km = X_T/0.84$.

DY-COBS □ CAGE TYPE SINGLE SEATED CONTROL VALVE



DY-COBSO

This control valve is a cage guided single seat valve of cage type balancing construction. Leakage at full closure is minimum, and it is far more suited than ordinary single seated valves to handle fluids of large pressure drop.

SPECIFICATIONS

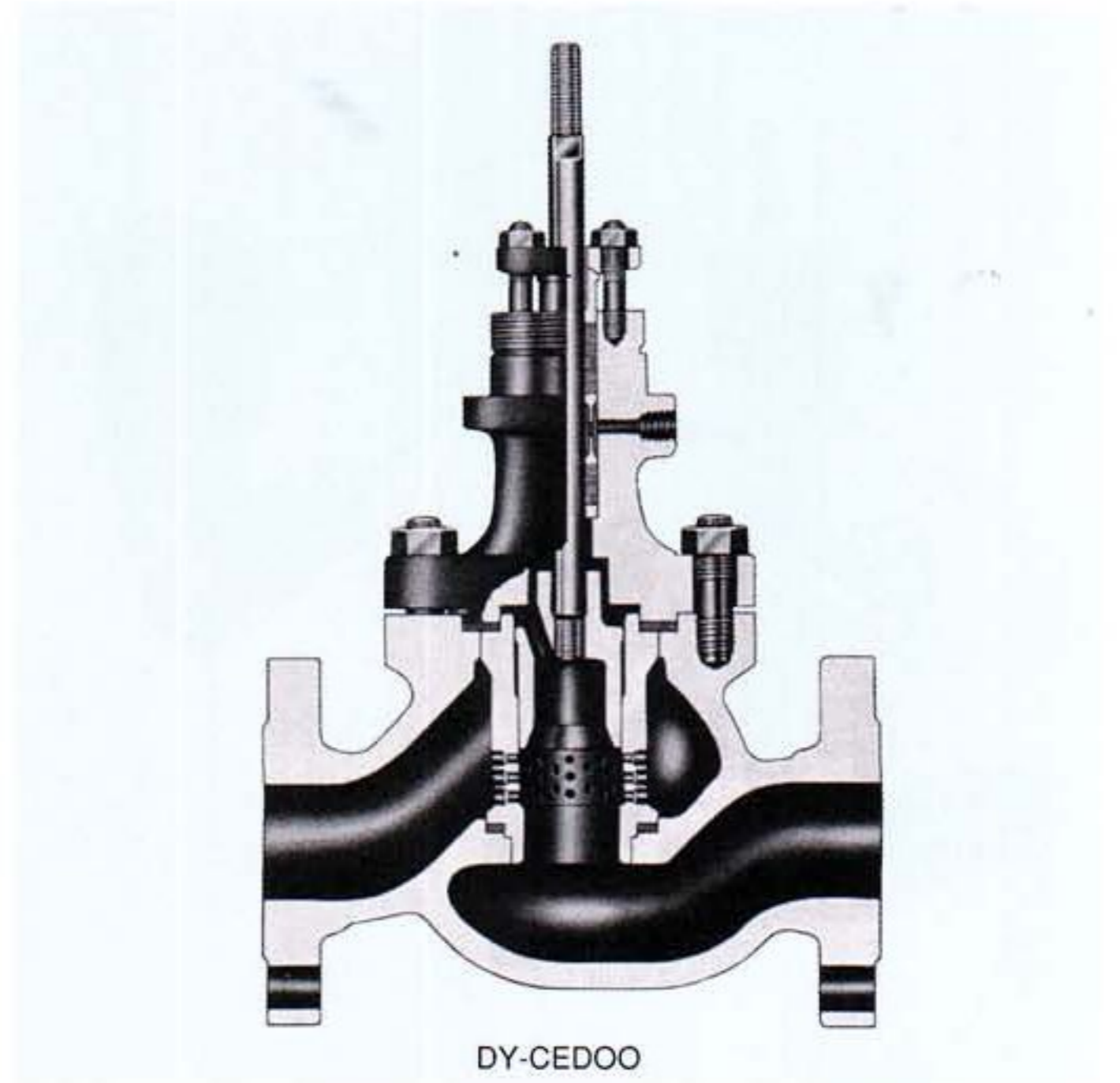
Type of valve body assembly	Balancing type, single seated globe valve of casting, with cage guided plug.
Pressure rating	JIS 5~63K, or ANSI 125~900
Nominal bore	32~300 ^A
Service temperature range	-30~200°C
Standard materials (JIS)	<ul style="list-style-type: none"> Valve body assembly FC200, FCD400, CAC403, CAC406 SCPH2, 11, 21, 32, 61, SCS13, 14 Trim See Table 5.3 "Standard trim materials". Packing · Gasket (Asbestos Free) PTFE, graphite etc

Cv value	See the table below
Flow characteristics	Equal percentage, modified Parabolic, and linear.
Performance	<ul style="list-style-type: none"> Rangeability 50 : 1 Leakage at full closure Not more than 0.01% of the rated Cv value.
Maximum allowable pressure drop	Diaphragm type or cylinder type actuator can be mounted. Single action diaphragm type is normally used. maximum shown in the table below.
Dimensions and mass	See the table below and the dimensional drawing (page 20)

NOMINAL BORE mm(inch)		32 ^A (1¼ ^B)			40 ^A (1½ ^B)			50 ^A (2 ^B)			65 ^A (2½ ^B)			80 ^A (3 ^B)			100 ^A (4 ^B)			125 ^A (5 ^B)			150 ^A (6 ^B)			200 ^A (8 ^B)			250 ^A (10 ^B)			300 ^A (12 ^B)											
RATING	JIS (K)	5	16	30	5	16	30	5	16	30	5	16	30	5	16	30	5	16	30	5	16	30	5	16	30	5	16	30	5	16	30	5	16	30	5	16	30						
	ANSI (Class)	125	300	600	125	300	600	125	300	600	125	300	600	125	300	600	125	300	600	125	300	600	125	300	600	125	300	600	125	300	600	125	300	600	125	300	600						
	IEC (PN-bar) *	10	25	64	10	25	64	10	25	64	10	25	64	10	25	64	10	25	64	10	25	64	10	25	64	10	25	64	10	25	64	10	25	64	10	25	64	10	25	64			
RATED Cv VALUE (Value by reduced valve plug)	Flow Characteristic Eq% (Linear Quick opening)	S [9.5] 18			[9.5 18] 26			[18 26] 36			[36 48] 72			[56 72] 96			[72 96] 155			[125 155] 250			[190 275] 390			[275 390] 500			730			950			1200								
	E	21			36			55			100			130			230			275			-			730			950			1200											
DIMEN- SIONS (mm)	Face to Face L*1	200	213	229	222	235	251	254	267	286	276	292	311	298	317	337	352	368	394	403	425	457	451	473	508	543	568	610	673	708	737	775											
	G	50			55			70			70			80			100			110			125			170			215			260											
	H **2	708			715			830			796			812			965			1090			1120			1325			1590			1640											
	Additional value; with handwheel	185			185			215			215			215			276			330			330			522			528			528											
Km/XT		0.82/0.69			0.79/0.66			0.81/0.68			0.80/0.67			0.81/0.68			0.78/0.66			0.78/0.66			0.77/0.65			0.81/0.68			0.82/0.69														
ALLOWABLE PRESSURE DROP (MPa) (in case of single action diaphragm actuator)	Actuator size (J)	275	20	1.0		0.9																																					
			40	2.0		1.8																																					
			60	4.0	2.0	3.2																																					
			355	20	2.0	2.2	1.8		1.5		1.2		1.0																														
				40	4.4	2.0	3.6	2.0	3.0	2.0	2.4	2.0																															
				60	4.9	8.1	4.9	6.7	4.9	5.3	4.0		3.8																														
		410	20							1.8		1.4		1.2		0.9																											
			40							2.0	3.6	2.0	2.8	2.0	2.4	1.8																											
			60							4.9	6.4	4.8		4.2		2.0	3.4																										
		465	20													1.2		1.0		0.8																							
			40													2.0	2.4	2.0		1.6																							
			60													4.2	3.5		2.0	3.0																							
	520	20																1.2		1.0		0.7																					
		40													2.0	2.4	2.0		1.5																								
		60													4.2	3.5		2.0	2.8																								
	645	20																			1.2		1.0		0.8																		
		40																2.0	2.5	2.0		1.6																					
		60																3.6	3.6		2.0	3.0																					
	Mass (kg) (**3)		50	55	60	50	55	60	65	70	80	80	90	100	105	115	125	160	170	190	260	275	305	310	325	360	490	510	660	710	730	870	890										

(**1) As for face-to-face dimension, new face-to-face dimensions according to ICE are indicated. However, for individual items, please refer to the dimension indicated on the drawing for approval for the time being. When the same face-to-face dimension as that of a valve already delivered is required, please inform us the relevant serial number of the valve.
(**2) H dimension gives the longest dimension of the valve with standard type bonnet. However, when a handwheel is mounted, add the respective value shown above to H.
(**3) Mass indicated is that of a valve with handwheel and positioner (= the maximum mass).
* ICE in the column of rating indicates the ratings of valve groups formed in terms of face-to-face dimension.

DY-CEDO □ CONTROL VALVE WITH CAVI-CAGE



This control valve is equipped with trim-exchangeable multiport cage. It is used to prevent erosion of the body and trim. In boiler feedwater control valves, etc., the pressure drop at start-up or during low load running may become excessive and come into the range of cavitation generation. It reduces the service life of the body and trim and causes maintenance problems. The cavi-cage has such construction that the fluid jets into the cage towards its center through small holes in the circumference of the cage. At the throttle of each small hole, the static pressure decreases due to high velocity of the fluid, and the resulting choked flow generates bubbles which cause cavitation. These jets are arranged to collide with each other directly in the center of the channel to dissipate cavitation energy. Erosion of the body and trim is thus prevented by arranging small holes opposing with each other in the circumference of the cage to suit the flow characteristic.

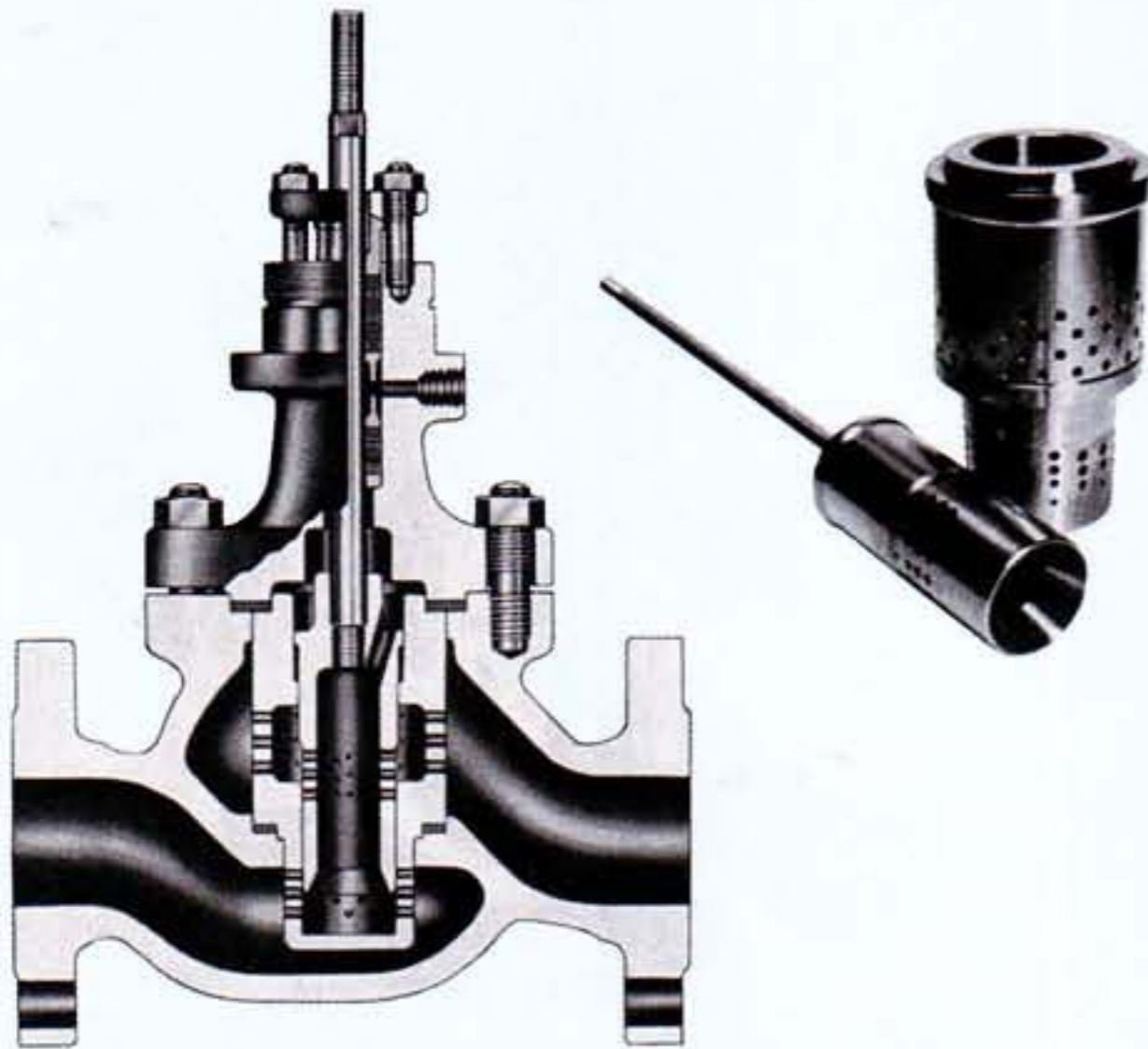
SPECIFICATINS

Type of valve body assembly	Double seated globe valve of casting, with multi-hole port cage.
Pressure rating	JIS 5~63K or ANSI 125~2500
Nominal bore	32~300 ^A
Service temperature range	-196~550°C
Standard materias (JIS)	<ul style="list-style-type: none"> • Valve body assembly SCPH2 · 11 · 21 · 32 · 61, SCS13 · 14 • Trim See Table 5.3 "Standard trim materials for cage type control valves" • Packing · Gasket (Asbestos Free) PTFE, graphite etc.

Cv value	40~60% of those shown on page 19, 20. (Km value: 0.88)
Flow characteristics	Equal percentage, Parabolic, and Linear.
Performance	<ul style="list-style-type: none"> • Rangeability 20 : 1 • Leakage at full closure Not more than 0.5% of the rated Cv value.
Maximum allowable pressure drop	Diaphragm type or cylinder type actuator can be mounted. Single action diaphragm type is normally used. Maximum allowable pressure drop is shown on page 19 and 20.
Dimensions and Mass	See the table (page 19 and 20) and the dimensioal drawing (page 20).

DY-CNDO □ LOW NOISE CONTROL VALVE

DY-CCSS □ UNBALANCED SINGLE SEATED CONTROL VALVE WITH CAGE GUIDED PLUG



DY-CNDOO

This control valve exhibits effective noise reduction by means of multi-stage pressure reduction and dispersion of the flow and frictional resistance into many small hole throttles. It has a unique construction developed by NAKAKITA. The flow of the liquid enters the plug, from the lower side of the body, through the control port consisting of many small holes in the lower portion of the cage. The flow then goes through the control port consisting of small holes in the central portion of the plug and enters the recess at the center of the cage, and the flow velocity is reduced. This flow then runs out to the downstream side of the body, through the small holes of fixed resistance in the outer circumference of the cage, in dispersed small streams. In this way, pressure reduction and flow dispersion are repeated through three stages consisting of two-tier control ports and fixed orifice, so as to reduce the noise. For noise countermeasures, see page 60.

SPECIFICATION

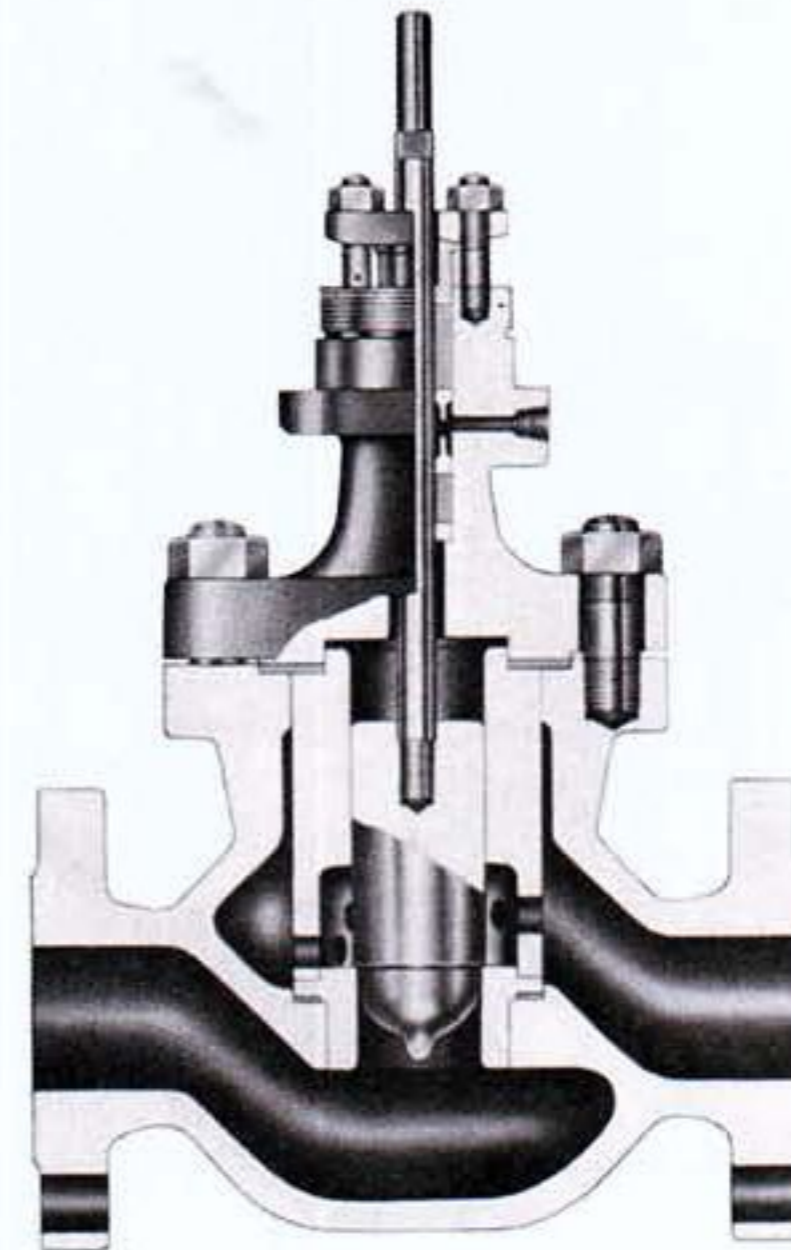
This low noise control valve is DY-C control valve equipped with low noise trim. For the detailed specification, see those of DY-CODO double seated control valve (pages 19 and 20).

Cv value	25~40% of those shown in the table (page 19). (Km value; 0.9 X _T Value; 0.76)
Flow characteristics	Equal percentage, Parabolic, and Linear.
Performance	<ul style="list-style-type: none"> • Rangeability 20 : 1 • Leakage at full closure Not more than 0.5% of the rated Cv value

For other specifications, see the specifications on page 20.

DY-CNDO Cv TABLE

Nominal bore mm	50 ^A	65 ^A	80 ^A	100 ^A	125 ^A	150 ^A	200 ^A	250 ^A	300 ^A
Max.Cv value	15	24	34	60	96	140	250	360	500
	12.5	18	26	48	72	105	190	275	390
	9.5	14	20	36	56	76	135	190	275



DY-CCSSO

This control valve is an unbalanced single seated valve with rigid trim construction where P-port heavy guide plug is guided by the cage. As for its actuator, a powerful high output diaphragm type or cylinder type is used. The stored cage receives the jet out of the throttle and releases the flow through small holes in the circumference of the cage to the body side. It thus protects the inner wall of the body from erosion due to the jet of the fluid. This valve is used for large pressure drop service which generates flashing, cavitation, etc. One of the main application is the emergency drain escape valve of high pressure feedwater heater.

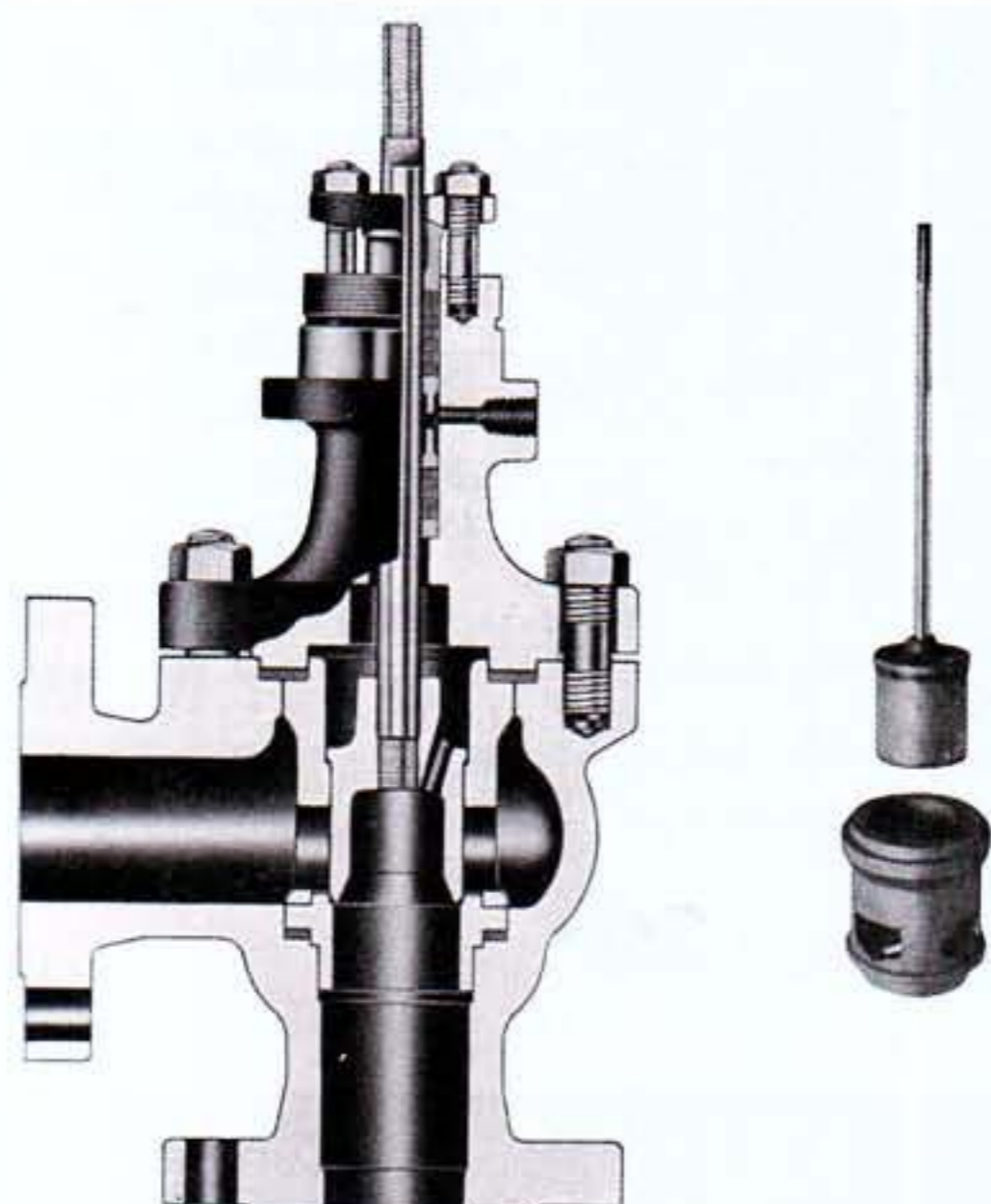
SPECIFICATIONS

Type of valve body assembly	Single seated valve, with P-port heavy guided plug, and cage
Pressure rating	JIS 5~63K, ANSE 150~900.
Nominal bore	50~200 ^A
Service temperature range	-196~550°C (-321~1022°F)
Standard materials	See the specifications on page 20.
Cv value	Maximum Cv value is indicated in the table below. However, reduced valve plug is normally used. (Km value: 0.8 X _T value: 0.67)

DY-CCSS Cv TABLE

Nominal bore mm	50 ^A	65 ^A	80 ^A	100 ^A	125 ^A	150 ^A	200 ^A	250 ^A	300 ^A
Max.Cv value	15	24	34	60	96	140	250	360	500
	12.5	18	26	48	72	105	190	275	390
	9.5	14	20	36	56	76	135	190	275

DY-LODS □ CAGE TYPE DOUBLE SEATED ANGLE CONTROL VALVE



DY-LODSO

This control valve is DY-C control valve of which body type (globe type) is replaced with the angle type. Cage trim and actuator are common to the DY-C type, and this control valve allows wider application of the excellent features of DY-C type such as maintenance and controllability. It is possible to fit cavi-cage (page 22) or low noise trim (page 23) on this valve.

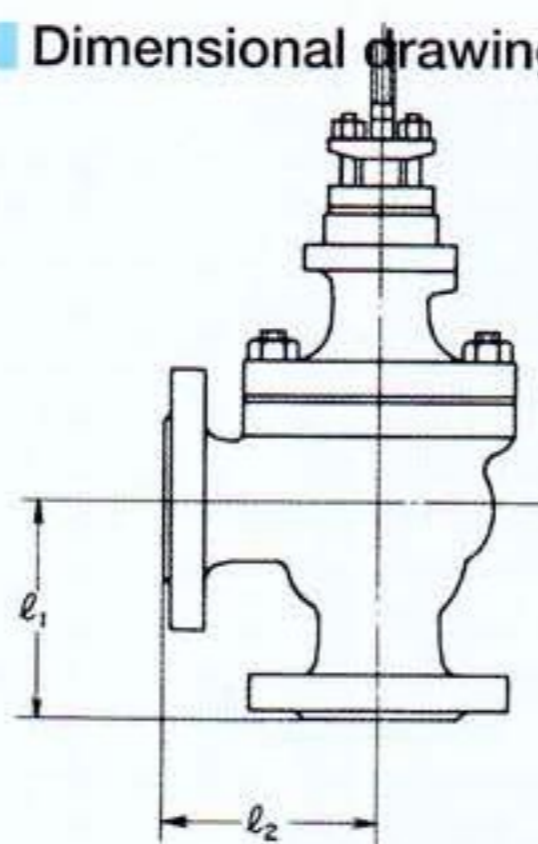
■ Advantage of this control valve

The installation of the protective liner which is a seat ring elongated to the downstream side prevents erosion of the inner wall of the body due to cavitation and flashing.

SPECIFICATIONS

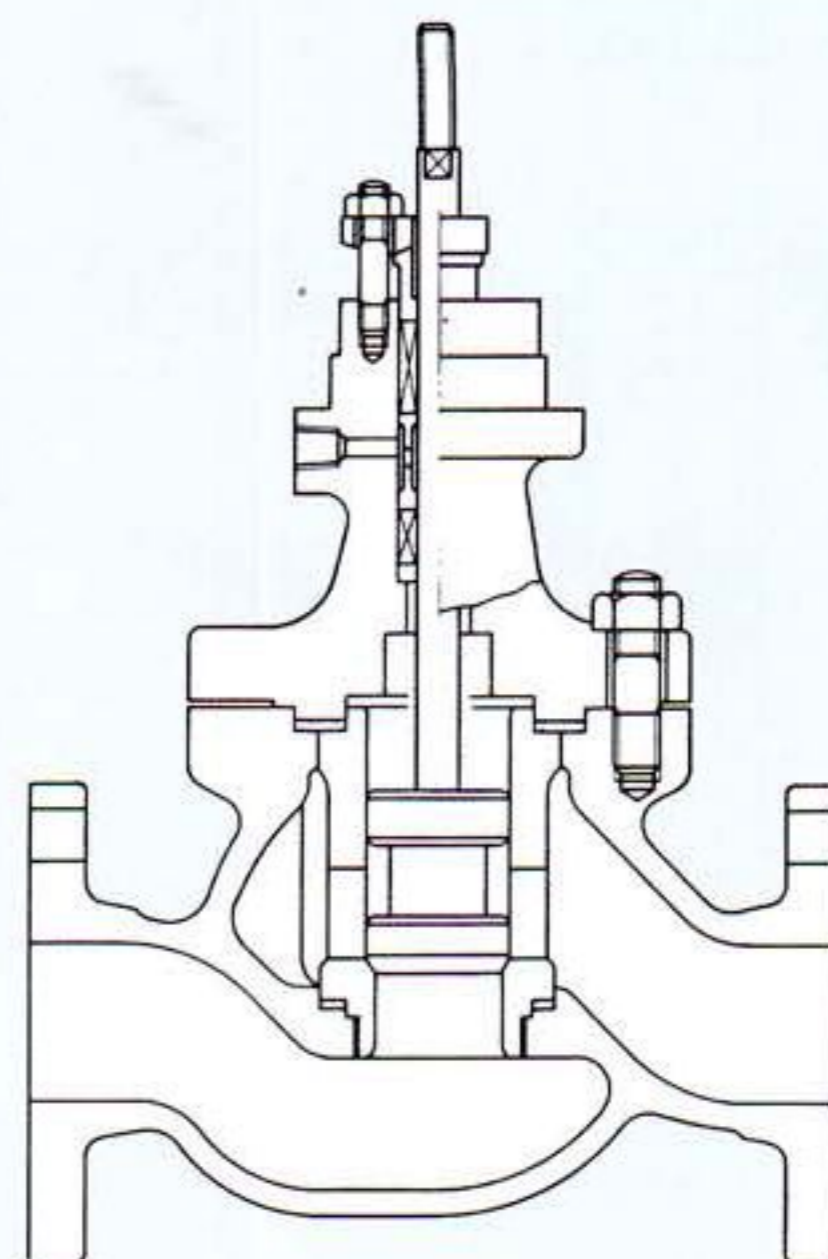
For the detailed specifications, see those of DY-C double seated control valve (pages 19 to 20). Note that the face-to-face dimension is $L/2$.

■ Dimensional drawing



$$l_1 = l_2 = L/2$$

DY-COSO □ CAGE TYPE SINGLE SEATED CONTROL VALVE



DY-COSO

This control valve is a single seated valve using cage port. It is used when low leakage is required.

As it is a single seated valve, a large force is required to close the valve. Accordingly, its use is normally confined to small pressure drop services. However, when pressure drop is large, a high output diaphragm type or cylinder type actuator is used. It is possible to meet non-leakage requirement by using soft sealing material on the seat of this valve.

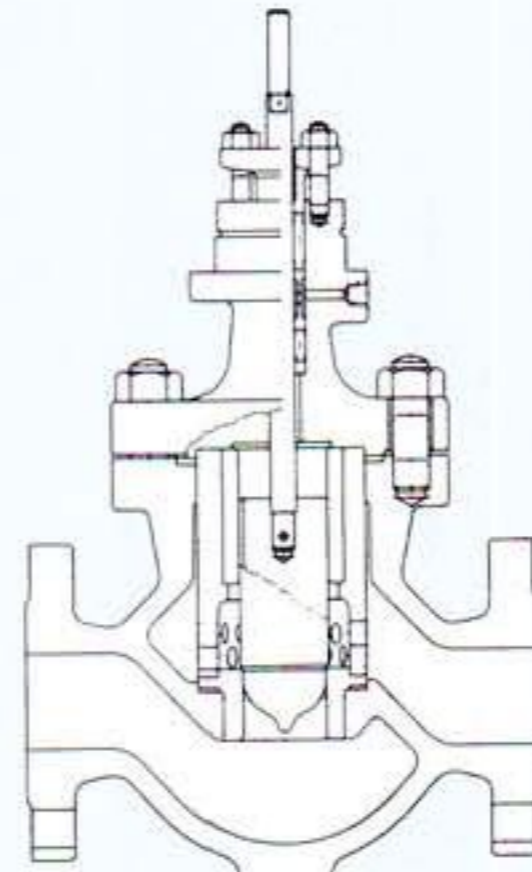
SPECIFICATIONS

Type of valve body assembly	Single seated globe valve of casting, with cage port.
Pressure rating	JIS 5~63K or ANSI 125~900
Nominal bore	32 ^A and over.
Service temperature range	-196~550°C
Standard materials	See page 20.
Cv value	Shown on the table below Km value: 0.8 X _T value: 0.67
Flow characteristics	Equal percentage, Parabolic, and linear.
Performance	<ul style="list-style-type: none"> Rangeability 50 : 1 Leakage at full closure Not more than 0.01% of the rated Cv value.
	Refer to the technical data or apply to us for relevant information.
Dimensions and mass	See pages 19 and 20

■ DY-COSO Cv TABLE

Nominal bore mm	32 ^A	40 ^A	50 ^A	65 ^A	80 ^A	100 ^A	125 ^A	150 ^A	200 ^A	250 ^A	300 ^A
Cv value	9.5	9.5	18	36	56	72	125	190	275	500	800
		18	26	48	72	96	155	275	390		
				56		125	190				
	17	29	44	80	104	184	220	—	584	760	960

DY-GCSS SINGLE SEATED CONTROL VALVE



DY-GCSSO

This control valve is a single seated valve of which construction allows easy and quick replacement of trim without disconnecting the body from the piping. Special consideration is given to its durability and maintenance. As this valve allows numerous combinations of pressure rating, Cv value, valve flow characteristic, actuator, etc., a wide range of service conditions can be met by this valve.

DY-GC single seated control valve

NOMINAL BORE mm (inch)		20 ^A (3/4 ^B)								25 ^A (1 ^B)				
RATING	JIS (Kgf/cm ²)	5, 10	16,20	30, 40	63	5, 10	16,20	30, 40	63	5, 10	16,20	30, 40	63	
	ANSI (Class)	125, 150	300	600	900	125,150	300	600	900	125,150	300	600	900	
	IEC * (PN-bar)	10, 16	25,40	64, 100		10, 16	25,40	64, 100		10, 16	25,40	64, 100		
RATED Cv VALUE	Flow Characteristics	Eq%												
		Para												
		Linear	0.23	0.44	0.8	1.1	1.7	2.3	3.2	4.2	5.4	7.2	9.5	11
DIMENSIONS (mm)	Face to Face L (※2)		187	194	206	256	184	197	210	235				
	Height	H (※3)	678		705	808	678		705	808				
		Additional value to H	With fin	105		100	115	105		100	115			
			With handwheel	185			215	185			215			
Km		0.9												
ALLOWABLE PRESSURE DROP (MPa) (in case of single action diaphragm actuator)	Actuator size (J) mm	Off Balance (kPa)	275	20	8.4	4.8	3.0	1.8	1.5	1.2	0.9	0.7	0.6	
				40	14.9	9.5	5.9	3.5	3.0	2.4	1.8	1.5	1.2	
				60		14.9	10.8	6.4	5.5	4.4	3.4	2.8	2.4	
			355	20	14.9	9.7	6.1	3.8	3.2	2.4	2.0	1.6	1.4	
				40		14.9	12.3	7.5	6.3	4.8	4.0	3.2	2.6	
				60			14.9	13.3	11.6	8.9	6.9	5.7	4.8	
			410	20		11.3	7.4	4.4	3.8	3.0	2.4	2.0	1.6	
				40		14.9	14.7	8.7	7.5	5.9	4.6	3.8	3.2	
				60			14.9	13.8	10.8	8.4	6.9	5.7		
Mass (kg) (※4)		38	40	55	70	42	45	60	75					

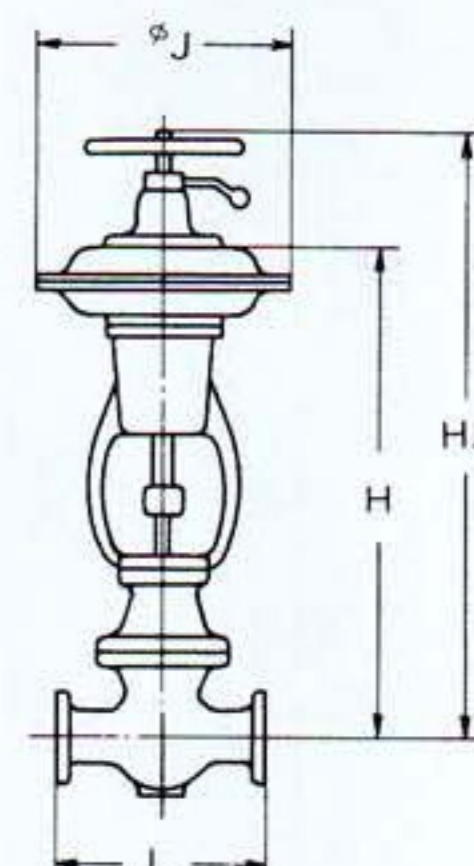
(※1) In this type, valves of bore marked (※1) can select rated Cv values of valves of bore smaller than the marked one. For example, for the valve of nominal bore 50 mm, rated Cv value can be selected from the range of Cv max. = 36 to Cv min = 0.23.
 (※2) As for face-to-face dimension, new face-to-face dimensions according to IEC are given up to JIS 40 kgf/cm² (PN 100). However, for individual orders, please refer to the dimension indicated on the drawing for approval for the time being. When the same face-to-face dimension as that of a valve already delivered is required, please inform us the relevant serial number of the valve.
 (※3) H dimension gives the longest dimension of the valve with the standard type bonnet. In cases of fin type bonnet or handwheel installation, add the respective value shown above.
 (※4) Mass indicated is that of the valve with fin type bonnet, handwheel and positioner (= maximum mass).
 * IEC in the column of rating indicates the ratings of valve groups formed in terms of face-to-face dimension.

SPECIFICATIONS

Type of valve body assembly	Cage guided type single seated globe valve of casting.
Pressure rating	JIS 5~63K or ANSI 125~900
Nominal bore	20~50 ^A
Service temperature range	-196~550°C (-321~1022°F)
Standard materials	<ul style="list-style-type: none"> Valve body assembly FC200, FCD400, CAC403, CAC406, SCPH2, 11, 21, 32, 61, SCS13, 14 Trim See Table 5.3 "Standard trim materials" Packing • Gasket (Asbestos Free) PTFE, graphite etc.

Cv value	See the table below. (Values down to the minimum Cv value 0.07 can be manufactured)
Flow characteristics	Equal percentage, parabolic, and linear.
Performance	<ul style="list-style-type: none"> Rangeability 20 : 1 ~ 30 : 1 Leakage at full closure Not more than 0.01% of the rated Cv value.
Maximum allowable	Diaphragm type or cylinder type actuator can be mounted. Single action diaphragm type is normally used. allowable pressure drop is shown in the table below.
Dimensions and mass	See the table below and the drawing on the right.

Dimensional drawing



$H_0 = H +$ (additional value in the table)

32 ^A (1 1/4 ^B)				40 ^A (1 1/2 ^B)				50 ^A (2 ^B)			
5, 10	16, 20	30, 40	63	5, 10	16, 20	30, 40	63	5, 10	16, 20	30, 40	63
125, 150	300	600	900	125, 150	300	600	900	125, 150	300	600	900
10, 16	25, 40	64, 100		10, 16	25, 40	64, 100		10, 16	25, 40	64, 100	
(※1)				(※1)				(※1)			
14		18		20		26		36			
200	213	229	275	222	235	251	295	254	267	286	310
698		708	776	792		790	796	826		822	830
98		100		100				100			
185			215	185			215	215			
0.9				0.8							
0.5				0.4		0.3					
1.0				0.7		0.5					
1.8				1.2		0.9					
1.0				0.7		0.5		0.3			
2.0				1.4		1.0		0.6			
3.6				2.5		1.8		1.1			
1.2				0.9		0.6		0.4			
2.4				1.7		1.2		0.8			
4.4				3.0		2.2		1.4			
45	50	60	80	55	60	70	90	75	80	90	110

Remarks

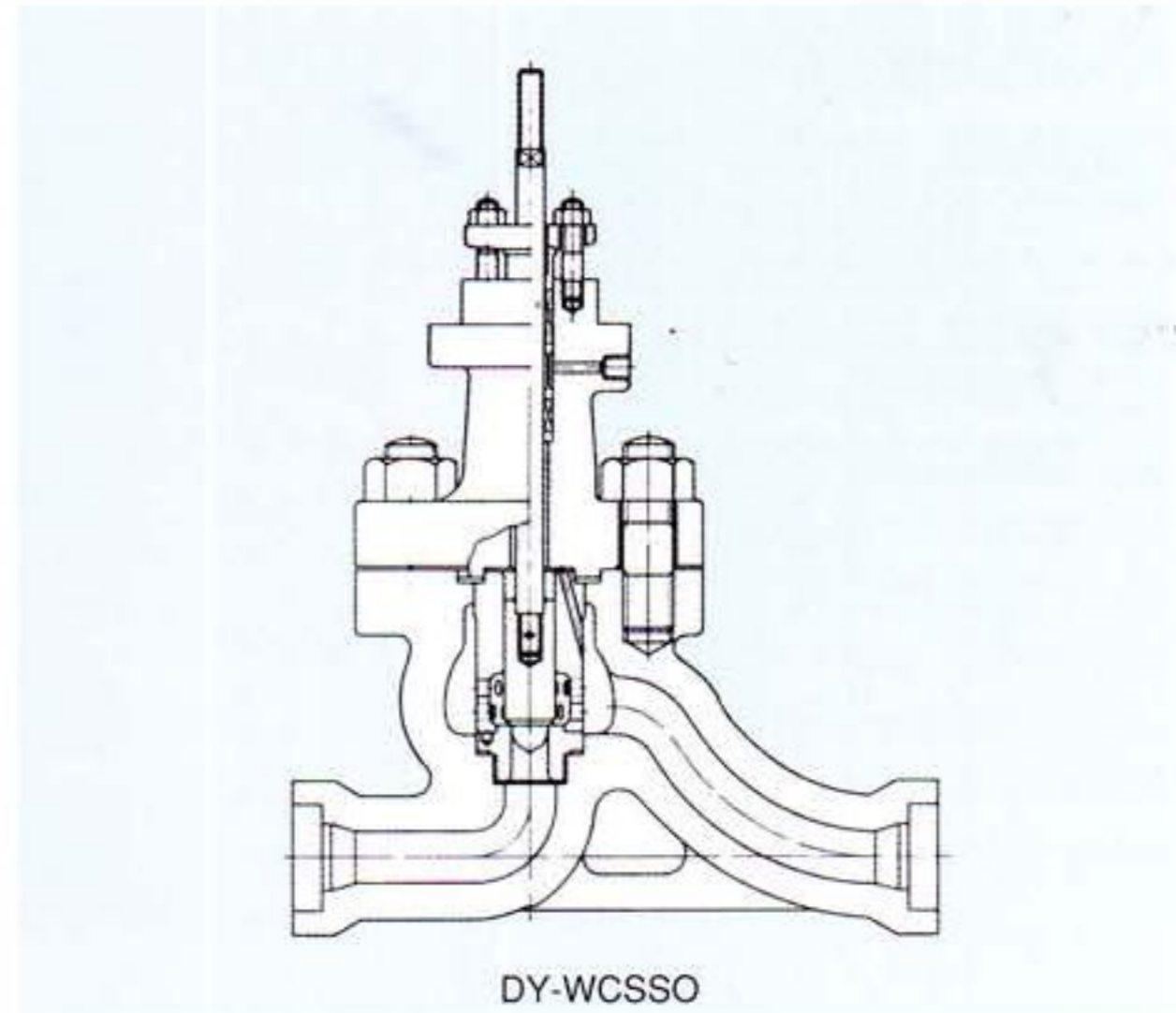
- In the table above, dimensions correspond to the respective ratings in the column of rating.
- In the table above, maximum allowable pressure drops correspond to the respective Cv values of the column of rated Cv value. (For example, when Cv = 3.2, if the actuator size (J) is 275 and off-balance pressure is 40 kPa, the allowable pressure drop is 35 MPa.)

DY-WCSS□

SINGLE SEATED CONTROL VALVE FOR HIGH PRESSURE AND HIGH TEMPERATURE USE



DY-WCSSF



DY-WCSSO

This control valve is, so to speak, DY-GC control valve of which pressure rating is raised to 1500 or 2500. It is a single seated valve with due consideration given to its durability and maintenance. The body is shaped in a wave from most suited to high pressure and high velocity fluids so as to secure smooth flow.

SPECIFICATIONS

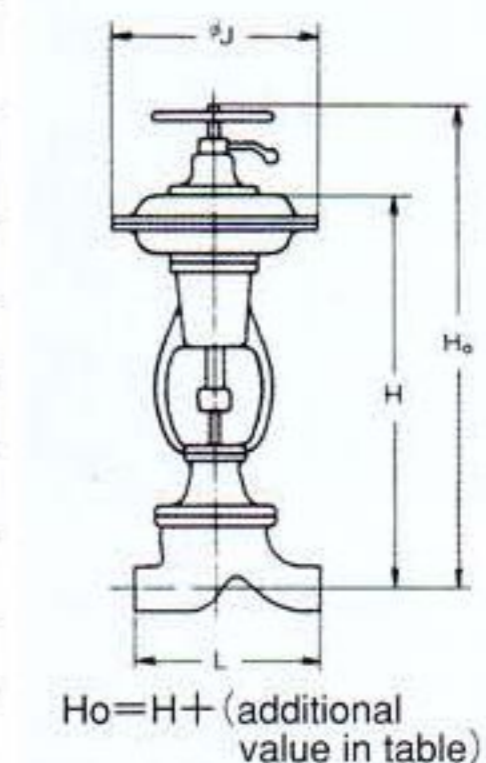
Type of valve body assembly	Single seated globe valve of casting, with cage guided plug.
Pressure rating	ANSI 1500, 2500
Nominal bore	20~50 ^A
Maximum service temperature	550°C (1022°F)
Standard materials (JIS)	<ul style="list-style-type: none"> • Valve body assembly SCPH2 · 11 · 21 · 32, SCS13 · 14 • Trim SUS304, SUS316, with hard facing stellite, etc. • Packing · Gasket (Asbestos Free) PTFE, graphite etc.

Cv value	See the table below. (Km value: 0.8)
Flow characteristics	Equal percentage, parabolic, and linear.
Performance	<ul style="list-style-type: none"> • Rangeability 20 : 1 ~ 30 : 1 • Leakage at full closure Not more than 0.01% of the rated Cv value.
Maximum allowable pressure drop	Diaphragm type or cylinder type actuator can be mounted. Single action diaphragm type is normally used. Maximum allowable pressure drop is shown in the table below.
Dimensions and mass	See the table and the drawing below.

DY-W Single seated control valve for high pressure and high temperature use

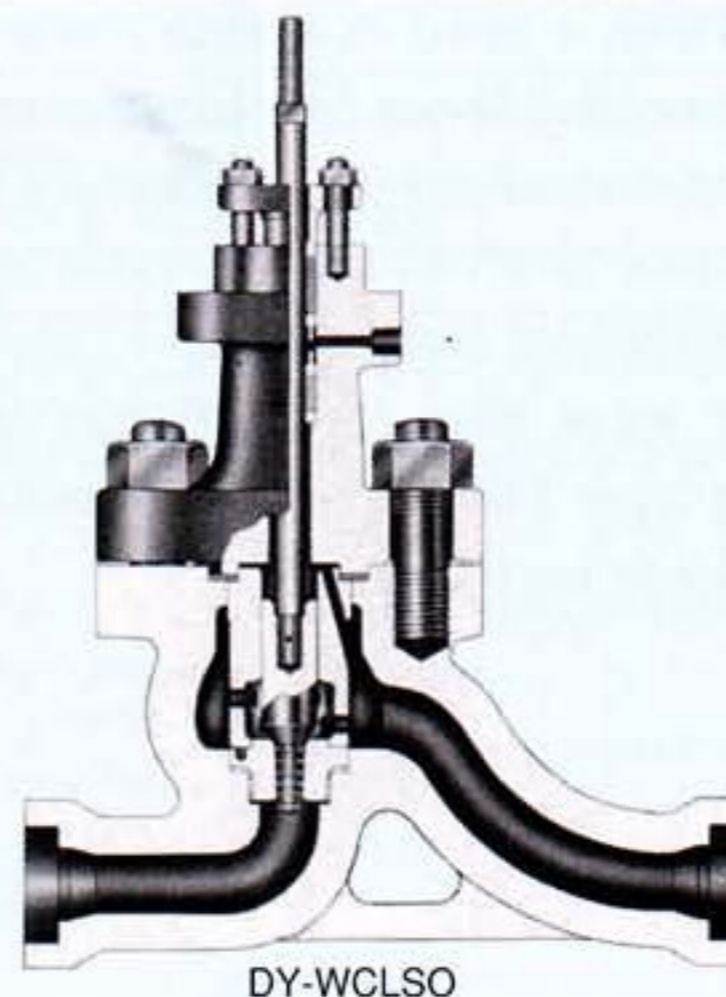
NOMINAL BORE mm (inch)		20 ^A (3/4 ^B)						25 ^A (1 ^B)		32 ^A (1 1/4 ^B)		40 ^A (1 1/2 ^B)		50 ^A (2 ^B)	
RATING	ANSI (Class)	1500						2500							
	IEC (PN-bar)	—													
DIMENSIONS (mm)	Face to Face L	380													
	Height	H (※2)	975												
		Additional value to H	With fin	130											
			With handwheel	276											
Actuator J		Refer to following (J)													
RATED Cv VALUE	Flow Characteristics	Eq %	(※1)												
		Para													
		Linear	0.23	0.44	0.8	1.1	1.7	2.3	3.2	4.2	5.4	7.2	9.5	11	
ALLOWABLE PRESSURE DROP (MPa)	Actuator size (J) mm	Off Balance (kPa)	410	20	20.6	11.3	7.4	4.4	3.8	3.0	2.4	2.0	1.6		
				40	41.2	23.1	14.7	8.9	7.7	5.9	4.6	4.0	3.2		
				60		41.7	27.1	16.1	13.8	10.6	8.4	6.9	5.7		
			465	20	25.9	14.6	9.4	5.5	4.8	3.6	3.0	2.4	2.0		
				40	41.7	29.0	18.7	11.0	9.7	7.3	5.9	4.8	4.0		
				60		41.7	34.2	20.2	17.5	13.4	10.6	8.7	6.9		
Mass (kg) (※3)		125													

Dimensional drawing



(※1) In this type, for valves of bore marked (※1), rated Cv values of valves of bore smaller than the marked one can be selected. For example, for the valve of nominal bore 50^A rated Cv value can be selected in the range from Cv max. =11 to Cv min. =0.23.
 (※2) H dimension gives the longest dimension of the valve with the standard bonnet. However, in cases of fin type bonnet or handwheel installation, add the respective value shown above. For individual orders, please refer to the dimensions indicated in the drawing for approval.
 (※3) Mass indicated is that of the valve with fin type bonnet, handwheel and positioner (= maximum mass).

**DY-WCLS □
DY-GCLS □** CONTROL VALVE WITH LABYRINTH TRIM

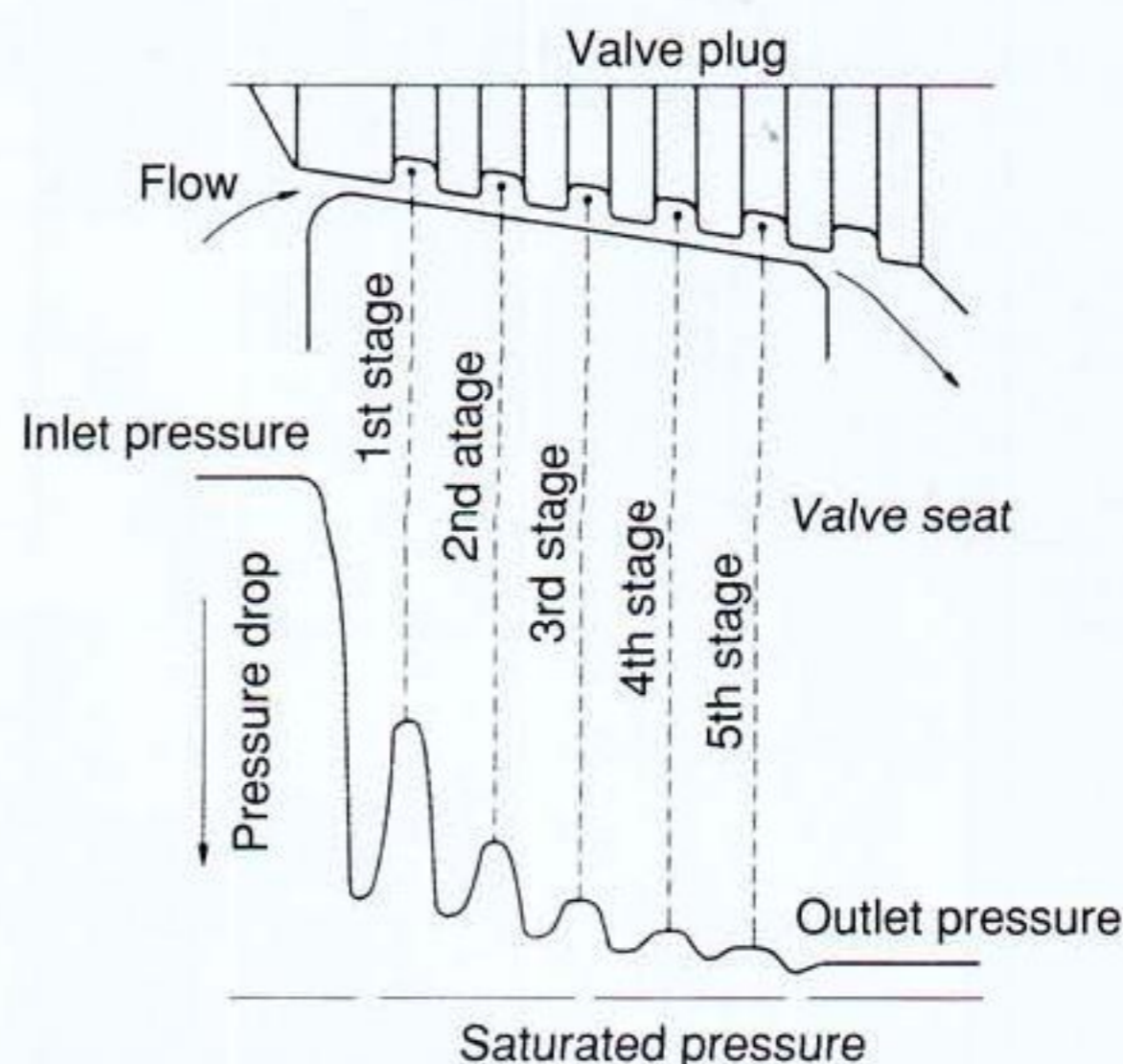
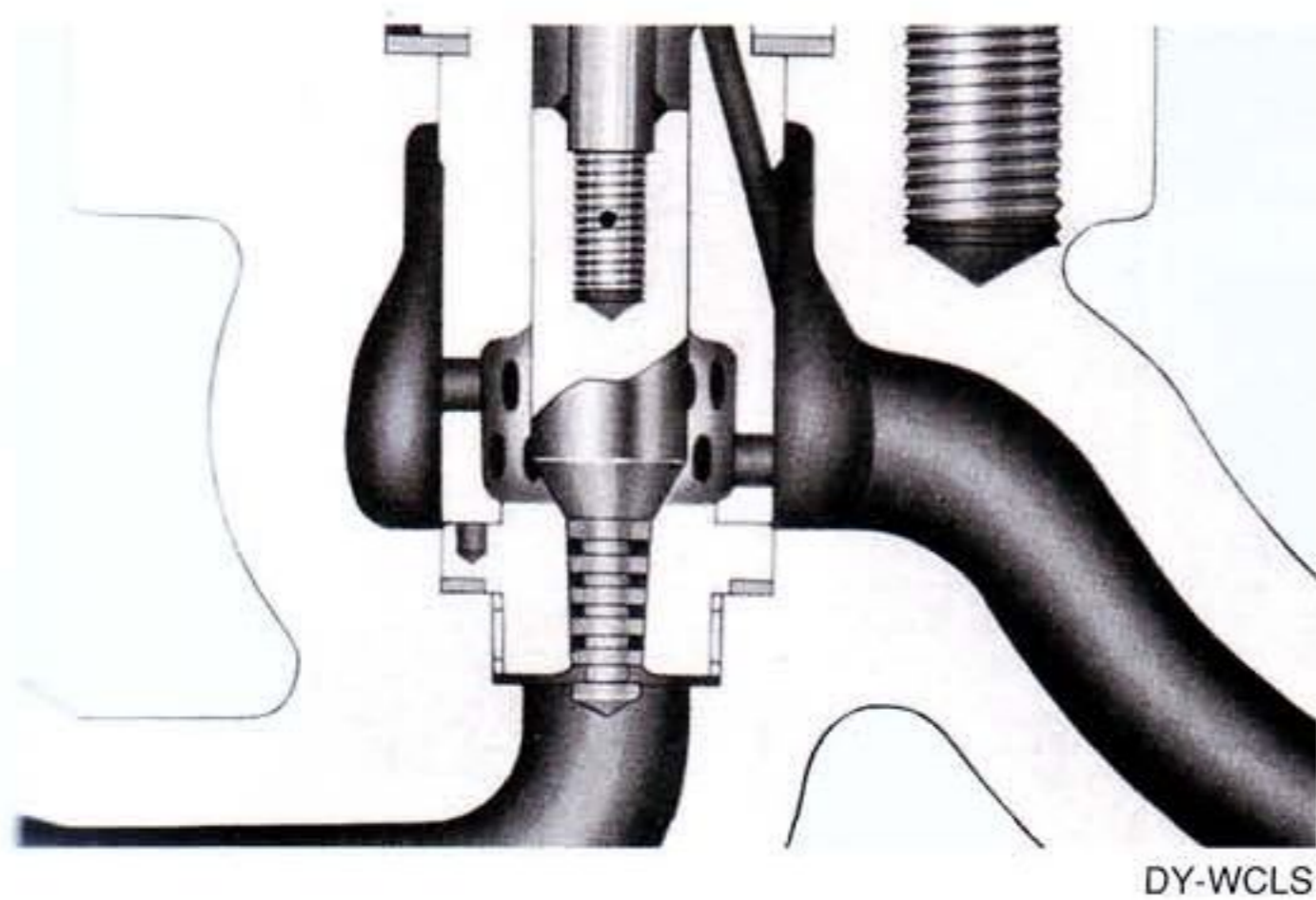


This control valve is trim-exchangeable DY-GC or DY-W control valve equipped with this labyrinth trim. It is normally used for prevention of erosion due to incompressible fluids.

Generally speaking, control valves used as feedwater control valve for boiler start-up, feedwater pump recirculation valve, hot water control valve for desuperheater, etc. experience large pressure drop, and cavitation generated in the throttle will cause many problems such as erosion, vibration and noise.

This valve uses the labyrinth trim (tapered plug or valve seat) so as to divide a large pressure drop into many stages by means of the grooves made in the plug as shown in the figure below and prevent generation of cavitation.

As for the distribution of the pressure drop over the labyrinth trim, as shown in the figure below, the first stage is large and the final stage is very small. The distribution is made effectively according to the effective characteristic of the process, and the static pressure in the throttle is carefully kept above the saturated pressure at which cavitation will be generated.



SPECIFICATIONS

For the detailed specifications, please see those of DY-GCSS □ and DY-WCSS □ control valves (pages 25 to 27).