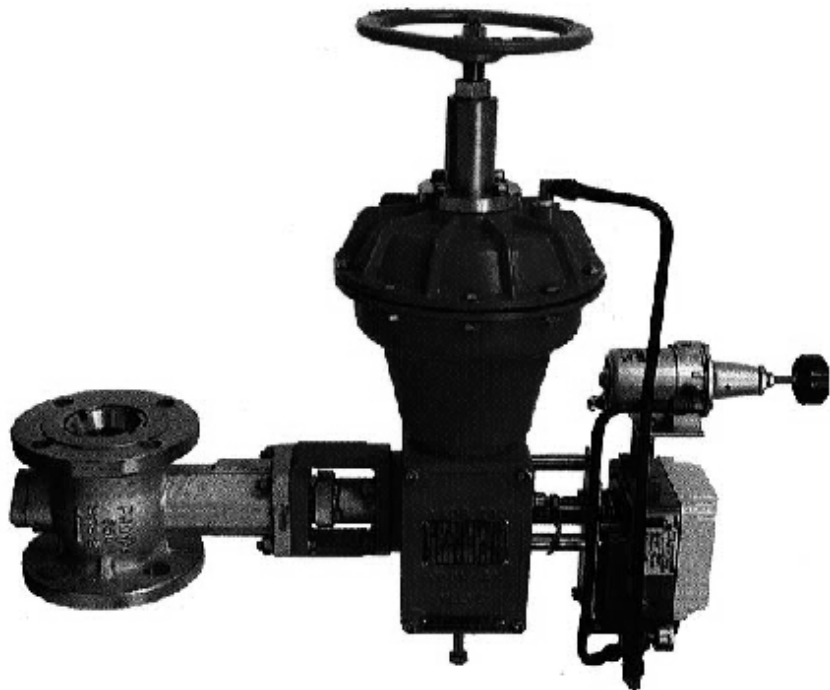




CONTROL VALVE STANDARD SPECIFICATION

# ECCENTRIC SEGMENTAL BALL VALVE



YADS-122E1 Series



<http://www.proval.co.kr>

**PROVAL** PROVAL Co., Ltd.

[C-1]

PROVAL

## ECCENTRIC TYPE SEGMENTAL BALL VALVES

### GENERAL

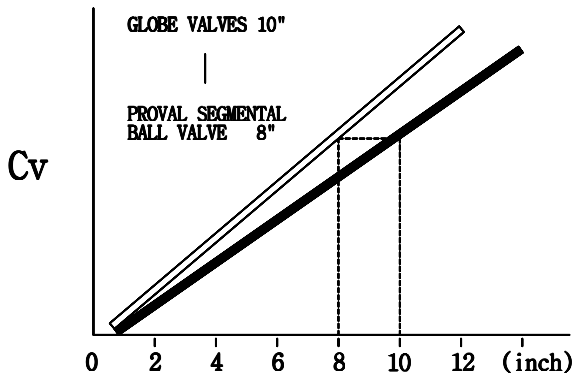
The **PROVAL** segmental ball is an eccentric plug, high performance rotary control valve. Designed for use in a wide variety of applications ranging from low pressure, high "Cv" to slurry and pulp services, to oil and gas services. The **PROVAL** segmental ball can handle shut-off pressure drop up to 50bar. Operating temperatures can from -50°C to 450 °C.

The **PROVAL** segmental ball control valves consist of a straight valve body with less flow resistance and separable plug with flow guide that rotates eccentric.



### FEATURES

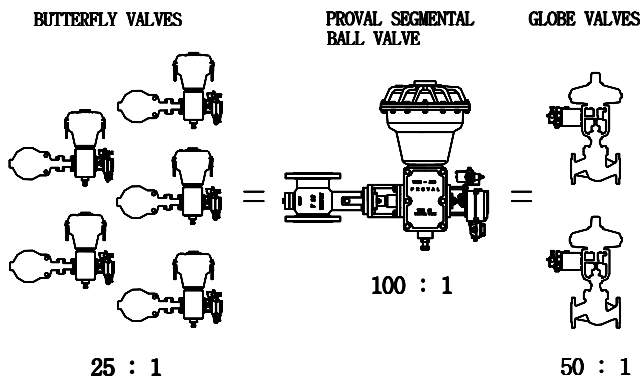
#### 1. Large capacity



The Proval segmental ball valves provide larger valve capacities than those of the globe valves.

For example, an 8-inch Proval segmental ball valve provided by a 10-inch globe valves.

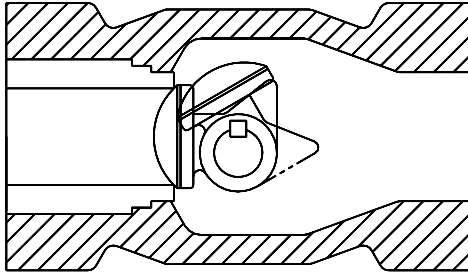
#### 2. Large capacity



The rangeability of Proval segmental ball valves is 100:1, much larger than that of butterfly valves and that (50:1) of globe valves. Thus, each of Proval segmental ball valves can cover a very wide flow range.

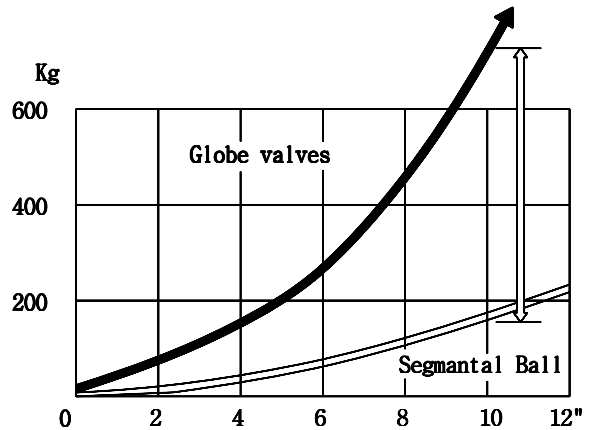
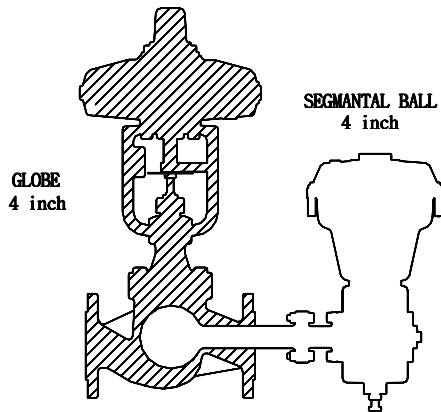
### 3. Excellent shut-off performance

Standard Valves: Cv / 10000



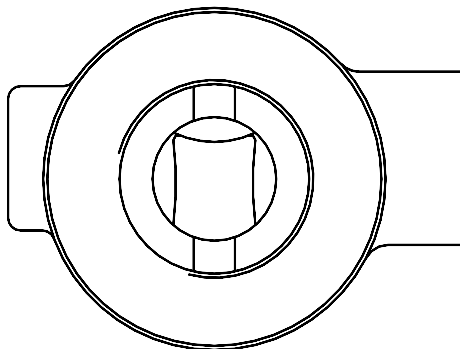
The Proval segmental ball valves render excellent shut-off performance -0.01% of the valves for standard valves for complete shut-off (ANSI B16, 104 Class VI) for valves incorporated with a Teflon seat (=soft seat).

### 4. Compact & Lightweight



The Proval segmental ball valves are more compact and lightweight than globe valves of corresponding sizes and can be installed in various directions, thereby greatly facilitating installation and maintenance.

### 5. Dirty and gummy service



The Proval segmental ball valves employ an open yoke type plug and a through type valves body which ensures no entrapped flow. Thus, they can be used for dirty and gummy service as well as for regular service.

STANDARD SPECIFICATION

<b>Model No.</b>		YADS-122E1 Series, YABS-122E1 Series															
<b>Valve Type</b>		Diaphragm & Cylinder operated segmental ball valve.															
<b>Valve Size</b>	<b>(mm)</b>	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	
	<b>(inch)</b>	1	1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	
<b>Pressure Rating</b>		ANSI 150# ~ 600# / JIS 10K ~ 30K / JPI 150# ~ 600# / PN 6bar ~ 40bar															
<b>End Connections</b>		Flanged end: R.F/ F.F/ WAFER															
<b>Body Materials</b>		A216-WCB, A351-CF8, CF8M, CF3, CF3M															
<b>Operating Temperature</b>	<b>Soft seat</b>	-50°C to +180°C															
	<b>Metal seat</b>	-50°C to +450°C															
<b>Guide</b>		Top & Bottom guide															
<b>Gland Packing</b>		V-PTFE, PTFE yarn, Graphite yarn															
<b>Gland Type</b>		Bolted gland															
<b>Bonnet</b>		Body integral type															
<b>Gasket</b>		VITON O-ring, PTFE, SUS316 + Graphite spiral wound, Other alloy steels.															
<b>Painting Color</b>		Standard is silver. In the case of stainless steel, flange is not painted.															
<b>Flow Direction</b>		Direct															
<b>Trim Materials</b>	<b>Metal trim</b>	SUS304 (STL.), SUS316 (STL.), SUS316L (STL.), Alloy-TiC															
	<b>Soft trim</b>	PTFE, Carbon PTFE, Glass-filled PTFE															
<b>PERFORMANCE</b>	<b>Valve Action</b>		Reverse action, Direct action														
	<b>Allowable Differential Pressure</b>		See "ALLOWABLE PRESSURE DROP" page 6														
	<b>Rated Cv Value</b>		See "FLOW CHARACTERISTICS" page 7														
	<b>Flow Characteristics</b>		See "FLOW CHARACTERISTICS" page 7														
	<b>Rangeability</b>		100:1														
	<b>Allowable Seat Leakage Ratio</b>	<b>Metal trim</b>	ANSI B16. 104 Class IV							※ Tight shut off – ANSI B16. 104 Class V							
		<b>Soft trim</b>	ANSI B16. 104 Class VI														
<b>Action Accuracy</b>	<b>Hysteresis</b>	(With positioner) max. 2% F.S. (only "DB" type actuator)															
	<b>Linearity</b>	(With positioner) max. ±2% F.S. (only "DB" type actuator)															

<b>ACTUATOR</b>	<b>Model</b>	DB-240, DB-300, DB-400, DB-520	B1S(R) ~ R7S(R)
	<b>Actuator Type</b>	Single-spring type diaphragm operated	Rotary cylinder type actuator
	<b>Actuator Size (diaphragm &amp; cylinder size)</b>	Ø240 - Ø520	Ø70 - Ø300
	<b>Operating Angle</b>	60°, 90°	90°
	<b>Air Supply Pressure kPa (kgf/cm<sup>2</sup>G)</b>	160 (1.6), 320 (3.2)	400~700 (4.0~7.0)
	<b>Spring Range kPa (kgf/cm<sup>2</sup>G)</b>	60~100 (0.6~1.0), 120~200 (1.2~2.0)	Single: 200~350 (2.0~3.5) Double: 400~400 (4.0~4.0),
	<b>Materials</b>	Diaphragm: E.P.D.M.	Piston O-ring: N.B.R or VITON
	<b>Air Connection</b>	Rc 1/4	Rc 1/4 ~ Rc 3/8
	<b>Ambient Temperature</b>	-20°C ~ +70°C (※ -20°C ~ +100°C)	-10°C ~ +70°C (※ 0°C ~ +100°C)
	<b>Painting Color</b>	Standard is Cobalt Blue(Munsell No : 2.5 PB3/10) [Request other color]	

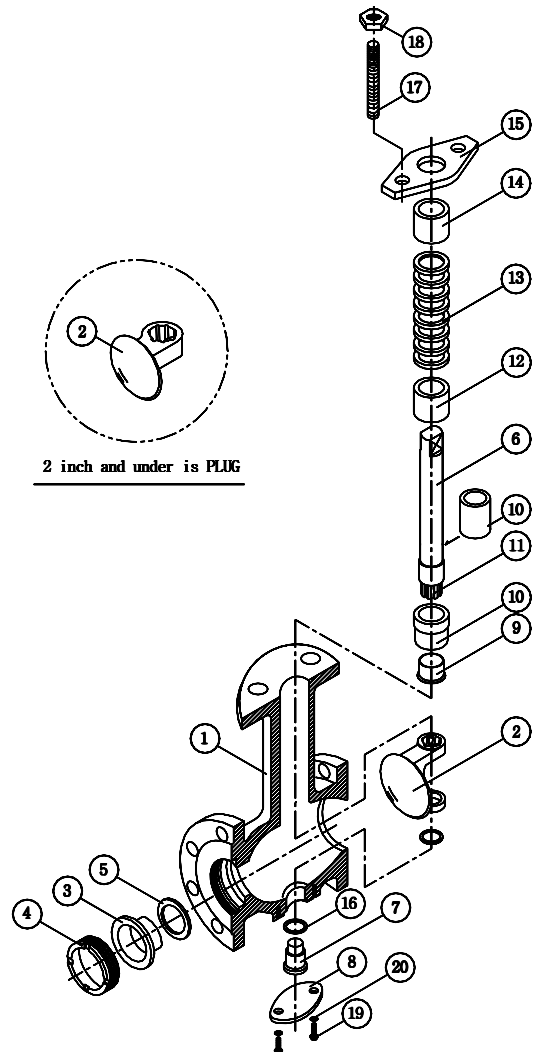
[Notes] (1) Valve performance is represented under the condition of standard packing (PTFE yarn).

(2) ※ : Manufactured and attached as according to customer's order.

## MATERIAL DATA

### 1. Body Structure

No.	Parts	Material	
		Standard	Specials
1	Body	A216-WCB, A351-CF8	A351-CF3M
2	Plug (Disc)	SCS14/SUS316 (STL.) Alloy-TiC	Alloy-TiC SUS 316L (STL.)
3	Seat ring	SUS316 (STL.), PTFE	Alloy-TiC
4	Retainer	SUS304, SUS316	SUS316L
5	Seat gasket	VITON, PTFE	SUS316+Graphite (S.W)
6	Shaft	SUS316 (Hcr plated)	SUS316L(Hcr plated)
7	Guide post	SUS304 (Teflon)	SUS316L (Teflon)
8	Bottom cover	SCPH2, SCS13, SCS14	→
9	Slide bushing	SUS316 (Metaloplast)	SUS316L (STL.)
10	Guide bushing	Teflon, CB85	SUS316L (STL.)
11	Spline	→	→
12	Spacer ring	SUS304, SUS316	→
13	Gland packing	V-PTFE, PTFE yarn	Graphite yarn
14	Gland bush	SUS304, SUS316	SUS316L
15	Gland flange	SUS304	→
16	Bottom gasket	VITON, PTFE	SUS316+Graphite(S.W)
17	Gland bolt	SUS304	→
18	Gland nut	SUS304	→
19	B.T.M cover bolt	SUS304	→
20	B.T.M cover washer	SUS304	→



## 2. Body material & operating pressure-temperature ratings.

2-1 ANSI

[Unit: kgf/cm<sup>2</sup>G]

Material	150#			300#			600#		
	SCPH2 WCB	SCS13A	SCS14A CF-8M	SCPH2 WCB	SCS13A	SCS14A CF-8M	SCPH2	SCS13A	SCS14A CF-8M
Temp. (°C)									
-45 ~ -5		20.6	20.6		51.8	51.8		102.4	102.5
38	21.2	20.6	20.6	53.3	51.8	81.8	105.3	102.4	102.5
50	20.8	20.0	20.0	52.3	49.9	50.2	103.4	98.8	99.4
100	19.2	17.2	17.7	48.5	42.9	44.2	95.8	84.6	87.3
150	17.31	15.4	16.3	47.3	38.2	40.5	93.5	75.3	79.7
200	15.4	14.0	15.2	45.9	34.6	37.6	90.5	68.0	73.9
250	13.5	13.1	13.5	43.7	32.3	35.3	86.2	63.5	69.3
300	11.6	11.6	11.6	40.7	30.9	33.4	80.2	61.4	65.7
350	9.8	9.8	9.8	38.9	29.9	32.2	76.6	58.4	63.2
375	8.7	8.7	8.7	38.4	29.5	31.5	75.4	57.8	61.8
400	7.8	7.8	7.8	36.4	29.2	30.9	71.6	57.2	60.5

2-2 JIS

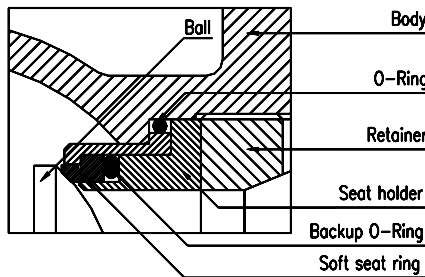
[Unit: kgf/cm<sup>2</sup>G]

Material	SCPH2			
	10K	20K	30K	40K
Temp. (°C)				
~120	15.5	35.2	52.2	69.2
~220	13.2	32.2	47.2	63.2
~300	11.2	30.2	44.2	58.2
~350		27.2	40.2	53.2
~400		24.2	39.2	47.2

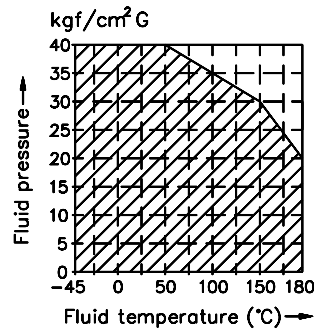
## 3. Trim treatment & material Vs operating pressure-temperature ratings.

### 3-1 Soft seat

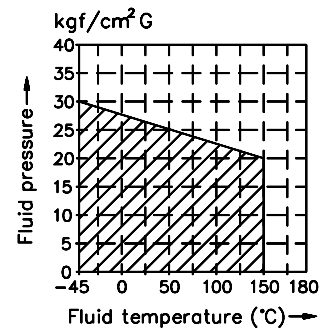
- Disc: SUS + Hard chrome plated
- Seat leakage: ANSI Class VI



- Seat ring: R.T.F.E
- Back up O-ring: VITON

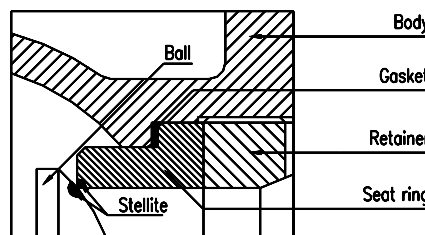


- Seat ring: P.T.F.E
- Back up O-ring: N.B.R

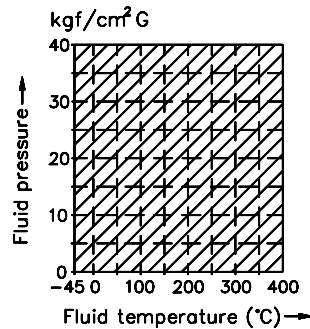


### 3-2 Metal seat

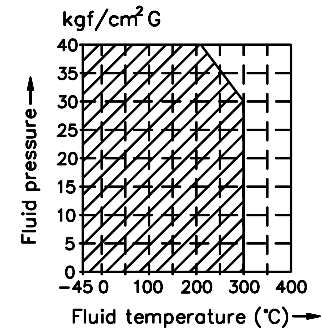
- Disc: SUS + Stellite or Alloy-TiC
- Seat leakage: ANSI Class IV



- Seat ring: SUS + Stellite

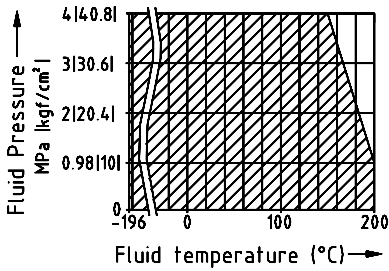


- Seat ring: Alloy-TiC

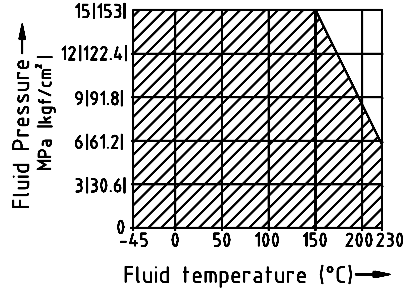


## 4. Gland packing operating pressure-temperature ratings.

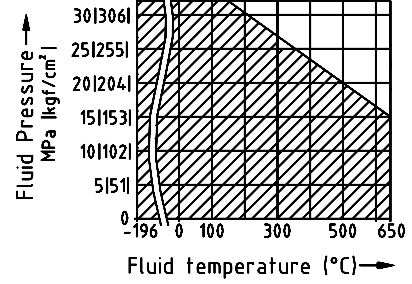
① V-PTFE



② PTFE yarn



③ Graphite yarn



**MAX. ALLOWABLE PRESSURE DROP**

### 1. Diaphragm Actuator: DB240 ~ DB520 (RA, DA)

Shaded zone represents standard application.

[Unit: Kg/cm<sup>2</sup>G]

Actuator Model	Air Supply (Kg/cm <sup>2</sup> G)	Spring Range (Kg/cm <sup>2</sup> G)	Valve Size														
			25A (1")	40A (1½")	50A (2")	65A (2½")	80A (3")	100A (4")	125A (5")	150A (6")	200A (8")	250A (10")	300A (12")	350A (14")	400A (16")	450A (18")	500A (20")
DB240	1.6	0.6 ~ 1.0	10	7	4												
	3.2	1.2 ~ 2.0	21 (15)	15 (10)	10 (7)												
DB300	1.6	0.6 ~ 1.0				13	10	8	5	3							
	3.2	1.2 ~ 2.0				26 (18)	21 (15)	18 (12)	12 (9)	9 (6)							
DB400	1.6	0.6 ~ 1.0								15	11	7	4	2			
	3.2	1.2 ~ 2.0								30 (23)	23 (16)	16 (11)	11 (8)	11 (5)			
DB520	1.6	0.6 ~ 1.0											13	10	8	5	3
	3.2	1.2 ~ 2.0											26 (18)	21 (15)	18 (12)	12 (9)	9 (6)

[NOTE]: ( ) → 90° ACTION TYPE.

### 2. Rotary cylinder actuator: B1S(R) ~ R6S(R)

Shaded zone represents standard application.

[Unit: Kg/cm<sup>2</sup>G]

Actuator Model	Air Supply (Kg/cm <sup>2</sup> G)	Spring Range (Kg/cm <sup>2</sup> G)	Valve Size														
			25A (1")	40A (1½")	50A (2")	65A (2½")	80A (3")	100A (4")	125A (5")	150A (6")	200A (8")	250A (10")	300A (12")	350A (14")	400A (16")	450A (18")	500A (20")
B1S	4.0 ~ 7.0	4.0 ~ 7.0	12	5													
B1SR	5.0 ~ 7.0	2.0 ~ 3.5	7	2													
B2S	4.0 ~ 7.0	4.0 ~ 7.0		13	8												
B2SR	5.0 ~ 7.0	2.0 ~ 3.5		7	4												
B3S	4.0 ~ 7.0	4.0 ~ 7.0			15	10	4										
B3SR	5.0 ~ 7.0	2.0 ~ 3.5			10	7	2										
B4S	4.0 ~ 7.0	4.0 ~ 7.0					22	15	10	3							
B4SR	5.0 ~ 7.0	2.0 ~ 3.5					13	9	6	2							
B6S	4.0 ~ 7.0	4.0 ~ 7.0								27	20	12					
B6SR	5.0 ~ 7.0	2.0 ~ 3.5								15	11	7					
R6SD	4.0 ~ 7.0	4.0 ~ 7.0										24	16	9	5		
R6SR	5.0 ~ 7.0	2.0 ~ 3.5										13	9	5	3		
R7S	4.0 ~ 7.0	4.0 ~ 7.0														20	13
R7SR	5.0 ~ 7.0	2.0 ~ 3.5														11	7



# ECENTRIC SEGMENTAL BALL VALVES

## FLOW CHARACTERISTICS

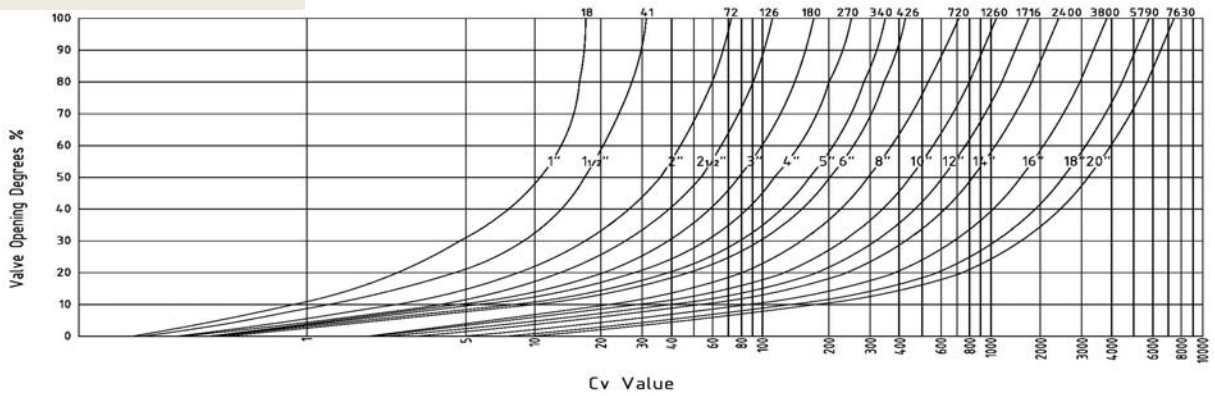
### 1. Rated Cv Value

[Unit: gal/min]

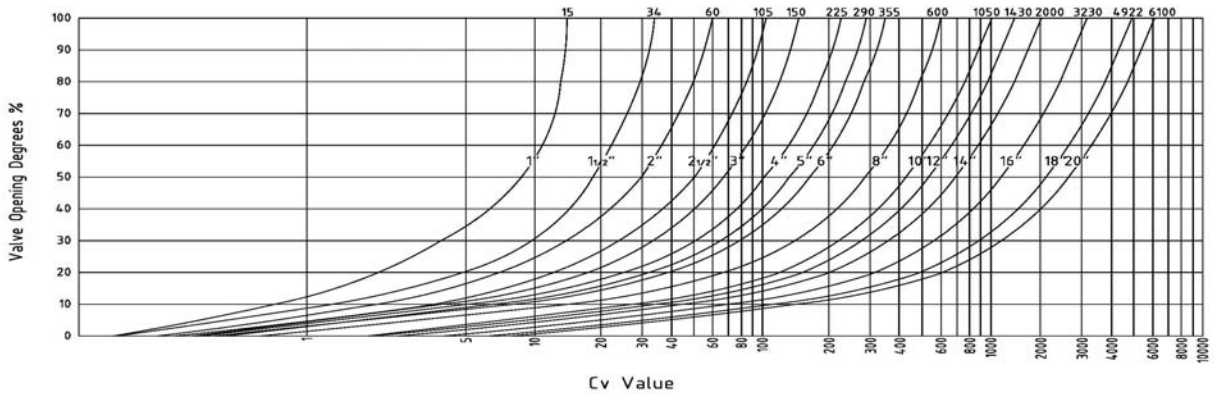
Valve Size Bore (Operating)	25A (1")	40A (1½")	50A (2")	65A (2½")	80A (3")	100A (4")	125A (5")	150A (6")	200A (8")	250A (10")	300A (12")	350A (14")	400A (16")	450A (18")	500A (20")
Standard Bore (90°)	18	41	72	126	180	270	340	426	720	1260	1716	2400	3800	5790	7630
Standard Bore (60°)	15	34	60	105	150	225	290	355	600	1050	1430	2000	3230	4922	6100
Reduced Bore (60°)	9	20.5	36	63	90	135	174	213	360	630	858	1200	1938	2952	3815

### 1. Flow Characteristics

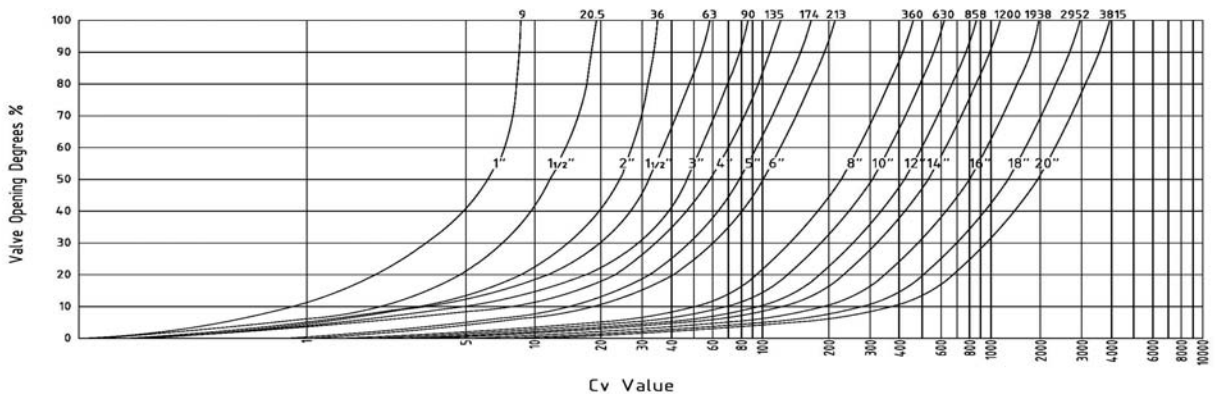
#### 1-1. Standard Bore (90°)



#### 1-2. Standard Bore (60°)

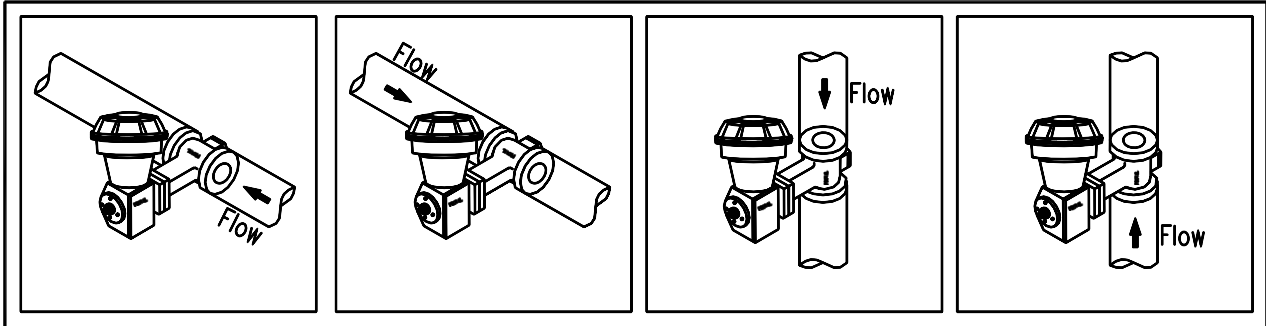


#### 1-3. Reduced Bore (60°)





## ☞ MOUNTING FORMS



STANDARD

TYPE 1

TYPE 2

TYPE 3

## ☞ WEIGHT

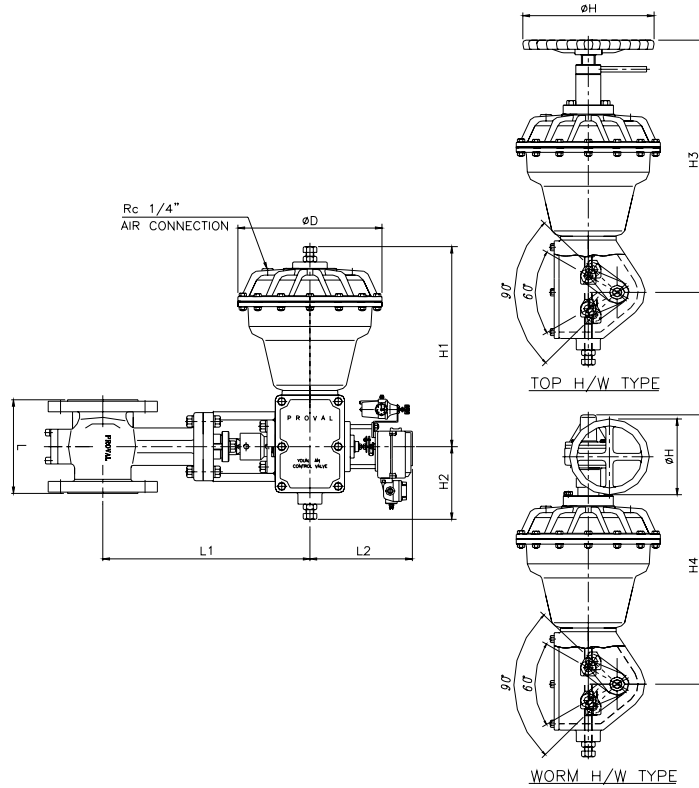
[Unit: kg]

Size	25A (1")	40A (1½")	50A (2")	65A (2½")	80A (3")	100A (4")	125A (5")	150A (6")	200A (8")	250A (10")	300A (12")	350A (14")	400A (16")	
<b>Actuator Model</b>	JIS 10K, 20K / ANSI 150#, 300# JPI 150#, 300#		JIS 10K, 20K / ANSI 150#, 300# JPI 150#, 300#		JIS 10K, 20K / ANSI 150#, 300# JPI 150#, 300#		JIS 10K, 20K / ANSI 150#, 300# JPI 150#, 300#		JIS 10K, 20K / ANSI 150#, 300# JPI 150#, 300#		JIS 10K, 20K / ANSI 150#, 300# JPI 150#, 300#		JIS 10K, 20K / ANSI 150#, 300# JPI 150#, 300#	
<b>Rating</b>	JIS 30K / ANSI 600# JPI 600#		JIS 30K / ANSI 600# JPI 600#		JIS 30K / ANSI 600# JPI 600#		JIS 30K / ANSI 600# JPI 600#		JIS 30K / ANSI 600# JPI 600#		JIS 30K / ANSI 600# JPI 600#		JIS 30K / ANSI 600# JPI 600#	
<b>DB240</b>	27	36	33	35	40	55								
<b>DB300</b>							60	70	75	80	84	100	110	115
<b>DB400</b>										210	240	300	320	390
<b>B1S(R)</b>	16 (19)	24 (28)	27 (30)	29 (32)										
<b>B2S(R)</b>			30 (32)	35 (45)	45 (60)	55 (66)	75 (80)	79 (90)						
<b>B3S(R)</b>				45 (62)	75 (80)	90 (99)	94 (98)	105 (115)						
<b>B4S(R)</b>							103 (115)	120 (130)	145 (152)	155 (170)	165 (175)	176 (183)	190 (200)	210 (225)
<b>B6S(R)</b>										220 (235)	240 (265)			
<b>R6S(R)</b>										250 (310)	270 (300)	305 (325)	360 (380)	
<b>R7S(R)</b>														370 (400)
										425 (450)	450 (470)	480 (500)	550 (575)	670 (695)
													650 (680)	700 (730)

NOTE : B6SR = B6SD, R6SR=R7SD

## DIMENSION DRAWING

### ACTUATOR : DB240~DB520, ANGLE 60°~90°



## DIMENSIONS

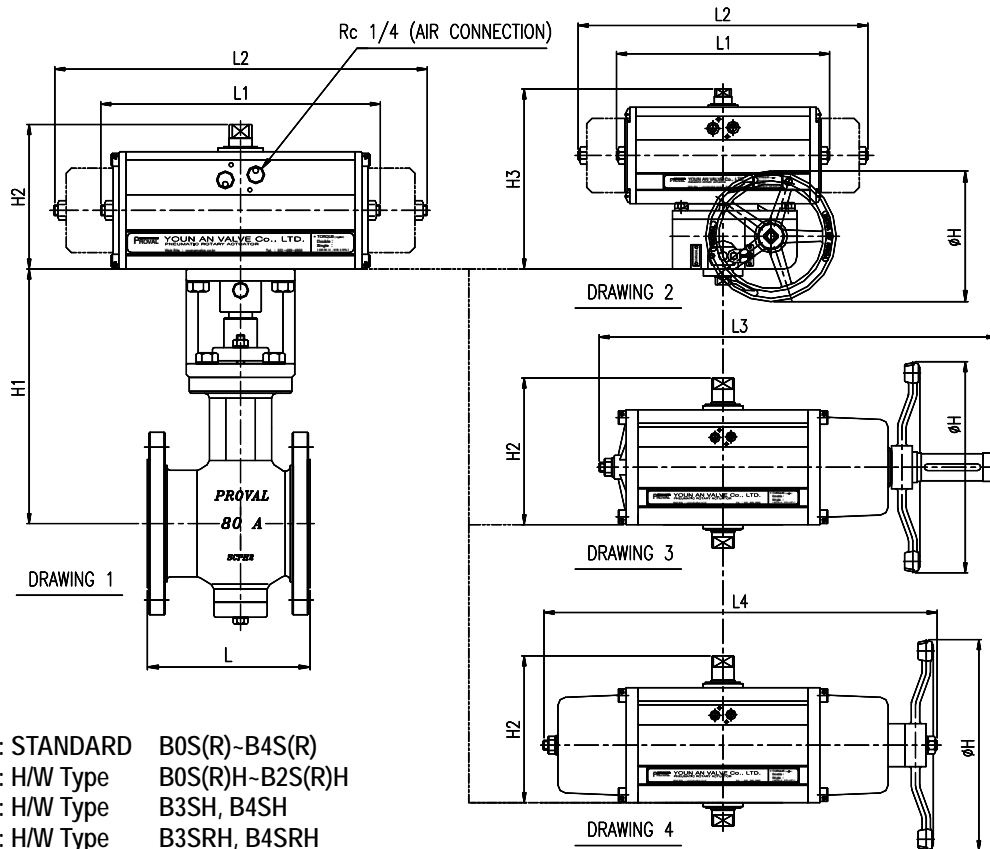
[ Unit: mm ]

Valve Size		L ( JIS 10K /ANSI 150# )		ØD	Actuator Operating Angle(60°~90°)				L1	L2	ØH Top/ Worm
mm	inch	Flange	Wafer		H1	H2	H3	H4			
25	1	120	120	240	360	130	520	670	330	255	200/200
40	1½	134	114	240	360	130	520	670	340	255	200/200
50	2	140	140	240	360	130	520	670	345	255	200/200
65	2½	155	155	300	460	170	670	760	400	275	315/200
80	3	165	165	300	460	170	670	760	410	275	315/200
100	4	194	194	300	460	170	670	760	435	275	315/200
125	5	213	213	300	460	170	670	760	455	275	315/200
150	6	229	229	400	560	200	830	870	470	275	315/200
200	8	243	243	400	560	200	830	870	630	300	430/315
250	10	297	297	400	560	200	830	870	600	300	430/315
300	12	297	297	400	560	200	830	870	650	300	430/315
350	14	400	400	520	610	195	840	890	710	300	430/315
400	16	400	400	520	610	195	840	890	800	300	430/315
450	18	457	457	520	610	195	840	890	890	300	430/315
500	20	457	457	520	610	195	840	890	970	300	430/315

<b>MODEL</b>	YADS - 122E1 (R.A), YADS - 222E1 (D.A)	<b>SIZE</b>	25A ~ 500A
PROVAL Co., Ltd.			

## DIMENSION DRAWING

### ACTUATOR : B0S(R)(H)-B4S(R)(H)



**NOTE.**

- \* DRAWING 1 : STANDARD B0S(R)-B4S(R)
- \* DRAWING 2 : H/W Type B0S(R)H-B2S(R)H
- \* DRAWING 3 : H/W Type B3SH, B4SH
- \* DRAWING 4 : H/W Type B3SRH, B4SRH

## DIMENSIONS

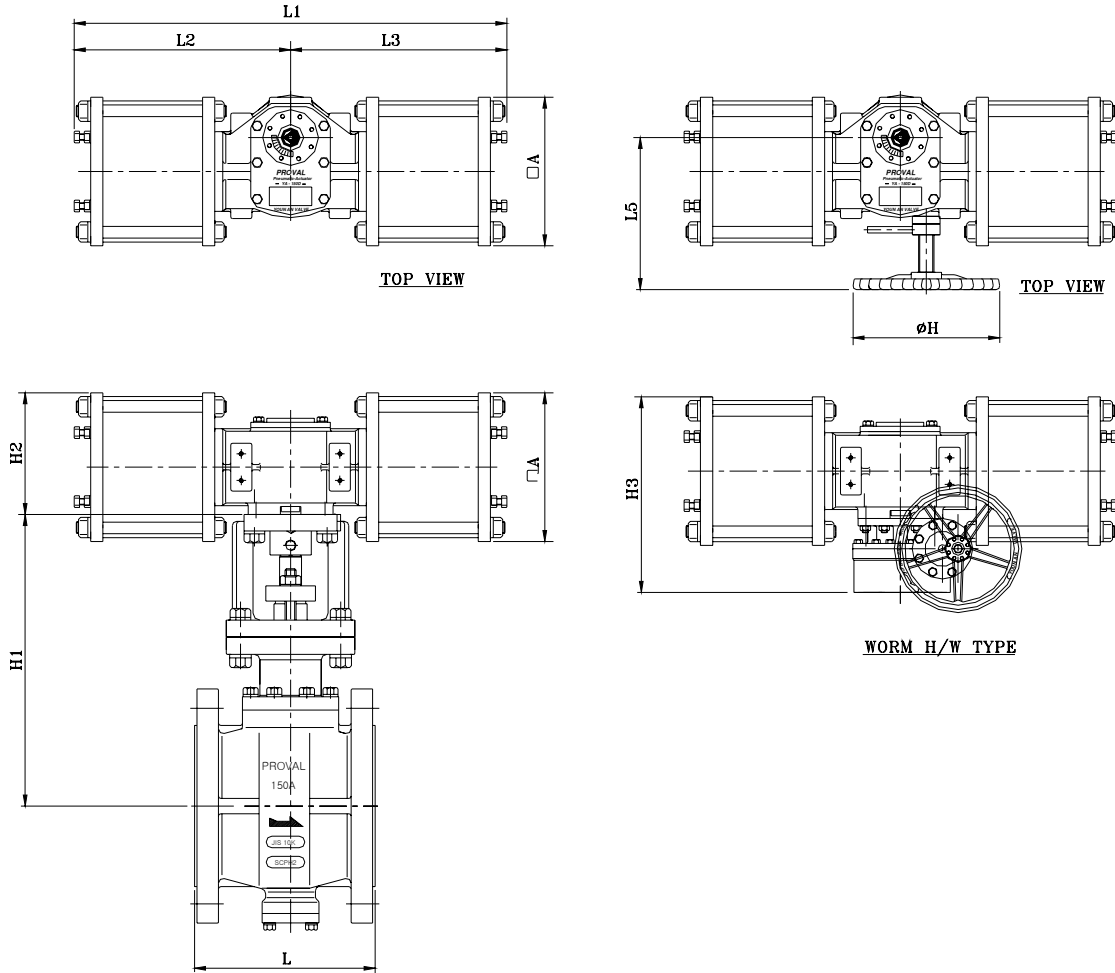
[ Unit: mm ]

Valve Size		L (JIS 10K, 20K /ANSI 150#, 300#)		ACTUATOR				L3	L4	H1	H2		H3		ØH	
mm	Inch	Flange	Wafer	Double Action		Single Action					D	S	D	S	D	S
				Model No.	L1	Model No.	L2									
25	1	120	120	B1S	215	B1SR	340	355	385	264	111	111	186	186	200	200
40	1½	134/235	114	B2S	250	B2SR	405	370	510	275	131	131	206	206	200	200
50	2	140/267	140	B2S	250	B3SR	560	475	640	275	131	184	206	335	200	200
65	2½	155	155	B3S	310	B3SR	560	600	640	315	184	184	335	335	200	315
80	3	165/317	165	B3S	310	B4SR	610	600	725	330	184	184	335	335	315	315
100	4	194	194	B4S	400	B4SR	610	700	725	355	184	184	335	335	315	315
125	5	213	213	B4S	400	B4SR	610	700	725	375	184	184	335	335	315	315
150	6	229	229	B6S	475	B6SR	700	830	955	400	256	256	440	550	430	430
200	8	243	243	B6S	475	B6SR	700	830	955	485	256	256	440	550	430	430

MODEL	YABS - 122E1, 121E1, 123E1, 112E1 YABS - 322E1, 321E1, 323E1, 312E1	SIZE	25A ~ 200A
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## DIMENSION DRAWING

### ACTUATOR : R6SD~R7SD



## DIMENSIONS

[ Unit: mm ]

Valve Size		L	ACTUATOR		L1	L2 = L3	L5	H1	H2	H3	ØH	Rc
mm	inch	Flange = Wafer	Model	□A								
250	10	297	R6SD	272	840	420	380	530	205	430	450	3/8
300	12	300	R6SD	272	840	420	380	555	205	430	450	3/8
350	14	400	R6SD	272	840	420	380	605	205	430	450	3/8
400	16	400	R6SD	272	840	420	380	630	205	430	450	3/8
450	18	457	R7SD	Ø340	1300	650	570	720	340	565	450	3/8
500	20	457	R7SD	Ø340	1300	650	570	720	340	565	450	3/8

MODEL	YABS-313E1	SIZE	250A - 500A
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