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PROFESSIONAL CONTROL VALVES

High-quality and reliable valves

www.proval.co.kr



PROVAL PROVAL Co.,Ltd.

PRESIDENT'S MESSAGE

Since the establishment, we, PROVAL Valve, as a company specializing in manufacturing various control valves used in the industries such as petroleum, steel, and power generation for their process control, have supplied a huge number of high-quality and reliable valves thanks to the technology we have gained.

We will continue exerting our utmost effort to manufacture quality product to cope with the needs of the customers through the research and development based on the technology we have.

Thank you.





GLOBE VALVES

YAD SERIES, YAC SERIES

122Q1,222Q1,122Q3,122Q4,122P1,121Q1,121Q3,12231,12233,12243,132Q1, 132P1,232Q1,22231,12251,12253,12353,22251
22253,12261,12263,22261, 22263,112Q1,112Q3,112Q4,11231,312Q1,31231,12271,12274,12281,12284,31271,31281

RATINGS

- ANSI CLASS 150 TO 4500# , KS/JIS 10 - 63K
- PN 10 TO 640

VALVE SIZE

- DIN 15 to 600
- 1/2" to 24"

BODY TYPE

- GLOBE PATTERN
- ANGLE PATTERN
- FORGED STRAIGHT THROUGH AND ANGLE
- 3-WAY PATTERN
- JACKET TYPE

BONNET TYPE

STANDARD, EXTENSION, BELLOWS, CRYOGENIC, JACKET TYPE

END CONNECTION

- FLANGED (R.F, F.F, RTJ)
- BUTT WELD
- SOCKET WELD
- SCREWED

TRIM OPTION

SINGLE, MICRO (SMALL FLOW), CAGE GUIDED, ANTI-CAVITATION, LOW NOISE, MULTI DISC STACK

FLOW CHARACTERISTICS

Equal %, Modified Equal%, Linear, Modified Linear, Hyperbolic, Quick Open

RANGEABILITY

25 : 1, 30 : 1, 50 : 1, 100 : 1, 300 : 1

Leakage

- Metal Seat - ASME CLASS IV,V
- Soft Seat - ASME CLASS VI (Bubble Tight)

ACTUATOR COMBINATION

PNEUMATIC DIAPHRAGM ACTUATOR, CYLINDER ACTUATOR, MOTOR, HYDRAULIC ACTUATOR



PROVAL LINEAR MOTION CONTROL VALVE



1. CAGE TYPE GLOBE

1" through 24" (25 though 600mm)

ANSI 150# - 4500#, KS/JIS 10K ~ 63K

FLANGE END
SOCKET WELDING
BUTT WELDING
THREADED

Body Materials:

- carbon steel
- stainless steel
- alloy steel

Actuators

- M - SERIES
- C - SERIES

Trims:

- balanced cage-guided trim
- Low-noise, anti-cavitation trim (Variable Resistance Trim), single and
- multiple cages are available

Inherent Characteristic:

- linear, equal percentage, quick change, modified curve

- More flow capacity for initial investment. Streamlined flow passages provide greater capacities than most globe bodies of the same line size. Balanced valve plug construction permits use of smaller, lower-cost actuators. Also, trim inventory costs are cut because dimensional standardization permits use of most standard proval valve cage trim parts.
- High-pressure and temperature capability with class IV shut off. RTFE piston ring and high-seals permits. This shut off up to 230°C.

2. SINGLE TYPE GLOBE

1" through 12" (25 though 300mm)

ANSI 150# - 2500#, KS/JIS 10K ~ 63K

FLANGE END
SOCKET WELDING
BUTT WELDING
THREADED

Body Materials:

- carbon steel
- stainless steel
- alloy steel

Actuators

- M - SERIES
- C - SERIES

Trims:

- single seat plug top guided
- Low-noise, anti-cavitation trim (Variable Resistance Trim), single and double cages are available

Inherent Characteristic:

- linear, equal percentage, quick change, modified curve

- Reliability - The screwed-in seat ring on a tapered seating to minimize fluid leakage and erosion at the back of the seat ring.
- Valve plug stability - Two rugged and widely spaced packing box guide bushings stabilize and guide the valve plug at all point in its travel range to minimize vibration, mechanical noise, and trim wear.
- Application flexibility - The design of proval valve accepts a full range of equal percentage, linear, and quick opening valve plugs designed to handle a wide range of flow requirements. Restricted-capacity trim can be easily replaced with full-capacity trim. Hardened trim materials are available to increase trim life and improve performance.

3. MICRO PORT GLOBE

1/2" though 1"

ANSI 150# - 2500#, KS/JIS 10K ~ 63K

FLANGE END
SOCKET WELDING
LUGGED
THREADED
WAFER

Body Materials:

- carbon steel
- stainless steel
- alloy steel

Actuators

- M - SERIES
- C - SERIES

Trims:

- full stellite needle plug
- multistep trim available

Inherent Characteristic:

- linear, equal percentage, modified curve, hyperbolic curve

- Proval Micro trim is a compact globe style valve specifically for microflow control. The Micor trim includes an adjustable Cv feature between 100 percent and 40 percent that can meet applications requiring finer control. It is available with bellows seal and anti-cavitation trim options.



4. 3-WAY GLOBE DIVERTING, MIXING TYPE

1" through 12" (25 though 300mm)

ANSI 150# - 900#, KS/JIS 10K ~ 40K

FLANGE END
SOCKET WELDING
BUTT WELDING

Body Materials:

- carbon steel
- stainless steel
- alloy steel

Actuators

- M - SERIES
- C - SERIES

Trims:

- cage-guided trim
- Low-noise, anti-cavitation trim

Inherent Characteristic:

- linear, equal percentage, quick change, modified curve

- The design of proval 3-way control globe valves are generally used either to mix flowing medium or to divert on medium into two outlet flows, and are often used when fluid temperature is to be adjusted through heat exchangers.
- Mixing-type valves also can be used for diverting service when both the nominal size pressure differential is small.
- However, the mixing type is more suitable when the nominal size is larger than "4" and the pressure differential is also considerable. Standard 3-Way valve combine diaphragm actuator with multi-spring.

5. 3-WAY GLOBE BALANCED CAGE TYPE

2" through 12" (50 though 300mm)

ANSI 150# - 1500#, KS/JIS 10K ~ 40K

FLANGE END
SOCKET WELDING
BUTT WELDING

Body Materials:

- carbon steel
- stainless steel
- alloy steel

Actuators

- M - SERIES
- C - SERIES

Trims:

- cage-guided trim
- Low-noise, anti-cavitation trim
- balance disc with high pressure condition

Inherent Characteristic:

- linear, equal percentage, quick change, modified curve

- The design of proval 3-way Balanced control globe valves are generally used high pressure condition either to mix flowing medium or to divert on medium into two outlet flows, and are often used when fluid temperature is to be adjusted through heat exchangers.
- Standard 3-Way valve combine diaphragm actuator with multi-spring.

6. BELLOWS SEAL GLOBE

1" through 12" (25 though 300mm)

ANSI 150# - 900#, KS/JIS 10K ~ 40K

FLANGE END
SOCKET WELDING
BUTT WELDING
THREADED

Body Materials:

- carbon steel
- stainless steel
- alloy steel

Actuators

- M - SERIES
- C - SERIES

Trims:

- single seat plug top guided
- balanced cage-guided trim
- Low-noise, anti-cavitation trim (Variable Resistance Trim), single and multiple cages are available

Inherent Characteristic:

- linear, equal percentage, quick change, modified curve

- Wated material, employee safety, environmental concerns all good reasons for today's plant operator to be concerned about fugitive emissions from hazardous process.
- To stop packing leakage from control valves. Using a formed metal bellows design with minimal welded joint.
- Zero-Leakage stem & Seal
- Available with SUS316 or SUS316L bellows.
- No bellows tension
 - Bellows is in a relaxed state at valve's closed position
- No bellows erosion / fluid impingement
 - Bellows is out of flow stream
- No special packing requirements
- Multiple temperature applications
 - Temperature range : -160°C ~ 350°C



7. CRYOGENIC GLOBE

1/2" through 20" (15 through 500mm)

ANSI 150# - 900#, KS/JIS 10K ~ 40K

FLANGE END
SOCKET WELDING
BUTT WELDING

Body Materials:

- stainless steel
- alloy steel

Actuators

- M - SERIES
- C - SERIES

Trims:

- single seat plug top guided
- balanced cage-guided trim
- Low-noise, anti-cavitation trim (Variable Resistance Trim), single and multiple cages are available

Inherent Characteristic:

- linear, equal percentage, quick change, modified curve

- Body has in-line ports with stub and flange for JIS/ANSI Standard
- Butt welding, Socket welding flange available
- Trim is manufactured of two touches.
 - Soft (PCTFE) + Metal (SUS316) - CLASS VI
- Replacement soft seat element. - CLASS VI

8. FORGED STEEL GLOBE

1/2" through 12" (15 through 300mm)

ANSI 150# - 4500#, KS/JIS 10K ~63K

FLANGE END
SOCKET WELDING
BUTT WELDING

Body Materials:

- carbon steel
- stainless steel
- alloy steel

Actuators

- M - SERIES
- C - SERIES

Trims:

- single seat plug cage guided
- Low-noise, anti-cavitation trim (Variable Resistance Trim), single and multiple cages are available

Inherent Characteristic:

- linear, equal percentage, quick change, modified curve

- More flow capacity for initial investment. Streamlined flow passages provide greater capacities than most forged bodies of the same line size. Also, trim inventory costs are cut because dimensional standardization permits use of most standard proval valve cage trim parts, and be easily quick changed.
- High-pressure and temperature capability with class IV shut off.

9. SEVERE SERVICE GLOBE

1/2" through 24" (15 through 600mm)

ANSI 150# - 4500#, KS/JIS 10K ~63K

FLANGE END
SOCKET WELDING
BUTT WELDING
LUGGED

Body Materials:

- carbon steel
- stainless steel
- alloy steel

Actuators

- M - SERIES
- C - SERIES

Trims:

- Disc stack (multi turn path)

Inherent Characteristic:

- linear, modified curve

- Reduced fluid velocities: Design ensures lower fluid velocities for longer trim life
- Disc stack design
 - Particles pass easily through the disc stack
 - Expanded inlet passages keep large contaminants from damaging the trim
 - Inspection is easy
 - Stack disassembles for cleaning or maintenance
- Variety of materials: Disc stack can be made from a variety of materials as required by service conditions.
- Unique staged pressure reduction design: Gaseous and hydrodynamic noise effectively reduced, cavitation eliminated, pressure drops reduced in steps.



HI-PERFORMANCE BUTTERFLY VALVES

YADHB, YABHB SERIES

122E1, 112E1, 212E1, 112C1, 312E1

RATINGS

- ANSI CLASS 150 TO 600# , KS/JIS 10 - 30K
- PN 10 TO 100

VALVE SIZE

- DIN 50 to 1500
- 2" to 60"

BODY TYPE

- WAFER TYPE
- DOUBLE FLANGE TYPE
- 3-WAY TYPE
- JACKET TYPE

BONNET TYPE

STANDARD, EXTENSION, CRYOGENIC, JACKET TYPE

END CONNECTION

- FLANGED (R.F, F.F, RTJ)
- WAFER
- BUTT WELD

TYPE OPTION

CONCENTRIC, DOUBLE OFFSET, TRIPPLE OFFSET

FLOW CHARACTERISTICS

Modified Equal %, Modified Linear, Quick Open

RANGEABILITY

20 : 1

Leakage

- Metal Seat - ASME CLASS II, III, IV
- Soft Seat - ASME CLASS VI (Bubble Tight)
TEFLON, EPDM, NBR

ACTUATOR COMBINATION

PNEUMATIC DIAPHRAGM ACTUATOR, CYLINDER ACTUATOR, MOTOR, HYDRAULIC ACTUATOR



BALL VALVES

YADS, YABS, YACS, YABC

122E1, 121E1, 322E1, 323E1, 112F1, 212F1, 112L1, 112T1, 112C1, 111F1, 113F1, 312F1, 312T1, 312L1

RATINGS

• ANSI CLASS 150 TO 2500#, KS/JIS 10 - 63K • PN 10 TO 420

VALVE SIZE

- DIN 15 to 500
- 1/2" to 20"

BODY TYPE

- FLOATING
- TRUNNION
- 3WAY (L-PORT, T-PORT)
- FORGED TYPE

BONNET TYPE

STANDARD, EXTENSION, CRYOGENIC, JACKET TYPE

END CONNECTION

- FLANGED (R.F, F.F, RTJ)
- WAFER
- BUTT WELD
- SOCKET WELD
- SCREW

TYPE OPTION

CONCENTRIC BALL, CONCENTRIC SEGMENTAL, ECCENTRIC SEGMENTAL

FLOW CHARACTERISTICS

Modified Equal %, Modified Linear, Quick Open

RANGEABILITY

20 : 1, 60 : 1, 75 : 1, 100 : 1

Leakage

- Metal Seat - ASME CLASS II, III, IV
- Soft Seat - ASME CLASS VI (Bubble Tight)
TEFLON

ACTUATOR COMBINATION

PNEUMATIC DIAPHRAGM ACTUATOR, CYLINDER ACTUATOR, MOTOR, HYDRAULIC ACTUATOR



PROVAL ROTARY MOTION CONTROL VALVE



1. ECCENTRIC SEGMENTAL BALL VALVE

1" through 20" (25 through 500mm)

ANSI 150# - 600#, KS/JIS 10K ~ 30K

FLANGE END
WAFER

Body Materials:

- carbon steel
- stainless steel
- chrome-moly

Actuators

- DB - SERIES
- CB - SERIES
- B - SERIES
- R - SERIES

Trims:

- soft seat, metal seat, alloy tic, etc

Inherent Characteristic:

- quick change, modified curve

- Large Capacity
- Large Rangeability
- Excellent shut-off performance
- Compact & Lightweight
- Dirty and gummy service

2. CHARACTERIZED SEGMENTED BALL

1" through 12" (25 through 300mm)

ANSI 150# - 600#, KS/JIS 10K ~ 30K

FLANGE END
WAFER

Body Materials:

- carbon steel
- stainless steel
- chrome-moly

Actuators

- DB - SERIES
- CB - SERIES
- B - SERIES
- R - SERIES

Trims:

- soft seat, metal seat

Inherent Characteristic:

- equal percentage, quick change, modified curve, hyperbolic curve

Segmented ball valve which features a patented contoured segmented V-notch ball. The V-notch ball produces an equal-percentage flow characteristic allowing for wide rangeability and a broad control range. The segmented ball also provides a non-restrictive flow path through the valve allowing for high capacity flows. The Vee-Ball valve features a variety of seals to allow for excellent shutoff and shearing between the ball and seal upon closure. The splined drive shaft of the Vee-Ball combines with a variety of power and manual actuators to provide reliable, high-performance throttling or on-off operation for many different applications.

3. CONCENTRIC BUTTERFLY

2" though 48" (50 through 1200mm)

ANSI 150#, KS/JIS 10K

FLANGE END
WAFER
LUGGED END

Body Materials:

- carbon steel
- stainless steel
- Ductile Iron

Actuators

- B - SERIES
- R - SERIES

Trims:

- rubber seat, teflon lined

Inherent Characteristic:

- modified linear

- Compact Size & Light weight
- Long service life & lower cost
- Simple installation & maintenance
- Pneumatic control operation
- Perfect cut off
- Versatile function
- Wide application



4. HIGH PERFORMANCE BUTTERFLY

2" though 60" (50 through 1500mm)

ANSI 150# - 300#, KS/JIS 10K ~ 20K

FLANGE END
BUTT WELDING
WAFER

Body Materials:

- carbon steel
- stainless steel
- chrome-moly

Actuators

- DB - SERIES
- CB - SERIES
- B - SERIES
- R - SERIES

Trims:

- soft seat, metal seat

Inherent Characteristic:

- modified Equal %, modified Linear

- Self-sealing mechanism ensures a tight shut-off
- Double eccentric disc ensures longer service life, low seating torque and leak-tight shut-off
- Compact, lightweight, and cost-effective
- Eccentric disc

5. TRIPPLE OFF-SET BUTTERFLY

2" though 32" (50 through 800mm)

ANSI 150# - 600#, KS/JIS 10K ~ 30K

FLANGE END
BUTT WELDING
WAFER

Body Materials:

- carbon steel
- stainless steel
- chrome-moly

Actuators

- DB - SERIES
- CB - SERIES
- B - SERIES
- R - SERIES

Trims:

- metal seat, laminate seat

Inherent Characteristic:

- modified Equal %, modified Linear

PROVAL triple offset valve, also known in the industry as triple eccentric or triple offset butterfly valve, represents an important step forward compared to traditional process valves, such as gate, ball, and plug valves. Share the same cone-to-cone principle with a globe valve, sealing is performed by applying quarter turn rotation instead.

6. CRYOGENIC BUTTERFLY

4" through 32" (100 through 800mm)

ANSI 150# - 300#, KS/JIS 10K ~ 20K

FLANGE END
BUTT WELDING
WAFER

Body Materials:

- stainless steel

Actuators

- DB - SERIES
- CB - SERIES
- B - SERIES
- R - SERIES

Trims:

- soft seat, metal seat, laminate seat

Inherent Characteristic:

- modified Equal %, modified Linear

- Operating Temperature : -196°C
- Seat tightness in accordance with BS rate A, API-598 ISO rate A at ambient temperature, and BS 6364 at cryogenic temperature.
- Maintenance free stem packing design, requiring no adjustments.
- Available de-greased and specially cleaned to customer standards for clean gas service.



7. 2,3-WAY FLOATING TYPE BALL

1/2" through 12" (15 through 300mm)

ANSI 150# - 900#, KS/JIS 10K ~ 40K

FLANGE END
SOCKET WELDING
BUTT WELDING

Body Materials:

- Carbon steel
- stainless steel

Actuators

- B - SERIES
- R - SERIES

Trims:

- Soft Seat, Metal Seat

Inherent Characteristic:

- quick change

We use only high-quality materials inspected & tested to International Standards and utilize advanced manufacturing technology with special emphasis on safety, quality, and long service life of our products, to ensure that our clients receive the "best in class" products available from us at a competitive price and delivered on time

- Both direction
- Dynamic self-adjusting center line
- Low torque for easier operation
- High capacity
- No leakage

8. TRUNNION BALL

2" through 20" (15 through 500mm)

ANSI 150# - 1500#, KS/JIS 10K ~ 63K

FLANGE END
SOCKET WELDING
BUTT WELDING

Body Materials:

- Carbon steel
- stainless steel

Actuators

- B - SERIES
- R - SERIES

Trims:

- soft seat, metal seat

Inherent Characteristic:

- quick change

Trunnion ball valves have a mechanical means of anchoring the ball at the top and the bottom, this design is the standard design applied on larger and higher pressure valves. Sealing is achieved by spring loaded piston type seats which shut off flow when line pressure acts on the upstream seat. Automatic relief of cavity overpressure is assured due to the trunnion design in case of self-relieving seats

The ball is operated by a sealed spindle to which the operator is attached. Ball valves are intended to be used as on/off flow control devices and are not to be used to throttle fluid flow. The valves should always be either fully open or closed.



PRODUCT RATED CV & STROKE

GLOBE CONTROL VALVE

MICRO PORT (HYPERBOLIC)

M1 - M8 + STROKE

Port size or Port no.	6A (3/16")	4A (1/8")	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10
Cv value	0.7	0.4	0.2	0.08	0.05	0.02	0.008	0.005	0.002	0.0009	0.0007	0.0005
Range	EQ, Linear		50 : 1	30 : 1	20 : 1			10 : 1			5 : 1	
ability	Modify EQ		50 : 1, 100 : 1									
Travel (mm)	20~25											

CONTOURED PLUG

PORT 8 - 300 + STROKE

Port Size(DN)	8 ¼"	10 ⅜"	15 ½"	20 ¾"	25 1"	32 1¼"	40 1½"	50 2"	65 2½"	80 3"	100 4"	125 5"	150 6"	200 8"	250 10"	300 12"
Cv Value	1.4	2.8	4.7	8	16	19.5	30	46	72	100	170	270	390	540	720	1050
Stroke	20	20	20	20	20	20	20	25	25	30	35	50	55	80	85	85

CHARACTERISTIC FLOW CAGE

PORT 25 - 500 + STROKE

Port Size(DN)	25 1"	40 1½"	50 2"	65 2½"	80 3"	100 4"	125 5"	150 6"	200 8"	250 10"	300 12"	350 14"	400 16"	450 18"	500 20"
Cv Value	16	30	50	72	125	187	310	440	610	890	1200	1470	2170	3300	4300
						220		460	725	1050	1350	1750	2700	3750	5400
Stroke	20	20	25	25	30	35	50	55	80	85	85	100	150	150	150
						50		60	90	100	100	120	175	200	200

DRILL HOLE

(M.EQ% , M.LINEAR, LINEAR)

Port Size(DN)	25 1"	40 1½"	50 2"	65 2½"	80 3"	100 4"	125 5"	150 6"	200 8"	250 10"	300 12"	350 14"	400 16"	450 18"	500 20"	
Cv Value	PT6	16	30	50	75	125	187	280	420	610	1050	1450	1750	2200	3100	4300
	PT5	8	15	40	60	105	168	240	360	580	900	1050	1400	1900	2170	3750
	PT4		8	32	45	86	142	200	310	520	720	725	1050	1750	1900	3100
	PT3			26	30	70	116	160	250	430	580	560	720	1400	1750	2100
Stroke	20	25	25	40	40	50	55	55	90	100	120	120	150	150	200	

MULTI TURN

(M.EQ% , M.LINEAR, LINEAR)

Port Size(DN)	25 1"	40 1½"	50 2"	65 2½"	80 3"	100 4"	125 5"	150 6"	200 8"	250 10"	300 12"	350 14"	400 16"	450 18"	500 20"	
Cv Value	MT1	16	30	50	75	125	187	280	420	610	1050	1450	1750	2200	3100	4300
	MT2	8	14	30	50	60	97	187	220	450	850	1000	1200	1350	1750	2100
	MT2.1			24	40	30	49	90	110	350	700	860	920	1150	1350	1750
	MT4		7			30	50	50	85	220	425	620	550	550	810	980
	MT4.1					15	24	25	42	170	350	410	430	450	720	810
	MT6						24		56	110	210	310				
	MT6.1						10		20	56	125	160				
Stroke	20	30	30	40	40	50	55	55	90	100	120	120	150	150	200	

※ According to order or condition, stroke can be changed

※ Cv : gal/min

BUTTERFLY VALVE

Size(DN)	Cv	Size(DN)	Cv	Size(DN)	Cv
50	165	400	12500	900	70100
65	250	450	16100	950	79500
80	380	500	19500	1000	81200
100	650	550	22900	1100	95200
125	1100	600	29300	1200	113400
150	1790	650	34290		
200	3300	700	41720		
250	5400	750	47000		
300	7830	800	56200		
350	10300	850	65000		

HI- PERFORMANCE BUTTERFLY VALVE

60° opening

Size(DN)	Cv	Size(DN)	Cv
50	31	500	7313
65	51	550	8755
80	98	600	11175
100	196	650	13000
125	376	700	15200
150	644	750	17100
200	1236	800	20500
250	2060	850	23500
300	2987	900	25500
350	3914	1000	29600
400	4738	1100	34700
450	6128	1200	41310

90° opening

Size(DN)	Cv	Size(DN)	Cv
50	60	550	17000
65	100	600	21700
80	190	650	25400
100	380	700	29800
125	730	750	33500
150	1250	800	40100
200	2400	850	46100
250	4000	900	50100
300	5800	1000	58000
350	7600	1100	68000
400	9200	1200	81000
450	11900	1300	95000
500	14200		

CONCENTRIC BALL VALVE

Full bore ball valves							
Size(DN)	Cv	Size(DN)	Cv	Size(DN)	Cv	Size(DN)	Cv
15	26	50	480	150	5400	400	43000
20	50	65	750	200	10000	450	57000
25	94	80	1300	250	16000	500	73000
32	185	100	2300	300	24000		
40	260	125	4200	350	31400		

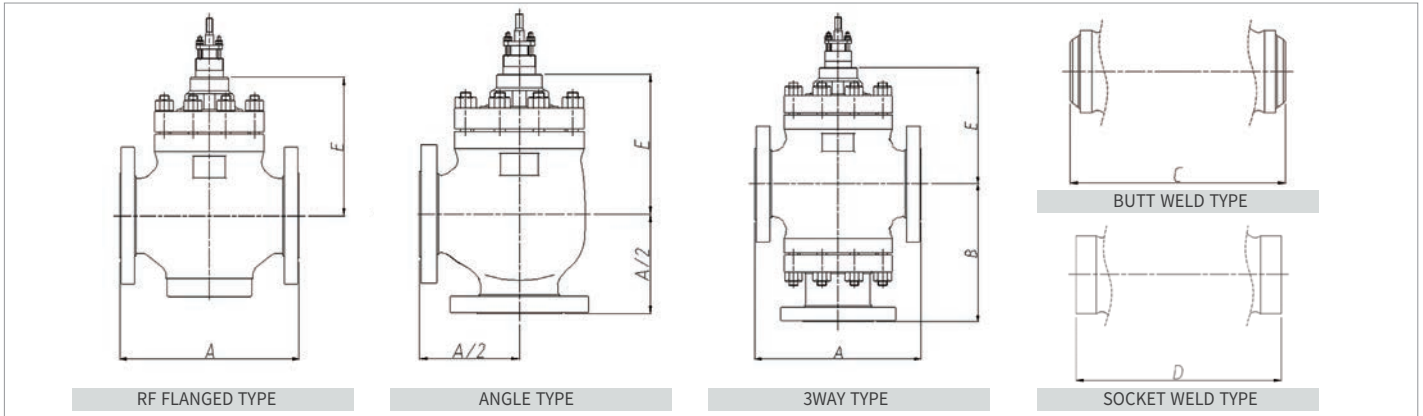
ECCENTRIC SEGMENTAL BALL VALVE

Valve Size (DN/Inch)	25 1"	40 1½"	50 2"	65 2½"	80 3"	100 4"	125 5"	150 6"	200 8"	250 10"	300 12"	350 14"	400 16"	450 18"	500 20"
Full bore (90°)	18	41	72	126	180	270	340	426	720	1260	1716	2400	3800	5790	7630
Full 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

※ Cv : gal/min

GLOBE BODY DIMENSION

2WAY, ANGLE, 3WAY

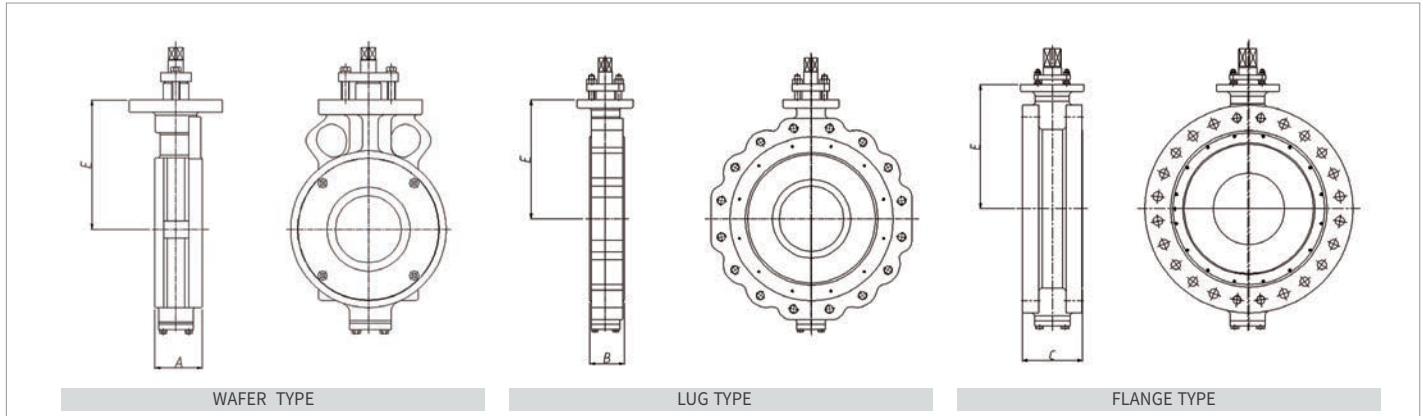


	VALVE SIZE	Inch	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	
		DN	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	
FACE-TO-FACE DIMENSION (END-TO-END DIMENSION)	A (RF FLANGED TYPE)	150LB	184	184	184	222	222	254	276	298	352	400	451	543	673	737	889	1016	/	1340	
		300LB	190	194	197	235	235	267	292	318	368	417	473	568	708	775	927	1057	/	1372	
		600LB	203	206	210	251	251	286	311	337	394	450	508	610	752	819	972	1108	/	1336	
		900LB	273	273	273	311	311	340	/	387	464	462	600	781	864	1016	/	/	/	/	
		1500LB	273	273	273	311	311	340	/	406	483	/	692	838	991	1130	/	/	/	/	
		2500LB	308	308	308	359	359	/	/	498	575	/	819	/	1321	1321	/	/	/	/	
	B (3WAY TYPE)	150LB	153	153	153	174	174	178	225	250	300	305	347	510	530	/	/	/	/	/	
		300LB	153	153	153	174	174	178	225	250	300	305	347	510	530	/	/	/	/	/	
		600LB	162	162	162	185	185	185	238	262	317	330	/	/	/	/	/	/	/	/	
		900LB	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
	C (BUTT WELD TYPE)	150LB																			
		300LB	187	187	187	222	222	254	292	318	368	/	451	543	673	737	851	1016	1143	/	
		600LB																			
		900LB	194	194	197	235	235	292	292	318	368	/	508	610	762	914	/	/	/	/	
		1500LB																			
	D (SOCKET WELD TYPE)	150LB																			
		300LB	170	170	197	235	235	267	292	318	368										
		600LB																			
		900LB																			
		1500LB	178	178	178	235	235	292	292	318	368										
		2500LB	216	216	216	260	260	324	324	381	406										
	A (RF FLANGED TYPE)	10K		185			223	223	256	283	300	358	400	462	554	676	799	890	1057	1074	1245
		20K		185																	
		30K			193		231	231	264	296	320	374	420	482	567	704	831	918	971	/	/
		40K			197		235	235	272	303	320	382	428	494	583	720	847	938	991	/	/
63K				207		247	251	288	319	336	398	448	514	614	744	881	972	/	/	/	
B (3WAY TYPE)	10K				174	174	178	225	250	300	305	347	510	530	/	/	/	/	/	/	
	20K		153																		
	30K				185	185	185	238	262	317	330	/	/	/	/	/	/	/	/	/	
	40K		162																		
CENTER-TO-SURFACE OF THE YOKE AT-TACHMENT DIMENSION	150LB							166	212	218	258	280	316	400	454	495	512	617	/	/	
	300LB																				
	600LB		145		154	154															
	900LB							/	/	/	/	/	/	/	/	/	/	/	/	/	
	1500LB							/	/	/	/	/	/	/	/	/	/	/	/	/	
	2500LB							/	/	/	/	/	/	/	/	/	/	/	/	/	

※ unit : mm

BUTTERFLY BODY DIMENSION

CONCENTRIC, ECCENTRIC TYPE



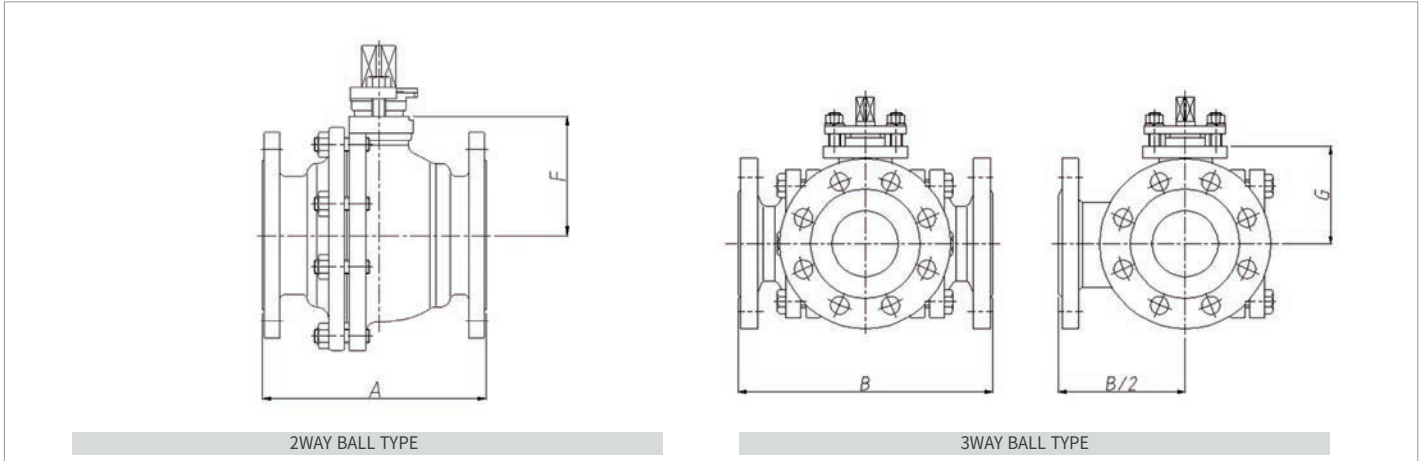
	VALVE SIZE	Inch	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"
		DN	50	65	80	100	125	150	200	250	300	350	400	450	500
FACE-TO-FACE DIMENSION (END-TO-END DIMENSION)	A (CONCENTRIC) (WAFER / LUG TYPE)	150LB	41	44	44	51	54	54	64	64	76	76	102	108	124
		300LB	41	44	44	51	54	54	64	64	76	76	102	108	124
		600LB	/	/	/	/	/	/	/	/	/	/	/	/	/
	B (DOUBLE, TRIPPLE) (WAFER / LUG TYPE)	150LB	43	45	45	52	56	57	60	68	78	78	102	114	127
		300LB	/	/	/	/	/	/	/	/	/	/	/	/	/
		600LB	/	/	/	/	/	/	/	/	/	/	/	/	/
	C (DOUBLE, TRIPPLE) (FLANGE TYPE)	150LB	/	/	114	127	/	140	152	165	178	190	216	222	229
		300LB	/	/	180	190	/	210	230	250	270	290	310	330	350
		600LB	/	/	180	190	/	210	230	250	270	290	310	330	350
CENTER-TO-SURFACE OF THE YOKE ATTACHMENT DIMENSION	E	150LB													
		300LB	120	126	130	155	170	200	224	270	305	350	380	400	550
		600LB													

	VALVE SIZE	Inch	22"	24"	26"	28"	30"	32"	34"	36"	38"	40"	44"	48"	52"
		DN	550	600	650	700	750	800	850	900	950	1000	1100	1200	1300
FACE-TO-FACE DIMENSION (END-TO-END DIMENSION)	A (CONCENTRIC) (WAFER / LUG TYPE)	150LB	142	150	170	170	167	190	/	199	/	/	/	/	/
		300LB	142	150	170	170	167	190	/	199	/	/	/	/	/
		600LB	/	/	/	/	/	/	/	/	/	/	/	/	/
	B (DOUBLE, TRIPPLE) (WAFER / LUG TYPE)	150LB	127	154	/	165	/	190	216	/	/	/	/	/	/
		300LB	/	/	/	/	/	/	/	/	/	/	/	/	/
		600LB	/	/	/	/	/	/	/	/	/	/	/	/	/
	C (DOUBLE, TRIPPLE) (FLANGE TYPE)	150LB	/	267	292	292	318	318	330	410	410	410	/	450	/
		300LB	/	390	410	430	450	470	490	510	/	/	/	/	/
		600LB	/	390	/	/	/	/	/	/	/	/	/	/	/
CENTER-TO-SURFACE OF THE YOKE ATTACHMENT DIMENSION	E	150LB													
		300LB	/	580	/	690	/	760	794	844	740	770	830	890	/
		600LB													

※ unit : mm

BALL VALVE DIMENSION

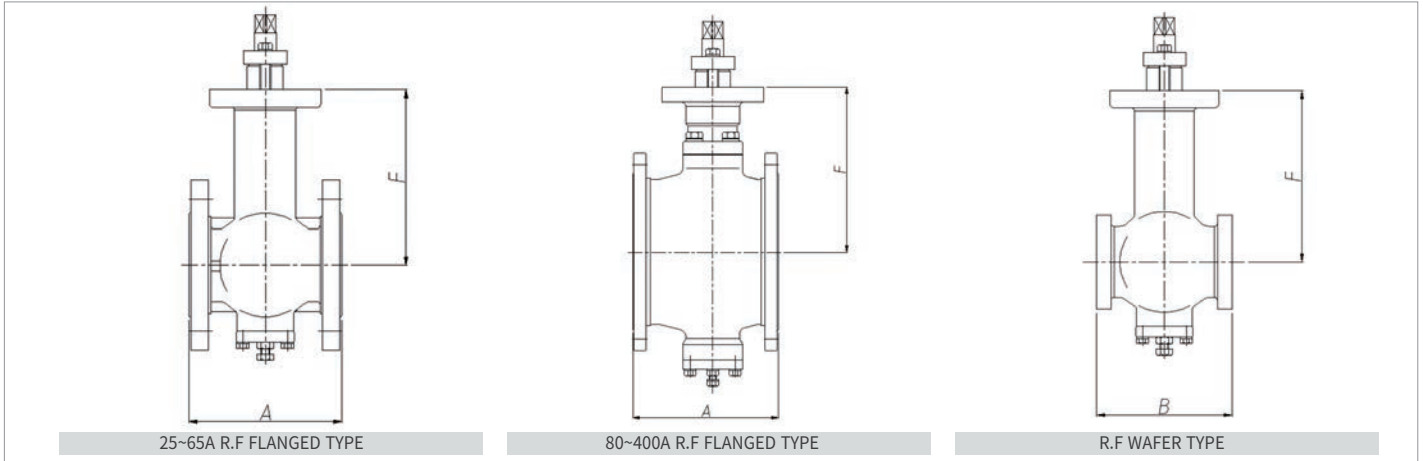
2WAY, 3WAY



	VALVE SIZE	Inch	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"
		DN	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500
FACE-TO-FACE DIMENSION (END-TO-END DIMENSION)	A (2WAY BALL TYPE)	10K	108	117	127	140	165	178	190	203	229	356	394	457	533	610	686	762	864	914
		20K	140	152	165	178	190	216	241	283	305	381	403	502	568	618	762	838	914	991
		40K	165	190	216	229	241	292	330	356	432	/	559	660	787	838	889	991	1092	1194
	B (3WAY BALL TYPE)	10K	190	190	200	240	240	260	320	360	430	499	560	660	860	1000	/	/	/	/
		20K	190	190	200	240	240	260	320	360	430	499	560	660	860	1000	/	/	/	/
	A (2WAY BALL TYPE)	150LB	108	117	127	140	165	178	190	203	229	356	394	457	533	610	686	762	864	914
		300LB	140	152	165	178	190	216	241	283	305	381	403	502	568	618	762	838	914	991
		600LB	165	190	216	229	241	292	330	356	432	/	559	660	787	838	889	991	1092	1194
	B (3WAY BALL TYPE)	150LB	190	190	200	240	240	260	320	360	430	499	560	660	860	1000	/	/	/	/
		300LB	190	190	200	240	240	260	320	360	430	499	560	660	860	1000	/	/	/	/
CENTER-TO-SURFACE OF THE YOKE AT-TACHMENT DIMENSION	F	66 / 130	72 / 145	76 / 150	100 / 170	108 / 178	112 / 180	120 / 195	185 / 200	210 / 255	255 / -	280 / 295	330 / 360	405 / 417	456 / 457	512 / 473	550 / 506	620 / 574	680 / 630	
	G	83 / 78	83 / 85	93 / 95	118 / 118	118 / 115	127 / 125	140 / 148	170 / 175	185 / 222	248 / 268	262 / 298	351 / 375	820 / 820	1120 / 1120	/	/	/	/	

※ unit : mm

R.F FLANGED TYPE, R.F WAFER TYPE



	VALVE SIZE	Inch	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	
		DN	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	
FACE-TO-FACE DIMENSION (END-TO-END DIMENSION)	A (ECCENTRIC SEGMENTAL BALL TYPE) R.F FLANGED	10K	/	/	120	/	134	140	155	165	194	213	229	243	297	300	400	400	/	/	
		20K	/	/	120	/	134	140	155	165	194	213	229	243	297	300	400	400	/	/	
	B (ECCENTRIC SEGMENTAL BALL TYPE) R.F WAFER	10k	/	/	120	/	114	/	/	/	/	/	/	229	/	/	/	/	/	/	/
		150LB	/	/	120	/	134	140	155	165	194	213	229	243	297	300	400	400	/	/	
CENTER-TO- SURFACE OF THE YOKE AT-TACHMENT DIMENSION	F	10K	/	/	147	/	157	160	175	185	207	225	255	275	330	355	405	430	/	/	
		20K	/	/	147	/	157	160	175	185	207	225	255	275	330	355	405	430	/	/	

※ unit : mm



PNEUMATIC ACTUATOR



1. LINEAR ACTION

M-Series

Type : Single Acting Diaphragm Type
 Action : Reverse Action (RA)
 Direct Action (DA)

Pressure set range : 1.6 ~ 3.2 bar

Hysteresis : Less than 1% of Full Stroke
 Linearity : Less than 1%
 Air Consumption : 1.9ℓ ~ 58.7ℓ
 Out Force : 251kgf ~ 1609.1kgf



2. ROTARY TYPE

DB Series

Type : Single Acting Diaphragm Type
 Action : Reverse Action (RA)
 Direct Action (DA)

Pressure set range : 2.0 ~ 3.2 bar

Hysteresis : Less than 1% of Full Stroke
 Linearity : Less than 1%
 Air Consumption : 2.1ℓ ~ 58.7ℓ
 Out Force : 4.7kg.m ~ 105kg.m



CB-Series

Type : Cylinder Type
 Action : Reverse Action (RA)
 Direct Action (DA)
 Function : Spring Return Type

Pressure set range : 3 ~ 7 bar

Hysteresis : Less than 1% of Full Stroke
 Linearity : Less than 1%
 Air Consumption : 2.1ℓ ~ 58.7ℓ ???
 Out Force : 4.7kg.m ~ 105kg.m ???



C-Series

Type : Single Acting Diaphragm Type
 Action : Reverse Action (RA)
 Direct Action (DA)
 Function : Double Acting Type, Spring Return Type

Pressure set range : 2.5~ 7 bar

Hysteresis : Less than 1% of Full Stroke
 Linearity : Less than 1%
 Air Consumption : 2.0ℓ ~ 176.3ℓ
 Out Force : 402kgf ~ 4776kgf



B-Series

Type : Scotch-yoke Type
 Action : Reverse Action (RA)
 Direct Action (DA)
 Function : Double Acting Type, Spring Return Type

Pressure set range : 3 ~ 5 bar

Hysteresis : Less than 1% of Full Stroke
 Linearity : Less than 1%
 Air Consumption : 0.51ℓ ~ 6.9ℓ
 Out Force : 3.5kg.m ~ 127.7kg.m



R-Series

Type : Scotch-yoke Type
 Action : Reverse Action (RA)
 Direct Action (DA)
 Function : Double Acting Type, Spring Return Type

Pressure set range : 3 ~ 7 bar

Hysteresis : Less than 1% of Full Stroke
 Linearity : Less than 1%
 Air Consumption : 2.9ℓ ~ 166.1ℓ
 Out Force : 78kg.m ~ 5200kg.m



PNEUMATIC DIAPHRAGM LINEAR ACTUATOR

M SERIES ACTUATOR

Type : Single acting (Multi-spring)

Action : Reverse action (RA), Direct action (DA)

Actuator Model	A-270M	A-360M	A-430M	A-520M
Effective Diaphragm Area (cm ²)	314	593	889	1340
Max. Stroke (mm)	25	50	80	120

Materials

- Case : Carbon Steel
- Diaphragm : N.B.R. or ※EPDM
- Shaft (output rod) : SUS304 (Hcr plated)
- Yoke : FCD40, WCB, SUS304

Supply Air Pressure kPa (bar)

140 (1.4), 160 (1.6), 240 (2.4), 320 (3.2)

Spring Range kPa (bar)

20~98 (0.2~1.0), 40~120 (0.4~1.2), 40~200 (0.4~2.0), 80~240 (0.8~2.4)

Actuator Model	A-270M	A-360M	A-430M	A-520M
Air Connection	PT(NPT) 1/4"			PT(NPT) 3/8"

Ambient Temperature

-20°C ~ +70°C (※-50°C ~ -20°C, +70°C ~ +100°C)

Additional Options

- Mechanisms : Top-mounted H/W, Side mounted worm H/W, Travel stopper.
- Accessories : E/P Positioner, P/P Positioner, Pressure regulator, Limit S/W, Solenoid valve, Booster relay, Speed controller, Lock-up valve, etc.

Output force

Air Supply (bar)	Spring Range (bar)	Actuator Model			
		A-270M	A-360M	A-430M	A-520M
1.4	0.2 ~ 1.0	62	118	178	268
1.6	0.4 ~ 1.2	125	237	355	536
2.4	0.4 ~ 2.0				
3.6	1.4 ~ 2.8	439	831	1245	1877

(unit : kgf)



PNEUMATIC DIAPHRAGM ROTARY ACTUATOR

DB SERIES ACTUATOR

Type : Single acting (Spring return)

Action : Rotating direction of the driving shaft is shown in the direction facing the actuated part from the actuator part.

Actuator Model	DB270	DB360	DB430	DB520
Effective Diaphragm Area (cm ²)	314	593	889	1340

Materials

- Case : Carbon Steel
- Diaphragm : Cloth reinforced chloroprene rubber, N.B.R. or ※EPDM
- Shaft (output rod) : SUS304 (Hcr plated)
- Linkage : Carbon Steel

Supply Air Pressure kPa (kgf/cm²G)

160 (1.6), 320 (3.2)

Spring Range kPa (kgf/cm²G)

60 ~ 100 (0.6 ~ 1.0) / 120 ~ 200 (1.2 ~ 2.4)

Output shaft rotation

0° ~ 60°, 0° ~ 90°

Actuator Model	DB270	DB360	DB430	DB520
Air Connection	PT(NPT) 1/4"			

Ambient Temperature

-20°C ~ +70°C (※-50°C ~ -20°C, +70°C ~ +100°C)

Additional Options

- Mechanisms : Top-mounted H/W, Side mounted worm H/W, Travel stopper.
- Accessories : E/P Positioner, P/P Positioner, Pressure regulator, Limit S/W, Solenoid valve, Booster relay, Speed controller, Lock-up valve, etc.

Output force

Air Supply (bar)	Spring Range (bar)	Actuator Model							
		DB270		DB360		DB430		DB520	
		60°	90°	60°	90°	60°	90°	60°	90°
1.6	0.6 ~ 1.0	8.5	6.8	15.5	12.5	39	32	59	47
3.2	1.2 ~ 2.0	17	13.6	31	24.5	78	64	119	92

(unit : kg.m)



PNEUMATIC CYLINDER LINEAR ACTUATOR

C SERIES ACTUATOR

Type : DOUBLE, SINGLE ACTING

Action : Reverse action (RA), Direct action (DA)

Actuator Model	C-160	C-200	C-250	C-300	C-350	C-400	C-500
Effective Diaphragm Area (cm ²)	201	314	491	707	907	1164	1847
Max. Stroke (mm)	~25mm	~40mm	~55mm	~100mm			~150mm

Materials

- Case : CARBON STEEL
- Diaphragm : NBR, VITON
- Shaft (output rod) : SUS304 (Hcr plated)
- Yoke : FCD, WCB, SUS304

Supply Air Pressure kPa (kgf/cm²G)

3 ~ 700 (7.0) Max.

Spring Range

1.0 - 2.0 / 2.0 - 2.5 / 2.5 - 3.5 / 2.5 - 4.0

Actuator Model	C-160	C-200	C-250	C-300	C-350	C-400	C-500
Air Connection	PT(NPT) 1/4"			PT(NPT) 3/8"			PT(NPT) 1/2"

Ambient Temperature

-20°C ~ +70°C (※-50°C ~ -20°C, +70°C ~ +100°C)

Additional Options

- **Mechanisms** : Top-mounted H/W, Side mounted worm H/W, Travel stopper.
- **Accessories** : E/P Positioner, P/P Positioner, Pressure regulator, Limit S/W, Solenoid valve, Booster relay, Speed controller, Lock-up valve, etc.

Output force

	3	4		RA (2.0 - 3.5)	DA (1.5 - 2.5)
C-160S	603	804	C-160SR	402	301
C-200S	942	1,253	C-200SR	628	471
C-250S	1,472	1,963	C-250SR	981	736
C-300S	2,120	2,826	C-300SR	1,413	1,060
C-350S	2,722	3,630	C-350SR	1,815	1,361
C-400S	3,491	4,654	C-400SR	2,327	1,745
C-500S	5,540	7386	C-500S	3,693	2,770

(unit : kgf)



PNEUMATIC CYLINDER ROTARY ACTUATOR

B SERIES ACTUATOR

SCOTCH YOKE DESIGN

SINGLE OR DOUBLE ACTING

- PRESSURE RANGE : 4.0 - 7.0 BAR
- AMBIENT TEMPERATURE : -10' ~ 70' (HIGH TEMP. SERVICE ~100')
- OPTIONS : MANUAL HAND-WHEEL AND ACCESSORIES
- ACTING RANGE : 90' DEGREE STANDARD ADJUSTABLE +5'

DOUBLE ACTING TORQUE (Nm)

B2S	0, 90°	45
3bar	107	75
4bar	142	100
5bar	178	125

B4S	0, 90°	45
3bar	282	199
4bar	377	266
5bar	471	332

B6S	0, 90°	45
3bar	748	523
4bar	997	698
5bar	1246	872

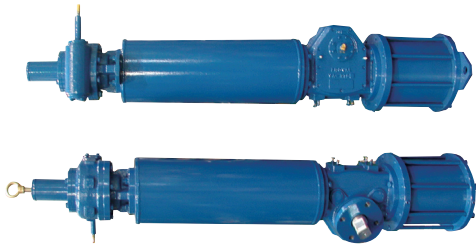
SINGLE ACTING TORQUE (Nm)

B2SR		AIR TORQUE			SPRING TORQUE		
		START	RUN	END	START	RUN	END
4bar	DA	89	50	54	88	50	53
5bar	RA	107	56	54	123	69	70

B4SR		AIR TORQUE			SPRING TORQUE		
		START	RUN	END	START	RUN	END
4bar	DA	236	133	142	235	133	141
5bar	RA	283	150	142	329	183	188

B6SR		AIR TORQUE			SPRING TORQUE		
		START	RUN	END	START	RUN	END
4bar	DA	627	349	380	617	349	370
5bar	RA	753	393	383	863	480	493

Actuator Model	Cylinder Volume(ℓ)			Actuator Model	Cylinder Volume(ℓ)
	A	B	A+B		B
B2S	0.51	0.54	1.05	B2SR	0.54
B4S	1.5	2.1	3.6	B4SR	2.1
B6S	3.8	4.5	8.3	B6SR	4.5



PNEUMATIC CYLINDER ROTARY ACTUATOR

R SERIES ACTUATOR

SCOTCH YOKE DESIGN

DOUBLE ACTING TORQUE

(Nm)

PRESSURE	3 bar	4 bar	5 bar	6 bar	7 bar
R5S-200	835	1,114	1,392	1,671	1,949
R6S-250	1,305	1,741	2,176	2,611	3,046
R7S-250	1,836	2,448	3,060	3,672	4,285
R8S-300	2,644	3,826	4,407	5,288	6,170
R9S-350	3,297	4,396	5,495	6,594	7,693
R10S-400	4,355	5,806	7,258	8,710	10,161
R11S-400	5,805	7,740	9,675	11,610	13,546
R12S-450	7,411	9,881	12,352	14,822	17,292
R13S-500	9,213	12,283	15,354	18,425	21,496
R14S-550	11,210	14,947	18,683	22,420	26,157
R15S-550	14,011	18,681	23,351	28,022	32,692
R16S-600	16,752	22,336	27,920	33,504	39,088
R17S-650	19,738	26,317	32,897	39,476	46,056
R18S-600	22,336	29,782	37,227	44,672	52,118
R19S-650	26,317	35,090	43,862	52,636	61,407
R20S-700	30,625	40,833	51,042	61,250	71,459

SINGLE ACTING TORQUE

(Nm)

PRESSURE	RA (2.0 - 3.5)	DA (1.5 - 2.5)
R5SR-200	557	418
R6SR-250	870	653
R7SR-250	1,223	918
R8SR-300	1,762	1,322
R9SR-350	2,197	1,647
R10SR-350	2,930	2,197
R11SR-400	3,869	2,902
R12SR-450	4,940	3,705
R13SR-500	6,141	4,606
R14SR-500	7,676	5,758
R15SR-550	9,341	7,005
R16SR-600	11,168	8,377
R17SR-650	13,159	9,869
R18SR-600	14,891	11,169
R19SR-650	17,546	13,159
R20SR-700	20,417	15,312

Cylinder Volume

	CYLINDER VOLUME (l)
R5S-200	6.19
R6S-250	6.28
R7S-250	8.83
R8S-300	12.72
R9S-350	16.32
R10S-350	21.76
R11S-400	27.93
R12S-450	35.64
R13S-500	44.32
R14S-500	55.41
R15S-550	67.41
R16S-600	80.58
R17S-650	94.95
R18S-600	107.44
R19S-650	126.60
R20S-700	147.32



We will continue exerting our utmost effort to manufacture quality product to cope with the needs of the customers through the research and development based on the technology we have.

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PRC-M17 Rev.02