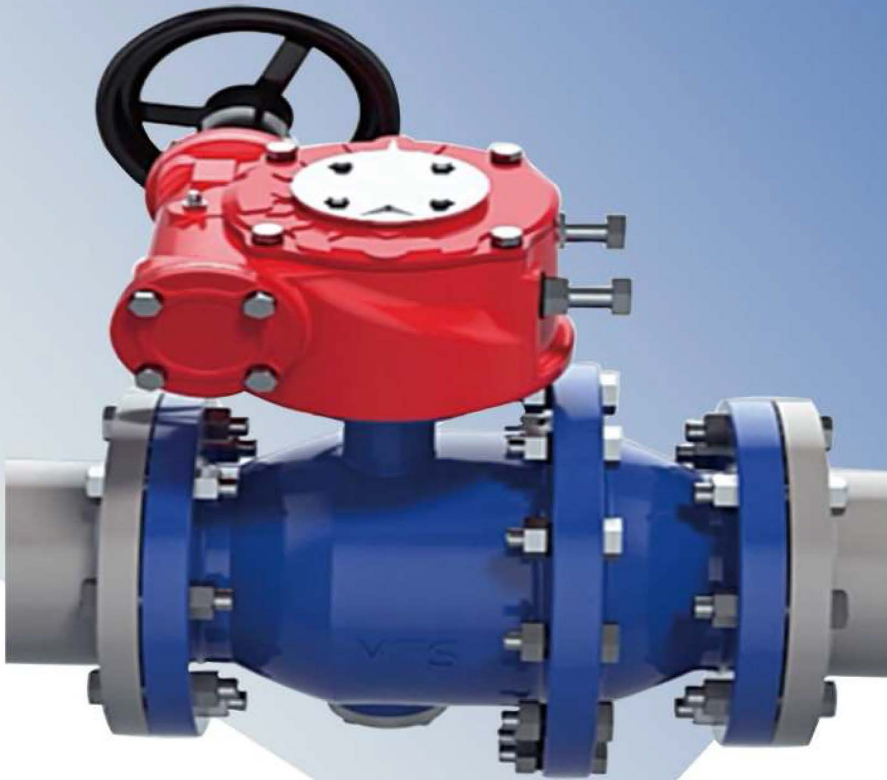


**Mcsys®
Valves**

Innovation Control Valve
for Next Generation



***McSYS*®**

McSYS / MEGA VALVE SERIES

“Be the Highest of Standards”

***McSYS*®**
Mechanical and Fluid Control Systems

Mega-I Valves

- Mega-I Valves have been design specifically to replace Bell valves. Through many performance test, the Mega-I Valves have proven themselves superior to Ball valves in every aspect.
- Mega-I Valves have two types - the shut off valve and the flow control valves. Mega-I Valves have been revolutionally designed to eliminate the Ball valves shortcomings



Features of Mega-I Valves Control Valves

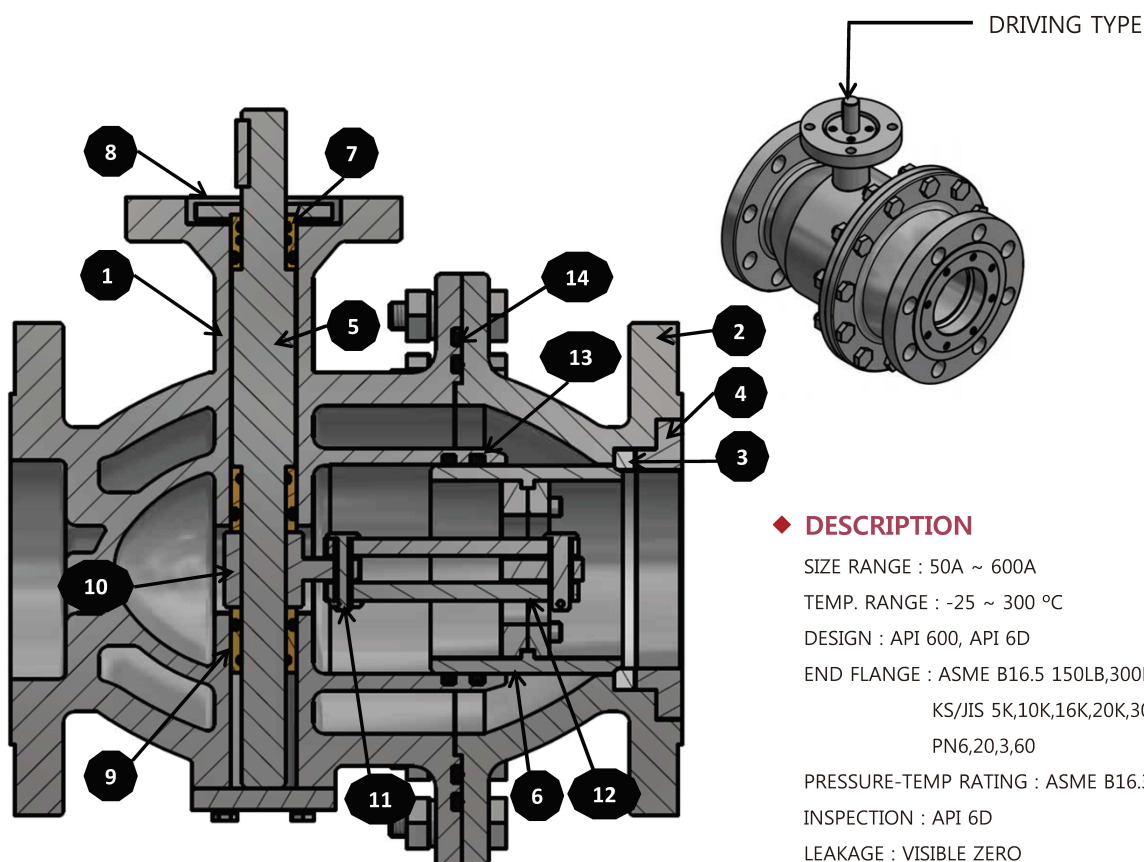
- Simple and compact design Mega-I Valves are designed to minimize flow restrictions, allowing a smaller actuator to be used.
- Extended life time Mega-I Valves operates parallel to the flow, so that its lifetime is much longer than Ball valves.
- No leakage - Since the Mega-I Valves do not create flow restrictions when the disc contacts the seat, internal leakage is virtually eliminated
- Less air consumption Mega-I Valves operates with minimum flow restrictions, the actuator is smaller, hence cutting down the need for air for operation to as little as 25% of what is needed for other valves
- Standard design Mega-I Valves have been designed in accordance to international standards such as ISO and Namur so that any standard accessory can be easily attached to it.
- Precise and stable flow control - The Mega-I Valves completely eliminates the control problems of the Ball valves. Therefore, Mega-I Can control flows more effectively.

Application of Mega-I Valves

- Function : Shut off and flow control
 - Standards and Size : ANSI, JIS, DIN: 15A~150A (1"~16")
 - Pressure : 150 psi ~ 1500psi (10kg/cm² ~ 100kg/cm²)
 - Temperature : -40°C ~ 240°C
 - Leakage rate: Per ANSI CLASS VI (MAX) (Zero leakage product possible upon request.)
 - Applications : Gas, Steam, Slurries, Water lines and other plant applications
- Contract Mcsys for specific applications



Mega-I VALVES



DESCRIPTION

SIZE RANGE : 50A ~ 600A
TEMP. RANGE : -25 ~ 300 °C
DESIGN : API 600, API 6D
END FLANGE : ASME B16.5 150LB,300LB,600LB
KS/JIS 5K,10K,16K,20K,30K40K
PN6,20,3,60
PRESSURE-TEMP RATING : ASME B16.34
INSPECTION : API 6D
LEAKAGE : VISIBLE ZERO
FLUID : WATER, AIR, GAS, SLURRY, SLUDGE

STANDARD MATERIAL SPECIFICATIONS

NO.	PART NAME	MATERIAL		
1	BODY	A216 WCB	A351 CF8	A351 CF8M
2	BONNET	A216 WCB	A351 CF8	A351 CF8M
3	BODY SEAT	PTFE	PTFE	A240 316+Cr.
4	BODY SEAT RETAINER	A351 CF8	A351 CF8M	A240 316
5	SHAFT	A276 304	A276 316	A564 630
6	DISC	A276 304	A276 316	A240 316
7	PACKING(O-RING)	NBR	VITON	VITON
8	PACKING FLANGE	A36	A240 304	A240 316
9	BEARING BUSH	B584	B148 C95800	A276 316+Cr.
10	ARM	A36	A240 304	A240 316
11	PIN	AISI1045	A564 630	A564 630
12	LINK	A36	A240 304	A240 316
13	QUAD-RING	NBR	VITON	VITON
14	GASKET(O-RING)	NBR	VITON	VITON



MEGA Valve

McSYS®

◆ Mega-I VALVES VALVE ORDERING CHART

MCSYS

0	0	0	0
1	2	3	4

 -

0	0	0	0
5	6	7	8

1. BODY SIZE(mm)		2. RATING		3. END CONNECTION		4. BODY TYPE	
CODE	mm						
1	25	1	5K	1	FF FLANGE	1	ON-OFF
2	32	2	10K	2	RF FLANGE	2	CONTROL (0SLOT)
3	40	3	16K	3	WELDING	3	CONTROL (0SLOT)
4	50	4	20K	4	SPECIAL		
5	65	5	30K				
6	80	6	40K				
7	100	7	150LB				
8	125	8	300LB				
9	150	9	600LB				
10	200	10	PN6				
11	250	11	PN10				
12	300	12	PM16				
13	350	13	PN25				
14	400	14	PN40				
15	450	15	SPECIAL				
16	500						
17	550						
18	600						
5. BODY MATERIAL		6. DISC MATERIAL		7. SEAT MATERIAL		8. DRIMG TYPE	
1	A216 WCB	1	A216 WCB	1	PTFE	1	MANUAL (LEVER)
2	A351 CF8	2	A351 CF8	2	PEEK	2	MANUAL (GEAR)
3	A351 CF8M	3	A351 CF8M	3	NBR	3	MOTOR (ON-OFF)
4	A351 CF3	4	A351 CF3	4	EPDM	4	MOTOR (CONTROL)
5	A351 CF3M	5	A351 CF3M	5	VITON	5	PNEUMATIC
6	A167(310)	6	A167(310)	6	A240 304	6	HYDRAULIC
7	SCPH2	7	SCPH2	7	A240 316	7	DIAPHRAM
8	SCS13	8	SCS13	8	A564 630		
9	SCS14	9	SCS14	9	SPECIAL		
10	SCS16	10	SCS16				
11	SCS19	11	SCS19				
12	SPECIAL	12	SPECIAL				

◆ * PLEASE CONTACT SALES OFFICE FOR OTHER SIZE, RATING AND MATERIALS.



Mega-I Valves

Dimension

■ The face to face dimensions of the Mega-I Valves are the same as the dimensions of the Ball Valve. Therefore, replacement of the Ball Valve by Mega-I Valves in the field is very simple.



■ As shown by the pictures, the Mega-I Valves is very compact and because of this, it can be easily used in any field environment, no matter how complicated and can also be used with less air.

■ Mega-I Valves can almost always replace Ball valves without a problem and can guarantee extended lifetime with less need for maintenance.

MEGA-Flange Rating: JIS 10K RF

size	mm	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A	300A	350A	400A
B	mm	67	76	81	96	116	126	151	182	212	262	324	368	413	475
C	mm	90	100	105	120	140	150	175	210	240	290	355	400	445	510
L	mm	127	140	165	178	190	203	229	356	394	456	533	610	686	762

MEGA-Flange Rating: JIS 20K RF

size	mm	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A	300A	350A	400A
B	mm	67	76	81	96	116	126	151	182	212	262	324	368	413	475
C	mm	90	100	105	120	140	150	175	210	240	290	355	400	445	510
L	mm	165	178	190	216	241	283	305	381	403	502	568	648	762	838

MEGA-Flange Rating: ANSI 150# RF

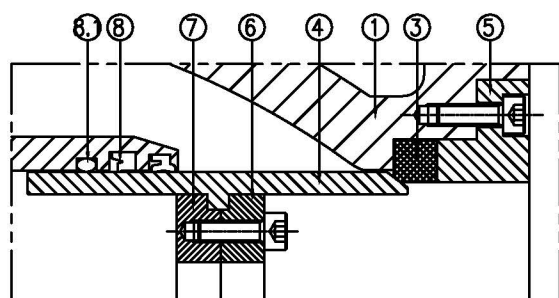
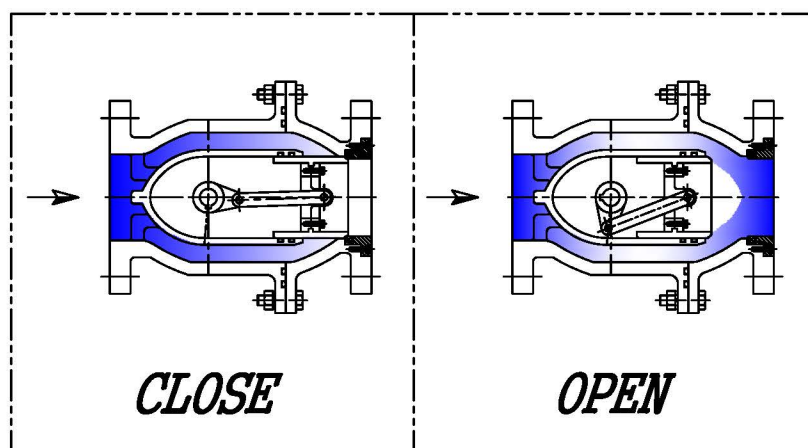
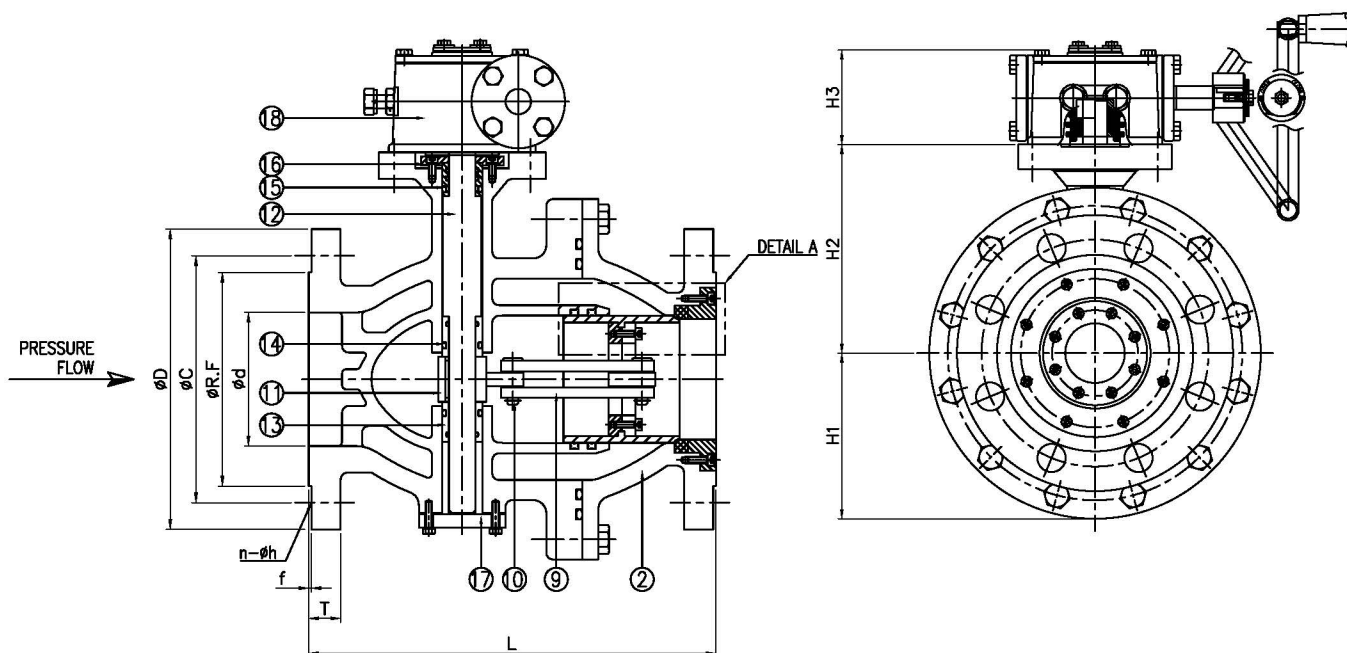
size	mm	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A	300A	350A	400A
B	mm	50.8	63.5	73.2	91.9	104.6	127	157.2	185.7	215.9	269.7	324	368	413	475
C	mm	79.2	88.9	98.6	120.7	139.7	152.4	190.5	215.9	241.3	298.5	362	431.8	476.3	539.8
L	mm	127	139.7	165.1	177.8	190.5	203.2	228.6	356	393.7	457.2	533.4	609.6	685.8	762

MEGA-Flange Rating: ANSI 300# RF

size	mm	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A	300A	350A	400A
B	mm	50.8	63.5	73.2	91.9	104.6	127	157.2	185.7	215.9	269.7	324	368	413	475
C	mm	88.9	98.6	114.3	127	149.4	168.1	200.2	235	269.7	330.2	387.4	450.9	514.4	571.5
L	mm	165.1	177.8	190.5	215.9	241.3	282.4	304.8	381	403.4	501.7	568.5	647.7	762	838.2



MEGA Valve



DETAIL A

MEGA-PLV10K-001-R1

NOTE.

1. FLANGE DRILLING : JIS 10K
2. FACE-TO-FACE DIMENSIONS : API 6D
3. TEST PRESSURE : MAKER STANDARD
SHELL : 15 bar
SEAT : 11 bar
4. DESIGN PRESSURE : 10 bar
5. LEAKAGE : ANSI B16.104 CLASS VI



NO.	SPECIFICATION	MATERIAL	UNIT	QUANTITY
	PLUNGER VALVE		SET	1
1	BODY	SCPH2	EA	1
2	BONNET	SCPH2	EA	1
3	BODY SEAT	TEFLON	EA	1
4	DISC	SUS304+Cr.	EA	1
5	BODY SEAT RETAINER	SUS304	EA	1
6	DISC RETAINER	SUS304	EA	1
7	YOKE	SUS304	EA	1
8	ROD SEAL	VITON	EA	2
8.1	O-RING	VITON	EA	1
9	LINK	SUS304	EA	1
10	PIN	SUS630+Cr.	EA	2
11	ARM	SUS304	EA	1
12	SHAFT	SUS304	EA	1
13	BEARING BUSH	BC6	SET	1
14	BEARING BUSH	BC6	SET	1
15	PACKING BUSH	BC6	EA	1
16	GLAND	SUS304	EA	1
17	END COVER	SS400	EA	1
18	GEAR	PURCH	EA	1

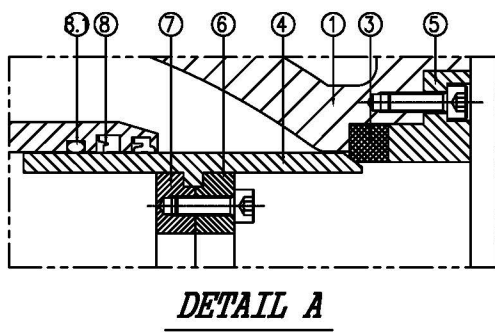
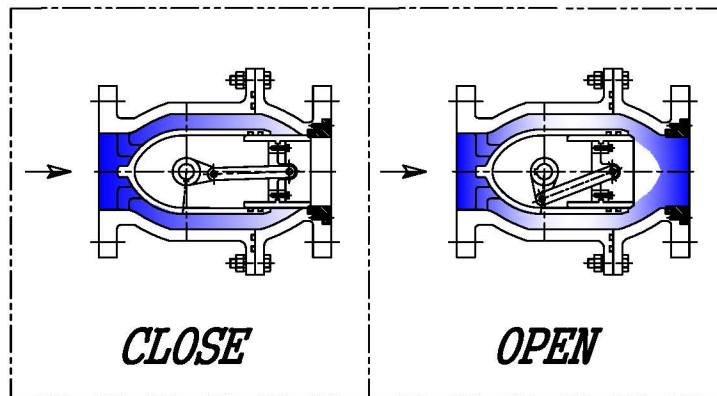
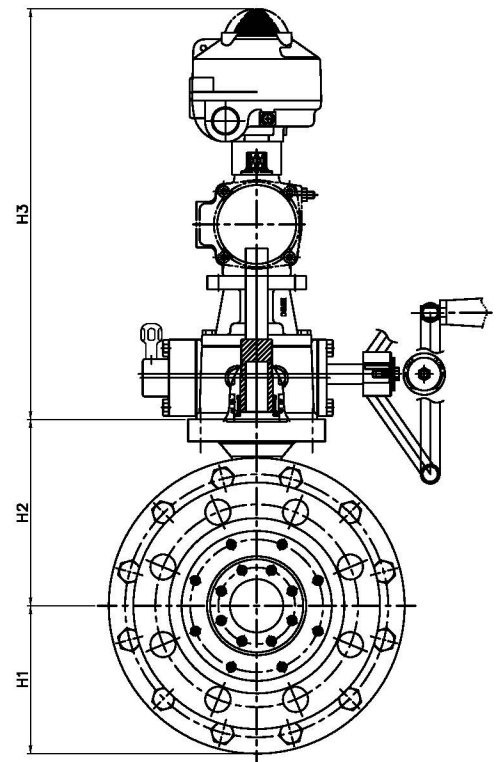
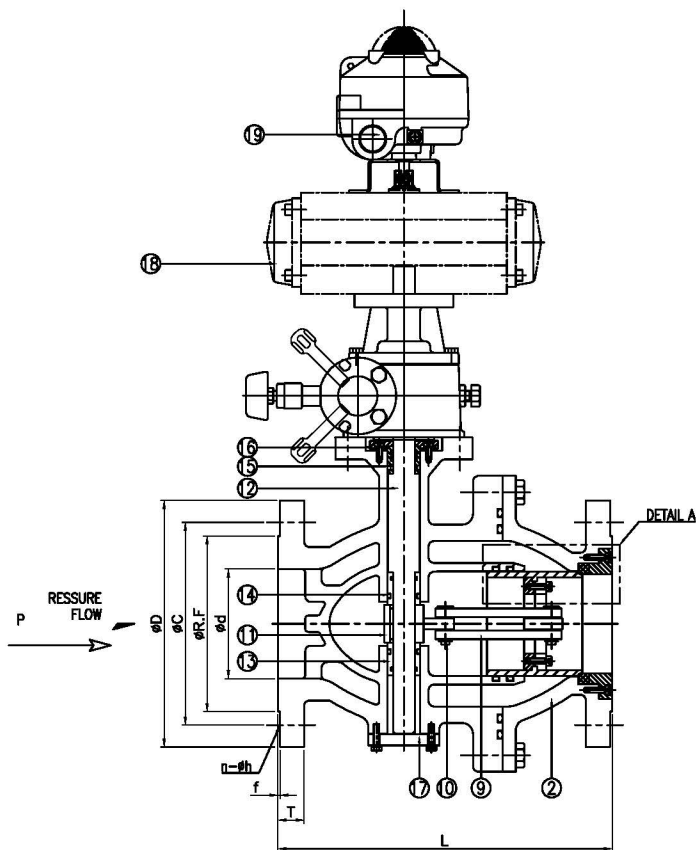
DIMENSION

(UNIT : mm)

NOMINAL DIAMETER	ød	L	FLANGE(JIS 10K)						H1	H2	H3	Q'TY
			øD	T	øRF	f	øC	n-øh				
4"(100A)	100	229	210	18	151	2	174	8-ø19	150	200	100	1
5"(125A)	125	356	250	20	182	2	210	8-ø23	175	210	100	1
6"(150A)	150	394	280	22	212	2	240	8-ø23	190	230	100	1
8"(200A)	200	457	330	22	265	2	290	12-ø23	240	300	125	1
10"(250A)	250	533	400	24	324	2	355	12-ø25	300	360	125	1
12"(300A)	300	610	445	24	368	2	400	16-ø25	360	420	150	1



MEGA Valve



MEGA -PLV20K-001-R1

NOTE.

1. FLANGE DRILLING : JIS 20K
2. FACE-TO-FACE DIMENSIONS : API 6D
3. TEST PRESSURE : MAKER STANDARD
SHELL : 30 bar
SEAT : 22 bar
4. DESIGN PRESSURE : 20 bar
5. LEAKAGE : ANSI B16.104 CLASS VI



NO.	SPECIFICATION	MATERIAL	UNIT	QUANTITY
	PLUNGER VALVE		SET	1
1	BODY	SCPH2	EA	1
2	BONNET	SCPH2	EA	1
3	BODY SEAT	TEFLON	EA	1
4	DISC	SUS304+Cr.	EA	1
5	BODY SEAT RETAINER	SUS304	EA	1
6	DISC RETAINER	SUS304	EA	1
7	YOKE	SUS304	EA	1
8	ROD SEAL	VITON	EA	2
8.1	O-RING	VITON	EA	1
9	LINK	SUS304	EA	1
10	PIN	SUS630+Cr.	EA	2
11	ARM	SUS304	EA	1
12	SHAFT	SUS304	EA	1
13	BEARING BUSH	BC6	SET	1
14	BEARING BUSH	BC6	SET	1
15	PACKING BUSH	BC6	EA	1
16	GLAND	SUS304	EA	1
17	END COVER	SS400	EA	1
18	GEAR	PURCH	EA	1

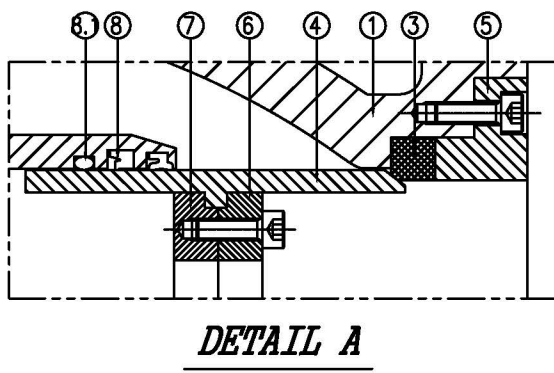
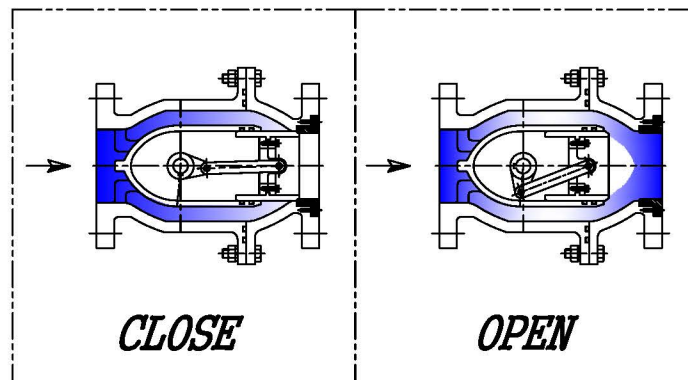
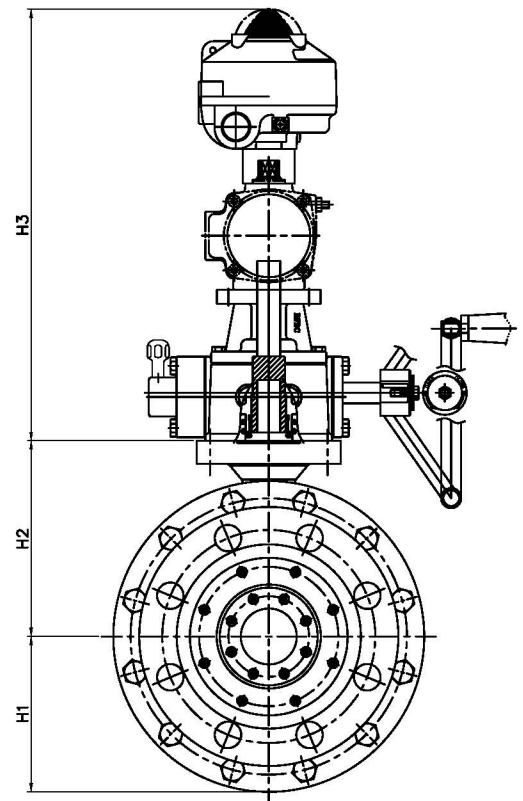
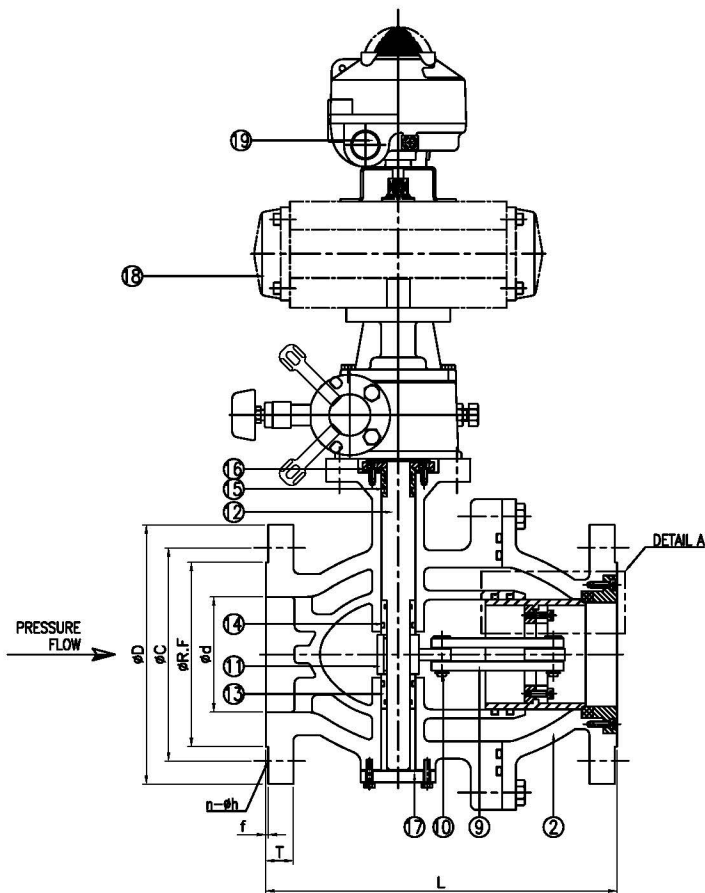
DIMENSION

(UNIT : mm)

NOMINAL DIAMETER	ød	L	FLANGE(JIS 20K)						H1	H2	H3	Q'TY
			øD	T	øRF	f	øC	n-øh				
4"(100A)	100	305	225	24	160	2	185	8-ø23	170	230	125	1
5"(125A)	125	381	270	26	195	2	225	8-ø25	190	260	125	1
6"(150A)	150	403	305	28	230	2	260	12-ø25	230	300	125	1
8"(200A)	200	502	350	30	275	2	305	12-ø25	280	360	150	1
10"(250A)	250	568	430	34	345	2	380	12-ø27	340	420	150	1
12"(300A)	300	648	480	36	395	2	430	16-ø27	420	490	180	1



MEGA Valve



MEGA -PLV10K-002-R1

NOTE.

1. FLANGE DRILLING : JIS 10K
2. FACE-TO-FACE DIMENSIONS : API 6D
3. TEST PRESSURE : MAKER STANDARD
SHELL : 15 bar
SEAT : 11 bar
4. DESIGN PRESSURE : 10 bar
5. LEAKAGE : ANSI B16.104 CLASS VI



NO.	SPECIFICATION	MATERIAL	UNIT	QUANTITY
	PLUNGER VALVE		SET	1
1	BODY	SCPH2	EA	1
2	BONNET	SCPH2	EA	1
3	BODY SEAT	TEFLON	EA	1
4	DISC	SUS304+Cr.	EA	1
5	BODY SEAT RETAINER	SUS304	EA	1
6	DISC RETAINER	SUS304	EA	1
7	YOKE	SUS304	EA	1
8	ROD SEAL	VITON	EA	2
8.1	O-RING	VITON	EA	1
9	LINK	SUS304	EA	1
10	PIN	SUS630+Cr.	EA	2
11	ARM	SUS304	EA	1
12	SHAFT	SUS304	EA	1
13	BEARING BUSH	BC6	SET	1
14	BEARING BUSH	BC6	SET	1
15	PACKING BUSH	BC6	EA	1
16	GLAND	SUS304	EA	1
17	END COVER	SS400	EA	1
18	ACTUATOR	PURCH	EA	1
19	LIMIT SWITCH BOX	PURCH	EA	1

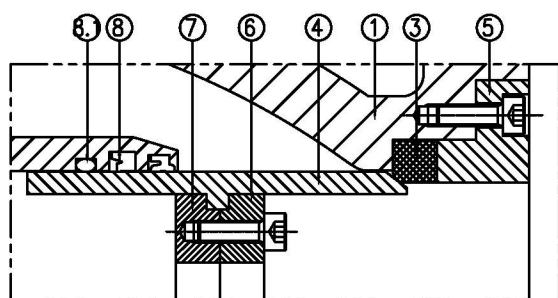
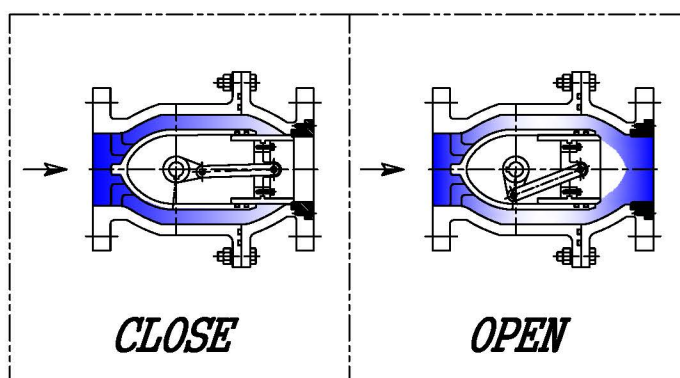
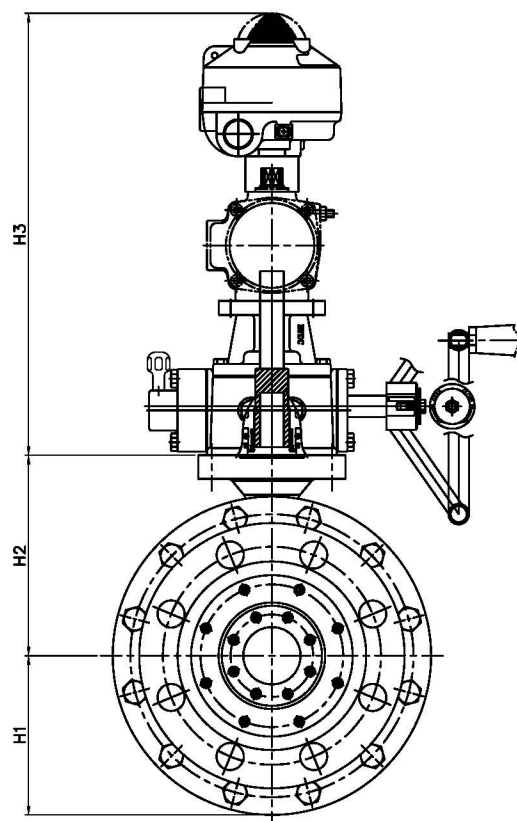
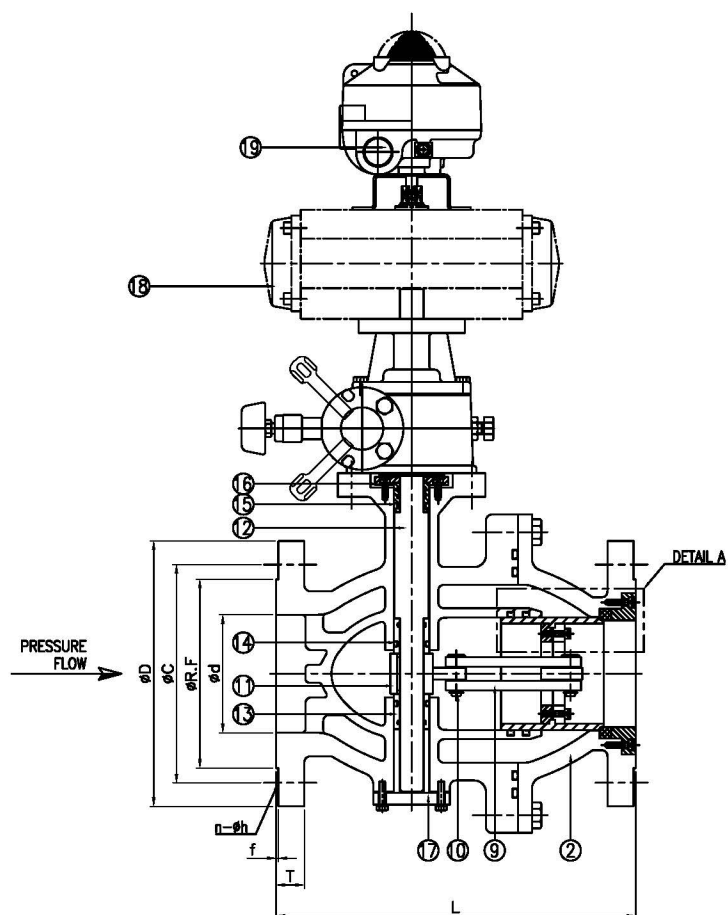
DIMENSION

(UNIT : mm)

NOMINAL DIAMETER	ød	L	FLANGE(JIS 10K)						H1	H2	H3	Q'TY
			øD	T	øRF	f	øC	n-øh				
4"(100A)	100	229	210	18	151	2	174	8-ø19	150	200	375	1
5"(125A)	125	356	250	20	182	2	210	8-ø23	175	210	375	1
6"(150A)	150	394	280	22	212	2	240	8-ø23	190	230	375	1
8"(200A)	200	457	330	22	265	2	290	12-ø23	240	300	415	1
10"(250A)	250	533	400	24	324	2	355	12-ø25	300	360	415	1
12"(300A)	300	610	445	24	368	2	400	16-ø25	360	420	475	1



MEGA Valve



DETAIL A

MEGA -PLV20K-002-R1

NOTE.

1. FLANGE DRILLING : JIS 20K
2. FACE-TO-FACE DIMENSIONS : API 6D
3. TEST PRESSURE : MAKER STANDARD
SHELL : 30 bar
SEAT : 22 bar
4. DESIGN PRESSURE : 20 bar
5. LEAKAGE : ANSI B16.104 CLASS VI



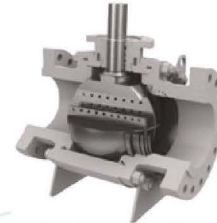
NO.	SPECIFICATION	MATERIAL	UNIT	QUANTITY
	PLUNGER VALVE		SET	1
1	BODY	SCPH2	EA	1
2	BONNET	SCPH2	EA	1
3	BODY SEAT	TEFLON	EA	1
4	DISC	SUS304+Cr.	EA	1
5	BODY SEAT RETAINER	SUS304	EA	1
6	DISC RETAINER	SUS304	EA	1
7	YOKE	SUS304	EA	1
8	ROD SEAL	VITON	EA	2
8.1	O-RING	VITON	EA	1
9	LINK	SUS304	EA	1
10	PIN	SUS630+Cr.	EA	2
11	ARM	SUS304	EA	1
12	SHAFT	SUS304	EA	1
13	BEARING BUSH	BC6	SET	1
14	BEARING BUSH	BC6	SET	1
15	PACKING BUSH	BC6	EA	1
16	GLAND	SUS304	EA	1
17	END COVER	SS400	EA	1
18	ACTUATOR	PURCH	EA	1
19	LIMIT SWITCH BOX	PURCH	EA	1

DIMENSION

(UNIT : mm)

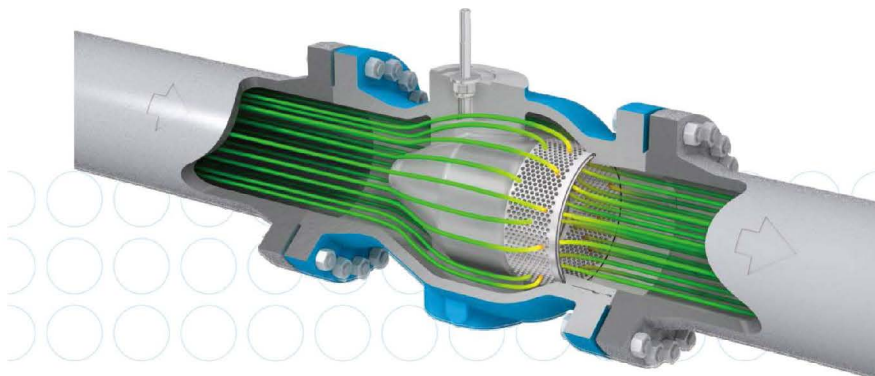
NOMINAL DIAMETER	ød	L	FLANGE(JIS 20K)						H1	H2	H3	Q'TY
			øD	T	øRF	f	øC	n-øh				
4"(100A)	100	305	225	24	160	2	185	8-ø23	170	230	415	1
5"(125A)	125	381	270	26	195	2	225	8-ø25	190	260	415	1
6"(150A)	150	403	305	28	230	2	260	12-ø25	230	300	415	1
8"(200A)	200	502	350	30	275	2	305	12-ø25	280	360	475	1
10"(250A)	250	568	430	34	345	2	380	12-ø27	340	420	475	1
12"(300A)	300	648	480	36	395	2	430	16-ø27	420	490	475	1

Summary with most relevant selection criteria (1)



Moderate maximum capacity Cv	High maximum capacity Cv	Over capacity Cv
Moderate capacity Cv at 2/3 rd stroke	High capacity Cv at 2/3 rd stroke	Low capacity Cv at 2/3 rd stroke
Low gain	Moderate gain	Extreme gain variation
Moderate control range; $\approx 70\%$ stroke	Large control range; $\approx 95\%$ stroke	Small control range; $\approx 50\%$ stroke
Moderate rangeability; max. $\approx 50 : 1$	High rangeability; max. $\approx 200 : 1$	Low rangeability; max. $\approx 25 : 1$
Overall relatively moderate control	Overall very accurate control	Overall relatively poor control

Flow profile axial control valve



Effect of axial valve design & flow profile

Axisymmetrical flow (evenly distributed over cage diameter)

- Dynamic fluid forces are balanced and do not influence positioning accuracy of the piston.
- High capacity with excellent control features (accuracy, rangeability, characteristic)
- Effective use of cage / trim technologies

Fully pressure balanced piston / plug

- Static pressure forces are balanced and do not influence positioning accuracy of the piston.
Compact actuators can be selected.

High local flow velocities avoided

- Considerable reduction of erosion, vibrations, (mechanical) noise and malfunctioning.

Resulting in:

A highly reliable control valve suitable for severe service and critical control applications



Control products



Axial control valve



Axial choke valve



Angle choke valve

Safety products



Axial check valve



Axial on-off valve



Axial surge relief valve

Axial control valve: the benefits summarized

Operational benefits

- Availability; process downtime is minimized
- Accurate control; also at minimum opening
- High capacity; operational flexibility

Environmental benefits

- Silent; minimized trim and body noise
- Low emission; no bonnet / bolts
- Low energy lifecycle; low weight casting

Significant cost savings

- High turndown; one valve solution
- Compact; low weight and small actuators



Control valves: demands & selection

Suitability for the specific application considering all relevant process conditions with sufficient flexibility for potential variations.

- Control accuracy (control characteristics / gain)
- Capacity (rangeability, minimum pressure loss)
- Noise abatement / attenuation
- Anti-cavitation characteristics
- Velocity throughout valve body and trim (preferential flow / vibration)
- Erosion resistance
- Speed of operation
- Operational reliability (e.g. critical process up-time, anti-surge control)
- Weight and dimensions (incl. actuator)



Control valves: design overview (for critical applications)



Globe control valve (linear)

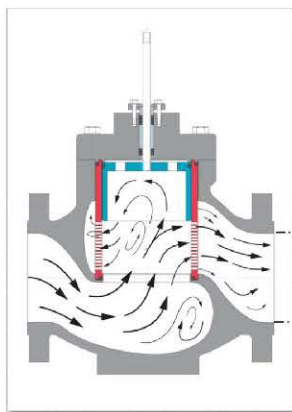


Axial control valve (linear)

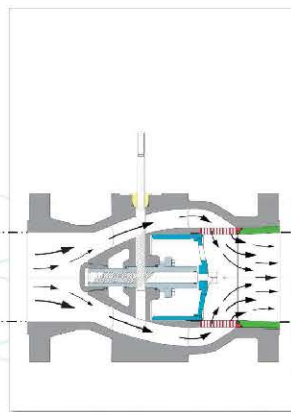


Ball control valve (rotary)

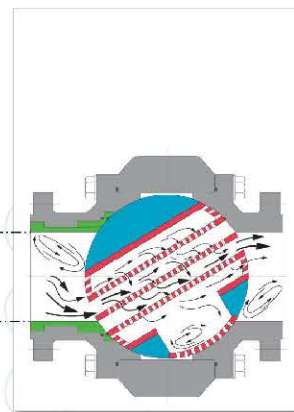
Valve design and flow profiles define performance characteristics



Globe control valve

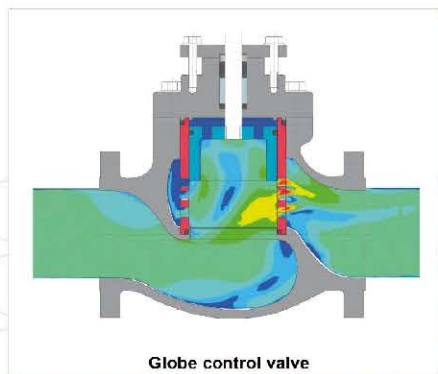


Axial control valve

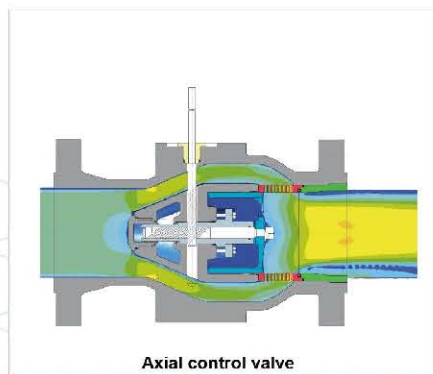


Ball control valve

Flow profile globe versus axial control valve



Globe control valve



Axial control valve



McSYS, Inc
Tel: +82-31-319-6560
Fax: +82-31-8041-3410
Email: enquiry@j-mcsys.com
Web: www.j-mcsys.com
www.j-mcsys.net