CE 0409

控制閥專業設計製造、維修、改裝、CV值測試、安裝諮詢服務、化工控制系統評估

Professionally designing, manufacture, maintenance, modification, CV testing, assembly consultant, and chemical process for control valve.

WYECO 偉允閥業股份有限公司
WYECO AUTO VALVES CO., LTD

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隔膜式三通控制閥

Diaphragm Type 3-Way Control Valve

WYECO

偉允是臺灣地區閥門製造商中領導者之一，成立於1975年。
偉允獲得了ISO9001:2000及歐系CE等質量體系認證，也是多家公司的OEM供應商。

WEYCO AUTO VALVE CO., LTD, established in 1975, is one of the leading valve manufacturers in Taiwan. With obtaining the certificate of ISO 9001:2000, Wyeco is also an OEM supplier for several companies.

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1. 隔膜式控制閥
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3. Y型氣缸式控制閥
4. 熱媒三通控制閥
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6. 超低溫緊急關斷閥
7. 氣缸式球塞閥
8. 氣缸式蝶型閥
9. 隔膜/氣缸式膜片閥

Main Products

1. Diaphragm Actuated Control Valve
2. Cylinder Actuated Control Valve
3. Cylinder Actuated Y-type Control Valve
4. Heat Medium 3-Way Control Valve
5. Manual Valve for Hyper-Cryogenic
6. Hyper-Cryogenic Emergency Shut-off Valve
7. Cylinder Actuated Ball Valve
8. Cylinder Actuated Butterfly Valve
9. Diaphragm / Cylinder Actuated Diaphragm Valve

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Please contact us for more details

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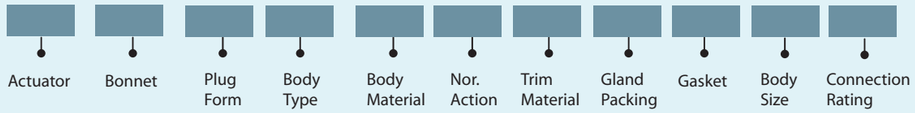
Model Numbers



Code	Actuator
D	Diaphragm
C	Cylinder
E	Motor

Code	Bonnet
0	Standard
1	Extension
2	Radiator Fin
3	Bellows Seal

Code	Plug Form
4	P-port Linear
8	On-Off

Code	Body Type
TM	Mixing Type
TD	Diverting Type

Code	Body Size
FC	Cast Iron FC250
SC	Cast Carbon Steel SCPH2
S3	304 Stainless Steel, Cast SCS13A
S4	316 Stainless Steel, Cast SCS14A
S6	316L Stainless Steel, Cast SCS16A
FP	Cast Iron FC200 with Porcelain
HC	Cast Hastelloy C

Code	Nor. Action
A	Angle
D	Direct

Code	Trim Material
SO	SUS304
S1	SUS316
SL	SUS316L
S4	SUS440C
HC	Hastelloy C

Code	Gland Packing
T	V – Teflon
G	Grafoil
A	Asbestos Yarn & Carbon Graphite

Code	Gasket
P	PTFE
Y	Gylon
N	Non Asbestos
S	SUS316 / Grafoil
W	Spiralwound

Code	Body Size		
15	1/2″	65	2 1/2″
20	3/4″	80	3″
25	1″	04	4″
40	1 1/2″	05	5″
50	2″	06	6″

Code	Connection Rating
F1	JIS 10K
F2	JIS 20K
F3	JIS 30K
FA	ANSI 150LB
FB	ANSI 300LB
P1	PN10
P2	PN16
P3	PN25
P4	PN40

How to Select Control Valve

Theory of Valve

- The actuator are designed compactly as multi-spring diaphragm operated type, ease of adjustment and permit high trust.
- Provide compact design and high performance in conformity with general fluid service, i.e., steam,water, oil, gases.
- Provide lower seat leakage.
- Molded in packing ring which are spring loaded and self-adjusting in the packing box.

Specification

- Type : Diaphragm Operated three-way type
- Material : Cast Iron (FC250)
  Carbon Steel (SCPH2)
  Stainless Steel (SCS13A , SCS14A , SCS16A)
  Cast Hastelloy C , B
- End Connection : Flanged End (FF, RF) or Butt-Welded Type
- Pressure Rating : JIS 10K, 20K, 30K
  ANSI Class 150, 300
  DIN PN10, PN16, PN25, PN40
- Bonnet : Standard (-17℃ ~ +210℃)
  Radiator Fin (-20℃ ~ +300℃)
  Extension (-210℃ ~ +280℃)
  Bellows Seal (-210℃ ~ +350℃)
- Gland Packing : V-Teflon , Grafoil
- Gasket : Non-Asbestos, Teflon , Gylon, SUS304/Grafoil, SUS316/Grafoil
- Guide : Port Guide

Trim

- Stem : SUS304, SUS316, SUS316L
- Valve Plug : V-Port, Quick Opening
- Plug Characteristics : Linear & On-Off
- Plug Form : Diverting Form , Mixing Form
- Material : SUS304 , SUS316 , SUS316L , SUS440C , Hastelloy C, B

Actuator

- Type : Multi-spring type single diaphragm actuated , direct or reverse.
- Diaphragm Material : Neoprene with fabric insert.
- Air Supply : 1.4 , 2.4 , 2.8 , 3.2kg/cm2
- Spring Range : 0.2 ~ 1.0 kg/cm2 , 0.4 ~ 2.0 kg/cm2 , 0.6 ~ 2.2 kg/cm2 , 0.8 ~ 2.4 kg/cm2
- Ambient Temperature : -20℃ ~ + 70℃

Valve Action

Diverting Service , Mixing Service

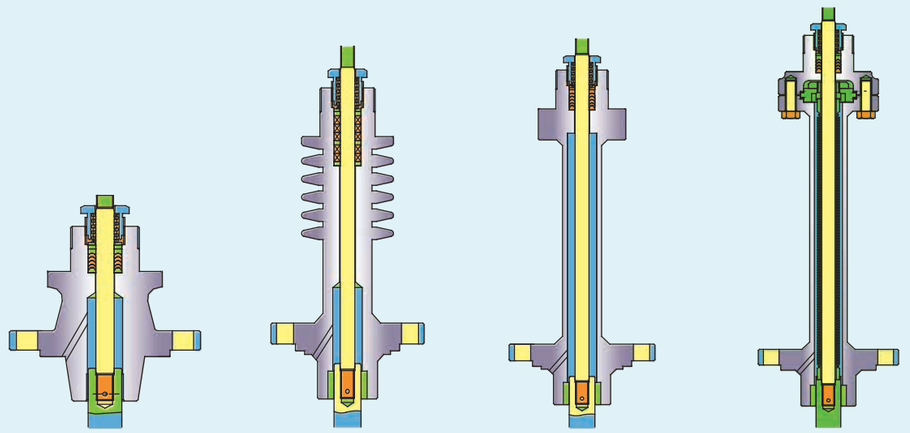
Accessory

Handwheel , Positioner , Solenoid Valve , Limit Switch , Air Set or Others.

Performance

Rangeability : 50 : 1
Allowable Seat Leakage :
Metal Seat : Less than 0.01% of rated Cv (ANSIB16.104 Class Ⅳ)
Soft Seat : ANSI 16.104 Class Ⅵ

Type of Bonnets



Standard Temperature	Radiator Fin Temperature	Extension Temperature	Bellows Seal Temperature
-17℃~+210℃	-20℃~+300℃	-196℃~+280℃	-196℃~+350℃

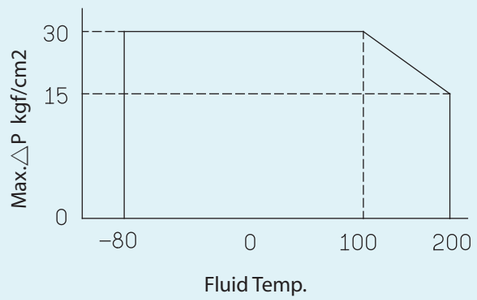
Typical Combination of Materials

Parts Name		Materials			
Body		FC250	SCPH2	SCS13A	SCS14A
Trim	Seat Ring	SUS304			SUS316
	Valve Plug	SUS304			SUS316
	Valve Stem	SUS316			SUS316
	Guide Bushing	SUS304			SUS316
Stud Bolt & Nut		SS400	S45C (H)	S45C (H)	SUS304

Combination of Materials for Valve Body , Plug & Operating Temperature Limit

Body Material		Plug Material	Operating Temp. Limit
Cast Iron	FC250	Stainless Steel SUS304	0℃ ~ +230℃
Ductile Iron	FCD450	Stainless Steel SUS304	0℃ ~ +300℃
Carbon Steel	SCPH2	Stainless Steel SUS304	-20℃ ~ +350℃
Stainless Steel	SCS13	Stainless Steel SUS304	-196℃ ~ +500℃
Stainless Steel	SCS14	Stainless Steel SUS304	-196℃ ~ +500℃

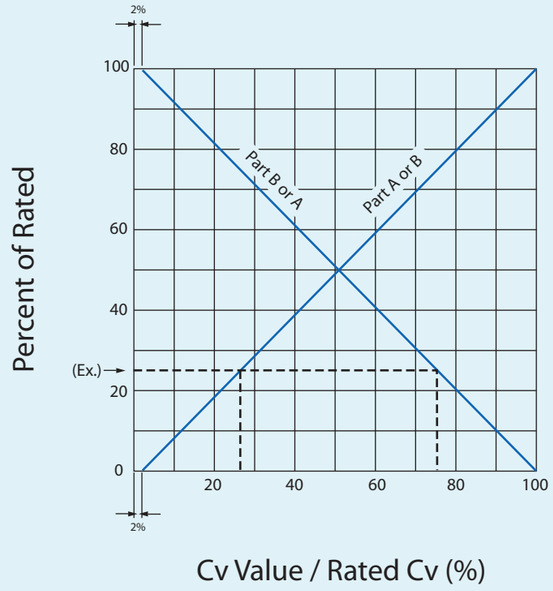
Operating Temperature & Pressure Differential Limit of Soft Seat



Rate Cv Value

Body Size	mm / Inch	15A 1/2″	20A 3/4″	25A 1″	40A 1 1/2″	50A 2″	65A 2 1/2″	80A 3″	100A 4″	125A 5″	150A 6″
Stroke		20					30			60	
Diverting Cv		4	7	16	32	43	74	102	169	267	380
Mixing Cv				17	31	44	76	104	171	248	349

Flow Rate Characteristic Curve



Example

When then valve is opened 25% of the full travel, approx. 76% of total flow rate in upper port AB flows out through down port B, and the rest 24% flows out through another down port A. As the travel increases further, the flow rate decreases through port B, and increases through port A.

Allowable Shut-off Pressure

Act. Size	Off-Balance	15 1/2″	20 3/4″	25 1″	40 1 1/2″	50 2″	65 2 1/2″	80 3″	100 4″	125 5″	150 6″
250	0.2 kg/cm2	15	15	9							
	0.4 kg/cm2	20	20	13							
	0.8 kg/cm2	25	25	14							
300	0.2 kg/cm2				9	8	4				
	0.4 kg/cm2				12	9	5				
	0.8 kg/cm2				14	11	6				
350	0.2 kg/cm2							4	2		
	0.4 kg/cm2							5	3		
	0.8 kg/cm2							6	4		
460	0.8 kg/cm2									3	2
	1.2 kg/cm2									4.5	4

Flow Coefficient Cv

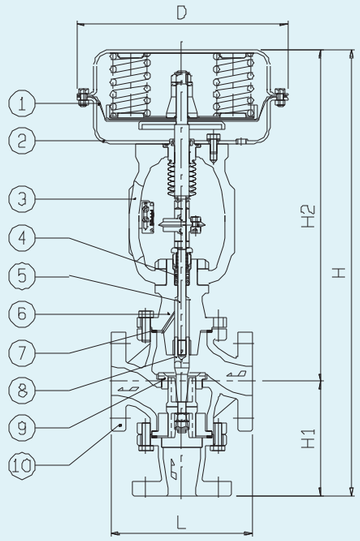
Trim Form : Linear

Body Size	Port Size	Lift mm	Act.	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
15A	19.0	20	D/M	0.42	0.87	1.35	1.73	2.23	2.7	3.1	3.4	3.9	4
20A	19.0	20	D/M	0.84	1.46	2.11	2.81	3.37	3.86	4.38	4.9	5.7	7
25A	29.5	20	D	1.6	3.8	5.9	8.1	10.2	11.8	13.1	14.1	14.9	16
			M	1.2	3.6	6.4	8.8	10.6	12.4	13.9	15.1	16.1	17
40A	40.0	20	D	3.5	6.8	10.7	14.5	18.8	22.3	25.5	28.1	29.9	32
			M	5.5	9.8	13.8	17.3	20.5	22.6	24.7	26.8	28.6	31
50A	52.0	20	D	3.4	6.9	12.2	16.6	21.4	24.5	28.3	33.4	37.4	43
			M	4.2	9	13.4	19.1	24.3	27.8	32.1	34.9	38.4	44
65A	63.0	30	D	3.9	9.4	18.5	26.3	36	46.3	54.5	61.3	68.5	74
			M	2.5	9.3	16.8	27.3	37.1	45	53.7	60.5	69.6	76
80A	76.0	30	D	3.2	10.6	20.5	30.5	43.6	57.3	69.3	80.8	91.2	102
			M	5.3	14.7	27.1	37.7	50.2	64.7	75.9	88.1	96.2	104
100A	100	35	D	10.3	28.1	44.3	64.6	87.1	104.3	121	136.6	151.3	169
			M	14.2	29.3	43	57.6	76.6	95.1	115.2	132.4	151.2	171
125A	125	60	D	12	39	73	110	150	190	219	245	256	267
			M	16	43	78	115	153	185	210	227	239	248
150A	150	60	D	14	55	102	160	218	265	306	340	365	380
			M	24	63	107	157	209	252	284	312	332	349

D : Diverting

M : Mixing

Model : WY – D 0 4 T M



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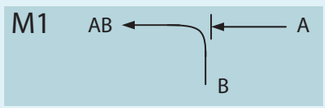

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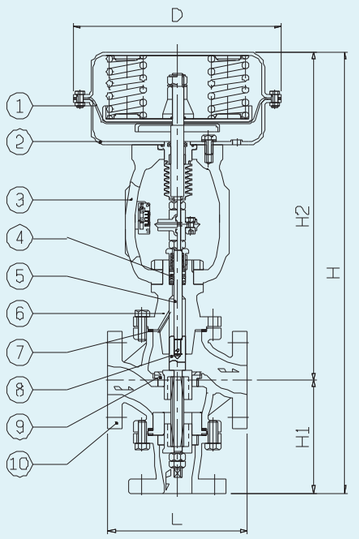


Diverting

Parts & Material

No	Part Name	Material (FC250)	Material (SCS13)
1	Diaphragm	Neoprene	Neoprene
2	Case	SPHC	SPHC
3	Yoke	FC250	FC250
4	Gland Packing	PTFE	PTFE
5	Plug Stem	SUS316	SUS316
6	Bonnet	FC250	SUS304
7	Gasket Asbestos	Asbestos (*)	Asbestos (*)
8	Plug	SUS304	SUS304
9	Seat	CF8M	CF8M
10	Body	FC250	SCS13

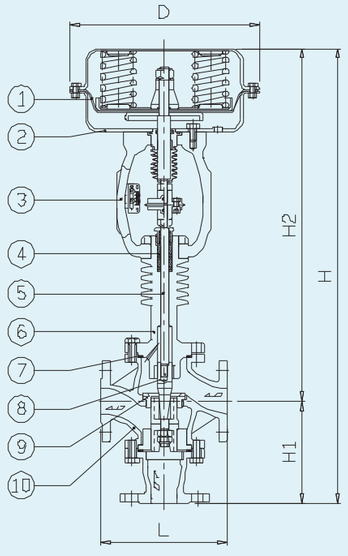
(*) Option

Dimensions

Unit : mm

Valve mm	Valve inch	L	H1	H2	H	D
15	1/2	130	140	414	554	250
20	3/4	150	140	414	554	250
25	1	160	140	414	554	250
40	1 1/2	200	162	469	631	300
50	2	230	170	476	646	300
65	2 1/2	290	195	492	687	300
80	3	310	215	556	771	350
100	4	350	240	575	815	350
125	5	400	265	769	1034	460
150	6	480	305	801	1106	460

Model : WY – D 2 4 T M



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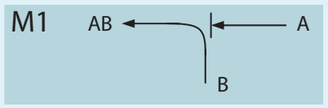

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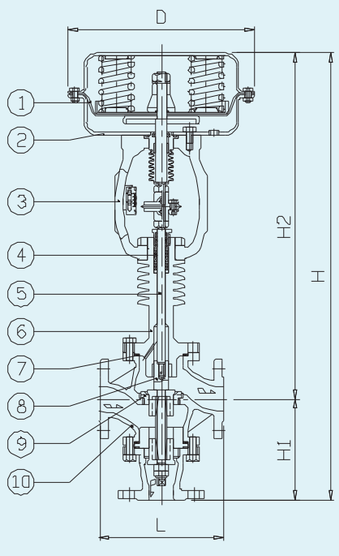

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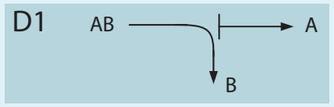


Parts & Material

No	Part Name	Material (FC250)	Material (SCS13)
1	Diaphragm	Neoprene	Neoprene
2	Case	SPHC	SPHC
3	Yoke	FC250	FC250
4	Gland Packing	Grafoil	Grafoil
5	Plug Stem	SUS316+Stellite	SUS316+Stellite
6	Bonnet	SS41	SUS304
7	Gasket Asbestos	Non-Asbestos(*)	Non-Asbestos(*)
8	Plug	SUS304	SUS304
9	Seat	CF8M	CF8M
10	Body	FC250	SCS13

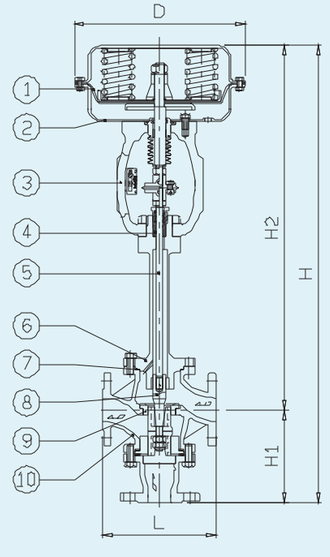
(*) Option

Dimensions

Unit : mm

Valve		L	H1	H2	H	D
mm	inch					
15	1/2	130	140	489	629	250
20	3/4	150	140	489	629	250
25	1	160	140	489	629	250
40	1 1/2	200	162	557	719	300
50	2	230	170	564	734	300
65	2 1/2	290	195	580	775	300
80	3	310	215	651	866	350
100	4	350	240	670	910	350
125	5	400	265	908	1173	460
150	6	480	305	940	1245	460

Model : WY – D 1 4 T M



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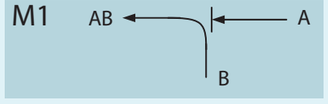

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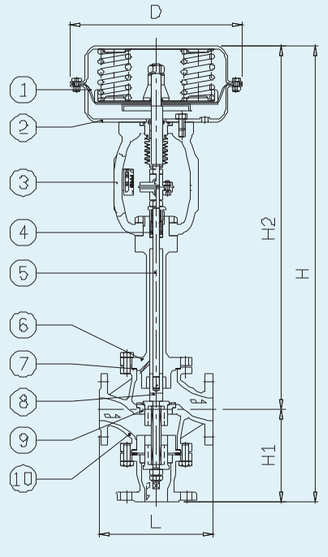


Diverting

Parts & Material

No	Part Name	Material (FC250)	Material (SCS13)
1	Diaphragm	Neoprene	Neoprene
2	Case	SPHC	SPHC
3	Yoke	FC250	FC250
4	Gland Packing	PTFE(*)	PTFE(*)
5	Plug Stem	SUS316	SUS316
6	Bonnet	SS41	SUS304
7	Gasket Asbestos	Gylon(*)	Gylon(*)
8	Plug	SUS304	SUS304
9	Seat	CF8M	CF8M
10	Body	SCPH2	SCS13

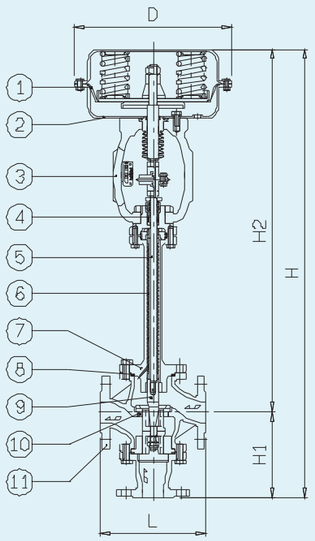
(*) Option

Dimensions

Unit : mm

Valve		L	H1	H2	H	D
mm	inch					
15	1/2	130	140	585	725	250
20	3/4	150	140	585	725	250
25	1	160	140	585	725	250
40	1 1/2	200	162	635	979	300
50	2	230	170	642	812	300
65	2 1/2	290	195	671	866	300
80	3	310	215	743	958	350
100	4	350	240	762	1002	350
125	5	400	265	943	1208	460
150	6	480	305	975	1280	460

Model : WY – D 3 4 T M



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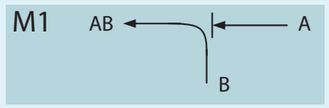

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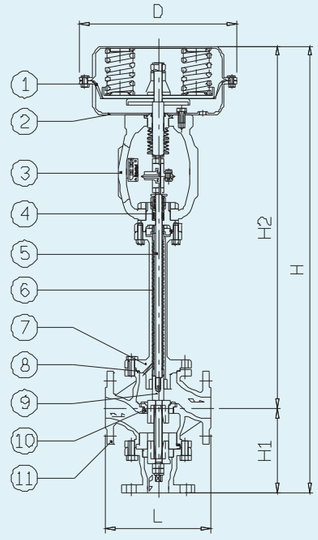

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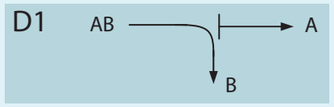


Parts & Material

No	Part Name	Material (FC250)	Material (SCS13)
1	Diaphragm	Neoprene	Neoprene
2	Case	SPHC	SPHC
3	Yoke	FC250	FC250
4	Gland Packing	PTFE(*)	PTFE(*)
5	Plug Stem	SUS316	SUS316
6	Bonnet	SS41	SUS304
7	Gasket Asbestos	Gylon (*)	Gylon (*)
8	Plug	SUS304 / Stellite	SUS304 / Stellite
9	Seat	CF8M	CF8M
10	Body	FC250	SCS13

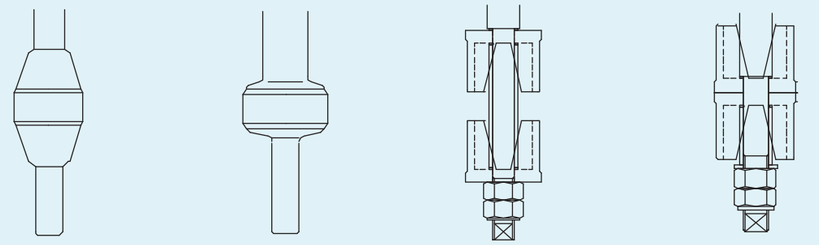
(*) Option

Dimensions

Unit : mm

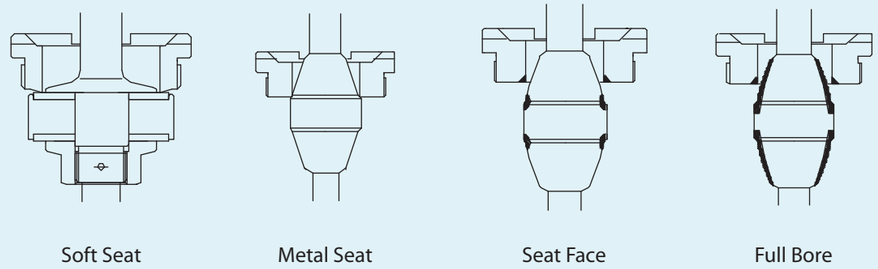
Valve		L	H1	H2	H	D
mm	inch					
15	1/2	130	140	624	764	250
20	3/4	150	140	624	764	250
25	1	160	140	624	764	250
40	1 1/2	200	162	666	828	300
50	2	230	170	673	843	300
65	2 1/2	290	195	723	918	300
80	3	310	215	761	976	350
100	4	350	240	780	1020	350
125	5	400	265	1213	1478	460
150	6	480	305	1213	1518	460

Characteristic of Plug



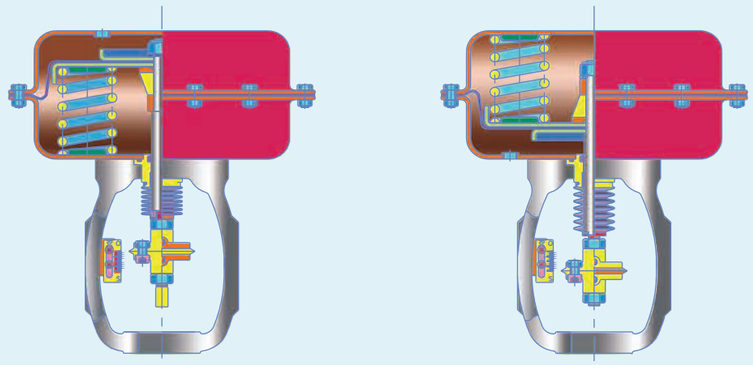
Linear | On-Off | Linear Diverting | Linear Mixing

Treatment of Plug



Soft Seat | Metal Seat | Seat Face | Full Bore

Multi-Spring Type Diaphragm Actuators



Dire Action (DA) (Air To stem down)

Reverse Action(RA) (Air To stem up)

Calculation Formula

A. First, we have to take all data of system fluid:;such as fluid name, flow-rate, pressure of before and behind of valve (P1,P2), density ρ (or specific gravity G), viscozity μ, vapor pressure of fluid Pv, critical pressure Pc and critical temperature Tc of fluid, the coefficient of specific heat ratio of gas F κ ,and adiabatic index of gas κ .

B. Second, take a precise pressure before valve P1 and behind valve P2, if customer only supplied control-line pressure P1 and P2, then take 1/3 of whole system pressure decay as the valve pressure drop.

C. The key-point of calculation is to distinguish the flow which in chocked flow or not? If the fluid is high viscous fluid, then we have to correct it. The calculated method as follow:

(A)Liquid phase (imcompressibility fluid)
Set Pvc=Ff x Pv
Ff=0.96-0.28 $\sqrt{Pv/Pc}$
FL= $\sqrt{(P1-P2)/(P1-Pvc)}$
△Pt=PI-P2
The criterion formula of chocked flow is $FL^2(P1-Pvc)=FL^2(P1-Ff\times Pv)$

1. △Pt≧FL^2 (P1-Ff x Pv) chocked flow
∴Kv =(10QL$\sqrt{\rho L}$)/$\sqrt{FL^2(P1-FfPv)}$
or =(10^3WL)/$\sqrt{\rho L\, FL^2(P1-FfPv)}$

2.△Pt< FL^2 (P1-FfPv) non-chocked flow
∴Kv=(10QL $\sqrt{\rho L}$)/$\sqrt{\triangle P}$
or =(10^3 WL)/$\sqrt{\triangle P\ \rho L}$

3. If the fluid is viscous flow, the Kv have to correct by Reynolds no. correcting factor Fr, ie. Kv = Kv/Fr, Fr can be taked by diagram(A), and Reynolds no. can be calculated by:

(1)two parallel flow valve: such as Two-Seat Direct Flow Valve, Butterfly Valve, Essentric Rotate Disc Valve, etc.
Re=49490 QL / $\sqrt[5]{Kv}$

(2)Single-Seat Direct Flow Valve, Cage-Guide, Ball Valve, Angle Valve, Diaphragm Valve, and etc.
Re=70700 QL / $\sqrt[5]{Kv}$

above:
QL: Volumetric velocity M^3/hr
WL: Weight velocity Kg/hr
△P: P1-P2,Differential pressure of valve, Kpa
ρ L: Density g/cm^3
ν : Kinetic viscosity cst(mm^2/s)

(B) Gas (Vapor)(Compressibility fluid)
Set X=△P/P_1
Xt: Critical ratio of differential pressure of air
∴The criterion formula of chocked flow is $X_t \times F_\kappa$

1. X≧F_κ X_t ..... chocked flow
K_V=(Q_g/2.9Pi) x$\sqrt{T_1\ \rho_n Z/\ \kappa\ X_t}$
or
=(Q_g/2.58Pi) x$\sqrt{T_1 GZ/\ \kappa\ X_t}$

2.X<F_R x X_t ..... non chocked flow
K_V=(Q_g/5.19P_1y) x$\sqrt{T_1\ \rho_n Z/X}$ or
=(Q_g/24.6P_1y) x$\sqrt{T_1 M\ Z/X}$ or
=(Q_g/4.57P_1y) x$\sqrt{T_1 G\ Z/X}$

Above:
G: Relative density of gas (air is 1)
P1: Absolute pressure of before valve
X: Ratio of differential pressure. △P/P_1
Y: Expanding factor =1-(x/3・F_κ・X_t)，$F_{\kappa=\kappa}$ /1.4
κ : Adiabatic index of gas
Q_g: Standard volumetric flow of gas Nx m^3/hr
ρ_n: Density of gas
T1: Input temperature of valve (absolute) K°
Z: Compressibility factor (by diagram (B))

(C) Steam (Compressibility fluid)
The criterion formula as gas

1. X≧F_κ X_t ..... chocked flow
K_V=(Ws/1.78)$\sqrt{1/k\ X\ t\ P_1\ \rho\ s}$ or
=(Ws/0.62P_1)$\sqrt{T_1 z/k\ X\ t\ M}$

2. X<F_κ X_t ..... non chocked flow
K_V=(Ws/3.16y)$\sqrt{1/\ x\ P_1\ \rho\ s}$ or
=(Ws/1.1P_1y)$\sqrt{T_1 z/\ X\ M}$

(D) Select the design Kv (or Cv)
1. Calculated the Kv (K_{Vm} & K_{Vn}) by Max. flow and normal flow.
2. When Q_n≦1/2Q_m, the select K_{Vd}=4K_{Vn}
3. When Q_n>1/2Q_m, the select K_{Vd}=2K_{Vm}
4. Cv and Kv conversion formula
Cv = 1.167Kv

Accessory For Control Valve 控制閥附件

E/P Positioner SMC IP8000 E/P定位器 SMC IP8000

Input signal: 4~20mAdc
Supply: 1.4~7.0kg/cm2
St roke: 10-85mm
Ambient Temperature: -20℃~70℃
Explosion-proof: d2G4
Connection: Rc(PT)1/4"female

輸入信號：4~20mAdc
供給空氣源：1.4~7.0kg/cm2
行程：10-85mm
環境溫度：-20℃~70℃
防爆等級：d2G4(耐壓防暴型)
連接口：NPT1/4"內牙口

E/P Positioner SMC IP5000 E/P定位器 SMC IP5000

Input signal: 0.2~1.0kg/cm2
Supply: 1.4~7.0kg/cm2
Stoke: 10~85mm
Connection: Rc(PT)1/4"female

輸入信號：0.2~1.0kg/cm2
供給空氣源：1.4~7.0kg/cm2
行程：10~85mm
連接口：RC(PT)1/4"內牙口

Filter Regulator 過濾器

Supply: max. 9.9 kg/cm2
Filtration:5μm
Port size: 1/4"

供給空氣：最大9.9 kg/cm2
濾波：5μm
口徑：NPT 1/4"

Booster Relay 空氣增幅器

Booster Relay
Supply: 9.9kg/cm2
Output pressure: max.7kg/cm2
Pressure ratio:1:1
Port size: 1/4"

供給空氣：9.9kg/cm2
信號壓力：max.7kg/cm2
輸出壓力：max.7kg/cm2
壓力比例：1:1
口徑：1/4"

Lock-up Valve(Single acting)鎖閥（單動式）IL201

Proof pressure: max.9.9kg/cm2
Signal pressure: max.9.9kg/cm2
Line pressure: max.7kg/cm2
Connection: 1/4"

耐壓：max.9.9kg/cm2
信號壓力：max.9.9kg/cm2
線壓：max.7kg/cm2
連接口：1/4"

Lock-up Valve(Double acting)鎖閥（雙動式）IL211

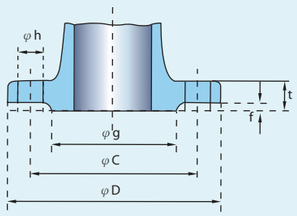
Proof pressure: max.9.9kg/cm2
Signal pressure: max.9.9kg/cm2
Line pressure: max.7kg/cm2
Connection: 1/4"

耐壓：max.9.9kg/cm2
信號壓力：max.9.9kg/cm2
線壓：max.7kg/cm2
連接口：1/4"

Saturated Steam Table 蒸氣飽和度

Steam press.(abs.) 蒸氣壓力(絕對)		Steam temperature 蒸氣溫度		Volume of water 1kg before eva-poration(ℓ) 1公斤水在蒸氣狀態下的體積	Volume of steam 1kg (m3) 1公斤蒸氣的體積	Weight of steam 1 m³ (kg) 1 m³蒸氣的重量(kg)	Calory of steam 1kg (kcal) 1kg蒸氣的卡(kcal)			Steam Press.(abs.) 蒸氣壓力(絕對)		Steam temperature 蒸氣溫度		Volume of water 1kg before eva-poration(ℓ) 1公斤水在蒸氣狀態下的體積	Volume of steam 1kg 1公斤蒸氣的體積	Weight of steam 1 m³ (kg) 1 m³蒸氣的重量	Calory of steam 1kg (kcal) 1kg蒸氣的卡(kcal)		
							Calory of water H 水的卡 h	Latent Heat L 熱量 L	Total H=h+L 總計 H=h+L								Calory of water h 水的卡 h	Latent Heat L 熱量 L	Total H=h+L 總計 H=h+L
(kgf/cm2)	(lb/in2)	(℃)	(℉)	(ℓ)	(M3)	量(kg)		L	H=h+L	(kgf/cm2)	(lb/in2)	(℃)	(℉)	(ℓ)	(M3)	(kg)			
0.02	0.28	17.2	62.9	1.0012	68.26	0.0147	17.2	587.8	605.0	13.50	192.0	192.4	378.3	1.1451	0.1485	6.734	195.5	469.9	665.4
0.04	0.57	28.6	83.5	1.0039	35.45	0.0282	28.7	581.3	610.0	14.00	199.1	194.1	381.4	1.1476	0.1434	6.974	197.3	468.4	665.7
0.06	0.85	35.8	96.4	1.0063	24.18	0.0414	35.8	577.3	613.1	14.50	206.2	195.8	384.4	1.1500	0.1386	7.214	199.0	466.9	665.9
0.08	1.14	41.2	106.2	1.0083	18.44	0.0542	41.2	574.2	615.4	15	213.3	197.4	387.3	1.1524	0.1342	7.454	200.7	465.5	666.2
0.10	1.42	45.5	113.9	1.0101	14.95	0.0669	45.4	571.8	617.2	16	227.5	200.4	392.7	1.1572	0.1260	7.934	204.1	462.6	666.7
0.15	2.13	53.6	128.5	1.0138	10.21	0.0980	53.5	567.1	620.6	17	241.7	203.4	398.1	1.1618	0.1189	8.414	207.2	459.9	667.1
0.20	2.84	59.7	139.5	1.0170	7.791	0.1284	59.6	563.5	623.1	18	256.0	206.2	403.2	1.1663	0.1124	8.894	210.2	457.2	667.4
0.25	3.56	64.6	148.3	1.0197	6.319	0.1583	64.5	560.7	625.2	19	270.2	208.8	407.8	1.1706	0.1067	9.375	213.1	454.6	667.7
0.30	4.27	68.7	155.7	1.0221	5.326	0.1878	68.7	558.2	626.9	20	284.4	211.4	412.5	1.1749	0.1015	9.857	215.9	452.1	668.0
0.35	4.98	72.3	162.1	1.0242	4.609	0.2170	72.2	556.1	628.3	21	298.6	213.9	417.0	1.1791	0.0967	10.34	218.6	459.6	668.2
0.40	5.69	75.4	167.7	1.0262	4.067	0.2459	75.4	554.2	629.6	22	312.8	216.2	421.2	1.1833	0.0924	10.82	221.2	447.2	668.4
0.45	6.40	78.3	172.9	1.0281	3.642	0.2746	78.3	552.5	630.8	23	327.1	218.5	425.3	1.1873	0.0885	11.31	223.8	444.8	668.6
0.50	7.11	80.9	177.6	1.0298	3.300	0.3030	80.9	550.9	631.8	24	341.3	220.8	429.4	1.1913	0.0848	11.79	226.2	442.8	668.8
0.60	8.53	85.5	185.9	1.0329	2.782	0.3594	85.5	548.1	633.6	25	355.5	222.9	433.2	1.1953	0.0815	12.28	228.6	440.3	668.9
0.70	9.95	89.5	193.1	1.0357	2.408	0.4152	89.5	545.7	635.2	26	369.7	225.0	437.0	1.1991	0.0784	12.76	230.9	438.1	669.0
0.80	11.4	93.0	199.4	1.0383	2.125	0.4705	93.0	543.5	636.5	27	383.9	227.0	440.6	1.203	0.0755	13.25	233.2	435.9	669.1
0.90	12.8	96.2	205.2	1.0407	1.904	0.5253	96.2	541.5	637.7	28	398.2	229.0	444.2	1.207	0.0728	13.74	235.4	433.8	669.2
1.00	14.2	99.1	210.4	1.0430	1.725	0.5797	99.2	539.6	638.8	29	412.4	230.9	447.6	1.210	0.0703	14.23	237.5	431.7	669.2
1.20	17.1	104.3	219.7	1.0471	1.454	0.6875	104.4	536.3	640.7	30	426.6	232.8	451.0	1.214	0.0679	14.72	239.6	429.7	669.3
1.40	19.9	108.7	227.7	1.0508	1.259	0.7942	108.9	533.5	642.4	32	455.0	236.4	457.5	1.221	0.0637	15.70	243.7	425.6	669.3
1.60	22.8	112.7	234.9	1.0542	1.111	0.8999	112.9	530.8	643.7	34	483.5	239.8	463.6	1.229	0.0599	16.69	247.6	421.7	669.3
1.80	25.6	116.3	241.3	1.0573	0.9952	1.005	116.6	528.4	645.0	36	511.9	243.0	469.4	1.236	0.0565	17.69	251.3	417.9	669.2
2.00	28.4	119.6	247.3	1.0603	0.9018	1.109	119.9	526.3	646.2	38	540.4	246.2	475.2	1.243	0.0535	18.69	254.9	414.2	669.1
2.50	35.6	126.8	260.2	1.0669	0.7317	1.367	127.2	521.4	648.6	40	568.8	249.2	480.6	1.249	0.0508	19.70	258.4	410.5	668.9
3.00	42.7	132.9	271.2	1.0728	0.6168	1.621	133.4	517.2	650.6	42	597.2	252.1	485.8	1.256	0.0483	20.72	261.7	407.0	668.7
3.50	49.8	138.2	280.8	1.0782	0.5337	1.874	138.8	513.4	652.2	44	625.7	254.9	490.8	1.263	0.0460	21.74	265.0	403.5	668.5
4.00	56.9	142.9	289.2	1.0831	0.4708	2.124	143.7	510.0	653.7	46	654.1	257.6	495.7	1.269	0.0439	22.77	268.2	400.0	668.2
4.50	64.0	147.2	297.0	1.0877	0.4214	2.373	148.1	506.8	654.9	48	682.6	260.2	500.4	1.276	0.0420	23.80	271.3	396.6	667.9
5.00	71.1	151.1	304.0	1.0920	0.3816	2.620	152.1	503.9	656.0	50	711.0	262.7	504.9	1.283	0.0402	24.85	274.3	393.3	667.6
5.50	78.2	154.7	310.5	1.0961	0.3489	2.867	155.8	501.2	657.0	55	782.1	268.7	515.7	1.299	0.0364	27.49	281.5	385.1	666.6
6.00	85.3	158.1	316.6	1.1000	0.3213	3.112	159.3	498.6	657.9	60	853.2	274.3	525.7	1.315	0.0331	30.18	288.3	377.2	665.5
6.50	92.4	161.2	322.2	1.1037	0.2980	3.356	162.6	496.1	658.7	65	924.3	279.5	535.1	1.331	0.0304	32.93	294.8	369.4	664.2
7.00	99.5	164.2	327.6	1.1072	0.2778	3.600	165.7	493.8	659.5	70	995.4	284.5	544.1	1.347	0.0280	35.75	301.0	361.8	662.8
7.50	106.7	167.0	332.6	1.1111	0.2602	3.843	168.6	491.6	660.2	75	1066.5	289.2	552.6	1.363	0.0259	38.62	307.0	354.3	661.3
8.00	113.8	169.6	337.3	1.1140	0.2448	4.086	171.3	489.5	660.8	80	1137.6	293.6	560.5	1.379	0.0241	41.56	312.8	346.9	659.7
8.50	120.9	172.1	341.8	1.1172	0.2311	4.328	174.0	487.4	661.4	85	1208.7	297.9	568.2	1.395	0.0224	44.58	318.4	339.6	658.0
9.00	128.0	174.5	346.1	1.1203	0.2188	4.570	176.5	485.4	661.9	90	1279.8	301.9	575.4	1.412	0.0210	47.67	323.8	332.4	656.2
9.50	135.1	176.8	350.2	1.1233	0.2079	4.811	178.9	483.5	662.4	95	1350.9	305.8	582.4	1.429	0.0197	50.85	329.1	325.2	654.3
10.00	142.2	179.0	354.2	1.1262	0.1979	5.052	181.3	481.6	662.9	100	1422.0	309.5	589.1	1.446	0.0185	54.12	334.3	318.0	652.3
10.50	149.3	181.2	358.2	1.1291	0.1890	5.293	183.5	479.8	663.3	120	1706.4	323.1	613.6	1.518	0.0147	68.22	354.0	289.4	643.4
11.00	156.4	183.2	361.8	1.1319	0.1807	5.533	185.6	478.1	663.7	140	1990.8	335.1	635.2	1.599	0.0118	84.52	372.8	260.0	632.8
11.50	163.5	185.2	365.4	1.1346	0.1732	5.774	187.7	476.4	664.1	160	2275.2	345.8	654.4	1.693	0.0096	104.0	391.3	228.4	619.7
12.00	170.6	187.1	368.8	1.1373	0.1663	6.014	189.8	474.7	664.5	180	2559.6	355.4	671.7	1.814	0.0078	128.3	410.8	192.9	603.7
12.50	177.8	188.9	372.0	1.1400	0.1599	6.254	191.7	473.1	664.8	200	2844.0	364.1	687.4	1.990	0.0062	161.6	431.6	151.2	582.8
13.00	184.9	190.7	375.3	1.1425	0.1540	6.494	193.6	471.5	665.1	225.56	3208.7	374.15	705 47	3.170	0.0032	315.5	503.3	0	503.3

Flange Table 法蘭表



d	JIS 10K JIS B 2210-1984									JIS 20K JIS B 2210-1984									
	D	t FC	t OTHER 其他	f	g	c	n	h	δ	D	t FC	t OTHER 其他	f	g	c	n	h	δ	d
15	95	16	12	1	51	70	4	15	M12	95	16	14	1	51	70	4	15	M12	15
20	100	18	14	1	56	75	4	15	M12	100	18	16	1	56	75	4	15	M12	20
25	125	18	14	1	67	90	4	19	M16	125	20	16	1	67	90	4	19	M16	25
32	135	20	16	2	76	100	4	19	M16	135	20	18	2	76	100	4	19	M16	32
40	140	20	16	2	81	105	4	19	M16	140	22	18	2	81	105	4	19	M16	40
50	155	20	16	2	96	120	4	19	M16	155	22	18	2	96	120	8	19	M16	50
65	175	22	18	2	116	140	4	19	M16	175	24	20	2	116	140	8	19	M16	65
80	185	22	18	2	126	150	8	19	M16	200	26	22	2	132	160	8	23	M20	80
100	210	24	18	2	151	175	8	19	M16	225	28	24	2	160	185	8	23	M20	100
125	250	24	20	2	182	210	8	23	M20	270	30	26	2	195	225	8	25	M22	125
150	280	26	22	2	212	240	8	23	M20	305	32	28	2	230	260	12	25	M22	150
200	330	26	22	2	262	290	12	23	M20	350	34	30	2	275	305	12	25	M22	200
250	400	30	24	2	324	355	12	25	M22	430	38	34	2	345	380	12	27	M24	250
300	445	32	24	3	368	400	16	25	M22	480	40	36	3	395	430	16	27	M24	300

d	ANSI CLASS 150 ANSI B 16.35 -1977							ANSI CLASS 300 ANSI B 16.35 -1977						
	D	t	g	c	n	h	δ	D	t	g	c	n	h	δ
15	89	12	35	60.3	4	16	M14	95	15	35	66.7	4	16	M14
20	98	13	43	69.9	4	16	M14	117	16	43	82.5	4	20	M16
25	108	15	51	79.4	4	16	M14	124	18	51	88.9	4	20	M16
32	117	16	64	88.9	4	16	M14	133	20	64	98.4	4	20	M16
40	127	18	73	98.4	4	16	M14	156	21	73	114.3	4	23	M20
50	152	20	92	120.6	4	20	M16	165	23	92	127	8	20	M16
65	178	23	105	139.7	4	20	M16	191	26	105	149.2	8	23	M20
80	191	24	127	152.4	4	20	M16	210	29	127	168.3	8	23	M20
100	229	24	157	190.5	8	20	M16	254	32	157	200	8	23	M20
125	254	24	186	215.9	8	23	M20	279	35	186	234.9	8	23	M20
150	279	26	216	241.3	8	23	M20	318	37	216	269.9	12	23	M20
200	343	29	270	298.4	8	23	M20	381	42	270	330.2	12	26	M22
250	406	31	324	361.9	12	26	M22	445	48	324	387.3	16	30	M27
300	483	32	381	431.8	12	26	M22	520	51	381	450.8	16	33	M30

d	DIN PN16							DIN PN25						
	D	t	g	c	n	h	δ	D	t	g	c	n	h	δ
15	95	14	45	65	4	14	M12	95	16	45	65	4	14	M12
20	105	16	58	75	4	14	M12	105	18	58	75	4	14	M12
25	115	16	68	85	4	14	M12	115	18	68	85	4	14	M12
32	140	16	78	100	4	18	M16	140	18	78	100	4	18	M16
40	150	16	88	110	4	18	M16	150	18	88	110	4	18	M16
50	165	18	102	125	4	18	M16	165	20	102	125	4	18	M16
65	185	18	122	145	4	18	M16	185	22	122	145	4	18	M16
80	200	20	138	160	4/8	18	M16	200	24	138	160	4/8	18	M16
100	220	20	158	180	8	18	M16	235	24	162	190	8	23	M20
125	250	22	188	210	8	18	M16	250	22	188	210	8	18	M24
150	285	22	212	240	8	23	M20	285	22	212	240	8	23	M24