



<http://wonglee.com.tw>



WONG LEE INDUSTRIAL CO.,LTD.

萬勵工業有限公司

No.191, Sec. 2, New Taipei Blvd., Xinzhuang Dist.,
New Taipei City 242, Taiwan

台灣 新北市新莊區新北大道二段191號

TEL: +886-2-8521 2858

+886-2-8522 0547

+886-2-8522 0553

FAX: +886-2-8521 3292

E-mail: wev.w1984@msa.hinet.net

2013.01.06



萬勵工業
Wong Lee

wonglee.com.tw

**BUTTERFLY VALVE
BALL VALVE
ACTUATOR
PTFE PARTS**

超薄型蝴蝶閥

球閥

氣動執行器

鐵氟龍零件





技術領先 堅持品質
萬勵產品深獲國際肯定

**Technological Leadership
Insist on Quality**

WONG LEE products are
recognized internationally



一貫化作業體系

致力於鐵氟龍製品、閥門及閥門配備研發與製造的萬勵工業有限公司，是一家集研發及生產於一身的企業體。歷經30年來在閥門及相關零配件的開發生產經驗累積，配合理論上的深入鑽研，萬勵已成功的開發出廣泛系列的產品，應用在各行業。堅持最佳品質及滿足客戶需求是萬勵公司的一貫傳統。我們可依客戶特殊應用，以生產完全符合客戶需求的產品。

卓越研發能力

萬勵產品之所以能夠受到各行各業的絕對肯定，其重要因素之一就是本公司所獨具的研發能力。無論是閥門機構、閥座材質及氣動執行器等...，我們擁有獨特的研發能力與專業背景。本公司領先台灣業界成功開發出PTFE(四氟聚乙稀)閥座，並榮獲台灣專利。此外，壳形氣缸氣動執行器之全新設計，再度榮獲台灣專利。在在顯示萬勵公司在研發能力的肯定。

Integrated Operation System

Wong Lee Industrial Co., Ltd. is dedicated to development and manufacturing of Teflon products, valves and related devices. It's an enterprise that combines research, development and manufacturing in one. With 30 years of accumulated experience in design and manufacturing of valves and related parts and devices combined with theorem foundation, Wong Lee has successfully developed a wide range of products for various industries. Insisting on quality and to satisfy customer's requirement are Wang Lee's tradition. We have custom design capability and produce the products that fully meet customer's specific applications.

Outstanding R&D Capabilities

For over years, Wong Lee products have been fully recognized by customers in various industries. One reason for such reputation is our unique R&D capabilities. No matter what of valve mechanisms, seat materials and actuators, we have unmatched R&D capabilities and expertise background. Wong Lee is the first company in Taiwan that successfully developed PTFE seat, and awarded patent in Taiwan. Furthermore, our newly designed shell type air cylinder actuator also awarded another patent in Taiwan. All these give a proof for Wong Lee's outstanding R&D capabilities.



wonglee.com.tw





萬勵工業
Wong Lee

100%品質檢驗
徹底控管品質

100% Quality Inspection
Thorough Quality Control

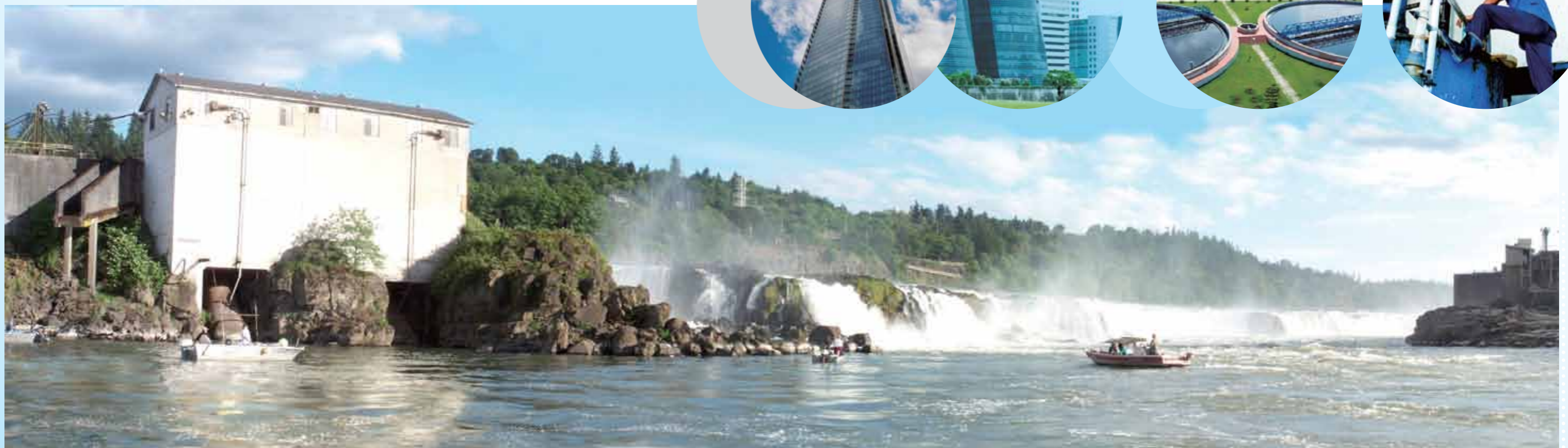


應用行業

- 智慧大樓中央空調 / Intelligent central air conditioning
- 自來水廠 / Waterworks
- 汙水處理廠 / Sewage treatment plant
- 紙廠 / Paper mill
- 糖廠 / Sugar refinery
- 麵粉廠 / Flour mill
- 食品廠 / Food factory
- 塑化廠 / Plastination factory
- 電子廠 / Electronics factory
- 化工廠 / Chemical plant
- 冷凍空調廠 / Refrigeration and air conditioning plant
- 造船廠 / Shipyard
- 煉油廠 / Refinery

萬勵產品除了採用高級材質·精密加工及組裝。每一個產品在出廠前·都需歷經嚴格的品質檢驗與測試。以確保萬勵產品在耐壓之可靠與無漏水之問題。

Wong Lee products are manufactured from high quality materials in combination with precision machining and assembling. In addition, each product is subject to rigorous inspection and test prior to shipping. All these will ensure dependable pressure resistance and leak free operation for Wong Lee products.



蝴蝶閥構造圖

Construction of Butterfly Valve

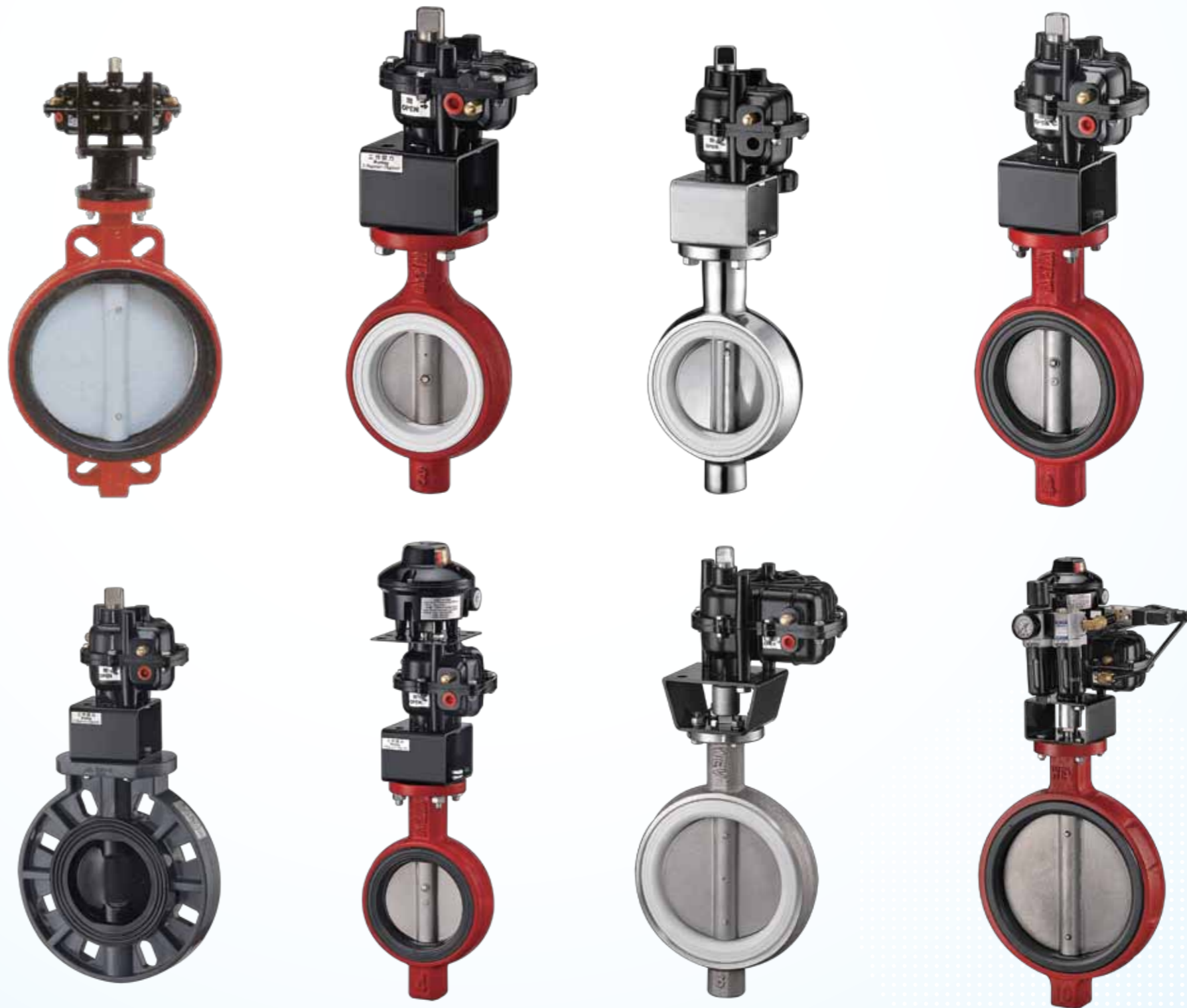
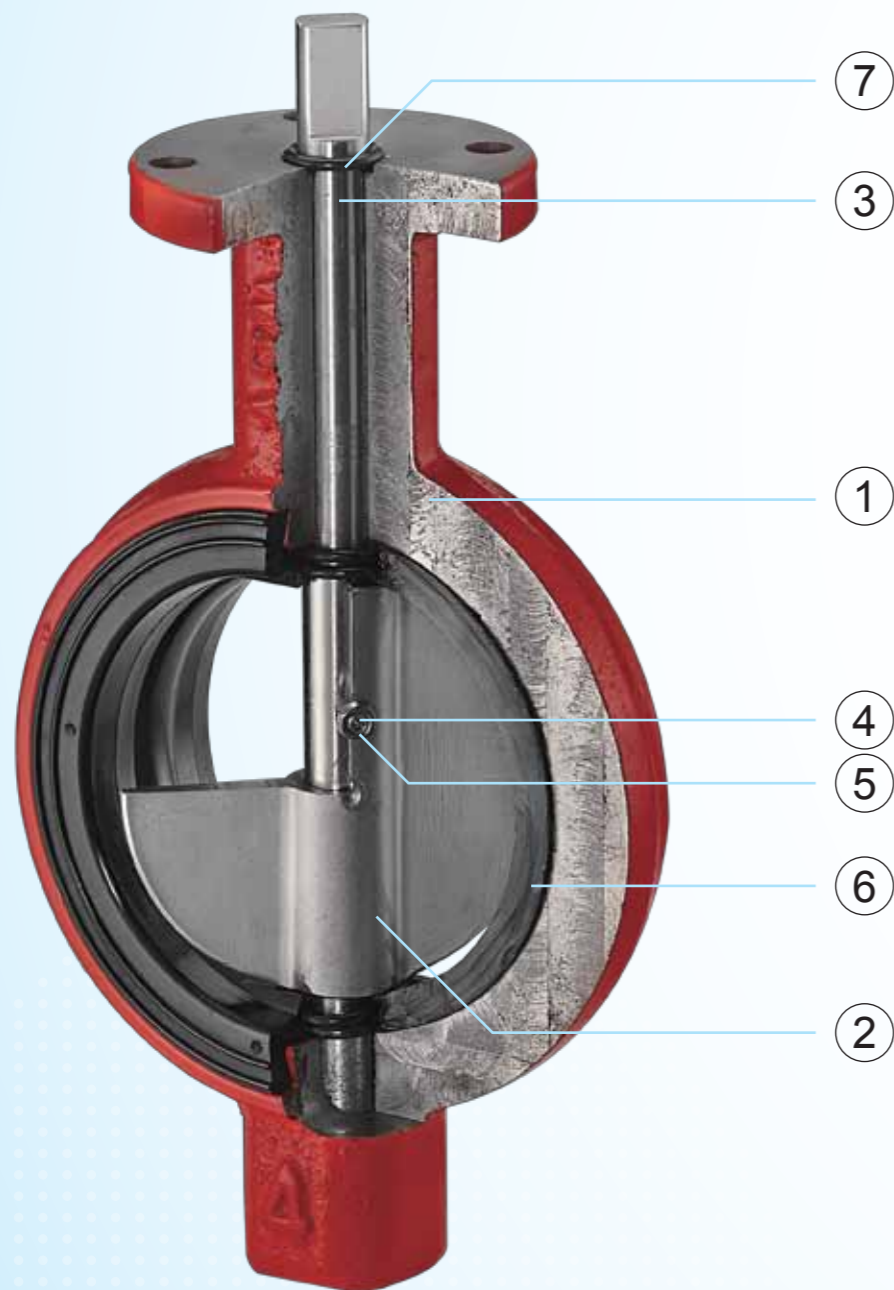
超薄型蝴蝶閥

BUTTERFLY VALVE

氣動式 / Pneumatic Actuator

規格範圍 / Size Range

Ø2" ~ 12"



編號	名稱	材質	編號	名稱	材質
①	本體 Body	鑄鐵 鑄不鏽鋼 FC20 SCS13, SCS14	⑤	螺帽附彈簧華司 Nut & SP. Washer	不鏽鋼 SUS304, SUS316
②	閥片 Disc	鑄鐵 鑄不鏽鋼 FCD45 SCS13, SCS14	⑥	閥座 Seat	橡膠 NBR, EPDM, SILICONE, VITON, PTFE
③	軸心 Stem	不鏽鋼 SUS410, SUS304, SUS316	⑦	O環 O-Ring	橡膠 NBR, SILICONE, VITON
④	斜梢 Taper Bolt	不鏽鋼 SUS304, SUS316			

超薄型蝴蝶閥

BUTTERFLY VALVE

手動式 / Lock Lever Operated

規格範圍 / Size Range

Ø2" ~ 12"



齒輪式 / Worm Gear Operated

規格範圍 / Size Range

Ø2" ~ 24"



電動式 / Motor Operated

Ø2" ~ 24"



Ø2" ~ 12"

壳形 雙動氣缸
Shell type
double acting
air cylinder



Ø2" ~ 12"

鋁合金雙動氣缸
Aluminum alloy
double acting
air cylinder



Ø2" ~ 24"

鑄鐵雙動氣缸
Cast iron
double acting
air cylinder



球 閥

BALL VALVE

氣動式 / Pneumatic Actuator

規格範圍 / Size Range

Ø1/4" ~ 4"

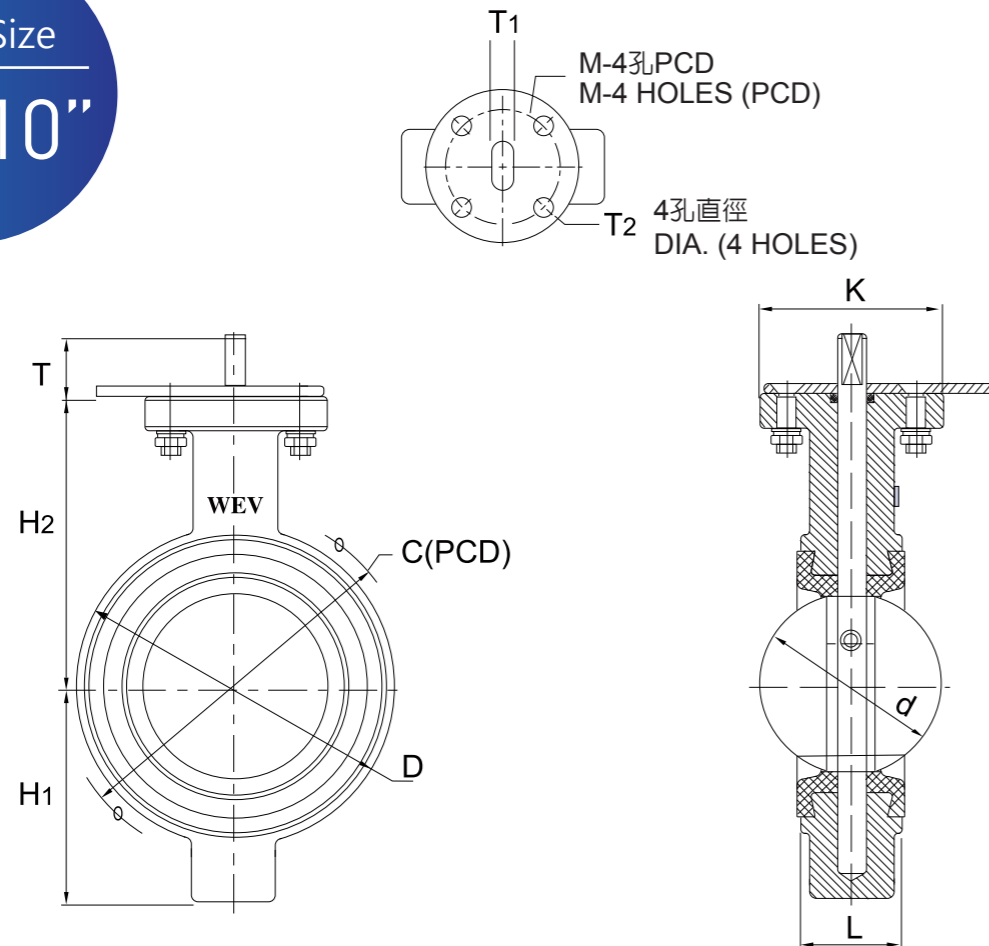


蝴蝶閥尺寸圖

Dimensional Drawing of Butterfly Valve

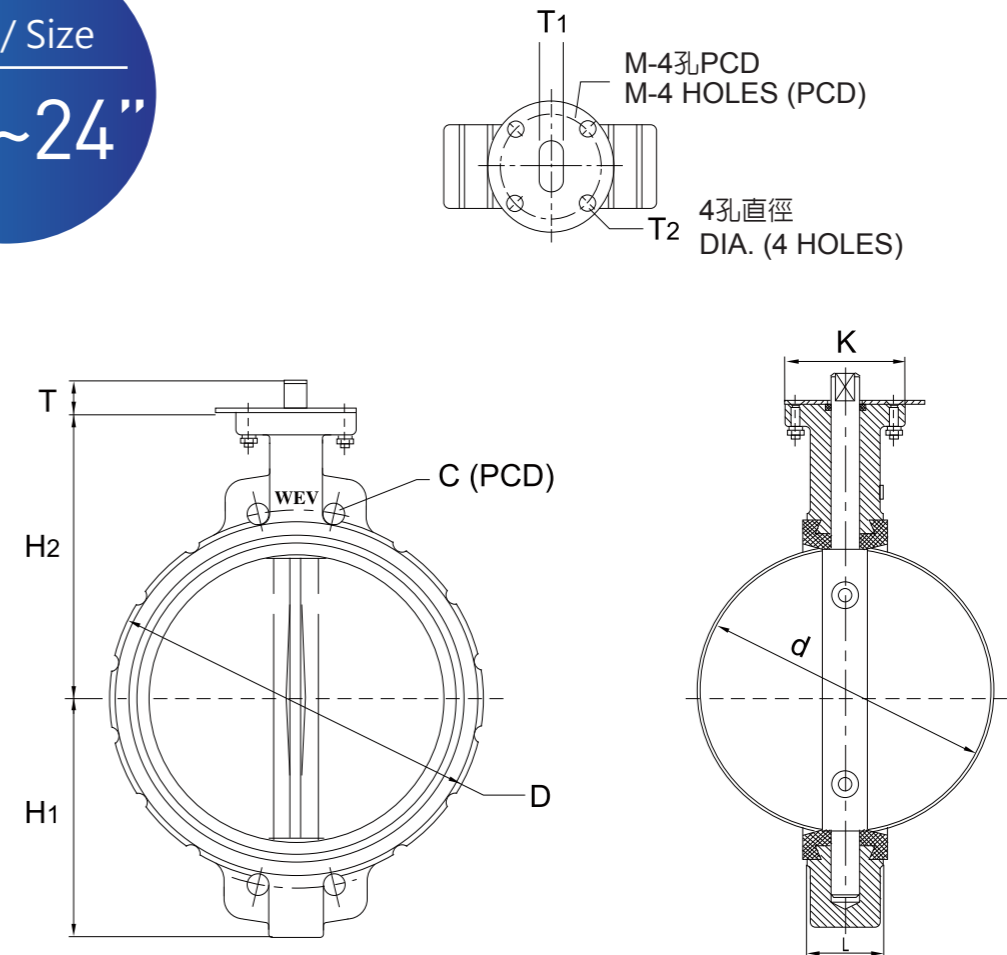
尺寸 / Size

2"~10"



尺寸 / Size

12"~24"



Size 尺寸	Dimensions (mm) 尺寸										Flange 凸緣 Jis 10kg/m ²		Weight Approx 重量
	d	L	D	H ₁	H ₂	K	T	T ₁	T ₂	M	C	n-hBolt	
2	52	38	101	74	102	90	30	8.4	10.5	70	120	4-19-M16	3.1
2.5	65	42	123	91	120	90	30	8.4	10.5	70	140	4-19-M16	3.9
3	76	42	132	91	123	90	30	8.4	10.5	70	150	8-19-M16	4.3
4	100	48	157	116	144	90	30	11	10.5	70	175	8-19-M16	6.3
5	125	52	190	127	161	90	30	11	10.5	70	210	8-23-M20	7.7
6	151	52	218	140	179	90	30	11	10.5	70	240	8-23-M20	9.1
8	194	60	268	186	215	125	40	17	12	102	290	12-23-M20	18.4
10	251	62	327	217	250	125	40	17	12	102	355	12-25-M22	25.1

■ 本公司保留產品規格，尺寸，設計特性變更之權利，恕不另行通知。

■ The specifications, dimensions and design characteristics shown in this catalogue are subject to change without prior notice.

Size 尺寸	Dimensions (mm) 尺寸										Flange 凸緣 Jis 10kg/m ²		Weight Approx 重量
	d	L	D	H ₁	H ₂	K	T	T ₁	T ₂	M	C	n-hBolt	
12	296	76	374	242	291	125	45	21	12	102	400	16-25-M22	36
14	345	76	420	279	332	125	55	21	12	102	445	16-25-M22	55
16	386	86	497	320	360	170	65	26	14.7	140	510	16-27-M24	82
18	437	105	538	340	390	170	65	26	14.7	140	565	20-27-M24	105
20	481	110	595	362	430	170	65	26	14.7	140	620	20-27-M24	134
24	600	140	697	410	488	190	70	32	17	165	730	24-33-M30	200

■ 本公司保留產品規格，尺寸，設計特性變更之權利，恕不另行通知。

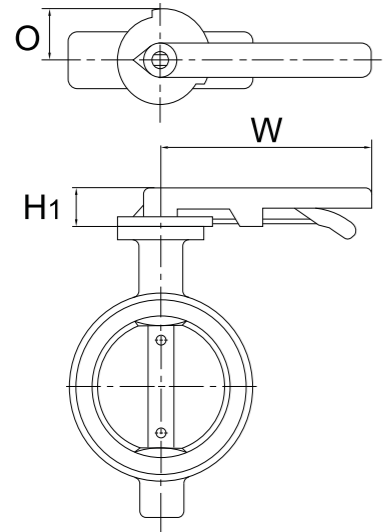
■ The specifications, dimensions and design characteristics shown in this catalogue are subject to change without prior notice.

各型操作器尺寸圖

Dimensional Drawing of Actuator

手動式 / Lock Lever

尺寸 / Dimension

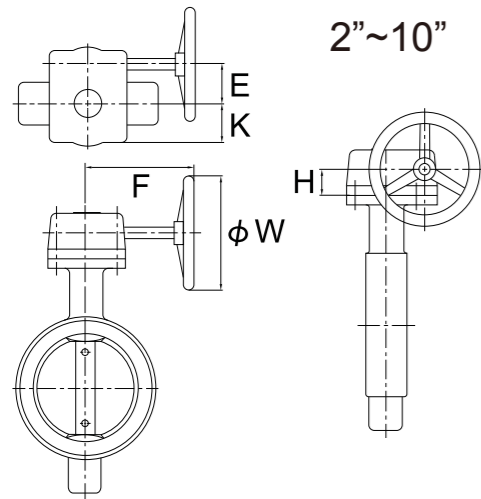


Size		Dimensions (mm) 尺寸		
mm	inch	H1	W	O
50	2	40	220	60
65	2-1/2	40	220	60
80	3	40	220	60
100	4	40	260	70
125	5	40	260	70
150	6	40	260	70
200	8	50	445	90
250	10	50	445	90
300	12	50	445	90

- 本公司保留產品規格，尺寸，設計特性變更之權利，恕不另行通知。
- The specifications, dimensions and design characteristics shown in this catalogue are subject to change without prior notice.

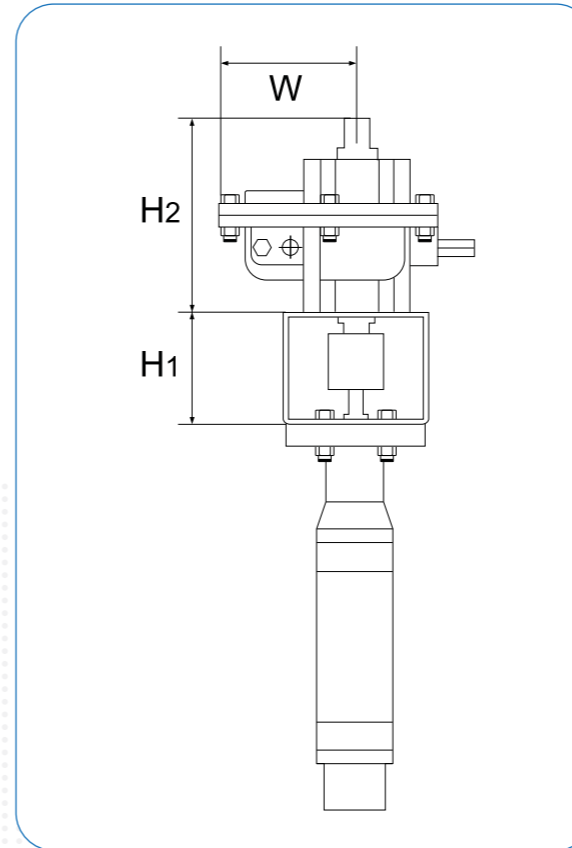
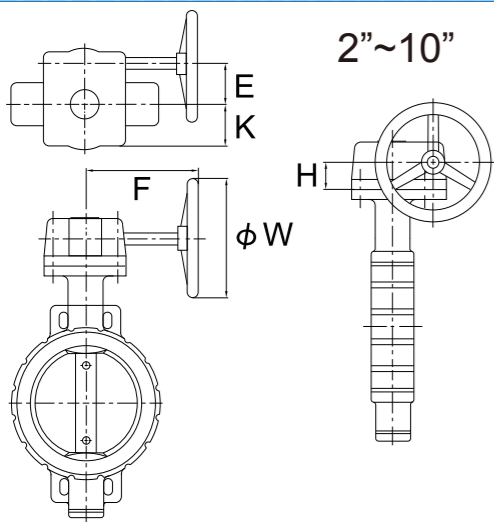
齒輪式 / Worm Gear

尺寸 / Dimension



Size		Dimensions (mm) 尺寸					kg
mm	inch	H	E	K	F	φW	
50	2	40	50	34	150	125	9.2
65	2-1/2	40	50	34	150	125	10.2
80	3	40	50	34	150	125	10.3
100	4	40	50	34	150	150	12
125	5	40	50	34	150	150	13.5
150	6	40	50	34	150	150	15.8
200	8	46	65	42	250	200	31.2
250	10	46	65	42	250	200	40
300	12	46	65	42	250	250	47.5
350	14	46	65	42	250	250	52
400	16	50	102	50	345	300	82.7
450	18	50	102	50	345	300	105
500	20	50	102	50	345	300	130
600	24	50	102	50	362	355	220

- 本公司保留產品規格，尺寸，設計特性變更之權利，恕不另行通知。
- The specifications, dimensions and design characteristics shown in this catalogue are subject to change without prior notice.

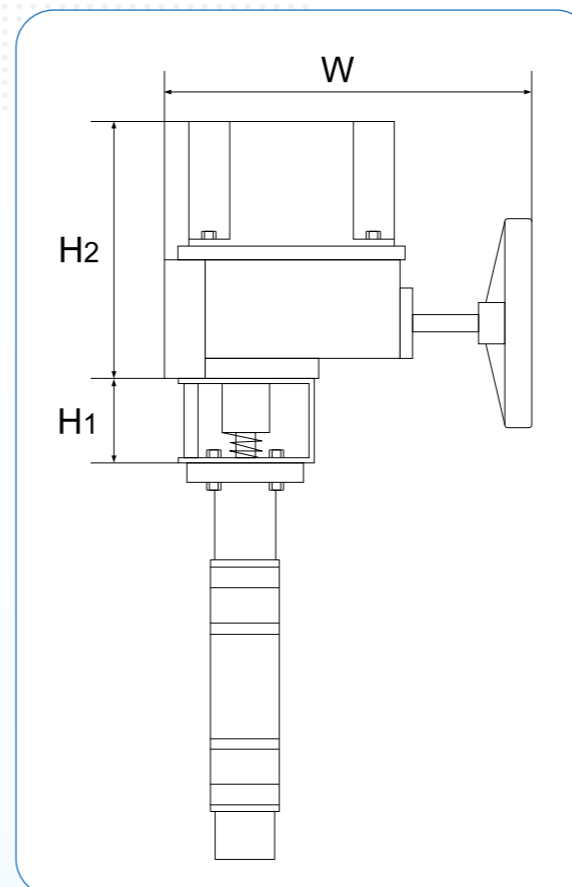


氣動式 / Cylinder Operated

尺寸 / Dimension

適用蝶閥		Dimensions (mm) 尺寸		
Model	inch	H1	H2	W
VA50	2"	62	102.7	81
	2-1/2"			
	3"			
VA80	4"	62	126.2	81
	5"			
	6"			
VA150	8"	70	146	145
	10"			
VA150	12"	70	146	145

- 本公司保留產品規格，尺寸，設計特性變更之權利，恕不另行通知。
- The specifications, dimensions and design characteristics shown in this catalogue are subject to change without prior notice.



電動式 / Motor Operated

尺寸 / Dimension

Size		Dimensions (mm) 尺寸			kg
mm	inch	H1	H2	W	
50	2	60	198	275	10.3
65	2-1/2	60	198	275	11.3
80	3	60	198	275	11.4
100	4	60	198	275	13
125	5	60	224	275	15.3
150	6	70	224	275	17.4
200	8	70	224	275	23.5
250	10	70	250	275	32.7
300	12	70	250	275	41

- 本公司保留產品規格，尺寸，設計特性變更之權利，恕不另行通知。
- The specifications, dimensions and design characteristics shown in this catalogue are subject to change without prior notice.

蝴蝶閥規格與技術參數

Specifications and Technical Data of Butterfly Valve

凸緣尺寸 / Flanges:

JIS 10kgf/cm²

壓力試驗 / Test Pressure:

本體 20kg/cm² (300 p.s.i.)
Body 20kg/cm² (300 p.s.i.)

材質標準 / Standard Materials:

本體 Body	FC20鑄鐵, SCS13, SCS14不銹鋼。 FC20 Cast Iron scs13 scs14 stainless steel.
閥片 Disc	FCD45延性鑄鐵, 鍍硬鉻處理, 或SCS13, SCS14不銹鋼。 FCD45 Ductile Cast Iron hard chrome plated or SCS 13 SCS 14 cast stainless steel.
軸心 Stem	SUS304不銹鋼。SUS410, 304, 316 SUS 304 stainless steel. SUS410, 304, 316
閥座 Seat	NBR EPDM矽膠 VITON PTFE NBR EPDM SILICONE VITON PTFE
斜栓 Taper Bolts	SUS304, SUS316不銹鋼。 SUS 304 SUS 316 stainless steel.

漏隙試驗 / Leak Test:

座 Same as working pressure.
Seat 10kg/cm² (150 p.s.i.)

使用壓力 / Working Pressure:

10kg/cm² (150 p.s.i.)

閥座材質選用參考表

Selection Guide of Valve Seat Materials

材質 Material	適用溫度 °C Applicable Temp. °C	使用說明 Application Instruction
NBR	-10°~80° 瞬間100° -10°~80° Instant 100°	廣稱:耐油膠具有良好延展性, 耐老化, 耐油, 作為通用材料。 可用於: 水, 真空, 脂, 油, 鹽等流體。 不可用於: 丙酮, 甲酮, 硝酸鹽和氯化氫等場所。 Features: The oil-resistant rubber features outstanding elongation, aging and oil resistance, and has been widely applied. Applicable For: water, vacuum, fat, oil and salt, etc. Not Applicable For: acetone, benzophenone, nitrate and hydrogen chloride.
EPDM	-40°~120° 瞬間130° -40°~120° Instant 130°	耐候性佳可用於冷卻水, 熱水, 蒸氣。 耐油, 耐彎曲, 彈性佳不易龜裂。 Excellent wear resistance makes it suitable for coolant, hot water and steam. Oil resistance, bending resistance, excellent elasticity, and difficult cracking.
SILICONE	-40°~150° 瞬間200° -40°~150° Instant 200°	物性變化小彈性佳, 無味無臭廣泛用於食品, 蒸氣, 熱水, 冰水。 拉裂強度差, 耐寒, 耐高溫, 不耐磨, 不耐強酸、鹼。 Minimum property variation and outstanding elasticity. No taste and no odor. Widely applied for food, steam, hot water and ice water. Freezing and high-temperature resistance. Poor cracking resistance and poor acid / alkaline resistance.
VITON	-40°~150° 瞬間200° -40°~150° Instant 200°	耐化學藥品性可用於高溫不凍, 藥品、弱酸、弱鹼。 撕裂性差。 Resistant to chemical and medicine. Poor freezing resistance. Suitable for high temperature, medicine, weak acid / alkaline. Poor tearing resistance.
PTFE	-10°~80° 瞬間100° -10°~80° Instant 100°	PTFE化學性能穩定, 具不粘性, 抗老化, 廣泛用於強酸, 強鹼及腐蝕性溶劑等材質 缺點: 易刮傷, 氣密性差 Stable chemical property. No adhesion and aging resistance. Widely applied for strong acid / alkaline and corrosive solvent, etc. Defect: easy scratch and poor air tightness.

流量系量

Flow Coefficient

流量系數的定義:

流量系數是衡量閥門流通能力的指標。流量系數表示流體流經閥門產生單位壓力損失時流體的流量。

DEFINITION OF FLOW COEFFICIENT:

Flow coefficient is an indication of flow capacity of valve gate. It means the flow rate of fluid that flow through the gate valve with a unit pressure loss.

閥門規格 Valve Gate Specif. mm(inch)	閥板開啓不同角度產生單位壓力損失時的流量 (x10 ⁶ m ³) Flow rates (x10 ⁶ m ³) for various valve plate opening angles with unit pressure loss							全開 (90°) Full opening (90°) A _v
	20°	30°	40°	50°	60°	70°	80°	
50(2)	97	305	631	1068	1694	2520	3240	3816
65(2-1/2)	148	502	926	1567	3360	3744	5160	6384
80(3)	326	754	1390	2352	3744	5760	8208	10968
100(4)	574	1322	2448	4152	6576	10152	15000	20640
125(5)	893	2054	3792	6432	10224	15744	23280	31680
150(6)	1279	2952	5448	9216	14640	22584	34080	48480
200(8)	2263	5028	9624	16296	25920	39840	60000	84960
250(10)	3480	8016	14508	24960	39840	61440	91920	133920
300(12)	5016	11544	21312	36000	57360	88560	134880	193920
350(14)	8040	16080	19424	46440	69432	105744	162048	229872
400(16)	10632	21264	38928	61440	91848	139896	214392	304104
450(18)	13608	27312	49800	78600	117504	178968	274296	389064
500(20)	17064	34128	62544	98784	147744	225048	344904	489240
600(24)	24912	49872	91008	143640	214728	327072	501288	711048

流量系數的計算

Calculating Flow Coefficient

$$A_v = Q / \sqrt{\frac{\Delta P}{\rho}}$$

式中 A_v — 流量系數 (m²)

Q — 體積流量 (m³/s)

ΔP — 閥門的壓力損失 (Pa)

ρ — 液體密度 (kg/m³)

A_v : Flow coefficient (m²)

Q : Volumetric flow (m³/s)

ΔP : Pressure loss of valve gate (Pa)

ρ : Fluid density (kg/m³)

注:

- 表中流體是16°C的水。
- 美國流量系數為 C_v。

NOTE:

- The fluid shown in above table is 16°C water.
- C_v is American flow coefficient.

式中 C_v — 流量系數 $\frac{US \text{ gal}}{\text{min}} \left(\frac{\text{lb/ft}^3}{\text{lb/in}^2} \right)^{\frac{1}{2}}$

Q — 體積流量 (US gal/min)

ΔP — 閥門的壓力損失 (lb/in²)

ρ — 液體密度 (lb/in³)

3. C_v與 A_v 關係

$$C_v = \frac{10^6}{24} A_v$$

C_v : Flow coefficient $\frac{US \text{ gal}}{\text{min}} \left(\frac{\text{lb/ft}^3}{\text{lb/in}^2} \right)^{\frac{1}{2}}$

Q : Volumetric flow (US gal/min)

ΔP : Pressure loss of valve gate (lb/in²)

ρ : Fluid density (lb/in³)

3. Relationship between C_v and A_v

$$C_v = \frac{10^6}{24} A_v$$

壳形雙動氣動開關

Shell Type Double Acting Vane Actuator

特性

- 使用於一般閥關之開關控制。
- 取代傳統之氣壓缸而使空間大大增加，更易於操作及裝配於狹窄之空間。
- 從2"~12"之蝶閥，3/8"~3"之球閥皆可靈巧的開關，提供了更多的運用範圍。
- 本體由高密度之鋁合金成形加上表面處理，使成品重量大為減輕，又不失原有功能。

氣動開關規格

- 適用溫度：-30°C~80°C
- 氣壓接頭：PT1/4"
- 開啟角度：110°
- 行程角度：0°~90°

選擇性配件

- 本產品可追加三點組合之過濾器以提高產品使用壽命。
- 在配合氣動電磁閥及微動開關更提供了自動化之應用領域。
- 若使用環境有特殊要求，則本體可做特殊之表面處理(特殊粉體塗裝；氟炭素烤漆)

Features

- Suitable for switch control for general valves.
- Unlike the conventional air cylinder actuation, the newly designed air actuator allows for large space utilization. Easy to operate. Suitable for mounting in a narrow space.
- Applicable for use on 2" ~ 12" butterfly valves and 3/8" ~ 3" ball valves. The actuator features extra smooth switching function and wide range of applications.
- The body is manufactured from high density aluminum alloy with surface treated, that features light weight without affecting its original functions.

Specifications of Actuator

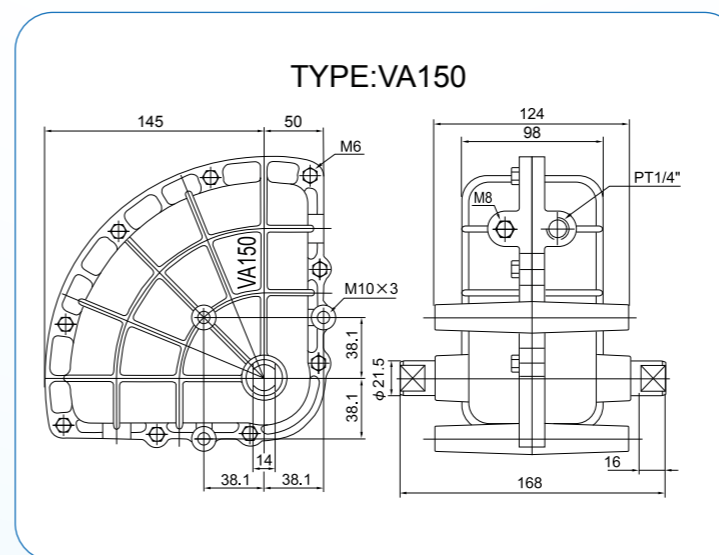
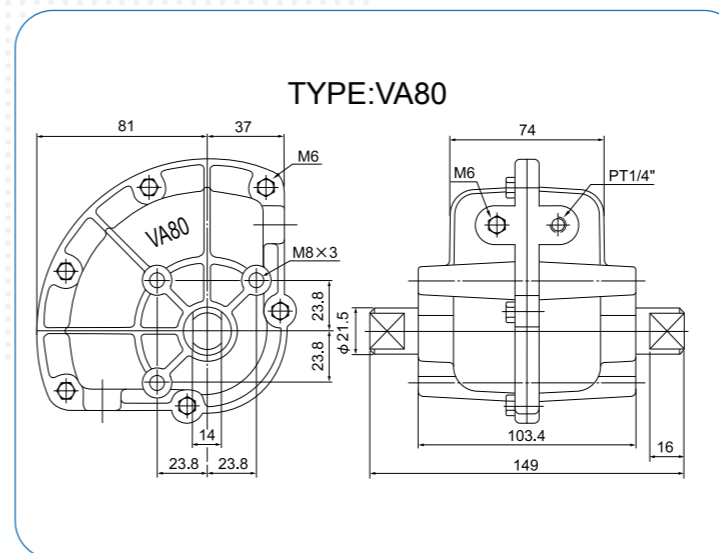
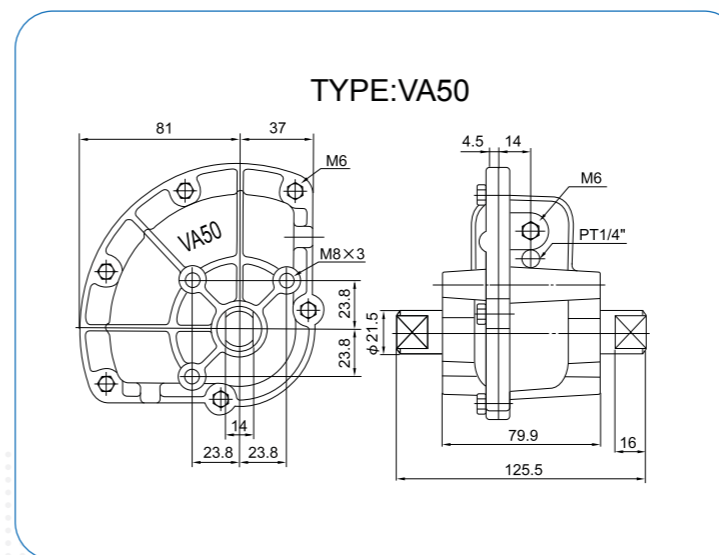
- Temperature range: -30°C ~ 80°C
- Air pressure port: PT 1/4"
- Opening angle: 110°
- Stroke angle: 0° ~ 90°

Optional Accessories

- The actuator is available to equip with a filter of F.R.L. combination unit to extend its service life.
- When using together with air solenoid valve and micro-switch, an automated operation can be achieved.
- When using the actuator in a special environment, the body is available to be specially treated (Such as special powder coating or PVDF baked painting).

壳形雙動氣動開關尺寸圖

Dimensional Drawings of Shell Type Double Acting Vane Actuator



尺寸規格 / Dimensions:

型式 TYPE	空氣量 Operating		扭距 Torgue output		參考使用之閥體 Suitable type		
	Psi	Kpa	in-Id	Nm	蝶閥 Butterfly valve	球閥 Ball valve	
VA50	40	300	276	30	2"~3"	牙口	法蘭
	60	400	320	36		1-1/2" 以下	1-1/4" 以下
VA80	40	300	277	31	4"~6"	2"	1-1/2" ~ 2"
	60	400	398	45			
VA150	30	200	1041	118	8"~12"		3"
	40	300	1385	157			
	60	400	1861	211			

說明：供參考使用

Description: For reference only

$$T = \eta \cdot \frac{\pi D^2}{4} (P_1 - P_2) \cdot \varrho \cdot \frac{1}{\cos^2 \theta}$$

T : 出力扭距(kgf-cm)

ϑ : 擺動弧長

η : 負荷率

θ : 擺動弧長所對的角度

D : 活塞直徑(cm)

P₁ : 供給之壓縮壓力(kg/cm²)

P₂ : 排氣壓力(kg/cm²)

T : Torque output (kgf-cm)

η : Loading percentage

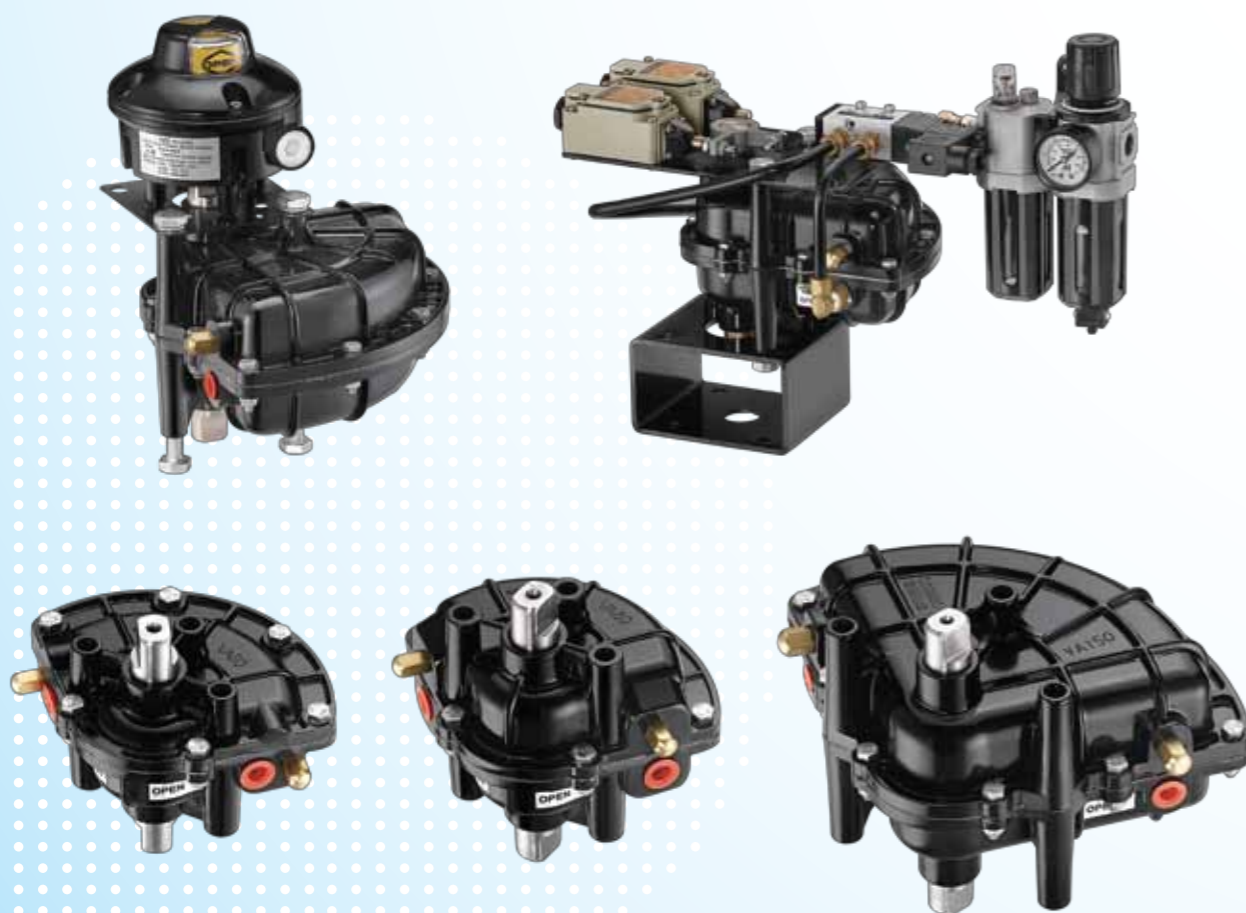
D : Piston diameter (cm)

P₁ : Supplied compressed air pressure (kg/cm²)

P₂ : Exhaust air pressure (kg/cm²)

ϑ : Oscillating arc length

θ : Angle corresponded to oscillating arc length



PTFE 鐵弗龍專業製造廠

A Specialized PTFE Teflon Manufacturer



PTFE 特性 Features of PTFE

	項目 Items	單位 Unit	ASTM試驗法 ASTM Testing Method	TEFLON(PTFE) 特性 Teflon (PTFE) Features
物理性質 Physical Property	比重	Specific weight		2.14~2.20
	融點	Melting point	°C	327
機械性質 Mechanical Property	拉力強度	Tensile strength	kg/cm ²	280~350
	伸張率	Elongation percentage	%	200~400
	壓縮強度	Compression strength	kg/cm ²	120
	引張彈性率	Elasticity	10 ³ kg/cm ²	4
	彎曲彈性率	Bending elasticity	10 ³ kg/cm ²	3.5~6.3
	衝擊強度	Impact strength	kg/cm ²	16.3
	靜摩擦係數	Static friction coefficient		0.05
溫度性質 Temperature Property	動摩擦係數 (7kg/cm ² , 3m/分)	Dynamic friction coefficient (7kg/cm ² , 3m/min.)		0.10
	導熱度	Heat conductivity	10 ⁴ Cal/cm·sec·°C	5.9
	比熱	Specific heat	cal/g·°C	0.255
	線膨脹係數	Linear expansion coefficient	10 ⁻⁵ /°C	9.9 (23~66°C)
	連續使用溫度	Continuous oper. temperature	°C	250
電氣特性 Elec. Property	熱變形溫度 4.6kg/cm ² 18.5kg/cm ²	Thermal deformation temp. 4.6kg/cm ² 18.5kg/cm ²	°C °C	D648 D648 121 55
	體積阻抗	Volumetric resistance	Ω·cm	>10 ¹⁸
	表面阻抗	Surface resistance	Ω	>10 ¹⁶
	絕緣破壞強度	Insulation breaking strength	(1/8" 厚度thick)KV/mm	16~24
	誘電率	Dielectric constant (60HZ~10 ⁶ HZ)		<2.1
	誘電正接	Dielectric tangent (60HZ~10 ⁶ HZ)		<0.0002.
耐久性 Durability	耐電弧	Electric arc resistance	sec	>300
	耐藥品性	Medicine resistance		優 Excellent
	燃燒性	Flammability		不燃 Non-flammable
	吸水率	Water absorbing percentage	%	<0.01

PTFE 特性應用

- 低摩擦係數(耐摩擦): 為固體中摩擦係數最低(0.04)·約與冰同。
- 耐熱性: 可使用於連續溫度250°C中。
- 化學抵抗力(耐藥品性): 不溶於一般溶劑中·抗蝕性強。
- 高溫機械強度大。
- 低誘電率: 誘電率·誘電正接固體物質中最低·為優良絕緣材料。
- 不粘性。
- 耐天候性。

主要產品

- 鐵弗龍(PTFE)製品。
- 工業塑膠製品專製: 迫緊(PACKING)、油封(OIL SEAL)、軸承(BEARING)、凡而 & 考克止漏迫緊 (VALVE & COCK SEAL PACKING) 電子、電器零配件 (ELECTRIC PART)

PTFE FEATURES:

- Low friction coefficient (Friction resistance): It features the lowest friction coefficient (0.04) among solids as nearly same as ice.
- Heat resistance: Allows for use in a continuous temperature of 250°C.
- Chemical resistance (medicine resistance): It does not melt in the solvent with excellent corrosion-resistance.
- High mechanical strength under high temperature condition.
- Low dielectric: It features the lowest dielectric constant and dielectric tangent among solids, and is an ideal insulating material.
- No adhesion.
- Superior weather-resistance.

MAJOR PRODUCTS

- Teflon (PTFE) products.
- Applicable for producing industrial plastic products such as: packing, oil seal, bearing, valve and cork sealing packing, electronic and electrical components.

Corrosin Chart 侵蝕性物質表

FLUID	MATERIAL 材料	Aluminum 鋁	Bronze 青銅	Carbon Steel 碳鋼	Ductile Iron 延展性之金屬	S.S.304 輪船304	S.S.316 輪船316	Buna-N	Viton	PTFE
Acetic Acid (Oto50%)	醋酸	B	X	X	X	B	A	X	X	A
Acetic Acid (Up50%)	醋酸 (50%以上)	B	X	X	X	A	B	X	X	A
Ammonia	氨水	B	X	A	A	A	A	X	X	A
Ammonium Chloride	氯化銨	C	X	X	X	B	B	B	A	A
Aniline	苯胺	C	C	C	C	B	B	X	X	A
Beer (Alcohol Industry)	啤酒(酒精工業)	A	B	C	C	A	A	A	A	A
Benzene	苯	B	B	B	B	B	B	X	B	A
Bromine (Dry)	溴	C	X	X	X	C	C	X	A	A
Butyric Acid	丁酸	B	C	X	X	B	B	X	A	A
Carbonic Acid	碳酸	B	X	X	X	B	B	A	A	A
Carbolic Aid	石碳酸(酚)	A	A	X	X	B	B	X	A	A
Chlorine Gas (Dry)	氯氣(乾)	X	C	X	X	B	B	X	A	A
Chlorine (Wet)	氯(濕)	X	X	X	X	X	X	X	A	A
Chromic Acid	鉻酸酐	C	X	X	X	C	C	X	A	A
Ethers	酯	B	B	A	B	A	A	X	X	
Ferrous Sulfate	硫化鐵	B	X	X	X	B	A	X	X	A
Fluorine (Dry)	氟(乾)	B	B	B	B	B	B	X	A	A
Formaldehyde	甲醛	A	A	B	B	B	A	B	A	A
Formic Acid	甲酸	X	B	X	X	C	A	B	X	A
Freon (Dry)	二氯二氟甲烷	B	B	B	B	A	A	B	B	A
Gasoline	汽油	A	A	A	B	A	A	B	A	A
Gasoline (Sour)	汽油	A	B	B	B	A	A	B	A	A
Glycols		B	B	B	B	B	B	B	A	A
Hydrochloric Acid	氯化氫(鹽酸)	X	X	X	X	X	X	X	A	A
Hydrochloric Acid	氯化氫	X	X	X	X	X	X	X	B	A
Hydrogen Gas (Cold)	氫氣(冷)	A	B	B	B	A	A	A	A	A
Hydrogen Peroxide	過氧化氫	A	B	X	X	B	B	X	A	A
Kerosene	煤油	A	A	B	B	A	A	B	A	A
Lactic Acid (Dilute Hot)	醋酸(稀釋)	B	X	X	X	B	A	X	A	A
Lactic Acid (Con. Cold)	醋酸(濃縮)	C	X	X	X	B	A	X	A	A
Malic Acid	蘋果酸(羯基丁二酸)	B	B	X	X	A	A	B	X	A
Mercury	汞	C	D	A	A	B	B	A	A	A
Naphtha	輕油(石油腦)	A	B	B	B	B	B	B	A	A
Nitric Acid (Dilute)	硝酸(稀釋)	X	X	X	X	A	A	X	A	A
Nitric Acid (Concentrated)	硝酸(濃縮)	B	X	X	X	A	A	X	X	X
Oxalic Acid	草酸	C	B	X	X	B	B	X	A	A
Oxygen	氧	A	A	B	B	A	A	B	A	A
Phosphoric Acid 25%	磷酸25%	X	X	X	X	B	B	B	A	A
Phosphoric Acid 25%	磷酸25%	X	X	X	X	B	B	B	A	A
Potassium Cyanid	氰化鉀	X	X	B	B	B	B	A	A	A
Potassium Hydroxide	氫氧化鉀	X	X	B	B	B	B	B	A	A
Sea Water	海水	C	C	X	X	B	B	A	A	A
Sodium Nitrate	硝酸鈉	A	B	B	B	A	A	A	A	A
Starch	澱粉	A	B	A	A	A	A	A	A	A
Steam	蒸氣	B	A	A	A	A	A	X	B	B
Vinegar	醋	C	B	X	X	A	A	B	X	A
Water, Fresh	水(新鮮)	A	A	C	C	A	A	A	A	A
Water, Brackish	水(有鹽味的)	B	B	X	X	A	A	A	A	A
Whiskey & Wines	威士忌和酒	X	A	X	X	A	A	X	A	A

