

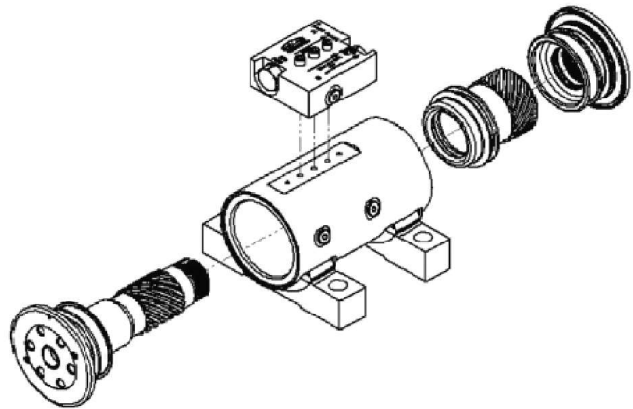
液壓旋轉執行器

Hydraulic Rotary Actuators RA Series - 21MPa

工作原理 | Operation Technology

油順精密創新產品"液壓旋轉執行器"，使用雙螺旋結構設計的嚙合傳動，促使活塞從直線運動轉化為旋轉運動。包括一管內螺旋齒配合活塞外螺旋齒，一體化軸心外螺旋齒配合活塞內螺旋齒，尺寸精確穩定性高並具有傑出的負載能力。

ASHUN's innovative "Hydraulic Rotary Actuators" adopts a double-helix meshing drive design that transforms the piston's linear motion into rotary motion. The design features an inner helical gear on the tube that engages with the outer helical gear on the piston, and an outer helical gear on the integrated central shaft that engages with the inner helical gear on the piston. This configuration ensures high dimensional precision, exceptional stability, and outstanding load capacity.



產品特性 | Product Features

- ◆ 高扭矩輸出與負載能力。
- ◆ 適用惡劣環境耐久度高。
- ◆ 結構緊湊適用狹小空間。
- ◆ 內部運動無泄漏可保持位置。
- ◆ 優化結構尺寸精確。
- ◆ 可安裝安全閥避免超壓。
- ◆ High torque output and excellent load capacity.
- ◆ Outstanding durability for use in harsh environments.
- ◆ Compact design ideal for installation in confined spaces.
- ◆ Leak-free internal motion ensures stable position holding.
- ◆ Precisely optimized structural dimensions for superior performance.
- ◆ Optional safety valve available to prevent overpressure.

液壓旋轉執行器

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產品應用 | Product Applications



- ◆ 工業自動化
Industrial Automation
- ◆ 機械工程
Mechanical Engineering
- ◆ 農業
Agriculture
- ◆ 建築
Construction



液壓旋轉執行器

Hydraulic Rotary Actuators RA Series - 21MPa

產品應用 | Product Applications



- ◆ 能源
Energy
- ◆ 車輛
Vehicle
- ◆ 運輸搬運
Transportation & Material Handling
- ◆ 其它廣泛應用
Many Others



液壓旋轉執行器

Hydraulic Rotary Actuators RA Series - 21MPa

安裝方式 | Mount Type

◆ 法蘭式 (Flange Mount)

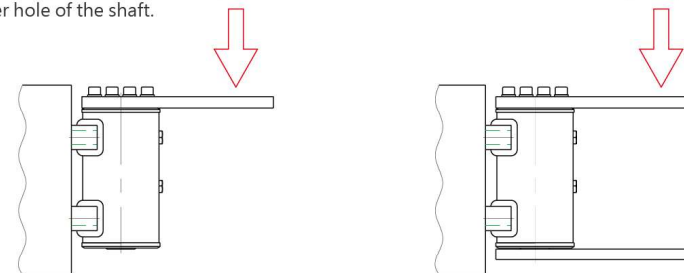
負載在法蘭上僅一端支撐懸臂，不適用高空作業與安全有關工程。

Only one end of the load supports the cantilever on the flange, not suitable for high-altitude operations and safety-related projects.

◆ 支架式 (Bracket Mount)

負載由兩端支撐，通過連桿穿過軸中心孔後使用螺栓與螺母固定。

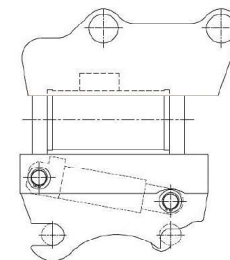
The load is supported by both ends, and fixed with bolts and nuts after the connecting rod passes through the center hole of the shaft.



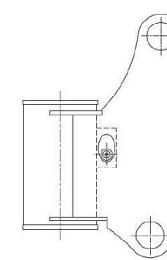
客製化安裝 | Customized Mounting

◆ 油順精密提供旋轉執行器的客製化安裝服務，專為滿足各種特殊應用需求而設計。

ASHUN offers customized mounting solutions for our rotary actuators, designed to meet the unique requirements of diverse applications.



傾斜式快速連接器U型座
Clevis Mount for Tilting Quick Coupler

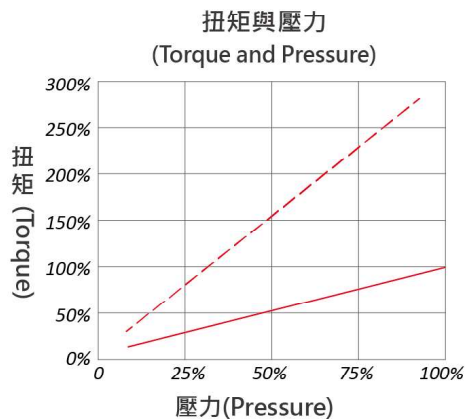


高空作業平台U型座
Clevis Mount for Aerial Work Platform

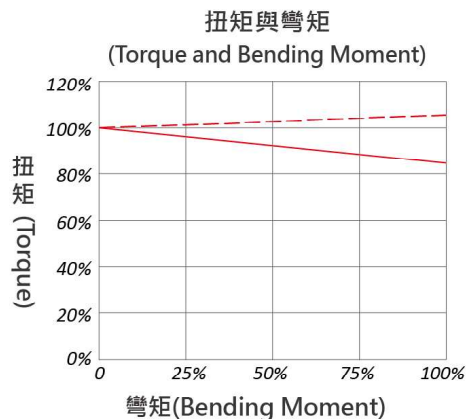
液壓旋轉執行器

Hydraulic Rotary Actuators RA Series - 21MPa

參考指南 | Reference Guide



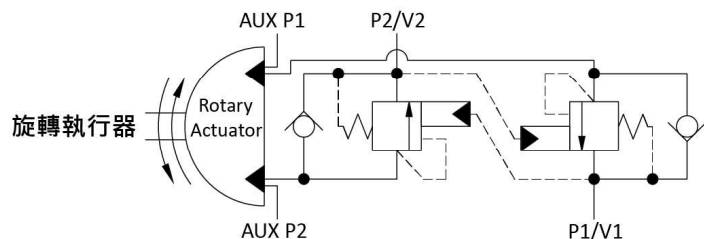
- ◆ 驅動扭矩與保持扭矩幾乎與液壓壓力成線性關係。
The driving torque and holding torque are almost linear with the hydraulic pressure.



- ◆ 隨負載增加，驅動扭矩可能會減少多達15%。
As load increases, drive torque may decrease by as much as 15%.

安全閥 | Safety Valve

- ◆ 安裝安全閥可在液壓管路故障時防止繼續旋轉。
Safety valve installed to prevent further rotation in case of hydraulic line failure.
- ◆ 負載超壓時保護旋轉執行器受到過大的扭矩負載。
Protects rotary actuators from excessive torque loads in the event of load overpressure.
- ◆ 安裝尺寸請參照規格頁，導壓比3:1，設定壓力為200~245 bar。
Please refer to the specification page for installation dimensions. Pilot pressure ratio 3:1. The set pressure is 200~245 bar.



安全閥的液壓原理圖 (Hydraulic schematic diagram of safety valve)

液壓旋轉執行器

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訂購方式 | Model Code

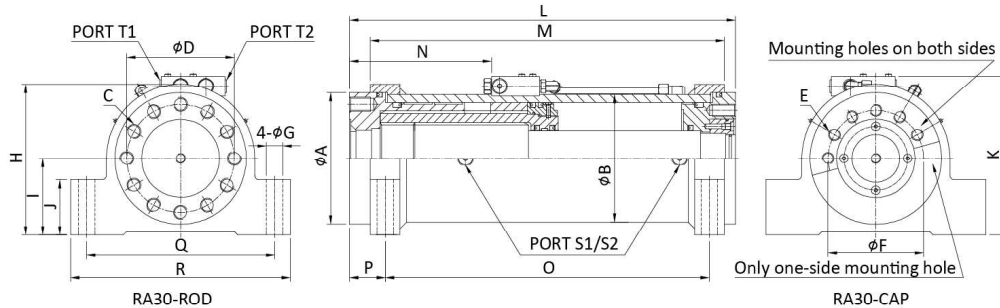
RA20 - LA - 4.5 - N - 180 - B - M - B

- ◆ 系列 / Series
 - RA10 (Drive Torque 5500 ~ 25000 in-lb)
 - RA20 (Drive Torque 4500 ~ 39000 in-lb)
 - RA30 (Drive Torque 25000 ~ 125000 in-lb)
 - ◆ 安裝 / Install
 - RA10 - RF (Rear Flange 後法蘭)
 - RA20 - LA (Foot Mount 腳座)
 - RA30 - FA (Front Flange) or LA (Foot Mount) (法蘭或腳座)
 - Customized (Clevis Mount or Special 客製化)
 - ◆ 型號 / Model
 - RA10 - 5.5、9.5、15、25
 - RA20 - 4.5、8.2、15、25、39 (4.5 = Drive Torque = 4500 in-lb)
 - RA30 - 25、42、65、95、125
 - ◆ 閥 / Valve Options
 - N (No Valve)
 - C (Safety Valve)
 - ◆ 旋轉角度 / Angle Rotation
 - RA10 - 180°、360°
 - RA20 - 180°
 - RA30 - 180°、360°
 - Customized (客製化)
 - ◆ 密封件 / Seals
 - B (Standard 標準)
 - Customized (客製化)
 - ◆ 公英制 / Metric and English
 - M (Metric System 公制)
 - E (English System 英制)
 - ◆ 軸心與端蓋安裝孔配置 / Rod and End Cap Mounting Hole Configurations
 - For RA30 Series Only (僅適用於 RA30 系列)
 - W/O B (Mounting holes in rod flange only 無代碼"B"僅軸端法蘭有安裝孔)
 - B (Mounting holes in rod and end cap flange 兩端皆有安裝孔)
- * RA10 和 RA20 系列，請參照規格頁面的安裝孔配置和尺寸
For RA10 and RA20 Series, please refer to the specification pages for mounting hole configurations and sizes.

液壓旋轉執行器

Hydraulic Rotary Actuators RA Series - 21MPa

規格尺寸 | RA30 Foot Mount Specifications



參數	Parameter	單位/Unit	25	42	65	95	125
驅動扭矩	Drive Torque	Nm (in-lb)	2820 (25000)	4740 (42000)	7340 (65000)	10700 (95000)	14100 (125000)
保持扭矩	Holding Torque	Nm (in-lb)	6820 (60400)	11600 (103000)	18300 (162000)	26200 (232000)	34500 (306000)
支架式彎矩 180°	Moment Capacity Bracket Type 180°	Nm (in-lb)	16900 (150000)	30800 (273000)	47700 (423000)	75100 (665000)	98800 (875000)
支架式彎矩 360°	Moment Capacity Bracket Type 360°	Nm (in-lb)	24600 (218000)	45400 (402000)	71100 (630000)	111500 (987000)	146300 (1295000)
法蘭式彎矩	Moment Capacity Flange Mount	Nm (in-lb)	7060 (62500)	11800 (105000)	18300 (162500)	29500 (261250)	38800 (343750)
徑向負載	Radial Capacity	kg (lb)	2260 (5000)	3620 (8000)	4990 (11000)	6800 (15000)	8160 (18000)
軸向負載	Axial Capacity	kg (lb)	1810 (4000)	2720 (6000)	3620 (8000)	4530 (10000)	5890 (13000)
180° 排量	Displacement 180°	cm³ (in³)	696 (42.5)	1180 (72)	1868 (114)	2679 (163.5)	3539 (216)
360° 排量	Displacement 360°	cm³ (in³)	1392 (85)	2360 (144)	3736 (228)	5358 (327)	7078 (432)
旋轉 180° 重量	Angle 180° Weight	kg (lb)	50 (110)	72.5 (160)	109 (240)	163.5 (360)	222.5 (490)
旋轉 360° 重量	Angle 360° Weight	kg (lb)	63.5 (140)	100 (220)	141 (310)	204 (450)	286 (630)

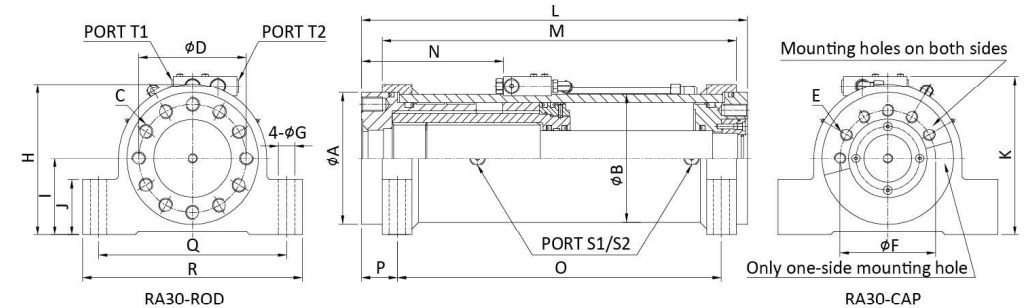
單位/Unit: mm (in)

參數	Parameter	符號/Symbol	25	42	65	95	125
軸與端蓋法蘭直徑	Rod and End Cap Flange Diameter	ØA	154.7 (6.09)	183.4 (7.22)	208.8 (8.22)	234.2 (9.22)	262.6 (10.34)
缸徑	Tube Diameter	ØB	152.4 (6)	177.8 (7)	203.2 (8)	228.6 (9)	254 (10)
軸端法蘭安裝尺寸	Rod Flange Threaded Mounting Hole	C	12-M16x2x24L (12-5/8-11x0.94L)	12-M20x2.5x30L (12-3/4-10x1.13L)	12-M22x2.5x33L (12-7/8-9x1.31L)	12-M24x3x36L (12-1-8x1.38L)	12-M27x3x41L (12-1,1/8-7x1.69L)
節圓徑	Pitch Circle Diameter	ØD	127 (5)	150 (5.9)	171.5 (6.75)	197 (7.75)	216 (8.5)
端蓋法蘭安裝尺寸	End Cap Flange Threaded Mounting Hole	ØE	12-M12x1.75x18L (12-1/2-13x0.75L)	12-M16x2x24L (12-5/8-11x0.94L)	12-M20x2.5x30L (12-3/4-10x1.13L)	12-M22x2.5x33L (12-7/8-9x1.31L)	12-M24x3x36L (12-1-8x1.5L)
節圓徑	Pitch Circle Diameter	ØF	121 (4.75)	133 (5.25)	152.4 (6)	171.5 (6.75)	190.5 (7.5)
腳座孔	Foot Mounting Hole	ØG	M20 (3/4)	M22 (7/8)	M24 (1)	M27 (1,1/8)	M30 (1,1/4)
總高度 (不含閥)	Total Height (Excluding Valve)	H	186 (7.34)	212 (8.35)	240 (9.45)	276 (10.86)	305 (12)

液壓旋轉執行器

Hydraulic Rotary Actuators RA Series - 21MPa

規格尺寸 | RA30 Foot Mount Specifications



單位/Unit: mm (in)

參數	Parameter	符號/Symbol	25	42	65	95	125
中心線高度	Height to Centerline	I	95 (3.74)	108 (4.25)	122 (4.8)	140 (5.51)	154 (6.06)
腳座高	Foot Mounting Height	J	70 (2.75)	78 (3.07)	88 (3.47)	105 (4.13)	110 (4.33)
總高度 (含閥)	Total Height (With Valve)	K	201 (7.91)	226 (8.9)	271 (10.68)	283.5 (11.16)	310 (12.21)
總長 180°	Total Length 180°	L	323 (12.72)	365 (14.37)	412.5 (16.24)	475 (18.7)	524 (20.63)
總長 360°	Total Length 360°	L	470 (18.51)	538 (21.18)	615 (24.2)	705 (27.76)	776 (30.55)
不旋轉範圍 180° 總長	Non-rotating Total Length 180°	M	286 (11.27)	323 (12.73)	363 (14.27)	431 (16.95)	463 (18.21)
不旋轉範圍 360° 總長	Non-rotating Total Length 360°	M	433 (17.05)	496 (19.54)	565 (22.23)	661 (26.01)	715 (28.13)
軸端法蘭到油路塊 180°	Rod Flange to Oil Block 180°	N	134 (5.27)	143 (5.61)	130 (5.12)	152 (6)	185 (7.27)
軸端法蘭到油路塊 360°	Rod Flange to Oil Block 360°	N	157 (6.19)	197 (7.75)	232 (9.15)	267 (10.5)	308 (12.13)
腳座安裝長度 180°	Foot Mounting Length 180°	O	248 (9.76)	281 (11.06)	314 (12.36)	374 (14.73)	400 (15.75)
腳座安裝長度 360°	Foot Mounting Length 360°	O	395 (15.55)	454 (17.87)	516 (20.32)	604 (23.78)	652 (25.67)
軸端法蘭到安裝孔	Rod Flange to Foot Mounting Hole	P	43.9 (1.73)	50 (1.97)	56.9 (2.24)	59.9 (2.36)	74.2 (2.92)
安裝寬度	Foot Mounting Width	Q	230 (9.06)	260 (10.24)	300 (11.81)	340 (13.39)	380 (14.96)
總寬	Total Width	R	268 (10.55)	310 (12.21)	350 (13.78)	400 (15.75)	447 (17.6)
安裝孔	Mounting Ports	S1 & S2	ISO - 11926 / SAE Series of ports - 7/16-20UNF ISO - 1179-1 / BSPP "G" Series of ports - 1/8 See drawings for details (詳細規格請參閱圖紙)				
閥孔	Valve Ports	T1 & T2					

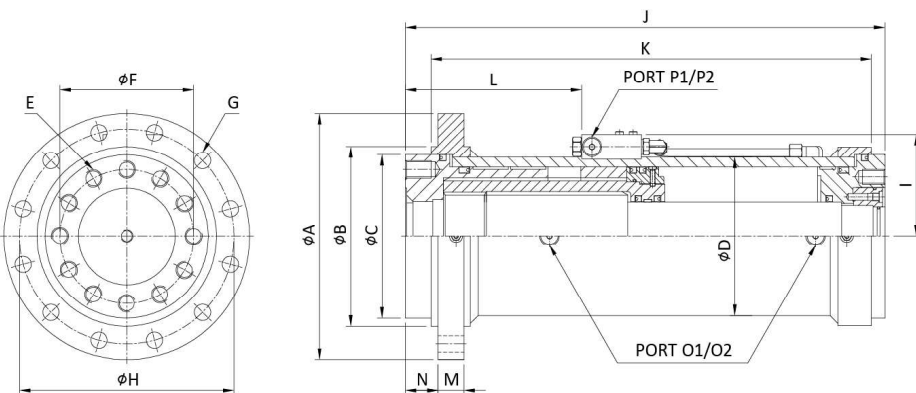
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Hydraulic Rotary Actuators RA Series - 21MPa

規格尺寸 | RA30 Flange Mount Specifications



RA30-Rod and Mounting Flange

參數	Parameter	單位/Unit	25	42	65	95	125
驅動扭矩	Drive Torque	Nm (in-lb)	2820 (25000)	4740 (42000)	7340 (65000)	10700 (95000)	14100 (125000)
保持扭矩	Holding Torque	Nm (in-lb)	6820 (60400)	11600 (103000)	18300 (162000)	26200 (232000)	34500 (306000)
法蘭式彎矩	Moment Capacity Flange Mount	Nm (in-lb)	7060 (62500)	11800 (105000)	18300 (162500)	29500 (261250)	38800 (343750)
徑向負載	Radial Capacity	kg (lb)	2260 (5000)	3620 (8000)	4990 (11000)	6800 (15000)	8160 (18000)
軸向負載	Axial Capacity	kg (lb)	1810 (4000)	2720 (6000)	3620 (8000)	4530 (10000)	5890 (13000)
180° 排量	Displacement 180°	cm³ (in³)	696 (42.5)	1180 (72)	1868 (114)	2679 (163.5)	3539 (216)
360° 排量	Displacement 360°	cm³ (in³)	1392 (85)	2360 (144)	3736 (228)	5358 (327)	7078 (432)
旋轉 180° 重量	Angle 180° Weight	kg (lb)	50 (110)	72.5 (160)	109 (240)	163.5 (360)	222.5 (490)
旋轉 360° 重量	Angle 360° Weight	kg (lb)	63.5 (140)	100 (220)	141 (310)	204 (450)	286 (630)

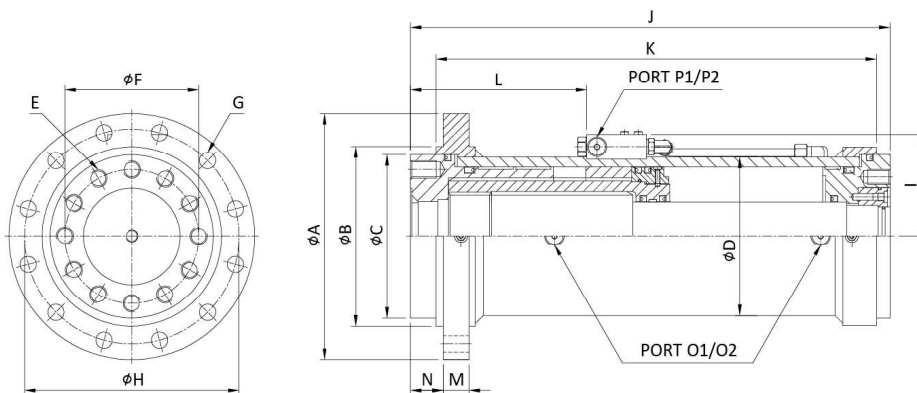
單位/Unit: mm (in)

參數	Parameter	符號/Symbol	25	42	65	95	125
固定法蘭直徑	Mounting Flange Diameter	φA	235 (9.25)	280 (11.02)	315 (12.4)	355 (13.98)	396 (15.6)
定位徑	Position Diameter	φB	175 (6.89)	205 (8.07)	230 (9.05)	260 (10.23)	290 (11.42)
軸與端蓋法蘭直徑	Rod and End Cap Flange Diameter	φC	154.7 (6.09)	183.4 (7.22)	208.8 (8.22)	234.2 (9.22)	262.6 (10.34)
缸徑	Tube Diameter	φD	152.4 (6)	177.8 (7)	203.2 (8)	228.6 (9)	254 (10)
軸端法蘭安裝尺寸	Rod Flange Threaded Mounting Hole	E	12-M16x2x24L (12-5/8-11x0.94L)	12-M20x2.5x30L (12-3/4-10x1.13L)	12-M22x2.5x33L (12-7/8-9x1.31L)	12-M24x3x36L (12-1-8x1.38L)	12-M27x3x41L (12-1-1/8-7x1.69L)
節圓徑	Pitch Circle Diameter	φF	127 (5)	150 (5.9)	171.5 (6.75)	197 (7.75)	216 (8.5)
固定法蘭安裝孔徑	Mounting Flange Hole (Bolt Size)	φG	M12 (1/2)	M16 (5/8)	M20 (3/4)	M22 (7/8)	M24 (1)

液壓旋轉執行器

Hydraulic Rotary Actuators RA Series - 21MPa

規格尺寸 | RA30 Flange Mount Specifications



RA30-Rod and Mounting Flange

單位/Unit: mm (in)

參數	Parameter	符號/Symbol	25	42	65	95	125
節圓徑	Pitch Circle Diameter	φH	205 (8.07)	245 (9.65)	275 (10.83)	310 (12.21)	345 (13.58)
中心線到油路塊高度	Centerline to Valve Top	I	106 (4.17)	118 (4.65)	131 (5.15)	144 (5.65)	156 (6.15)
總長 180°	Total Length 180°	J	323 (12.72)	365 (14.37)	412.5 (16.24)	475 (18.7)	524 (20.63)
總長 360°	Total Length 360°	J	470 (18.51)	538 (21.18)	615 (24.2)	705 (27.76)	776 (30.55)
不旋轉範圍 180° 總長	Non-rotating Total Length 180°	K	283 (11.14)	323 (12.73)	363 (14.27)	431 (16.95)	463 (18.21)
不旋轉範圍 360° 總長	Non-rotating Total Length 360°	K	430 (16.93)	496 (19.54)	565 (22.23)	661 (26.01)	715 (28.13)
軸端法蘭到油路塊 180°	Rod Flange to Oil Block 180°	L	134 (5.27)	143 (5.61)	130 (5.12)	152 (6)	185 (7.27)
軸端法蘭到油路塊 360°	Rod Flange to Oil Block 360°	L	157 (6.19)	197 (7.75)	232 (9.15)	267 (10.5)	308 (12.13)
固定法蘭寬度	Mounting Flange Width	M	25.9 (1.02)	30.9 (1.22)	33 (1.3)	40.1 (1.58)	41.9 (1.65)
軸端法蘭到固定法蘭面	Rod Flange to Mounting Flange Surface	N	32 (1.26)	35.1 (1.38)	41.9 (1.65)	40.1 (1.58)	53.1 (2.09)
安裝孔	Mounting Ports	O1 & O2	ISO - 11926 / SAE Series of ports - 7/16-20UNF ISO - 1179-1 / BSP" G" Series of ports - 1/8 See drawings for details (詳細規格請參閱圖紙)				
閥孔	Valve Ports	P1 & P2					

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