



氣動驅動器

Pneumatic
Actuator



立津國際開發有限公司

LI JIN INDUSTRIAL CO., LTD

操作條件

1. 氣源壓力範圍

2bar(29psig) to 8bar(113psig) 雙作動氣缸
3bar(44psig) to 8bar(113psig) 單作動氣缸

2. 溫度範圍

標準型 (NBR O-rings) : -20°C(-4°F) to +80°C(+176°F)
低溫型 (HNBR O-rings): -40°C(-40°F) to +80°C(+176°F)
高溫型 (Viton O-rings) : -15°C(-5°F) to +150°C(+300°F)

3. 寬廣的輸出範圍

于 6 bar(87. psig) 氣源時，氣缸的扭矩範圍從 9.2 Nm(81.5 in.lb) 到 1596 Nm (14140.6 in.lb)。

4. 工作介質

經過濾乾燥或潤滑空氣，無腐蝕性氣體、水及少許潤滑油，懸浮顆粒尺寸最大不得超過30微米。

5. 行程調整

0° 及 90° 皆有 ± 5° 的標準調整。

6. 連接方式

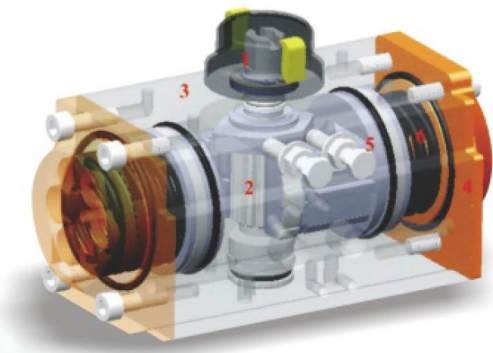
氣缸底部連接依照 ISO 5211/DIN 3337 標準。
電磁閥及氣缸頂部連接依照VDI/VDE-3845 NAMUR標準。

7. 檢測

每只氣缸皆經過氣壓測試，並標示製造編號及保證作動次數 1,000,000次。



氣缸執行器-特性



1. 指示器

位置指示器及NAMUR標準于所有執行器上，皆為標準配備以利附件安裝。

2. 軸心

以高強度的合金鋼製作而成軸心部，提供低磨耗高耐磨的條件。

3. 缸體

擠型的鋁合金缸體並使用硬質氧化處理，提供抗腐蝕能力及減少與活塞間的摩擦。

4. 端蓋

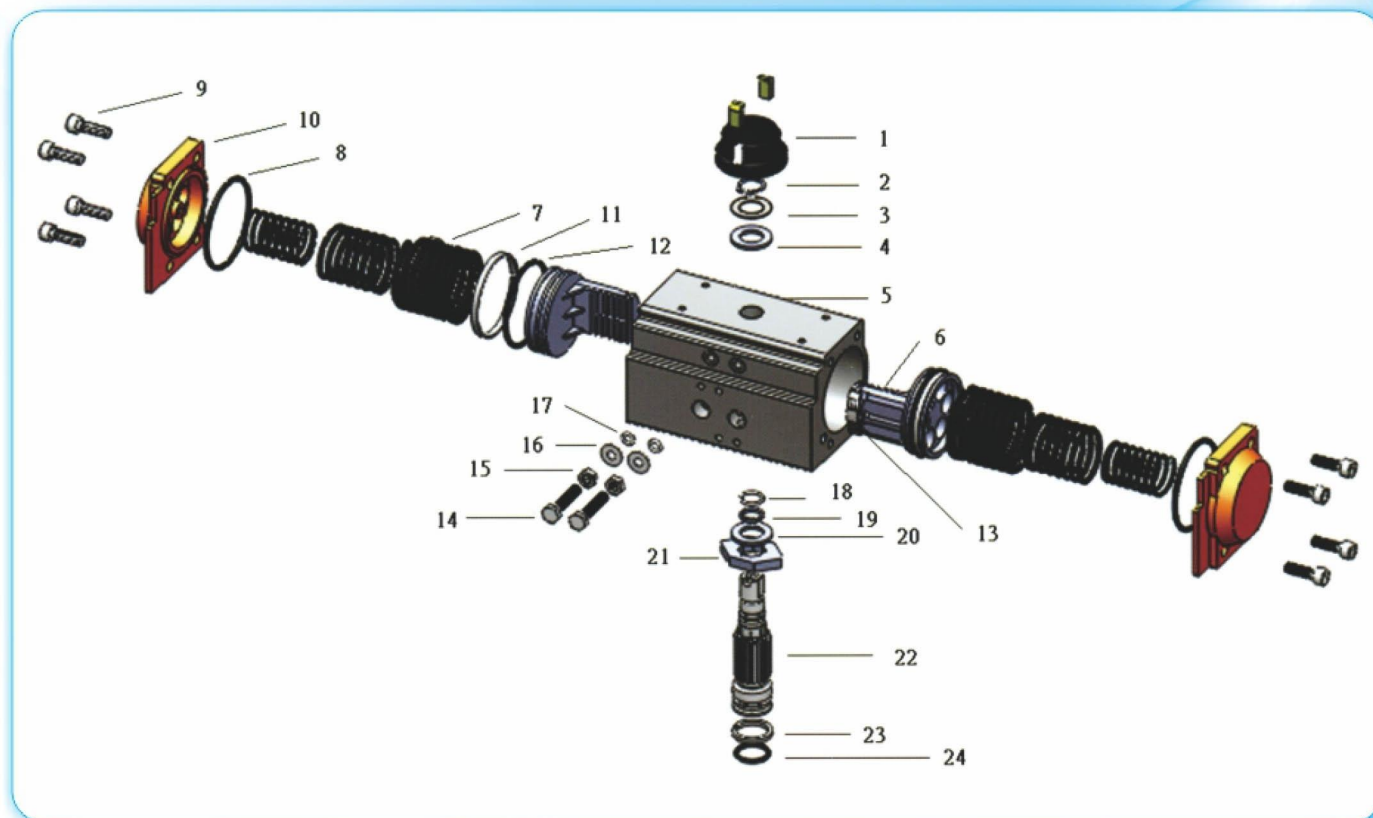
環氧樹脂噴塗處理的鋁壓鑄端蓋提供抗腐蝕性。

5. 活塞

硬質氧化處理的壓鑄鋁合金活塞，搭配高質量密封圈、導引塊、齒排齒條式設計，提供穩定的扭矩輸出。

6. 高性能彈簧

高張力彈簧鋼施以環氧樹脂塗裝，用以提供長時間的服務。



| 項次 | 名稱 | 材料 | 外層處理 | 數量 | 選用 |
|----|--------|-------------|------------------|-----|------------|
| 1 | 指示器 | 塑膠 | | 1 | |
| 2 | 卡簧 | 不鏽鋼 | | 1 | |
| 3 | 墊圈 | 不鏽鋼 | | 1 | |
| 4 | 軸承 | 尼龍 | | 1 | |
| 5 | 缸體 | 鋁型材 | 硬質氧化處理(over30um) | 1 | |
| 6 | 活塞 | 壓鑄鋁 | 硬質氧化處理(over30um) | 1 | |
| 7 | 彈簧 | 高性能彈簧鋼SWP-B | 環氧樹脂塗裝 | 0~6 | |
| 8 | 端蓋密封圈 | 丁氰橡膠 | | 2 | Viton/HNBR |
| 9 | 端蓋螺栓 | 不鏽鋼 | | 8 | |
| 10 | 端蓋 | 壓鑄鋁 | 環氧樹脂塗裝(over80um) | 2 | |
| 11 | 活塞軸承 | 尼龍 | | 2 | |
| 12 | 活塞密封圈 | 丁氰橡膠 | | 2 | Viton/HNBR |
| 13 | 活塞導引塊 | 尼龍 | | 2 | |
| 14 | 行程調整螺栓 | 不鏽鋼 | | 2 | |
| 15 | 行程調整螺母 | 不鏽鋼 | | 2 | |
| 16 | 行程螺栓墊圈 | 不鏽鋼 | | 2 | |
| 17 | 螺栓密封圈 | 丁氰橡膠 | | 2 | Viton/HNBR |
| 18 | O型密封圈 | 丁氰橡膠 | | 1 | |
| 19 | 軸承 | 尼龍 | | 1 | |
| 20 | 軸承 | 尼龍 | | 1 | |
| 21 | 定位塊 | 壓鑄鋁 | | 1 | |
| 22 | 軸心 | 合金鋼 | 鍍鎳處理 | 1 | |
| 23 | 軸承 | 尼龍 | | 1 | |
| 24 | O型密封圈 | 丁氰橡膠 | | 1 | Viton/HNBR |

雙作動氣缸

ATD 雙作動氣缸選型範例：

閥門扭矩 100 Nm 加 20%

安全係數 = 120 Nm

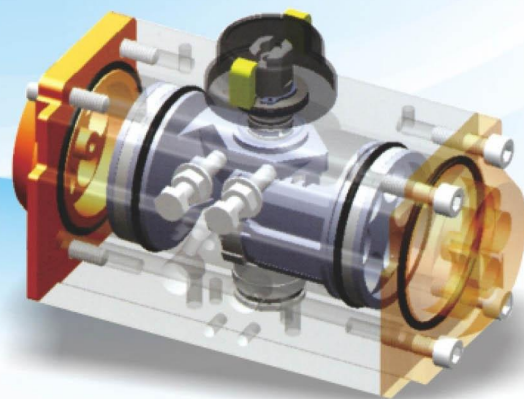
最小操作氣源壓力 6 bar (87psi)。

由雙作動氣缸扭矩表中

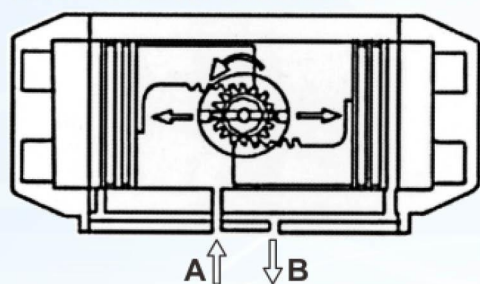
6 bar 的欄位向下找出大於 120 Nm

的扭矩為 132.0 Nm，

顯示于左側型號是 ATD092。

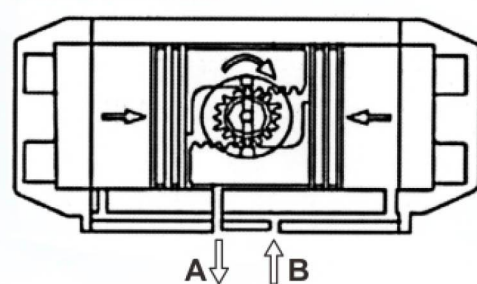


CCW-counter-clockwise



Air to port **A** forces the pistons outwards, causing the piston to turn counter-clockwise while air is being exhausted from port **B**.

CW-clockwise



Air to port **B** forces the pistons inwards, causing the piston to turn clockwise while air is being exhausted from port **A**.

雙作動氣缸扭矩表

1 Bar = 14.5 Psi 1Nm = 8.86 Lb-in

| 型號 | 氣源壓力 (unit: bar) | | | | |
|-----------|------------------|--------|--------|--------|--------|
| | 4.0 | 5.0 | 6.0 | 7.0 | 8.0 |
| 輸出扭矩 (Nm) | | | | | |
| ATD032 | 6.1 | 7.6 | 9.2 | 10.7 | 12.2 |
| ATD052 | 15.4 | 19.2 | 23.0 | 26.9 | 30.7 |
| ATD063 | 26.4 | 30.0 | 39.6 | 46.2 | 52.8 |
| ATD075 | 37.6 | 47.0 | 56.4 | 65.8 | 75.2 |
| ATD083 | 60.0 | 75.0 | 90.0 | 105.0 | 120.0 |
| ATD092 | 88.0 | 110.0 | 132.0 | 154.0 | 176.0 |
| ATD105 | 131.2 | 164.0 | 196.8 | 229.6 | 262.4 |
| ATD125 | 200.0 | 250.0 | 300.0 | 350.0 | 400.0 |
| ATD140 | 341.6 | 427.0 | 512.4 | 597.8 | 683.2 |
| ATD160 | 528.0 | 660.0 | 792.0 | 924.0 | 1056.0 |
| ATD190 | 853.6 | 1067.0 | 1280.4 | 1493.8 | 1707.2 |
| ATD210 | 1064.0 | 1330.0 | 1596.0 | 1862.0 | 2128.0 |
| ATD240 | 1539.0 | 1923.8 | 2308.5 | 2693.3 | 3078.0 |
| ATD270 | 2340.0 | 2924.0 | 3510.0 | 4095.0 | 4680.0 |

單作動氣缸



ATK 單作動氣缸選型範例：

閥門扭矩 60 Nm 加 20%

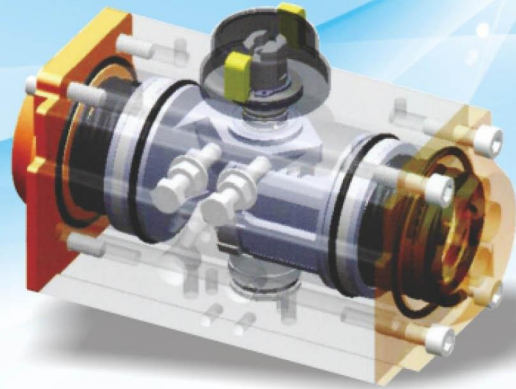
安全係數 = 72 Nm

最小操作氣源壓力 6 bar (87psi)。

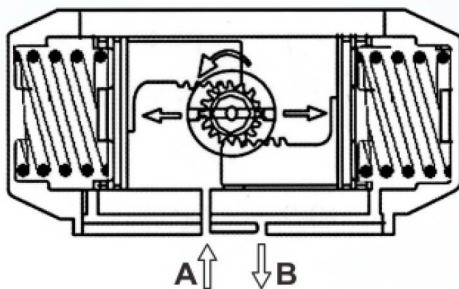
單作動氣缸選擇是 ATK10512。

ATK10512 單作動氣缸的輸出扭矩如下：

1. air torque 0° (valve close) = 123.7 Nm > 72 Nm
2. air torque 90° (valve open) = 83.9 Nm
3. spring torque 90° (valve open) = 112.9 Nm
4. spring torque 0° (valve close) = 73.1 Nm > 72 Nm

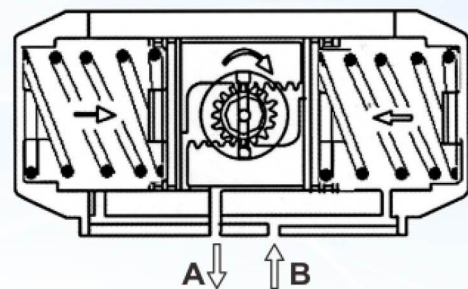


CCW-counter-clockwise



Air to port **A** forces the pistons outwards, causing the springs to compress. The pinion turns counter-clockwise while air is being exhausted through port **B**.

CW-clockwise



Loss of air pressure through port **A** allows the stored energy in the springs to force the pistons inwards. The pinion turns clockwise while air is being exhausted through port **A**.



扭矩表

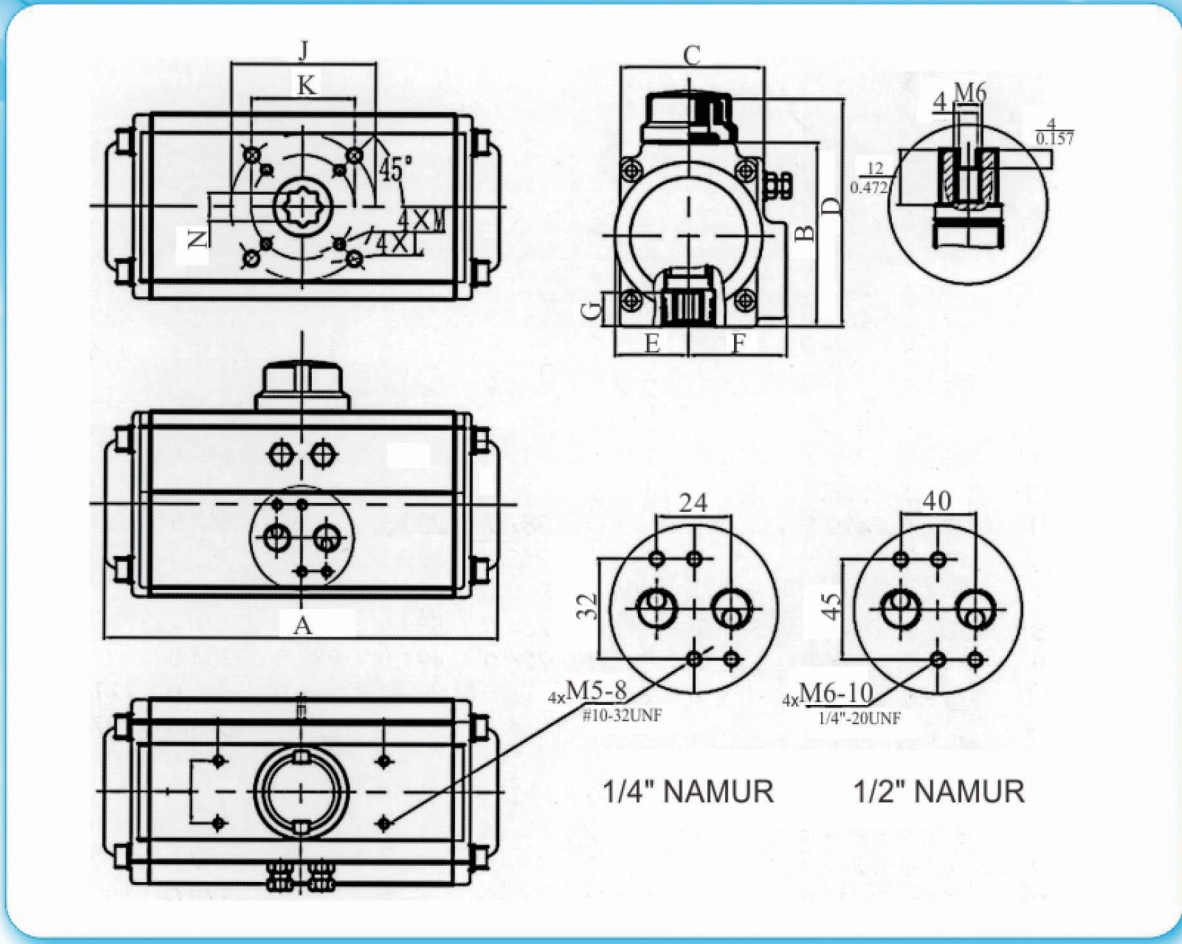
| 型號 | 彈簧力 | 彈簧扭矩 | | 氣源壓力 (unit: bar) | | | | | | | |
|--------|-----|-------|-------|------------------|------|-------|-------|-------|-------|-------|-------|
| | | | | 4.0 | | 5.0 | | 6.0 | | 7.0 | |
| | | 0° | 90° | 氣源輸出扭矩 (Nm) | | | | | | | |
| | | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° |
| ATK052 | 7 | 5.4 | 7.8 | 10.0 | 7.6 | 13.8 | 11.4 | | | | |
| | 8 | 6.2 | 9.0 | 9.2 | 6.4 | 13.0 | 10.2 | | | | |
| | 9 | 6.9 | 10.1 | 8.5 | 5.3 | 12.3 | 9.1 | 16.1 | 12.9 | | |
| | 10 | 7.7 | 11.2 | 7.7 | 4.2 | 11.6 | 7.4 | 15.3 | 11.8 | 19.2 | 15.7 |
| | 11 | 8.5 | 12.3 | 6.9 | 3.1 | 10.7 | 6.9 | 14.5 | 10.7 | 18.4 | 14.6 |
| | 12 | 9.2 | 13.4 | | | 10.0 | 5.8 | 13.8 | 9.6 | 17.7 | 13.5 |
| ATK063 | 7 | 8.6 | 13.1 | 17.8 | 13.3 | 23.4 | 16.9 | | | | |
| | 8 | 9.8 | 14.9 | 16.6 | 11.5 | 20.2 | 15.1 | | | | |
| | 9 | 11.0 | 16.8 | 15.4 | 9.6 | 19.0 | 13.2 | 28.6 | 22.8 | | |
| | 10 | 12.3 | 18.7 | 14.1 | 7.7 | 17.7 | 11.3 | 27.3 | 20.9 | 33.9 | 27.5 |
| | 11 | 13.5 | 20.5 | | | 16.5 | 9.5 | 26.1 | 19.1 | 32.7 | 25.7 |
| | 12 | 14.7 | 22.4 | | | 15.3 | 7.6 | 24.9 | 17.2 | 31.5 | 23.8 |
| ATK075 | 7 | 12.6 | 18.0 | 25.0 | 19.6 | | | | | | |
| | 8 | 14.4 | 20.6 | 23.2 | 17.0 | 32.6 | 26.4 | | | | |
| | 9 | 16.2 | 23.2 | 21.4 | 14.4 | 30.8 | 23.8 | 40.2 | 33.2 | | |
| | 10 | 18.0 | 25.7 | 19.6 | 11.9 | 29.0 | 21.3 | 38.4 | 30.7 | 47.8 | 40.1 |
| | 11 | 19.7 | 28.3 | 17.9 | 9.3 | 27.3 | 18.7 | 36.7 | 28.1 | 46.1 | 37.5 |
| | 12 | 21.5 | 30.9 | | | 25.5 | 16.1 | 34.9 | 25.5 | 44.3 | 34.9 |
| ATK083 | 7 | 20.7 | 29.6 | 39.3 | 30.4 | 54.3 | 45.4 | | | | |
| | 8 | 23.6 | 33.8 | 36.4 | 26.2 | 51.4 | 41.2 | | | | |
| | 9 | 26.6 | 38.1 | 33.4 | 21.9 | 48.4 | 36.9 | 63.4 | 51.9 | | |
| | 10 | 29.5 | 42.3 | 30.5 | 17.7 | 45.5 | 32.7 | 60.5 | 47.7 | 75.5 | 62.7 |
| | 11 | 32.5 | 46.5 | | | 42.5 | 28.5 | 57.5 | 43.5 | 72.5 | 58.5 |
| | 12 | 35.4 | 50.8 | | | 39.6 | 24.2 | 54.6 | 39.2 | 69.6 | 54.2 |
| ATK092 | 7 | 30.5 | 44.5 | 57.5 | 43.5 | 79.5 | 65.5 | | | | |
| | 8 | 34.8 | 50.9 | 53.2 | 37.1 | 75.2 | 59.1 | | | | |
| | 9 | 39.2 | 57.3 | 48.8 | 30.7 | 70.8 | 52.7 | 92.8 | 74.7 | | |
| | 10 | 43.6 | 63.6 | 44.4 | 24.4 | 66.4 | 46.4 | 88.4 | 68.4 | 110.4 | 90.4 |
| | 11 | 47.9 | 70.0 | | | 62.1 | 40.0 | 84.1 | 62.0 | 106.1 | 84.0 |
| | 12 | 52.3 | 76.3 | | | 57.7 | 33.7 | 79.7 | 55.7 | 101.7 | 77.7 |
| ATK105 | 7 | 42.6 | 65.9 | 88.6 | 65.3 | 121.4 | 98.1 | | | | |
| | 8 | 48.7 | 75.3 | 82.5 | 55.9 | 115.3 | 88.7 | | | | |
| | 9 | 54.8 | 84.7 | 76.4 | 46.5 | 109.2 | 79.3 | 142.0 | 112.1 | | |
| | 10 | 60.9 | 94.1 | 70.3 | 37.1 | 103.1 | 69.9 | 135.9 | 102.7 | 168.7 | 135.5 |
| | 11 | 67.0 | 103.5 | | | 97.0 | 60.5 | 129.8 | 93.3 | 162.6 | 126.1 |
| | 12 | 73.1 | 112.9 | | | 90.0 | 51.1 | 123.7 | 83.9 | 156.5 | 116.7 |
| ATK125 | 7 | 66.9 | 102.5 | 133.1 | 97.5 | 183.1 | 147.5 | | | | |
| | 8 | 76.5 | 117.2 | 123.5 | 82.8 | 173.5 | 132.8 | | | | |
| | 9 | 86.1 | 131.8 | 113.9 | 68.2 | 163.9 | 118.2 | 213.9 | 168.2 | | |
| | 10 | 95.6 | 146.5 | 104.4 | 53.5 | 154.4 | 103.5 | 204.4 | 153.5 | 254.4 | 203.5 |
| | 11 | 105.2 | 161.1 | | | 144.8 | 88.9 | 194.8 | 138.9 | 244.8 | 188.9 |
| | 12 | 114.7 | 175.8 | | | 135.3 | 74.2 | 185.3 | 124.2 | 235.3 | 174.2 |

扭矩表



| 型號 | 彈簧力 | 彈簧扭矩 | | 氣源壓力 (unit: bar) | | | | | | | |
|--------|-----|--------|--------|------------------|--------|--------|--------|--------|--------|--------|--------|
| | | | | 4.0 | | 5.0 | | 6.0 | | 7.0 | |
| | | | | 氣源輸出扭矩 (Nm) | | | | | | | |
| | | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° |
| ATK140 | 7 | 111.4 | 167.9 | 230.2 | 173.7 | 315.6 | 259.1 | | | | |
| | 8 | 127.4 | 191.9 | 214.2 | 149.7 | 299.6 | 235.1 | | | | |
| | 9 | 143.3 | 215.9 | 198.3 | 125.7 | 283.7 | 211.1 | 369.1 | 296.5 | | |
| | 10 | 159.2 | 239.9 | 182.4 | 101.7 | 267.8 | 187.1 | 353.2 | 272.5 | 438.6 | 357.9 |
| | 11 | 175.1 | 263.9 | | | 251.9 | 163.1 | 337.3 | 248.5 | 422.7 | 333.9 |
| | 12 | 191.0 | 287.8 | | | 236.0 | 139.2 | 321.4 | 224.6 | 406.8 | 310.0 |
| ATK160 | 7 | 173.1 | 273.3 | 354.9 | 254.7 | 486.9 | 386.7 | | | | |
| | 8 | 197.9 | 312.3 | 330.1 | 215.7 | 462.1 | 347.7 | | | | |
| | 9 | 222.6 | 351.4 | 305.4 | 176.6 | 437.4 | 308.6 | 569.4 | 440.6 | | |
| | 10 | 247.3 | 390.4 | 280.7 | 137.6 | 412.7 | 269.6 | 544.7 | 401.6 | 676.7 | 533.6 |
| | 11 | 272.1 | 429.5 | | | 387.9 | 230.5 | 519.9 | 362.5 | 651.9 | 494.5 |
| | 12 | 296.8 | 468.5 | | | 363.2 | 191.5 | 495.2 | 323.5 | 627.2 | 455.5 |
| ATK190 | 7 | 265.0 | 448.0 | 588.0 | 405.0 | 802.0 | 619.0 | | | | |
| | 8 | 303.0 | 512.0 | 550.0 | 341.0 | 764.0 | 555.0 | | | | |
| | 9 | 341.0 | 576.0 | 512.0 | 277.0 | 726.0 | 491.0 | 939.0 | 704.0 | | |
| | 10 | 379.0 | 640.0 | 474.0 | 213.0 | 688.0 | 427.0 | 901.0 | 640.0 | 1114.0 | 853.0 |
| | 11 | 417.0 | 704.0 | | | 650.0 | 363.0 | 863.0 | 576.0 | 1076.0 | 789.0 |
| | 12 | 455.0 | 768.0 | | | 612.0 | 299.0 | 825.0 | 512.0 | 1038.0 | 725.0 |
| ATK210 | 7 | 365.0 | 616.0 | 807.0 | 556.0 | 1101.0 | 850.0 | | | | |
| | 8 | 417.0 | 704.0 | 755.0 | 468.0 | 1049.0 | 762.0 | | | | |
| | 9 | 469.0 | 792.0 | 703.0 | 380.0 | 997.0 | 674.0 | 1290.0 | 967.0 | | |
| | 10 | 521.0 | 880.0 | 651.0 | 292.0 | 945.0 | 586.0 | 1238.0 | 879.0 | 1531.0 | 1172.0 |
| | 11 | 573.0 | 968.0 | | | 893.0 | 498.0 | 1186.0 | 791.0 | 1479.0 | 1084.0 |
| | 12 | 625.0 | 1056.0 | | | 841.0 | 410.0 | 1134.0 | 703.0 | 1427.0 | 996.0 |
| ATK240 | 7 | 545.0 | 959.0 | 1293.0 | 879.0 | 1753.0 | 1339.0 | | | | |
| | 8 | 622.0 | 1096.0 | 1216.0 | 742.0 | 1676.0 | 1202.0 | | | | |
| | 9 | 700.0 | 1233.0 | 1138.0 | 605.0 | 1598.0 | 1065.0 | 2057.0 | 1524.0 | | |
| | 10 | 778.0 | 1370.0 | 1060.0 | 468.0 | 1520.0 | 928.0 | 1979.0 | 1387.0 | 2439.0 | 1847.0 |
| | 11 | 856.0 | 1507.0 | | | 1442.0 | 791.0 | 1901.0 | 1250.0 | 2361.0 | 1710.0 |
| | 12 | 934.0 | 1644.0 | | | 1364.0 | 654.0 | 1823.0 | 1113.0 | 2283.0 | 1573.0 |
| ATK270 | 7 | 742.0 | 1344.0 | 1843.0 | 1241.0 | 2488.0 | 1886.0 | | | | |
| | 8 | 848.0 | 1536.0 | 1737.0 | 1049.0 | 2382.0 | 1694.0 | | | | |
| | 9 | 954.0 | 1728.0 | 1631.0 | 857.0 | 2276.0 | 1502.0 | 2922.0 | 2148.0 | | |
| | 10 | 1060.0 | 1920.0 | 1525.0 | 665.0 | 2170.0 | 1310.0 | 2816.0 | 1956.0 | 3463.0 | 2603.0 |
| | 11 | 1166.0 | 2112.0 | | | 2064.0 | 1118.0 | 2710.0 | 1764.0 | 3357.0 | 2411.0 |
| | 12 | 1272.0 | 2304.0 | | | 1958.0 | 926.0 | 2604.0 | 1572.0 | 3251.0 | 2219.0 |

尺寸表



Units: mm

| 型號 | A | B | C | D | E | F | G | H | I | N | J | K | L | M | 電源連接 |
|--------|-------|-------|-------|-------|------|------|----|-----|----|----|-----|-----|--------|--------|-------|
| AT 032 | 110 | 45 | 45 | 65 | 22.5 | 22.5 | 11 | 50 | 25 | 9 | F03 | | M5x7.5 | | G1/8" |
| AT 052 | 154 | 72 | 60.5 | 92 | 30 | 42 | 14 | 80 | 30 | 11 | F05 | F03 | M6x10 | M5x7.5 | G1/4" |
| AT 063 | 173 | 89 | 71 | 119 | 36 | 47 | 16 | 80 | 30 | 14 | F07 | F05 | M8x13 | M6x10 | G1/4" |
| AT 075 | 188 | 100.5 | 78 | 120.5 | 42 | 53 | 16 | 80 | 30 | 14 | F07 | F05 | M8x13 | M6x10 | G1/4" |
| AT 083 | 208 | 109 | 86 | 129 | 46 | 57 | 21 | 80 | 30 | 17 | F07 | F05 | M8x13 | M6x10 | G1/4" |
| AT 092 | 265 | 117 | 91 | 137 | 50 | 58.5 | 21 | 80 | 30 | 17 | F07 | F05 | M8x13 | M6x10 | G1/4" |
| AT 105 | 270.5 | 134 | 104 | 154 | 57.5 | 64 | 26 | 80 | 30 | 22 | F10 | F07 | M10x16 | M8x13 | G1/4" |
| AT 125 | 304 | 157 | 120.5 | 187 | 67.5 | 74.5 | 26 | 80 | 30 | 22 | F10 | F07 | M10x16 | M8x13 | G1/4" |
| AT 140 | 394 | 174 | 126 | 204 | 75 | 77 | 35 | 80 | 30 | 27 | F12 | F10 | M12x20 | M10x16 | G1/4" |
| AT 160 | 459 | 199 | 142 | 229 | 87 | 87 | 35 | 130 | 30 | 27 | F12 | F10 | M12x20 | M10x16 | G1/4" |
| AT 190 | 528 | 232 | 172 | 264 | 103 | 103 | 40 | 130 | 30 | 36 | F14 | F12 | M16x25 | | G1/4" |
| AT 210 | 538 | 257 | 194 | 287 | 113 | 113 | 40 | 130 | 30 | 36 | F14 | F12 | M16x25 | | G1/4" |
| AT 240 | 660 | 291 | 245 | 321 | 130 | 130 | 50 | 130 | 30 | 46 | F16 | | M20x26 | | G3/8" |
| AT 270 | 740 | 330 | 273 | 360 | 147 | 147 | 50 | 130 | 30 | 46 | F16 | | M20x26 | | G1/2" |



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