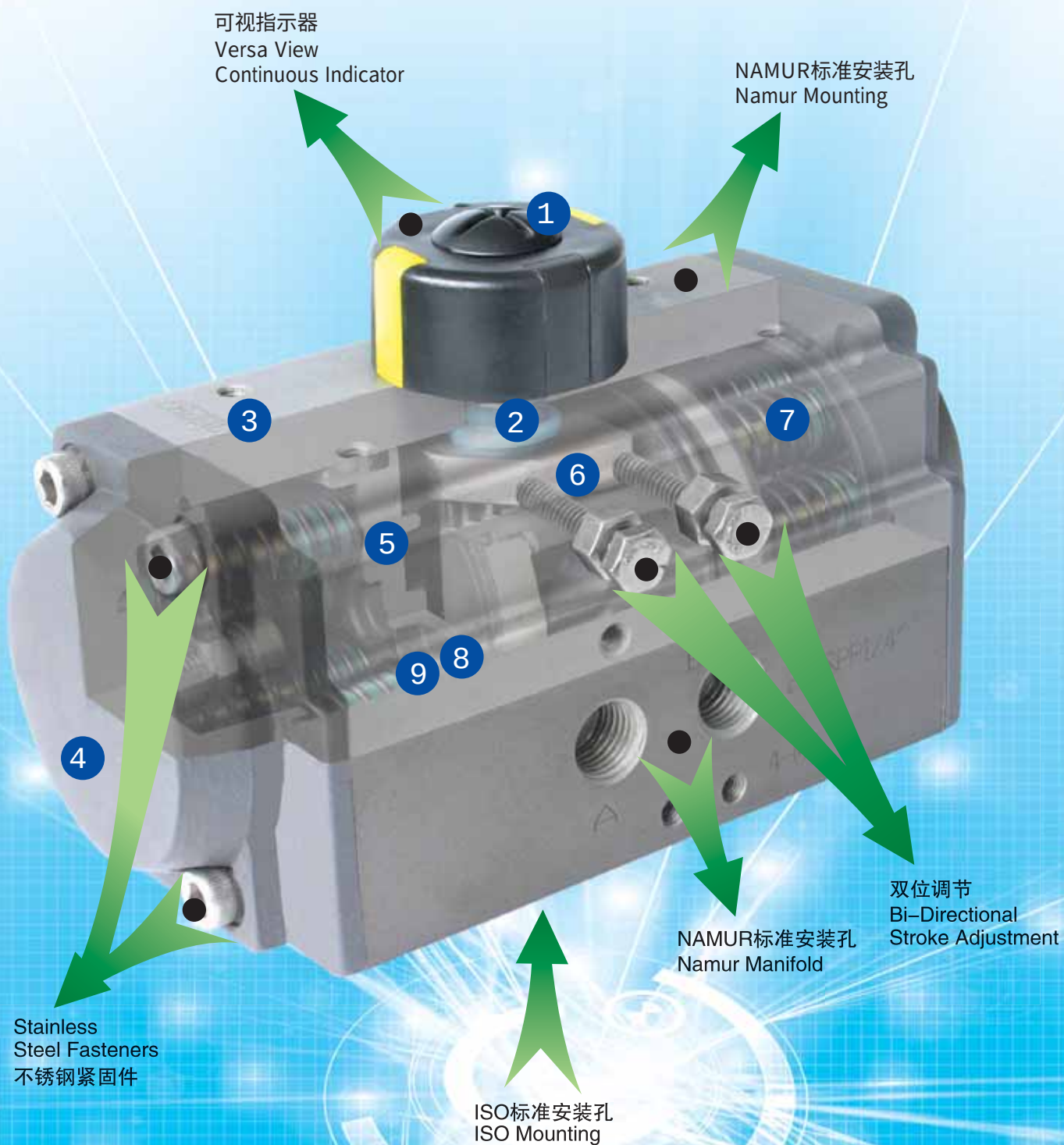


# PNEUMATIC ACTUATORS

## 气动执行器



## 结构 Construction



### ① 指示器 Indicator

NAMUR 标准指示器便于安装位置开关、定位器等附件。  
Position indicator with NAMUR is convenient for mounting accessories such as Limit Switch box, Positioner and so on.

### ② 输出轴 Pinion

镀镍合金钢、高精度一体式输出轴同时符合 NAMUR、ISO5211、DIN3337 标准。可根据客户要求定制尺寸和不锈钢材料。

The pinion is high-precision and integrative, made from nickelled-alloy steel, full conform to the latest standards of ISO5211, DIN3337, NAMUR. The dimensions can be customized and the stainless steel is available.

### ③ 缸体 Actuator Body

ASTM6005 压铸铝合金缸体可以采用硬质氧化、环氧树脂喷涂（根据要求喷涂蓝色、橙色、黄色等）、PTFE 涂层或镀镍满足不同要求。

According to the different requirements, the extruded aluminum alloy ASTM6005 Body can be treated with hard anodized, powder polyester painted (different colours is available such as blue, orange, yellow etc.), PTFE or Nickel plated.

### ④ 端盖 End caps

压铸铝合金表面金属粉末喷涂各种颜色、PTFE 涂层或镀镍处理。  
Die-casting aluminum powder polyester painted in different colours, PTFE or Nickel plated.

### ⑤ 活塞 Pistons

双活塞齿条、采用铸铝硬质氧化或者铸钢镀锌处理，安装位置对称、运作迅速、使用寿命长，简单的颠倒活塞可以改变旋转方向。

The twin rack pistons are made from Die-casting aluminum treated with Hard anodized or made from Cast steel with galvanization. Symmetric mounting position, long cycle life and fast operation, reversing rotation by simply inverting the pistons.

### ⑥ 行程调节 Travel adjustment

两个独立的行程调节螺钉可以进行方便、精确  $\pm 5^\circ$  的调节开关位置。

The two independent external travel stop adjustment bolts can adjust  $\pm 5^\circ$  at both open and close directions easily and precisely.



### ⑦ 高性能弹簧 High performance springs

采用优质材料、涂层处理，预压装配。具有较强的抗腐蚀性和使用寿命。能够安全、简单的拆卸单作用执行器，通过改变弹簧数量满足不同的力矩输出范围。

Preloaded coating springs are made from the high quality material for resistant to corrosion and longer service life, which can be demounted safely and conveniently to satisfy different requirements of torque by changing quantity of springs.

### ⑧ 轴承、导板 Bearings & Guides

采用低摩擦、长寿命复合材料，避免了金属与金属的直接接触，维修更换简单方便。

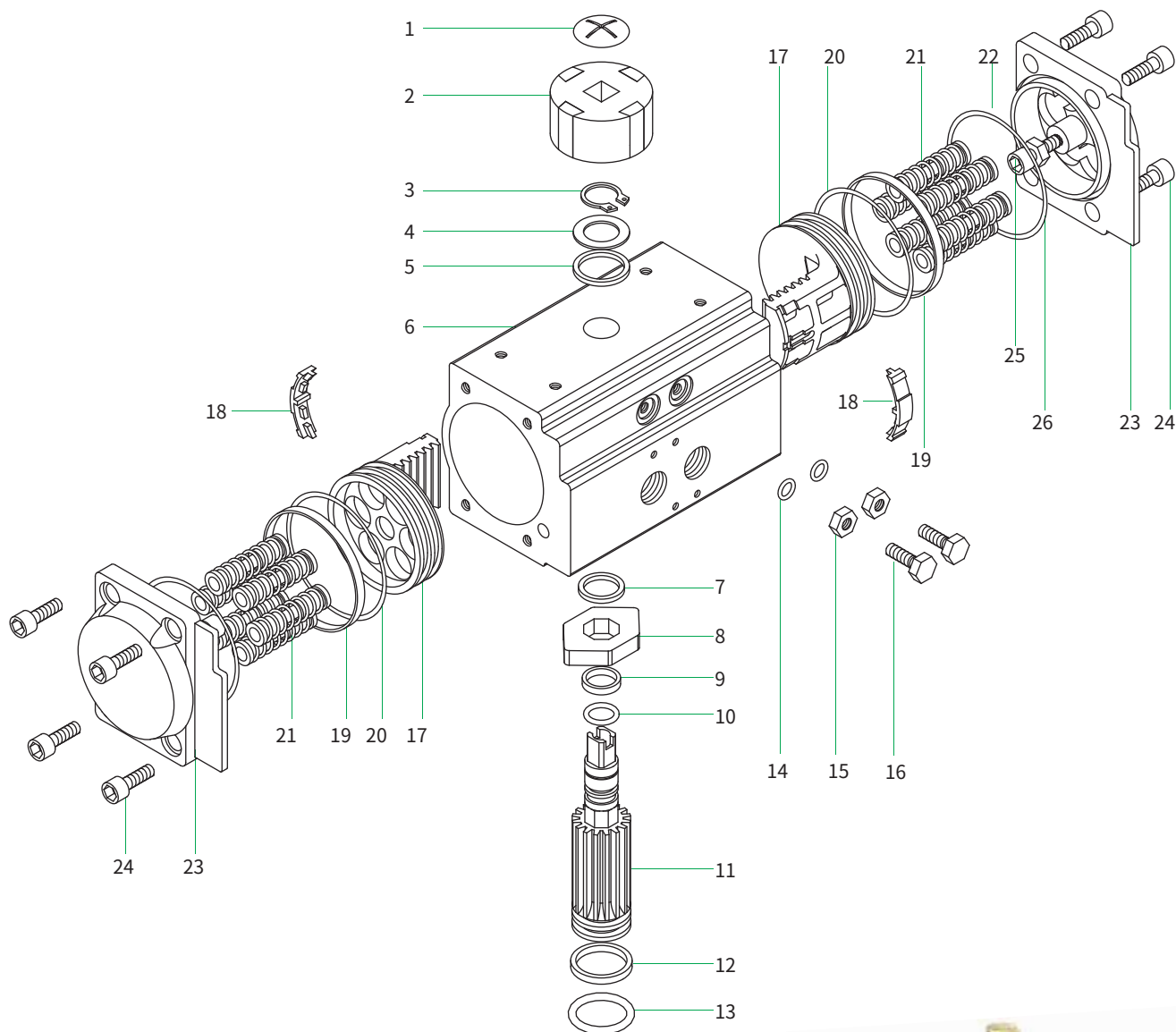
Made from low friction, long-life compound material, to avoid the direct contact between metals. The maintenance and replacement are easy and convenient.

### ⑨ O-rings 密封

在常温工作条件下使用丁腈橡胶，在高温或低温时采用氟橡胶或硅橡胶。

NBR rubber O-rings provide trouble-free operation at standard temperature ranges. For high and low temperature applications Viton or Silicone.

## 零件和材料 Parts and Material





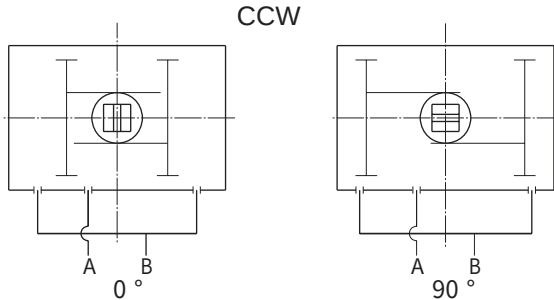
| 序 号 | 名 称    | 数 量  | 材 料   | 防腐处理  | 可选材料    |
|-----|--------|------|-------|-------|---------|
| 1   | 指示器螺钉  | 1    | 塑 料   |       |         |
| 2   | 指示器    | 1    | 塑 料   |       |         |
| 3   | 卡 簧    | 1    | 不锈钢   |       |         |
| 4   | 垫 圈    | 1    | 不锈钢   |       |         |
| 5   | 外垫片    | 1    | 工程塑料  |       |         |
| 6   | 缸 体    | 1    | 铸 铝   | 硬质氧化等 |         |
| 7   | 内垫片    | 1    | 工程塑料  |       |         |
| 8   | 凸 轮    | 1    | 合金钢   |       |         |
| 9   | 上轴轴承   | 1    | 工程塑料  |       |         |
| 10  | 上轴O圈   | 1    | 丁腈橡胶  |       | 氟橡胶/硅橡胶 |
| 11  | 齿 轴    | 1    | 合金钢   | 镀 镍   | 不锈钢     |
| 12  | 下轴轴承   | 1    | 工程塑料  |       |         |
| 13  | 下轴O圈   | 1    | 丁腈橡胶  |       | 氟橡胶/硅橡胶 |
| 14  | 调节螺钉O圈 | 2    | 丁腈橡胶  |       | 氟橡胶/硅橡胶 |
| 15  | 调节螺钉螺母 | 2    | 不锈钢   |       |         |
| 16  | 调节螺栓   | 2    | 不锈钢   |       |         |
| 17  | 活 塞    | 2    | 铸铝/铸钢 | 氧化/镀锌 | 不锈钢     |
| 18  | 活塞导板   | 2    | 工程塑料  |       |         |
| 19  | 活塞轴承   | 2    | 工程塑料  |       |         |
| 20  | 活塞O圈   | 2    | 丁腈橡胶  |       | 氟橡胶/硅橡胶 |
| 21  | 弹 簧    | 0~12 | 弹簧钢   | 浸漆    |         |
| 22  | 端盖O圈   | 2    | 丁腈橡胶  |       | 氟橡胶/硅橡胶 |
| 23  | 端 盖    | 2    | 铸 铝   | 粉末喷涂等 |         |
| 24  | 端盖螺栓   | 8    | 不锈钢   |       |         |
| 25  | 限位螺栓   | 2    | 不锈钢   |       |         |
| 26  | 限位螺母   | 2    | 不锈钢   |       |         |



| No. | Description             | Qty  | STANDARD MATERIAL       | PROTECTION                  | OPTIONAL MATERIAL |
|-----|-------------------------|------|-------------------------|-----------------------------|-------------------|
| 1   | Indicator screw         | 1    | plastic                 |                             |                   |
| 2   | Indicator               | 1    | plastic                 |                             |                   |
| 3   | Spring clip             | 1    | Stainless Steel         |                             |                   |
| 4   | Thrust washer           | 1    | Stainless Steel         |                             |                   |
| 5   | Outside washer          | 1    | engineering plastics    |                             |                   |
| 6   | Body                    | 1    | Extruded aluminum alloy | Hard anodized etc           |                   |
| 7   | Inside washer           | 1    | engineering plastics    |                             |                   |
| 8   | Cam                     | 1    | Alloy steel             |                             |                   |
| 9   | O-ring (pinion top)     | 1    | NBR                     |                             | Viton/Silicone    |
| 10  | Bearing (pinion top)    | 1    | engineering plastics    |                             |                   |
| 11  | Pinion                  | 1    | Alloy steel             | Nickel plated               | Stainless Steel   |
| 12  | O-ring (pinion bottom)  | 1    | engineering plastics    |                             |                   |
| 13  | Bearing (pinion bottom) | 1    | NBR                     |                             | Viton/Silicone    |
| 14  | O-ring (Adjust screw)   | 2    | NBR                     |                             | Viton/Silicone    |
| 15  | Nut (Adjust screw)      | 2    | Stainless Steel         |                             |                   |
| 16  | Adjust screw            | 2    | Stainless Steel         |                             |                   |
| 17  | Piston                  | 2    | Cast aluminum/casting   | anodized/Zinc galvanized    | Stainless Steel   |
| 18  | Guide (Piston)          | 2    | engineering plastics    |                             |                   |
| 19  | Bearing (Piston)        | 2    | engineering plastics    |                             |                   |
| 20  | O-ring (Piston)         | 2    | NBR                     |                             | Viton/Silicone    |
| 21  | Spring                  | 0~12 | Spring steel            | dip coating                 |                   |
| 22  | O-ring (End cap)        | 2    | NBR                     |                             | Viton/Silicone    |
| 23  | End cap                 | 2    | Cast aluminum           | powder polyster painted etc |                   |
| 24  | Cap screw               | 8    | Stainless Steel         |                             |                   |
| 25  | Stop screw              | 2    | Stainless Steel         |                             |                   |
| 26  | Nut (stop screw)        | 2    | Stainless Steel         |                             |                   |

## 工作原理 Operating Principle

### 双作用执行器 Double Acting Actuators

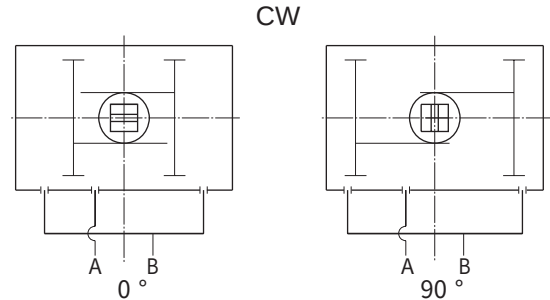


A口进气，压缩空气推动活塞向外运动，使执行器输出轴逆时针旋转( $0^\circ \rightarrow 90^\circ$ )，B口排气。

B口进气，压缩空气推动活塞向内运动，使执行器输出轴顺时针旋转( $90^\circ \rightarrow 0^\circ$ )，A口排气。

Air to Port A forces the pistons outwards, causing the pinion to turn counterclockwise while the air is being exhausted from Port B.

Air to Port B forces the pistons inwards, causing the pinion to turn clockwise while the air is being exhausted from Port A.



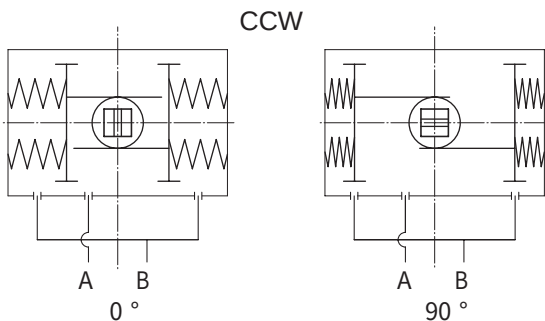
A口进气，压缩空气推动活塞向外运动，使执行器输出轴顺时针旋转( $0^\circ \rightarrow 90^\circ$ )，B口排气。

B口进气，压缩空气推动活塞向内运动，使执行器输出轴逆时针旋转( $90^\circ \rightarrow 0^\circ$ )，A口排气。

Air to Port A forces the pistons outwards, causing the pinion to turn clockwise while the air is being exhausted from Port B.

Air to Port B forces the pistons inwards, causing the pinion to turn counterclockwise while the air is being exhausted from Port A.

### 单作用执行器 Spring Return Actuators

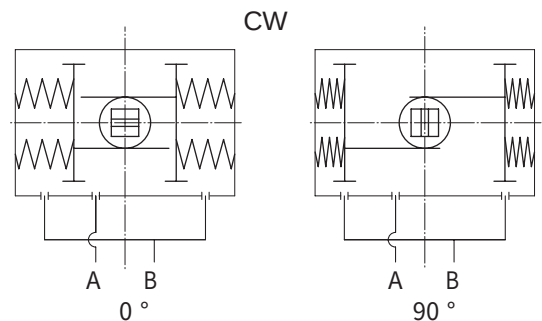


A口进气，压缩空气克服弹簧力，推动活塞向外运动，执行器输出轴逆时针转动( $0^\circ \rightarrow 90^\circ$ )，B口排气；

执行器失气，活塞在弹簧力的作用下向内运动，执行器输出轴顺时针转动( $90^\circ \rightarrow 0^\circ$ )，A口排气。

Air to port A forces the pistons outwards, causing the springs to compress, The pinion turns counterclockwise while air is being exhausted from port B.

Loss of air pressure on port A, the stored energy in the springs forces the pistons inwards. The pinion turns clockwise while air is being exhausted from port A.



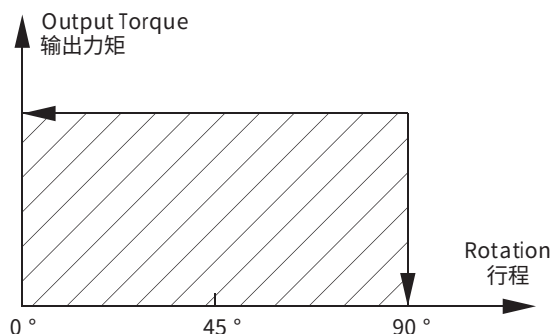
A口进气，压缩空气克服弹簧力，推动活塞向外运动，执行器输出轴顺时针转动( $0^\circ \rightarrow 90^\circ$ )，B口排气；

执行器失气，活塞在弹簧力的作用下向内运动，执行器输出轴逆时针转动( $90^\circ \rightarrow 0^\circ$ )，A口排气。

Air to port B forces the pistons outwards, causing the springs to compress, The pinion turns counterclockwise while air is being exhausted from port B.

Loss of air pressure on port A, the stored energy in the springs forces the pistons inwards. The pinion turns clockwise while air is being exhausted from port A.

## 双作用输出力矩 Output Torque of Double Acting Actuators



Unit: Nm

| 型号Model | 气源压力Air supply pressure (Unit: bar) |      |      |      |      |      |      |      |       |       |
|---------|-------------------------------------|------|------|------|------|------|------|------|-------|-------|
|         | 2                                   | 2.5  | 3    | 4    | 4.5  | 5    | 5.5  | 6    | 7     | 8     |
| AT032DA | 3                                   | 4    | 5    | 6    | 7    | 8    | 8    | 9    | 11    | 12    |
| AT040DA | 5                                   | 6    | 7    | 10   | 11   | 12   | 13   | 14   | 17    | 19    |
| AT052DA | 8                                   | 10   | 12   | 16   | 18   | 20   | 22   | 24   | 28    | 32    |
| AT063DA | 15                                  | 18   | 22   | 29   | 33   | 36   | 40   | 44   | 51    | 58    |
| AT075DA | 20                                  | 25   | 30   | 40   | 45   | 50   | 55   | 60   | 70    | 80    |
| AT083DA | 31                                  | 39   | 47   | 63   | 70   | 78   | 86   | 94   | 110   | 125   |
| AT092DA | 45                                  | 56   | 68   | 90   | 102  | 113  | 124  | 135  | 158   | 181   |
| AT105DA | 66                                  | 83   | 99   | 132  | 149  | 165  | 182  | 198  | 231   | 264   |
| AT125DA | 100                                 | 125  | 150  | 200  | 226  | 251  | 276  | 301  | 351   | 401   |
| AT140DA | 171                                 | 214  | 256  | 342  | 385  | 427  | 470  | 513  | 598   | 684   |
| AT160DA | 266                                 | 332  | 399  | 532  | 598  | 665  | 731  | 798  | 931   | 1064  |
| AT190DA | 426                                 | 532  | 638  | 851  | 958  | 1064 | 1170 | 1277 | 1490  | 1702  |
| AT210DA | 532                                 | 665  | 798  | 1064 | 1197 | 1330 | 1463 | 1596 | 1862  | 2128  |
| AT240DA | 769                                 | 962  | 1154 | 1539 | 1731 | 1924 | 2116 | 2308 | 2693  | 3078  |
| AT270DA | 1170                                | 1462 | 1754 | 2339 | 2632 | 2924 | 3216 | 3509 | 4094  | 4679  |
| AT300DA | 1526                                | 1908 | 2289 | 3052 | 3434 | 3815 | 4197 | 4578 | 5341  | 6104  |
| AT350DA | 2285                                | 2856 | 3427 | 4570 | 5141 | 5712 | 6283 | 6854 | 7997  | 9139  |
| AT400DA | 3256                                | 4070 | 4884 | 6512 | 7326 | 8140 | 8954 | 9768 | 11396 | 13024 |

双作用执行器的选型:

在正常操作条件下, 双作用执行器考虑的安全系数为20%-30%。

示例:

- 阀门力矩=100Nm
- 安全力矩=100×(1+30%)=130Nm
- 气源压力=5Bar

对照双作用力矩表, 选配双作用执行器最小规格为RT160DA。

Sizing: Double Acting Actuator

The suggested safety factor for double acting actuators under normal working conditions is 20%-30%.

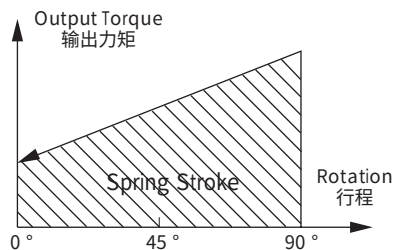
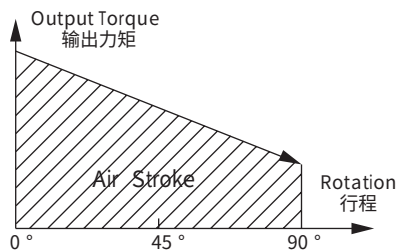
Example:

- The torque needed by valve=100N·m
- The torque considered safety factor (1+30%)=130N·m
- Air Supply=5Bar

According to the above table, we can choose the minimum model is RT160DA.



## 单作用输出力矩 Output Torque of Spring Return Actuators



Unit: Nm

| 输出扭矩Output torque of air to springs |             |          |         |          |         |          |         |          |         |          |         |          |         |          |         |           | Springs' output |  |
|-------------------------------------|-------------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|-----------|-----------------|--|
| 气压Air pressure                      | 2.5BAR      | 3BAR     |         | 4BAR     |         | 5BAR     |         | 6BAR     |         | 7BAR     |         | 8BAR     |         |          |         |           |                 |  |
| 型号Model                             | Spring Qty. | 0° Start | 90° End | 0° Start | 90° End | 0° Start | 90° End | 0° Start | 90° End | 0° Start | 90° End | 0° Start | 90° End | 0° Start | 90° End | 90° Start | 0° End          |  |
| AT052SR                             | K5          | 5.7      | 3.8     | 7.6      | 5.7     |          |         |          |         |          |         |          |         |          |         | 6.2       | 4.3             |  |
|                                     | K6          | 4.9      | 2.5     | 6.9      | 4.5     | 10.9     | 8.5     |          |         |          |         |          |         |          |         | 7.4       | 5.0             |  |
|                                     | K7          | 4.0      | 1.3     | 6.0      | 3.3     | 9.8      | 7.3     | 14.0     | 10.4    |          |         |          |         |          |         | 8.6       | 5.9             |  |
|                                     | K8          |          |         | 5.2      | 2.0     | 9.2      | 6.0     | 13.2     | 9.1     | 17.2     | 14.1    |          |         |          |         | 9.9       | 6.7             |  |
|                                     | K9          |          |         | 4.3      | 0.8     | 8.3      | 4.8     | 12.3     | 7.9     | 16.3     | 12.8    | 20.3     | 16.8    |          |         | 11.1      | 7.6             |  |
|                                     | K10         |          |         |          |         | 7.4      | 3.6     | 11.5     | 6.7     | 15.5     | 11.6    | 19.5     | 15.6    |          |         | 12.4      | 8.5             |  |
|                                     | K11         |          |         |          |         | 6.6      | 2.3     | 10.6     | 5.4     | 14.6     | 10.4    | 18.6     | 14.3    | 22.6     | 18.3    | 13.6      | 9.3             |  |
|                                     | K12         |          |         |          |         |          |         | 9.7      | 4.2     | 13.8     | 9.1     | 17.8     | 12.2    | 21.8     | 17.1    | 14.8      | 10.2            |  |
| AT063SR                             | K5          | 11.4     | 7.7     | 15.0     | 11.4    | 22.3     | 14.9    |          |         |          |         |          |         |          |         | 10.4      | 6.8             |  |
|                                     | K6          | 10.1     | 5.7     | 13.6     | 9.3     | 20.9     | 16.6    | 28.3     | 23.9    |          |         |          |         |          |         | 12.5      | 8.2             |  |
|                                     | K7          | 8.6      | 3.6     | 12.5     | 7.2     | 19.5     | 14.5    | 26.8     | 21.9    |          |         |          |         |          |         | 14.6      | 9.6             |  |
|                                     | K8          |          |         | 10.9     | 5.1     | 18.2     | 12.4    | 25.5     | 19.8    | 32.8     | 27.0    | 40.1     | 34.3    |          |         | 16.7      | 10.9            |  |
|                                     | K9          |          |         |          |         | 16.8     | 10.4    | 24.1     | 17.7    | 31.4     | 24.9    | 38.7     | 32.2    |          |         | 18.8      | 12.3            |  |
|                                     | K10         |          |         |          |         | 1.4      | 8.2     | 22.8     | 15.6    | 30.0     | 22.8    | 37.3     | 30.1    | 44.7     | 37.4    | 20.9      | 13.7            |  |
|                                     | K11         |          |         |          |         |          |         | 21.5     | 13.5    | 28.7     | 20.7    | 36.0     | 28.0    | 43.3     | 35.3    | 22.9      | 15.0            |  |
|                                     | K12         |          |         |          |         |          |         | 20.0     | 11.4    | 27.3     | 18.6    | 34.6     | 25.9    | 41.9     | 33.3    | 25.0      | 16.4            |  |
| AT075SR                             | K5          | 14.5     | 10.6    | 19.4     | 15.5    | 29.5     | 25.7    |          |         |          |         |          |         |          |         | 14.5      | 10.5            |  |
|                                     | K6          | 12.4     | 7.6     | 17.3     | 12.6    | 27.4     | 22.7    | 37.5     | 32.8    |          |         |          |         |          |         | 17.4      | 12.7            |  |
|                                     | K7          | 10.4     | 4.8     | 15.2     | 9.7     | 25.3     | 19.9    | 35.4     | 29.9    |          |         |          |         |          |         | 20.3      | 14.8            |  |
|                                     | K8          |          |         | 13.1     | 6.8     | 23.1     | 16.9    | 33.3     | 27.0    | 43.2     | 37.0    | 53.3     | 47.0    |          |         | 23.2      | 16.9            |  |
|                                     | K9          |          |         |          |         | 21.0     | 14.1    | 31.2     | 24.1    | 41.1     | 34.1    | 51.2     | 44.2    |          |         | 26.1      | 19.0            |  |
|                                     | K10         |          |         |          |         | 19.0     | 11.1    | 28.8     | 21.2    | 39.0     | 31.2    | 49.1     | 41.2    | 59.1     | 51.2    | 29.0      | 21.1            |  |
|                                     | K11         |          |         |          |         |          |         | 27.0     | 18.3    | 37.0     | 28.3    | 47.0     | 38.4    | 57.0     | 48.4    | 31.9      | 23.2            |  |
|                                     | K12         |          |         |          |         |          |         | 24.9     | 15.4    | 34.9     | 25.4    | 44.9     | 35.4    | 54.9     | 45.4    | 34.7      | 25.3            |  |
| AT083SR                             | K5          | 23.3     | 16.1    | 31.1     | 24.0    | 46.8     | 39.7    |          |         |          |         |          |         |          |         | 23.0      | 15.8            |  |
|                                     | K6          | 20.1     | 11.5    | 28.0     | 19.3    | 43.7     | 35.1    | 59.4     | 50.7    |          |         |          |         |          |         | 27.6      | 19.0            |  |
|                                     | K7          | 17.0     | 6.9     | 24.8     | 14.8    | 40.5     | 30.5    | 56.2     | 46.2    |          |         |          |         |          |         | 32.2      | 22.1            |  |
|                                     | K8          |          |         | 21.7     | 10.1    | 37.4     | 25.8    | 53.1     | 41.5    | 68.8     | 57.2    | 84.5     | 72.9    |          |         | 36.8      | 25.3            |  |
|                                     | K9          |          |         |          |         | 34.2     | 21.3    | 49.9     | 37.0    | 65.6     | 52.6    | 81.2     | 68.3    |          |         | 41.4      | 28.5            |  |
|                                     | K10         |          |         |          |         | 31.0     | 16.6    | 46.7     | 32.3    | 62.4     | 48.0    | 78.1     | 63.7    | 93.8     | 79.3    | 46.0      | 31.6            |  |
|                                     | K11         |          |         |          |         |          |         | 43.6     | 27.7    | 59.3     | 43.4    | 75.0     | 59.1    | 90.6     | 74.8    | 50.6      | 34.8            |  |
|                                     | K12         |          |         |          |         |          |         | 40.4     | 23.2    | 56.1     | 38.9    | 71.7     | 54.5    | 87.4     | 70.2    | 55.2      | 38.0            |  |
| AT092SR                             | K5          | 33.1     | 22.0    | 44.2     | 33.2    | 66.8     | 55.9    |          |         |          |         |          |         |          |         | 34.4      | 23.3            |  |
|                                     | K6          | 28.4     | 15.2    | 39.6     | 26.4    | 62.2     | 49.0    | 84.8     | 71.6    |          |         |          |         |          |         | 41.2      | 28.0            |  |
|                                     | K7          | 23.8     | 8.2     | 34.9     | 19.4    | 57.5     | 42.1    | 80.2     | 64.7    |          |         |          |         |          |         | 48.1      | 32.7            |  |
|                                     | K8          |          |         | 31.3     | 12.6    | 52.9     | 35.2    | 75.5     | 57.9    | 98.1     | 80.5    | 120.7    | 103.0   |          |         | 55.0      | 37.3            |  |
|                                     | K9          |          |         |          |         | 48.2     | 28.4    | 70.9     | 51.0    | 93.5     | 73.6    | 116.0    | 96.1    |          |         | 61.9      | 42.0            |  |
|                                     | K10         |          |         |          |         | 43.6     | 21.5    | 66.2     | 44.1    | 88.8     | 66.7    | 111.3    | 89.2    | 134.0    | 111.8   | 68.7      | 46.7            |  |
|                                     | K11         |          |         |          |         |          |         | 61.5     | 37.2    | 84.1     | 59.9    | 106.6    | 82.4    | 129.2    | 105.0   | 75.6      | 51.4            |  |
|                                     | K12         |          |         |          |         |          |         | 56.8     | 30.4    | 79.4     | 53.0    | 101.9    | 75.5    | 124.5    | 98.1    | 82.5      | 56.0            |  |
| AT105SR                             | K5          | 51.0     | 33.4    | 67.5     | 49.9    | 100.6    | 83.0    |          |         |          |         |          |         |          |         | 49.2      | 31.6            |  |
|                                     | K6          | 44.7     | 23.5    | 61.1     | 40.0    | 94.2     | 73.2    | 127.3    | 106.2   |          |         |          |         |          |         | 59.1      | 38.0            |  |
|                                     | K7          | 38.4     | 13.7    | 54.9     | 30.3    | 87.9     | 63.4    | 121.0    | 96.4    |          |         |          |         |          |         | 68.9      | 44.3            |  |
|                                     | K8          |          |         | 48.5     | 20.4    | 81.6     | 53.5    | 114.7    | 86.5    | 147.7    | 119.6   | 180.8    | 152.7   |          |         | 78.7      | 50.6            |  |
|                                     | K9          |          |         |          |         | 75.3     | 43.7    | 108.4    | 76.8    | 141.5    | 109.8   | 174.5    | 142.9   |          |         | 88.6      | 56.9            |  |
|                                     | K10         |          |         |          |         | 68.9     | 33.4    | 102.0    | 66.5    | 135.1    | 99.6    | 168.2    | 132.6   | 201.2    | 165.7   | 98.4      | 63.3            |  |
|                                     | K11         |          |         |          |         |          |         | 95.7     | 57.0    | 128.7    | 90.1    | 161.8    | 123.1   | 194.8    | 156.2   | 108.3     | 69.6            |  |
|                                     | K12         |          |         |          |         |          |         | 89.4     | 47.5    | 122.5    | 80.6    | 155.5    | 113.6   | 188.6    | 146.7   | 118.1     | 75.9            |  |
| AT125SR                             | K5          | 73       | 47      | 98       | 72      | 148      | 122     |          |         |          |         |          |         |          |         | 79        | 52              |  |
|                                     | K6          | 63       | 31      | 88       | 56      | 138      | 107     | 188      | 157     |          |         |          |         |          |         | 94        | 63              |  |
|                                     | K7          | 52       | 15      | 77       | 40      | 127      | 90      | 178      | 141     |          |         |          |         |          |         | 110       | 73              |  |
|                                     | K8          |          |         | 67       | 25      | 117      | 75      | 167      | 125     | 217      | 176     | 268      | 226     |          |         | 125       | 84              |  |
|                                     | K9          |          |         |          |         | 107      | 59      | 157      | 109     | 207      | 159     | 257      | 210     |          |         | 141       | 94              |  |
|                                     | K10         |          |         |          |         | 96       | 44      | 146      | 94      | 196      | 144     | 247      | 194     | 297      | 245     | 157       | 105             |  |
|                                     | K11         |          |         |          |         |          |         | 136      | 78      | 186      | 128     | 236      | 178     | 286      | 228     | 173       | 115             |  |
|                                     | K12         |          |         |          |         |          |         | 125      | 63      | 176      | 113     | 226      | 163     | 276      | 213     | 188       | 125             |  |
| AT140SR                             | K5          | 128      | 85      | 171      | 127     | 256      | 213     |          |         |          |         |          |         |          |         | 129       | 86              |  |
|                                     | K6          | 111      | 59      | 154      | 102     | 239      | 187     | 325      | 273     |          |         |          |         |          |         | 155       | 103             |  |
|                                     | K7          | 94       | 33      | 137      | 76      | 222      | 162     | 308      | 247     |          |         |          |         |          |         | 181       | 120             |  |
|                                     | K8          |          |         | 120      | 50      | 205      | 136     | 291      | 221     | 376      | 307     | 462      | 392     |          |         | 206       | 137             |  |
|                                     | K9          |          |         |          |         | 187      | 110     | 273      | 196     | 358      | 281     | 444      | 367     |          |         | 232       | 155             |  |
|                                     | K10         |          |         |          |         | 170      | 84      | 256      | 169     | 341      | 255     | 427      | 340     | 512      | 426     | 258       | 172             |  |
|                                     | K11         |          |         |          |         |          |         | 238      | 143     | 324      | 229     | 409      | 314     | 495      | 400     | 284       | 189             |  |
|                                     | K12         |          |         |          |         |          |         | 221      | 118     | 307      | 203     | 392      | 289     | 478      | 374     | 310       | 206             |  |

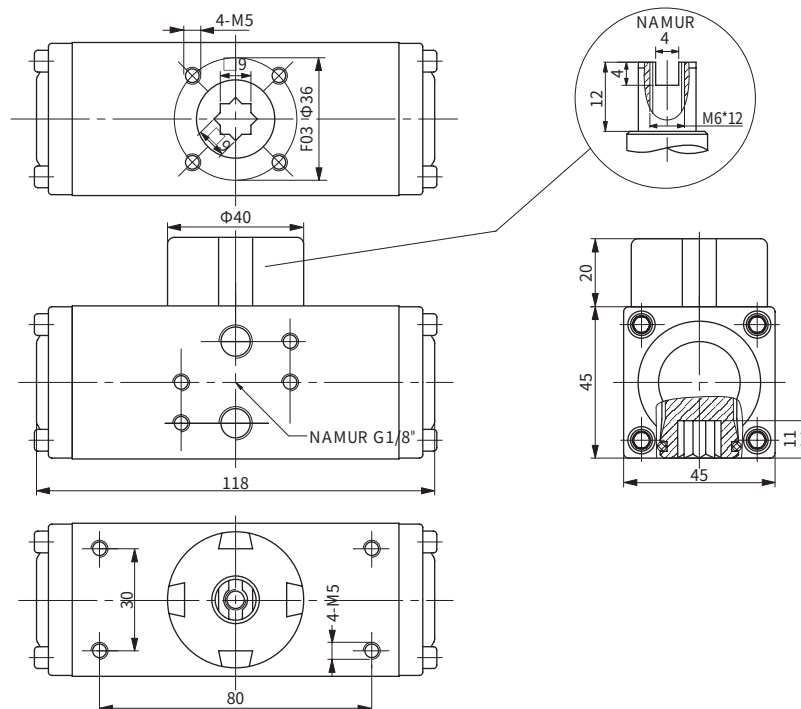


Unit: Nm

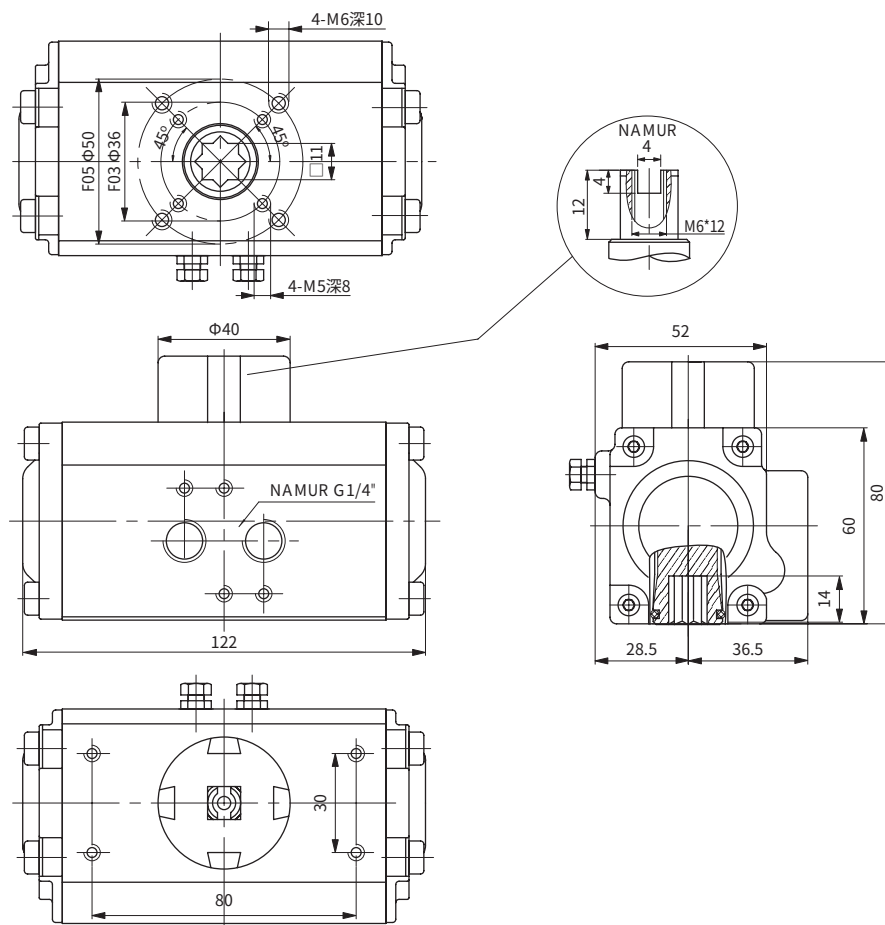
| 输出扭矩Output torque of air to springs |             |           |          |           |          |           |          |           |          |           |          |           |          |           |          |            |         | Springs' output |  |
|-------------------------------------|-------------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|------------|---------|-----------------|--|
| 气压Air pressure                      |             | 2.5Bar    |          | 3Bar      |          | 4Bar      |          | 5Bar      |          | 6Bar      |          | 7Bar      |          | 8Bar      |          |            |         |                 |  |
| 型号Model                             | Spring Qty. | 0 ° Start | 90 ° End | 0 ° Start | 90 ° End | 0 ° Start | 90 ° End | 0 ° Start | 90 ° End | 0 ° Start | 90 ° End | 0 ° Start | 90 ° End | 0 ° Start | 90 ° End | 90 ° Start | 0 ° End |                 |  |
| AT160SR                             | K5          | 193       | 124      | 259       | 191      | 392       | 324      |           |          |           |          |           |          |           |          | 208        | 140     |                 |  |
|                                     | K6          | 165       | 83       | 232       | 149      | 365       | 282      | 498       | 415      |           |          |           |          |           |          | 250        | 168     |                 |  |
|                                     | K7          | 137       | 41       | 203       | 107      | 336       | 240      | 469       | 373      |           |          |           |          |           |          | 292        | 196     |                 |  |
|                                     | K8          |           |          | 176       | 66       | 309       | 199      | 442       | 237      | 575       | 465      | 708       | 598      |           |          | 333        | 223     |                 |  |
|                                     | K9          |           |          |           |          | 280       | 157      | 413       | 290      | 546       | 423      | 679       | 556      |           |          | 375        | 251     |                 |  |
|                                     | K10         |           |          |           |          | 253       | 115      | 386       | 248      | 519       | 381      | 652       | 514      | 785       | 647      | 417        | 279     |                 |  |
|                                     | K11         |           |          |           |          |           |          | 358       | 207      | 491       | 340      | 624       | 473      | 757       | 606      | 458        | 307     |                 |  |
| AT190SR                             | K5          |           |          |           |          |           |          | 330       | 165      | 463       | 298      | 596       | 431      | 729       | 564      | 500        | 335     |                 |  |
|                                     | K6          | 332       | 222      | 438       | 329      | 651       | 542      |           |          |           |          |           |          |           |          | 309        | 200     |                 |  |
|                                     | K7          | 292       | 161      | 398       | 267      | 611       | 480      | 824       | 693      |           |          |           |          |           |          | 371        | 240     |                 |  |
|                                     | K8          | 252       | 99       | 358       | 205      | 571       | 418      | 784       | 631      |           |          |           |          |           |          | 433        | 280     |                 |  |
|                                     | K9          |           |          | 318       | 143      | 531       | 356      | 744       | 569      | 957       | 782      | 1169      | 995      |           |          | 495        | 320     |                 |  |
|                                     | K10         |           |          |           |          | 491       | 295      | 704       | 507      | 917       | 720      | 1130      | 933      |           |          | 557        | 360     |                 |  |
|                                     | K11         |           |          |           |          | 451       | 233      | 664       | 446      | 877       | 658      | 1090      | 871      | 1302      | 1084     | 618        | 400     |                 |  |
| AT210SR                             | K5          |           |          |           |          |           |          | 624       | 384      | 837       | 597      | 1050      | 809      | 1263      | 1022     | 680        | 440     |                 |  |
|                                     | K6          |           |          |           |          |           |          | 584       | 322      | 797       | 535      | 1010      | 748      | 1223      | 960      | 742        | 480     |                 |  |
|                                     | K7          | 390       | 285      | 523       | 418      | 789       | 684      |           |          |           |          |           |          |           |          | 380        | 275     |                 |  |
|                                     | K8          | 335       | 209      | 468       | 342      | 734       | 608      | 1000      | 874      |           |          |           |          |           |          | 456        | 330     |                 |  |
|                                     | K9          | 280       | 133      | 413       | 266      | 679       | 532      | 945       | 798      |           |          |           |          |           |          | 532        | 385     |                 |  |
|                                     | K10         |           |          | 358       | 190      | 624       | 456      | 890       | 722      | 1156      | 988      | 1422      | 1254     |           |          | 608        | 440     |                 |  |
|                                     | K11         |           |          |           |          | 569       | 380      | 835       | 646      | 1101      | 912      | 1367      | 1178     |           |          | 684        | 495     |                 |  |
| AT240SR                             | K5          |           |          |           |          | 514       | 304      | 780       | 570      | 1046      | 836      | 1312      | 1102     | 1578      | 1368     | 760        | 550     |                 |  |
|                                     | K6          |           |          |           |          |           |          | 725       | 494      | 991       | 760      | 1257      | 1026     | 1523      | 1292     | 836        | 605     |                 |  |
|                                     | K7          | 552       | 409      | 744       | 600      | 1129      | 985      | 670       | 418      | 936       | 684      | 1202      | 950      | 1468      | 1216     | 912        | 660     |                 |  |
|                                     | K8          | 470       | 297      | 662       | 489      | 1047      | 874      |           |          |           |          |           |          |           |          | 554        | 410     |                 |  |
|                                     | K9          | 388       | 187      | 580       | 379      | 964       | 764      | 1432      | 1259     |           |          |           |          |           |          | 665        | 492     |                 |  |
|                                     | K10         |           |          | 498       | 268      | 883       | 653      | 1267      | 1037     | 1652      | 1422     | 2037      | 1807     |           |          | 775        | 575     |                 |  |
|                                     | K11         |           |          |           |          | 800       | 542      | 1185      | 926      | 1569      | 1311     | 1954      | 1696     |           |          | 886        | 656     |                 |  |
| AT270SR                             | K5          |           |          |           |          | 718       | 431      | 1103      | 816      | 1488      | 1201     | 1872      | 1586     | 2257      | 1970     | 998        | 739     |                 |  |
|                                     | K6          |           |          |           |          |           |          | 1021      | 705      | 1406      | 1090     | 1791      | 1474     | 2176      | 1859     | 1219       | 903     |                 |  |
|                                     | K7          | 903       | 675      | 1195      | 968      | 1779      | 1552     | 939       | 594      | 1323      | 979      | 1708      | 1363     | 2093      | 1748     | 1330       | 985     |                 |  |
|                                     | K8          | 790       | 519      | 1083      | 811      | 1667      | 1396     |           |          |           |          |           |          |           |          | 554        | 410     |                 |  |
|                                     | K9          | 679       | 361      | 972       | 654      | 1556      | 1238     | 2252      | 1981     |           |          |           |          |           |          | 665        | 492     |                 |  |
|                                     | K10         |           |          | 860       | 497      | 1444      | 1081     | 2029      | 1666     | 2614      | 2252     | 3199      | 2836     |           |          | 775        | 575     |                 |  |
|                                     | K11         |           |          |           |          | 1332      | 923      | 1917      | 1509     | 2502      | 2094     | 3087      | 2678     |           |          | 886        | 656     |                 |  |
| AT300SR                             | K5          |           |          |           |          | 1220      | 767      | 1805      | 1352     | 2390      | 1937     | 2974      | 2521     | 3560      | 3107     | 1416       | 1007    |                 |  |
|                                     | K6          |           |          |           |          |           |          | 1693      | 1194     | 2278      | 1779     | 2862      | 2364     | 3448      | 2949     | 1572       | 1119    |                 |  |
|                                     | K7          | 1097      | 729      |           |          |           |          | 1582      | 1037     | 2167      | 1623     | 2751      | 2207     | 3336      | 2792     | 1730       | 1231    |                 |  |
|                                     | K8          | 935       | 494      | 1316      | 875      |           |          |           |          |           |          |           |          |           |          | 1887       | 1342    |                 |  |
|                                     | K9          | 772       | 258      | 1153      | 639      | 1916      | 1402     |           |          |           |          |           |          |           |          | 1061       | 730     |                 |  |
|                                     | K10         |           |          | 991       | 403      | 1754      | 1166     | 2517      | 1929     |           |          |           |          |           |          | 1273       | 876     |                 |  |
|                                     | K11         |           |          |           |          | 1592      | 930      | 2355      | 1693     | 3118      | 2456     |           |          |           |          | 1485       | 1022    |                 |  |
| AT350SR                             | K5          |           |          |           |          |           |          | 2193      | 1458     | 2956      | 2221     | 3719      | 2984     | 4482      | 3747     | 1697       | 1168    |                 |  |
|                                     | K6          |           |          |           |          |           |          | 2030      | 1222     | 2793      | 1985     | 3556      | 2748     | 4319      | 3511     | 1909       | 1314    |                 |  |
|                                     | K7          | 1553      | 964      |           |          |           |          | 1868      | 986      | 2631      | 1749     | 3394      | 2512     | 4157      | 3275     | 2122       | 1460    |                 |  |
|                                     | K8          | 1292      | 586      | 1863      | 1157     |           |          |           |          |           |          |           |          |           |          | 2234       | 1606    |                 |  |
|                                     | K9          | 1031      | 208      | 1602      | 779      | 2745      | 1922     |           |          |           |          |           |          |           |          | 2546       | 1752    |                 |  |
|                                     | K10         |           |          | 1341      | 401      | 2484      | 1544     | 3626      | 2686     |           |          |           |          |           |          | 1702       | 1173    |                 |  |
|                                     | K11         |           |          |           |          | 2224      | 1165     | 3336      | 2307     | 4508      | 3449     |           |          |           |          | 2043       | 1408    |                 |  |
| AT400SR                             | K5          |           |          |           |          |           |          |           |          |           |          |           |          |           |          | 2383       | 1642    |                 |  |
|                                     | K6          |           |          |           |          |           |          |           |          |           |          |           |          |           |          | 2724       | 1877    |                 |  |
|                                     | K7          |           |          |           |          |           |          |           |          |           |          |           |          |           |          | 3064       | 2112    |                 |  |
|                                     | K8          |           |          |           |          |           |          |           |          |           |          |           |          |           |          | 3405       | 2346    |                 |  |
|                                     | K9          |           |          |           |          |           |          |           |          |           |          |           |          |           |          | 3745       | 2581    |                 |  |
|                                     | K10         |           |          |           |          |           |          |           |          |           |          |           |          |           |          | 4086       | 2816    |                 |  |
|                                     | K11         |           |          |           |          |           |          |           |          |           |          |           |          |           |          |            |         |                 |  |
| AT400SR                             | K7          | 2028      | 869      |           |          |           |          |           |          |           |          |           |          |           |          | 2880       | 1837    |                 |  |
|                                     | K8          | 1736      | 411      | 2550      | 1225     |           |          |           |          |           |          |           |          |           |          | 3292       | 2100    |                 |  |
|                                     | K9          |           |          | 2259      | 768      | 3887      | 2396     |           |          |           |          |           |          |           |          | 3703       | 2362    |                 |  |
|                                     | K10         |           |          | 1967      | 311      | 3595      | 1939     | 5223      | 3567     |           |          |           |          |           |          | 4115       | 2624    |                 |  |
|                                     | K11         |           |          |           |          | 3303      | 1482     | 4931      | 3110     | 6559      | 4738     |           |          |           |          | 4526       | 2887    |                 |  |
|                                     | K12         |           |          |           |          | 3012      | 1025     | 4640      | 2653     | 6268      | 4281     | 7895      | 5908     | 9523      | 7536     | 4938       | 3149    |                 |  |
|                                     | K13         |           |          |           |          |           |          | 4348      | 2195     | 5976      | 3823     | 7603      | 5450     | 9231      | 7078     | 5349       | 3412    |                 |  |
| AT400SR                             | K14         |           |          |           |          |           |          | 4057      | 1738     | 5685      | 3366     | 7312      | 4993     | 8940      | 6621     | 5761       | 3674    |                 |  |
|                                     | K15         |           |          |           |          |           |          | 3765      | 1281     | 5393      | 2909     | 7020      | 4536     | 8648      | 6164     | 6172       | 3937    |                 |  |
|                                     | K16         |           |          |           |          |           |          |           |          | 5101      | 2452     | 6728      | 4079     | 8356      | 5707     | 6584       | 4199    |                 |  |

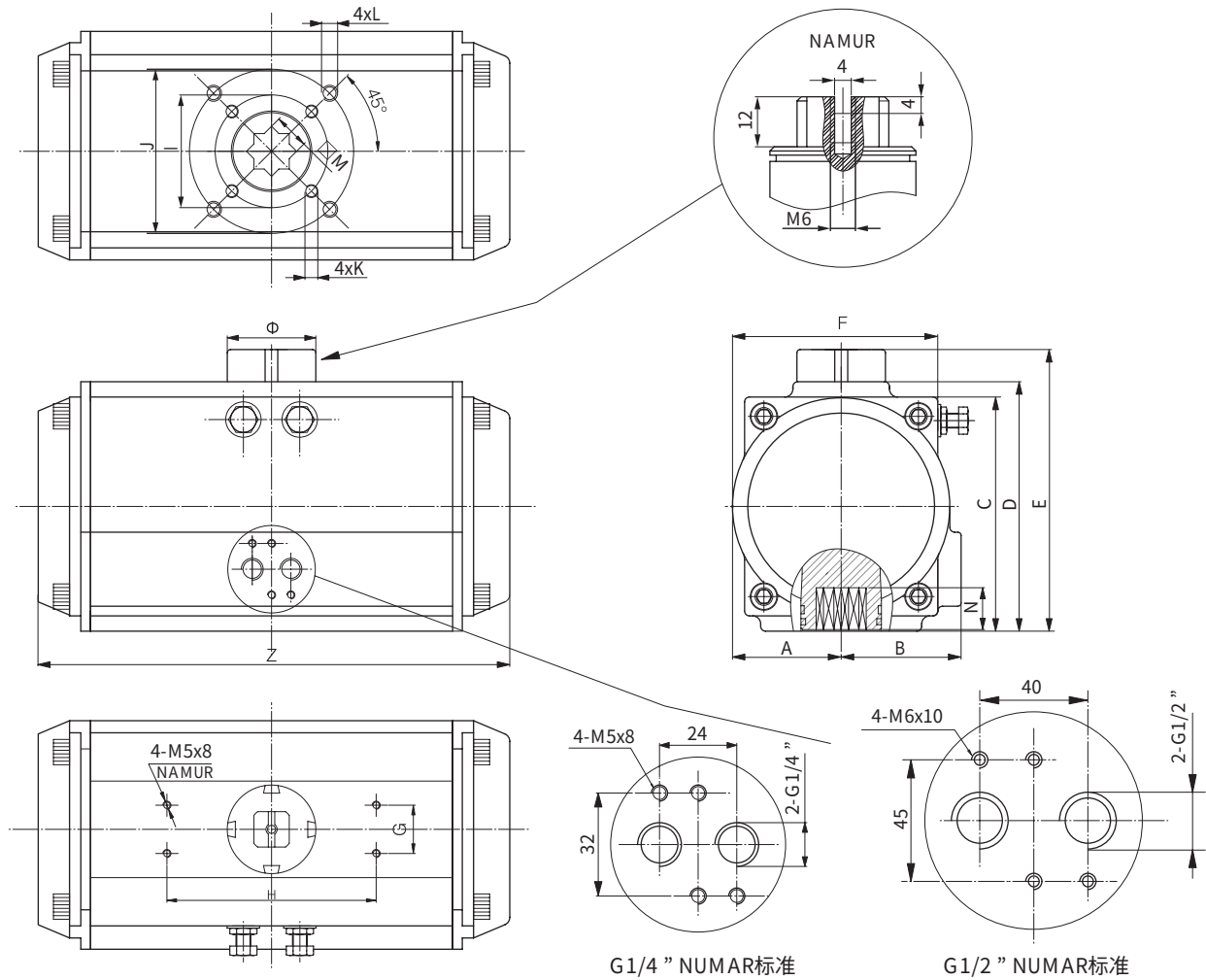
## 外形尺寸 Dimension

AT032DA



AT040DA





| 型号<br>Model | A    | B    | C     | D     | E     | F     | G  | H   | I    | J    | K      | L        | M  | N  | Z   | Φ   | 气源接口<br>Air Connection |
|-------------|------|------|-------|-------|-------|-------|----|-----|------|------|--------|----------|----|----|-----|-----|------------------------|
| AT052       | 30   | 41.5 | 65.5  | 72    | 92    | 65    | 30 | 80  | Φ36  | Φ50  | M5x8   | M6x10    | 11 | 14 | 147 | Φ40 | NAMUR G1/4"            |
| AT063       | 36   | 47   | 81    | 87.5  | 107.5 | 72    | 30 | 80  | Φ50  | Φ70  | M6x10  | M8x13    | 14 | 18 | 168 | Φ40 | NAMUR G1/4"            |
| AT075       | 42   | 53   | 94    | 99.5  | 119.5 | 81    | 30 | 80  | Φ50  | Φ70  | M6x10  | M8x13    | 14 | 18 | 184 | Φ40 | NAMUR G1/4"            |
| AT083       | 46   | 57   | 98.5  | 108.7 | 128.7 | 92    | 30 | 80  | Φ50  | Φ70  | M6x10  | M8x13    | 17 | 21 | 204 | Φ40 | NAMUR G1/4"            |
| AT092       | 50   | 58.5 | 111   | 116.5 | 136.5 | 98    | 30 | 80  | Φ50  | Φ70  | M6x10  | M8x13    | 17 | 21 | 262 | Φ40 | NAMUR G1/4"            |
| AT105       | 57.5 | 64   | 122.5 | 133   | 153   | 109.5 | 30 | 80  | Φ70  | Φ102 | M8x13  | M10x16   | 22 | 26 | 268 | Φ40 | NAMUR G1/4"            |
| AT125       | 67.5 | 74.5 | 145.5 | 155   | 175   | 127.5 | 30 | 80  | Φ70  | Φ102 | M8x13  | M10x16   | 22 | 26 | 301 | Φ55 | NAMUR G1/4"            |
| AT140       | 75   | 77   | 161   | 172   | 192   | 137.5 | 30 | 80  | Φ102 | Φ125 | M10x16 | M12x20   | 27 | 31 | 390 | Φ55 | NAMUR G1/4"            |
| AT160       | 87   | 87   | 184   | 197   | 217   | 158   | 30 | 80  | Φ102 | Φ125 | M10x16 | M12x20   | 27 | 31 | 458 | Φ55 | NAMUR G1/4"            |
| AT190       | 103  | 103  | 213   | 230   | 260   | 189   | 30 | 130 |      | Φ140 |        | M16x25   | 36 | 40 | 525 | Φ80 | NAMUR G1/4"            |
| AT210       | 113  | 113  | 235.5 | 255   | 285   | 210   | 30 | 130 |      | Φ140 |        | M16x25   | 36 | 40 | 532 | Φ80 | NAMUR G1/4"            |
| AT240       | 130  | 130  | 264.5 | 289   | 319   | 245   | 30 | 130 |      | Φ165 |        | M20x25   | 46 | 50 | 602 | Φ80 | NAMUR G1/4"            |
| AT270       | 147  | 147  | 299   | 326   | 356   | 273   | 30 | 130 |      | Φ165 |        | M20x25   | 46 | 50 | 722 | Φ80 | NAMUR G1/2"            |
| AT300       | 162  | 162  | 348   | 348   | 378   | 324   | 30 | 130 | Φ165 | Φ215 | M20x25 | M20x25   | 46 | 60 | 742 | Φ80 | NAMUR G1/2"            |
| AT350       | 190  | 190  | 402   | 402   | 432   | 380   | 30 | 130 | Φ165 | Φ215 | M20x25 | M20x25   | 46 | 60 | 860 | Φ80 | NAMUR G1/2"            |
| AT400       | 258  | 258  | 464   | 464   | 494   | 298   | 30 | 130 | Φ165 | Φ254 | M20x25 | 8-M16x25 | 55 | 60 | 924 | Φ80 | NAMUR G1/2"            |

## 单作用执行器的选型 Sizing: Spring Return Actuators

在正常工作条件下，单作用执行器考虑的安全系数为 30%-50%

例如：

阀门需要力矩=80N·m

安全力矩=80(1+30%)=104N·m

气源压力=5Bar

对照单作用执行器输出力矩表，我们可以查到 RT435SR

K7 输出力矩为

空气行程0°=308N·m

空气行程90°=247N·m

弹簧行程90°=181N·m

弹簧行程0°=120N·m

所有输出力矩均大于我们需求。

注意：

单作用执行器弹簧复位过程中，执行器B口通气不影响执行器输出力矩，相反帮助弹簧的复位。

The suggested safety factor for spring return actuator under normal working conditions is 30-50%

Example :

The torque needed by valve=80N.m

The torque consider safety factor ( 1+30%)=104N.m

Air Supply=5Bar

According to the table of spring return actuators' output,

we find output torque of RT435SR K7 is:

Air stroke 0°=308N.m

Air stroke 90°=247N.m

Spring stroke 90°=181N.m

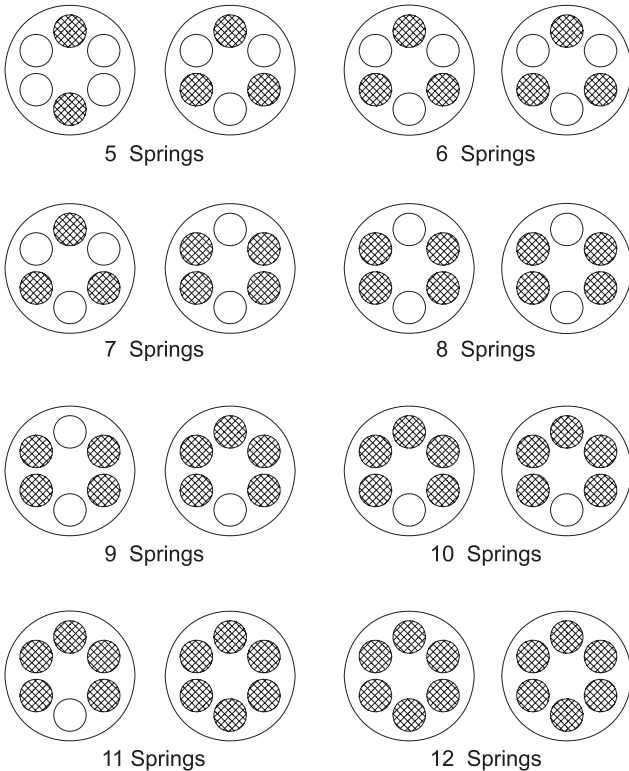
Spring stroke 0°=120N.m

All the output torque is larger than we needed.

Attention

During the restoration, the spring return actuators' output torque will not be affected by the inputing air from the port B. On the contrary, it will help the restoration of springs.

## 单作用执行器弹簧安装形式 Spring mounting form for spring return actuators



在单作用执行器的选配过程中，如果能够了解阀门在开启、运行和关闭时的扭矩分配，我们就可以更加经济、更加合理地选配执行器。

During selecting the spring return actuators, we can choose the more reasonable and more economical actuators, if we know the different torque needed by the valve working at opening, operating and closing.

Example:

The max torque needed by the butterfly valve=104N.m

The torque after opened (operating) 104x30%=32N.m

Air Supply=5Bar

We can select the RT255SR K11

output torque is:

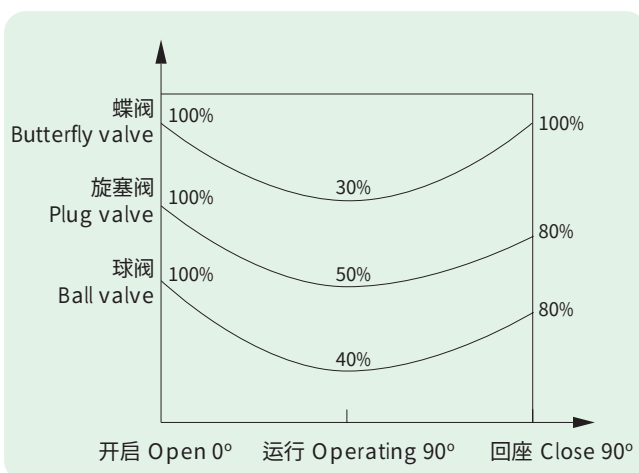
● Air stroke 0°=136N.m > 104N.m

● Air stroke 90°=78N.m > 32N.m

● Spring stroke 90°=173N.m > 32N.m

● Spring stroke 0°=115N.m > 104N.m

The above datas show the actuator's torque can satisfy the requirement of the butterfly valve.



例如：

蝶阀原最大扭矩=104N·m

打开后扭矩104x30%=32N·m

气源压力=5Bar

我们可以选择RT255SR K11

空气行程0°=136N·m>104N·m

空气行程90°=78N·m>32N·m

弹簧行程90°=173N·m>32N·m

弹簧行程0°=115N·m>104N·m

以上数据显示可以满足该蝶阀的正常启闭。

**注意** 确保执行器的输出扭矩和驱动阀门所需要的扭矩相符（执行器的型号和气源压力）。  
请注意，选型扭矩不仅取决于阀门，还要考虑相关的工况、安全系数等参数。

**Note** Make sure that the torque necessary to operate the valve is compatible with the actuator torque (it depends on both actuator type and air supply).  
Please note that the requested torque depends not only on the valve, but on the working conditions and the safety margins of the plant in question, too.

## 重量表 Weight Table

| Model 型号 | AT032 | AT040 | AT052 | AT063 | AT075 | AT083 | AT092 | AT105 | AT125  |
|----------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| 重量(DA)   | 0.7kg | 1.kg  | 1.4kg | 2kg   | 2.7kg | 3.1kg | 4.6kg | 6.8kg | 8.9kg  |
| 重量(SR)   | -     | 1.1kg | 1.5kg | 2.1kg | 2.9kg | 3.6kg | 5.2kg | 6.9kg | 10.1kg |

| Model 型号 | AT140 | AT160 | AT190 | AT210 | AT240 | AT270 | AT300 | AT350 | AT400 |
|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 重量(DA)   | 13kg  | 20kg  | 31kg  | 47kg  | 67kg  | 97kg  | 110kg | 186kg | 289kg |
| 重量(SR)   | 15kg  | 24kg  | 35kg  | 55kg  | 80kg  | 118kg | 130kg | 234kg | 360kg |

注：1、SR为12根弹簧；2、重量为净重量。

## 耗气量 Air Consumption

开向体积和关向体积 Air Volume Opening & Closing

Unit: L

| Model 型号 | Air volume opening 开向体积(升) | Air volume closing 关向体积(升) |
|----------|----------------------------|----------------------------|
| AT032    | 0.04                       | 0.05                       |
| AT040    | 0.08                       | 0.11                       |
| AT052    | 0.12                       | 0.16                       |
| AT063    | 0.21                       | 0.23                       |
| AT075    | 0.3                        | 0.34                       |
| AT083    | 0.43                       | 0.47                       |
| AT092    | 0.64                       | 0.73                       |
| AT105    | 0.95                       | 0.88                       |
| AT125    | 1.6                        | 1.4                        |

| Model 型号 | Air volume opening 开向体积(升) | Air volume closing 关向体积(升) |
|----------|----------------------------|----------------------------|
| AT140    | 2.5                        | 2.2                        |
| AT160    | 3.7                        | 3.2                        |
| AT190    | 5.9                        | 5.4                        |
| AT210    | 7.5                        | 7.5                        |
| AT240    | 11                         | 9                          |
| AT270    | 17                         | 14                         |
| AT300    | 23.8                       | 29.7                       |
| AT350    | 35.1                       | 46.3                       |
| AT400    | 52.6                       | 56                         |

耗气量取决于供气压力、开关行程、体积及动作次数，计算如下：

$$\text{升/分} = \text{气缸体积 (开向体积+关向体积)} \times \left[ \frac{\text{供气压力(Kpa)}+101.3}{101.3} \right] \times \text{次数/分钟}$$

**Air consumption rest with Air Supply. Air volume and Action cycle times, expressions:**

$$\text{L/Min} = \text{Air volume (Air volume Opening+Air volume closing)} \times \left[ \frac{\text{Air Supply (Kpa)}+101.3}{101.3} \right] \times \text{Action cycle times (/min)}$$



## 120°, 135°, 180° 双作用与单作用 Double Acting and Spring Return

为满足不同类型阀门及机械自动化的驱动要求，我司可根据客户要求定制不同行程(例120°、135°、180°等)的气动执行器。

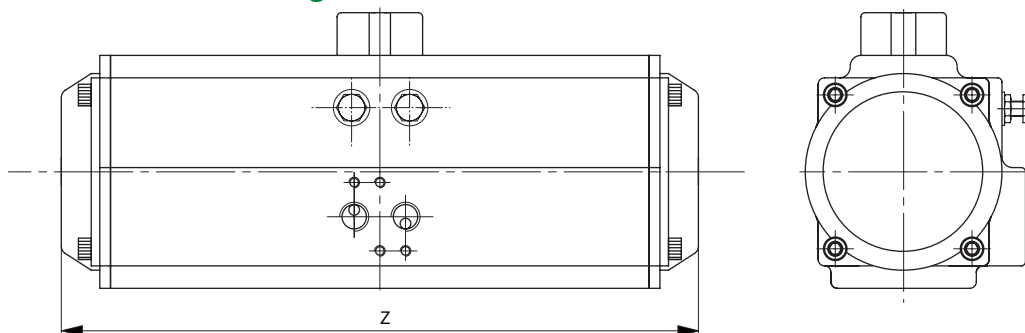
In order to meet the special requirements of control valve we produced special strokes actuators on costumer request (e.g. 120°, 135°, 180° etc.).

### 输出扭矩 Output Torque

输出扭矩请参考90°行程气动执行器扭矩表

Output torque of double acting actuators please refer to the torque of 90° actuators.

### 180° 双作用执行器尺寸表 Length of DAx180°



| Size  | AT052 | AT063 | AT075 | AT083 | AT092 | AT105 | AT125 | AT140 | AT160 | AT190 | AT210 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Z(mm) | 213   | 243   | 258   | 298   | 362   | 386   | 429   | 569   | 652   | 756   | 760   |

If you enquire any further information of spring return actuators, please do not hesitate to contact us.

## 三位式执行器 Three Position Pneumatic Actuator

三位式气动执行器是一种特殊规格的执行机构，提供了0°、45°、90°或0°、90°、180°的三位式操作方式。中间位置是依靠两个辅助活塞的移动产生的机械制动来实现的。中间位置是可调的。如90°行程的执行器能提供20°、30°、50°、70°等的中间位置。

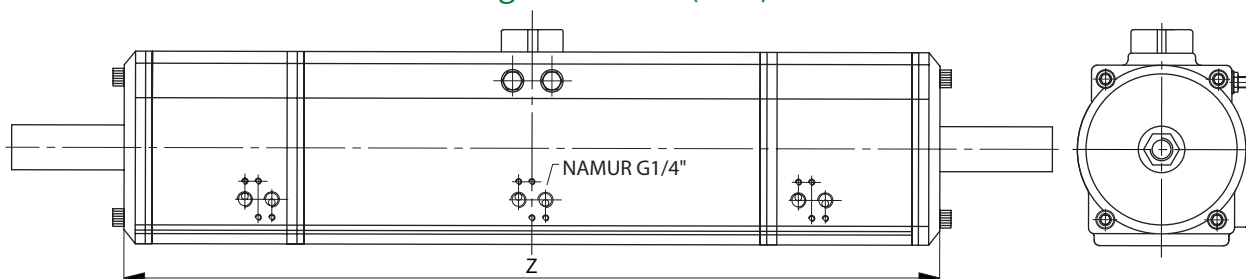
Three position actuator provide an operation of 0°, 45°, 90° or 0°, 90°, 180°, The midway position is achieved by a mechanical stop of movement on the 2 auxiliary pistons. This midway stop positions adjustable. Example: 90° actuator can provide 20°, 30°, 40°, 50°, 70° etc.

### 输出扭矩 Output Torque

输出扭矩请参考90°行程气动执行器扭矩表

Output torque of double acting actuators please refer to the torque of 90° actuators.

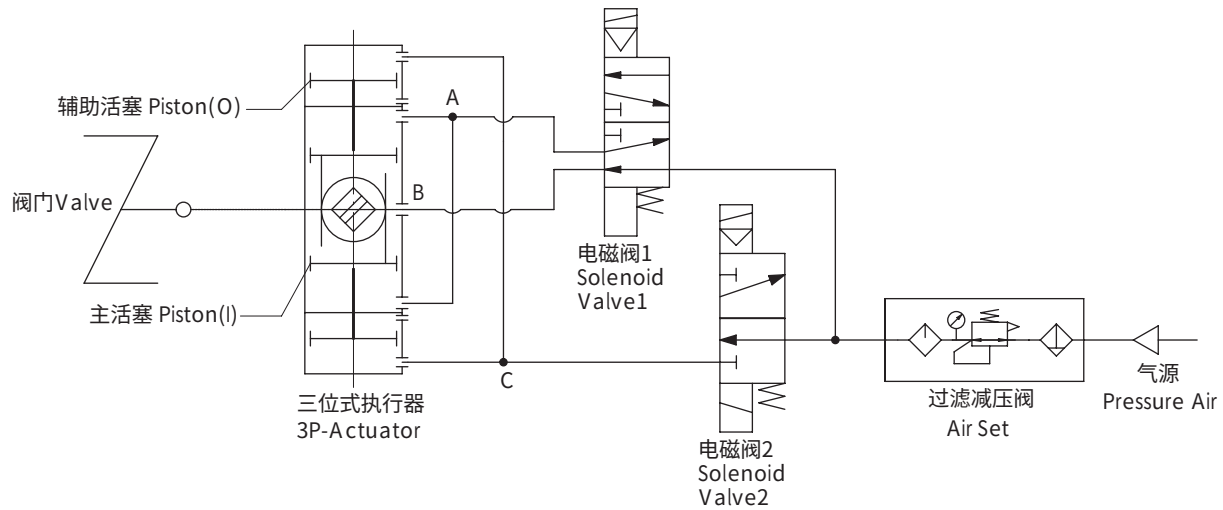
### 90° 三位式双作用执行器尺寸表 Length of DA-3P(90°)



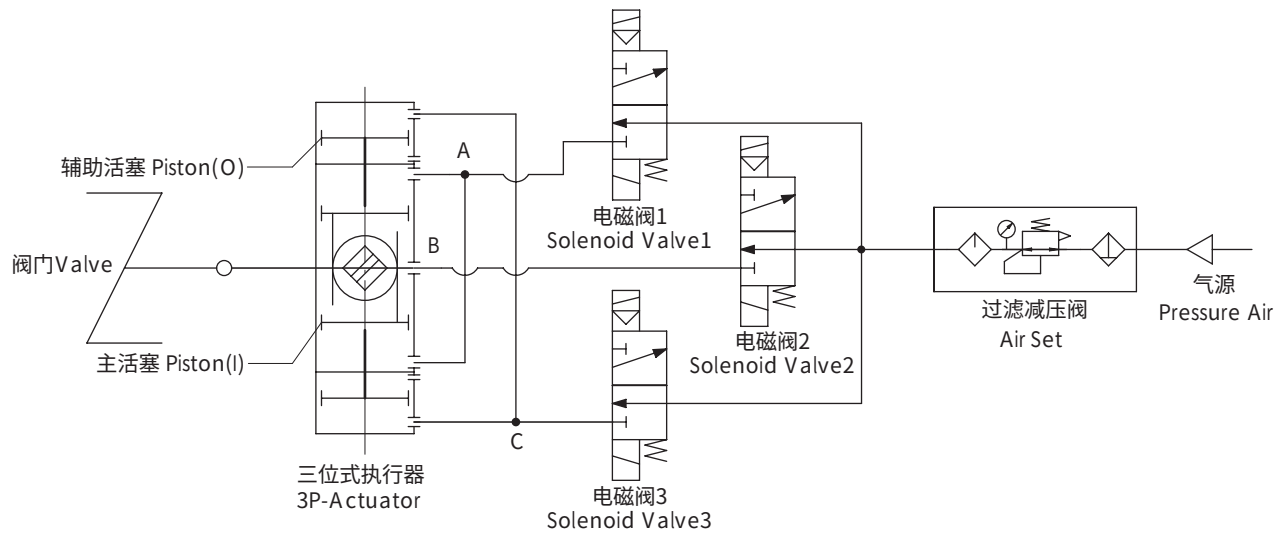
| Size  | AT052-3P | AT063-3P | AT075-3P | AT083-3P | AT092-3P | AT105-3P | AT125-3P | AT140-3P | AT160-3P | AT190-3P | AT210-3P |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Z(mm) | 266      | 303      | 306      | 336      | 394      | 410      | 456      | 570      | 646      | 788      | 788      |

If you enquire any further information of spring return actuators, please do not hesitate to contact us.

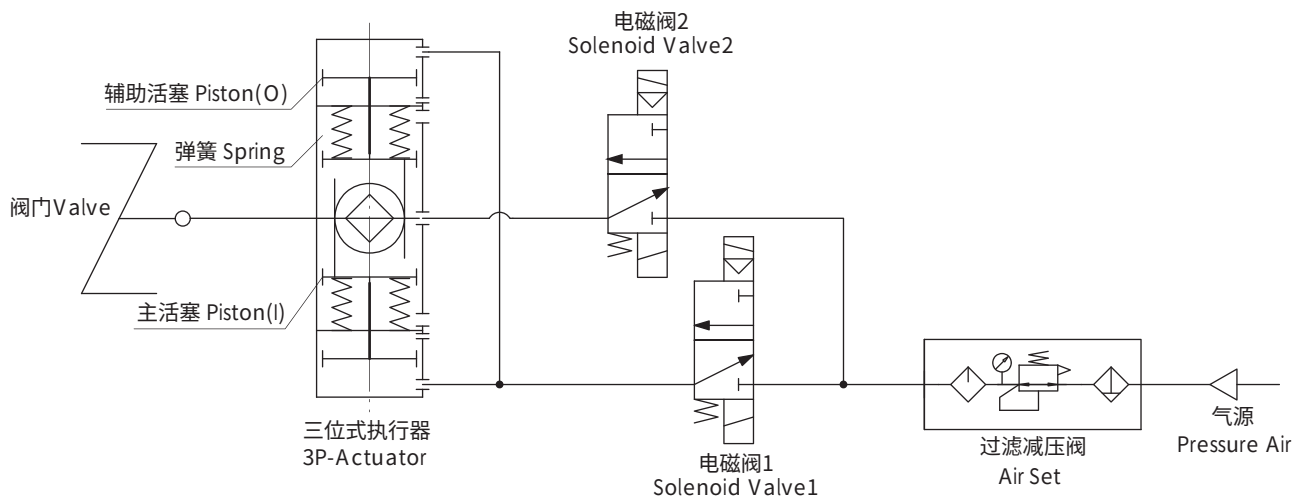
## 三位式气动执行器工作原理图 Schematic Diagram



|                      | 0 ° | 90 ° | 30 ° | 0 ° |
|----------------------|-----|------|------|-----|
| 电磁阀1 SOLENOID VALVE1 | OFF | ON   | OFF  | OFF |
| 电磁阀2 SOLENOID VALVE2 | OFF | OFF  | ON   | OFF |



|                      | 0 ° | 30 ° | 90 ° | 30 ° | 0 ° |
|----------------------|-----|------|------|------|-----|
| 电磁阀1 SOLENOID VALVE1 | OFF | OFF  | ON   | OFF  | OFF |
| 电磁阀2 SOLENOID VALVE2 | ON  | OFF  | OFF  | ON   | ON  |
| 电磁阀3 SOLENOID VALVE3 | OFF | ON   | ON   | ON   | OFF |



|                      | 0 ° | 30 ° | 90 ° | 30 ° | 0 ° |
|----------------------|-----|------|------|------|-----|
| 电磁阀1 SOLENOID VALVE1 | OFF | ON   | OFF  | ON   | OFF |
| 电磁阀2 SOLENOID VALVE2 | OFF | ON   | ON   | ON   | OFF |



## 工作技术条件 Operating conditions

### 1、工作介质

干燥或润滑的空气或无腐蚀性气体介质中杂质微粒小于30  $\mu\text{m}$ 。

### 2、气源压力

最小气源压力2.5巴，最大气源压力8巴。

### 3、介质环境温度

标准：-20°C~+80°C

低温：-35°C~+80°C

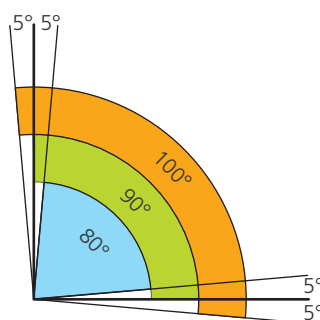
高温：-15°C~+150°C

### 4、行程调节

0°和90°两个位置有 $\pm 5^\circ$ 的调节范围

### 5、使用场合

室内或室外安装



### 1.Operating media

Dry or lubricated air, or the non-corrosive gases

The maximum particle diameter must less than 30  $\mu\text{m}$

### 2. Air supply pressure

The minimum supply pressure is 2.5 Bar

The maximum supply pressure is 8 Bar

### 3.Operating temperature

Standard:-20°C~+80°C

Low temperature:-35°C~+80°C

High temperature:-15°C~+150°C

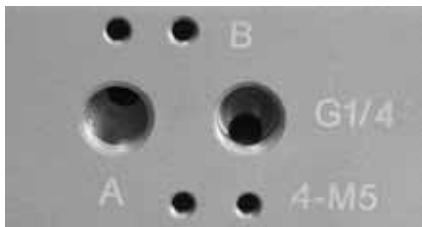
### 4.Travel adjustment

Have adjustment range of  $\pm 5^\circ$  for the rotation at 0° and 90°

### 5.Application

Either indoor or outdoor

## 安装标准 Mounting Standard



气源接口符合NAMUR标准，可简单方便地安装电磁阀。

Air supply connection is designed in accordance with NAMUR Standard to install solenoid valves.



输出轴的NAMUR标准槽和缸体上部标准安装孔，可使限位开关、定位器直接啮合和安装。

The Namur drive pinion and the Namur top mounting connection permit direct installation of accessories such as limit switch box and positioner.



底部安装孔设计符合ISO5211、DIN3337标准，可以直接安装离合器(气动手轮机构)或安装支架。

Bottom mounting connection is designed in accordance with ISO5211 and DIN3337 standards for direct mounting with valve gear boxes or mounting brackets.

## 型号对照表 Model Comparison

| Unit: mm   |       |       |       |       |       |       |       |       |       |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 型号Model    | AT032 | AT040 | AT052 | AT063 | AT075 | AT083 | AT092 | AT105 | AT125 |
| 缸径Cylinder | Ø32   | Ø40   | Ø52   | Ø63   | Ø75   | Ø83   | Ø92   | Ø105  | Ø125  |
| 型号Model    | AT140 | AT160 | AT190 | AT210 | AT240 | AT270 | AT300 | AT350 | AT400 |
| 缸径Cylinder | Ø140  | Ø160  | Ø190  | Ø210  | Ø240  | Ø270  | Ø300  | Ø350  | Ø400  |

## 订购 How to Order

|            |          |   |       |                  |                  |           |                    |                   |
|------------|----------|---|-------|------------------|------------------|-----------|--------------------|-------------------|
| 单元 Unit    | 1        |   | 2     | 3                | 4                | 5         | 6                  | 产品代号 Product code |
| 内容 Content | 系列Series | — | Model | 动作形式 Acting Type | 弹簧数量 Spring Qty. | 行程 Travel | 客户定制 Custom-tailor | AT032 SR K10      |
| 举例 Example | AT       | — | 032   | Spring Acting    | 10 PCS           | None      | None               |                   |
| 代号 Code    | AT       |   |       | SR               | K10              |           |                    |                   |

032

040

052

.....

DA Double Acting

SR Spring Acting

K88 PCS

K99 PCS

K1010 PCS

.....

.....

None90° Rotation

120120° Rotation

135135° Rotation

180180° Rotation

NoneStandard

FCFailure Close

FOFailure Open

3PThree Position

CCustomer

因为专注 所以专业  
Absorbed, Professional

因为专业 所以卓越  
Professional, Excellent



**DEYO<sup>®</sup>**  
AUTOMATIC CONTROL