## Overview

The ZP6100 series pneumatic actuator adopts a multi-spring diaphragm structure, making it a lightweight, compact, high-performance linear travel actuator with high output force. It is primarily composed of key components such as the diaphragm, compression spring, tray, push rod, bracket, bushing, and diaphragm cover.

Its working principle: The electrical or pneumatic signal from the regulating instrument is converted into air pressure by the positioner and input into the diaphragm air chamber. This causes the elastic diaphragm to transform the input pressure into thrust on the push rod, which in turn moves the valve spool accordingly, thereby changing the valve's opening. It typically accepts a standard pressure signal of 02×10° ~10×10 Pa and converts it into thrust. When the signal pressure is introduced into the diaphragm air chamber, this pressure multiplied by the effective area of the diaphragm produces thrust, moving the push rod and compressing the spring until the reaction force generated by the spring balances the thrust on the diaphragm. The greater the signal pressure, the greater the thrust, and the larger the displacement of the push rod, i.e., the compression of the spring. As the push rod moves from zero to full travel, the valve transitions from fully open (or fully closed) to fully closed (or fully open).

| Item | Material | Item | Material |
|---|---|---|---|
| Cover | Carbon steel, stainless steel | Sleeve | Wear-Resistant Nylon(MC)、2Cr13 |
| Yoke | Carbon steel, stainless steel | Diaphragm | EPDM/Nylon; NBR/Nylon |
| Push Rod | 1Cr18Ni9、2Cr13 | Spring | 60Si2MnA |

## Action Type

Direct-acting (D): When the signal pressure increases, the push rod moves downward.
Reverse-acting (R): When the signal pressure increases, the push rod moves upward.

## Performance(GB/T4213-2008)

| Project | w.Positioner | w/o Positioner |
|---|---|---|
| Basic Error (%) | ≤±1.5 | ±8%(Percentage of Stroke) |
| Hysteresis (%) | ≤1.5 | - |
| Dead Band (%) | ≤0.6 | 6%(percentage of pressure span) |
| Rated Travel Deviation (%) | ±2.5 | ±2.5 |
| Start/End Dev. (%) | ±2.5 | ±2.5 |
| FC Start | ±2.5 | ±2.5 |
| FO Start | ±2.5 | ±2.5 |
| Cycle Life | 100,000 Times | |
| Spring Range | 20-100、40-200、80-240、140-300KPa | |
| Oper. Temp. | -30 ~ +70℃ | |
| Air Port | NPT1/4"、3/8" | |

## Air Consumption

| Model No. | Air Chamber Volume (Liters) | Air Consumption (Liters) |
|---|---|---|
| ZP6102 | 1.58 | 5.34 |
| ZP6103 | 1.82 | 6.13 |
| ZP6104 | 4.63 | 15.6 |
| ZP6105 | 10.89 | 36.7 |
| ZP6106 | 37.06 | 124.89 |

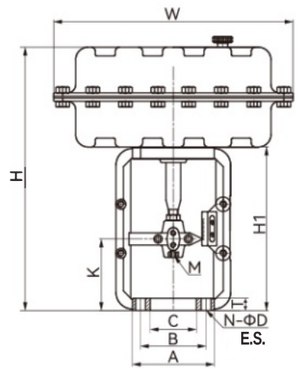
P.S.:The air consumption data is measured at an air supply pressure of 2.5 Bar and 1 cycle per minute.



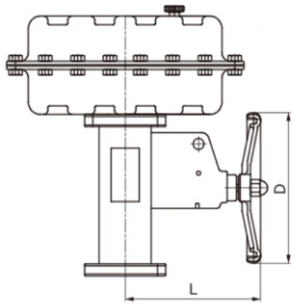


## Dimensions:

Unit:mm



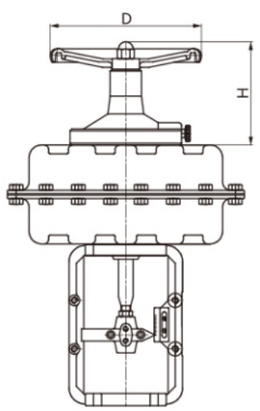

| ACTUATOR | ZP6102D/R | ZP6103D/R | ZP6104D/R | ZP6105D/R | ZP6106D/R |
|---|---|---|---|---|---|
| Travel mm | 16 | 25 | 40 | 60 | 100 |
| K FC (D) | 115 | 120 | 175 | 195 | 270 |
| K FO (R) | 95 | 95 | 135 | 135 | 170 |
| Area(cm²) | 350 | 350 | 600 | 900 | 1500 |
| Thrust FC (D) (N) FO (R) | 2500 | 2500 | 3900 | 6800 | 10000 |
| W | 290 | 290 | 365 | 475 | 580 |
| H | 307 | 333 | 404 | 514 | 690 |
| H1 | 210 | 210 | 260 | 310 | 400 |
| A | 100 | 100 | 130 | 145 | 170 |
| B | 80 | 80 | 105 | 118 | 135 |
| C | 60 | 60 | 80 | 95 | 100 |
| T | 18 | 18 | 20 | 22 | 26 |
| N-φD | 4-φ11 | 4-φ11 | 4-φ13 | 4-φ15 | 4-φ17 |
| M | M12x1.25 | M12x1.25 | M16x1.5 | M20x1.5 | M24x1.5 |




## Side-mounted Manual Mechanism Overall Dimensions:

Unit:mm

| ACTUATOR | TRAVEL(mm) | Dimensions D | Dimensions L | Force(N) |
|---|---|---|---|---|
| ZP6102D/R | 16 | 220 | 210 | 190 |
| ZP6103D/R | 25 | 220 | 210 | |
| ZP6104D/R | 40 | 280 | 305 | 290 |
| ZP6105D/R | 60 | 400 | 450 | 460 |
| ZP6106D/R | 100 | 550 | 500 | 580 |




## Top-mounted Manual Mechanism Overall Dimensions:

Unit:mm

| ACTUATOR | TRAVEL(mm) | Dimensions D | Dimensions L | Force(N) |
|---|---|---|---|---|
| ZP6102D/R | 16 | 90 | 125 | 190 |
| ZP6103D/R | 25 | 90 | 130 | |
| ZP6104D/R | 40 | 250 | 180 | 260 |
| ZP6105D/R | 60 | 300 | 225 | 410 |

## Overview

The ZP6200 series pneumatic actuator adopts a single-spring (multi-spring) piston structure (made of full aluminum alloy), making it a lightweight, compact, high-performance linear travel actuator with high output force. It is primarily composed of key components such as the piston, compression spring, push rod, bracket, shaft bushing, and cylinder cover.

**Working Principle:**Electrical or pneumatic signals from the control instrument are converted into air pressure by the positioner and fed into the cylinder air chamber. This pressure drives the piston to convert the input pressure into thrust on the push rod, which in turn moves the valve spool to achieve corresponding displacement, thereby adjusting the valve opening. The actuator typically accepts standard pressure signals ranging from $0.2\times10^{6}$ to $1.0\times10^{5}$ Pa and converts them into thrust. When the signal pressure enters the cylinder air chamber, the thrust is generated by multiplying the pressure by the effective area of the cylinder, causing the push rod to move and compress the spring until the reaction force of the spring balances the thrust on the piston. The higher the signal pressure, the greater the thrust, and the larger the displacement of the push rod (i.e., the compression of the spring). As the push rod moves from zero to full travel, the valve shifts from fully open (or fully closed) to fully closed (or fully open).

## Action Type

Direct-acting (D): When the signal pressure increases, the push rod moves downward.
Reverse-acting (R): When the signal pressure increases, the push rod moves upward.

## Performance(GB/T4213-2008)

| Project | w/o Positioner |
|---|---|
| Basic Error (%) | ±8%(Percentage of Stroke) |
| Dead Band (%) | 6%(percentage of pressure span) |
| Rated Travel Deviation (%) | ±2.5 |
| Start/End Dev. (%) | ±2.5 |
| FC Start | ±2.5 |
| FO Start | ±2.5 |
| Cycle Life | ＞100,000 Times |
| Spring Range | 20-100、40-200、80-240、140-300KPa |
| Oper. Temp. | -30 ~ +70℃ |
| Air Port | NPT1/4”、3/8’ |





## Parts & Material

| Item | Material | Item | Material |
|---|---|---|---|
| Cover | Carbon steel, stainless steel | Push Rod | 1Cr18Ni9、2Cr13 |
| Body | Carbon steel, stainless steel | Sleeve | Wear-Resistant Nylon(MC)、2Cr13 |
| Yoke | Carbon steel, stainless steel | Spring | 60Si2MnA |

## Double-Acting Actuator Output Force Chart

| Model No. | Air Supply Pressure(Bar) | | | | |
|---|---|---|---|---|---|
| | 4 | 4.5 | 5 | 5.5 | 6 |
| ZP62/150 | 6929.8 | 7796.0 | 8662.2 | 9528.5 | 10394.7 |
| ZP62/200 | 12321.4 | 13861.5 | 15401.7 | 16941.9 | 18482.0 |
| ZP62/250 | 19251.1 | 21657.5 | 24063.9 | 26470.3 | 28876.7 |
| ZP62/300 | 27723.1 | 31188.4 | 34653.8 | 38119.2 | 41584.6 |
| ZP62/350 | 37847.0 | 42577.9 | 47308.7 | 52039.6 | 56770.5 |
| ZP62/400 | 49285.4 | 55446.1 | 61606.8 | 67767.5 | 73928.2 |
| ZP62/500 | 77008.5 | 86634.6 | 96260.6 | 105886.7 | 115512.8 |

## Output Force of Direct-Acting (Air-to-Close), Single-Acting Linear Cylinder

Unit: N

| Model No. | Matched Valve Size | Max. Travel | Spring Range (KPa) | Spr. Res. @ Closed (N) | Air Supply Pressure(Bar) | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | 4 | 4.5 | | 5.5 | 6 |
| ZP62/150 | DN15 ~ DN25 | 16 | 40-200 | 3465.4 | 3464.4 | 4330.6 | 5196.8 | 6063.1 | 6929.3 |
| ZP62/200 | DN32 ~ DN50 | 25 | 40-200 | 6160.7 | 6160.7 | 7700.8 | 9241.0 | 10781.2 | 12321.3 |
| ZP62/250 | DN65 ~ DN100 | 40 | 40-200 | 9626.1 | 9625.0 | 12031.4 | 14437.8 | 16844.2 | 19250.6 |
| ZP62/300 | DN125 ~ DN200 | 60 | 40-200 | 13861.5 | 13861.5 | 17326.9 | 20792.3 | 24257.7 | 27723.1 |
| ZP62/350 | DN125 ~ DN200 | 60 | 40-200 | 18867.0 | 18866.2 | 23582.8 | 28299.5 | 33016.1 | 37732.8 |
| ZP62/400 | DN250 ~ DN350 | 100 | 40-200 | 24642.7 | 24642.7 | 30803.4 | 36964.1 | 43124.8 | 49285.4 |
| ZP62/500 | DN250 ~ DN350 | 100 | 40-200 | 38504.0 | 38504.5 | 48130.6 | 57756.6 | 67382.7 | 77008.8 |

## Output Force of Reverse-Acting (Air-to-Open), Single-Acting Linear Cylinder

Unit: N

| Model No. | Matched Valve Size | Max. Travel | Sealing Type | Spring Range (KPa) | Spr. Cl Force (N) | Spr. Res. @ Opened (N) | Min. P_open (Bar) | Output Force @ Air Supply (N) |
|---|---|---|---|---|---|---|---|---|
| ZP62/150R | DN15 ~ DN25 | 16 | Soft | 40-200 | 1039.6 | 3465.4 | 4 | 6929.8 |
| | | | Metal | 150-350 | 3465.4 | 6064.4 | | |
| ZP62/200R | DN32 ~ DN50 | 25 | Soft | 40-200 | 1848.2 | 6160.7 | 4 | 12321.4 |
| | | | Metal | 150-350 | 6160.7 | 10781.2 | | |
| ZP62/250R | DN65 ~ DN100 | 40 | Soft | 40-200 | 2887.8 | 9626.1 | 4 | 19251.1 |
| | | | Metal | 150-350 | 9626.1 | 16845.6 | | |
| ZP62/300R | DN125 ~ DN200 | 60 | Soft | 40-200 | 4158.5 | 13861.5 | 4 | 27723.1 |
| | | | Metal | 150-350 | 13861.5 | 24257.7 | | |
| ZP62/350R Large Delta P (ΔP) | DN125 ~ DN200 | 60 | Soft | 40-200 | 4716.8 | 14150.3 | 4 | 37733.2 |
| | | | Metal | 150-350 | 18867.8 | 28300.6 | | |
| ZP62/400R | DN250 ~ DN350 | 100 | Soft | 40-200 | 7392.8 | 24642.7 | 4 | 49285.4 |
| | | | Metal | 150-350 | 24642.7 | 43124.8 | | |
| ZP62/500R Large Delta P (ΔP) | DN250 ~ DN350 | 100 | Metal | 40-200 | 9626.1 | 28878.2 | 4 | 77008.5 |
| | | | Soft | 150-350 | 38504.3 | 57756.4 | | |

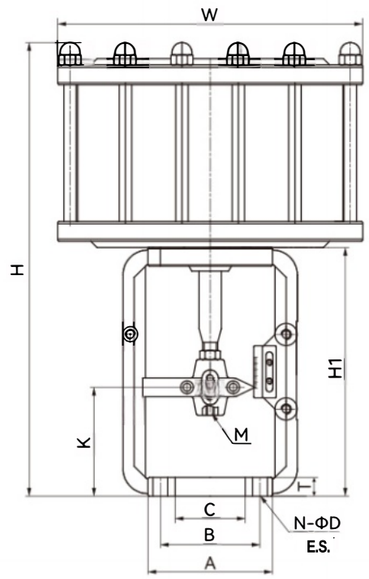
## Air Consumption

| Model No. | Open Side Volume (Liters) | Close Side Volume (Liters) | Model No. | Open Side Volume (Liters) | Close Side Volume (Liters) |
|---|---|---|---|---|---|
| ZP62/150 | 0.371 | 1.22 | ZP62/350 | 6.25 | 27.8 |
| ZP62/200 | 0.942 | 2.91 | ZP62/400 | 13.19 | 34.1 |
| ZP62/250 | 2.21 | 6.51 | ZP62/450 | 16.7 | 48.9 |
| ZP62/300 | 4.59 | 12.88 | ZP62/500 | 20.62 | 67.8 |

P.S.: Air consumption depends on supply pressure, stroke, volume, and cycle frequency, and is calculated as follows:
**L/min = (Open Vol. + Close Vol.) × [(P + 1.013) / 1.013] × CPM**



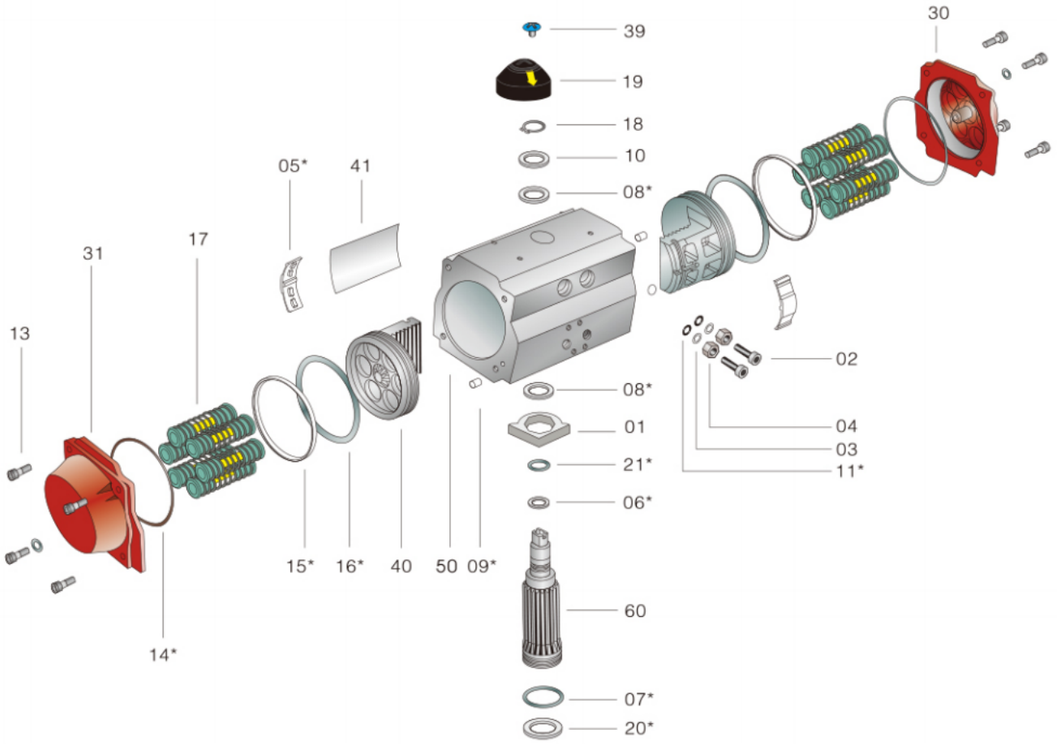





## Dimensions:

Unit:mm

| ACTUATOR | | ZP62/150 | ZP62/200 | ZP62/250 | ZP62/300 | ZP62/350 | ZP62/400 |
|---|---|---|---|---|---|---|---|
| Travel mm | | 16 | 25 | 40 | 60 | 60 | 100 |
| K | FC (D) | 115 | 120 | 175 | 195 | 195 | 270 |
| | FO (R) | 95 | 95 | 135 | 1 35 | 135 | 170 |
| Piston Area | cm2 | 176 | 314 | 490 | 706 | 960 | 1250 |
| Thrust(Double-Acting) | N | 8660 | 15400 | 24000 | 34650 | 47300 | 61600 |
| Thrust Single-Acting(N) | FC (D) | 5196 | 9240 | 14430 | 20790 | 28290 | 49280 |
| | FO (R) | 3465 | 6160 | 9626 | 13860 | 18860 | 24640 |
| W | | 190 | 250 | 310 | 375 | 430 | 480 |
| H | | 350 | 378 | 480 | 590 | 630 | 768 |
| H1 | | 210 | 210 | 260 | 310 | 310 | 400 |
| A | | 100 | 100 | 130 | 145 | 145 | 170 |
| B | | 80 | 80 | 105 | 118 | 118 | 135 |
| C | | 60 | 60 | 80 | 95 | 95 | 100 |
| 7 | | 18 | 18 | 20 | 22 | 22 | 26 |
| N-ϕD | | 4-ϕ11 | 4-ϕ11 | 4-ϕ13 | 4-ϕ15 | 4-ϕ15 | 4-ϕ17 |
| M | | M12x1.25 | M12x1.25 | M16x1.5 | M20x1.5 | M20x1.5 | M24x1.5 |




## Main Parts & Material

| No. | Parts Name | Material | No. | Parts Name | Material |
|---|---|---|---|---|---|
| 01 | Left Side Cover | DC Aluminum | 15 | Bearing(Shaft-Bottom) | PA 46 |
| 02 | Right Side Cover | DC Aluminum | 16 | Bearing(Piston Sealing) | PA 46 |
| 03 | Body | Aluminum Extrusion | 17 | Push Bearing(Output Shaft) | PA 46 |
| 04 | Piston | DC Aluminum | 18 | Shim(Output Shaft) | Stainless steel |
| 05 | Output Shaft | Carbon steel | 19 | Circlip | Stainless steel |
| 06 | Adjusting Cam | Stainless steel | 20 | Spring Cover Plate | Stainless steel |
| 07 | O-ring(Pistion) | NBR | 21 | Spring Washer | Stainless steel |
| 08 | O-ring(Pistion) | NBR | 22 | Shim | Stainless steel |
| 09 | O-ring(Shaft-top) | NBR | 23 | Screw | Stainless steel |
| 10 | O-ring(Adjusting Bolt) | NBR | 24 | Adjusting Bolt | Stainless steel |
| 11 | Cover Head(for compression) | NBR | 25 | Guide Block | PA 66 + 30% GF |
| 12 | Bearing(Piston) | FKM Composite | 26 | Spring Assembly | Alloy Spring Steel |
| 13 | Bearing(Shaft-top) | PA 46 | 27 | Position Indicator | PP+30%GF |
| 14 | Bearing(Shaft-Bottom) | PA 46 | 28 | Screw | Stainless steel |





## Overview

The ZP7100 Series Pneumatic Rack and Pinion Actuator is an execution device that utilizes air supply pressure to drive the opening, closing, or adjustment of valves, commonly referred to as an "air head." Its working principle involves using compressed air to propel the piston for linear motion, which is then converted into rotary motion via a rack and pinion transmission mechanism, thereby actuating the valve's open and close operations. The actuator is primarily constructed from key components such as the cylinder body, end covers, compression spring, piston, output shaft, and adjusting cam.

## Structural Principle

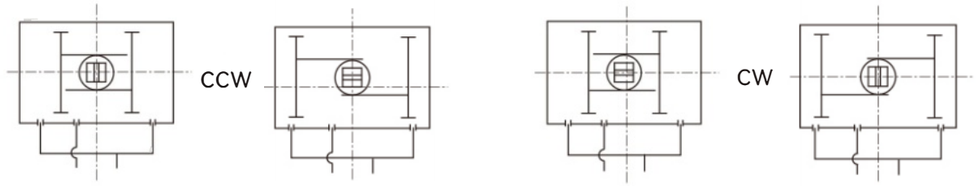
Compressed air enters the cylinder and drives the piston, converting the pressure energy of the compressed air into mechanical energy through the piston's movement. When mechanical action is required, the intake valve opens, allowing compressed air to enter the cylinder and propel the piston. Once the piston reaches a specific position, the exhaust valve opens to discharge the spent air from the cylinder. The motion of the piston is transmitted through mechanisms such as connecting rods and gears to the mechanical equipment, completing various actions. In rack and pinion actuators, the linear motion of the piston is converted into rotary motion via the engagement of the gear and rack, thereby driving the operation of valves or other equipment.

## Working Principle

**Double-Acting Type(DA)**

Port A supply, Port B exhaust: Compressed air pushes the piston outward, causing the actuator output shaft to rotate counterclockwise (0 ° →90 ° ).
Port B supply, Port A exhaust: Compressed air pushes the piston inward, causing the actuator output shaft to rotate clockwise (90 ° →0 ° ).

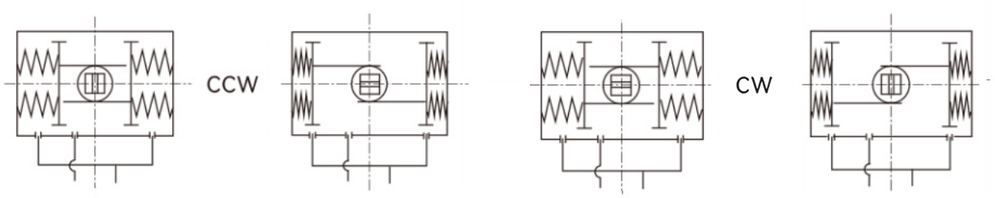
Port A supply, Port B exhaust: Compressed air pushes the piston outward, causing the actuator output shaft to rotate clockwise (90 ° →0 ° ).
Port B supply, Port A exhaust: Compressed air pushes the piston inward, causing the actuator output shaft to rotate counterclockwise (0 ° →90 ° ).




Single-Acting(SR)

Port A supply, Port B exhaust: Compressed air overcomes the spring force, pushing the piston outward and causing the actuator output shaft to rotate counterclockwise (0 ° →90 ° ). Upon air supply loss, the spring force pushes the piston inward, causing the output shaft to rotate clockwise (90 ° →0 ° ) with exhaust through Port A.

Port A supply, Port B exhaust: Compressed air overcomes the spring force, pushing the piston outward and causing the actuator output shaft to rotate clockwise (90 ° →0 ° ). Upon air supply loss, the spring force pushes the piston inward, causing the output shaft to rotate counterclockwise (0 ° →90 ° ) with exhaust through Port A.



## Selection Guide：

- A safety factor of 20 – 30% shall be considered for double-acting actuators.
- A safety factor of 30 – 50% shall be considered for single-acting actuators. When configuring the actuator, the output force at 0 ° (spring force) and the output force at 90 ° (with 5 bar air supply) shall be used as the reference.

## Operating Conditions

- Medium: Compressed air, non-corrosive gases, and oil;
- Operating Temperature:
  Standard Type (NBR O-Rings): -20°C to +80°C
  Low-Temperature Type (Low-Temperature NBR O-Rings): -35°C to +80°C
  High-Temperature Type (FKM O-Rings): -15°C to +150°C
- Stroke Adjustment: The piston has an adjustable range of ±4 ° at both end positions.
- Lubrication: Under normal operating conditions, no lubricant needs to be added.
- Maximum Operating Pressure: The input air pressure shall not exceed 10 bar.

## Main Parts & Material

| Parts Name | Material | Parts Name | Material |
|---|---|---|---|
| Body | DC Aluminum，Stainless steel | Adjusting Cam | Stainless steel |
| Side Cover | DC Aluminum，Stainless steel | O-ring | NBR |
| Piston | DC Aluminum | Spring Assembly | 60Si2MnA |

## Air Consumption

| Model No. | Open Side Volume (Liters) | Close Side Volume (Liters) | Model No. | Open Side Volume (Liters) | Close Side Volume (Liters) |
|---|---|---|---|---|---|
| ZP71/AT52DA | 0.11 | 0.14 | ZP71/AT160DA | 3.65 | 5.03 |
| ZP71/AT63DA | 0.2 | 0.23 | ZP71/AT190DA | 5.9 | 7.9 |
| ZP71/AT75DA | 0.29 | 0.38 | ZP71/AT210DA | 7.4 | 9.7 |
| ZP71/AT83DA | 0.41 | 0.55 | ZP71/AT240DA | 10.7 | 14.3 |
| ZP71/AT92DA | 0.94 | 1.18 | ZP71/AT270DA | 16.9 | 22.5 |
| ZP71/AT105DA | 0.94 | 1.18 | ZP71/AT300DA | 23.8 | 29.7 |
| ZP71/AT125DA | 1.47 | 1.85 | ZP71/AT350DA | 35.1 | 46.3 |
| ZP71/AT140DA | 2.43 | 3.2 | ZP71/AT400DA | 52.6 | 56 |

P.S.: Air consumption depends on supply pressure, stroke, volume, and cycle frequency, and is calculated as follows:
**L/min = (Open Vol. + Close Vol.) × [(P + 1.013) / 1.013] × CPM**





## Opening/Closing Time

Double-Acting Actuator (Air Supply Pressure: 5 Bar)

| Size | 52 | 63 | 75 | 83 | 92 | 105 | 125 | 140 | 160 | 190 | 210 | 240 | 270 | 300 | 350 | 400 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 ~ 90 | 0.6 | 0.7 | 0.8 | 0.9 | 1 | 1.5 | 2 | 2.5 | 4 | 5 | 5 | 6 | 8 | 12 | 14 | 15 |
| 90~0 | 0.6 | 0.7 | 0.7 | 0.8 | 1 | 1.5 | 2 | 2.5 | 3 | 4 | 4 | 6 | 8 | 12 | 14 | 15 |

Single-Acting Actuator (Air Supply Pressure: 5 Bar)

| Size | 52 | 63 | 75 | 83 | 92 | 105 | 125 | 140 | 160 | 190 | 210 | 240 | 270 | 300 | 350 | 400 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 ~ 90 | 2 | 2 | 2 | 2.5 | 3 | 3 | 4 | 4 | 4 | 5 | 6 | 12 | 15 | 18 | 20 | 25 |
| 90 ~ 0 | 0.5 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1.5 | 3 | 2 | 4 | 6 | 8 | 10 | 12 |

## Double-Acting Actuator Torque Chart

| Model No. | Air Supply Pressure(Bar) | | | | |
|---|---|---|---|---|---|
| | 4 | 4.5 | 5 | 5.5 | 6 |
| ZP71/AT52DA | 16.1 | 18.1 | 20.2 | 22.2 | 24.2 |
| ZP71/AT63DA | 28.4 | 32 | 35.5 | 39.1 | 42.6 |
| ZP71/AT75DA | 40.3 | 45.3 | 50.3 | 55.4 | 60.4 |
| ZP71/AT83DA | 61.6 | 69.4 | 77.1 | 84.8 | 92.5 |
| ZP71/AT92DA | 90.9 | 102.3 | 113.6 | 125 | 136.3 |
| ZP71/AT105DA | 131.6 | 148 | 164.4 | 180.9 | 197.3 |
| ZP71/AT125DA | 205 | 231 | 256 | 282 | 308 |
| ZP71/AT140DA | 351 | 395 | 439 | 482 | 526 |
| ZP71/AT160DA | 535 | 601 | 668 | 735 | 802 |
| ZP71/AT190DA | 861 | 969 | 1077 | 1185 | 1292 |
| ZP71/AT210DA | 1052 | 1184 | 1316 | 1447 | 1578 |
| ZP71/AT240DA | 1546 | 1740 | 1933 | 2126 | 2320 |
| ZP71/AT270DA | 2349 | 2642 | 2936 | 3239 | 3523 |
| ZP71/AT300DA | 3052 | 3434 | 3815 | 4197 | 4578 |
| ZP71/AT350DA | 4570 | 5141 | 5712 | 6283 | 6854 |
| ZP71/AT400DA | 6511 | 7325 | 8139 | 8953 | 9767 |

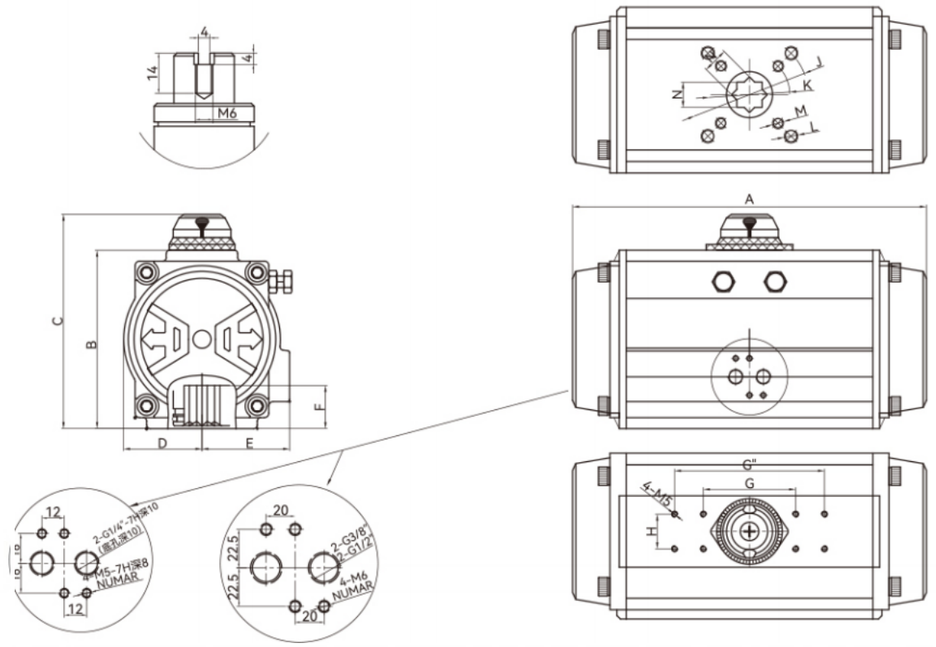
## Single-Acting Actuator Torque Chart

| Model No. | Quantity of Spring | Spring Output Force | | Air Supply Pressure(Bar) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 4 | | 5 | | 6 | |
| | | 90 | 0 | 0 | 90 | 0 | 90 | 0 | 90 |
| ZP71/AT52SR | K9 | 11.2 | 7.1 | 8.9 | 4.8 | 12.9 | 8.8 | 16.9 | 12.8 |
| | K10 | 12.4 | 7.9 | 8.1 | 3.6 | 12.1 | 7.6 | 16.1 | 11.6 |
| ZP71/AT63SR | K9 | 18.9 | 12.3 | 16.6 | 10.0 | 23.8 | 17.2 | 31.1 | 24.5 |
| | K10 | 20.9 | 13.7 | 15.2 | 8.0 | 22.4 | 15.2 | 29.7 | 22.5 |
| ZP71/AT75SR | K9 | 27 | 18 | 22 | 13 | 32 | 23 | 42 | 33 |
| | K10 | 30 | 20 | 20 | 10 | 30 | 20 | 40 | 30 |
| ZP71/AT83SR | K9 | 41.4 | 27.9 | 34.1 | 20.6 | 50.1 | 36.6 | 65.1 | 51.6 |
| | K10 | 46 | 31 | 31 | 16 | 47 | 32 | 62 | 47 |
| ZP71/AT92SR | K9 | 59.3 | 41.4 | 48.7 | 30.8 | 71.2 | 53.3 | 93.8 | 75.9 |
| | K10 | 65.9 | 46 | 44.1 | 24.2 | 66.6 | 46.7 | 89.2 | 69.3 |
| ZP71/AT105SR | K9 | 88.7 | 57.2 | 73.2 | 41.6 | 105.8 | 74.2 | 138.4 | 106.8 |
| | K10 | 98.6 | 63.5 | 66.8 | 31.7 | 99.4 | 64.3 | 132 | 96.9 |
| ZP71/AT125SR | K9 | 140 | 90 | 110 | 59.6 | 160.8 | 110.4 | 211 | 160.6 |
| | K10 | 156 | 100 | 100 | 44 | 150.8 | 94.8 | 201 | 145 |
| ZP71/AT140SR | K9 | 232 | 155 | 192.2 | 114.87 | 279.2 | 201.8 | 366.2 | 288.8 |
| | K10 | 258 | 172 | 175 | 89 | 262 | 176 | 349 | 263 |
| ZP71/AT160SR | K9 | 347 | 251 | 27.9 | 182.5 | 410.9 | 315.5 | 542.9 | 447.5 |
| | K10 | 385 | 279 | 250 | 144 | 383 | 277 | 515 | 409 |
| ZP71/AT190SR | K9 | 576 | 341 | 511.9 | 277 | 725.9 | 491 | 938.9 | 704 |
| | K10 | 640 | 379 | 474 | 213 | 688 | 427 | 901 | 640 |
| ZP71/AT210SR | K9 | 720 | 469 | 595.1 | 344 | 861.1 | 610 | 1127.1 | 876 |
| | K10 | 800 | 521 | 543 | 264 | 809 | 530 | 1075 | 796 |
| ZP71/AT240SR | K9 | 1053 | 700 | 838.8 | 486 | 1223.8 | 871 | 1608.8 | 1256 |
| | K10 | 1170 | 778 | 761 | 369 | 1146 | 754 | 1531 | 1189 |
| ZP71/AT270SR | K9 | 1638 | 909 | 1431 | 702 | 2015 | 1286 | 2601 | 1872 |
| | K10 | 1820 | 1010 | 1330 | 520 | 1914 | 1104 | 2500 | 1690 |
| ZP71/AT300SR | K9 | 2061 | 1305 | 1750 | 994 | 2514 | 1758 | 3277 | 2521 |
| | K10 | 290 | 1450 | 1605 | 765 | 2369 | 1529 | 3132 | 2292 |
| ZP71/AT350SR | K9 | 3065 | 2111 | 2456.6 | 1503.5 | 3598.6 | 2645.5 | 4740.6 | 3787.5 |
| | K10 | 3405 | 2346 | 2222 | 1163 | 3364 | 2305 | 4506 | 3447 |
| ZP71/AT400SR | K9 | 3704 | 2362 | 4134 | 2793 | 5758 | 4417 | 7382 | 6041 |
| | K10 | 4115 | 2624 | 3872 | 2381 | 5496 | 4005 | 7120 | 5629 |

Note: The output force values in the table correspond to the actuator's output force at the specified air supply pressure (bar).
When configuring the actuator, the actuator output shall be determined by multiplying the valve torque by a factor of 1.3 (based on the minimum value between the spring torque at 0 ° and the air torque at 5 bar and 90 ° ).








## Outline and Mounting Dimensions

Unit:mm

| Model No. | A | B | C | D | E | F | G" | G | H | J | K | L | M | N | Air Port |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ZP71/AT42SR | 122 | 55 | 75 | 24 | 33 | 9 | | 50 | 25 | F05 Φ50 | F03 Φ36 | M6×9 | M5×8 | 9×9 | G 1/4" |
| ZP71/AT52SR | 150 | 72 | 92 | 30 | 36.5 | 12 | | 80 | 30 | F05 Φ50 | F03 Φ36 | M6×9 | M5×8 | 11×11 | G 1/4" |
| ZP71/AT63SR | 71 | 86.5 | 106.5 | 35.5 | 47.5 | 14 | | 80 | 30 | F07 Φ70 | F05 Φ50 | M8×13 | M6×10 | 14×14 | G 1/4" |
| ZP71/AT75SR | 183 | 98 | 118 | 42 | 53.5 | 18 | | 80 | 30 | F07 Φ70 | F05 Φ50 | M8×13 | M6×10 | 14×14 | G 1/4" |
| ZP71/AT83SR | 218 | 108 | 128 | 46.5 | 57.5 | 18 | | 80 | 30 | F07 Φ70 | F05 Φ50 | M8×13 | M6×10 | 17×17 | G 1/4" |
| ZP71/AT92SR | 253 | 117 | 137 | 51 | 59.5 | 21 | | 80 | 30 | F07 70 | F05 Φ50 | M8×13 | M6×10 | 17×17 | G 1/4" |
| ZP71/AT105SR | 278 | 133 | 153 | 57.5 | 67 | 25 | | 80 | 30 | F10 Φ102 | F07 Φ70 | M10×16 | M8×13 | 22×22 | G 1/4" |
| ZP71/AT125SR | 308 | 155 | 185 | 63 | 76 | 27 | 130 | 80 | 30 | F10 Φ102 | F07 Φ70 | M10×16 | M8×13 | 22×22 | G 1/4" |
| ZP71/AT140SR | 402 | 173 | 203 | 75.5 | 81 | 34 | 130 | 80 | 30 | F12 Φ125 | F10 Φ102 | M12×19 | M10×16 | 27×27 | G 1/4" |
| ZP71/AT160SR | 460 | 195 | 225 | 87 | 88 | 34 | 130 | 80 | 30 | F12 Φ125 | F10 Φ102 | M12×19 | M10×16 | 27×27 | G 1/4" |
| ZP71/AT190SR | 513 | 230 | 260 | 103 | 108 | 40 | 130 | | 30 | F14 Φ140 | F10 Φ102 | M16×23 | M10×19 | 36×36 | G 1/4" |
| ZP71/AT210SR | 561 | 254 | 284 | 114 | 120 | 40 | 130 | | 30 | F14 Φ140 | | M16×23 | | 36×36 | G 1/4" |
| ZP71/AT240SR | 685 | 289 | 319 | 30 | 130 | 55 | 130 | | 30 | F16 Φ165 | | M20×25 | | 46×46 | G 3/8" |
| ZP71/AT270SR | 718 | 304 | 356 | 147 | 147 | 55 | 130 | | 30 | F16 Φ165 | | M20×25 | | 46×46 | G 3/8" |
| ZP71/AT300SR | 777 | 354 | 384 | 103 | 108 | 60 | 130 | | 30 | F16 Φ165 | | M20×25 | | 46×46 | G 1/2" |
| ZP71/AT350SR | 916 | 410 | 440 | 190 | 195 | 60 | 130 | | 30 | F25 Φ254 | F16 Φ165 | M20×25 | M16×24 | 46×46 | G 1/2" |
| ZP71/AT400SR | 930 | 466 | 508 | 260 | 260 | 60 | 130 | | 30 | F25 Φ254 | F16 Φ165 | M20×25 | M16×24 | 55×55 | G 1/2" |