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DIRECT MOUNT 3-WAY FULL/STANDARD PORT BALL VALVE

# Model Series M5 (Formerly HC-3WDM)

## SIL 3 Capable

- **Body Material**
  ASTM CF8M, DIN 1.4408
- **Size Range**
  1/4" - 2" (DN8~DN50)
- **Pressure Rating**
  1000 PSI, DIN PN63
- **End Connection**
  Female pipe thread to NPT, DIN259/2999,and BS standards
- **Temperature Range**
  -4°F to 350°F (-20°C to 180°C) with PTFE seats

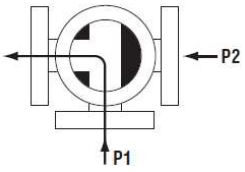


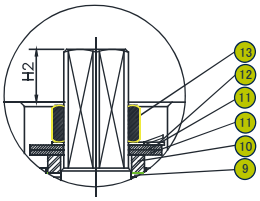

### MATERIALS LIST:

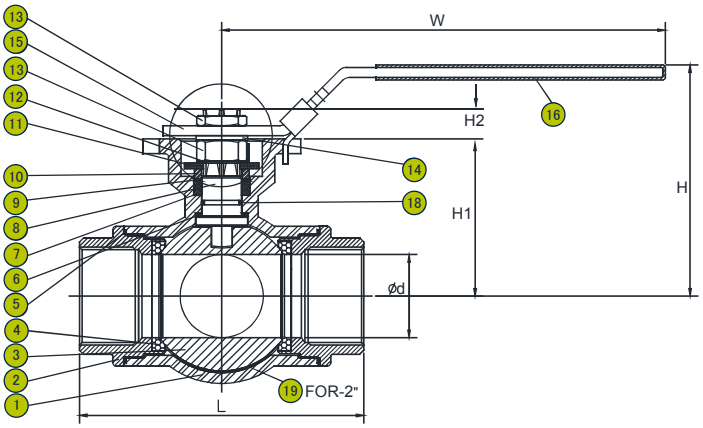
| NO. | PART NAME | MATERIAL |
|---|---|---|
| 1 | BODY | CF8M |
| 2 | CAP | CF8M |
| 3 | BALL | CF8M |
| 4 | BALL SEAT | PTFE / RTFE |
| 5 | BODY SEAL | PTFE |
| 6 | THRUST WASHER | PTFE |
| 7 | STEM PACKING | PTFE |
| 8 | STEM | ASTM A276 316 |
| 9 | THRUST WASHER | TFM 1600 |
| 10 | GLAND | SS304 |
| 11 | BELLEVILLE WASHER | SS304 CSP |
| 12 | LOCK SADDLE | SS304 |
| 13 | STEM NUT | SS304 |
| 14 | HANDLE WASHER | SS304 |
| 15 | HANDLE | SS304 |
| 16 | HANDLE SLEEVE | VINYL |
| 17 | STOP PIN & SCREW | SS304 |
| 18 | O-RING | VITON |
| 19 | 2" BALL SUPPORT GASKET | PTFE |

### Application Limitation

Referring to below diagram, there is a limitation to the differential pressure between flow P2 and P1.Where P2>P1, leakage from P2 to P1 could occur. The same logic follows for other L/T flow patterns.




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ISOQAR QUALITY ASSURED FIRM ISO 9001

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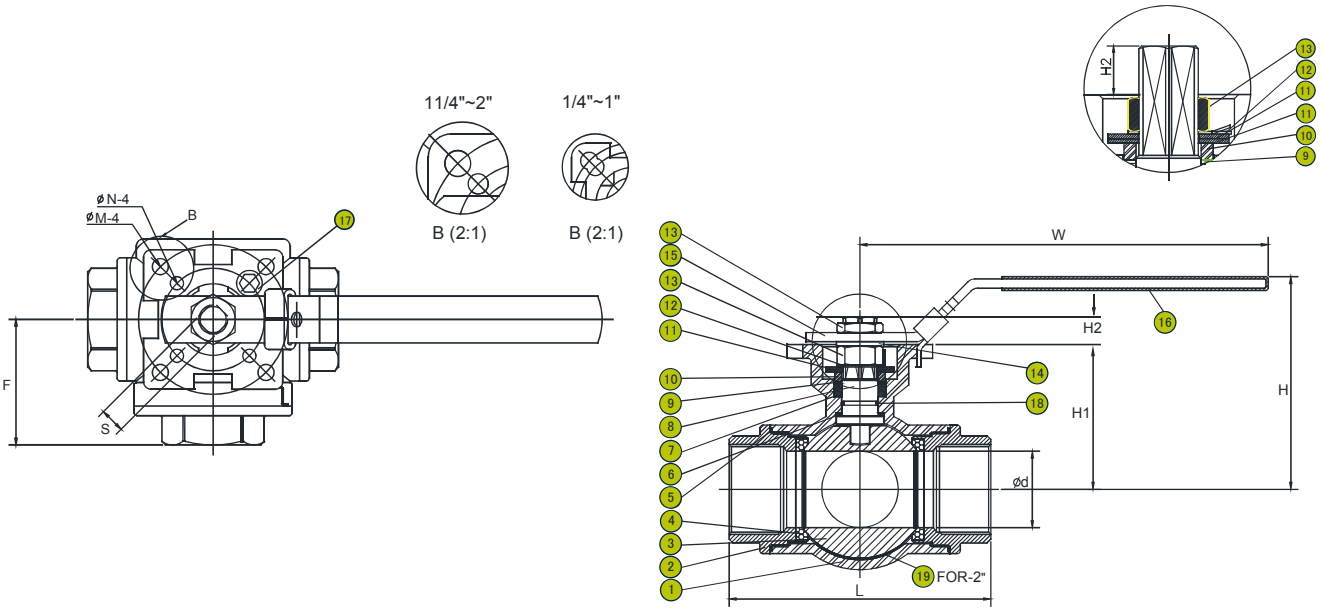
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DIRECT MOUNT 3-WAY FULL/STANDARD PORT BALL VALVE

# Model Series M5 (Formerly HC-3WDM)

## SIL 3 Capable




### Dimensions - Standard Port (mm):

| SIZE | | d | L | H | W | S | H1 | H2 | M | N | F | ISO 5211 | Torque N·m | Torque lbs·in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1/4 | 8 | 11.0 | 75.7 | 64.9 | 132 | 9 | 36.8 | 8.2 | 6 | 6 | 38.3 | F03 / F04 | 4 | 33 |
| 3/8" | 10 | 11.0 | 75.7 | 64.9 | 132 | 9 | 36.8 | 8.2 | 6 | 6 | 38.3 | F03 / F04 | 4 | 33 |
| 1/2" | 15 | 12.5 | 75.7 | 64.9 | 132 | 9 | 36.8 | 8.2 | 6 | 6 | 38.3 | F03 / F04 | 4 | 33 |
| 3/4" | 20 | 16.0 | 86.6 | 71.6 | 132 | 9 | 44.1 | 9.0 | 6 | 6 | 44.7 | F03 / F04 | 5 | 50 |
| 1" | 25 | 20.0 | 103.0 | 94.3 | 180 | 11 | 55.1 | 11.5 | 7 | 6 | 50.8 | F04 / F05 | 9 | 90 |
| 1-1/4" | 32 | 25.0 | 118.2 | 100.0 | 180 | 11 | 60.7 | 11.5 | 7 | 6 | 57.7 | F04 / F05 | 17 | 170 |
| 1-1/2" | 38 | 32.0 | 125.8 | 115.7 | 225 | 14 | 75.2 | 15.1 | 9 | 7 | 62.7 | F05 / F07 | 22 | 220 |
| 2" | 50 | 38.0 | 149.0 | 124.9 | 225 | 14 | 84.4 | 15.1 | 9 | 7 | 74.3 | F05 / F07 | 38 | 380 |

### Dimensions - Full Port (mm):

| SIZE | | d | L | H | W | S | H1 | H2 | M | N | F | ISO 5211 | Torque N·m | Torque lbs·in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1/4 | 8 | 11.0 | 75.7 | 64.9 | 132 | 9 | 36.8 | 8.2 | 6 | 6 | 38.3 | F03 / F04 | 4 | 33 |
| 3/8" | 10 | 11.0 | 75.7 | 64.9 | 132 | 9 | 36.8 | 8.2 | 6 | 6 | 38.3 | F03 / F04 | 4 | 33 |
| 1/2" | 15 | 16.0 | 86.6 | 71.6 | 132 | 9 | 44.1 | 9.0 | 6 | 6 | 44.7 | F03 / F04 | 5 | 50 |
| 3/4" | 20 | 20.0 | 103.0 | 94.3 | 180 | 11 | 55.1 | 11.5 | 6 | 7 | 50.8 | F04 / F05 | 9 | 90 |
| 1" | 25 | 25.0 | 118.2 | 100.0 | 180 | 11 | 60.7 | 11.5 | 6 | 7 | 57.7 | F04 / F05 | 17 | 170 |
| 1-1/4" | 32 | 32.0 | 125.8 | 115.7 | 225 | 14 | 75.2 | 15.1 | 7 | 9 | 62.7 | F05 / F07 | 22 | 220 |
| 1-1/2" | 38 | 38.0 | 149.0 | 124.9 | 225 | 14 | 84.4 | 15.1 | 7 | 9 | 74.3 | F05 / F07 | 38 | 380 |
| 2" | 50 | 50.0 | 171.2 | 139.0 | 267 | 17 | 94.6 | 18.0 | 9 | 11 | 85.6 | F07 / F10 | 60 | 600 |

Note: Torque measured at ambient temperature with no loading; safety factor is not included.

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JYL®

# PNEUMATIC ACTUATOR
## Serie JYL-AP



Higher performance and reliability

Fully compliance with all the latest international standards

Wide range options in technical specification and highly cost-effective

Compact housing design, suitable for any application and workin genvironment

# DESIGN AND CONSTRUCTION

## DESIGN

JYL series pneumatic actuators ha ve introduc ed improvement design for rack and pinion. It is alw ays Vtork's mission to o ffer initiative products by c ombining the long field experienc es in products a pplication and the latest production and materials te chnology a v a il a ble in the market tod ay. The benefit of new design has long been verified in practic e. With new te chnicalfe atures equipped, Vtork series pneumatic actuators have advanta geous characteristic in:

- Reliability
- High performance
- Fully compliance with all the latest international standards
- Extensive products range allows best versatility at lower price
- Innovations and patented solutions for a universal drive shaft
- Multifunction position indicator
- Compact and light

## CONSTRUCTION

1. A single compact design utilizing identical body and end caps for both double acting and spring return models. This feature reduces inventory and allows field conversion, by adding or removing modular spring cartridges.

2. Full conformance to following latest specifications: ISO 5211, DIN 3337 and VDI/VDE 3845 for product interchangeability and easy mounting of solenoids, limit switches and other accessories.

3. JYL piston rack and pinion design for compact construction, symmetric mounting position, high-cycle life and fast operation. Reverse rotation can be accomplished in the field by simply inverting the pistons.

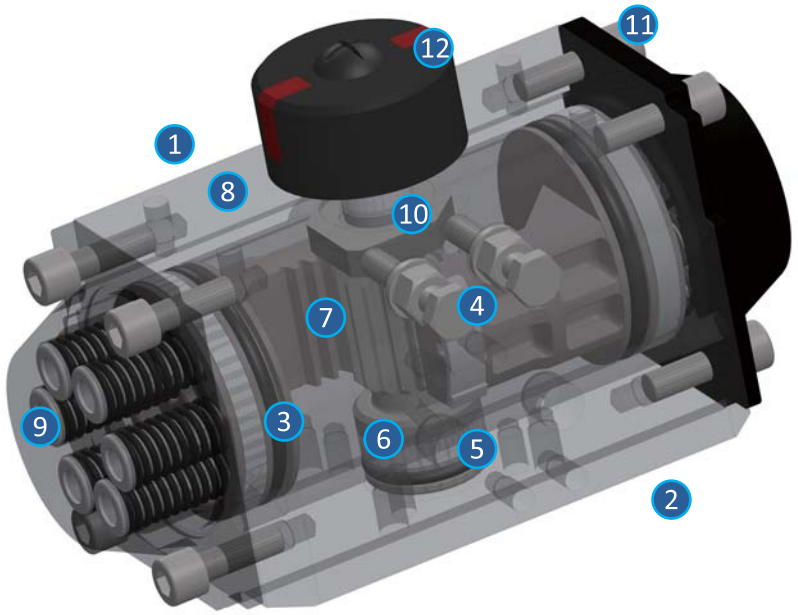
4. Two independent external travel stop adjustments permit easy and precise adjustment of +/- 5° in both directions. This adjustment may be made in either the open or closed position and provides for accurate valve alignment.

5. Multiple bearings and guides on pistons and racks for precise operation, low friction, high cycle life and a blowout proof pinion shaft.

6. Electroless nickel-plated blowout resistant, bearing guided, one-piece pinion shaft for improved safety and maximum cycle life.

7. High precision teeth on piston racks and pinion shaft for accurate positioning, low backlash, and maximum engagement resulting in overall efficient operation.

8. Extruded aluminum body with both internal and external corrosion protections having a honed cylinder surface for longer life and a lower coefficient of friction.




9. Modular preloaded spring cartridges designed with coated springs for simple range versatility, greater safety and corrosion resistance.

10. Selected high quality bearings and seals that provide a wide operating temperature range, low friction, and high cycle life.

11. Internal and external stainless steel fasteners for long term corrosion resistance.

12. Multifunctional position indicator for visual position indication, and a direct, easy, economical way to mount popular sensors.

## RANGE OF OPTIONS, QUALITY MANUFACTURING, AND ACCESSORIES

### RANGE OF OPTIONS

A. Stainless steel 304 or 316 drive shafts are available on request for all sizes no matter the type of corrosion protection selected.
B. For extremely high or low temperature applications, all models may be equipped with FPM or Silicon O rings along with an JYL tested and certified suitable lubricant.
C. Other than the standard double square bottom drive shaft connection, we can supply a keyed drive connection, a flat head connection or a special personalized drive connection.

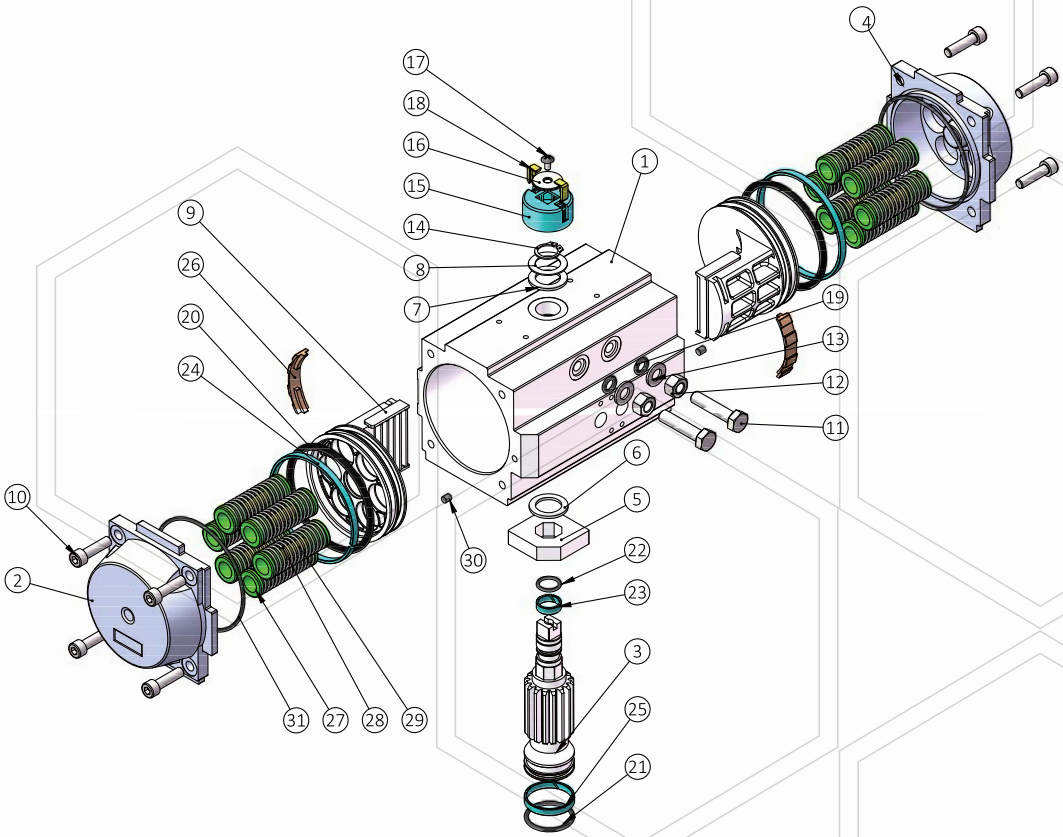
### QUALITY MANAGEMENT

- Production conforms to ISO9001.
- Each individual actuator has been factory inspe cted and tested and given a serial number for full trac e ability.
- Each individual actuator is individually packed in a special cardboard carton for protection,with a product description label for easy identification and includes installation,operation and maintenance instructions .

### ACCESSORIES AVAILABLE

- Different Square reductions suitable for drive shaft
- Centering rings for all sizes
- Brackets
- Couplings
- Solenoid valves
- Switch boxes
- Proximity switches
- Gear boxes
- Positioners

# Parts And Materials




| Item Number | Part Description | Material Quality | QTY | Item Number | Part Description | Material Quality | QTY | Item Number | Part Description | Material Quality | QTY |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Body | Aluminium alloy | 1 | 12 | Nut(stop screw) | Stainless steel | 2 | 23 | Bearing(pinion top) | POM+PTFE | 1 |
| 2 | Left End cap | Aluminium alloy | 1 | 13 | Washer (stop screw) | Stainless steel | 2 | 24 | Bearing(pinion head) | POM+PTFE | 2 |
| 3 | Drive shaft | Alloy Steel | 1 | 14 | Spring clip | Spring steel | 1 | 25 | Bearing(pinion bottom) | POM+PTFE | 1 |
| 4 | Right end cap | Aluminium alloy | 1 | 15 | Position indicator | Nylon | 1 | 26 | Wear band | Nylon | 2 |
| 5 | OCTI-CAM | Alloy Steel | 1 | 16 | Indicator thrust bearing | Stainless steel | 1 | 27 | Spring seat | Nylon | 24 |
| 6 | Thrust bearing (pinion top) | POM+PTFE | 1 | 17 | Cap screw | Stainless steel | 1 | 28 | Spring | High-carbon steel | 12 |
| 7 | Thrust bearing | POM+PTFE | 1 | 18 | Color code | Nylon | 2 | 29 | Straining beam | Copper pipe | 12 |
| 8 | Thrust washer | Stainless steel | 1 | 19 | "o" ring(stop screw) | NBR | 2 | 30 | Plug | NBR | 2 |
| 9 | Piston | Aluminium alloy | 2 | 20 | "o" ring(piston) | NBR | 2 | 31 | "o" ring(end cap) | NBR | 2 |
| 10 | Cap screw (end cap) | Stainless steel | 8 | 21 | "o" ring(pinion bottom) | NBR | 1 | | | | |
| 11 | Stop top screw | Stainless steel | 2 | 22 | "o" ring(pinion top) | NBR | 1 | | | | |

# TECHNICAL DATA(METRIC UNIT)

| Model TypeA | AP032 | | AP050 | | AP065 | | AP0075 | | AP085 | | AP095 | | AP110 | | AP125 | | AP140 | | AP160 | | AP190 | | AP210 | | AP240 | | AP270 | | AP300 | | AP350 | | AP400 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | D | S | D | S | D | S | D | S | D | S | D | S | D | S | D | S | D | S | D | S | D | S | D | S | D | S | D | S | D | S | D | S | D | S |
| Diameter mm | 32 | | 50 | | 65 | | 75 | | 85 | | 95 | | 110 | | 125 | | 140 | | 160 | | 190 | | 210 | | 240 | | 270 | | 300 | | 350 | | 400 | |
| Air Volume Opening(L) | 0.03 | | 0.09 | | 0.19 | | 0.30 | | 0.44 | | 0.88 | | 0.83 | | 1.41 | | 1.76 | | 2.85 | | 4.75 | | 6.60 | | 11.40 | | 15.80 | | 19.09 | | 27.65 | | 42.81 | |
| Air Volume Closing(L) | 0.04 | | 0.15 | | 0.32 | | 0.50 | | 0.66 | | 1.17 | | 1.27 | | 2.13 | | 2.72 | | 4.08 | | 7.20 | | 10.29 | | 15.10 | | 18.80 | | 28.23 | | 44.10 | | 62.05 | |
| Opening Time (sec) | 0.3 | | 0.3 | 0.9 | 0.4 | 0.9 | 0.4 | 0.9 | 0.9 | 1.0 | 0.9 | 1.4 | 0.9 | 1.4 | 1.3 | 2.4 | 1.3 | 2.8 | 2.0 | 4.8 | 2.2 | 2.4 | 2.9 | 3.4 | 3.2 | 3.8 | 4.4 | 5.0 | 5.0 | 6.0 | 6.2 | 7.4 | 7.5 | 9.6 |
| closing Time (sec) | 0.4 | | 0.4 | 0.7 | 0.4 | 0.8 | 0.4 | 0.9 | 0.9 | 1.2 | 1.0 | 1.4 | 1.0 | 1.6 | 1.4 | 2.4 | 1.4 | 3.0 | 2.4 | 4.9 | 2.6 | 3.0 | 3.8 | 4.1 | 3.7 | 4.0 | 4.9 | 5.5 | 6.0 | 6.8 | 7.2 | 8.4 | 8.5 | 10.6 |
| Weight (Kg)hai | 0.47 | 0.59 | 1.13 | 1.25 | 1.97 | 2.21 | 2.93 | 3.29 | 3.78 | 4.26 | 5.14 | 5.86 | 6.09 | 7.17 | 10.86 | 12.54 | 13.77 | 15.93 | 20.15 | 23.75 | 28.41 | 33.81 | 40.03 | 48.43 | 52.6 | 77.76 | 73.64 | 90.6 | 108 | 135.6 | 146.7 | 188.1 | 220.5 | 283.5 |

1. For model 32-160

(1)Room temperature (2)Actuator stroke 90° (3) Solenoid valve with orifice of 4 mm and a flow capacity Qn400L/min (4) Inside pipe diameter 6 mm (5) Medium clean air

(6) Air supply pressure 5.5 bar (7)Actuator without external resistance load

2. For model 190-400

(1)Room temperature (2)Actuator stroke 90° (3)Solenoid valve with orifice of 12 mm and a flow capacity Qn5100L/min (4) Inside pipe diameter 8 mm (5) Medium clean air

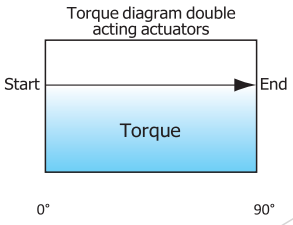
(6) Air supply pressure 5.5 bar (7)Actuator without external resistance load

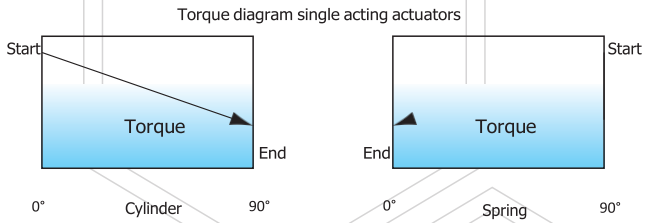
Cautions: obviously on the field applications when one or more of the above parameter are different, the moving time will be di fferent

Air consumption rest with air supply, air volume and action cycle times. Expressions:

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

# METRIC TORQUE RATINGS




DOUBLE ACTING TORQUE RATINGS IN Nm

| Model | Supply Pressure (Unit:bar) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2.5** | **3** | **3.5** | **4** | **4.5** | **5** | **5.5** | **6** | **7** | **8** |
| AP032 | 2.9 | 3.4 | 4.0 | 4.6 | 5.3 | 5.9 | 6.5 | 7.1 | 8.3 | 9.5 |
| AP050 | 8.6 | 10.4 | 12.3 | 14.2 | 16.0 | 17.9 | 19.8 | 21.6 | 25.4 | 29.1 |
| AP065 | 17.4 | 21.2 | 25.0 | 28.7 | 32.5 | 36.3 | 40.1 | 43.9 | 51.4 | 59.0 |
| AP075 | 27.0 | 32.9 | 38.8 | 44.7 | 50.5 | 56.4 | 62.3 | 68.2 | 79.9 | 91.7 |
| AP085 | 39.7 | 48.3 | 56.9 | 65.6 | 74.2 | 82.8 | 91.4 | 100.1 | 117.3 | 134.6 |
| AP095 | 55.7 | 67.9 | 80.0 | 92.1 | 104.2 | 116.4 | 128.5 | 140.6 | 164.8 | 189.1 |
| AP110 | 72.0 | 89.3 | 105.0 | 120.6 | 136.3 | 152.0 | 167.6 | 183.3 | 214.6 | 245.9 |
| AP125 | 128.7 | 159.5 | 187.5 | 215.4 | 243.4 | 271.4 | 299.4 | 327.4 | 383.3 | 439.3 |
| AP140 | 196 | 237 | 278 | 319 | 360 | 401 | 442 | 483 | 565 | 647 |
| AP160 | 263.5 | 326.6 | 383.9 | 441.2 | 498.5 | 555.8 | 613.1 | 670.4 | 785.0 | 899.7 |
| AP190 | 428.5 | 518.0 | 607.3 | 696.6 | 785.9 | 875.3 | 964.6 | 1053.9 | 1232.5 | 1411.1 |
| AP210 | 598.2 | 723.2 | 847.9 | 972.6 | 1097.3 | 1222.0 | 1346.6 | 1471.3 | 1720.7 | 1970.1 |
| AP240 | 928.3 | 1122.0 | 1315.0 | 1508.0 | 1702.0 | 1895.0 | 2089.0 | 2282.0 | 2669.0 | 3056.0 |
| AP270 | 1305.0 | 1577.0 | 1849.0 | 2121.0 | 2393.0 | 2665.0 | 2937.0 | 3209.0 | 3753.0 | 4297.0 |
| AP300 | 1678.6 | 2029.4 | 2379.3 | 2729.2 | 3079.1 | 3429.0 | 3778.9 | 4128.8 | 4828.5 | 5528.3 |
| AP350 | 2492.5 | 3011.8 | 3531.1 | 4050.4 | 4569.6 | 5088.9 | 5608.2 | 6127.5 | 7166.0 | 8204.6 |
| AP400 | 3798.1 | 4589.4 | 5380.7 | 6172.0 | 6963.3 | 7754.5 | 8545.8 | 9337.1 | 10919.7 | 12502.2 |

SINGLE ACTING TORQUE RATINGS IN Nm

| Model | Supply Pressure (Unit:bar) | | | | | | | | | | | | | | | | | | | | Spring stroke | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2.5** | | **3** | | **3.5** | | **4** | | **4.5** | | **5** | | **5.5** | | **6** | | **7** | | **8** | | | |
| | **0°** | **90°** | **0°** | **90°** | **0°** | **90°** | **0°** | **90°** | **0°** | **90°** | **0°** | **90°** | **0°** | **90°** | **0°** | **90°** | **0°** | **90°** | **0°** | **90°** | **90°** | **0°** |
| AP050 S05 | **5.1** | **3.4** | 6.9 | 5.3 | 8.8 | 7.2 | 10.7 | 9.0 | 12.5 | 10.9 | 14.4 | 12.8 | 16.3 | 14.6 | 18.1 | 16.5 | 21.9 | 20.2 | 25.6 | 23.9 | **5.2** | **3.5** |
| AP050 S06 | 4.4 | 2.4 | **6.2** | **4.3** | 8.1 | 6.1 | 10.0 | 8.0 | 11.8 | 9.9 | 13.7 | 11.7 | 15.6 | 13.6 | 17.4 | 15.5 | 21.2 | 19.2 | 24.9 | 22.9 | **6.2** | **4.2** |
| AP050 S07 | | | 5.5 | 3.2 | **7.4** | **5.1** | 9.3 | 7.0 | 11.1 | 8.8 | 13.0 | 10.7 | 14.9 | 12.6 | 16.7 | 14.4 | 20.5 | 18.2 | 24.2 | 21.9 | **7.2** | **4.9** |
| AP050 S08 | | | | | 6.7 | 4.1 | **8.6** | **5.9** | 10.4 | 7.8 | 12.3 | 9.7 | 14.2 | 11.5 | 16.0 | 13.4 | 19.8 | 17.1 | 23.5 | 20.9 | **8.2** | **5.6** |
| AP050 S09 | | | | | | | 7.9 | 4.9 | **9.7** | **6.8** | 11.6 | 8.6 | 13.5 | 10.5 | 15.3 | 12.4 | 19.1 | 16.1 | 22.8 | 19.8 | **9.3** | **6.3** |
| AP050 S10 | | | | | | | | | 9.0 | 5.7 | **10.9** | **7.6** | 12.8 | 9.5 | 14.6 | 11.3 | 18.4 | 15.1 | 22.1 | 18.8 | **10.3** | **7.0** |
| AP050 S11 | | | | | | | | | | | 10.2 | 6.6 | **12.1** | **8.4** | 13.9 | 10.3 | 17.7 | 14.0 | 21.4 | 17.8 | **11.3** | **7.7** |
| AP050 S12 | | | | | | | | | | | | | 11.4 | 7.4 | **13.2** | **9.3** | 17.0 | 13.0 | 20.7 | 16.7 | **12.4** | **8.4** |
| AP065 S05 | **8.7** | **4.3** | 12.5 | 8.1 | 16.3 | 11.9 | 20.0 | 15.6 | 23.8 | 19.4 | 27.6 | 23.2 | 31.4 | 27.0 | 35.2 | 30.8 | 42.7 | 38.3 | 50.3 | 45.9 | **13.1** | **8.7** |
| AP065 S06 | 7.0 | 1.7 | **10.7** | **5.5** | 14.5 | 9.2 | 18.3 | 13.0 | 22.1 | 16.8 | 25.9 | 20.6 | 29.7 | 24.4 | 33.4 | 28.2 | 41.0 | 35.7 | 48.6 | 43.3 | **15.7** | **10.4** |
| AP065 S07 | | | 9.0 | 2.8 | **12.8** | **6.6** | 16.6 | 10.4 | 20.4 | 14.2 | 24.1 | 18.0 | 27.9 | 21.8 | 31.7 | 25.5 | 39.3 | 33.1 | 46.8 | 40.7 | **18.3** | **12.2** |
| AP065 S08 | | | | | 11.0 | 4.0 | **14.8** | **7.8** | 18.6 | 11.6 | 22.4 | 15.4 | 26.2 | 19.1 | 30.0 | 22.9 | 37.5 | 30.5 | 45.1 | 38.1 | **21.0** | **13.9** |
| AP065 S09 | | | | | | | 13.1 | 5.2 | **16.9** | **9.0** | 20.7 | 12.7 | 24.4 | 16.5 | 28.2 | 20.3 | 35.8 | 27.9 | 43.4 | 35.4 | **23.6** | **15.7** |
| AP065 S10 | | | | | | | | | 15.1 | 6.3 | **18.9** | **10.1** | 22.7 | 13.9 | 26.5 | 17.7 | 34.0 | 25.2 | 41.6 | 32.8 | **26.2** | **17.4** |
| AP065 S11 | | | | | | | | | | | 17.2 | 7.5 | **21.0** | **11.3** | 24.7 | 15.1 | 32.3 | 22.6 | 39.9 | 30.2 | **28.8** | **19.1** |
| AP065 S12 | | | | | | | | | | | | | 19.2 | 8.7 | **23.0** | **12.4** | 30.6 | 20.0 | 38.1 | 27.6 | **31.4** | **20.9** |
| AP075 S05 | **16.3** | **10.2** | 22.2 | 16.0 | 28.1 | 21.9 | 34.0 | 27.8 | 39.8 | 33.7 | 45.7 | 39.6 | 51.6 | 45.4 | 57.5 | 51.3 | 69.2 | 63.1 | 81.0 | 74.8 | **16.9** | **10.7** |
| AP075 S06 | 14.2 | 6.8 | **20.1** | **12.7** | 25.9 | 18.6 | 31.8 | 24.4 | 37.7 | 30.3 | 43.6 | 36.2 | 49.4 | 42.1 | 55.3 | 47.9 | 67.1 | 59.7 | 78.8 | 71.4 | **20.2** | **12.8** |
| AP075 S07 | | | 17.9 | 9.3 | **23.8** | **15.2** | 29.7 | 21.1 | 35.6 | 26.9 | 41.4 | 32.8 | 47.3 | 38.7 | 53.2 | 44.6 | 64.9 | 56.3 | 76.7 | 68.1 | **23.6** | **15.0** |
| AP075 S08 | | | | | 21.7 | 11.8 | **27.5** | **17.7** | 33.4 | 23.6 | 39.3 | 29.4 | 45.2 | 35.3 | 51.0 | 41.2 | 62.8 | 53.0 | 74.5 | 64.7 | **27.0** | **17.1** |
| AP075 S09 | | | | | | | 25.4 | 14.3 | **31.3** | **20.2** | 37.1 | 26.1 | 43.0 | 32.0 | 48.9 | 37.8 | 60.7 | 49.6 | 72.4 | 61.3 | **30.3** | **19.3** |
| AP075 S10 | | | | | | | | | 29.1 | 16.8 | **35.0** | **22.7** | 40.9 | 28.6 | 46.8 | 34.5 | 58.5 | 46.2 | 70.3 | 58.0 | **33.7** | **21.4** |
| AP075 S11 | | | | | | | | | | | 32.9 | 19.3 | **38.7** | **25.2** | 44.6 | 31.1 | 56.4 | 42.8 | 68.1 | 54.6 | **37.1** | **23.5** |
| AP075 S12 | | | | | | | | | | | | | 36.6 | 21.8 | **42.5** | **27.7** | 54.2 | 39.5 | 66.0 | 51.2 | **40.4** | **25.7** |
| AP085 S05 | **23.2** | **13.7** | 31.8 | 22.3 | 40.4 | 30.9 | 49.0 | 39.5 | 57.6 | 48.1 | 66.3 | 56.8 | 74.9 | 65.4 | 83.5 | 74.0 | 100.8 | 91.3 | 118.0 | 108.5 | **26.1** | **16.6** |
| AP085 S06 | 19.8 | 8.4 | **28.4** | **17.0** | 37.1 | 25.7 | 45.7 | 34.3 | 54.3 | 42.9 | 62.9 | 51.5 | 71.6 | 60.2 | 80.2 | 68.8 | 97.4 | 86.0 | 114.7 | 103.3 | **31.3** | **19.9** |
| AP085 S07 | | | 25.1 | 11.8 | **33.8** | **20.5** | 42.4 | 29.1 | 51.0 | 37.7 | 59.6 | 46.3 | 68.3 | 55.0 | 76.9 | 63.6 | 94.1 | 80.8 | 111.4 | 98.1 | **36.5** | **23.2** |
| AP085 S08 | | | | | 30.4 | 15.2 | **39.1** | **23.9** | 47.7 | 32.5 | 56.3 | 41.1 | 64.9 | 49.7 | 73.6 | 58.4 | 90.8 | 75.6 | 108.1 | 92.9 | **41.7** | **26.5** |
| AP085 S09 | | | | | | | 35.8 | 18.7 | **44.4** | **27.3** | 53.0 | 35.9 | 61.6 | 44.5 | 70.3 | 53.2 | 87.5 | 70.4 | 104.8 | 87.7 | **46.9** | **29.8** |
| AP085 S10 | | | | | | | | | 41.1 | 22.1 | **49.7** | **30.7** | 58.3 | 39.3 | 67.0 | 48.0 | 84.2 | 65.2 | 101.5 | 82.5 | **52.1** | **33.1** |
| AP085 S11 | | | | | | | | | | | 46.4 | 25.5 | **55.0** | **34.1** | 63.6 | 42.7 | 80.9 | 60.0 | 98.1 | 77.2 | **57.3** | **36.4** |
| AP085 S12 | | | | | | | | | | | | | 51.7 | 28.9 | **60.3** | **37.5** | 77.6 | 54.8 | 94.8 | 72.0 | **62.5** | **39.7** |
| AP095 S05 | **33.6** | **20.9** | 45.8 | 33.0 | 57.9 | 45.1 | 70.0 | 57.3 | 82.1 | 69.4 | 94.3 | 81.5 | 106.4 | 93.6 | 118.5 | 105.8 | 142.7 | 130.0 | 167.0 | 154.2 | **34.9** | **22.1** |
| AP095 S06 | 29.2 | 13.9 | **41.4** | **26.1** | 53.5 | 38.2 | 65.6 | 50.3 | 77.7 | 62.4 | 89.8 | 74.5 | 102.0 | 86.7 | 114.1 | 98.8 | 138.3 | 123.0 | 162.6 | 147.3 | **41.8** | **26.5** |
| AP095 S07 | | | 36.9 | 19.1 | **49.1** | **31.2** | 61.2 | 43.3 | 73.3 | 55.4 | 85.4 | 67.6 | 97.5 | 79.7 | 109.7 | 91.8 | 133.9 | 116.1 | 158.1 | 140.3 | **48.8** | **30.9** |
| AP095 S08 | | | | | 44.6 | 24.2 | **56.8** | **36.4** | 68.9 | 48.5 | 81.0 | 60.6 | 93.1 | 72.7 | 105.2 | 84.8 | 129.5 | 109.1 | 153.7 | 133.3 | **55.8** | **35.4** |
| AP095 S09 | | | | | | | 52.3 | 29.4 | **64.5** | **41.5** | 76.6 | 53.6 | 88.7 | 65.8 | 100.8 | 77.9 | 125.1 | 102.1 | 149.3 | 126.4 | **62.7** | **39.8** |
| AP095 S10 | | | | | | | | | 60.0 | 34.5 | **72.2** | **46.7** | 84.3 | 58.8 | 96.4 | 70.9 | 120.6 | 95.1 | 144.9 | 119.4 | **69.7** | **44.2** |
| AP095 S11 | | | | | | | | | | | 67.7 | 39.7 | **79.9** | **51.8** | 92.0 | 63.9 | 116.2 | 88.2 | 140.5 | 112.4 | **76.7** | **48.6** |
| AP095 S12 | | | | | | | | | | | | | 75.4 | 44.8 | **87.6** | **57.0** | 111.8 | 81.2 | 136.0 | 105.4 | **83.6** | **53.0** |
| AP110 S05 | **43.4** | **26.2** | 60.7 | 43.4 | 76.4 | 59.1 | 92.0 | 74.8 | 107.7 | 90.4 | 123.4 | 106.1 | 139.0 | 121.8 | 154.7 | 137.4 | 186.0 | 168.8 | 217.3 | 200.1 | **45.9** | **28.6** |
| AP110 S06 | 37.7 | 17.0 | **55.0** | **34.3** | 70.6 | 49.9 | 86.3 | 65.6 | 102.0 | 81.3 | 117.6 | 96.9 | 133.3 | 112.6 | 149.0 | 128.3 | 180.3 | 159.6 | 211.6 | 190.9 | **55.0** | **34.3** |
| AP110 S07 | | | 49.3 | 25.1 | **64.9** | **40.8** | 80.6 | 56.4 | 96.2 | 72.1 | 111.9 | 87.8 | 127.6 | 103.4 | 143.2 | 119.1 | 174.6 | 150.4 | 205.9 | 181.8 | **64.2** | **40.0** |
| AP110 S08 | | | | | 59.2 | 31.6 | **74.9** | **47.3** | 90.5 | 62.9 | 106.2 | 78.6 | 121.9 | 94.3 | 137.5 | 109.9 | 168.9 | 141.3 | 200.2 | 172.6 | **73.4** | **45.8** |
| AP110 S09 | | | | | | | 69.1 | 38.1 | **84.8** | **53.8** | 100.5 | 69.4 | 116.1 | 85.1 | 131.8 | 100.8 | 163.1 | 132.1 | 194.5 | 163.4 | **82.5** | **51.5** |
| AP110 S10 | | | | | | | | | 79.1 | 44.6 | **94.8** | **60.3** | 110.4 | 75.9 | 126.1 | 91.6 | 157.4 | 122.9 | 188.7 | 154.2 | **91.7** | **57.2** |
| AP110 S11 | | | | | | | | | | | 89.0 | 51.1 | **104.7** | **66.7** | 120.4 | 82.4 | 151.7 | 113.7 | 183.0 | 145.1 | **100.9** | **62.9** |
| AP110 S12 | | | | | | | | | | | | | 99.0 | 57.6 | **114.6** | **73.2** | 146.0 | 104.6 | 177.3 | 135.9 | **110.0** | **68.6** |

# METRIC TORQUE RATINGS

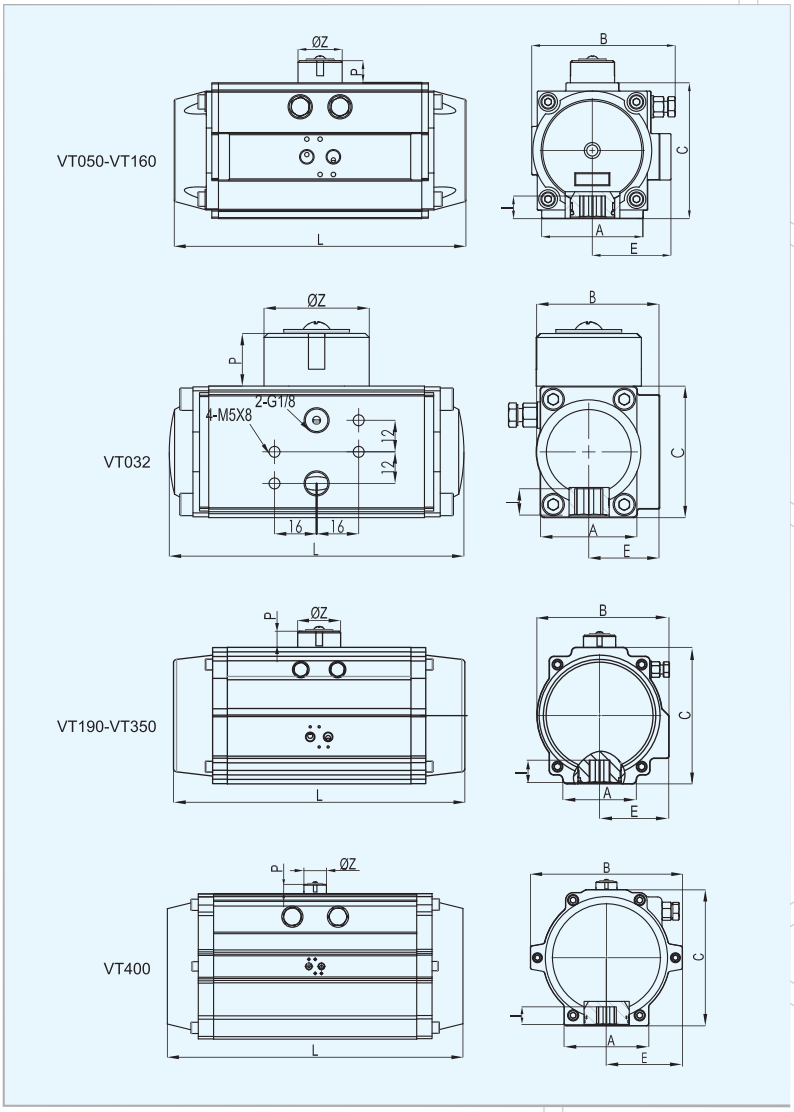
JYL®

## SINGLE ACTING TORQUE RATINGS IN Nm

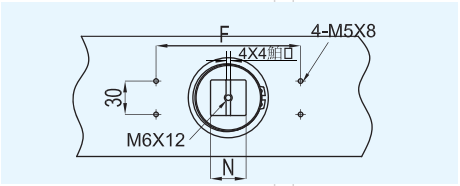
| Model | Supply Pressure (Unit: bar) | | | | | | | | | | | | | | | | | | | | Spring stroke | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2.5 | | 3 | | 3.5 | | 4 | | 4.5 | | 5 | | 5.5 | | 6 | | 7 | | 8 | | | |
| | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 90° | 0° |
| AP125 S05 | **77.7** | **48.2** | 108.5 | 78.9 | 136.5 | 106.9 | 164.4 | 134.9 | 192.4 | 162.9 | 220.4 | 190.9 | 248.4 | 218.4 | 276.4 | 246.8 | 332.3 | 302.8 | 388.3 | 358.7 | 80.6 | 51.0 |
| AP125 S06 | 67.5 | 32.0 | **98.3** | **62.8** | 126.3 | 90.8 | 154.2 | 118.8 | 182.2 | 146.8 | 210.2 | 174.7 | 238.2 | 202.7 | 266.2 | 230.7 | 322.1 | 286.7 | 378.1 | 342.6 | 96.7 | 61.2 |
| AP125 S07 | | | 88.1 | 46.7 | **116.1** | **74.7** | 144.0 | 102.7 | 172.0 | 130.7 | 200.0 | 158.6 | 228.0 | 186.6 | 256.0 | 214.6 | 311.9 | 270.6 | 367.9 | 326.5 | 112.8 | 71.4 |
| AP125 S08 | | | | | 105.9 | 58.6 | **133.8** | **86.6** | 161.8 | 114.5 | 189.8 | 142.5 | 217.8 | 170.5 | 245.8 | 198.5 | 301.7 | 254.4 | 357.7 | 310.4 | 128.9 | 81.6 |
| AP125 S09 | | | | | | | 123.6 | 70.5 | **151.6** | **98.4** | 179.6 | 126.4 | 207.6 | 154.4 | 235.6 | 182.4 | 291.5 | 238.3 | 347.5 | 294.3 | 145.0 | 91.8 |
| AP125 S10 | | | | | | | | | 141.4 | 82.3 | 169.4 | 110.3 | 197.4 | 138.3 | 225.4 | 166.3 | 281.3 | 222.2 | 337.3 | 278.2 | 161.1 | 102.0 |
| AP125 S11 | | | | | | | | | | | 159.2 | 94.2 | 187.2 | 122.2 | 215.2 | 150.2 | 271.1 | 206.1 | 327.1 | 262.1 | 177.2 | 112.2 |
| AP125 S12 | | | | | | | | | | | | | 177.0 | 106.1 | 205.0 | 134.0 | 260.9 | 190.0 | 316.9 | 246.0 | 193.3 | 122.4 |
| AP140 S05 | 114.2 | 74.1 | 155.1 | 115 | 196.1 | 156 | 237.0 | 196.9 | 277.9 | 237.8 | 318.8 | 278.7 | | | | | | | | | 122.4 | 82.3 |
| AP140 S06 | 97.7 | 49.6 | 138.7 | 90.6 | 179.6 | 131.5 | 220.5 | 172.4 | 261.5 | 213.3 | 302.4 | 254.3 | 343.3 | 295.2 | | | | | | | 146.8 | 98.7 |
| AP140 S07 | | | 122.2 | 66.1 | 163.2 | 107.0 | 204.1 | 147.9 | 245.0 | 188.9 | 285.9 | 229.8 | 326.9 | 270.7 | 367.8 | 311.6 | | | | | 171.3 | 115.2 |
| AP140 S08 | | | | | 146.7 | 82.5 | 187.6 | 123.5 | 228.6 | 164.4 | 269.5 | 205.3 | 310.4 | 246.2 | 351.3 | 287.2 | 433.2 | 369.0 | | | 195.8 | 131.6 |
| AP140 S09 | | | | | | | 171.2 | 99.0 | 212.1 | 139.9 | 253.0 | 180.9 | 294.0 | 221.8 | 334.9 | 262.7 | 416.7 | 344.6 | 498.6 | 426.4 | 220.2 | 148.1 |
| AP140 S10 | | | | | | | | | 195.7 | 115.5 | 236.6 | 156.4 | 277.5 | 197.3 | 318.4 | 238.2 | 400.3 | 320.1 | 482.1 | 401.9 | 244.7 | 164.5 |
| AP140 S11 | | | | | | | | | | | 220.1 | 131.9 | 261.1 | 172.8 | 302.0 | 213.8 | 383.8 | 295.6 | 465.7 | 377.5 | 269.2 | 181.0 |
| AP140 S12 | | | | | | | | | | | | | 244.6 | 148.4 | 285.5 | 189.3 | 367.4 | 271.1 | 449.2 | 353.0 | 293.6 | 197.4 |
| AP160 S05 | **153.5** | **101.3** | 216.6 | 164.4 | 273.9 | 221.7 | 331.2 | 279.0 | 388.5 | 336.3 | 445.8 | 393.6 | 503.1 | 450.9 | 560.4 | 508.2 | 675.0 | 622.8 | 789.7 | 737.4 | 162.3 | 110.0 |
| AP160 S06 | 131.5 | 68.8 | **194.6** | **131.9** | 251.9 | 189.2 | 309.2 | 246.5 | 366.5 | 303.8 | 423.8 | 361.1 | 481.1 | 418.4 | 538.4 | 475.7 | 653.0 | 590.3 | 767.7 | 705.0 | 194.7 | 132.0 |
| AP160 S07 | | | 172.6 | 99.5 | **229.9** | **156.8** | 287.2 | 214.1 | 344.5 | 271.4 | 401.8 | 328.7 | 459.1 | 386.0 | 516.4 | 443.3 | 631.0 | 557.9 | 745.7 | 672.5 | 227.2 | 154.0 |
| AP160 S08 | | | | | 207.9 | 124.3 | **265.2** | **181.6** | 322.5 | 238.9 | 379.8 | 296.2 | 437.1 | 353.5 | 494.4 | 410.8 | 609.0 | 525.4 | 723.7 | 640.1 | 259.6 | 176.0 |
| AP160 S09 | | | | | | | 243.2 | 149.2 | **300.5** | **206.5** | 357.8 | 263.8 | 415.1 | 321.1 | 472.4 | 378.4 | 587.0 | 493.0 | 701.7 | 607.6 | 292.1 | 198.0 |
| AP160 S10 | | | | | | | | | 278.5 | 174.0 | 335.8 | 231.3 | 393.1 | 288.6 | 450.4 | 345.9 | 565.0 | 460.5 | 679.7 | 575.2 | 324.5 | 220.0 |
| AP160 S11 | | | | | | | | | | | 313.8 | 198.9 | 371.1 | 256.2 | 428.4 | 313.5 | 543.0 | 428.1 | 657.7 | 542.7 | 357.0 | 242.0 |
| AP160 S12 | | | | | | | | | | | | | 349.1 | 223.7 | 406.4 | 281.0 | 521.0 | 395.6 | 635.7 | 510.3 | 389.4 | 264.0 |
| AP190 S05 | 246.8 | 167.4 | 336.3 | 256.9 | 425.6 | 346.2 | 514.9 | 435.5 | 604.2 | 524.8 | 693.5 | 614.1 | | | | | | | | | 261.2 | 181.8 |
| AP190 S06 | 210.4 | 115.1 | 299.9 | 204.6 | 389.2 | 293.9 | 478.5 | 383.3 | 567.8 | 472.6 | 657.2 | 561.9 | 746.5 | 651.2 | | | | | | | 313.4 | 218.1 |
| AP190 S07 | | | 263.6 | 152.4 | 352.9 | 241.7 | 442.2 | 331.0 | 531.5 | 420.3 | 620.8 | 509.6 | 710.1 | 599.0 | 799.4 | 688.3 | | | | | 365.6 | 254.5 |
| AP190 S08 | | | | | 316.5 | 189.5 | 405.8 | 278.7 | 495.1 | 368.1 | 584.5 | 457.4 | 673.8 | 546.7 | 779.5 | 636.0 | 941.7 | 814.7 | | | 417.8 | 290.8 |
| AP190 S09 | | | | | | | 369.5 | 226.6 | 458.8 | 315.9 | 548.1 | 405.2 | 637.4 | 494.5 | 745.2 | 583.8 | 905.3 | 762.4 | 1084.0 | 941.1 | 470.1 | 327.2 |
| AP190 S10 | | | | | | | | | 422.4 | 263.6 | 511.8 | 353.0 | 601.1 | 442.3 | 710.9 | 531.6 | 869.0 | 710.2 | 1047.6 | 888.8 | 522.3 | 363.5 |
| AP190 S11 | | | | | | | | | | | 475.4 | 300.7 | 564.7 | 390.0 | 676.6 | 479.3 | 832.6 | 658.0 | 1011.3 | 836.6 | 574.5 | 399.9 |
| AP190 S12 | | | | | | | | | | | | | 528.4 | 337.8 | 642.3 | 427.1 | 796.3 | 605.7 | 974.9 | 784.4 | 628.8 | 436.8 |
| AP210 S05 | **352.8** | **239.1** | 477.8 | 364.1 | 602.5 | 488.8 | 727.2 | 613.5 | 851.9 | 738.2 | 976.6 | 862.9 | 1101.2 | 987.5 | 1225.9 | 1112.2 | 1475.3 | 1361.6 | 1724.7 | 1611.0 | 359.1 | 245.4 |
| AP210 S06 | 303.7 | 167.3 | **428.7** | **292.3** | 553.4 | 417.0 | 678.1 | 541.7 | 802.8 | 666.4 | 927.5 | 791.0 | 1052.2 | 915.7 | 1176.9 | 1040.4 | 1426.2 | 1289.8 | 1675.6 | 1539.2 | 430.9 | 294.5 |
| AP210 S07 | | | 379.6 | 220.5 | **504.3** | **345.2** | 629.0 | 469.8 | 753.7 | 594.5 | 878.4 | 719.2 | 1003.1 | 843.9 | 1127.8 | 968.6 | 1377.2 | 1218.0 | 1626.5 | 1467.4 | 502.7 | 343.6 |
| AP210 S08 | | | | | 455.3 | 273.3 | **579.9** | **398.0** | 704.6 | 522.7 | 829.3 | 647.4 | 954.0 | 772.1 | 1078.7 | 896.8 | 1328.1 | 1146.2 | 1577.5 | 1395.5 | 574.6 | 392.6 |
| AP210 S09 | | | | | | | 530.9 | 326.2 | **655.6** | **450.9** | 780.2 | 575.6 | 904.9 | 700.3 | 1029.6 | 825.0 | 1279.0 | 1074.3 | 1528.4 | 1323.7 | 646.4 | 441.7 |
| AP210 S10 | | | | | | | | | 606.5 | 379.1 | 731.2 | 503.8 | 855.8 | 628.4 | 980.5 | 753.1 | 1229.9 | 1002.5 | 1479.3 | 1251.9 | 718.2 | 490.8 |
| AP210 S11 | | | | | | | | | | | 682.1 | 431.9 | 806.8 | 556.6 | 931.5 | 681.3 | 1180.8 | 930.7 | 1430.2 | 1180.1 | 790.0 | 539.9 |
| AP210 S12 | | | | | | | | | | | | | 757.7 | 484.8 | 882.4 | 609.5 | 1131.8 | 858.9 | 1381.1 | 1108.3 | 861.8 | 589.0 |
| AP240 S05 | 517.8 | 374.3 | 711.2 | 567.7 | 904.6 | 761.1 | 1098.0 | 954.5 | 1291.4 | 1147.9 | 1484.8 | 1341.3 | | | | | | | | | 554.0 | 410.5 |
| AP240 S06 | 435.7 | 263.5 | 629.1 | 456.9 | 822.5 | 650.3 | 1015.9 | 843.7 | 1209.3 | 1037.1 | 1402.7 | 1230.5 | 1596.1 | 1423.9 | | | | | | | 664.8 | 492.6 |
| AP240 S07 | | | 547.0 | 346.1 | 740.4 | 539.5 | 933.8 | 732.9 | 1127.2 | 926.3 | 1320.6 | 1119.7 | 1514.0 | 1313.1 | 1707.4 | 1506.5 | | | | | 775.6 | 574.7 |
| AP240 S08 | | | | | 658.3 | 428.7 | 851.7 | 622.1 | 1045.1 | 815.5 | 1238.5 | 1008.9 | 1431.9 | 1202.3 | 1625.3 | 1395.7 | 2012.1 | 1782.5 | | | 886.4 | 656.8 |
| AP240 S09 | | | | | | | 769.6 | 511.3 | 963.0 | 704.7 | 1156.4 | 898.1 | 1349.8 | 1091.5 | 1543.2 | 1284.9 | 1930.0 | 1671.7 | 2316.8 | 2058.5 | 997.2 | 738.9 |
| AP240 S10 | | | | | | | | | 880.9 | 593.9 | 1074.3 | 787.3 | 1267.7 | 980.7 | 1461.1 | 1174.1 | 1847.9 | 1560.9 | 2234.7 | 1947.7 | 1108.0 | 821.0 |
| AP240 S11 | | | | | | | | | | | 992.2 | 676.5 | 1185.6 | 869.9 | 1379.0 | 1063.3 | 1765.8 | 1450.1 | 2152.6 | 1836.9 | 1218.8 | 903.1 |
| AP240 S12 | | | | | | | | | | | | | 1103.5 | 759.1 | 1296.9 | 952.5 | 1683.7 | 1339.3 | 2070.5 | 1726.1 | 1329.6 | 985.2 |
| AP270 S05 | 745.9 | **519.4** | 1017.9 | 791.4 | 1289.9 | 1063.4 | 1561.8 | 1335.3 | 1833.8 | 1607.3 | 2105.7 | 1879.2 | | | | | | | | | 786.0 | **559.5** |
| AP270 S06 | 634.0 | 362.2 | **906.0** | **634.2** | 1178.0 | 906.2 | 1449.9 | 1178.1 | 1721.9 | 1450.1 | 1993.8 | 1722.0 | 2265.8 | 1994.0 | | | | | | | 943.2 | **671.4** |
| AP270 S07 | | | 794.1 | 477.0 | 1166.1 | **749.0** | 1338.0 | 1020.9 | 1610.0 | 1292.9 | 1881.9 | 1564.8 | 2153.9 | 1836.8 | 2425.9 | 2108.8 | | | | | 1100.4 | **783.3** |
| AP270 S08 | | | | | 954.2 | 591.8 | 1226.1 | **863.7** | 1498.1 | 1135.7 | 1770.0 | 1407.6 | 2042.0 | 1679.6 | 2314.0 | 1951.6 | 2857.9 | 2495.5 | | | 1257.6 | **895.2** |
| AP270 S09 | | | | | | | 1114.2 | 706.5 | 1386.2 | **978.5** | 1658.1 | 1250.4 | 1930.1 | 1522.4 | 2202.1 | 1794.4 | 2746.0 | 2338.3 | 3289.9 | 2882.2 | 1414.8 | **1007.1** |
| AP270 S10 | | | | | | | | | 1274.3 | 821.3 | 1546.2 | **1093.2** | 1818.2 | 1365.2 | 2090.2 | 1637.2 | 2634.1 | 2181.1 | 3178.0 | 2725.0 | 1572.0 | **1119.0** |
| AP270 S11 | | | | | | | | | | | 1434.3 | 936.0 | 1706.3 | **1208.0** | 1978.3 | 1480.0 | 2522.2 | 2023.9 | 3066.1 | 2567.8 | 1729.2 | 1230.9 |
| AP270 S12 | | | | | | | | | | | | | 1594.4 | 1050.8 | 1866.4 | **1322.8** | 2410.3 | 1866.7 | 2954.2 | 2410.6 | 1886.4 | **1342.8** |
| AP300 S05 | **987.5** | **646.7** | 1338.3 | 997.5 | 1688.2 | 1347.4 | 2038.1 | 1697.3 | 2388.0 | 2047.2 | 2737.9 | 2397.1 | 3087.8 | 2747.0 | 3437.7 | 3096.9 | 4137.4 | 3796.6 | 4837.2 | 4496.4 | 1031.9 | **691.1** |
| AP300 S06 | 849.3 | 440.3 | **1200.1** | **791.1** | 1550.0 | 1141.0 | 1899.9 | 1490.9 | 2249.8 | 1840.8 | 2599.6 | 2190.7 | 2949.5 | 2540.6 | 3299.4 | 2890.5 | 3999.2 | 3590.3 | 4699.0 | 4290.1 | 1238.3 | **829.3** |
| AP300 S07 | | | 1061.9 | 584.7 | **1411.7** | **934.6** | 1761.6 | 1284.5 | 2111.5 | 1634.4 | 2461.4 | 1984.3 | 2811.3 | 2334.2 | 3161.2 | 2684.1 | 3861.0 | 3383.9 | 4560.8 | 4083.7 | 1444.7 | **967.5** |
| AP300 S08 | | | | | 1273.5 | 728.2 | **1623.4** | **1078.1** | 1973.3 | 1428.0 | 2323.2 | 1777.9 | 2673.1 | 2127.8 | 3023.0 | 2477.7 | 3722.8 | 3177.5 | 4422.6 | 3877.3 | 1651.0 | **1105.8** |
| AP300 S09 | | | | | | | 1485.2 | 871.8 | **1835.1** | **1221.7** | 2185.0 | 1571.5 | 2534.9 | 1921.4 | 2884.8 | 2271.3 | 3584.6 | 2971.1 | 4284.4 | 3670.9 | 1857.4 | **1244.0** |
| AP300 S10 | | | | | | | | | 1696.9 | 1015.3 | 2046.8 | **1365.2** | 2396.7 | 1715.1 | 2746.6 | 2065.0 | 3446.3 | 2764.7 | 4146.1 | 3464.5 | 2063.8 | **1382.2** |
| AP300 S11 | | | | | | | | | | | 1908.5 | 1158.8 | 2258.4 | **1508.7** | 2608.3 | 1858.6 | 3308.1 | 2558.4 | 4007.9 | 3258.2 | 2270.2 | **1520.4** |
| AP300 S12 | | | | | | | | | | | | | 2120.2 | 1302.3 | 2470.1 | **1652.2** | 3169.9 | 2352.0 | 3869.7 | 3051.8 | 2476.6 | **1658.6** |
| AP350 S05 | **1498.2** | **1017.1** | 2017.5 | 1536.4 | 2536.8 | 2055.6 | 3056.1 | 2574.9 | 3575.3 | 3094.2 | 4094.6 | 3613.5 | 4613.9 | 4132.7 | 5133.2 | 4652.0 | 6171.7 | 5690.6 | 7210.3 | 6729.1 | 1475.5 | **994.3** |
| AP350 S06 | | | **1818.6** | **1241.3** | 2337.9 | 1760.5 | 2857.2 | 2279.8 | 3376.5 | 2799.1 | 3895.8 | 3318.4 | 4415.0 | 3837.7 | 4934.3 | 4356.9 | 5972.9 | 5395.5 | 7011.4 | 6434.0 | 1770.5 | **1193.2** |
| AP350 S07 | | | 1619.8 | 946.2 | **2139.1** | **1465.5** | 2658.3 | 1984.7 | 3177.6 | 2504.0 | 3696.9 | 3023.3 | 4216.2 | 3542.6 | 4735.5 | 4061.8 | 5774.0 | 5100.4 | 6812.6 | 6139.0 | 2065.6 | **1392.0** |
| AP350 S08 | | | | | 1940.2 | 1170.4 | **2459.5** | **1689.6** | 2978.8 | 2208.9 | 3498.0 | 2728.2 | 4017.3 | 3247.5 | 4536.6 | 3766.8 | 5575.1 | 4805.3 | 6613.7 | 5843.9 | 2360.7 | **1590.9** |
| AP350 S09 | | | | | 1741.3 | 875.3 | 2260.6 | 1394.6 | **2779.9** | **1913.8** | 3299.2 | 2433.1 | 3818.5 | 2952.4 | 4337.7 | 3471.7 | 5376.3 | 4510.2 | 6414.8 | 5548.8 | 2655.8 | **1789.7** |
| AP350 S10 | | | | | | | 2061.8 | 1099.5 | 2581.0 | 1618.7 | **3100.3** | **2138.0** | 3619.6 | 2657.3 | 4138.9 | 3176.6 | 5177.4 | 4215.1 | 6216.0 | 5253.7 | 2950.9 | **1988.6** |
| AP350 S11 | | | | | | | 1862.9 | 804.4 | 2382.2 | 1323.7 | 2901.5 | 1842.9 | **3420.7** | **2362.2** | 3940.0 | 2881.5 | 4978.6 | 3920.0 | 6017.1 | 4958.6 | 3246.0 | **2187.5** |
| AP350 S12 | | | | | | | | | 2183.3 | 1028.6 | 2702.6 | 1547.8 | 3221.9 | 2067.1 | 3741.2 | **2586.4** | 4779.7 | 3624.9 | 5818.3 | 4663.5 | 3541.1 | **2386.3** |
| AP400 S05 | 2222.0 | 1497.0 | 3013.0 | 2288.0 | 3805.0 | 3080.0 | 4596.0 | 3871.0 | 5387.0 | 4662.0 | 6179.0 | 5454.0 | | | | | | | | | 2301.0 | 1576.0 |
| AP400 S06 | | | 2698.0 | 1828.0 | 3490.0 | 2620.0 | 4281.0 | 3411.0 | 5072.0 | 4202.0 | 5863.0 | 4993.0 | 6655.0 | 5785.0 | | | | | | | 2761.0 | 1891.0 |
| AP400 S07 | | | 2383.0 | 1368.0 | 3174.0 | 2195.0 | 3966.0 | 2951.0 | 4757.0 | 3742.0 | 5548.0 | 4533.0 | 6339.0 | 5324.0 | 7131.0 | 6116.0 | | | | | 3221.0 | 2206.0 |
| AP400 S08 | | | | | 2859.0 | 1699.0 | 3650.0 | 2490.0 | 4442.0 | 3282.0 | 5233.0 | 4073.0 | 6024.0 | 4864.0 | 6816.0 | 5656.0 | 8398.0 | 7238.0 | | | 3682.0 | 2522.0 |
| AP400 S09 | | | | | 2544.0 | 1239.0 | 3335.0 | 2030.0 | 4126.0 | 2821.0 | 4918.0 | 3613.0 | 5709.0 | 4404.0 | 6500.0 | 5195.0 | 8083.0 | 6778.0 | 9665.0 | 8360.0 | 4142.0 | 2837.0 |
| AP400 S10 | | | | | | | 3020.0 | 1570.0 | 3811.0 | 2361.0 | 4603.0 | 3153.0 | 5394.0 | 3944.0 | 6185.0 | 4735.0 | 7768.0 | 6318.0 | 9350.0 | 7900.0 | 4602.0 | 3152.0 |
| AP400 S11 | | | | | | | 2705.0 | 1110.0 | 3496.0 | 1901.0 | 4287.0 | 2692.0 | 5079.0 | 3484.0 | 5870.0 | 4275.0 | 7452.0 | 5857.0 | 9035.0 | 7440.0 | 5062.0 | 3467.0 |
| AP400 S12 | | | | | | | | | 3181.0 | 1441.0 | 3972.0 | 2232.0 | 4763.0 | 2023.0 | 5555.0 | 3815.0 | 7137.0 | 5397.0 | 8720.0 | 6980.0 | 5522.0 | 3782.0 |

# INSTALLATION

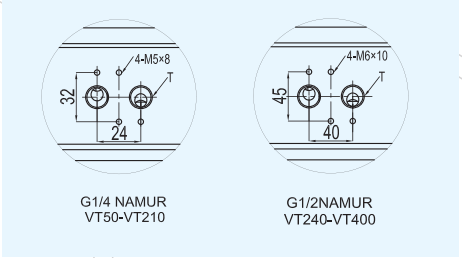
FRONT VIEW SIDE VIEW



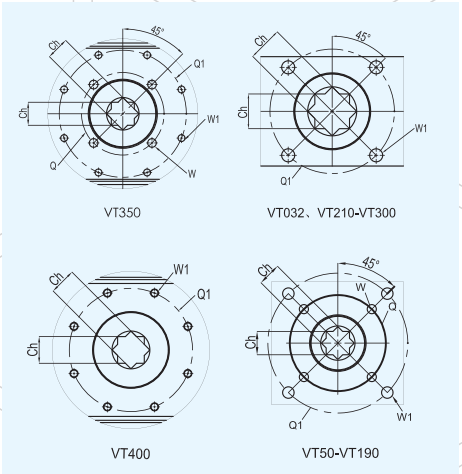

TOP




AIR CONNECTION




BOTTOM




| MODEL | A | B | C | L | E | F | P | ØZ | N | I | FLANGE | Q | Q1 | W | W1 | Ch | T |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AP032 | 37 | 47 | 50 | 110 | 27 | 50 | 20 | 40 | 10 | 10 | F03 | — | 36 | — | M5×9 | 9×9 | G1/8" |
| AP050 | 45 | 70.5 | 70 | 154 | 41.5 | 80 | 20 | 40 | 10 | 12 | F03/05 | 36 | 50 | M5×7.5 | M6×9 | 11×11 | G1/4" |
| AP065 | 62 | 89.5 | 89 | 189 | 51.5 | 80 | 20 | 40 | 10 | 16 | F05/07 | 50 | 70 | M6×9 | M8×12 | 14×14 | G1/4" |
| AP075 | 68 | 102.5 | 100 | 210 | 59 | 80 | 20 | 40 | 14 | 16 | F05/07 | 50 | 70 | M6×9 | M8×12 | 14×14 | G1/4" |
| AP085 | 68 | 112.5 | 113 | 229 | 63.5 | 80 | 20 | 40 | 14 | 19 | F05/07 | 50 | 70 | M6×9 | M8×12 | 17×17 | G1/4" |
| AP095 | 92 | 126 | 123 | 264 | 71 | 80 | 20 | 40 | 14 | 19 | F05/07 | 50 | 70 | M6×9 | M8×12 | 17×17 | G1/4" |
| AP110 | 93 | 138.5 | 136 | 266 | 76.5 | 80 | 20 | 40 | 14 | 19 | F07/10 | 70 | 102 | M8×12 | M10×15 | 17×17 | G1/4" |
| AP125 | 96 | 157 | 161 | 337 | 85 | 80 | 30 | 56 | 22 | 25 | F07/10 | 70 | 102 | M8×12 | M10×15 | 22×22 | G1/4" |
| AP140 | 110 | 178 | 178 | 377 | 97 | 80 | 30 | 56 | 22 | 31 | F10/12 | 102 | 125 | M10×15 | M12×18 | 27×27 | G1/4" |
| AP160 | 112 | 196 | 200 | 412 | 106 | 130 | 30 | 56 | 22 | 31 | F10/12 | 102 | 125 | M10×15 | M12×18 | 27×27 | G1/4" |
| AP190 | 136 | 216.5 | 232 | 488 | 112 | 130 | 30 | 56 | 22 | 41 | F10/14 | 102 | 140 | M10×15 | M16×24 | 36×36 | G1/4" |
| AP210 | 140 | 235.5 | 255 | 550 | 120 | 130 | 30 | 80 | 32 | 40 | F14 | — | 140 | — | M16×24 | 36×36 | G1/4" |
| AP240 | 159 | 262 | 292 | 602 | 131 | 130 | 30 | 80 | 32 | 50 | F16 | — | 165 | — | M20×28 | 46×46 | G1/2" |
| AP270 | 159 | 295 | 331 | 672 | 147.5 | 130 | 30 | 80 | 32 | 50 | F16 | — | 165 | — | M20×28 | 46×46 | G1/2" |
| AP300 | 180 | 335 | 354 | 784 | 173 | 130 | 30 | 80 | 32 | 50 | F16 | — | 165 | — | M20×28 | 46×46 | G1/2" |
| AP350 | 270 | 385 | 410 | 845 | 195 | 130 | 30 | 80 | 32 | 50 | F16/F25 | 165 | 254 | M20×28 | M16×30 | 46×46 | G1/2" |
| AP400 | 290 | 520 | 466 | 956 | 260 | 130 | 30 | 80 | 32 | 60 | F25 | — | 254 | — | M16×30 | 55×55 | G1/2" |

# MODEL SELECTION

| MODEL | TYPE | SPRING QTY | FLANGE | SQURE | OPTION | SEALING PART |
|---|---|---|---|---|---|---|
| AP032 | D=DOUBLE ACTING<br>S=SPRING RETURN | | F03 | 9×9 | CAP COLOR<br>RAL<br>7046 9004<br>5021 3020<br>6002 5015<br>TYPE OF BODY<br>P Smooth Surface + hard Anodized<br>S Sandblasted Surface + hard Anodized (Color: Grey)<br>H Sandblasted Surface + hard Anodized (Color: Dark Grey)<br>F Sandblasted Surface + hard Anodized + PTFE Coated | STANDARD<br>NITRILE RUBBER<br>-15°C-+80°C<br>HT<br>FLUORORUBBER<br>(FOR HIGH TEMPERATURE)<br>-15°C-+150°C<br>LT<br>SILASTIC<br>(FOR LOW TEMPERATURE)<br>-40°C-+80°C |
| AP050 | | ONLY FOR SPRING REST<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12 | F03/05 | 11×11 | | |
| AP065 | | | F05/07 | 14×14 | | |
| AP075 | | | F05/07 | 14×14 | | |
| AP085 | | | F05/07 | 17×17 | | |
| AP095 | | | F05/07 | 17×17 | | |
| AP110 | | | F07/10 | 17×17 | | |
| AP125 | | | F07/10 | 22×22 | | |
| AP140 | | | F10/12 | 27×27 | | |
| AP160 | | | F10/12 | 27×27 | | |
| AP190 | | | F10/14 | 36×36 | | |
| AP210 | | | F14 | 36×36 | | |
| AP240 | | | F16 | 46×46 | | |
| AP270 | | | F16 | 46×46 | | |
| AP300 | | | F16 | 46×46 | | |
| AP350 | | | F16/25 | 46×46 | | |
| AP400 | | | F25 | 55×55 | | |

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