







## Stopper cylinder ——TWH、TWG、TWQ、TWM Series

### Product series

| 系列  |     | Acting type                           | Bore size | Collocation of sensor switch |       |       |       |
|---|-----|---------------------------------------|-----------|------------------------------|-------|-------|-------|
|   |     |                                       |           | CS1-J                        | DS1-J | CS1-G | DS1-G |
| <br>TWH    |     | Double acting Single acting-Pull type | 20        | ●                            | ●     | ●     | ●     |
|   |     |                                       | 25        | ●                            | ●     | ●     | ●     |
|   |     |                                       | 32        | ●                            | ●     | ●     | ●     |
|   |     |                                       | 40        | ●                            | ●     | ●     | ●     |
|   |     |                                       | 50        | ●                            | ●     | ●     | ●     |
|   |     |                                       | 63        | ●                            | ●     | ●     | ●     |
|   |     |                                       | 80        | ●                            | ●     | ●     | ●     |
| <br>TWM   |     | Double acting Single acting-Pull type | 50        | ●                            | ●     | ●     | ●     |
|   |     |                                       |           |                              |       |       |       |
| <br>TWG  |     | Double acting Single acting-Pull type |           | CS1-T DS1-T                  |       |       |       |
|   |     |                                       | 32        | ●                            | ●     | ●     | ●     |
|   |     |                                       | 40        | ●                            | ●     | ●     | ●     |
|   |     |                                       | 50        | ●                            | ●     | ●     | ●     |
| <br>TWQ |     | Double acting Single acting-Pull type |           | CS1-J DS1-J CS1-G DS1-G      |       |       |       |
|   |     |                                       | 20        | ●                            | ●     | ●     | ●     |
|   |     |                                       | 25        | ●                            | ●     | ●     | ●     |
|   |     |                                       | 32        | ●                            | ●     | ●     | ●     |
|   |     |                                       | 40        | ●                            | ●     | ●     | ●     |
|   |     |                                       | 50        | ●                            | ●     | ●     | ●     |
| Page  | 384 | 384                                   | 387       | 390                          | 403   |       |       |

### Installation and application

1. When load changes in the work, the cylinder with abundant output capacity shall be selected.
2. Relative cylinder with high temperature resistance or corrosion resistance shall be chosen under the condition of high temperature or corrosion.
3. Necessary protection measure shall be taken in the environment with higher humidity, much dust or water drops, oil dust and welding dregs.
4. Dirty substances in the pipe must be eliminated before cylinder is connected with pipeline. Impurities must be prevented from entering the cylinder.
5. The medium used by cylinder shall be filtered to 40 μm or below.
6. The lateral load of the cylinder shall not exceed the allowable value in operation so as to maintain its normal operation and extend its service life.
7. Anti-freezing measure shall be adopted under low temperature environment to prevent the water freezing in cylinder.
8. If the cylinder is dismantled and stored for a long time, please conduct anti-rust treatment to the surface. Anti-dust caps shall be added in air inlet and outlet ports.

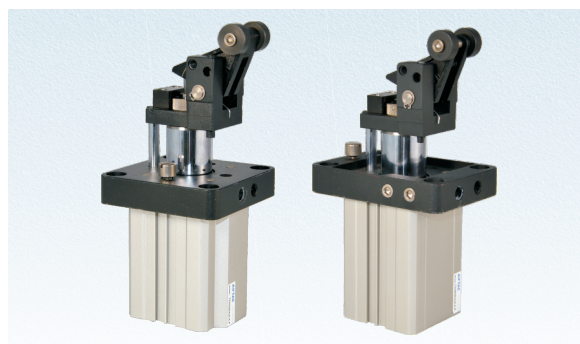


TW

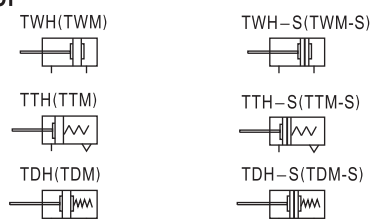
# Stopper cylinder

TWH, TWM Series

**AIRTAC**



## Symbol



## Product feature

1. JIS standard is implemented.
2. Widening the piston rod can effectively improve the impact resistance ability of the cylinder.
3. Heavy type stopper cylinder has shock absorber adjustable shock absorber, which can reliably absorb the impact energy.
4. Shockless stopper cylinder is equipped with self-lock device, which can prevent the returning of rebound of rocker caused by bar objects.
5. Several series and specifications for stopper cylinders can be selected.

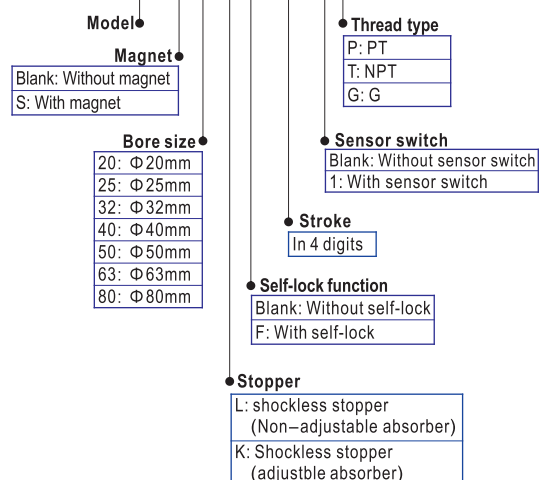
## Ordering code

Model can to be changed Ordering code. Example:

Production type: TWH  
 Magnet: With magnet  
 Bore size: 50mm  
 Stroke: 30mm  
 Stopper: Shockless stopper (adjustable absorber)  
 Self-lock function: With self-lock  
 Sensor switch: With sensor switch  
 Thread type: NPT

Model: TWH-S-50×30-KF-1-T

Ordering code: TWH S 50 K F 0030 1 T



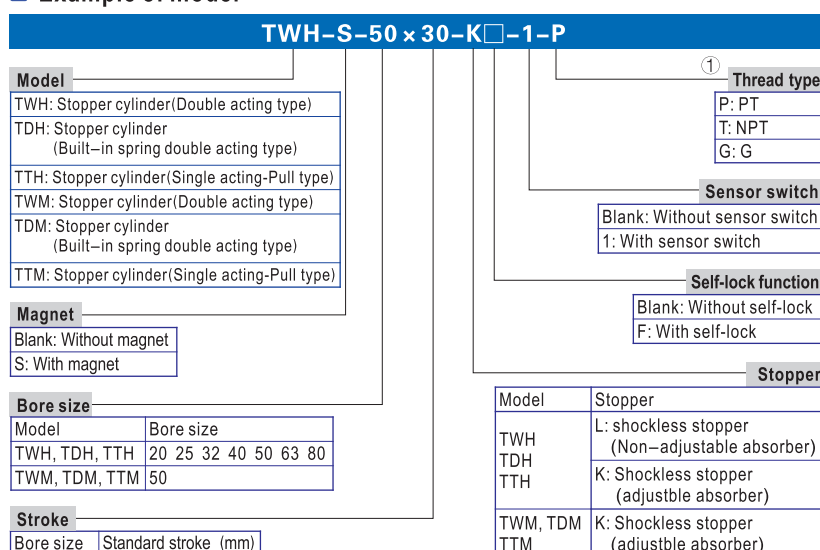
TW

## Specification

| Series                    | TWH   |    |    |    |  |    |      | TWM  |
|---------------------------|---|----|----|----|--|----|------|------|
| Bore size(mm)             | 20  | 25 | 32 | 40 | 50   | 63 | 80   | 50   |
| Fluid                     | Air(to be filtered by 40 μm filter element)             |    |    |    |  |    |      |      |
| Action                    | Double acting type, Single acting-pull type             |    |    |    |  |    |      |      |
| Operating pressure        | 0.15~1.0MPa(23~145psi)                                  |    |    |    |  |    |      |      |
| Single acting-pull type   | Φ20:0.25~1.0MPa(35~145psi) Others:0.2~1.0MPa(28~145psi) |    |    |    |  |    |      |      |
| Proof pressure            | 1.5MPa(215psi)  |    |    |    |  |    |      |      |
| Temperature °C            | -20~80  |    |    |    |  |    |      |      |
| Range of stroke tolerance | +1.0<br>0   |    |    |    |  |    |      |      |
| Cushion type              | Bumper  |    |    |    |  |    |      |      |
| Lubrication               | Non required  |    |    |    |  |    |      |      |
| Mounting type             | Flange  |    |    |    |  |    |      |      |
| Stopper type              | Shock less stopper(With non adjustable absorber)        |    |    |    | Shock less stopper(With adjustable absorber) |    |      |      |
| Port size ①               | M5×0.8  |    |    |    | 1/8"   |    | 1/4" | 1/8" |
| Sensor's thread           | M5×0.5  |    |    |    | M8×1.0                                       |    |      |      |

① PT thread, NPT thread and G thread are available. Add) Refer to Page 403~426 for details of sensor switch.

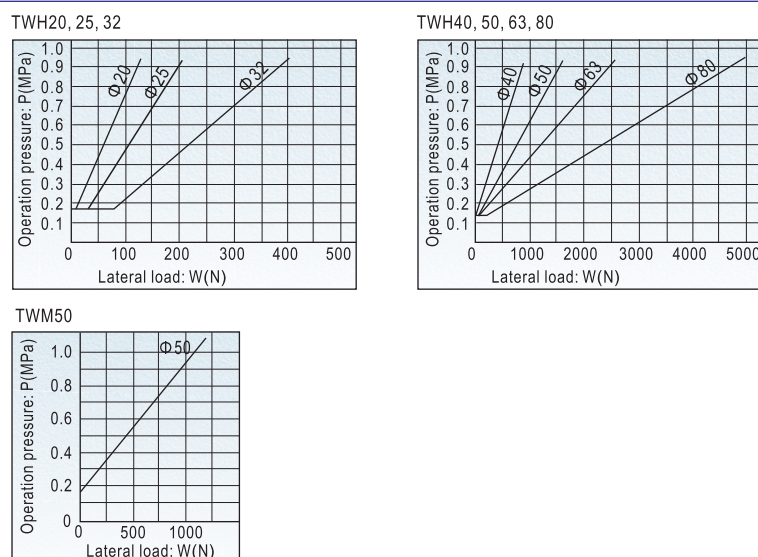
## Example of model



① When the thread is standard, the code is blank.

Note) The buffer is not adjustable if the bore size is 20 and 25. It is adjustable if the bore is over 32.

## Lateral Load and Operation pressure





# Stopper cylinder

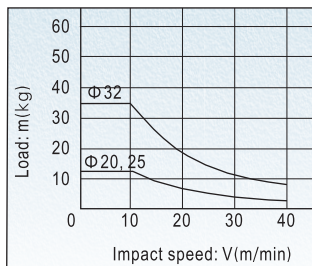
TWH, TWM Series

AIRTAC

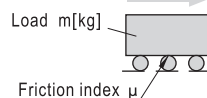
## How to select

Drawing I

Bore size  $\Phi 20$ ,  $\Phi 25$ ,  $\Phi 32$ . Friction index  $\mu = 0.1$



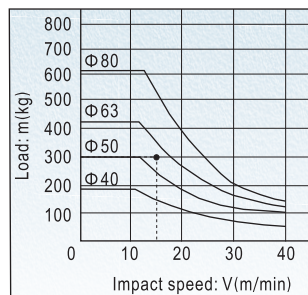
Impact speed  $v$  [m/min]



Note:  
When the speed is the same, the friction index more higher, the Load more lighter.  
so the rubbing surface is smoother is better.

Drawing II

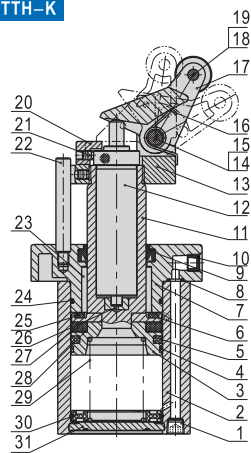
Bore size  $\Phi 40$ ,  $\Phi 50$ ,  $\Phi 63$ ,  $\Phi 80$ . Friction index  $\mu = 0.1$



Selection way:  
When load is 300kg, speed is 15m/min, and friction factor is 0.1, draw a horizontal line in the 300 position of Y axis in Table 3 to join with X axis'. 15m/min  $\Phi 63$  cylinder used in this application will be selected.

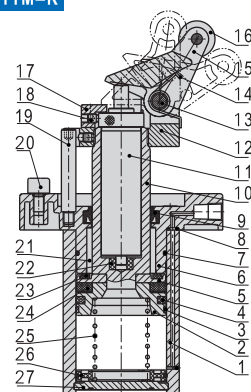
## Inner structure and material of major parts

TTH-K



| No. | Item              | Material                 | No. | Item                         | Material                         |
|-----|-------------------|--------------------------|-----|------------------------------|----------------------------------|
| 1   | Countersink screw | Carbon steel             | 17  | Rocker                       | Cast steel/<br>Nodular Cast iron |
| 2   | Body              | Aluminum alloy           | 18  | PIN                          | S45C grinding rod                |
| 3   | Piston            | Aluminum alloy           | 19  | PIN gasket                   | S45C grinding rod                |
| 4   | Wear ring         | Wear resistant material  | 20  | Obstruct block               | Powder metallurgy                |
| 5   | Piston seal       | NBR                      | 21  | Countersink screw            | Carbon steel                     |
| 6   | Magnet washer     | Aluminum alloy           | 22  | Leader                       | S45C grinding rod                |
| 7   | Front cover       | Aluminum alloy           | 23  | Sliding bushing              | Wear resistant material          |
| 8   | O-ring            | NBR                      | 24  | O-ring                       | NBR                              |
| 9   | Packing           | NBR                      | 25  | Bumper                       | TPU                              |
| 10  | Silencer          | Sintered bronze particle | 26  | Absorber fix and adjust seat | POM                              |
| 11  | Piston rod        | S45C grinding rod        | 27  | Magnet                       | Plastic                          |
| 12  | Shock absorber    |                          | 28  | Magnet washer                | NBR                              |
| 13  | Fixed seat        | Nodular Cast iron        | 29  | Spring                       | Spring steel                     |
| 14  | PIN               | S45C grinding rod        | 30  | Cushion                      | POM                              |
| 15  | Clip              | Spring steel             | 31  | Back cover                   | Aluminum alloy                   |
| 16  | Torsion spring    | Spring steel             |     |                              |                                  |

TTM-K

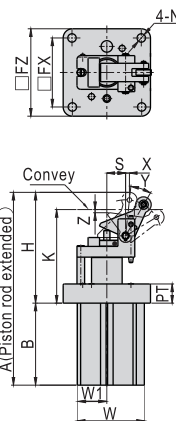


| No. | Item           | Material                | No. | Item                         | Material                 |
|-----|----------------|-------------------------|-----|------------------------------|--------------------------|
| 1   | Body           | Aluminum alloy          | 15  | Rocker                       | Nodular cast iron        |
| 2   | Piston         | Aluminum alloy          | 16  | Roller                       | Powder metallurgy        |
| 3   | Wear ring      | Wear resistant material | 17  | Obstruct black               | Powder metallurgy        |
| 4   | Piston seal    | NBR                     | 18  | Countersink screw            | Carbon steel             |
| 5   | Magnet washer  | Aluminum alloy          | 19  | Leader                       | S45C grinding rod        |
| 6   | Front cover    | Aluminum alloy          | 20  | Cancel cap                   | Aluminum alloy           |
| 7   | O-ring         | NBR                     | 21  | Sliding bushing              | Bronze powder metallurgy |
| 8   | O-ring         | NBR                     | 22  | Absorber fix and adjust seat | POM                      |
| 9   | Gasket         | NBR                     | 23  | Bumper                       | TPU                      |
| 10  | Piston rod     | S45C grinding rod       | 24  | Magnet                       | Plastic                  |
| 11  | Shock absorber |                         | 25  | Spring                       | Spring steel             |
| 12  | Mounting seat  | Nodular cast iron       | 26  | Bumper                       | TPU                      |
| 13  | PIN            | S45C grinding rod       | 27  | Back cover                   | Aluminum alloy           |
| 14  | Torsion spring | Spring steel            |     |                              |                          |

## Dimensions

Non-adjustable absorber(TWH-L(F), TDH-L(F), TTH-L(F))

$\Phi 20$ ,  $\Phi 25$



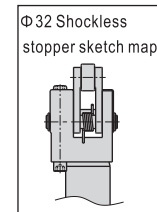
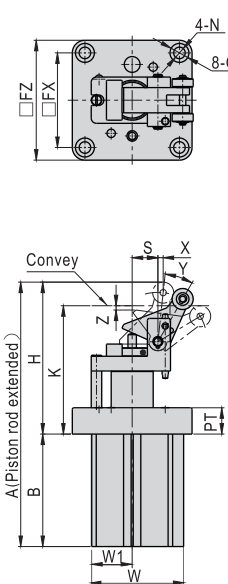
| Bore size\Item | A     | B    | CD | D  | E  | PT | FX | FZ | G  | H  |
|----------------|-------|------|----|----|----|----|----|----|----|----|
| 20             | 129   | 55   | 12 | 16 | 36 | 8  | 40 | 48 | 12 | 74 |
| 25             | 135.5 | 57.5 | 12 | 16 | 40 | 12 | 47 | 58 | 16 | 78 |

| Bore size\Item | K    | N   | P  | S  | X | Y  | W  | Z   | W1 |
|----------------|------|-----|----|----|---|----|----|-----|----|
| 20             | 59.8 | 4.5 | M5 | 12 | 4 | 28 | 40 | 2.4 | 18 |
| 25             | 63.8 | 6.6 | M5 | 12 | 4 | 28 | 45 | 2.4 | 20 |

Note: The type with magnet and the type without magnet have the same dimension.  
The type with self-lock and the type without selflock have the same dimension.

Adjustable absorber(TWH-K(F), TDH-K(F), TTH-K(F))

$\Phi 32 \sim \Phi 80$



| Bore size\Item | A     | B    | CD | D  | E  | PT | FX  | FZ  | G  | H     |
|----------------|-------|------|----|----|----|----|-----|-----|----|-------|
| 32             | 152.5 | 65.5 | 12 | 20 | 46 | 16 | 53  | 67  | 16 | 87    |
| 40             | 191   | 79   | 20 | 25 | 53 | 16 | 65  | 82  | 16 | 112   |
| 50             | 211   | 83   | 20 | 32 | 64 | 20 | 73  | 93  | 18 | 128   |
| 63             | 245.5 | 101  | 20 | 40 | 77 | 25 | 90  | 114 | 24 | 144.5 |
| 80             | 299.5 | 128  | 25 | 50 | 98 | 25 | 110 | 138 | 30 | 171.5 |

| Bore size\Item | K     | N   | O  | P    | S  | X   | Y  | W    | Z   | W1   |
|----------------|-------|-----|----|------|----|-----|----|------|-----|------|
| 32             | 73.4  | 6.6 | 11 | 1/8" | 12 | 3.5 | 28 | 51.5 | 1.7 | 23   |
| 40             | 92.3  | 6.6 | 11 | 1/8" | 16 | 5   | 26 | 62   | 3.7 | 26.5 |
| 50             | 107.4 | 9   | 14 | 1/8" | 21 | 5   | 24 | 72   | 2.2 | 32   |
| 63             | 122   | 11  | 18 | 1/4" | 25 | 5   | 24 | 87.5 | 3.2 | 38.5 |
| 80             | 145.4 | 13  | 20 | 1/4" | 31 | 6   | 23 | 109  | 3.6 | 49   |

Note: The type with magnet and the type without magnet have the same dimension.  
The type with self-lock and the type without selflock have the same dimension.



TWH

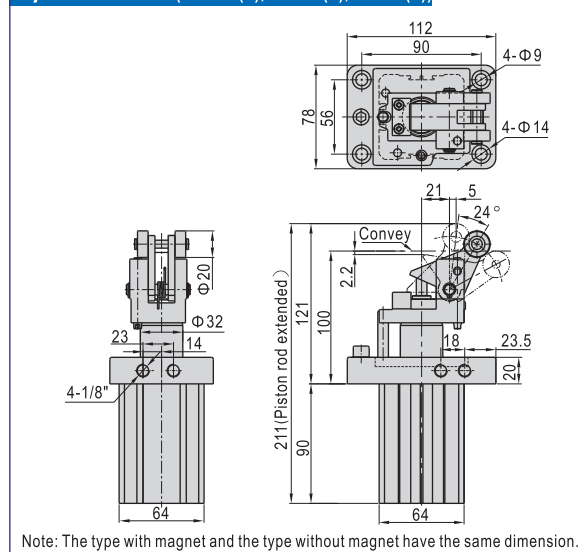
# Stopper cylinder

TWH, TWM Series

AIRTAC

## ■ Dimensions

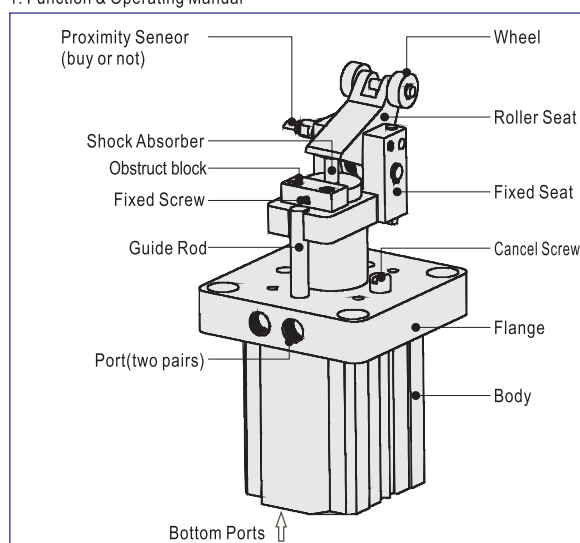
Adjustable absorber(TWM-K(F), TDM-K(F), TTM-K(F))



Note: The type with magnet and the type without magnet have the same dimension.

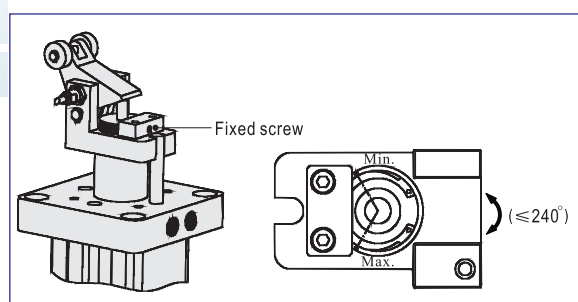
## ■ Installation and application

### 1. Function & Operating Manual



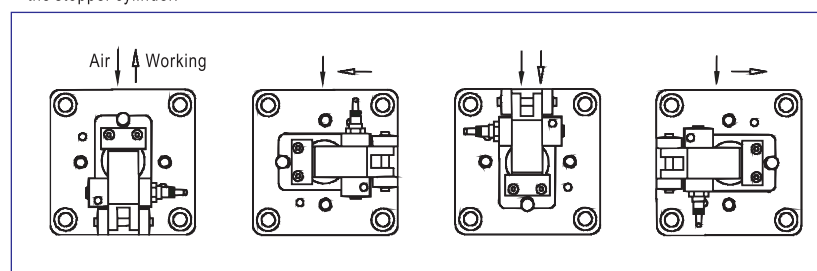
### 2. Adjustment of Shock Absorber

- 2.1) The Shock Absorber had been adjusted before the cylinder finished.
- 2.2) The client can adjust it if necessary.
- 2.3) The steps are as following.
  - a. Loose the fixed screw.
  - b. Turn the Shock Absorber to adjust the cushion ability.
  - c. Fasten the fixed screw.



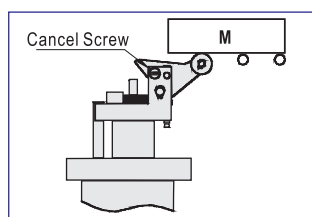
### 3. Multi-working position

Even the flange is fixed, just adjust the mounting position of guide rod will be changed the working direction of the stopper cylinder.



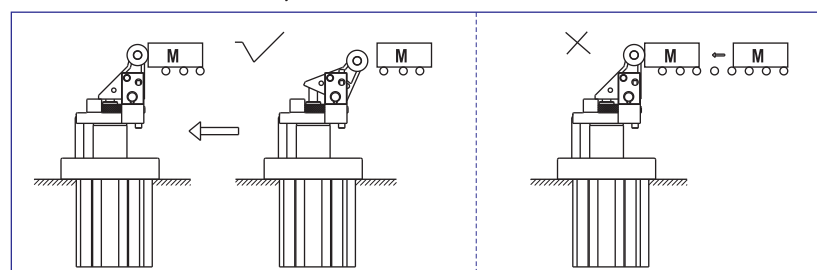
### 4. Working Forbidden

- 4.1) This function is used to cancel the stop action of the cylinder, and make the work piece pass easy.
- 4.2) The steps are as following.
  - a. Screw off the cancel screw from the flange.
  - b. Put the roller seat down.
  - c. Fasten the cancel screw in the screw hole on the fixed seat and the tail of the cancel screw should be inserted in the hole made on the roller seat.



### 5. How to use stopper function

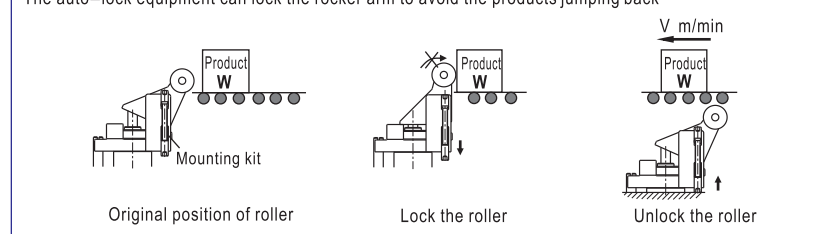
- 5.1) When the shock absorber is impacted deeply, added impact energy must be avoided. The cylinder without shock absorber can't be impacted by load, otherwise mechanical failure may be caused.
- 5.2) The maximum impact kinetic energy acting on the piston rod can't exceed the allowable maximum values, otherwise mechanical failure may be caused.



### 6. Self-locking

Unusually, when the stopper cylinder is operating, work piece will be rebound as the effect of shocker absorber. In order to keep the work piece steady, we have developed this self-locking device.

The auto-lock equipment can lock the rocker arm to avoid the products jumping back



TW



# Stopper cylinder

## TWG Series

**AIRTAC**



### Specification

| Bore size(mm)             |                         | 32  | 40 | 50 |
|---------------------------|-------------------------|---|----|----|
| Fluid                     |                         | Double acting type、Single acting-pull type                    |    |    |
| Action                    |                         | Air(to be filtered by 40 μ m filter element)                  |    |    |
| Operating pressure        | Double acting type      | 0.15~1.0MPa(23~145psi)  |    |    |
|                           | Single acting-pull type | 0.2~1.0MPa(28~145psi)   |    |    |
| Proof pressure            |                         | 1.5MPa(215psi)  |    |    |
| Temperature ℃             |                         | -20~80  |    |    |
| Range of stroke tolerance |                         | +1.0<br>0   |    |    |
| Cushion type              |                         | Bumper  |    |    |
| Lubrication               |                         | Non required  |    |    |
| Mounting type             |                         | Flange(The mounting high can be changed)                      |    |    |
| Stopper type              |                         | Round rod, Flat rod, Roller shock less stopper(with absorber) |    |    |
| Port size ①               |                         | 1/8"  |    |    |

① PT thread, NPT thread and G thread are available. Add) Refer to Page 403~426 for details of sensor switch.

### Symbol



### Product feature

1. JIS standard is implemented.
2. Widening the piston rod can effectively improve the impact resistance ability of the cylinder.
3. The installation height is adjustable and several rod end modes can be selected. The cushion effect of the stopper cylinder with shock absorber is better.
4. Shockless stopper cylinder is attached with self-lock device, which can prevent the returning of rebound of rocker caused by bar objects.
5. Several series and specifications for stopper cylinders can be selected.

### Ordering code

Model can to be changed Ordering code. Example:

Production type: TWG

Magnet: With magnet

Bore size: 50mm

Stroke: 30mm

Stopper: Shockless stopper(adjustble absorber)

Self-lock function: With self-lock

Thread type: NPT

**Model: TWG-S-50 × 30-KF-T**

**Ordering code: TWG S 50 K F 0030 T**

Model

Magnet

Blank: Without magnet  
S: With magnet

Bore size

32: Φ32mm  
40: Φ40mm  
50: Φ50mm

Stroke

In 4 digits

Self-lock function

Blank: Without self-lock  
F: With self-lock

Stopper

C: Round rod  
B: Flat rod  
R: Roller  
K: Shockless stopper (adjustble absorber)

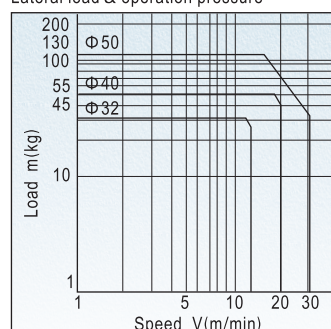
### Example of model

**TWG-S-50 × 20-K-P**

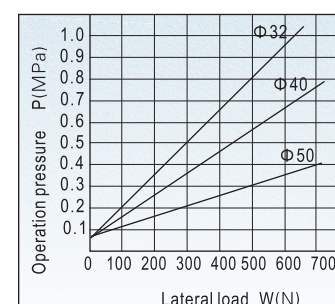
|   |  |                           |   |
|---|--|---------------------------|---|
| <b>Model</b>  | TWG: Stopper cylinder<br>(Adjustable for height, double acting type) | <b>Thread type</b>        | P: PT<br>T: NPT<br>G: G   |
| TTG: Stopper cylinder<br>(Adjustable for height, single acting-pull type) |  | <b>Self-lock function</b> | Blank: Without self-lock<br>F: With self-lock   |
| <b>Magnet</b>   | Blank: Without magnet<br>S: With magnet                              | <b>Stopper</b>            | C: Round rod<br>B: Flat rod<br>R: Roller<br>K: Shockless stopper (adjustble absorber) |
| <b>Bore size</b>  | 32 40 50   |                           |   |
| <b>Stroke</b>   | Bore size Stroke (mm)<br>32 10 15 20<br>40, 50 20 25 30              |                           |   |

### Lateral Load and Operation pressure

Lateral load & operation pressure



Round rod, Flat rod, Roller



TW

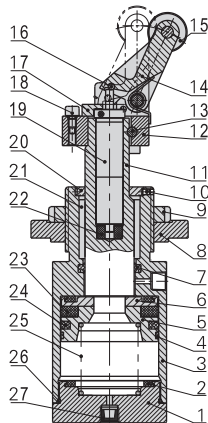
# Stopper cylinder

AIRTAC

## TWG Series

### Inner structure and material of major parts

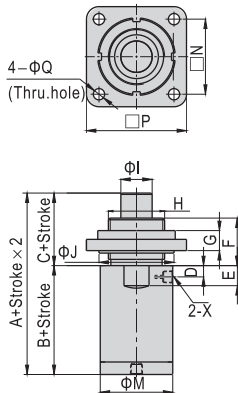
#### TTG-K



| No. | Item                         | Material                               |
|-----|------------------------------|--|
| 1   | Back cover                   | Aluminum alloy                         |
| 2   | Bumper                       | TPU                                    |
| 3   | Body                         | Aluminum alloy                         |
| 4   | Wear ring                    | Wear resistant material                |
| 5   | Piston                       | Aluminum alloy                         |
| 6   | Magnet washer                | Aluminum alloy                         |
| 7   | Packing                      | NBR                                    |
| 8   | Flange                       | Aluminum alloy                         |
| 9   | Fixed nut                    | Carbon steel                           |
| 10  | Countersink screw            | Carbon steel                           |
| 11  | Piston rod                   | Carbon steel with 20 μ m chrome plated |
| 12  | Fixed seat                   | Nodular cast iron                      |
| 13  | Lock pin                     | Cast steel                             |
| 14  | Rocker                       | Cast steel                             |
| 15  | Roller                       | Mild steel                             |
| 16  | Steel ball                   | Stainless steel                        |
| 17  | Obstruct block               | Powder metallurgy                      |
| 18  | Cancel cap                   | Aluminum alloy                         |
| 19  | Shock absorber               |  |
| 20  | Lock ring                    | Powder metallurgy                      |
| 21  | Sliding bushing              | Wear resistant material                |
| 22  | Absorber fix and adjust seat | POM                                    |
| 23  | Magnet                       | Plastic                                |
| 24  | Piston seal                  | NBR                                    |
| 25  | Spring                       | Spring steel                           |
| 26  | O-ring                       | NBR                                    |
| 27  | Silence                      | Sintered bronze particle               |

### Dimensions

#### Round rod(TWG-C, TTG-C)

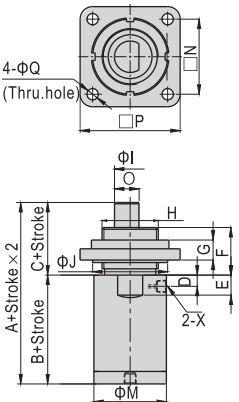


| Bore size\Item | A   | B  | C  | D  | E  | F  | G  | H       |
|----------------|-----|----|----|----|----|----|----|---------|
| 32             | 95  | 57 | 38 | 9  | 15 | 38 | 16 | M36×1.5 |
| 40             | 100 | 62 | 38 | 12 | 16 | 38 | 16 | M45×1.5 |
| 50             | 100 | 62 | 38 | 10 | 16 | 38 | 16 | M45×1.5 |

| Bore size\Item | I  | J  | M  | N  | P  | Q | X    |
|----------------|----|----|----|----|----|---|------|
| 32             | 20 | 50 | 40 | 50 | 70 | 9 | 1/8" |
| 40             | 25 | 60 | 47 | 60 | 80 | 9 | 1/8" |
| 50             | 25 | 60 | 58 | 60 | 80 | 9 | 1/8" |

Note: The type with magnet and the type without magnet have the same dimension.

#### Flat rod(TWG-B, TTG-B)

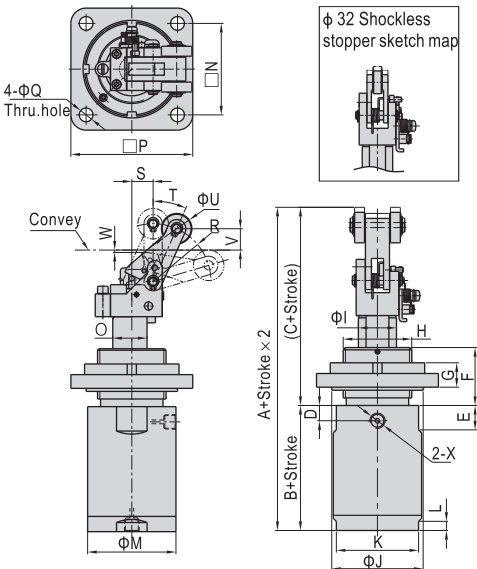


| Bore size\Item | A   | B  | C  | D  | E  | F  | G  | H       |
|----------------|-----|----|----|----|----|----|----|---------|
| 32             | 95  | 57 | 38 | 9  | 15 | 38 | 16 | M36×1.5 |
| 40             | 100 | 62 | 38 | 12 | 16 | 38 | 16 | M45×1.5 |
| 50             | 100 | 62 | 38 | 10 | 16 | 38 | 16 | M45×1.5 |

| Bore size\Item | I  | J  | M  | N  | O    | P  | Q | X    |
|----------------|----|----|----|----|------|----|---|------|
| 32             | 20 | 50 | 40 | 50 | 18.5 | 70 | 9 | 1/8" |
| 40             | 25 | 60 | 47 | 60 | 22.5 | 80 | 9 | 1/8" |
| 50             | 25 | 60 | 58 | 60 | 22.5 | 80 | 9 | 1/8" |

Note: The type with magnet and the type without magnet have the same dimension.

#### Shockless stopper(TWG-K(F), TTG-K(F))



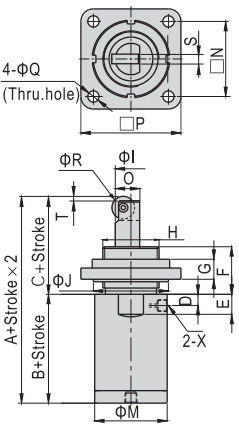
| Bore size\Item | A     | B  | C    | D  | E  | F  | G  | H       |
|----------------|-------|----|------|----|----|----|----|---------|
| 32             | 147.5 | 57 | 90.5 | 9  | 15 | 38 | 16 | M36×1.5 |
| 40             | 172   | 62 | 110  | 12 | 16 | 38 | 16 | M45×1.5 |
| 50             | 172   | 62 | 110  | 10 | 16 | 38 | 16 | M45×1.5 |

| Bore size\Item | I  | J  | K  | L | M  | N  | O    | P  | Q |
|----------------|----|----|----|---|----|----|------|----|---|
| 32             | 20 | 50 | 37 | 6 | 40 | 50 | 18.5 | 70 | 9 |
| 40             | 25 | 60 | 44 | 6 | 47 | 60 | 22.5 | 80 | 9 |
| 50             | 25 | 60 | 54 | 6 | 58 | 60 | 22.5 | 80 | 9 |

| Bore size\Item | R    | S    | T  | U  | V   | W   | X    |
|----------------|------|------|----|----|-----|-----|------|
| 32             | 24.5 | 11.5 | 28 | 15 | 4.4 | 1   | 1/8" |
| 40             | 38   | 14   | 24 | 20 | 14  | 1.6 | 1/8" |
| 50             | 38   | 14   | 24 | 20 | 14  | 1.6 | 1/8" |

Note: The type with magnet and the type without magnet have the same dimension.  
The type with self-lock and the type without self-lock have the same dimension.

#### Roller(TWG-R, TTG-R)



| Bore size\Item | A   | B  | C  | D  | E  | F  | G  | H       | I  |
|----------------|-----|----|----|----|----|----|----|---------|----|
| 32             | 116 | 57 | 59 | 9  | 15 | 38 | 16 | M36×1.5 | 20 |
| 40             | 123 | 62 | 61 | 12 | 16 | 38 | 16 | M45×1.5 | 25 |
| 50             | 123 | 62 | 61 | 10 | 16 | 38 | 16 | M45×1.5 | 25 |

| Bore size\Item | J  | M  | N  | O    | P  | Q | R  | S | T | X    |
|----------------|----|----|----|------|----|---|----|---|---|------|
| 32             | 50 | 40 | 50 | 18.5 | 70 | 9 | 20 | 8 | 4 | 1/8" |
| 40             | 60 | 47 | 60 | 22.5 | 80 | 9 | 20 | 8 | 4 | 1/8" |
| 50             | 60 | 58 | 60 | 22.5 | 80 | 9 | 20 | 8 | 4 | 1/8" |

Note: The type with magnet and the type without magnet have the same dimension.



TW



# Stopper cylinder

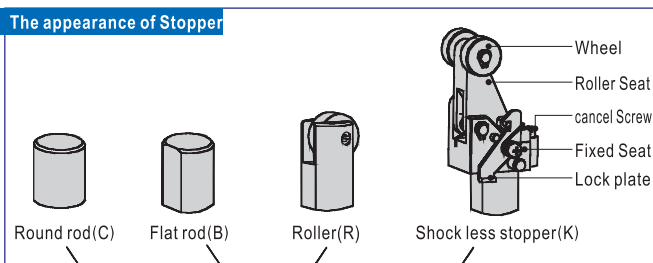
**AIRTAC**

## TWG Series

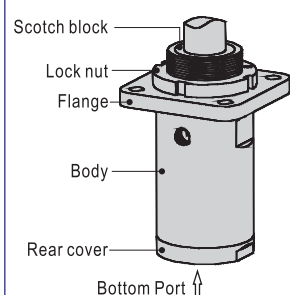
### ■ Installation and application

#### 1. Function & Operating Manual

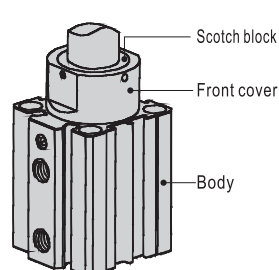
##### The appearance of Stopper



##### TWG Series appearance

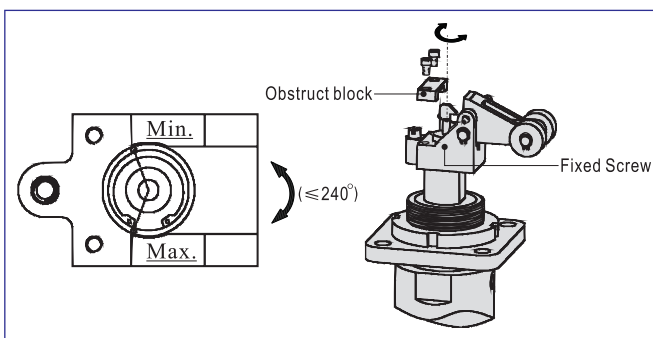


##### TWQ Series appearance



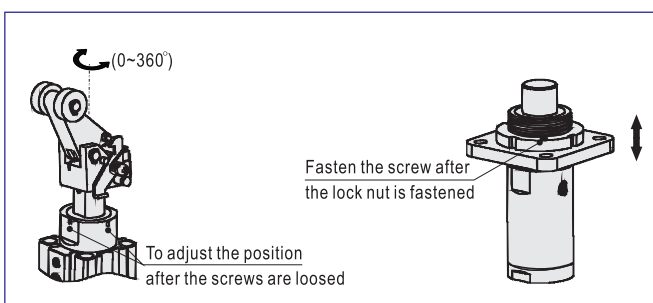
#### 2. Adjustment of Shock Absorber

- 2.1) The Shock Absorber had been adjusted before the cylinder finished.
- 2.2) The client can adjust it if necessary.
- 2.3) The steps are as following.
  - a. Loose the fixed screw.
  - b. Turn the Shock Absorber to adjust the cushion ability.
  - c. Fasten the fixed screw.



#### 3. Multi-working position

- 3.1) If the body is fixed, just to adjust the scotch block, the working direction of the cylinder will be changed.
- 3.2) For TWG series, adjusting the position of flange can be changed the working height.

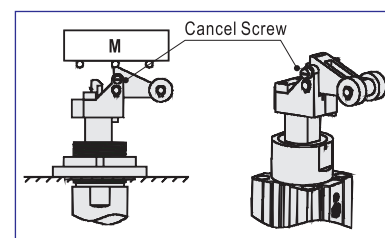


#### 4. Working Forbidden(Shock less stopper(K))

- 4.1) This function is used to cancel the stop action of the cylinder, and make the work piece pass easy.

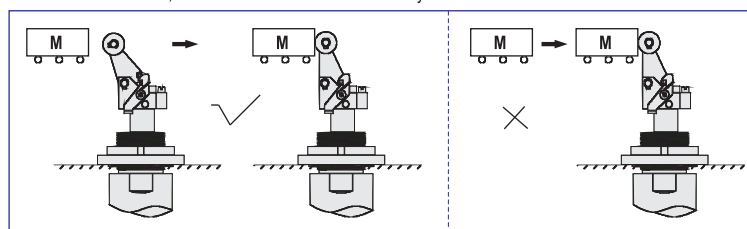
- 4.2) The steps are as following.

- a. Screw off the cancel screw from the flange.
- b. Put the roller seat down.
- c. Fasten the cancel screw in the screw hole on the fixed seat and the tail of the cancel screw should be inserted in the hole made on the roller seat.



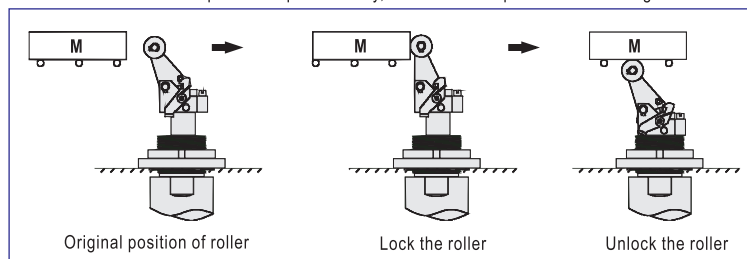
#### 5. How to use stopper function

- 5.1) When the shock absorber is impacted deeply, added impact energy must be avoided. The cylinder without shock absorber can't be impacted by load, otherwise mechanical failure may be caused.
- 5.2) The maximum impact kinetic energy acting on the piston rod can't exceed the allowable maximum values, otherwise mechanical failure may be caused.



#### 6. Self-locking

Unusually, when the stopper cylinder is operating, work piece will be rebound as the effect of shocker absorber. In order to keep the work piece steady, we have developed this self-locking device.



TW



# Stopper cylinder

## TWQ Series



### Symbol



### Product feature

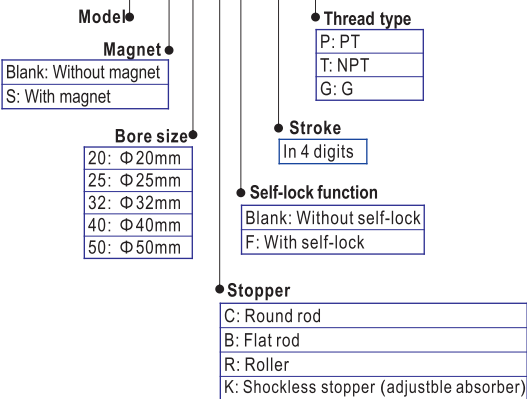
- 1. JIS standard is implemented.
- 2. Widening the piston rod can effectively improve the impact resistance ability of the cylinder.
- 3. The installation height is adjustable and several rod end modes can be selected. The stopper cylinder with shock absorber has a better cushion effect.
- 4. Shockless stopper cylinder is attached with self-lock device, which can prevent the returning of rebound of rocker caused by bar objects.
- 5. Several series and specifications for stopper cylinders can be selected.

### Ordering code

Model can be changed Ordering code. Example:  
Production type: TWQ  
Magnet: With magnet  
Bore size: 50mm  
Stroke: 30mm  
Stopper: Shockless stopper(adjustble absorber)  
Self-lock function: With self-lock  
Thread type: NPT

Model: TWQ-S-50 × 30-KF-T

Ordering code: TWQ S 50 K F 0030 T



### Specification

| Bore size(mm)             |                         | 20   | 25 | 32  | 40 | 50 |
|---------------------------|-------------------------|--|----|---|----|----|
| Fluid                     |                         | Double acting type、Single acting-pull type                   |    |   |    |    |
| Action                    |                         | Air(to be filtered by 40 μ m filter element)                 |    |   |    |    |
| Operating pressure        | Double acting type      | 0.15~1.0MPa(23~145psi)                                       |    |   |    |    |
|                           | Single acting-pull type | Φ20: 0.25~1.0MPa(35~145psi)    others: 0.2~1.0MPa(28~145psi) |    |   |    |    |
| Proof pressure            |                         | 1.5MPa(215psi)   |    |   |    |    |
| Temperature    °C         |                         | -20~80   |    |   |    |    |
| Range of stroke tolerance |                         | +1.0<br>0  |    |   |    |    |
| Cushion type              |                         | Bumper   |    |   |    |    |
| Lubrication               |                         | Non required   |    |   |    |    |
| Mounting type             |                         | Thru hole or screw hole                                      |    |   |    |    |
| Stopper type              |                         | Round rod, Flat rod/Roller                                   |    | Round rod, Flat rod/Roller, Shock less stopper(with absorber) |    |    |
| Port size    ①            |                         | M5×0.8   |    | 1/8"  |    |    |

① PT thread, NPT thread and G thread are available. Add) Refer to Page 403~426 for details of sensor switch.

### Example of model

**TWQ-S-50 × 20-K□-P**

①

**Model**

TWQ: Stopper cylinder  
(Height locked, double acting type)

TTQ: Stopper cylinder  
(Height locked, single acting-pull type)

**Thread type**

P: PT  
T: NPT  
G: G

**Magnet**

Blank: Without magnet  
S: With magnet

**Self-lock function**

Blank: Without self-lock  
F: With self-lock

**Stopper**

C: Round rod  
B: Flat rod  
R: Roller  
K: Shockless stopper (adjustble absorber)

**Bore size**

20 25 32 40 50

**Stroke**

| Bore size  | Stroke (mm) |
|------------|-------------|
| 20, 25, 32 | 10 15 20    |
| 40, 50     | 20 25 30    |

① When the thread is standard, the code is blank.



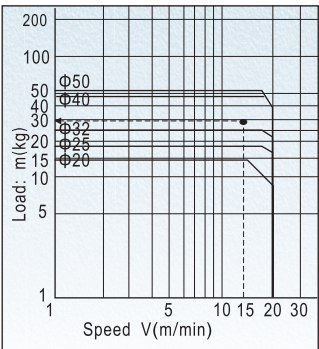
# Stopper cylinder



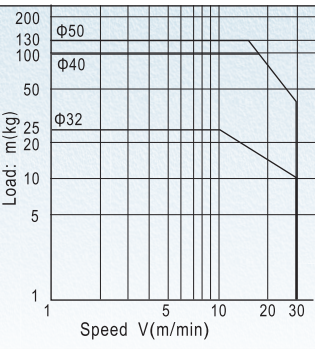
## TWQ Series

### How to select

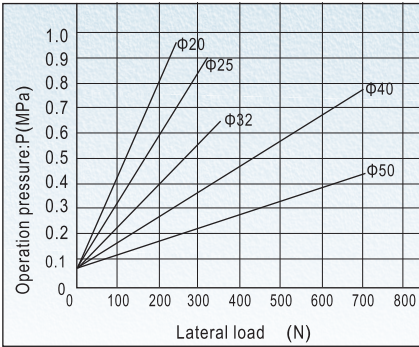
Round rod, Flat rod, roller



Shockless stopper  
(With adjustable absorber)



Lateral load & operation pressure Round rod, Flat rod, Roller

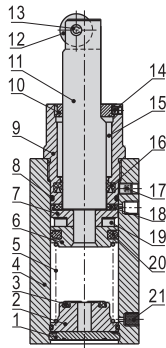


### Installation and application

Please refer to page 389 for details.

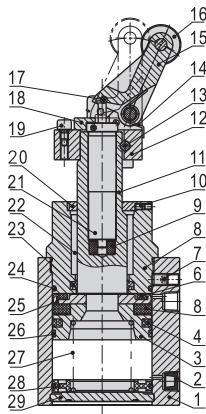
### Inner structure and material of major parts

#### TTQ-R



| No. | Item              | Material                               |
|-----|-------------------|--|
| 1   | Back cover        | Aluminum alloy                         |
| 2   | Spring holder     | Aluminum alloy                         |
| 3   | Bumper            | TPU                                    |
| 4   | Body              | Aluminum alloy                         |
| 5   | Spring            | Spring steel                           |
| 6   | Piston            | Aluminum alloy                         |
| 7   | Magnet holder     | Aluminum alloy                         |
| 8   | O-ring            | NBR                                    |
| 9   | Front cover       | Aluminum alloy                         |
| 10  | Lock ring         | Powder metallurgy                      |
| 11  | Piston rod        | Carbon steel with 20 μ m chrome plated |
| 12  | Roller            | Cast steel                             |
| 13  | Spring pin        | Spring steel                           |
| 14  | Countersink screw | Carbon steel                           |
| 15  | Sliding bushing   | Bronze powder metallurgy               |
| 16  | Packing           | NBR                                    |
| 17  | Countersink screw | Carbon steel                           |
| 18  | Bumper            | TPU                                    |
| 19  | Magnet            | Plastic                                |
| 20  | Piston seal       | NBR                                    |
| 21  | Silencer          | Sintered bronze particle               |

#### TTQ-K(Φ 32~Φ 50)



| No. | Item                         | Material                               |
|-----|------------------------------|--|
| 1   | Body                         | Aluminum alloy                         |
| 2   | Silencer                     | Sintered bronze particle               |
| 3   | Piston                       | Aluminum alloy                         |
| 4   | Piston seal                  | NBR                                    |
| 5   | Magnet                       | Plastic                                |
| 6   | Bumper                       | TPU                                    |
| 7   | Countersink screw            | Carbon steel                           |
| 8   | Front cover                  | Aluminum alloy                         |
| 9   | Absorber fix and adjust seat | POM                                    |
| 10  | Countersink screw            | Carbon steel                           |
| 11  | Piston rod                   | Carbon steel with 20 μ m chrome plated |
| 12  | Mounting seat                | Nodular cast iron                      |
| 13  | Lock pin                     | Cast steel                             |
| 14  | Torsion spring               | Spring steel                           |
| 15  | Rocker                       | Cast steel                             |
| 16  | Roller                       | Mild steel                             |
| 17  | Steel ball                   | Free cutting steel                     |
| 18  | Obstruct block               | Powder metallurgy                      |
| 19  | Cancel cap                   | Aluminum alloy                         |
| 20  | Locking cushion              | Powder metallurgy                      |
| 21  | Shock absorber               |  |
| 22  | Bushing                      | Sintered bronze particle               |
| 23  | O-ring                       | NBR                                    |
| 24  | O-ring                       | NBR                                    |
| 25  | Magnet washer                | Aluminum alloy                         |
| 26  | Bumper                       | Wear resistant material                |
| 27  | Spring                       | Spring steel                           |
| 28  | Cushion                      | POM                                    |
| 29  | Back cover                   | Aluminum alloy                         |



TW

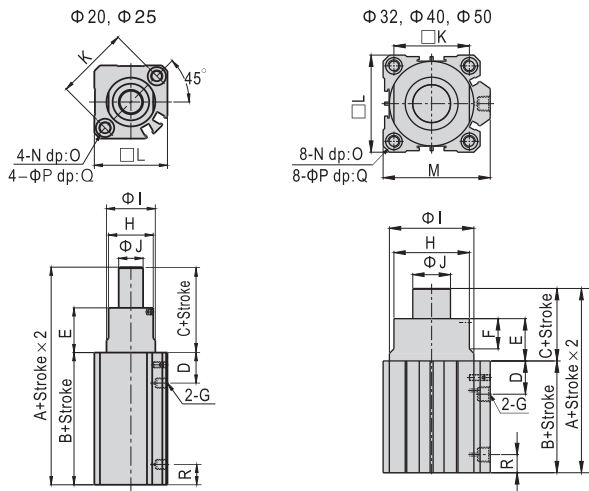
# Stopper cylinder



## TWQ Series

### ■ Dimensions

#### Round rod(TWQ-C, TTQ-C)

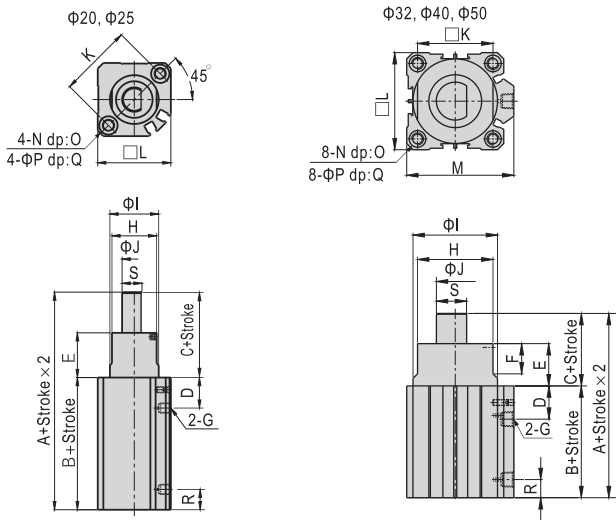


| Bore size\Item | A    | B    | C  | D    | E  | F  | G    | H  | I  |
|----------------|------|------|----|------|----|----|------|----|----|
| 20             | 67   | 45   | 22 | 16.5 | 22 | 11 | M5   | 22 | 24 |
| 25             | 68   | 48   | 20 | 18   | 20 | 15 | M5   | 28 | 30 |
| 32             | 68   | 48   | 20 | 20   | 20 | 15 | 1/8" | 34 | 36 |
| 40             | 80.5 | 52.5 | 28 | 20   | 28 | 18 | 1/8" | 41 | 44 |
| 50             | 82   | 54   | 28 | 22   | 28 | 20 | 1/8" | 50 | 56 |

| Bore size\Item | J  | K  | L  | M    | N       | O  | P  | Q | R  |
|----------------|----|----|----|------|---------|----|----|---|----|
| 20             | 12 | 36 | 36 | -    | M6×1.0  | 10 | 9  | 7 | 9  |
| 25             | 16 | 40 | 40 | -    | M6×1.0  | 10 | 9  | 7 | 9  |
| 32             | 20 | 34 | 45 | 49.5 | M6×1.0  | 10 | 9  | 7 | 10 |
| 40             | 25 | 40 | 53 | 57   | M6×1.0  | 10 | 9  | 7 | 11 |
| 50             | 25 | 50 | 64 | 71   | M8×1.25 | 14 | 11 | 8 | 12 |

Note: The type with magnet and the type without magnet have the same dimension.

#### Flat rod(TWQ-B, TTQ-B)



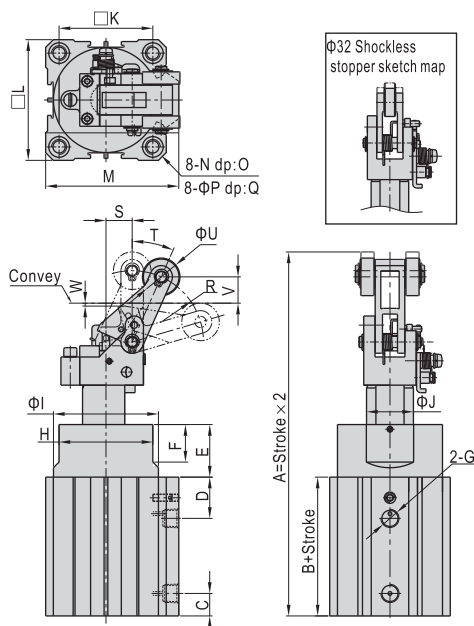
| Bore size\Item | A    | B    | C  | D    | E  | F  | G    | H  | I  | J  |
|----------------|------|------|----|------|----|----|------|----|----|----|
| 20             | 67   | 45   | 22 | 16.5 | 22 | 11 | M5   | 22 | 24 | 12 |
| 25             | 68   | 48   | 20 | 18   | 20 | 15 | M5   | 28 | 30 | 16 |
| 32             | 68   | 48   | 20 | 20   | 20 | 15 | 1/8" | 34 | 36 | 20 |
| 40             | 80.5 | 52.5 | 28 | 20   | 28 | 18 | 1/8" | 41 | 44 | 25 |
| 50             | 82   | 54   | 28 | 22   | 28 | 20 | 1/8" | 50 | 56 | 25 |

| Bore size\Item | K  | L  | M    | N       | O  | P  | Q | R  | S    |
|----------------|----|----|------|---------|----|----|---|----|------|
| 20             | 36 | 36 | -    | M6×1.0  | 10 | 9  | 7 | 9  | 10   |
| 25             | 40 | 40 | -    | M6×1.0  | 10 | 9  | 7 | 9  | 14   |
| 32             | 34 | 45 | 49.5 | M6×1.0  | 10 | 9  | 7 | 10 | 18.5 |
| 40             | 40 | 53 | 57   | M6×1.0  | 10 | 9  | 7 | 11 | 22.5 |
| 50             | 50 | 64 | 71   | M8×1.25 | 14 | 11 | 8 | 12 | 22.5 |

Note: The type with magnet and the type without magnet have the same dimension.

#### Shockless stopper (TWQ-K(F), TTQ-K(F))

Φ32, Φ40, Φ50

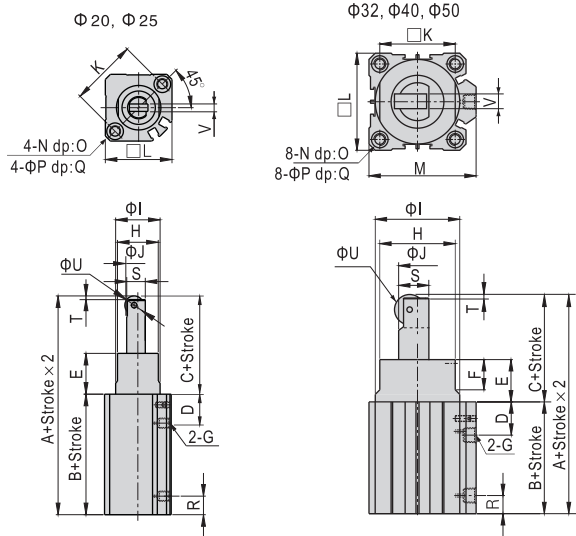


| Bore size\Item | A     | B    | C  | D  | E  | F  | G    | H  | I  | J  | K  |
|----------------|-------|------|----|----|----|----|------|----|----|----|----|
| 32             | 120.5 | 48   | 10 | 20 | 20 | 15 | 1/8" | 34 | 36 | 20 | 34 |
| 40             | 152.5 | 52.5 | 11 | 20 | 28 | 18 | 1/8" | 41 | 44 | 25 | 40 |
| 50             | 154   | 54   | 12 | 22 | 28 | 20 | 1/8" | 50 | 56 | 25 | 50 |

| Bore size\Item | L  | M    | N       | O  | P  | Q | R    | S    | T  | U  | V   | W   |
|----------------|----|------|---------|----|----|---|------|------|----|----|-----|-----|
| 32             | 45 | 49.5 | M6×1.0  | 10 | 9  | 7 | 24.5 | 11.5 | 28 | 15 | 4.4 | 1   |
| 40             | 53 | 57   | M6×1.0  | 10 | 9  | 7 | 38   | 14   | 24 | 20 | 14  | 1.6 |
| 50             | 64 | 71   | M8×1.25 | 14 | 11 | 8 | 38   | 14   | 24 | 20 | 14  | 1.6 |

Note: The type with magnet and the type without magnet have the same dimension.  
The type with self-lock and the type without self-lock have the same dimension.

#### Roller(TWQ-R, TTQ-R)



| Bore size\Item | A     | B    | C  | D    | E  | F  | G    | H  | I  | J  | K  |
|----------------|-------|------|----|------|----|----|------|----|----|----|----|
| 20             | 78    | 45   | 33 | 16.5 | 22 | 11 | M5   | 22 | 24 | 12 | 36 |
| 25             | 81    | 48   | 33 | 18   | 20 | 15 | M5   | 28 | 30 | 16 | 40 |
| 32             | 87    | 48   | 39 | 20   | 20 | 15 | 1/8" | 34 | 36 | 20 | 34 |
| 40             | 103.5 | 52.5 | 51 | 20   | 28 | 18 | 1/8" | 41 | 44 | 25 | 40 |
| 50             | 105   | 54   | 51 | 22   | 28 | 20 | 1/8" | 50 | 56 | 25 | 50 |

| Bore size\Item | L  | M    | N       | O  | P  | Q | R  | S    | T | U  | V |
|----------------|----|------|---------|----|----|---|----|------|---|----|---|
| 20             | 36 | -    | M6×1.0  | 10 | 9  | 7 | 9  | 10   | 2 | 10 | 4 |
| 25             | 40 | -    | M6×1.0  | 10 | 9  | 7 | 9  | 14   | 2 | 12 | 6 |
| 32             | 45 | 49.5 | M6×1.0  | 10 | 9  | 7 | 10 | 18.5 | 3 | 20 | 8 |
| 40             | 53 | 57   | M6×1.0  | 10 | 9  | 7 | 11 | 22.5 | 4 | 20 | 8 |
| 50             | 64 | 71   | M8×1.25 | 14 | 11 | 8 | 12 | 22.5 | 4 | 20 | 8 |

Note: The type with magnet and the type without magnet have the same dimension.

