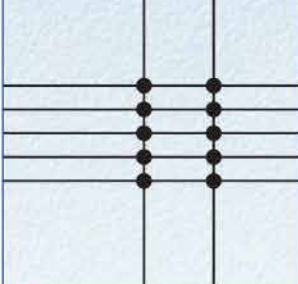

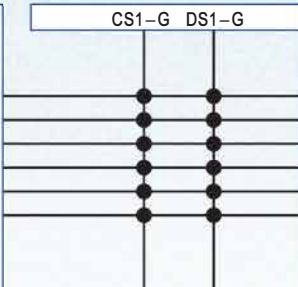





Product series

| Series name | | Acting type | Bore size | Collocation of sensor switch | |
|--|-----|---------------|---------------------------------|---|-------|
| | | | | CS1-J | DS1-J |
| TN Series | | Double acting | 10 16 20 25 32 |  | |
|  | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| TR Series | | Double acting | 6 10 16 20 25 32 |  | |
|  | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| Page | 308 | 310 | 457 | | |

Installation and application

- When load changes in the work, the cylinder with abundant output capacity shall be selected.
- Relative cylinder with high temperature resistance or corrosion resistance shall be chosen under the condition of high temperature or corrosion;
- Necessary protection measure shall be taken in the environment with higher humidity, much dust or water drops, oil dust and welding dregs.
- Dirty substances in the pipe must be eliminated before cylinder is connected with pipeline to prevent the entrance of particles into the cylinder;
- The medium used by cylinder shall be filtered to 40 μ m or below.
- As both the front cover and piston are short, too large stroke can not be selected.
- Anti-freezing measure shall be adopted under low temperature environment to prevent moisture freezing.
- The cylinder shall avoid radial load in operation to maintain the normal and extend service life.
- If the cylinder is dismantled and stored for a long time, please conduct anti-rust treatment to the surface. Anti-dust cap shall be inserted into the inlet and outlet ports. As the precision of the manufacture and guide is high, Please do not dismantle the fixed block or cylinder cover .

Criteria for selection: Cylinder thrust

Unit: Newton(N)

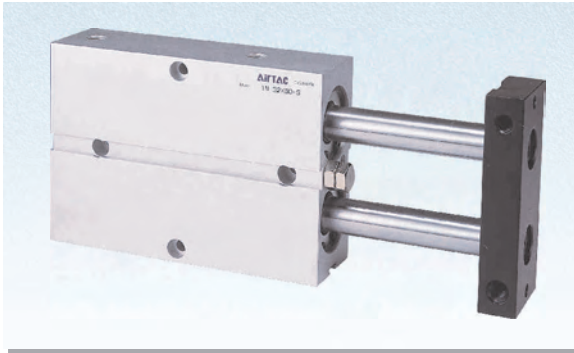
| Bore size (mm) | Rod size (mm) | Acting type | | Pressure area (mm ²) | Operating pressure(MPa) | | | | | | |
|-------------------|------------------|---------------|-----------|-------------------------------------|-------------------------|-------|-------|-------|-------|-------|--------|
| | | | | | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 |
| 6 | 4 | Double acting | Push side | 56.5 | 5.7 | 113. | 17.0 | 22.6 | 28.3 | 33.9 | 39.6 |
| | | | Pull side | 31.4 | 3.1 | 6.3 | 9.4 | 12.6 | 15.7 | 18.8 | 22.0 |
| 10 | 6 | Double acting | Push side | 157.1 | 15.7 | 31.4 | 47.1 | 62.8 | 78.6 | 94.3 | 110.0 |
| | | | Pull side | 100.5 | 10.1 | 20.1 | 30.2 | 40.2 | 50.3 | 60.3 | 70.4 |
| 16 | 8 | Double acting | Push side | 402.1 | 40.2 | 80.4 | 120.6 | 160.8 | 201.1 | 241.3 | 281.5 |
| | | | Pull side | 301.6 | 30.2 | 60.3 | 90.5 | 120.6 | 150.8 | 181.0 | 211.1 |
| 20 | 10 | Double acting | Push side | 628.3 | 62.8 | 125.7 | 188.5 | 251.3 | 314.2 | 377.0 | 439.8 |
| | | | Pull side | 471.2 | 47.1 | 94.2 | 141.4 | 188.5 | 235.6 | 282.7 | 329.8 |
| 25 | 12 | Double acting | Push side | 981.7 | 98.2 | 196.4 | 294.5 | 392.7 | 490.9 | 589.0 | 687.2 |
| | | | Pull side | 755.6 | 75.6 | 151.1 | 226.7 | 302.2 | 377.8 | 453.4 | 528.9 |
| 32 | 16 | Double acting | Push side | 1608.5 | 160.9 | 321.7 | 482.6 | 643.4 | 804.3 | 965.1 | 1126.0 |
| | | | Pull side | 1206.4 | 120.6 | 241.3 | 361.9 | 482.6 | 603.2 | 723.8 | 844.5 |



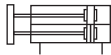
TN,TR

Twin-rod cylinder

TN Series



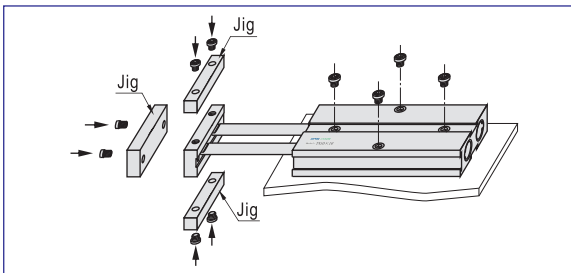
Symbol



Product feature

1. Enterprises standard is implemented.
2. Embedded installation and fixation mode saves the installation space.
3. It is good resistance to bending and twisting moments.
4. Mounting holes on three sides facilitates multi-position mounting.
5. Bumper in front of the barrel can adjust the stroke of cylinder and relieve impact.
6. Standard configuration of this series has magnet and the type without magnet is not available.

How to mount



Specification

| Bore size(mm) | 10 | 16 | 20 | 25 | 32 |
|--------------------------|--|----|--------|----|------|
| Acting type | Double acting | | | | |
| Fluid | Air(to be filtered by 40 μ m filter element) | | | | |
| Operating pressure | 0.1~1.0MPa(14~145psi) | | | | |
| Proof pressure | 1.5MPa(215psi) | | | | |
| Temperature °C | -20~70 | | | | |
| Speed range mm/s | 30~500 | | | | |
| Adjustable stroke mm | -10~0 | | | | |
| Stroke tolerance | 0~100 ^{+1.0} ₀ >100 ^{+1.5} ₀ | | | | |
| Cushion type | Bumper | | | | |
| Non-rotating tolerance ① | ± 0.4° | | ± 0.3° | | |
| Port size ② | M5 × 0.8 | | | | 1/8" |

① Retract position.

② PT thread, G thread and NPT thread are available. Add) Refer to P457~480 for detail of sensor switch.

Stroke

| Bore size (mm) | Standard stroke (mm) | | | | | | | | | | | | | | | | Max. stroke |
|----------------|----------------------|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|--|--|-------------|
| 10 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | | | | | | | 100 |
| 16 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 125 | 150 | 175 | 200 | | | 200 |
| 20 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 125 | 150 | 175 | 200 | | | 200 |
| 25 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 125 | 150 | 175 | 200 | | | 200 |
| 32 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 125 | 150 | 175 | 200 | | | 200 |

Note) 1. Please contact the company for other special strokes.

2. The dimensions of non-std stroke cylinder has the same dimensions as the next longer stroke std. stroke cylinder. e.g. 23mm stroke cylinder has the same dimensions of 25 std. stroke cylinder.

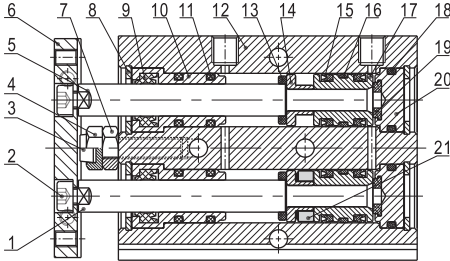
Ordering code

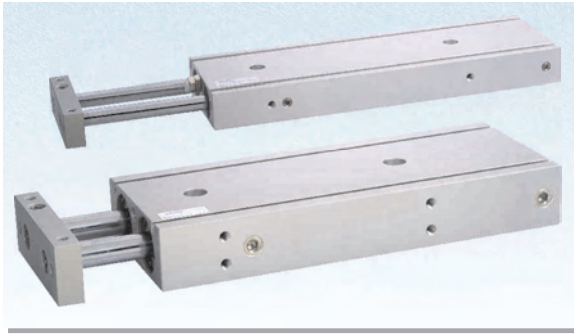
| TN 20 × 50 S | | |
|---|----------------|--|
| Model | Thread type ② | |
| TN: Twin-rod cylinder(Double acting type) | Blank: PT | |
| | G: G | |
| | T: NPT | |
| Bore size | | |
| 10 16 20 25 32 | | |
| Stroke | Magnet ① | |
| Refer to stroke table for details | S: With magnet | |

① TN Series are all with magnet.

② When the thread is standard, the code is blank.

Inner structure and material of major parts

|  | | | | | |
|--|----------------|--------------------|-----|---------------|--------------------------------------|
| NO. | Item | Material | NO. | Item | Material |
| 1 | Piston rod B | Φ 32 S45C | 12 | Body | Aluminum alloy |
| | | Other SUS304 | 13 | Bumper | TPU |
| 2 | Screw | Carbon steel | 14 | Magnet holder | Φ 10 SUS303 |
| 3 | Bumper | POM | | Other | Aluminum alloy |
| 4 | Adjustable nut | Carbon steel | 15 | Piston seal | NBR |
| 5 | Piston rod A | S45C | 16 | Wear ring | Wear resistant material |
| 6 | Fixing plate | Free cutting steel | 17 | Piston | Φ 10 SUS303 |
| 7 | Screw | Carbon steel | | Other | Aluminum alloy |
| 8 | C clip | Spring steel | 18 | Seal ring | NBR |
| 9 | Wiper seal | NBR | 19 | Bumper | TPU |
| 10 | Front cover | Aluminum alloy | 20 | Back cover | Aluminum alloy |
| 11 | O-ring | NBR | 21 | Magnet | Sintered metal(Neodymium-iron-boron) |



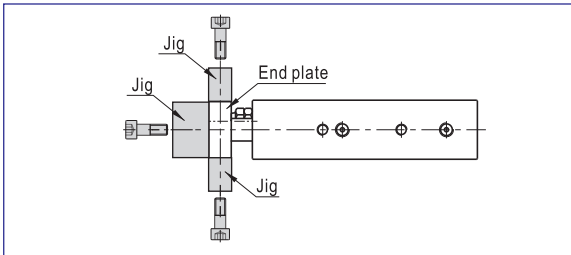
Symbol



Product feature

1. JIS standard is implemented.
2. The non-rotating precision is high and deflection of the end of piston rod is low, which is suitable for precise guide.
3. It adopts lengthening type sliding supporting guide. No additional lubricant is needed and it has good performance of guide.
4. Mounting holes on three sides facilitates multi-position mounting.
5. It is good resistance to bending and twisting moments.
6. Except for the axial, each side of the cylinder has installation orifices to provide several installation and fixation ways for the customers.
7. There are two groups of air intake and outlet at two sides of the cylinder for the actual selection.
8. Bumper in front of the barrel can adjust the stroke of cylinder and relieve impact.
9. Standard configuration of this series has magnet and the type without magnet is not available.

How to mount



Specification

| Bore size(mm) | 6 | 10 | 16 | 20 | 25 | 32 |
|--------------------------|--|---------|----|----|----|--------|
| Acting type | Double acting | | | | | |
| Fluid | Air(to be filtered by 40 μ m filter element) | | | | | |
| Operating pressure | 0.1~1.0MPa(14~145psi) | | | | | |
| Proof pressure | 1.5MPa(215psi) | | | | | |
| Temperature ℃ | -20~70 | | | | | |
| Speed range mm/s | 30~500 | | | | | |
| Adjustable stroke mm | -5~0 | | | | | |
| Stroke tolerance | 0~100 ^{+1.0} ₀ >100 ^{+1.5} ₀ | | | | | |
| Cushion type | Bumper | | | | | |
| Non-rotating tolerance ① | ± 0.2° | ± 0.15° | | | | ± 0.1° |
| Port size ② | M5 × 0.8 | | | | | 1/8" |

① Retract position.

② PT thread, G thread and NPT thread are available. Add) Refer to P457~480 for detail of sensor switch.

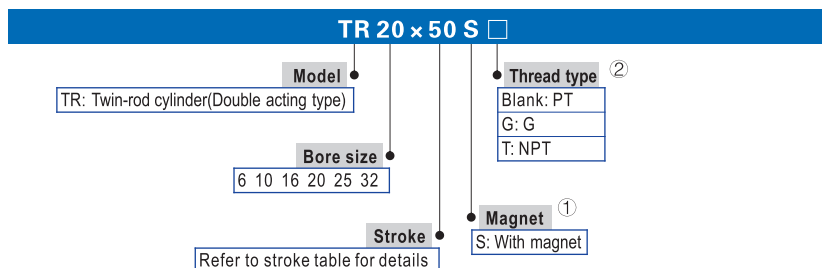
Stroke

| Bore size (mm) | Standard stroke (mm) | | | | | | | | | | | | | | | | Max. stroke |
|----------------|----------------------|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-------------|
| 6 | 10 | 20 | 25 | 30 | 40 | 50 | 60 | 70 | 75 | 80 | 90 | 100 | | | | | 50 |
| 10 | 10 | 20 | 25 | 30 | 40 | 50 | 60 | 70 | 75 | 80 | 90 | 100 | | | | | 100 |
| 16 | 10 | 20 | 25 | 30 | 40 | 50 | 60 | 70 | 75 | 80 | 90 | 100 | 125 | 150 | 175 | 200 | 200 |
| 20 | 10 | 20 | 25 | 30 | 40 | 50 | 60 | 70 | 75 | 80 | 90 | 100 | 125 | 150 | 175 | 200 | 200 |
| 25 | 10 | 20 | 25 | 30 | 40 | 50 | 60 | 70 | 75 | 80 | 90 | 100 | 125 | 150 | 175 | 200 | 200 |
| 32 | 10 | 20 | 25 | 30 | 40 | 50 | 60 | 70 | 75 | 80 | 90 | 100 | 125 | 150 | 175 | 200 | 200 |

Note) 1. Please contact the company for other special strokes.

2. The dimensions of non-std stroke cylinder has the same dimensions as the next longer stroke std. stroke cylinder. e.g. 23mm stroke cylinder has the same dimensions of 25 std. stroke cylinder.

Ordering code



① TR Series are all with magnet.

② When the thread is standard, the code is blank.

Inner structure and material of major parts

| NO. | Item | Material | | NO. | Item | Material | |
|-----|--------------|--------------------|---|-----|-------------------|-----------------|--------------------------|
| 1 | Screw | Carbon steel | | 10 | Piston | Φ 6,10 Other | SUS304 Aluminum alloy |
| 2 | Fixing plate | Aluminum alloy | | 11 | Wear ring | Nylon 6 | |
| 3 | Bumper | POM | | 12 | Back cover | Aluminum alloy | |
| 4 | Screw | Free cutting steel | | 13 | Bumper | TPU | |
| 5 | Nut | Carbon steel | | 14 | Piston seal | NBR | |
| 6 | Piston rod | Φ 25,32 Other | Carbon steel SUS304 | 15 | Magnet holder | Φ 6,10 Other | SUS304 Aluminum alloy |
| 7 | C clip | Spring steel | | 16 | Screw | Carbon steel | |
| 8 | Front cover | Aluminum alloy | | 17 | Body | Aluminum alloy | |
| 9 | Magnet | Φ 32 Other | Plastic Sintered metal(Neodymium-iron-boron) | 18 | Back cover O-ring | NBR | |
| | | | | 19 | Wiper seal | NBR | |

