



# Twin-rod cylinder—TN、TR Series

## Installation and application

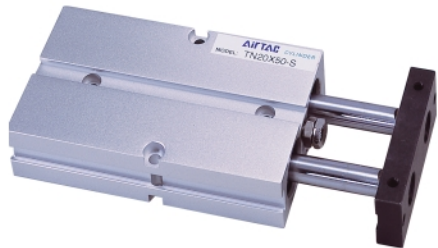

- 1、When load changes in the work, the cylinder with abundant output capacity shall be selected;
- 2、Relative cylinder with high temperature resistance or corrosion resistance shall be chosen under the condition of high temperature or corrosion;
- 3、Necessary protection measure shall be taken in the environment with larger humidity, much dust or water drops, oil dust and welding dregs;
- 4、Dirty substances in the pipe must be cleared away before cylinder is connected with pipeline to prevent the entrance of sundries into the cylinder;
- 5、The medium used by cylinder shall be filtered by the filter core of above 40um;
- 6、As both of the front cover and piston of the cylinder are short, typically too large stroke can not be selected;
- 7、Anti-freezing measure shall be adopted under low temperature environment to prevent moisture freezing;
- 8、The cylinder shall avoid the influence of side load in operation to maintain the normal work of cylinder and extend the service life;
- 9、If the cylinder is dismantled and stored for a long time, please conduct anti-rust treatment to the surface. Anti-dust cap shall be jam in air intake and outlet orifices. As the precision of the manufacture and guide is high, never dismantle the fixed block or cylinder cover without permission.

## Criteria for selection: Cylinder thrust

Unit: Newton ( N )

Bore size(mm)	Rod size (mm)	Acting type	Pressure area(mm <sup>2</sup> )	Operating pressure MPa						
				0.1	0.2	0.3	0.4	0.5	0.6	0.7
6	4	Double acting	56.5	5.7	11.3	17.0	22.6	28.3	33.9	39.6
		Push-side	31.4	3.1	6.3	9.4	12.6	15.7	18.8	22.0
10	6	Double acting	157.1	15.7	31.4	47.1	62.8	78.5	94.2	110.0
		Push-side	100.5	10.1	20.1	30.2	40.2	50.3	60.3	70.4
16	8	Double acting	402.1	40.2	80.4	120.6	160.8	201.1	241.3	281.5
		Push-side	301.6	30.2	60.3	90.5	120.6	150.8	181.0	211.1
20	10	Double acting	628.3	62.8	125.7	188.5	251.3	314.2	377.0	439.8
		Push-side	471.2	47.1	94.2	141.4	188.5	235.6	282.7	329.9
25	12	Double acting	981.7	98.2	196.3	294.5	392.7	490.9	589.0	687.2
		Push-side	755.6	75.6	151.1	226.7	302.2	377.8	453.3	528.9
32	16	Double acting	1608.5	160.8	321.7	482.5	643.4	804.2	965.1	1125.9
		Push-side	1206.4	120.6	241.3	361.9	482.5	603.2	723.8	844.5

## Product series

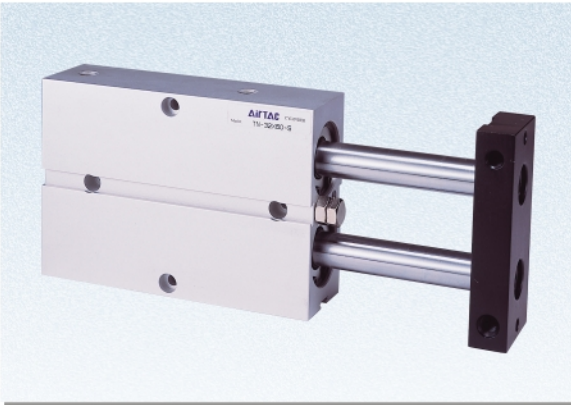
TN Series						Page	
						VI-10	
TR Series						Page	
					VI-12		
Acting type	Double acting					Double acting	
Bore size	10	16	20	25	32	6 10 16 20 25 32	
Collocation of sensor switch	CS1-J	●	●	●	●	●	VI-39
	CS1-JX	●	●	●	●	●	
	CS1-JN	●	●	●	●	●	
	CS1-JP	●	●	●	●	●	
	CS1-G	●	●	●	●	●	
	CS1-GX	●	●	●	●	●	
	CS1-GN	●	●	●	●	●	
	CS1-GP	●	●	●	●	●	





# Twin-rod cylinder

## TN Series



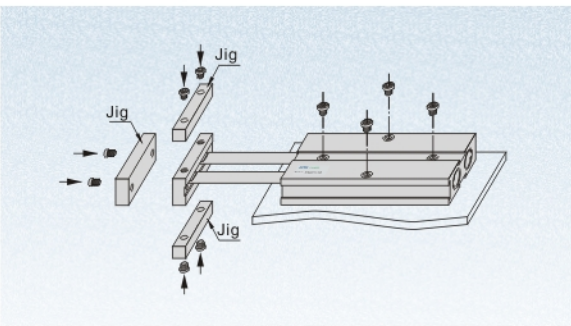
### Symbol



### Product feature

1. Enterprises standard is implemented;
2. Embedded installation and fixation mode saves the installation space;
3. It has good performance of bend and rotating resistance, which can bear certain radial load;
4. Three sides of the fixation plate have installation orifices, which is convenient to add load in multi-position;
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 type				
Fluid	Air(to be filtered by 40um 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	+1.0 0				
Cushion type	Bumper				
Non-rotating tolerance ①	± 0.4°				± 0.3°
Port size ②	M5 x 0.8			1/8"	

- ① The non-rotating precision is the returnable angle of fixation plate of the cylinder in completely drawing back situation;
- ② PT thread, NPT thread and PT thread are available; In addition, TN series are all attached with magnet. Please refer to PVI-39-VI-50 for the specific content 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		
25		
32		

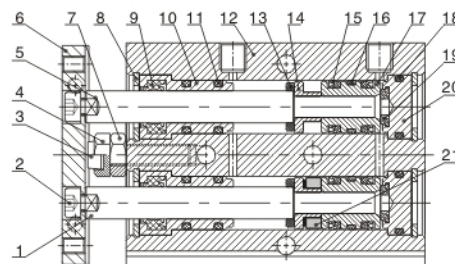
- Note: 1. Within allowable stroke scope, when the stroke is larger than the maximum value, it shall be treated as non-standard one. Please contact the company for other special strokes.
2. The non-standard stroke within the scope of maximum stroke is transformed according to the standard stroke of the upper grade and its shape and dimension are equal to that of standard stroke cylinder of the upper grade. For instance, the non-standard stroke cylinder whose stroke is 28 is transformed from the standard cylinder whose standard stroke is 30, and their shape and dimension are the same.

### Ordering code

TN		20 × 50		S		P	
Model	Bore size	Stroke	Magnet ①	Thread type ②			
TN: Twin-rod cylinder(Double acting type)			S: With magnet	P: PT	T: NPT	G: G	

- ①: TN Series are all with magnet.  
②: When the thread is M5, the code is blank.

### Inner structure and material of major parts



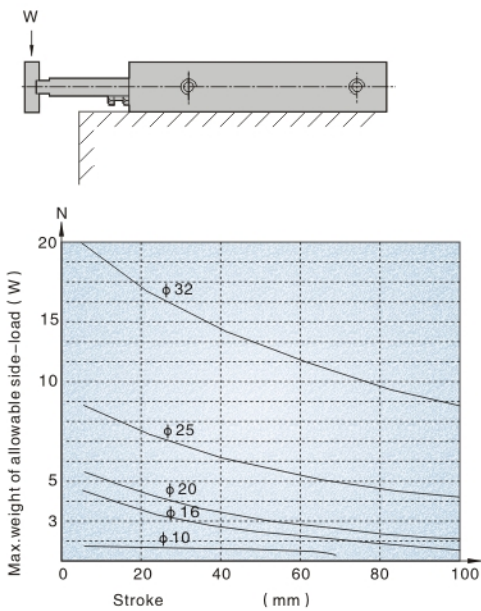
NO.	Item\Bore size	10	16	20	25	32
1	Piston rod B	SUS304 with 20um hard chrome plated				Carbon steel with 20um hard chrome plated
2	Screw	Carbon steel				
3	Bumper	TPU				
4	Adjustable nut	Free cutting steel				
5	Piston rod A	Carbon steel with 20um hard chrome plated				
6	Fixing plate	Free cutting steel				
7	Screw	Carbon steel				
8	C clip	Spring steel				
9	Front cover packing	NBR				
10	Front cover	Aluminum alloy				
11	O-ring	NBR				
12	Body	Aluminum alloy				
13	Bumper	TPU				
14	Magnet holder	SUS303	Aluminum alloy			
15	Piston O-ring	NBR				
16	Wear ring	Wear resistant material				
17	Piston	SUS303	Aluminum alloy			
18	Back cover packing	NBR				
19	Bumper	TPU				
20	Back cover	Aluminum alloy				
21	Magnet	Sintered metal(Neodymium-iron-boron)				



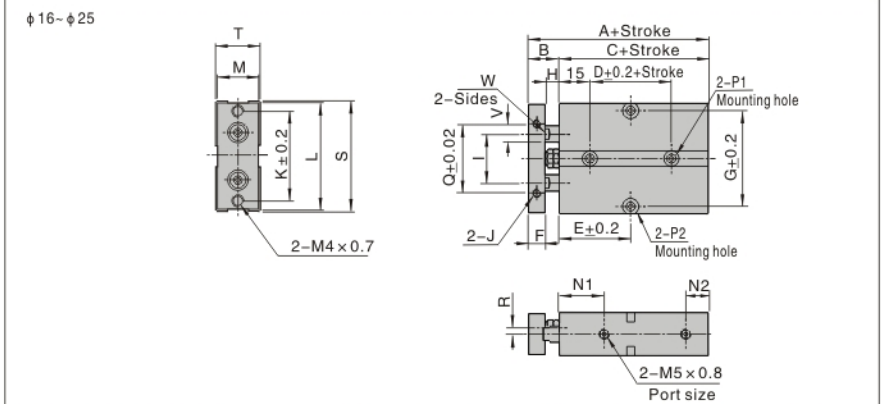
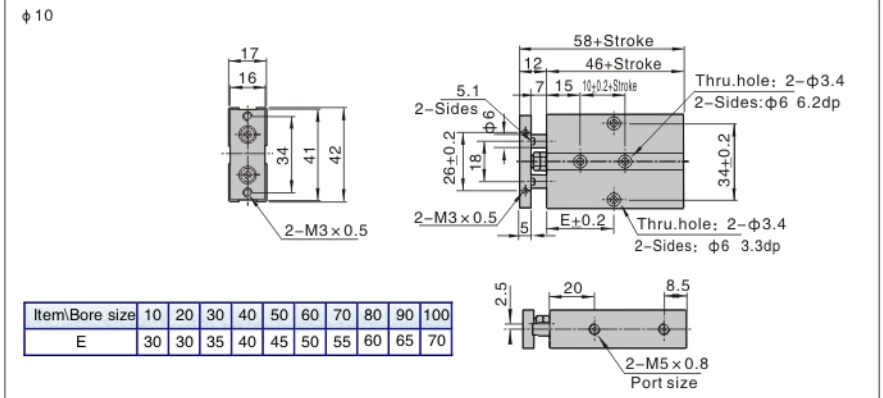
# Twin-rod cylinder

## TN Series

### Max. weight of allowable side-load



### Dimensions



Item Bore size	A	B	C	D	Stroke ≤	10	20	30	40	50	60	70	80	90	100	125	150	175	200	F	G
16	68	15	53	20	E	30	35	40	45	50	55	60	65	70	75	87.5	100	112.5	125	8	47
20	78	20	58	20		35	35	40	45	50	55	60	65	70	75	87.5	100	112.5	125	10	55
25	81	19	62	30		40	40	45	50	55	60	65	70	75	80	92.5	105	117.5	130	10	66

Item Bore size	H	I	J	K	L	M	N1	N2	P1	P2	Q	R	S	T	V	W
16	7	24	M4 x 0.7 dp5	47	53	20	22	11	2-Sides: Φ7.5 dp7.2mm Thru.hole: Φ4.5	2-Sides: Φ8 dp 4.5mm Thru.hole: Φ4.5	34	3	54	21	8	6.1
20	10	28	M4 x 0.7 dp 5	55	61	24	25	12	2-Sides: Φ7.5 dp7.2mm Thru.hole: Φ4.5	2-Sides: Φ8 dp 4.5mm Thru.hole: Φ4.5	44	3.5	62	25	10	8.1
25	9	34	M4 x 0.7 dp 6	66	72	29	27	12	2-Sides: Φ7.5 dp7.2mm Thru.hole: Φ4.5	2-Sides: Φ8 dp4.5mm Thru.hole: Φ4.5	56	6	73	30	12	10.1

