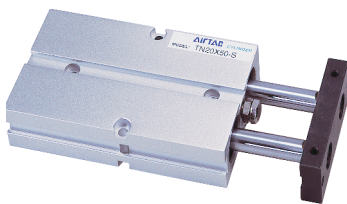




Twin-rod cylinder——TN, TR Series

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	CS1-G DS1-G		
			6	●	●
			10	●	●
			16	●	●
			20	●	●
			25	●	●
			32	●	●
Page	298	300	403		



TN,TR

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 40 μ m.
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)

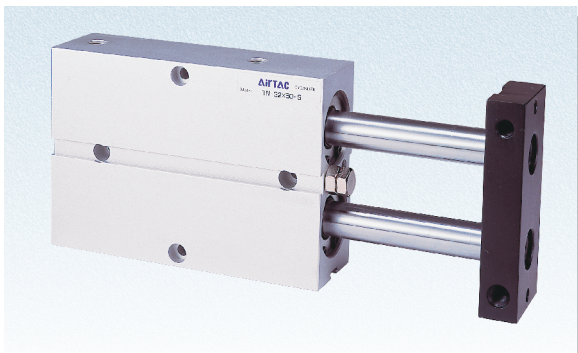
Bore size (mm)	Rod size (mm)	Acting type		Pressure area (mm ²)	Operating pressure(MPa)						
					0.1	0.2	0.3	0.4	0.5	0.6	0.7
6	4	Double acting	Push side	56.5	5.7	113.	17.0	22.6	28.3	33.9	39.6
			Pull side	31.4	3.1	6.3	9.4	12.6	15.7	18.8	22.0
10	6	Double acting	Push side	157.1	15.7	31.4	47.1	62.8	78.6	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



Twin-rod cylinder

AIRTAC

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.



TN,TR

Ordering code

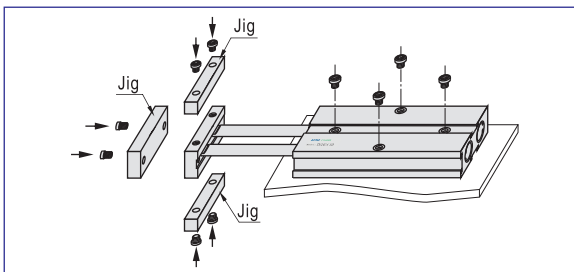
Model can to be changed Ordering code. Example:
 Production type: TN
 Bore size: 32mm
 Stroke: 175mm
 Magnet: With magnet
 Thread type: NPT

Model: TN-32 x 175-S-T

Ordering code: TN 32 S 0175 T

Model	Thread type
Bore size 10: Φ 10mm 16: Φ 16mm 20: Φ 20mm 25: Φ 25mm 32: Φ 32mm	P: PT T: NPT G: G
Stroke 不足四碼前面補0	
Magnet S: With magnet	

How to mount



Specification

Bore size(mm)	10	16	20	25	32
Acting type	Double acting				
Fluid	Air(to be filtered by 40 μm 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 G thread are available. Add) Refer to P403~426 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. 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.

Explain of model

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

① TN Series are all with magnet.

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

Inner structure and material of major parts

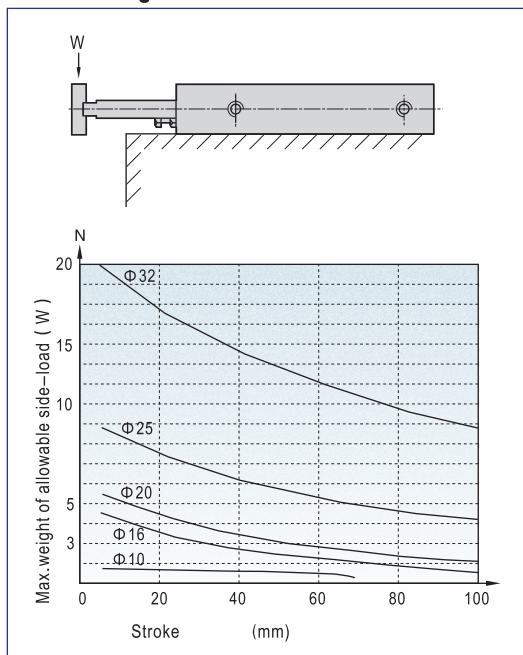
NO.	Item	Material	NO.	Item	Material
1	Piston rod B	Φ 32 S45C Other SUS304	12	Body	Aluminum alloy
2	Screw	Carbon steel	13	Bumper	TPU
3	Bumper	POM	14	Magnet holder	Φ 10 SUS303 Other Aluminum alloy
4	Adjustable nut	Carbon steel	15	Piston O-ring	NBR
5	Piston rod A	S45C	16	Wear ring	Wear resistant material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

Twin-rod cylinder

AirTAC

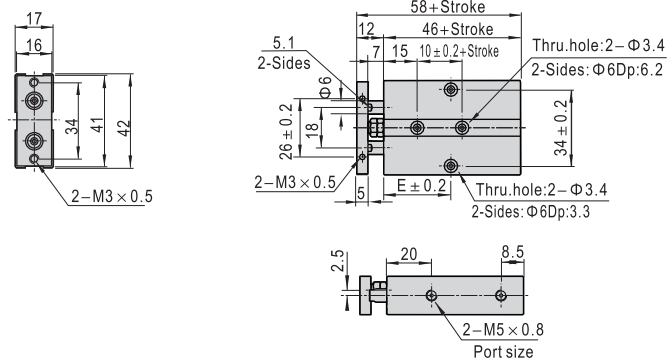
TN Series

Max. weight of allowable side-load



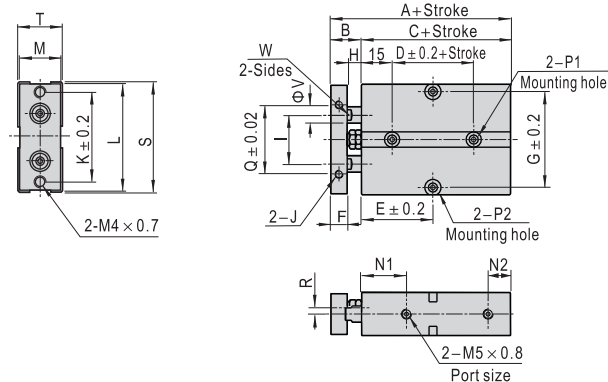
Dimensions

Φ10



Item\Stroke	10	20	30	40	50	60	70	80	90	100
E	30	30	35	40	45	50	55	60	65	70

Φ16~Φ25

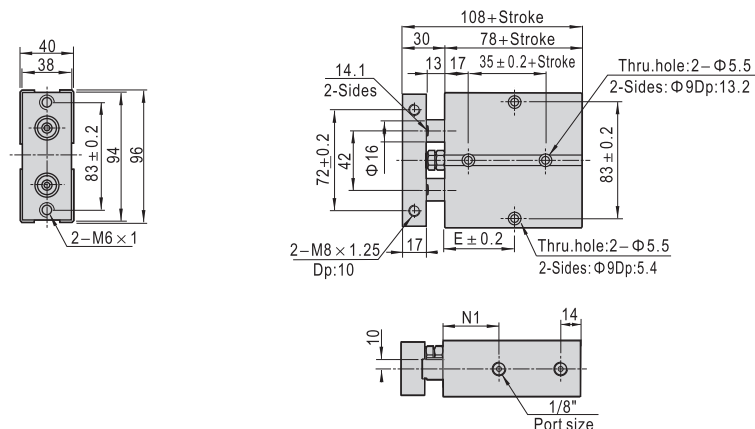


Bore size\Item Stroke≤	E																				F	G	H	I	K
	A	B	C	D	10	20	30	40	50	60	70	80	90	100	125	150	175	200							
16	68	15	53	20	30	35	40	45	50	55	60	65	70	75	87.5	100	112.5	125	8	47	7	24	47		
20	78	20	58	20	35	35	40	45	50	55	60	65	70	75	87.5	100	112.5	125	10	55	10	28	55		
25	81	19	62	30	40	40	45	50	55	60	65	70	75	80	92.5	105	117.5	130	10	66	9	34	66		

Bore size\Item	J	L	M	N1	N2	P1
16	M4×0.7Dp:5	53	20	22	11	2-Sides: Φ7.5Dp:7.2Thru.hole: Φ4.5
20	M4×0.7Dp:5	61	24	25	12	2-Sides: Φ7.5Dp:7.2Thru.hole: Φ4.5
25	M4×0.7Dp:6	72	29	27	12	2-Sides: Φ7.5Dp:7.2Thru.hole: Φ4.5

Bore size\Item	P2	Q	R	S	T	V	W
16	2-Sides: Φ8Dp:4.5Thru.hole: Φ4.5	34	3	54	21	8	6.1
20	2-Sides: Φ8Dp:4.5Thru.hole: Φ4.5	44	3.5	62	25	10	8.1
25	2-Sides: Φ8Dp:4.5Thru.hole: Φ4.5	56	6	73	30	12	10.1

Φ32



Item\Stroke	10	20	30	40	50	60	70	80	90	100	125	150	175	200
E	45	50	55	60	65	70	75	80	85	90	102.5	115	127.5	140
N1	35	40												

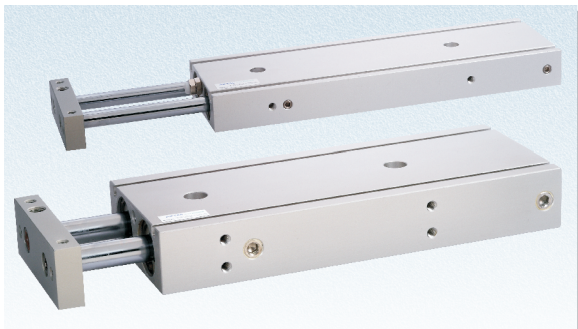


TN,TR

Twin-rod cylinder

AIRTAC

TR Series



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. Three sides of the fixation plate have installation orifices, which is convenient to add load in multi-position.
5. It has good performance of bend and rotating resistance, which can bear certain radial load.
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.



TN,TR

Ordering code

Model can to be changed Ordering code. Example:

Production type: TR

Bore size: 32mm

Stroke: 175mm

Magnet: With magnet

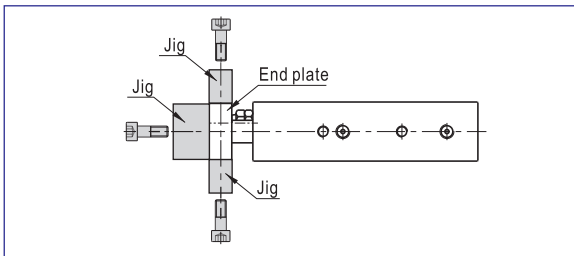
Thread type: NPT

Model: TR-32 × 175-S-T

Ordering code: TR 32 S 0175 T

Model	Thread type
● Bore size	P: PT
06: Φ6mm	T: NPT
10: Φ10mm	G: G
16: Φ16mm	
20: Φ20mm	
25: Φ25mm	
32: Φ32mm	
● Stroke	
不足四碼前面補0	
● Magnet	
S: With magnet	

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	+1.0 0					
Cushion type	Bumper					
Non-rotating tolerance ①	± 0.2°	± 0.15°				± 0.1°
Port size ②	M5 × 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 G thread are available. Add) Refer to P403~426 for detail of sensor switch.

Stroke

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

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.

Explain of model

TR-20 × 50-S-P	
Model	② Thread type
TR: Twin-rod cylinder(Double acting type)	P: PT
	T: NPT
	G: G
Bore size	① Magnet
6 10 16 20 25 32	S: With magnet
Stroke	
Refer to stroke table for details	

① TR Series are all with magnet.

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

Inner structure and material of major parts

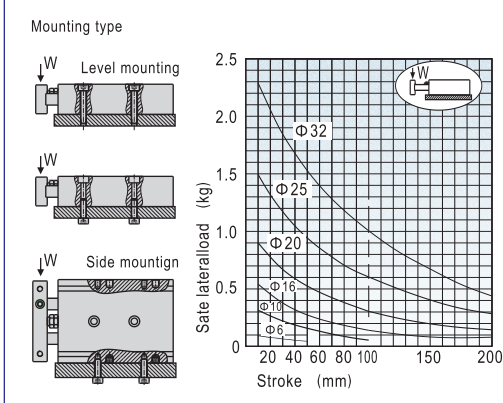
NO.	Item	Material	NO.	Item	Material
1	Screw	Carbon steel	10	Piston	Φ6,10 SUS304
2	Fixing plate	Aluminum alloy		Other	Aluminum alloy
3	Bumper	POM	11	Wear ring	Nylon 6
4	Screw	Free cutting steel	12	Back cover	Aluminum alloy
5	Nut	Carbon steel	13	Bumper	TPU
6	Piston rod	Φ25,32 Carbon steel	14	Piston O-ring	NBR
	Other	SUS304	15	Magnet holder	Φ6,10 SUS304
7	C clip	Spring steel		Other	Aluminum alloy
8	Front cover	Aluminum alloy	16	Screw	Carbon steel
9	Magnet	Φ32 Plastic	17	Body	Aluminum alloy
	Other	Sintered metal(Neodymium-iron-boron)	18	Back cover O-ring	NBR
			19	Back cover packing	NBR

Twin-rod cylinder

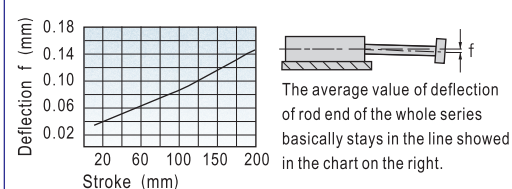
AirTAC

TR Series

Max. weight of allowable side-load

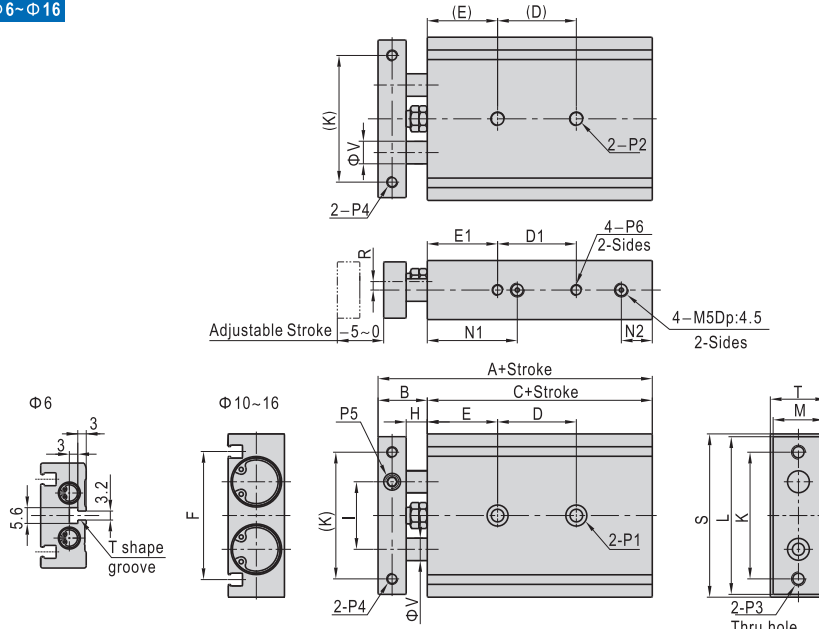


Safe deflection



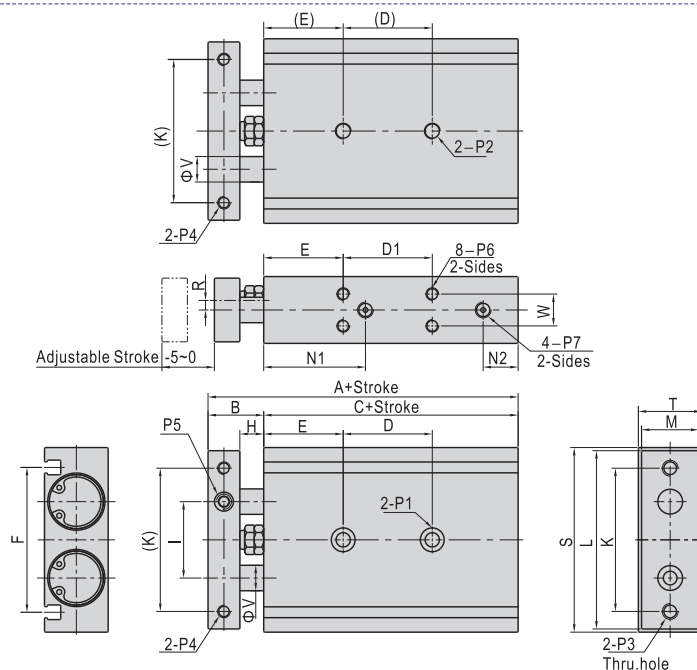
Dimensions

Φ6~Φ16



Bore size\Item Stroke	A	B	C	D D1																		
				10~25	30~50	60~80	90~100	125	150	175	200	E	E1	F	H	I	K	L	M	N1	N2	
6	58.5	13.5	45	D=10+Stroke/2 D1=13+Stroke		-	-	-	-	-	-	-	13	10	25.8	8	16	28	35	14	24.5	6.5
10	72	17	55	30	40	50	60	-	-	-	-	-	20	20	36.5	9	20	35	44	15	30	8
16	79	19	60	25	35	45	55	65	75	145	145	30	30	46.5	9	25	45	56	18	38	8	
Bore size\Item	R	S	T	V	P1					P2		P3	P4	P5		P6						
6	4.5	37	16	4	One-side: Φ 6.5Dp:3.3Thru.hole: Φ 3.4					-		M3×0.5	M3×0.5Thru.hole	M3×0.5	M3×0.5Dp:4.5							
10	3.5	46	17	6	One-side: Φ 6.5Dp:3.3Thru.hole: Φ 3.4					M4×0.7Dp:7		M4×0.7	M3×0.5Thru.hole	M5×0.8	M3×0.5Dp:5							
16	5	58	20	8	One-side: Φ 8.0Dp:4.4Thru.hole: Φ 4.3					M5×0.8Dp:8		M5×0.8	M4×0.7Thru.hole	M6×1.0	M4×0.7Dp:5							

Φ20~Φ32



Bore size\Item Stroke	A	B	C	D D1												E	F	H	I	K	L	M	N1	N2	R	S	T	V
				10~25	30~50	60~100	125	150	175	200																		
20	94	24	70	30	40	60	80	80	100	100	30	52	12	28	50	62	23	46	9	6.5	64	25	10					
25	96	24	72	30	40	60	80	80	100	100	30	61	12	35	60	78	28	43	9	9	80	30	12					
32	112	30	82	40	50	70	90	90	110	110	30	73	14	44	75	96	36	53	10	11.5	98	38	16					
Bore size\Item	W	P1					P2					P3	P4	P5	P6	P7												
20	9.5	One-side: Φ 9.5Dp:5.3Thru.hole: Φ 5.2					M6×1.0Dp:10					M5×0.8	M4×0.7Dp:6	M8×1.25	M4×0.7Dp:7	M5×0.8												
25	13	One-side: Φ 11Dp:6.3Thru.hole: Φ 6.8					M8×1.25Dp:12					M6×1.0	M5×0.8Dp:7.5	M8×1.25	M5×0.8Dp:7	1/8"												
32	20	One-side: Φ 11Dp:6.3Thru.hole: Φ 6.8					M8×1.25Dp:12					M6×1.0	M5×0.8Dp:8	M10×1.5	M5×0.8Dp:7	1/8"												



TN,TR

Note



TN,TR