







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

Product series

Series	Acting type	Bore size	Collocation of sensor switch			
			CS1-J	DS1-J	CS1-G	DS1-G
 TWH	Double acting Single acting-Pull type	20	●	●	●	●
		25	●	●	●	●
 TWM	Double acting Single acting-Pull type	32	●	●	●	●
		40	●	●	●	●
		50	●	●	●	●
		63	●	●	●	●
		80	●	●	●	●
		50	●	●	●	●
 TWG	Double acting Single acting-Pull type	CS1-T DS1-T				
		32	●	●	●	●
		40	●	●	●	●
 TWQ	Double acting Single acting-Pull type	CS1-J DS1-J CS1-G DS1-G				
		20	●	●	●	●
		25	●	●	●	●
		32	●	●	●	●
		40	●	●	●	●
		50	●	●	●	●

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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 μ m 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



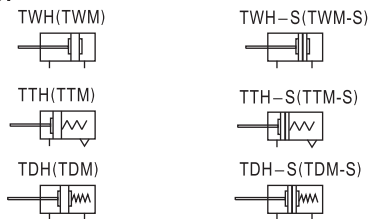
Stopper cylinder



TWH, TWM Series



Symbol



Product feature

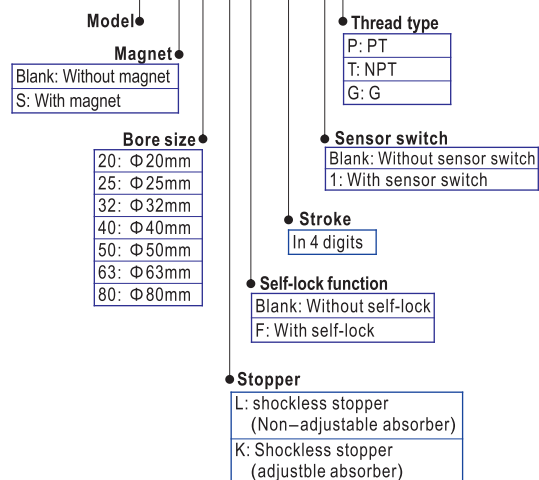
- JIS standard is implemented.
- Widening the piston rod can effectively improve the impact resistance ability of the cylinder.
- Heavy type stopper cylinder has shock absorber adjustable shock absorber, which can reliably absorb the impact energy.
- Shockless stopper cylinder is equipped with self-lock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

Ordering code

Model can 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 x 30-KF-1-T

Ordering code: TWH S 50 K F 0030 1 T



Specification

Series	TWH						TWM	
	20	25	32	40	50	63	80	50
Bore size(mm)	Air(to be filtered by 40 μ m filter element)							
Fluid	Air(to be filtered by 40 μ m filter element)							
Action	Double acting type, Single acting-pull type							
Operating pressure	0.15~1.0MPa(23~145psi)							
Single acting-pull type	Φ 20:0.25~1.0MPa(35~145psi) Others:0.2~1.0MPa(28~145psi)							
Proof pressure	1.5MPa(215psi)							
Temperature $^{\circ}$ C	-20~80							
Range of stroke tolerance	+1.0 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 x 0.8		1/8"		1/4"		1/8"	
Sensor's thread	M5 x 0.5				M8 x 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

TWH-S-50 x 30-K□-1-P

Model	Stopper
TWH: Stopper cylinder(Double acting type)	L: shockless stopper (Non-adjustable absorber)
TDH: Stopper cylinder (Built-in spring double acting type)	
TTH: Stopper cylinder(Single acting-Pull type)	K: Shockless stopper (adjustable absorber)
TWM: Stopper cylinder(Double acting type)	
TDM: Stopper cylinder (Built-in spring double acting type)	
TTM: Stopper cylinder(Single acting-Pull type)	K: Shockless stopper (adjustable absorber)

Thread type
 P: PT
 T: NPT
 G: G

Sensor switch
 Blank: Without sensor switch
 1: With sensor switch

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

Magnet
 Blank: Without magnet
 S: With magnet

Bore size

Model	Bore size
TWH, TDH, TTH	20 25 32 40 50 63 80
TWM, TDM, TTM	50

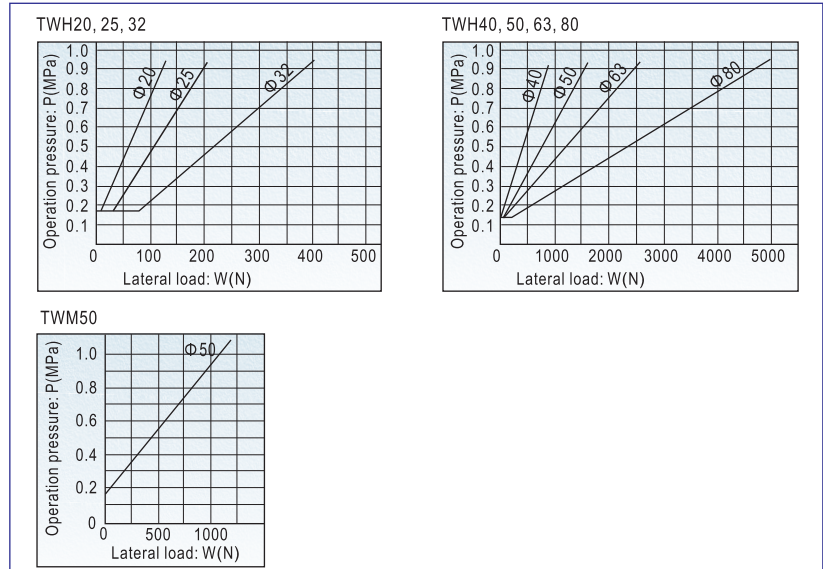
Stroke

Bore size	Standard stroke (mm)
20, 25	15
32	20
40, 50, 63	30
80	40

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

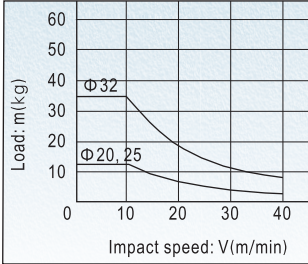


TWH, TWM Series

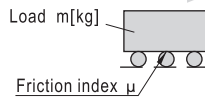
How to select

Drawing I

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



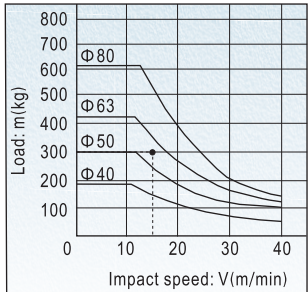
Impact speed v [m/min]



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 $\mu = 0.1$



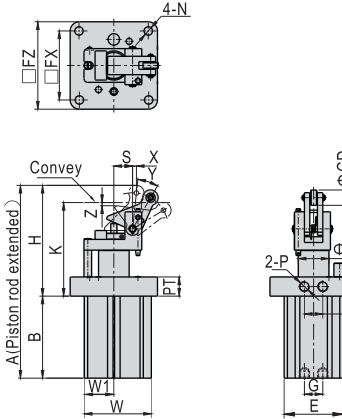
Selection way:

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.

Dimensions

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

$\Phi 20, \Phi 25$



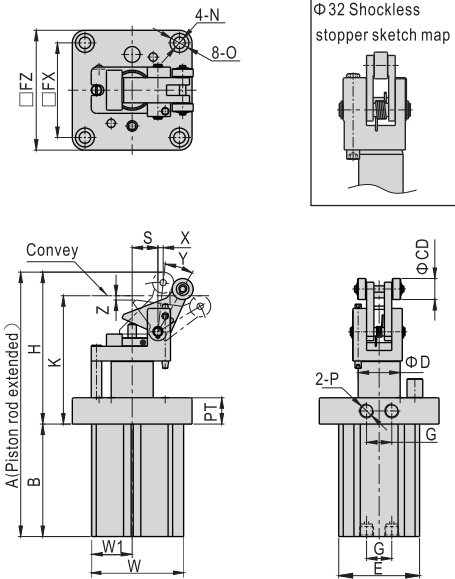
Bore size\Item	A	B	CD	D	E	PT	FX	FZ	G	H
20	129	55	12	16	36	8	40	48	12	74
25	135.5	57.5	12	16	40	12	47	58	16	78

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))

$\Phi 32 - \Phi 80$



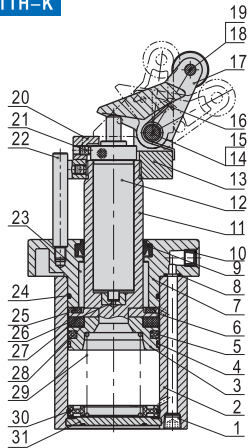
Bore size\Item	A	B	CD	D	E	PT	FX	FZ	G	H
32	152.5	65.5	12	20	46	16	53	67	16	87
40	191	79	20	25	53	16	65	82	16	112
50	211	83	20	32	64	20	73	93	18	128
63	245.5	101	20	40	77	25	90	114	24	144.5
80	299.5	128	25	50	98	25	110	138	30	171.5

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.

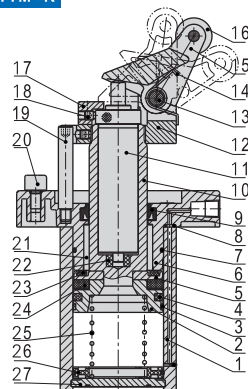
Inner structure and material of major parts

TTH-K



No.	Item	Material	No.	Item	Material
1	Countersink screw	Carbon steel	17	Rocker	Cast steel\ 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			



TW



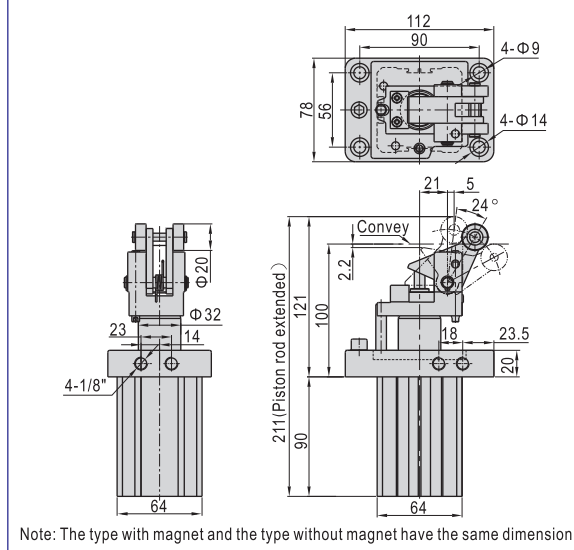
Stopper cylinder

AIRTAC

TWH, TWM Series

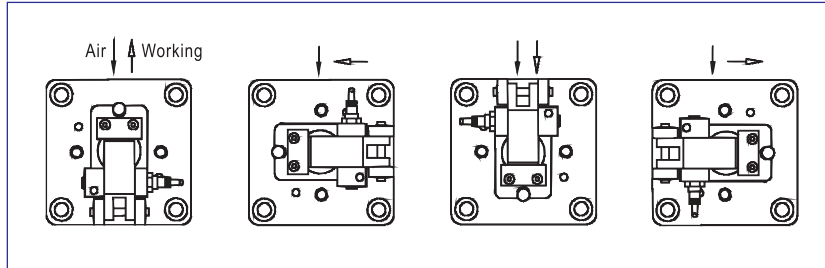
Dimensions

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



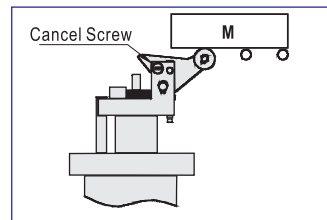
3. Multi-working position

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.

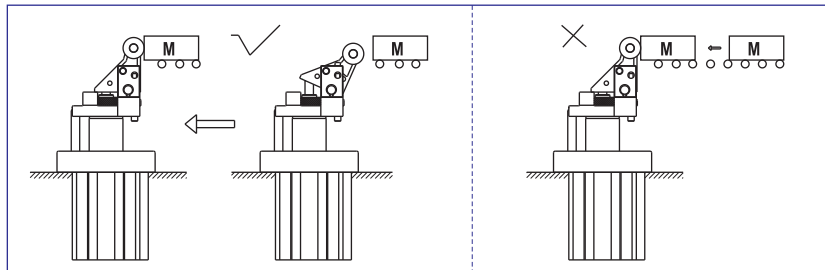
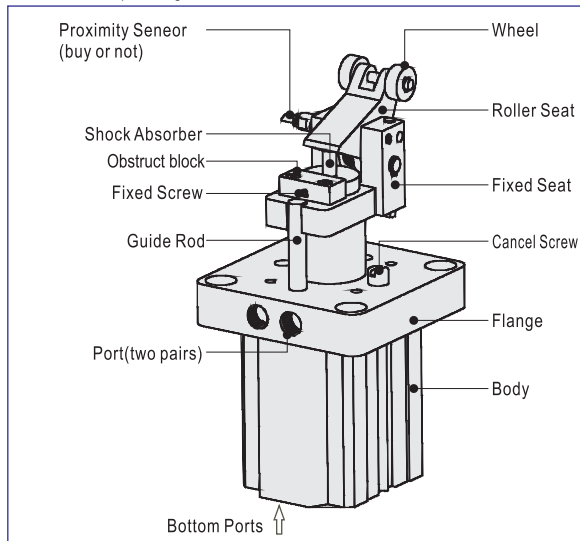


5. How to use stopper function

- 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.

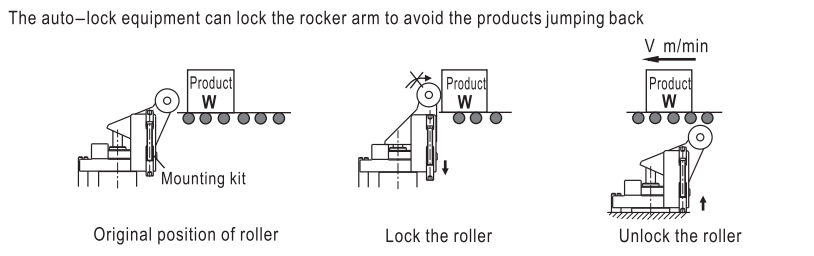
Installation and application

1. Function & Operating Manual



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.

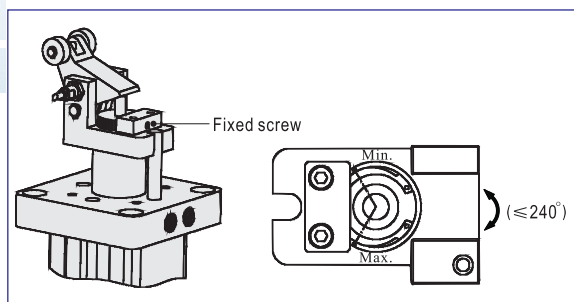


2. Adjustment of Shock Absorber

- 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.



TW



Stopper cylinder



TWG Series



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 °C	-20~80		
Range of stroke tolerance	+1.0 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

- JIS standard is implemented.
- Widening the piston rod can effectively improve the impact resistance ability of the cylinder.
- 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.
- Shockless stopper cylinder is attached with self-lock device, which can prevent the returning of rebound of rocker caused by bar objects.
- 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

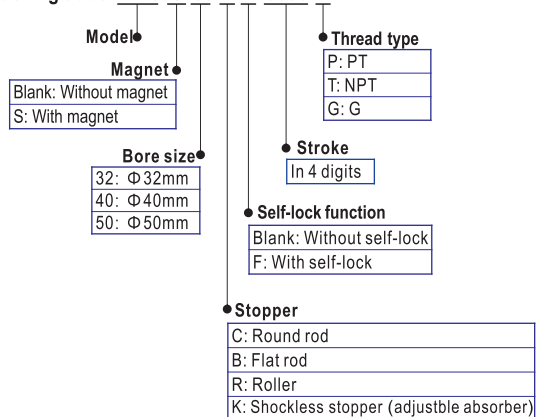
Stopper: Shockless stopper(adjustble absorber)

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



Example of model

TWG-S-50 × 20-K□-P

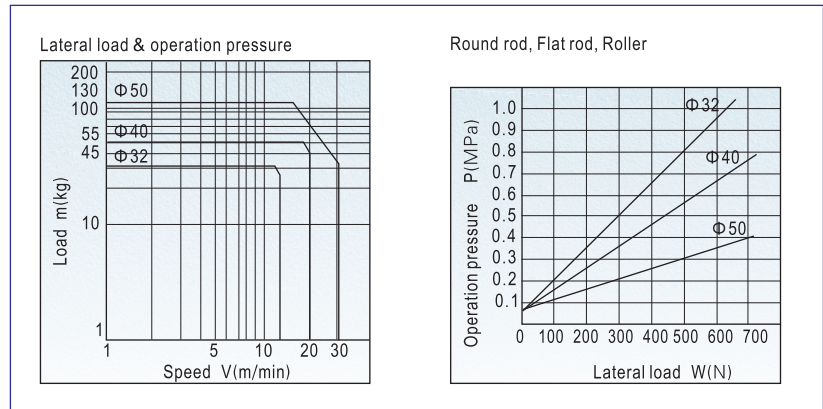
Model	Thread type
TWG: Stopper cylinder (Adjustable for height, double acting type)	P: PT
TTG: Stopper cylinder (Adjustable for height, single acting-pull type)	T: NPT
	G: G

Magnet	Self-lock function
Blank: Without magnet	Blank: Without self-lock
S: With magnet	F: With self-lock

Bore size	Stopper
32 40 50	C: Round rod
	B: Flat rod
	R: Roller
	K: Shockless stopper (adjustble absorber)

Stroke	Stroke (mm)
32	10 15 20
40, 50	20 25 30

Lateral Load and Operation pressure



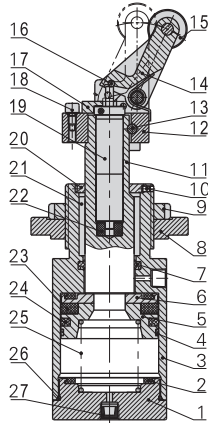
Stopper cylinder



TWG Series

Inner structure and material of major parts

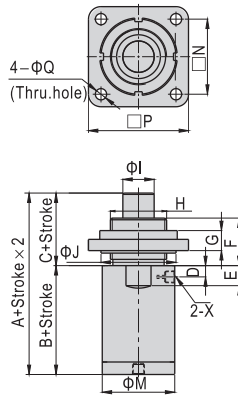
TTG-K



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)

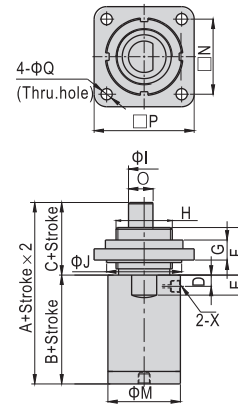


Bore size/Item	A	B	C	D	E	F	G	H
32	95	57	38	9	15	38	16	M36×1.5
40	100	62	38	12	16	38	16	M45×1.5
50	100	62	38	10	16	38	16	M45×1.5

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)

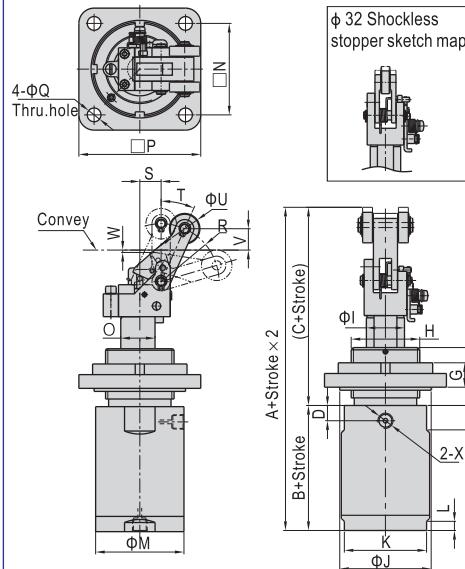


Bore size/Item	A	B	C	D	E	F	G	H
32	95	57	38	9	15	38	16	M36×1.5
40	100	62	38	12	16	38	16	M45×1.5
50	100	62	38	10	16	38	16	M45×1.5

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))



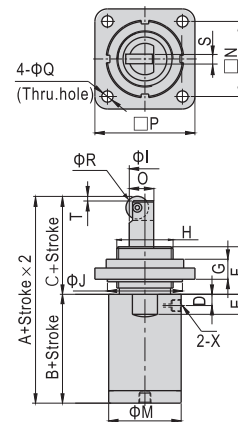
Bore size/Item	A	B	C	D	E	F	G	H
32	147.5	57	90.5	9	15	38	16	M36×1.5
40	172	62	110	12	16	38	16	M45×1.5
50	172	62	110	10	16	38	16	M45×1.5

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

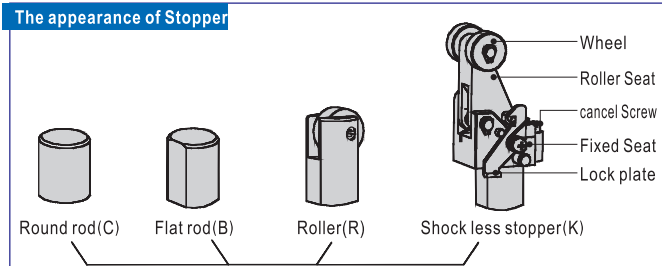


TWG Series

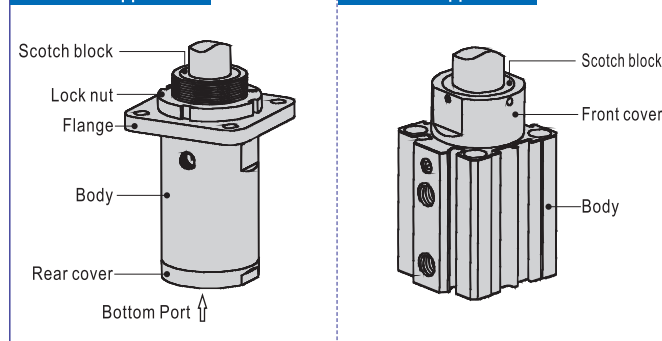
Installation and application

1. Function & Operating Manual

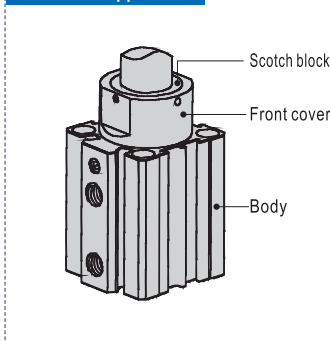
The appearance of Stopper



TWG Series appearance

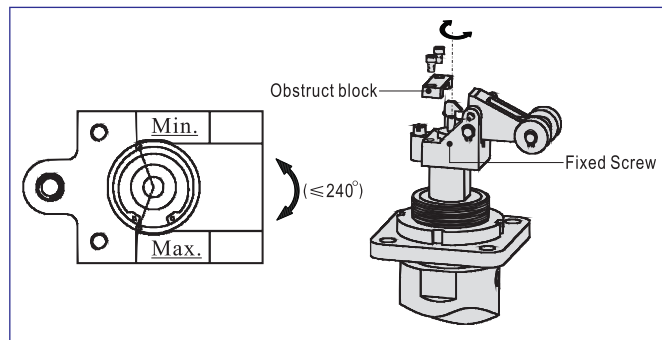


TWQ Series appearance



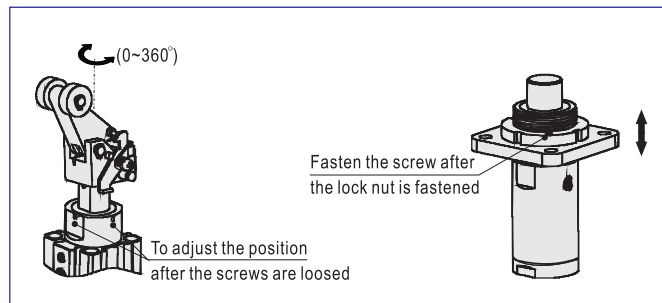
2. Adjustment of Shock Absorber

- 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.



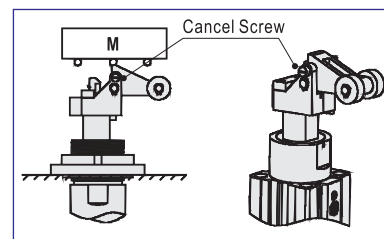
3. Multi-working position

- 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.



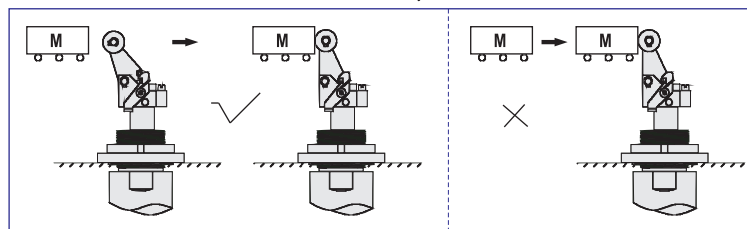
4. Working Forbidden(Shock less stopper(K))

- 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.



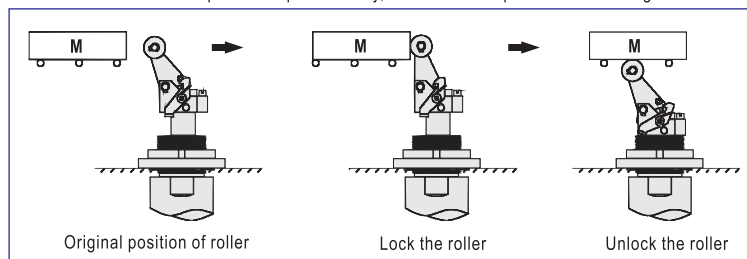
5. How to use stopper function

- 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



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 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.

Symbol



Product feature

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

Model	Magnet	Bore size	Stroke	Self-lock function	Stopper	Thread type
Blank: Without magnet S: With magnet	Blank: Without magnet S: With magnet	20: Φ20mm 25: Φ25mm 32: Φ32mm 40: Φ40mm 50: Φ50mm	In 4 digits	Blank: Without self-lock F: With self-lock	C: Round rod B: Flat rod R: Roller K: Shockless stopper (adjustble absorber)	P: PT T: NPT G: G



TW

Example of model

TWQ-S-50 × 20-K□-P	
Model	Thread type
TWQ: Stopper cylinder (Height locked, double acting type)	P:PT T:NPT G:G
TTQ: Stopper cylinder (Height locked, single acting-pull type)	
Magnet	Self-lock function
Blank: Without magnet S: With magnet	Blank:Without self-lock F:With self-lock
Bore size	Stopper
20 25 32 40 50	C: Round rod B: Flat rod R: Roller K: Shockless stopper (adjustble absorber)
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.

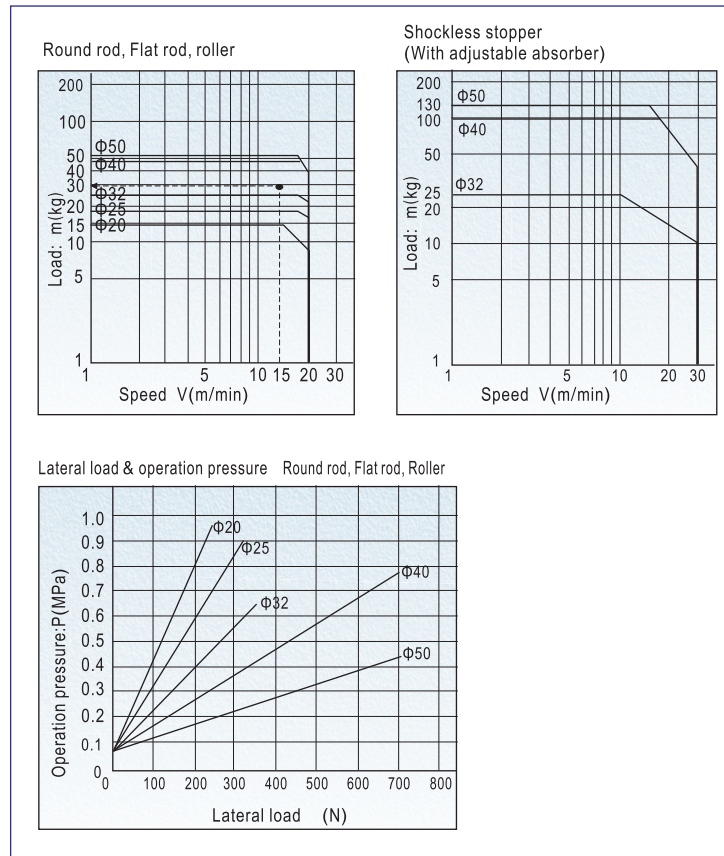


Stopper cylinder



TWQ Series

How to select

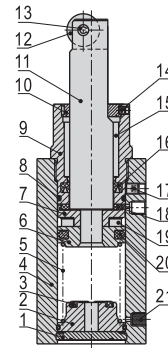


Installation and application

Please refer to page 389 for details.

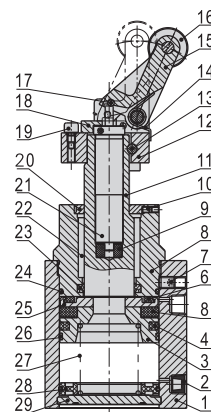
Inner structure and material of major parts

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(Φ32~Φ50)



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	Powder metallurgy
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

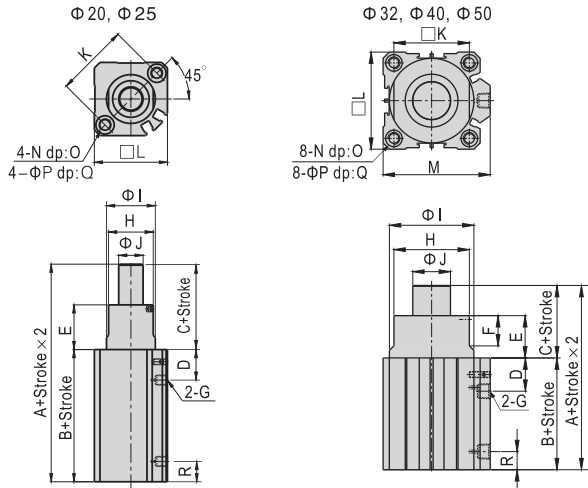
Stopper cylinder



TWQ Series

Dimensions

Round rod (TWQ-C, TTQ-C)

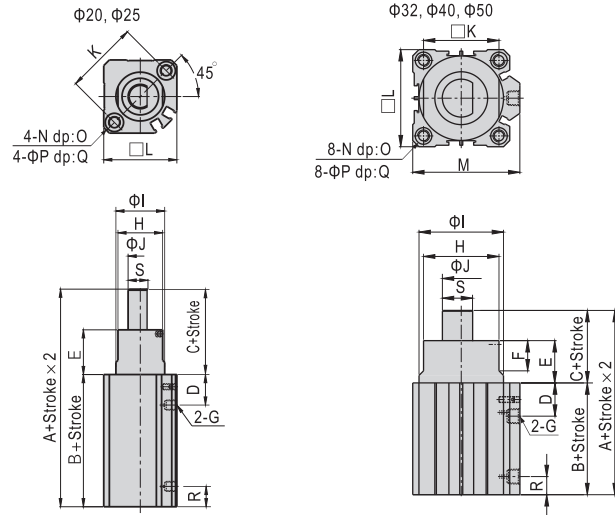


Bore size\Item	A	B	C	D	E	F	G	H	I
20	67	45	22	16.5	22	11	M5	22	24
25	68	48	20	18	20	15	M5	28	30
32	68	48	20	20	20	15	1/8"	34	36
40	80.5	52.5	28	20	28	18	1/8"	41	44
50	82	54	28	22	28	20	1/8"	50	56

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)



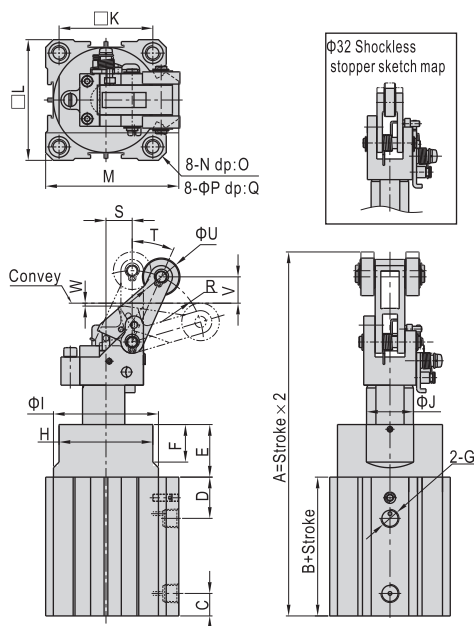
Bore size\Item	A	B	C	D	E	F	G	H	I	J
20	67	45	22	16.5	22	11	M5	22	24	12
25	68	48	20	18	20	15	M5	28	30	16
32	68	48	20	20	20	15	1/8"	34	36	20
40	80.5	52.5	28	20	28	18	1/8"	41	44	25
50	82	54	28	22	28	20	1/8"	50	56	25

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

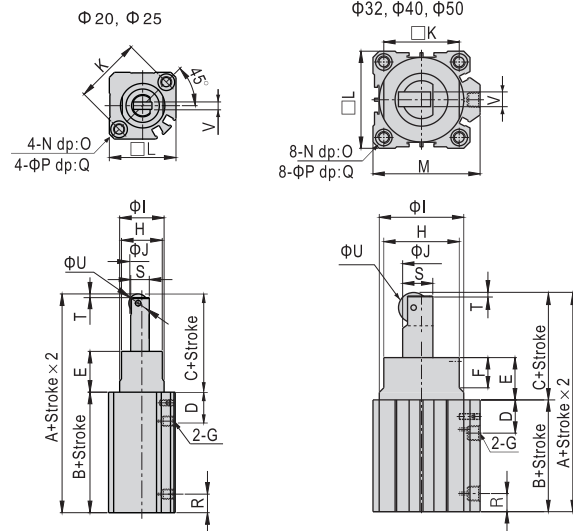


Bore size\Item	A	B	C	D	E	F	G	H	I	J	K
32	120.5	48	10	20	20	15	1/8"	34	36	20	34
40	152.5	52.5	11	20	28	18	1/8"	41	44	25	40
50	154	54	12	22	28	20	1/8"	50	56	25	50

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.

