

CAT

Cartridge cylinder

Space saving structure

ø6/ø10/ø15

Overview

Cylinder outside diameter is full-thread thumb size. This cylinder is a miniature single acting cylinder that returns with spring when pulled.

Features

Miniature size

This cylinder realizes a miniature body by dramatically reducing its total length and also achieving an inner diameter of ø6 to ø15. This cylinder can be mounted in a small space, allowing equipment downsizing.

Easy to mount

As the tube outer diameter is threaded, it is easy to mount on the jig or panel, etc.

2 types of mounting methods

For mounting, the inset and panel mounting are available. For the inset, sealing method with a washer is used and O-ring/reaming, etc., is not required.

One air pipe

As this cylinder uses single acting push method, it can be activated with only one air pipe.

End shape options


For end shape of the piston rod, male thread and without thread are available. Can be selected depending on the purpose.

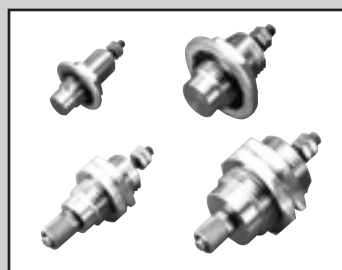


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●: Standard, ○: Option, ■: Not available

Variation	Model No. JIS symbol	Bore size (mm)				Mounting		Piston rod end		Switch	Page
						Panel mount	Inset	Male thread	No thread		
			5	10	15	N	O	M	F		
Single acting/ push	CAT 	ø6/ø10/ø15	●	●	●	●	●	⊙	⊙		1340



Cartridge cylinder single acting/push

CAT Series

● Bore size: $\phi 6/\phi 10/\phi 15$

JIS symbol ● Single acting cylinder



Specifications

Item	CAT		
Bore size mm	ø6	ø10	ø15
Actuation	Single acting/push (spring return method)		
Working fluid	Compressed air		
Max. working pressure MPa	0.7		
Min. working pressure MPa	0.2	0.15	
Proof pressure MPa	1.05		
Ambient temperature °C	-10 to 60 (no freezing)		
Port size	M5		
Stroke tolerance mm	+1.0		
	0		
Working piston speed mm/s	50 to 500		
Cushion	No		
Lubrication	Not required (use turbine oil class 1 ISO VG32 if lubrication is necessary)		
Allowable absorbed energy J	This product cannot absorb the energy generated by an external load mounted on the cylinder. When using the product with no load, separately provide a shock absorber on the outside.		

*1: Do not leave the single acting cylinder pressurized for long periods or the piston rod may not return due to spring load when the pressure is released.

Stroke

Bore size (mm)	Standard stroke(mm)
$\phi 6$	5/10/15
$\phi 10$	
$\phi 15$	

Note: Products with stroke other than standard stroke are not available.

Cylinder weight

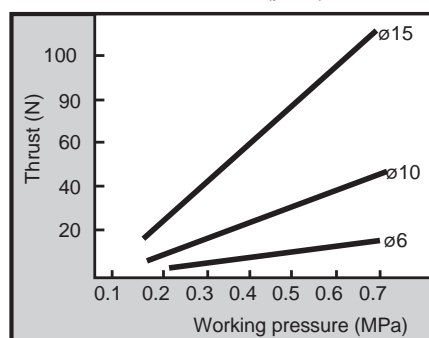
(Unit: g)

Stroke (mm)	5	10	15
Bore size (mm)			
$\phi 6$	18.0	21.0	23.0
$\phi 10$	43.5	50.0	56.0
$\phi 15$	100.0	114.5	128.0

Spring load(Load when pulling) (Unit: N)

Bore size (mm)	Stroke (mm)	When stroke = 0	At full stroke
$\phi 6$	5	1.92	3.85
	10	1.37	3.33
	15	1.17	3.66
$\phi 10$	5	3.92	6.8
	10	3.43	7.4
	15	2.94	9.04
$\phi 15$	5	5.88	8.82
	10	4.41	8.82
	15	3.92	9.8

Theoretical thrust (push)



How to order

No switch

CAT - **N** - **6** - **5** - **M**

A Mounting

B Bore size

C Stroke

D Piston rod end

Code	Description
A Mounting	
N	Panel mount
O	Inset
B Bore size (mm)	
6	ø6
10	ø10
15	ø15
C Stroke (mm)	
5	5
10	10
15	15
D Piston rod end	
M	Male thread
F	No thread

[Example of model No.]

CAT-N-6-5-M

Model: Cartridge cylinder, single acting/push

A Mounting : Panel mount

B Bore size : ø6 mm

C Stroke : 5 mm

D Piston rod end : Male thread

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

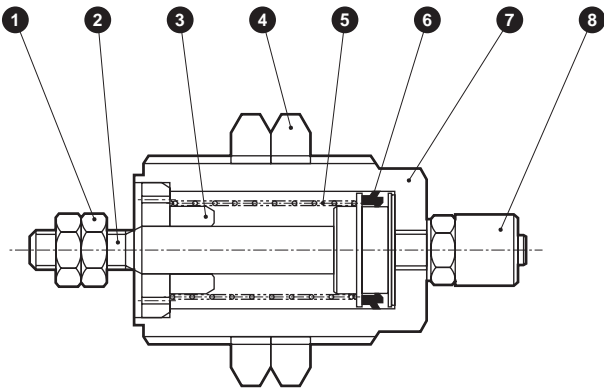
Spd
Contr

Ending

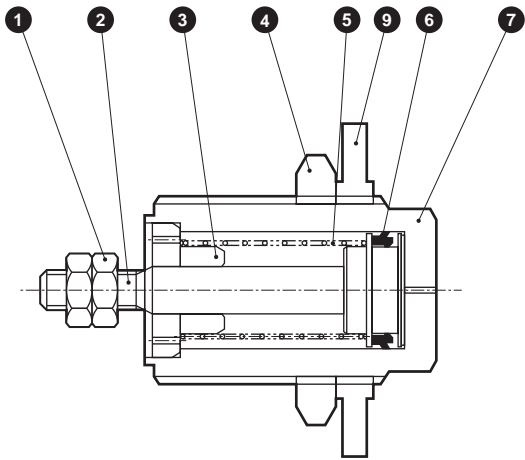
SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/ COVPIN2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

Internal structure and parts list

● Panel mount (N)



● Inset (O)



Cannot be disassembled

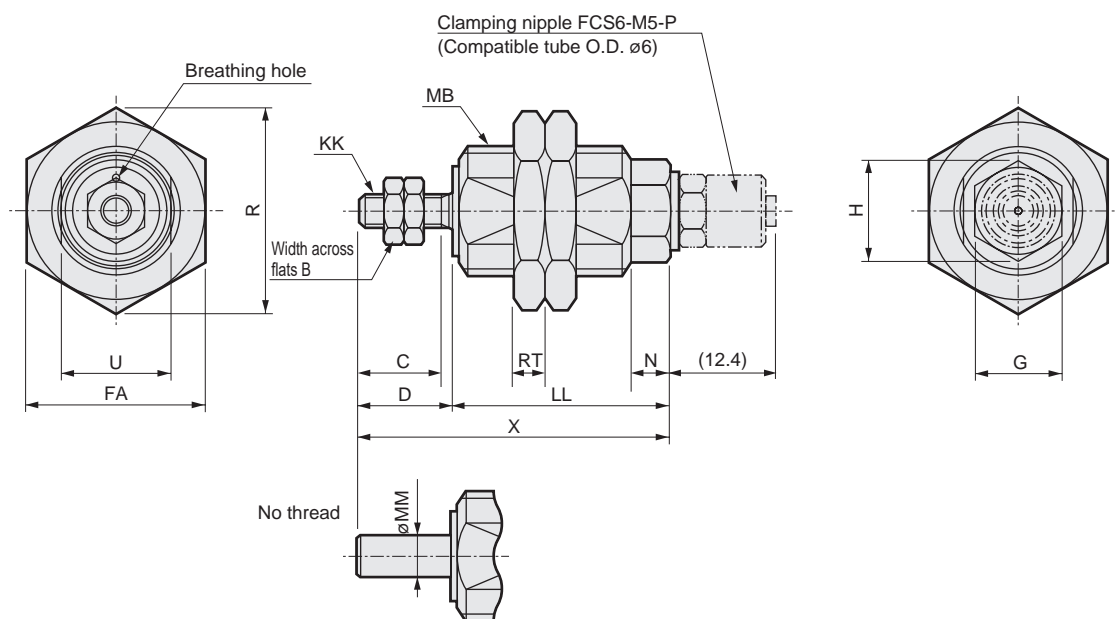
No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Hexagon nut	Stainless steel		5	Coil spring	Steel	Electrodeposition
2	Piston rod	Stainless steel		6	Piston packing	Nitrile rubber	
3	Rod cover	Phosphor bronze	Nickeling	7	Body	Copper alloy	Nickeling
4	Nut	Copper alloy	Nickeling	8	Clamping nipple		
				9	Seal washer	Nitrile rubber, steel	

Note: This product cannot be disassembled.

Dimensions



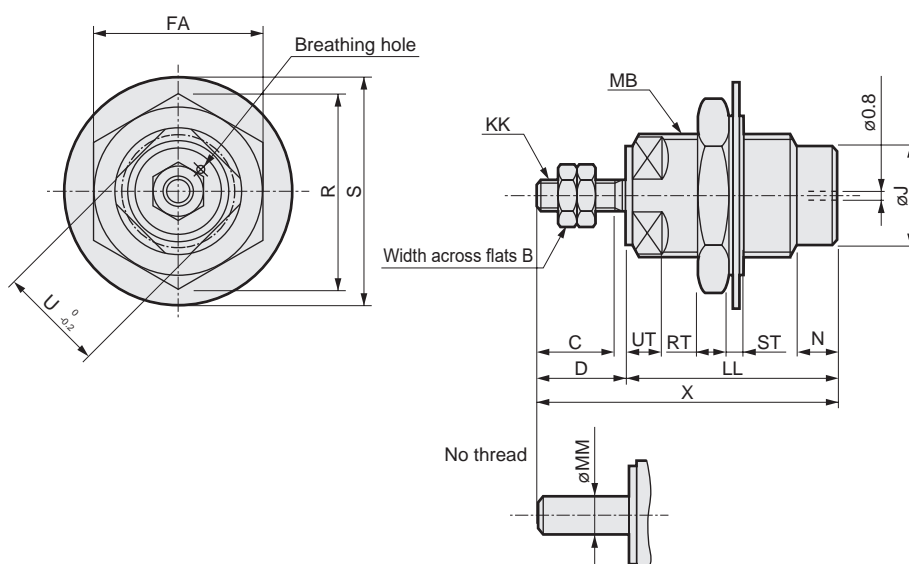
● Panel mount (N)



Note: For air piping, use the included clamping nipple (orifice size $\phi 0.8$).

Code <div></div> Bore size (mm)	B	C	D	FA	G	H	KK	LL			MB	MM	N	R	RT	U	X		
								Stroke									Stroke		
								5	10	15							5	10	15
ø6	5.5	7	8.5	14	7 ⁰ _{-0.2}	8.1	M3	19	26	32	M10x1	3	5	16.2	3	8 ⁰ _{-0.2}	27.5	34.5	40.5
ø10	7	10	11.5	22	11 ⁰ _{-0.25}	12.7	M4	21	27	33.5	M16x1.5	5	5	25.4	4	13.5 ⁰ _{-0.25}	32.5	38.5	45
ø15	8	12	13.5	30	18 ⁰ _{-0.25}	20.8	M5	24	30	36	M24x1.5	6	6	34.6	5	22 ⁰ _{-0.35}	37.5	43.5	49.5

● Inset (O)



Code <div></div> Bore size (mm)	B	C	D	FA	J	KK	LL			MB	MM	N	R	RT	S	ST	U	UT	X		
							Stroke												Stroke		
							5	10	15										5	10	15
ø6	5.5	7	8.5	14	8.5	M3	19	26	32	M10x1	3	5	16.2	3	20.3	1.5	9	3.5	27.5	34.5	40.5
ø10	7	10	11.5	22	13	M4	21	27	33.5	M16x1.5	5	5	25.4	4	30.3	2	14	4.5	32.5	38.5	45
ø15	8	12	13.5	30	21	M5	24	30	36	M24x1.5	6	6	34.6	5	42.8	3	22	5.5	37.5	43.5	49.5



Pneumatic components

Safety Precautions

Be sure to read this section before use.

Refer to Intro Page 73 for general information of the cylinder, and to Intro Page 80 for general information of the cylinder switch.

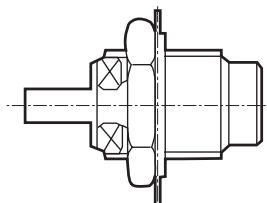
Product-specific cautions: Cartridge cylinder CAT Series

Mounting, installation and adjustment

CAUTION

- Do not use the product so as to apply load when pulling the piston rod.
Because the cylinder built-in spring has only returning force for the piston rod, the rod cannot be returned to the stroke end when a load is applied.
- Do not leave the single acting cylinder pressurized.
If it is left pressurized for long periods, the piston rod may not return due to spring load when the pressure is released.
- For the single acting cylinder, take care when mounting so as not to block the breathing hole provided on the cover surface. Otherwise, malfunctions may result.

- When using CAT-N (panel mounting), only use the included clamping nipple (FCS6-M5-P; orifice size $\varnothing 0.8$ mm). Otherwise, malfunctions or body damage may result.
- For applicable clamping tube, our model No. F-1506 (outer diameter 6 mm, inner diameter 4 mm) is recommended.
- When using CAT-O (inset), make sure that the washer sealing portion does not make contact with the 2 WAF for wrench application. Failure to do so may lead to air leakage.



Use/maintenance

CAUTION

- Because this cylinder is a non-disassembly type, do not apply excessive force to the rod cover or body.