

CAT

Cartridge Cylinder

ø6, ø10, ø15

Space saving structure



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●: Standard, ◎: Option, ■: Not manufacturable

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Single Acting, Push Type	CAT	ø6/ø10/ø15	5	10	15	N	O	M	F	■	706

Space-Saving Type

SSD2

SSG

SSD

CAT

MDC2

SMG

MSD

FC□

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Cylinder
Switch

Ending

Cylinder
Switch

Ending

Thumb-sized ultra-compact single-acting cylinder with fully threaded outer diameter (ø6 to ø15)

Panel mountable due to full thread

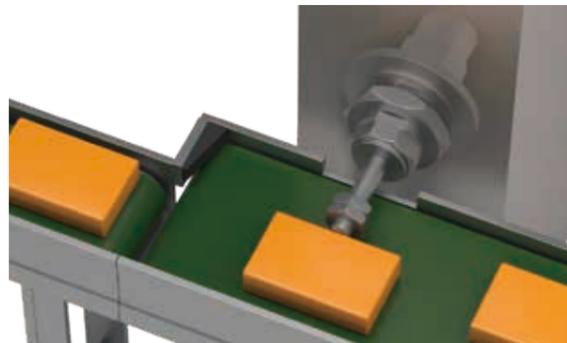


Application Example

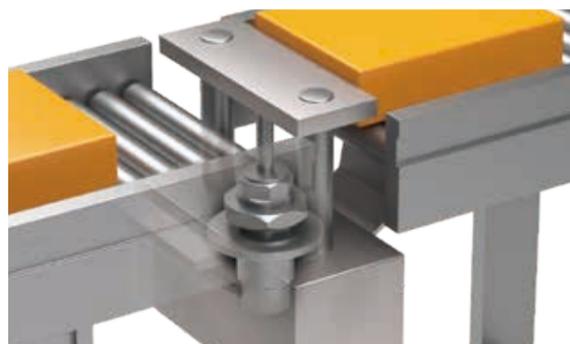
Sorting good and defective products



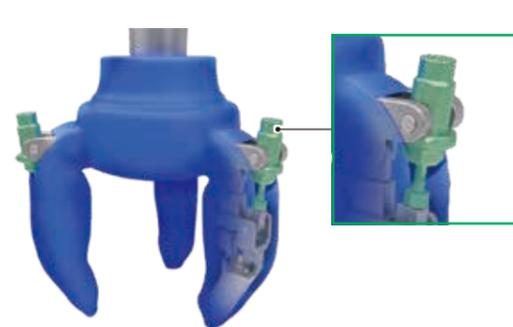
Clamp



Stopper



Robot hand

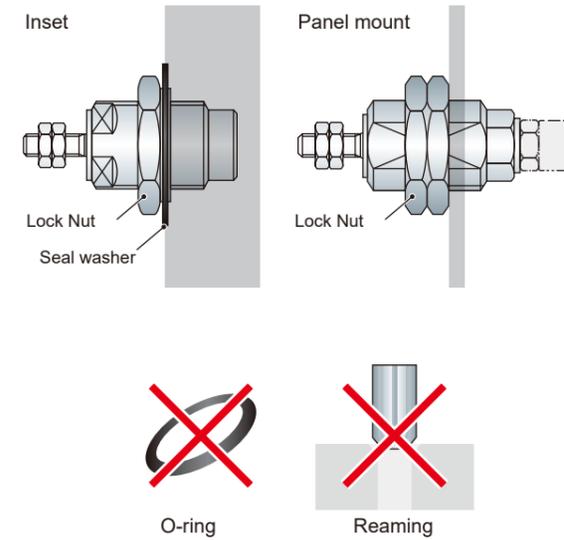


Easy installation

Threads are provided on the outer diameter of the tube, making it easy to attach to jigs, panels, etc.

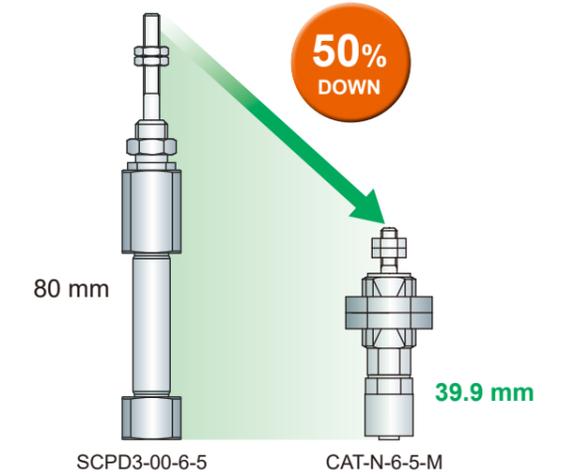
2 types of mounting formats

Embedded type and panel mount type are available for mounting. The embedded type uses a sealing washer for sealing, eliminating the need for O-rings, reaming, etc.



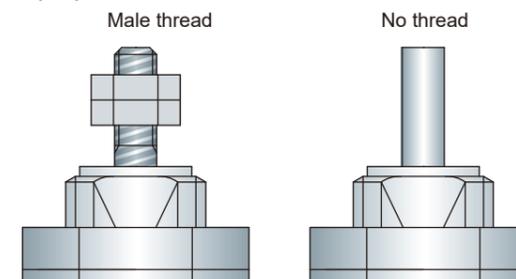
Ultra-compact size

The overall length of the cylinder is significantly shortened, and the inner diameter is also ultra-compact, from ø6 to ø15. Can be installed in a small space, allowing for downsizing of equipment.



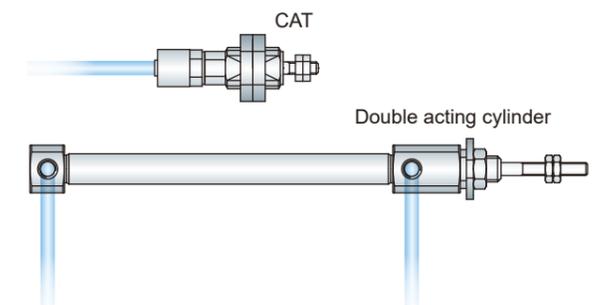
Selectable tip shape

Male thread and no thread options are available for the piston rod tip shape. Selectable according to the purpose.



Single air piping

Operates with just one air pipe due to the single-acting push method.



CAT Series Product Lineup

● : Standard - : Not manufacturable

Model Variations	Model No.	Bore size (mm)	Stroke (mm)			Mounting type		Piston rod end		Switch
			5	10	15	Panel mount	Embedded	Male thread	No thread	
Single Acting, Push Type	CAT	ø6 ø10 ø15	●	●	●	●	●	●	●	—

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Cylinder Switch

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Cylinder Switch

Ending



Cartridge Cylinder Single Acting / Push Type

CAT Series

● Tube bore: $\phi 6$, $\phi 10$, $\phi 15$

Circuit Diagram Symbol



Specifications

Item	CAT		
	$\phi 6$	$\phi 10$	$\phi 15$
Bore size mm	$\phi 6$	$\phi 10$	$\phi 15$
Actuation method	Single Acting, Push Type		
Operating Fluid	Compressed Air		
Maximum operating pressure MPa	0.7		
Min. Operating Pressure MPa	0.2		0.15
Proof pressure MPa	1.05		
Ambient Temperature °C	-10 to 60 (however, no freezing)		
Port Size	M5		
Stroke tolerance mm	+1.0 0		
Operating Piston Speed mm/s	50 to 500		
Cushion	None		
Lubrication	Not required (When lubricating, use turbine oil Class 1 ISO VG32)		
Allowable absorbed energy J	This product cannot absorb the energy generated by an external load included to the cylinder. Use without load or provide a separate shock absorber externally.		

Note: Do not leave the single acting cylinder pressurized for long periods. If the cylinder is left pressurized for long periods, 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: Strokes other than standard are not available.

Cylinder Weight

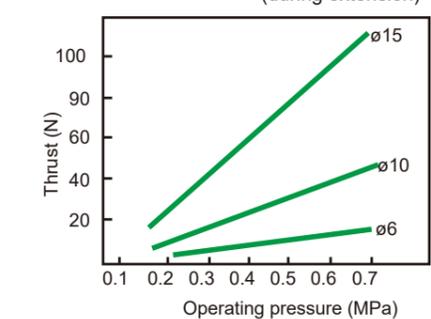
(Unit: g)

Stroke (mm)	5	10	15
$\phi 6$	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 during retraction) (Unit: N)

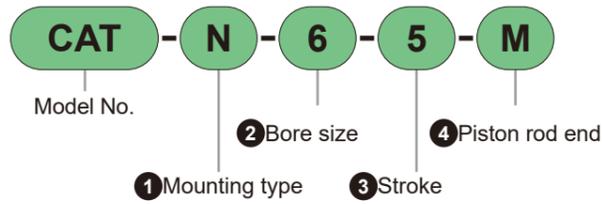
Bore Size (mm)	Stroke (mm)	At 0 Stroke	At Full Stroke Operation
$\phi 6$	5	1.92	3.85
	10	1.37	3.33
	15	1.17	3.66
$\phi 10$	5	3.92	6.8
	10	3.43	7.4
	15	2.94	9.04
$\phi 15$	5	5.88	8.82
	10	4.41	8.82
	15	3.92	9.8

Theoretical thrust (during extension)



Model No. Notation Method

Without Switch



1 Mounting type

Code	Content
N	Panel mount 
O	Embedded 

2 Bore size (mm)

Code	Content
6	$\phi 6$
10	$\phi 10$
15	$\phi 15$

3 Stroke (mm)

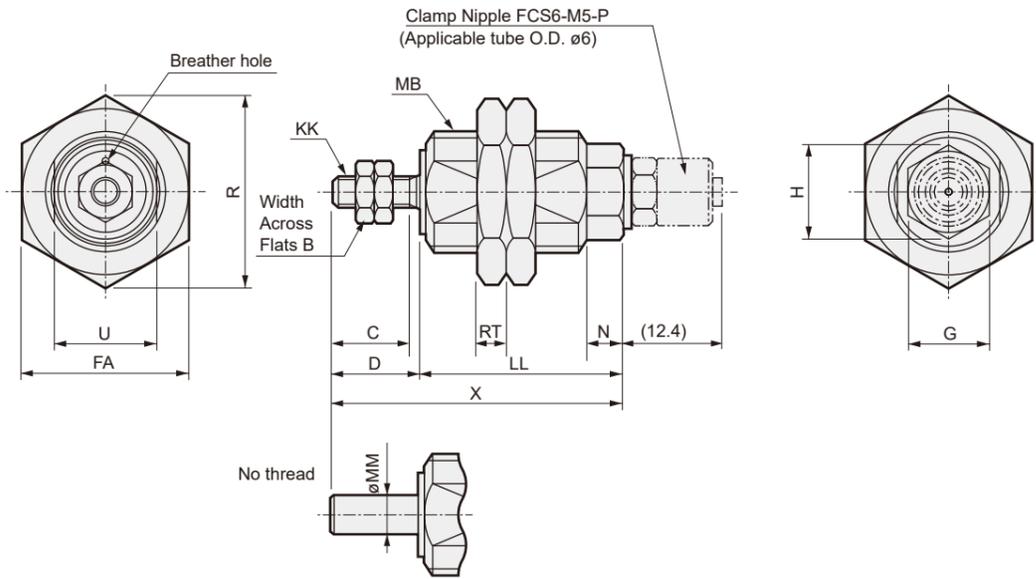
Code	Content
5	5
10	10
15	15

4 Piston rod end

Code	Content
M	Male thread 
F	No thread 

Outline Dimension Drawing

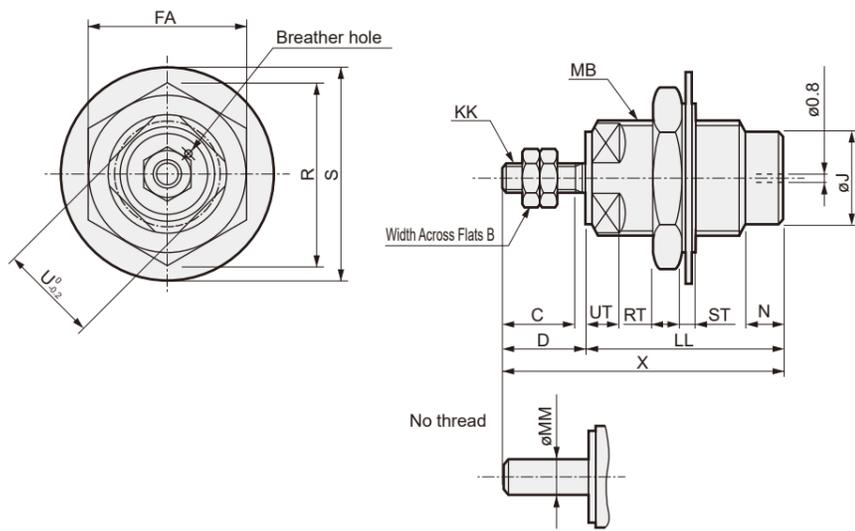
●Panel mount type (N)



Code	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
MDC2	ø6	5.5	7	8.5	14	7 ^{0.2}	8.1	M3	19	26	32	M10×1	3	5	16.2	3	8 ^{0.2}	27.5	34.5	40.5
	ø10	7	10	11.5	22	11 ^{0.25}	12.7	M4	21	27	33.5	M16 × 1.5	5	5	25.4	4	13.5 ^{0.25}	32.5	38.5	45
SMG	ø15	8	12	13.5	30	18 ^{0.25}	20.8	M5	24	30	36	M24 × 1.5	6	6	34.6	5	22 ^{0.35}	37.5	43.5	49.5

Note: For air piping, use the attached clamping nipple (orifice size ø0.8).

●Embedded type (O)

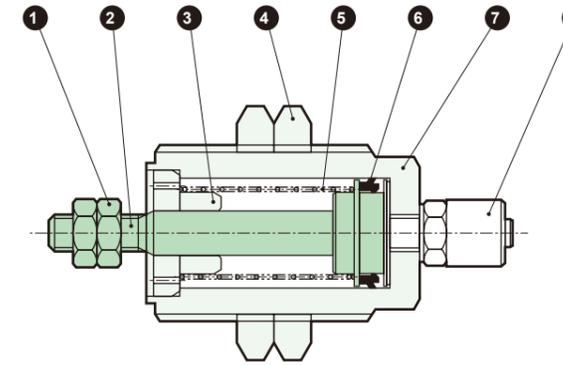


Code	Bore Size (mm)	B	C	D	FA	J	KK	LL			MB	MM	N	R	RT	S	ST	U	UT	X		
								Stroke												Stroke		
								5	10	15										5	10	15
Cylinder Switch	ø6	5.5	7	8.5	14	8.5	M3	19	26	32	M10×1	3	5	16.2	3	20.3	1.5	9	3.5	27.5	34.5	40.5
Ending	ø10	7	10	11.5	22	13	M4	21	27	33.5	M16 × 1.5	5	5	25.4	4	30.3	2	14	4.5	32.5	38.5	45
	ø15	8	12	13.5	30	21	M5	24	30	36	M24 × 1.5	6	6	34.6	5	42.8	3	22	5.5	37.5	43.5	49.5

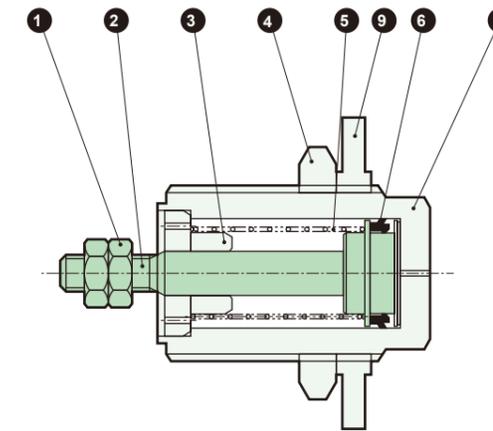
Internal Structure Diagram/Material

Internal Structure Diagram/Material

●Panel mount type (N)



●Embedded type (O)



Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Hexagon Nut	Stainless Steel		6	Piston Packing	Nitrile Rubber	
2	Piston Rod	Stainless Steel		7	Body	Copper Alloy	Nickel Plating
3	Rod Cover	Copper Alloy	Nickel Plating	8	Clamp nipple		
4	Nut	Copper Alloy	Nickel Plating	9	Seal Washer	Nitrile Rubber, Steel	
5	Coil Spring	Steel	Electrodeposition Coating				



To Use This Product Safely

Be sure to read this before use. For general cylinder information, see Intro 41, and for cylinder switches, see P. 924.

Individual Precautions: Cartridge cylinder CAT Series

During Use

Caution

- Do not use in a way that applies a load when the piston rod retracts.

The cylinder's built-in spring only has enough force to return the piston rod, so if a load is applied, the piston rod will not return to the stroke end.

- Do not leave single-acting cylinders pressurized. If left pressurized, the piston rod may not return by spring force 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, as this may lead to malfunctions.

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

MEMO

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For precautions regarding mounting, installation, adjustment, use, and maintenance, please see "Precautions for Use" in this catalog and the CKD Components Product website (<https://www.ckd.co.jp/kiki/en/>) -> "Model No." -> [Instruction Manual](#).

Cylinder Switch

Ending

Cylinder Switch

Ending