

CAT

Cartridge cylinder

Space saving structure

φ 6, φ 10, φ 15

Overview

Thumb size cylinder with threaded body. Miniature single acting cylinder, spring return type.

Features

Miniature size

Dramatically reduced cylinder overall length, miniature bore size from 6 to 15 mm. This cylinder is optimum for installation in a narrow space. This contributes to downsizing of devices.

Easy installation

Thread provided on outside of cylinder body enables easy installation on jig and panel etc.

2 types of mounting style

For mounting style, embedded and panel mount types are available. For embedded type, sealing method by seal washer (die thread) is used. This eliminates the process of O ring/reamer machining etc.

Only one air pipe required

Single acting spring return method only needs one air pipe.

Rod end shape can be selected

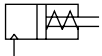
For piston rod end form, male thread and no thread types are available.



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

Variation	Model no. JIS symbol	Bore size (mm)	Stroke length (mm)			Mounting style		Piston rod end		Switch	Page
						Panel mount	Embedded	Male thread	No thread		
			5	10	15	N	O	M	F		
Single acting / extend type	CAT 	φ6, φ10, φ15	●	●	●	●	●	○	○	■	956

SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

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Pneumatic components

Safety precautions

Always read this section before starting use.

Refer to Intro 71 for general details on the cylinder, and to Intro 78 for details on the cylinder switch.

Cartridge cylinder CAT Series

Installation & Adjustment

CAUTION

- Check that no load is applied when the piston rod is pulled in.

The spring integrated in the cylinder has a force just enough to return the piston only. If a load is applied, the piston rod does not return to the stroke end.

- Do not leave the single acting cylinder pressurized.

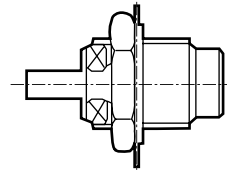
If left under elevated pressure, the piston rod may not return with the spring force when pressure is released.

- Bleed holes are provided on the cover for the single acting type. Check that these holes are not blocked during installation. Blocking the holes could cause operation faults.

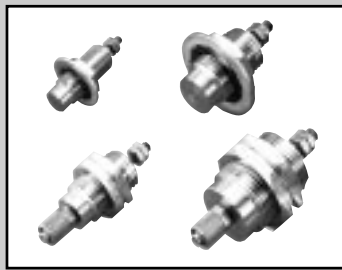
- When using the CAT-N (panel mounting type), do not use joints other than the enclosed clamp nipple (FCS6-M5; orifice diameter ϕ 0.8mm). Failure to observe this could lead to operation faults or product damage.

- The CKD serial No. F-1506 (outer diameter 6mm, inner diameter 4mm) is recommended for the clamp nipple tube.

- When using the CAT-O (embedded type), make sure that the die thread seal section does not cover the width across four sides for catching the spanner. The air could leak.



SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
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SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

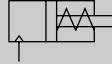


Cartridge cylinder, single acting, extend type

CAT Series

● Bore size: $\phi 6$, $\phi 10$, $\phi 15$

JIS symbol ● Single acting cylinder



Specifications

Descriptions		CAT		
Bore size	mm	$\phi 6$	$\phi 10$	$\phi 15$
Actuation		Single acting spring return type (spring return method)		
Working fluid		Compressed air		
Max. working pressure	MPa	0.7		
Min. working pressure	MPa	0.2	0.15	
Withstanding 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		None		
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG 32.)		

Note 1: This product can not absorb a large energy generated by an external load. We recommend to install an external shock absorber.

Note 2: Do not leave a single acting cylinder at pressurized state. When release a pressure, piston and rod may not return by spring force after leaving under elevated pressure.

Stroke length

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

Note: Other than standard stroke length is not available.

Cylinder weight

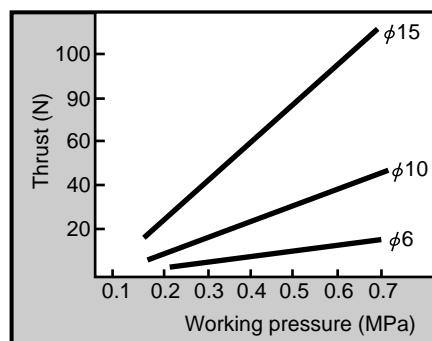
(Unit: g)

Stroke length (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 at retracted) (Unit: N)

Bore size (mm)	Stroke length (mm)	Stroke length 0	Full stroke length during operation
$\phi 6$	5	1.92	3.29
	10	1.37	3.33
	15	1.17	3.66
$\phi 10$	5	3.92	5.88
	10	3.43	6.86
	15	2.94	7.35
$\phi 15$	5	5.88	8.82
	10	4.41	8.82
	15	3.92	9.8

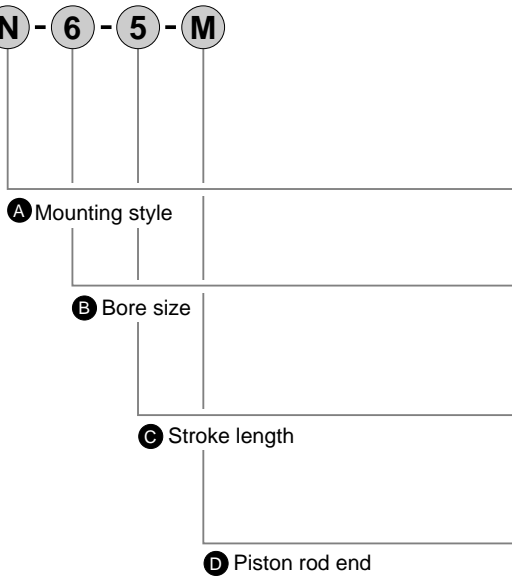
Theoretical thrust (Extend)



How to order

Without switch

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



Symbol	Descriptions
A Mounting style	
N	Panel mount
O	Embedded
B Bore size (mm)	
6	$\phi 6$
10	$\phi 10$
15	$\phi 15$
C Stroke length (mm)	
5	5
10	10
15	15
D Piston rod end	
M	Male thread
F	No thread

<Example of model number>

CAT-N-6-5-M

Model: Cartridge cylinder, single acting extend type

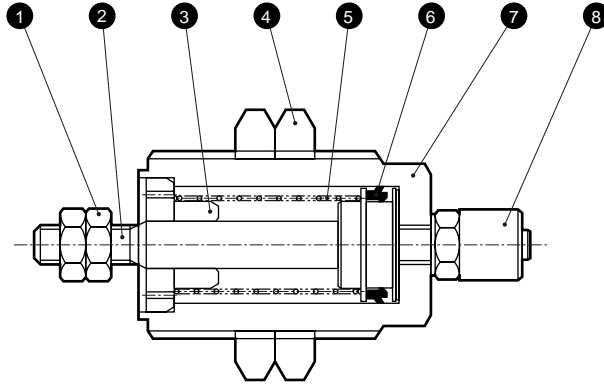
- A** Mounting style : Panel mount
- B** Bore size : $\phi 6$ mm
- C** Stroke length : 5mm
- D** Piston rod end : Male thread

SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

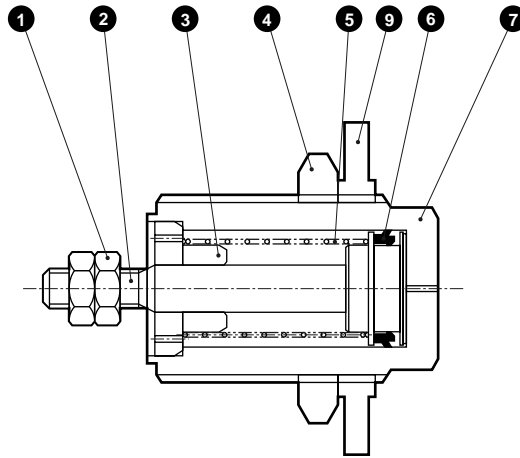
Cartridge cylinder
Space saving structure

Internal structure and parts list

● Panel mount type (N)



● Embedded (O)

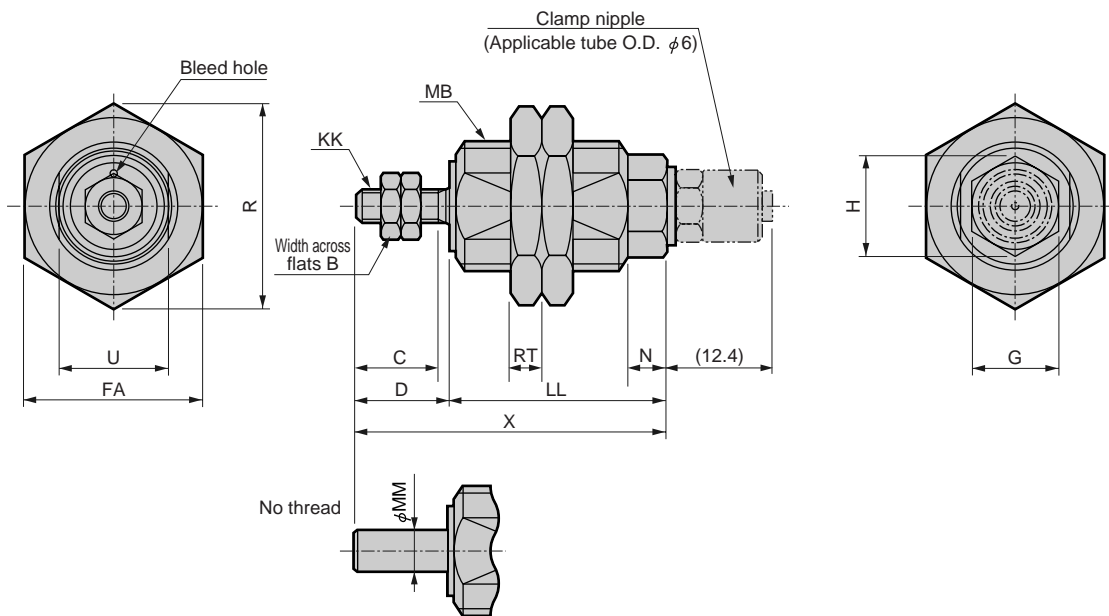


No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Hexagon nut	Stainless steel		5	Coil spring	Steel	Electrode position coating
2	Piston rod	Stainless steel		6	Piston packing seal	Nitrile rubber	
3	Rod cover	Bronze phosphate	Nickeling	7	Body	Brass	Nickeling
4	Nut	Brass	Nickeling	8	Clamp nipple		
				9	Die thread	Nitrile rubber, steel	

Dimensions



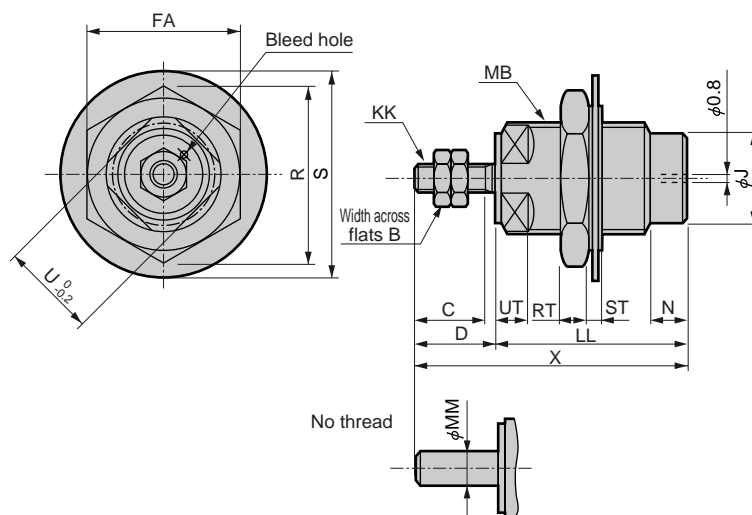
● Panel mount type (N)



Note: For air piping, use clamp nipple (orifice 0.8 dia.) attached.

Symbol Bore size (mm)	B	C	D	FA	G	H	KK	LL			MB	MM	N	R	RT	U	X		
								Stroke length									Stroke length		
								5	10	15							5	10	15
φ6	5.5	7	8.5	14	7 ⁰ _{-0.2}	8.1	M3	19	26	32	M10 x 1	3	5	16.2	3	8 ⁰ _{-0.2}	27.5	34.5	40.5
φ10	7	10	11.5	22	11 ⁰ _{-0.25}	12.7	M4	21	27	33.5	M16 x 1.5	5	5	25.4	4	13.5 ⁰ _{-0.25}	32.5	38.5	45
φ15	8	12	13.5	30	18 ⁰ _{-0.25}	20.8	M5	24	30	36	M24 x 1.5	6	6	34.6	5	22 ⁰ _{-0.35}	37.5	43.5	49.5

● Embedded (O)



Symbol Bore size (mm)	B	C	D	FA	J	KK	LL			MB	MM	N	R	RT	S	ST	U	UT	X		
							Stroke length												Stroke length		
							5	10	15										5	10	15
φ6	5.5	7	8.5	14	8.5	M3	19	26	32	M10 x 1	3	5	16.2	3	20.3	1.5	9	3.5	27.5	34.5	40.5
φ10	7	10	11.5	22	13	M4	21	27	33.5	M16 x 1.5	5	5	25.4	4	30.3	2	14	4.5	32.5	38.5	45
φ15	8	12	13.5	30	21	M5	24	30	36	M24 x 1.5	6	6	34.6	5	42.8	3	22	5.5	37.5	43.5	49.5

- SCP*2
- CMK2
- CMA2
- SCM
- SCG
- SCA2
- SCS
- CKV2
- CA/OV2
- SSD
- CAT**
- MDC2
- MVC
- SMD2
- MSD*
- FC*
- STK
- ULK*
- JSK/M2
- JSG
- JSC3
- USSD
- USC
- JSB3
- LMB
- STG
- STS/L
- LCS
- LCG
- LCM
- LCT
- LCY
- STR2
- UCA2
- HCM
- HCA
- SRL2
- SRG
- SRM
- SRT
- MRL2
- MRG2
- SM-25
- CAC3
- UCAC
- RCC2
- MFC
- SHC
- GLC
- Ending

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