

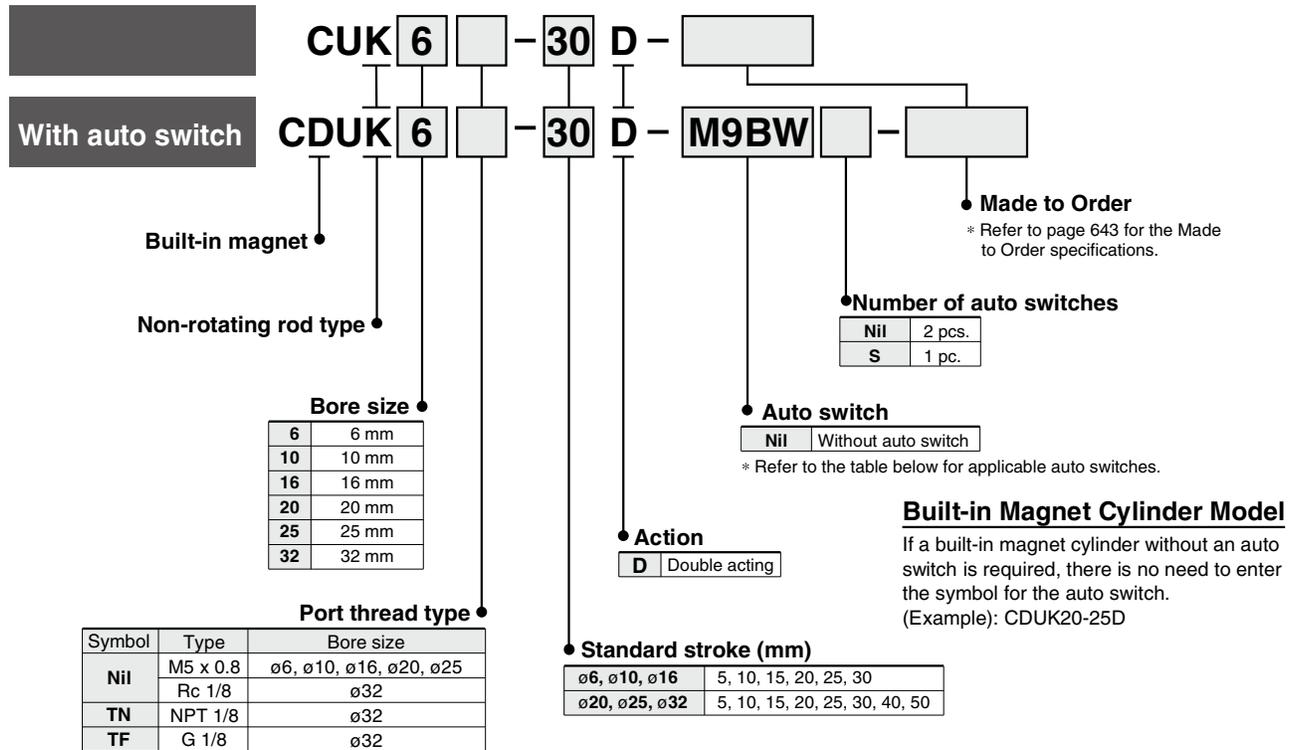
# Free Mount Cylinder: Non-rotating Rod Type

## Double Acting, Single Rod

# CUK Series

ø6, ø10, ø16, ø20, ø25, ø32

### How to Order



### Applicable Auto Switches/Refer to pages 1575 to 1701 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)					Pre-wired connector	Applicable load							
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	IC circuit		Relay, PLC							
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	○	—	IC circuit	Relay, PLC					
				3-wire (PNP)				M9PV	M9P	●	●	●	○	○								
				2-wire				M9BV	M9B	●	●	●	○	○								
				3-wire (NPN)				M9NWV	M9NW	●	●	●	○	○								
	Diagnostic indication (2-color indicator)			3-wire (PNP)				M9PWV	M9PW	●	●	●	○	○				○	○	○	○	IC circuit
				2-wire				M9BWV	M9BW	●	●	●	○	○				○	○	○	○	—
				3-wire (NPN)				M9NAV*1	M9NA*1	○	○	●	○	○				○	○	○	○	IC circuit
				3-wire (PNP)				M9PAV*1	M9PA*1	○	○	●	○	○				○	○	○	○	IC circuit
Water resistant (2-color indicator)	2-wire	M9BAV*1	M9BA*1	○	○	●	○	○	○	○	○	○	—									
	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	5 V	—	A96V	A96	●	—	●	—	—	—	IC circuit	—					
				2-wire				A93V*2	A93	●	●	●	●	—	—	—	—	Relay, PLC				
	—	Grommet	No	2-wire	24 V	12 V	100 V	A90V	A90	●	—	●	—	—	—	—	IC circuit	—				
100 V or less								A90V	A90	●	—	●	—	—	—	—	—	—	IC circuit	—		

\*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

Consult with SMC regarding water resistant types with the above model numbers.

\*2 1 m type lead wire is only applicable to D-A93.

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NW  
 1 m ..... M (Example) M9NWM  
 3 m ..... L (Example) M9NWL  
 5 m ..... Z (Example) M9NWZ

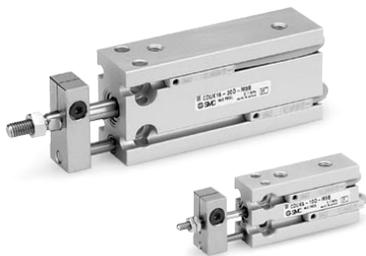
\* Solid state auto switches marked with "○" are produced upon receipt of order.

\* Since there are applicable auto switches other than the above, refer to page 678 for details.

\* For detail about auto switches with pre-wired connector, refer to pages 1648 and 1649.

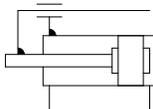
\* Auto switches are shipped together but not assembled.

# Free Mount Cylinder: Non-rotating Rod Type Double Acting, Single Rod **CUK Series**



## Symbol

Double acting, Single rod, Rubber bumper



## Standard Stroke

Bore size (mm)	Standard stroke (mm)
<b>6, 10, 16</b>	5, 10, 15, 20, 25, 30
<b>20, 25, 32</b>	5, 10, 15, 20, 25, 30, 40, 50

Note) For long stroke, refer to page 660.



## Made to Order Specifications

[Click here for details](#)

Symbol	Specifications
-XB6	Heat resistant (-10 to 150°C)
-XB7	Cold resistant (-40 to 70°C)
-XB9	Low speed (10 to 50 mm/s)
-XB13	Low speed (5 to 50 mm/s)
-XC19	Intermediate stroke (5 mm spacer)
-XC22	Fluororubber seals
-XC34	Non-rotating plate with workpiece mounting screw (No extended part on the rod end)

## Moisture Control Tube IDK Series

When operating an actuator with a small diameter and a short stroke at a high frequency, the dew condensation (water droplet) may occur inside the piping depending on the conditions.

Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to [the IDK series in the Best Pneumatics No. 6](#).



## Specifications

Bore size (mm)	6	10	16	20	25	32
Fluid	Air					
Proof pressure	1.05 MPa					
Maximum operating pressure	0.7 MPa					
Minimum operating pressure	0.15 MPa	0.10 MPa		0.08 MPa		
Ambient and fluid temperature	Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)					
Lubrication	Non-lube					
Piston speed	50 to 500 mm/s					
Cushion	Rubber bumper					
Rod end thread	Male thread					
Stroke length tolerance	+1.0 0 mm					
Rod non-rotating accuracy	±0.8°			±0.5°		

Note) No load: Rod at retracted

## Minimum Stroke for Auto Switch Mounting

No. of auto switches mounted	Applicable auto switch		
	D-A9□, D-A9□V	D-M9□, D-M9□V	D-M9□W, D-M9□WV
1 pc.	5	5	5
2 pcs.	10	5	10

## Weight ( ) : Denotes the values with D-A93.

Bore size (mm)	Stroke (mm)							
	5	10	15	20	25	30	40	50
<b>C(D)UK6-□D</b>	28 (33)	31 (41)	34 (44)	37 (47)	40 (50)	43 (53)	—	—
<b>C(D)UK10-□D</b>	43 (48)	47 (57)	51 (61)	55 (65)	59 (69)	63 (73)	—	—
<b>C(D)UK16-□D</b>	60 (85)	66 (96)	72 (102)	78 (108)	84 (114)	90 (120)	—	—
<b>C(D)UK20-□D</b>	113 (147)	124 (164)	136 (176)	148 (188)	160 (200)	172 (211)	195 (235)	219 (260)
<b>C(D)UK25-□D</b>	212 (266)	229 (288)	246 (305)	263 (322)	280 (339)	297 (356)	335 (390)	370 (424)
<b>C(D)UK32-□D</b>	331 (404)	357 (435)	383 (461)	409 (487)	435 (513)	461 (539)	513 (591)	565 (643)

\* For the auto switch weight, refer to page 1575.

## Allowable Rotational Torque

Bore size (mm)	6	10	16	20	25	32
Allowable rotational torque (N·m)	0.0015	0.02	0.04	0.10	0.15	0.20

## Tightening Torque

When mounting the CUK series, refer to page 624.

## Theoretical Output

Specifications are the same as CU series double acting, single rod. Refer to page 624.

## Auto Switch Mounting Position

For the auto switch mounting position of the CDUK series, refer to page 628, since specifications are the same as standard type, double acting, single rod type.

## ⚠ Precautions

Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

## Operating Precautions

### ⚠ Caution

1. Do not place your fingers in the clearance between the non-rotating plate and the cylinder tube.

Your fingers could get caught between the non-rotating plate and the cylinder tube when the piston rod retracts. Therefore, never place your finger in this area.

Because the cylinder outputs a great force, it could lead to injury if precautions are not taken to prevent your fingers from getting caught.

2. When using the non-rotating type, make sure that rotational torque is not applied to the piston rod. If rotational torque must be applied due to unavoidable circumstances, make sure to use it at the allowable rotational torque or less, which is shown in the table on the right.

CUJ

CU

CQS

JCQ

CQ2

RQ

CQM

CQU

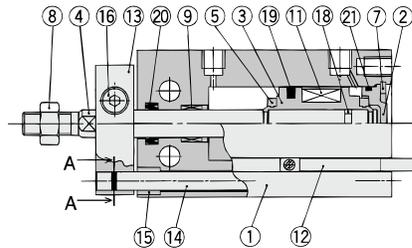
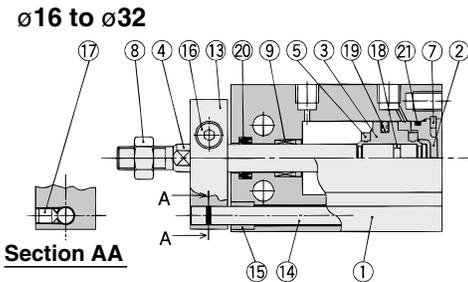
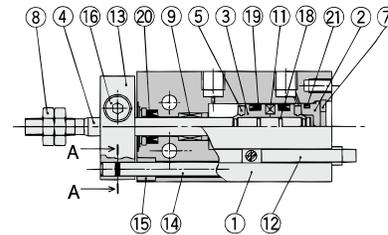
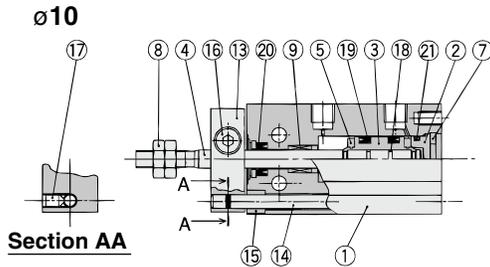
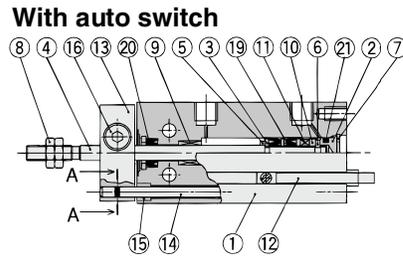
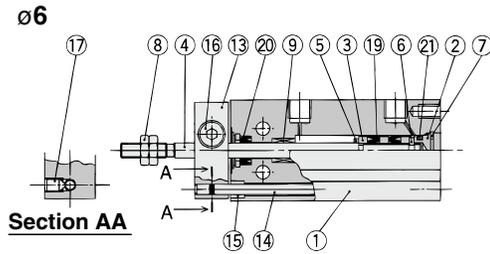
MU

D-□

-X□

Technical Data

## Construction



### Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Head cover	Brass	ø6 to ø10, Electroless nickel plated
		Aluminum alloy	ø16 to ø32, Chromated
3	Piston	Brass	ø6
		Aluminum alloy	ø10 to ø32, Chromated
4	Piston rod	Stainless steel	
5	Bumper A	Urethane	
6	Bumper B	Urethane	
7	Retaining ring	Carbon tool steel	Phosphate coated
8	Rod end nut	Carbon steel	Chromated
9	Bushing	Oil-impregnated sintered alloy	
10	Magnet holder	Brass	ø6

### Component Parts

No.	Description	Material	Note
11	Magnet	—	
12	Auto switch	—	
13	Non-rotating plate	Aluminum alloy	Nickel plated
14	Guide rod	Stainless steel	
15	Bushing	Bearing alloy	
16	Hexagon socket head cap screw	Carbon steel	Chromated
17	Hexagon socket head set screw	Carbon steel	Chromated
18	Piston gasket	NBR	
19*	Piston seal		
20*	Rod seal		
21*	Gasket		

### Replacement Parts: Seal Kit

Bore size (mm)	Kit no.	Contents
10	CU10D-PS	Set of nos. above 19, 20, 21.
16	CU16D-PS	
20	CU20D-PS	
25	CU25D-PS	
32	CU32D-PS	

\* Seal kit includes 19, 20, 21. Order the seal kit, based on each bore size.

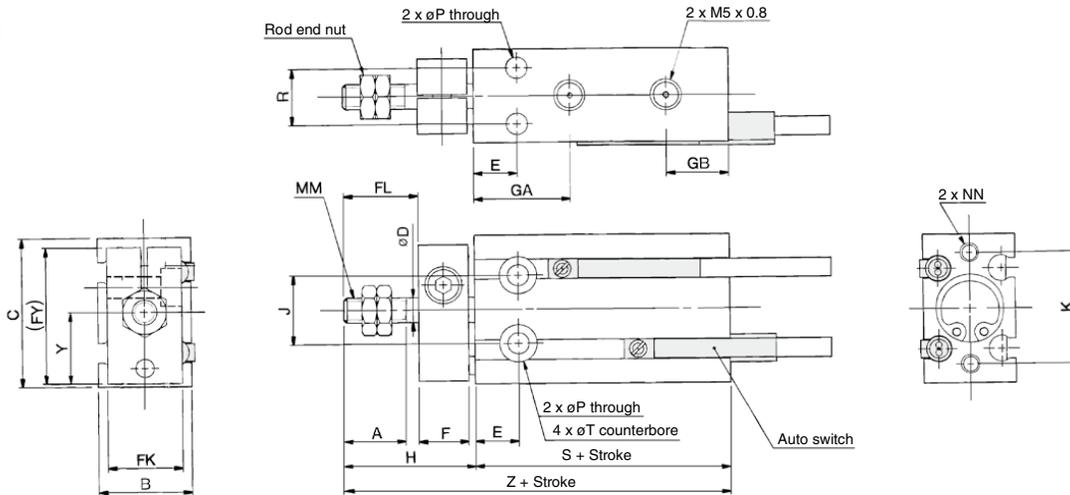
\* Seal kit includes a grease pack (10 g).

Order with the following part number when only the grease pack is needed.

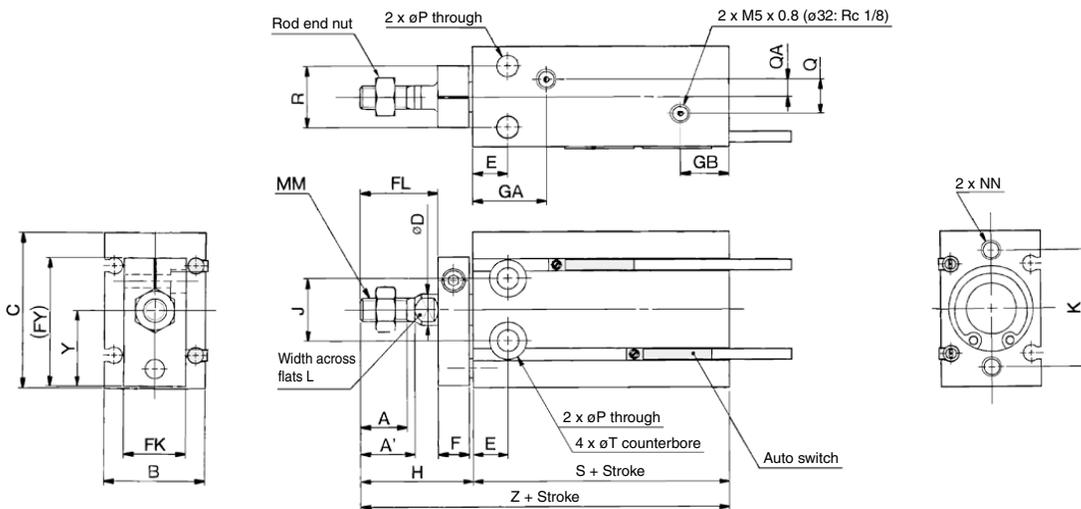
**Grease pack part number: GR-S-010 (10 g)**

**Dimensions: Non-rotating Rod Type; Double Acting, Single Rod**

∅6, ∅10

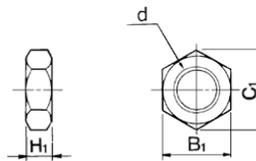


∅16 to ∅32



**Rod End Nut/Accessory** Material: Carbon steel

Part no.	Applicable bore size (mm)	d	H <sub>1</sub>	B <sub>1</sub>	C <sub>1</sub>
NTP-006	6	M3 x 0.5	1.8	5.5	6.4
NTP-010	10	M4 x 0.7	2.4	7	8.1
NTJ-015A	16	M5 x 0.8	4	8	9.2
NT-015A	20	M6 x 1.0	5	10	11.5
NT-02	25	M8 x 1.25	5	13	15.0
NT-03	32	M10 x 1.25	6	17	19.6



Bore size (mm)	A	A'	B	C	D	E	F	FL	FK	FY	GA	GB	H	J	K	L	MM
	6	7	—	13	22	3	7	8	9	11	20.5	15	10	18	10	17	—
10	10	—	15	24	4	7	8	12	12	22	16.5	10	21	11	18	—	M4 x 0.7
16	11	12.5	20	32	6	7	8	17	13	28	16.5 <sup>Note</sup>	11.5	26	14	25	5	M5 x 0.8
20	12	14	26	40	8	9	8	20	16	33	19	12.5	29	16	30	6	M6 x 1.0
25	15.5	18	32	50	10	10	10	22	20	43.5	21.5	13	33	20	38	8	M8 x 1.25
32	19.5	22	40	62	12	11	12	29	24	51.5	23	12.5	42	24	48	10	M10 x 1.25

Bore size (mm)	NN	P	Q	QA	R	T	Y	Without auto switch		With auto switch	
								S	Z	S	Z
6	M3 x 0.5 depth 5	3.2	—	—	7	6 depth 4.8	10.5	33	51	33	51
10	M3 x 0.5 depth 5	3.2	—	—	9	6 depth 5	11.5	36	57	36	57
16	M4 x 0.7 depth 6	4.5	4	2	12	7.6 depth 6.5	15.5	30	56	40	66
20	M5 x 0.8 depth 8	5.5	9	4.5	16	9.3 depth 8	19.5	36	65	46	75
25	M5 x 0.8 depth 8	5.5	9	4.5	20	9.3 depth 9	24.5	40	73	50	83
32	M6 x 1.0 depth 9	6.6	13.5	4.5	24	11 depth 11.5	30.5	42	84	52	94

Note) 5 stroke (CUK16-5D): GA = 14.5

- CUJ
- CU
- CQS
- JCQ
- CQ2
- RQ
- CQM
- CQU
- MU

- D-□
- X□
- Technical Data