

Free Mount Cylinder

CU Series

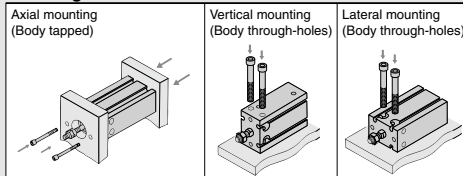
A space-saving air cylinder with multiple surfaces capable of mounting directly. Offered in rich variations.



Space-saving

The multiple surface direct mounting with a square body and no brackets allows the freedom of the mounting surface. This enables space-saving designs for equipment.

Mounting



Series Variations

Series	Action	Rod	Bore size (mm)	Page
Standard CU Series	Double acting	Single rod	6, 10, 16, 20, 25, 32	623
	Single acting	Double rod		630
Non-rotating CUK Series	Double acting	Single rod		635
	Single acting	Double rod		642
Long stroke CU Series	Double acting	Single rod		646
	Double acting	Single rod		650
Long stroke, Non-rotating rod CUK Series	Double acting	Single rod	656	
	Double acting	Single rod	660	
With air cushion CU-A Series	Double acting	Single rod	20, 25, 32	664
For vacuum ZCUK Series	Double acting	Single rod	10, 16, 20, 25, 32	673

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

- D-□
- X□
- Technical Data

Combinations of Standard Products and Made

CU Series

●: Standard
⊙: Made to Order specifications
○: Special product (Contact SMC for details.)
—: Not available

Series	CU (Standard)			CUK (Non-rotating)		
	Double acting		Single acting	Double acting		Single acting
	Single rod	Double rod	Single rod	Single rod	Double rod	Single rod

Symbol	Specification	Applicable bore size	ø6 to ø32						
Standard	Standard	ø6 to ø32	●	●	●	●	●	●	
D	Built-in magnet		●	●	●	●	●	●	
10-, 11-, 21-, 22-	Clean series	ø6 to ø25	●	—	—	—	—	—	
25A-	Copper (Cu) and zinc (Zn)-free ^{Note 3)}	ø10 to ø32	●	○	○	●	○	○	
20-	Copper ^{Note 2)} and Fluorine-free	ø6 to ø32	●	○	○	●	○	○	
XB6	Heat-resistant cylinder (–10 to 150 °C)	ø6 to ø32	⊙	○	—	⊙	○	—	
XB7	Cold-resistant cylinder (–40 to 70 °C)		⊙	○	—	⊙	○	—	
XB9	Low-speed cylinder (10 to 50 mm/s) ^{Note 1)}		⊙	○	—	⊙	○	—	
XB13	Low-speed cylinder (5 to 50 mm/s) ^{Note 1)}		⊙	○	—	⊙	○	—	
XC19	Intermediate stroke (5 mm spacer)		⊙	○	—	⊙	○	—	
XC22	Fluororubber seals		⊙	○	⊙	⊙	○	⊙	
XC34	Rod not extending beyond non-rotating plate		—	—	—	⊙	○	⊙	

Note 1) Refer to Best Pneumatics No. 2-3 for low-speed cylinders.

Note 2) Copper-free for the externally exposed part. For details, refer to the **Web Catalog**.

Note 3) For details, refer to the SMC website.

to Order Specifications

CU Series

CU (Long stroke)		CUK (Long stroke, Non-rotating)		CU-A (Air cushion)	ZCUK (For vacuum)	CUX (Low-speed cylinder) <small>(Note)</small>	
Double acting		Double acting		Double acting	Double acting	Double acting	
Single rod	Double rod	Single rod	Double rod	Single rod	Single rod	Single rod	
ø6 to ø32				ø20 to ø32	ø10 to ø32		
●	●	●	●	●	●	●	
●	●	●	●	●	●	●	
—	—	—	—	—	—	○ (ø16 or more)	
○	○	○	○	○	○	—	
●	○	○	●	○	○	—	
◎	○	◎	○	—	○	—	
◎	○	◎	○	—	○	—	
◎	○	◎	○	—	○	—	
◎	○	◎	○	—	○	○	
◎	○	◎	○	—	○	—	
—	—	◎	○	—	○	—	

- CUJ
- CU**
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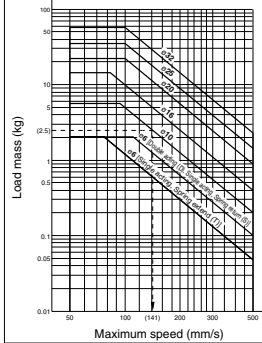
Precautions on Free Mount

1. Operating speed

Make sure to connect a speed controller to the cylinder and adjust its speed to 500 mm/s or less.

If a load is to be attached to the end of the rod, adjust the speed to the maximum speed shown in Graph (1) or less, in accordance with the added mass.

Graph (1) Load Mass and Maximum Speed



How to read the graph

- Using the CU10 to drive a load weighing 2.5 kg: From the vertical axis in the graph on the left, extend the horizontally from 2.5 kg., and drop down from the point at which it intersects with the tube bore φ10. The maximum speed will be 141 mm/s.

2. Rod end allowable lateral load

Make sure that the lateral load that is applied to the rod end will be no more than the values shown in the tables.

The tables show the value for a single rod. For double rods, please contact SMC.

Standard Double Acting, Single Rod

Without auto switch: CU□-□D

Model	Stroke (mm)												
	5	10	15	20	25	30	40	50	60	70	80	90	100
CU6	0.085	0.075	0.068	0.061	0.056	0.052	0.045	0.039	0.035	—	—	—	—
CU10	0.34	0.30	0.27	0.25	0.23	0.21	0.18	0.16	0.15	—	—	—	—
CU16	0.69	0.61	0.55	0.50	0.46	0.43	0.37	0.33	0.29	—	—	—	—
CU20	2.2	2.0	1.8	1.6	1.5	1.4	1.2	1.1	1.0	0.92	0.85	0.78	0.73
CU25	3.5	3.2	3.0	2.7	2.6	2.4	2.1	1.9	1.7	1.6	1.4	1.3	1.2
CU32	5.4	4.9	4.6	4.3	4.0	3.8	3.3	3.0	2.8	2.5	2.3	2.2	2.0

With auto switch: CDU□-□D

Model	Stroke (mm)												
	5	10	15	20	25	30	40	50	60	70	80	90	100
CDU6	0.085	0.075	0.068	0.061	0.056	0.052	0.045	0.039	0.035	—	—	—	—
CDU10	0.30	0.27	0.25	0.23	0.21	0.18	0.16	0.15	—	—	—	—	—
CDU16	0.99	0.89	0.81	0.74	0.69	0.64	0.56	0.50	0.45	—	—	—	—
CDU20	3.0	2.7	2.5	2.3	2.1	2.0	1.8	1.6	1.4	1.3	1.2	1.1	1.0
CDU25	4.7	4.3	4.0	3.7	3.5	3.2	2.9	2.6	2.4	2.2	2.0	1.9	1.7
CDU32	7.1	6.6	6.1	5.7	5.4	5.1	4.6	4.1	3.8	3.5	3.2	3.0	2.8

Non-rotating Rod Type

Without auto switch: CUK□-□D

Model	Stroke (mm)												
	5	10	15	20	25	30	40	50	60	70	80	90	100
CUK6	0.075	0.068	0.061	0.056	0.052	0.048	0.042	0.037	0.033	—	—	—	—
CUK10	0.30	0.27	0.25	0.23	0.21	0.20	0.17	0.15	0.14	—	—	—	—
CUK16	0.55	0.50	0.46	0.43	0.40	0.37	0.33	0.29	0.26	—	—	—	—
CUK20	1.8	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.92	0.85	0.78	0.73	0.68
CUK25	3.0	2.7	2.6	2.4	2.2	2.1	1.9	1.7	1.6	1.4	1.3	1.2	1.2
CUK32	4.3	4.0	3.8	3.5	3.3	3.2	2.9	2.6	2.4	2.2	2.1	2.0	1.8

With auto switch: CDUK□-□D

Model	Stroke (mm)												
	5	10	15	20	25	30	40	50	60	70	80	90	100
CDUK6	0.075	0.068	0.061	0.056	0.052	0.048	0.042	0.037	0.033	—	—	—	—
CDUK10	0.30	0.27	0.25	0.23	0.21	0.20	0.17	0.15	0.14	—	—	—	—
CDUK16	0.81	0.74	0.69	0.64	0.60	0.56	0.50	0.45	0.41	—	—	—	—
CDUK20	2.5	2.3	2.1	2.0	1.9	1.8	1.6	1.4	1.3	1.2	1.1	1.0	1.0
CDUK25	4.0	3.7	3.5	3.2	3.1	2.9	2.6	2.4	2.2	2.0	1.9	1.7	1.6
CDUK32	5.7	5.4	5.1	4.8	4.6	4.4	4.0	3.6	3.4	3.1	2.9	2.7	2.6

Single Acting, Spring Return (S)

Without auto switch: CU□-□S (N)

Model	Stroke (mm)		
	5	10	15
CU6	0.19	0.17	0.15
CU10	0.66	0.59	0.60
CU16	1.4	1.3	1.3
CU20	4.7	4.2	4.4
CU25	6.8	6.2	6.5
CU32	10	9.8	10

Single Acting, Spring Extend (T)

Without auto switch: CU□-□T (N)

Model	Stroke (mm)		
	5	10	15
CU6	0.067	0.059	0.052
CU10	0.29	0.26	0.24
CU16	0.99	0.89	0.81
CU20	2.2	2.0	1.8
CU25	3.5	3.2	3.0
CU32	5.4	4.9	4.6

With auto switch: CDU□-□S (N)

Model	Stroke (mm)		
	5	10	15
CDU6	0.17	0.15	0.13
CDU10	0.66	0.59	0.60
CDU16	1.6	1.5	1.5
CDU20	5.3	4.8	4.9
CDU25	7.6	7.0	7.2
CDU32	12	11	11

With auto switch: CDU□-□T (N)

Model	Stroke (mm)		
	5	10	15
CDU6	0.062	0.055	0.049
CDU10	0.29	0.26	0.24
CDU16	0.99	0.89	0.81
CDU20	3.0	2.7	2.5
CDU25	4.7	4.3	4.0
CDU32	7.1	6.6	6.1

Non-rotating Rod Type

Single Acting, Spring Return (S)

Without auto switch: CUK□-□S (N)

Model	Stroke (mm)		
	5	10	15
CUK6	0.17	0.15	0.14
CUK10	0.59	0.54	0.56
CUK16	1.1	1.0	1.1
CUK20	3.9	3.6	3.8
CUK25	5.7	5.3	5.7
CUK32	8.5	7.9	8.6

Non-rotating Rod Type

Single Acting, Spring Extend (T)

Without auto switch: CUK□-□T (N)

Model	Stroke (mm)		
	5	10	15
CUK6	0.059	0.052	0.047
CUK10	0.26	0.24	0.22
CUK16	0.81	0.74	0.69
CUK20	1.8	1.6	1.5
CUK25	3.0	2.7	2.6
CUK32	4.3	4.0	3.8

With auto switch: CDUK□-□S (N)

Model	Stroke (mm)		
	5	10	15
CDUK6	0.15	0.13	0.12
CDUK10	0.59	0.54	0.56
CDUK16	1.3	1.2	1.3
CDUK20	4.4	4.1	4.3
CDUK25	6.5	6.1	6.4
CDUK32	9.7	9.1	9.6

With auto switch: CDUK□-□T (N)

Model	Stroke (mm)		
	5	10	15
CDUK6	0.055	0.049	0.044
CDUK10	0.26	0.24	0.22
CDUK16	0.81	0.74	0.69
CDUK20	2.5	2.3	2.1
CDUK25	4.0	3.7	3.5
CDUK32	5.7	5.4	5.1

Free Mount Cylinder

Single Acting, Single Rod, Spring Return/Extend

CU Series

ø6, ø10, ø16, ø20, ø25, ø32

How to Order

CU 10 [] - **15** **S** - []

With auto switch **CDU 10** [] - **15** **S** - **M9BW** [] - []

Built-in magnet •

Bore size •

6	6 mm
10	10 mm
16	16 mm
20	20 mm
25	25 mm
32	32 mm

Port thread type •

Symbol	Type	Bore size
Nil	M5 x 0.8	ø6, ø10, ø16, ø20, ø25
	Rc 1/8	ø32
TN	NPT 1/8	ø32
TF	G 1/8	ø32

Number of auto switches

Nil	2 pcs.
S	1 pc.

Auto switch

Nil	Without auto switch
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• **Action**

S	Single acting, Spring return
T	Single acting, Spring extend

• **Standard stroke (mm)**

ø6, ø10, ø16	5, 10, 15
ø20, ø25, ø32	

• **Made to Order**
* Refer to page 636 for the Made to Order specifications.

• **Built-in Magnet Cylinder Model**
If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.
(Example): CDU20-10S

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)		
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9NV	M9N	●	●	●	○	○	IC circuit
				3-wire (PNP)			M9PV	M9P	●	●	●	○	—	
				2-wire	M9BV		M9B	●	●	●	○	Relay, PLC		
	3-wire (NPN)			5 V, 12 V	M9NWX		M9NW	●	●	●	○		IC circuit	
	3-wire (PNP)			12 V	M9PWX		M9PW	●	●	●	○			—
	2-wire			5 V, 12 V	M9BWX		M9BW	●	●	●	○	IC circuit		
Water resistant (2-color indicator)	2-wire	M9NAV ^{*1}	M9NA ^{*1}	○	○	○	○	—						
		M9PAV ^{*1}	M9PA ^{*1}	○	○	●	○		IC circuit					
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	A96V	A96		●	●	●	—	—
				2-wire	24 V	12 V	A93V ^{*2}	A93	●	—	●	●	—	Relay, PLC
				2-wire	24 V	12 V	100 V or less	A90V	A90	●	—	●	—	
				2-wire	24 V	12 V	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) M9NWX
- * 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.

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

- D-□
- X□
- Technical Data



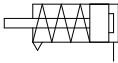
Specifications

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	0.2 MPa	0.15 MPa			0.13 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	$\begin{matrix} +1.0 \\ 0 \end{matrix}$ mm					

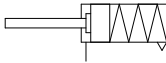
Note) ø6 with auto switch type: One side rubber bumper

Symbol

Single acting,
Spring return



Single acting,
Spring extend



Rubber bumper

Standard Stroke

Bore size (mm)	Standard stroke (mm)
6, 10, 16, 20, 25, 32	5, 10, 15

Theoretical Output

(N)

Action	Bore size (mm)	Operating pressure (MPa)		
		0.3	0.5	0.7
Spring return (S)	ø6	4.99	10.7	16.3
	ø10	16.7	32.4	48.1
	ø16	45.6	86.3	126
	ø20	73	136	199
	ø25	119	218	316
	ø32	207	368	529
Spring extend (T)	ø6	2.86	7.10	11.3
	ø10	12.9	26.1	39.3
	ø16	37.2	71.8	106
	ø20	58	111	164
	ø25	95	178	260
	ø32	173	312	450

For the reactive force of spring return, refer to page 1900.



Made to Order Specifications
[Click here for details](#)

Symbol	Specifications
-XC22	Fluororubber seals

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

(g)

Model	Stroke (mm)		
	5	10	15
C(D)U6-□S,T	22 (27)	25 (35)	28 (38)
C(D)U10-□S,T	36 (41)	40 (50)	48 (58)
C(D)U16-□S,T	50 (75)	56 (86)	71 (101)
C(D)U20-□S,T	95 (128)	106 (143)	133 (170)
C(D)U25-□S,T	176 (230)	193 (252)	235 (294)
C(D)U32-□S,T	262 (335)	286 (364)	347 (425)

Tightening Torque

When mounting a CU single acting series, refer to page 624.

Spring reaction force

Refer to page 1900 (Table (3): Spring Reaction Force).

Moisture Control Tube IDK Series

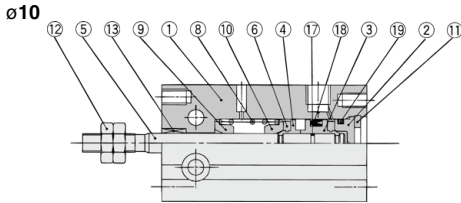
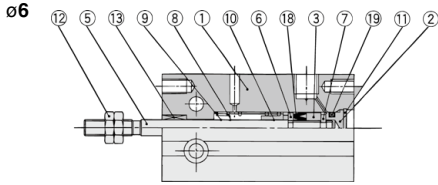


When operating an actuator with a small diameter and a short stroke at a high frequency, the dew condensation (water droplet) may occur inside the piping depending on the conditions.

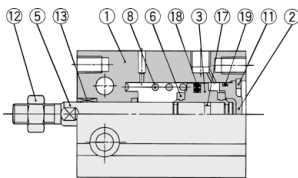
Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to [the IDK series in the Best Pneumatics No. 6](#).

Construction

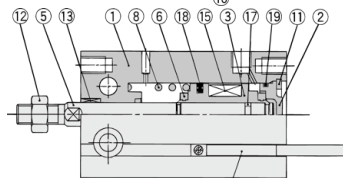
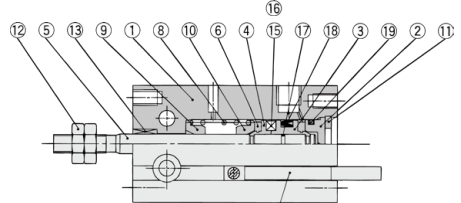
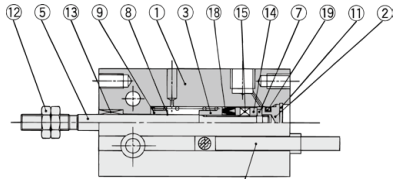
Single acting, Spring return



ø16 to ø32



With auto switch



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
4	Piston	Aluminum alloy	ø10 to ø32, Chromated
5	Piston rod	Stainless steel	
6	Bumper A	Urethane	
7	Bumper B	Urethane	
8	Return spring	Piano wire	Zinc chromated

Component Parts

No.	Description	Material	Note
9	Spring seat	Brass	
10	Spring seat	Brass	
11	Retaining ring	Carbon tool steel	Phosphate coated
12	Rod end nut	Carbon steel	Chromated
13	Bushing	Bearing alloy	
14	Magnet holder	Brass	ø6
15	Magnet	—	
16	Auto switch	—	
17	Piston gasket		
18*	Piston seal	NBR	
19*	Gasket		

Replacement Parts: Seal Kit

Kit no.	Bore size (mm) / Part no.				
	10	16	20	25	32
	CU10S-PS	CU16S-PS	CU20S-PS	CU25S-PS	CU32S-PS

* Seal kit includes 18, 19. 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)

CUJ

CU

CQS

JCQ

CQ2

RQ

CQM

CQU

MU

D-□

-X□

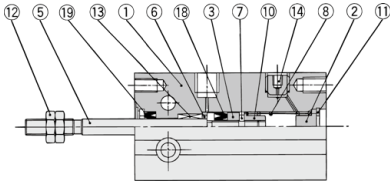
Technical
Data

CU Series

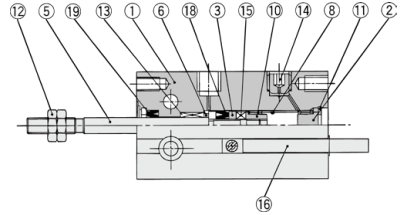
Construction

Single acting, Spring extend

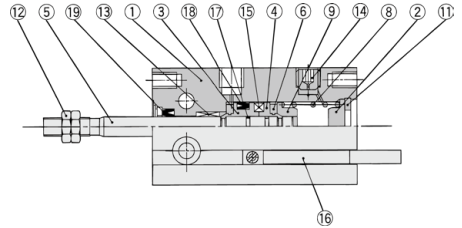
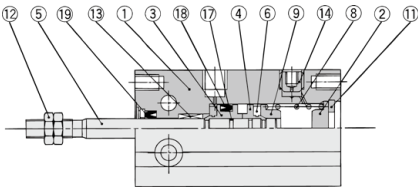
ø6



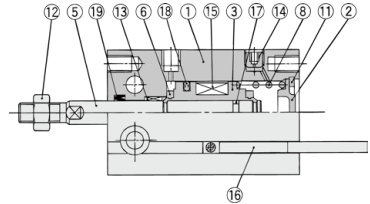
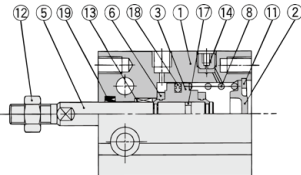
With auto switch



ø10



ø16 to ø32



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	Aluminum alloy	ø10, Chromated
5	Piston rod	Stainless steel	
6	Bumper A	Urethane	
7	Bumper B	Urethane	
8	Return spring	Piano wire	Zinc chromated

Component Parts

No.	Description	Material	Note
9	Spring seat	Brass	
10	Stopper	Brass	ø6
11	Retaining ring	Carbon tool steel	Phosphate coated
12	Rod end nut	Carbon steel	Chromated
13	Bushing	Bearing alloy	
14	Plug with fixed orifice	Alloy steel	Black dyed
15	Magnet	—	
16	Auto switch	—	
17	Piston gasket		
18*	Piston seal	NBR	
19*	Rod seal		

Replacement Parts: Seal Kit

Kit no.	Bore size (mm) / Part no.				
	10	16	20	25	32
	CU10T-PS	CU16T-PS	CU20T-PS	CU25T-PS	CU32T-PS

* Seal kit includes 18, 19. Order the seal kit, based on each bore size.

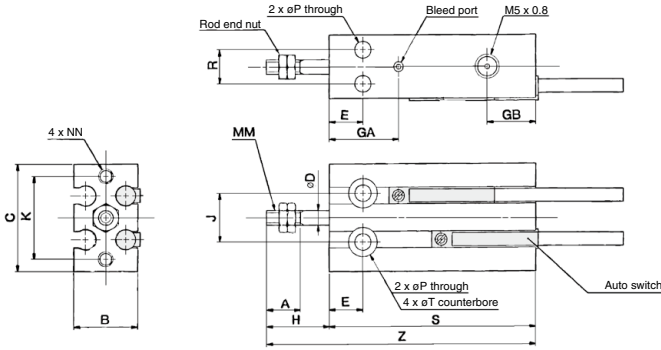
* Seal kit includes a grease pack (10 g).

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

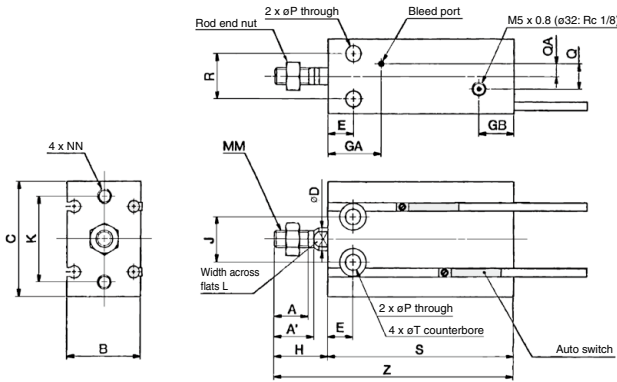
Grease pack part number: GR-S-010 (10 g)

Dimensions: Single Acting, Spring Return

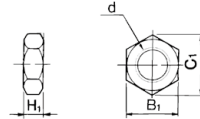
ø6, ø10



ø16 to ø32



Rod End Nut/Accessory



Material: Carbon steel

Part no.	Applicable bore size (mm)	d	H ₁	B ₁	C ₁
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

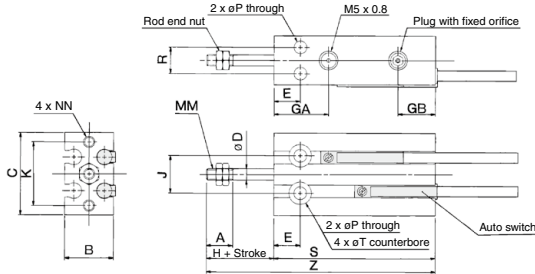
Bore size (mm)	(mm)																		
	A	A'	B	C	D	E	GA	GB	H	J	K	L	MM	NN	P	Q	QA	R	T
6	7	—	13	22	3	7	15	10	13	10	17	—	M3 x 0.5	M3 x 0.5 depth 5	3.2	—	—	7	6 depth 4.8
10	10	—	15	24	4	7	16.5	10	16	11	18	—	M4 x 0.7	M3 x 0.5 depth 5	3.2	—	—	9	6 depth 5
16	11	12.5	20	32	6	7	16.5	11.5	16	14	25	5	M5 x 0.8	M4 x 0.7 depth 6	4.5	4	2	12	7.6 depth 6.5
20	12	14	26	40	8	9	19	12.5	19	16	30	6	M6 x 1.0	M5 x 0.8 depth 8	5.5	9	4.5	16	9.3 depth 8
25	15.5	18	32	50	10	10	21.5	13	23	20	38	8	M8 x 1.25	M5 x 0.8 depth 8	5.5	9	4.5	20	9.3 depth 9
32	19.5	22	40	62	12	11	23	12.5	27	24	48	10	M10 x 1.25	M6 x 1.0 depth 9	6.6	13.5	4.5	24	11 depth 11.5

Bore size (mm)	Without auto switch															With auto switch														
	S					Z					S					Z														
	5 st	10 st	15 st	5 st	10 st	15 st	5 st	10 st	15 st	5 st	10 st	15 st	5 st	10 st	15 st	5 st	10 st	15 st												
6	38	43	48	51	56	61	38	43	48	51	56	61	38	43	48	51	56	61												
10	41	46	56	57	62	72	41	46	56	57	62	72	41	46	56	57	62	72												
16	35	40	50	51	56	66	45	50	60	61	66	76	45	50	60	61	66	76												
20	41	46	56	60	65	75	51	56	66	70	75	85	51	56	66	70	75	85												
25	45	50	60	68	73	83	55	60	70	78	83	93	55	60	70	78	83	93												
32	47	52	62	74	79	89	57	62	72	84	89	99	57	62	72	84	89	99												

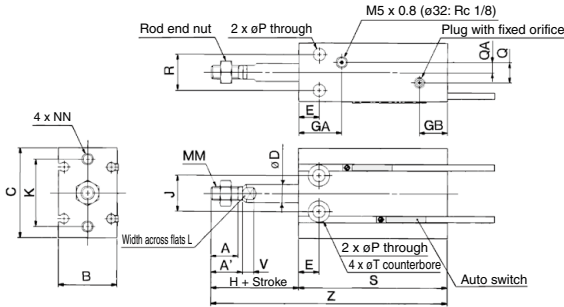
CU Series

Dimensions: Single Acting, Spring Extend

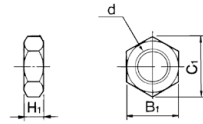
ø6, ø10



ø16 to ø32



Rod End Nut/Accessory



Material: Carbon steel

Part no.	Applicable bore size (mm)	d	H	B ₁	C ₁
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

(mm)

Bore size (mm)	A	A'	B	C	D	E	GA	GB	H	J	K	L	MM	NN	P	Q	QA	R	T	V
6	7	—	13	22	3	7	15	10	13	10	17	—	M3 x 0.5	M3 x 0.5 depth 5	3.2	—	—	7	6 depth 4.8	—
10	10	—	15	24	4	7	16.5	10	16	11	18	—	M4 x 0.7	M3 x 0.5 depth 5	3.2	—	—	9	6 depth 5	—
16	11	12.5	20	32	6	7	16.5	11.5	16	14	25	5	M5 x 0.8	M4 x 0.7 depth 6	4.5	4	2	12	7.6 depth 6.5	3.5
20	12	14	26	40	8	9	19	12.5	19	16	30	6	M6 x 1.0	M5 x 0.8 depth 8	5.5	9	4.5	16	9.3 depth 8	5
25	15.5	18	32	50	10	10	21.5	13	23	20	38	8	M8 x 1.25	M5 x 0.8 depth 8	5.5	9	4.5	20	9.3 depth 9	5
32	19.5	22	40	62	12	11	23	12.5	27	24	48	10	M10 x 1.25	M6 x 1.0 depth 9	6.6	13.5	4.5	24	11 depth 11.5	5

Bore size (mm)	Without auto switch						With auto switch					
	S			Z			S			Z		
	5 st	10 st	15 st	5 st	10 st	15 st	5 st	10 st	15 st	5 st	10 st	15 st
6	38	43	48	56	66	76	38	43	48	56	66	76
10	41	46	56	62	72	87	41	46	56	62	72	87
16	45	50	60	66	76	91	45	50	60	66	76	91
20	41	46	56	65	75	90	51	56	66	75	85	100
25	45	50	60	73	83	98	55	60	70	83	93	108
32	47	52	62	79	89	104	57	62	72	89	99	114

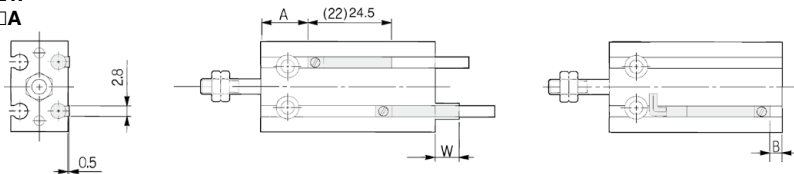
Auto Switch Mounting

Minimum Stroke for Auto Switch Mounting

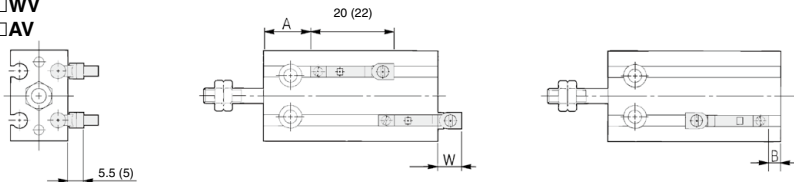
No. of auto switches mounted	Applicable auto switch		
	D-A9□, D-A9□V	D-M9□, D-M9□V	D-M9□W, D-M9□WV D-M9□A, D-M9□AV
1 pc.	5	5	5
2 pcs.	10	5	10

Proper Auto Switch Mounting Position (Detection at Stroke End) and Mounting Height: Single Acting, Spring Return

D-A9□
D-M9□
D-M9□W
D-M9□A



D-A9□V
D-M9□V
D-M9□WV
D-M9□AV



Single Acting, Spring Return

Bore size (mm)	Stroke	D-A9□, D-A9□V			D-M9□, D-M9□W			D-M9□V, D-M9□WV			D-M9□A			D-M9□AV		
		A	B	W	A	B	W	A	B	W	A	B	W	A	B	W
6	All stroke	13.5	0	2.5 (5)	17.5	4	6.5	17.5	4	4.5	17.5	4	8.5	17.5	4	6.5
		15	17.5	3.5	-1.5 (1)	16.5	7.5	2.5	16.5	7.5	0.5	16.5	7.5	4.5	16.5	7.5
10	5, 10	12.5	3.5	-1.5 (1)	16.5	7.5	2.5	16.5	7.5	0.5	16.5	7.5	4.5	16.5	7.5	2.5
		15	17.5	3.5	-1.5 (1)	21.5	7.5	2.5	21.5	7.5	0.5	21.5	7.5	4.5	21.5	7.5
16	5, 10	16	4	-2 (0.5)	20	8	2	20	8	-0.5	20	8	4	20	8	1.5
		15	21	4	-2 (0.5)	25	8	2	25	8	-0.5	25	8	4	25	8
20	5, 10	20	6	-4 (-1.5)	24	10	0	24	10	-2	24	10	2	24	10	0
		15	25	6	-4 (-1.5)	29	10	0	29	10	-2	29	10	2	29	10
25	5, 10	22.5	7	-5.5 (-3)	26.5	11	-1.5	26.5	11	-3.5	26.5	11	0.5	26.5	11	-1.5
		15	27.5	7	-5.5 (-3)	31.5	11	-1.5	31.5	11	-3.5	31.5	11	0.5	31.5	11
32	5, 10	23.5	8.5	-6.5 (-4)	27.5	12.5	-2.5	27.5	12.5	-4.5	27.5	12.5	-0.5	27.5	12.5	-2.5
		15	28.5	8.5	-6.5 (-4)	32.5	12.5	-2.5	32.5	12.5	-4.5	32.5	12.5	-0.5	32.5	12.5

Single Acting, Spring Extend

Bore size (mm)	Stroke	D-A9□, D-A9□V			D-M9□, D-M9□W			D-M9□V, D-M9□WV			D-M9□A			D-M9□AV		
		A	B	W	A	B	W	A	B	W	A	B	W	A	B	W
6	All stroke	10.5	1.5	0.5 (3)	14.5	5.5	4.5	14.5	5.5	2.5	14.5	5.5	6.5	14.5	5.5	4.5
		15	12.5	3.5	-1.5 (1)	16.5	7.5	2.5	16.5	7.5	0.5	16.5	7.5	4.5	16.5	7.5
10	5, 10	12.5	3.5	-1.5 (1)	16.5	7.5	2.5	16.5	7.5	0.5	16.5	7.5	4.5	16.5	7.5	2.5
		15	17.5	8.5	-6.5 (-4)	21.5	12.5	-2.5	21.5	12.5	-4.5	21.5	12.5	-0.5	21.5	12.5
16	5, 10	16	4	-2 (0.5)	20	8	2	20	8	0	20	8	4	20	8	2
		15	21	4	-2 (0.5)	25	8	2	25	8	0	25	8	4	25	8
20	5, 10	20	6	-4 (-1.5)	24	10	0	24	10	-2	24	10	2	24	10	0
		15	25	6	-4 (-1.5)	29	10	0	29	10	-2	29	10	2	29	10
25	5, 10	22.5	7	-5.5 (-3)	26.5	11	-1.5	26.5	11	-3.5	26.5	11	0.5	26.5	11	-1.5
		15	27.5	7	-5.5 (-3)	31.5	11	-1.5	31.5	11	-3.5	31.5	11	0.5	31.5	11
32	5, 10	23.5	8.5	-6.5 (-4)	27.5	12.5	-2.5	27.5	12.5	-4.5	27.5	12.5	-0.5	27.5	12.5	-2.5
		15	28.5	8.5	-6.5 (-4)	32.5	12.5	-2.5	32.5	12.5	-4.5	32.5	12.5	-0.5	32.5	12.5

Note 1) Figures in the table above are used as a reference when mounting the auto switches for stroke end detection. In the case of actually setting the auto switches, adjust them after confirming their operation.

Note 2) Negative figures in the table W indicate an auto switch is mounted inward from the edge of the cylinder body.

Note 3) In the case of the 5 stroke or the 10 stroke, there are times in which the auto switch will not turn OFF or 2 auto switches will turn ON simultaneously due to their movement range. Therefore, set the position approximately 1 to 4 mm outward from the values given in the table above. Then, perform an operation inspection to make sure that the auto switches operate normally (if 1 switch is used, make sure that it turns ON and OFF properly; if 2 auto switches are used, make sure that both auto switches turn ON).

Note 4) () in column W is the dimensions of D-A90 and A93.

CUJ

CU

CQS

JCQ

CQ2

RQ

CQM

CQU

MU

D-□

-X□

Technical Data