

# Free Mount Cylinder Double Acting, Single Rod Series *CU*

ø6, ø10, ø16, ø20, ø25, ø32

## How to Order

**CU 6 - 30 D -**

**With auto switch** **CDU 6 - 30 D - 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

**Action**

D	Double acting
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**Standard stroke (mm)**

ø6, ø10, ø16	5, 10, 15, 20, 25, 30
ø20, ø25, ø32	5, 10, 15, 20, 25, 30, 40, 50

**Auto switch**

Nil	Without auto switch
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**Number of auto switches**

Nil	2 pcs.
S	1 pc.

**Made to order**  
\* Refer to page 484 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): CDU20-25D

## Applicable Auto Switches/Refer to pages 1263 to 1371 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 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)			5 V, 12 V		M9NWV		M9NW	●	●	●	○	○	IC circuit			
	3-wire (PNP)					M9PWV		M9PW	●	●	●	○	○				
	2-wire					M9B WV		M9B W	●	●	●	○	○				
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	—	●	—	—	IC circuit	—	
				No	2-wire	24 V	12 V	100 V	A93V	A93	●	—	●	—	—	—	IC circuit
			100 V or less					A90V	A90	●	—	●	—	—	—		

\* 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 538 for details.  
\* For detail about auto switches with pre-wired connector, refer to pages 1328 to 1329.  
\* Auto switches are shipped together but not assembled.

CUJ  
CU  
CQS  
CQ2  
RQ  
CQM  
MU

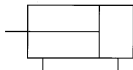
D-□  
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Individual  
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Technical data

# Series CU



## JIS Symbol

Double acting,  
Single rod



## 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	0.12 MPa	0.06 MPa		0.05 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					

## Standard Stroke

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

For "Long Stroke", refer to page 516.

## Theoretical Output

(N)

Bore size (mm)	Rod size (mm)	Operating direction	Piston area (mm <sup>2</sup> )	Operating pressure (MPa)		
				0.3	0.5	0.7
6	3	OUT	28.3	8.49	14.2	19.8
		IN	21.2	6.36	10.6	14.8
10	4	OUT	78.5	23.6	39.3	55.0
		IN	66.0	19.8	33.0	46.2
16	6	OUT	201	60.3	101	141
		IN	172	51.6	86.0	121
20	8	OUT	314	94.2	157	220
		IN	264	79.2	132	185
25	10	OUT	491	147	246	344
		IN	412	124	206	288
32	12	OUT	804	241	402	563
		IN	691	207	346	454



## Made to Order Specifications

(For details, refer to pages 1395 to 1498.)

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

## Tightening Torque/

When mounting Series CU,  
refer to the below table.

Bore size (mm)	Hexagon socket head cap screw dia.	Proper tightening torque (N·m)
6, 10	M3	1.08 ±10%
16	M4	2.45 ±10%
20, 25	M5	5.10 ±10%
32	M6	8.04 ±10%

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

(g)

Model	Cylinder stroke (mm)							
	5	10	15	20	25	30	40	50
C(D)U6-□D	22 (27)	25 (35)	28 (38)	31 (41)	34 (44)	37 (47)	—	—
C(D)U10-□D	36 (41)	40 (50)	44 (54)	48 (58)	52 (62)	56 (66)	—	—
C(D)U16-□D	50 (75)	56 (86)	62 (92)	68 (98)	74 (104)	80 (110)	—	—
C(D)U20-□D	95 (128)	106 (143)	117 (154)	128 (165)	139 (176)	150 (187)	172 (209)	194 (231)
C(D)U25-□D	176 (230)	193 (252)	210 (269)	227 (286)	244 (303)	261 (320)	295 (354)	329 (388)
C(D)U32-□D	262 (335)	286 (364)	310 (388)	334 (412)	358 (436)	382 (460)	430 (508)	478 (556)

\* For the auto switch mass, refer to page 1263.

## Copper and Fluorine-free

20-CU Bore size – Stroke D

### •Copper and Fluorine-free

This cylinder eliminates any influences of copper ions or fluoro resins on color CRTs. Copper materials have been nickel plated or replaced with non-copper materials to prevent the generation of copper ions.

### Minimum Operating Pressure (MPa)

Bore size (mm)	6	10, 16	20, 25, 32
Minimum operating pressure	0.12	0.06	0.05

### Specifications

Action	Double acting, Single rod
Bore size (mm)	6, 10, 16, 20, 25, 32
Maximum operating pressure	1.05 MPa
Cushion	Rubber bumper
Stroke	Same as standard (Refer to page 484.)
Auto switch	Mountable

## Low-speed Cylinder

CU X Mounting bracket Bore size – Stroke

### •Low-speed Cylinder

Smooth operation with a little sticking and slipping at low speed.  
Can start smoothly with a little ejection even after being rendered for hours.



### Specifications

Bore size (mm)	10	16	20	25	32
Fluid	Air				
Proof pressure	1.05 MPa				
Max. operating pressure	0.7 MPa				
Ambient and fluid temperature	Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)				
Lubricant	Not applicable (Non-lube)				
Piston speed	ø10, ø16: 1 to 300 mm/s ø20 to ø32: 0.5 to 300 mm/s				
Cushion	Rubber bumper on both ends				
Rod end thread	Male thread				
Stroke length tolerance	<sup>+1.0</sup> (Note) 0				
Mounting bracket	Basic				

Note) Hysteresis <sup>+1.0</sup><sub>0</sub>

### Minimum Operating Pressure

Bore size (mm)	10	16	20	25	32
Minimum Operating Pressure (MPa)	0.06	0.06	0.05	0.05	0.05

Refer to Best Pneumatics No. 3 for details.

CUJ

CU

CQS

CQ2

RQ

CQM

MU

D-□

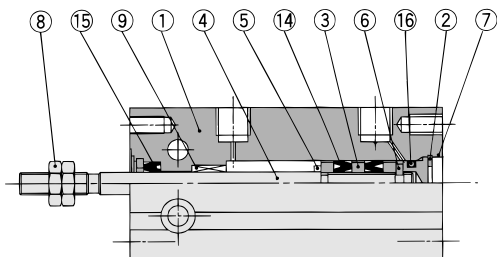
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Individual  
-X□

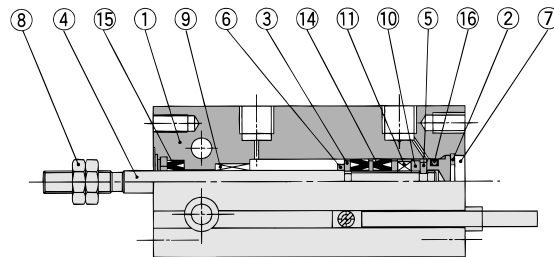
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## Construction

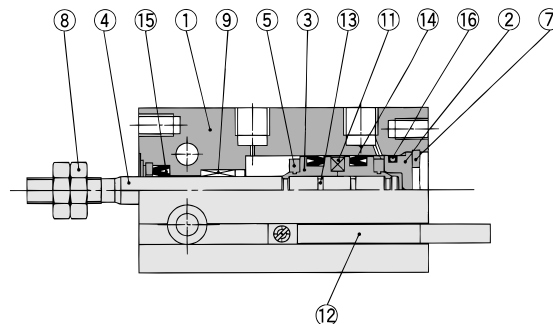
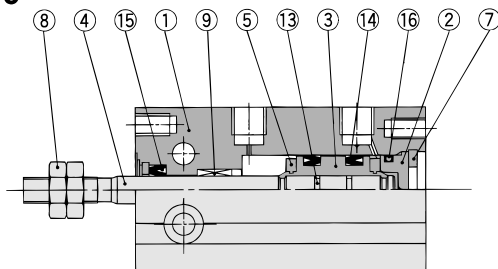
ø6



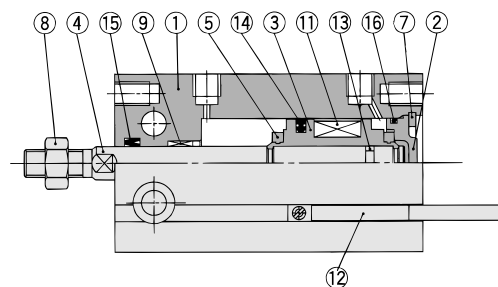
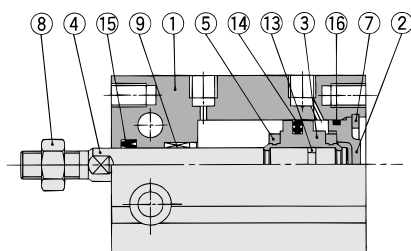
With auto switch



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 to ø10
		Aluminum alloy	ø16 to ø32, Chromated
4	Piston rod	Stainless steel	
5	Bumper A	Urethane	
6	Bumper B	Urethane	
7	Retaining ring	Carbon tool steel	Phosphate coated

### Component Parts

No.	Description	Material	Note
8	Rod end nut	Carbon steel	Nickel plated
9	Bushing	Oil-impregnated sintered alloy	
10	Magnet holder	Brass	ø6
11	Magnet	—	
12	Auto switch	—	
13	Piston gasket	NBR	
14*	Piston seal		
15*	Rod seal		
16*	Gasket		

### Replacement Parts: Seal Kit

Bore size (mm)	Kit no.	Contents
10	CU10D-PS	Set of nos. above 14, 15, 16
16	CU16D-PS	
20	CU20D-PS	
25	CU25D-PS	
32	CU32D-PS	



\* Seal kit includes 14, 15, 16. Order the seal kit, based on each bore size.

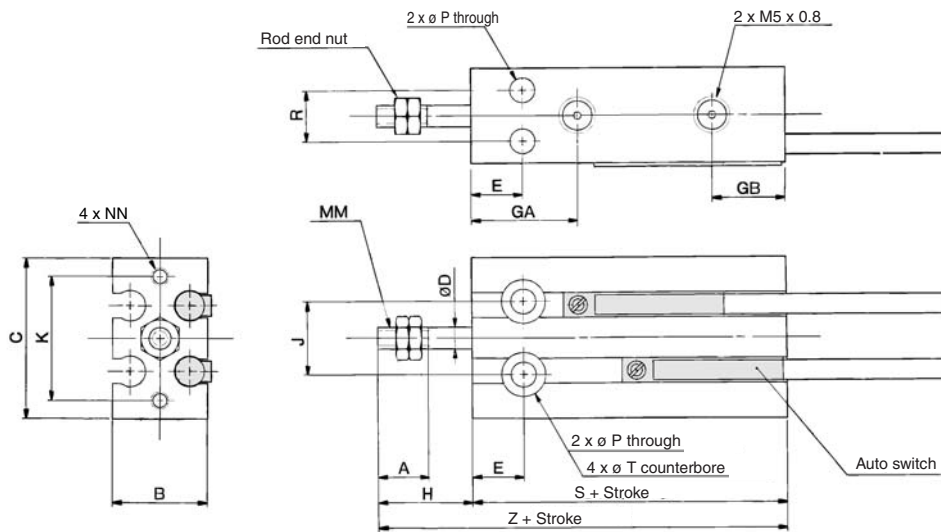
\* Seal kit includes a grease pack (10 g).

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

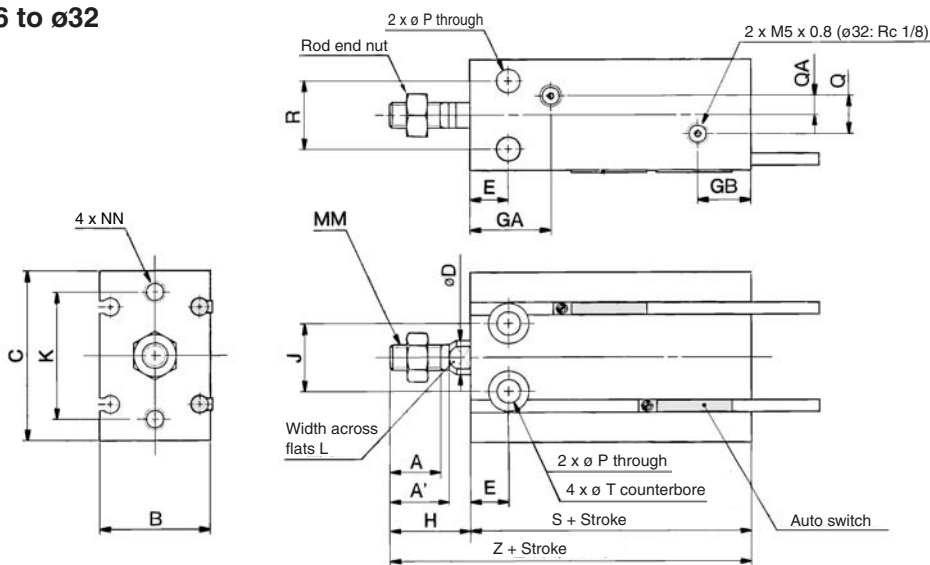
Grease pack part number: GR-S-010 (10 g)

## Dimensions: Double Acting, Single Rod

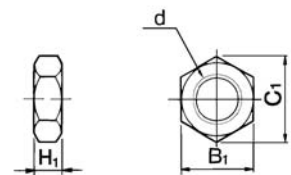
ø6, ø10



ø16 to ø32



### 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	GA	GB	H	J	K	L	MM	NN	P	Q	QA
6	7	—	13	22	3	7	15	10	13	10	17	—	M3 x 0.5	M3 x 0.5 depth 5	3.2	—	—
10	10	—	15	24	4	7	16.5	10	16	11	18	—	M4 x 0.7	M3 x 0.5 depth 5	3.2	—	—
16	11	12.5	20	32	6	7	16.5 <sup>(Note)</sup>	11.5	16	14	25	5	M5 x 0.8	M4 x 0.7 depth 6	4.5	4	2
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
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
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

Note) 5 stroke (CU16-5D): 14.5 mm

Bore size (mm)	R	T	Without auto switch	With auto switch
6	7	6 depth 4.8	S	Z
10	9	6 depth 5	33	46
16	12	7.6 depth 6.5	36	52
20	16	9.3 depth 8	30	46
25	20	9.3 depth 9	40	63
32	24	11 depth 11.5	46	65
			50	73
			52	79

CUJ

CU

CQS

CQ2

RQ

CQM

MU

D-□

-X□

Individual

-X□

Technical data