

# Free Mount Cylinder for Vacuum Series ZCUK

## How to Order

**ZCUK C 16 - 20 D**

**With auto switch** **ZCDUK C 16 - 20 D - M9BW**

**Style (Tubing method in vacuum side)/(Rod end shape)**

<b>C</b>	Cap piping/Male thread
<b>D</b>	Cap piping/Pad direct mounting
<b>Q</b>	Rod piping/Male thread
<b>R</b>	Rod piping/Pad direct mounting

**Bore size**

<b>10</b>	10 mm
<b>16</b>	16 mm
<b>20</b>	20 mm
<b>25</b>	25 mm
<b>32</b>	32 mm

**Port thread type**

Symbol	Type	Bore size
<b>Nil</b>	M5 x 0.8	ø10, ø16, ø20, ø25
	Rc1/8	ø32
<b>TN</b>	NPT1/8	ø32
<b>TF</b> (Note)	G1/8	ø32

Note) In the case of rod piping (Q, R), TF (G1/8) is not available.

**Acting**

<b>D</b>	Double acting
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**Auto switch**

<b>Nil</b>	Without auto switch
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\* Refer to the table below for applicable auto switches.

**Number of auto switches**

<b>Nil</b>	2 pcs.
<b>S</b>	1 pc.

**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) ZCDUKC20-20D

**Cylinder standard stroke (mm)**

<b>10, 16</b>	5, 10, 15, 20, 25, 30
<b>20, 25, 32</b>	5, 10, 15, 20, 25, 30, 40, 50

**Applicable Auto Switch**/Refer to Best Pneumatics No. 2 for the detailed specifications 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)			
Reed switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	M9NV	M9N	●	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)											
				2-wire											
				3-wire (NPN)											
				3-wire (PNP)											
				2-wire											
Solid state switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	5 V	A96V	A96	●	—	●	—	—	IC circuit	—
				2-wire											
				2-wire											
Solid state switch	—	Grommet	No	2-wire	24 V	12 V	A93V	A93	●	—	●	—	—	IC circuit	Relay, PLC
				2-wire											

\* Lead wire length symbols: 0.5 m..... Nil  
1 m..... M  
3 m..... L  
5 m..... Z

(Example) M9NW  
(Example) M9NWM  
(Example) M9NWL  
(Example) M9NWZ

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

\* Refer to pages 796 and 797 for the details on auto switches with a pre-wired connector.  
\* Auto switches are shipped together but not assembled.

## How to Order Vacuum Pad

Note) Refer to page 1252 for combination of cylinder and pad.

### • In the case of rod end male

**ZPT 02 U N - B4**

Pad dia. (mm)

02	ø2
04	ø4
06	ø6
08	ø8
10	ø10
13	ø13
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50

Vacuum entry (Mounting thread diameter)

Symbol	Thread dia.	ø2 to ø8	ø10 to ø16	ø20 to ø32	ø40, ø50
<b>B4</b>	M4 x 0.7	●	—	—	—
<b>B5</b>	M5 x 0.8	●	●	—	—
<b>B6</b>	M6 x 1	—	●	●	—
<b>B8</b>	M8 x 1.25	—	—	●	●
<b>B10</b>	M10 x 1.25	—	—	●	●

Material

<b>N</b>	NBR
<b>S</b>	Silicon rubber
<b>U</b>	Urethane rubber
<b>F</b>	Fluororubber
<b>GN</b>	Conductive NBR (ø2 to ø16 only)
<b>GS</b>	Conductive silicon rubber (ø2 to ø16 only)

Table (1) Pad Dia./Pad Type

Type	Dia. (mm)	2	4	6	8	10	13	16	20	25	32	40	50
Flat		●	●	●	●	●	●	●	●	●	●	●	●
Flat with ribs		—	—	—	—	●	●	●	●	●	●	●	●
Deep		—	—	—	—	—	—	—	—	—	—	—	—
Bellows		—	—	●	●	●	●	●	●	●	●	●	●

Pad type

Application:

Refer to "Table (1)".

<b>U</b>	Flat
<b>C</b>	Flat with ribs
<b>D</b>	Deep
<b>B</b>	Bellows

### • In the case of pad direct mounting

**ZP 04 U N - X11**

Pad dia. (mm)

02	ø2
04	ø4
06	ø6
08	ø8
10	ø10
13	ø13
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50

Suffix

Symbol	Applicable cylinder model
<b>X11</b>	ZC(D)UK <sup>D</sup> <sub>R</sub> 10
<b>Nil</b>	ZC(D)UK <sup>D</sup> <sub>R</sub> 16 to 32

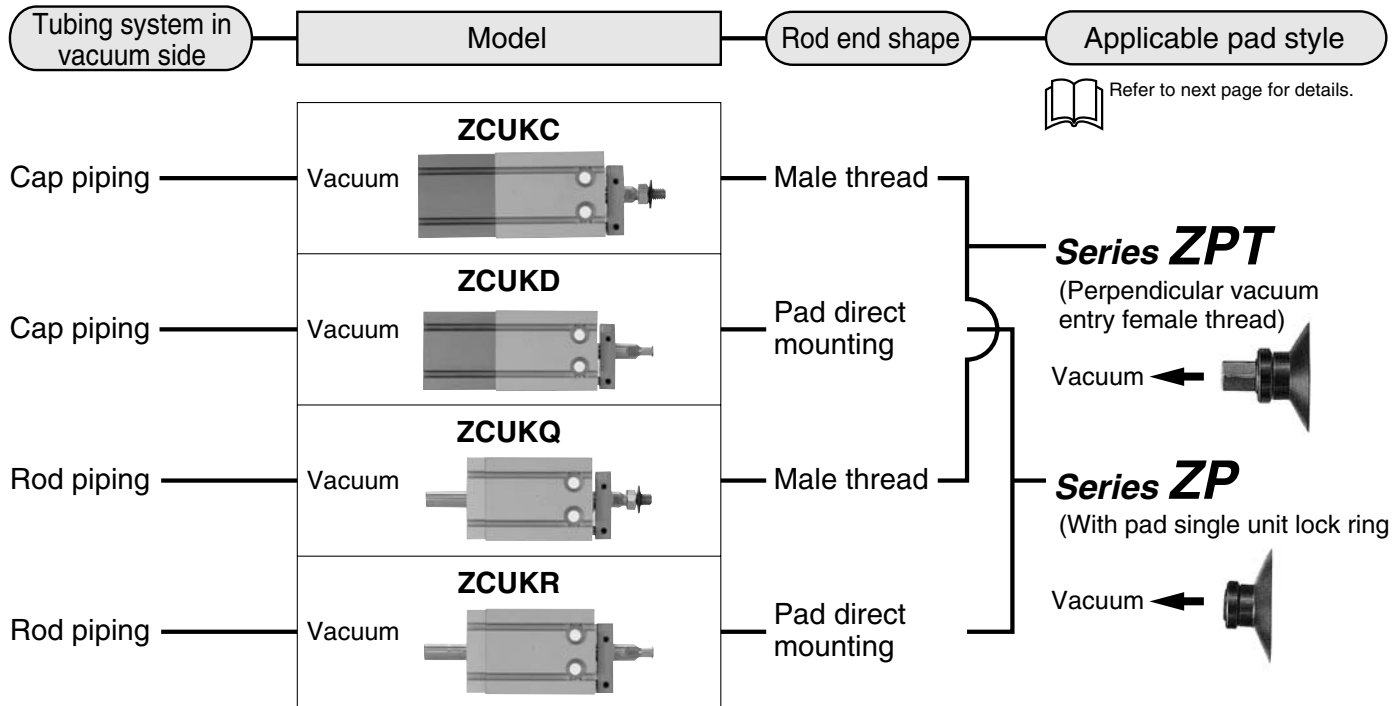
Note) -X11 pad: ø2 to ø8 diameter and flat style only.

Material

<b>N</b>	NBR
<b>S</b>	Silicon rubber
<b>U</b>	Urethane rubber
<b>F</b>	Fluororubber
<b>GN</b>	Conductive NBR (ø2 to ø16 only)
<b>GS</b>	Conductive silicon rubber (ø2 to ø16 only)

Pad type

<b>U</b>	Flat
<b>C</b>	Flat with ribs
<b>D</b>	Deep
<b>B</b>	Bellows (Except "-X11")



ZA  
ZX  
ZR  
ZM  
ZMA  
ZQ  
ZH  
ZU  
ZL  
ZY□  
ZF□  
ZP□  
SP  
**ZCUK**  
AMJ  
AMV  
AEP  
HEP  
Related Equipment

## ⚠ Precautions

Be sure to read before handling.  
Refer to front matters 38 and 39 for Safety Instructions and pages 844 to 846 for Vacuum Equipment Precautions.

### ⚠ Caution

- Do not place your finger in the clearance between the detent plate and the cylinder tube. Never put your finger between the non-rotating plate and cylinder tube. Your finger may be pinched when the piston rod retracts. If your finger is caught, it could injure your finger because the cylinder outputs a considerable amount of force.
- Make sure that rotational torque is not applied to the piston rod. If this is unavoidable, operate the cylinder within the allowable rotational torque listed in the table below.

### Allowable Rotational Torque

Bore size (mm)	ø10	ø16	ø20	ø25	ø32
Allowable rotational torque (N·m)	0.02	0.04	0.10	0.15	0.20

- To secure a workpiece to the end of the piston rod, tighten the workpiece onto the piston rod with the piston rod fully retracted so that torque is not applied to the piston rod.
- To install a cylinder, tighten it within the torque values indicated in the table below.

### Proper Tightening Torque

Bore size (mm)	Hexagon socket head bolt diameter (mm)	Proper tightening torque (N·m)
ø10	M3	1.08 ± 10%
ø16	M4	2.45 ± 10%
ø20, ø25	M5	5.10 ± 10%
ø32	M6	8.04 ± 10%

## Specifications

Bore size (mm)	ø10	ø16	ø20	ø25	ø32
Fluid	Air				
Proof pressure	1.05 MPa				
Maximum operating pressure	0.7 MPa				
Minimum operating pressure	0.13 MPa			0.11 MPa	
Vacuum port pressure	-101 kPa to 0.6 MPa (At vacuum release 0 to 0.6 MPa) <small>Note</small>				
Ambient and fluid temperature	Without auto switch: -10 to +70°C (No freezing) With auto switch: -10 to +60°C (No freezing)				
Lubrication	Not required				
Piston speed	50 to 500 mm/s				
Cushion	Rubber bumper on both sides				
Stroke allowance	+1.0 0				
Rod tip screw	With or without (Pad direct mounting)				
Mounting	Basic style				
Applicable pad	Refer to next page for details.				

Note) For a cap style, supply pressure only when vacuum is released. That pressure should be less than the cylinder pressure.

## Non-rotating Rod Accuracy (No load/At retraction of the rod at the locking plateside)

Bore size (mm)	ø10	ø16	ø20	ø25	ø32
Non-rotating rod accuracy	±0.8°		±0.5°		