

UCA2

Unit Cylinder

ø10, ø16, ø25, ø32



C O N T E N T S

Product Introduction	718
Series variation	720
Variation/Option Combination Availability Table	722
● Double acting, Single rod, Plain bearing type (UCA2)	724
● Double acting, Single rod, Rolling bearing type (UCA2-B)	734
Outer Dimensions Diagram with Switch	744
Technical Data	745
⚠ Precautions for Use	751

Twin double rod structure for high precision and high thrust

Twin double rod structure with guide function provides high positional accuracy. Cylinder with built-in Shock absorber, suitable for simple robots. (ø10 to ø32)

No plate protrusion

Easy to make into a robot unit.

Built-in Shock absorber

Smooth stopping is possible due to the soft stop function.

Compact / High thrust

Compact type with a slim design, yet can exert double the thrust due to parallel double pistons.

Stroke adjustable

Stroke adjustment between standard strokes is possible as an option.



2 types of bearings

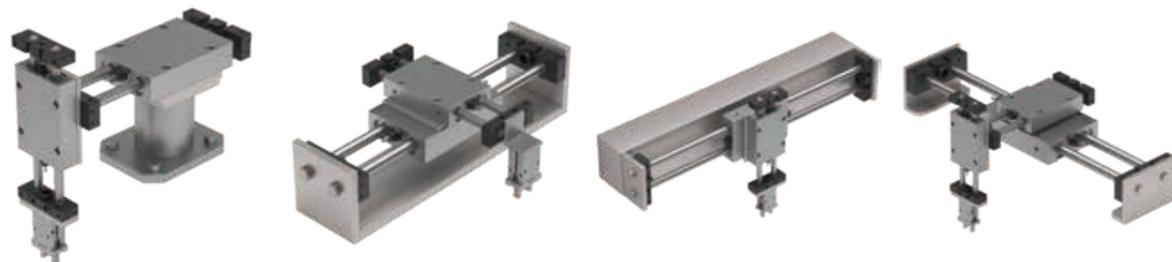
Selectable from 2 types: plain bearing and rolling bearing.

High-precision rotation stop

Parallel double pistons connected by end plates on both sides. Rotation stop is perfect and drives with high precision.

Application Example

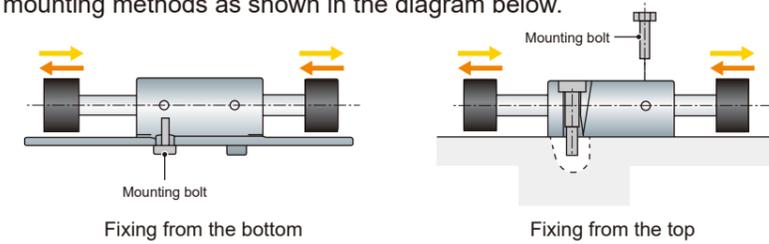
Various application examples of unit cylinders created by modular design



Selectable from two usage methods

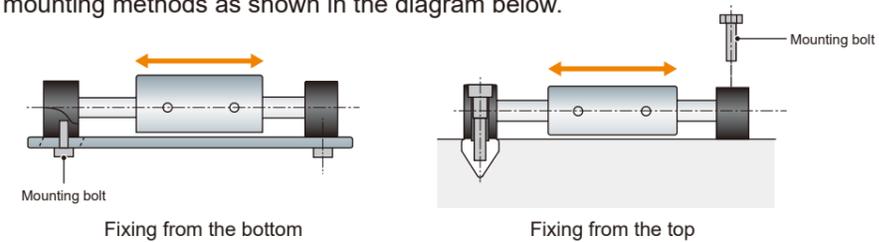
Body fixing (Model name: UCA2-(B) -X)

There are two mounting methods as shown in the diagram below.



End plate fixing (Model name: UCA2-(B) -Y)

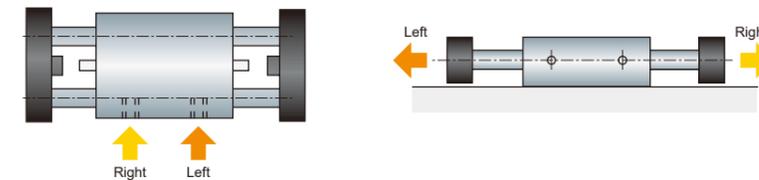
There are two mounting methods as shown in the diagram below.



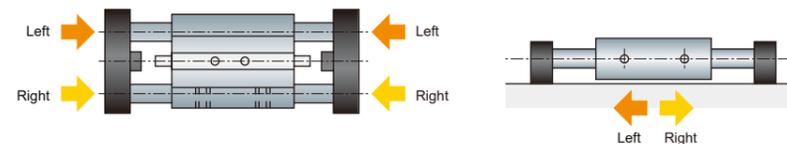
Selectable piping direction

There are ports on both the body and end plate, and piping can be done to the fixed part with either fixing method.

Body fixing (Model name: UCA2-(B) -X)



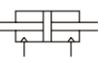
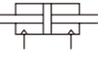
End plate fixing (Model name: UCA2-(B) -Y)



UCA2 Series product system

Model variations	Bore size (mm)	Standard stroke (mm)								Fixing method	
		25	50	75	100	125	150	175	200	Body fixing	Plate fixing
Metal bush bearing with switch UCA2 UCA2-L	ø10	●	●	●	●	●	●	●	●	●	●
	ø16, ø25, ø32	●	●	●	●	●	●	●	●	●	●
Ball bearing with switch UCA2-B UCA2-BL	ø10	●	●	●	●	●	●	●	●	●	●
	ø16, ø25, ø32	●	●	●	●	●	●	●	●	●	●

●: Standard, ○: Option ■: Not manufacturable

Variation	Model No. Circuit Diagram Symbol	Bore size (mm)	Standard Stroke (mm)										Min. Stroke	Max. Stroke	Fixing method		Stopper				Switch	Page
			25	50	75	100	125	150	175	200	Body fixing	Plate fixing			Both sides adjustment stopper Standard	One side adjustment stopper Plate A side	One side adjustment stopper Plate B side	Both sides adjustment stopper				
			X	Y	Blank	P1A	P1B	P2														
Sleeve Bearing Type With Switch	UCA2 UCA2-L (With switch) 	ø10	●	●	●	●	■	■	■	■	■	■	25	100	●	●	●	○	○	○	○	724
		ø16 / ø25 / ø32	●	●	●	●	●	●	●	●	●	●	●	200	●	●	●	○	○	○	○	
Rolling bearing type with switch	UCA2-B UCA2-BL (With switch) 	ø10	●	●	●	●	■	■	■	■	■	■	25	100	●	●	●	○	○	○	○	734
		ø16 / ø25 / ø32	●	●	●	●	●	●	●	●	●	●	●	200	●	●	●	○	○	○	○	

Guided
STM
STG
STS/
STL
STR2
UCA2

Guided
STM
STG
STS/
STL
STR2
UCA2

Cylinder
Switch
Ending

Cylinder
Switch
Ending

Combination Availability Table for Variations and Option Items

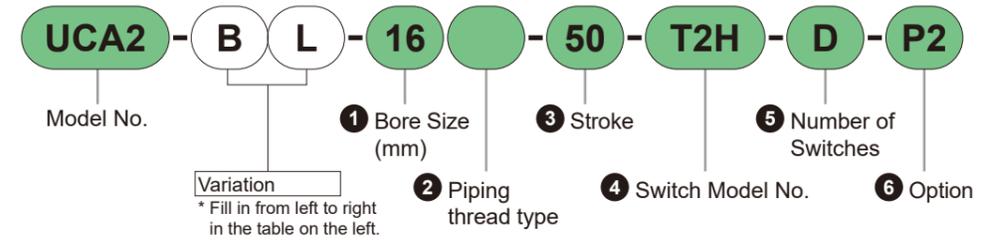
Variation / Option combinability table

- Symbol: Standard
- Symbol: Option
- Symbol: Custom Products
- △ Symbol: Manufacturable depending on conditions (Please consult)
- x Symbol: Not manufacturable

Category	Code	Variation			Piping thread		Option *1			
		Sleeve Bearing Type	Rolling Bearing Type	With Cylinder Switch	NPT	G	Both sides adjustment stopper (Standard)	Both sides adjustment stopper	One side adjustment stopper (Plate A side)	One side adjustment stopper (Plate B side)
	Blank	x	○		○	○	●	○	○	○
	B		○		○	○	●	○	○	○
	L				○	○	●	○	○	○
	NN					x	○	○	○	○
	GN						○	○	○	○
	Blank							x	x	x
	P2								x	x
	P1A									x
	P1B									x
Accessories	Cylinder Switch	Separately Shown	○	○	○	○	○	○	○	○

*1: For the stroke adjustable stopper stroke, refer to Table A on P.751.

[Model No. Notation Example]



Model No.: Unit Cylinder

- Variation: Rolling bearing type with switch
- 1 Bore size : ø16 mm
- 2 Port Thread Type : Rc Thread
- 3 Stroke : 50 mm
- 4 Switch Model No. : Solid State T2H Switch, Lead Wire 1 m
- 5 Number of Switches : With 2 pcs
- 6 Option : Both sides adjusting stoppers, adjustable range 12.5 mm per side

Guided

STM

STG

STS/
STL

STR2

UCA2

Guided

STM

STG

STS/
STL

STR2

UCA2

Cylinder
Switch

Ending

Cylinder
Switch

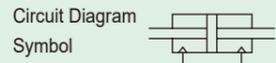
Ending



Unit cylinder Metal bush bearing with switch

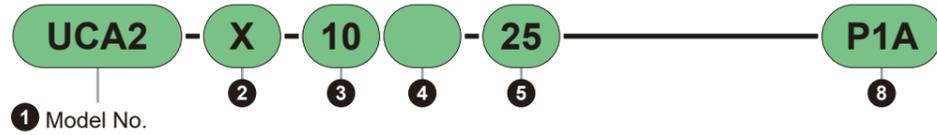
UCA2 Series

● Bore size: $\phi 10$, $\phi 16$, $\phi 25$, $\phi 32$

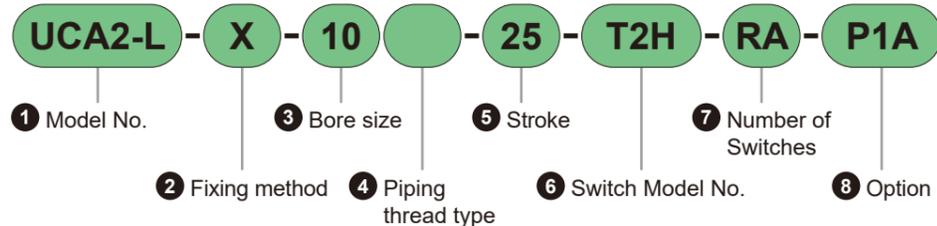


Model No. Notation Method

Without Switch
(Without magnet for switch)



With Switch
(Built-in magnet for switch)



1 Model No.

Code	Content
UCA2	Sleeve Bearing Type
UCA2-L	Metal bush bearing with switch

2 Fixing method

Code	Content
X	Body fixing
Y	Plate fixing

3 Bore Size (mm)

Code	Content
10	$\phi 10$
16	$\phi 16$
25	$\phi 25$
32	$\phi 32$

4 Piping thread type

Code	Content
Blank	M5 ($\phi 10$, $\phi 16$) Rc thread ($\phi 25$, $\phi 32$)
NN	NPT thread ($\phi 25$, $\phi 32$ only) (Custom product)
GN	G thread ($\phi 25$, $\phi 32$ only) (Custom product)

5 Stroke (mm)

Bore size	Stroke
$\phi 10$	25 to 100
$\phi 16$	25 to 200
$\phi 25$	25 to 200
$\phi 32$	25 to 200

Note) For minimum stroke, please refer to P. 726.

6 Switch Model No.

For switch details, please refer to P. 753.
Switches are included to the product and shipped.

Contact	Indicator LED Special Function	Wiring (Output)	Load Voltage (V)		Load Current (mA)		Lead wire *1	
			AC	DC	AC	DC	Straight	L-shape
Solid State	1-Color	2-wire	-	10 to 30	-	5 to 20*2	T2H□	T2V*
		3-wire (NPN)	-	30 or less	-	100 or less	T3H□	T3V□
		3-wire (PNP)	-	-	-	-	T3PH□	T3PV□
	2-Color	2-wire	-	24 ± 10%	-	5 to 20	T2WH□	T2WV□
		3-wire (NPN)	-	30 or less	-	50 or less	T3WH□	T3WV□
	1-Color Flexible Lead Wire Type	2-wire	-	10 to 30	-	5 to 20 *2	T2HR3	T2VR3
Reed	1-Color No Indicator LED	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□
			110	5/12/24	20 or less	50 or less	T5H□	T5V□

*1: For "□" in the switch model No., enter the code selected from the " * Lead wire length" table.
 *2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
 *3: Magnet is not built into the type without switch. For the with switch specification without switch, magnets and magnet rails are included, but switch rails are not included.
 *4: Switches other than the switch model Nos. are also available. (Custom Product) For details, see P. 753.

* Lead wire length

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)

Example) Lead wire length
 1m TOH
 3m TOH [3]
 5m TOH [5]

7 Number of Switches

Code	Content
RA	With 1 pc Plate A side
RB	With 1 pc Plate B side
D	With 2 pcs
T	With 3 pcs

*1: The minimum stroke with 3 switches is 75 (mm).
 *2: The distinction between A side and B side is described in the external dimensions diagram.

8 Option

Code	Content
Blank	Both sides adjustment stopper (Standard)
P1A	One side adjustment Stopper Plate A side
P1B	One side adjustment Stopper Plate B side
P2	Both sides adjustment stopper

*1: The distinction between A side and B side is described in the external dimensions diagram.
 *2: For the stroke adjustment amount, Table A.P. 751.

Rechargeable Battery Compatible Specification (Catalog No. CC-1226AA)

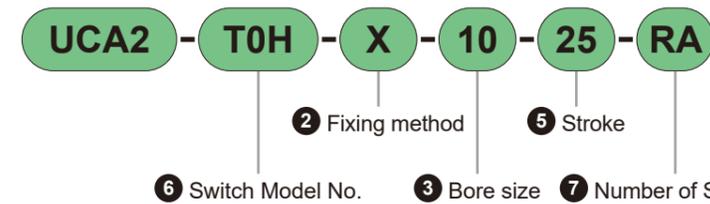
● Structure usable in rechargeable battery manufacturing processes

UCA2 - P4□

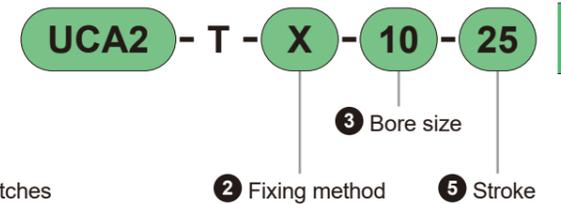
* Please contact us for details.

Switch Single Unit Model No. Notation Method

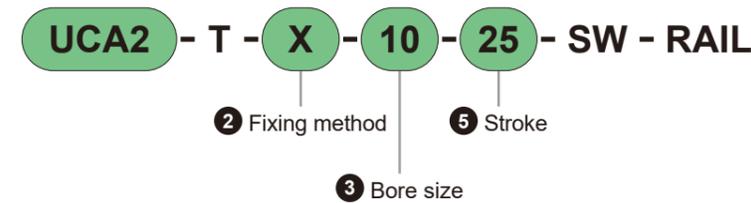
● Switch body + mounting bracket set (including switch rail) ... ①



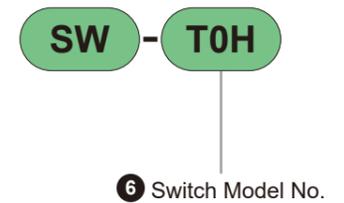
● Mounting bracket set (including switch rail) + magnet ... ②



● Mounting bracket set (including switch rail) ... ③



● Switch body only ... ④



Shock absorber kit Model No. display method

● For $\phi 10$

UCA2-10-NCK

● For $\phi 16$ to $\phi 32$ (common)

UCA2-16-NCK

Guided

Guided

STM

STM

STG

STG

STS/
STL

STS/
STL

STR2

STR2

UCA2

UCA2

Cylinder
Switch

Cylinder
Switch

Ending

Ending

Specifications

Item	UCA2 UCA2-L (with switch)				
	mm	ø10	ø16	ø25	ø32
Bore size	mm	ø10	ø16	ø25	ø32
Actuation method		Double Acting Type			
Operating Fluid		Compressed Air			
Max. Working Pressure	MPa	1.0			
Min. Operating Pressure	MPa	0.15		0.1	
Proof Pressure	MPa	1.5			
Ambient Temperature	°C	-10 to 60 (no freezing)			
Port Size		M5		Rc1/8	
Stroke tolerance	mm	+1.0 0			
Operating Piston Speed	mm/s	30 to 300			
Non-Rotating Accuracy	*	±0.1°	±0.05°		±0.02°
Max. Repetition Frequency	times/min	30			
Cushion		Built-in Shock absorber			
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)			
Allowable Absorbed Energy	J	0.25	0.65	2.4	4.5

* Value when stroke = 0 (excluding deflection of the piston rod)

Stroke

Bore Size (mm)	Standard Stroke (mm)	Min. stroke with switch (mm)
ø10	25, 50, 75, 100	10 (With 1 switch *2) 20 (With 2 switches *2)
ø16	25, 50, 75, 100	
ø25	125, 150, 175, 200	
ø35		

*1: Strokes other than standard strokes are not supported.

*2: This is the minimum stroke when the stroke is adjusted with a stopper.

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø10	Push	-	15.1	20.1	30.2	40.2	50.3	60.3	70.4	80.4	90.5	1.01 x 10 ²
	Pull	-	15.1	20.1	30.2	40.2	50.3	60.3	70.4	80.4	90.5	1.01 x 10 ²
ø16	Push	-	36.8	49.0	73.5	98.0	1.23 x 10 ²	1.47 x 10 ²	1.72 x 10 ²	1.96 x 10 ²	2.21 x 10 ²	2.45 x 10 ²
	Pull	-	36.8	49.0	73.5	98.0	1.23 x 10 ²	1.47 x 10 ²	1.72 x 10 ²	1.96 x 10 ²	2.21 x 10 ²	2.45 x 10 ²
ø25	Push	67.4	1.01 x 10 ²	1.35 x 10 ²	2.02 x 10 ²	2.70 x 10 ²	3.37 x 10 ²	4.04 x 10 ²	4.72 x 10 ²	5.39 x 10 ²	6.06 x 10 ²	6.74 x 10 ²
	Pull	67.4	1.01 x 10 ²	1.35 x 10 ²	2.02 x 10 ²	2.70 x 10 ²	3.37 x 10 ²	4.04 x 10 ²	4.72 x 10 ²	5.39 x 10 ²	6.06 x 10 ²	6.74 x 10 ²
ø32	Push	1.21 x 10 ²	1.81 x 10 ²	2.41 x 10 ²	3.62 x 10 ²	4.83 x 10 ²	6.03 x 10 ²	7.24 x 10 ²	8.44 x 10 ²	9.65 x 10 ²	1.09 x 10 ³	1.21 x 10 ³
	Pull	1.21 x 10 ²	1.81 x 10 ²	2.41 x 10 ²	3.62 x 10 ²	4.83 x 10 ²	6.03 x 10 ²	7.24 x 10 ²	8.44 x 10 ²	9.65 x 10 ²	1.09 x 10 ³	1.21 x 10 ³

Cylinder Weight (X: Body Fixed type) - Numbers in () include switch mounting rail [Unit: kg]

Model No.	Stroke (mm)								Switch Weight Per piece
	25	50	75	100	125	150	175	200	
UCA2-X-10	0.30 (0.35)	0.37 (0.42)	0.43 (0.49)	0.49 (0.55)	-	-	-	-	Refer to the mass described in the switch specifications on P. 753
UCA2-X-16	0.53 (0.56)	0.66 (0.71)	0.78 (0.84)	0.91 (0.98)	1.04 (1.12)	1.17 (1.25)	1.30 (1.39)	1.42 (1.52)	
UCA2-X-25	1.00 (1.04)	1.20 (1.26)	1.41 (1.47)	1.61 (1.68)	1.81 (1.89)	2.02 (2.11)	2.22 (2.32)	2.43 (2.53)	
UCA2-X-32	1.65 (1.69)	1.95 (2.01)	2.25 (2.31)	2.55 (2.62)	2.85 (2.93)	3.15 (3.24)	3.45 (3.55)	3.75 (3.85)	

Cylinder weight (Y: Plate Fixed type) - Numbers in () include switch mounting rail [Unit: kg]

Model No.	Stroke (mm)								Switch Weight Per piece
	25	50	75	100	125	150	175	200	
UCA2-Y-10	0.30 (0.33)	0.37 (0.40)	0.43 (0.46)	0.49 (0.52)	-	-	-	-	Refer to the mass described in the switch specifications on P. 753
UCA2-Y-16	0.53 (0.56)	0.66 (0.69)	0.78 (0.82)	0.91 (0.95)	1.04 (1.08)	1.17 (1.21)	1.30 (1.34)	1.42 (1.47)	
UCA2-Y-25	1.00 (1.03)	1.20 (1.23)	1.41 (1.44)	1.61 (1.65)	1.81 (1.85)	2.02 (2.06)	2.20 (2.27)	2.43 (2.47)	
UCA2-Y-32	1.65 (1.68)	1.95 (1.98)	2.25 (2.29)	2.55 (2.59)	2.85 (2.89)	3.15 (3.19)	3.45 (3.50)	3.75 (3.80)	

Guided

Guided

STM

STM

STG

STG

STS/
STL

STS/
STL

STR2

STR2

UCA2

UCA2

Cylinder Switch

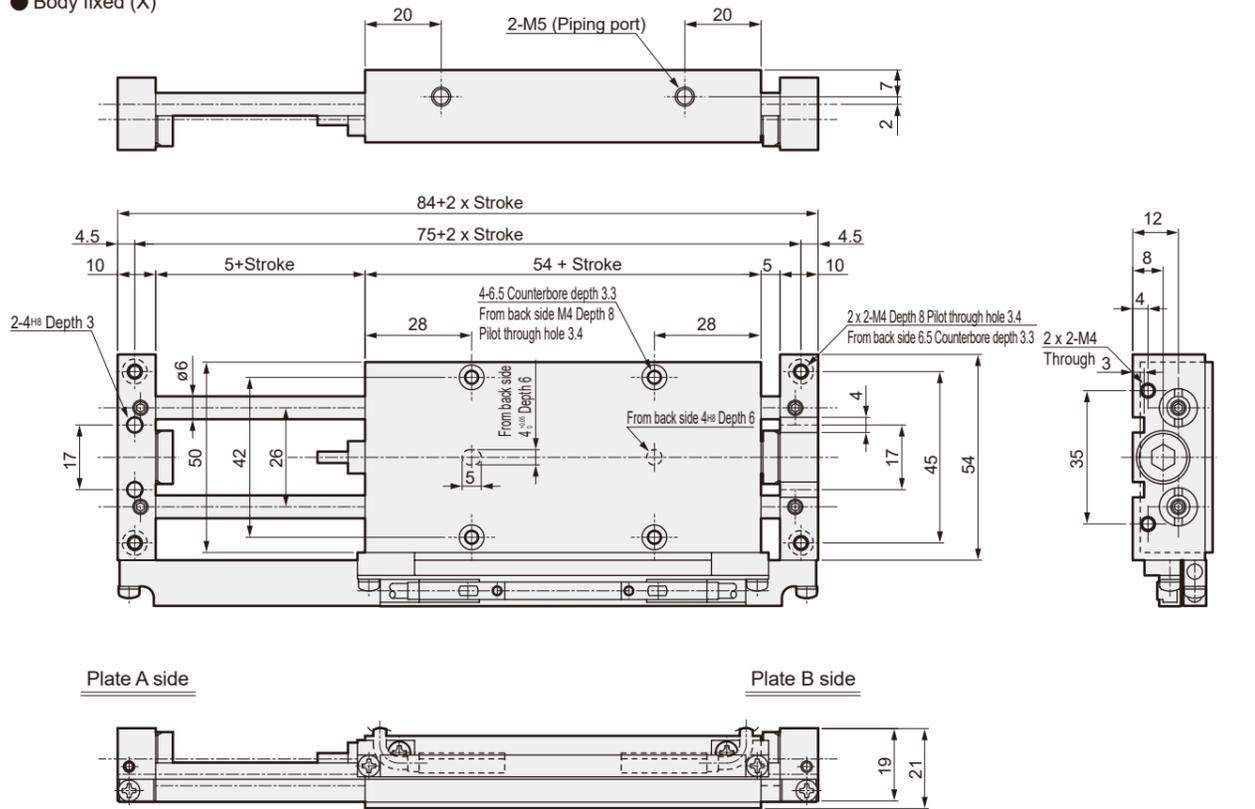
Cylinder Switch

Ending

Ending

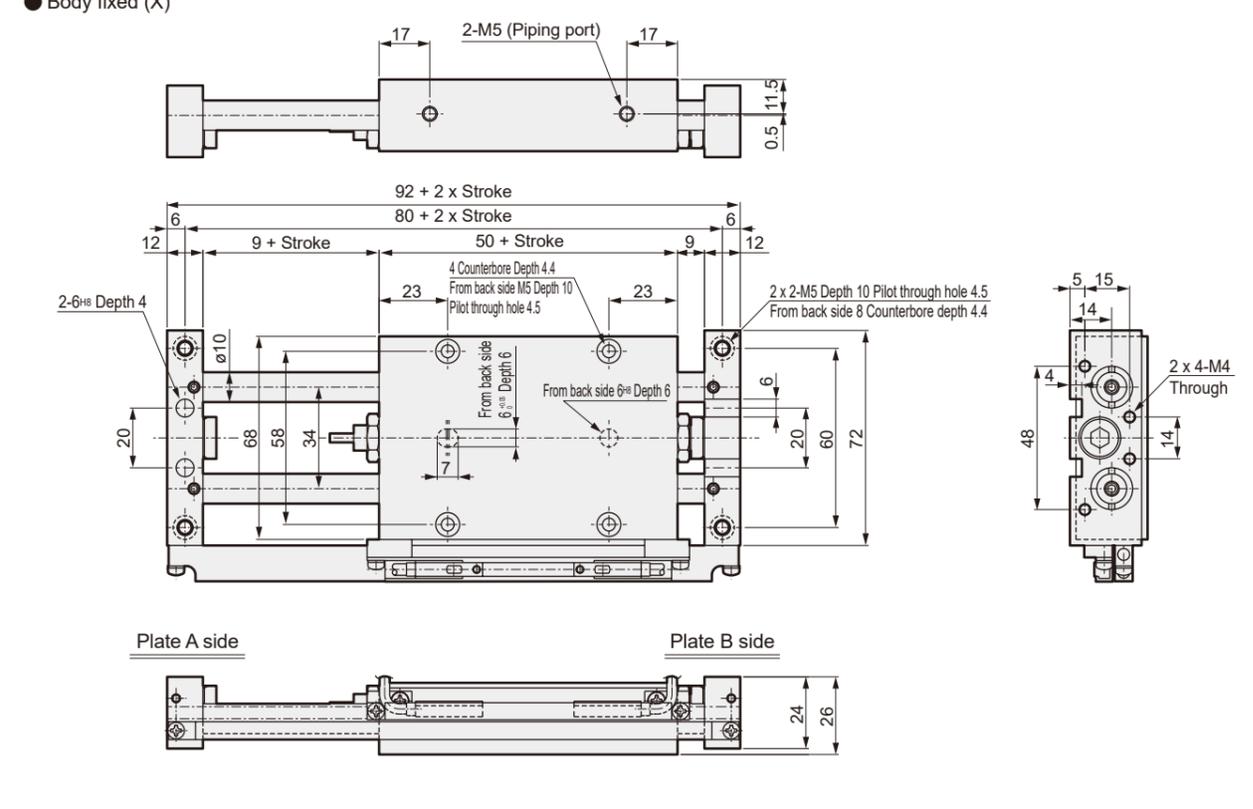
External dimensions diagram (Bore size: $\phi 10$)

● Body fixed (X)

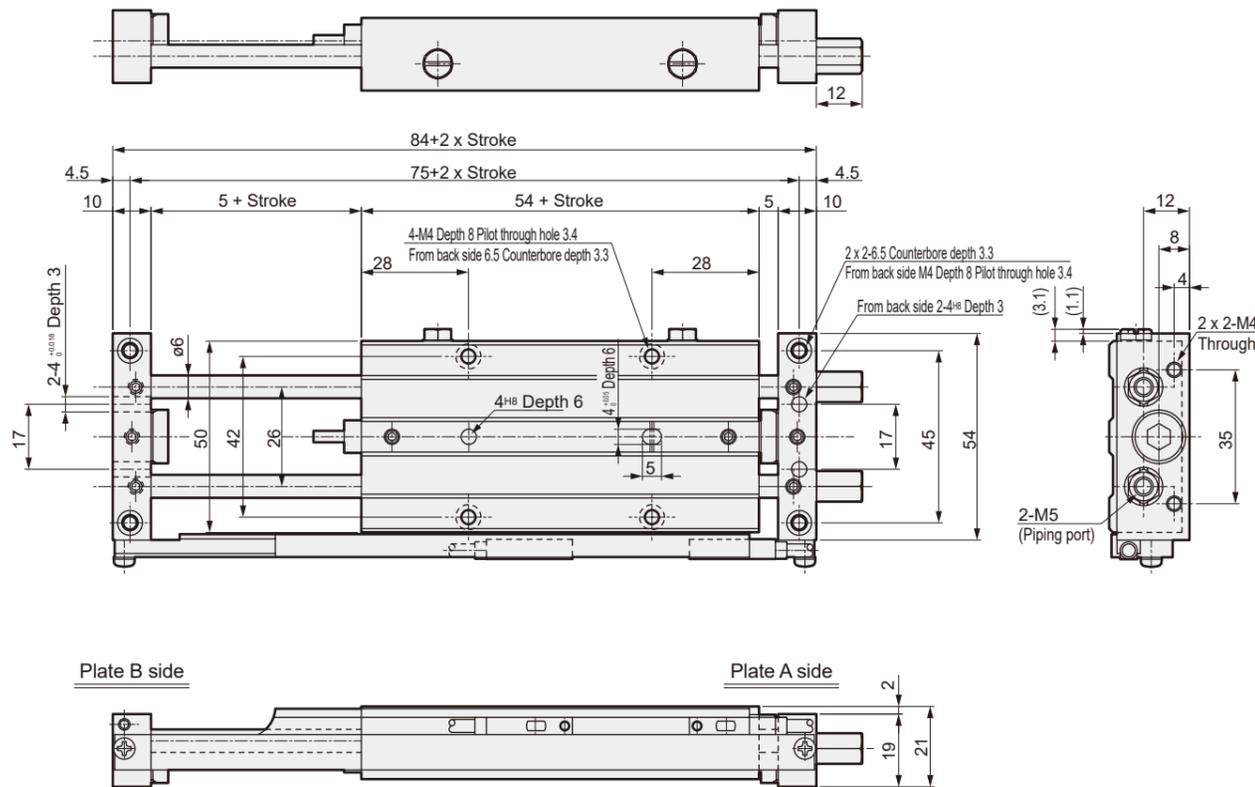


Outline dimension drawing (Bore size: $\phi 16$)

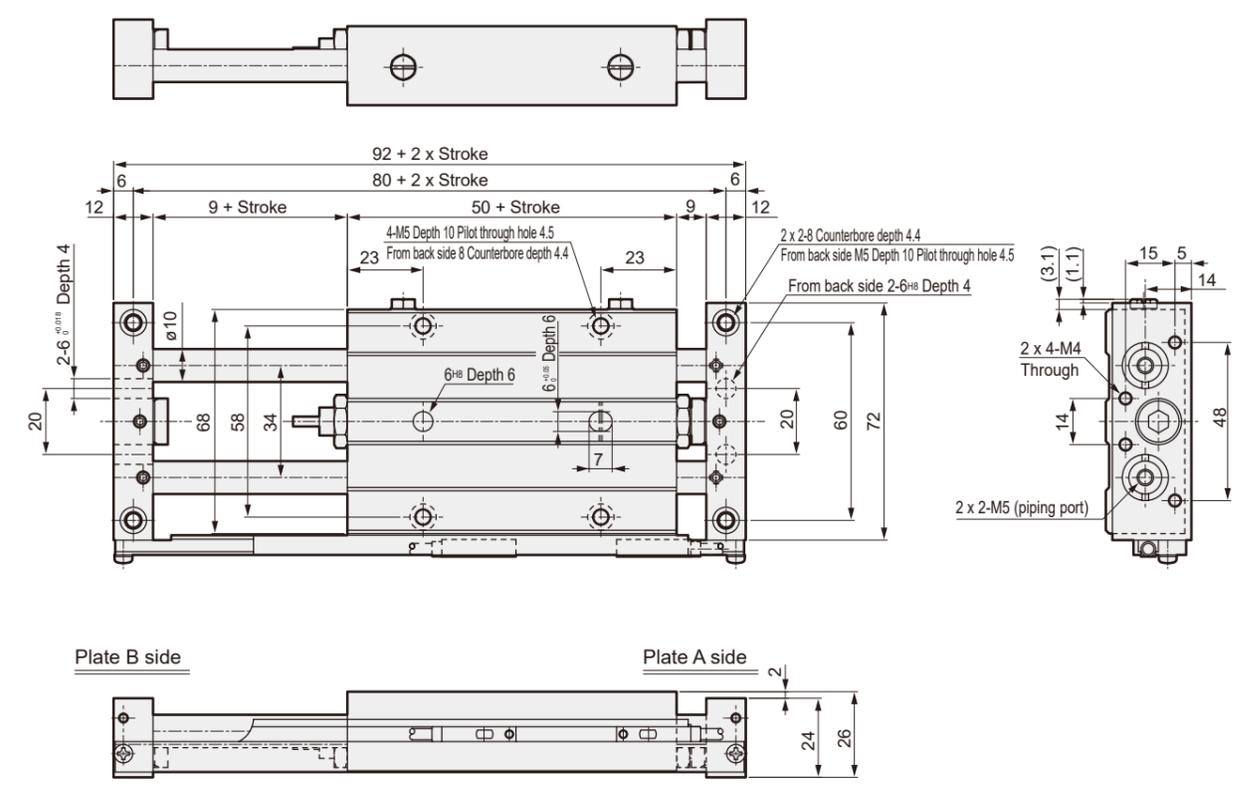
● Body fixed (X)



● Plate fixed (Y)



● Plate fixed (Y)



*1: Using the cylinder with its stroke extended by adjusting the stopper will cause malfunctions.

For details, see P. 751.

*2: For dimensions of models with switches, see P. 744.

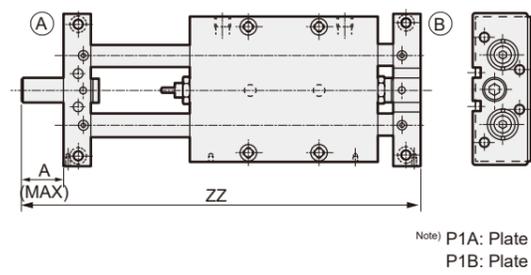
*1: Using the cylinder with its stroke extended by adjusting the stopper will cause malfunctions.

For details, see P. 751.

*2: For dimensions of models with switches, see P. 744.

Outer Dimensions Diagram with Option: Adjusting Stopper

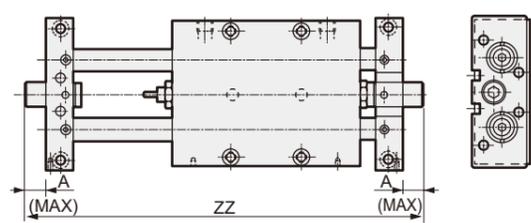
● UCA2-X $\begin{matrix} 10 \\ 16 \\ 25 \\ 32 \end{matrix}$ - □ □ -P1□ (single adjusting stopper)



Model No.	A (MAX)	ZZ							
		25st	50st	75st	100st	125st	150st	175st	200st
UCA2-10	25	159	209	259	309	-	-	-	-
UCA2-16	25	167	217	267	317	367	417	467	517
UCA2-25	25	187	237	287	337	387	437	487	537
UCA2-32	25	200	250	300	350	400	450	500	550

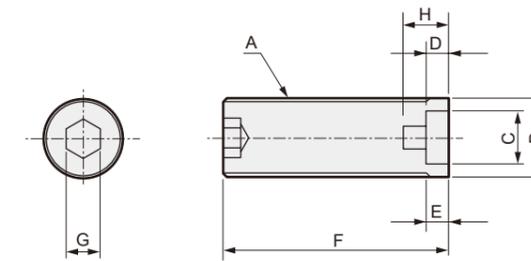
Note) P1A: Plate A side
P1B: Plate B side

● UCA2-X $\begin{matrix} 10 \\ 16 \\ 25 \\ 32 \end{matrix}$ - □ □ -P2□ (double adjusting stoppers)



Model No.	A (MAX)	ZZ							
		25st	50st	75st	100st	125st	150st	175st	200st
UCA2-10	12.5	159	209	259	309	-	-	-	-
UCA2-16	12.5	167	217	267	317	367	417	467	517
UCA2-25	12.5	187	237	287	337	387	437	487	537
UCA2-32	12.5	200	250	300	350	400	450	500	550

Stopper dimension



Code	A	B	C	D	E	F			G	H
						Standard	P1	P2		
ø10	M14x1	ø14	ø10	4	4	14.5	39.5	27	6	8
ø16	M14x1	ø14	ø10	8	4	17	42	29.5	6	-
ø25	M14x1	ø14	ø10	6.5	4	21	46	33.5	6	-
ø32	M16x1	ø16	ø10	5.5	4	21	46	33.5	8	-

Note) Adjusting the stopper to use a longer stroke will cause problems.
For details, see P. 751.

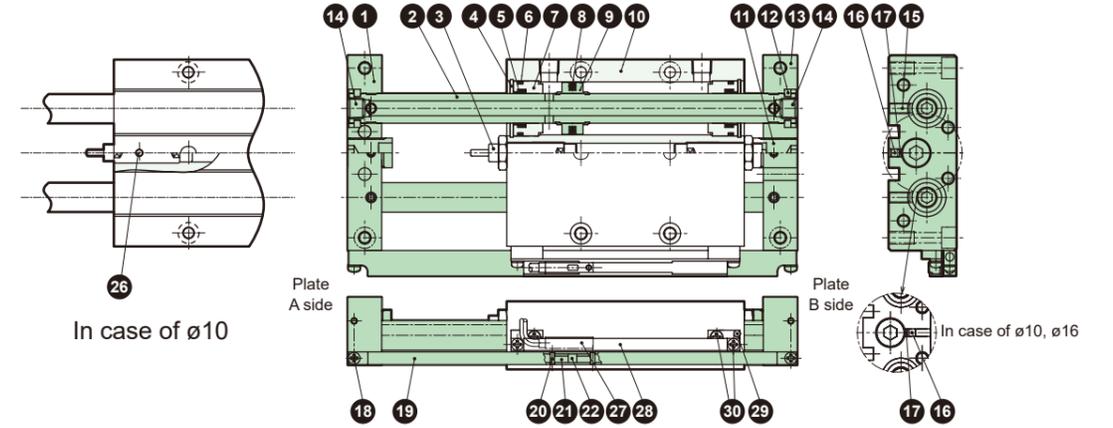
Adjustment stopper single item model No.

Parts / Part name	Both sides adjustment stopper (Standard)		One side adjustment stopper		Both sides adjustment stopper	
	Model No.	Weight g	Model No.	Weight g	Model No.	Weight g
ø10	UCA2-P-10	12	UCA2-P1-10	38	UCA2-P2-10	25
ø16	UCA2-P-16	12	UCA2-P1-16	38	UCA2-P2-16	25
ø25	UCA2-P-25	17	UCA2-P1-25	44	UCA2-P2-25	30
ø32	UCA2-P-32	22	UCA2-P1-32	58	UCA2-P2-32	40

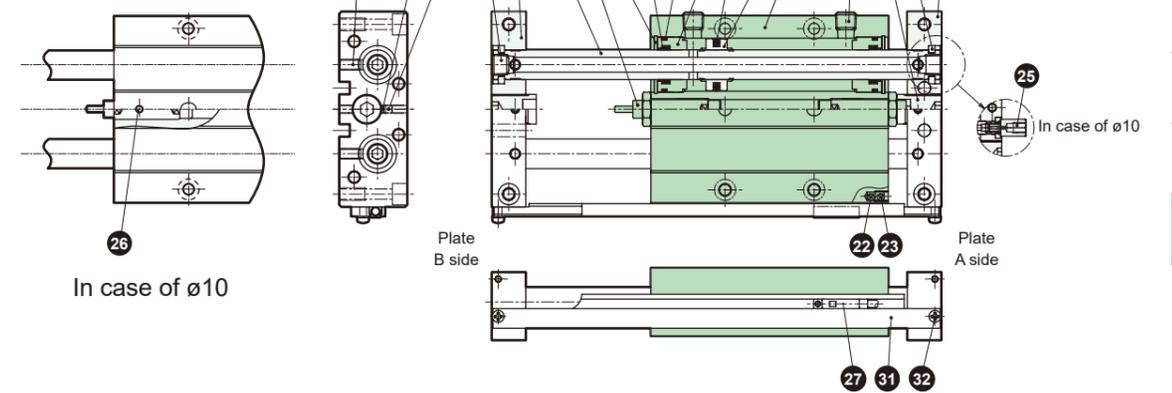
Internal Structure Diagram / Material

Internal Structure Diagram / Material

● UCA2-X (metal bush bearing body fixed)



● UCA2-Y (metal bush bearing plate fixed)



Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	End plate (A)	Aluminum Alloy	Alumite	18	Pan head screw with cross recess and captive washer	Steel	Zinc Chromate
2	Piston Rod	Steel	Industrial Hard Chrome Plating	19	Magnet rail	Aluminum Alloy	
3	Shock Absorber			20	Spring Pin	Steel	
4	C-type retaining ring for hole	Steel	Zinc phosphate	21	Fixed bush	Urethane Rubber	
5	Rod Packing	Nitrile Rubber		22	Magnet	Special alloy	
6	Rod metal gasket	Nitrile Rubber		23	Hexagon socket head set screw	Stainless Steel	
7	Rod Metal	Aluminum Alloy	Alumite	24	Plug (ø10, ø16)		FPL-M5 (CKD)
8	Piston Packing	Nitrile Rubber		24	Plug: (ø25, ø32)	Steel	Black Oxide
9	Piston	Aluminum Alloy		25	Bushing	Steel	Zinc Chromate
10	Cylinder Body	Aluminum Alloy	Hard Anodized	26	Hexagon socket head set screw	Alloy Steel	
11	Stopper	Steel	Chromate	With switch			
12	Split ring	Steel	Black Oxide	27	Switch		
13	End plate (B)	Aluminum Alloy	Alumite	28	Switch Rail X	Aluminum Alloy	
14	Plug	Steel	Black Oxide	29	Spacer	Aluminum Alloy	
15	Hexagon socket head set screw	Alloy Steel	Black Oxide	30	Pan head screw with cross recess and captive washer	Steel	Zinc Chromate
16	Hexagon socket head set screw	Alloy Steel	ø25,32 only	31	Switch Rail Y	Aluminum Alloy	
17	Set shoe	Aluminum Alloy	ø25,32 only	32	Pan head screw with cross recess and captive washer	Steel	Zinc Chromate

Consumable Parts List

Bore Size (mm)	Kit Number	Consumable Part No.
ø10	UCA2-10K	
ø16	UCA2-16K	
ø25	UCA2-25K	5 6 8 15
ø32	UCA2-32K	

Note) Consumable parts for plain bearing type and rolling bearing type are the same.

Guided

Guided

STM

STM

STG

STG

STS/
STL

STS/
STL

STR2

STR2

UCA2

UCA2

Cylinder
Switch

Cylinder
Switch

Ending

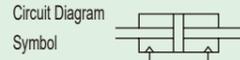
Ending



Unit cylinder Rolling bearing type with switch

UCA2-B Series

● Bore size: $\phi 10$, $\phi 16$, $\phi 25$, $\phi 32$

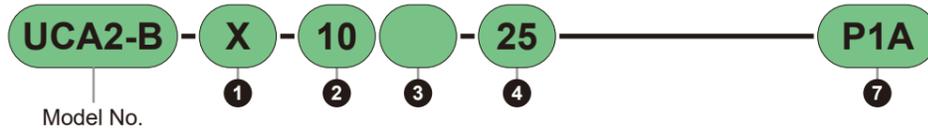


UCA2-B Series

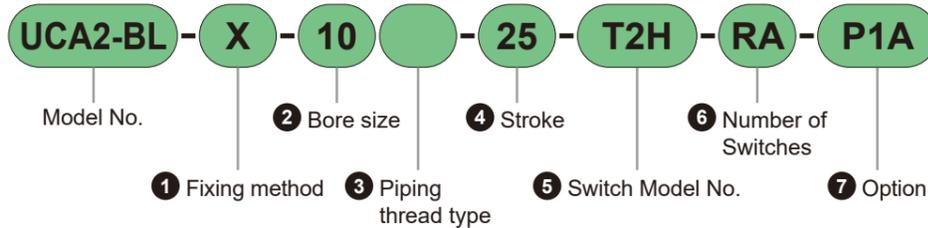
Model No. Notation Method

Model No. Notation Method

Without Switch
(Without magnet for switch)



With Switch
(Built-in magnet for switch)



1 Fixing method

Code	Content
X	Body fixing
Y	Plate fixing

2 Bore Size (mm)

Code	Content
10	$\phi 10$
16	$\phi 16$
25	$\phi 25$
32	$\phi 32$

3 Piping thread type

Code	Content
Blank	M5 ($\phi 10$, $\phi 16$) Rc thread ($\phi 25$, $\phi 32$)
NN	NPT thread ($\phi 25$, $\phi 32$ only) (Custom product)
GN	G thread ($\phi 25$, $\phi 32$ only) (Custom product)

4 Stroke (mm)

Bore size	Stroke
$\phi 10$	25 to 100
$\phi 16$	25 to 200
$\phi 25$	25 to 200
$\phi 32$	25 to 200

*For minimum stroke, please refer to P. 736.

5 Switch Model No.

For switch details, please refer to P. 753.
Switches are included to the product and shipped.

Contact	Indicator LED Special Function	Wiring (Output)	Load Voltage (V)		Load Current (mA)		Lead wire *1	
			AC	DC	AC	DC	Straight	L-shape
Solid State	1-Color	2-wire	-	10 to 30	-	5 to 20 *2	T2H□	T2V□
		3-wire (NPN)	-	30 or less	-	100 or less	T3H□	T3V□
		3-wire (PNP)	-	-	-	-	T3PH□	T3PV□
	2-Color	2-wire	-	24 ± 10%	-	5 to 20	T2WH□	T2WV□
		3-wire (NPN)	-	30 or less	-	50 or less	T3WH□	T3WV□
	1-Color Flexible Lead Wire Type	2-wire	-	10 to 30	-	5 to 20 *2	T2HR3	T2VR3
Reed	1-Color No Indicator LED	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□
			110	5/12/24	20 or less	50 or less	T5H□	T5V□

*1: For "□" in the switch model No., enter the code selected from the "Lead wire length" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: Magnet is not built into the type without switch. For the with switch specification without switch, magnets and magnet rails are included, but switch rails are not included.
*4: Switches other than the switch model Nos. are also available. (Custom order)
For details, refer to P. 753.

* Lead wire length

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)

Example) Lead wire length
1 m TOH
3 m TOH [3]
5 m TOH [5]

6 Number of Switches

Code	Content	
RA	With 1 pc	Plate A side
RB	With 1 pc	Plate B side
D	With 2 pcs	
T	With 3 pcs	

*1: The minimum stroke with 3 switches is 75 (mm) .
*2: The distinction between A side and B side is described in the external dimensions diagram.

7 Option

Code	Content	
Blank	Both sides adjustment stopper (Standard)	
P1A	One side adjustment Stopper	Plate A side
P1B		Plate B side
P2	Both sides adjustment stopper	

*1: The distinction between A side and B side is described in the external dimensions diagram.
*2: For the stroke adjustment amount, please refer to Table A.P. 751.

Rechargeable Battery Compatible Specification (Catalog No. CC-1226AA)

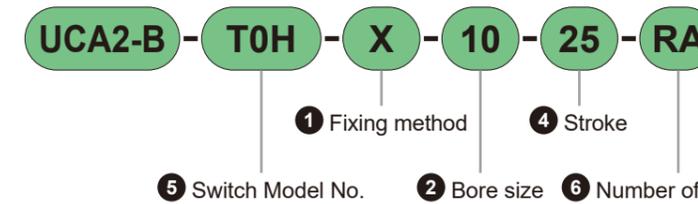
● Structure usable in rechargeable battery manufacturing processes

UCA2-B-.....P4□

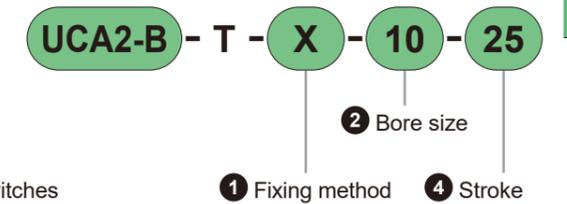
* Please contact us for details.

Switch Single Unit Model No. Notation Method

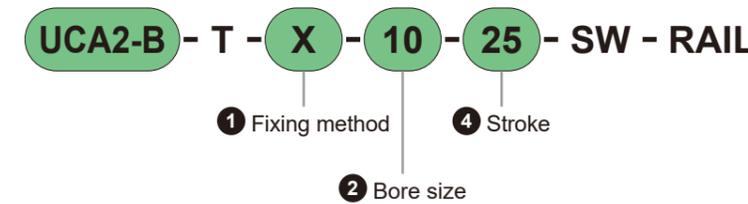
● Switch body + Mounting bracket set (Including switch rail) ... ①



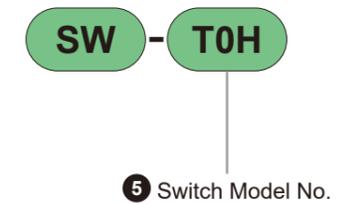
● Mounting bracket set (Including switch rail) + Magnet ... ②



● Mounting bracket set (Including switch rail) ... ③



● Switch body only ... ④



Shock absorber kit Model No. display method

● For $\phi 10$

UCA2-10-NCK

● For $\phi 16$ to $\phi 32$ (Common)

UCA2-16-NCK

Guided

Guided

STM

STM

STG

STG

STS/
STL

STS/
STL

STR2

STR2

UCA2

UCA2

Cylinder
Switch

Cylinder
Switch

Ending

Ending

Specifications

Item	UCA2-B UCA2-BL (With switch)				
	mm	ø10	ø16	ø25	ø32
Bore size	mm	ø10	ø16	ø25	ø32
Actuation method	Double Acting Type				
Operating Fluid	Compressed Air				
Max. Working Pressure	MPa	1.0			
Min. Operating Pressure	MPa	0.15	0.1		
Proof Pressure	MPa	1.5			
Ambient Temperature	°C	-10 to 60 (Provided that freezing does not occur)			
Port Size		M5	Rc1/8		
Stroke tolerance	mm	+1.0 0			
Operating Piston Speed	mm/s	30 to 300			
Non-rotation accuracy	*1	±0.04°	±0.03°	±0.015°	±0.015°
Max. Repetition Frequency	times/min	30			
Cushion	Built-in Shock absorber				
Lubrication	Not required (When lubricating, use turbine oil Class 1 ISO VG32)				
Allowable Absorbed Energy	J	0.25	0.65	2.4	4.5

*1: Value at stroke 0 (Excluding piston rod deflection).

Stroke

Bore size (mm)	Standard Stroke (mm)	Min. stroke with switch (mm)
ø10	25, 50, 75, 100	10 (With 1 switch *2)
ø16	25, 50, 75, 100	
ø25	125, 150, 175, 200	20 (With 2 switches *2)
ø35		

*1: Strokes other than standard strokes are not supported.

*2: This is the minimum stroke when the stroke is adjusted with a stopper.

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø10	Push	-	15.1	20.1	30.2	40.2	50.3	60.3	70.4	80.4	90.5	1.01 x 10 ²
	Pull	-	15.1	20.1	30.2	40.2	50.3	60.3	70.4	80.4	90.5	1.01 x 10 ²
ø16	Push	-	36.8	49.0	73.5	98.0	1.23 x 10 ²	1.47 x 10 ²	1.72 x 10 ²	1.96 x 10 ²	2.21 x 10 ²	2.45 x 10 ²
	Pull	-	36.8	49.0	73.5	98.0	1.23 x 10 ²	1.47 x 10 ²	1.72 x 10 ²	1.96 x 10 ²	2.21 x 10 ²	2.45 x 10 ²
ø25	Push	67.4	1.01 x 10 ²	1.35 x 10 ²	2.02 x 10 ²	2.70 x 10 ²	3.37 x 10 ²	4.04 x 10 ²	4.72 x 10 ²	5.39 x 10 ²	6.06 x 10 ²	6.74 x 10 ²
	Pull	67.4	1.01 x 10 ²	1.35 x 10 ²	2.02 x 10 ²	2.70 x 10 ²	3.37 x 10 ²	4.04 x 10 ²	4.72 x 10 ²	5.39 x 10 ²	6.06 x 10 ²	6.74 x 10 ²
ø32	Push	1.21 x 10 ²	1.81 x 10 ²	2.41 x 10 ²	3.62 x 10 ²	4.83 x 10 ²	6.03 x 10 ²	7.24 x 10 ²	8.44 x 10 ²	9.65 x 10 ²	1.09 x 10 ³	1.21 x 10 ³
	Pull	1.21 x 10 ²	1.81 x 10 ²	2.41 x 10 ²	3.62 x 10 ²	4.83 x 10 ²	6.03 x 10 ²	7.24 x 10 ²	8.44 x 10 ²	9.65 x 10 ²	1.09 x 10 ³	1.21 x 10 ³

Cylinder Weight (X: Body Fixed type) - Numbers in () include switch mounting rail [Unit: kg]

Model No.	Stroke (mm)								Weight per switch
	25	50	75	100	125	150	175	200	
UCA2-B-X-10	0.36 (0.41)	0.42 (0.47)	0.48 (0.54)	0.54 (0.61)	-	-	-	-	Refer to the mass described in the switch specifications on P. 753
UCA2-B-X-16	0.80 (0.85)	0.92 (0.98)	1.05 (1.11)	1.18 (1.25)	1.31 (1.38)	1.44 (1.51)	1.56 (1.65)	1.69 (1.78)	
UCA2-B-X-25	1.32 (1.37)	1.53 (1.58)	1.73 (1.79)	1.94 (2.01)	2.14 (2.22)	2.35 (2.43)	2.55 (2.75)	2.76 (2.85)	
UCA2-B-X-32	2.21 (2.26)	2.51 (2.57)	2.81 (2.87)	3.11 (3.18)	3.41 (3.49)	3.71 (3.79)	4.01 (4.10)	4.31 (4.40)	

Cylinder weight (Y: Plate Fixed type) - Numbers in () include switch mounting rail [Unit: kg]

Model No.	Stroke (mm)								Weight per switch
	25	50	75	100	125	150	175	200	
UCA2-B-Y-10	0.36 (0.39)	0.42 (0.46)	0.48 (0.54)	0.54 (0.60)	-	-	-	-	Refer to the mass described in the switch specifications on P. 753
UCA2-B-Y-16	0.80 (0.83)	0.92 (0.96)	1.05 (1.09)	1.18 (1.22)	1.31 (1.35)	1.44 (1.48)	1.56 (1.61)	1.69 (1.74)	
UCA2-B-Y-25	1.32 (1.36)	1.53 (1.56)	1.73 (1.77)	1.94 (1.98)	2.14 (2.18)	2.35 (2.39)	2.55 (2.60)	2.76 (2.80)	
UCA2-B-Y-32	2.21 (2.24)	2.51 (2.54)	2.81 (2.85)	3.11 (3.15)	3.41 (3.45)	3.71 (3.75)	4.01 (4.06)	4.31 (4.36)	

Guided

Guided

STM

STM

STG

STG

STS/
STL

STS/
STL

STR2

STR2

UCA2

UCA2

Cylinder Switch

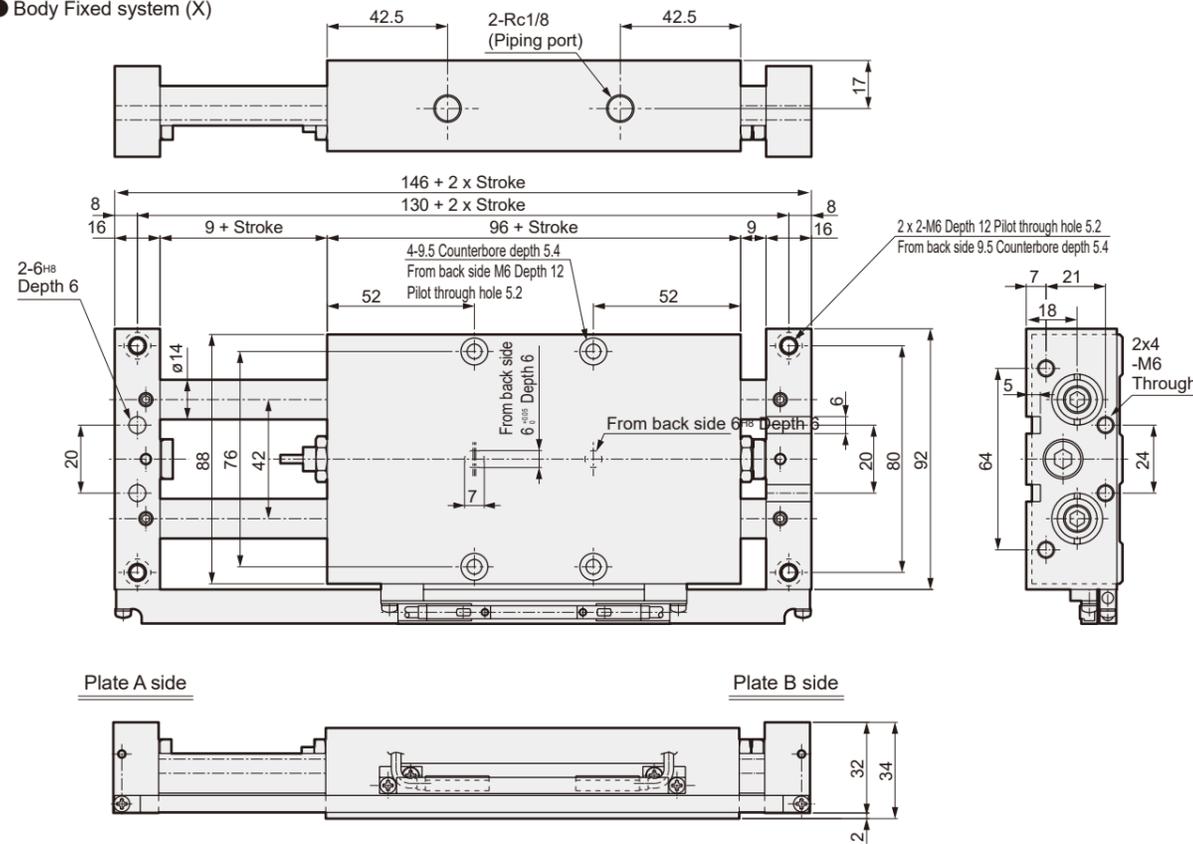
Cylinder Switch

Ending

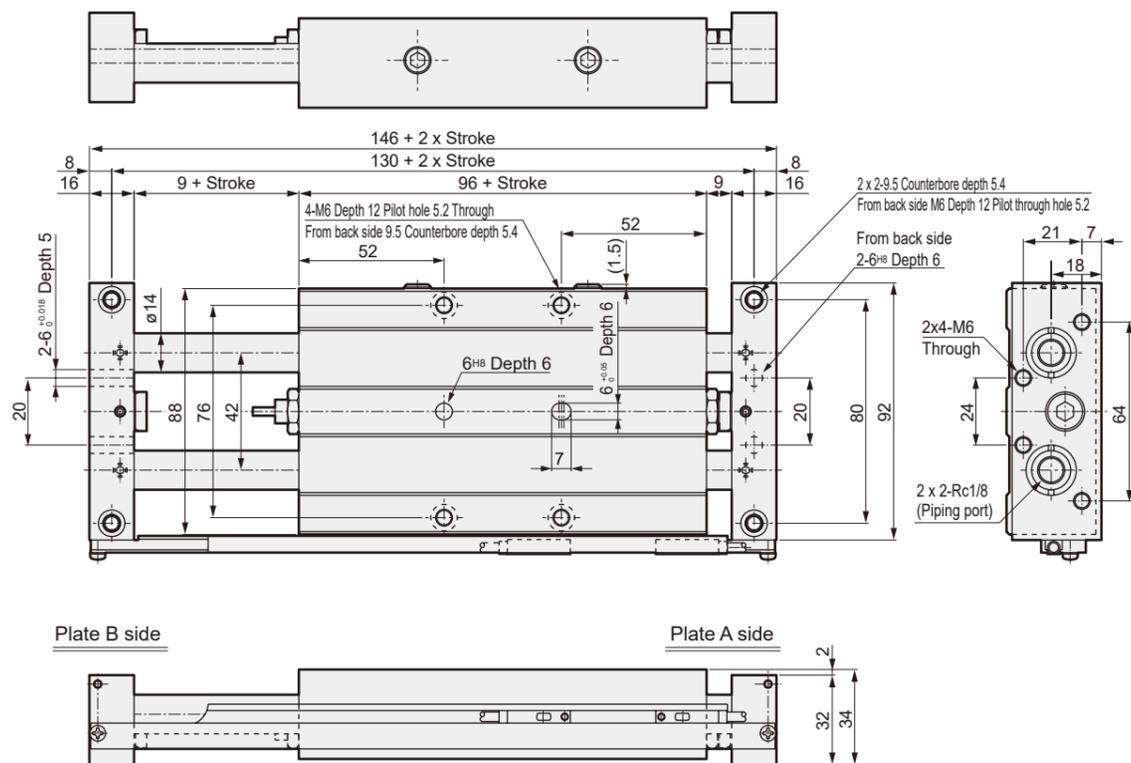
Ending

Outline Dimension Drawing (Bore size: $\phi 25$)

● Body Fixed system (X)



● Plate fixing method (Y)

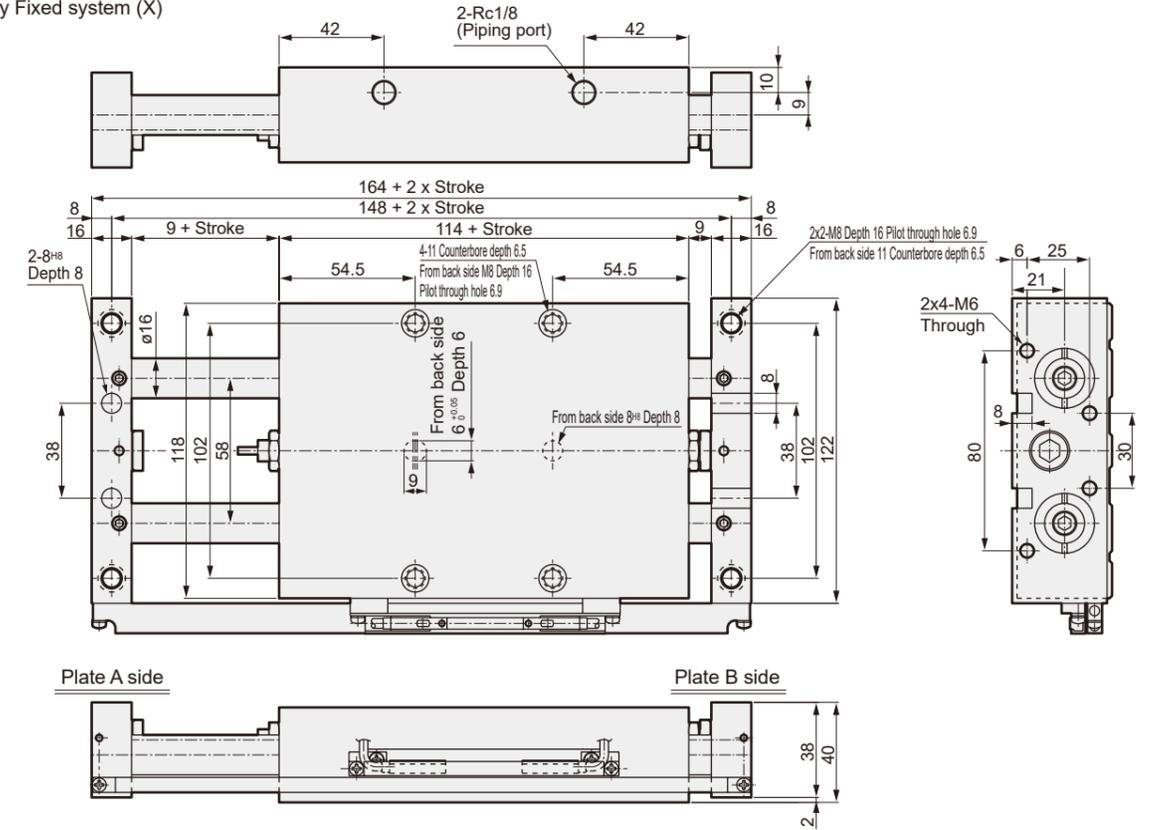


*1: Using the cylinder with its stroke extended by adjusting the stopper will cause malfunctions. For details, see P. 751.

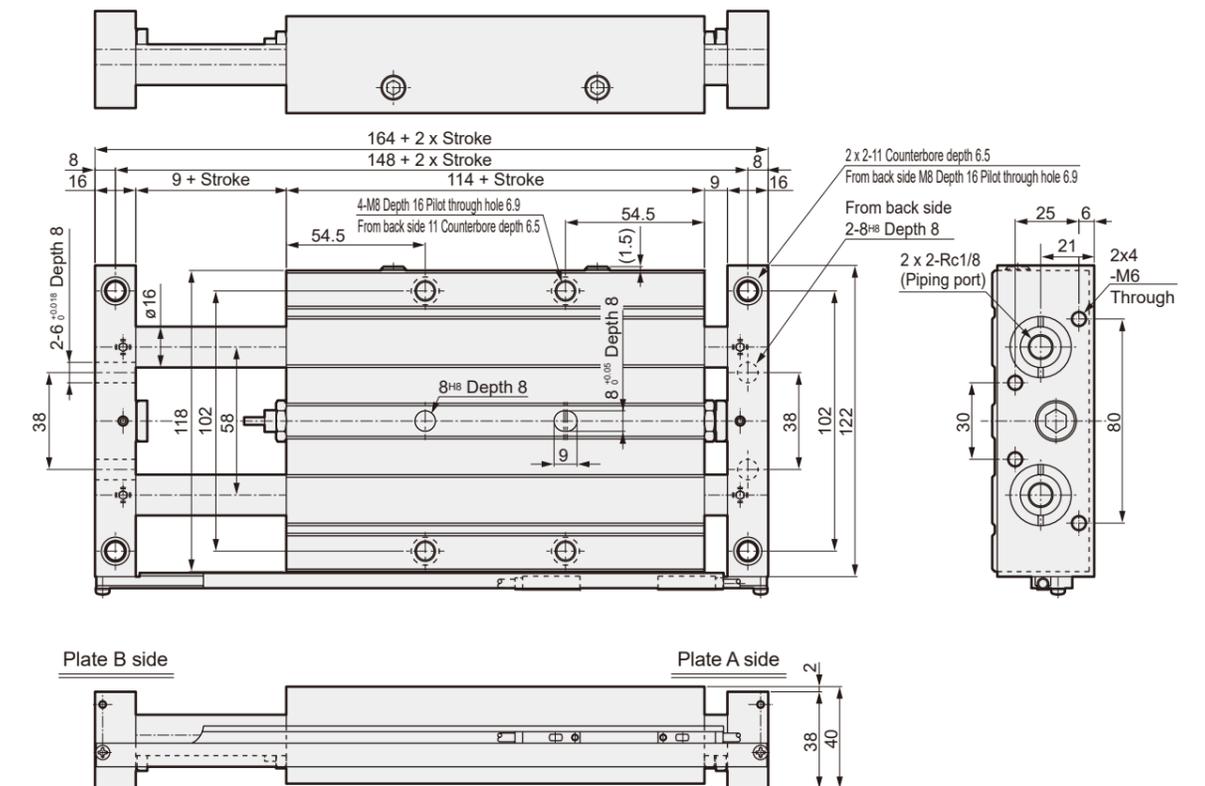
*2: For dimensions of models with switches, see P. 744.

External dimensions diagram (Bore size: $\phi 32$)

● Body Fixed system (X)



● Plate fixed method (Y)

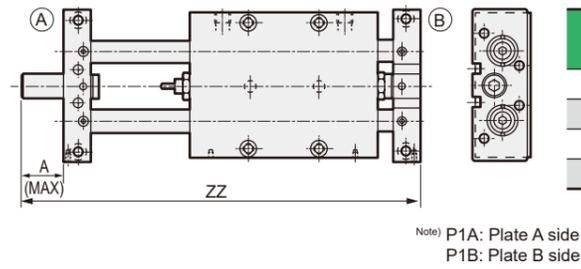


*1: Using the cylinder with its stroke extended by adjusting the stopper will cause malfunctions. For details, see P. 751.

*2: For dimensions of models with switches, see P. 744.

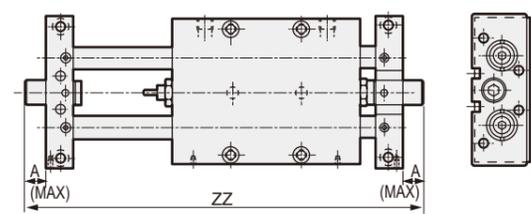
Outer Dimensions Diagram with Option: Adjusting Stopper

- UCA2-B-Y - \square - \square -P1 \square (One side adjustment stopper)



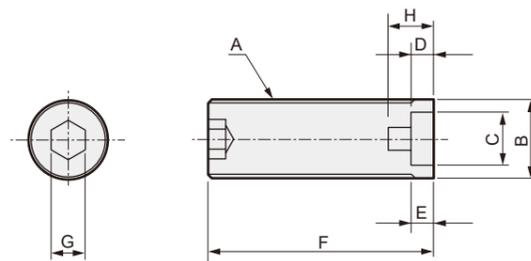
Model No.	A (MAX)	ZZ							
		25st	50st	75st	100st	125st	150st	175st	200st
UCA2-B-10	25	181	231	281	331	-	-	-	-
UCA2-B-16		213	263	313	363	413	463	513	563
UCA2-B-25		221	271	321	371	421	471	521	571
UCA2-B-32		239	289	339	389	439	489	539	589

- UCA2-B-Y - \square - \square -P2 \square (Both sides adjustment stopper)



Model No.	A (MAX)	ZZ							
		25st	50st	75st	100st	125st	150st	175st	200st
UCA2-B-10	12.5	181	231	281	331	-	-	-	-
UCA2-B-16		213	263	313	363	413	463	513	563
UCA2-B-25		221	271	321	371	421	471	521	571
UCA2-B-32		239	289	339	389	439	489	539	589

Stopper dimension



Code	A	B	C	D	E	F			G	H
						Standard	P1	P2		
ø10	M14x1	ø14	ø10	4	4	14.5	39.5	27	6	8
ø16	M14x1	ø14	ø9.4	8	4	17	42	29.5	6	-
ø25	M14x1	ø14	ø9.4	6.5	4	21	46	33.5	6	-
ø32	M16x1	ø16	ø9.4	5.5	4	21	46	33.5	8	-

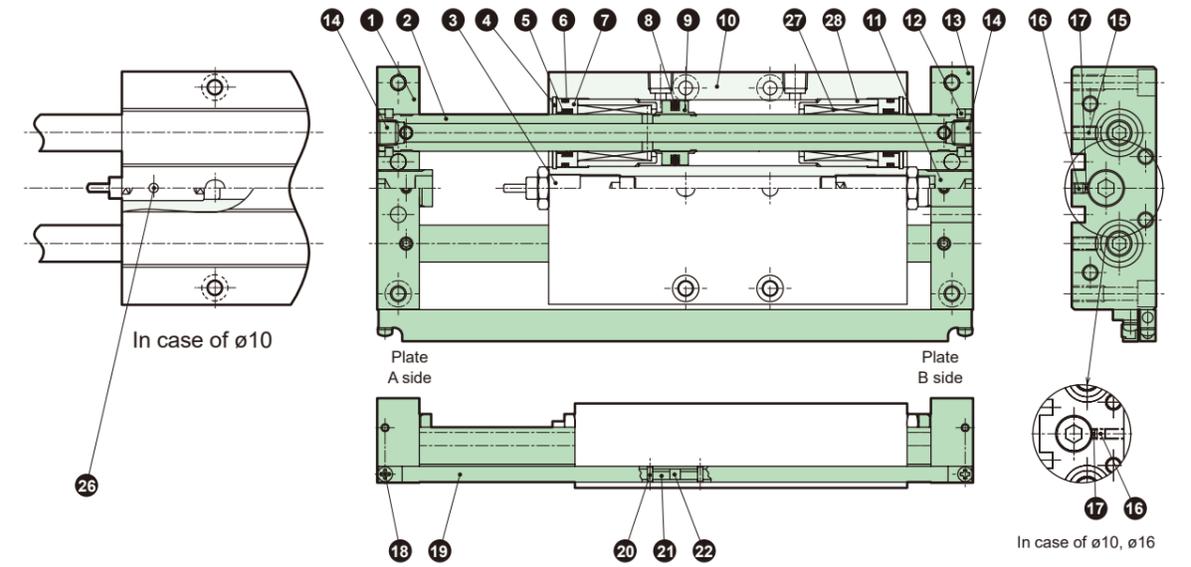
*Adjusting the stopper to use a longer stroke will cause problems. For details, see P. 751.

Adjustment stopper single item model No.

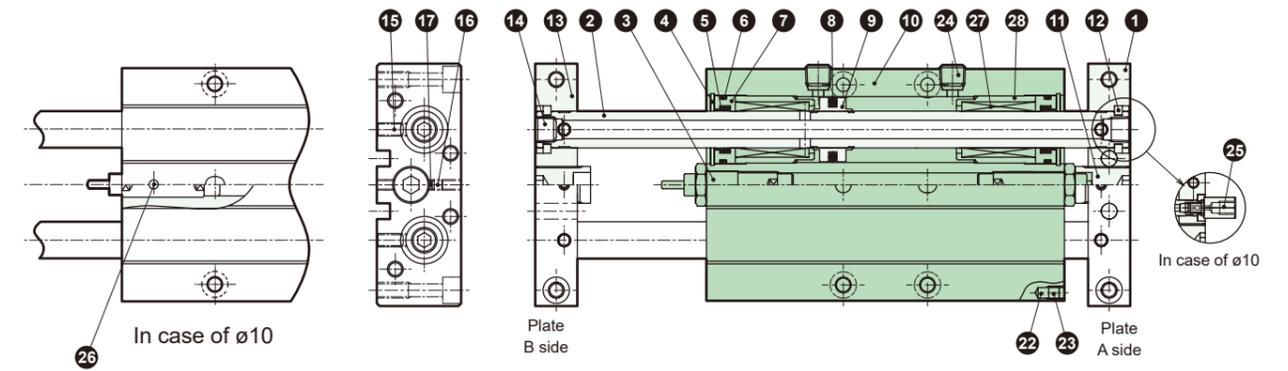
Parts / Part name	Both sides adjustment stopper (Standard)		One side adjustment stopper		Both sides adjustment stopper	
	Model No.	Weight g	Model No.	Weight g	Model No.	Weight g
ø10	UCA2-P-10	12	UCA2-P1-10	38	UCA2-P2-10	25
ø16	UCA2-P-16	12	UCA2-P1-16	38	UCA2-P2-16	25
ø25	UCA2-P-25	17	UCA2-P1-25	44	UCA2-P2-25	30
ø32	UCA2-P-32	22	UCA2-P1-32	58	UCA2-P2-32	40

Internal Structure Diagram/Material

- UCA2-B-X (Rolling bearing, Body fixing)



- UCA2-B-Y (Rolling bearing, Plate fixing)



Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	End plate (A)	Aluminum Alloy	Alumite	16	Hexagon socket head set screw	Alloy Steel	ø25,32 only
2	Piston Rod	Steel	Industrial Hard Chrome Plating	17	Set shoe	Aluminum Alloy	ø25,32 only
3	Shock Absorber			18	Pin head screw with cross recess and captive washer	Steel	Zinc Chromate
4	C-type retaining ring for hole	Steel	Zinc phosphate	19	Magnet rail	Aluminum Alloy	
5	Rod Packing	Nitrile Rubber		20	Spring Pin	Steel	
6	Rod metal gasket	Nitrile Rubber		21	Fixed bush	Urethane Rubber	
7	Rod Metal	Aluminum Alloy	Alumite	22	Magnet	Special alloy	
8	Piston Packing	Nitrile Rubber		23	Hexagon socket head set screw	Stainless Steel	
9	Piston	Aluminum Alloy		24	Plug: (ø10, ø16)		FPL-M5 (CKD)
10	Cylinder Body	Aluminum Alloy	Hard Anodized		Plug: (ø25, ø32)	Steel	Black Oxide
11	Stopper	Steel	Chromate	25	Bushing	Steel	Zinc Chromate
12	Split ring	Steel	Black Oxide	26	Hexagon socket head set screw	Alloy Steel	
13	End plate (B)	Aluminum Alloy	Alumite	27	Ball bearing		
14	Plug	Steel	Black Oxide	28	Housing	Aluminum Alloy	ø25,32 only
15	Hexagon socket head set screw	Alloy Steel	Black Oxide				

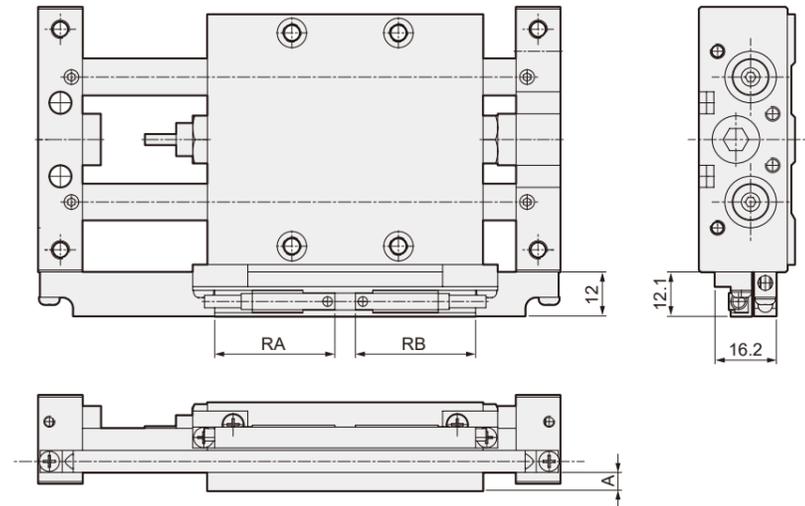
Consumable Parts List

Bore size (mm)	Kit Number	Consumable Part No.
ø10	UCA2-10K	
ø16	UCA2-16K	5 6 8 15
ø25	UCA2-25K	
ø32	UCA2-32K	

Note) Consumable parts for plain bearing type and rolling bearing type are the same.

UCA2 Series Switch External Dimensions Diagram

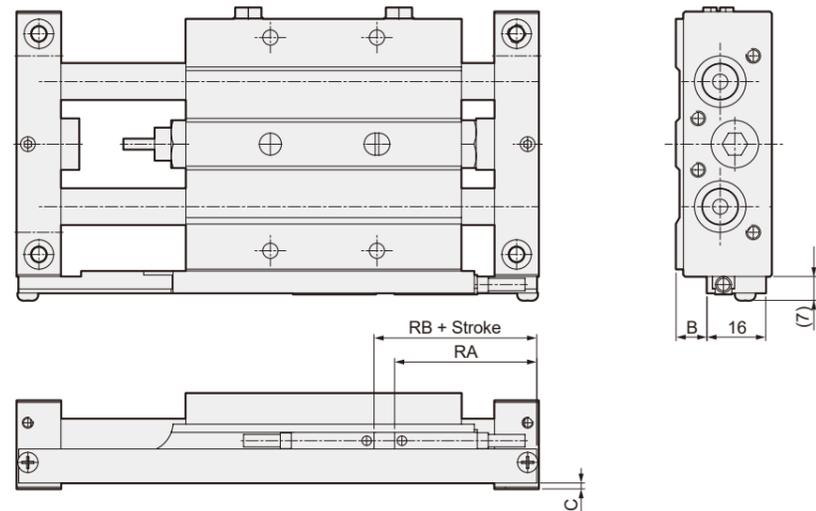
● T0H/V, T5H/V, T2H/V, T3H/V, T3PH/V, T2□R3, T2WH/V, T3WH/V
UCA2-(B)-X



UCA2-X							
Code	A	T0, T5		T2, T3, T3P, T2□R3		T2W, T3W	
Bore size (mm)		RA	RB	RA	RB	RA	RB
ø10	1.7	32.7	32.7	32	32	30.5	30.5
ø16	5						
ø25	2.2						
ø32	4						

Note) For switch mountability, refer to the Model No. display method for each variation.

● T0H/V, T5H/V, T2H/V, T3H/V, T3PH/V, T2□R3, T2WH/V, T3WH/V
UCA2-(B)-Y

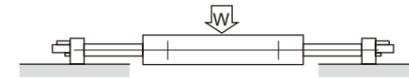


UCA2-Y								
Code	B	C	T0, T5		T2, T3, T3P, T2□R3		T2W, T3W	
Bore size (mm)			RA	RB	RA	RB	RA	RB
ø10	0.6	4.4	32.7	13.3	32	14	30.5	15.5
ø16	8.4	1.6	38.7	19.3	38	20	36.5	21.5
ø25	12.4	5.6	42.7	23.3	42	24	40.5	25.5
ø32	15.4	8.6	42.7	23.3	42	24	40.5	25.5

Note) For switch mountability, refer to the Model No. display method for each variation.

1 Piston rod deflection amount due to concentrated load (Reference value)

Keep the center of gravity of the load and the center of the unit cylinder as close as possible.



[Unit: mm]

Bore size (mm)	Stroke (mm)	Load (N)					
		75	100	125	150	175	200
ø10	15	0.05	0.10	-	-	-	-
ø16	40	0.02	0.05	0.09	0.16	0.25	0.38
ø25	70	0.01	0.03	0.06	0.10	0.16	0.24
ø32	100	0.005	0.02	0.04	0.07	0.11	0.15

Guided

STM

STG

STS/STL

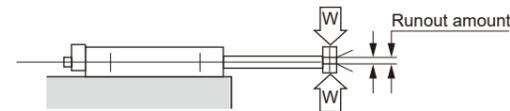
STR2

UCA2

[Unit: mm]

Bore size (mm)	Stroke (mm)	Load (N)							
		25	50	75	100	125	150	175	200
ø10	7	0.04	0.10	0.18	0.27	-	-	-	-
ø16	20	0.03	0.07	0.12	0.20	0.28	0.37	0.48	0.60
ø25	35	0.02	0.04	0.08	0.13	0.17	0.24	0.32	0.41
ø32	50	0.01	0.03	0.06	0.10	0.14	0.21	0.29	0.38

UCA2



Cylinder Switch

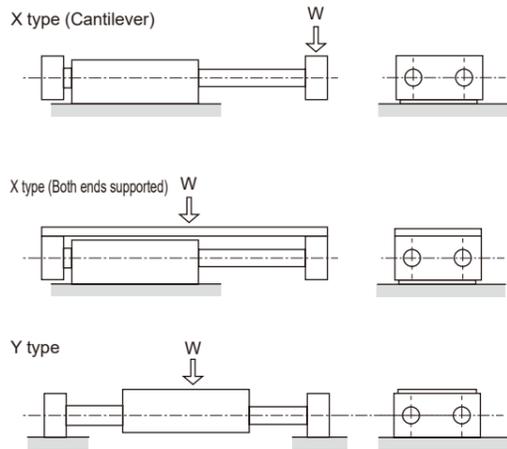
Ending

UCA2, UCA2-B

Technical data ② Allowable load judgment

2 Allowable load judgment

1. Vertical load



[Unit: N]

Bore size (mm)	X type		Y type
	Cantilever	Both ends supported	
ø10	6.9	14.7	
ø16	19.6	39.2	
ø25	34.3	68.6	
ø32	49	98	

W = Load N

2. With overhang load applied

Select the tube inner diameter according to the load calculation below.

However, the overhang load (W) should be less than or equal to the vertical load value in item (1), and the overhang amount (L) should be 100 mm or less.

2-1. Conditions and items required in calculation of the allowable load

W = Load (N)

L = Overhang amount (mm)

V = Operating speed (mm/s)

S = Stroke (mm)

F = Maximum load applied per bearing (N)

W₁ = End plate weight (kg)

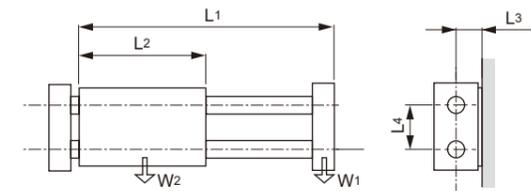
W₂ = Cylinder body weight (kg)

L₁ = Length from end plate to main body (mm)

L₂ = Cylinder body length (mm)

L₃ = Length from rod center to cylinder body (mm)

L₄ = Rod pitch (mm)



Bore size (mm)	Code	Type	L ₁	L ₂	L ₃	L ₄	W ₁	W ₂
	Bearing	91 + 2·S	76 + S	9	26	0.109 + 7x10 ⁻⁴ ·S	0.214 + 2 x10 ⁻³ ·S	
ø16	Metal	71 + 2·S	50 + S	12	34	0.199 + 21x10 ⁻⁴ ·S	0.334 + 3.2x10 ⁻³ ·S	
	Bearing	117 + 2·S	96 + S	12	34	0.239 + 21x10 ⁻⁴ ·S	0.338 + 3.2x10 ⁻³ ·S	
ø25	Metal	87 + 2·S	62 + S	16	42	0.456 + 36x10 ⁻⁴ ·S	0.6 + 4.7x10 ⁻³ ·S	
	Bearing	121 + 2·S	96 + S	16	42	0.509 + 36x10 ⁻⁴ ·S	0.615 + 4.7x10 ⁻³ ·S	
ø32	Metal	100 + 2·S	75 + S	19	58	0.636 + 47x10 ⁻⁴ ·S	0.92 + 7 x10 ⁻³ ·S	
	Bearing	139 + 2·S	114 + S	19	58	0.714 + 47x10 ⁻⁴ ·S	1.313 + 7 x10 ⁻³ ·S	

UCA2, UCA2-B Series

Technical data ② Allowable load judgment

2-2. Allowable load calculation

Calculate the value of F according to the "Mounting posture pattern diagram example", and ensure that the value of F_K obtained by the following formula is less than or equal to the allowable value in Table 3.

$$F_K = F \times K$$

F_K: Operating speed load (N)

K: Speed coefficient

Table 3 Allowable value of operating speed load (F_K)

Bore size (mm)	Allowable value of F _K (N)
ø10	21.6
ø16	75.5
ø25	103.0
ø32	157.0

Speed coefficient

Operating speed (mm/s)	K
30 ≤ V < 100	1.0
100 ≤ V < 200	1.1
200 ≤ V < 300	1.2

2-3. Mounting orientation examples

	X Type (Cantilever)	X Type (Both ends supported)	Y Type
Overhang load is applied in the vertical direction			
Maximum load per bearing (N)	$F = \frac{L}{2L_2} \cdot W$	$F = \frac{L + L_3}{2L_2} \cdot W$	$F = \frac{L + L_3}{2L_2} \cdot W$
Overhang load is applied in the vertical direction of the stroke			
Maximum load per bearing (N)	① $F = \frac{L + L_4}{2L_2} \cdot W + \frac{W_1}{4}$ ② $F = \sqrt{(\frac{L}{2L_2} \cdot W)^2 + (\frac{L_1}{2L_2} \cdot W + \frac{W_1}{4})^2}$	① $F = \frac{L + L_4}{2L_2} \cdot W + \frac{W_1 + W_3}{4}$ ② $F = \sqrt{(\frac{L}{2L_2} \cdot W)^2 + (\frac{W_1 + W_3}{4})^2}$	① $F = \frac{L + L_4}{2L_2} \cdot W + \frac{W_1 + W_2}{4}$ ② $F = \sqrt{(\frac{L}{2L_2} \cdot W)^2 + (\frac{W_2}{4})^2}$
Overhang load is applied in the lateral direction			
Maximum load per bearing (N)	$F = \frac{L + L_4}{L_2} \cdot W$	$F = \frac{L + L_4}{L_2} \cdot W$	$F = \frac{L + L_4}{L_2} \cdot W$
Overhang load is applied in the stroke direction			
Maximum load per bearing (N)	$F = \frac{L + L_1}{2L_2} \cdot W + \frac{W_1}{4}$		$F = \frac{L + L_2}{2L_2} \cdot W + \frac{W_2}{4}$

Guided

STM

STG

STS/
STL

STR2

UCA2

Guided

STM

STG

STS/
STL

STR2

UCA2

Cylinder
Switch

Ending

Cylinder
Switch

Ending

3 Calculation of load factor

1. Refer to Table 4 and calculate the necessary thrust according to the weight, direction and mounting orientation of the load.

Table 4

	Body Fixed (Cantilever)	Body Fixed (Both ends supported)	Plate fixing
(Load is applied to the cylinder center) Horizontal mounting			
Required thrust	$f = \mu(W + W_1)$	$f = \mu(W + W_1 + W_3)$	$f = \mu(W + W_2)$
(Overhang load is applied in the vertical direction) Vertical mounting			
Required thrust	$f = \frac{2\mu \cdot L}{L_2} \cdot W + W + W_1$	$f = \frac{2\mu \cdot (L+L_3)}{L_2} \cdot W + W + W_1 + W_3$	$f = \frac{2\mu \cdot (L+L_5)}{L_2} \cdot W + W + W_2$
(Overhang load is applied in the vertical direction of the stroke) ① Horizontal mounting ② Horizontal side mounting			
Required thrust	$\textcircled{1} f = \mu \left(\frac{2L+L_1}{L_2} \cdot W + W + W_1 \right)$ $\textcircled{2} f = \mu \cdot \sqrt{\left(\frac{2L+L_1}{L_2} \cdot W \right)^2 + \left(\frac{2L+L_1}{L_2} \cdot W + W + W_1 \right)^2}$	$\textcircled{1} f = \mu \cdot \left(\frac{2L+L_1}{L_2} \cdot W + W + W_1 + W_3 \right)$ $\textcircled{2} f = \mu \cdot \sqrt{\left(\frac{2L+L_1}{L_2} \cdot W \right)^2 + \left(W + W_1 + W_3 \right)^2}$	$\textcircled{1} f = \mu \left(\frac{2L+L_1}{L_2} \cdot W + W + W_2 \right)$ $\textcircled{2} f = \mu \cdot \sqrt{\left(\frac{2L+L_1}{L_2} \cdot W \right)^2 + \left(W + W_2 \right)^2}$
(Laterally Overhang Load is applied) Vertical mounting			
Required thrust	$f = \frac{\mu(2 \cdot L + L_4)}{L_2} \cdot W + W + W_1$	$f = \frac{\mu(2 \cdot L + L_4)}{L_2} \cdot W + W + W_1 + W_3$	$f = \frac{\mu(2 \cdot L + L_4)}{L_2} \cdot W + W + W_2$
(In stroke direction Overhang Load is applied) Horizontal mounting Horizontal side mounting			
Required thrust	$f = \mu \left[\frac{2(L+L_1) - L_2}{L_2} \cdot W + W + W_1 \right]$		$f = \mu \left(\frac{2 \cdot L + L_2}{L_2} \cdot W + W + W_2 \right)$

f: Required thrust N
 μ: Friction coefficient Plain bearing type 0.3
 Rolling bearing type 0.1

Note) W₃: Sub-plate weight (kg)
 For the remaining items and dimensions, refer to "Allowable load judgment".

2. Calculate the load factor from the necessary thrust obtained in 1, the theoretical thrust table and the thrust efficiency graph. (Ensure the load factor is 50% or less.)

$$\omega = \frac{f}{B} \times 100 \leq 50$$

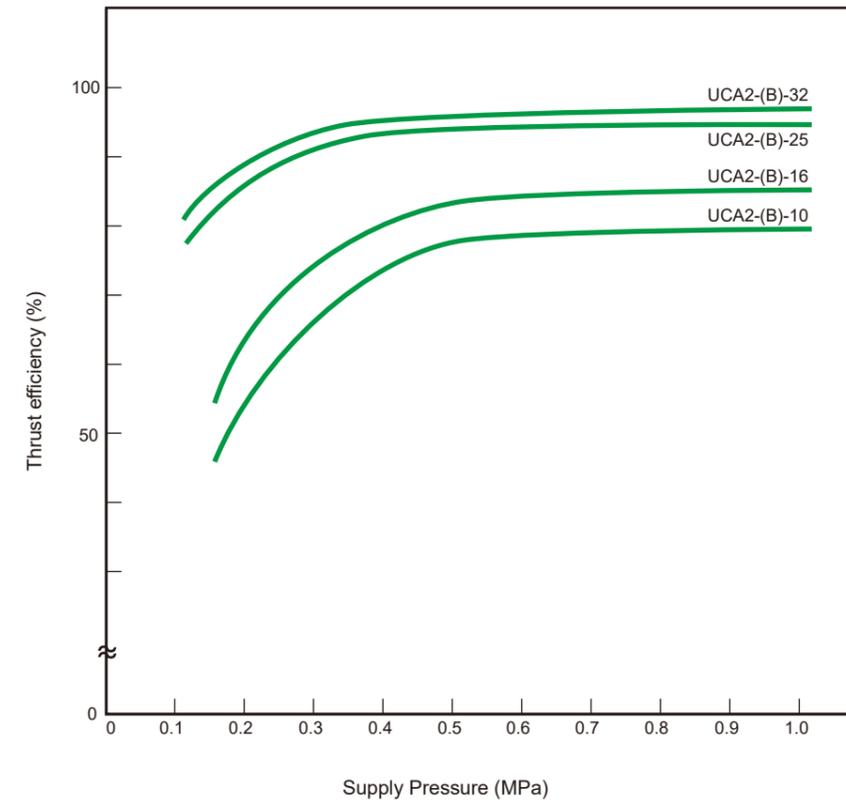
$$B = \frac{a}{100} \cdot A$$

ω: Load factor (%)
 f: Required thrust (N)
 A: Theoretical thrust (N)
 a: Thrust efficiency (%)
 B: Effective thrust (N)

Theoretical thrust

Model No.	Operating Pressure MPa									
	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
UCA2-10	10	20	29	39	49	59	69	78	88	
UCA2-16	25	48	73	96	121	145	169	193	217	
UCA2-25	66	132	198	265	330	396	463	528	594	
UCA2-32	119	236	355	474	591	710	828	846	1065	
UCA2-B-10	10	20	29	39	49	59	69	78	88	
UCA2-B-16	25	48	73	96	121	145	169	193	217	
UCA2-B-25	66	132	198	265	330	396	463	528	594	
UCA2-B-32	119	236	355	474	591	710	828	946	1065	

Thrust efficiency



Guided

STM

STG

STS/STL

STR2

UCA2

Guided

STM

STG

STS/STL

STR2

UCA2

Cylinder Switch

Ending

Cylinder Switch

Ending

UCA2, UCA2-B

Technical data ④ Calculation of kinetic energy

4 Calculation of kinetic energy

Calculate the kinetic energy from the load weight (W) and speed (V), and ensure it is less than or equal to the allowable value in Table 7. If the allowable energy value is exceeded, be sure to increase the cylinder size so that it is within the allowable energy, or consider an external shock absorber.

In addition, the speed value referred to here is not the average speed but the speed at the time of cushion entry, so calculate the cushion entry speed from equation (1).

$$E = \frac{1}{2} mV^2 + f S_1$$

$$V_a = \frac{S_2}{t}$$

$$V = V_a \times (1 + 1.5 \frac{\omega}{100}) \text{---(1)}$$

E : Kinetic Energy (J)

m : Weight (kg)

V : Cushion impact speed (m/s)

f : Thrust (N)

S₁ : Shock Absorbers stroke (m)

V_a : Average speed (m/s)

S₂ : Cylinder stroke (m)

t : Travel time (s)

ω : Load factor (%)

Table 7 Allowable absorption energy

Bore size (mm)	Allowable absorption energy (J)
ø10	0.25
ø16	0.65
ø25	2.4
ø32	4.5

Shock Absorber Stroke

Bore size (mm)	Stroke (mm)
ø10	4.5
ø16	5.0
ø25	6.5
ø32	7.0



Pneumatic Equipment

To Use This Product Safely

Be sure to read this before use.

For general cylinder information, see Opening Section P. 41, and for cylinder switches, see P. 808.

Individual Precautions: Unit cylinder UCA2 Series

During Use

1. During installation

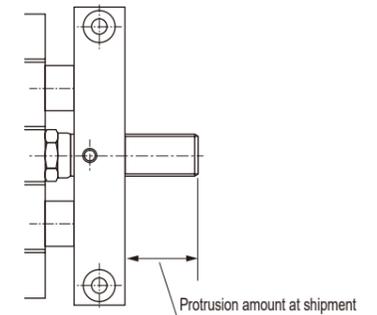
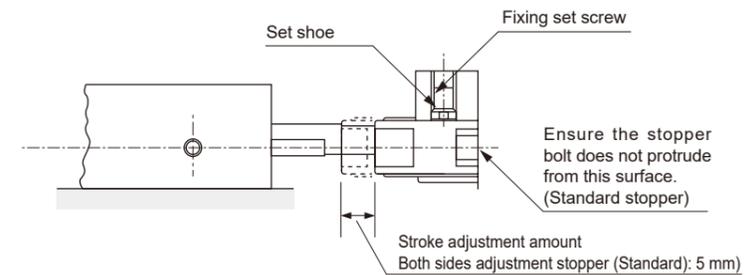
Caution

About stopper adjustment method

- When adjusting the stroke, loosen the fixing set screw and then turn the stopper bolt to adjust. Also, after adjustment, tighten the fixing set screw. Recommended tightening torque for fixing set screw: 1.4 N·m
- The adjustment amount of the stopper depends on Table A.
- Using a longer stroke will cause malfunction, so please refrain from doing so. Ensure the standard stopper does not protrude beyond the outside of the end plate. For single-side adjustment stopper P1 and both-sides adjustment stopper P2, do not adjust them to extend beyond the projection amount at the time of shipment (Table A).

Table A

Item		Stroke adjustment amount	Protrusion amount at shipment
Both sides adjustment stopper (Standard) Blank	Plate A side	-5 mm	0 mm
	Plate B side		
One side adjustment stopper P1A	Plate A side	-30 mm	25 mm
	Plate B side	-5 mm	0 mm
One side adjustment stopper P1B	Plate A side	-5 mm	0 mm
	Plate B side	-30 mm	25 mm
Both sides adjustment stopper P2	Plate A side	-17.5 mm	12.5 mm
	Plate B side		



Treat our Shock absorbers as consumable parts.

Replace when a decrease in energy absorption capacity is observed or when operation is no longer smooth.

For precautions regarding mounting, installation, adjustment, use, and maintenance, please see "Precautions for Use" in this catalog and the CKD Components Product website (<https://www.ckd.co.jp/kiki/en/>) → "Model No." → [Instruction Manual](#)

Guided

Guided

STM

STM

STG

STG

STS/STL

STS/STL

STR2

STR2

UCA2

UCA2

Cylinder Switch

Cylinder Switch

Ending

Ending