

RCC2

Rotary clamp cylinder

Special type

Overview

The rotary clamp mechanism has been incorporated into a square, space saving cylinder.

This is appropriate for clamp of small parts workpiece such as an electric part. Clean room specifications are also available by a custom order. This is appropriate for such as alignment of a liquid crystal glass. Consult with CKD for details.

Features

Space saving, square shaped
Incorporated all bore sizes switch possible

Reed, proximity and incorporated strong magnetic field proof switch possible.

Two guide grooves and roller

Two guide grooves are provided on all port sizes to improve the wear-resistance of the guide groove. A roller is mounted on the guide pin ($\phi 32$ to $\phi 50$).



CONTENTS

⚠ Safety precautions	2282
● Double acting single rod type (RCC2)	2284

Series variation

○: Custom order

Variation	Model no.	Bore size (mm)	Stroke length (mm)							Rotational section stroke length (mm)	Clamp section stroke length (mm)	Mounting style			Switch	Page
			21	25	31	35	40	70	Basic type			Rod end flange type	Head end flange type			
														00		
Double acting single rod type	RCC2	$\phi 20, \phi 25$	○		○				11	10, 20	○	○	○	○	2284	
		$\phi 32, \phi 40$		○		○			15		○	○	○			
		$\phi 50, \phi 63$					○	○	20	20, 50	○	○	○			

SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC

Ending

Rotary clamp cylinder
Special type



Safety precautions

Always read this section before starting use.

Refer to Intro 71 for general precautions of the cylinder, and to Intro 78 for general precautions of the cylinder switch.

Rotary clamp cylinder RCC2 Series

Design & Selection

WARNING

■ When the cylinder operates, the piston rod turns (90°) and strokes.

Make sure that there is no external interference when the lever attached to the end of the piston rod is turning.

If workers could be exposed to danger when the lever attached to the end of the piston rod turns, provide safety by installing a protective cover, etc.

CAUTION

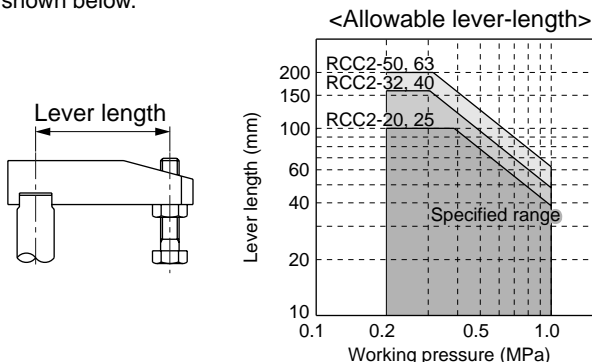
■ Clamp position

Do not clamp during the turning operation.

Clamp at a position 3mm or more ahead of the stroke end within the clamp stroke range.

■ Lever length and working pressure

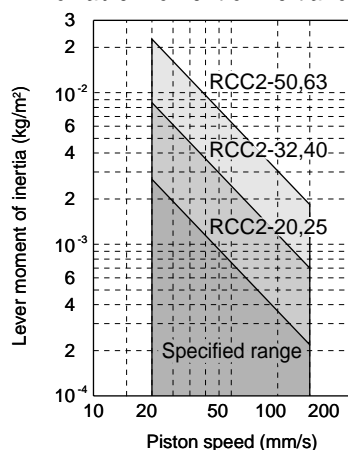
Set the lever length and working pressure within the range shown below.



■ Lever moment of inertia and piston speed

Set the lever's moment of inertia and the piston speed within the range shown below.

<Allowable moment of inertia for lever>



Limited to vertical installation.

Note) The allowable moment of inertia for lever graph applies only for vertical installation.

Installation & Adjustment

WARNING

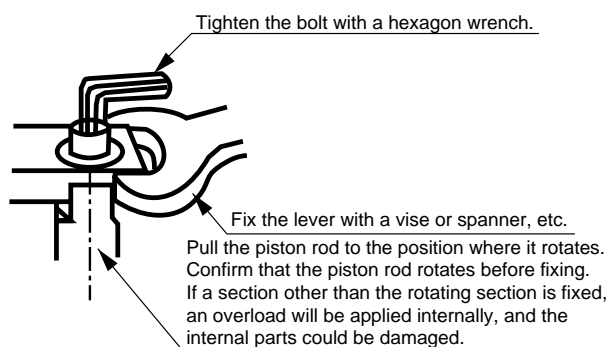
■ When the cylinder operates, the piston rod turns (90°) and strokes.

Do not enter or extend hands into the area during drive as the lever attached to the end of the piston rod turns.

CAUTION

■ Attaching the lever

Use the following procedures to attach the lever.



■ Piston speed

Adjust the speed within the range given in the lever moment of inertia and piston speed graphs.

- SCP*2
- CMK2
- CMA2
- SCM
- SCG
- SCA2
- SCS
- CKV2
- CA/OV2
- SSD
- CAT
- MDC2
- MVC
- SMD2
- MSD*
- FC*
- STK
- ULK*
- JSK/M2
- JSG
- JSC3
- USSD
- USC
- JSB3
- LMB
- STG
- STS/L
- LCS
- LCG
- LCM
- LCT
- LCY
- STR2
- UCA2
- HCM
- HCA
- SRL2
- SRG
- SRM
- SRT
- MRL2
- MRG2
- SM-25
- CAC3
- UCAC
- RCC2
- MFC
- SHC
- GLC
- Ending



Rotary clamp cylinder

RCC2 Series

● Bore size: ϕ 20, ϕ 25, ϕ 32, ϕ 40, ϕ 50, ϕ 63

JIS symbol ● Double acting



Specifications

* Custom order

		RCC2					
Bore size	mm	ϕ 20	ϕ 25	ϕ 32	ϕ 40	ϕ 50	ϕ 63
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressure	MPa	1.0					
Min. working pressure	MPa	0.2					
Withstanding pressure	MPa	1.6					
Ambient temperature	°C	-10 to 60 (no freezing)					
Port size		M5		Rc1/8		Rc1/4	
Working piston speed	mm/s	50 to 200					
Cushion		Rubber cushioned					
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISOVG 32)					
Turning angle		90° ± 10°					
Rotational direction		Right and left					
Rod revoluble angle tolerance (clamp): Default		± 1°		± 0.9°		± 0.7°	
Pressurized area	Retracted side	201	377	603	1055	1649	2626
	Extend type	314	490	804	1256	1963	3117
Service life		100 ten thousand time					

Stroke length

Bore size (mm)	Stroke length (mm)	Rotational section stroke (mm)	Clamp section stroke (mm)
ϕ 20	21, 31	11	10, 20
ϕ 25			
ϕ 32	25, 35	15	10, 20
ϕ 40			
ϕ 50	40, 70	20	20, 50
ϕ 63			

- SCP*2
- CMK2
- CMA2
- SCM
- SCG
- SCA2
- SCS
- CKV2
- CA/OV2
- SSD
- CAT
- MDC2
- MVC
- SMD2
- MSD*
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- ULK*
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Switch specifications

- 1 color/2 color indicator/strong magnetic field proof

* The T0/T5 switch can be used with 220 VAC.
Consult with CKD for working conditions.

Descriptions	Proximity 2 wire		Proximity 3 wire			Reed 2 wire		Proximity 2 wire		
	T2H/ T2V	T2YH/ T2YV	T3H/T3V	T3PH/T3PV (Custom order)	T3YH/ T3YV	T0H/T0V	T5H/T5V	T2YD		
Applications	Programmable controller		Programmable controller			Programmable controller	Programmable controller, relay, IC circuit(w/o light), serial connection		Programmable controller	
Output method	-		NPN output	PNP output	NPN output	-				
Power voltage	-		10 to 28 VDC			-				
Load voltage	10 to 30 VDC		30 VDC or less			12/24 VDC	110 VAC	5/12/24 VDC	110 VAC	24 VDC ±10%
Load current	5 to 20mA (Note 1)		100mA or less		50mA or less	5 to 50mA	7 to 20mA	50mA or less	20mA or less	5 to 20mA
Light	LED (ON lighting)	Red/green LED (ON lighting)	LED (ON lighting)	Green LED (ON lighting)	Red/green LED (ON lighting)	LED (ON lighting)		-	Red/green LED (ON lighting)	
Leakage current	1mA or less		10 μA or less			0mA				1.0mA or less

Note 1: The maximum load current: above 20mA applies at 25°C. When ambient temperature around a switch is higher than 25°C, the value is lower than 20mA. (5 to 10mA. when 60°C)

- With preventive maintenance output

Descriptions	Proximity 3 wire		Proximity 4 wire		Proximity 3 wire		Proximity 4 wire		
	T2YFH/V		T3YFH/V		T2YMH/V		T3YMH/V		
Applications	Programmable controller		Programmable controller		Programmable controller		Programmable controller		
Output method	NPN output								
Light	Red/green LED (ON lighting)								
	Installation position adjustment	-		Yellow LED (ON lighting)				-	
Output section	Preventive maintenance output	-		Yellow LED (ON lighting)				-	
	Power voltage	-		10 to 28 VDC		-		10 to 28 VDC	
	Load voltage	10 to 30 VDC		30 VDC or less		10 to 30 VDC		30 VDC or less	
	Load current	5 to 20mA		50mA or less		5 to 20mA		50mA or less	
Preventive maintenance output	Leakage current	1mA or less		10 μA or less		1.2mA or less		10 μA or less	
	Load voltage	30 VDC or less							
	Load current	20mA or less		50mA or less		5 to 20mA or less		50mA or less	
Leakage current	10 μA or less								

Cylinder weight

(Unit: kg)

Descriptions, mounting style	Stroke length (mm)						Rod end flange type (FA)	Head end flange type (FB)	Switch weight
	21	31	25	35	40	70			
φ 20	0.35	0.43	-	-	-	-	0.13	0.13	0.02
φ 25	0.38	0.45	-	-	-	-	0.16	0.16	
φ 32	-	-	0.8	0.9	-	-	0.16	0.16	
φ 40	-	-	1.0	1.1	-	-	0.25	0.25	
φ 50	-	-	-	-	1.6	2.2	0.5	0.5	
φ 63	-	-	-	-	2.8	3.6	0.65	0.65	

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SMD2
MSD*
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STK
ULK*
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Ending

Rotary clamp cylinder
Special type

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How to order

Without switch

RCC2 - **00** - **20** - **21** - **R**

With switch

RCC2 - **00** - **20** - **21** - **R** - **T0H** - **R**

A Mounting style

B Bore size

C Stroke length

D Rotational direction

E Switch model no.

F Switch quantity

Symbol	Descriptions
A Mounting style	
00	Basic type
FA	Rod end flange type
FB	Bed side flange type

B Bore size (mm)	
20	φ 20
25	φ 25
32	φ 32
40	φ 40
50	φ 50
63	φ 63

C Stroke length (mm)			
Stroke length	Bore size	Rotational section	Clamp
21	φ 20, φ 25	11	10
25	φ 32, φ 40	15	10
31	φ 20, φ 25	11	20
35	φ 32, φ 40	15	20
40	φ 50, φ 63	20	20
70	φ 50, φ 63	20	50

D Rotational direction	
R	Clamp (Pull) looking from rod end: Rotated 90° in CW direction
L	Clamp (Pull) looking from rod end: Rotated 90° in CCW direction

E Switch model no.				
Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
T0H*	T0V*	Reed	1 color indicator type	2-wire
T5H*	T5V*		Without indicator light	
T2H*	T2V*	Proximity	1 color indicator type	2-wire
T3H*	T3V*		1 color indicator type (custom order)	3-wire
T3PH*	T3PV*			2 color indicator type
T2YH*	T2YV*		3-wire	
T3YH*	T3YV*		2 color indicator type (w/o indicator light for preventive maintenance output)	3-wire
T2YFH*	T2YFV*			4-wire
T3YFH*	T3YFV*		2 color indicator type (w/ indicator light for preventive maintenance output (1 color))	3-wire
T2YMH*	T2YMV*			4-wire
T3YMH*	T3YMV*	Strong magnetic field proof		2-wire
T2YD*	-			
T2YDT*	-			

*Lead wire length (m)

Blank	1m (standard)
3	3m (option)
5	5m (option)

F Switch quantity	
R	One on rod end
H	One on head end
D	Two

<Example of model number>

RCC2-00-20-21-R-T0H-R

Model: Rotary clamp cylinder double acting

- A** Mounting style : Basic type
- B** Bore size : φ 20mm
- C** Stroke length : 21mm
- D** Rotational direction : Clamp (Pull) looking from rod end rotated 90° in CW direction
- E** Switch model no. : Reed T0H switch, lead wire length 1m
- F** Switch quantity : One on rod end

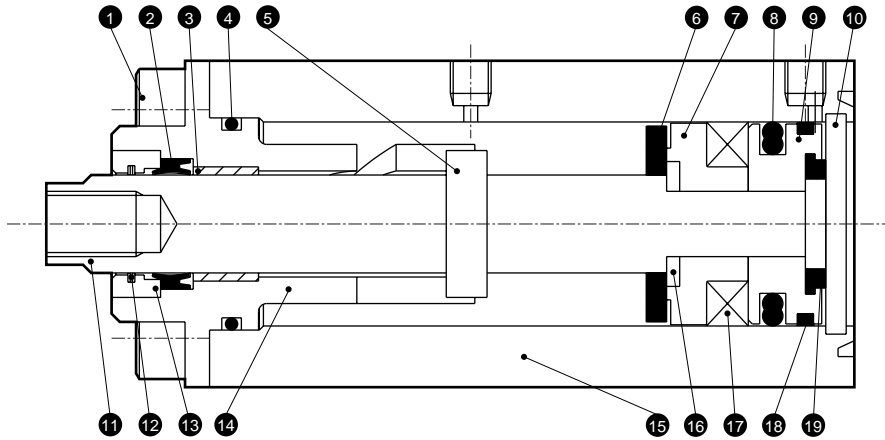
How to order switch

SW - **T0H**

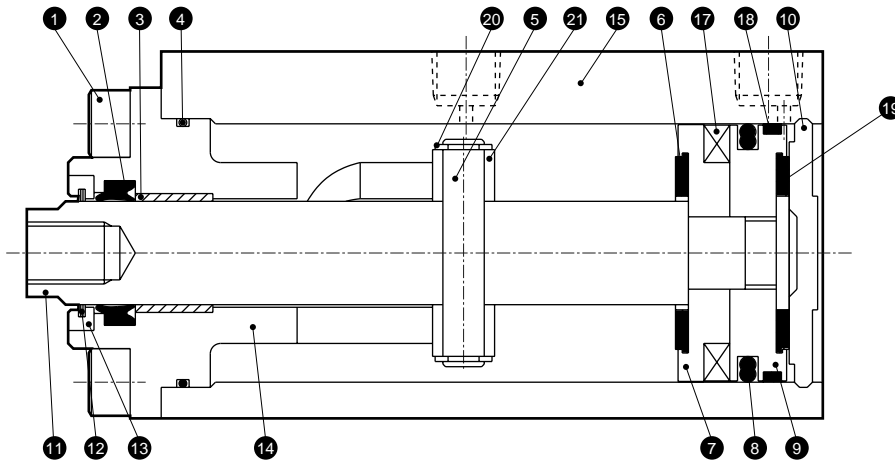
Switch model no.
(Item **E** above)

Internal structure and parts list

● RCC2-20/25



● RCC2-32/40/50/63



No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Hexagon socket head cap bolt	Stainless steel		11	Piston rod	Steel	
2	Rod packing seal	Nitrile rubber		12	Coil scraper	Copper alloy	
3	Bush	Copper		13	Holder	Aluminum alloy	
4	Cylinder gasket	Nitrile rubber		14	Rod cover	Steel	
5	Pin	Steel		15	Cylinder body	Aluminum alloy	
6	Cushion rubber (R)	Urethane rubber		16	Spacer washer	Stainless steel	
7	Spacer	$\phi 20, \phi 25$: special plastic $\phi 32$ to $\phi 63$: aluminum alloy		17	Magnet	Plastic	
8	Piston packing seal	Nitrile rubber		18	Wear ring	Acetar resin	
9	Piston	Aluminum alloy		19	Cushion rubber (H)	Urethane rubber	
10	Cover	$\phi 20, \phi 25$: stainless steel rope $\phi 32$ to $\phi 63$: aluminum alloy		20	E type snap ring	Steel	
				21	Roller	Steel	

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Ending

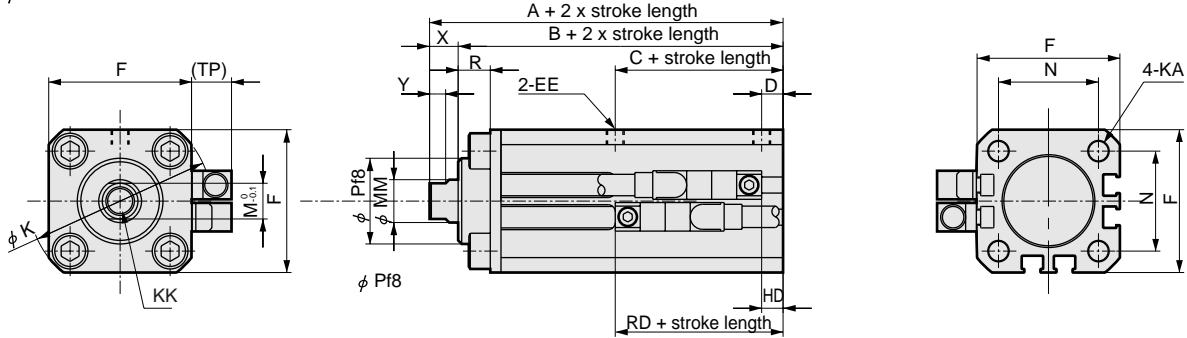
Rotary clamp cylinder
Special type

Dimensions

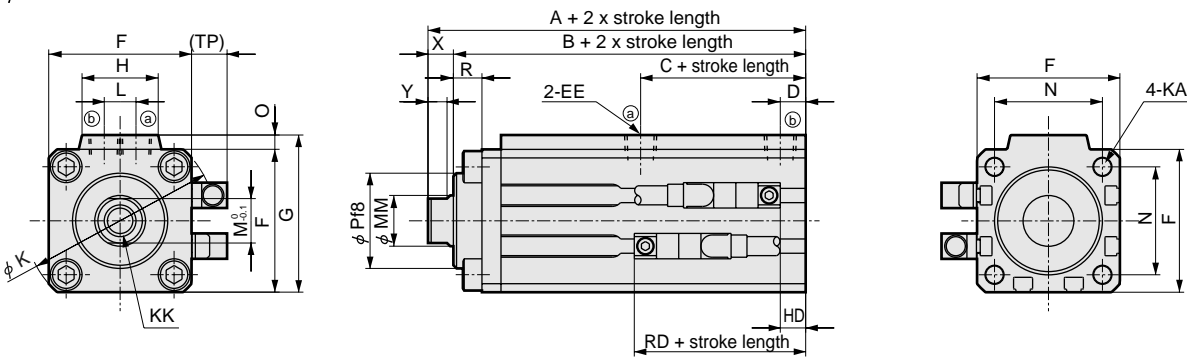


● Basic type (00)

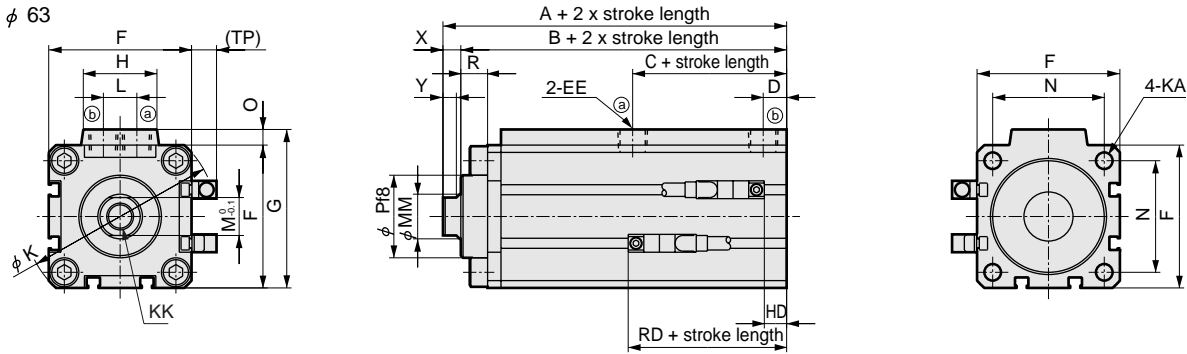
φ 20, φ 25



φ 32, φ 40



φ 50, φ 63



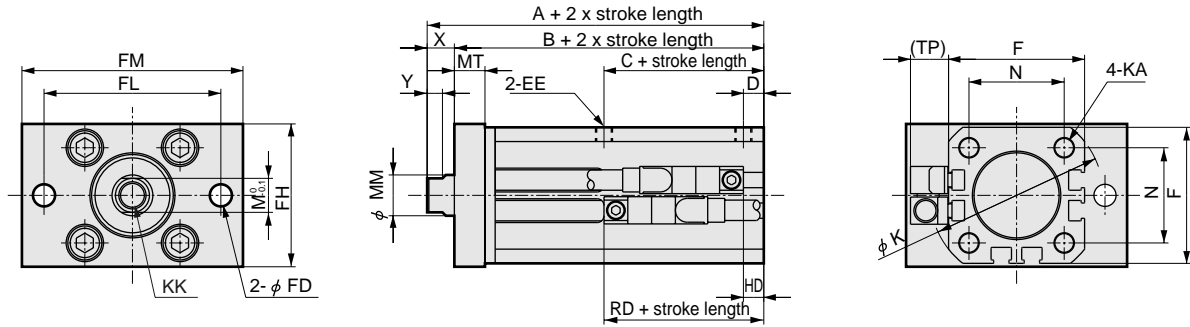
Symbol	Basic type (00) dimensions table																			
Bore size (mm)	A	B	C	D	EE	F	G	H	K	KA	KK	L	M	MM	N	O	P	R	X	Y
φ 20	56	48	24	5.5	M5 x 0.8	36	-	-	47	M6 depth 11	M8 depth 15	-	10	12	25.5	-	24	9	8	4.5
φ 25	57	49	26	6	M5 x 0.8	40	-	-	51	M6 depth 11	M8 depth 15	-	10	12	28	-	24	9	8	4.5
φ 32	69	61	27	8	Rc1/8	45	49.5	24	60	M6 depth 11	M10 depth 15	10	14	16	34	4.5	30	9	8	6
φ 40	70	62	29	8.5	Rc1/8	52	57	24	69	M6 depth 11	M10 depth 15	10	14	16	40	5	35	9	8	6
φ 50	74	66	29	10.5	Rc1/4	64	71	33	86	M8 depth 13	M12 depth 15	15	17	20	50	7	37	12	8	6
φ 63	85	75	38	11	Rc1/4	77	84	33	103	M10 depth 25	M16 depth 21	15	22	25	60	7	48	12	10	8

Symbol	With switch														
Bore size (mm)	T2/3H, T2/3V			T0/5H, T0/5V			T*YH/T*YV			T*Y*H/T*Y*V			T2YD*		
	HD	RD	TP	HD	RD	TP	HD	RD	TP	HD	RD	TP	HD	RD	TP
φ 20	7	26	0	6	27	0	6	27	5	6	27	10	6	27	11
φ 25	6	25	0	5	26	0	5	26	5	5	26	10	5	26	11
φ 32	9	28	0	8	29	0	8	29	5	8	29	10	8	29	11
φ 40	10	29	0	9	30	0	9	30	5	9	30	10	9	30	11
φ 50	11	30	0	10	31	0	10	31	5	10	31	10	10	31	11
φ 63	19	37	0	18	38	0	18	38	5	18	38	10	18	38	11

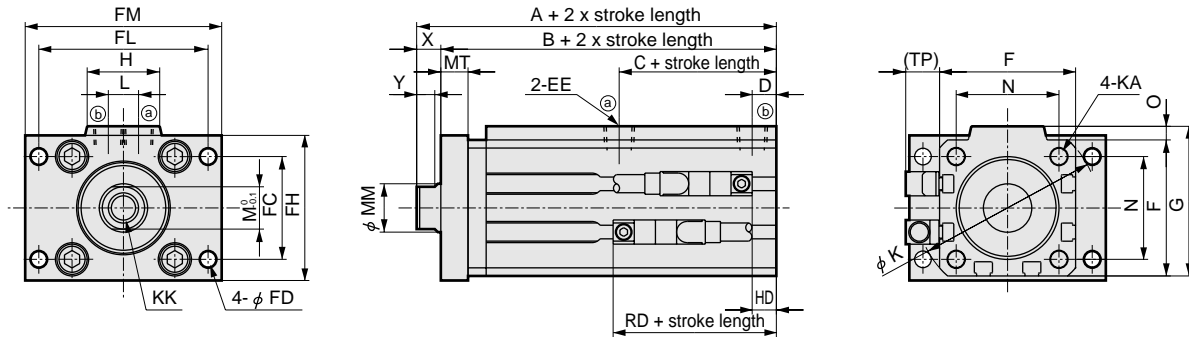
Dimensions

● Rod end flange type (FA)

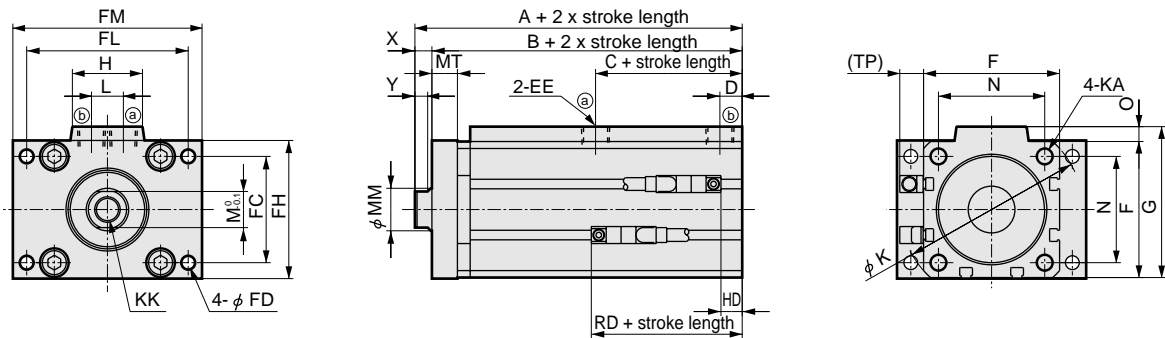
φ 20, φ 25



φ 32, φ 40



φ 50, φ 63



Symbol	Rod end flange type (FA) basic dimensions																				
Bore size (mm)	A	B	C	D	EE	F	G	H	K	KA	KK	L	M	MM	N	O	X	Y			
φ 20	56	48	24	5.5	M5 x 0.8	36	-	-	47	M6 depth 11	M8 depth 15	-	10	12	25.5	-	8	4.5			
φ 25	57	49	26	6	M5 x 0.8	40	-	-	51	M6 depth 11	M8 depth 15	-	10	12	28	-	8	4.5			
φ 32	69	61	27	8	Rc1/8	45	49.5	24	60	M6 depth 11	M10 depth 15	10	14	16	34	4.5	8	6			
φ 40	70	62	29	8.5	Rc1/8	52	57	24	69	M6 depth 11	M10 depth 15	10	14	16	40	5	8	6			
φ 50	74	66	29	10.5	Rc1/4	64	71	33	86	M8 depth 13	M12 depth 15	15	17	20	50	7	8	6			
φ 63	85	75	38	11	Rc1/4	77	84	33	103	M10 depth 25	M16 depth 21	15	22	25	60	7	10	8			
Symbol	With switch																				
Bore size (mm)	FD	FC	FH	FL	FM	MT	T2/3H, T2/3V			T0/5H, T0/5V			T*YH/T*YV			T*Y*H/T*Y*V			T2YD*		
							HD	RD	TP	HD	RD	TP	HD	RD	TP	HD	RD	TP	HD	RD	TP
φ 20	6.5	-	38	48	60	9	7	26	0	6	27	0	6	27	5	6	27	10	6	27	11
φ 25	6.5	-	42	52	65	9	6	25	0	5	26	0	5	26	5	5	26	10	5	26	11
φ 32	5.5	34	48	56	65	9	9	28	0	8	29	0	8	29	5	8	29	10	8	29	11
φ 40	5.5	40	55	62	75	9	10	29	0	9	30	0	9	30	5	9	30	10	9	30	11
φ 50	6.5	50	66	76	89	12	11	30	0	10	31	0	10	31	5	10	31	10	10	31	11
φ 63	9	60	82	92	108	12	19	37	0	18	38	0	18	38	5	18	38	10	18	38	11

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LMB
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STS/L
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Ending

Rotary clamp cylinder

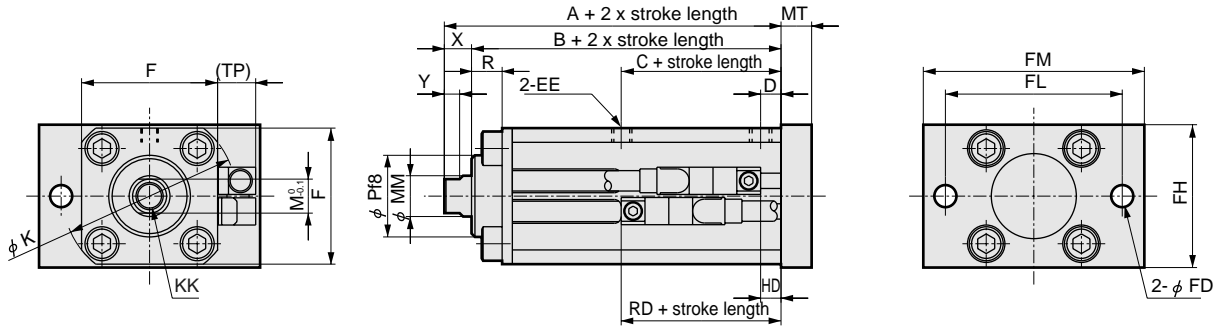
Special type

Dimensions

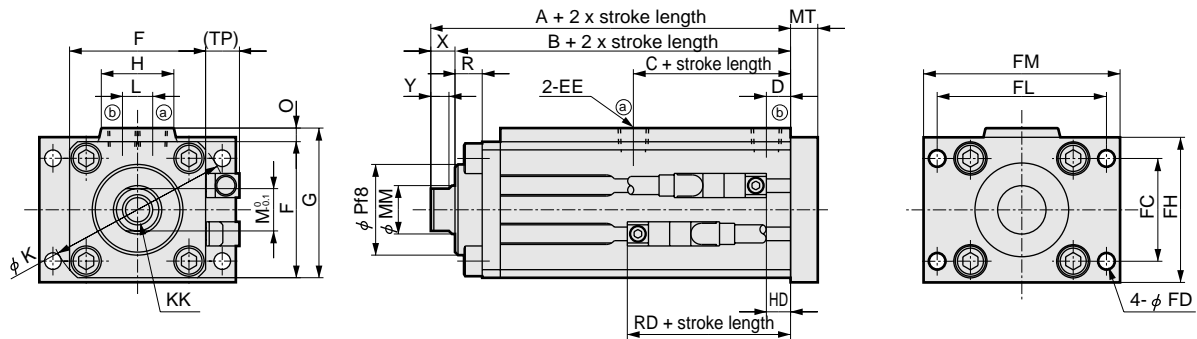


● Head end flange type (FB)

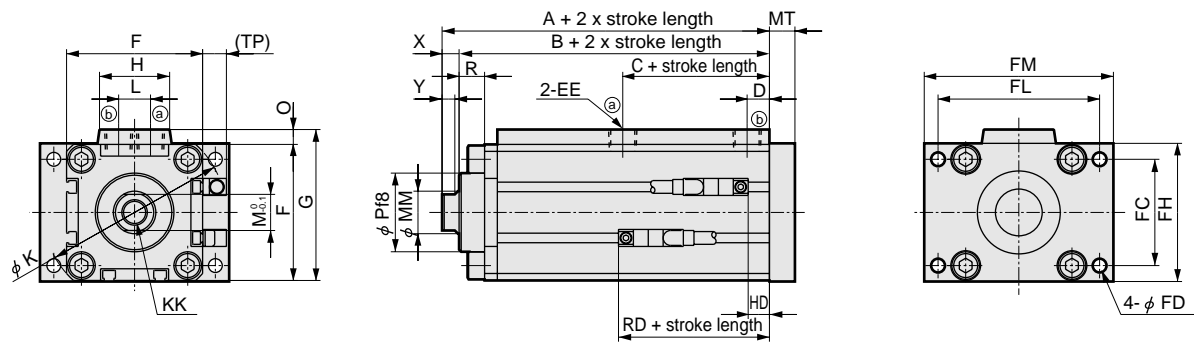
φ 20, φ 25



φ 32, φ 40



φ 50, φ 63



Symbol	Head end flange type (FB) basic dimensions																		
Bore size (mm)	A	B	C	D	EE	F	G	H	K	KK	L	M	MM	O	P	R	X	Y	FD
φ 20	56	48	24	5.5	M5 x 0.8	36	-	-	47	M8 depth 15	-	10	12	-	24	9	8	4.5	6.5
φ 25	57	49	26	6	M5 x 0.8	40	-	-	51	M8 depth 15	-	10	12	-	24	9	8	4.5	6.5
φ 32	69	61	27	8	Rc1/8	45	49.5	24	60	M10 depth 15	10	14	16	4.5	30	9	8	6	5.5
φ 40	70	62	29	8.5	Rc1/8	52	57	24	69	M10 depth 15	10	14	16	5	35	9	8	6	5.5
φ 50	74	66	29	10.5	Rc1/4	64	71	33	86	M12 depth 15	15	17	20	7	37	12	8	6	6.5
φ 63	85	75	38	11	Rc1/4	77	84	33	103	M16 depth 21	15	22	25	7	48	12	10	8	9

Symbol	With switch																			
						T2/3H, T2/3V			T0/5H, T0/5V			T*YH/T*YV			T*Y*H/T*Y*V			T2YD*		
	FC	FH	FL	FM	MT	HD	RD	TP	HD	RD	TP	HD	RD	TP	HD	RD	TP	HD	RD	TP
φ 20	-	38	48	60	9	7	26	0	6	27	0	6	27	5	6	27	10	6	27	11
φ 25	-	42	52	65	9	6	25	0	5	26	0	5	26	5	5	26	10	5	26	11
φ 32	34	48	56	65	9	9	28	0	8	29	0	8	29	5	8	29	10	8	29	11
φ 40	40	55	62	75	9	10	29	0	9	30	0	9	30	5	9	30	10	9	30	11
φ 50	50	66	76	89	12	11	30	0	10	31	0	10	31	5	10	31	10	10	31	11
φ 63	60	82	92	108	12	19	37	0	18	38	0	18	38	5	18	38	10	18	38	11

Technical data (selection example)

(Specifications)

- Required clamping force: 500N
- Working pressure: 0.5MPa
- Piston speed: 100mm/s
- Length of lever: 80mm
- Lever moment of inertia: $2.0 \times 10^{-3} \text{ kg/m}$

1. Calculate the required pressurized area

$$\text{Required pressurized area (mm}^2\text{)} = \frac{\text{Required clamping force (N)}}{\text{Working pressure (MPa)}} = \frac{500}{0.5} = 1000 \text{ (mm}^2\text{)}$$

2. Select the cylinder size from the pressurized area (lead-in side) given in the applicable list

$\phi 40$ pressurized area: $1055 \text{ (mm}^2\text{)} >$ required pressurized area: $1000 \text{ (mm}^2\text{)}$

3. Confirm that the value is within the lever and working pressure graph's working range

Working pressure 0.5Mpa - lever length 80mm: within working range

4. Confirm that the value is within the lever moment of inertia and piston speed graph's working range

Lever moment of inertia $2.0 \times 10^{-3} \text{ kg/m}$ - piston speed 100mm/s: within working range

SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Rotary clamp cylinder
Special type