

FC*

Flat compact cylinder

ø25/ø32/ø40/ø50/ø63

Space saving structure

Overview

This cylinder is a rectangular space saving cylinder that reduces cylinder axial dimensions by 50% and enables easy installation into a small space. The bore section is oval and a rotation-stop function is provided.

Features

Space saving

Size in width direction is reduced by 50% (compared to our compact cylinders). This cylinder has a space saving structure that functions in a small space.

Easy to install even in a tight space

Conforming to the installation space, tubes can be extracted together in one direction without being bent.

Therefore, it can be easily installed even in a tight space.

The 2-color LED proximity switch can be mounted

The 2-color LED proximity switch, which instantly displays the optimum installation position with green LED, can be mounted.

Can be mounted from any surface

This cylinder is provided with mounting holes on the cover and is designed to be mounted from any surface, conforming to the space or applications.

Rotation-stop is not required

Structurally, this cylinder has a rotation-stop function. Therefore, there is no need to provide a rotation-stop mechanism separately. This cylinder also has a higher tolerance torque.

Simple design

This cylinder has a simple shape and matches any equipment.



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SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

Series variation

Flat compact cylinder FC*Series

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVPIN2

SSD2

SSG

SSD

CAT

MDC2

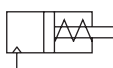



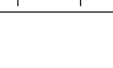
MVC

SMG

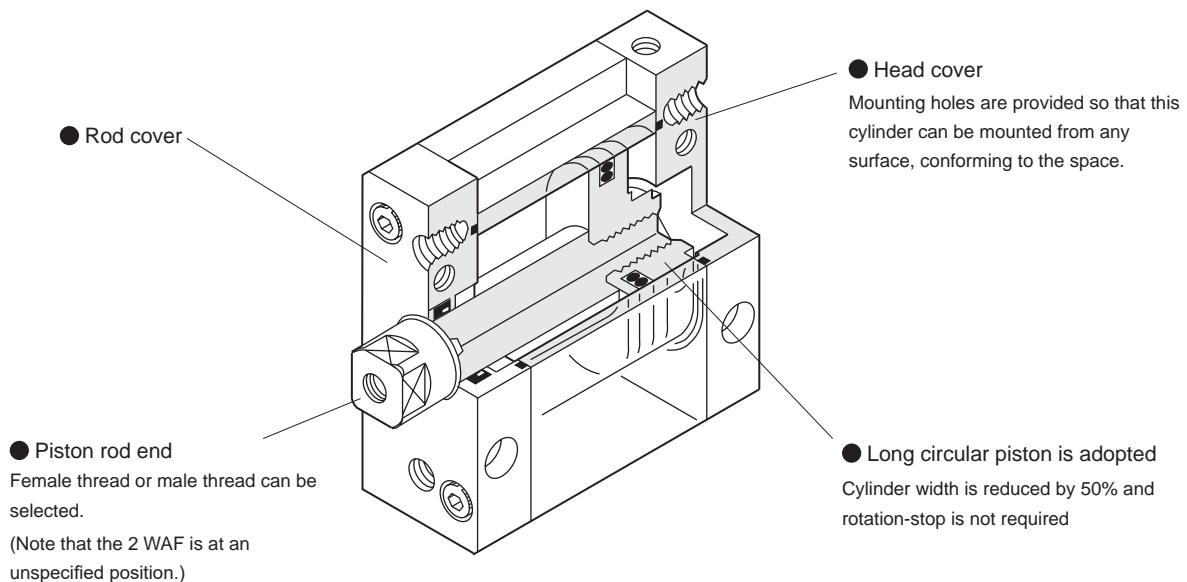
MSD/
MSDG

FC*

STK

Variation	Model No. JIS symbol	Bore size (mm)	Standard stroke (mm)							
			5	10	15	20	25	30	40	50
Single acting/ push with switch	FCS FCS-L 	ø25 equivalent/ ø32 equivalent ø40 equivalent/ø50 equivalent/ø63 equivalent	●	●						
Single acting/pull with switch	FCH FCH-L 	ø25 equivalent/ ø32 equivalent ø40 equivalent/ø50 equivalent/ø63 equivalent	●	●						
Double acting/ single rod with switch	FCD FCD-L 	ø25 equivalent/ ø32 equivalent/ ø40 equivalent/ ø50 equivalent/ ø63 equivalent	●	●	●	●	●	●	●	●
Double acting/ double rod with switch	FCD-D FCD-DL 	ø25 equivalent/ ø32 equivalent/ ø40 equivalent/ ø50 equivalent/ ø63 equivalent	●	●	●	●	●	●	●	●
Double acting/ cushioned/with switch	FCD-K FCD-KL 	ø25 equivalent/ ø32 equivalent/ ø40 equivalent/ ø50 equivalent/ ø63 equivalent	●	●	●	●	●	●	●	●

Product introduction



●: Standard, ○: Option, ■: Not available

	Min. stroke (mm)	Custom stroke (per mm)	Max. stroke (mm)	Option				Switch	Page
				Piston rod material change	Rod end male thread	With spigot	Copper and PTFE free		
				M	N	R	P6		
.....	1	1	10	○	○	○	○	1480	
			20	○	○	○	○		
.....	1	1	10	○	○	○	○	1480	
			20	○	○	○	○		
	1	1	50	○	○	○	○	1488	
	1	1	50	○	○	○	○	1494	
	1	1	150	○	○	○	○	1500	

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd
Contr

Ending

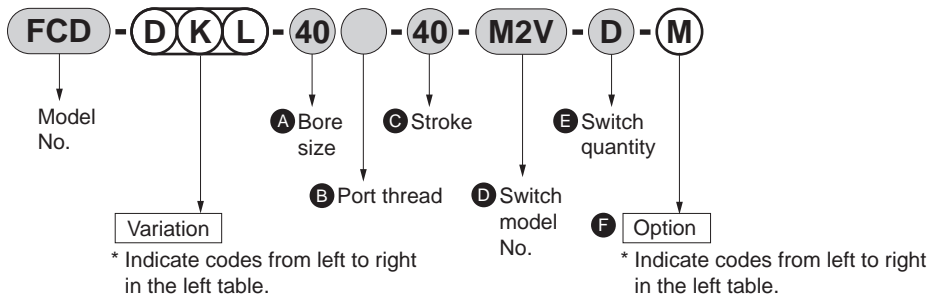
Variation and option combination selection table

- ⊙: Option
- : Available (made-to-order product)
- △: Available depending on conditions (Contact CKD.)
- x: Not available

Category	Code	Variation							Port thread		Option				
		None	K	S	H	D	DK	L	NPT *1	G *1	M	N	N**	P6	R
SSD	Double acting basic	Blank							⊙	○	○	○	○	○	○
SSD	Double acting with cushion	FCD-K		x	x	○	x	⊙	○	○	○	○	○	○	○
CAT	Single acting push	FCS			x	x	x	⊙	○	○	○	○	○	○	○
MDC2	Single acting pull	FCH					x	x	⊙	○	○	○	○	○	○
MVC	Double acting double rod	FCD-D							⊙	○	○	○	○	○	○
MVC	Double acting rod cushioned	FCD-DK							○	○	○	○	○	○	○
SMG	With cylinder switch	L							○	○	○	○	○	○	○
MSD/MSDG	NPT *1	N								x	○	○	○	○	○
MSD/MSDG	G *1	G									○	○	○	○	○
FC*															
STK	Piston rod material stainless steel	M										⊙	○	○	○
STK	Piston rod end male thread	N											○	⊙	⊙
SRL3	Specify piston rod end form	N**												○	○
SRG3	Copper and PTFE free	P6													○
SRM3	With spigot	R													○
SRT3	Cylinder switch	Listed separately	x	x	x	x	x	x	⊙	○	○	○	○	○	○

*1: Available only for ø40 and over

[Example of model No.]



Model No: Flat cylinder

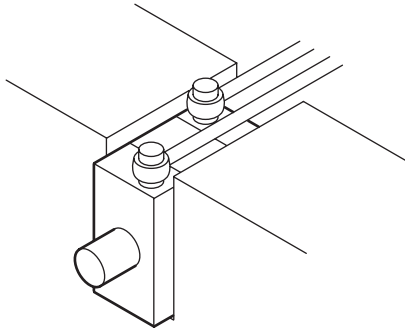
- Variation: Double rod/cushioned/with switch
- A Bore size : $\phi 40$ mm
- B Port thread : Rc thread
- C Stroke : 40 mm
- D Switch model No. : Proximity M2V switch, lead wire 1 m
- E Switch quantity : 2
- F Option : Piston rod material (stainless steel)

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

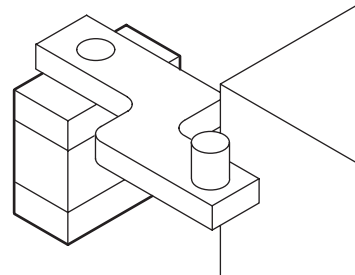
Applications

Conventionally impossible automatization of various applications has been achieved

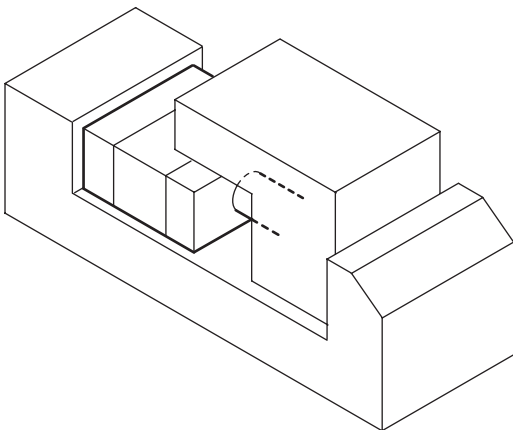
● Installation in a small space



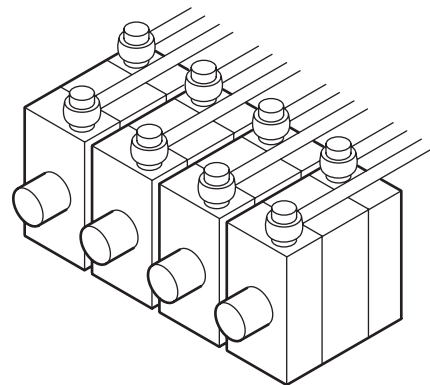
● Positioning when there is an obstacle (rotation-stop function)



● Clamp



● Can be used in parallel



SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/ COVPIN2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

MEMO

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd
Contr

Ending



Flat compact cylinder single acting/push/single acting/pull

FCS Series/FCH Series

● Bore size: $\varnothing 25/\varnothing 32/\varnothing 40/\varnothing 50/\varnothing 63$



Specifications

Item	FCS FCS-L					FCH FCH-L				
	Bore size mm	$\varnothing 25$ or equiv.	$\varnothing 32$ or equiv.	$\varnothing 40$ or equiv.	$\varnothing 50$ or equiv.	$\varnothing 63$ or equiv.	$\varnothing 25$ or equiv.	$\varnothing 32$ or equiv.	$\varnothing 40$ or equiv.	$\varnothing 50$ or equiv.
Actuation	Single acting push					Single acting pull				
Working fluid	Compressed air									
Max. working pressure MPa	0.7 (≈ 100 psi, 7 bar)									
Min. working pressure MPa	0.12 (≈ 17 psi, 1.2 bar)									
Proof pressure MPa	1.05 (≈ 150 psi, 10.5 bar)									
Ambient temperature $^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$) to 60 (140 $^{\circ}\text{F}$) (no freezing)									
Port size	M5		Rc1/8		Rc1/4	M5		Rc1/8		Rc1/4
Stroke tolerance mm	+0.5 0 (to 50)									
Working piston speed mm/s	50 to 500									
Cushion	None									
Lubrication	Not required (turbine oil type 1 ISO VG32 if necessary for lubrication)									
Allowable absorbed energy J	0.015	0.02	0.026	0.04	0.05	0.015	0.02	0.026	0.04	0.05

Note: Do not leave the single acting cylinder pressurized for a long time. If it is left pressurized for long periods, the piston rod may not return due to spring load when the pressure is released.

Rotation-stop precision/Allowable torque

Item	$\varnothing 25$ or equiv.	$\varnothing 32$ or equiv.	$\varnothing 40$ or equiv.	$\varnothing 50$ or equiv.	$\varnothing 63$ or equiv.
Non-rotating accuracy *2	$\pm 1^{\circ}$	$\pm 0.8^{\circ}$	$\pm 0.5^{\circ}$	$\pm 0.5^{\circ}$	$\pm 0.5^{\circ}$
Allowable torque N·m	1	1.6	2.5	3.9	5.9

*1: Avoid applying rotation torque with impact, or with violent changes in torque load direction.*2:

"Non-rotating"

Stroke

Model No.	Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
FCS	$\varnothing 25, \varnothing 32$ or equiv.	5, 10	10	1
FCH	$\varnothing 40, \varnothing 50, \varnothing 63$ or equiv.	10, 20	20	

*1: The custom stroke is available in 1mm increments.

*2: The min. stroke varies depending on switch mounting method. Refer to the following table.

Min. stroke with switch

1		2
Rod side installation	Head side installation	Different surface mounting
10 mm		15 mm

FCS/FCH spring load

(Unit: N)

Bore size (mm)	Stroke (mm)	When stroke = 0	At full stroke operation
$\varnothing 25$ or equiv.	5	27.4	35.3
	10	19.6	
$\varnothing 32$ or equiv.	5	36	47.5
	10	24.5	
$\varnothing 40$ or equiv.	10	38.5	47.6
	20	29.4	
$\varnothing 50$ or equiv.	10	56.5	74.9
	20	38.2	
$\varnothing 63$ or equiv.	10	92.2	119.8
	20	61.7	

Switch specifications

● Proximity switch

Item	2-wire proximity		3-wire proximity		
	M2V	M2WV (2-color LED)	M3V	M3PV (Made to order)	M3WV (2-color LED)
Applications	Dedicated for programmable controller		For programmable controller, relay, IC circuit, compact solenoid valve		
Output method	-	-	NPN output	PNP output	NPN output
Power supply voltage	-		4.5 to 28 VDC		10 to 28 VDC
Load voltage	10 to 30 VDC		30 VDC or less		
Load current	5 to 30 mA		100 mA or less	100 mA or less	100 mA or less
Indicator	LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)
Leakage current	1 mA or less		10 μA or less	0.05 mA or less	10 μA or less
Weight g	1 m:22 3 m:57 5 m:93				

● Reed switch

Item	2-wire reed			
	M0V		M5V	
Applications	Programmable controller, relay		For programmable controller, relay, IC circuit (without indicator lamp), serial connection	
Power supply voltage	-		-	
Load voltage	12/24 VDC	110 VAC	5/12/24 VDC	110 VAC or less
Load current	5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less
Indicator	LED (Lit when ON)		No indicator lamp	
Leakage current	0 mA			
Weight g	1 m:22 3 m:57 5 m:93			

*1 : Refer to Ending Page 1 for other switch specifications.

*2: Dimensions depend on switch model No. Refer to Ending Page 13 for details.

Cylinder weight

(Unit: g)

Item	Product weight when stroke (S) = 0 mm				Switch weight	Mounting bracket weight	Additional weight per S = 10 mm
	FCS		FCH				
Bore size (mm)	No switch	With switch	No switch	With switch	Refer to the weight in the switch specifications.	2	26 37 46 71 90
ø25 or equiv.	155	217	135	197			
ø32 or equiv.	220	310	190	280			
ø40 or equiv.	345	468	310	433			
ø50 or equiv.	545	733	485	673			
ø63 or equiv.	1090	1226	965	976			

(Example) Product weight of FCS-32-10

- Product weight when S = 0 mm.....220 g
- Additional weight when S = 10 mm37 g x $\frac{10}{10}$ = 37 g
- Product weight.....220 g + 37 g = 257 g

Theoretical thrust table

● FCS

(Unit: N)

Bore size (mm)	Working pressure MPa					
	0.2	0.3	0.4	0.5	0.6	0.7
ø25	63.2	1.12x10 ²	1.62x10 ²	2.11x10 ²	2.60x10 ²	3.09x10 ²
ø32	1.08x10 ²	1.85x10 ²	2.63x10 ²	3.41x10 ²	4.18x10 ²	4.96x10 ²
ø40	2.11x10 ²	3.40x10 ²	4.69x10 ²	5.98x10 ²	7.27x10 ²	8.56x10 ²
ø50	3.11x10 ²	5.05x10 ²	6.98x10 ²	8.91x10 ²	1.08x10 ³	1.28x10 ³
ø63	5.16x10 ²	8.34x10 ²	1.15x10 ³	1.47x10 ³	1.79x10 ³	2.10x10 ³

● FCH

(Unit: N)

Bore size (mm)	Working pressure MPa					
	0.2	0.3	0.4	0.5	0.6	0.7
ø25	40.6	78.5	1.16x10 ²	1.54x10 ²	1.92x10 ²	2.30x10 ²
ø32	67.5	1.25x10 ²	1.83x10 ²	2.40x10 ²	2.98x10 ²	3.55x10 ²
ø40	1.70x10 ²	2.79x10 ²	3.88x10 ²	4.97x10 ²	6.06x10 ²	7.15x10 ²
ø50	2.49x10 ²	4.10x10 ²	5.72x10 ²	7.34x10 ²	8.96x10 ²	1.06x10 ³
ø63	4.53x10 ²	7.39x10 ²	1.03x10 ³	1.31x10 ³	1.60x10 ³	1.88x10 ³

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/
COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/
MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd
Contr
Ending

FCS/FCH Series

How to order

No switch (without magnet for switch)

FCS - **25** - **10** - **N**

With switch (built-in magnet for switch)

FCS-L - **25** - **10** - **M2V** - **R** - **N**

A Model No.

B Bore size

C Port thread

D Stroke

E Switch model No.

* indicates the lead wire length.

F Switch quantity

G Option

*2

⚠ Precautions for model No. selection

*1: Refer to page 1480 for the min. stroke with switch.

*2: Dimensions of copper and PTFE free "P6" are the same as those of the standard.

[Example of model No.]

FCS-L-25-10-M2V-R-M

Model: Flat compact cylinder

A Model No. : Single acting/push

B Bore size : $\varnothing 25$ mm

C Port thread : Rc thread

D Stroke : 10 mm

E Switch model No. : Proximity switch M2V

F Switch quantity : 1 on rod side

G Option : Piston rod material (stainless steel)

Code	Description
A Model No.	
FCS	Single acting/push
FCS-L	Single acting/push/with switch
FCH	Single acting/pull
FCH-L	Single acting/pull/with switch

B Bore size (mm)	
25	$\varnothing 25$
32	$\varnothing 32$
40	$\varnothing 40$
50	$\varnothing 50$
63	$\varnothing 63$

C Port thread	
Blank	Rc thread
NN	NPT thread ($\varnothing 40$ or more) (made-to-order product)
GN	G thread ($\varnothing 40$ or more) (made-to-order product)

D Stroke (mm)		
Bore size	Stroke *1	Custom stroke
$\varnothing 25, \varnothing 32$	1 to 10	In 1 mm increments
$\varnothing 40$ to $\varnothing 63$	1 to 20	

E Switch model No.					
Radial lead wire	Contact	Voltage		Indicator	Lead wire
		AC	DC		
M2V*	Proximity		●	1-color LED	2-wire
M2WV*			●	2-color LED	
M3V*			●	1-color LED	3-wire
M3WV*			●	2-color LED	
M3PV*	Reed		●	1-color LED (made to order)	3-wire
M0V*		●	●	1-color LED	
M5V*		●	●	No indicator lamp	2-wire

* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

F Switch quantity	
R	1 on rod side
H	1 on head side
D	2

G Option	
Blank	Rod end female thread
M	Piston rod material (stainless steel)
N	Rod end male thread
R	With spigot
P6	Copper and PTFE free (copper-based/Teflon-based material is not used)

How to order switch

- Switch body + mounting bracket set

FCS - M2V

Switch model No.
(Item ㊞ on page 1482)

- Switch body only

SW - M2V

Switch model No.
(Item ㊞ on page 1482)

- Mounting bracket set

FCS - M

Mounting bracket

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd
Contr

Ending

FCS/FCH Series

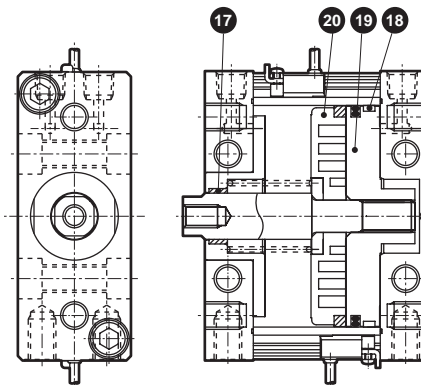
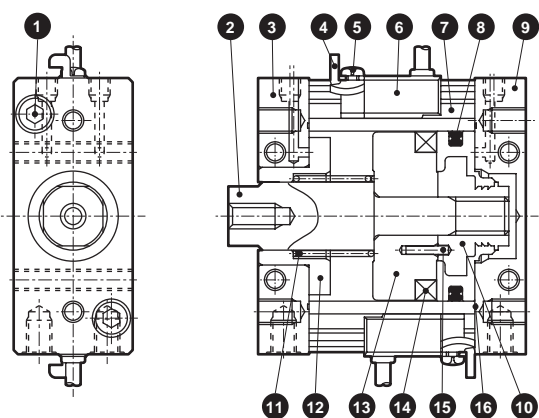
Internal structure and parts list

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/
COVPIN2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/
MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
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Contr
Ending

● FCS-L (single acting/push, with switch)

* $\phi 25$ to $\phi 40$ or equiv.

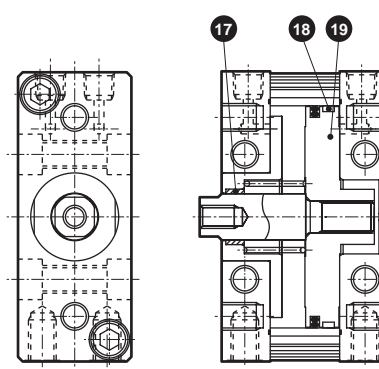
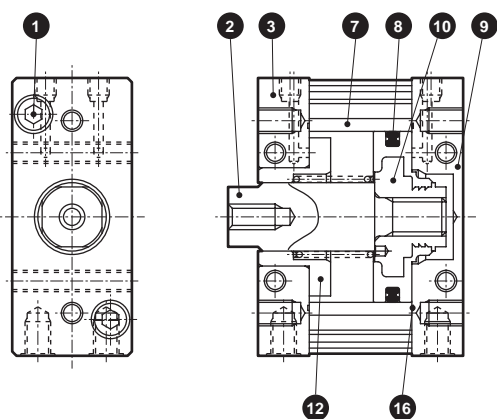
* $\phi 50$ to $\phi 63$ or equiv.



● FCS (Single acting/push)

* $\phi 25$ to $\phi 40$ or equiv.

* $\phi 50$ to $\phi 63$ or equiv.



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Hexagon socket head cap screw	Steel	Zinc chromate	11	Spring	Steel	Electrodeposition
2	Piston rod	Steel	Industrial chrome plating	12	Bush spacer	Aluminum alloy	Alumite
3	Rod cover	Aluminum alloy	Black alumite	13	Spacer	Aluminum alloy	
4	Switch mounting bracket	Stainless steel		14	Magnet		
5	Cross-recessed pan head machine screw	Steel	Zinc chromate	15	Spring pin	Steel	
6	Switch			16	Cover gasket	Nitrile rubber	
7	Tube	Aluminum alloy	Hard alumite	17	Bush	Aluminum alloy	Alumite
8	Piston packing	Nitrile rubber		18	Wear ring	Acetal resin	$\phi 63$ only
9	Head cover	Aluminum alloy	Black alumite	19	Piston	Aluminum alloy	Chromate
10	Piston	Aluminum alloy + Acetal resin		20	Spacer	Aluminum alloy	$\phi 50$
						Polyamide resin	$\phi 63$

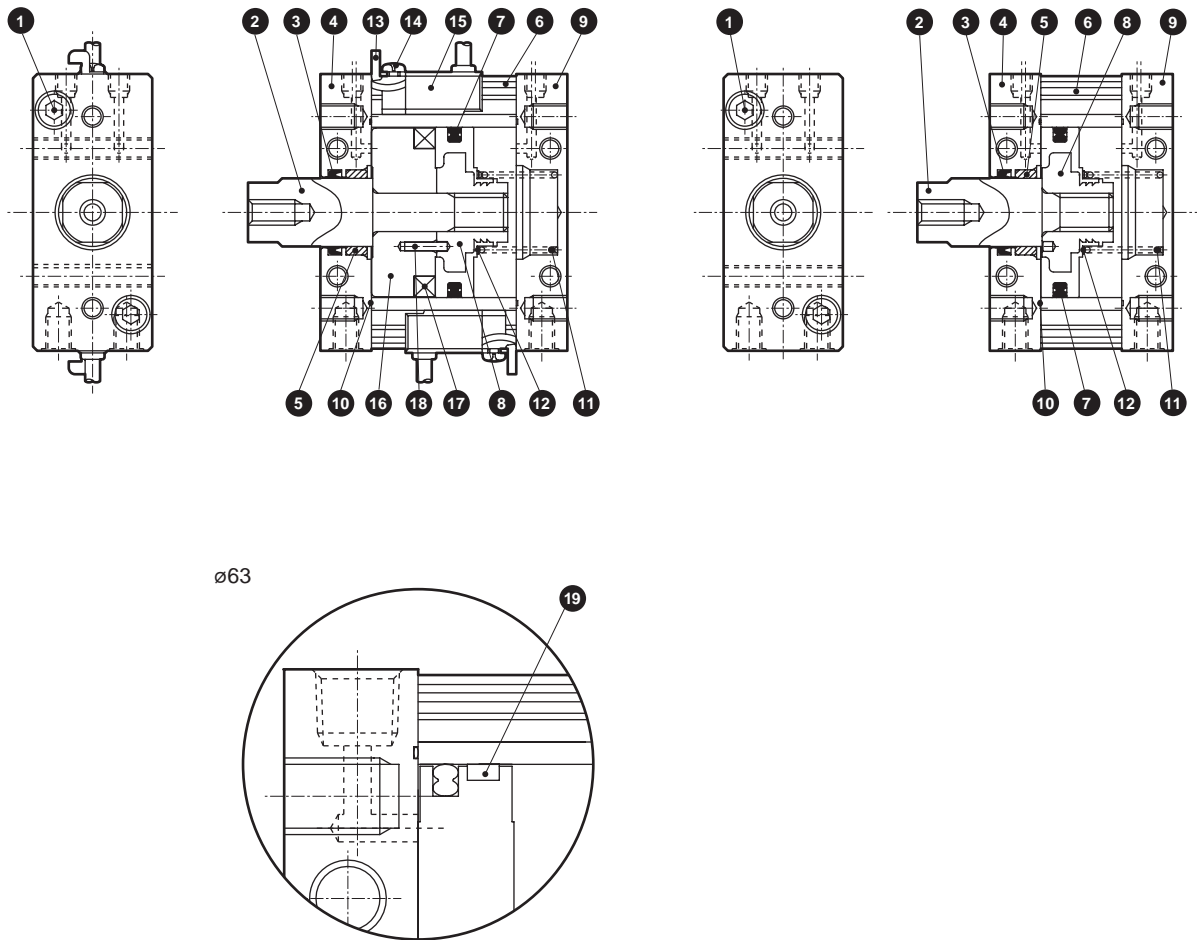
Repair parts list (common to types with/without switch)

Bore size (mm)	Kit No.	Repair parts No.
$\phi 25$ or equiv.	FCS-25K	
$\phi 32$ or equiv.	FCS-32K	8 16
$\phi 40$ or equiv.	FCS-40K	
$\phi 50$ or equiv.	FCS-50K	
$\phi 63$ or equiv.	FCS-63K	8 16 18

Internal structure and parts list

● FCH-L (single acting/pull, with switch)

● FCH



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Hexagon socket head cap screw	Steel	Zinc chromate	10	Cover gasket	Nitrile rubber	
2	Piston rod	Steel	Industrial chrome plating	11	Spring	Steel	Electrodeposition
3	Rod packing	Nitrile rubber		12	Spring holder	Stainless steel	
4	Rod cover	Aluminum alloy	Black alumite	13	Switch mounting bracket	Stainless steel	
5	Bush	Special bearing material *1		14	Cross-recessed pan head machine screw	Steel	Zinc chromate
6	Tube	Aluminum alloy	Hard alumite	15	Switch		
7	Piston packing	Nitrile rubber		16	Spacer	Aluminum alloy Polyamide resin	ø25 to ø50 ø63
8	Piston	Aluminum alloy + Acetal resin	ø25 to ø50	17	Magnet		
		Aluminum alloy	ø63: Chromate	18	Spring pin	Steel	
9	Head cover	Aluminum alloy	Black alumite	19	Wear ring	Acetal resin	

*1: Special aluminum for copper and PTFE free.

Repair parts list (common to types with/without switch)

Bore size (mm)	Kit No.	Repair parts No.
ø25 or equiv.	FCH-25K	
ø32 or equiv.	FCH-32K	3 7 10
ø40 or equiv.	FCH-40K	
ø50 or equiv.	FCH-50K	
ø63 or equiv.	FCH-63K	3 7 10 19

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

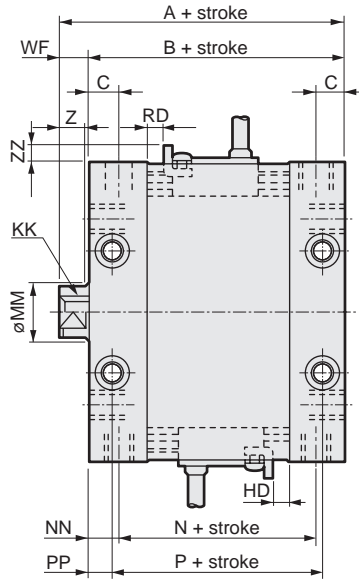
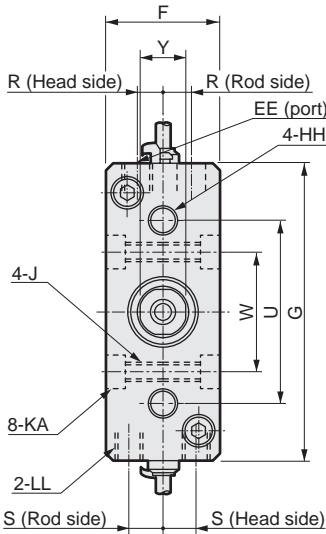
FK

Spd
Contr

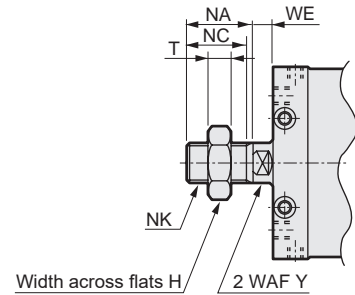
Ending

Dimensions

● FCS-L (single acting/push, with switch)



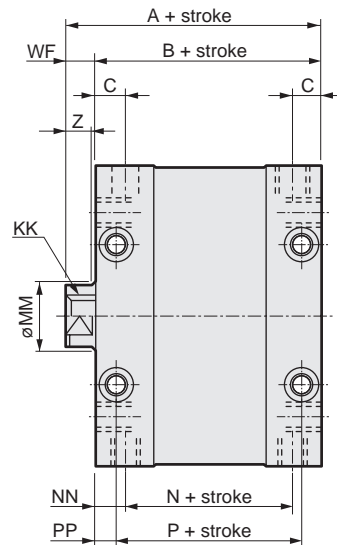
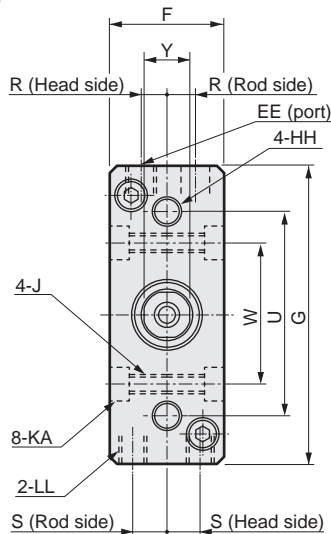
● Dimensions of rod end male thread (Option code N)



*1: This figure shows FCS-L-40.

*2: Position for Y section 2 WAF is unspecified.

● FCS (without switch)



*1: This figure shows FCS-40.

*2: Position for Y section 2 WAF is unspecified.

Code	Dimensions without switch				Dimensions with switch				Common dimensions						
	A	B	N	P	A	B	N	P	C	EE	F	G	HH	J	KA
● Bore size (mm)															
● ø25 or equiv.	42	37	25	29	57	52	40	44	7.5	M5 depth 4	25	55	M5 depth 7	M5 (through)	-
● ø32 or equiv.	45	38	26	30	60	53	41	45	7.5	M5 depth 4	28	65	M6 depth 8	M5 (through)	-
● ø40 or equiv.	54	46	30	34	69	61	45	49	8.5	Rc1/8	32	83	M8 depth 10	M6 (through)	9.5 spot face depth 5.4
● ø50 or equiv.	60.5	51	34	32	75.5	66	49	47	10.5	Rc1/8	39	101	M10 depth 12	M8 (through)	11 spot face depth 6.5
● ø63 or equiv.	71.5	62	42	42	86.5	77	57	57	11.5	Rc1/4	49	125	M12 depth 15	M12 (through)	17.5 spot face depth 10.5

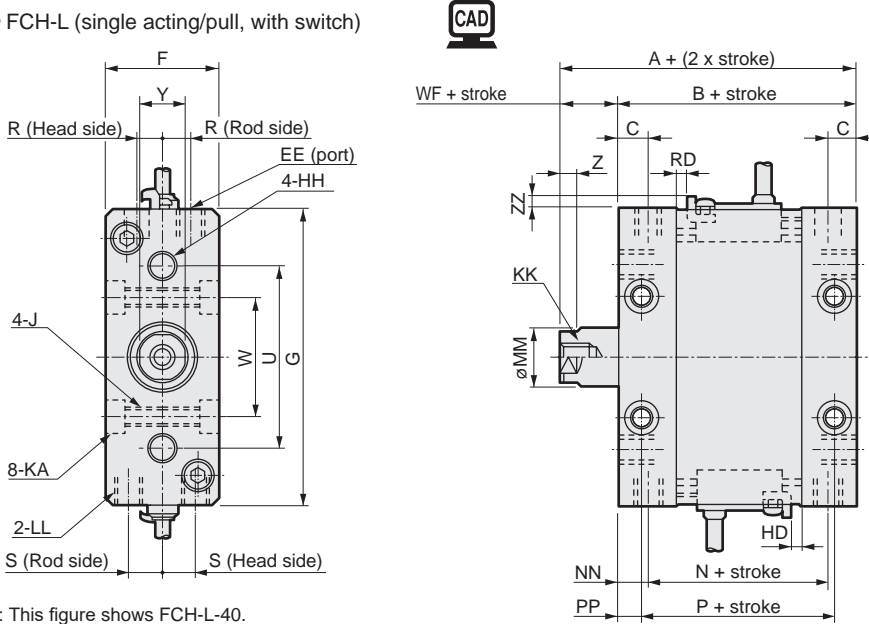
Code	Common dimensions with switch															
	KK	LL	MM	NN	PP	R	S	U	W	WF	ZZ	RD	HD	Y	Z	
● Bore size (mm)																
● ø25 or equiv.	M5 depth 9	M5 depth 7	12	6	4	4.7	7	38	24	5	5.5 or less	3.5	0	10	5	
● ø32 or equiv.	M6 depth 11	M6 depth 8	16	6	4	6.2	8	45	30	7	5.5 or less	4.5	0	14	7	
● ø40 or equiv.	M8 depth 13	M8 depth 10	16	8	6	7.5	9	52	34	8	5.5 or less	4.5	0	14	7	
● ø50 or equiv.	M8 depth 13	M10 depth 12	20	8.5	9.5	9	10	62	40	9.5	5.5 or less	4.5	0.5	17	8	
● ø63 or equiv.	M10 depth 15	M12 depth 18	20	10	10	10.5	14	86	54	9.5	5.5 or less	4.5	4.5	17	8	

● Rod end male thread dimensions

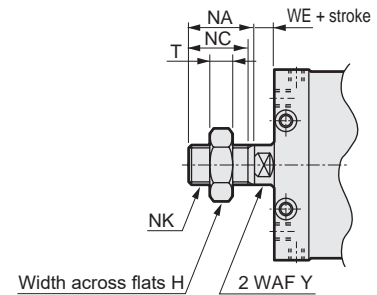
Code	H	NA	NC	NK	T	WE
● Bore size (mm)						
● ø25 or equiv.	17	22	20	M10x1.25	6	5
● ø32 or equiv.	22	22	20	M14x1.5	8	7
● ø40 or equiv.	22	22	20	M14x1.5	8	7
● ø50 or equiv.	27	28	26	M18x1.5	11	8
● ø63 or equiv.	27	28	26	M18x1.5	11	8

Dimensions

● FCH-L (single acting/pull, with switch)



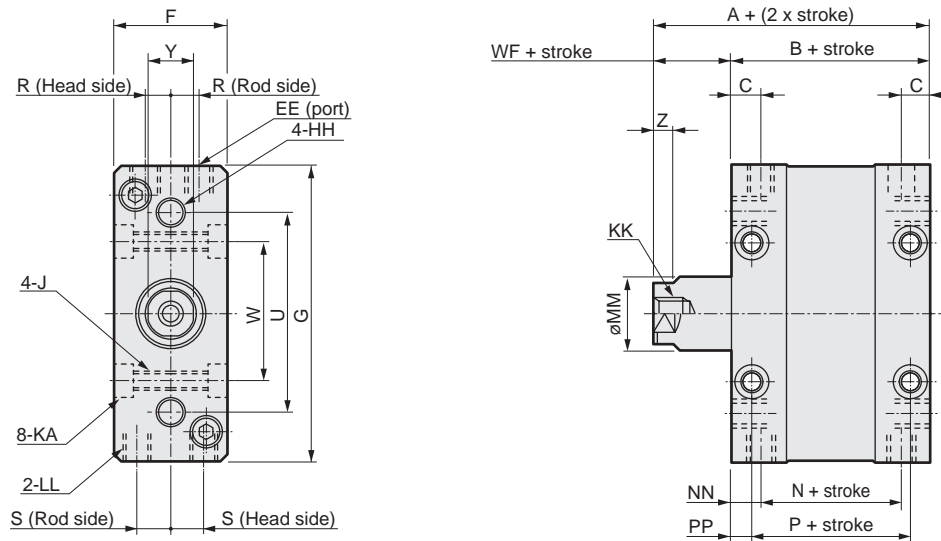
● Dimensions of rod end male thread (Option code: N)



*1: This figure shows FCH-L-40.

*2: Position for Y section 2 WAF is unspecified.

● FCH (without switch)



*1: This figure shows FCH-40.

*2: Position for Y section 2 WAF is unspecified.

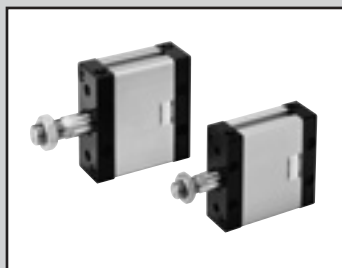
Code	Dimensions without switch				Dimensions with switch				Common dimensions							
Bore size (mm)	A	B	N	P	A	B	N	P	C	EE	F	G	HH	J	KA	
ø25 or equiv.	37	32	20	24	52	47	35	39	7.5	M5 depth 4	25	55	M5 depth 7	M5 (through)	-	
ø32 or equiv.	40	33	21	25	55	48	36	40	7.5	M5 depth 4	28	65	M6 depth 8	M5 (through)	-	
ø40 or equiv.	49	41	25	29	64	56	40	44	8.5	Rc1/8	32	83	M8 depth 10	M6 (through)	9.5 spot face depth 5.4	
ø50 or equiv.	55.5	46	29	27	70.5	61	44	42	10.5	Rc1/8	39	101	M10 depth 12	M8 (through)	11 spot face depth 6.5	
ø63 or equiv.	66.5	57	37	37	81.5	72	52	52	11.5	Rc1/4	49	125	M12 depth 15	M12 (through)	17.5 spot face depth 10.5	

Code	Common dimensions with switch															
Bore size (mm)	KK	LL	MM	NN	PP	R	S	U	W	WF	ZZ	RD	HD	Y	Z	
ø25 or equiv.	M5 depth 9	M5 depth 7	12	6	4	4.7	7	38	24	5	5.5 or less	0	0	10	5	
ø32 or equiv.	M6 depth 11	M6 depth 8	16	6	4	6.2	8	45	30	7	5.5 or less	0	0	14	7	
ø40 or equiv.	M8 depth 13	M8 depth 10	16	8	6	7.5	9	52	34	8	5.5 or less	0	0	14	7	
ø50 or equiv.	M8 depth 13	M10 depth 12	20	8.5	9.5	9	10	62	40	9.5	5.5 or less	0	0.5	17	8	
ø63 or equiv.	M10 depth 15	M12 depth 18	20	10	10	10.5	14	86	54	9.5	5.5 or less	0	4.5	17	8	

● Rod end male thread dimensions

Code	H	NA	NC	NK	T	WE
Bore size (mm)						
ø25 or equiv.	17	22	20	M10x1.25	6	5
ø32 or equiv.	22	22	20	M14x1.5	8	7
ø40 or equiv.	22	22	20	M14x1.5	8	7
ø50 or equiv.	27	28	26	M18x1.5	11	8
ø63 or equiv.	27	28	26	M18x1.5	11	8

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending



Flat compact cylinder double acting/single rod

FCD Series

● Bore size: $\phi 25/\phi 32/\phi 40/\phi 50/\phi 63$



Specifications

Item	FCD FCD-L					
	Bore size mm	$\phi 25$ or equiv.	$\phi 32$ or equiv.	$\phi 40$ or equiv.	$\phi 50$ or equiv.	$\phi 63$ or equiv.
Actuation	Double acting					
Working fluid	Compressed air					
Max. working pressure MPa	0.7 (≈ 100 psi, 7 bar)					
Min. working pressure MPa	0.07 (≈ 10 psi, 0.7 bar)					
Proof pressure MPa	1.05 (≈ 150 psi, 10.5 bar)					
Ambient temperature $^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$) to 60 (140 $^{\circ}\text{F}$) (no freezing)					
Port size	M5			Rc1/8		Rc1/4
Stroke tolerance mm	+0.5 0 (to 50)					
Working piston speed mm/s	50 to 500					
Cushion	None					
Lubrication	Not required (turbine oil type 1 ISO VG32 if necessary for lubrication)					
Allowable absorbed energy J	0.015	0.02	0.026	0.04	0.05	

Rotation-stop precision/Allowable torque

Item		$\phi 25$ or equiv.	$\phi 32$ or equiv.	$\phi 40$ or equiv.	$\phi 50$ or equiv.	$\phi 63$ or equiv.
Non-rotating accuracy ^{*2}	$^{\circ}$	$\pm 1^{\circ}$	$\pm 0.8^{\circ}$	$\pm 0.5^{\circ}$	$\pm 0.5^{\circ}$	$\pm 0.5^{\circ}$
Allowable torque	N·m	1	1.6	2.5	3.9	5.9

*1: Avoid applying rotation torque with impact, or with violent changes in torque load direction.*2:

*Non-rotating

Stroke

Model No.	Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
FCD	$\phi 25, \phi 32$	5/10/15/20/25	50	1
	$\phi 40, \phi 50$	30/40/50		
	$\phi 63$ or equiv.			

*1: The custom stroke is available in 1mm increments.

*2: The min. stroke varies depending on switch mounting method. Refer to the following table.

Min. stroke with switch

1		2	
Rod side installation	Head side installation	Different surface mounting	Same surface mounting
10 mm		15 mm	35 mm ($\phi 25/32/40/50$) 30 mm ($\phi 63$)

Switch specifications

● Proximity switch

Item	2-wire proximity		3-wire proximity		
	M2V	M2WV (2-color LED)	M3V	M3PV (Made to order)	M3WV (2-color LED)
Applications	Dedicated for programmable controller		Programmable controller, relay, IC circuit, small solenoid valve		
Output method	-	-	NPN output	PNP output	NPN output
Power supply voltage	-		4.5 to 28 VDC		10 to 28 VDC
Load voltage	10 to 30 VDC		30 VDC or less		
Load current	5 to 30 mA		100 mA or less	100 mA or less	100 mA or less
Indicator	LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)
Leakage current	1 mA or less		10 μA or less	0.05 mA or less	10 μA or less
Weight	g 1 m:22 3 m:57 5 m:93				

● Reed switch

Item	2-wire reed			
	M0V		M5V	
Applications	Programmable controller, relay		For programmable controller, relay, IC circuit (without indicator lamp), serial connection	
Power supply voltage	-		-	
Load voltage	12/24 VDC	110 VAC	5/12/24 VDC	110 VAC or less
Load current	5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less
Indicator	LED (Lit when ON)		No indicator lamp	
Leakage current	0 mA			
Weight	g 1 m:22 3 m:57 5 m:93			

*1: Refer to Ending Page 1 for other switch specifications.

*2: Dimensions depend on switch model No. Refer to Ending Page 13 for details.

Cylinder weight

(Unit: g)

Item	Product weight when stroke (S) = 0 mm		Switch weight	Mounting bracket weight	Additional weight per S = 10 mm	
	FCD					
Bore size (mm)	No switch	With switch	Refer to the weight in the switch specifications.	2		
ø25 or equiv.	130	192				26
ø32 or equiv.	185	275				37
ø40 or equiv.	300	423				46
ø50 or equiv.	470	658				71
ø63 or equiv.	950	1086				90

(Example) Product weight of FCD-32-20

- Product weight when S = 0 mm.....185 g
- Additional weight when S = 20 mm37 g × $\frac{20}{10}$ = 74 g
- Product weight.....185 g + 74 g = 259 g

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa							
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7
ø25	Push	49.3	73.9	98.5	1.48x10 ²	1.97x10 ²	2.46x10 ²	2.96x10 ²	3.45x10 ²
	Pull	37.9	56.9	75.9	1.14x10 ²	1.52x10 ²	1.90x10 ²	2.28x10 ²	2.66x10 ²
ø32	Push	77.6	1.16x10 ²	1.55x10 ²	2.33x10 ²	3.10x10 ²	3.88x10 ²	4.66x10 ²	5.43x10 ²
	Pull	57.5	86.3	1.15x10 ²	1.73x10 ²	2.30x10 ²	2.88x10 ²	3.45x10 ²	4.03x10 ²
ø40	Push	1.29x10 ²	1.94x10 ²	2.58x10 ²	3.87x10 ²	5.16x10 ²	6.45x10 ²	7.75x10 ²	9.04x10 ²
	Pull	1.09x10 ²	1.63x10 ²	2.18x10 ²	3.27x10 ²	4.36x10 ²	5.45x10 ²	6.54x10 ²	7.63x10 ²
ø50	Push	1.93x10 ²	2.90x10 ²	3.86x10 ²	5.80x10 ²	7.73x10 ²	9.66x10 ²	1.16x10 ³	1.35x10 ³
	Pull	1.62x10 ²	2.43x10 ²	3.24x10 ²	4.85x10 ²	6.47x10 ²	8.09x10 ²	9.71x10 ²	1.13x10 ³
ø63	Push	3.18x10 ²	4.77x10 ²	6.36x10 ²	9.53x10 ²	1.27x10 ³	1.59x10 ³	1.91x10 ³	2.22x10 ³
	Pull	2.86x10 ²	4.30x10 ²	5.73x10 ²	8.59x10 ²	1.15x10 ³	1.43x10 ³	1.72x10 ³	2.00x10 ³

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

How to order

No switch (without magnet for switch)

FCD - **25** - **10** - **N**

With switch (built-in magnet for switch)

FCD-L - **25** - **10** - **M2V** - **R** - **N**

A Model No.

B Bore size

C Port thread

D Stroke

E Switch model No.

* indicates the lead wire length.

F Switch quantity

G Option

*2

⚠ Precautions for model No. selection

*1: Refer to page 1488 for the min. stroke with switch.

*2: Dimensions of copper and PTFE free "P6" are the same as those of the standard.

[Example of model No.]

FCD-L-25-10-M2V-R-M

Model: Flat compact cylinder

A Model No. : Double acting/with switch

B Bore size : ø25 mm

C Port thread : Rc thread

D Stroke : 10 mm

E Switch model No. : Proximity switch M2V

F Switch quantity : 1 on rod side

G Option : Piston rod material (stainless steel)

Code	Description				
A Model No.					
FCD	Double acting				
FCD-L	Double acting/with switch				
B Bore size (mm)					
25	ø25				
32	ø32				
40	ø40				
50	ø50				
63	ø63				
C Port thread					
Blank	Rc thread				
NN	NPT thread (ø40 or more) (made-to-order product)				
GN	G thread (ø40 or more) (made-to-order product)				
D Stroke (mm)					
Bore size	Stroke *1	Custom stroke			
ø25 to ø63	1 to 50	In 1 mm increments			
E Switch model No.					
Radial lead wire	Contact	Voltage		Indicator	Lead wire
		AC	DC		
M2V*	Proximity		●	1-color LED	2-wire
M2WV*			●	2-color LED	
M3V*			●	1-color LED	3-wire
M3WV*			●	2-color LED	
M3PV*			●	1-color LED (made to order)	
M0V*	Reed	●	●	1-color LED	2-wire
M5V*		●	●	No indicator lamp	
* Lead wire length					
Blank	1 m (standard)				
3	3 m (option)				
5	5 m (option)				
F Switch quantity					
R	1 on rod side				
H	1 on head side				
D	2				
T	3				
G Option					
Blank	Rod end female thread				
M	Piston rod material (stainless steel)				
N	Rod end male thread				
R	With spigot				
P6	Copper and PTFE free (copper-based/Teflon-based material is not used)				

How to order switch

- Switch body + mounting bracket set

FCS - M2V

Switch model No.
(Item ⑥ on page 1490)

- Switch body only

SW - M2V

Switch model No.
(Item ⑥ on page 1490)

- Mounting bracket set

FCS - M

Mounting bracket

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

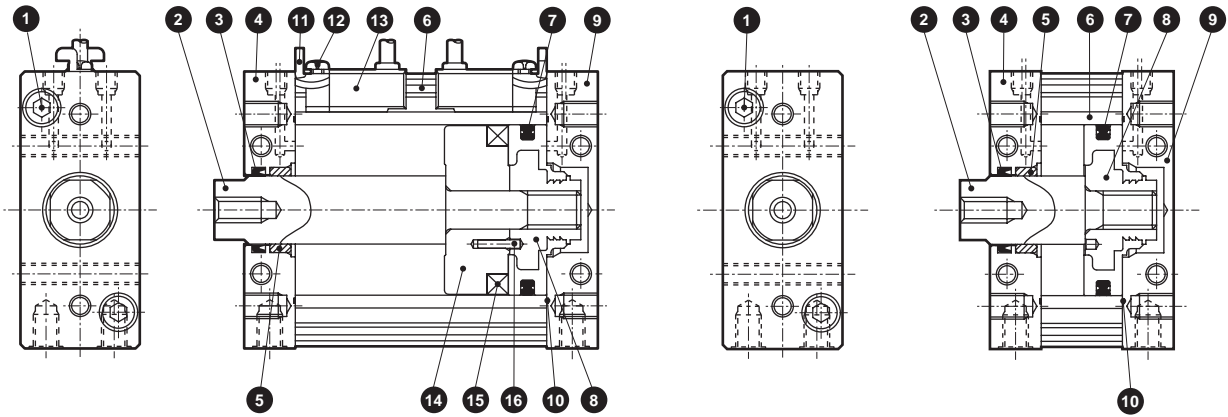
Spd
Contr

Ending

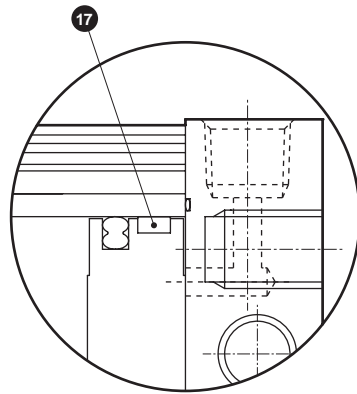
Internal structure and parts list

● FCD-L (with switch)

● FCD



∅63



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Hexagon socket head cap screw	Steel	Zinc chromate	9	Head cover	Aluminum alloy	Black alumite
2	Piston rod	Steel	Industrial chrome plating	10	Cover gasket	Nitrile rubber	
3	Rod packing	Nitrile rubber		11	Switch mounting bracket	Stainless steel	
4	Rod cover	Aluminum alloy	Black alumite	12	Cross-recessed pan head machine screw	Steel	Zinc chromate
5	Bush	Special bearing material *1		13	Switch		
6	Tube	Aluminum alloy	Hard alumite	14	Spacer	Aluminum alloy	∅25 to ∅50
7	Piston packing	Nitrile rubber				Polyamide resin	∅63
8	Piston	Aluminum alloy + Acetal resin	∅25 to ∅50	15	Magnet		
		Aluminum alloy	∅63: Chromate	16	Spring pin	Steel	
				17	Wear ring	Acetal resin	

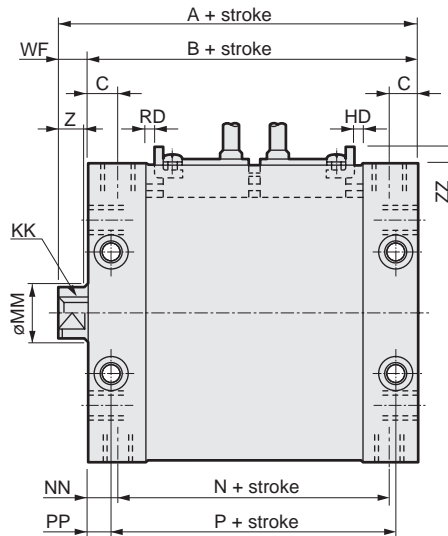
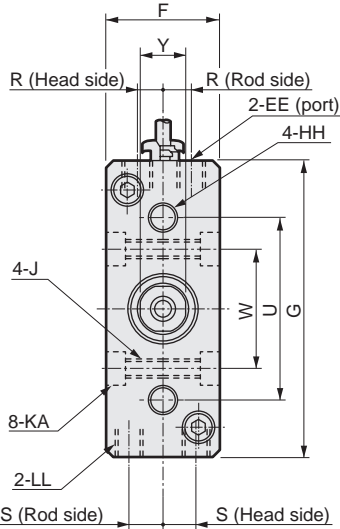
*1: Special aluminum for copper and PTFE free.

Repair parts list (common to types with/without switch)

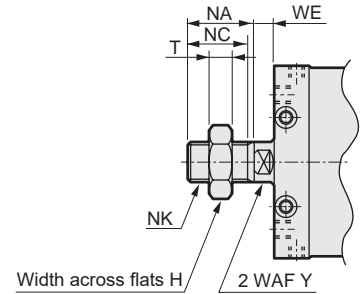
Bore size (mm)	Kit No.	Repair parts No.
∅25 or equiv.	FCD-25K	
∅32 or equiv.	FCD-32K	3 7 10
∅40 or equiv.	FCD-40K	
∅50 or equiv.	FCD-50K	
∅63 or equiv.	FCD-63K	3 7 10 17

Dimensions

● FCD-L (double acting with switch)



● Dimensions of rod end male thread (Option code N)

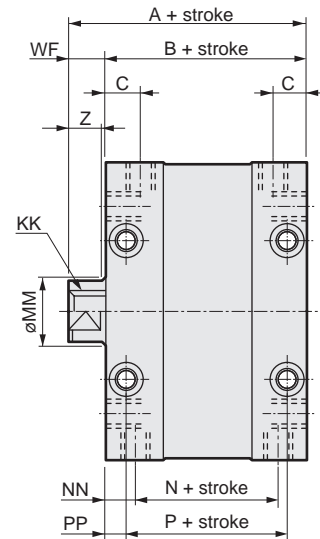
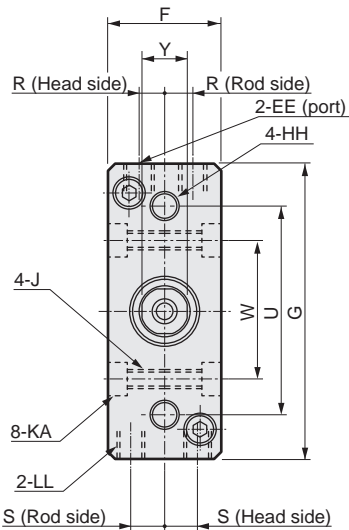


*1: This figure shows FCD-L-40.

*2: For same-surface installation with 2 switches, the stroke of 35 mm and over for $\phi 25$ to $\phi 50$ equivalent or 30 mm and over for $\phi 63$ equivalent is required. For the stroke of that value or less, set on both sides.

*3: Position for Y section 2 WAF is unspecified.

● FCD (No switch)



*1: This figure shows FCD-40.

*2: Position for Y section 2 WAF is unspecified.

Code	Dimensions without switch				Dimensions with switch				Common dimensions							
	A	B	N	P	A	B	N	P	C	EE	F	G	HH	J	KA	
$\phi 25$ or equiv.	37	32	20	24	52	47	35	39	7.5	M5 depth 4	25	55	M5 depth 7	M5 (through)	-	
$\phi 32$ or equiv.	40	33	21	25	55	48	36	40	7.5	M5 depth 4	28	65	M6 depth 8	M5 (through)	-	
$\phi 40$ or equiv.	49	41	25	29	64	56	40	44	8.5	Rc1/8	32	83	M8 depth 10	M6 (through)	9.5 spot face depth 5.4	
$\phi 50$ or equiv.	55.5	46	29	27	70.5	61	44	42	10.5	Rc1/8	39	101	M10 depth 12	M8 (through)	11 spot face depth 6.5	
$\phi 63$ or equiv.	66.5	57	37	37	81.5	72	52	52	11.5	Rc1/4	49	125	M12 depth 15	M12 (through)	17.5 spot face depth 10.5	

Code	Common dimensions with switch															
	KK	LL	MM	NN	PP	R	S	U	W	WF	ZZ	RD	HD	Y	Z	
$\phi 25$ or equiv.	M5 depth 9	M5 depth 7	12	6	4	4.7	7	38	24	5	5.5 or less	0	0	10	5	
$\phi 32$ or equiv.	M6 depth 11	M6 depth 8	16	6	4	6.2	8	45	30	7	5.5 or less	0	0	14	7	
$\phi 40$ or equiv.	M8 depth 13	M8 depth 10	16	8	6	7.5	9	52	34	8	5.5 or less	0	0	14	7	
$\phi 50$ or equiv.	M8 depth 13	M10 depth 12	20	8.5	9.5	9	10	62	40	9.5	5.5 or less	0	0.5	17	8	
$\phi 63$ or equiv.	M10 depth 15	M12 depth 18	20	10	10	10.5	14	86	54	9.5	5.5 or less	0	4.5	17	8	

● Rod end male thread dimensions

Code	H	NA	NC	NK	T	WE
$\phi 25$ or equiv.	17	22	20	M10x1.25	6	5
$\phi 32$ or equiv.	22	22	20	M14x1.5	8	7
$\phi 40$ or equiv.	22	22	20	M14x1.5	8	7
$\phi 50$ or equiv.	27	28	26	M18x1.5	11	8
$\phi 63$ or equiv.	27	28	26	M18x1.5	11	8

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

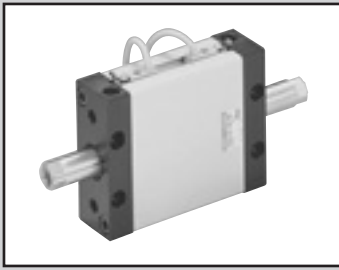
ShkAbs

FJ

FK

Spd
Contr

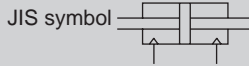
Ending



Flat compact cylinder double acting/double rod

FCD-D Series

● Bore size: $\varnothing 25/\varnothing 32/\varnothing 40/\varnothing 50/\varnothing 63$



Specifications

Item	FCD-D FCD-DL					
	Bore size mm	$\varnothing 25$ or equiv.	$\varnothing 32$ or equiv.	$\varnothing 40$ or equiv.	$\varnothing 50$ or equiv.	$\varnothing 63$ or equiv.
Actuation	Double acting/double rod					
Working fluid	Compressed air					
Max. working pressure MPa	0.7 (≈ 100 psi, 7 bar)					
Min. working pressure MPa	0.10 (≈ 15 psi, 1 bar)					
Proof pressure MPa	1.05 (≈ 150 psi, 10.5 bar)					
Ambient temperature °C	-10 (14°F) to 60 (140°F) (no freezing)					
Port size	M5			Rc1/8		Rc1/4
Stroke tolerance mm	+0.5 0 (to 50)					
Working piston speed mm/s	50 to 500					
Cushion	None					
Lubrication	Not required (turbine oil type 1 ISO VG32 if necessary for lubrication)					
Allowable absorbed energy J	0.015	0.02	0.026	0.04	0.05	

Rotation-stop precision/Allowable torque

Item	$\varnothing 25$ or equiv.	$\varnothing 32$ or equiv.	$\varnothing 40$ or equiv.	$\varnothing 50$ or equiv.	$\varnothing 63$ or equiv.
Non-rotating accuracy *2	$\pm 1^\circ$	$\pm 0.8^\circ$	$\pm 0.5^\circ$	$\pm 0.5^\circ$	$\pm 0.5^\circ$
Allowable torque N·m	1	1.6	2.5	3.9	5.9

*1: Avoid applying rotation torque with impact, or with violent changes in torque load direction.*2:

*Non-rotating

Stroke

Model No.	Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
FCD-D	$\varnothing 25, \varnothing 32$	5/10/15/20/25	50	1
	$\varnothing 40, \varnothing 50$	30/40/50		
	$\varnothing 63$ or equiv.			

*1: The custom stroke is available in 1mm increments.

*2: The min. stroke varies depending on switch mounting method. Refer to the following table.

Min. stroke with switch

1		2	
Rod side installation	Head side installation	Different surface mounting	Same surface mounting
10 mm		15 mm	35 mm ($\varnothing 25/32/40/50$) 30 mm ($\varnothing 63$)

Switch specifications

● Proximity switch

Item	2-wire proximity		3-wire proximity		
	M2V	M2WV (2-color LED)	M3V	M3PV (Made to order)	M3WV (2-color LED)
Applications	Dedicated for programmable controller		Programmable controller, relay, IC circuit, small solenoid valve		
Output method	-	-	NPN output	PNP output	NPN output
Power supply voltage	-		4.5 to 28 VDC		10 to 28 VDC
Load voltage	10 to 30 VDC		30 VDC or less		
Load current	5 to 30 mA		100 mA or less	100 mA or less	100 mA or less
Indicator	LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)
Leakage current	1 mA or less		10 μA or less	0.05 mA or less	10 μA or less
Weight g	1 m:22 3 m:57 5 m:93				

● Reed switch

Item	2-wire reed			
	M0V		M5V	
Applications	Programmable controller, relay		For programmable controller, relay, IC circuit (without indicator lamp), serial connection	
Power supply voltage	-		-	
Load voltage	12/24 VDC	110 VAC	5/12/24 VDC	110 VAC or less
Load current	5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less
Indicator	LED (Lit when ON)		No indicator lamp	
Leakage current	0 mA			
Weight g	1 m:22 3 m:57 5 m:93			

*1: Refer to Ending Page 1 for other switch specifications.

*2: Dimensions depend on switch model No. Refer to Ending Page 13 for details.

Cylinder weight

(Unit: g)

Item	Product weight when stroke (S) = 0 mm		Switch weight	Mounting bracket weight	Additional weight per S = 10 mm
	FCD-D				
Bore size (mm)	No switch	With switch			
ø25 or equiv.	145	220	Refer to the weight in the switch specifications.	2	35
ø32 or equiv.	215	330			53
ø40 or equiv.	330	478			62
ø50 or equiv.	545	773			96
ø63 or equiv.	1050	1226			115

(Example) Product weight of FCD-D-32-20

- Product weight when S = 0 mm.....215 g
- Additional weight when S = 20 mm53g x $\frac{20}{10} = 106$ g
- Product weight.....215 g + 106 g = 321 g

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa							
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7
ø25	Push/Pull	37.9	56.9	75.9	1.14x10 ²	1.52x10 ²	1.90x10 ²	2.28x10 ²	2.66x10 ²
ø32	Push/Pull	57.5	86.3	1.15x10 ²	1.73x10 ²	2.30x10 ²	2.88x10 ²	3.45x10 ²	4.03x10 ²
ø40	Push/Pull	1.09x10 ²	1.63x10 ²	2.18x10 ²	3.27x10 ²	4.36x10 ²	5.45x10 ²	6.54x10 ²	7.63x10 ²
ø50	Push/Pull	1.62x10 ²	2.43x10 ²	3.24x10 ²	4.85x10 ²	6.47x10 ²	8.09x10 ²	9.71x10 ²	1.13x10 ³
ø63	Push/Pull	2.86x10 ²	4.30x10 ²	5.73x10 ²	8.59x10 ²	1.15x10 ³	1.43x10 ³	1.72x10 ³	2.00x10 ³

FCD-D Series

How to order

No switch (without magnet for switch)

FCD-D - **25** - **10** - **N**

With switch (built-in magnet for switch)

FCD-DL - **25** - **10** - **M2V** - **R** - **N**

A Model No.

B Bore size

C Port thread

D Stroke

E Switch model No.
* indicates the lead wire length.

F Switch quantity

G Option
*2

⚠ Precautions for model No. selection

- *1: Refer to page 1494 for the min. stroke with switch.
*2: Dimensions of copper and PTFE free "P6" are the same as those of the standard.

[Example of model No.]

FCD-DL-25-10-M2V-R-M

Model: Flat compact cylinder

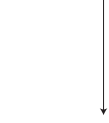
- A** Model No. : Double acting/double rod/with switch
B Bore size : $\varnothing 25$ mm
C Port thread : Rc thread
D Stroke : 10 mm
E Switch model No. : Proximity switch M2V
F Switch quantity : 1 on rod side
G Option : Piston rod material (stainless steel)

Code	Description				
A Model No.					
FCD-D	Double acting/double rod				
FCD-DL	Double acting/double rod/with switch				
B Bore size (mm)					
25	$\varnothing 25$				
32	$\varnothing 32$				
40	$\varnothing 40$				
50	$\varnothing 50$				
63	$\varnothing 63$				
C Port thread					
Blank	Rc thread				
NN	NPT thread ($\varnothing 40$ or more) (made-to-order product)				
GN	G thread ($\varnothing 40$ or more) (made-to-order product)				
D Stroke (mm)					
Bore size	Stroke *1	Custom stroke			
$\varnothing 25$ to $\varnothing 63$	1 to 50	In 1 mm increments			
E Switch model No.					
Radial lead wire	Contact	Voltage		Indicator	Lead wire
		AC	DC		
M2V*	Proximity		●	1-color LED	2-wire
M2WV*			●	2-color LED	
M3V*			●	1-color LED	3-wire
M3WV*			●	2-color LED	
M3PV*			●	1-color LED (made to order)	
M0V*	Reed	●	●	1-color LED	2-wire
M5V*		●	●	No indicator lamp	
* Lead wire length					
Blank	1 m (standard)				
3	3 m (option)				
5	5 m (option)				
F Switch quantity					
R	1 on rod side				
H	1 on head side				
D	2				
T	3				
G Option					
Blank	Rod end female thread				
M	Piston rod material (stainless steel)				
N	Rod end male thread				
R	With spigot				
P6	Copper and PTFE free (copper-based/Teflon-based material is not used)				

How to order switch

- Switch body + mounting bracket set

FCS - M2V



Switch model No.
(Item ⑥ on page 1496)

- Switch body only

SW - M2V



Switch model No.
(Item ⑥ on page 1496)

- Mounting bracket set

FCS - M



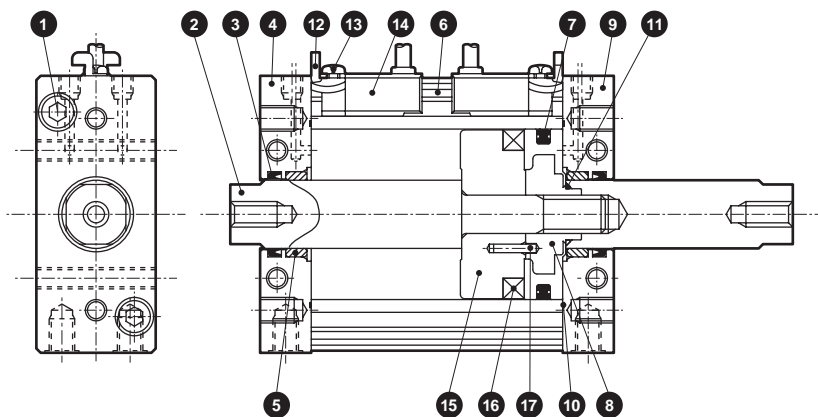
Mounting bracket

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

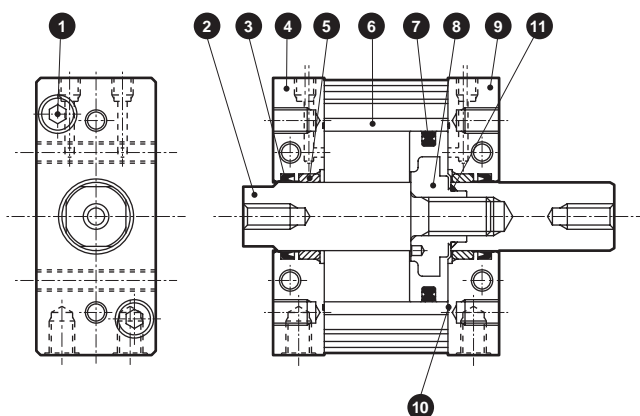
FCD-D Series

Internal structure and parts list

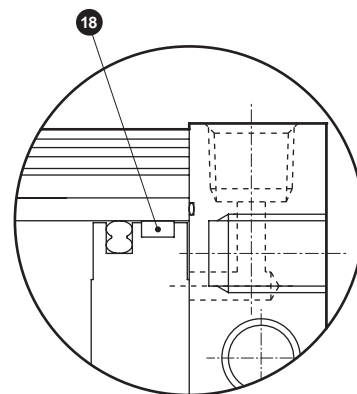
● FCD-DL (with switch)



● FCD-D



ø63



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Hexagon socket head cap screw	Steel	Zinc chromate	10	Cover gasket	Nitrile rubber	
2	Piston rod	Steel	Industrial chrome plating	11	Piston gasket	Nitrile rubber	
3	Rod packing	Nitrile rubber		12	Switch mounting bracket	Stainless steel	
4	Rod cover	Aluminum alloy	Black alumite	13	Cross-recessed pan head machine screw	Steel	Zinc chromate
5	Bush	Special bearing material *1		14	Switch		
6	Tube	Aluminum alloy	Hard alumite	15	Spacer	Aluminum alloy Polyamide resin	ø25 to ø50 ø63
7	Piston packing	Nitrile rubber		16	Magnet		
8	Piston	Aluminum alloy + Acetal resin	ø25 to ø50	17	Spring pin	Steel	
9	Head cover	Aluminum alloy	Black alumite	18	Wear ring	Acetal resin	

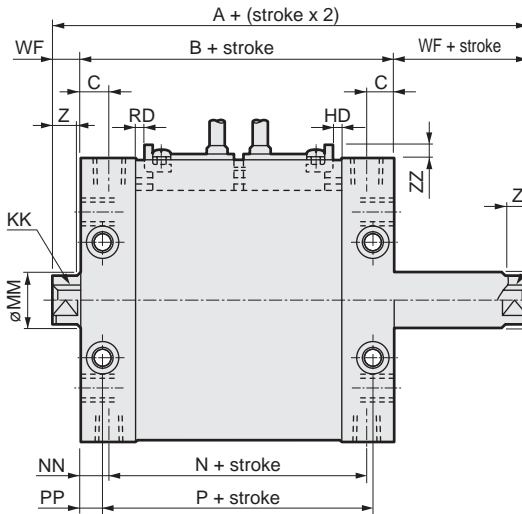
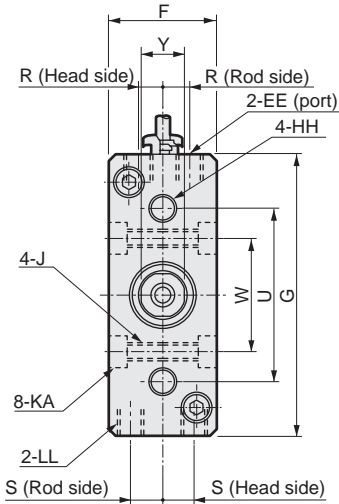
*1: Special aluminum for copper and PTFE free.

Repair parts list (common to types with/without switch)

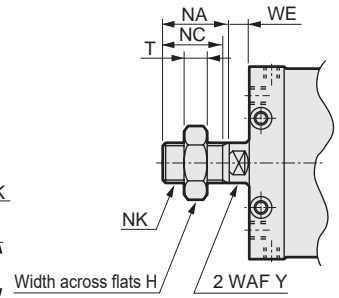
Bore size (mm)	Kit No.	Repair parts No.
ø25 or equiv.	FCD-D-25K	
ø32 or equiv.	FCD-D-32K	
ø40 or equiv.	FCD-D-40K	3 7 10
ø50 or equiv.	FCD-D-50K	
ø63 or equiv.	FCD-D-63K	3 7 10 18

Dimensions

● FCD-DL (double acting double rod with switch)



● Dimensions of rod end male thread (Option code: N)

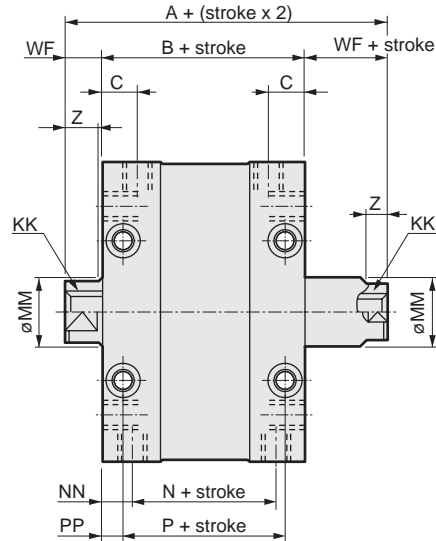
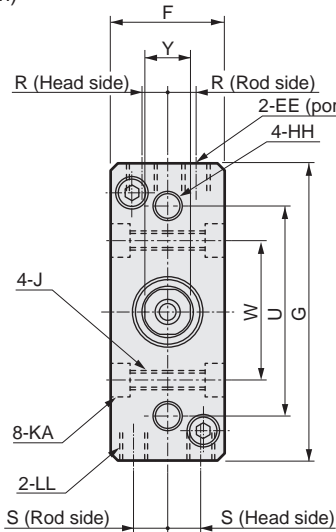


*1: This figure shows FCD-DL-40.

*2: For same-surface installation with 2 switches, the stroke of 35 mm and over for $\phi 25$ to $\phi 50$ equivalent or 30 mm and over for $\phi 63$ equivalent is required. For the stroke of that value or less, set on both sides.

*3: Position for Y section 2 WAF is unspecified.

● FCD-D (without switch)



*1: This figure shows FCD-D-40.

*2: Position for Y section 2 WAF is unspecified.

Code	Dimensions without switch				Dimensions with switch				Common dimensions							
	A	B	N	P	A	B	N	P	C	EE	F	G	HH	J	KA	
Bores size (mm)																
$\phi 25$ or equiv.	42	32	20	24	57	47	35	39	7.5	M5 depth 4	25	55	M5 depth 7	M5 (through)	-	
$\phi 32$ or equiv.	47	33	21	25	62	48	36	40	7.5	M5 depth 4	28	65	M6 depth 8	M5 (through)	-	
$\phi 40$ or equiv.	57	41	25	29	72	56	40	44	8.5	Rc1/8	32	83	M8 depth 10	M6 (through)	9.5 spot face depth 5.4	
$\phi 50$ or equiv.	65	46	29	27	80	61	44	42	10.5	Rc1/8	39	101	M10 depth 12	M8 (through)	11 spot face depth 6.5	
$\phi 63$ or equiv.	76	57	37	37	91	72	52	52	11.5	Rc1/4	49	125	M12 depth 15	M12 (through)	17.5 spot face depth 10.5	
Code	Common dimensions with switch															
Bores size (mm)	KK	LL	MM	NN	PP	R	S	U	W	WF	ZZ	RD	HD	Y	Z	
$\phi 25$ or equiv.	M5 depth 9	M5 depth 7	12	6	4	4.7	7	38	24	5	5.5 or less	0	0	10	5	
$\phi 32$ or equiv.	M6 depth 11	M6 depth 8	16	6	4	6.2	8	45	30	7	5.5 or less	0	0	14	7	
$\phi 40$ or equiv.	M8 depth 13	M8 depth 10	16	8	6	7.5	9	52	34	8	5.5 or less	0	0	14	7	
$\phi 50$ or equiv.	M8 depth 13	M10 depth 12	20	8.5	9.5	9	10	62	40	9.5	5.5 or less	0	0.5	17	8	
$\phi 63$ or equiv.	M10 depth 15	M12 depth 18	20	10	10	10.5	14	86	54	9.5	5.5 or less	0	4.5	17	8	

● Rod end male thread dimensions

Code	H	NA	NC	NK	T	WE
Bores size (mm)						
$\phi 25$ or equiv.	17	22	20	M10x1.25	6	5
$\phi 32$ or equiv.	22	22	20	M14x1.5	8	7
$\phi 40$ or equiv.	22	22	20	M14x1.5	8	7
$\phi 50$ or equiv.	27	28	26	M18x1.5	11	8
$\phi 63$ or equiv.	27	28	26	M18x1.5	11	8

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd
Contr

Ending



Flat compact cylinder double acting/cushioned

FCD-K Series

● Bore size: $\varnothing 25/\varnothing 32/\varnothing 40/\varnothing 50/\varnothing 63$



Specifications

Item	FCD-K FCD-KL				
	Bore size mm	$\varnothing 25$ or equiv.	$\varnothing 32$ or equiv.	$\varnothing 40$ or equiv.	$\varnothing 50$ or equiv.
Actuation	Double acting/cushioned				
Working fluid	Compressed air				
Max. working pressure MPa	0.7 (≈ 100 psi, 7 bar)				
Min. working pressure MPa	0.07 (≈ 10 psi, 0.7 bar)				
Proof pressure MPa	1.05 (≈ 150 psi, 10.5 bar)				
Ambient temperature °C	-10 (14°F) to 60 (140°F) (no freezing)				
Port size	M5		Rc1/8		Rc1/4
Stroke tolerance mm	+1.5 (to 50), +2.0 (to 150) 0 0				
Working piston speed mm/s	50 to 500				
Cushion	Rubber cushion				
Lubrication	Not required (turbine oil class 1 ISO VG32 if necessary for lubrication)				
Allowable absorbed energy J	0.34	0.54	0.67	1.02	1.56

Rotation-stop precision/Allowable torque

Item		$\varnothing 25$ or equiv.	$\varnothing 32$ or equiv.	$\varnothing 40$ or equiv.	$\varnothing 50$ or equiv.	$\varnothing 63$ or equiv.
Non-rotating accuracy *2	°	$\pm 1^\circ$	$\pm 0.8^\circ$	$\pm 0.5^\circ$	$\pm 0.5^\circ$	$\pm 0.5^\circ$
Allowable torque	N·m	1	1.6	2.5	3.9	5.9

*1: Avoid applying rotation torque with impact, or with violent changes in torque load direction. *2:

"Non-rotating"

Stroke

Model No.	Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
FCD-K	$\varnothing 25, \varnothing 32$	5/10/15/20/25	150	1
	$\varnothing 40, \varnothing 50$	30/40/50		
	$\varnothing 63$ or equiv.			

*1: The custom stroke is available in 1mm increments.

*2: The min. stroke varies depending on switch mounting method. Refer to the following table.

Min. stroke with switch

1		2	
Rod side installation	Head side installation	Different surface mounting	Same surface mounting
10 mm		15 mm	35 mm ($\varnothing 25/32/40/50$) 30 mm ($\varnothing 63$)

Switch specifications

● Proximity switch

Item	2-wire proximity		3-wire proximity		
	M2V	M2WV (2-color LED)	M3V	M3PV (Made to order)	M3WV (2-color LED)
Applications	Dedicated for programmable controller		Programmable controller, relay, IC circuit, small solenoid valve		
Output method	-	-	NPN output	PNP output	NPN output
Power supply voltage	-		4.5 to 28 VDC		10 to 28 VDC
Load voltage	10 to 30 VDC		30 VDC or less		
Load current	5 to 30 mA		100 mA or less	100 mA or less	100 mA or less
Indicator	LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)
Leakage current	1 mA or less		10 μA or less	0.05 mA or less	10 μA or less
Weight	g 1 m:22 3 m:57 5 m:93				

● Reed switch

Item	2-wire reed			
	M0V		M5V	
Applications	Programmable controller, relay		For programmable controller, relay, IC circuit (without indicator lamp), serial connection	
Power supply voltage	-		-	
Load voltage	12/24 VDC	110 VAC	5/12/24 VDC	110 VAC or less
Load current	5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less
Indicator	LED (Lit when ON)		No indicator lamp	
Leakage current	0 mA			
Weight	g 1 m:22 3 m:57 5 m:93			

*1: Refer to Ending Page 1 for other switch specifications.

*2: Dimensions depend on switch model No. Refer to Ending Page 13 for details.

Cylinder weight

(Unit: g)

Item	Product weight when stroke (S) = 0 mm		Switch weight	Mounting bracket weight	Additional weight per S = 10 mm
	FCD-K				
Bore size (mm)	No switch	With switch			
ø25 or equiv.	155	221	Refer to the weight in the switch specifications.	2	26
ø32 or equiv.	225	316			37
ø40 or equiv.	355	481			46
ø50 or equiv.	550	741			71
ø63 or equiv.	1135	1196			90

(Example) Product weight of FCD-K-32-20

- Product weight when S = 0 mm.....225 g
- Additional weight when S = 20 mm37 g x $\frac{20}{10}$ = 74 g
- Product weight.....225 g + 74 g = 299 g

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa							
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7
ø25	Push	49.3	73.9	98.5	1.48x10 ²	1.97x10 ²	2.46x10 ²	2.96x10 ²	3.45x10 ²
	Pull	37.9	56.9	75.9	1.14x10 ²	1.52x10 ²	1.90x10 ²	2.28x10 ²	2.66x10 ²
ø32	Push	77.6	1.16x10 ²	1.55x10 ²	2.33x10 ²	3.10x10 ²	3.88x10 ²	4.66x10 ²	5.43x10 ²
	Pull	57.5	86.3	1.15x10 ²	1.73x10 ²	2.30x10 ²	2.88x10 ²	3.45x10 ²	4.03x10 ²
ø40	Push	1.29x10 ²	1.94x10 ²	2.58x10 ²	3.87x10 ²	5.16x10 ²	6.45x10 ²	7.75x10 ²	9.04x10 ²
	Pull	1.09x10 ²	1.63x10 ²	2.18x10 ²	3.27x10 ²	4.36x10 ²	5.45x10 ²	6.54x10 ²	7.63x10 ²
ø50	Push	1.93x10 ²	2.90x10 ²	3.86x10 ²	5.80x10 ²	7.73x10 ²	9.66x10 ²	1.16x10 ³	1.35x10 ³
	Pull	1.62x10 ²	2.43x10 ²	3.24x10 ²	4.85x10 ²	6.47x10 ²	8.09x10 ²	9.71x10 ²	1.13x10 ³
ø63	Push	3.18x10 ²	4.77x10 ²	6.36x10 ²	9.53x10 ²	1.27x10 ³	1.59x10 ³	1.91x10 ³	2.22x10 ³
	Pull	2.86x10 ²	4.30x10 ²	5.73x10 ²	8.59x10 ²	1.15x10 ³	1.43x10 ³	1.72x10 ³	2.00x10 ³

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/
COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/
MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd
Contr
Ending

FCD-K Series

How to order

No switch (without magnet for switch)

FCD-K - **25** - **10** - **N**

With switch (built-in magnet for switch)

FCD-KL - **25** - **10** - **M2V** - **R** - **N**

A Model No.

B Bore size

C Port thread

D Stroke

E Switch model No.
* indicates the lead wire length.

F Switch quantity

G Option
*2

⚠ Precautions for model No. selection

*1: Refer to page 1500 for the min. stroke with switch.

*2: Dimensions of copper and PTFE free "P6" are the same as those of the standard.

[Example of model No.]

FCD-KL-25-10-M2V-R-M

Model: Flat compact cylinder

- A** Model No. : Double acting/cushioned/with switch
- B** Bore size : $\varnothing 25$ mm
- C** Port thread : Rc thread
- D** Stroke : 10 mm
- E** Switch model No. : Proximity switch M2V
- F** Switch quantity : 1 on rod side
- G** Option : Piston rod material (stainless steel)

Code	Description				
A Model No.					
FCD-K	Double acting/cushioned				
FCD-KL	Double acting/cushioned/with switch				
B Bore size (mm)					
25	$\varnothing 25$				
32	$\varnothing 32$				
40	$\varnothing 40$				
50	$\varnothing 50$				
63	$\varnothing 63$				
C Port thread					
Blank	Rc thread				
NN	NPT thread ($\varnothing 40$ or more) (made-to-order product)				
GN	G thread ($\varnothing 40$ or more) (made-to-order product)				
D Stroke (mm)					
Bore size	Stroke *1	Custom stroke			
$\varnothing 25$ to $\varnothing 63$	1 to 150	In 1 mm increments			
E Switch model No.					
Radial lead wire	Contact	Voltage		Indicator	Lead wire
		AC	DC		
M2V*	Proximity		●	1-color LED	2-wire
M2WV*			●	2-color LED	
M3V*			●	1-color LED	3-wire
M3WV*			●	2-color LED	
M3PV*			●	1-color LED (made to order)	
M0V*	Reed	●	●	1-color LED	2-wire
M5V*		●	●	No indicator lamp	
* Lead wire length					
Blank	1 m (standard)				
3	3 m (option)				
5	5 m (option)				
F Switch quantity					
R	1 on rod side				
H	1 on head side				
D	2				
T	3				
G Option					
Blank	Rod end female thread				
M	Piston rod material (stainless steel)				
N	Rod end male thread				
R	With spigot				
P6	Copper and PTFE free (copper-based/Teflon-based material is not used)				

How to order switch

- Switch body + mounting bracket set

FCS - M2V

Switch model No.
(Item ⑤ on page 1502)

- Switch body only

SW - M2V

Switch model No.
(Item ⑤ on page 1502)

- Mounting bracket set

FCS - M

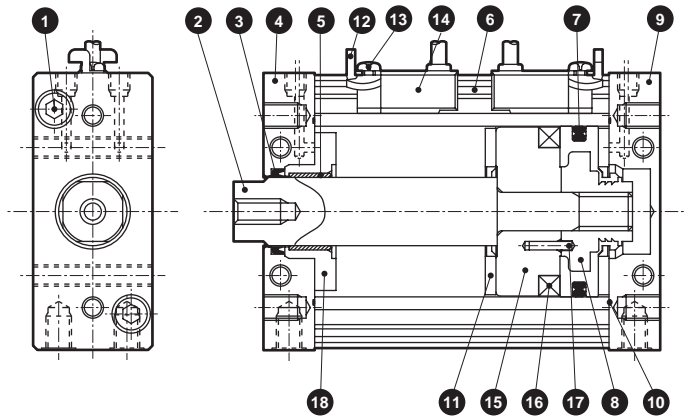
Mounting bracket

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

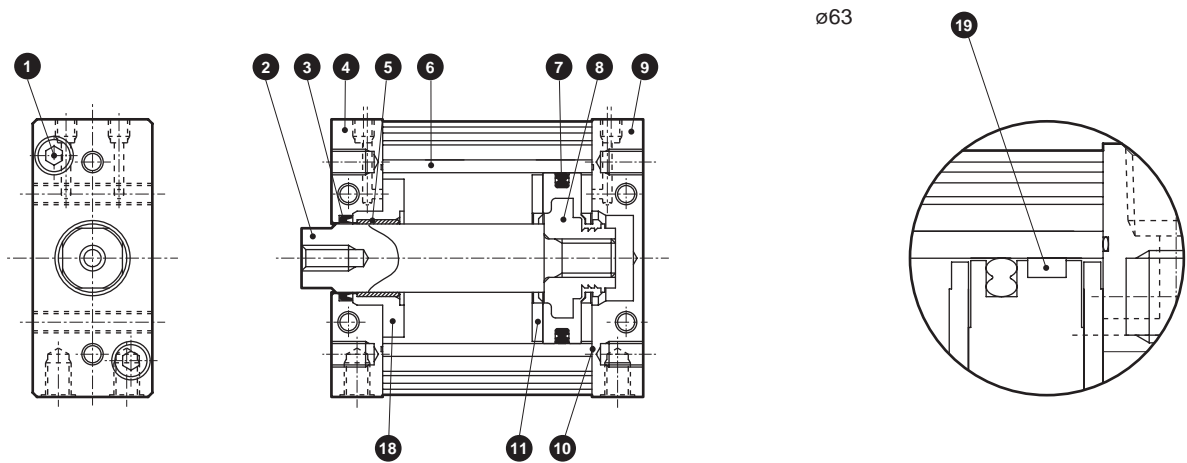
FCD-K Series

Internal structure and parts list

● FCD-KL (with switch)



● FCD-K



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Hexagon socket head cap screw	Steel	Zinc chromate	10	Cover gasket	Nitrile rubber	
2	Piston rod	Steel	Industrial chrome plating	11	Cushion rubber	Urethane rubber	
3	Rod packing	Nitrile rubber		12	Switch mounting bracket	Stainless steel	
4	Rod cover	Aluminum alloy	Black alumite	13	Cross-recessed pan head machine screw	Steel	Zinc chromate
5	Bush	Special bearing material *1		14	Switch		
6	Tube	Aluminum alloy	Hard alumite	15	Spacer	Aluminum alloy	ø25 to ø50
7	Piston packing	Nitrile rubber				Polyamide resin	ø63
8	Piston	Aluminum alloy + Acetal resin	ø25 to ø50	16	Magnet		
		Aluminum alloy	ø63: Chromate	17	Spring pin	Steel	
9	Head cover	Aluminum alloy	Black alumite	18	Bush spacer	Aluminum alloy	ø63: Chromate
				19	Wear ring	Acetal resin	

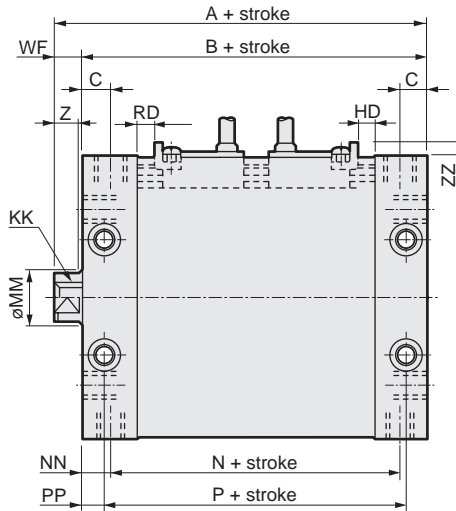
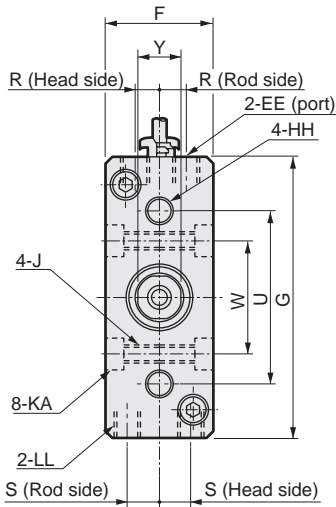
*1: Special aluminum for copper and PTFE free.

Repair parts list (common to types with/without switch)

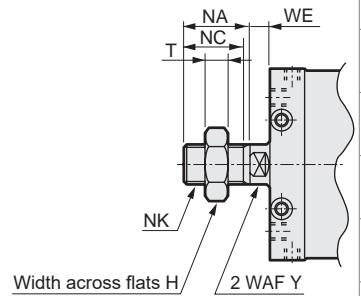
Bore size (mm)	Kit No.	Repair parts No.
ø25 or equiv.	FCD-K-25K	
ø32 or equiv.	FCD-K-32K	3 7 10 11
ø40 or equiv.	FCD-K-40K	
ø50 or equiv.	FCD-K-50K	
ø63 or equiv.	FCD-K-63K	3 7 10 11 19

Dimensions

● FCD-KL (double acting cushioned, with switch)



● Dimensions of rod end male thread (Option code: N)

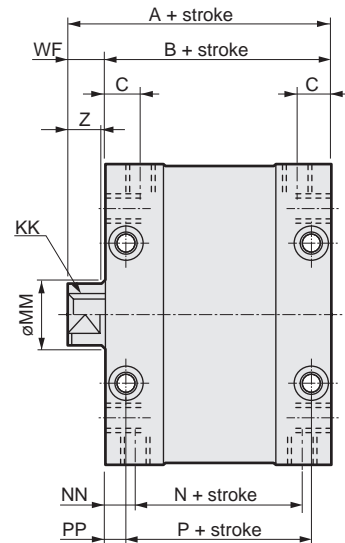
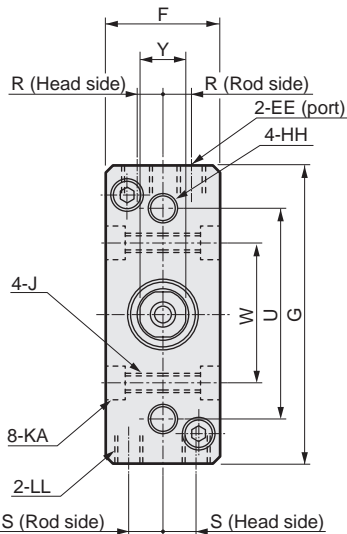


*1: This figure shows FCD-KL-40.

*2: For same-surface installation with 2 switches, the stroke of 35 mm and over for $\phi 25$ to $\phi 50$ equivalent or 30 mm and over for $\phi 63$ equivalent is required. For the stroke of that value or less, set on both sides.

*3: Position for Y section 2 WAF is unspecified.

● FCD-K (without switch)



*1: This figure shows FCD-K-32.

*2: Position for Y section 2 WAF is unspecified.

Code	Dimensions without switch				Dimensions with switch				Common dimensions							
	A	B	N	P	A	B	N	P	C	EE	F	G	HH	J	KA	
$\phi 25$ or equiv.	47	42	30	34	62	57	45	49	7.5	M5 depth 4	25	55	M5 depth 7	M5 (through)	-	
$\phi 32$ or equiv.	50	43	31	35	65	58	46	50	7.5	M5 depth 4	28	65	M6 depth 8	M5 (through)	-	
$\phi 40$ or equiv.	59	51	35	39	74	66	50	54	8.5	Rc1/8	32	83	M8 depth 10	M6 (through)	9.5 spot face depth 5.4	
$\phi 50$ or equiv.	65.5	56	39	37	80.5	71	54	52	10.5	Rc1/8	39	101	M10 depth 12	M8 (through)	11 spot face depth 6.5	
$\phi 63$ or equiv.	76.5	67	47	47	91.5	82	62	62	11.5	Rc1/4	49	125	M12 depth 15	M12 (through)	17.5 spot face depth 10.5	

Code	Common dimensions with switch															
	KK	LL	MM	NN	PP	R	S	U	W	WF	ZZ	RD	HD	Y	Z	
$\phi 25$ or equiv.	M5 depth 9	M5 depth 7	12	6	4	4.7	7	38	24	5	5.5 or less	6	1	10	5	
$\phi 32$ or equiv.	M6 depth 11	M6 depth 8	16	6	4	6.2	8	45	30	7	5.5 or less	7	1	14	7	
$\phi 40$ or equiv.	M8 depth 13	M8 depth 10	16	8	6	7.5	9	52	34	8	5.5 or less	7	2	14	7	
$\phi 50$ or equiv.	M8 depth 13	M10 depth 12	20	8.5	9.5	9	10	62	40	9.5	5.5 or less	7	3	17	8	
$\phi 63$ or equiv.	M10 depth 15	M12 depth 18	20	10	10	10.5	14	86	54	9.5	5.5 or less	7	7	17	8	

● Rod end male thread dimensions

Code	H	NA	NC	NK	T	WE
$\phi 25$ or equiv.	17	22	20	M10x1.25	6	5
$\phi 32$ or equiv.	22	22	20	M14x1.5	8	7
$\phi 40$ or equiv.	22	22	20	M14x1.5	8	7
$\phi 50$ or equiv.	27	28	26	M18x1.5	11	8
$\phi 63$ or equiv.	27	28	26	M18x1.5	11	8

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

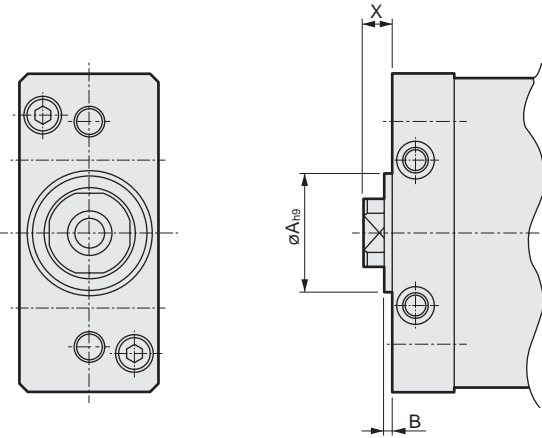
Spd
Contr

Ending

FC Series common dimensions: Option (with spigot)



● Dimensions with spigot (option code R)



Code	A	B	X
ø25 or equiv.	20	2 ⁰ _{-0.4}	5
ø32 or equiv.	24	2 ⁰ _{-0.4}	7
ø40 or equiv.	28	2 ⁰ _{-0.4}	8
ø50 or equiv.	32	2 ⁰ _{-0.4}	9.5
ø63 or equiv.	32	2 ⁰ _{-0.4}	9.5

- SCP*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2
- SCS2
- CKV2
- CAV2/
COVPIN2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/
MSDG
- FC***
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd
Contr
- Ending



Pneumatic components

Safety Precautions

Be sure to read this section before use.

Refer to Intro Page 73 for general information of the cylinder, and to Intro Page 80 for general information of the cylinder switch.

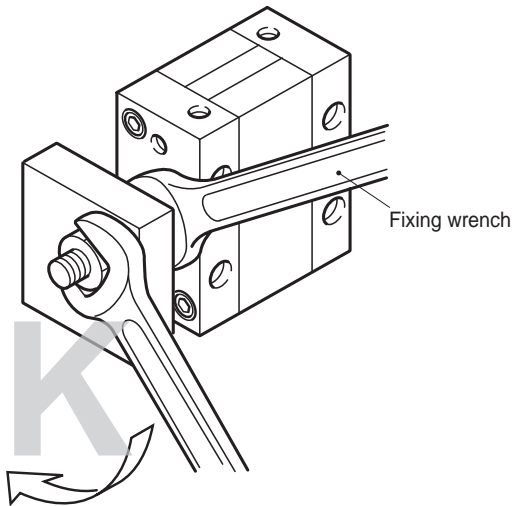
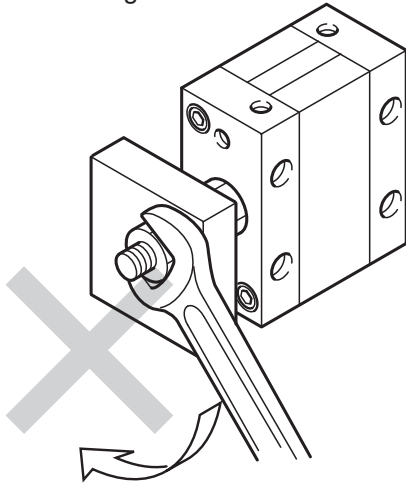
Product-specific cautions: Flat compact cylinder FC* Series

Mounting, installation and adjustment

1. Common

⚠ CAUTION

- For male threads with load mounted on ends, fix the wrench hook at the end of the rod with a wrench and tighten.



- For female threads, fix the wrench hook at the end of the rod with a wrench using a standard tool (Allen wrench), and tighten.

- Avoid using the product so as to apply rotation torque to the piston rod. When inevitable, use within the allowable torque range.

Item	Model No.	ø25	ø32	ø40	ø50	ø63
Allowable torque (N·m)		1	1.6	2.5	3.9	5.9

- Do not apply rotation torque with impact, or with instantaneous changes in torque load direction.

2. Single acting FCS/FCH

⚠ CAUTION

- Do not leave in a pressurized state. If it is left pressurized for long periods, the piston rod may not return due to spring load when the pressure is released.

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd
Contr

Ending