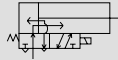


Medium bore size cylinder with valve, double acting/single rod type

# CKV2 Series

- Bore size: 20, 25, 32, 40 mm

JIS symbol • Double acting cylinder with solenoid valve



CAD DATA AVAILABLE.

## Specifications

Descriptions	CKV2 (standard type/with switch)			
Bore size mm	20 dia.	25 dia.	32 dia.	40 dia.
Actuation	Double acting/with solenoid valve			
Working fluid	Compressed air			
Max. working pressure MPa	1			
Min. working pressure MPa	0.15			
Withstanding pressure MPa	1.6			
Ambient temperature °C	-5 to 60 (to be unfrozen)			
Port size	Rc1/8			
Stroke tolerance mm	$^{+2.0}_{0}$ (to 200) $^{+2.4}_{0}$ (201 to 750)			
Working piston speed mm/s	50 to 500		50 to 430	50 to 300
Cushion	Rubber cushion			
Lubrication	Not required (When lubrication, use turbine oil Class 1 ISO VG32.)			
Allowable energy absorption J	0.089	0.137	0.179	0.278
Solenoid valve specifications				
Rated voltage V	AC100(50/60Hz)	AC200(50/60Hz)	DC24	
Starting current A	0.056/0.048	0.028/0.024	0.110	
Holding current A	0.028/0.024	0.014/0.012		
Power consumption W	2.0	2.0	2.5	
Voltage fluctuation range	±10%			
Insulation class	Equivalent to Class B			

• Note: AC100V/200V are available for AC110V, 220V (60Hz).

## Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	• Min. stroke length with switch (mm)
20 dia.	25, 50, 75, 100, 150, 200	750	15(10)
25 dia.			When one switch installed, refer to the value in ( ).
32 dia.			
40 dia.			

Note 1: When switches are installed, minimum stroke varies depending on installation method.

Note 2: For Bellows "J", the minimum stroke is 25mm. If less than 25mm stroke, please consult with CKD.

## Min. stroke length with switches

Rough sketch	When different surface installation		When same surface installation	
Descriptions	Grommet	Terminal box	Grommet	Terminal box
20 dia.	15(10)mm	15(10)mm	30mm	32mm installation A 80mm installation B
25 dia.				
32 dia.				
40 dia.				

• Note 1: When one switch installed, refer to the value in ( ).

### Switch specifications

Descriptions	Proximity 2 wire			Proximity 3 wire	
	R1	R2	R2Y (2 color indicator)	R3	R3Y (2 color indicator)
Applications	Programmable controller, relay, small solenoid valve	Programmable controller		Programmable controller, relay, IC circuit, solenoid valve	
Power voltage				DC4.5V to 28V	
Load voltage/current	AC85V to 265V 5 to 100mA	DC10 to 30V 5 to 30mA		DC30V or less DC200mA or less DC150mA or less	
Light	LED (ON lighting)		Red/green LED (ON lighting)	LED (ON lighting)	Red/green LED (ON lighting)
Max. shock resistance	980m/s <sup>2</sup>				

Descriptions	Reed 2 wire			
	R0	R4	R5	R6
Applications	Relay, programmable controller	High capacity relay, solenoid valve	Programmable controller, relay, IC circuit (without indicator light), serial connection	Programmable controller (DC self hold type)
Power voltage				
Load voltage/current	DC12/24V, 5 to 50mA AC110V, 7 to 20mA AC220V, 7 to 10mA	AC110V, 20 to 200mA AC220V, 10 to 200mA	DC5/12/24V, 50mA or less AC110V, 20mA or less AC220V, 10mA or less	DC24V, 5 to 50mA
Light	LED ON lighting	Neon light OFF lighting	None	LED ON lighting
Max. shock resistance	294m/s <sup>2</sup>			

Note: Please refer to Ending 1 about other switches specifications.

### Cylinder mass

(Unit: Kg)

Descriptions/mounting style	Product mass when stroke length (S) =0mm					Switch mass		Additional mass per S=10mm
	Basic type (00)	Axial foot type (LB)	Rod side flange (FA)	Rod side trunnion (TA)	Head side trunnion (TB)	Grommet	Terminal box	
20 dia.	0.47	0.63	0.53	0.52	0.49	0.04	0.03	0.01
25 dia.	0.57	0.79	0.72	0.67	0.60	0.04	0.03	0.01
32 dia.	0.62	0.84	0.77	0.72	0.65	0.04	0.03	0.02
40 dia.	0.81	1.08	0.96	0.97	0.85	0.04	0.03	0.02
(E. g.) product mass of CKV2-FA-32-50-1-R0-D	When S=0mm, product mass ..... 0.77kg Additional mass at S=50mm ..... Additional mass at S =10mm 0.02 X Product stroke length (50) =0.10kg Mass of two switches ..... 0.08kg Product mass ..... 0.77kg + 0.1kg + 0.08kg =0.95kg							

SCP \* 2  
CMK2  
CMA2  
SCM  
SCA2  
SCS  
CKV2  
CAV2/  
COV \* 2  
CAT  
MDC2  
MVC  
SMD2  
MSD/  
MSDG  
SSD  
SSD  
(large)  
FC \*  
ULKP/  
ULK  
JSK2/  
JSM2  
JSC3  
(medium)  
JSC3  
(large)  
JSB3  
UCAC  
STS/  
STL  
LCS  
LCY  
STR2  
UCA2  
STK  
USSD  
USC  
MFC  
GLC  
SHC  
CAC3  
HCM  
HCA  
MRL2  
SRL2  
SRG  
SRM  
SRT  
SRB2

with valve  
Medium bore size cylinder

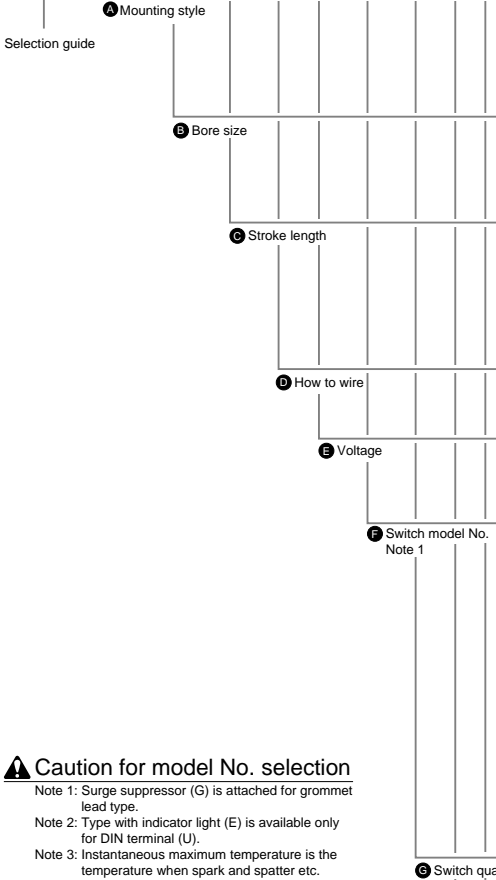
## How to order

Without switch

CKV2 - LB - 20 - 25 - U - 1 ——— J I

With switch

CKV2 - LB - 20 - 25 - U - 1 - R0 - R - J I



### ⚠ Caution for model No. selection

Note 1: Surge suppressor (G) is attached for grommet lead type.

Note 2: Type with indicator light (E) is available only for DIN terminal (U).

Note 3: Instantaneous maximum temperature is the temperature when spark and spatter etc. instantaneously contact to bellows.

<Example of model number>

### CKV2-LB-20-25-U-1-R0-R-JI

Model: Medium bore size cylinder with valve, double acting/single rod

- A Mounting style : Axial foot type
- B Bore size : 20mm
- C Stroke length : 25mm
- D Wiring method : DIN terminal
- E Voltage : AC100V
- F Switch model No.: Reed R0 switch, lead wire 1m
- G Switch quantity : One on rod side
- H Option : Bellows for maximum ambient temperature 100 °C
- I Accessory : Rod eye

Symbol	Descriptions
<b>A Mounting style</b>	
00	Basic type
LB	Axial foot type
FA	Rod side flange type
TA	Rod side trunnion type
TB	Head side trunnion type

<b>B Bore size (mm)</b>	
20	20 dia.
25	25 dia.
32	32 dia.
40	40 dia.

<b>C Stroke length (mm)</b>	
25	25
50	50
75	75
100	100
150	150
200	200

<b>D How to wire</b>	
Blank	Grommet
U	DIN terminal

<b>E Voltage</b>	
1	AC100V
2	AC200V
3	DC24V

<b>F Switch model No.</b>						
Grommet type	Terminal box type		Contact	Display	Lead wire	
	Std. type	Splash-prf.				
R1 *	R1B	R1A	Proximity	1 color indicator	2 wire	
R2 *	R2B	R2A		2 color indicator		
R2Y *	R2YB	—	Reed	1 color indicator	3 wire	
R3 *	R3B	R3A		2 color indicator		
R3Y *	R3YB	—	Reed	1 color indicator	2 wire	
R0 *	R0B	R0A				
R4 *	R4B	R4A				
R5 *	R5B	R5A				
R6 *	R6B	R6A				

<b>*Lead wire length</b>	
Blank	1m (standard)
3	3m (option)
5	5m (option)

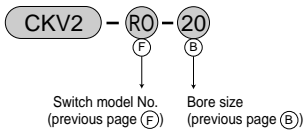
<b>G Switch quantity</b>	
R	One on rod side
H	One on head side
D	Two
T	Three

<b>H Option</b>			
		Max. ambient	Instant max.
J	Bellows	100°C	200°C
L	Bellows	250°C	400°C
M	Piston rod material change (stainless steel)		
W	Silencer		
G	Surge suppressor		
E	Indicator light		
X	Retract at energized		
P6	Copper and PTFE free		

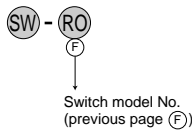
<b>I Accessory</b>	
I	Rod eye
Y	Rod clevis
B2	Clevis bracket
B3	Clevis bracket (clevis type)

### How to order switch

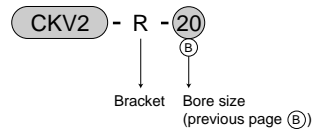
- Switch main body + mounting bracket



- Switch only



- Mounting bracket



- Terminal box only

- For R \* B



- For R \* A



### How to order mounting bracket

Bore size (mm)	20 dia.	25 dia.	32 dia.	40 dia.
Mounting bracket				
Axial foot type (LB), rod side	M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30
Axial foot type (LB), head side	M1-LBV-20	M1-LBV-30	M1-LBV-30	M1-LBV-40
Flange (FA)	M1-FA-20	M1-FA-30	M1-FA-30	M1-FA-30
Trunnion (TA)	M1-TA-20	M1-TA-30	M1-TA-30	M1-TA-40
Bolt for head side trunnion (TB)	M1-TB-20	M1-TB-30	M1-TB-30	M1-TB-40

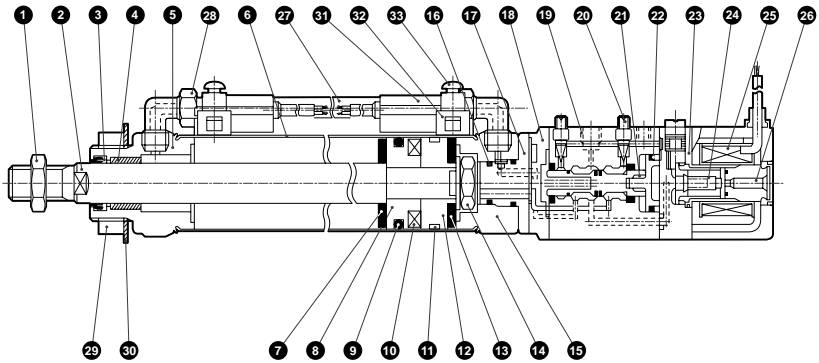
- Note: A mounting nut and a toothed washer are attached to the mounting bracket.

SCP \* 2  
 CMK2  
 CMA2  
 SCM  
 SCA2  
 SCS  
**CKV2**  
 CAV2/  
 COV \* 2  
 CAT  
 MDC2  
 MVC  
 SMD2  
 MSD/  
 MSDG  
 SSD  
 SSD  
 (large)  
 FC \*  
 ULKP/  
 ULK  
 JSK2/  
 JSM2  
 JSC3  
 (medium)  
 JSC3  
 (large)  
 JSB3  
 UCAC  
 STS/  
 STL  
 LCS  
 LCY  
 STR2  
 UCA2  
 STK  
 USSD  
 USC  
 MFC  
 GLC  
 SHC  
 CAC3  
 HCM  
 HCA  
 MRL2  
 SRL2  
 SRG  
 SRM  
 SRT  
 SRB2

with valve  
 Medium bore size cylinder

## Internal structure and parts list

• CKV2 (with switch)



No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Rod nut	Steel	ZINC chromate	17	Adaptor	Steel	Blackening
2	Piston rod	20, 25 dia., stainless steel 32, 40 dia., carbon steel	Industrial chrome plated	18	Cap	Aluminum alloy die casting	
3	Rod packing	Nitrile rubber	PDU	19	Valve body	Aluminum alloy	
4	Bush	Dry bearing 20 dia. Note 1 SBK2118	25, 32, 40 mm bore	20	Speed adjustment needle	Brass	
5	Rod cover	Aluminum alloy		21	Spool assembly	—	
6	Cylinder tube	Stainless steel		22	Piston assembly	—	
7	Cushion rubber	Urethane rubber		23	Pie valve body	Nylon	
8	Piston A	Aluminum alloy	Chromate	24	Plunger assembly	—	
9	Piston seal	Nitrile rubber	PSD	25	Coil assembly	—	
10	Magnet	Plastic		26	Core assembly	—	
11	Wear ring	Polyacetal		27	Path pipe	Nylon	
12	Piston B	Aluminum alloy	Chromate	28	Joint	—	GWJL -6-6
13	Spacer	Steel	ZINC chromate	29	Nut	Steel	ZINC chromate
14	Hexagon nut	Steel	ZINC chromate	30	Toothed washer	Steel	ZINC chromate
15	Head cover	Aluminum alloy			With switch		
16	O ring	Nitrile rubber		31	Switch main body	—	
				32	Band	Stainless steel	
				33	Pan head machine screw	Steel	

Note 1: For copper and PTFE free specifications, oil impregnated cast iron bearing is used.

### Mounting bracket material

Mounting style	Material	Remarks
LB	Steel	ZINC chromate
FA	Steel	ZINC chromate
TA	Steel	ZINC chromate

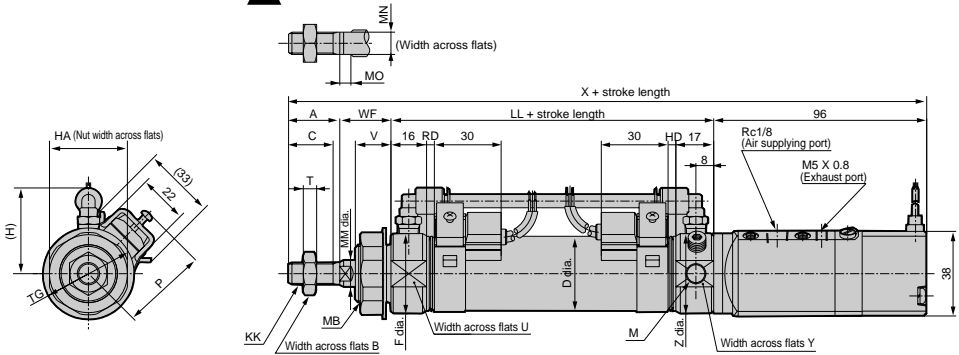
• Note: Mounting bracket is attached to product, when shipping.

### Valve repair parts list

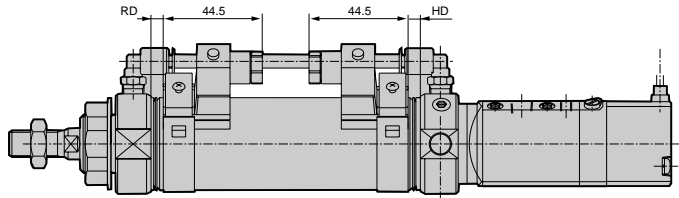
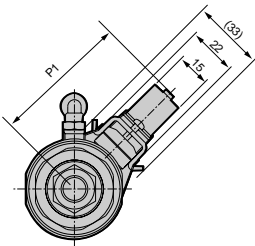
Kit number	Repair parts number
CKV2-VK	21 22 24

### Dimensions

- R type with switch, basic type (00)  (File name: Page 470 or Ending 118)



- R type switch terminal box, basic type (00)




Note: Please refer to P.469 about dimensions with bellows.

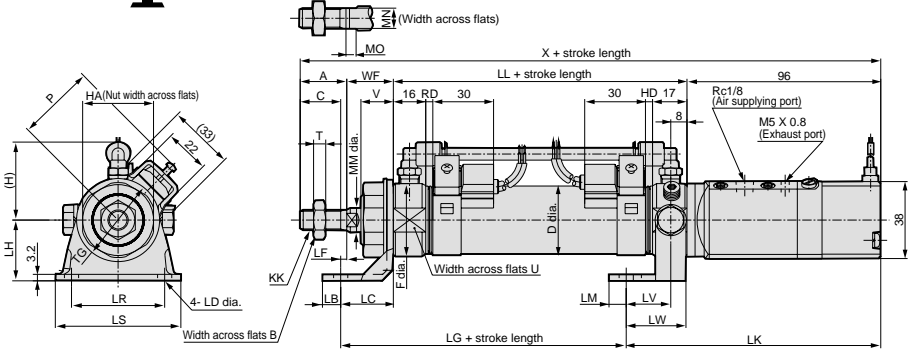
Symbol	Basic type (00) basic dimensions																	
Bore size (mm)	A	B	C	D	F	(H)	HA	KK	LL	M	MB	MM	MN	MO	T	TG	U	V
20 dia.	20	13	18	21.4	28	38.5	26	M8 X 1.0	67	M8	M18 X 1.5	10	8	5	5	29	24	14
25 dia.	23	17	20	26.4	32	38.5	35	M10 X 1.25	70	M8	M26 X 1.5	12	10	5	6	41	30	16
32 dia.	23	17	20	33.6	36	38.5	35	M10 X 1.25	70	M8	M26 X 1.5	12	10	5	6	41	34	16
40 dia.	25	19	22	41.6	45	43.0	35	M12 X 1.5	74	M10	M26 X 1.5	14	12	6	7	41	43	16
Symbol	With switch																	
Bore size (mm)	WF	X	P	P1	Y	Z	RD	HD										
20 dia.	24	207	32.9	50.7	34	36	2.0	2.0										
25 dia.	23	212	34.5	53.2	34	36	3.5	3.5										
32 dia.	23	212	38.1	56.8	34	36	3.5	3.5										
40 dia.	23	218	42.1	60.8	34	45	5.5	5.5										

- SCP \* 2
- CMK2
- CMA2
- SCM
- SCA2
- SCS
- CKV2**
- CAV2/COV \* 2
- CAT
- MDC2
- MVC
- SMD2
- MSD/MSDG
- SSD
- SSD (large)
- FC \*
- ULKP/ULK
- JSK2/JSM2
- JSC3 (medium)
- JSC3 (large)
- JSB3
- UCAC
- STS/STL
- LCS
- LCY
- STR2
- UCA2
- STK
- USSD
- USC
- MFC
- GLC
- SHC
- CAC3
- HCM
- HCA
- MRL2
- SRL2
- SRG
- SRM
- SRT
- SRB2

with valve Medium bore size cylinder

## Dimensions

- Axial foot type (LB)  (File name: Page 470 or Ending 118)




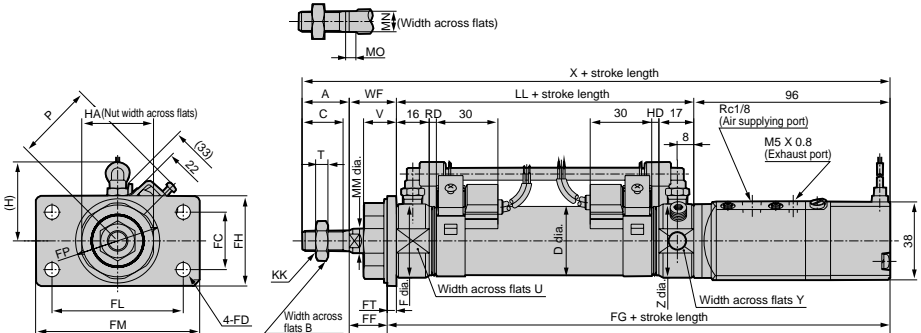
Note: Please refer to P.469 about dimensions with bellows.

Symbol	Axial foot type (LB) basic dimensions																Mounting dimensions				
Bore size (mm)	A	B	C	D	(H)	HA	KK	LL	MM	MN	MO	T	V	WF	X	LB	LC	LD	LF	LG	
20 dia.	20	13	18	21.4	38.5	26	M 8 X 1.0	67	10	8	5	5	14	24	207	10	18	6	6	55	
25 dia.	23	17	20	26.4	38.5	35	M10 X 1.25	70	12	10	5	6	16	23	212	12	23	7	0	63	
32 dia.	23	17	20	33.6	38.5	35	M10 X 1.25	70	12	10	5	6	16	23	212	12	23	7	0	63	
40 dia.	25	19	22	41.6	43	35	M12 X 1.5	74	14	12	6	7	16	23	218	12	23	7	0	64	

Symbol	With switch												
Bore size (mm)	LH	LK	LM	LR	LS	LV	LW	F	TG	U	RD	P	HD
20 dia.	25	126	7.5	30	44	22	29.5	28	29	24	2.0	32.9	2.0
25 dia.	30	126	8.5	46	62	22	29.5	32	41	30	3.5	34.5	3.5
32 dia.	30	126	8.5	46	62	22	29.5	36	41	34	3.5	38.1	3.5
40 dia.	30	129	8	46	62	25	35	45	41	43	5.5	42.1	5.5

- Rod side flange type (FA)  (File name: Page 470 or Ending 118)



Note: Please refer to P.469 about dimensions with bellows.

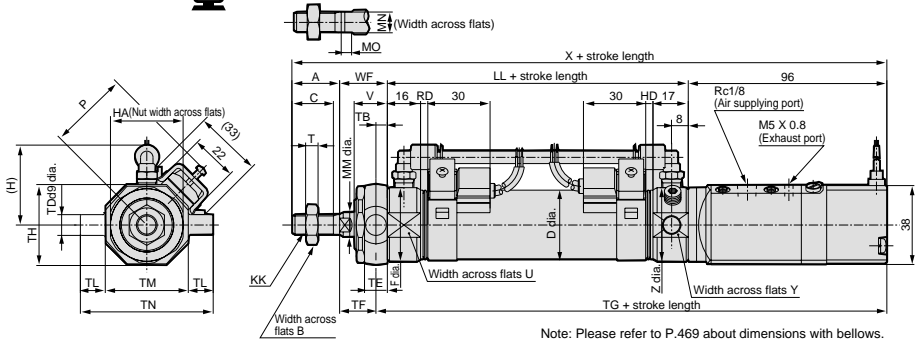
Symbol	Rod side flange type (FA) basic dimensions																Mounting dimensions				
Bore size (mm)	A	B	C	D	(H)	HA	KK	LL	MM	MN	MO	T	V	WF	X	FC	FD	FF	FG	FH	
20 dia.	20	13	18	21.4	38.5	26	M 8 X 1.0	67	10	8	5	5	14	24	207	20	6	20.8	166.2	34	
25 dia.	23	17	20	26.4	38.5	35	M10 X 1.25	70	12	10	5	6	16	23	212	28	7	18.5	170.5	44	
32 dia.	23	17	20	33.6	38.5	35	M10 X 1.25	70	12	10	5	6	16	23	212	28	7	18.5	170.5	44	
40 dia.	25	19	22	41.6	43	35	M12 X 1.5	74	14	12	6	7	16	23	218	28	7	18.5	174.5	44	

Symbol	With switch										
Bore size (mm)	FL	FM	FT	FP	F	U	Y	Z	RD	P	HD
20 dia.	40	54	3.2	29	28	24	34	36	2.0	32.9	2.0
25 dia.	64	80	4.5	41	32	30	34	36	3.5	34.5	3.5
32 dia.	64	80	4.5	41	36	34	34	36	3.5	38.1	3.5
40 dia.	64	80	4.5	41	45	43	43	45	5.5	42.1	5.5

### Dimensions

- Rod side trunnion type (TA)  (File name: Page 470 or Ending 118)



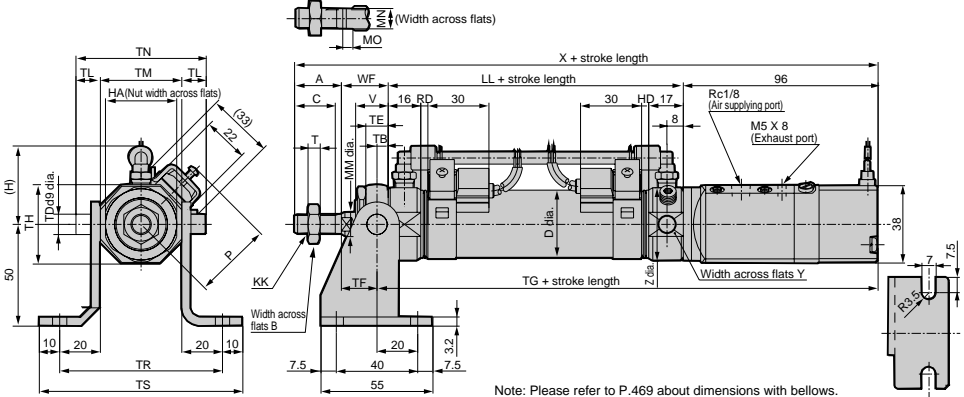
Note: Please refer to P.469 about dimensions with bellows.

Symbol	Rod side trunnion type (TA) basic dimensions													Mounting dimensions						
Bore size (mm)	A	B	C	D	(H)	HA	KK	LL	MM	MN	MO	T	V	WF	X	TB	TD	TE	TF	TG
20 dia.	20	13	18	21.4	38.5	26	M 8 X 1.0	67	10	8	5	5	14	24	207	4.5	8	9	19.5	167.5
25 dia.	23	17	20	26.4	38.5	35	M10 X 1.25	70	12	10	5	6	16	23	212	5.5	10	11	17.5	171.5
32 dia.	23	17	20	33.6	38.5	35	M10 X 1.25	70	12	10	5	6	16	23	212	5.5	10	11	17.5	171.5
40 dia.	25	19	22	41.6	43	35	M12 X 1.5	74	14	12	6	7	16	23	218	5.5	10	11	17.5	175.5

Symbol	With switch										
Bore size (mm)	TH	TL	TM	F	U	TN	Y	Z	RD	P	HD
20 dia.	29.5	8	30	28	24	46	34	36	2.0	32.9	2.0
25 dia.	39	12	40	32	30	64	34	36	3.5	34.5	3.5
32 dia.	39	12	40	36	34	64	34	36	3.5	38.1	3.5
40 dia.	44	9.5	53	45	43	72	43	45	5.5	42.1	5.5

- Rod side trunnion type (TA) with bracket (option symbol B2)



Note: Please refer to P.469 about dimensions with bellows.

Symbol	Rod side trunnion type (TA) with bracket (option symbol B2) basic dimensions													Mounting dimensions						
Bore size (mm)	A	B	C	D	(H)	HA	KK	LL	MM	MN	MO	T	V	WF	X	TB	TD	TE	TF	TG
20 dia.	20	13	18	21.4	38.5	26	M 8 X 1.0	67	10	8	5	5	14	24	207	4.5	8	9	19.5	167.5
25 dia.	23	17	20	26.4	38.5	35	M10 X 1.25	70	12	10	5	6	16	23	212	5.5	10	11	17.5	171.5
32 dia.	23	17	20	33.6	38.5	35	M10 X 1.25	70	12	10	5	6	16	23	212	5.5	10	11	17.5	171.5
40 dia.	25	19	22	41.6	43	35	M12 X 1.5	74	14	12	6	7	16	23	218	5.5	10	11	17.5	175.5

Symbol	With switch										
Bore size (mm)	TH	TL	TM	TN	TR	TS	Y	Z	RD	P	HD
20 dia.	29.5	8	30	46	70	90	34	36	2.0	32.9	2.0
25 dia.	39	12	40	64	80	100	34	36	3.5	34.5	3.5
32 dia.	39	12	40	64	80	100	34	36	3.5	38.1	3.5
40 dia.	44	9.5	53	72	93	113	43	45	5.5	42.1	5.5

- SCP \* 2
- CMK2
- CMA2
- SCM
- SCA2
- SCS
- CKV2**
- CAV2/COV \* 2
- CAT
- MDC2
- MVC
- SMD2
- MSD/MSDG
- SSD
- SSD (large)
- FC \*
- ULKP/ULK
- JSK2/JSK2M
- JSC3 (medium)
- JSC3 (large)
- JSB3
- UCAC
- STS/STL
- LCS
- LCY
- STR2
- UCA2
- STK
- USSD
- USC
- MFC
- GLC
- SHC
- CAC3
- HCM
- HCA
- MRL2
- SRL2
- SRG
- SRM
- SRT
- SRB2

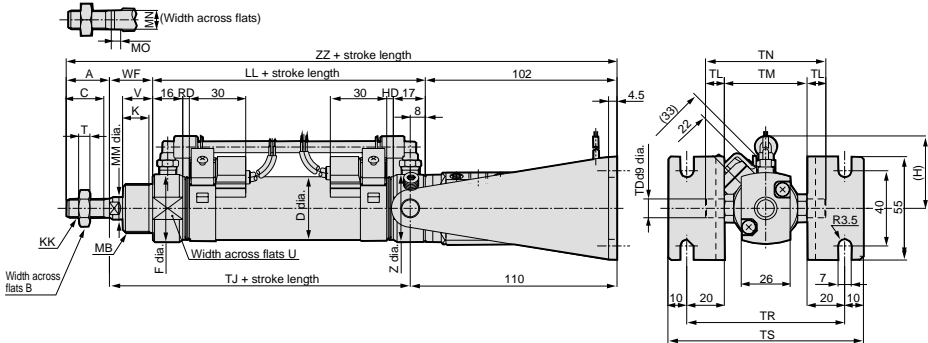
with valve  
Medium bore size cylinder





### Dimensions

- Head side trunnion type (TB) with bracket (option symbol B3)

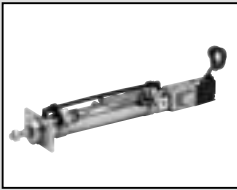


Note: Please refer to P.469 about dimensions with bellows.

Symbol	Head side trunnion type (TB) with bracket (option symbol B3) basic dimensions													Mounting dimensions					
Bore size (mm)	A	B	C	D	(H)	K	KK	LL	MB	MM	MN	MO	T	V	WF	ZZ	TD	TJ	TL
20 dia.	20	13	18	21.4	38.5	12	M 8 X 1.0	67	M18 X 1.5	10	8	5	5	14	24	213	8 <sup>+0.040</sup> <sub>-0.076</sub>	83	8
25 dia.	23	17	20	26.4	38.5	14	M10 X 1.25	70	M26 X 1.5	12	10	5	6	16	23	218	10 <sup>+0.040</sup> <sub>-0.076</sub>	85	10
32 dia.	23	17	20	33.6	38.5	14	M10 X 1.25	70	M26 X 1.5	12	10	5	6	16	23	218	10 <sup>+0.040</sup> <sub>-0.076</sub>	85	10
40 dia.	25	19	22	41.6	43	14	M12 X 1.5	74	M26 X 1.5	14	12	6	7	16	23	224	10 <sup>+0.040</sup> <sub>-0.076</sub>	89	10
Symbol	With switch																		
Bore size (mm)	TM	TN	TR	TS	F	U	RD	HD											
20 dia.	44	60	84	104	28	24	2.0	2.0											
25 dia.	44	64	84	104	32	30	3.5	3.5											
32 dia.	44	64	84	104	36	34	3.5	3.5											
40 dia.	53	73	93	113	45	43	5.5	5.5											

- SCP \* 2
- CMK2
- CMA2
- SCM
- SCA2
- SCS
- CKV2**
- CAV2/COV \* 2
- CAT
- MDC2
- MVC
- SMD2
- MSD/MSDG
- SSD
- SSD (large)
- FC \*
- ULKP/ULK
- JSK2/JSM2
- JSC3 (medium)
- JSC3 (large)
- JSB3
- UCAC
- STL/STL
- LCS
- LCY
- STR2
- UCA2
- STK
- USSD
- USC
- MFC
- GLC
- SHC
- CAC3
- HCM
- HCA
- MRL2
- SRL2
- SRG
- SRM
- SRT
- SRB2

with valve  
Medium bore size cylinder



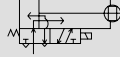
Medium bore size cylinder with valve, double acting/non-rotating type

# CKV2-M Series

- Bore size: 20, 25, 32, 40 mm

JIS symbol

\* Double acting cylinder non-rotating type with solenoid valve



## Specifications

Descriptions	CKV2-M			
Bore size mm	20 dia.	25 dia.	32 dia.	40 dia.
Actuation	Double acting/non-rotating type			
Working fluid	Compressed air			
Max. working pressure MPa	1			
Min. working pressure MPa	0.15			
Withstanding pressure MPa	1.6			
Ambient temperature °C	-5 to 60 (to be unfrozen)			
Port size	Rc1/8			
Stroke tolerance mm	$^{+2}_0$ (to 200) $^{+2.4}_0$ (201 to 750)			
Working piston speed mm/s	50 to 500	50 to 430	50 to 300	
Cushion	Rubber cushion			
Lubrication	Not required (When lubrication, use turbine oil Class 1 ISOVG32.)			
Revolvable angle tolerance note degree	±1.5			
Allowable energy absorption J	0.089	0.137	0.179	0.278

Note: This is the value when stroke length is 0 mm (deflection of piston rod excluded)

Solenoid valve specifications				
Rated voltage V	AC100(50/60Hz)	AC200(50/60Hz)	DC24	
Starting current A	0.056/0.048	0.028/0.024	0.110	
Holding current A	0.028/0.024	0.014/0.012		
Power consumption W	2.0	2.0	2.5	
Voltage fluctuation range	±10%			
Insulation class	Equivalent to Class B			

\* Note: AC100V/200V types are available for AC110V, 220V (60Hz).

## Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm) *
20 dia.	25, 50, 75 100, 150, 200	750	15(10)
25 dia.			When one switch installed, refer to the value in ( ).
32 dia.			
40 dia.			

Note 1: When switches are installed, minimum stroke varies depending on installation method.

Note 2: For Bellows "J", the minimum stroke is 25mm. If less than 25mm stroke, please consult with CKD.

## Min. stroke length with switches

Rough sketch	When different surface installation		When same surface installation	
Descriptions	Grommet	Terminal box	Grommet	Terminal box
20 dia.	15(10)mm	15(10)mm	30mm	32mm installation A 80mm installation B
25 dia.				
32 dia.				
40 dia.				

\* Note 1: When one switch installed, refer to the value in ( ).

### Switch specifications

Descriptions	Proximity 2 wire			Proximity 3 wire	
	R1	R2	R2Y (2 color indicator)	R3	R3Y (2 color indicator)
Applications	Programmable controller, relay, small solenoid valve		Programmable controller	Programmable controller, relay, IC circuit, solenoid valve	
Power voltage	-----			DC4.5V to 28V	
Load voltage/current	AC85V to 265V 5 to 100mA		DC10 to 30V 5 to 30mA	DC30V or less	
				DC200mA or less	DC150mA or less
Light	LED (ON lighting)		Red/green LED (ON lighting)	LED (ON lighting)	Red/green LED (ON lighting)
Max. shock resistance	980m/s <sup>2</sup>				

Descriptions	Reed 2 wire			
	R0	R4	R5	R6
Applications	Relay, programmable controller	High capacity relay, solenoid valve	Programmable controller, relay, IC circuit (without indicator light), serial connection	Programmable controller (DC self hold type)
Power voltage	-----			
Load voltage/current	DC12/24V, 5 to 50mA AC110V, 7 to 20mA AC220V, 7 to 10mA	AC110V, 20 to 200mA AC220V, 10 to 200mA	DC5/12/24V, 50mA or less AC110V, 20mA or less AC220V, 10mA or less	DC24V, 5 to 50mA
	LED ON lighting	Neon light OFF lighting	None	LED ON lighting
Max. shock resistance	294m/s <sup>2</sup>			

Note: Please refer to Ending 1 about other switches specifications.

### Cylinder mass

(Unit: Kg)

Descriptions/mounting style	When stroke length (S)=0mm, product mass					Switch mass		Additional mass per S=10mm
	Basic type (00)	Axial foot type (LB)	Rod side flange (FA)	Rod side trunnion (TA)	Head side trunnion (TB)	Grommet	Terminal box	
20 dia.	0.47	0.63	0.53	0.52	0.49	0.04	0.03	0.01
25 dia.	0.57	0.79	0.72	0.67	0.60	0.04	0.03	0.01
32 dia.	0.62	0.84	0.77	0.72	0.65	0.04	0.03	0.02
40 dia.	0.81	1.08	0.96	0.97	0.85	0.04	0.03	0.02

When S=0mm, product mass is 0.77kg.  
 Additional mass at S=50mm is additional mass at S=10mm  $0.02 \times \frac{\text{Product stroke length (50)}}{10} = 0.10\text{kg}$   
 Mass of two switches is 0.08kg  
 Product mass is 0.77kg + 0.1kg + 0.08kg=0.95kg

SCP \* 2  
 CMK2  
 CMA2  
 SCM  
 SCA2  
 SCS  
 CKV2  
 CAV2/  
 COV \* 2  
 CAT  
 MDC2  
 MVC  
 SMD2  
 MSD/  
 MSDG  
 SSD  
 SSD (large)  
 FC \*  
 ULKP/  
 ULK  
 JSK2/  
 JSM2  
 JSC3 (medium)  
 JSC3 (large)  
 JSB3  
 UCAC  
 STS/  
 STL  
 LCS  
 LCY  
 STR2  
 UCA2  
 STK  
 USSD  
 USC  
 MFC  
 GLC  
 SHC  
 CAC3  
 HCM  
 HCA  
 MRL2  
 SRL2  
 SRG  
 SRM  
 SRT  
 SRB2  
 with valve  
 Medium bore size cylinder

# CKV2-M Series

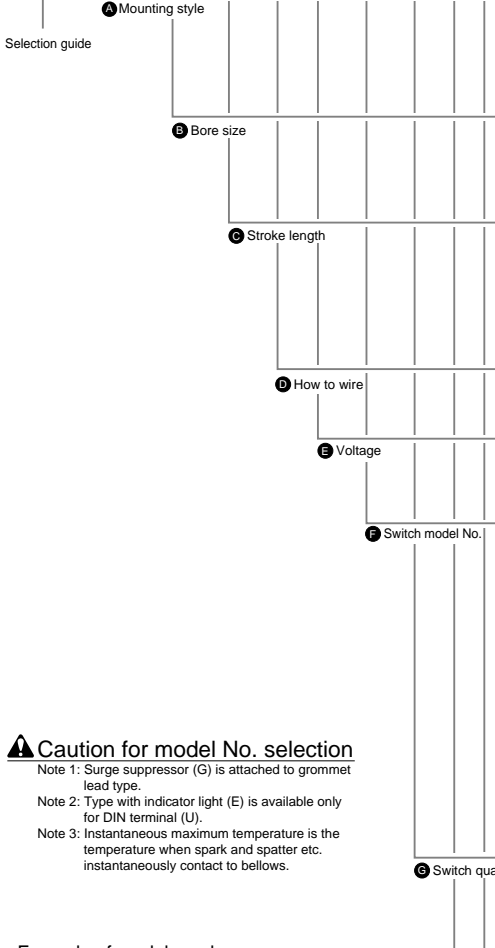
## How to order

Without switch

CKV2-M - LB - 20 - 25 - U - 1 - J Y

With switch

CKV2-M - LB - 20 - 25 - U - 1 - R0 - R - J Y



**⚠ Caution for model No. selection**  
 Note 1: Surge suppressor (G) is attached to grommet lead type.  
 Note 2: Type with indicator light (E) is available only for DIN terminal (U).  
 Note 3: Instantaneous maximum temperature is the temperature when spark and spatter etc. instantaneously contact to bellows.

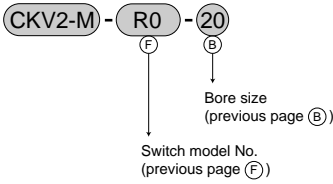
<Example of model number>  
**CKV2-M-LB-20-25-U-1-R0-R-JY**

- Model: Medium bore size cylinder with valve double acting/non-rotating type
- A** Mounting style : Axial foot type
  - B** Bore size : 20mm
  - C** Stroke length : 25mm
  - D** Wiring method : DIN terminal
  - E** Voltage : AC100V
  - F** Switch model No.: Reed R0 switch, lead wire 1m
  - G** Switch quantity : One on rod side
  - H** Option : Bellows for maximum ambient temperature 100 °C
  - I** Accessory : Rod clevis

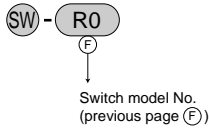
Symbol	Descriptions				
<b>A Mounting style</b>					
00	Basic type				
LB	Axial foot type				
FA	Rod side flange type				
TA	Rod side trunnion type				
TB	Head side trunnion type				
<b>B Bore size (mm)</b>					
20	20 dia.				
25	25 dia.				
32	32 dia.				
40	40 dia.				
<b>C Stroke length (mm)</b>					
25	25				
50	50				
75	75				
100	100				
150	150				
200	200				
<b>D How to wire</b>					
Blank	Grommet				
U	DIN terminal				
<b>E Voltage</b>					
1	AC100V				
2	AC200V				
3	DC24V				
<b>F Switch model No.</b>					
Grommet type	Terminal box type		Contact	Display	Lead wire
	Standard type	Splash-proof			
R1 *	R1B	R1A	Proximity	1 color indicator	2 wire
R2 *	R2B	R2A		2 color indicator	
R2Y *	R2YB	-		1 color indicator	3 wire
R3 *	R3B	R3A	2 color indicator		
R3Y *	R3YB	-	Reed	1 color indicator	2 wire
R0 *	R0B	R0A			
R4 *	R4B	R4A			
R5 *	R5B	R5A			
R6 *	R6B	R6A			
<b>*Lead wire length</b>					
Blank	1m (standard)				
3	3m (option)				
5	5m (option)				
<b>G Switch quantity</b>					
R	One on rod side				
H	One on head side				
D	Two				
T	Three				
<b>H Option</b>					
		Max. ambient	Instant max.		
J	Bellows	100°C	200°C		
L	Bellows	250°C	400°C		
W	Silencer				
G	Surge suppressor				
E	Indicator light				
X	Retract at energized				
P6	Copper and PTFE free				
<b>I Accessory</b>					
I	Rod eye				
Y	Rod clevis				
B2	Clevis bracket				
B3	Clevis bracket (clevis type)				

### How to order switch

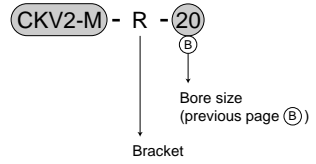
- Switch main body + mounting bracket



- Switch only



- Mounting bracket



- Terminal box only

- For R \* B



- For R \* A



### How to order mounting bracket

Bore size (mm)	20 dia.	25 dia.	32 dia.	40 dia.
Axial foot type (LB), rod side	M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30
Axial foot type (LB), head side	M1-LBV-20	M1-LBV-30	M1-LBV-30	M1-LBV-40
Flange (FA)	M1-FA-20	M1-FA-30	M1-FA-30	M1-FA-30
Trunnion (TA)	M1-TA-20	M1-TA-30	M1-TA-30	M1-TA-40
Bolt for head side trunnion (TB)	M1-TB-20	M1-TB-30	M1-TB-30	M1-TB-40

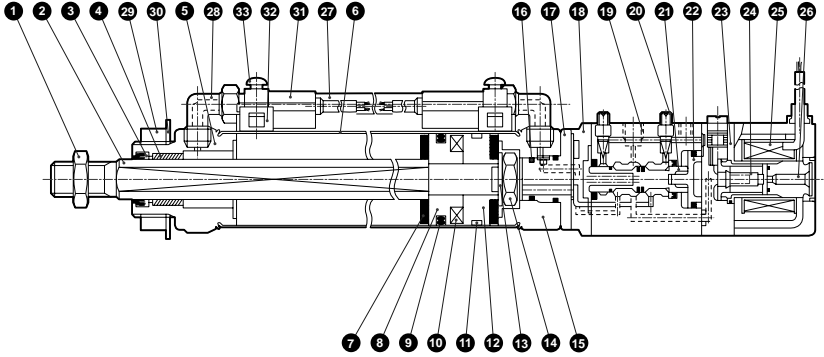
- Note: A mounting nut and a toothed washer are attached to the mounting bracket.

SCP \* 2  
 CMK2  
 CMA2  
 SCM  
 SCA2  
 SCS  
**CKV2**  
 CAV2/  
 COV \* 2  
 CAT  
 MDC2  
 MVC  
 SMD2  
 MSD/  
 MSDG  
 SSD  
 SSD  
 (large)  
 FC \*  
 ULKP/  
 ULK  
 JSK2/  
 JSM2  
 JSC3  
 (medium)  
 JSC3  
 (large)  
 JSB3  
 UCAC  
 ST/  
 STL  
 LCS  
 LCY  
 STR2  
 UCA2  
 STK  
 USSD  
 USC  
 MFC  
 GLC  
 SHC  
 CAC3  
 HCM  
 HCA  
 MRL2  
 SRL2  
 SRG  
 SRM  
 SRT  
 SRB2

with valve  
 Medium bore size cylinder

## Internal structure and parts list

• CKV2-M (with switch)



No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Rod nut	Steel	ZINC chromate	18	Cap	Aluminum alloy die casting	
2	Piston rod	Stainless steel		19	Valve body	Aluminum alloy	
3	Rod packing	Nitrile rubber		20	Speed adjustment needle	Brass	
4	Bush	SBK2118	Note 1	21	Spool assembly	-	
5	Rod cover	Aluminum alloy		22	Piston assembly	-	
6	Cylinder tube	Stainless steel		23	Pie valve body	Nylon	
7	Cushion rubber	Urethane rubber		24	Plunger assembly	-	
8	Piston A	Aluminum alloy	Chromate	25	Coil assembly	-	
9	Piston seal	Nitrile rubber	PSD	26	Core assembly	-	
10	Magnet	Plastic		27	Path pipe	Nylon	
11	Wear ring	Polyacetal		28	Joint	-	GWJL6-6
12	Piston B	Aluminum alloy	Chromate	29	Nut	Steel	
13	Spacer	Steel	ZINC chromate	30	Toothed washer	Steel	ZINC chromate
14	Hexagon nut	Steel	ZINC chromate	With switch			
15	Head cover	Aluminum alloy		31	Switch main body	-	
16	O ring	Nitrile rubber		32	Band	Stainless steel	
17	Adaptor	Steel	Blackening	33	Pan head machine screw	Steel	

Note 1: When copper and PTFE free specifications, oil impregnated resin bearing is used.

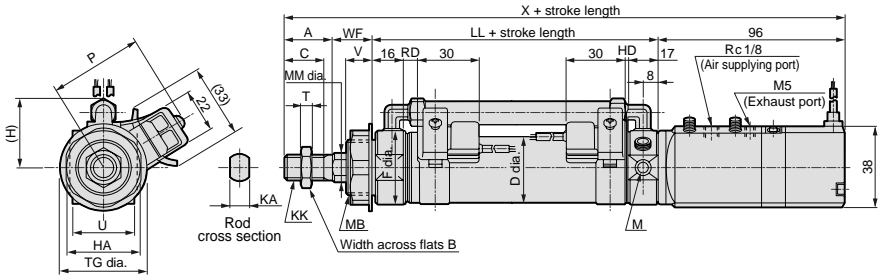
### Mounting bracket material

Mounting style	Material	Remarks
LB	Steel	ZINC chromate
FA	Steel	ZINC chromate
TA	Steel	ZINC chromate

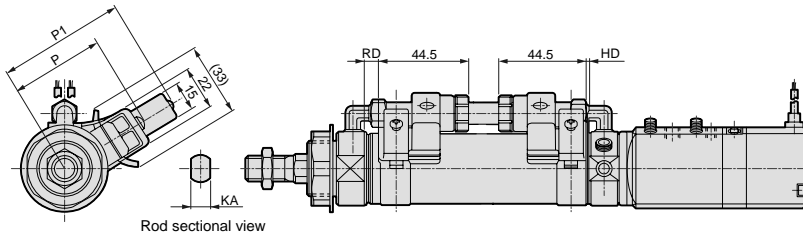
• Note: Mounting bracket is attached to product, when shipping.

### Dimensions

- R Type with switch, basic type (00)



- R type switch terminal box, basic type (00)



Note 1: Please refer to Page 458 to 461 about dimensions of other mounting style.

Note 2: Please refer to Page 469 about dimensions with bellows.

Symbol	Basic type (00) basic dimensions																			
Bore size (mm)	A	B	C	D	F	(H)	HA	KA	KK	LL	M	MB	MM	T	TG	U	V	WF		
20 dia.	20	13	18	21.4	28	38.5	26	8	M8 X 1.0	67	M8	M18 X 1.5	10	5	29	24	14	24		
25 dia.	23	17	20	26.4	32	38.5	35	10	M10 X 1.25	70	M8	M26 X 1.5	12	6	41	30	16	23		
32 dia.	23	17	20	33.6	36	38.5	35	10	M10 X 1.25	70	M8	M26 X 1.5	12	6	41	34	16	23		
40 dia.	25	19	22	41.7	45	43.0	35	12	M12 X 1.5	74	M10	M26 X 1.5	14	7	41	43	16	23		
Symbol	With switch																			
Bore size (mm)	X	RD	P	P1	Y	Z	HD													
20 dia.	207	2.0	32.9	50.7	34	36	2.0													
25 dia.	212	3.5	34.5	53.2	34	36	3.5													
32 dia.	212	3.5	38.1	56.8	34	36	3.5													
40 dia.	218	5.5	42.1	60.8	43	45	5.5													

SCP \* 2  
 CMK2  
 CMA2  
 SCM  
 SCA2  
 SCS  
**CKV2**  
 CAV2/  
 COV \* 2  
 CAT  
 MDC2  
 MVC  
 SMD2  
 MSD/  
 MSDG  
 SSD  
 SSD  
 (large)  
 FC \*  
 ULKP/  
 ULK  
 JSK2/  
 JSM2  
 JSC3  
 (medium)  
 JSC3  
 (large)  
 JSB3  
 UCAC  
 STS/  
 STL  
 LCS  
 LCY  
 STR2  
 UCA2  
 STK  
 USSD  
 USC  
 MFC  
 GLC  
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 CAC3  
 HCM  
 HCA  
 MRL2  
 SRL2  
 SRG  
 SRM  
 SRT  
 SRB2

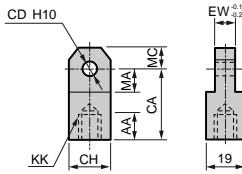
with valve  
 Medium bore size cylinder



## Accessory dimensions (knuckle/bracket/pin)

- Rod eye (I)  (File name: Page 470 or Ending 118)

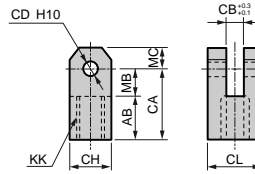
Material: Steel



Model No.	Applicable bore size (mm)	AA	CA	CD	CH	EW	KK	MA	MC
M1-I-20	20 dia.	14	30	10	19	8	M8 X 1.0	13	10
M1-I-30	25, 32 dia.	16	36	12	25	10	M10 X 1.25	16	12
M1-I-40	40 dia.	16	36	12	25	10	M12 X 1.5	16	12

- Rod clevis (Y)  (File name: Page 470 or Ending 118)

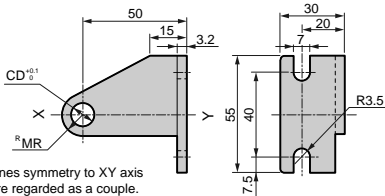
Material: Steel



Model No.	Applicable bore size (mm)	AB	CA	CB	CD	CH	CL	KK	MB	MC
M1-Y-20	20 dia.	17	30	8	10	19	19	M8 X 1.0	13	10
M1-Y-30	25, 30 dia.	20	36	10	12	25	25	M10 X 1.25	16	12
M1-Y-40	40 dia.	20	36	10	12	25	25	M12 X 1.5	16	12

- Clevis bracket (B2)  (File name: Page 470 or Ending 118)

Material: Steel



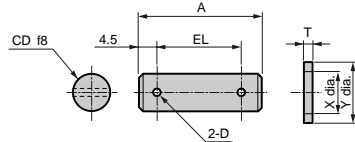
Note: Ones symmetry to XY axis are regarded as a couple.

Model No.	Applicable bore size (mm)	CD	MR
M1-B2-20-TA	20 dia.	8	8
M1-B2-30-TA	25, 32, 40 dia.	10	11

Note: Snap ring and pin are not attached.

- Pin (P) for rod clevis  (File name: Page 470 or Ending 118)

Material: Steel

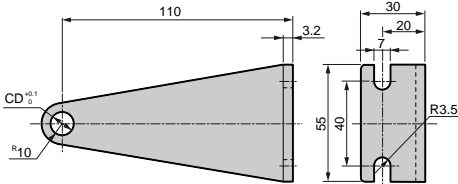


Model No.	Applicable bore size (mm)	A	D	CD	EL	T	X	Y
M1-P-20	20 dia.	37	4	10	28	2	10.5	18
M1-P-30	25, 32, 40 dia.	46	4	12	37	2.5	13	21

Note: For rod clevis, a pin, a washer and a split pin are attached to the product.

- Clevis bracket (B3)  (File name: Page 470 or Ending 118)

Material: Steel

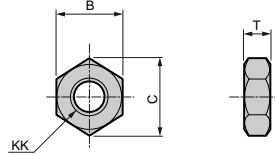


Model No.	Applicable bore size (mm)	CD
M1-B3-20-TA	20 dia.	8
M1-B3-30-TA	25, 32, 40 dia.	10

Note: Snap ring and pin are not attached.

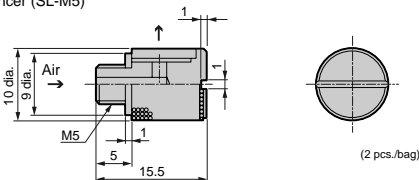
- Rod end nut (NR)

Material: Steel




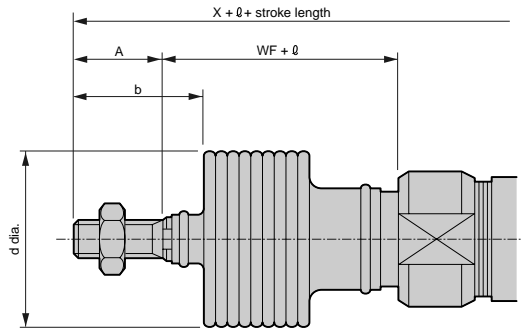
Model No.	Applicable bore size (mm)	B	C	KK	T
M1-NR-20	20 dia.	13	15	M8 X 1.0	5
M1-NR-30	25, 32 dia.	17	19.6	M10 X 1.25	6
M1-NR-40	40 dia.	19	21.9	M12 X 1.5	7

- Silencer (SL-M5)



### Dimensions: Bellows

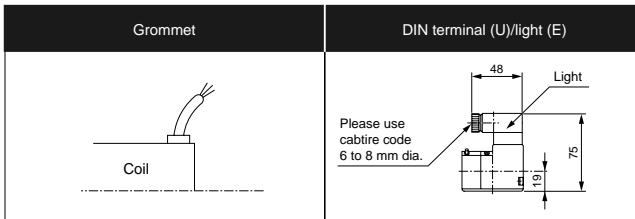
 (File name: Page 470 or Ending 118)



Note: In  $l$  dimensions, round up decimal point or less.

Symbol	Bellows					
Bore size (mm)	A	WF	b	d	$l$	
20 dia.	20	24	30	30	(Stroke length/3) + 6	
25 dia.	23	23	32	46	(Stroke length/3.25) + 7	
32 dia.	23	23	32	46	(Stroke length/3.25) + 7	
40 dia.	25	23	34	46	(Stroke length/3.25) + 7	

### How to wire



Note 1: For grommet type, light and surge suppressor is not provided.

Note 2: Please refer to "How to wire terminal box" on Page 451 about wiring method of DIN terminal box.

Note 3: Please use a round crimp terminal (M3 screw).

SCP \* 2  
 CMK2  
 CMA2  
 SCM  
 SCA2  
 SCS  
**CKV2**  
 CAV2/  
 COV \* 2  
 CAT  
 MDC2  
 MVC  
 SMD2  
 MSD/  
 MSDG  
 SSD  
 SSD  
 (large)  
 FC \*  
 ULKP/  
 ULK  
 JSK2/  
 JSM2  
 JSC3  
 (medium)  
 JSC3  
 (large)  
 JSB3  
 UCAC  
 STS/  
 STL  
 LCS  
 LCY  
 STR2  
 UCA2  
 STK  
 USSD  
 USC  
 MFC  
 GLC  
 SHC  
 CAC3  
 HCM  
 HCA  
 MRL2  
 SRL2  
 SRG  
 SRM  
 SRT  
 SRB2

with valve  
 Medium bore size cylinder