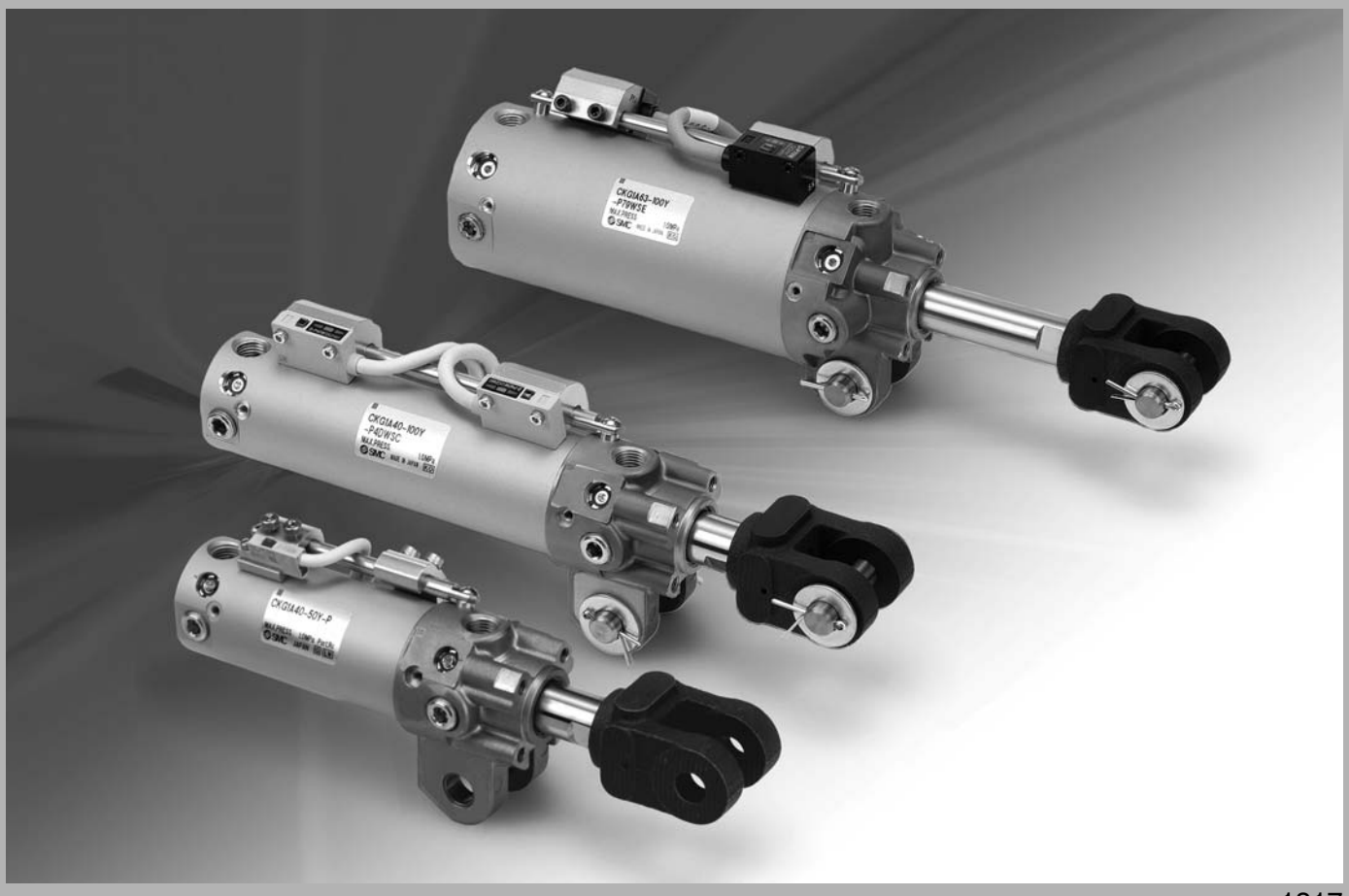
Clamp Cylinder

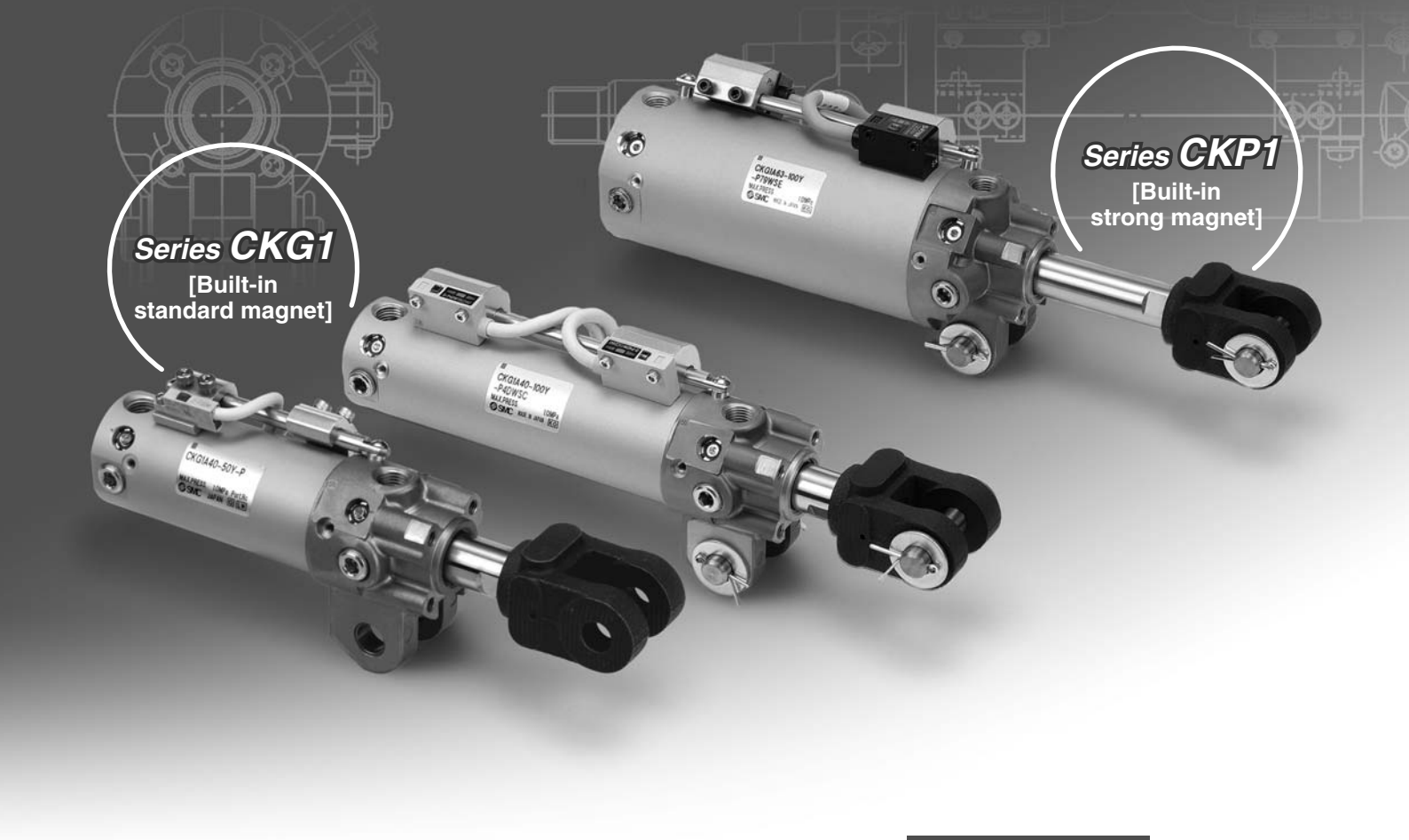
Series CK□1

- **Clevis width 16.5 mm/19.5 mm**
- **Built-in speed controller**
- **With air cushion**
- **Magnetic field resistant auto switches are mountable.**

Variations

Series		Bore size (mm)	Stroke (mm)	Clevis width (mm)	Rod end bracket	Options
Basic type	**Series CK1□**	40 50 63	50 75 100 125 150	A: 16.5 mm B: 19.5 mm	Single knuckle joint Double knuckle joint	Limit switch mounting base Dog fitting Foot Pedestal
Built-in standard magnet type (applicable to magnetic field resistant auto switches)	**Series CKG1□**					
Built-in strong magnet type (applicable to magnetic field resistant auto switches)	**Series CKP1□**					





Magnetic field resistant auto switches are mountable.

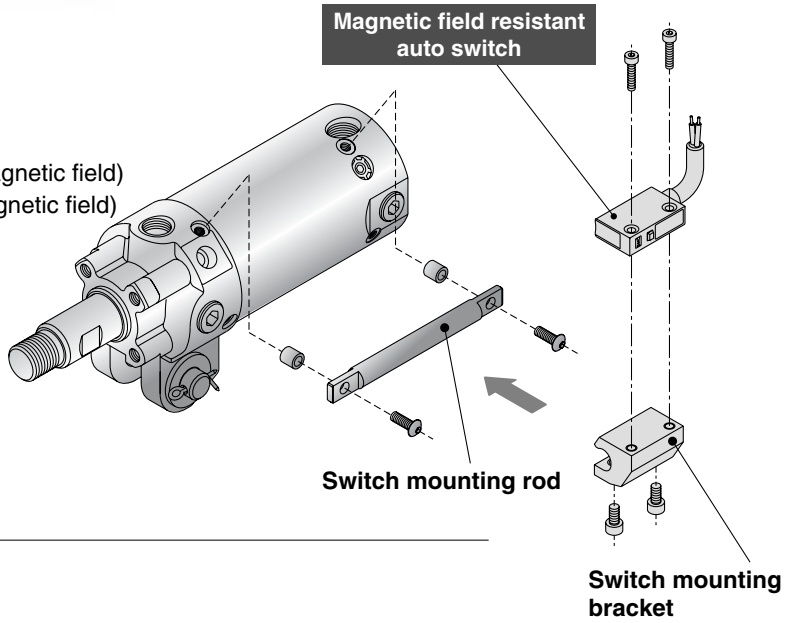
[Series CKG1 / Built-in standard magnet]

⋯ D-P3DWSC, D-P3DWSE, D-P3DW/L/Z (AC magnetic field)

⋯ D-P4DWSC, D-P4DWSE, D-P4DWL/Z (AC magnetic field)

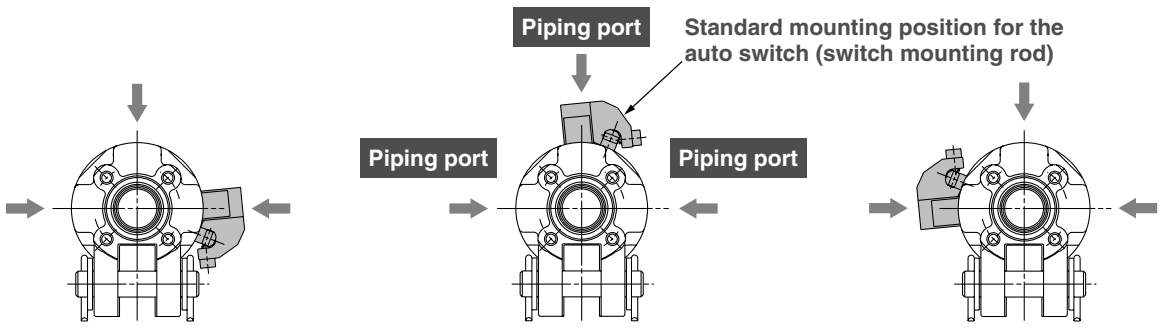
[Series CKP1 / Built-in strong magnet]

⋯ D-P79WSE, D-P74L/Z (DC/AC magnetic fields)



The auto switch mounting and the piping position are available in three-way directions.

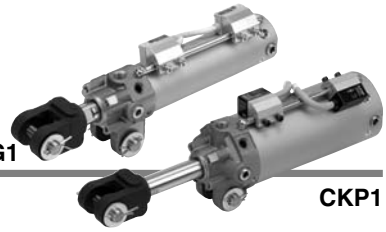
The auto switch mounting position can be altered.
Also, piping is possible in three-way directions regardless of the auto switch mounting position.



Clamp Cylinder with Magnetic Field Resistant Auto Switch (Rod Mounting Style)

Series CKG1/CKP1

ø40, ø50, ø63



How to Order

Built-in standard magnet type with magnetic field resistant auto switch

Built-in strong magnet type with magnetic field resistant auto switch

CKG1 **A** **50** **□** – **100** **Y** **□** – **P3DWSC** **□**

CKP1 **A** **50** **□** – **100** **Y** **□** – **P79WSE** **□**

Clevis width

A	16.5 mm
B	19.5 mm

Thread type

Nil	Rc1/4
TN	NPT1/4

Number of auto switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

Bore size

40	40 mm
50	50 mm
63	63 mm

Cylinder stroke (mm)

40	50, 75, 100, 125, 150
50	50, 75, 100, 125, 150
63	50, 75, 100, 125, 150

Auto switch

Nil	Without auto switch (built-in magnet) Without switch mounting rod
P	Without auto switch (built-in magnet) With switch mounting rod

∗ Select applicable auto switch models from the table below.

End bracket

Nil	None
I	Single knuckle joint (M6 without tap)
IA	Single knuckle joint (M6 with tap)
Y	Double knuckle joint (M6 without tap)
YA	Double knuckle joint (M6 with tap)

Note 1) IA and YA are equivalent to the conventional models.
Note 2) Knuckle pin, cotter pin and flat washer are provided as a standard for Y and YA.

Option

Nil	None
B	Limit switch mounting base
D	Dog fitting Note 1)
L	Foot
K Note 2)	Pedestal (for 75, 100, 150 strokes only)

Note 1) When the dog bracket is selected, choose the rod end bracket IA or YA (M6 with tap).
Note 2) Clevis width B (19.5 mm) is not available with mounting base K.

Built-in Standard (Strong) Magnet Cylinder Part No.

1) Built-in standard (strong) magnet type without auto switch and switch mounting rod
Symbol for the auto switch type is "Nil" as shown below.
CKG1: (Example) CKG1A50-50Y
CKP1: (Example) CKP1A50-50Y

2) Built-in standard (strong) magnet type without auto switch, with switch mounting rod
Symbol for the auto switch type is "P" as shown below.
CKG1: (Example) CKG1A50-50Y-P
CKP1: (Example) CKP1A50-50Y-P

Applicable Magnetic Field Resistant Auto Switches (Refer to pages 1719 to 1827 for detailed auto switch specifications.)

Applicable cylinder series	Type	Auto switch model	Applicable magnetic field	Electrical entry	Indicator light	Wiring (Pin no in use)	Load voltage	Lead wire length	Applicable load
Series CKG1	Solid state auto switch	D-P3DWSC	AC magnetic field (Single-phase AC welding magnetic field)	Pre-wired connector	2-color display	2-wire (3–4)	24 VDC	0.3 m	Relay, PLC Note 1)
		D-P4DWSC							
		D-P3DWSE				2-wire (1–4)			
		D-P4DWSE							
		D-P3DW		Grommet		2-wire		0.5 m	
		D-P3DWL						3 m	
		D-P4DWL							
		D-P3DWZ						5 m	
		D-P4DWZ							
Series CKP1	Reed auto switch	D-P79WSE	DC / AC magnetic field	Pre-wired connector	2-color display	2-wire (1–4)	24 VDC	0.3 m	
		D-P74L		Grommet	1-color display	2-wire	24 VDC 100 VAC	3 m	
		D-P74Z						5 m	

Note 1) PLC: Programmable Logic Controller
Note 2) There are other applicable auto switches other than the listed above. For details, refer to page 1329.
Note 3) Refer to page 1330 when ordering the auto switch mouting bracket assembly or switch mounting rod assembly.
Note 4) For D-P3DW□, auto switches and auto switch mounting brackets are shipped together (not assembled).

Specifications

Bore size (mm)	40	50	63
Fluid	Air		
Proof pressure	1.5 MPa		
Maximum operating pressure	1.0 MPa		
Minimum operating pressure	0.05 MPa		
Ambient and fluid temperature	–10°C to +60°C		
Piston speed	50 to 500 mm/s		
Cushion Note 1)	Unclamped side (head end): With air cushion		
Speed controller	Equipped on both ends		
Lubrication	Non-lube		
Stroke length tolerance	$^{+1.0}_{0}$		
Mounting Note 2)	Double clevis		

Note 1) With cushion on both ends are available as Made to Order.
For details, refer to page 1336, Made to Order 4.
Ordering example **CKG1A50-100Y-P4DWSC -X1515**
With cushion on both ends

Note 2) Clevis pin, Cotter pin, Flat washer are equipped as a standard.

Clevis width	16.5 mm	CKG1A/CKP1A series
	19.5 mm	CKG1B/CKP1B series

Standard Stroke

Bore size (mm)	Standard stroke (mm)
40, 50, 63	50, 75, 100, 125, 150

End Bracket / Options

Symbol	Description		Parts no.	
			Series CKG1A/CKP1A	Series CKG1B/CKP1B
I	Single knuckle joint	M6 without tap	CKB-I04	
IA		M6 with tap	CKB-IA04	
Y	Double knuckle joint (Knuckle pin, Cotter pin, Flat washer are equipped as a standard.)	M6 without tap	CKA-Y04	CKB-Y04
YA		M6 with tap	CKA-YA04	CKB-YA04
B	Limit switch mounting base		CK-B04	
D	Dog fitting		CK-D04	
L	Foot		CK-L04	
K	Pedestal	For 75 stroke	CKA-K075	—
		For 100 stroke	CKA-K100	—
		For 150 stroke	CKA-K150	—

Theoretical Output

Unit: N

Bore size (mm)	Rod size (mm)	Operating direction	Piston area (mm^2)	Operating pressure (MPa) 0.3	0.4	0.5	0.6
40	20	OUT	1260	378	504	630	756
		IN	943	283	377	472	566
50	20	OUT	1960	588	784	980	1180
		IN	1650	495	660	825	990
63	20	OUT	3120	934	1250	1560	1870
		IN	2800	840	1120	1400	1680

Mass (Basic mass includes the switch mounting rod. At 0 stroke)

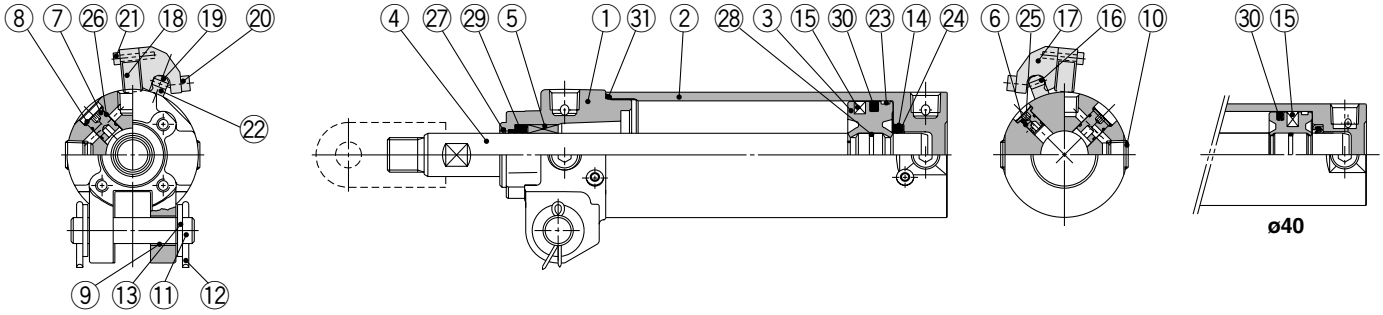
Unit: kg

Bore size (mm)		40	50	63
CKG1□ cylinder	Basic mass	0.75	0.97	1.18
	Additional mass per 25 mm stroke	0.11	0.12	0.14
CKP1□ cylinder	Basic mass	0.77	1.03	1.34
	Additional mass per 25 mm stroke	0.11	0.12	0.14
Single knuckle joint		0.20		
Double knuckle joint (Knuckle pin, Cotter pin, Flat washer are equipped as a standard.)		0.34		
Limit switch mounting base		0.22		
Dog fitting		0.12		
Foot		0.24		
Pedestal		2.2		

Calculation
Example) **CKG1□50-100Y-P**
• Basic mass 0.97 (ø50)
• Additional mass ..... 0.12/25 mm
• Cylinder stroke ..... 100 mm
• Double knuckle joint…0.34 (Y)
0.97 + 0.12 x 100/25 + 0.34 = 1.79 kg

Construction

CKG1□40, 50, 63 Built-in standard magnet type / With magnetic field resistant auto switch

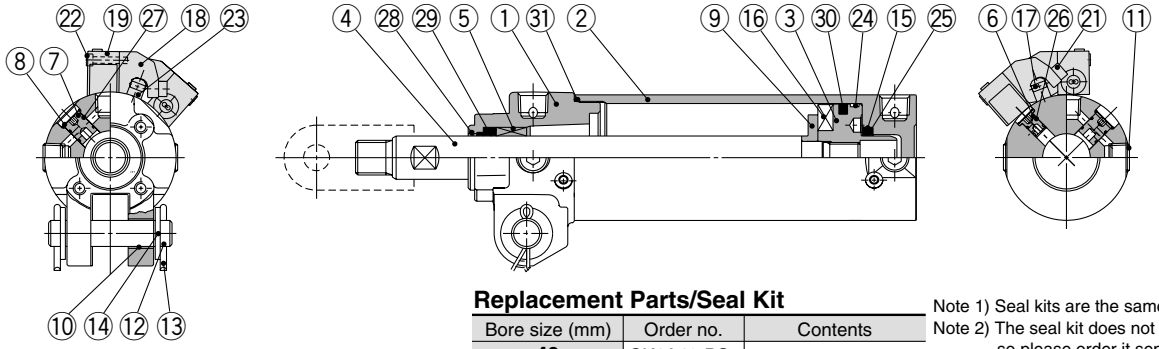


Component Parts

No.	Description	Material	Qty	Note
1	Rod cover	Aluminum alloy	1	Chromated
2	Tube cover	Aluminum alloy	1	Hard anodized
3	Piston	Aluminum alloy	1	Chromated
4	Piston rod	Carbon steel	1	Hard chrome plated
5	Bushing	Copper alloy	1	
6	Cushion valve	Aluminum alloy	1	
7	Speed controller valve	Aluminum alloy	2	
8	Retaining ring	Spring steel	3	
9	Clevis bushing	Oil-impregnated sintered alloy	2	
10	Hexagon socket head plug	Carbon steel	4	Rc 1/4
11	Pin	Carbon steel	1	
12	Cotter pin	Low carbon steel wire rod	2	
13	Flat washer	Rolled steel	2	
14	Cushion seal retainer	Rolled steel	1	Zinc chromated
15	Magnet	—	1	
16	Switch mounting rod	Carbon steel	1	Zinc chromated
17	Auto switch mounting bracket	Aluminum alloy	—	

No.	Description	Material	Qty	Note
18	Magnetic field resistant auto switch	—	—	
19	Hexagon socket head button screw	Steel wire	2	M4 x 0.7 x 12 L
20	Hexagon socket head cap screw	Steel wire	2 pcs. per auto switch	M4 x 0.7 x 8 L
21	Hexagon socket head cap screw	Steel wire	2 pcs. per auto switch	M3 x 0.5 x 14 L
22	Switch mounting spacer	Aluminum alloy	2	
23	Wear ring	Resin	1	
24	Cushion seal	Urethane	1	
25	Cushion valve seal	NBR	1	
26	Speed controller valve seal	NBR	2	
27	Coil scraper	Phosphor bronze	1	
28	Piston gasket	NBR	1	
29	Rod seal	NBR	1	
30	Piston seal	NBR	1	
31	Tube gasket	NBR	1	

CKP1□40, 50, 63 Built-in strong magnet type / With magnetic field resistant auto switch



Replacement Parts/Seal Kit

Bore size (mm)	Order no.	Contents
40	CK1A40-PS	Set of nos. above ㉙, ㉚, ㉛.
50	CK1A50-PS	
63	CK1A63-PS	

Note 1) Seal kits are the same as the CKG1□/CKP1□.
Note 2) The seal kit does not come with a grease pack, so please order it separately.
Grease pack part no.: GR-S-005 (compatible with all sizes)
Please order 2 pieces exceeding 100 strokes.

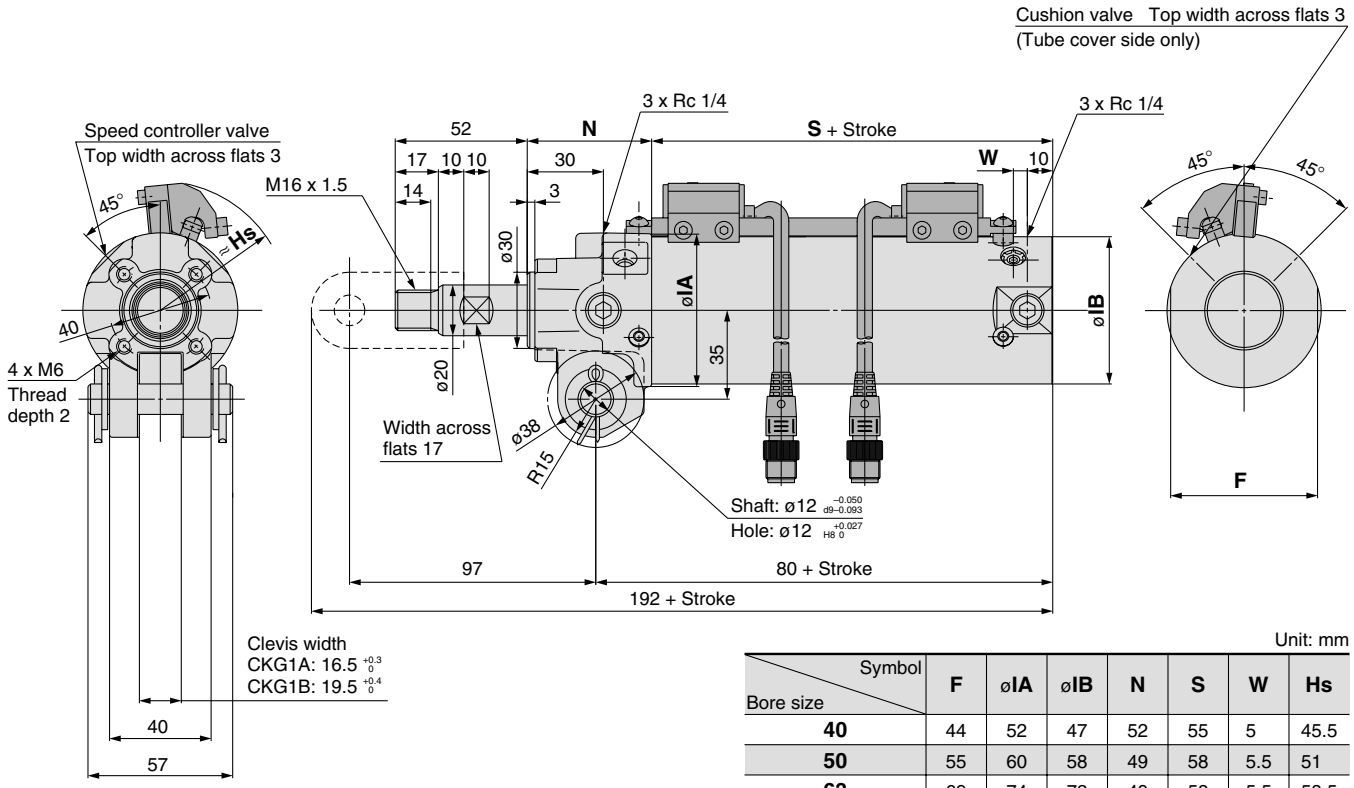
Component Parts

No.	Description	Material	Qty	Note
1	Rod cover	Aluminum alloy	1	Chromated
2	Tube cover	Aluminum alloy	1	Hard anodized
3	Piston	Aluminum alloy	1	Chromated
4	Piston rod	Carbon steel	1	Hard chrome plated
5	Bushing	Copper alloy	1	
6	Cushion valve	Aluminum alloy	1	
7	Speed controller valve	Aluminum alloy	2	
8	Retaining ring	Spring steel	3	
9	Magnet holder	Aluminum alloy	1	Chromated
10	Clevis bushing	Oil-impregnated sintered alloy	2	
11	Hexagon socket head plug	Carbon steel	4	Rc 1/4
12	Pin	Carbon steel	1	
13	Cotter pin	Low carbon steel wire rod	2	
14	Flat washer	Rolled steel	2	
15	Cushion seal retainer	Rolled steel	1	Zinc chromated
16	Magnet	—	1	
17	Switch mounting rod	Carbon steel	1	Zinc chromated

No.	Description	Material	Qty	Note
18	Auto switch mounting bracket	Aluminum alloy	—	
19	Magnetic field resistant auto switch	—	—	
20	Hexagon socket head button screw	Steel wire	2	M4 x 0.7 x 12 L
21	Hexagon socket head cap screw	Steel wire	2 pcs. per auto switch	M4 x 0.7 x 8 L
22	Hexagon socket head cap screw	Steel wire	2 pcs. per auto switch	M3 x 0.5 x 16 L
23	Switch mounting spacer	Aluminum alloy	2	
24	Wear ring	Resin	1	
25	Cushion seal	Urethane	1	
26	Cushion valve seal	NBR	1	
27	Speed controller valve seal	NBR	2	
28	Coil scraper	Phosphor bronze	1	
29	Rod seal	NBR	1	
30	Piston seal	NBR	1	
31	Tube gasket	NBR	1	

Dimensions

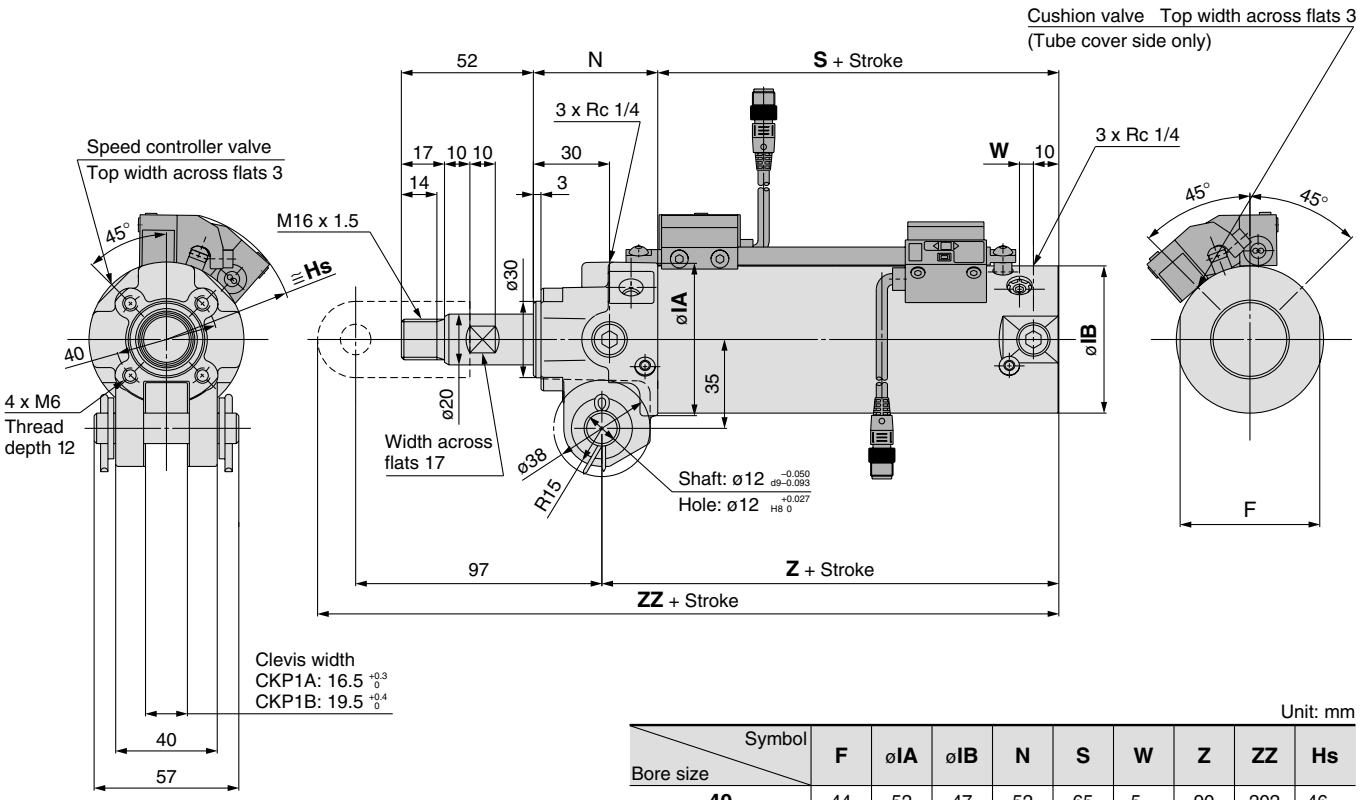
CKG1□40, 50, 63 Built-in standard magnet type / With magnetic field resistant auto switch (D-P4DWS□ type)



Unit: mm

Symbol / Bore size	F	øIA	øIB	N	S	W	Hs
40	44	52	47	52	55	5	45.5
50	55	60	58	49	58	5.5	51
63	69	74	72	49	58	5.5	58.5

CKP1□40, 50, 63 Built-in strong magnet type / With magnetic field resistant auto switch (D-P79WSE type)



Unit: mm

Symbol / Bore size	F	øIA	øIB	N	S	W	Z	ZZ	Hs
40	44	52	47	52	65	5	90	202	46
50	55	60	58	49	58	5.5	80	192	51
63	69	74	72	49	58	5.5	80	192	57.5

Clamp Cylinder : Basic Type / Built-in Standard Magnet Type
Magnetic Field Resistant Auto Switch (Band Mounting Style)
Series CK1/CKG1
ø40, ø50, ø63

How to Order

Without magnet CK1 A 50 TN – 100 Y □

Built-in standard magnet type CKG1 A 50 TN – 100 Y □

For how to order auto switch/ switch mounting bracket, refer to below.

Clevis width

A	16.5 mm
B	19.5 mm

Bore size

40	40 mm
50	50 mm
63	63 mm

Thread type

Nil	Rc 1/4
TN	NPT 1/4

Cylinder stroke (mm)

40	50, 75, 100, 125, 150
50	50, 75, 100, 125, 150
63	50, 75, 100, 125, 150

Option

Nil	None
B	Limit switch mounting base
D	Dog fitting Note 1)
L	Foot
K Note 2)	Pedestal (for 75, 100, 150 strokes only)

Note 1) When the dog fitting is selected, choose the rod end bracket IA or YA (M6 with tap).
Note 2) Clevis width B (19.5 mm) is not available with mounting base K.

End bracket

Nil	None
I	Single knuckle joint (M6 without tap)
IA	Single knuckle joint (M6 with tap)
Y	Double knuckle joint (M6 without tap)
YA	Double knuckle joint (M6 with tap)

Note 1) IA and YA are equivalent to the conventional models.
Note 2) Knuckle pin, cotter pin and flat washer are provided as a standard for Y and YA.

Magnetic Field Resistant Auto Switch D-P4DW□□ Type / Band Mounting Compliant

Band mounting of the magnetic field resistant auto switch (D-P4DW□□ type) to the built-in standard magnet clamp cylinder (the CKG1□ series) is possible by ordering the switch mounting bracket and the auto switch individually.

⚠ Caution

Standard type auto switch is mountable for the built-in standard magnet type. For details, please refer to "Made to Order" on page 1331. Also, please note that the standard type auto switch cannot be used under the magnetic field resistant environment.

How to Order

Please order the switch mounting bracket, auto switch and built-in standard magnet clamp cylinder individually.
Refer to the table below for auto switch mounting bracket part numbers.

Part no.	Applicable auto switch	Applicable clamp cylinder
BA8-040	D-P4DWSC	**CKG1□40**
BA8-050	D-P4DWSE	**CKG1□50**
BA8-063	D-P4DWL/Z	**CKG1□63**

Ordering Example

Example case ① Built-in standard magnet cylinder:
CKG1A50-50Y ... 1
Example case ② Magnetic field resistant auto switch:
D-P4DWSC ... 2
Example case ③ Switch mounting bracket:
BA8-050 ... 2

Note 1) Please order the same quantity for the switch mounting bracket and the magnetic field resistant auto switch respectively.
Note 2) Band mounting for the magnetic field resistant auto switch D-P79WS□ type, D-P74□ type is not applicable.

Applicable Magnetic Field Resistant Auto Switches

Applicable cylinder series	Type	Auto switch model	Applicable magnetic field	Electrical entry	Indicator light	Wiring (Pin no in use)	Load voltage	Lead wire length	Applicable load
Series CKG1	**Solid state auto switch**	**P4DWSC**	AC magnetic field (Single-phase AC welding magnetic field)	Pre-wired connector	2-color display	2-wire (3–4)	24 VDC	0.3 m	Relay, PLC Note 1)
		P4DWSE				2-wire (1–4)			
		P4DWL		Grommet		2-wire		3 m	
		P4DWZ						5 m	

Note 1) PLC: Programmable Logic Controller
Note 2) There are other applicable auto switches other than the listed above. For details, refer to page 1329.

Specifications

Bore size (mm)	40	50	63
Fluid	Air		
Proof pressure	1.5 MPa		
Maximum operating pressure	1.0 MPa		
Minimum operating pressure	0.05 MPa		
Ambient and fluid temperature	Without auto switch: –10°C to +70°C With auto switch: –10 to +60°C		
Piston speed	50 to 500 mm/s		
Cushion Note 1)	Unclamped side (head end): With air cushion		
Speed controller	Equipped on both ends		
Lubrication	Non-lube		
Stroke length tolerance	$^{+1.0}_{0}$		
Mounting Note 2)	Double clevis		

Note 1) With cushion on both ends are available as Made to Order.
For details, refer to page 1336, Made to Order 4.
Ordering example **CKG1A50-100Y -X1515**
With cushion on both ends

Note 2) Clevis pin, Cotter pin, Flat washer are equipped as a standard.

Clevis width	16.5 mm	CK1A/CKG1A series
	19.5 mm	CK1B/CKG1B series

Standard Stroke

Bore size (mm)	Standard stroke (mm)
40, 50, 63	50, 75, 100, 125, 150

End Bracket / Options

Symbol	Description		Part no.	
			Series CK1A/CKG1A	Series CK1B/CKG1B
I	Single knuckle joint	M6 without tap	CKB-I04	
IA		M6 with tap	CKB-IA04	
Y	Double knuckle joint (Knuckle pin, Cotter pin, Flat washer are equipped as a standard.)	M6 without tap	CKA-Y04	CKB-Y04
YA		M6 with tap	CKA-YA04	CKB-YA04
B	Limit switch mounting base		CK-B04	
D	Dog fitting		CK-D04	
L	Foot		CK-L04	
K	Pedestal	For 75 stroke	CKA-K075	—
		For 100 stroke	CKA-K100	—
		For 150 stroke	CKA-K150	—

Theoretical Output

Unit: N

Bore size (mm)	Rod size (mm)	Operating direction	Piston area (mm^2)	Operating pressure (MPa) 0.3	0.4	0.5	0.6
40	20	OUT	1260	378	504	630	756
		IN	943	283	377	472	566
50	20	OUT	1960	588	784	980	1180
		IN	1650	495	660	825	990
63	20	OUT	3120	934	1250	1560	1870
		IN	2800	840	1120	1400	1680

Mass

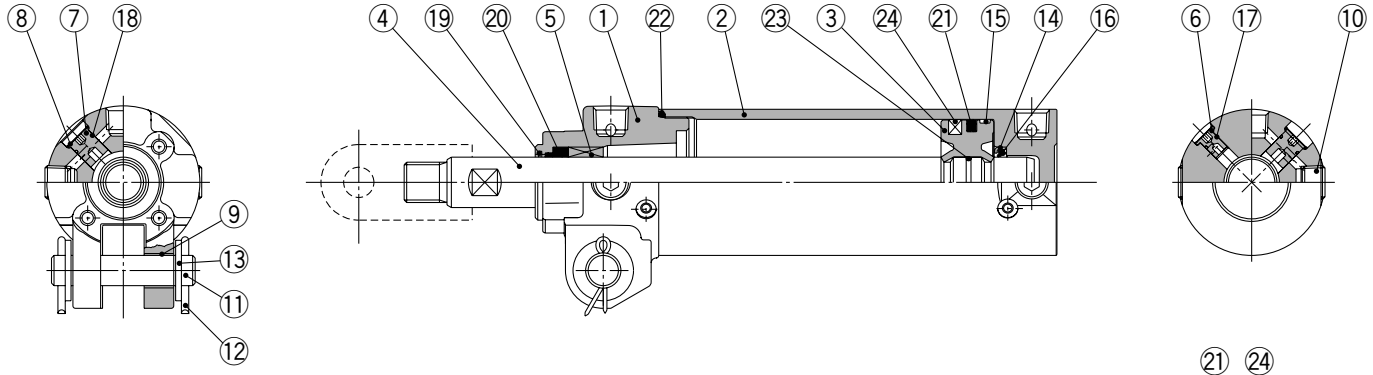
Unit: kg

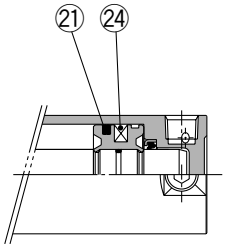
Bore size (mm)		40	50	63
Cylinder	Basic mass	0.73	0.95	1.16
	Additional mass per 25 mm stroke	0.10	0.11	0.13
Single knuckle joint		0.20		
Double knuckle joint (Knuckle pin, Cotter pin, Flat washer are equipped as a standard.)		0.34		
Limit switch mounting base		0.22		
Dog fitting		0.12		
Foot		0.24		
Pedestal		2.2		

Calculation
Example) **CK1G□50-100Y**
• Basic mass 0.95 (ø50)
• Additional mass ..... 0.11/25 mm
• Cylinder stroke ..... 100 mm
• Double knuckle joint…0.34 (Y)
0.95 + 0.11 x 100/25 + 0.34 = 1.73 kg

Construction

CK1□40, 50, 63 Basic type / CKG1□40, 50, 63 Built-in standard magnet type





ø40

Component Parts

No.	Description	Material	Qty	Note
1	**Rod cover**	Aluminum alloy	1	Chromated
2	**Tube cover**	Aluminum alloy	1	Hard anodized
3	**Piston**	Aluminum alloy	1	Chromated
4	**Piston rod**	Carbon steel	1	Hard chrome plated
5	**Bushing**	Copper alloy	1	
6	**Cushion valve**	Aluminum alloy	1	
7	**Speed controller valve**	Aluminum alloy	2	
8	**Retaining ring**	Spring steel	3	
9	**Clevis bushing**	Oil-impregnated sintered alloy	2	
10	**Hexagon socket head plug**	Carbon steel	4	Rc 1/4
11	**Pin**	Carbon steel	1	
12	**Cotter pin**	Low carbon steel wire rod	2	
13	**Flat washer**	Rolled steel	2	
14	**Cushion seal retainer**	Rolled steel	1	Zinc chromated
15	**Wear ring**	Resin	1	
16	**Cushion seal**	Urethane	1	
17	**Cushion valve seal**	NBR	1	
18	**Speed controller valve seal**	NBR	2	
19	**Coil scraper**	Phosphor bronze	1	
20	**Rod seal**	NBR	1	
21	**Piston seal**	NBR	1	
22	**Tube gasket**	NBR	1	
23	**Piston gasket**	NBR	1	
24	**Magnet**	—	—	For CKG1

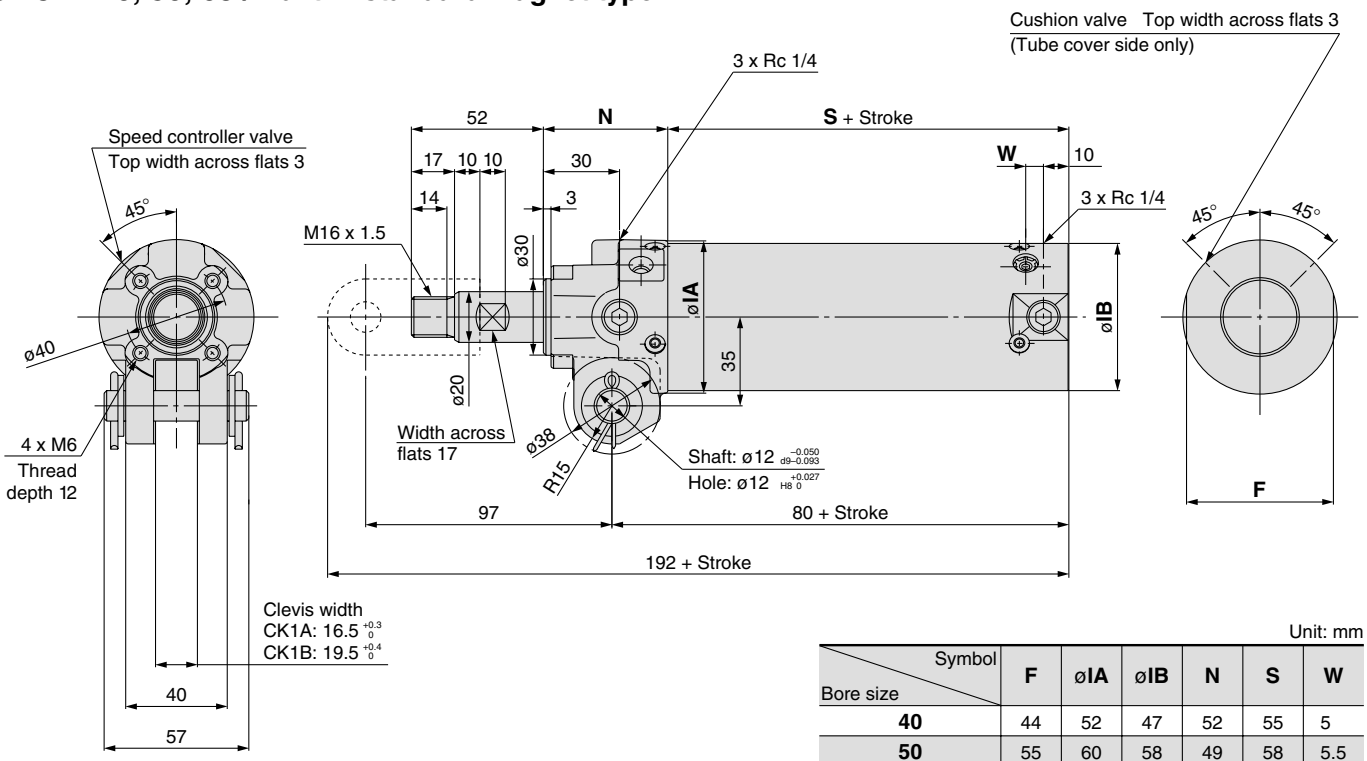
Replacement Parts/Seal Kit

Bore size (mm)	Order no.	Contents
40	CK1A40-PS	Set of nos. above ⑳, ㉑, ㉒.
50	CK1A50-PS	
63	CK1A63-PS	

Note) The seal kit does not come with a grease pack, so please order it separately.
Grease pack part no.: GR-S-005 (compatible with all sizes)
Please order 2 pieces exceeding 100 strokes.

Dimensions

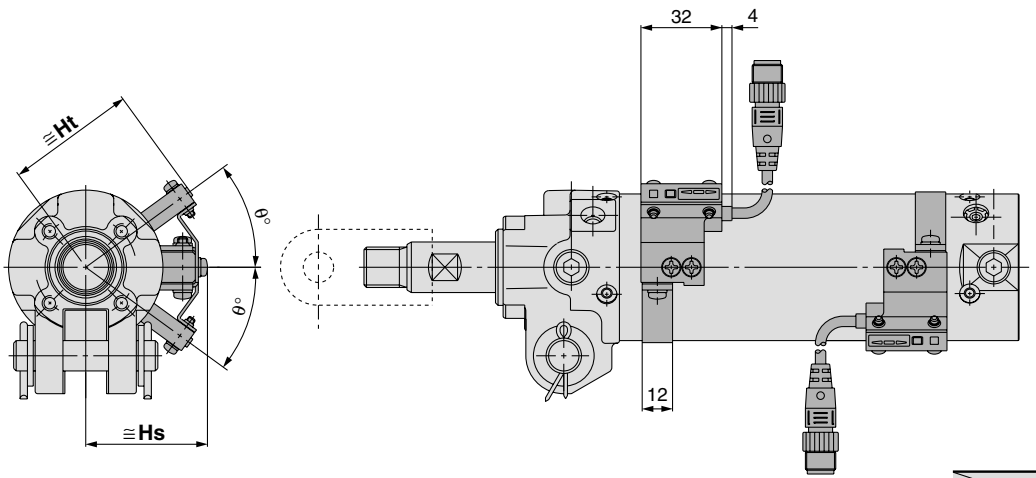
CK1□40, 50, 63 / Basic type
CKG1□40, 50, 63 / Built-in standard magnet type



Unit: mm

Bore size \ Symbol	F	øIA	øIB	N	S	W
40	44	52	47	52	55	5
50	55	60	58	49	58	5.5
63	69	74	72	49	58	5.5

CKG1□40, 50, 63 / Example: Built-in standard magnet type + Magnetic field resistant auto switch D-P4DW□□ type (Band mounting)

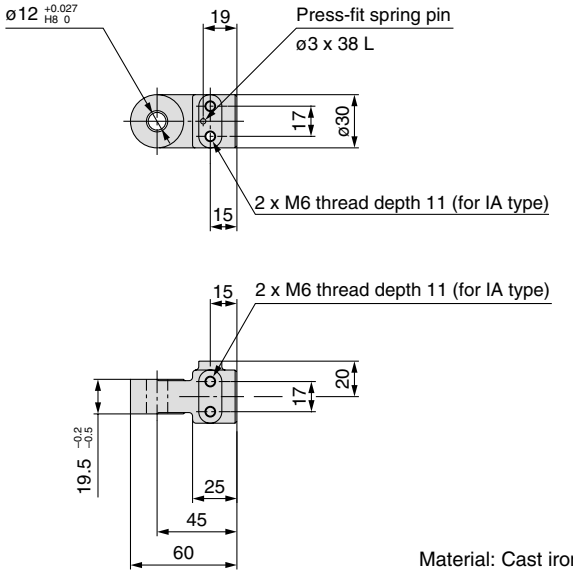


Unit: mm

Bore size \ Symbol	Hs	Ht	θ
40	43	46	45°
50	48	51.5	36°
63	55	58.5	33°

End Bracket

Single knuckle joint

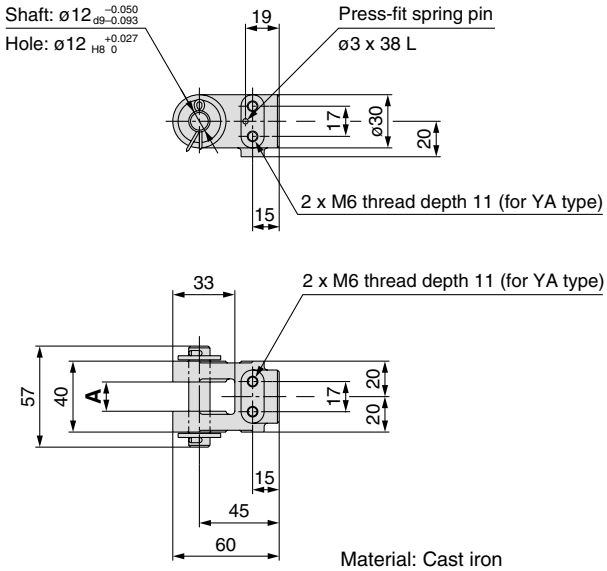


Material: Cast iron

Part no.	Rod end bracket symbol	Applicable clamp cylinder
CKB-I04	I (M6 without tap)	Series CK□1A Series CK□1B
CKB-IA04	IA (M6 with tap)	

Note 1) Spring pin is attached to the single knuckle joint as a standard.
Note 2) The conventional model is equivalent to the component part no CKB-IA04 (rod end bracket symbol IA).

Double knuckle joint



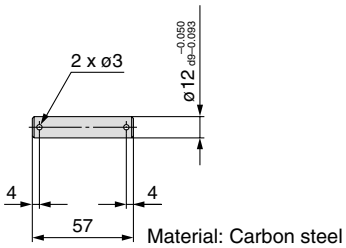
Material: Cast iron

Unit: mm

Part no.	Rod end bracket symbol	A	Applicable clamp cylinder
CKA-Y04	Y (M6 without tap)	16.5 +0.3 0	Series CK□1A
CKA-YA04	YA (M6 with tap)		
CKB-Y04	Y (M6 without tap)	19.5 +0.4 0	Series CK□1B
CKB-YA04	YA (M6 with tap)		

Note 1) Knuckle pin, cotter pin, flat washer and spring pin are attached to the double knuckle joint as a standard.
Note 2) The conventional model is equivalent to the component part no CKA-YA04, CKB-YA04 (rod end bracket symbol YA).

Pin



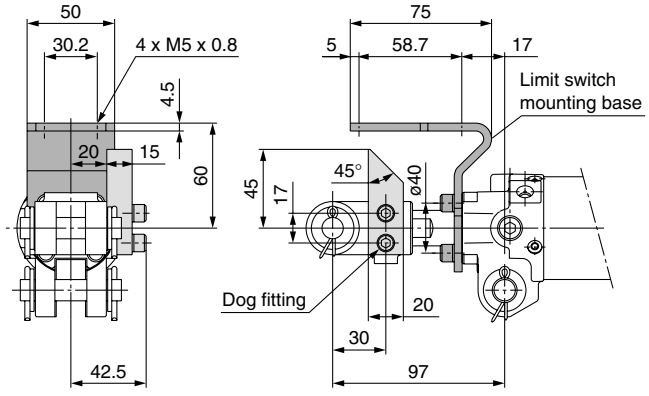
Material: Carbon steel

Part no.	Application
CK-P04	Knuckle pin Clevis pin

Note) Cotter pin and flat washer are provided as a standard.

Option

Limit switch mounting base/Dog fitting



Material: Rolled steel

Part no.	Option symbol	Name	Applicable clamp cylinder
CK-B04	**B**	Limit switch mounting base	Series CK□1A Series CK□1B
CK-D04	**D**	Dog fitting	

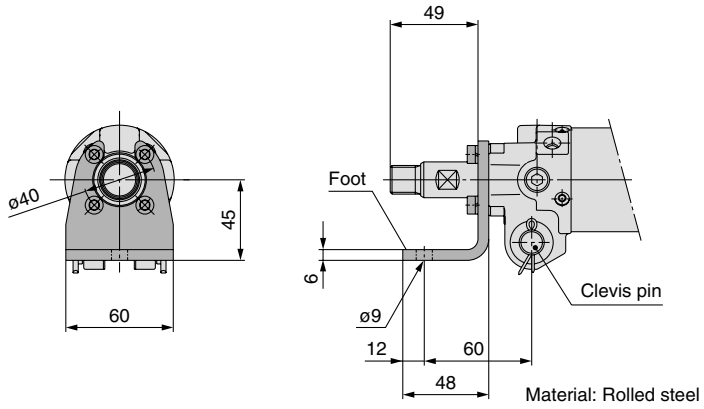
Note 1) Limit switch mounting base and dog fitting can be repositioned by removing the hexagon socket head cap screw.
Note 2) When ordering the limit switch base and the dog bracket individually, a spring washer for the mounting bolt (hexagon socket head cap screw) will be attached as a standard.

⚠

When you attach a dog fitting, be sure to use a knuckle joint, M6 with tap (rod end bracket symbol IA or YA).
The dog fitting cannot be attached to the knuckle joint, M6 without tap (rod end bracket symbol I or Y).

Option

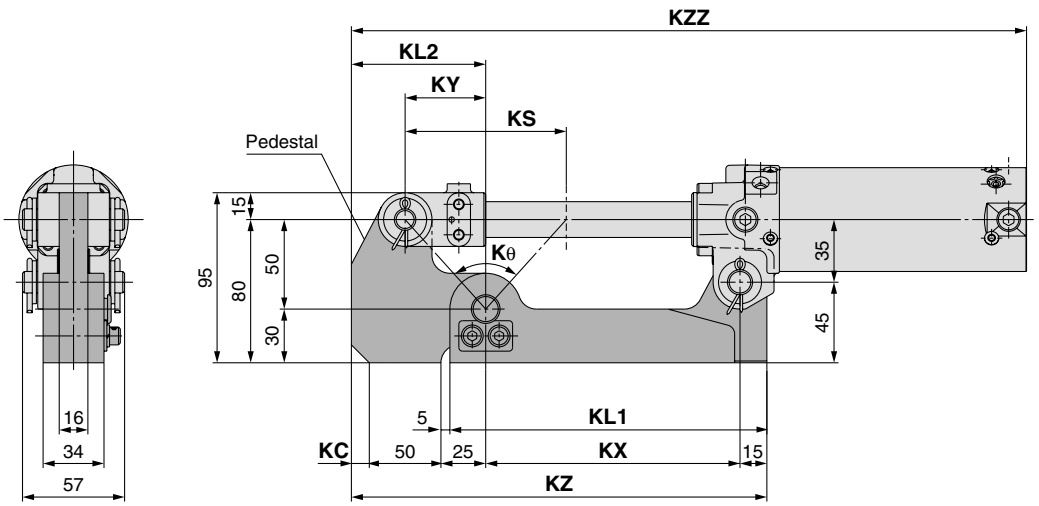
Foot



Part no.	Option symbol	Applicable clamp cylinder
CK-L04	**L**	Series CK□1A Series CK□1B

Note 1) A spring washer for the mounting bolt (hexagon socket head cap screw) will be attached as a standard for the foot bracket.
Note 2) When mounting the cylinder, use both the foot and clevis pin. Please avoid using the foot by itself as this may result in damage.

Pedestal



Material: Rolled steel

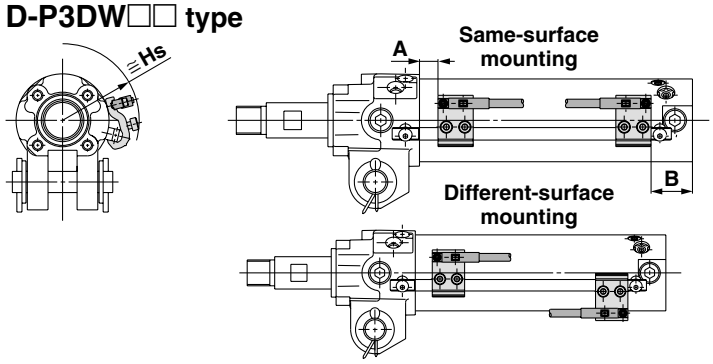
Unit: mm

Part no.	Option symbol	KL1	KL2	KS	KX	KY	KZ	Kθ	KC	KZZ			Applicable clamp cylinder
										40	50	63	
CKA-K075	**K**	167	75	70	132	35	222	69° 59'	0	362			CK□1A40-75Y CK□1A50-75Y CK□1A63-75Y
CKA-K100		177	75	90	142	45	232	83° 58'	0	397			CK□1A40-100Y CK□1A50-100Y CK□1A63-100Y
CKA-K150		202	85	140	167	70	267	108° 55'	10	482			CK□1A40-150Y CK□1A50-150Y CK□1A63-150Y

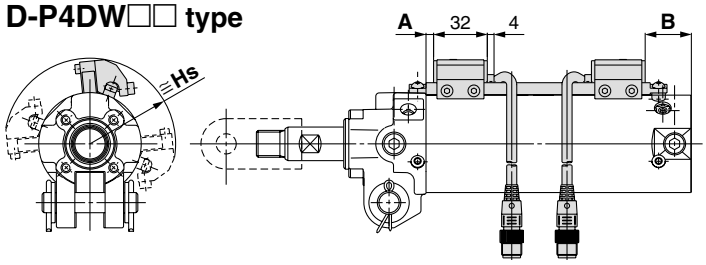
Note) The CK□1B series (clevis width 19.5 mm) is not available with pedestal.

Auto Switch Proper Mounting Position (Detection at Stroke End) and Its Mounting Height

Rod mounting
D-P3DW□□ type

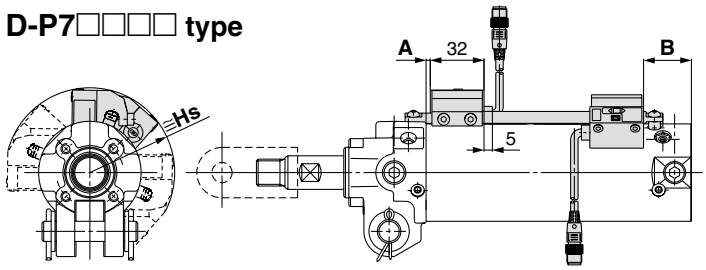


D-P4DW□□ type



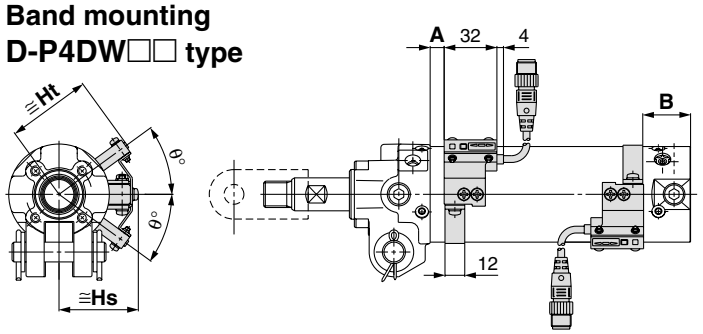
Note) The above drawing is the mounting example for the D-P4DWS□ type.

D-P7□□□□ type



Note) The above drawing is the mounting example for the D-P79WSE type.

Band mounting
D-P4DW□□ type



Note) The above drawing is the switch band mounting example for the D-P4DWS□ type.

Auto Switch Mounting Position and Its Height: Rod Mounting Style

Unit: mm

Auto switch model	Symbol	Auto switch set value and its height		
		ø40	ø50	ø63
D-P3DW□□	A	10.5	7	7
	B	23.5	30	30
	Hs	43.5	49.5	56.5
D-P4DW□□	A	8	4.5	4.5
	B	20.5	27.5	27.5
	Hs	45.5	51	58.5
D-P79WSE D-P74□	A	5.5	0	0
	B	27.5	26	26
	Hs	46	51	58

Note 1) The mounting position should be referred for reference only for the auto switch mounting position at the stroke end detection. Adjust the auto switch after confirming the operation to set actually.
Note 2) A/B dimensions are the distance from the standard position (above drawing) to the end surface of the auto switch.
Note 3) The auto switch mounting position is temporarily set at the time of shipping from our factory. Change it to the desired position in accordance to your facility.

Auto Switch Mounting Position and Its Height: Band Mounting Style / D-P4DW□□ Type

Unit: mm

Auto switch model	Symbol	Auto switch set value and its height		
		ø40	ø50	ø63
D-P4DW□□	A	8	4.5	4.5
	B	20.5	27.5	27.5
	Hs	43	48	55
	Ht	46	51.5	58.5
	θ	45°	36°	33°

Note 1) The mounting position should be referred for reference only for the auto switch mounting position at the stroke end detection. Adjust the auto switch after confirming the operation to set actually.
Note 2) A/B dimensions are the distance from the standard position (above drawing) to the end surface of the auto switch.
Note 3) As for D-P4DW□□ type, band mounting style, the switch mounting bracket and the auto switch have to be ordered separately. For details, refer to page 1323.

Minimum Stroke for Auto Switch Mounting

Unit: mm

Auto switch model	1 pc.	2 pcs.	
		Different surfaces	Same surface
D-P3DW□□	15	30	75
D-P4DW□□	50	50	
D-P79WSE			
D-P74□			

Note) When mounting 2 pcs. of D-P3DW□□ to the 50 mm stroke cylinder, mount the switches on different surfaces.

Operating Range

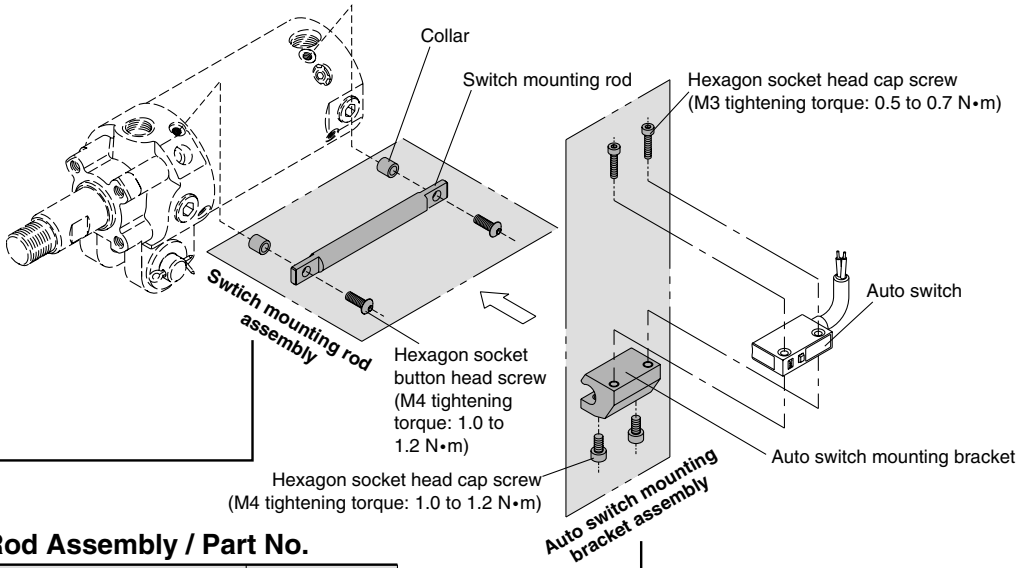
Unit: mm

Auto switch model		Bore size		
		40	50	63
D-P3DW□□	Rod mounting	4	5	6
D-P4DW□□	Rod mounting	4	4	4.5
	Band mounting	5	5	5.5
D-P79WSE D-P74□	Rod mounting	8	9	9.5

Besides the models listed in "How to Order," the following auto switches are applicable.
∗ For magnetic field resistant 2-color indication solid state auto switches, auto switches with pre-wired connector (D-P4DW□DPC type) are also available. Refer to pages 1784 and 1785.

Auto Switch Mounting Bracket / Part No.

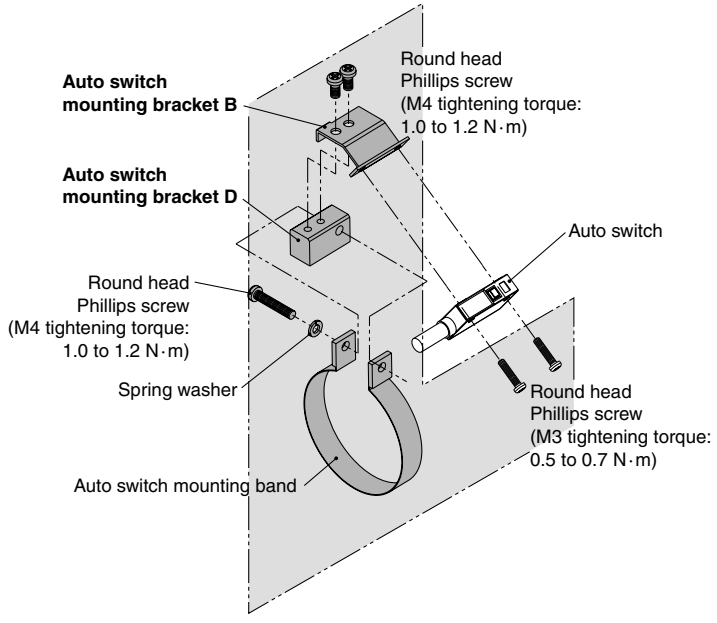
Switch mounting rod assembly / Auto switch mounting bracket assembly

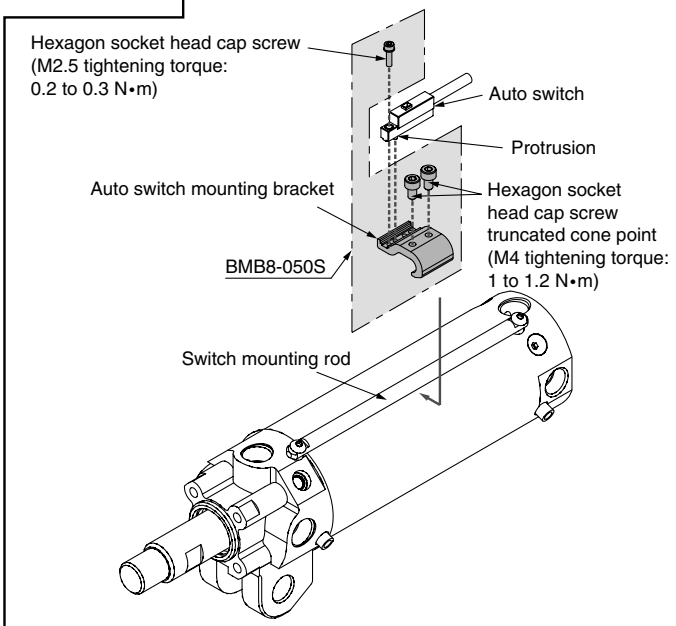


Switch Mounting Rod Assembly / Part No.

Applicable series	Applicable clamp cylinder	Part no.
Dedicated to Series CKP1□40	CKP1□40-50	**CKP40-R050**
	CKP1□40-75	**CKP40-R075**
	CKP1□40-100	**CKP40-R100**
	CKP1□40-125	**CKP40-R125**
	CKP1□40-150	**CKP40-R150**
Series CKG1□40/50/63 **Series CKP1□50/63** **Common**	CKG1□40-50 CKG1□50-50/CKP1□50-50 CKG1□63-50/CKP1□63-50	**CKG40-R050**
	CKG1□40-75 CKG1□50-75/CKP1□50-75 CKG1□63-75/CKP1□63-75	**CKG40-R075**
	CKG1□40-100 CKG1□50-100/CKP1□50-100 CKG1□63-100/CKP1□63-100	**CKG40-R100**
	CKG1□40-125 CKG1□50-125/CKP1□50-125 CKG1□63-125/CKP1□63-125	**CKG40-R125**
	CKG1□40-150 CKG1□50-150/CKP1□50-150 CKG1□63-150/CKP1□63-150	**CKG40-R150**

Auto switch mounting bracket (Band mounting)





Auto Switch Mounting Bracket Assembly / Part No.

Applicable cylinder series	Applicable auto switch	Auto switch mounting bracket part no.		
		40	50	63
Series CKG1	D-P3DWSC D-P3DWSE D-P3DW/L/Z	BMB8-050S		
	D-P4DWSC D-P4DWSE D-P4DWL/Z	BK1T-040		
Series CKP1	D-P79WSE D-P74L/Z	BAP1T-040		

Auto Switch Mounting Bracket (Band Mounting) / Part No.

Auto switch mounting bracket part no.	Applicable auto switch	Applicable clamp cylinder
BA8-040	D-P4DWSC D-P4DWSE D-P4DWL/Z	**CKG1□40**
BA8-050		**CKG1□50**
BA8-063		**CKG1□63**

Made to Order Specifications:

Please contact SMC for detailed dimensions, specifications and lead times.

1 Band Mounting Style / Standard Auto Switch

The built-in standard magnet clamp cylinder / the CKG1□ series can be attached to the band mounting style / standard auto switch as shown below.

⚠ Caution

The standard auto switch cannot be used in a magnetic field environment.
For information on our cylinders that can be fitted with a magnetic field resistant auto switch, please refer to page 1319.

Built-in standard magnet CK**G**1 **Enter the standard model no.** – **M9BW** □

- **Built-in standard magnet**
- **Auto switch type: Band mounting style / Standard auto switch**

Nil	Without auto switch

Note) Select applicable auto switch models from the table below.

- **Number of auto switches**

Nil	2 pcs.
S	1 pc.

Mounting Allowable Auto Switch: Band Mounting / Standard Auto Switch/ Refer to pages 1719 to 1827 for auto switch specifications.

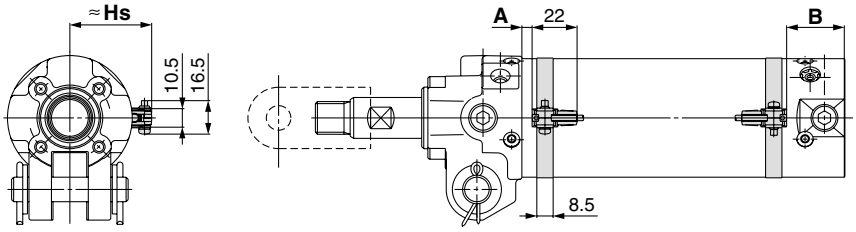
Applicable cylinder series	Type	Electrical entry	Indicator light	Wiring (Output)	Load voltage			Auto switch model	Lead wire length (m)				Applicable load	
					DC		AC	Band mounting	0.5 (Nil)	1 (M)	3 (L)	5 (Z)		
Series CKG1	Solid state auto switch	Grommet	Yes	2-wire	24 V	5 V 12 V	—	**M9B**	●	—	●	○	—	Relay, PLC
								M9BW	●	●	●	○		
	Reed auto switch	Grommet	Yes	2-wire	24 V	12 V	100 V	**A93**	●	—	●	—		
							100 V 200 V	**B54**	●	—	●	●		

Note 1) Lead wire length symbol: 0.5 m ..... Nil (Example) M9BW
1 m ..... M (Example) M9BWM
3 m ..... L (Example) M9BWL
5 m ..... Z (Example) M9BWZ

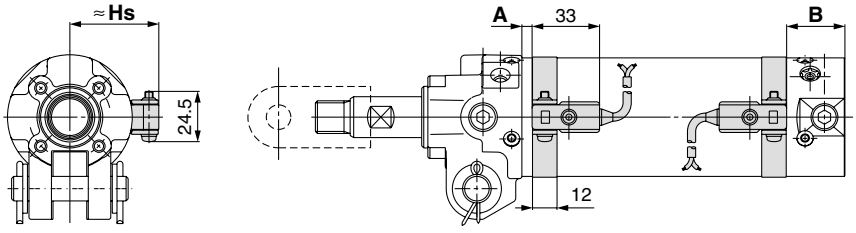
Note 2) Auto switches marked with "○" are produced upon receipt of order.
Note 3) PLC: Programmable Logic Controller

Auto Switch Mounting Position (Detection at Stroke End) and Its Mounting Height

D-A93/M9B



D-B54



Minimum Stroke for Auto Switch Mounting Unit: mm

Auto switch	1 pc.	2 pcs. (Different surfaces)	2 pcs. (Same surface)
D-A93	50	50	50
D-M9B **D-M9BW**			
D-B54	50	50	75

Auto Switch Mounting Position and Its Height Unit: mm

Auto switch	Symbol	Auto switch set value and its height		
		ø40	ø50	ø63
D-A93	**A**	11	7.5	7.5
	B	23.5	30.5	30.5
	Hs	34.5	40	47
D-M9B **D-M9BW**	**A**	15	11.5	11.5
	B	27.5	34.5	34.5
	Hs	34.5	40	47
D-B54	**A**	5.5	2	2
	B	18	25	25
	Hs	38	43.5	50.5

Note 1) The mounting position should be referred for reference only for the auto switch mounting position at the stroke end detection. Adjust the auto switch after confirming the operation to set actually.
Note 2) A/B dimensions are the distance from the standard position (above drawing) to the end surface of the auto switch.
Note 3) The auto switch mounitng position is temporarily set at the time of shipping from our factory. Change it to the desired position in accordance to your facility.

⚠ Caution

As for the precautions on the auto switches, product specifications, refer to pages 8 to 11 and 1719 to 1827.

Auto Switch Mounting Bracket Assembly / Part No.

Auto switch	Auto switch mounting bracket part no.		
	40	50	63
D-A93 **D-M9B** **D-M9BW**	Note) ①BMA2-040 ②BJ3-1	Note) ①BMA2-050 ②BJ3-1	Note) ①BMA2-063 ②BJ3-1
D-B54	BA-04	BA-05	BA-06

Note) Two kinds of auto switch mounting brackets are required.

Operating Range

Unit: mm

Auto switch model	Bore size		
	40	50	63
D-A93	8	8	9
D-M9B	3.5	4	4
D-M9BW	5.5	6.5	7
D-B54	10	10	11

∗ Since this is a guideline including hysteresis, not meant to be guaranteed. (Assuming approximately ±30% dispersion.) There may be the case it will vary substantially depending on an ambient environment.

2 CKGA32 Series / With Magnetic Field Resistant Auto Switch D-P4DW□□ Type (Band Mounting Style)

Band mounting of the magnetic field resistant auto switch (D-P4DW□□ type) to the built-in standard magnet clamp cylinder (the CKGA32 series) is possible by ordering the auto switch mounting bracket and the auto switch separately.

Built-in standard magnet type with magnetic field resistant auto switch

CK G A 32 − 100 Y

- **Built-in standard magnet**
- **Clevis width: 12 mm**
- **Bore size: 32 mm**
- **Cylinder stroke (mm)**: 50, 75, 100, 125, 150
- **End bracket**

Nil	None
I	Single knuckle joint (without tap)
Y	Double knuckle joint (without tap)

Note) Knuckle pin, cotter pin and flat washer are provided as a standard for Y.

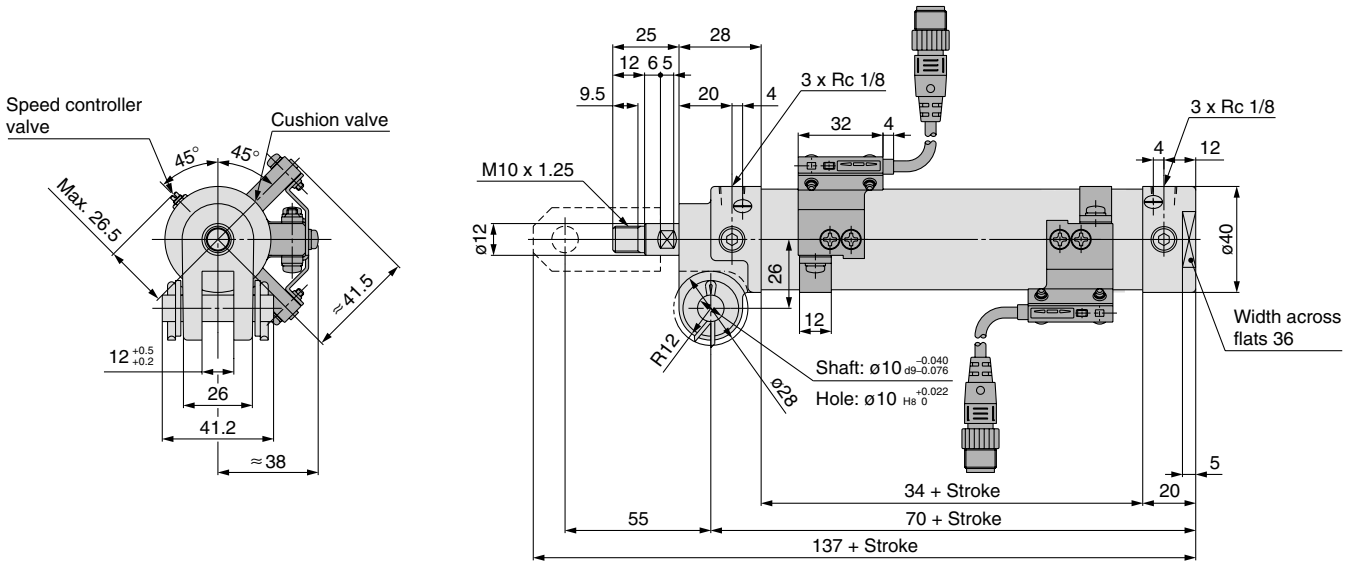
Specifications

Clevis width	12 mm	Series CKGA32
Fluid		Air
Proof pressure		1.5 MPa
Maximum operating pressure		1.0 MPa
Minimum operating pressure		0.05 MPa
Ambient and fluid temperature		−10°C to +60°C
Piston speed		50 to 500 mm/s
Cushion		With air cushion on both ends
Lubrication		Non-lube
Stroke length tolerance		$^{+1.0}_{0}$
Mounting Note)		Double clevis

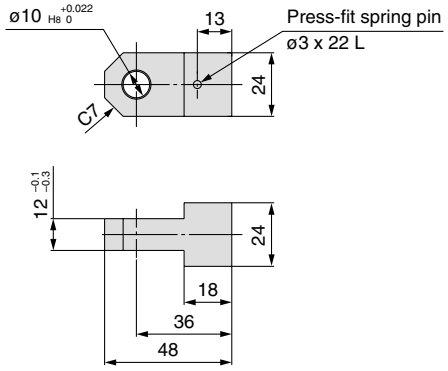
Note) Clevis pin, cotter pin and flat washer are provided as a standard.

Applicable auto switch	Auto switch mounting bracket part no.
D-P4DWSC	BA8-032
D-P4DWSE	
D-P4DWL	
D-P4DWZ	

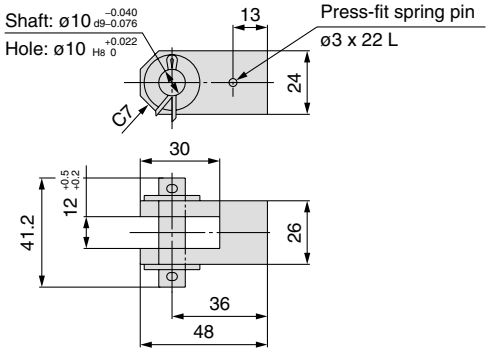
Dimensions



Single knuckle joint



Double knuckle joint



∗ Please contact SMC for details of the CKGA32 series.

3 CKGA80, 100 / CKPA80, 100 Series / With Magnet Field Resistant Auto Switch (Rod Mounting Style)

Built-in standard magnet type with magnetic field resistant auto switch

CK G A 80 – 100 Y – P4DWSC □

Built-in strong magnet type with magnetic field resistant auto switch

CK P A 80 – 100 Y – P79WSE □

Built-in standard magnet

Built-in strong magnet

Clevis width: 28 mm

Bore size

80	80 mm
100	100 mm

Cylinder stroke (mm)

80	50, 75, 100, 125, 150
100	50, 75, 100, 125, 150

End bracket

Nil	None
Y	Double knuckle joint (with tap)

Note) Knuckle pin, cotter pin and flat washer are provided as a standard for Y.

Number of auto switches

Nil	2 pcs.
S	1 pc.

Auto switch

Nil	Without auto switch (Built-in magnet) Without switch mounting rod	
P	Without auto switch (Built-in magnet) With switch mounting rod	
P4DWSC	D-P4DWSC	Series CKGA
P4DWSE	D-P4DWSE	
P4DWL	D-P4DWL	
P4DWZ	D-P4DWZ	
P79WSE	D-P79WSE	Series CKPA
P74L	D-P74L	
P74Z	D-P74Z	

Specifications

Clevis width	28 mm	Series CKGA/CKPA

Fluid	Air
Proof pressure	1.5 MPa
Maximum operating pressure	1.0 MPa
Minimum operating pressure	0.05 MPa
Ambient and fluid temperature	–10°C to +60°C
Piston speed	50 to 500 mm/s
Cushion	With air cushion on both ends
Speed controller	Equipped on both ends
Lubrication	Non-lube
Stroke length tolerance	$^{+1.0}_{0}$
Mounting Note)	Double clevis

Note) Clevis pin, cotter pin and flat washer are provided as a standard.

Built-in Standard (Strong) Magnet Cylinder Part No.

1) Built-in standard (strong) magnet type without auto switch and switch mounting rod

Symbol for the auto switch type is "Nil" as shown below.
CKGA: (Example) CKGA80-50Y
CKPA: (Example) CKPA80-50Y

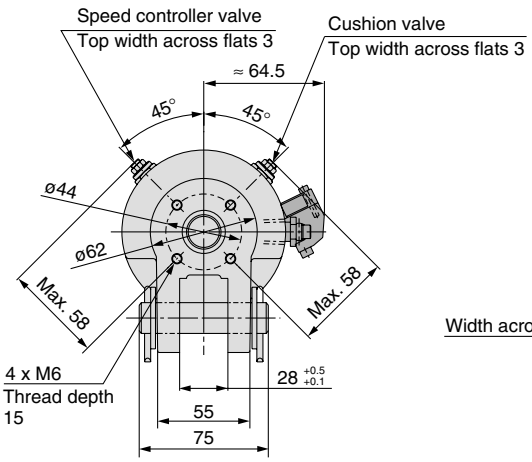
2) Built-in standard (strong) magnet type without auto switch, with switch mounting rod

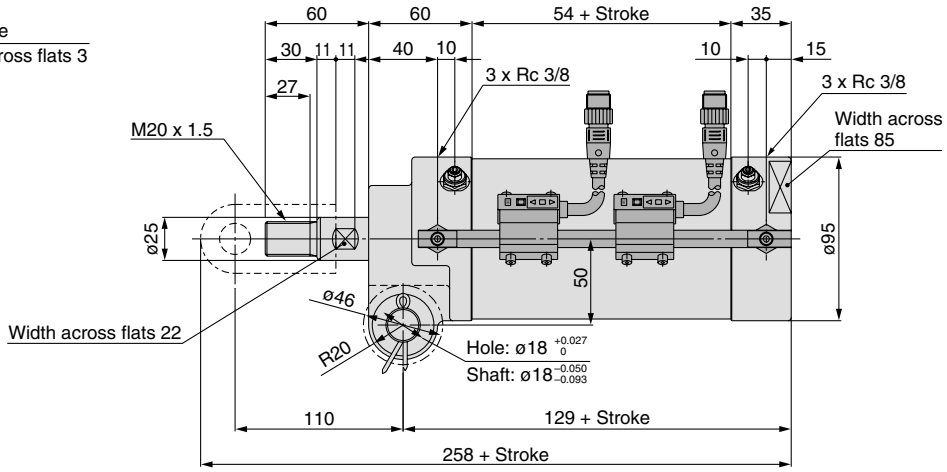
Symbol for the auto switch type is "P" as shown below.
CKGA: (Example) CKGA80-50Y-P
CKPA: (Example) CKPA80-50Y-P

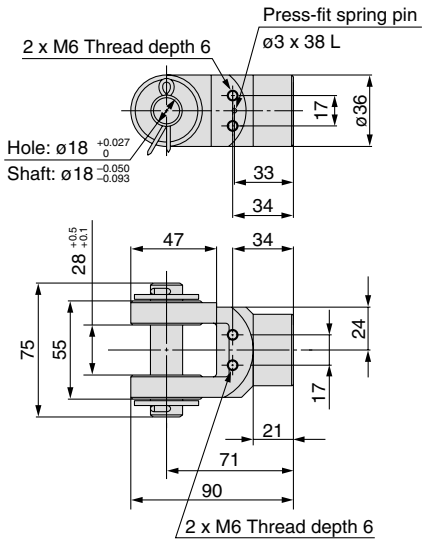
3 CKGA80, 100 / CKPA80, 100 Series / With Magnetic Field Resistant Auto Switch (Rod Mounting Style)

Dimensions

CKGA80 Built-in standard magnet type / with magnetic field resistant auto switch (D-P4DWS□ type)

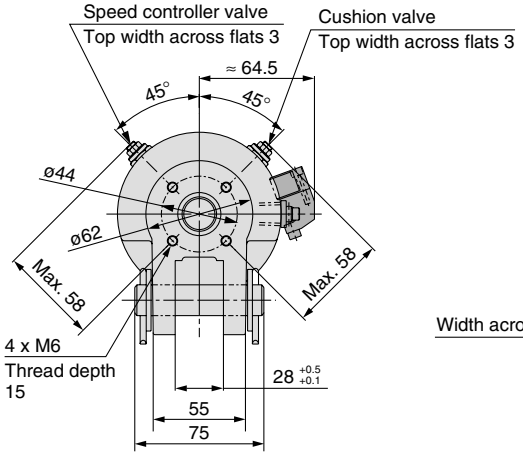


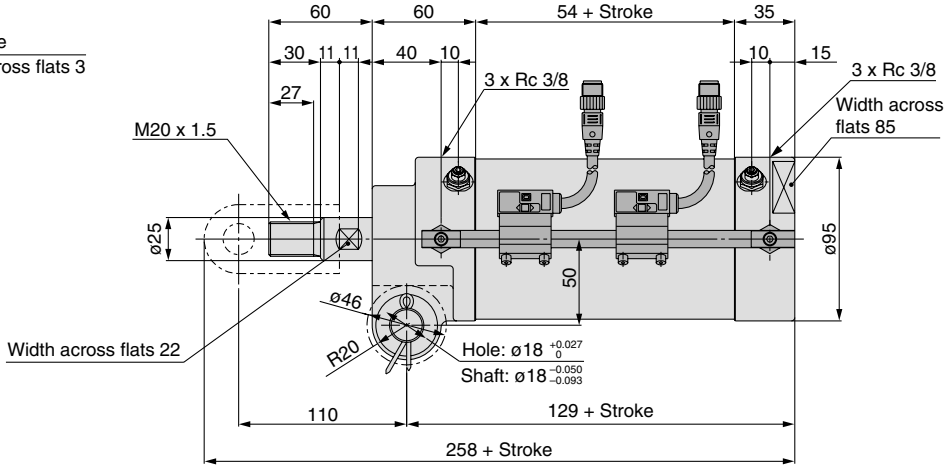




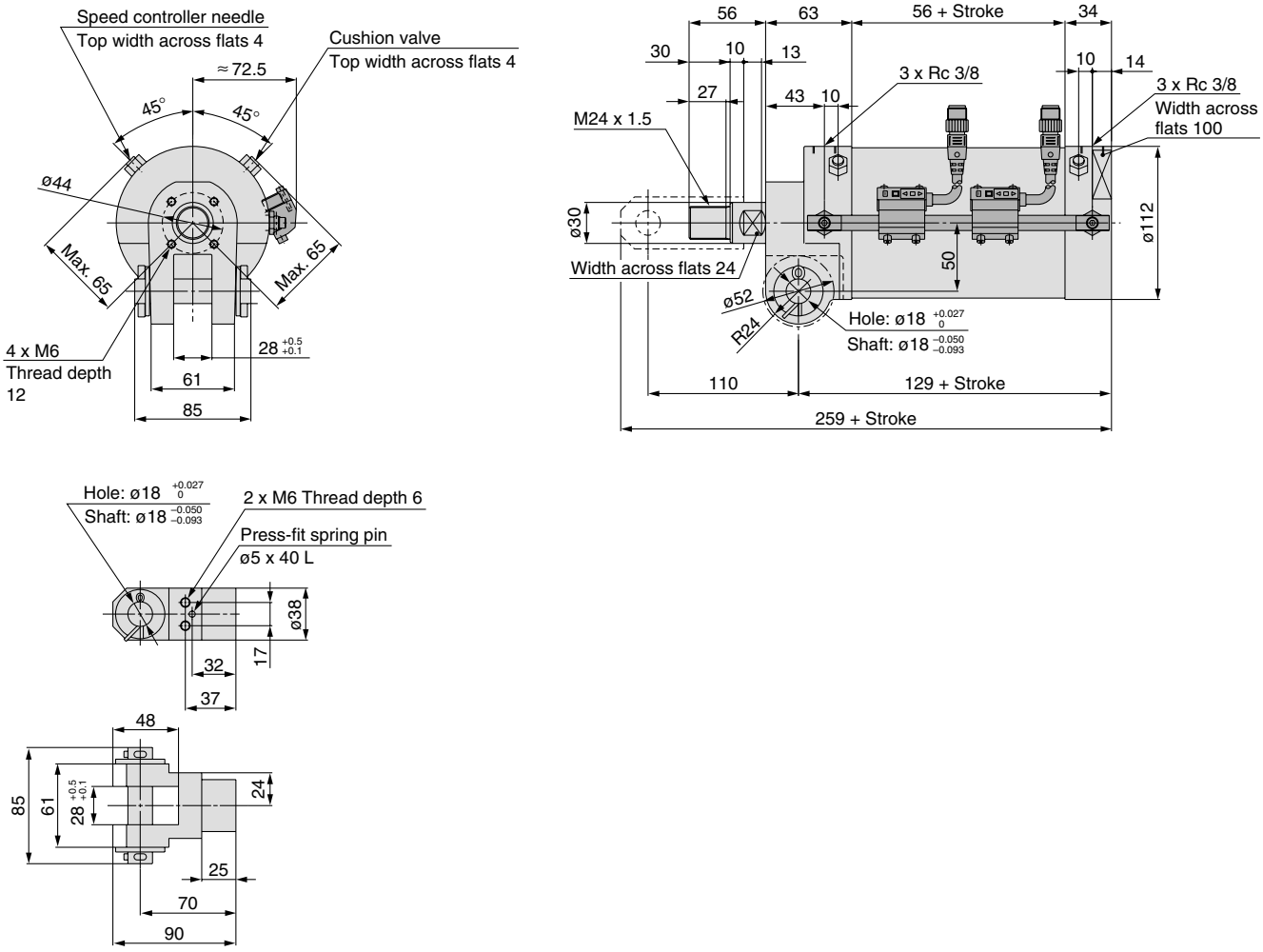
Double knuckle joint

CKPA80 Built-in strong magnet type / with magnetic field resistant auto switch (D-P79WSE type)



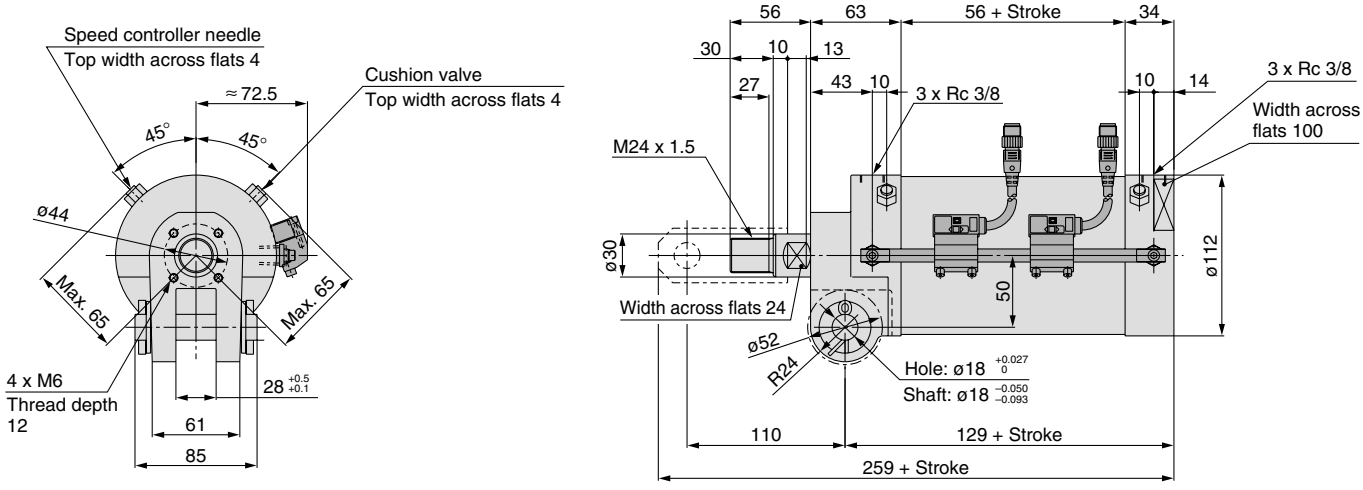


CKGA100 Built-in standard magnet type / with magnetic field resistant auto switch (D-P4DWS□ type)



Double knuckle joint

CKPA100 Built-in strong magnet type / with magnetic field resistant auto switch (D-P79WSE type)



∗ Please contact SMC for details of the CKGA□/CKPA□ series.

Symbol

4 CK□1□40, 50, 63 Series / With Cushion on Both Ends -X1515

Clamp cylinder with cushion on both ends (with cushion on clamped / unclamped side)

⚠ Caution

The air cushion is integrated in the unclamped side (head end) only for the standard type CK1 / CKG1 / CKP1 series, bore size 40, 50 and 63. When an air cushion is required on both ends, it is available as a made-to-order -X1515.

Basic type	**CK1**	**Enter the standard model no.**	**–**	**X1515**
Built-in standard magnet type with magnetic field resistant auto switch	**CKG1**	**Enter the standard model no.**	**–**	**X1515**
Built-in strong magnet type with magnetic field resistant auto switch	**CKP1**	**Enter the standard model no.**	**–**	**X1515**

With cushion on both ends

The specifications and the dimensions other than the cushion are the same as the standard products.
For the respective specifications and the dimensions, please refer to pages 1319 to 1322 for the CKG1/CKP1 series, and pages 1323 to 1326 for the CK1 series.

Series CK□1
Specific Product Precautions 1

Be sure to read before handling.
Refer to front matters 42 and 43 for Safety Instructions and pages 3 to 11 for Actuator and Auto Switch Precautions.

Cushion/Speed Controller Adjustment

⚠ Danger

1. Do not remove the retaining ring that fixes the speed controller valve and cushion valve. It is also unsafe to remove it once and then reattach it.

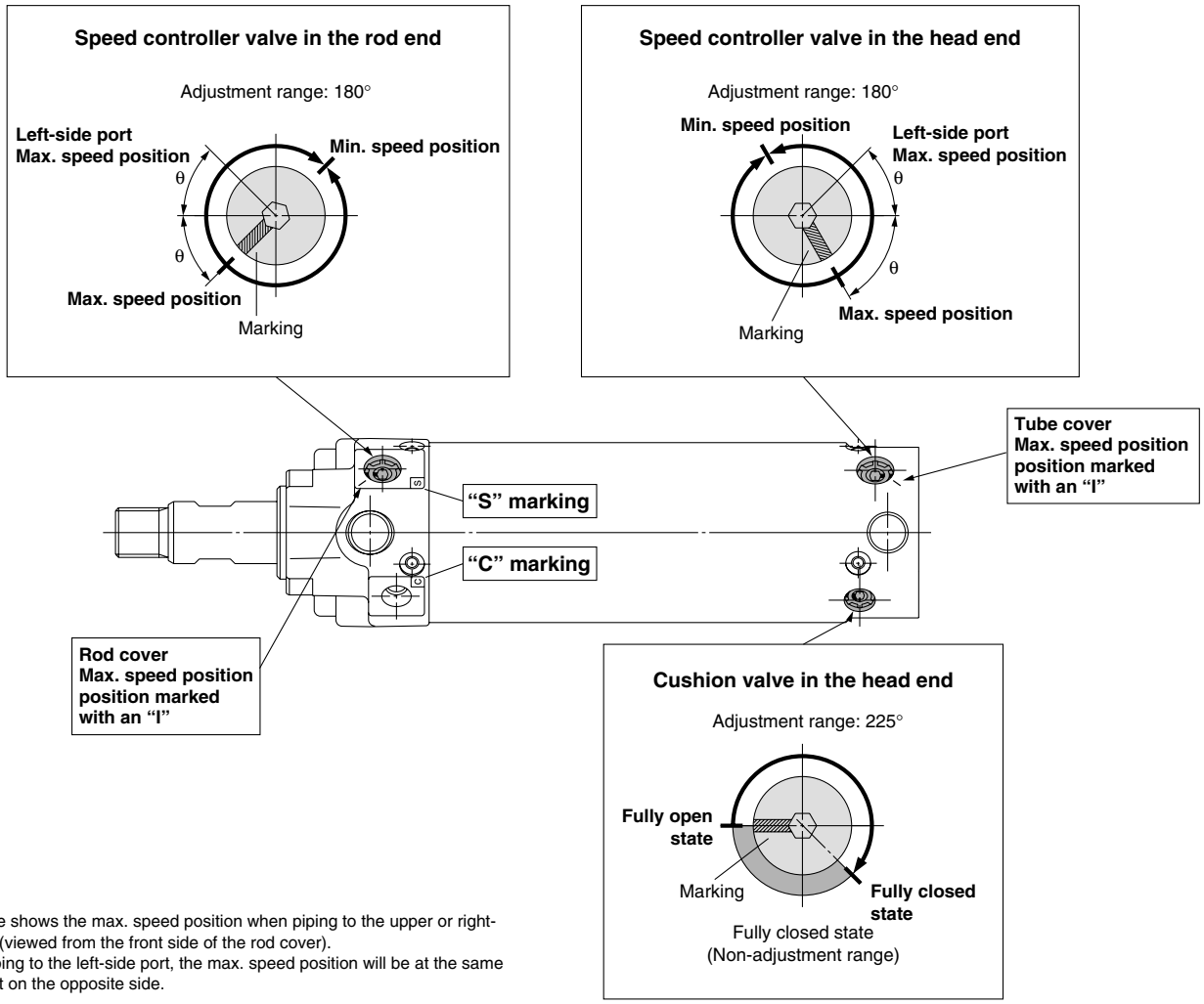
Without the retaining ring, the valve may be ejected when air pressure is supplied causing a serious hazard.
Even if it is reattached, there remains the possibility that it may be unsecured, resulting in danger.

Cushion Adjustment

The CK1 series has an integrated air cushion in the head end. The cushion is pre-adjusted at the time of shipping. However, please re-adjust the cushion valve in the tube cover, depending on an operating speed and a load before use.
The diameter of throttle will be smaller when the cushion valve is turned clockwise, resulting in stronger cushion reaction.
Shown below is the fully open state, although the cushion valve can rotate 360 degrees.
The adjustment range is about 225 degrees from the fully open state. The range between 225 and 360 degrees is the fully closed state.

Speed Controller Adjustment

The CK1 series integrates the speed controller (exhaust restrictor) in the rod and head end. The cushion is pre-adjusted at the time of shipping. However, please re-adjust the speed controller valve (marked "S" on the rod cover) in each cover, depending on an operating speed and load before using.
If the speed controller valve is open all the way (max. speed position), rotating it in either direction—to the right or to the left—will cause a reduction in speed. Please note that the speed controller valve can be rotated to the right or left any number of times. However, the adjustment range is limited, and 180 degrees from the max. speed position (directly opposite) is the min. speed position.



Note 1) The figure shows the max. speed position when piping to the upper or right-side port (viewed from the front side of the rod cover).
Note 2) When piping to the left-side port, the max. speed position will be at the same angle, but on the opposite side.

Series CK□1
Specific Product Precautions 2

Be sure to read before handling.
Refer to front matters 42 and 43 for Safety Instructions and pages 3 to 11 for Actuator and Auto Switch Precautions.

Piping Port / Switch Mounting Rod Location Change

Piping Port Location Change

Piping is possible from 3 directions. When the piping port location is changed, carefully follow the instructions as detailed below.

⚠ Warning

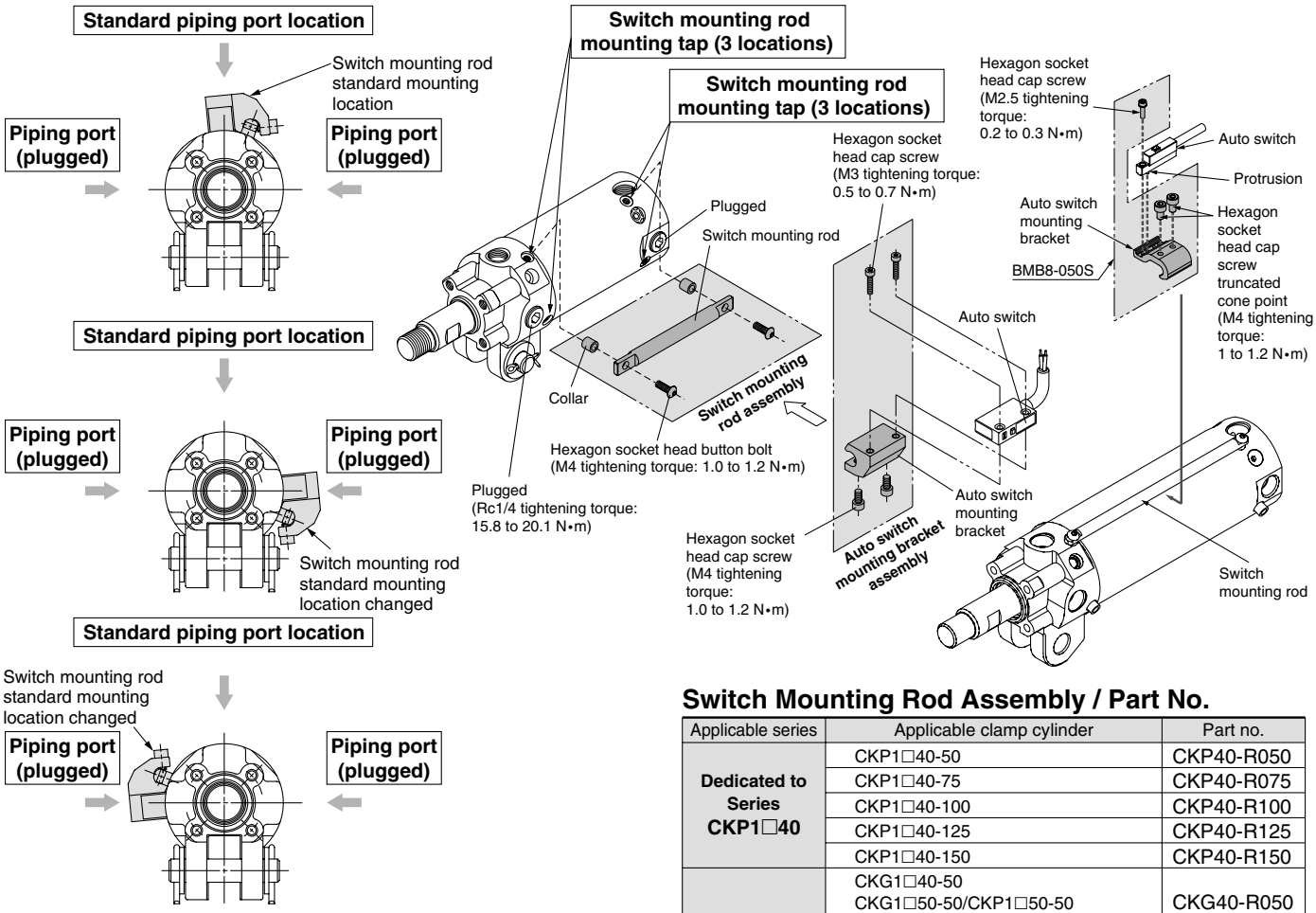
1. **Do not leave out the component parts when the piping port location is changed.**
   Even if one of the component parts is not replaced, malfunction may occur, resulting in dangerous operation.
2. **To prevent air leakage, re-wind the pipe tape and fit into the changed location when the piping port location is changed.**

Switch Mounting Rod Location Change

The switch mounting rod is mountable in 3-way directions. Please be careful to the following things when the switch mounting rod is changed.

⚠ Warning

1. **Mount all the component parts to the changed location.**
   Even if one of the component parts is kept away, the switch detection error, etc may occur. (Switch mounting rod, Spacer with switch, Hexagon socket head button bolt)
2. **After the switch mounting rod location is changed, please be sure to check there is no interference with other parts before using.**



Auto Switch Mounting Bracket Assembly / Part No.

Applicable cylinder series	Applicable auto switch	Auto switch mounting bracket part no.		
		40	50	63
Series CKG1	D-P3DWSC D-P3DWSE D-P3DW/L/Z	BMB8-050S		
	D-P4DWSC D-P4DWSE D-P4DWL/Z	BK1T-040		
Series CKP1	D-P79WSE D-P74L/Z	BAP1T-040		

Switch Mounting Rod Assembly / Part No.

Applicable series	Applicable clamp cylinder	Part no.
Dedicated to Series CKP1□40	CKP1□40-50	CKP40-R050
	CKP1□40-75	CKP40-R075
	CKP1□40-100	CKP40-R100
	CKP1□40-125	CKP40-R125
	CKP1□40-150	CKP40-R150
Series CKG1□40/50/63 **Series CKP1□50/63** **Common**	CKG1□40-50 CKG1□50-50/CKP1□50-50 CKG1□63-50/CKP1□63-50	CKG40-R050
	CKG1□40-75 CKG1□50-75/CKP1□50-75 CKG1□63-75/CKP1□63-75	CKG40-R075
	CKG1□40-100 CKG1□50-100/CKP1□50-100 CKG1□63-100/CKP1□63-100	CKG40-R100
	CKG1□40-125 CKG1□50-125/CKP1□50-125 CKG1□63-125/CKP1□63-125	CKG40-R125
	CKG1□40-150 CKG1□50-150/CKP1□50-150 CKG1□63-150/CKP1□63-150	CKG40-R150

Series CK□1
Specific Product Precautions 3

Be sure to read before handling.
Refer to front matters 42 and 43 for Safety Instructions and pages 3 to 11 for Actuator and Auto Switch Precautions.

Handling

Magnetic field resistant auto switches D-P79WSE/D-P74□ type are specifically for use with magnetic field resistant cylinders and are not compatible with general auto switches or cylinders. Magnetic field resistant cylinders are labeled as follows.

Magnetic field resistant cylinder with built-in magnet
(For use with auto switch D-P7 type)

Mounting

1. **The minimum stroke for mounting magnetic field resistant auto switches is 50 mm.**
2. **In order to fully use the capacity of magnetic field resistant auto switches, strictly observe the following precautions.**
   1) Do not allow the magnetic field to occur when the cylinder piston is moving.
   2) When a welding cable or welding gun electrodes are near the cylinder, change the auto switch position to fall within the operational ranges shown in the graphs on page 1340, or move the welding cable away from the cylinder.
   3) Cannot be used in an environment where welding cables surround the cylinder.
   4) Please consult with SMC when a welding cable and welding gun electrodes (something energized with secondary current) are near multiple switches.
3. **In an environment where spatter directly hits the lead wire, cover the lead wire with protective tubing. Use protective tubing with a bore size of ø8 or more that has excellent heat resistance and flexibility.**
4. **Be careful not to drop objects, make dents, or apply excessive impact force when handling.**
5. **When operating two or more parallel and closely positioned cylinders with magnetic field resistant auto switches, separate the auto switches from other cylinder tubes by an additional 30 mm or more.**
6. **Avoid wiring in a manner in which repeated bending stress or tension is applied to lead wires.**
7. **Please consult with SMC regarding use in an environment with constant water and coolant splashing.**
8. **Please be careful of the mounting direction of the magnetic field resistant auto switch D-P79WSE type.**
   Be sure to face the molded surface with soft-resin to the switch mounting bracket side for mounting.
   (Please refer to page 1329 for mounting example and page 1804 for soft-resin mold surface.)

Wiring/Current and Voltage

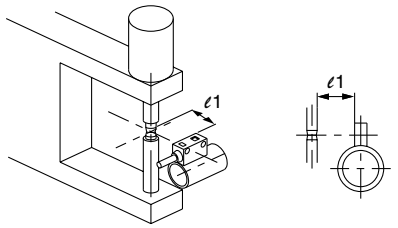
1. **Always connect the auto switch to the power supply after the load has been connected.**
2. **Series connection**
   When auto switches are connected in series as shown below:
   Note that the voltage drop due to the internal resistance of the LED increases.

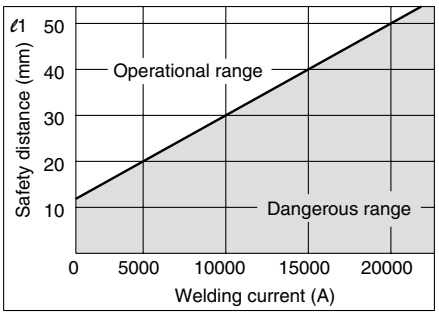
Specific Product Precautions 4

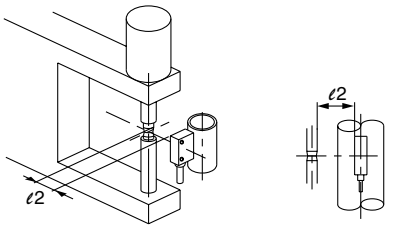
Be sure to read before handling.
Refer to front matters 42 and 43 for Safety Instructions and pages 3 to 11 for Actuator and Auto Switch Precautions.

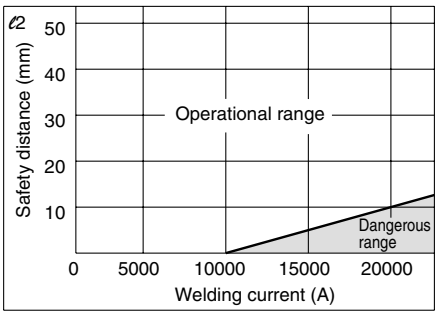
Data: Magnetic Field Resistant Reed Switch (D-P79WSE type, D-P74□ type) Safety Distance

Safety Distance from Side of Auto Switch









Safety Distance from Top of Auto Switch