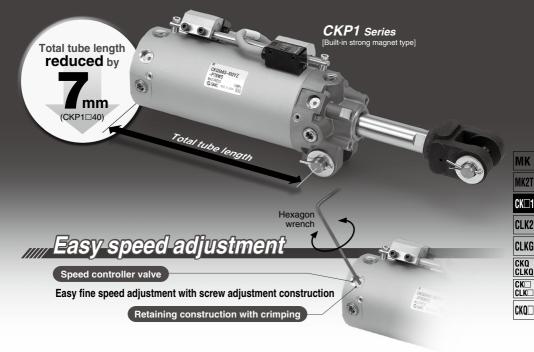
Clamp Cylinder

CK□1 Series

Ø40, Ø50, Ø63

Total tube length reduced



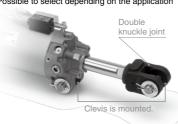


Clevis width

12.5 mm

16.5 mm/19.5 mm

Possible to select depending on the application



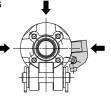
Magnetic field resistant auto switches

Mountable in 3 directions

[CKG1 series/Built-in standard magnet type] D-P3DWA, D-P4DW







[CKP1 series/Built-in strong magnet type] D-P79WSE, D-P74L/Z



D-□ -X□



Total tube length reduced

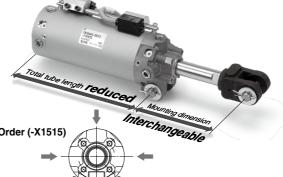
The total length has been reduced by modifying the internal design.

CKP1 series			(mm)
Bore size (mm)	CKP1	Shortened dimensions	Current model
40	58	7	65
50	56	2	58
63	56	2	58
CVC1 cories			()

CKG i series (mm)							
Bore size (mm)	CKG1	Shortened dimensions	Current model				
40	53	2	55				
50	56	2	58				
63	56	2	58				

Mounting dimensions are the same as the current product.

The dimension from the body to the work piece is the same as the current product.



With air cushion

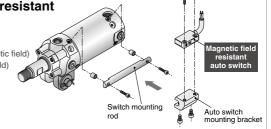
Unclamped side (Head end)...Standard
Air cushion on both ends.....Made to Order (-X1515)

Piping ports are located on three surfaces.

Possible to mount magnetic field resistant auto switch in 3 directions

[CKG1 series/Built-in standard magnet type]
D-P3DWASC, D-P3DWASE, D-P3DWA/L/Z (AC magnetic field)
D-P4DWSC, D-P4DWSE, D-P4DWL/Z (AC magnetic field)

[CKP1 series/Built-in strong magnet type]
D-P79WSE. D-P74L/Z (DC/AC magnetic field)



CK1 Series Variations

	Series			Bore size (mm)			Stroke	Clevis width	Page	
			25	32	40	50	63	(mm)	(mm)	Page
Clamp cylinder (Rod mounting type)	Built-in standard magnet type	CKG1			•	•	•	50 75		P.421
	Built-in strong magnet type	СКР1			•	•	•	100	12.5 16.5	F.421
Clamp cylinder (Band mounting type)	Without magnet	CK1			•	•	•	125 150	19.5	
	Built-in standard magnet type	CKG1			•	•	•	200* *Except ø40		P.426
Clamp cylinder/ Slim type	Built-in standard magnet type	CKG□-X2095	•	•	•			50		
(Rod mounting type)	Built-in strong magnet type	CKP□-X2095	•	•	•	+	+	75	0.40.5	D 470
Clamp cylinder with lock/Slim type (Rod mounting type)	Built-in standard magnet type	CLKG□-X2095	•	•	•		+	100 125	9, 12.5	P.473
(nod incuming type)	Built-in strong magnet type	CLKP□-X2095	•	•	•			150		
Clamp cylinder with lock	Built-in standard magnet type	CLK2G□		O 1	•	•	•	50, 75 100, 125	12.5 16.5	P.445
	Built-in strong magnet type	CLK2P□		+	•	•	•	150	19.5	P.445

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

CKG1/CKP1 Series ø40, ø50, ø63



MK

MK2T

CK□1

CLK2

CLKG

CKQ

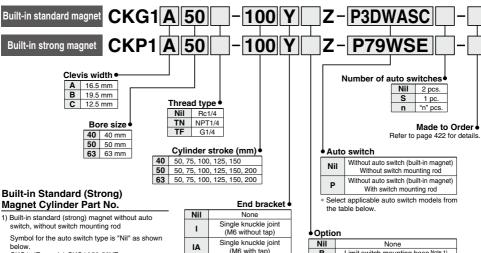
CLKQ

CK□

CLK

CKQ□

How to Order



CKG1: (Example) CKG1A50-50YZ CKP1: (Example) CKP1A50-50YZ

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

Symbol for the auto switch type is "P" as shown below.

CKG1: (Example) CKG1A50-50YZ-P CKP1: (Example) CKP1A50-50YZ-P

* The auto switch mounting bracket is not included.

(M6 with tap) Double knuckle joint Υ (M6 without tap) Double knuckle joint YA (M6 with tap)

Note) A knuckle pin, cotter pins and flat washers are provided as a standard for Y and YA.

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

Note 1) Only IA or YA (M6 with tap) is selectable as the end bracket for the B, D. and BD types

Note 2) Only available for clevis width A (16.5 mm)

Applicable Magnetic Field Resistant Auto Switches (Refer to pages 941 to 1067 for detailed auto switch specifications.)

replaced in agricultar for a field and a f									
Applicable cylinder series	Туре	Auto switch model	Applicable magnetic field	Electrical entry	Indicator light	Wiring (Pin no. in use)	Load voltage	Lead wire length	Applicable load
		D-P3DWASC		Pre-wired connector		2-wire (3-4)		0.0	
		D-P3DWASE		Pre-wired connector	onnector	2-wire (1-4)		0.3 m	
		D-P3DWA						0.5 m	
CKG1	D-P4DWSC	AC magnetic field (Single-phase	Grommet	Grommet	2-wire		3 m		
		D-P3DWAZ	AC welding magnetic field)		2-color indicator		24 VDC	5 m	Relay, PLC
		D-P4DWSC		Pre-wired connector		2-wire (3-4)		0.3 m	
		D-P4DWSE				2-wire (1-4)			
		D-P4DWL		Grommet		2-wire		3 m	
		D-P4DWZ						5 m	
	D-P79W	D-P79WSE	DC/AC magnetic field	Pre-wired connector	2-color indicator	2-wire (1-4)	24 VDC	0.3 m	
CKP1	Reed auto switch	D-P74L		Crommot	1-color indicator	O suima	24 VDC	3 m	
	auto switch	D-P74Z	magnetic field	Grommet		2-wire	100 VAC	5 m	

Note 1) Refer to page 433 when ordering the auto switch mounting bracket or switch mounting rod assembly. Note 2) For the D-P3DWAL, the auto switch and auto switch mounting bracket are packed together, (but not assembled).





CK □1 Series



Refer to pages 432 to 434 for cylinders with auto switches.

- · Minimum stroke for auto switch mounting · Auto switch proper mounting position
- (detection at stroke end) and its mounting height
- Operating range
- Auto switch mounting bracket/Part no.



Made to Order (Refer to page 435 for details.)

_	· · · · · · · · · · · · · · · · · · ·
Symbol	Specifications
-X1515	With air cushion on both ends

Made to Order

Click here for details

Symbol	Specifications
-XC88*	Spatter resistant coil scraper, Lube- retainer, Grease for welding (Rod parts: Stainless steel 304)
-XC89*	Spatter resistant coil scraper, Luberetainer, Grease for welding (Rod parts: S45C)
-XC91*	Spatter resistant coil scraper, Grease for welding (Rod parts: S45C)

^{*} Not available for the CKP1 series.

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	Unclamped :	Unclamped side (head end): With air cushion			
Speed controller	E	quipped on both en	ds		
Lubrication	Non-lube				
Stroke length tolerance	+1.0 0				
Mounting Note)		Double clevis			

Note) A clevis pin, cotter pins, flat washers are equipped as a standard.

	16.5 mm	CKG1A/CKP1A		
Clevis width	19.5 mm	CKG1B/CKP1B		
	12.5 mm	CKG1C/CKP1C		

Standard Stroke

Bore size (mm)	Standard stroke (mm)
40	50, 75, 100, 125, 150
50, 63	50, 75, 100, 125, 150, 200

End Bracket/Options

Symbol	Description		Part no.			
Syllibol			CKG1A/CKP1A CKG1B/CKP1B CKG1C/C			
ı	M6 without tap		CKB-I04			
IA	Single knuckle joint	M6 with tap	CKB-IA04			
Υ	Double knuckle joint (A knuckle pin, cotter pins.	M6 without tap	CKA-Y04	CKB-Y04	CKC-Y04	
YA	flat washers are equipped as a standard.)	M6 with tap	CKA-YA04 CKB-YA04 CKC-YA04			

^{*} For details about dimensions, refer to pages 430 and 431.

Weight (Basic weight includes the switch mounting rod. At 0 stroke)

				Unit: kg
Bore size (mm)		40	50	63
CKG1□ cylinder	Basic weight	0.70	0.92	1.12
	Additional weight per 25 mm of stroke	0.11	0.12	0.14
CKP1□ cylinder	Basic weight	0.72	0.98	1.28
	Additional weight per 25 mm of stroke	0.11	0.12	0.14
Single knuckle joint			0.20	
Double knuckle joint (A knuckle pin, cotter pins, flat washers are equipped as a standard.)			0.34	
		/ -		

Calculation Example) CKG1 50-100YZ-P • Additional weight0.12/25 mm

Basic weight ------0.92 (ø50)

 Cylinder stroke ------100 mm Double knuckle joint ----- 0.34 (Y)

0.92 + 0.12 x 100/25 + 0.34 = 1.74 kg

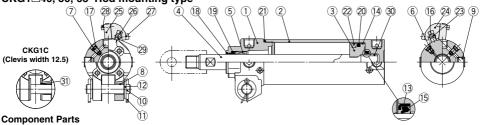
Theoretical Output

							Unit: N		
Bore size	Rod size	Operating	Piston area	Piston area Operating pressure (MPa)					
(mm)	(mm)	direction	(mm²)	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		
50		IN	1650	495	660	825	990		
63	20	OUT	3120	934	1250	1560	1870		
		IN	2800	840	1120	1400	1680		

Clamp Cylinder $CK \square 1$ Series

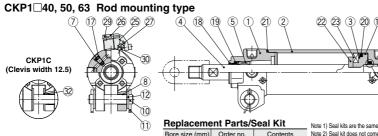
Construction

CKG1□40, 50, 63 Rod mounting type



iiponent i arts			
Description	Material	Q'ty	Note
Rod cover	Aluminum alloy	1	Chromated
Tube cover	Aluminum alloy	1	Hard anodized
Piston	Aluminum alloy	1	Chromated
Piston rod	Carbon steel	1	Hard chrome plating
Bushing	Bearing alloy	1	
Cushion valve	Steel wire	1	Black zinc chromated
Speed controller valve	Steel wire	2	Nickel plating
Clevis bushing	Oil-impregnated sintered alloy	2	
Hexagon socket head plug	Carbon steel	4	Rc1/4
Pin	Carbon steel	1	
Cotter pin	Low carbon steel wire rod	2	
Flat washer	Rolled steel	2	
Cushion seal retainer	Rolled steel	1	Zinc chromated
Wear ring	Resin	1	
Cushion seal	Urethane	1	
Cushion valve seal	NBR	1	
Speed controller valve seal	NBR	2	
	Description Rod cover Tube cover Piston Piston rod Bushing Cushion valve Speed controller valve Clevis bushing Hexagon socket head plug Pin Cotter pin Flat washer Cushion seal retainer Wear ring Cushion seal Cushion valve seal	Description Material Rod cover Aluminum alloy Tube cover Aluminum alloy Piston Aluminum alloy Piston rod Carbon steel Bushing Bearing alloy Cushion valve Steel wire Speed controller valve Steel wire Clevis bushing Oli-mpsynated sintered alloy Hexagon socket head plug Carbon steel Pin Carbon steel wire Cotter pin Low cafton steel wire Cushion seal retainer Rolled steel Cushion seal retainer Resin Cushion seal Urethane Cushion valve seal	Description Material Q'ty

No.	Description	Material	Q'ty	Note
18	Coil scraper	Phosphor bronze	1	
19	Rod seal	NBR	1	
20	Piston seal	NBR	1	
21	Tube gasket	NBR	1	
22	Magnet	I	1	
23	Switch mounting rod	Carbon steel	1	Zinc chromated
24	Auto switch mounting bracket	Aluminum alloy	_	
25	Magnetic field resistant auto switch	I	_	
26	Hexagon socket head cap screw	Steel wire	2	M4 x 0.7 x 14 L
27	Hexagon socket head cap screw	Steel wire	2 pcs. per switch	M4 x 0.7 x 8 L
28	Hexagon socket head cap screw	Steel wire	2 pcs. per switch	M3 x 0.5 x 14 L
29	Switch mounting spacer	Aluminum alloy	2	
30	Cushion ring	Aluminum alloy	1	Anodized
31	Spacer	Bearing alloy	2	CKG1C only



Bore size (mm)	Order no.	Contents	N
40	CK1A40-PS	Set of nos. above 19, 20, 21.	NI.
			IN

- Note 1) Seal kits are the same as those of the CKG1□/CKP1□.
- lote 2) Seal kit does not come with a grease pack, so please order it separately. Grease pack part number: GR-S-010 (compatible with all sizes)
- Note 3) Cylinders with ø50 or larger bore sizes are tightened with a large tightening torque and cannot be disassembled. Please contact SMC when disassemble is required.

Component Parts									
Description	Material	Q'ty	Note						
Rod cover	Aluminum alloy	1	Chromated						
Tube cover	Aluminum alloy	1	Hard anodized						
Piston	Aluminum alloy	1	Chromated						
Piston rod	Carbon steel	1	Hard chrome plating						
Bushing	Bearing alloy	1							
Cushion valve	Steel wire	1	Black zinc chromated						
Speed controller valve	Steel wire	2	Nickel plating						
Clevis bushing	Oil-impregnated sintered alloy	2							
Hexagon socket head plug	Carbon steel	4	Rc1/4						
Pin	Carbon steel	1							
Cotter pin	Low carbon steel wire rod	2							
Flat washer	Rolled steel	2							
Cushion seal retainer	Rolled steel	1	Zinc chromated						
Wear ring	Resin	1							
Cushion seal	Urethane	1							
Cushion valve seal	NBR	1							
Speed controller valve seal	NBR	2							
	Description Rod cover Tube cover Piston Piston rod Bushing Cushion valve Speed controller valve Clevis bushing Cotter pin Flat washer Cushion seal retainer Wear ring Cushion seal Cushion valve seal	Description Material Rod cover Aluminum alloy Tube cover Aluminum alloy Piston Aluminum alloy Piston Aluminum alloy Piston Aluminum alloy Piston rod Carbon steel Bushing Bearing alloy Cushion valve Steel wire Speed controller valve Clevis bushing Oli-impegnated sintered alloy Hexagon socket head plug Carbon steel Pin Carbon steel Cotter pin Low cathon steel wire rod Flat washer Rolled steel Cushion seal retainer Rolled steel Wear ring Resin Cushion seal Urethane Cushion valve seal	Description Material Q'ty						

No.	Description	Material	Q'ty	Note
18	Coil scraper	Phosphor bronze	1	
19	Rod seal	NBR	1	
20	Piston seal	NBR	1	
21	Tube gasket	NBR	1	
22	Magnet holder	Aluminum alloy	1	
23	Magnet	_	1	
24	Switch mounting rod	Carbon steel	1	Zinc chromated
25	Auto switch mounting bracket	Aluminum alloy	_	
26	Magnetic field resistant auto switch	_	_	
27	Hexagon socket head cap screw	Steel wire	2	M4 x 0.7 x 14 L
28	Hexagon socket head cap screw	Steel wire	2 pcs. per switch	M4 x 0.7 x 8 L
29	Hexagon socket head cap screw	Steel wire	2 pcs. per switch	M3 x 0.5 x 16 L
30	Switch mounting spacer	Aluminum alloy	2	
31	Cushion ring	Aluminum alloy	1	Anodized
32	Spacer	Bearing alloy	2	CKP1C only
				423

MK MK2T CK□1 CLK2 CLKG

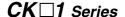
CKQ CLKQ

CK□ CLK

|CKQ□

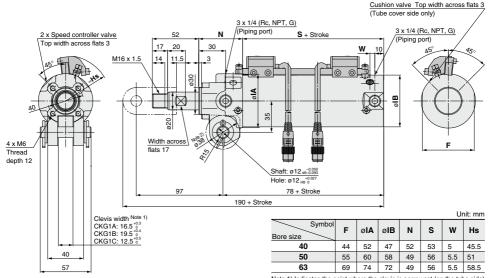
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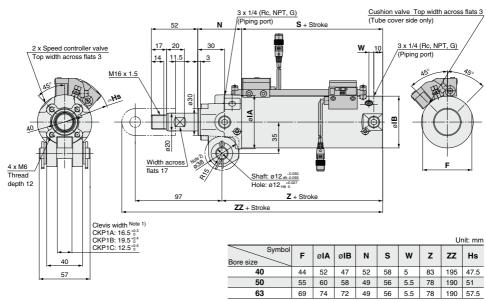
Dimensions

CKG1□40, 50, 63 Rod mounting type



Note 1) Indicates the point where the clevis is narrowest (on the tube side) Note 2) Indicates the range applicable to the clevis width

CKP1□40, 50, 63 Rod mounting type



Note 1) Indicates the point where the clevis is narrowest (on the tube side) Note 2) Indicates the range applicable to the clevis width



MK

MK2T

CK■1

CLKG

CKQ CLKQ

CK.

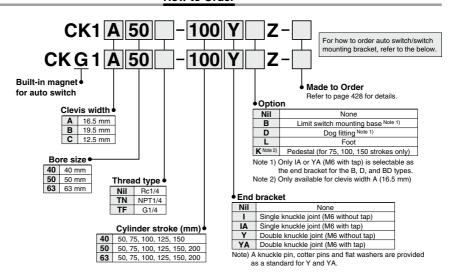
CKQ□

Clamp Cylinder with Magnetic Field Resistant Auto Switch (Band Mounting Type)

CK1/CKG1 Series



How to Order



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

Band mounting of the magnetic field resistant auto switch (D-P4DW□) to the CKG1□ series is possible by ordering the switch mounting bracket and the auto switch individually.



How to Order

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

Part no.	Applicable auto switch model	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 Cylinder: CKG1A50-50YZ1 Example case ② Magnetic field resistant auto switch:

D-P4DWSC2
Example case ③ Switch mounting bracket: BA8-0502

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 switches D-P79WSCI, D-P74LI is not applicable.

Applicable Magnetic Field Resistant Auto Switches (Refer to pages 941 to 1067 for detailed auto switch specifications.)

	Applicable cylinder series	Туре	Auto switch model	Applicable magnetic field	Electrical entry	Indicator light	Wiring (Pin no. in use)	Load voltage	Lead wire length	Applicable load
			P4DWSC	AC magnetic field	Pre-wired	2-wire (3-4)			0.3 m	
	CKG1	Solid state auto switch	P4DWSE	(Single-phase AC welding	connector	2-color indicator	2-wire (1-4)	24 VDC	0.3 111	Relay,
			P4DWL		Grommet		2-wire		3 m	PLC
			P4DWZ	magnetic field)	Gioinnet		2-wire		5 m	

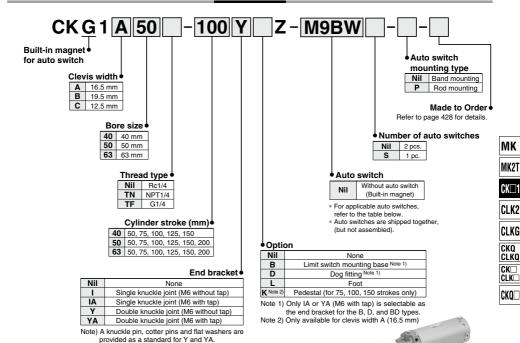


Clamp Cylinder with Standard Auto Switch (Band Mounting/Rod Mounting Type)

CKG1 Series ø40, ø50, ø63



How to Order



Standard Auto Switches Astandard auto switches cannot be used under a strong magnetic field

Ctariac				Load voltage Auto			Lead wire length [m]														
Туре	Special function	Electrical entry	Indicator light	Wiring (Output)		DC AC S		switch model	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	Pre-wired connector	Applicable load							
<u>-</u>				3-wire (NPN)		5 V. 12 V		M9N	•	•	•	0	0	IC							
switch	_			3-wire (PNP)		3 V, 12 V		M9P	•	•	•	0	0	circuit							
				2-wire		12 V	M9B	•	•	•	0	0	_	1							
욬	Diagnostic			3-wire (NPN)	<u> </u>	5 V 10 V	EV 10 V	5 V 10				M9NW	•	•	•	0	0	IC	Dalau		
- -	indication Gromme	Grommet	Yes	s 3-wire (PNP) 24 \		24 V — _	M9PW	•	•	•	0	0		Relay, PLC							
state	(2-color indicator)			2-wire			<u> </u>		M9BW	•	•	•	0	0	_	' [0					
	Water			3-wire (NPN)				5 V, 12 V	5 V, 12 V	5 V, 12 V	5 V, 12 V	5 V 12 V		M9NA	0	0	•	0	0	IC]
Solid	resistant			3-wire (PNP)									M9PA	0	0	•	0	0	circuit		
ν̈	(2-color indicator)			2-wire		12 V		M9BA	0	0	•	0	0	-							
5 o 5		— GrommetYes		Vee	3-wire (NPN equivalent)	_	5 V	_	A96	•	-	•	_	_	IC circuit	_					
Reed auto switch	-		1.65	2-wire	24 V	12 V	100 V	A93	•	•	•	•	_	_	Relay,						
S a T			No	Z-WITE	24 V	5 V, 12 V	100 V or less	A90	•	_	•	_	_	IC circuit	PLC						

^{*} Solid state auto switches marked with "O" are produced upon receipt of order.

1 m······M (Example) M9NWVM 3 m······L (Example) M9NWVL 5 m······Z (Example) M9NWVZ

D-



^{*} Auto switches and mounting brackets are shipped together, (but not assembled).

^{*} Lead wire length symbols: 0.5 m ······Nil (Example) M9NWV



Refer to pages 432 to 434 for cylinders with auto switches

- . Minimum stroke for auto switch mounting · Auto switch proper mounting position (detection at stroke end) and its mounting height
- Operating range
- · Auto switch mounting bracket/Part no.



Made to Order

(Refer to page 435 for details.)

Symbol	Specifications					
-X1515	With air cushion on both ends					

Made to Order

Click here for details

Symbol	Specifications
-XC88*	Spatter resistant coil scraper, Lube- retainer, Grease for welding (Rod parts: Stainless steel 304)
-XC89*	Spatter resistant coil scraper, Lube- retainer, Grease for welding (Rod parts: S45C)
-XC91*	Spatter resistant coil scraper, Grease for welding (Rod parts: S45C)

* Not available for the CK1 and CKG1 with the magnetic field resistant auto switch.

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°C to 60°C				
Piston speed		50 to 500 mm/s			
Cushion	Unclamped s	ide (head end): Wi	th air cushion		
Speed controller	Ed	uipped on both en	ids		
Lubrication	Non-lube				
Stroke length tolerance	+1.0 0				
Mounting Note)	Double clevis				

Note) A clevis pin, cotter pins, flat washers are equipped as a standard.

	16.5 mm	CK1A/CKG1A		
Clevis width	19.5 mm	CK1B/CKG1B		
	12.5 mm	CK1C/CKG1C		

Standard Stroke

Bore size (mm)	Standard stroke (mm)
40	50, 75, 100, 125, 150
50, 63	50, 75, 100, 125, 150, 200

End Bracket/Options

ſ	Symbol	Descripti	on	Part no.				
ľ	Syllibol	Description	OII	CK1A/CKG1A	CK1B/CKG1B	CK1C/CKG1C		
	1	Cinala Iraualda iaint	M6 without tap		CKB-I04			
	IA	Single knuckle joint	M6 with tap	CKB-IA04				
	Υ	Double knuckle joint (A knuckle pin, cotter pins,	M6 without tap	CKA-Y04	CKB-Y04	CKC-Y04		
	YA		M6 with tap	CKA-YA04	CKB-YA04	CKC-YA04		

^{*} For details about dimensions, refer to pages 430 and 431.

Weight

				Unit: kg	
	Bore size (mm)	40	50	63	
Culinday	Basic weight	0.68	0.90	1.10	
Cylinder	Additional weight per 25 mm of stroke	0.10	0.11	0.13	
Single knuckle joi	nt	0.20			
Double knuckle joir are equipped as a	nt (A knuckle pin, cotter pins, flat washers standard.)		0.34		
0-11-4	* De ete contelet	0.00 (`		

Calculation Example) CKG1 50-100YZ Basic weight0.90 (ø50)

 Additional weight -----0.11/25 mm Cylinder stroke-----100 mm

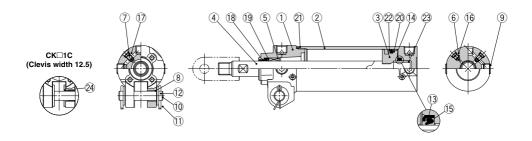
 Double knuckle joint0.34 (Y) 0.90 + 0.11 x 100/25 + 0.34 = 1.68 kg

Theoretical Output

Unit: N Operating pressure (MPa) Bore size Rod size Operating Piston area direction (mm) (mm) (mm²) 0.3 0.4 0.6 0.5 OUT 1260 378 504 630 756 40 20 283 377 472 IN 943 588 784 980 1180 OUT 1960 50 20 1650 660 IN 495 825 990 OUT 3120 934 1250 1560 1870 63 IN 2800 840 1120 1400 1680

Construction

CK□1□40, 50, 63 Band mounting type



Component Parts

No.	Description	Material	Q'ty	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 plating
5	Bushing	Bearing alloy	1	
6	Cushion valve	Steel wire	1	Black zinc chromated
7	Speed controller valve	Steel wire	2	Nickel plating
8	Clevis bushing	Oil-impregnated sintered alloy	2	
9	Hexagon socket head plug	4	Rc1/4	
10	Pin	Carbon steel	1	
11	Cotter pin	Low carbon steel wire rod	2	
12	Flat washer	Rolled steel	2	
13	Cushion seal retainer	Rolled steel	1	Zinc chromated
14	Wear ring	Resin	1	
15	Cushion seal	Urethane	1	
16	Cushion valve seal	NBR	1	
17	Speed controller valve seal	NBR	2	
18	Coil scraper	Phosphor bronze	1	
19	Rod seal	NBR	1	
20	Piston seal	NBR	1	
21	Tube gasket	NBR	1	
22	Magnet	_	T-	For the CKG1
23	Cushion ring	Aluminum alloy	1	Anodized
24	Spacer	Bearing alloy	2	CK□1C only

Replacement Parts/Seal Kit

ricpiacemen	ricpiacement i artorocai itit										
Bore size (mm)) Order no. Contents										
40	CK1A40-PS	Set of nos. above									

Note 1) Seal kit does not come with a grease pack, so please order it separately.

Grease pack part number: GR-S-010 (compatible with all sizes)

Note 2) Cylinders with ø50 or larger bore sizes are tightened with a large tightening torque and cannot be disassembled. Please contact SMC when disassemble is required.

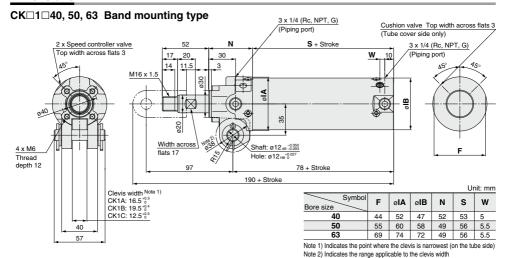
D-□ -X□

MK2T
CK_1
CLK2
CLKG
CKQ
CKC



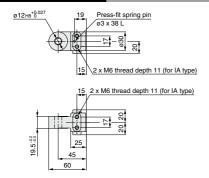
CK □1 Series

Dimensions



End Bracket

Single Knuckle Joint



Material: Cast iron

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

Note 1) A spring pin is attached to the single knuckle joint as a standard. Note 2) The current model is equivalent to the component part number CKB-IAO4 (end bracket symbol IA).

Pin

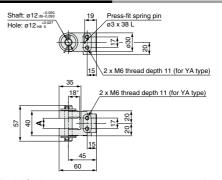


Material: Carbon steel

CK-P04 Knuckle pin Clevis pin	Part no.	Usage
	CK-P04	

Note) Cotter pins and flat washers are attached to the pin as a standard.

Double Knuckle Joint

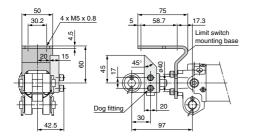


Material: Cas	tirc	n		Unit: mm
Part no.		End bracket symbol	Α	Applicable clamp cylinder
CKA-Y04	ļ	Y (M6 without tap)	16.5 ^{+0.3}	CK□1A series
CKA-YA0	4	YA (M6 with tap)	CKL TA series	
CKB-Y04	ŀ	Y (M6 without tap) 19,5+0.4		CK□1B series
CKB-YA0	4	YA (M6 with tap)	19.5 0	CKLIB selles
CKC-Y04	ļ	Y (M6 without tap)	12.5 +0.3	CK□1C series
CKC-YA0	4	YA (M6 with tap) 12.5*		GRETO Selles

- Note 1) A knuckle pin, cotter pins, flat washers and a spring pin are attached to the double knuckle joint as a standard.
- Note 2) The current model is equivalent to the component part number CKA-YA04, CKB-YA04 (end bracket symbol YA).
- Note 3) The dimension with * shows the value when mounted on the piston rod

CK □1 Series **Options**

Limit Switch Mounting Base/Dog Fitting



Material: Rolled steel

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

- 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 mounting base and the dog fitting individually, mounting bolts (hexagon socket head cap screw) and spring washers will be attached as a standard.

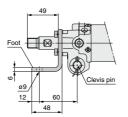


When you attach a dog fitting, be sure to use a knuckle joint, M6 with tap (end bracket symbol IA or YA).

The dog fitting cannot be attached to the knuckle joint, M6 without tap (end bracket symbol I or Y).

Foot



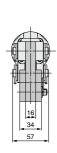


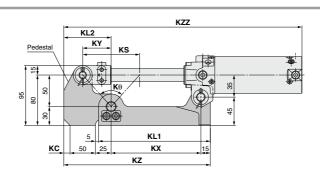
Material: Rolled steel

Part no.	Option symbol	Applicable clamp cylinder
CK-L04		CK□1A series
		CK□1B series

- Note 1) A mounting bolt (hexagon socket head cap screw) and a spring washer 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

Note) Only available for the CK□1A series (Clevis width 16.5 mm)

Unit: mm

	0-6										KZZ			A II I- I .			
Part no.	Option symbol	KL1	KL2	KS	кх	KY	KZ	K θ	K θ	Kθ KC C	Kθ KC C	Kθ KC	CKG□40	CKP□40		CKG□63 CKP□63	Applicable clamp cylinder
CKA-K075		167	75	70	132	35	222	69° 59'	0	360	365	36	60	CK□1A40-75YZ CK□1A50-75YZ CK□1A63-75YZ			
CKA-K100	к	177	75	90	142	45	232	83° 58'	0		39	95		CK□1A40-100YZ CK□1A50-100YZ CK□1A63-100YZ			
CKA-K150		202	85	140	167	70	267	108° 55'	10		48	80		CK□1A40-150YZ CK□1A50-150YZ CK□1A63-150YZ			

SMC

D-□ -X□

MK MK2T

CK□1

CLK2

CLKG

CKQ CLKQ

CK□ CLK

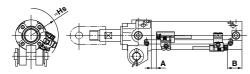
|CKQ□

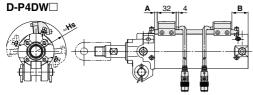
CK □1 Series

Auto Switch Mounting (Rod Mounting Type)

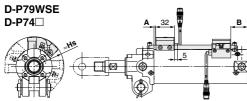
Auto Switch Proper Mounting Position (Detection at Stroke End) and Its Mounting Height

Rod mounting D-P3DWA□





Note) The above drawing is the switch rod mounting example for the D-P4DWS ...



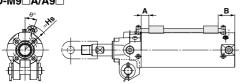
Note) The above drawing is the switch rod mounting example for the D-P79WSE.

Auto Switch Mounting Position and Its Height:

noa woanting	, iype			Unit: mm
Auto switch model	Symbol	Auto switch set value and its height		
Auto switch model	Symbol	ø40	ø50	ø63
	Α	8.5	6	6
D-P3DWA□	В	23.5	29	29
	Hs	46.5	52	59
	Α	6	3.5	3.5
D-P4DW□	В	21	26.5	26.5
	Hs	45.5	51	58.5
D-P79WSE	Α	3	0.5	0.5
D-P79WSE D-P74□	В	18	23.5	23.5
J.745	Hs	47.5	51	57.5
D-M9□	Α	13	10.5	10.5
D-M9□W	В	28	33.5	33.5
D-M9□A	Hs	39	44.5	51.5
	Α	9	6.5	6.5
D-A9□	В	24	29.5	29.5
	Hs	39	44.5	51.5

- 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) 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.
- Note 3) For 2-color indication, mount the switch in the middle of the green indication.
- Note 4) Adjust the auto switch after confirming the operating conditions in the actual setting.

D-M9□/M9□W **D-M9**□A/A9□



Note) The above drawing is the mounting example for the D-M9 $\!\square$ and D-A9 $\!\square$.

Minimum Stroke for Auto Switch Mounting

			Unit: mm
Auto switch model	Marin day	With 2 pcs.	
Auto switch model	With 1 pc.	Different surfaces	Same surface
D-P3DWA□			
D-P4DW□	50	50	
D-P79WSE] 50		
D-P74□			

Note1) When two D-P3DWA□ are mounted to the cylinder with stroke 50 mm, mount them on different surfaces.

Note2) The standard strokes of CKG1 are 50, 75, 100, 125 and 150 mm. The values in the table above are not based on the minimum detection interval when setting the D-P3DWA auto switch, but on the standard minimum stroke of the cylinder.

Operating Range

Operating han	ye			
			Unit: mm	
Auto switch model		Bore size		
Auto switch model	40	50	63	
D-P3DWA□	5.5	5.5	5.5	
D-P4DW□	4	4	4.5	
D-P79WSE	0	9	9.5	
D-P74□	8	9	9.5	
D-M9□				
D-M9□W	4	4.5	5	
D-M9□A				
D-A9□	8	8	9	

Values which include hysteresis are for guideline purpose only, they are not a guarantee (assuming approximately ±30% dispersion) and may change substantially depending on the ambient environment.



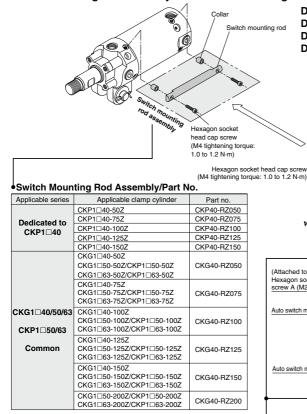
Auto Switch Mounting (Rod Mounting Type) $CK \Box 1$ Series

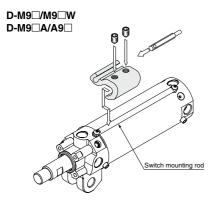
D-P3DWA□ D-P4DW□

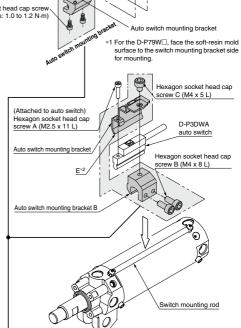
D-P79W□*1 D-P74

Auto Switch Mounting Bracket/Part No.

Switch mounting rod assembly/Auto switch mounting bracket







Hexagon socket head cap screw (M3 tightening torque: 0.5 to 0.7 N·m)

D-P4DW

auto switch

MK

MK2T

CK□1

CLK₂

CI KG

CKQ

CLKQ

CK

CI K

CKQ□

D-□

*2 Mount the part E of the auto switch mounting bracket so that it is in contact with the cylinder tube.

Note 1) The tightening torque for a hexagon socket head cap screw (M2.5) is

0.2 to 0.3 N·m. Hold the shorter side of a hexagon wrench, and turn it to tighten. (Too much tightening may break the switch)

Note 2) Tighten the hexagon socket head cap screws B and C (M4) with a tightening torque of 1 to 1.2 N·m.

♠Auto Switch Mounting Bracket/Part No.

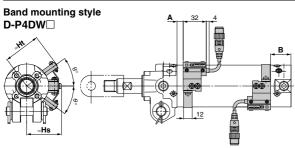
SMC

Applicable	Applicable	Part no.		
cylinder series	auto switch model	40	50	63
	D-P3DWA□		BK7-040S	
CKG1	D-P4DW□		BK1T-040	
CKG1	D-M9□ D-A9□		BA7-040	
CKP1	D-P79WSE D-P74L/Z	BAP1T-040		

CK □1 Series

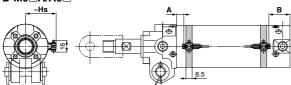
Auto Switch Mounting (Band Mounting Type)

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

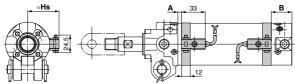


Note) The above drawing is the switch band mounting example for the D-P4DWS ...

D-M9□/M9□W D-M9□A/A9□



D-B54



⚠ Caution

As for the precautions on the auto switches, product specifications, refer to pages 437 to 439.

Operating Range

			Unit: mm	
Auto switch model		Bore size		
Auto switch model	40	50	63	
D-P4DW□	5	5	5.5	
D-M9□				
D-M9□W	5.5	6.5	7	
D-M9□A				
D-A9□	8	8	9	
D-B54	10	10	11	

 Values which include hysteresis are for guideline purpose only, they are not a guarantee (assuming approximately ±30% dispersion) and may change substantially depending on the ambient environment.

Auto Switch Mounting Position and Its Height Unit: mm

Auto switch	Cumbal	Auto switch set value and its height		
model	Symbol	ø40	ø50	ø63
	Α	6	3.5	3.5
	В	21	26.5	26.5
D-P4DW□	Hs	43	48	55
	Ht	46	51.5	58.5
	θ	40°	36°	33°
D-M9□	Α	13	10.5	10.5
D-M9□W	В	28	33.5	33.5
D-M9□A	Hs	35	40.5	47.5
	Α	9	6.5	6.5
D-A9□	В	24	29.5	29.5
	Hs	35	40.5	47.5
	Α	3.5	1	1
D-B54	В	18.5	24	24
	Hs	38	43.5	50.5

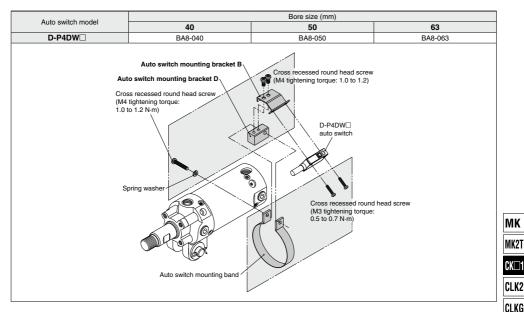
- Note 1) The mounting position should be referred for reference only for the auto switch mounting position at the stroke end detection. Adjust the auto switch after confirming the operation to set actually.
- Note 2) The auto switch mounting position is temporarily set at the time of shipping from our factory. Change it to the desired position in accordance to your facility.
- Note 3) For the D-M9□/M9□W/M9□A/A9□, A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.
- Note 4) As for the D-P4DW□ type, band mounting type, the auto switch mounting bracket and the auto switch have to be ordered separately. For details, refer to page 426.
- Note 5) For 2-color indication, mount the switch in the middle of the green indication.

Minimum Stroke for Auto Switch Mounting Unit: r

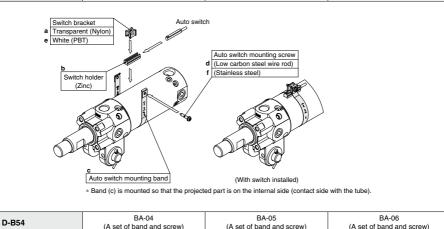
Auto switch model	With 1 pc.	With 2	2 pcs.
Auto switch model	will i pc.	Different surfaces	Same surface
D-P3DWA□			
D-P4DW□			
D-P79WSE			
D-P74□	50	50	50
D-M9□	50	50	50
D-M9□W			
D-M9□A			
D-A9□			
D-B54	50	50	75

- Note 1) When two D-P3DWA are mounted to the cylinder with stroke 50 mm, mount them on different surfaces.
- Note 2) The standard strokes of CKG1 are 50, 75, 100, 125 and 150 mm. The values in the table above are not based on the minimum detection interval when setting the D-P3DWA auto switch, but on the standard minimum stroke of the cylinder.

Auto Switch Mounting Brackets/Part No.



		Bore size (mm)	
Auto switch model	40	50	63
D-M9□ D-M9□W D-A9□	BMA3-040 Note 1) (A set of a, b, c, d)	BMA3-050 Note 1) (A set of a, b, c, d)	BMA3-063 Note 1) (A set of a, b, c, d)
D-M9□A ^{Note 2)}	BMA3-040S (A set of b, c, e, f)	BMA3-050S (A set of b, c, e, f)	BMA3-063S (A set of b, c, e, f)



Note 1) Since the switch bracket (made from nylon) are affected in an environment where alcohol, chloroform, methylamines, hydrochloric acid or sulfuric acid is splashed over, so it cannot be used. Please contact SMC regarding other chemicals.

CKQ CLKQ CKC CKQ

Note 2) When mounting a D-M9 (V) type auto switch, if the switch bracket is mounted on the indicator light, it may damage the auto switch. Therefore, be sure to avoid mounting the switch bracket on the indicator light.



CK 1 Series Made to Order Please contact SMC for detailed dimensions, specifications and lead times.

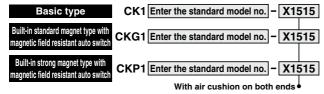


Symbol -X1515

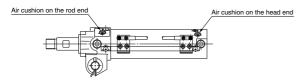
1 CK□1□40, 50, 63/With Air Cushion on Both Ends

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

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.



Dimensions: Same as standard type



Specifications: Same as standard type

Specifications

Thread type	Rc1/4 only
	-
Specifications other than above	Same as standard type

MK2

MK2T

CK©1 CLK2

CLKG

CKQ CLKQ

CK.

CKQ□

D-□ -X□





Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

Cushion/Speed Controller Adjustment

⚠ Danger

1. Retaining construction with crimping is integrated in the speed controller valve and cushion valve. However, do no rotate the cushion valve exceeding two turns, and do not rotate the speed controller valve exceeding four and half turns (ø40: maximum two turns). If 0.6 N·m or more of torque is applied, the valve may become loose and may jump out depending on the amount of air pressure.

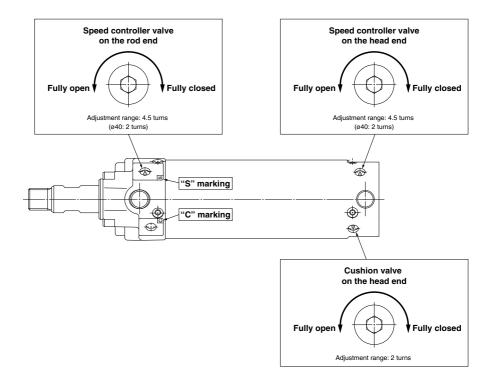
Cushion Adjustment

The air cushion is built in on the head end for the CK1 series. The cushion is pre-adjusted at the time of shipping. However, re-adjust the cushion valve on the tube cover depending on the operating speed and load before use. When rotating the cushion valve clockwise, the orifice becomes smaller, resulting in stronger cushion reaction.

Speed Controller Adjustment

The speed controller (exhaust restrictor) is built in on the rod and head end for the CK1 series. The cushion is pre-adjusted at the time of shipping. However, re-adjust the speed controller valve ("S" marking on the rod cover) on each cover depending on the operating speed and load before use.

When rotating the speed controller valve clockwise, the orifice becomes smaller, which reduces the speed.





Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 12 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.

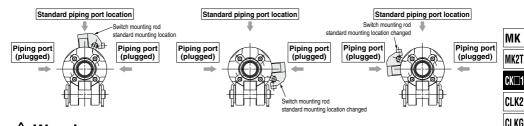
1. Do not leave out the component parts when the piping port location is changed.

Even if one of the component parts is kept away, 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 from 3 directions. When the switch mounting rod is changed, carefully follow the instruction as detailed below.



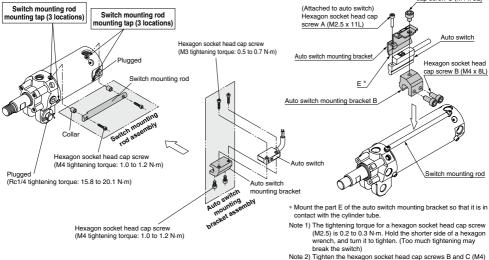
⚠ Warning

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, switch mounting spacer, hexagon socket head cap screw)

2. After the switch mounting rod location is changed, confirm that there is no interference with other parts before use.

Hexagon socket head cap screw C (M4 x 5L)



CKQ

CLKQ

CK

CLK

|CKQ□



with a tightening torque of 1 to 1.2 N·m.



Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

Handling

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

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

Mounting

- The minimum stroke for mounting magnetic field resistant auto switches is 50 mm.
- In order to fully use the capacity of magnetic field resistant auto switches, strictly observe the following precautions.
 - 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 439, or move the welding cable away from the cylinder.
 - Cannot be used in an environment where welding cables surround the cylinder.
 - Please consult with SMC when a welding cable and welding gun electrodes (something energized with secondary current) are near multiple auto switches.
- In an environment where spatter directly hits the lead wire, cover the lead wire with protective tubing.
 - Use protective tubing with inside diameter of Ø8 or more that has excellent heat resistance and flexibility
- Be careful not to drop objects, make dents, or apply excessive impact force when handling.
- When operating two or more cylinders with magnetic field resistant auto switches in parallel and proximity, separate the auto switches from other cylinder tubes by an additional 30 mm or more.
- Avoid wiring in a manner in which repeated bending stress or tension is applied to lead wires.
- Please consult with SMC regarding use in an environment with constant water and coolant splashing.
- Be careful of the mounting direction of the magnetic field resistant auto switch D-P79WSE.
 - Be sure to face the soft-resin mold surface to the switch mounting bracket side for mounting.
 - (Refer to page 432 for mounting example and page 1034 for soft-resin mold surface.)

Wiring/Current and Voltage

- 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 LFD increases





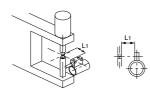


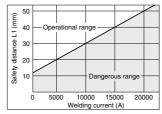


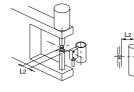
Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

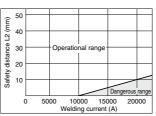
Data: Magnetic Field Resistant Reed Auto Switches (D-P79WSE, D-P74□) Safety Distance

Safety Distance from Side of Auto Switch

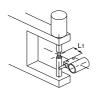




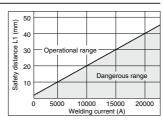




Safety Distance from Top of Auto Switch

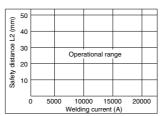












SMC

D-□

MK

MK2T

CK□1

CLK2

CLKQ CLKQ

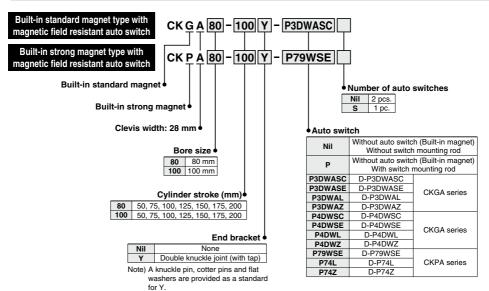
CK.

|CKQ□

CK□1 Series Related Products

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

1 CKGA80, 100/CKPA80, 100/With Magnetic Field Resistant Auto Switch (Rod Mounting Type)



Specifications

Clevis width	28 mm	CKGA/CKPA series	
Fluid		Air	
Proof pressure		1.5 MPa	
Maximum opera	ating pressure	1.0 MPa	
Minimum opera	ting 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 controlle	er	Equipped on both ends	
Lubrication		Non-lube	
Stroke length tolerance		+1.0 0	
Mounting Note)		Double clevis	

Note) A clevis pin, cotter pins and flat washers are provided as a standard.

Auto Switch Mounting Bracket Assembly/Part No.

Applicable auto switch model	Auto switch mounting bracket part n	
Applicable auto switch model	80	100
D-P3DWASC		
D-P3DWASE	DK7	0000
D-P3DWAL	BK7-080S	
D-P3DWAZ		
D-P4DWSC	BK9-080	
D-P4DWSE		
D-P4DWL		
D-P4DWZ		
D-P79WSE		
D-P74L	BK10	0-080
D-P74Z		

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

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

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

CKPA: (Example) CKPA80-50Y

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

MK

MK2T

CK□1

CLK2

CI KG

CKQ CLKQ

CKQ.

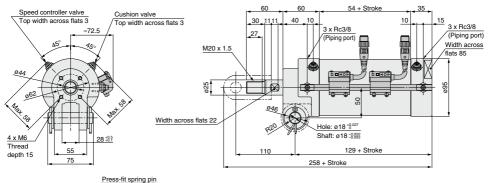
D-□

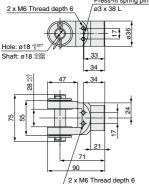
-X□

441 A

Dimensions

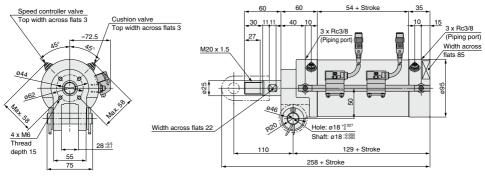
CKGA80 Built-in standard magnet type/with magnetic field resistant auto switch (D-P4DWSI)





Double knuckle joint

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



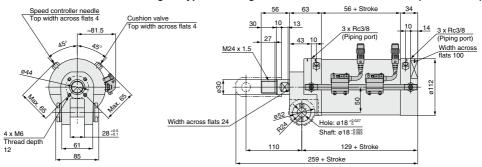
SMC

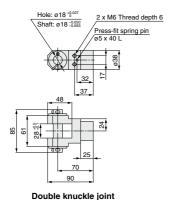
CK □1 Series

1 CKGA80, 100/CKPA80, 100/With Magnetic Field Resistant Auto Switch (Rod Mounting Type)

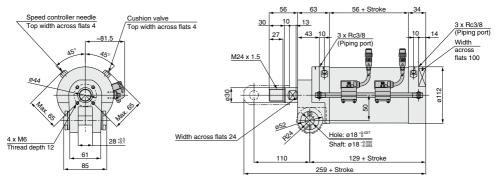
Dimensions

CKGA100 Built-in standard magnet type/with magnetic field resistant auto switch (D-P4DWSI)





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

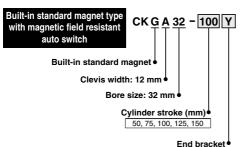


^{*} Please contact SMC for details of the CKGA□/CKPA□ series.



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

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



Nil	None
1	Single knuckle joint (without tap)
Υ	Double knuckle joint (without tap)

Note) A knuckle pin, cotter pins and flat washers are provided as a standard for Y.

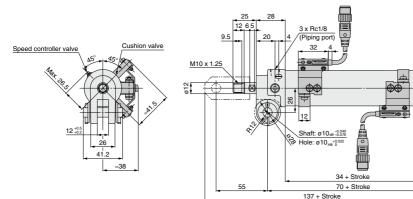
Specifications

Clevis width	12 mm	CKGA32 series
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
Mounting Note)		Double clevis

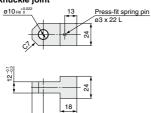
Note) A clevis pin, cotter pins and flat washers are provided as a standard.

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

Dimensions

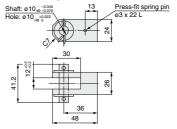


Single knuckle joint



48

Double knuckle joint



* Please contact SMC for details of the CKGA32 series.

D-□

MK

MK2T

CK□1

CLK2 CLKG

CKQ

CLKQ

CK□

CKQ.

3 x Rc1/8

12

20 5

(Piping port)

Width across flats 36

