Pin Clamp Cylinder

New

RoHS

Lateral Compact Type

ø32

Compact

Overall length:
94 mm shorter

183 mm ➡ **89 mm**

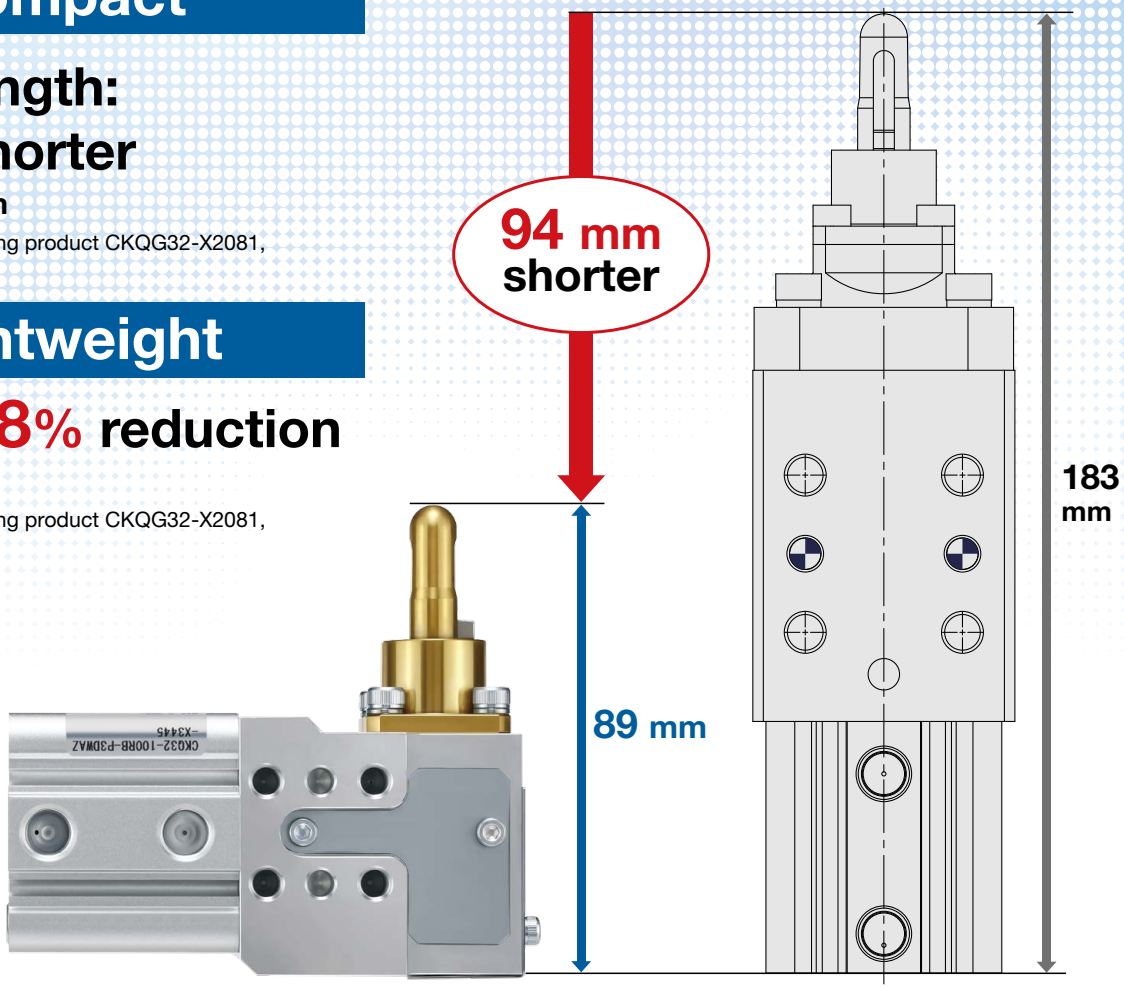
(Compared with the existing product CKQG32-X2081, LOW type, without lock)

Lightweight

Weight: 38% reduction

900 g ➡ **560 g**

(Compared with the existing product CKQG32-X2081, LOW type, without lock)

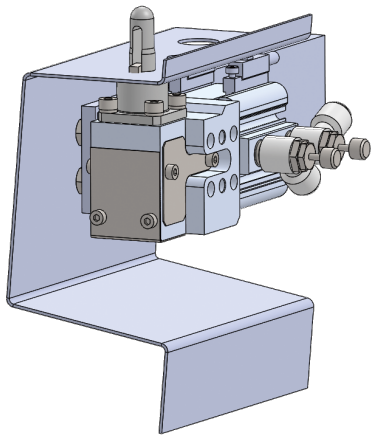


Without lock

With lock

Application Example

Suitable for use in narrow spaces



C(L)KQ32-X3445

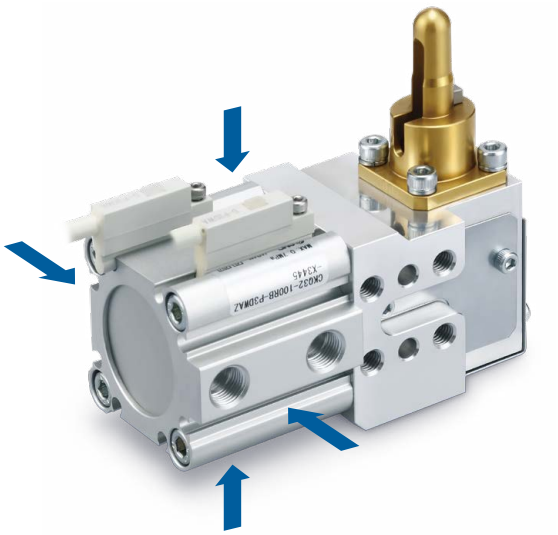
SMC

CAT.ES20-319A

Auto switches are mountable on 4 surfaces.

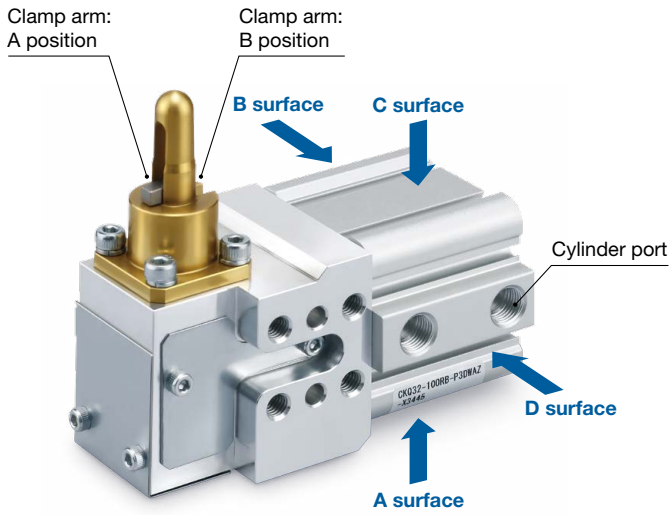
Magnetic field resistant auto switch:
D-P3DWA□

General purpose type auto switch:
D-M9□W(V), D-A9□



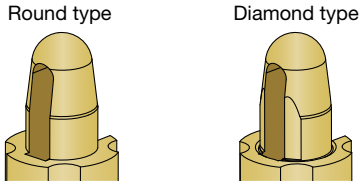
Various clamp arm positions and port positions are available.

- The positions can be set according to the installation conditions.
- Clamp arm: 2 positions (A, B)
- Cylinder port: 4 surfaces (A to D)



Lock mechanism to prevent the dropping of workpieces during emergency stops

Guide pin shape: Round type/Diamond type

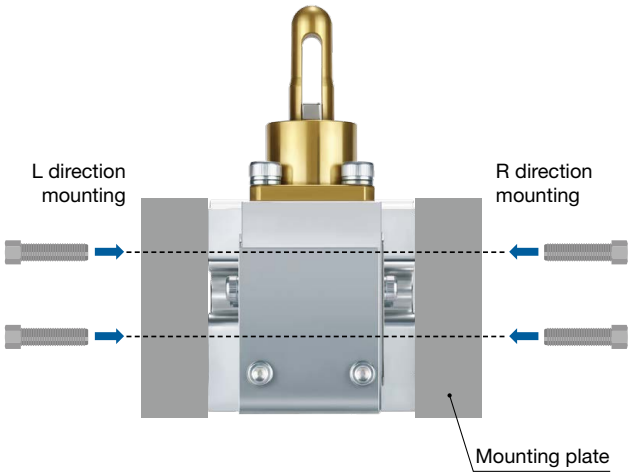


Fine adjustment of the clamping height is possible with shims.

(Option)

* The clamping force changes depending on the clamping height. (Refer to Graph 1, “Relationship Between Clamping Height and Clamping Force,” on page 3 for details.)

Mountable on 2 surfaces



Pin Clamp Cylinder Lateral Compact Type

C(L)KQ32-X3445

ø32

RoHS

How to Order

C L KQ 32 – 075 R A – P3DWASC ☐ – X3445

❶ ❷ ❸ ❹ ❺ ❻ ❼

● Lateral compact type

❶ With lock

Nil	Without lock
L	With lock

❷ Bore size

32	32 mm

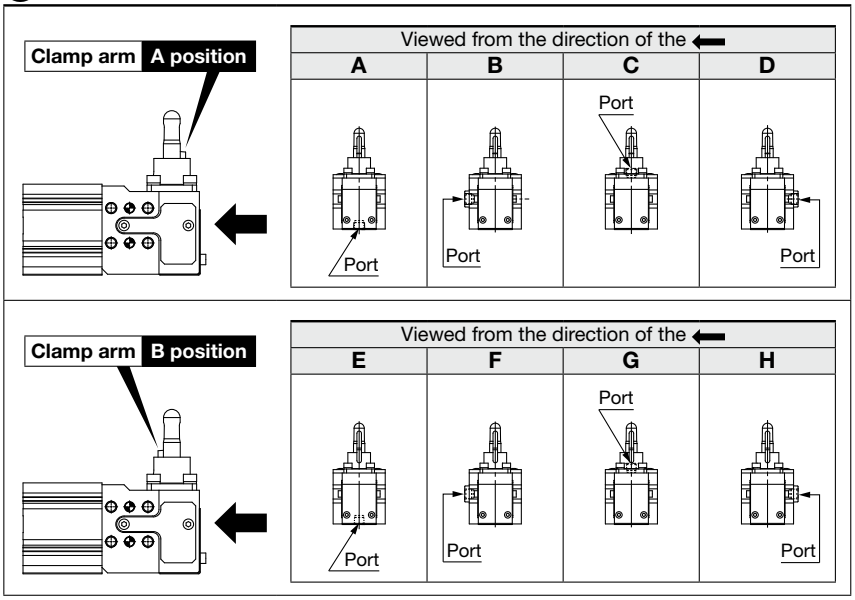
❸ Guide pin diameter

∗ For guide pin diameter, refer to the next page.

❹ Guide pin shape

R	Round type 
D	Diamond type 

❺ Clamp arm position and Port position



❻ Auto switch type

Nil	Without auto switch

∗ Refer to the table below for the applicable auto switch model.
∗ Auto switches are shipped together, (but not assembled).
∗ When the total thickness of clamped workpiece is over 2 mm, the auto switch may not be adjusted to the most sensitive position.

❼ Number of auto switches

Nil	2
S	1 (Unclamping side)

Auto Switch Models: Refer to the **Web Catalog** for further information on auto switches.

Magnetic Field Resistant Auto Switches

Type	Auto switch model	Applicable magnetic field	Electrical entry	Indicator light	Wiring (Pin no. in use)	Load voltage	Lead wire length	Applicable load
Solid state auto switch	**P3DWASC**	AC magnetic field (Single-phase AC welding magnetic field)	Pre-wired connector	2-color indicator	2-wire (3–4)	24 VDC	0.3 m	Relay, PLC
	P3DWASE				2-wire (1–4)			
	P3DWA		Grommet		2-wire		0.5 m	
	P3DWAL						3 m	
	P3DWAZ						5 m	

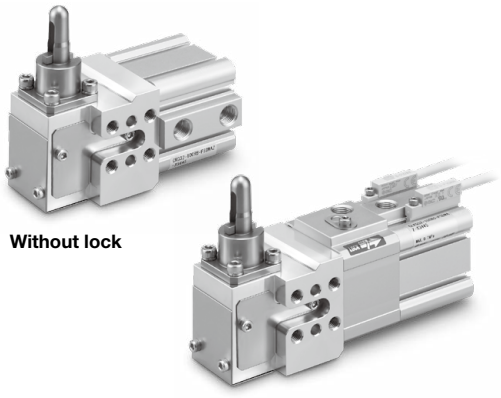
General Purpose Type Auto Switches ⚠ **General purpose type auto switches cannot be used under a strong magnetic field.**

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC		Load voltage AC	Auto switch model Perpendicular	Auto switch model In-line	Lead wire length [m] 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	Pre-wired connector	Applicable load	
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	**M9NV**	**M9N**	●	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)				**M9PV**	**M9P**	●	●	●	○	○		
				2-wire		12 V		**M9BV**	**M9B**	●	●	●	○	○	—	
	Diagnostic indication (2-color indicator)			3-wire (NPN)		5 V, 12 V		**M9NWV**	**M9NW**	●	●	●	○	○	IC circuit	
				3-wire (PNP)				**M9PWV**	**M9PW**	●	●	●	○	○		
				2-wire		12 V		**M9BWV**	**M9BW**	●	●	●	○	○	—	
	Water resistant (2-color indicator)			3-wire (NPN)		5 V, 12 V		**M9NAV**	**M9NA**	○	○	●	○	○	IC circuit	
				3-wire (PNP)				**M9PAV**	**M9PA**	○	○	●	○	○		
				2-wire		12 V		**M9BAV**	**M9BA**	○	○	●	○	○	—	
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	**A96V**	**A96**	●	—	●	—	—	IC circuit	—
				2-wire	24 V	12 V	100 V	**A93V**∗1	**A93**	●	●	●	●	—	—	Relay, PLC
			No			5 V, 12 V	100 V or less	**A90V**	**A90**	●	—	●	—	—	IC circuit	

∗1 The 1 m lead wire is only applicable to the D-A93.
∗ Solid state auto switches marked with a "○" are produced upon receipt of order.

∗ Lead wire length symbols: 0.5 m·····Nil (Example) M9NWV
1 m····· M (Example) M9NWVM
3 m····· L (Example) M9NWVL
5 m····· Z (Example) M9NWVZ

C(L)KQ32-X3445



Without lock

With lock

Cylinder Specifications

Model			CKQ32-X3445: Without lock	CLKQ32-X3445: With lock
Action			Double acting	
Bore size [mm]			32	
Cylinder stroke/Clamp stroke [mm]			7.4/9	
Fluid			Air	
Minimum operating pressure			0.1 MPa	0.15 MPa*1
Maximum operating pressure	Guide pin diameter [mm]	ø7.5 to ø13.0	0.7 MPa	
		ø13.5 to ø20.0	1.0 MPa	
Ambient and fluid temperatures			–10 to 60°C (No freezing)	
Cushion			None	
Lubrication			Non-lube	
Piston speed (Clamp speed)			50 to 150 mm/s	
Port size (Cylinder port)			Rc1/8	

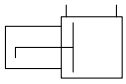
*1 Minimum operating pressure is 0.2 MPa when cylinder part and locking part use the same piping.

Lock Specifications

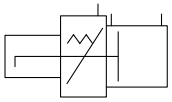
Locking action	Spring locking (Exhaust locking)
Unlocking pressure	0.2 MPa
Lock starting pressure	0.05 MPa
Locking direction	Unclamp direction locking
Port size (Lock release port)	Rc1/8
Holding force (Maximum static load)	402 N

Symbol

Without lock

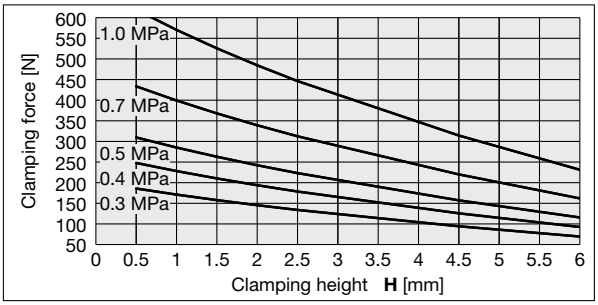


With lock

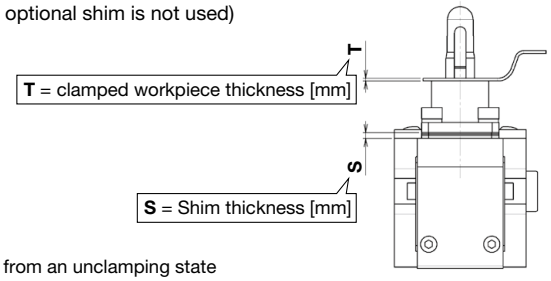


Clamping Force

Graph 1 Relationship Between Clamping Height and Clamping Force (Guide)



The clamping force changes depending on the clamping height.
Clamping height **H** = **T** + **S**
(**S** = 0 [mm] if the optional shim is not used)



* It takes approximately 0.3 seconds for the cylinder to operate to generate clamping force from an unclamping state (when no speed controller is installed). Design circuit taking into consideration the time before the clamping force is generated.
* Determine the clamping force according to the strength of the workpiece. It can be damaged if the clamping force is too large.
* Guide pins and clamp arms are consumable items. Please prepare spare parts in case they are damaged. It is recommended to prepare spare parts for guide pins and clamp arms, especially for products used in workpieces with ø12 or less hole diameters.

Guide Pin Diameter

Symbol	075	076	077	078	079	080	095	096	097	098	099	100
Guide pin diameter [mm]	7.5	7.6	7.7	7.8	7.9	8.0	9.5	9.6	9.7	9.8	9.9	10.0
Applicable hole diameter of workpiece [mm]	For ø8						For ø10					
Guide pin shape	Round type						Round type/Diamond type					

Symbol	105	106	107	108	109	110	115	116	117	118	119	120
Guide pin diameter [mm]	10.5	10.6	10.7	10.8	10.9	11.0	11.5	11.6	11.7	11.8	11.9	12.0
Applicable hole diameter of workpiece [mm]	For ø11						For ø12					
Guide pin shape	Round type/Diamond type											

Symbol	125	126	127	128	129	130	135	136	137	138	139	140
Guide pin diameter [mm]	12.5	12.6	12.7	12.8	12.9	13.0	13.5	13.6	13.7	13.8	13.9	14.0
Applicable hole diameter of workpiece [mm]	For ø13						For ø14					
Guide pin shape	Round type/Diamond type											

Symbol	145	146	147	148	149	150	155	156	157	158	159	160
Guide pin diameter [mm]	14.5	14.6	14.7	14.8	14.9	15.0	15.5	15.6	15.7	15.8	15.9	16.0
Applicable hole diameter of workpiece [mm]	For ø15						For ø16					
Guide pin shape	Round type/Diamond type											

Symbol	175	176	177	178	179	180	195	196	197	198	199	200
Guide pin diameter [mm]	17.5	17.6	17.7	17.8	17.9	18.0	19.5	19.6	19.7	19.8	19.9	20.0
Applicable hole diameter of workpiece [mm]	For ø18						For ø20					
Guide pin shape	Round type/Diamond type											

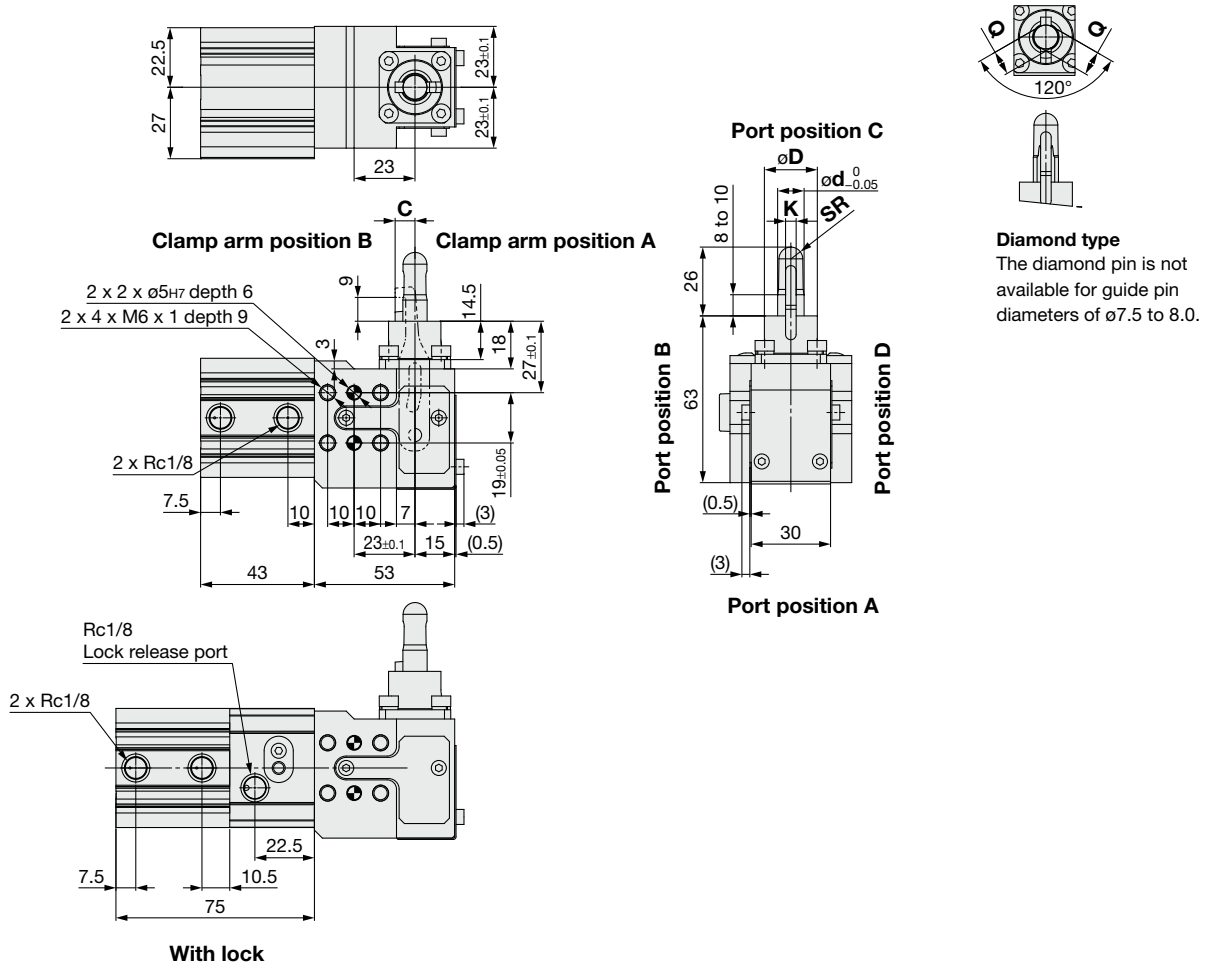
Weight

[g]

Guide pin diameter	Without lock	With lock
ø7.5 to ø8.0	560	810
ø9.5 to ø10.0		
ø10.5 to ø11.0		
ø11.5 to ø12.0		
ø12.5 to ø13.0		
ø13.5 to ø14.0	575	825
ø14.5 to ø15.0		
ø15.5 to ø16.0		
ø17.5 to ø18.0	600	850
ø19.5 and ø20.0		

Dimensions

C(L)KQ32-□□□-X3445



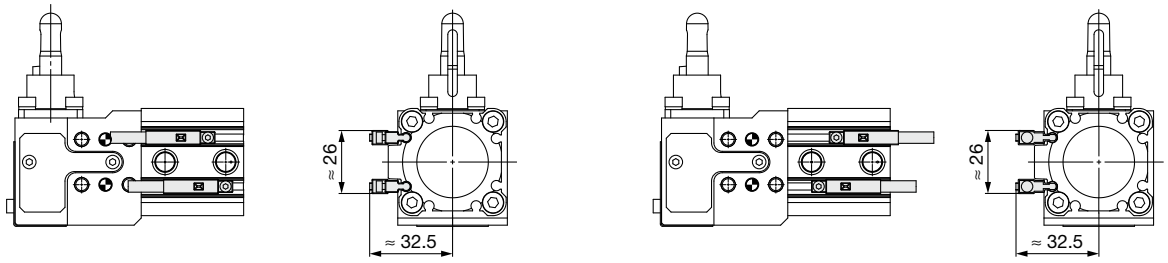
Hole diameter of workpiece	C	øD	ød	K	SR	Q	Model number
ø8	6	ø20	ø7.5	3.5	3.5	—	075
			ø7.6				076
			ø7.7				077
			ø7.8				078
			ø7.9				079
			ø8.0				080
ø10	7.5	ø20	ø9.5	4	4.5	9.2	095
			ø9.6				096
			ø9.7				097
			ø9.8				098
			ø9.9				099
			ø10.0				100
ø11	7.5	ø20	ø10.5	4	4.5	9.8	105
			ø10.6				106
			ø10.7				107
			ø10.8				108
			ø10.9				109
			ø11.0				110
ø12	8.5	ø20	ø11.5	5	5	10.9	115
			ø11.6				116
			ø11.7				117
			ø11.8				118
			ø11.9				119
			ø12.0				120
ø13	8.5	ø20	ø12.5	5	5.5	11.6	125
			ø12.6				126
			ø12.7				127
			ø12.8				128
			ø12.9				129
			ø13.0				130

Hole diameter of workpiece	C	øD	ød	K	SR	Q	Model number
ø14	10.5	ø25	ø13.5	6	5.5	12.6	135
			ø13.6				136
			ø13.7				137
			ø13.8				138
			ø13.9				139
			ø14.0				140
ø15	10.5	ø25	ø14.5	6	6	13.3	145
			ø14.6				146
			ø14.7				147
			ø14.8				148
			ø14.9				149
			ø15.0				150
ø16	11.5	ø25	ø15.5	6	6.5	14.3	155
			ø15.6				156
			ø15.7				157
			ø15.8				158
			ø15.9				159
			ø16.0				160
ø18	13	ø27	ø17.5	6	7.5	16.4	175
			ø17.6				176
			ø17.7				177
			ø17.8				178
			ø17.9				179
			ø18.0				180
ø20	13	ø27	ø19.5	6	8	17.2	195
			ø19.6				196
			ø19.7				197
			ø19.8				198
			ø19.9				199
			ø20.0				200

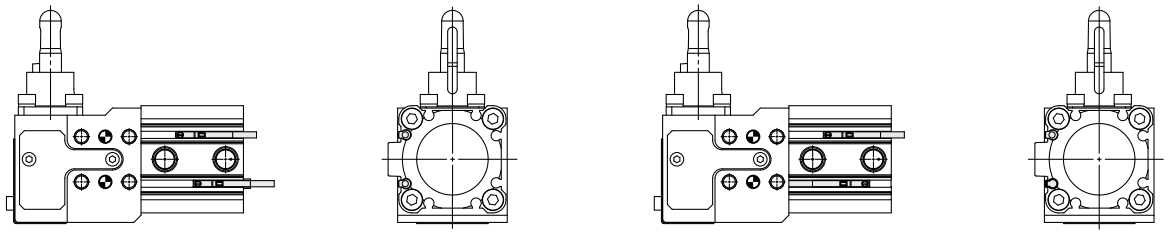
C(L)KQ32-X3445
Auto Switch Mounting

Auto Switch Mounting Height

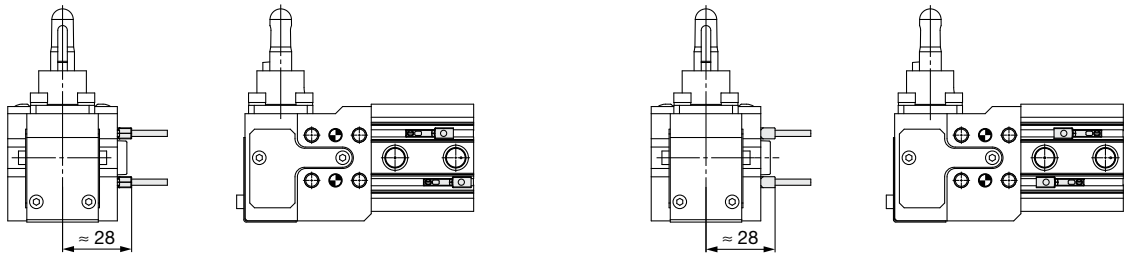
D-P3DWA□



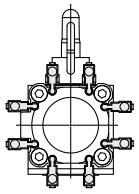
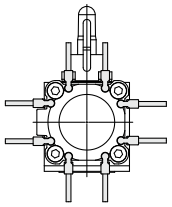
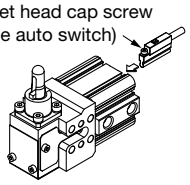
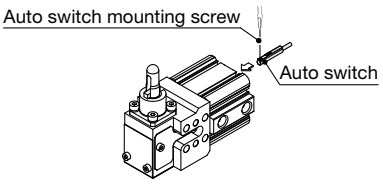
D-M9□, D-M9□W, D-A9□



D-M9□V, D-M9□WV, D-A9□V



Auto Switch Mounting Method

Applicable auto switches	D-P3DWA□	D-M9□(V), D-M9□W(V), D-M9□A(V), D-A9□(V)
Auto switch mounting surfaces	 ∗ When mounting on the port side, select fittings with width across 12 mm or less.	
Mounting of auto switch	① Insert the auto switch into the mating groove of the cylinder tube. ② Check the detecting position of the auto switch and fix the auto switch firmly with the hexagon socket head cap screw (attached to the auto switch). ∗ The tightening torque for the hexagon socket head cap screw is 0.2 to 0.3 N·m. Hexagon socket head cap screw (attached to the auto switch) 	 •When tightening the auto switch mounting screw, use a watchmaker's screwdriver with a handle 5 to 6 mm in diameter. **Tightening Torque of Auto Switch Mounting Screw** [N·m] Auto switch model / Tightening torque **D-M9□(V), D-M9□W(V), D-A93**: 0.05 to 0.15 **D-M9□A(V)**: 0.05 to 0.10 **D-A9□(V) (Excludes the D-A93)**: 0.10 to 0.20

Replacement Parts

■ Guide Pin Order No.

CKQG32X– 075 R

Guide pin diameter
∗ Refer to Table 1 below.

Guide pin shape

R	Round type 	**D**	Diamond type 

Table 1. Guide Pin Diameter

Symbol	**075**	**076**	**077**	**078**	**079**	**080**	**095**	**096**	**097**	**098**	**099**	**100**	**105**	**106**	**107**	**108**	**109**	**110**	**115**	**116**	**117**	**118**	**119**	**120**
Guide pin diameter [mm]	7.5	7.6	7.7	7.8	7.9	8.0	9.5	9.6	9.7	9.8	9.9	10.0	10.5	10.6	10.7	10.8	10.9	11.0	11.5	11.6	11.7	11.8	11.9	12.0
Applicable hole diameter of workpiece [mm]	For ø8						For ø10						For ø11						For ø12					
Guide pin shape	Round type						Round type/Diamond type																	

Symbol	**125**	**126**	**127**	**128**	**129**	**130**	**135**	**136**	**137**	**138**	**139**	**140**	**145**	**146**	**147**	**148**	**149**	**150**	**155**	**156**	**157**	**158**	**159**	**160**
Guide pin diameter [mm]	12.5	12.6	12.7	12.8	12.9	13.0	13.5	13.6	13.7	13.8	13.9	14.0	14.5	14.6	14.7	14.8	14.9	15.0	15.5	15.6	15.7	15.8	15.9	16.0
Applicable hole diameter of workpiece [mm]	For ø13						For ø14						For ø15						For ø16					
Guide pin shape	Round type/Diamond type																							

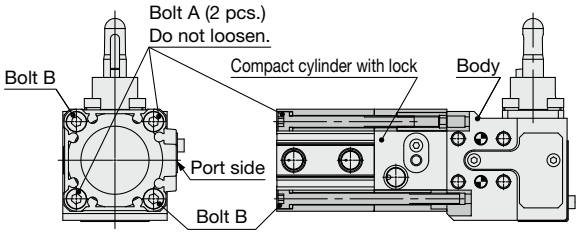
Symbol	**175**	**176**	**177**	**178**	**179**	**180**	**195**	**196**	**197**	**198**	**199**	**200**
Guide pin diameter [mm]	17.5	17.6	17.7	17.8	17.9	18.0	19.5	19.6	19.7	19.8	19.9	20.0
Applicable hole diameter of workpiece [mm]	For ø18						For ø20					
Guide pin shape	Round type/Diamond type											

■ Clamp Arm Assembly Order No.

Applicable hole diameter of workpiece	Order No.
For ø8	**CKQ32-54-117ZV**
For ø10 and ø11	**CKQ32-54-118ZV**
For ø12 and ø13	**CKQ32-54-119ZV**
For ø14 and ø15	**CKQ32-54-120ZV**
For ø16	**CKQ32-54-121ZV**
For ø18 and ø20	**CKQ32-54-122ZV**

Clamp Arm Replacement Precautions (Type with a lock only)

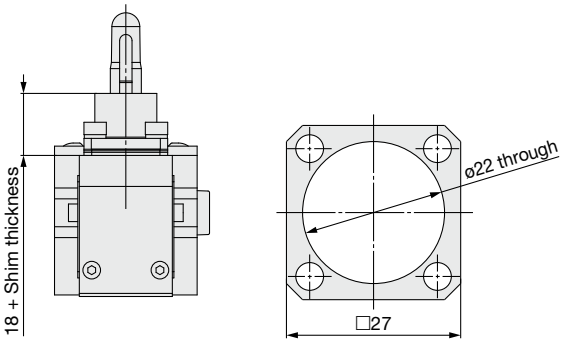
⚠Caution Do not loosen the A bolts (2 pcs.).
When removing the compact cylinder with a lock from the body, loosen the B bolts (2 pcs.).



Option

■ Shim

Note that adding shims will change the clamping force.
(Refer to Graph 1, "Relationship Between Clamping Height and Clamping Force," on page 3 for details.)



Description	Part no.	Note
Shim A	**CKQ32-36A746MN**	Plate thickness 1 [mm]
Shim B	**CKQ32-36B746MN**	Plate thickness 0.5 [mm]

- Shims can be mounted up to 3 mm.
- For auto switches, when the total thickness of shims and a workpiece is over 2 mm, the auto switch may not be adjusted to the most sensitive position.

⚠ Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of **"Caution," "Warning"** or **"Danger."** They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)*1), and other safety regulations.

⚠ Danger : **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

⚠ Warning: **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

⚠ Caution: **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

*1) ISO 4414: Pneumatic fluid power - General rules and safety requirements for systems and their components
ISO 4413: Hydraulic fluid power - General rules and safety requirements for systems and their components
IEC 60204-1: Safety of machinery - Electrical equipment of machines - Part 1: General requirements
ISO 10218-1: Robots and robotic devices - Safety requirements for industrial robots - Part 1:Robots
etc.

⚠ Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/ equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. SMC products cannot be used beyond their specifications. They are not developed, designed, and manufactured to be used under the following conditions or environments. Use under such conditions or environments is not allowed.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Use for nuclear power, railways, aviation, space equipment, ships, vehicles, military application, equipment affecting human life, body, and property, combustion equipment, entertainment equipment, emergency shut-off circuits, press clutches, brake circuits, safety equipment, etc., and use for applications that do not conform to standard specifications such as catalogs and operation manuals.
3. Use for interlock circuits, except for use with double interlock such as installing a mechanical protection function in case of failure. Please periodically inspect the product to confirm that the product is operating properly.

⚠ Caution

SMC develops, designs, and manufactures products to be used for automatic control equipment, and provides them for peaceful use in manufacturing industries.
Use in non-manufacturing industries is not allowed.
Products SMC manufactures and sells cannot be used for the purpose of transactions or certification specified in the Measurement Act of each country.
The new Measurement Act prohibits use of any unit other than SI units in Japan.

Limited warranty and Disclaimer/ Compliance Requirements

The product used is subject to the following "Limited warranty and Disclaimer" and "Compliance Requirements".
Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.*2)
   Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.
   This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

*2) **Suction cups (Vacuum pads) are excluded from this 1 year warranty.**
A suction cup (vacuum pad) is a consumable part, so it is warranted for a year after it is delivered.
Also, even within the warranty period, the wear of a product due to the use of the suction cup (vacuum pad) or failure due to the deterioration of rubber material are not allowed by the limited warranty.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

⚠ Safety Instructions	Be sure to read the "Handling Precautions for SMC Products" (M-E03-3) and "Operation Manual" before use.