

Pin Clamp Cylinders

C(L)KQG32/C(L)KU32 Series

ø32

Compact Cylinder Type C(L)KQG32

- Magnetic field resistant auto switch and small auto switch mountable
- The clamping height can be selected.
 - LOW type (-X2081)
 - HIGH type (-X2082)

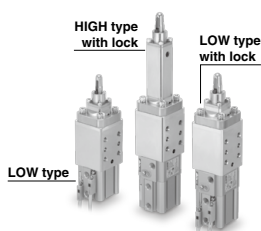
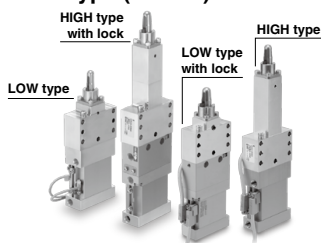


Plate Cylinder Type C(L)KU32

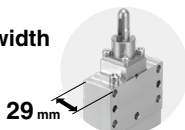
- Magnetic field resistant auto switch and small auto switch mountable
- The clamping height can be selected.
 - LOW type (-X2321)
 - HIGH type (-X2322)



■ ø32 pin clamp cylinder available

- Compact design makes it applicable to a broad range of workpieces.
- Contributes to lightweight equipment.

■ 29 mm width

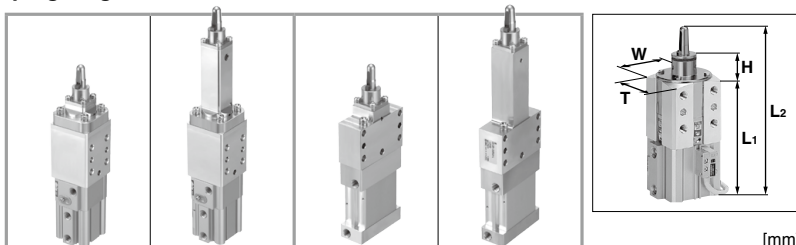


■ All types with lock

- Holds a workpiece during emergency stops.

■ Guide pins and a diamond shape option (available for ø10 or more) for workpieces with ø9, ø11 and ø13 hole diameters

■ 2 types of clamping heights can be selected. Height: 30 mm (LOW type), 100 mm (HIGH type)



[mm]

Model	C(L)KQG32 Compact cylinder type (Guide pin diameter: ø12)		C(L)KU32 Plate cylinder type (Guide pin diameter: ø12)		C(L)KQG50 (Guide pin diameter: ø13)	
Clamping height	LOW type	HIGH type	LOW type	HIGH type	LOW type	HIGH type
Clamping height H	30	100	30	100	24	54
Body thickness T	50		29		66	
Body width W	50		70		66	
Body length L1	127 (159)		132.5 (160)		147.5 (182.5)	
Overall length L2	183 (215)	253 (285)	188.5 (216)	258.5 (286)	204.5 (239.5)	234.5 (269.5)
Weight [g]	900 (1140)	1110 (1350)	740 (950)	910 (1120)	1670 (2190)	1840 (2350)

* Values in () for specification with lock

Pin Clamp Cylinders C(L)KQG32/C(L)KU32 Series

■ Added diamond type to guide pin shapes.

- Applicable hole diameter of workpiece for $\phi 10$ to $\phi 20$

■ Fine adjustment of the clamping height is possible with shims.

(Order shim separately. Refer to page 571.)

■ Lock mechanism to prevent dropping of workpiece during emergency stops

■ Magnetic field resistant auto switch and small auto switch available

Corresponding model/C(L)KQG32 type
(-X2081, -X2082)

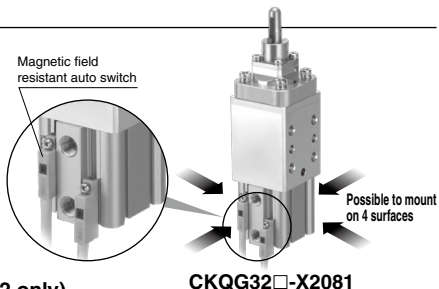
- Magnetic field resistant auto switch: D-P3DWA□, D-P4DW□
- Solid state auto switch*: D-M9□V, D-M9□WV
- Reed auto switch*: D-A9□

* Cannot be used under strong magnetic field.

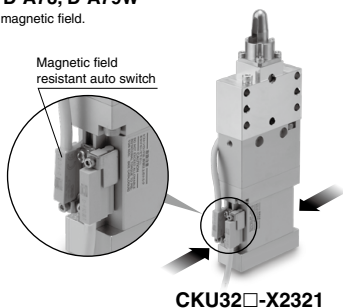
Corresponding model/C(L)KU32 type (-X2321, -X2322 only)

- Magnetic field resistant auto switch: D-P3DWA□
- Solid state auto switch*: D-M9□V, D-M9□WV
- Reed auto switch*: D-A73, D-A79W

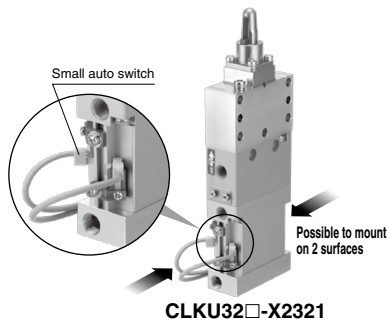
* Cannot be used under strong magnetic field.



Magnetic field resistant auto switch available
Mounting workability improved by changing the auto switch structure



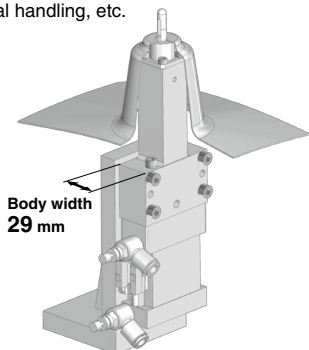
Small auto switch



Application Examples

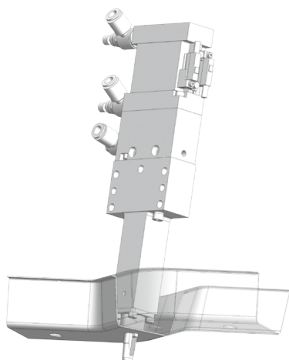
CKU32 (Plate cylinder type)

- Compatible with installing in narrow spaces
- For clamping small and lightweight workpiece and material handling, etc.



CLKU32 (Plate cylinder type with lock)

- Unclamp direction locking
- Drop prevention for workpiece during emergency stops



Pin Clamp Cylinder Compact Cylinder Type

C(L)KQG32 Series

ø32

How to Order

Clamping height
LOW type

C L K Q G B 32 - 075 R A L - P3DWASC - X2081

Clamping height
HIGH type

C L K Q G B 32 - 075 R A H - M9BW - X2082

With lock

Nil	Without lock
L	With lock

Bore size

32	32 mm
----	-------

Port thread type

Nil	Rc
TF	G

Number of auto switches

Nil	2 pcs.
S	1 pc. (Unclamping side)

Mounting surface position
(viewed from top)

Symbol	Mounting surface position
A	Port side Mounting surface
B	Port side Mounting surface
C	Port side Mounting surface
D	Port side Mounting surface

Guide pin diameter

* For guide pin diameter, refer to page 558.

Guide pin shape

R	Round type
D	Diamond type

Auto switch type

Nil	Without auto switch
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- * Refer to the table below for the applicable auto switch model.
- * Auto switches are shipped together, (but not assembled).
- * Refer to the table below for the applicable auto switches.
- * When the total thickness of clamped workpiece is over 2 mm, the auto switch may not be adjusted to the most sensitive position.
- * Secure the minimum bending radius of the auto switch lead wire before use (Refer to page 572).

Clamp arm position (clockwise viewed from top)

Symbol	Clamp arm position	Symbol	Clamp arm position
A	Same as the port side Port side Clamp arm	C	180° from the port side Port side Clamp arm
B	90° from the port side Port side Clamp arm	D	270° from the port side Port side Clamp arm

Auto Switch Models: Refer to pages 1341 to 1435 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	2-wire (3-4)	24 VDC	0.3 m	Relay, PLC (Note 1)
	P3DWASE				2-wire (1-4)		0.5 m	
	P3DWA		Grommet		2-wire		3 m	
	P3DWAL						5 m	
	P3DWAZ		Pre-wired connector		2-wire (3-4)		0.3 m	
	P4DWSC				2-wire (1-4)		3 m	
	P4DWSE		Grommet		2-wire		5 m	
	P4DWL						3 m	
	P4DWZ						5 m	

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

Small Auto Switches Small auto switches cannot be used under a strong magnetic field.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length [m]				Pre-wired connector	Applicable load		
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)				
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9NV	M9N	●	●	●	○	○	Relay, PLC		
				3-wire (PNP)			M9PV	M9P	●	●	●	○	○			
	2-wire			12 V	M9BV	M9B	●	●	●	○	○	—				
	3-wire (NPN)			5 V, 12 V	M9NWV	M9NW	●	●	●	○	○	IC circuit				
	3-wire (PNP)				M9PWW	M9PW	●	●	●	○	○					
	2-wire			12 V	M9BWW	M9BW	●	●	●	○	○	IC circuit				
	3-wire (NPN)			5 V, 12 V	M9NAV	M9NA	○	○	○	○	○					
	3-wire (PNP)				M9PAV	M9PA	○	○	○	○	○					
	2-wire			12 V	M9BAV	M9BA	○	○	○	○	○					
	Reed state auto switch			—	Grommet	No	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●		●	●
2-wire		24 V	12 V				100 V	A93V	A93	●	●	●	●	○ ^{※1}	IC circuit	
			5 V, 12 V				100 V or less	A90V	A90	●	●	●	●	○ ^{※1}		

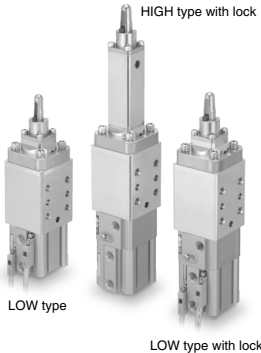
*1 The load voltage used is 24 VDC.

* Auto switches marked with "○" are produced upon receipt of order.

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

* Lead wire length symbols: 0.5 m.....Nil (Example) M9NWV
1 m.....M (Example) M9NWV
3 m.....L (Example) M9NWV
5 m.....Z (Example) M9NWV

C(L)KQG32 Series



Basic Specifications

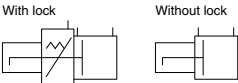
Model			C(L)KQG32
Action			Double acting
Bore size [mm]			32
Cylinder stroke/Clamp stroke [mm]			12.5 (Without workpiece)/10
Fluid			Air
Minimum operating pressure			CK□: 0.1 MPa CLK□: 0.15 MPa*
Maximum operating pressure	Guide pin diameter [mm]	ø7.5 to ø13.0	0.7 MPa
		ø13.5 to ø20.0	1.0 MPa
Ambient and fluid temperature			-10 to 60°C (No freezing)
Cushion			None
Lubrication			Non-lube
Piston speed (Clamp speed)			50 to 150 mm/sec
Port size (Cylinder port)			Rc1/8

* 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



Guide Pin Diameter

Symbol	075	076	077	078	079	080	085	086	087	088	089	090	095	096	097	098	099	100	105	106	107	108	109	110
Guide pin diameter [mm]	7.5	7.6	7.7	7.8	7.9	8.0	8.5	8.6	8.7	8.8	8.9	9.0	9.5	9.6	9.7	9.8	9.9	10.0	10.5	10.6	10.7	10.8	10.9	11.0
Applicable hole diameter of workpiece [mm]	For ø8						For ø9						For ø10						For ø11					
Guide pin shape	Round type												Round type/Diamond type											
Symbol	115	116	117	118	119	120	125	126	127	128	129	130	135	136	137	138	139	140	145	146	147	148	149	150
Guide pin diameter [mm]	11.5	11.6	11.7	11.8	11.9	12.0	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
Applicable hole diameter of workpiece [mm]	For ø12						For ø13						For ø14						For ø15					
Guide pin shape	Round type/Diamond type																							
Symbol	155	156	157	158	159	160	175	176	177	178	179	180	195	196	197	198	199	200						
Guide pin diameter [mm]	15.5	15.6	15.7	15.8	15.9	16.0	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 ø16						For ø18						For ø20											
Guide pin shape	Round type/Diamond type																							

Clamping Force

Model	Guide pin diameter [mm]	Operating pressure [MPa]								
		0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
C(L)KQG32	ø7.5 to ø13.0	121	181	241	302	362	422	—	—	—
	ø13.5 to ø20.0	121	181	241	302	362	422	483	543	603

Note 1) 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.

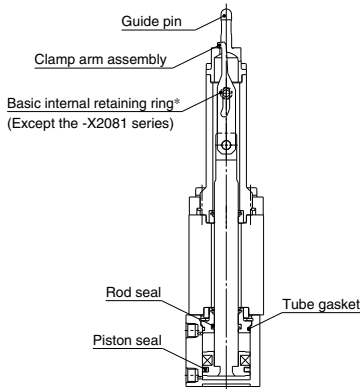
Note 2) Determine the clamping force according to the strength of the workpiece. It can be damaged if the clamping force is too large.

Note 3) 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.

Weight

Model		CKQG32		CLKQG32	
		-X2081	-X2082	-X2081	-X2082
Guide pin diameter [mm]	ø7.5 to ø8.0	900	1110	1140	1350
	ø8.5 to ø9.0				
	ø9.5 to ø10.0				
	ø10.5 to ø11.0				
	ø11.5 to ø12.0				
	ø12.5 to ø13.0	940	1150	1180	1390
	ø13.5 to ø14.0				
	ø14.5 to ø15.0				
	ø15.5 to ø16.0				
	ø17.5 to ø18.0	950	1160	1190	1400
	ø19.5 to ø20.0				

Replacement Parts



CKQG□32-100R□H-X2082

■Guide Pin Order No.

CKQG32X-075 R

Guide pin diameter ●

* Refer to Table 1 (Symbol 2) below.

Guide pin shape ●

	Round type	Diamond type
R		

■Clamp Arm Assembly Order No.

CKQG32X-08 B

Applicable hole diameter of workpiece ●

* Refer to Table 1 (Symbol 1) below.

Clamp arm assembly ●

* The clamp arm includes a basic internal retaining ring.

■Seal Kit (For type without lock only)

Kit no.	Contents
CQ2B32-PS	①Piston seal ②Rod seal ③Tube gasket

* Seal kit includes ①, ②, ③. Since the seal kit does not include a grease pack, order the "Grease Pack" below separately.

* CLKQ cannot be disassembled and therefore no seal kit is available.

■Grease Pack

Kit no.	Contents
GR-S-010	Grease 10 g

■Shim (Option)

Refer to page 571 for details about part numbers and dimensions.

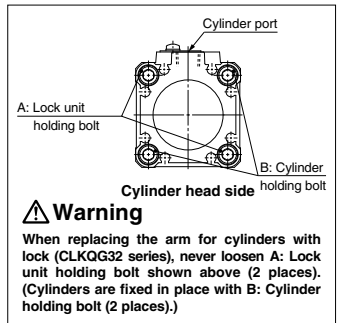


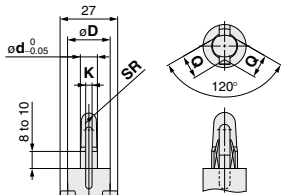
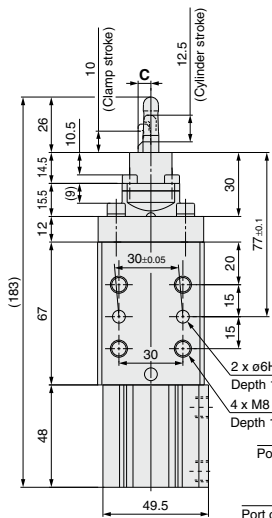
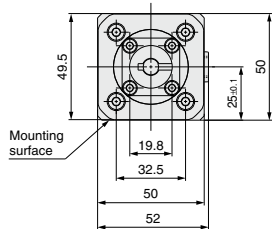
Table 1. Guide Pin Diameter/Applicable Hole Diameter of Workpiece

Symbol 1	Applicable hole diameter of workpiece	Symbol 2	Guide pin diameter	Shape	Symbol 1	Applicable hole diameter of workpiece	Symbol 2	Guide pin diameter	Shape	Symbol 1	Applicable hole diameter of workpiece	Symbol 2	Guide pin diameter	Shape
08	8	075	7.5	Round type	12	12	115	11.5	Round type	16	16	155	15.5	Round type
		076	7.6				116	11.6				156	15.6	
		077	7.7				117	11.7				157	15.7	
		078	7.8				118	11.8				158	15.8	
		079	7.9				119	11.9				159	15.9	
		080	8.0				120	12.0				160	16.0	
09	9	085	8.5	Round type	13	13	125	12.5	Round type	18	18	175	17.5	Round type
		086	8.6				126	12.6				176	17.6	
		087	8.7				127	12.7				177	17.7	
		088	8.8				128	12.8				178	17.8	
		089	8.9				129	12.9				179	17.9	
		090	9.0				130	13.0				180	18.0	
10	10	095	9.5	Diamond type	14	14	135	13.5	Diamond type	20	20	195	19.5	Diamond type
		096	9.6				136	13.6				196	19.6	
		097	9.7				137	13.7				197	19.7	
		098	9.8				138	13.8				198	19.8	
		099	9.9				139	13.9				199	19.9	
		100	10.0				140	14.0				200	20.0	
11	11	105	10.5	Diamond type	15	15	145	14.5						
		106	10.6				146	14.6						
		107	10.7				147	14.7						
		108	10.8				148	14.8						
		109	10.9				149	14.9						
		110	11.0				150	15.0						

C(L)KQG32 Series

Dimensions

CKQG□32 (Clamping height LOW type) * The figures below indicate the CKQGB32-□RCL-X2081.



Diamond cut shape
(Guide pin dia.: ø9.5 or more)

Mounting surface position

A	
B	
C	
D	

Clamp arm position

A	Same as the port side	
B	90° from the port side	
C	180° from the port side	
D	270° from the port side	

Hole diameter of workpiece	C	D	d	K	SR	Q	Model number
ø8	6	20	7.5	3.5	3.5	—	075
			7.6				076
			7.7				077
			7.8				078
			7.9				079
			8.0				080
			8.1				081
ø9	6.5	20	8.5	4	4	—	085
			8.7				087
			8.8				088
			8.9				089
			9.0				090
			9.5				095
			9.6				096
ø10	7.5	20	9.7	4	4.5	9.2	097
			9.8				098
			9.9				099
			10.0				100
			10.5				105
			10.6				106
			10.7				107
ø11	7.5	20	10.8	4	4.5	9.8	108
			10.9				109
			11.0				110

Hole diameter of workpiece	C	D	d	K	SR	Q	Model number
ø12	8.5	20	11.5	5	5	10.9	115
			11.6				116
			11.7				117
			11.8				118
			11.9				119
			12.0				120
			12.5				125
ø13	8.5	20	12.6	5	5.5	11.6	126
			12.7				127
			12.8				128
			12.9				129
			13.0				130
			13.5				135
			13.6				136
ø14	10.5	25	13.7	6	5.5	12.6	137
			13.8				138
			13.9				139
			14.0				140
			14.5				145
			14.6				146
			14.7				147
ø15	10.5	25	14.8	6	6	13.3	148
			14.9				149
			15.0				150

Hole diameter of workpiece	C	D	d	K	SR	Q	Model number
ø16	11.5	25	15.5	6	6.5	14.3	155
			15.6				156
			15.7				157
			15.8				158
			15.9				159
			16.0				160
			17.5				175
ø18	13	27	17.6	6	7.5	16.4	176
			17.7				177
			17.8				178
			17.9				179
			18.0				180
			19.5				195
			19.6				196
ø20	13	27	19.7	6	8	17.2	197
			19.8				198
			19.9				199
			20.0				200

P	
Nil	TF
Rc1/8	G1/8

CKQG□32 (Clamping height HIGH type) * The figures below indicate the CKQGB32-□RCH-X2082.



Hole diameter of workpiece	C	D	d	K	SR	Q	Model number
ø8	6	20	7.5	3.5	3.5	—	075
			7.6				076
			7.7				077
			7.8				078
			7.9				079
		20	8.0	4	4	—	080
			8.5				085
			8.6				086
			8.7				087
			8.8				088
		20	8.9	4	4.5	9.2	089
			9.0				090
			9.5				095
			9.6				096
			9.7				097
ø10	7.5	20	9.8	4	4.5	9.2	098
			9.9				099
			10.0				100
			10.5				105
			10.6				106
ø11	7.5	20	10.7	4	4.5	9.8	107
			10.8				108
			10.9				109
			11.0				110

Hole diameter of workpiece	C	D	d	K	SR	Q	Model number
ø12	8.5	20	11.5	5	5	10.9	115
			11.6				116
			11.7				117
			11.8				118
			11.9				119
			12.0				120
ø13	8.5	20	12.5	5	5.5	12.7	125
			12.6				126
			12.7				127
			12.8				128
			12.9				129
			13.0				130
ø14	10.5	25	13.5	6	5.5	12.6	135
			13.6				136
			13.7				137
			13.8				138
			13.9				139
			14.0				140
ø15	10.5	25	14.5	6	6	13.7	145
			14.6				146
			14.7				147
			14.8				148
			14.9				149
			15.0				150

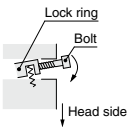
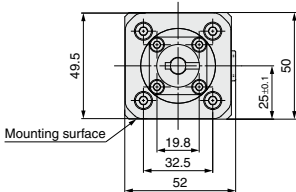
Hole diameter of workpiece	C	D	d	K	SR	Q	Model number
ø16	11.5	25	15.5	6	6.5	14.3	155
			15.6				156
			15.7				157
			15.8				158
			15.9				159
			16.0				160
ø18	13	27	17.5	6	7.5	16.4	175
			17.6				176
			17.7				177
			17.8				178
			17.9				179
			18.0				180
ø20	13	27	19.5	6	8	17.2	195
			19.6				196
			19.7				197
			19.8				198
			19.9				199
			20.0				200

P	
Nil	TF
Rc1/8	G1/8

C(L)KQG32 Series

Dimensions

CLKQG□32 (Clamping height LOW type) * The figures below indicate the CLKQGB32-□RCL-X2081.



Manually unlocking

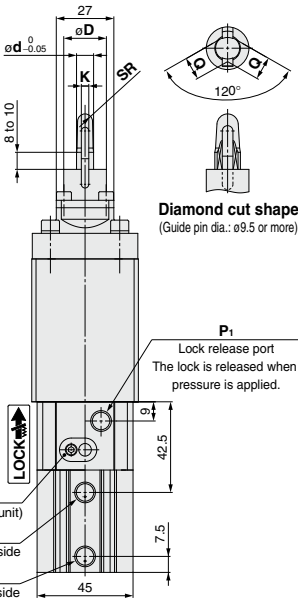
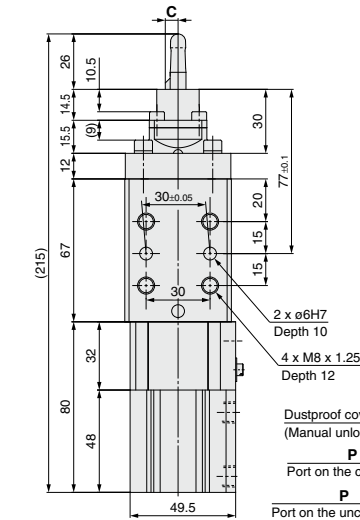
- 1) Remove the dustproof cover.
- 2) Screw the commercially available bolt (M3 x 15 L or more) into the lock ring shown on the left and raise the lock ring toward the head side.
- 3) The lock ring and piston rod form a right angle, and the lock is released.

Mounting surface position

A	
B	
C	
D	

Clamp arm position

A	Same as the port side		
B	90° from the port side		
C	180° from the port side		
D	270° from the port side		



Hole diameter of workpiece	C	D	d	K	SR	Q	Model number
ø8	6	20	7.5	3.5	3.5	—	075
			7.6				076
			7.7				077
			7.8				078
			7.9				079
			8.0				080
ø9	6.5	20	8.5	4	4	—	085
			8.6				086
			8.7				087
			8.8				088
			8.9				089
			9.0				090
ø10	7.5	20	9.5	4	4.5	9.2	095
			9.6				096
			9.7				097
			9.8				098
			9.9				099
			10.0				100
ø11	7.5	20	10.5	4	4.5	9.8	105
			10.6				106
			10.7				107
			10.8				108
			10.9				109
			11.0				110

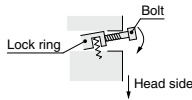
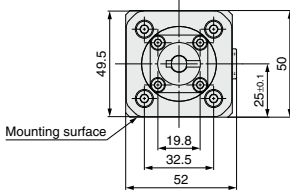
Hole diameter of workpiece	C	D	d	K	SR	Q	Model number
ø12	8.5	20	11.5	5	5	10.9	115
			11.6				116
			11.7				117
			11.8				118
			11.9				119
			12.0				120
ø13	8.5	20	12.5	5	5.5	11.6	125
			12.6				126
			12.7				127
			12.8				128
			12.9				129
			13.0				130
ø14	10.5	25	13.5	6	5.5	12.6	135
			13.6				136
			13.7				137
			13.8				138
			13.9				139
			14.0				140
ø15	10.5	25	14.5	6	6	13.3	145
			14.6				146
			14.7				147
			14.8				148
			14.9				149
			15.0				150

Hole diameter of workpiece	C	D	d	K	SR	Q	Model number
ø16	11.5	25	15.5	6	6.5	14.3	155
			15.6				156
			15.7				157
			15.8				158
			15.9				159
			16.0				160
ø18	13	27	17.5	6	7.5	16.4	175
			17.6				176
			17.7				177
			17.8				178
			17.9				179
			18.0				180
ø20	13	27	19.5	6	8	17.2	195
			19.6				196
			19.7				197
			19.8				198
			19.9				199
			20.0				200

Symbol	P	P ₁
Nil	Rc1/8	Rc1/8
TF	G1/8	M5 x 0.8

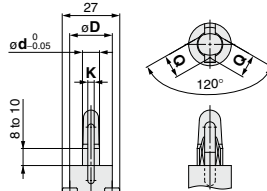
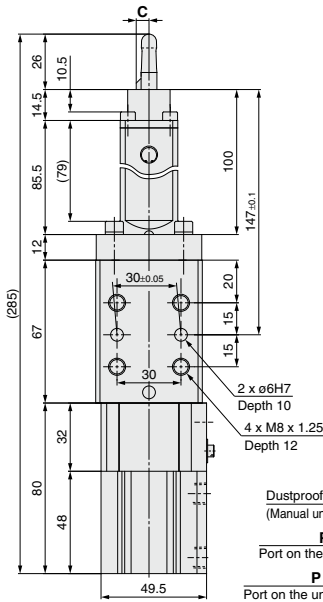
Dimensions

CLKQG□32 (Clamping height HIGH type) * The figures below indicate the CLKQGB32-□RCH-X2082.

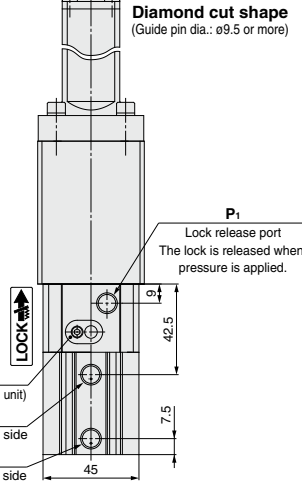


Manually unlocking

- 1) Remove the dustproof cover.
- 2) Screw the commercially available bolt (M3 x 15 L or more) into the lock ring shown on the left and raise the lock ring toward the head side.
- 3) The lock ring and piston rod form a right angle, and the lock is released.



Diamond cut shape
(Guide pin dia.: ø9.5 or more)



Mounting surface position

A	
B	
C	
D	

Clamp arm position

A	Same as the port side
B	90° from the port side
C	180° from the port side
D	270° from the port side

Hole diameter of workpiece	C	D	d	K	SR	Q	Model number
ø8	6	20	7.5	3.5	3.5	—	075
			7.6				076
			7.7				077
			7.8				078
			7.9				079
			8.0				080
			8.5				085
ø9	6.5	20	8.6	4	4	—	086
			8.7				087
			8.8				088
			8.9				089
			9.0				090
			9.5				095
			9.6				096
ø10	7.5	20	9.7	4	4.5	9.2	097
			9.8				098
			9.9				099
			10.0				100
			10.5				105
			10.6				106
			10.7				107
ø11	7.5	20	10.8	4	4.5	9.8	108
			10.9				109
			11.0				110

Hole diameter of workpiece	C	D	d	K	SR	Q	Model number
ø12	8.5	20	11.5	5	5	10.9	115
			11.6				116
			11.7				117
			11.8				118
			11.9				119
			12.0				120
			12.5				125
ø13	8.5	20	12.6	5	5.5	11.6	126
			12.7				127
			12.8				128
			12.9				129
			13.0				130
			13.5				135
			13.6				136
ø14	10.5	25	13.7	6	5.5	12.6	137
			13.8				138
			13.9				139
			14.0				140
			14.5				145
			14.6				146
			14.7				147
ø15	10.5	25	14.8	6	6	13.3	148
			14.9				149
			15.0				150

Hole diameter of workpiece	C	D	d	K	SR	Q	Model number
ø16	11.5	25	15.5	6	6.5	14.3	155
			15.6				156
			15.7				157
			15.8				158
			15.9				159
			16.0				160
			17.5				175
ø18	13	27	17.6	6	7.5	16.4	176
			17.7				177
			17.8				178
			17.9				179
			18.0				180
			19.5				195
			19.6				196
ø20	13	27	19.7	6	8	17.2	197
			19.8				198
			19.9				199
			20.0				200

Symbol	P	P ₁
NII	Rc1/8	Rc1/8
TF	G1/8	M5 x 0.8

Pin Clamp Cylinder Plate Cylinder Type

Magnetic Field Resistant Auto Switch/Small Auto Switch Mounting

C(L)KU32 Series

ø32

How to Order

Clamping height LOW type

Clamping height HIGH type

C L KU 32 - 075 R A L - P3DWASC - X2321

C L KU 32 - 075 R A H - M9BWV - X2322

With lock

Nil	Without lock
L	With lock

Guide pin diameter

* For guide pin diameter, refer to Table 1 on the next page.

Bore size

32 | Equiv. ø32 piston area

Guide pin shape

R Round type

D Diamond type

Number of auto switches

Nil	2 pcs.
S	1 pc. (Unclamping side)

Auto switch

Nil	Without auto switch
-----	---------------------

* For applicable auto switches, refer to the table below.

Clamp arm position (viewed from top)

A

Same direction as the port side

B

Opposite direction of the port side

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

* For the M9□WV, A73 and A79W, when the total thickness of clamped workpiece is over 2 mm, the auto switch may not be adjusted to the most sensitive position.

△Small auto switches (D-M9□/D-A7□) cannot be used under strong magnetic field.

Applicable Auto Switches/Refer to pages 1341 to 1435 for further information on auto switches.

Magnetic Field Resistant Auto Switch

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	D-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 (Note 1)		
	D-P3DWASE				2-wire (1-4)		0.5 m			
	D-P3DWA		Grommet		2-wire		3 m			
	D-P3DWAL						5 m			
	D-P3DWAZ						5 m			

Note 1) PLC: Programmable Logic Controller

Note 2) There are applicable auto switches other than the listed above. For details, refer to the table below.

Small Auto Switch

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length [m]				Pre-wired connector	Applicable load		
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)				
Solid state auto switch	Diagnostic indication (2-color indicator)	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9NV	—	●	●	●	○	○	—	IC circuit	Relay, PLC
				3-wire (PNP)			M9PV	—	●	●	●	○	○			
				2-wire	12 V		M9BV	—	●	●	●	○	○	—		
				3-wire (NPN)	5 V, 12 V		M9NWV	—	●	●	●	○	○	—	IC circuit	
				3-wire (PNP)			M9PWV	—	●	●	●	○	○	—		
Reed auto switch	Diagnostic indication (2-color indicator)	Grommet	Yes	2-wire	12 V	100 V	M9BWV	—	●	●	●	○	○	—	—	Relay, PLC
				—	—		A73	—	●	—	●	●	—	—		
				—	—		A79W	—	●	—	●	—	—	—		

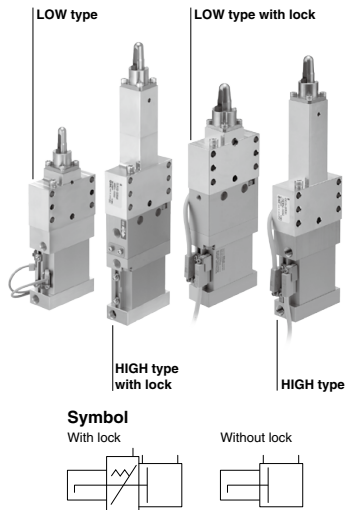
* Solid state auto switches marked with "C" are produced upon receipt of order.

* The D-A9□ and A9□V cannot be mounted.

* For details about auto switches with pre-wired connector, refer to pages 1410 and 1411.

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

* Lead wire length symbols: 0.5 m..... Nil (Example) M9NWV
1 m..... M (Example) M9NWV
3 m..... L (Example) M9NWV
5 m..... L (Example) M9NWV



Basic Specifications

Model	C(L)KU32	
Action	Double acting	
Bore size [mm]	Equivalent to 32	
Cylinder stroke/Clamp stroke [mm]	12.5 (Without workpiece)/10	
Fluid	Air	
Minimum operating pressure	CKU□: 0.1 MPa	CLKU□: 0.15 MPa*
Maximum operating pressure	0.7 MPa	
Ambient and fluid temperature	-10 to 60°C (No freezing)	
Cushion	None	
Lubrication	Non-lube	
Piston speed (Clamp speed)	50 to 150 mm/sec	
Port size (Cylinder port)	Rc1/8	

* 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
Locking pressure	0.05 MPa
Locking direction	Unclamp direction locking
Port size (Lock release port)	Rc1/8
Holding force (Maximum static load)	402 N

Clamping Force

Model	Guide pin diameter [mm]	Operating pressure [MPa]					
		0.2	0.3	0.4	0.5	0.6	0.7
C(L)KU32	ø7.5 to ø20.0	130	195	260	325	390	455

Note 1) 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.

Note 2) Determine the clamping force according to the strength of the workpiece. It can be damaged if the clamping force is too large.

Note 3) 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.

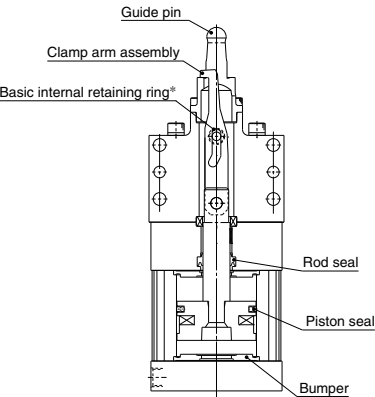
Table 1. Guide Pin Diameter

Symbol	075	076	077	078	079	080	085	086	087	088	089	090	095	096	097	098	099	100	105	106	107	108	109	110
Guide pin diameter [mm]	7.5	7.6	7.7	7.8	7.9	8.0	8.5	8.6	8.7	8.8	8.9	9.0	9.5	9.6	9.7	9.8	9.9	10.0	10.5	10.6	10.7	10.8	10.9	11.0
Applicable hole diameter of workpiece [mm]	For ø8					For ø9					For ø10					For ø11								
Guide pin shape	Round type												Round type/Diamond type											
Symbol	115	116	117	118	119	120	125	126	127	128	129	130	135	136	137	138	139	140	145	146	147	148	149	150
Guide pin diameter [mm]	11.5	11.6	11.7	11.8	11.9	12.0	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
Applicable hole diameter of workpiece [mm]	For ø12					For ø13					For ø14					For ø15								
Guide pin shape	Round type/Diamond type																							
Symbol	155	156	157	158	159	160	175	176	177	178	179	180	195	196	197	198	199	200						
Guide pin diameter [mm]	15.5	15.6	15.7	15.8	15.9	16.0	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 ø16					For ø18					For ø20													
Guide pin shape	Round type/Diamond type																							

Weight

Model		CKU32		CLKU32	
		-X2321	-X2322	-X2321	-X2322
Guide pin diameter [mm]	ø7.5 to ø8.0	740	910	950	1120
	ø8.5 to ø9.0				
	ø9.5 to ø10.0				
	ø10.5 to ø11.0				
	ø11.5 to ø12.0				
	ø12.5 to ø13.0	780	950	990	1160
	ø13.5 to ø14.0				
	ø14.5 to ø15.0				
	ø15.5 to ø16.0				
	ø17.5 to ø18.0	790	960	1000	1170
	ø19.5 to ø20.0				

Replacement Parts



CKU32-120R□L-X2321

Guide Pin Order No.

CKQG32X-075 R

Guide pin diameter

* Refer to Table 1 (Symbol 2) below.

Guide pin shape

	Round type	Diamond type
R		

Seal Kit (For type without lock only)

Kit no.	Contents
MUB32-PS	① Piston seal ② Rod seal ③ Bumper

* Seal kit includes ①, ②, ③. Since the seal kit does not include a grease pack, order the "Grease Pack" below separately.

* CLKU cannot be disassembled and therefore no seal kit is available.

Grease Pack

Kit no.	Contents
GR-S-010	Grease 10 g

Shim (Option)

Refer to page 571 for details about part numbers and dimensions.

Clamp Arm Assembly Order No.

CKQG32X-08 B

Applicable hole diameter of workpiece

* Refer to Table 1 (Symbol 1) below.

Clamp arm assembly

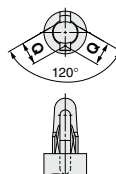
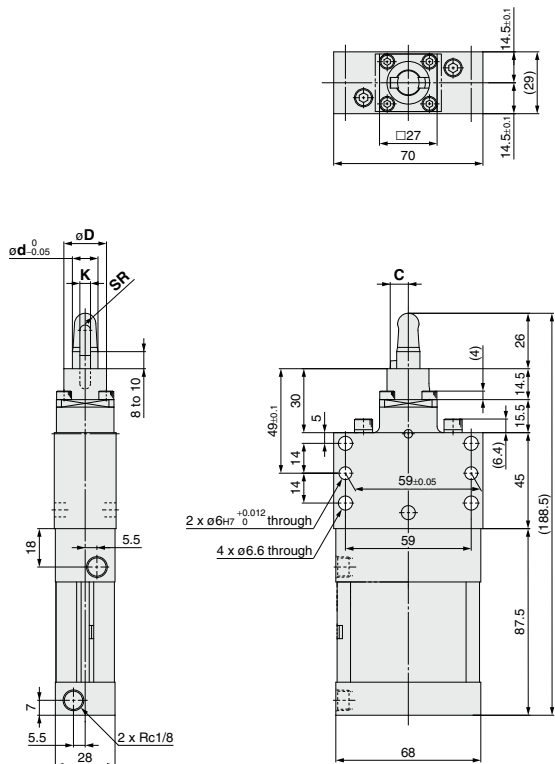
* The clamp arm includes a basic internal retaining ring.

Table 1. Guide Pin Diameter/Applicable Hole Diameter of Workpiece

Symbol 1	Applicable hole diameter of workpiece	Symbol 2	Guide pin diameter	Shape	Symbol 1	Applicable hole diameter of workpiece	Symbol 2	Guide pin diameter	Shape	Symbol 1	Applicable hole diameter of workpiece	Symbol 2	Guide pin diameter	Shape			
08	8	075	7.5	Round type	12	12	115	11.5	Round type	16	16	155	15.5	Round type			
		076	7.6				116	11.6				156	15.6				
		077	7.7				117	11.7				157	15.7				
		078	7.8				118	11.8				158	15.8				
		079	7.9				119	11.9				159	15.9				
		080	8.0				120	12.0				160	16.0				
09	9	085	8.5	Round type	13	13	125	12.5	Diamond type	18	18	175	17.5	Round type			
		086	8.6				126	12.6				176	17.6				
		087	8.7				127	12.7				177	17.7				
		088	8.8				128	12.8				178	17.8				
		089	8.9				129	12.9				179	17.9				
		090	9.0				130	13.0				180	18.0				
10	10	095	9.5	Round type	14	14	135	13.5	Diamond type	20	20	195	19.5	Diamond type			
		096	9.6				136	13.6				196	19.6				
		097	9.7				137	13.7				197	19.7				
		098	9.8				138	13.8				198	19.8				
		099	9.9				139	13.9				199	19.9				
		100	10.0				140	14.0				200	20.0				
11	11	105	10.5	Diamond type	15	15	145	14.5									
		106	10.6				146	14.6									
		107	10.7				147	14.7									
		108	10.8				148	14.8									
		109	10.9				149	14.9									
		110	11.0				150	15.0									

Dimensions

CKU32 (Clamping height LOW type) * Refer to "How to Order" for positional relationship of the mounting surface and port.
* The figures below indicate the CKU32-□RAL-X2321.



Clamp arm position

A	Same as the port side
B	Opposite side of the port

Hole diameter of workpiece	C	D	d	K	SR	Q	Model number
ø8	6	20	7.5	3.5	3.5	—	075
			7.6				076
			7.7				077
			7.8				078
			7.9				079
			8.0				080
			8.5				085
ø9	6.5	20	8.6	4	—	—	086
			8.7				087
			8.8				088
			8.9				089
			9.0				090
			9.5				095
			9.6				096
ø10	7.5	20	9.7	4	4.5	9.2	097
			9.8				098
			9.9				099
			10.0				100
			10.5				105
			10.6				106
			10.7				107
ø11	7.5	20	10.8	4	4.5	9.8	108
			10.9				109
			11.0				110

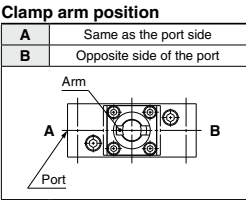
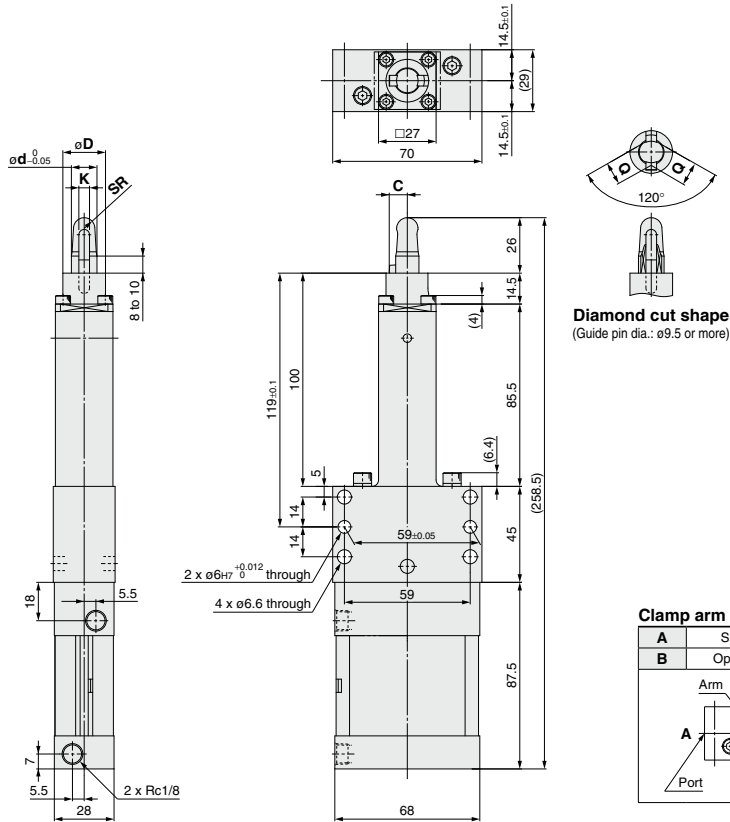
Hole diameter of workpiece	C	D	d	K	SR	Q	Model number
ø12	8.5	20	11.5	5	5	10.9	115
			11.6				116
			11.7				117
			11.8				118
			11.9				119
			12.0				120
			12.5				125
ø13	8.5	20	12.6	5	5.5	11.6	126
			12.7				127
			12.8				128
			12.9				129
			13.0				130
			13.5				135
			13.6				136
ø14	10.5	25	13.7	6	5.5	12.6	137
			13.8				138
			13.9				139
			14.0				140
			14.5				145
			14.6				146
			14.7				147
ø15	10.5	25	14.8	6	6	13.3	148
			14.9				149
			15.0				150

Hole diameter of workpiece	C	D	d	K	SR	Q	Model number
ø16	11.5	25	15.5	6	6.5	14.3	155
			15.6				156
			15.7				157
			15.8				158
			15.9				159
			16.0				160
			17.5				175
ø18	13	27	17.6	6	7.5	16.4	176
			17.7				177
			17.8				178
			17.9				179
			18.0				180
			19.5				195
			19.6				196
ø20	13	27	19.7	6	8	17.2	197
			19.8				198
			19.9				199
			20.0				200

C(L)KU32 Series

Dimensions

CKU32 (Clamping height HIGH type) * Refer to "How to Order" for positional relationship of the mounting surface and port.
* The figures below indicate the CKU32-□RAH-X2322.

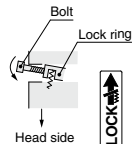


Hole diameter of workpiece	C	D	d	K	SR	Q	Model number
ø8	6	20	7.5	3.5	3.5	—	075
			7.6				076
			7.7				077
			7.8				078
			7.9				079
			8.0				080
			8.5				085
ø9	6.5	20	8.6	4	4	—	086
			8.7				087
			8.8				088
			8.9				089
			9.0				090
			9.5				095
			9.6				096
ø10	7.5	20	9.7	4	4.5	9.2	097
			9.8				098
			9.9				099
			10.0				100
			10.5				105
			10.6				106
			10.7				107
ø11	7.5	20	10.8	4	4.5	9.8	108
			10.9				109
			11.0				110

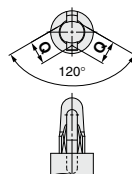
Hole diameter of workpiece	C	D	d	K	SR	Q	Model number
ø12	8.5	20	11.5	5	5	10.9	115
			11.6				116
			11.7				117
			11.8				118
			11.9				119
			12.0				120
			12.5				125
ø13	8.5	20	12.6	5	5.5	11.6	126
			12.7				127
			12.8				128
			12.9				129
			13.0				130
			13.5				135
			13.6				136
ø14	10.5	25	13.7	6	5.5	12.6	137
			13.8				138
			13.9				139
			14.0				140
			14.5				145
			14.6				146
			14.7				147
ø15	10.5	25	14.8	6	6	13.3	148
			14.9				149
			15.0				150

Hole diameter of workpiece	C	D	d	K	SR	Q	Model number
ø16	11.5	25	15.5	6	6.5	14.3	155
			15.6				156
			15.7				157
			15.8				158
			15.9				159
			16.0				160
			17.5				175
ø18	13	27	17.6	6	7.5	16.4	176
			17.7				177
			17.8				178
			17.9				179
			18.0				180
			19.5				195
			19.6				196
ø20	13	27	19.7	6	8	17.2	197
			19.8				198
			19.9				199
			20.0				200

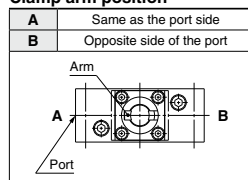
CLKU32 (Clamping height LOW type) * Refer to "How to Order" for positional relationship of the mounting surface and port.
* The figures below indicate the CLKU32-□RAL-X2321.



- 1) Remove the dustproof cover.
- 2) Screw the commercially available bolt (M3 x 25 L or more) into the lock ring shown on the left and raise the lock ring toward the head side.
- 3) The lock ring and piston rod form a right angle, and the lock is released.



Diamond cut shape
(Guide pin dia.: ø11.5 or more)

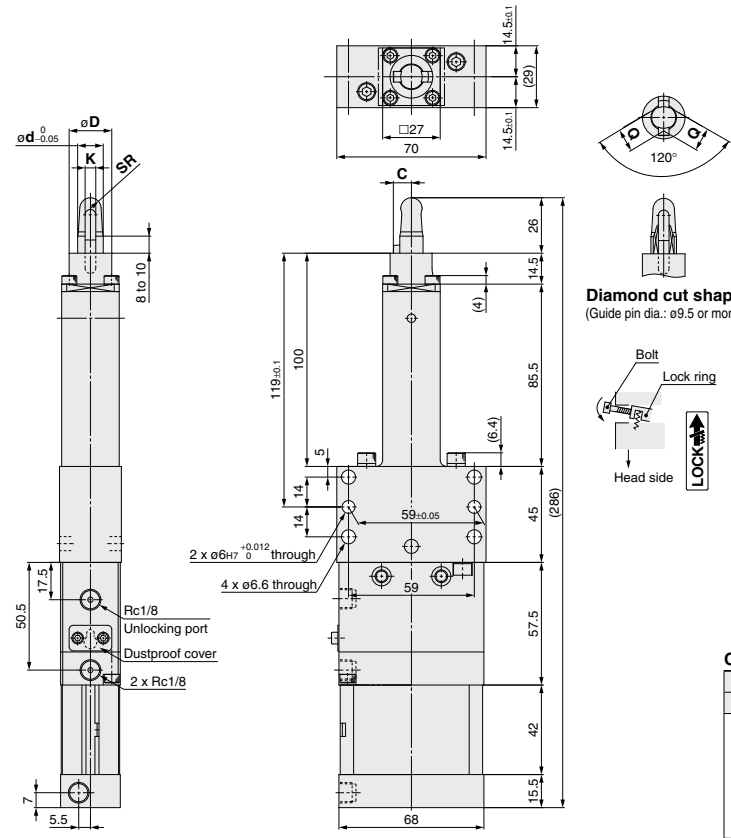


Hole diameter of workpiece	C	D	d	K	SR	Q	Model number
ø16	11.5	25	15.5	6	6.5	14.3	155
			15.6				156
			15.7				157
			15.8				158
			15.9				159
ø18	13	27	16.0	6	7.5	16.4	160
			17.5				175
			17.6				176
			17.7				177
			17.8				178
ø20	13	27	17.9	6	8	17.2	179
			18.0				180
			19.5				195
			19.6				196
			19.7				197
ø20	13	27	19.8	6	8	17.2	198
			19.9				199
			20.0				200
			20.1				201

C(L)KU32 Series

Dimensions

CLKU32 (Clamping height HIGH type) * Refer to "How to Order" for positional relationship of the mounting surface and port.
* The figures below indicate the CLKU32-□RAH-X2322.



- Manually unlocking**
- 1) Remove the dustproof cover.
 - 2) Screw the commercially available bolt (M3 x 25 L or more) into the lock ring shown on the left and raise the lock ring toward the head side.
 - 3) The lock ring and piston rod form a right angle, and the lock is released.

Clamp arm position

A	Same as the port side
B	Opposite side of the port

Hole diameter of workpiece	C	D	d	K	SR	Q	Model number
ø8	6	20	7.5	3.5	3.5	—	075
			7.6				076
			7.7				077
			7.8				078
			7.9				079
			8.0				080
			8.5				085
ø9	6.5	20	8.6	4	4	—	086
			8.7				087
			8.8				088
			8.9				089
			9.0				090
			9.5				095
			9.6				096
ø10	7.5	20	9.7	4	4.5	9.2	097
			9.8				098
			9.9				099
			10.0				100
			10.5				105
			10.6				106
			10.7				107
ø11	7.5	20	10.8	4	4.5	9.8	108
			10.9				109
			11.0				110

Hole diameter of workpiece	C	D	d	K	SR	Q	Model number
ø12	8.5	20	11.5	5	5	10.9	115
			11.6				116
			11.7				117
			11.8				118
			11.9				119
			12.0				120
			12.5				125
ø13	8.5	20	12.6	5	5.5	11.6	126
			12.7				127
			12.8				128
			12.9				129
			13.0				130
			13.5				135
			13.6				136
ø14	10.5	25	13.7	6	5.5	12.6	137
			13.8				138
			13.9				139
			14.0				140
			14.5				145
			14.6				146
			14.7				147
ø15	10.5	25	14.8	6	6	13.3	148
			14.9				149
			15.0				150

Hole diameter of workpiece	C	D	d	K	SR	Q	Model number
ø16	11.5	25	15.5	6	6.5	14.3	155
			15.6				156
			15.7				157
			15.8				158
			15.9				159
			16.0				160
			17.5				175
ø18	13	27	17.6	6	7.5	16.4	176
			17.7				177
			17.8				178
			17.9				179
			18.0				180
			19.5				195
			19.6				196
ø20	13	27	19.7	6	8	17.2	197
			19.8				198
			19.9				199
			20.0				200

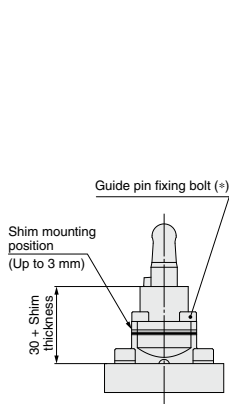
C(L)KQG32/C(L)KU32 Series Options

Dimensions

Shim

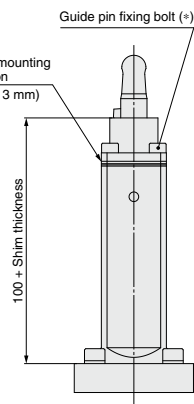
C(L)KQG32-X2081

LOW type



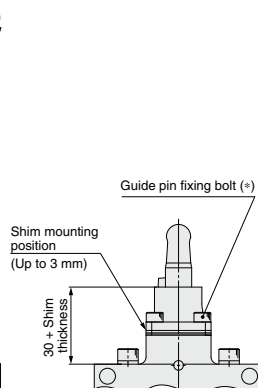
C(L)KQG32-X2082

HIGH type



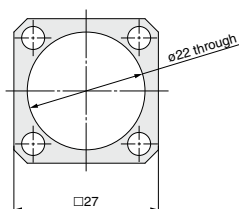
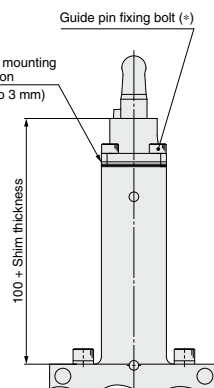
C(L)KU32-X2321

LOW type



C(L)KU32-X2322

HIGH type



Shim dimensions

Description	Part no.	Note
Shim A	CKQ32-36A746MN	Plate thickness 1 [mm]
Shim B	CKQ32-36B746MN	Plate thickness 0.5 [mm]
Guide pin fixing long bolt	CA00644	Bolt size M4 x 12 L

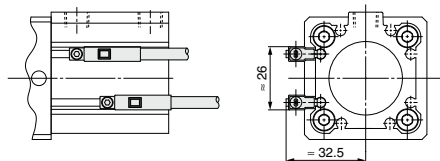
- Shims can be mounted up to 3 mm.
However, when mounting 2 mm or more shims, use the above guide pin fixing long bolt instead of a guide pin fixing bolt (marked with *).
- For auto switches (except the M9□V), when the total thickness of shims and a workpiece is over 2 mm, the auto switch may not be adjusted to the most sensitive position.

C(L)KQG32 Series Auto Switch Mounting 1

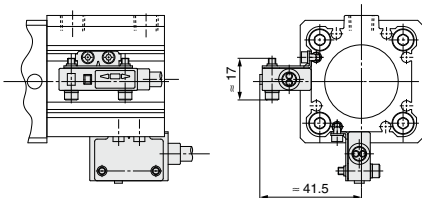
Auto Switch Mounting Height

Applicable cylinder: C(L)KQG32-X2081
C(L)KQG32-X2082

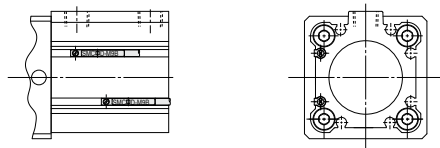
D-P3DWA□



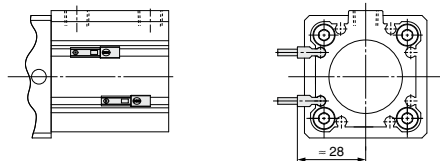
D-P4DW□



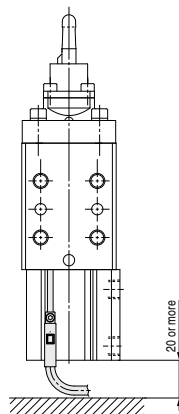
D-M9□
D-M9□W
D-A9□



D-M9□V
D-M9□WV
D-A9□V

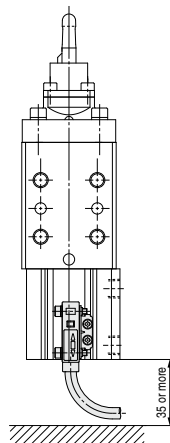


For D-P3DWA□



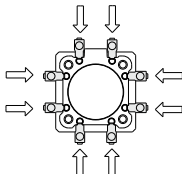
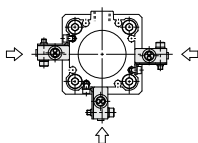
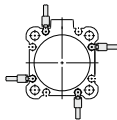
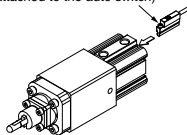
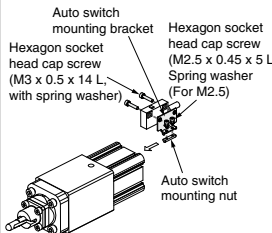
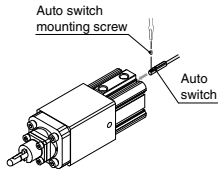
Note) Allow 20 mm or more space at the cylinder head side to secure the minimum bending radius of the auto switch lead wire.

For D-P4DW□



Note) Allow 35 mm or more space at the cylinder head side to secure the minimum bending radius of the auto switch lead wire.

Auto Switch Mounting Bracket Part No./Mounting Method

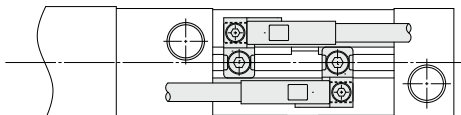
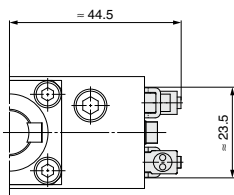
Applicable cylinder	C(L)KQG32-X2081, -X2082										
Applicable auto switches	D-P3DWA□	D-P4DW□	D-M9□(V), D-M9□W(V), D-M9□A(V) D-A9□(V)								
Bore size [mm]	ø32										
Auto switch mounting bracket part no.	—	BQ7-032	—								
Auto switch mounting bracket fitting parts lineup/Weight	—	• Auto switch mounting bracket • Auto switch mounting nut • Hexagon socket head cap screw (M3 x 0.5 x 14 L, with spring washer) • Hexagon socket head cap screw (M2.5 x 0.45 x 5 L) • Spring washer (For M2.5) Weight: 8.5 g	—								
Auto switch mounting surfaces	Surfaces with auto switch mounting slot	Surfaces with auto switch mounting slot	Surfaces with auto switch mounting slot								
	 * 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). Note) 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) 	① Fix the auto switch and the auto switch mounting bracket temporarily with the hexagon socket head cap screws (M3 x 14 L). ② Insert the hexagon socket head cap screws (M2.5 x 5 L) into the spring washers (for M2.5), and tighten the auto switch mounting bracket and auto switch mounting nut temporarily. ③ Insert the temporarily fixed auto switch mounting nut into the mating groove of the cylinder tube. ④ Check the detecting position of the auto switch and fix the auto switch firmly with the hexagon socket head cap screw (M2.5 x 5 L, M3 x 14 L). Note 1) The tightening torque for the hexagon socket head cap screw (M3 x 14 L) is 0.5 to 0.6 N·m. Note 2) The tightening torque for the hexagon socket head cap screw (M2.5 x 5 L) is 0.25 to 0.35 N·m.  Auto switch mounting bracket Hexagon socket head cap screw (M3 x 0.5 x 14 L, with spring washer) Hexagon socket head cap screw (M2.5 x 0.45 x 5 L) Spring washer (For M2.5) Auto switch mounting nut Auto switch	 Auto switch mounting screw Auto switch • When tightening the auto switch mounting screw, use a watchmakers' screwdriver with a handle 5 to 6 mm in diameter. Tightening Torque for Auto Switch Mounting Screw [N·m] <table><tr><th>Auto switch model</th><th>Tightening torque</th></tr><tr><td>D-M9□(V)</td><td rowspan="3">0.05 to 0.15</td></tr><tr><td>D-M9□W(V)</td></tr><tr><td>D-A9□(V)</td></tr><tr><td>D-M9□A(V)</td><td>0.05 to 0.10</td></tr></table>	Auto switch model	Tightening torque	D-M9□(V)	0.05 to 0.15	D-M9□W(V)	D-A9□(V)	D-M9□A(V)	0.05 to 0.10
	Auto switch model	Tightening torque									
D-M9□(V)	0.05 to 0.15										
D-M9□W(V)											
D-A9□(V)											
D-M9□A(V)	0.05 to 0.10										

C(L)KU32 Series **Auto Switch Mounting 2**

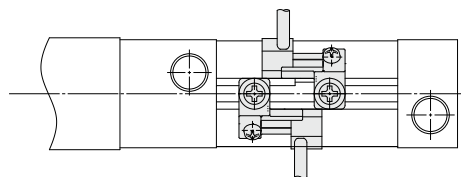
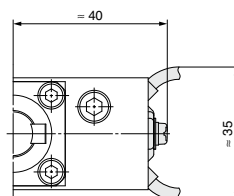
Auto Switch Mounting Height

Applicable cylinder: C(L)KU32-X2321
C(L)KU32-X2322

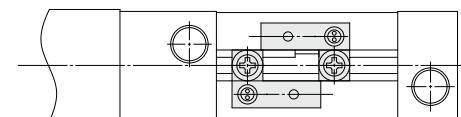
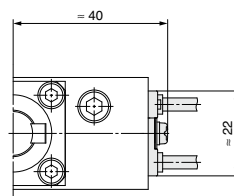
D-P3DWA□



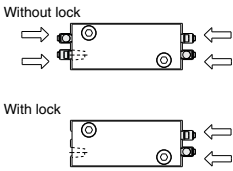
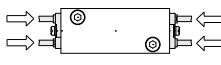
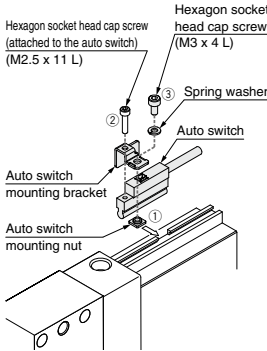
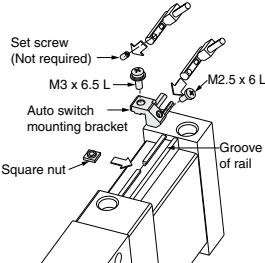
D-M9□V
D-M9□WV



D-A7□



Auto Switch Mounting Bracket Part No./Mounting Method

Applicable cylinder	-X2321/-X2322	-X2321/-X2322	-X2321/-X2322
Applicable auto switches	D-P3DWA□	D-M9□V/M9□WV	D-A73/A79W
Bore size [mm]	ø32	ø32	ø32
Auto switch mounting bracket part no.	BMU4-040S	BMU1-025 (Below ①, ②) BQ2-012 (Below ③, ④)	BMU1-025
Auto switch mounting bracket fitting parts lineup/Weight	①Hexagon socket head cap screw (M3 x 4 L) ②Auto switch mounting nut ③Spring washer (M3) ④Auto switch mounting bracket Weight: 4 g	①Cross recessed round head screw (M3 x 6.5 L) ②Square nut ③Auto switch mounting bracket ④Round head combination screw (M2.5 x 6 L) Weight: 5 g	• Cross recessed round head screw (M3 x 6.5 L) • Square nut Weight: 2 g
Auto switch mounting surfaces	Surfaces with auto switch mounting slot 	Surfaces with auto switch mounting slot 	Surfaces with auto switch mounting slot 
Mounting of auto switch	①Remove the screw (M2.5 x 11 L) attached to the auto switch temporarily. ②Insert the temporarily removed screw into the auto switch mounting bracket, and fix the bracket on the auto switch. ③Slide the auto switch mounting nut into the groove of the rail, and fix the auto switch mounting bracket on the cylinder with the hexagon socket head cap screw (M3 x 4 L) and spring washer (M3). Note) The tightening torque for the hexagon socket head cap screw (M2.5 x 11 L) is 0.2 to 0.3 N·m. The tightening torque for the hexagon socket head cap screw (M3 x 4 L) is 0.5 to 0.7 N·m. 	①Remove the set screw attached to the auto switch. (The set screw is not required.) ②Fix the auto switch to the auto switch mounting bracket with the round head combination screw (M2.5 x 6 L). ③Slide the square nut into the groove of the rail, and fix the auto switch mounting bracket on the cylinder with the cross recessed round head screw (M3 x 6.5 L). Note) The tightening torque for the round head combination screw (M2.5 x 6 L) is 0.1 to 0.2 N·m and for the cross recessed round head screw (M3 x 6.5 L) is 0.5 to 0.7 N·m. 	①Slide the square nut into the groove of the rail, and fix the auto switch on the cylinder with the cross recessed round head screw (M3 x 6.5 L). Note) The tightening torque for the cross recessed round head screw (M3 x 6.5 L) is 0.5 to 0.7 N·m. 