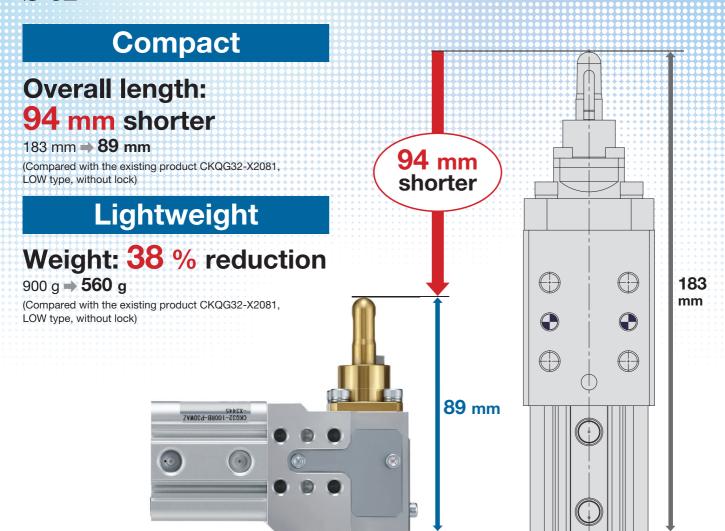
### Pin Clamp Cylinder

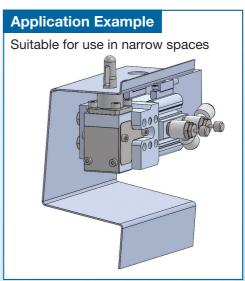


New (RoHS)

Ø 32







C(L)KQ32-X3445



#### 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□





#### Lock mechanism to prevent the dropping of workpieces during emergency stops

#### **Guide pin shape:** Round type/Diamond type

Round type





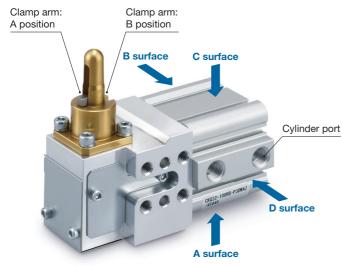
#### Fine adjustment of the clamping height is possible with shims.

(Option)

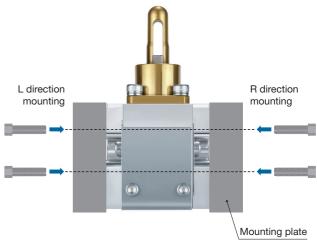
\* The clamping force changes depending on the clamping height. (Refer to Graph 1, "Relationship Between Clamping Height and Clamping Force," on page 3 for details.)

#### 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)



#### Mountable on 2 surfaces

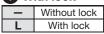


## Pin Clamp Cylinder (Lateral Compact Type) C(L)KQ32-X3445

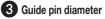
#### **How to Order**



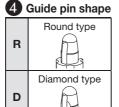
#### With lock







For guide pin diameter, refer to the next page.



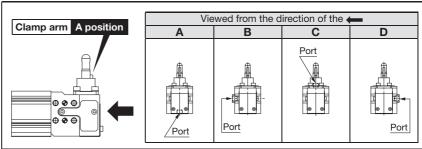
6 Au	to switch type
_	Without auto switch

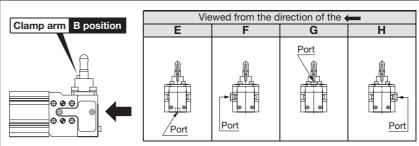
- Refer to the table below for the applicable auto switch model.
- Auto switches are shipped together, (but not assembled).
- When the total thickness of clamped workpiece is over 2 mm, the auto switch may not be adjusted to the most sensitive position.

#### Number of auto switches

_	2
S	1 (Unclamping side)

#### 5 Clamp arm position and Port position





#### Auto Switch Models: Refer to the Catalogue on www.smc.eu 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
0-64-4-4-	P3DWASC P3DWASE	AC magnetic field	Pre-wired connector	0 1	2-wire (3–4) 2-wire (1–4)		0.3 m	Dalass
Solid state auto switch	P3DWA P3DWAL	(Single-phase AC welding magnetic field)	Grommet	2-colour indicator	2-wire	24 VDC	0.5 m 3 m	Relay, PLC
	P3DWAZ	magnetic field)					5 m	

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

		71															
	Chaoial	Electrical	light	Wiring	L	oad voltaç	ge	Auto swit	ch model	Lea	ad wire	length	[m]	Dro wired			
Type	Special function	entry	Indicator light	(Output)		OC .	AC	Perpendicular	In-line	0.5 ( <del>-</del> )	1 (M)	3 (L)	5 (Z)	Pre-wired connector	Applica	ble load	
r,				3-wire (NPN)		5 V, 12 V		M9NV	M9N	•	•	•	0	0	IC circuit		
switch				3-wire (PNP)		5 V, 12 V	V, 12 V		M9P	•	•		0	0	io circuit		
				2-wire		12 V	1		M9BV	M9B	•	•	•	0	0	_	
auto	Diagnostic indication			3-wire (NPN)		5 V, 12 V		M9NWV	M9NW	•	•	•	0	0	IC circuit	Relay,	
	(2-colour indicator)	Grommet	Yes	3-wire (PNP)	24 V		_	M9PWV	M9PW	•	•	•	0	0	io circuit	PLC	
state	(2-colour indicator)			2-wire				M9BWV	M9BW		•		0	0	_	1 20	
St	Water resistant			3-wire (NPN)		5 V, 12 V		M9NAV	M9NA	0	0	•	0	0	IC circuit		
Solid	(2-colour indicator)			3-wire (PNP)		J V, 12 V	J	M9PAV	M9PA	0	0		0	0	io circuit		
Ŏ	(2-coloul illulcator)			2-wire		12 V		M9BAV	M9BA	0	0	•	0	0	_		
d Sh			Yes	3-wire (NPN equivalent)	-	5 V	_	A96V	A96	•	_	•	_	_	IC circuit	_	
Reed auto switch	Gromme	Grommet	163	2-wire	24 V	12 V	100 V	A93V*1	A93	•	•	•		_	_	Relay,	
E o S			No	2-WIIE	24 V	5 V, 12 V	100 V or less	A90V	A90	•	_		_	_	IC circuit	PLC	

<sup>\*1</sup> The 1 m lead wire is only applicable to the D-A93.

1 m····· M (Example) M9NWVM 3 m····· L (Example) M9NWVL

5 m······ Z (Example) M9NWVZ



<sup>\*</sup> Solid state auto switches marked with a "O" are produced upon receipt of order.

<sup>\*</sup> Lead wire length symbols: 0.5 m····· - (Example) M9NWV

#### C(L)KQ32-X3445

# Without lock

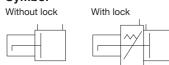
#### With lock

#### **Cylinder Specifications**

	Model		CKQ32-X3445: Without lock	CLKQ32-X3445: With lock					
Action			Double acting						
Bore size [mm	n]		3	2					
Cylinder strok	e/Clamp stroke	[mm]	7.4	./9					
Fluid			A	ir					
Minimum ope	rating pressure		0.1 MPa 0.15 MPa*1						
Maximum operating	Guide pin	Ø 7.5 to Ø 13.0	0.7 1	ИРа					
pressure	diameter [mm]	Ø 13.5 to Ø 20.0	1.0 MPa						
Ambient and f	luid temperatur	es	-10 to 60 °C (No freezing)						
Cushion			No	ne					
Lubrication			Non-	lube					
Piston speed	(Clamp speed)		50 to 150 mm/s						
Port size (Cyli	nder port)		Rc	1/8					

<sup>\*1</sup> Minimum operating pressure is 0.2 MPa when cylinder part and locking part use the same piping.

#### **Symbol**

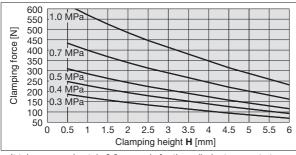


#### **Lock Specifications**

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

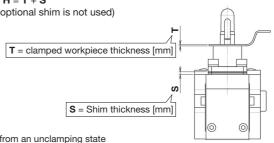
#### **Clamping Force**

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



The clamping force changes depending on the clamping height. Clamping height  $\mathbf{H} = \mathbf{T} + \mathbf{S}$ 

(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 Ø 12 or less hole diameters.

#### **Guide Pin Diameter**

Cumple of	075	076	077	070	070	000	OOF	006	007	000	000	100
Symbol	075	076	_			080			097		099	100
Guide pin diameter [mm]											9.9	10.0
Applicable hole diameter of workpiece [mm]		For Ø 8 For Ø 10										
Guide pin shape		Round type Round type/Diamond ty										ре
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 Ø 11 For Ø 12										
Guide pin shape				Ro	ound t	ype/[	Diamo	nd ty	ре			
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	Ø 13					For	Ø 14		
Guide pin shape				Ro	ound t	ype/[	Diamo	nd ty	ре			
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	Ø 15					For	Ø 16		
Guide pin shape				Ro	ound t	ype/[	Diamo	nd ty	ре			
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   2								20.0			
Applicable hole diameter of workpiece [mm]			For (	Ø 18					For	Ø 20		
Guide pin shape				Ro	ound t	ype/[	Diamo	nd ty	ре			

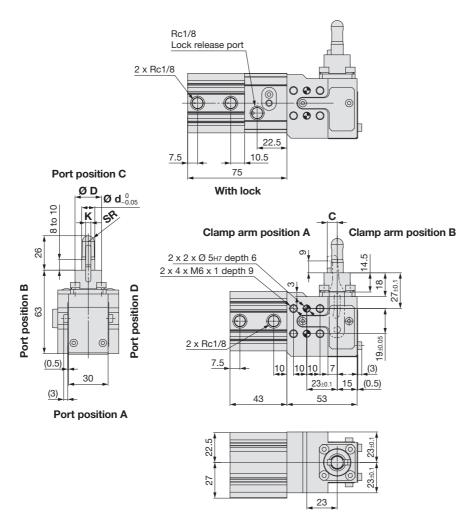
#### Weight

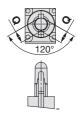
		[9]
Guide pin diameter	Without lock	With lock
Ø 7.5 to Ø 8.0		
Ø 9.5 to Ø 10.0		
Ø 10.5 to Ø 11.0	560	810
Ø 11.5 to Ø 12.0		
Ø 12.5 to Ø 13.0		
Ø 13.5 to Ø 14.0		
Ø 14.5 to Ø 15.0	575	825
Ø 15.5 to Ø 16.0	]	
Ø 17.5 to Ø 18.0	600	850
Ø 19.5 and Ø 20.0	600	000



#### **Dimensions**

#### **C(L)**KQ32-□□□-X3445





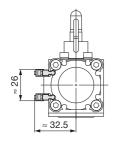
**Diamond type**The diamond pin is not available for guide pin diameters of Ø 7.5 to 8.0.

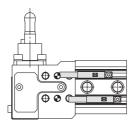
Hole diameter of workpiece	С	ØD	Ød	K	SR	Q	Model number	Hole diameter of workpiece	С	ØD	Ød	K	SR	Q	Model number
Ø <b>8</b>	6	Ø 20	Ø 7.5 Ø 7.6 Ø 7.7 Ø 7.8 Ø 7.9	3.5	3.5	_	075 076 077 078 079	Ø <b>14</b>	10.5	Ø 25	Ø 13.5 Ø 13.6 Ø 13.7 Ø 13.8 Ø 13.9	6	5.5	12.6	135 136 137 138 139
Ø 10	7.5	Ø 20	Ø 8.0 Ø 9.5 Ø 9.6 Ø 9.7 Ø 9.8 Ø 9.9 Ø 10.0	4	4.5	9.2	080 095 096 097 098 099	Ø <b>15</b>	10.5	Ø 25	Ø 14.0 Ø 14.5 Ø 14.6 Ø 14.7 Ø 14.8 Ø 14.9 Ø 15.0	6	6	13.3	140 145 146 147 148 149 150
Ø 11	7.5	Ø 20	Ø 10.5 Ø 10.6 Ø 10.7 Ø 10.8 Ø 10.9 Ø 11.0	4	4.5	9.8	105 106 107 108 109	Ø 16	11.5	Ø 25	Ø 15.5 Ø 15.6 Ø 15.7 Ø 15.8 Ø 15.9 Ø 16.0	6	6.5	14.3	155 156 157 158 159 160
Ø <b>12</b>	8.5	Ø 20	Ø 11.5 Ø 11.6 Ø 11.7 Ø 11.8 Ø 11.9 Ø 12.0	5	5	10.9	115 116 117 118 119 120	Ø 18	13	Ø 27	Ø 17.5 Ø 17.6 Ø 17.7 Ø 17.8 Ø 17.9 Ø 18.0	6	7.5	16.4	175 176 177 178 179 180
Ø <b>13</b>	8.5	Ø 20	Ø 12.5 Ø 12.6 Ø 12.7 Ø 12.8 Ø 12.9 Ø 13.0	5	5.5	11.6	125 126 127 128 129 130	Ø <b>20</b>	13	Ø 27	Ø 19.5 Ø 19.6 Ø 19.7 Ø 19.8 Ø 19.9 Ø 20.0	6	8	17.2	195 196 197 198 199 200

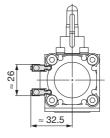
# C(L)KQ32-X3445 Auto Switch Mounting

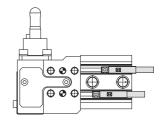
#### **Auto Switch Mounting Height**

#### D-P3DWA□

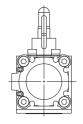


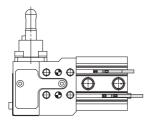


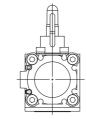


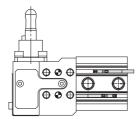


**D-M9**□, **D-M9**□**W**, **D-A9**□

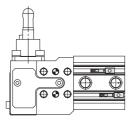


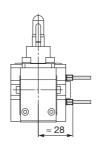


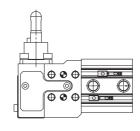


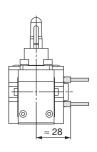


**D-M9**□**V**, **D-M9**□**WV**, **D-A9**□**V** 









#### **Auto Switch Mounting Method**

Applicable auto switches	D-P3DWA□	$D-M9\square(V)$ , $D-M9\square W(V)$ , $D-M9\square A(V)$ , $D-A9\square(V)$
Auto switch mounting surfaces	* When mounting on the port side, select fittings with width across 12 mm or less.	
Mounting of auto switch	Insert the auto switch into the mating groove of the cylinder tube.      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)	Auto switch mounting screw  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  D-M9□A(V)  D-A93  D-M9□A(V)  D-A9□(V) (Excludes the D-A93)  0.10 to 0.20

#### **Replacement Parts**

#### ■ Guide Pin Order No.

#### CKQG32X-075 R

Guide pin diameter

Guide pin shape

\* Refer to Table 1 below.

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 Ø 8						For Ø 10 For Ø 11 For Ø 12								ð 12									
Guide pin shape			Roun	d type	)								Ro	ound t	ype/[	Diamo	nd ty	ре						

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 Ø 13 For Ø 14 For Ø 15 For Ø 16																							
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 Ø 18 For Ø 20											
Guide pin shape	Round type/Diamond type											

#### ■ Clamp Arm Assembly Order No.

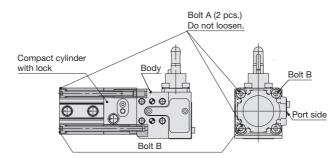
Applicable hole diameter of workpiece	Order No.					
For Ø 8	CKQ32-54-117ZV					
For Ø 10 and Ø 11	CKQ32-54-118ZV					
For Ø 12 and Ø 13	CKQ32-54-119ZV					
For Ø 14 and Ø 15	CKQ32-54-120ZV					
For Ø 16	CKQ32-54-121ZV					
For Ø 18 and Ø 20	CKQ32-54-122ZV					

#### 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.).

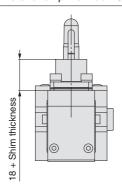


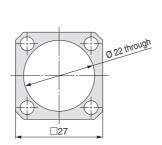
#### **Option**

#### **■**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.



#### 

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

Marning:

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

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

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.

#### 

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 catalogue 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. Our products cannot be used beyond their specifications. Our products are not developed, designed, and manufactured to be used under the following conditions or environments. Use under such conditions or environments is not covered.
  - 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, fuel 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 catalogues 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

We develop, design, and manufacture our products to be used for automatic control equipment, and provide them for peaceful use in manufacturing industries.

Use in non-manufacturing industries is not covered.

Products we manufacture and sell cannot be used for the purpose of transactions or certification specified in the Measurement Act.

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
- 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 catalogue for the particular products.
- 2) Vacuum pads are excluded from this 1 year warranty. A 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 vacuum pad or failure due to the deterioration of rubber material are not covered by the limited

#### **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.



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