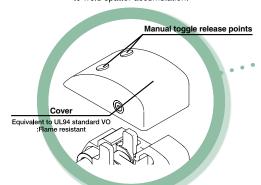


Power Clamp Cylinder Series CKZT

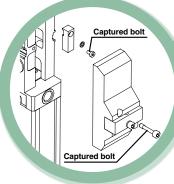


The rounded cover design reduces weld spatter accumulation

The release button only protrudes a small amount.
This design prevents failure of the release mechanism due to weld spatter accumulation.

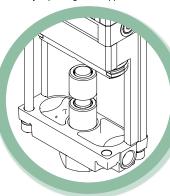


Proximity switch cassette installation and removal can be easily accomplished by unfastening a single bolt



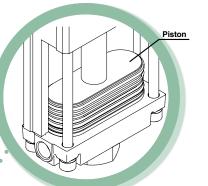
Simple arm opening angle changes

Cylinder disassembly is not necessary. The arm opening angle can be changed by replacing the stopper bolt.



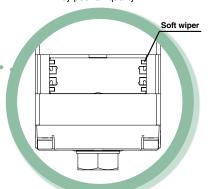


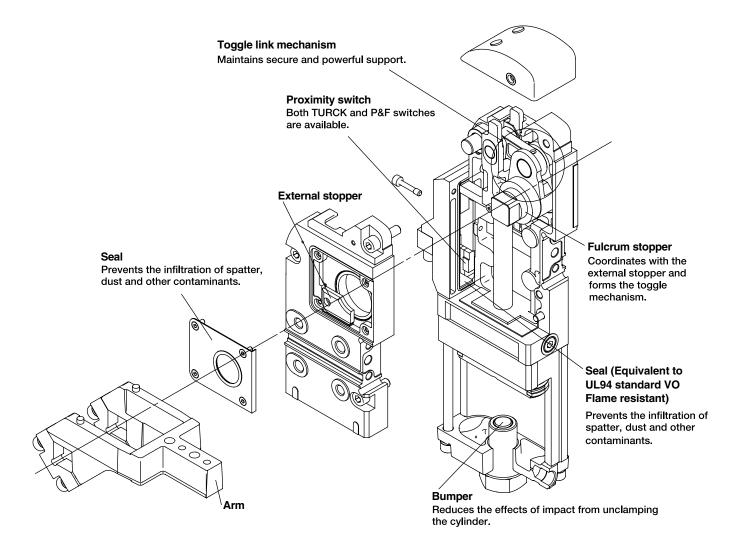
Elliptical design for space saving



Soft wiper on piston is standard

Highly protective seal design is less effected by poor air quality.





3D CAD

Software							
CATIA							
UNIGRAPHICS							
FIDES							
AUTO CAD							
SOLID WORKS							

^{*} For additional formats please log on to the SMC web site www.smceu.com and click on the 3D CAD icon.

Series Variations

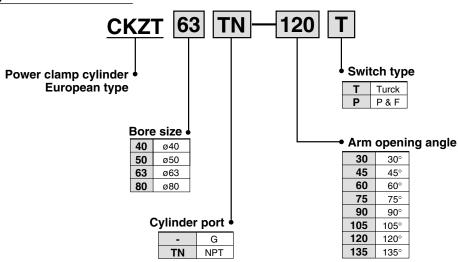
Series		СКΖТ							
Bore size (mm)	ø40	ø50 Equivalent	ø63 Equivalent	ø80 Equivalent					
Arm opening angle	30°, 45°, 60°, 75° 90°, 105°, 120°, 135°								
Switch		TURC	K/P&F						
Port thread type		G/N	IPT						

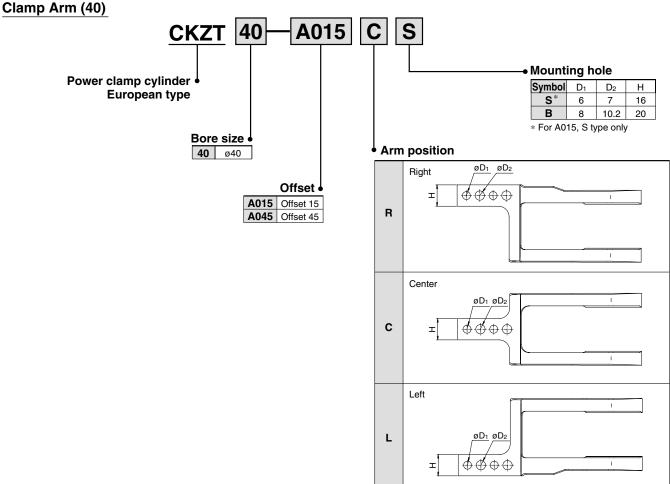


Power Clamp Cylinder Series CKZT ø40, ø50, ø63, ø80

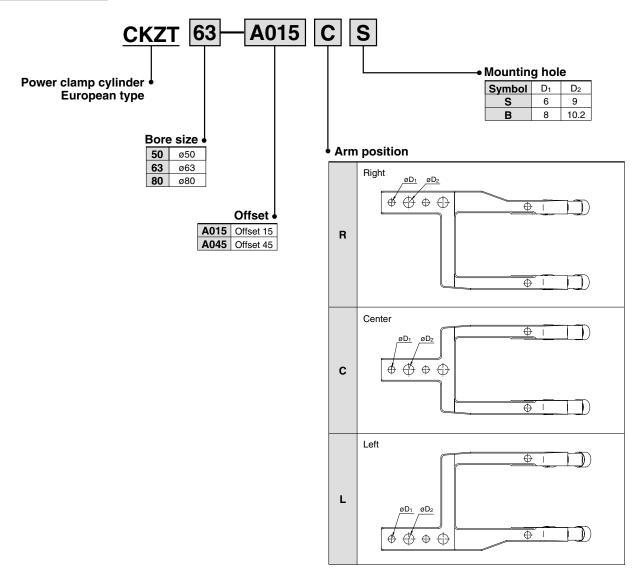
How to Order

Clamp Cylinder Without Arm





Clamp Arm (50, 63, 80)



Cylinder Specifications

Bore size (mm)	40	50	63	80					
Action	Double acting								
Fluid	Air								
Proof pressure	1.2 MPa (174 psi)								
Max. operating pressure	0.8 MPa (116 psi)								
Min. operating pressure		0.3 MPa	(44 psi)						
Ambient and fluid temperature		−10 to 60°C	(14 to 140°F)						
Cushion	Clamping side: None								
Min. operating time	1.0 sec	ond to clamp,	1.0 second to u	ınclamp					

Weight (Cylinder Without Arm)

Unit: kg (lbs)

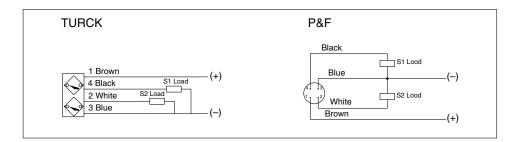
Bore size (mm)		Arm angle													
	30°	45°	60°	75°	90°	105°	120°	135°							
40	1.57 (3.45)	1.57 (3.45)	1.57 (3.45)	1.57 (3.45)	1.56 (3.43)	1.56 (3.43)	1.56 (3.43)	1.56 (3.43)							
50	5.21 (11.46)	5.19 (11.42)	5.17 (11.37)	5.15 (11.33)	5.12 (11.26)	5.09 (11.20)	5.07 (11.15)	5.06 (11.13)							
63	7.37 (16.21)	7.34 (16.15)	7.31 (16.08)	7.28 (16.02)	7.24 (15.93)	7.21 (15.86)	7.18 (15.80)	7.16 (15.75)							
80	17.20 (37.84)	17.13 (37.69)	17.07 (37.55)	17.00 (37.40)	16.93 (37.25)	16.86 (37.09)	16.80 (36.96)	16.76 (36.87)							

Switch Specifications

Manufacturer	TURCK	P&F
Operating range	2 mm ± 10%	2 mm ± 10%
Supply voltage	10 to 30 VDC	10 to 30 VDC
Output	N.O., PNP	N.O., PNP
Continuous load current	≤150 mA	≤100 mA
Response frequency	30 Hz	25 Hz
Housing material	PBT-GP30	PA6, PBT
Output indication	Clamping side: Red Unclamping side: Yellow	Clamping side: Red Unclamping side: Yellow
Voltage indication	Green	Green

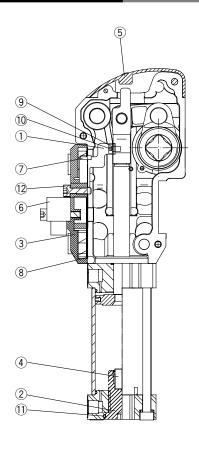
Note) The switch specifications correspond to the manufacturer's technical information.

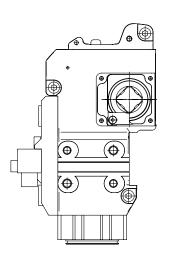
Wiring Diagram

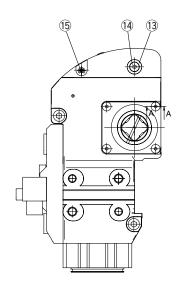




Construction (40)







<u>A-A</u>

Replaceable Kits List

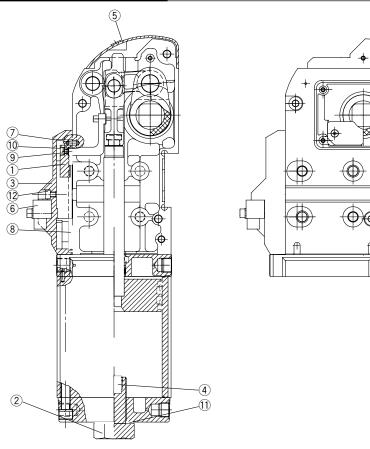
Description	Bore	Kit no.	Contents
Switch cassette	40	CKZT-S040 [↑] (See Note 1)	 ③ Switch holder ⑥ Inductive switch ⑦ Parallel pin ⑧ Sheet gasket ⑫ Cover cap screw
Parts for changing		CKZT-D040* (See Note 2)	 Stay Spring washer Short head cap screw
Parts for changing opening angle of arm	40	CKZT-B040* (See Note 2)	② Stopper bolt④ Bumper① O ring
		CKZT-K040* (See Note 2)	CKZT-D040* CKZT-B040*
Top cover kits	40	CKZT-T040	⑤ Top cover③ Spacer④ Brazier head cap bolt⑤ Hinge pin

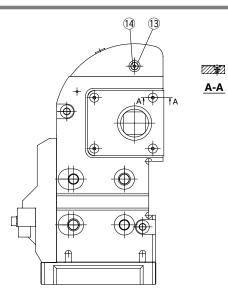
Table 1

Opening angle	Code
30°	Н
45°	G
60°	F
75°	E
90°	D
105°	С
120°	В
135°	Α

Note 1) T: TURCK, P: P&F
Note 2) Please specify the opening angle by the code in Table 1.

Construction (50, 63, 80)

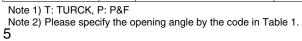




Replaceable Kits List

Description	Bore	Kit no.	Contents
	50	CKZ1N-S050 [™] (See Note 1)	Switch holder Inductive switch
Switch cassette	63	CKZ1N-S063 [™] (See Note 1)	⑦ Parallel pin
	80	CKZ1N-S080 [™] (See Note 1)	Sheet gasket Cover cap screw
		CKZN-D050* (See Note 2)	Switch actuator Spring washer Socket head cap screw
	50	CKZN-B050* (See Note 2)	② Stopper bolt ④ Bumper ⑪ Seal washer
		CKZN-K050* (See Note 2)	CKZ1N-D050* CKZN-B050*
Davida farrah arraigan	0	CKZN-D063* (See Note 2)	Switch actuator Spring washer Short head cap screw
Parts for changing opening angle of arm		CKZN-B063* (See Note 2)	② Stopper bolt④ Bumper① Seal washer
		CKZN-K063* (See Note 2)	CKZ1N-D063* CKZN-B063*
		CKZN-D080* (See Note 2)	Switch actuator Spring washer Socket head cap screw
	80	CKZN-B080* (See Note 2)	② Stopper bolt④ Bumper① Seal washer
		CKZN-K080* (See Note 2)	CKZ1N-D080* CKZN-B080*
	50	CKZ2N-T050	⑤ Top cover
Top cover kits	63	CKZ2N-T063	13 Spacer
	80	CKZ2N-T080	Short head cap screw

Table 1	
Opening angle	Code
30°	Н
45°	G
60°	F
75°	E
90°	D
105°	С
120°	В
135°	A



Maximum Cylinder Locking Moment

Bore size (mm)	Max. locking force							
Dore Size (IIIII)	N•m	lbf•in						
40	380	3363						
50	800	7080						
63	1500	13274						
80	2500	22124						

Maximum Clamping Moment

		Max. clamping force														
Bore size (mm)	0.3 MPa		0.4 MPa		0.5 MPa		0.6 MPa		0.7 MPa		0.8 MPa					
	N•m	lbf•in	N•m	lbf•in	N•m	lbf•in	N•m	lbf•in	N•m	lbf•in	N•m	lbf•in				
40	35	310	76	673	118	1044	154	1363	178	1575	194	1717				
50	100	885	130	1150	160	1416	190	1681	220	1947	250	2212				
63	300	2655	350	3097	400	3540	450	3982	500	4425	550	4867				
80	560	4956	720	6372	880	7788	1040	9204	1200	10619	1360	12035				

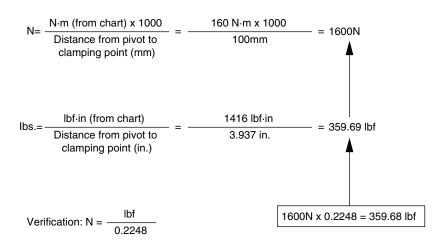
^{*} at 0.5 MPa

Cylinder Stroke

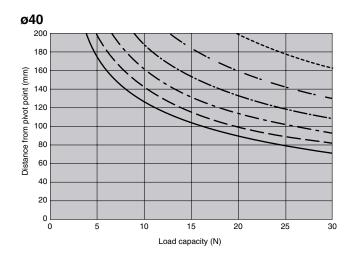
Unit: (mm) Angle 30° 45° 60° 75° 90° 105° 120° 135° Bore size 40 26.8 33.3 39.6 45.9 52.3 58.4 63.6 67.3 50 31.1 38.9 46.4 54.1 61.9 69.6 76.4 81.3 63 34.1 42.5 50.5 58.6 66.8 74.7 81.5 86.3 80 47.3 59.4 71.1 83.2 95.7 108.0 119.1 127.3

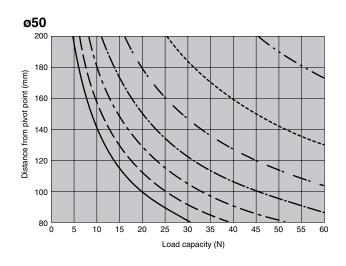
To determine actual clamp force.

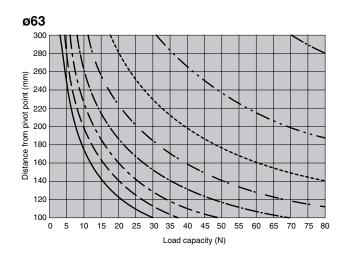
Example: CKZT50, 0.5 MPa, distance from pivot to clamping point = 100 mm (3.937 in.)

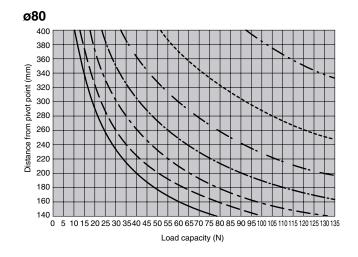


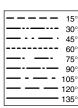
Selection Graph





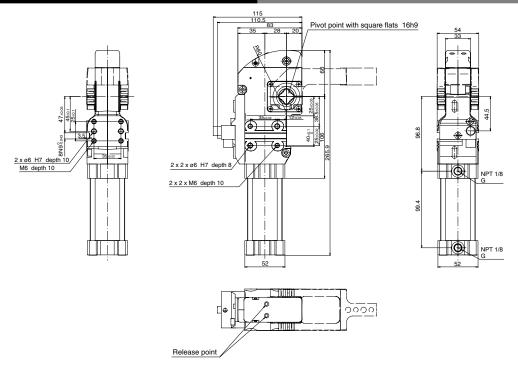




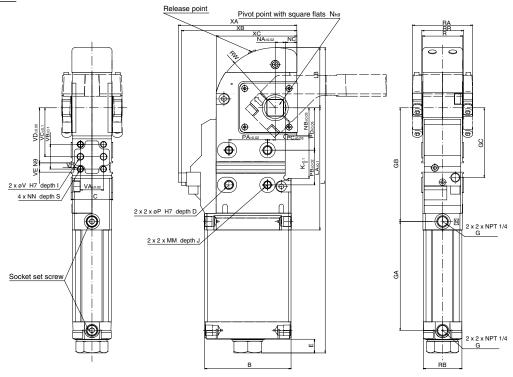


Dimensions (Clamp Cylinder Without Arm)

CKZT40



CKZT50, 63, 80

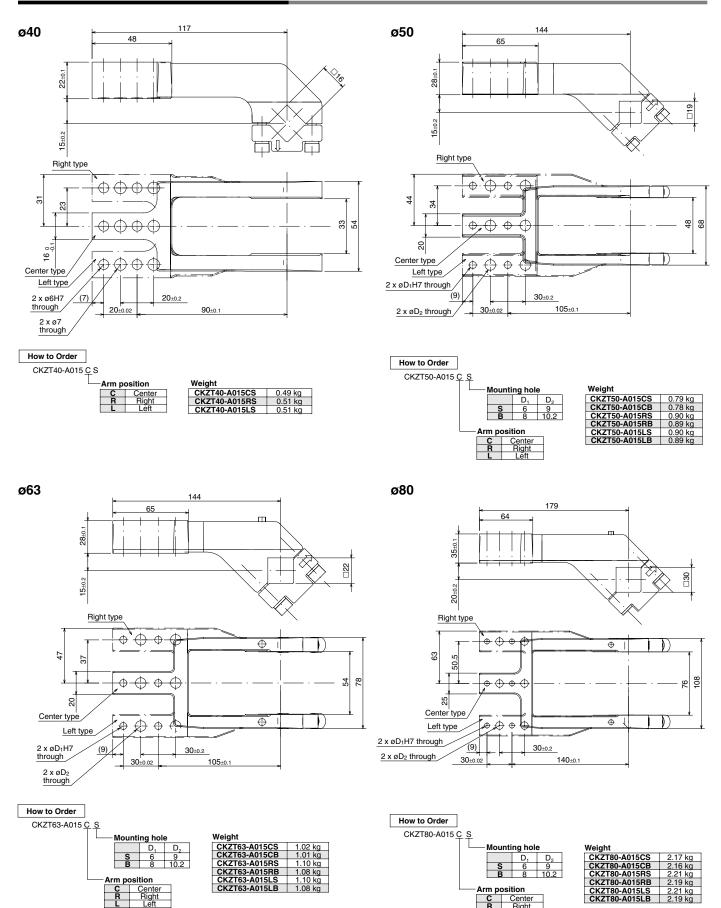


(mm)

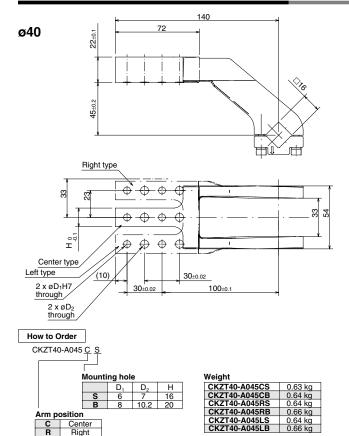
Bore (mm)	В	С	D	E	GA	GB	GC	ı	J	K	L	LA	LB	ММ	N	NA	NB	NC	NN	Р
50	95	48	12	13.7	134.3	138.5	93	10	12	55	376.4	149.5	78.4	M10	19	13	36.5	10.3	M8	10
63	112	54	12	16.6	141.2	147.5	90.5	10	12	55	395.6	158.5	78	M10	22	13	36.5	15.8	M8	10
80	154	76	13	19.6	185.8	199	137.5	12	18	80	530.9	214	113.7	M12	30	21	50	20.8	M10	12

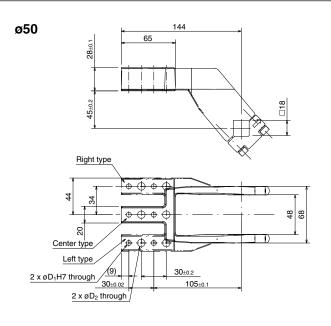
Bore (mm)	PA	РВ	РС	PD	R	RA	RB	RR	s	V	VA	VB	vc	VD	VE	VF	w	XA	ХВ	хс
50	50	45	10	55	45	68	45	48	11	8	30	32	63.5	71.5	12	3.5	78.4	141.8	137.3	92.8
63	50	45	10	55	52	78	50	54	11	8	30	32	63.5	71.5	12	3.5	78	154.4	150.4	105.3
80	70	75	15	65	70	108	68	76	15	8	50	50	90	96.5	12	3.5	113.7	197.3	192.8	148.3

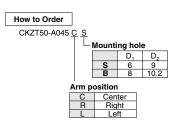
Dimensions (Clamp Arm: Offset 15)



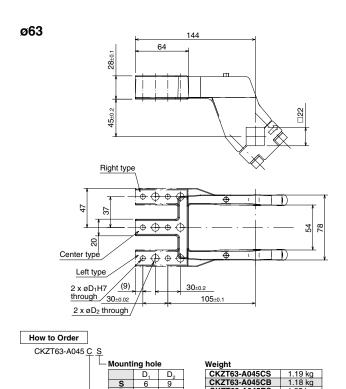
Dimensions (Clamp Arm: Offset 45)







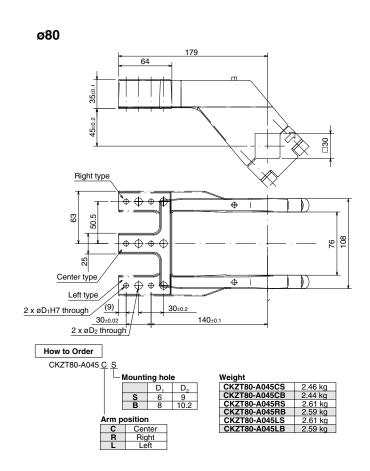
Weight	
CKZT50-A045CS	0.93 kg
CKZT50-A045CB	0.92 kg
CKZT50-A045RS	1.02 kg
CKZT50-A045RB	1.01 kg
CKZT50-A045LS	1.02 kg
CKZT50-A045LB	1.01 kg



D₁ D₂

Arm position

Center Right Left







Series CKZT Safety Instructions

These safety instructions are intended to prevent a hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by a label of "Caution", "Warning" or "Danger". To ensure safety, be sure to observe ISO 4414 Note 1), JIS B 8370 Note 2) and other safety practices.

↑ Caution: Operator error could result in injury or equipment damage.

Narning: Operator error could result in serious injury or loss of life.

Danger: In extreme conditions, there is a possible result of serious injury or loss of life.

Note 1) ISO 4414: Pneumatic fluid power -- Recommendations for the application of equipment to transmission and control systems.

Note 2) JIS B 8370: General Rules for Pneumatic Equipment

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

Since the products specified here are used in various operating conditions, their compatibility for the specific pneumatic system must be based on specifications or after analysis and/or tests to meet your specific requirements.

2. Only trained personnel should operate pneumatically operated machinery and equipment.

Compressed air can be dangerous if an operator is unfamiliar with it. Assembly, handling or repair of pneumatic systems should be performed by trained and experienced operators.

- 3. Do not service machinery/equipment or attempt to remove components until safety is confirmed.
- 1. Inspection and maintenance of machinery/equipment should only be performed after confirmation of safe locked-out control positions.
- 2. When equipment is to be removed, confirm the safety process as mentioned above. Cut the supply pressure for this equipment and exhaust all residual compressed air in the system.
- 3. Before machinery/equipment is restarted, take measures to prevent shooting-out of cylinder piston rod, etc. (Bleed air into the system gradually to create back pressure.)
- 4. Contact SMC if the product is to be used in any of the following conditions:
- 1. Conditions and environments beyond the given specifications, or if product is used outdoors.
- 2. Installation on equipment in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverages, recreation equipment, emergency stop circuits, press applications, or safety equipment.
- 3. An application which has the possibility of having negative effects on people, property, or animals, requiring special safety analysis.



Design

⚠ Warning

1. There is a danger of sudden action by air cylinders if sliding parts of machinery are twisted, etc., and changes in forces occur.

In such cases, human injury may occur; e.g., by catching hands or feet in the machinery, or damage to the machinery itself may occur. Therefore, the machine should be designed to avoid such dangers.

Attach a protective cover to minimise the risk of human injury.

If a driven object and moving parts of a cylinder pose a danger of human injury, design the structure to avoid contact with the human body.

3. Securely tighten all stationary parts and connected parts so that they will not become loose.

Especially when a cylinder operates with high frequency or is installed where there is a lot of vibration, ensure that all parts remain secure.

4. A deceleration circuit or shock absorber, etc., may be required.

When a driven object is operated at high speed or the load is heavy, a cylinder's cushion will not be sufficient to absorb the impact. Install a deceleration circuit to reduce the speed before cushioning, or install an external shock absorber to relieve the impact. In this case, the rigidity of the machinery should also be examined.

5. Consider a possible drop in circuit pressure due to a power outage, etc.

When a cylinder is used in a clamping mechanism, there is a danger of work pieces dropping if there is a decrease in clamping force due to a drop in circuit pressure caused by a power outage, etc. Therefore, safety equipment should be installed to prevent damage to machinery and/or human injury. Suspension mechanisms and lifting devices also require consideration for drop prevention.

6. Consider a possible loss of power source.

Measures should be taken to protect against human injury and equipment damage in the event that there is a loss of power to equipment controlled by air pressure, electricity or hydraulics, etc.

Design circuitry to prevent sudden lurching of driven objects.

When a cylinder is driven by an exhaust center type directional control valve or when starting up after residual pressure is exhausted from the circuit, etc., the piston and its driven object will lurch at high speed if pressure is applied to one side of the cylinder because of the absence of air pressure inside the cylinder. Therefore, equipment should be selected and circuits designed to prevent sudden lurching because, there is a danger of human injury and/or damage to equipment when this occurs.

8. Consider emergency stops.

Design so that human injury and/or damage to machinery and equipment will not be caused when machinery is stopped by a safety device under abnormal conditions, a power outage or a manual emergency stop.

Consider the action when operation is restarted after an emergency stop or abnormal stop.

Design the machinery so that human injury or equipment damage will not occur upon restart of operation. When the cylinder has to be reset at the starting position, install safe manual control equipment.

Selection

Marning

1. Confirm the specifications.

The products advertised in this catalogue are designed according to use in industrial compressed air systems. If the products are used in conditions where pressure, temperature, etc., are out of specification, damage and/or malfunction may be caused. Do not use in these conditions. (Refer to specifications.) Consult SMC if you use a fluid other than compressed air.

∧ Caution

1. Operate the piston within a range such that collision damage will not occur at the stroke end.

Operate within a range such that damage will not occur when the piston having inertial force stops by striking the cover at the stroke end. Refer to the cylinder model selection procedure for the range within which damage will not occur.

Use a speed controller to adjust the cylinder drive speed, gradually increasing from a low speed to the desired speed setting.

Mounting

⚠ Caution

 Do not scratch or gouge the sliding parts of the cylinder tube or piston rod, etc., by striking or grasping them with other objects.

Cylinder bores are manufactured to precise tolerances, so that even a slight deformation may cause malfunction. Also, scratches or gouges, etc., in the piston rod may lead to damaged seals and cause air leakage.

2. Do not use until you can verify that equipment can operate properly.

Following mounting, maintenance or conversions, verify correct mounting by suitable function and leakage tests after compressed air and power are connected.





Piping

⚠ Caution

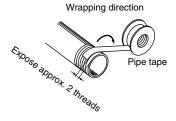
1. Preparation before piping

Before piping is connected, it should be thoroughly blown out with air (flushing) or washed to remove chips, cutting oil and other debris from inside the pipe.

2. Wrapping of pipe tape

When screwing together pipes and fittings, etc., be certain that chips from the pipe threads and sealing material do not get inside the piping.

Also, when pipe tape is used, leave 1.5 to 2 thread ridges exposed at the end of the threads.



Lubrication

⚠ Caution

1. Lubrication on cylinder.

The cylinder has been lubricated for life at the factory and can be used without any further lubrication.

However, in the event that it will be lubricated, use class 1 turbine oil (with no additives) ISO VG32.

Stopping lubrication later may lead to malfunction due to the loss of the original lubricant. Therefore, lubrication must be continued once it has been started.

Air Supply

.⚠Warning

1. Use clean air.

Do not use compressed air that includes chemicals, synthetic oils containing organic solvents, salt or corrosive gases, etc., as it can cause damage or malfunction.

Air Supply

⚠ Caution

1. Install air filters.

Install air filters at the upstream side of valves. The filtration degree should be 5 μm or finer.

2. Install an after-cooler, air dryer or water separator, etc.

Air that includes excessive drainage may cause malfunction of valves and other pneumatic equipment. To prevent this, install an after-cooler, air dryer or water separator, etc.

3. Use the product within the specified range of fluid and ambient temperature.

Take measures to prevent freezing, since moisture in circuits can be frozen below 5°C , and this may cause damage to seals and lead to malfunction.

Refer to SMC's "Best Pneumatic" catalogue for further details on compressed air quality.

Operating Environment

Marning

 Do not use in environments where there is a danger of corrosion.

Maintenance

A Caution

1. Drain flushing

Remove drainage from air filters regularly. (Refer to specifications.)





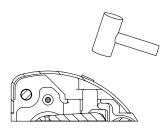
Series CKZT Specific Product Precautions

Be sure to read this before handling. Refer to the back of pages 1 through to 3 for Safety Instructions and Actuator Precautions.

1. Manual toggle release

The toggle link mechanism can be released easily by hitting the portion of round shaped projection on the cover by using of plastic hammer (hammer made of soft material), etc.

Please be sure to perform manual toggle release after safety has been confirmed because the clamp arm can suddenly move up during manual release.



2. Do not disassemble the power clamp

No special maintenance is necessary because the power clamp has a fully enclosed design to protect the clamp against welding spatter, and also the power clamp has a contamination resistant construction. So, please do not disassemble the power clamp except for when changing replaceable parts as there is a possibility of deterioration of the clamp performance.

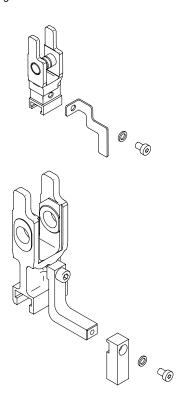
3. Tightening torque of spare parts

Please make sure to tighten spare parts recommended in accordance with the following torque shown in the table.

Description	Davis sine (1999)	Tightening torque				
Description	Bore size (mm)	N•m	lbf•in			
	40	3.0 to 4.0	27 to 35			
Switch cassette kit	50	5.0 to 7.0	44 to 62			
Switch cassette kit	63	5.0 to 7.0	44 to 62			
	80	5.0 to 7.0	44 to 62			
	40	1.5 to 2.0	13 to 18			
Switch bracket kit	50	3.0 to 4.0	27 to 35			
Owner bracket kit	63	3.0 to 4.0	27 to 35			
	80	3.0 to 4.0	27 to 35			
	40	12.5 to 17.0	110 to 150			
Stopper bolt kit	50	130 to 150	1150 to 1327			
Gtopper boit kit	63	160 to 200	1416 to 1770			
	80	480 to 520	4248 to 4600			
	40	1.5 to 2.0	13 to 18			
Top cover kit	50	2.5 to 3.0	22 to 27			
Top cover kit	63	2.5 to 3.0	22 to 27			
	80	3.0 to 5.0	27 to 44			

Note: (1) Please make sure that the switch cassette is tightly secured to the body after it has been replaced with a new one.

(2) Please make sure that the switch actuator is mounted so that the stamped side is secured as shown below if replacing.



4. Clamp Arm Tightening Torque

	<u> </u>					
Bore size (mm)	Tightening torque					
Bore size (ITIIII)	N∙m	lbf•in				
40	6 to 9	53 to 80				
50	12 to 15	106 to 133				
63	15 to 20	133 to 177				
80	18 to 24	159 to 212				





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