

Productivity improvements from the perspective of components.

HP

HIGH PRODUCTIVITY



CKD Corporation

Carbon neutrality comes from reducing CO₂

What "HIGH PRODUCTIVITY" means to CKD

Lower productivity will result in loss. In addition, parts requiring maintenance will be wasted. We believe that achieving high productivity without maintenance leads to carbon neutrality. Our HP Series emphasizes that type of manufacturing, one that originates from the perspective of components. Improving productivity in high-frequency, stressed-environment processes, these unprecedented long service life products contribute to "production facilities that never stop" and "stable operation".



Industry-specific series available

P4-HP1 Series	Page 167
FP1 - G-HP1 Series	Page 215

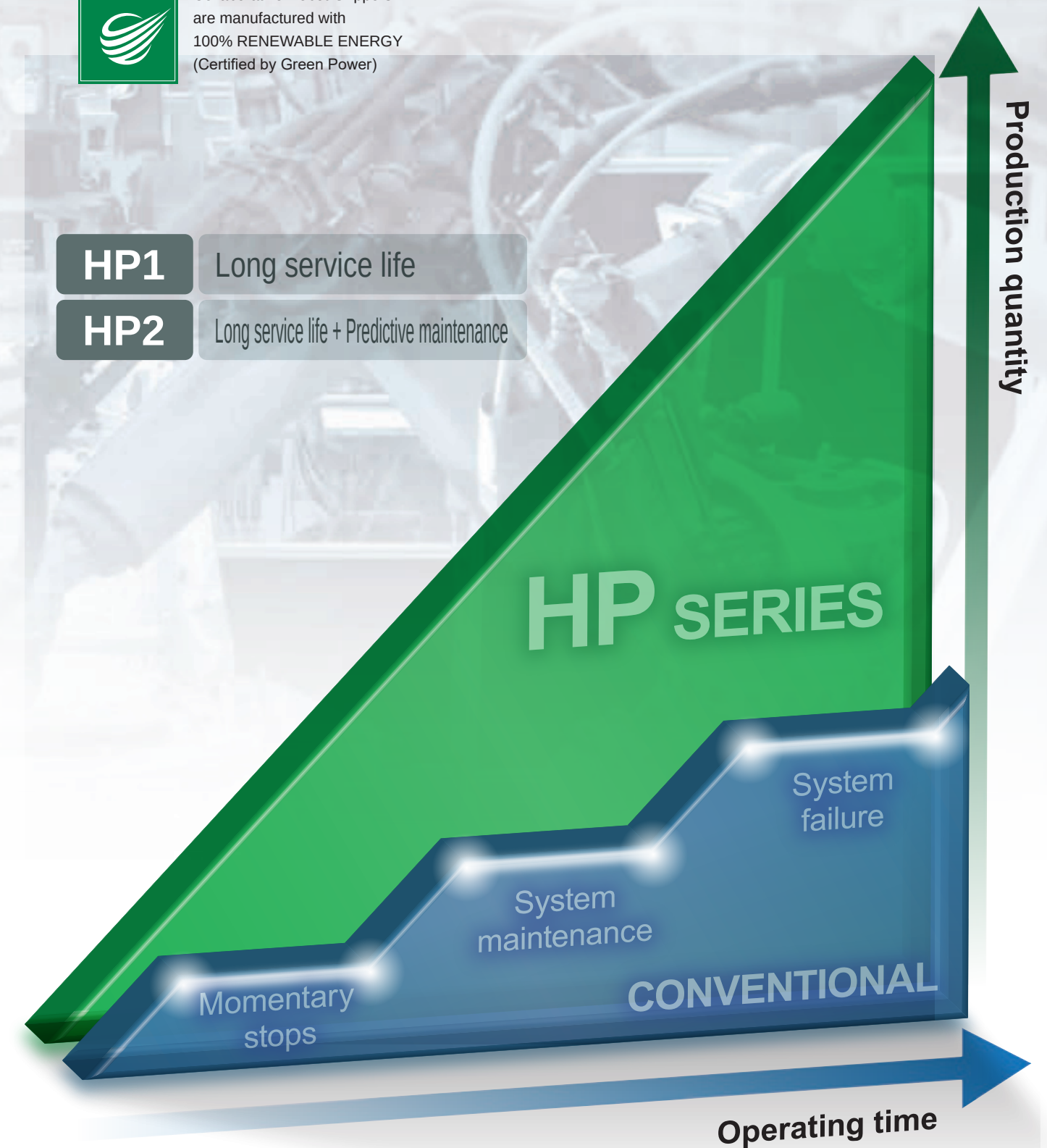


emissions through long service life products



Green power
Collaborative Robot Grippers
are manufactured with
100% RENEWABLE ENERGY
(Certified by Green Power)

- HP1** Long service life
- HP2** Long service life + Predictive maintenance



Optimized sliding parts Does not break even with high frequency usage

Long service life cylinder

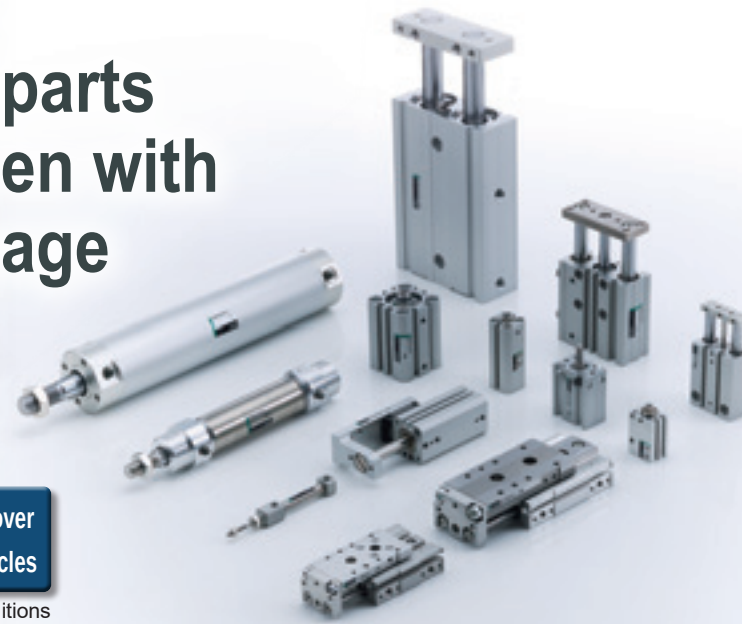
HP1 Series

Greatly reduces
unexplained stops

Greatly reduces
replacements

Service life over
20 million cycles

Subject to CKD prescribed conditions



Improved environmental resistance Does not break even in dusty environments

Environment resistance cylinder

G-HP1 Series

Greatly reduces
unexplained stops

Greatly reduces
replacements

Improved
environmental
resistance

Durability
over 5 million
cycles

Subject to CKD prescribed conditions

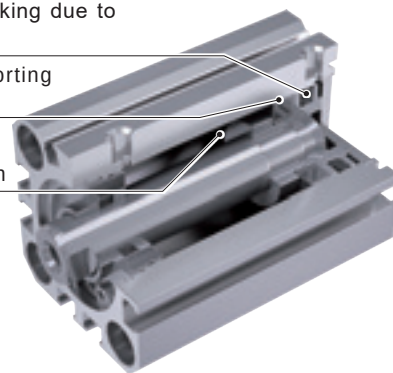


Long service life

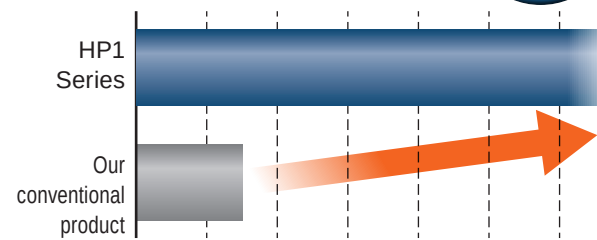
By optimizing packing design/seal functions and adopting grease supporting high frequency use, a long service life has been achieved with the same dimensions as conventional products.

Abrasion-resistant packing due to special compounding
Adopted grease supporting high-frequency usage

Optimized sealing function



Operational cycle



4x
or more
previous
models

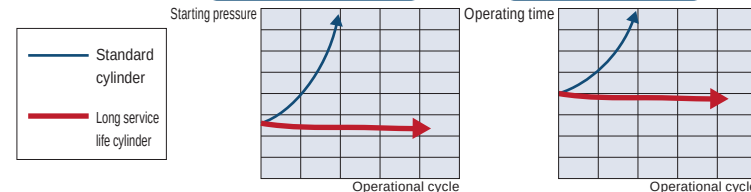
*The durability of the HP Series is the service life under our specified conditions. As it differs under working conditions or ambient environment, it is not guaranteed to be more than 4 times under all conditions.

Stable operation

The optimum structure of the sliding parts prevents the starting pressure from rising even in repeated operational cycles. As the starting pressure is constant, the operating time is also constant. Provides stable operation without unexplained stoppages.

Change in starting pressure

Change in tact time



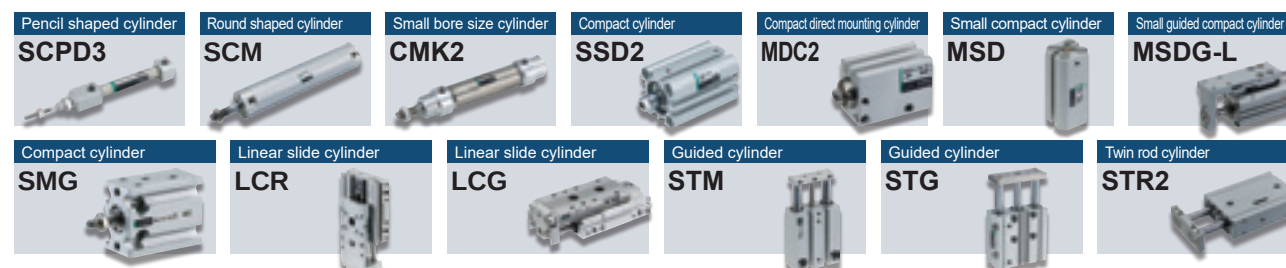
Switch with bending resistant lead wire can be selected

We offer switches that use bending-resistant lead wires that do not easily break even when used in moving parts. (Switch model No. T2HR3, T2VR3, F switches)



Same dimensions as conventional products

As it has the same dimensions as conventional products, it can be used as a replacement without changing the design or modifying the equipment.



Long service life even in harsh environments

Equipped with a heavy duty scraper and lube keeper to prevent intrusion of dust and to maintain lubrication. Durability in dusty environment has been greatly improved.

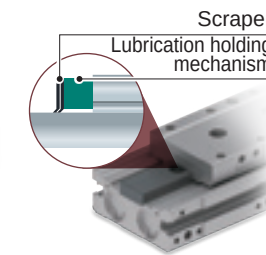
Fiber assembly
(Lube keeping structure)

Powerful
scraper

Powder /
foreign matter

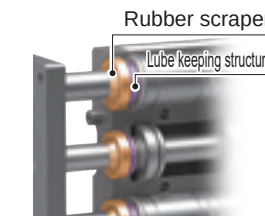
LCR guide

Seal structure and lubrication mechanism have been added. Improved guide durability

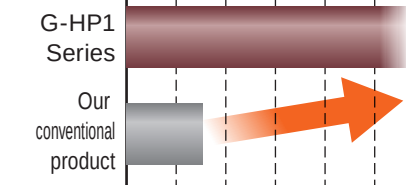


STG, STS/L guide

Countermeasures for dust also be applied to the guide rod section to contribute to long-term stable operation.



Operational cycle



4x
or more
previous
models

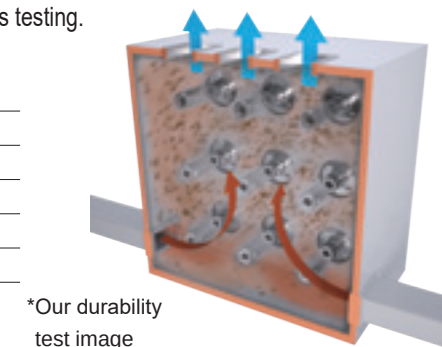
*The durability of the HP Series is the service life under our specified conditions. As it differs under working conditions or ambient environment, it is not guaranteed to be more than 4 times under all conditions.

Stable operation even in harsh environments

Tests are carried out in recreated dust environments. Durability has been confirmed through rigorous testing.

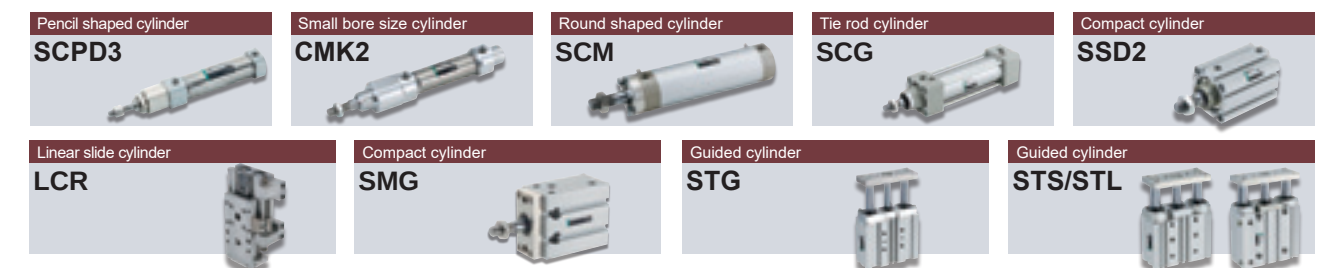
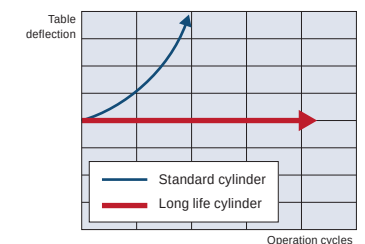
[Test conditions]

Working pressure	0.5 MPa
Dust type	5 to 75 μ m
Dust quantity	1.5g twice per day
Number of dustings	2 times/day
Load	No



*Our durability test image

LCR Table deflection change



Increased linear guide rigidity Achieves high rigidity, precision and durability

Linear Slide Hand

LSH-HP1 Series

Greatly reduces
unexplained stops

Greatly reduces
replacements

Significantly reduces
replacement time

Service life over
20 million cycles

Subject to CKD prescribed conditions



Grips and measures simultaneously Can be replaced before breakdowns.

Measuring hand

LSHM-HP2 Series

Momentary
stops greatly
reduced

Number of
replacements
greatly reduced

Predictive
maintenance

Service life over
20 million cycles

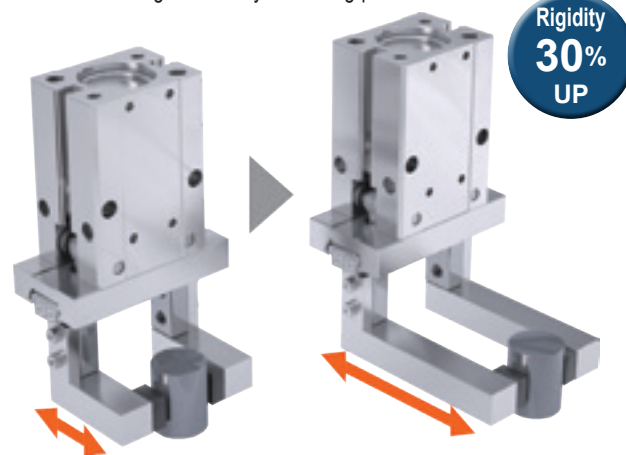
Subject to CKD prescribed conditions



High rigidity

Increased amount of overhang

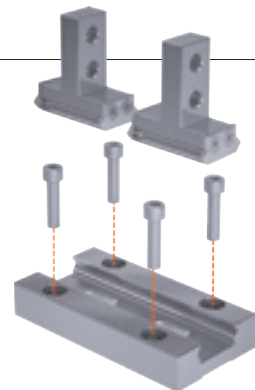
The guide rigidity has been improved compared to the conventional products, significantly increasing the allowable moment. The high rigidity suppresses the occurrence of backlash and maintains high accuracy for a long period of time.



High precision

Repeatability ± 0.01 mm

Integral construction of the guide rail and fingers ensures high rigidity and precision.

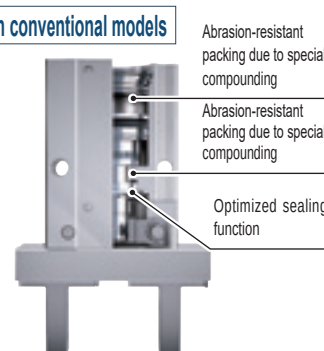


Long service life

Durability 4x or more compared with conventional models

Long-life cylinder sliding technology is used in the cylinder part. Achieves long service life and stable operation without unexplained stoppages.

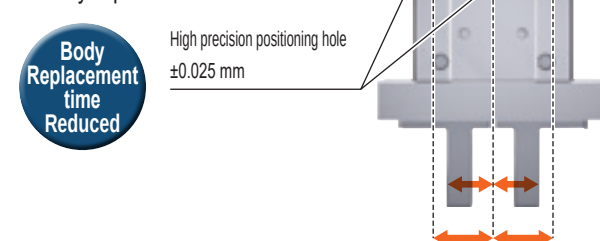
* The durability of the HP Series is the service life under our specified conditions. As it differs under working conditions or ambient environment, it is not guaranteed to be more than 4 times under all conditions.



Significant reduction in replacement time

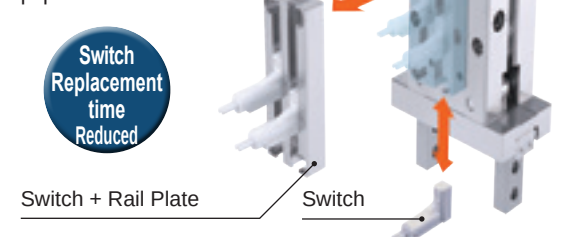
High precision positioning hole ± 0.025 mm

The addition of "positioning holes" with the grip center as reference allows the centering precision to be easily reproduced.



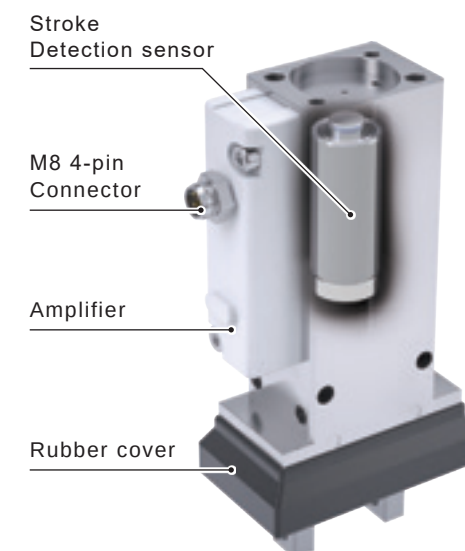
Rail plate system adopted

The rail plate allows switch replacement while the hand is attached to the robot or equipment.



Integrated structure

Finger positioning with high precision analog output. The hand body has a built-in stroke detection sensor and amplifier. The integrated structure achieves high-precision.



Repeatability ± 0.02 mm

An LVDT sensor with excellent vibration and shock resistance and integrated structure has been adopted to achieve unprecedented high repeatability.

Environmental resistance

The IP65 equivalent amplifier and rubber cover prevent the ingress of cutting chips and water drops.

Linearity correction adapter

Linearity F.S. $\pm 0.5\%$

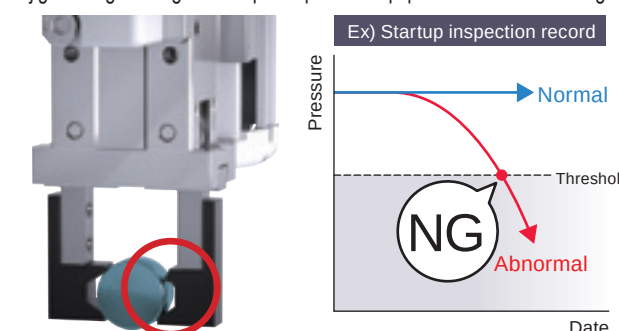
With correction adapter: F.S. $\pm 0.5\%$

Without correction adapter: F.S. $\pm 3\%$

A correction adapter is adopted to improve the linear accuracy.

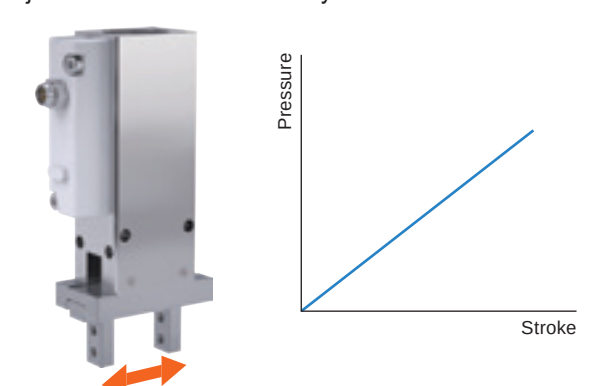
Predictive maintenance

Monitors attachments for abnormal wear and deformation of fingers and jigs through changes in output to prevent equipment and robot damage.



Elimination of human error

All strokes are output in detail, eliminating manual adjustment error as caused by conventional switches.



Measuring hand LSHM-HP2 Series

Switch output adapter

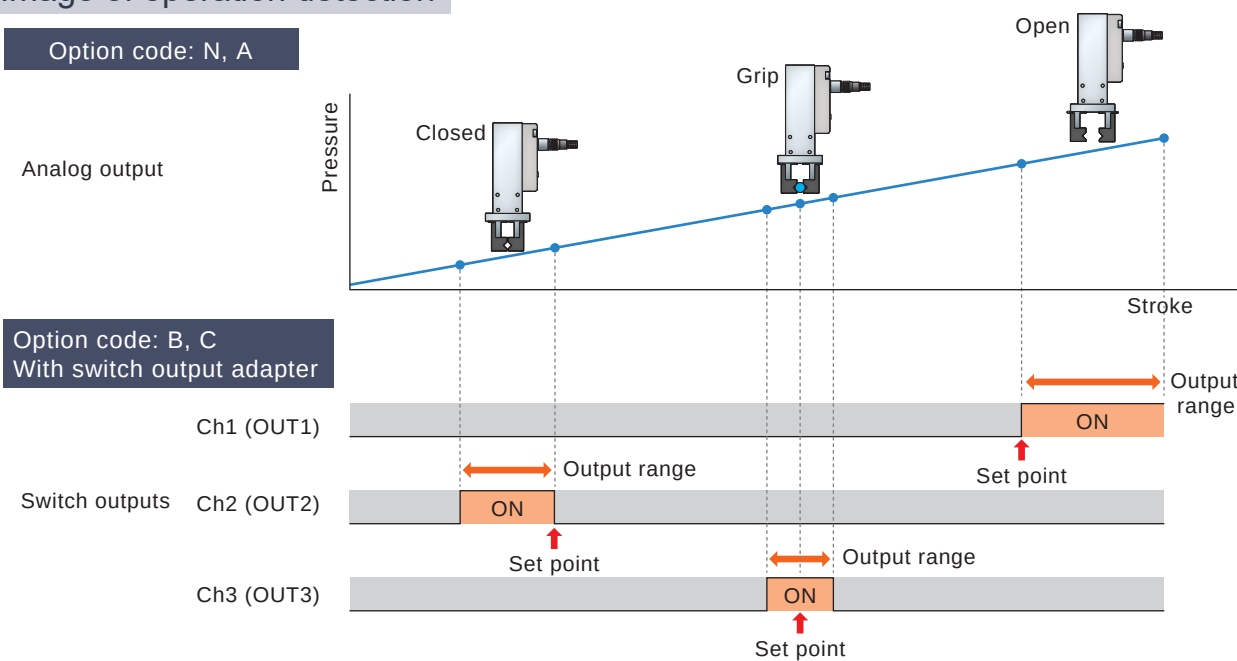


Easy setting

The operating range and output pattern can be easily selected with the rotary switch. Troublesome cylinder switches for adjustment work are not required. A fine operation range can also be selected with the high precision sensor.

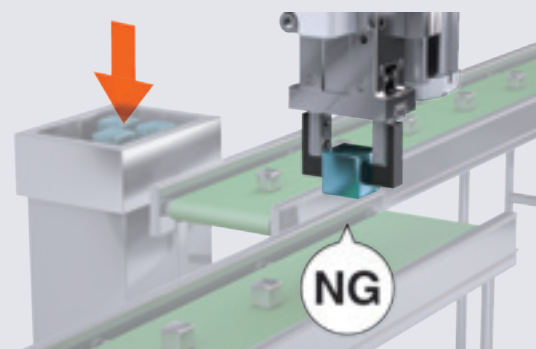
Image of operation detection

Option code: N, A



Workpiece foreign object judgment

Grips and measures simultaneously, reducing the number of inspection steps.



Workpiece model judgment

Capable of instantaneously judging minute differences in workpiece models.



IO-Link adapter

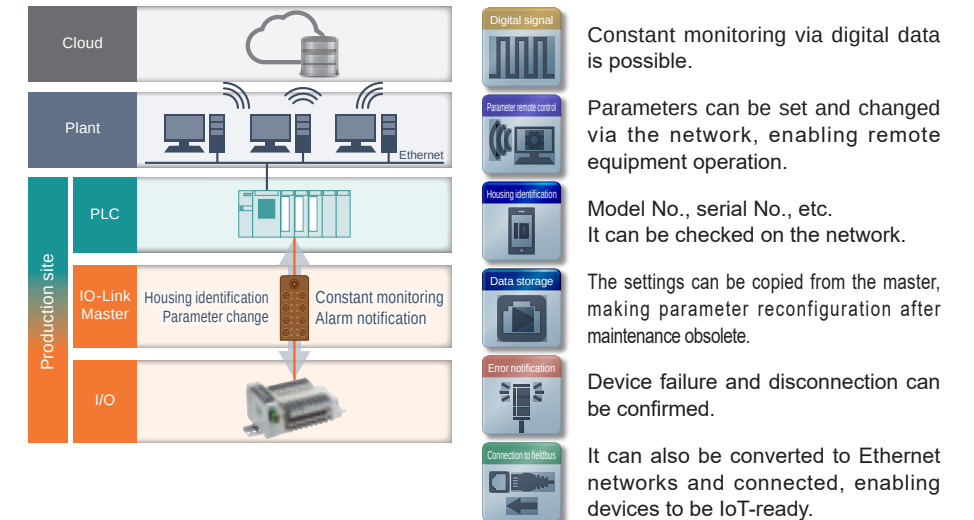
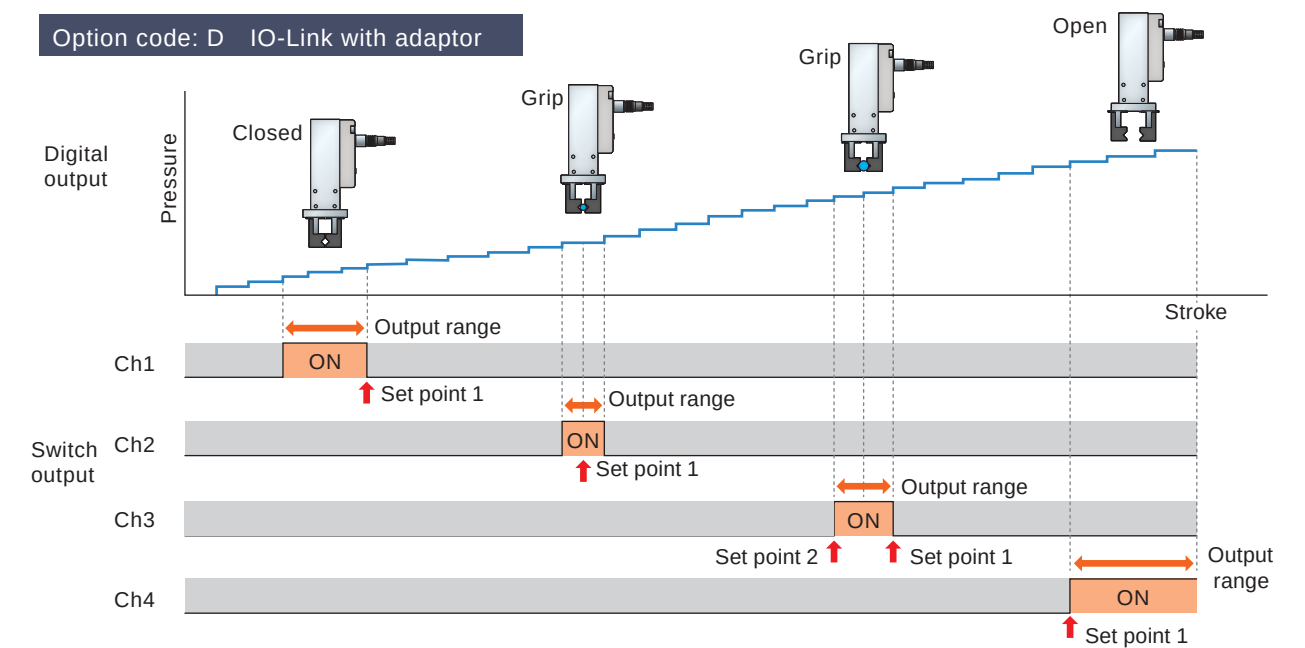


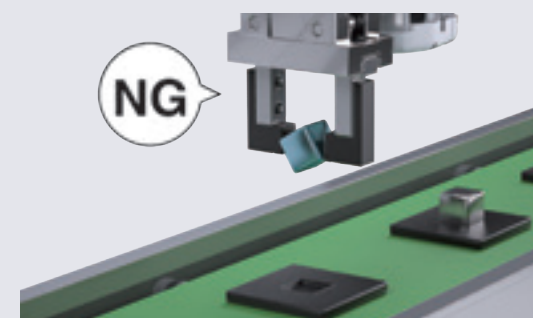
Image of operation detection

Option code: D IO-Link with adaptor



Gripping orientation judgment

By detecting misaligned orientations when gripped, contact accidents can be prevented at the transported destination.



Minute workpiece gripped / missed judgment

Accurately judges whether even tiny workpieces were gripped or missed.



Increased rigidity of linear guides even in thin types Achieves high rigidity, precision and durability

Low-profile long stroke hand

LST-HP1 Series

Momentary stops greatly reduced

Number of replacements greatly reduced

Significantly reduces replacement time

Service life over 20 million cycles

Subject to CKD prescribed conditions



Although thin, it can make measurements at the time of gripping. Can be replaced before breakdowns.

Low-profile long stroke hand with length measuring function

LSTM-HP2 Series

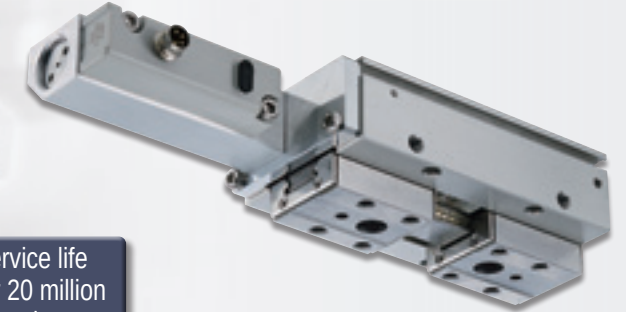
Momentary stops greatly reduced

Number of replacements greatly reduced

Predictive maintenance Available

Service life over 20 million cycles

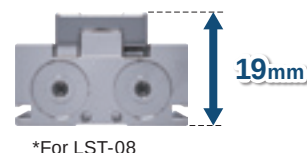
Subject to CKD prescribed conditions



Thin design from double piston system

Space saving Reduced moment of inertia

Reduces the height and space, contributing to reduced moment of inertia.



*For LST-08

High gripping force

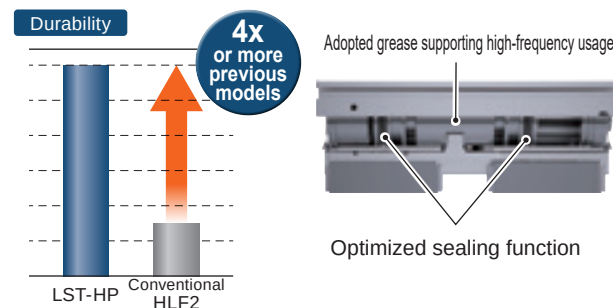
Adopting the double piston system realizes a compact body with high gripping force.



Long service life

Durability compared with conventional models 4x*

Highly advanced sliding technology has enabled durability 4 times that of conventional models.



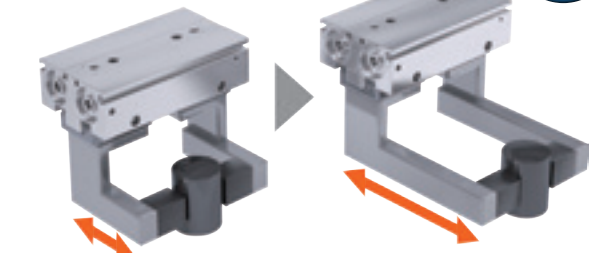
*The durability of the HP Series is the service life under our specified conditions, which will differ depending on the working conditions and ambient environment. This is not a guarantee of 4 times or more under conditions.

Increased linear guide performance

High rigidity High precision

Increased amount of overhang Repeatability ± 0.03 mm

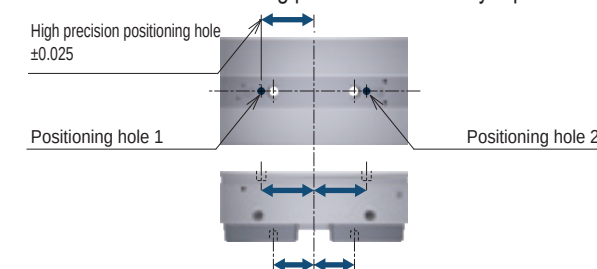
By improving the guide rigidity beyond that of conventional products, the allowable moment has been increased.



Reduced processes on site

High precision positioning hole ± 0.025 mm

The addition of "positioning holes" with the grip center as reference allows the centering precision to be easily reproduced.



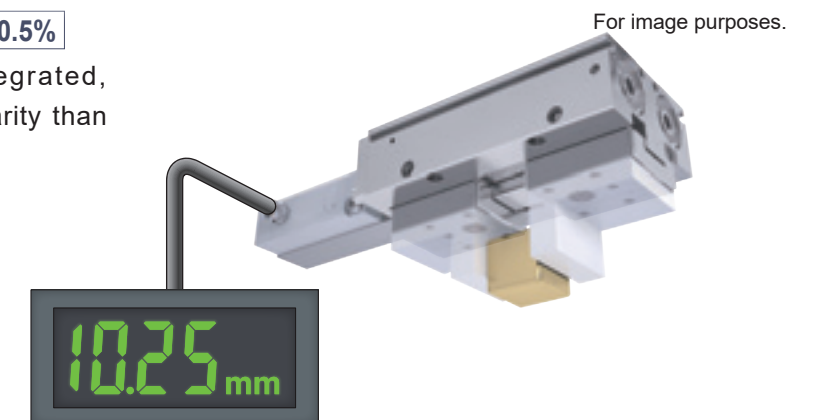
Switch with bending resistant lead wire can be selected

A switch can be selected that uses a bending-resistant lead wire that does not easily break even when used in moving parts.

High precision

Repeatability ± 0.04 mm Linearity F.S. $\pm 0.5\%$

A new sensor system has been integrated, achieving higher repeatability and linearity than ever before.

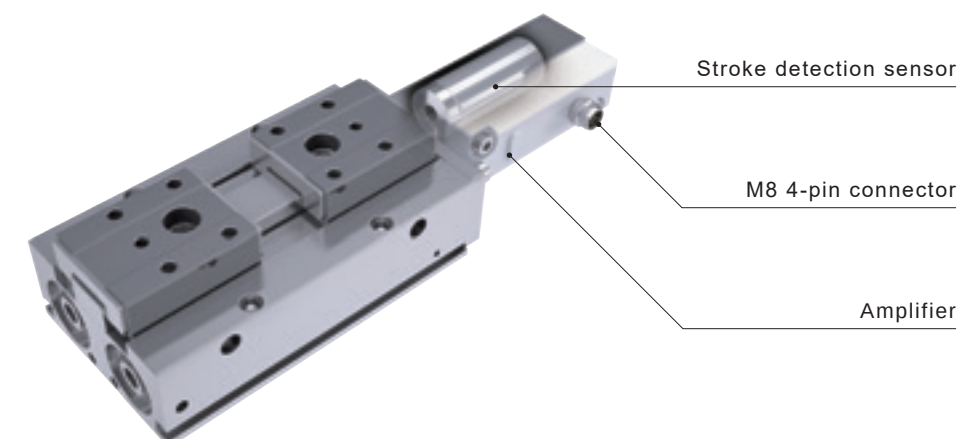


Integrated structure

Excellent vibration and shock resistance LVDT* Uses a sensor of the method.

A displacement sensor is built into the body, achieving a high-precision integrated structure.

* LVDT is short for Linear Variable Differential Transformer, a sensor that converts mechanical displacement into electric signal for output.



Industry's 1st

HIGH PRODUCTIVITY SERIES

Increased guide rigidity even for wide types
Achieves high rigidity, precision and durability



Wide parallel hand

HMC-HP1 Series

Momentary stops greatly reduced

Number of replacements greatly reduced

Significant reduction in replacement time

Durability 10 million cycles or more

Subject to CKD prescribed conditions



Guide rigidity improved even with 3-way finger
Achieves high rigidity, precision and durability



3-way chuck

CKW-HP1 Series

Momentary stops greatly reduced

Number of replacements greatly reduced

Significant reduction in replacement time

Durability 10 million cycles or more

Subject to CKD prescribed conditions

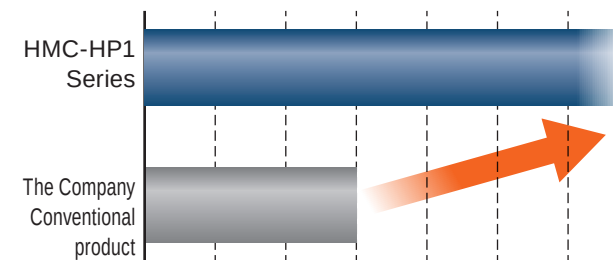


Long service life

Highly advanced sliding technology has enabled durability twice that of conventional models.

Operational cycle

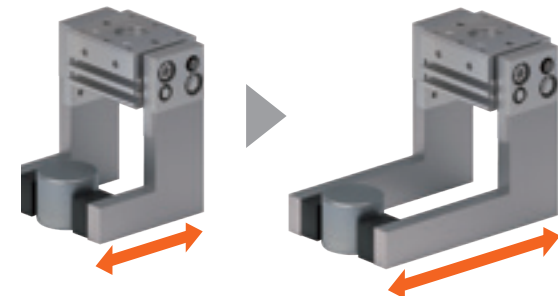
2x
or more
previous
models



High rigidity

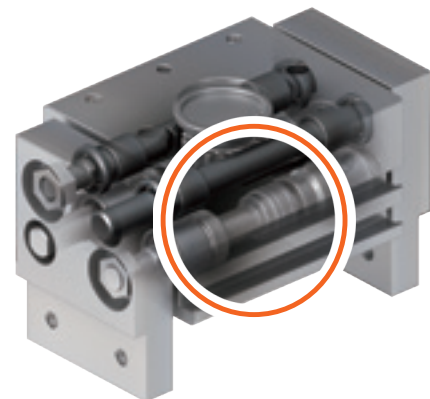
Improved guide rigidity has been achieved by redesigning the guide.

1.3x
or more
previous
models



High gripping force

Adopting a double piston structure realizes a compact body and high gripping force.



Abundant stroke

Extensive stroke is available.

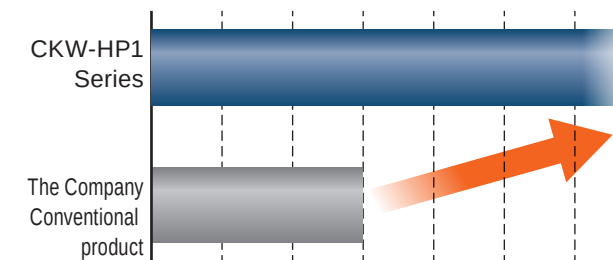
Stroke Type	Stroke (mm)					
	ø10	ø16	ø20	ø25	ø32	ø40
Short	20	30	40	50	70	100
Middle	40	60	80	100	120	160
Long	60	80	100	120	160	200

Long service life

Highly advanced sliding technology has enabled durability twice that of conventional models.

Operational cycle

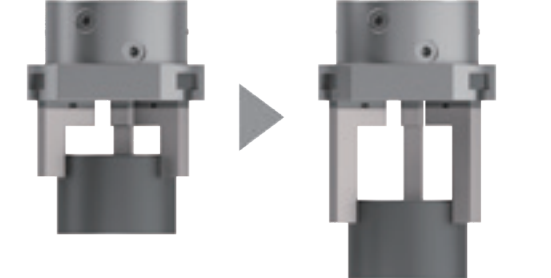
2x
or more
previous
models



High rigidity

Improved guide rigidity has been achieved by redesigning the guide.

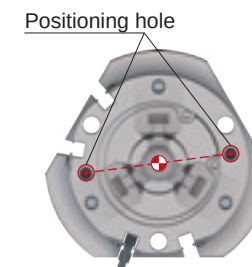
1.3x
or more
previous
models



Significant reduction in replacement time

High precision positioning hole $\pm 0.025\text{mm}$

Added "positioning hole" based on the gripping center. This contributes to the reduction of installation and maintenance work.



Rubber cover option

A highly reliable rubber cover for installation environments has also been available.

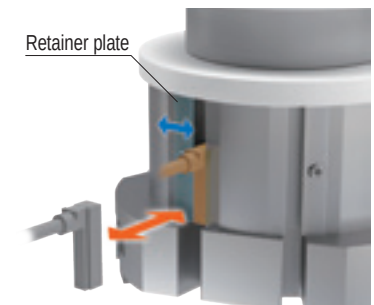


CKW-G-HP1 Chloroprene rubber

CKW-F-HP1 Fluoro rubber

High maintainability

Just slide the retainer plate, and the switch can be easily replaced while it is attached to the equipment.



Increased component service life and productivity from compressed air

Air booster

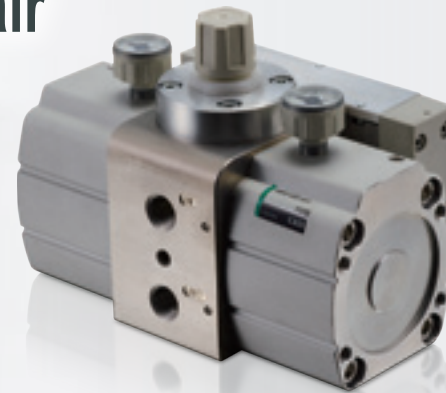
ABP2-HP1 Series

Momentary stops greatly reduced

Number of replacements greatly reduced

Durability 10 million cycles or more

Subject to CKD prescribed conditions



Long service life

The design of the packing part of the cylinder has been optimized, and the long-life 4G Series valve has been adopted, achieving more than twice the durability of conventional products.

2x
or more
previous
models

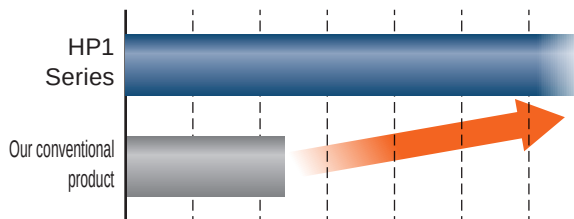


Valve: 4G4 master valve

Cylinder section: HP Series technology

- Abrasion-resistant packing due to special compounding
- Long service life grease
- Optimized sealing function

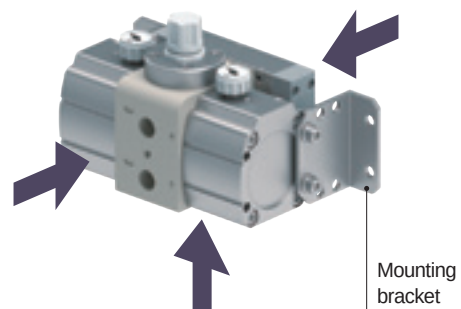
Operational cycle



Flexible mounting in any direction

Installation according to the layout is possible using brackets. Select from 3 directions for pipe leadout.

3
directions for pipe
leadout can be
selected.

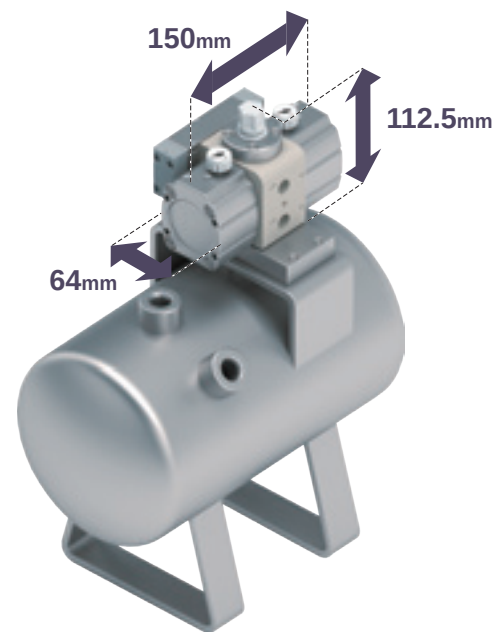


Piping available from 3 surfaces

Air tank

Can be compactly mounted with air tank. The air tank can be selected from 2 sizes, 5 L and 10 L.

Air tank
2 Sizes
Available



High reliability

Stable operation has been achieved by adopting the proprietary technology of our conventional ABP-12 product.

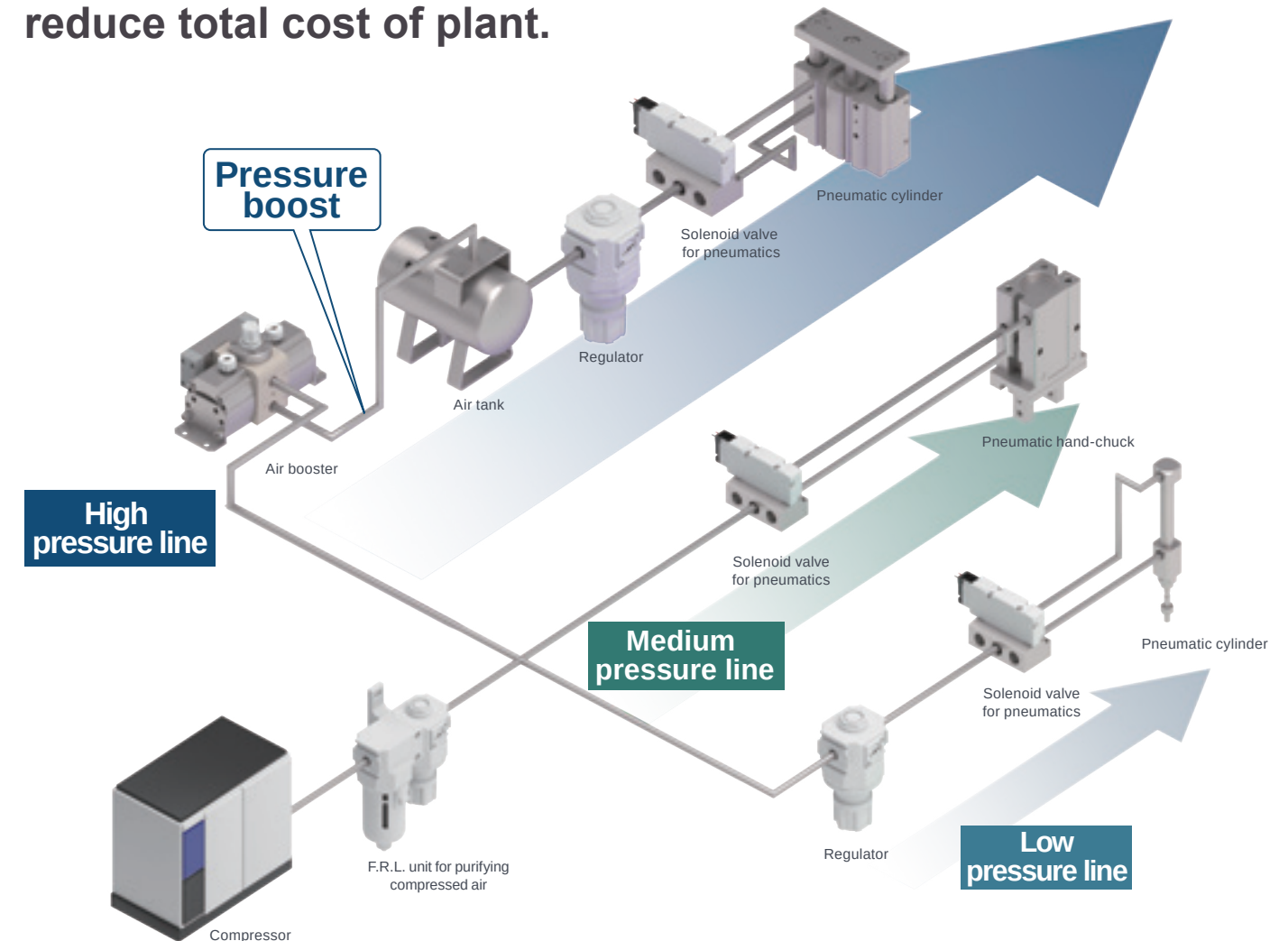
Low noise

By eliminating metal collisions, we have realized a 10dB reduction compared to conventional products.

*Subject to CKD measurement conditions.

10dB
less compared to
conventional models

Contributes to energy savings of the plant by utilizing existing compressed air equipment to boost pressure in areas where it is needed. Long service life components reduce total cost of plant.

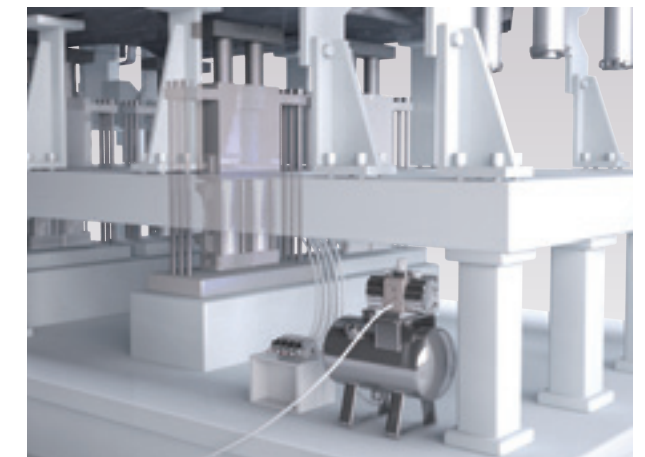


Case Study

Increased gripping force of robot hand



Increased cylinder thrust in narrow areas



Comprehensive pneumatic system only achievable by CKD

Manage compressed air properly and use the ideal system components to achieve longer service life

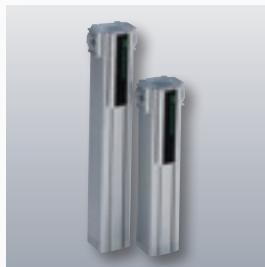
Drain countermeasures

Draining the compressed air can cause the grease of the component to flow and reduce the service life or cause rust, which may lead to component failure. It is necessary to take measures to prevent drainage from occurring and to remove the generated drainage.

Super dryer (High polymer membrane air dryer)

SD/SU/SDM Series

A high-performance air dryer that does not require a power supply and can be installed in the same manner as a filter. Reduces drainage on the secondary side of the dryer.



Drain separator

FX Series

Water drop separation efficiency of 99% is achieved by CKD's original fluid analysis method. Easy installation and reliable drain elimination.



Purifying compressed air

Foreign matter and oil in the compressed air may lead to component failure, so be sure to remove them with a filter or oil mist filter. Since they will certainly be used, CKD puts emphasis on elements with long service life.

Air filter

F Series

Two-layer structure is used for the filter element. Increases filtration area, improves filtration capacity and achieves a long service life.



Oil mist filter

M Series

A special coating is applied to the mantle to ensure long service life while removing oil. A differential pressure switch that outputs the service life of the mantle can also be mounted.



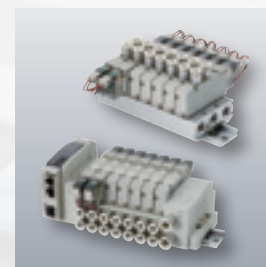
Reliability of the directional control valve

In order to extend the service life of equipment, the directional control valve that drives the actuator must also be reliable. CKD has also optimized the sliding part of the directional control valve to achieve stable operation.

Pilot operated 3, 5-port solenoid valve

4G Series

By optimizing the sliding part of the spool, it has achieved a long service life of over 100 million cycles* and stable operation, supporting high-frequency stable operation of the actuator.



*For image purposes.

Status monitoring

Since the operation status of the facility such as air flow rate and air pressure, number of operational cycles of each component and energization time are constantly output as digital signals, the status can be monitored for preventive maintenance.

Pilot operated 3, 5-port valve

4G Series

The solenoids being turned ON and device unit energization times can be monitored. Threshold values can be set, enabling preventive maintenance.



Compact flow rate sensor (RAPIFLOW)®

FSM3 Series

Monitors air flow rate. In addition to monitoring drops and fluctuations of the air flow rate, it helps manage the air consumption. Detects flow from bi-directions.



Digital pressure sensor

PPX Series

Monitors air pressure. Detects pressure drops and fluctuations. An error is output in two stages; "Caution" and "Abnormal".



Digital gap switch

GPS3 Series

Monitors the seating condition of the workpiece. Also outputs nozzle clogging signals.



Compact flow rate controller

FCM Series

Fluid control components for various gases. It can detect peripheral system abnormalities. Self-detection functions for detecting the deterioration of sensors and proportional solenoid valves.



Digital electro-pneumatic regulator

EVD Series

Compressed air pressure control component. Component operations and status monitoring. 2 switch output types (IO-Link data) can be set and output simultaneously.



Condensation countermeasures

When driving a compact actuator, air is not completely discharged from the valve, and drain is generated by using the same air repeatedly. A quick exhaust valve that can be easily installed is effective as a countermeasure.

Quick exhaust valve

QEL Series

The quick exhaust valve with push-in fitting can be easily retrofitted to an actuator with condensation.



*Subject to CKD prescribed conditions

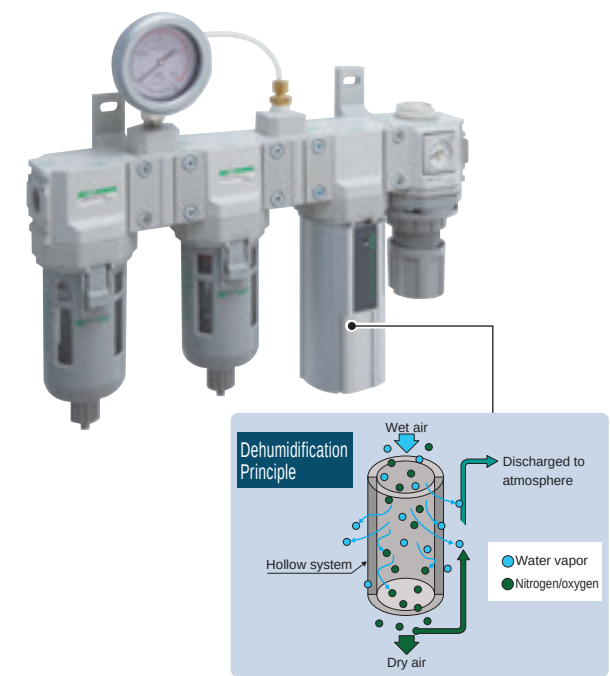
Super dryer (High polymer membrane air dryer)

Drain countermeasures

SD/SU/SDM Series

Catalog No. CB-024SA

The SD/SU/SDM Series is a dryer that can be used like a filter, dehumidifying with a high polymer membrane without using electricity. Since no power supply is required, easy installation, long service life and stable operation are realized.



No power supply needed

Since a power supply is not required, it can be easily retrofitted to a device that has a malfunction due to drain.

Stable operation

Since there are no mechanical movable parts or electrical parts, sudden breakdown does not occur and dry air can be stably supplied for long periods of time.

Modular design

Because of its unique modular concept, it can be directly connected to CKD's refining component, which helps reduce design, piping and installation steps.

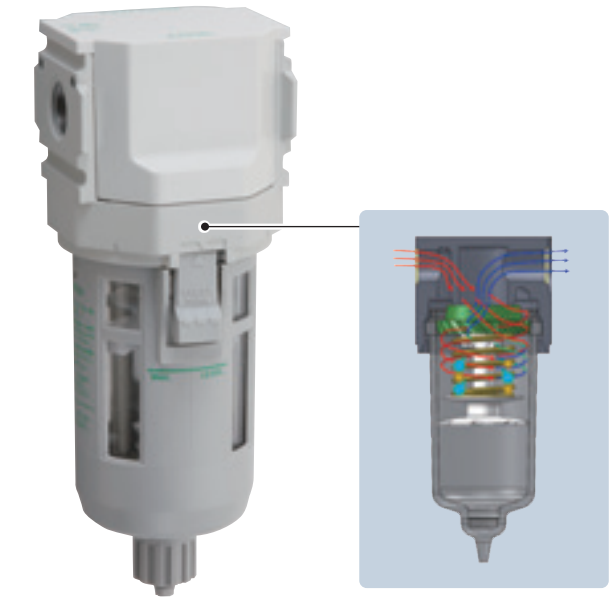
Drain separator

Drain countermeasures

FX Series

Catalog No. CB-024SA

The FX Series achieves 99% water drop separation efficiency with a high-performance louver while being lightweight and compact. Maintains long-term moisture removal capacity to remove drainage without using elements.



Optimal centrifugal mechanism

An ideal louver shape has been achieved using CKD's proprietary fluid analysis method. Water is reliably removed by the ideal centrifugal structure.



Unchanging water removal capacity

Since it does not rely on the filter element, it does not clog and the water removal performance does not change.

Modular design

Because of its unique modular concept, it can be directly connected to CKD's refining component, which helps reduce design, piping and installation steps.

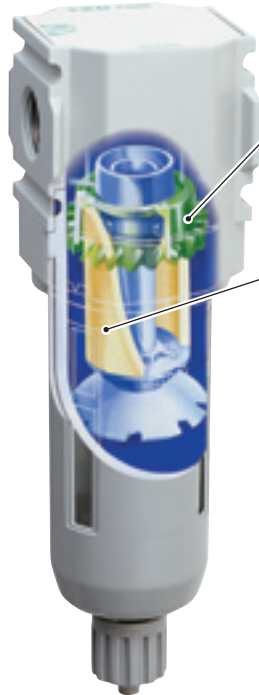
Air filter

Purifying compressed air

F Series

Catalog No. CB-024SA

The F Series has a unique two-layer structure element, so it has a wide filtration area and can be used stably for a long time with less pressure drops compared to normal elements.

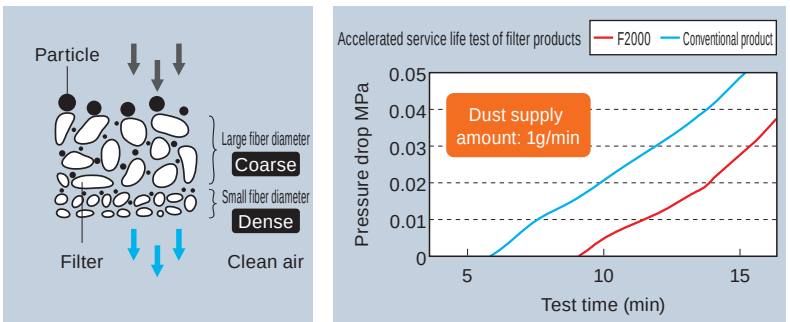


Louver has been optimized to reduce the size and space

Cyclone effect is improved by the ideal design of the louver. It has become smaller while maintaining the same water separation capacity.

Long service life with 2-layer structure element

It adopts CKD's proprietary two-layer structure element, improving filtration capacity and extending the service life.



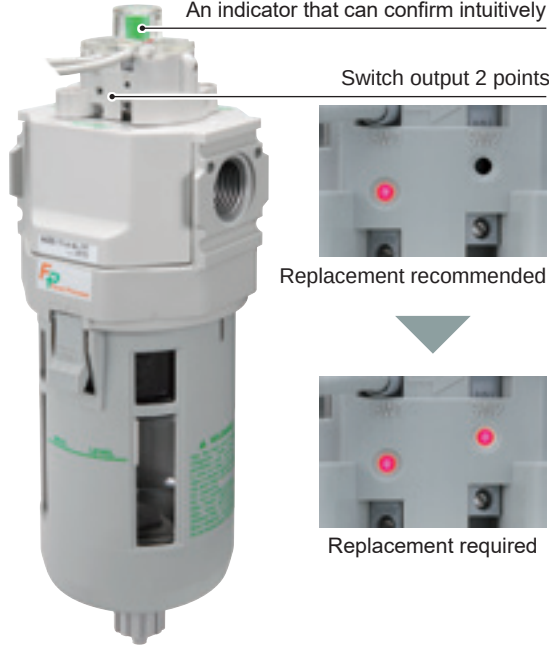
Oil mist filter

Purifying compressed air

M Series

Catalog No. CC-1383A

The M Series reliably removes oil from the compressed air, contributing to the protection of precise components and extending the service life of components. CKD has applied a special coating to the surface of the mantle to achieve a long service life.

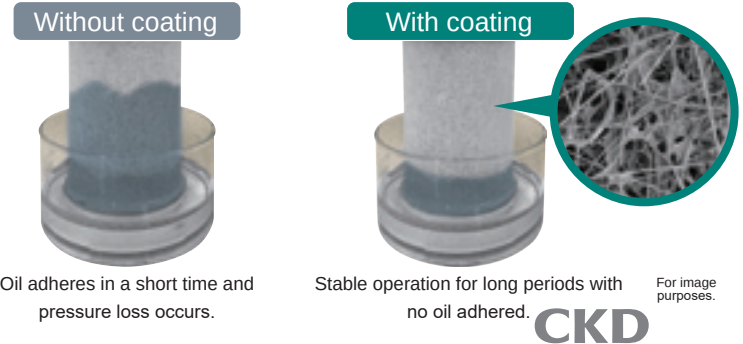


The differential pressure switch enables predictive maintenance

Detects pressure drops due to clogging of the mantle. In addition to the visual check indicator, it is capable of outputting the recommended replacement time and required replacement time.

Long-life mantle

A special coating is applied to the mantle surface to suppress pressure drops, enabling stable use for a long time.



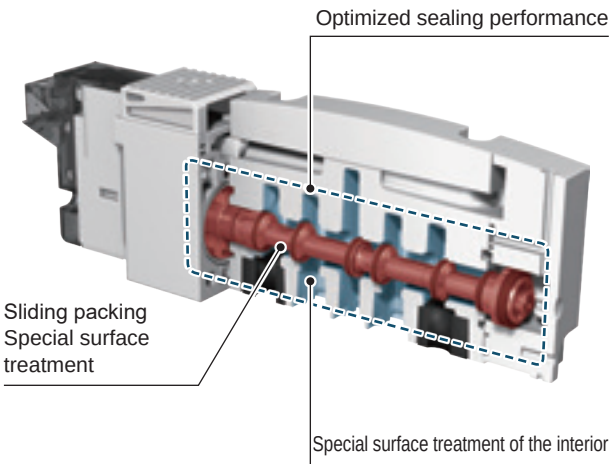
Pilot operated 3, 5-port solenoid valve

Reliability of the directional control valve

4G Series

Catalog No. CB-023SA

The 4G Series has optimized the sliding parts to achieve endurance of 100 million cycles or more*. Stable operation with low sliding supports the reliable operation of the actuator and stable operation of the equipment.



Low friction/long service life

The superb sliding mechanism of the main valve realizes low friction and long service life.
Response time 12 ±2 ms (4G1 single solenoid type)
Durability count of 100 million operations or more*
* Under our specified conditions.

Improved responsivity after startup

Smooth start even after time off. Effective for Monday morning troubles and unexplained stoppages as well.

Prevents problems with foreign matter

- Internal pilot filter equipped as standard.
- Air supply filter equipped as standard (ports A/B equipped as option)



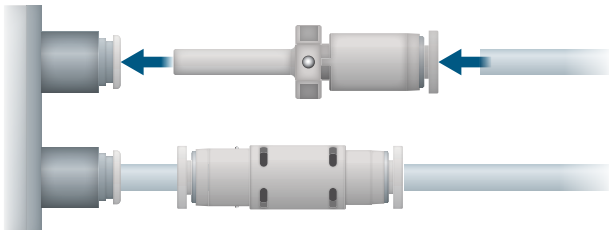
Quick exhaust valve

Condensation countermeasures

QEL Series

Catalog No. CC-1461A

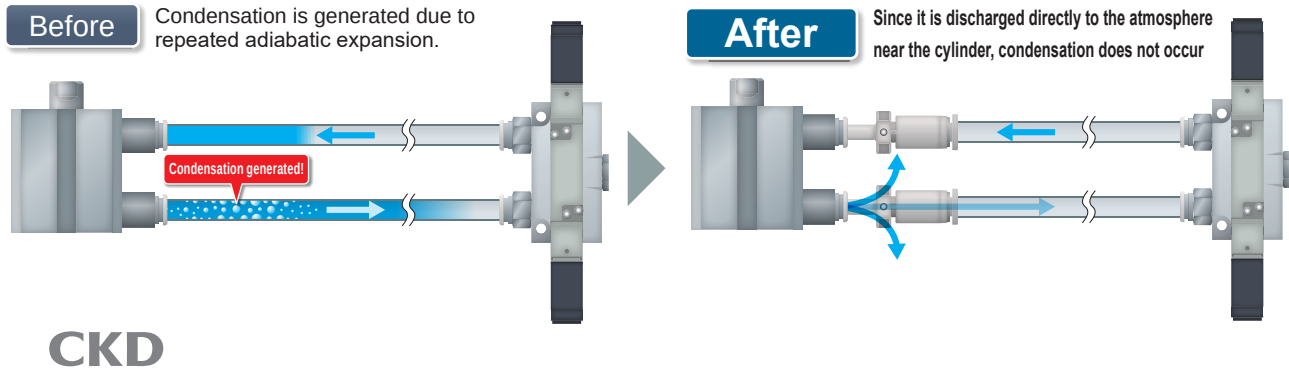
Installation of a quick exhaust valve is effective as a countermeasure against condensation in compact actuators. The QEL Series is compact, space saving and has push-in fitting, which allows it to be easily installed near the actuator.



Easy retrofitting

The plug type and in-line type are available, and can be installed directly or in the middle of the piping to suit the installation location.

Case Study



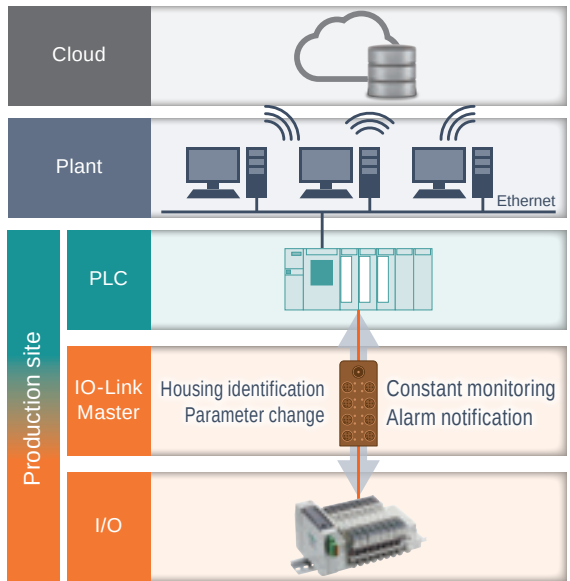
Status monitoring

IO-Link Compatible components Series

Catalog No. CC-1466A

It is important to acquire necessary data efficiently in order to monitor the condition of pneumatic components and perform preventive maintenance. IO-Link compatible Components can easily acquire data and utilize it.

What IO-Link can do



Features of IO-Link

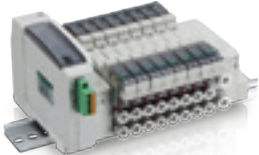
- Digital signal** Constant monitoring via digital data is possible.
- Parameter remote control** Parameters can be set and changed via the network, enabling remote equipment operation.
- Housing identification** Models, serial numbers, etc., can be confirmed on the network.
- Data storage** The settings can be copied from the master, making parameter reconfiguration after maintenance obsolete.
- Error notification** Device failure and disconnection can be confirmed.
- Connection to fieldbus** It can also be converted to Ethernet networks and connected, enabling devices to be IoT-ready.

IO-Link Compatible components Series

Pilot operated 3, 5-port valve

4G

- Specs
- Cylinder bore size ø20 to ø100
 - Working pressure range 0.2MPa to 0.7MPa
 - Degree of protection IP20



Digital pressure sensor

PPX

- Specs
- Set pressure For low pressure: -101.0 to +101.0kPa
For high pressure: -0.101 to +1.010 MPa
 - IO-Link communication specifications
Transmission speed: COM3 (230.4 kbps)
Minimum cycle time: 1.0ms



Compact flow rate controller

FCM

- Specs
- Flow rate control range 0.015L/min to 100L/min
 - Applicable fluid
Compressed air, nitrogen, argon, oxygen, city gas, methane, propane, hydrogen, helium
 - IO-Link communication specifications
Transmission speed COM3 (230.4 kbps)
Min. cycle time: 2 ms



Compact flow rate sensor RAPIFLOW®

FSM3

- Specs
- Flow rate range 0.5L/min to 1000L/min
 - Applicable fluid
Clean air, compressed air, nitrogen gas, argon, oxygen, carbon dioxide, gas mixture (argon + carbon dioxide)
 - IO-Link communication specifications
speed: COM2 (38.4 kbps) Min cycle time: 5 ms



Digital gap switch

GPS3

- Specs
- Working pressure: 50 to 200kPa
 - Detection range Short range 0.02 to 0.15mm Wide range 0.03 to 0.4mm
 - IO-Link communication specifications
transmission speed: COM2 (38.4 kbps)
Minimum cycle time: 5 ms



Digital electro-pneumatic regulator

EVD

- Specs
- Specified pressure range 50kPa to 1000kPa
 - Pressure control range 0kPa to 900kPa
 - IO-Link communication specifications
Transmission speed: COM3 (230.4 kbps)
Min. cycle time: 2 ms



HP1 Series Long service life cylinder



CONTENTS

●Pencil shaped cylinder (SCPD3-HP1)	2
●Small bore size cylinder (CMK2-HP1)	4
●Round shaped cylinder (SCM-HP1)	6
●Compact cylinder (SSD2-HP1)	10
●Compact direct mounting cylinder (MDC2-HP1)	14
●Small compact cylinder (MSD-HP1)	16
●Small guided compact cylinder (MSDG-L-HP1)	20
●Compact cylinder (SMG-HP1)	24
●Linear slide cylinder (LCR-HP1)	26
●Linear slide cylinder (LCG-HP1)	34
●Guided cylinder (STM-HP1)	40
●Guided cylinder (STG-HP1)	42
●Twin rod cylinder (STR2-HP1)	44
⚠ Safety precautions	232

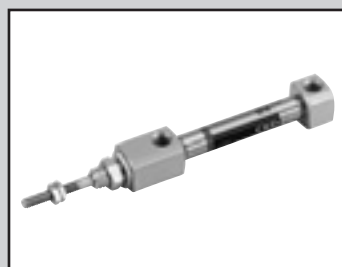
Long service life cylinder series variation

Model No.	Bore size (mm)	Stroke (mm)
SCPD3-HP1	ø6/ø10/ø16	5 to 150
CMK2-HP1	ø20/ø25/ø32/ø40	5 to 150
SCM-HP1	ø20/ø25/ø32/ø40	10 to 150
SSD2-HP1	ø12/ø16/ø20/ø25/ø32/ø40	1 to 100
MDC2-HP1	ø4/ø6/ø8/ø10	3/4/6/8/10
MSD-HP1	ø6/ø8	5/10/15/20/25/30
MSDG-L-HP1	ø6/ø8/ø12/ø16	5/10/15/20/25/30
SMG-HP1	ø6/ø10/ø16/ø20/ø25/ø32	5 to 100
LCR-HP1	ø6/ø8/ø12/ø16/ø20/ø25	10/20/30/40/50/75/100/125/150
LCG-HP1	ø6/ø8/ø12/ø16/ø20/ø25	10/20/30/40/50/75/100/125/150
STM-HP1	ø6/ø10	5/10/15/20
STG-HP1	ø12/ø16/ø20/ø25/ø32/ø40	5 to 150
STR2-HP1	ø6/ø10/ø16/ø20/ø25/ø32	5 to 150

⚠ Read the safety precautions in "Pneumatic Cylinders" (Catalog No.CB-029SA and CB-030SA) before use.

CAUTION

■ Some models use oil-impregnated bearings, and oil may be discharged outside of the cylinder. Do not use in places susceptible to oil.



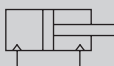
Pencil shaped cylinder Double acting/Single rod

Long service life cylinder

SCPD3-HP1 Series

● Bore size: $\varnothing 6/\varnothing 10/\varnothing 16$

JIS symbol



Specifications

Item	SCPD3-HP1 SCPD3-L-HP1 (with switch)		
	Bore size mm	$\varnothing 6$	$\varnothing 10$ $\varnothing 16$
Actuation		Double acting	
Working fluid		Compressed air	
Max. working pressure MPa		1.0	
Min. working pressure MPa		0.15	0.1
Proof pressure MPa		1.6	
Ambient temperature °C		-10 to 60 (no freezing)	
Port size		M5	
Stroke tolerance mm		+1.0 0	
Working piston speed mm/s		50 to 750	
Cushion		With rubber cushion	
Lubrication		Not required	
Allowable absorbed energy J		0.012	0.041 0.162

Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
$\varnothing 6$	15/30/45/60	100	5
$\varnothing 10$		150	
$\varnothing 16$		150	

*1: The custom stroke is available in 1 mm increments.

Min. stroke with switch

	1 pc. attached		2 pcs. attached	
	Rod side mount	Head side mount	Different surface mounting	Same surface mounting
Sketch				
Min. stroke	5 mm		10 mm	28 mm
	3 pcs. attached			
	Different surface mounting	Same surface mounting		
Sketch				
Min. stroke	38 mm	54 mm		

For dimensions, refer to the SCPD3 Series in "Pneumatic Cylinders I (CB-029SA)".

How to order

Without switch(without magnet for switch)

With switch(built-in magnet for switch)

A Model No.	B Mounting *1		
C Bore size			
D Stroke			
E Head side port direction *1			

Precautions for model No. selection

- *1: "CB" mounting is not available when the port direction is "0" (axial direction).
- *2: Refer to page 2 for the min. stroke with switch.
- *3: Magnet is not built into the type without switch.
- *4: "I" and "Y" cannot be selected together.
- *5: Copper and PTFE free as standard.
- *6: Switches are shipped with the product.

[Example of model No.]
SCPD3-L-00-10-30-O-T2H-R-I-HP1
Model: Pencil shaped cylinder

- *
A Model No. : Double acting
B Mounting : Basic
C Bore size : $\varnothing 10$ mm
D Stroke : 30mm
E Head side port direction : Axial direction
F Switch model No. : Proximity switch T2H, lead wire 1 m
G Switch quantity : 1 on rod side
H Accessory : Rod eye

How to order switch

- Switch body + mounting bracket set ●Switch body (with fixing bracket)

F Switch model No.

C Bore size

F Switch model No.

G Switch quantity

H Accessory

Note) The fixing bracket and cross-recessed pan head machine screw are different from those for the T type standard switch.

Note) The fixing bracket and cross-recessed pan head machine screw are different from those for the T type standard switch.

- Mounting bracket set + fixing bracket ● Mounting bracket set

C Bore size



Diagram illustrating the correct bore size for a 10mm hole. The hole is shown in a plate, and the correct size is indicated as 10mm.

When 20 pcs or more are ordered, they will be packed together.

When 20 pcs or more are ordered, they will be packed together.

Code	Description
Model No.	
SCPD3	Double acting
SCPD3-L	Double acting with switch

B Mounting				
Bore size (ø)		6	10	16
00	Basic	●	●	●
LS	Axial foot (one side) (rod side)	●	●	●
FA	Rod side flange	●	●	●
CB	Clevis bracket (pin and snap ring attached)		●	●

C Bore size (mm)	
6	ø6
10	ø10
16	ø16

D Stroke (mm)		
Bore size	Stroke *2	Custom stroke
ø6	5 to 100	In 1 mm increments
ø10	5 to 150	
ø16	5 to 150	

E Head side port direction	
Blank	Perpendicular
O	Axial direction

F Switch model No.						
Lead wire Straight	Lead wire L-shaped	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No LED	
T2H*	T2V*			●	1-color LED	2-wire
T3H*	T3V*			●		3-wire
T2HR3	T2VR3	Proximity		●	1-color LED Bending resistant lead wire	2-wire
T2WH*	T2WV*			●	2-color LED	2-wire
T3WH*	T3WV*			●		3-wire

* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

G Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

H Accessory				
Bore size (ø)		6	10	16
I	Rod eye		●	●
Y	Rod clevis (pin and snap ring attached)		●	●
B1	Eye bracket		●	●
B2	Clevis bracket		●	●

How to order mounting brackets

Bore size (mm)	ø6	ø10	ø16
Mounting bracket			
Foot (LS)	P2-LS-6	P2-LS-10	P2-LS-16
Flange (FA)	P2-FA-6	P2-FA-10	P2-FA-16

*7: The foot (LS) type mounting bracket is provided as 1 pc./set.

Long service life cylinder

Environment-resistant cylinder

Linear Slide Hand

Low-profile long stroke hand

Wide-Parallel Hand

Chuck

Air Booster

Compatible with rechargeable batteries

Supports food mfg. processes

SCPD3

CMK2

SCM

SSD2

MDC2

MSD

MSDG-L

SMG

LCR

LCG

STM

STG

STR2

SCPD3

CMK2

SCM

SCG

SSD2

SMG

LCR

STG

STS

STL

LSH

LSHL

LSHM

LST

LSTM

HMC

CKW

ABP2

SCPD3

CMK2

SCM

SSD2

MSD

MSDG-L

SMG

STG

STM

LCR

LCG

STR2

LSH

LSHL

SCPD3

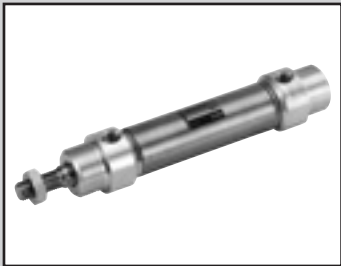
CMK2

SCM

SCG

SSD2

STG



Small bore size cylinder
Double acting/Single rod

Long service life cylinder

CMK2-HP1 Series

● Bore size:ø20/ø25/ø32/ø40



Specifications

Item	CMK2-HP1			
Bore size mm	ø20	ø25	ø32	ø40
Actuation	Double acting			
Working fluid	Compressed air			
Max. working pressure MPa	1.0			
Min. working pressure MPa	0.1			
Proof pressure MPa	1.6			
Ambient temperature °C	-10 to 60 (no freezing)			
Port size	Rc1/8			
Stroke tolerance mm	^{+2.0} ₀ (up to 150)			
Working piston speed mm/s	50 to 500			
Cushion	With rubber cushion			
Lubrication	Not required			
Allowable absorbed energy J	0.166	0.308	0.424	0.639

Stroke

Bore size(mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
ø20	25/50/75/100/150	150	5
ø25			
ø32			
ø40			

*1: The custom stroke is available in 1 mm increments.
*2: One side foot (LS) has max. stroke of 50 mm.

Min. stroke with switch

(Unit: mm)

Switch quantity	1					2					3				
	Proximity			Reed		Proximity			Reed		Proximity			Reed	
Bore size (mm)	T2,T3	T2W,T3W	T1	T0,T5	T8	T2,T3	T2W,T3W	T1	T0,T5	T8	T2,T3	T2W,T3W	T1	T0,T5	T8
ø20	10					25	30	35	25	35	50	55	55	50	55
ø25	10					25	30	35	25	35	50	55	55	50	55
ø32	10					25	30	35	25	35	50	55	55	50	55
ø40	10					25	30	35	25	35	50	55	55	50	55

*1: Up to 3 switches can be mounted.

For dimensions, refer to the CMK2 Series in "Pneumatic Cylinders I (CB-029SA)".

How to order

Without switch (built-in magnet for switch)

CMK2 - 00 - 20 - 30 - Y - HP1

With switch (built-in magnet for switch)

CMK2 - 00 - 20 - 30 - T0H - R - M Y - HP1

A Mounting
*1

B Bore size

C Port thread

D Stroke

E Switch model No.

F Switch quantity
*4

G Option
*5

H Accessory
*3

Precautions for model No. selection

- *1: One side foot (LS) has maximum stroke of 50 mm.
- *2: Refer to page 4 for the minimum stroke with switch.
- *3: "I" and "Y" cannot be selected together.
- *4: Up to three switches can be installed. If four or more switches are required, switch mounting brackets for the extra switches must be prepared separately.
- *5: For 20 or 25 bore size, the rod is stainless steel as standard and the rod nut is zinc chromate. If a stainless steel rod nut is necessary, select the "M" option code.

[Model No. example]

CMK2-00-20-30-T0H-R-MY-HP1

Model: Small bore size cylinder double acting/standard

- A Mounting : Basic
- B Bore size : $\varnothing 20$ mm
- C Port thread : Rc thread
- D Stroke : 30 mm
- E Switch model No. : Reed T0H switch, lead wire 1m
- F Switch quantity : 1 on rod side
- G Option : Piston rod material (stainless steel)
- H Accessory : Rod clevis

How to order switch

- Switch body + mounting bracket set

CMK2 - T0H - 20

B Bore size

E Switch model No.

- Switch body only

SW - T0H

E Switch model No.

- Mounting bracket set

CMK2 - T - 20

B Bore size

Mounting bracket

How to order mounting brackets

Bore size (mm)	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
Mounting bracket				
Basic (00)	M1-00-20	M1-00-30	M1-00-30	M1-00-30
Axial foot (LB/LS)	M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30
Flange (FA/FB)	M1-FA-20	M1-FA-30	M1-FA-30	M1-FA-30
Trunnion (TA/TB)	M1-TA-20	M1-TA-30	M1-TA-30	M1-TA-40
Eye bracket (CA)	M1-CA-20	M1-CA-30	M1-CA-30	M1-CA-30
Clevis bracket (CB)	M1-CB-20	M1-CB-30	M1-CB-30	M1-CB-30

*6: Regarding mounting brackets, mounting nuts and toothed washers are included with the axial foot type and flange type. The trunnion type includes mounting nuts.

*7: For axial foot types (two-sided), 2 sets of the "M1-LB-*1" in the table above are required.

*8: Mounting nut, toothed washer only. Although 1 set is included with the basic product (00), use this when needed.

Code	Description
A Mounting	
00	Basic
LB	Axial foot (both sides)
LS	Axial foot (one side)
FA	Rod side flange
FB	Head side flange
CA	Eye bracket
CC	Eye bracket integrated
CC1	Eye bracket, bush pressfit
CB	Clevis Bracket (pin and split washer pin included)
TA	Rod side trunnion
TB	Head side trunnion

B Bore size (mm)			
20	$\varnothing 20$	32	$\varnothing 32$
25	$\varnothing 25$	40	$\varnothing 40$

C Port thread	
Blank	Rc thread
NN	NPT thread (made to order)
GN	G thread (made-to-order product)

D Stroke (mm)		
Bore size	Stroke	*2 Custom stroke
$\varnothing 20$	5 to 150	In 1 mm increments
$\varnothing 25$		
$\varnothing 32$		
$\varnothing 40$		

E Switch model No.						
Lead wire	Lead wire	Contact	Voltage	Indicator	Lead Line	
Straight	L-shaped		AC DC			
T0H*	T0V*	Reed	● ●	1-color LED	2-wire	
T5H*	T5V*		● ●	No LED		
T8H*	T8V*		● ●	1-color LED		
T1H*	T1V*		● ●	1-color LED		
T2H*	T2V*	Proximity	● ●	1-color LED	2-wire	
T3H*	T3V*		● ●	1-color LED		
T2HR3	T2VR3		● ●	1-color LED	2-wire	
T3PH*	T3PV*		● ●	Bending resistant lead wire		
T2WH*	T2WV*		● ●	1-color LED (made to order)	3-wire	
T3WH*	T3WV*		● ●	2-color LED		
T2JH*	T2JV*		● ●	1-color LED off-delay	2-wire	
			● ●			

* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

F Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

G Option	
M	Piston rod material (stainless steel)

H Accessory	
I	Rod eye
Y	Rod clevis (pin and split washer pin attached)
B2	Clevis bracket (pin and snap ring included)

	Long service life cylinder	Environment-resistant cylinder	Linear Slide Hand	Low-profile long stroke hand	Wide Parallel Hand	Chuck	Air Booster	Compatible with rechargeable batteries	Supports food mtg. processes
SCPD3									
CMK2									
SCM									
SSD2									
MDC2									
MSD									
MSDG-L									
SMG									
LCR									
LCG									
STM									
STG									
STR2									
SCPD3									
CMK2									
SCM									
SCG									
SSD2									
SMG									
LCR									
STG									
STS									
STL									
LSH									
LSHL									
LSHM									
LST									
LSTM									
HMC									
CKW									
ABP2									
SCPD3									
CMK2									
SCM									
SSD2									
MSD									
MSDG-L									
SMG									
STG									
STM									
LCR									
LCG									
STR2									
LSH									
LSHL									
SCPD3									
CMK2									
SCM									
SCG									
SSD2									
STG									



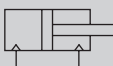
Round shaped cylinder Double acting/Single rod

Long service life cylinder

SCM-HP1 Series

● Bore size: ø20/ø25/ø32/ø40

JIS symbol



Specifications

Item		SCM-HP1				
Bore size		mm	ø20	ø25	ø32	ø40
Actuation			Double acting			
Working fluid			Compressed air			
Max. working pressure		MPa	1.0			
Min. working pressure		MPa	0.1			
Proof pressure		MPa	1.6			
Ambient temperature		°C	-10 to 60 (no freezing)			
Port size	With rubber cushion	Rc1/8				
	With air cushion	M5		Rc1/8		
Stroke tolerance		mm	+1.4 0 (up to 150)			
Working piston speed		mm/s	30 to 1000 (Operate within the allowable absorbed energy.)			
Cushion			Either rubber cushion or air cushion can be selected.			
Effective air cushion length		mm	8.1	8.1	8.6	8.6
Lubrication			Not required			
Allowable absorbed energy J	With rubber cushion		0.1	0.2	0.5	0.9
	With air cushion		0.8	1.2	2.5	3.7

*1: No cushion in the allowable absorption energy indicates the allowable absorption energy of the side that is not indicated ("R" → head side, "H" → rod side) when the one-side air cushion is selected.

*2: Without a cushion, large energy generated by the external load cannot be absorbed. Please provide an external shock absorber.

Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
ø20	25, 50, 75, 100, 125, 150	150	10
ø25			
ø32			
ø40			

*1: The custom stroke is available in 1 mm increments.

Number of installed switches and min. stroke (mm)

● Switch mounting: Rail

Switch quantity	1			2		3			4			5		
	Proximity		Reed	Proximity		Proximity		Reed	Proximity		Reed	Proximity		Reed
	T2,T3	T2W,T3W		T2,T3	Reed	T2,T3	T2W,T3W		T2,T3	T2W,T3W		T2,T3	T2W,T3W	
Bore size (mm)														
ø20		10		25		50	70	55	55	70	55	75	110	90
ø25		10		25		50	70	55	55	70	55	75	110	90
ø32		10		25		50	70	55	55	70	55	75	110	90
ø40		10		25		50	70	55	55	70	55	75	110	90

*1: For types with one switch, when the stroke is between 10 and 24 mm, trunnion mounting is not available since the switch rail mounting position is different. Regarding the mounting position, "Pneumatic Cylinders I (No. CB-029SA)".

● Switch mounting: Band

Switch quantity	1			2			3			4			5		
	Proximity		Reed	Proximity		Reed	Proximity		Reed	Proximity		Reed	Proximity		Reed
	T2,T3	T2W,T3W		T0,T5 T2,T3	T2W,T3W		T0,T5 T2,T3	T2W,T3W		T0,T5 T2,T3	T2W,T3W		T0,T5 T2,T3	T2W,T3W	
Bore size (mm)															
ø20		10		25	30	25	50	55	50	70	75	70	95	100	95
ø25		10		25	30	25	50	55	50	70	75	70	95	100	95
ø32		10		25	30	25	50	55	50	70	75	70	95	100	95
ø40		10		25	30	25	50	55	50	70	75	70	95	100	95

For dimensions, refer to the SCM Series in "Pneumatic Cylinders I (CB-029SA)".

How to order

Without switch(built-in magnet for switch)

SCM-LB-40-B-100-MI-HP1

With switch(built-in magnet for switch)

SCM-LB-40-B-100-T2H-D-MI-HP1

A Mounting
*1

B Bore size

C Port thread

D Cushion

E Stroke

F Switch model No.
*3

G Switch quantity

H Switch mounting

I Option
*4J Accessory
*5

⚠ Precautions for model No. selection

- *1: Mounting bracket will be shipped with the product.
 *2: Refer to page 6 for the number of installed switches and the min. stroke.
 *3: T8H/V switches cannot be mounted when the switch mounting type is the rail type.
 *4: "Q" (switch rail attached at shipment) is not available for "Z" switch mounting.
 *5: "I" and "Y" cannot be selected together.
 *6: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

[Example of model No.]

SCM-LB-40B-100-T2H-D-MI-HP1

Model: Round shaped cylinder, double acting

- A Mounting form : Axial foot
 B Bore size : $\phi 40$ mm
 C Port thread : Rc thread
 D Cushion : Both-sided air cushion
 E Stroke : 100 mm
 F Switch model No.: Proximity T2H switch, lead wire 1 m
 G Switch quantity : 2 pcs. included
 H Switch mounting : Rail
 I Option : Piston rod material (stainless steel)
 J Accessory : Rod eye

Code	Description					
A Mounting						
00	Basic					
LB	Axial foot					
FA	Rod side flange					
FB	Head side flange					
CA	Eye bracket					
TA	Rod side trunnion					
TB	Head side trunnion					
B Bore size (mm)						
20	ø20					
25	ø25					
32	ø32					
40	ø40					
C Port thread						
Blank	Rc thread					
N	NPT thread (made to order) With air cushion: ø32 and over					
G	G thread (made to order) With air cushion: ø32 and over					
D Cushion						
B	With two-sided air cushion					
R	Rod side air cushioned					
H	Head side air cushioned					
D	With two-sided rubber cushion					
E Stroke (mm)						
Bore size		Stroke *2		Custom stroke		
ø20 to ø40		10 to 150		In 1 mm increments		
F Switch model No.						
Lead wire Straight	Lead wire L-shaped	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No LED	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*	Proximity	●		1-color LED	2-wire
T2H*	T2V*			●		
T3H*	T3V*			●		
T2HR3	T2VR3			●	1-color LED bend resistant lead wire	2-wire
T3PH*	T3PV*			●	1-color LED	3-wire
T2WH*	T2WV*			●	2-color LED	2-wire
T3WH*	T3WV*			●		3-wire
T2YD*	-			●	2-color LED	2-wire
T2YDT*	-			●	2-color LED	
T2JH*	T2JV*			●	1-color LED off-delay	2-wire
* Lead wire length						
Blank	1 m (standard)					
3	3 m (option)					
5	5 m (option)					
G Switch quantity						
R	1 on rod side					
H	1 on head side					
D	2					
T	3					
4	4 pcs. Included (when there are more than 4 switches, indicate switch quantity.)					
H Switch mounting						
Blank	Rail method					
Z	Band method					
I Option						
Q	Switch rail attached at shipment					
M	Piston rod material (stainless steel)					
J Accessory						
I	Rod eye					
Y	Rod clevis (pin and snap ring attached)					
B2	Clevis bracket					

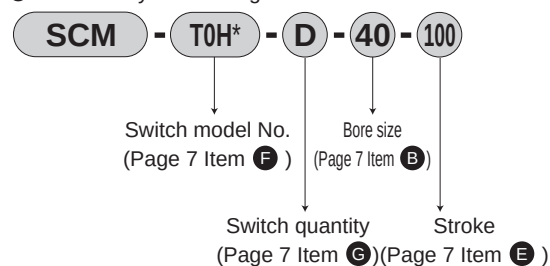
SCPD3	Long service life cylinder	Environment-resistant cylinder	Linear Slide Hand	Low-profile long stroke hand	Wide Parallel Hand	Chuck	Air Booster	Compatible with rechargeable batteries	Supports food mfg. processes
CMK2									
SCM									
SSD2									
MDC2									
MSD									
MSDG-L									
SMG									
LCR									
LCG									
STM									
STG									
STR2									
SCPD3									
CMK2									
SCM									
SSD2									
SMG									
LCR									
STG									
STS									
STL									
LSH									
LSHL									
LSHM									
LST									
LSTM									
HMC									
CKW									
ABP2									
SCPD3									
CMK2									
SCM									
SSD2									
MSD									
MSDG-L									
SMG									
STG									
STM									
LCR									
LCG									
STR2									
LSH									
LSHL									
SCPD3									
CMK2									
SCM									
SCG									
SSD2									
STG									

SCM-HP1 Series

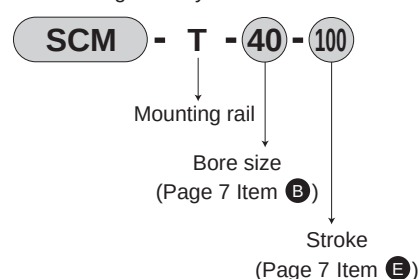
How to order switch

[Switch mounting: Rail]

- Switch body + mounting rail set

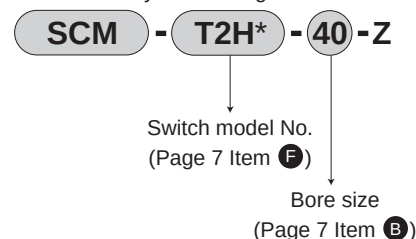


- Mounting rail only

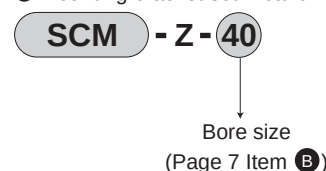


[Switch mounting: Band]

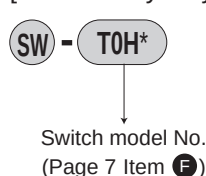
- Switch body + mounting bracket set + band



- Mounting bracket set + band



[Switch body only]



How to order mounting brackets

Bore size (mm)	ø20	ø25	ø32	ø40
Mounting bracket				
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40
Eye bracket (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40

*1: All mounting brackets have mounting bolts attached.

*2: The foot mounting bracket is provided as 2 pcs./set.

Material of mounting bracket

Mounting	Material
LB	Steel
FA/FB	Aluminum
TA/TB	Steel
CA	Steel

*1: Mounting bracket will be shipped with the product.

Consumable parts list

With rubber cushion

Bore size (mm)	Kit No.	Part name
ø20	SCM-20DK-HP1	Rod packing Cylinder gasket Cushion rubber Piston packing Wear ring
ø25	SCM-25DK-HP1	
ø32	SCM-32DK-HP1	
ø40	SCM-40DK-HP1	

With air cushion

Bore size (mm)	Kit No.	Part name
ø20	SCM-20BK-HP1	Rod packing Cylinder gasket Cushion rubber Piston packing Wear ring Needle gasket Holder gasket Cushion packing
ø25	SCM-25BK-HP1	
ø32	SCM-32BK-HP1	
ø40	SCM-40BK-HP1	

*1: Specify the kit No. when placing an order.

SCPD3	Long service life cylinder	Environment-resistant cylinder	Linear Slide Hand	Low-profile long stroke hand	Wide Parallel Hand	Chuck	Air Booster	Compatible with rechargeable batteries	Supports food mfg. processes
CMK2									
SCM									
SSD2									
MDC2									
MSD				LST	HMC	CKW	ABP2		
MSDG-L									
SMG									
LCR									
LCG									
STM				LSTM	HMC	CKW	ABP2		
STG									
STR2									
SCP3									
CMK2									
SCM									
SCG									
SSD2									
SMG									
LCR									
STG									
STS									
STL									
LSH									
LSHL									
LSHM									



Compact cylinder Double acting/Single rod

Long service life cylinder

SSD2-HP1 Series

● Bore size:ø12/ø16/ø20/ø25/ø32/ø40

JIS symbol



Specifications

Item	SSD2-HP1 SSD2-L-HP1 (with switch)					
Bore size mm	ø12	ø16	ø20	ø25	ø32	ø40
Actuation	Double acting					
Working fluid	Compressed air					
Max. working pressureMPa	1.0					
Min. working pressureMPa	0.1					
Proof pressure MPa	1.6					
Ambient temperature °C	-10 to 60 (no freezing)					
Port size	M5				Rc1/8 *1	
Stroke tolerance mm	+1.0 0					
Working piston speedmm/s	50 to 500					
Cushion	No					
Lubrication	Not required					
Allowable absorbed energyJ	0.004	0.01	0.016	0.021	0.025	0.092

*1: The ø32 bore size with a 5 mm stroke and without a switch has a port size of M5.

Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
ø12	5/10/15/20	30	1
ø16	25/30		
ø20	5/10/15/20/25	50	
ø25	30/35/40/45/50		
ø32	5/10/15/20/25	100	
ø40	30/35/40/45/50/75/100		

*1: When using the type with switch, refer to the table of the min. stroke with switch.

Min. stroke with switch (With 2 switches)

Bore size (mm)	T0/T5	T2/T3
ø12	10 (5)	5
ø16		
ø20	5	
ø25		
ø32		
ø40		

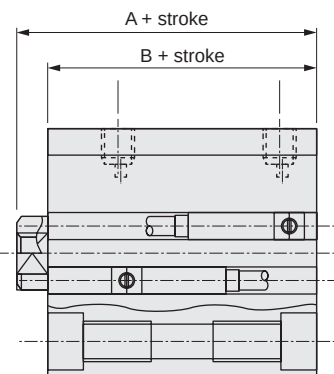
1: Less than 10 mm with the 2-color LED, off-delay, AC magnetic field proof, T1 or T8* switch is not available.

*2: Values in () are for the type with 1 on rod side.

Custom stroke

● SSD2 Series

Item	Standard stroke body with spacer	
Model No.	Refer to How to order.	
Product Item	A spacer is added to the standard stroke body to adjust the stroke in 1 mm increments.	
Stroke range	Bore size	Stroke range
	12/16	1 to 29
	20/25	1 to 49
	32/40	1 to 99
Example of model No.	Model No.: SSD2-25-38-HP1 To create a 38mm stroke, +2 mm spacer is added to the SSD2-25-40-HP1. B + stroke is 62.5 mm.	



For dimensions, refer to the SSD2 Series in "Pneumatic Cylinders I (CB-029SA)".

How to order

Without switch (without magnet for switch)

SSD2-12-5-N-LB-I-HP1

With switch (built-in magnet for switch)

SSD2-L-12-10-T0H-R-N-LB-I-HP1

A Model No.

B Bore size

C Port thread

D Stroke

E Switch model No.

*1
*2
*3
*8
*9

F Switch quantity

G Option
*4

H Mounting bracket*5
*6

⚠ Precautions for model No. selection

- *1: The T2YD* switch cannot be mounted on the ø12 and ø16 bore sizes.
- *2: T8* switch cannot be installed on ø12 to ø32.
- *3: The F type switch can only be mounted on the piping port surface of bore sizes ø20 and ø25.
- *4: Piston rod of ø12 to ø25 is stainless steel as standard. C-snap ring will be stainless steel, not steel. The rod end male thread nut is stainless steel.
- *5: The mounting bracket is included at shipment.
- *6: The projection dimension of piston rod WF when LB or FA is selected is different from that of the standard. Refer to "Pneumatic Cylinders I (CB-029SA)" for dimensions. The number of the specified protruding dimension will be added at the end of the model No. printed on the metal plate on the body.
- *7: "I" and "Y" cannot be selected together.
- *8: The F type switch with L type lead wire on ø20 models cannot be selected on strokes 15 mm or under.
- *9: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.
- *10: F type switch cannot be selected.
- *11: Copper and PTFE free as standard.

[Example of model No.]

SSD2-L-12-10-T0H-R-N-LB-I-HP1

Model: Compact cylinder, standard

- B** Bore size : ø12 mm
- C** Port thread : Rc thread
- D** Stroke : 10 mm
- E** Switch model No. : Reed T0H switch, lead wire length 1 m
- F** Switch quantity : 1 on rod side
- G** Option : Rod end male thread
- H** Mounting bracket : Axial foot
- I** Accessory : Rod eye

I Accessory*7

Code		Description										
A Model No.												
SSD2		Double acting/Single rod										
SSD2-L		Double acting/Single rod with switch										
B Bore size (mm)												
12		ø12										
16		ø16										
20		ø20										
25		ø25										
32		ø32										
40		ø40										
C Port thread												
Blank		Rc thread										
NN		NPT thread (ø32 and over) (made to order)										
GN		G thread (ø32 and over) (made to order)										
D Stroke (mm)												
Refer to the stroke table on the following page.												
E Switch model No.												
Lead wire	Lead wire	Contact	Voltage		Indicator	Lead wire	Bore size					
Straight	L-shaped		AC	DC			12	16	20	25	32	40
F2S*		Proximity		●	1-color LED	2-wire			●	●		
F3S*				●		3-wire			●	●		
F2H*	F2V*			●		2-wire			●	●		
F3H*	F3V*			●		3-wire			●	●		
F3PH*	F3PV*			●	1-color LED (PNP output) (made to order)	3-wire			●	●		
F2YH*	F2YV*	Reed		●	2-color LED	2-wire			●	●		
F3YH*	F3YV*			●		3-wire			●	●		
T0H*	T0V*		Reed	●	●	1-color LED	2-wire	●	●	●	●	●
T5H*	T5V*	●		●	No LED	●		●	●	●	●	●
T8H*	T8V*	●		●	1-color LED							●
T1H*	T1V*	Proximity	●		1-color LED	2-wire			●	●	●	●
T2H*	T2V*			●		2-wire	●	●	●	●	●	●
T3H*	T3V*			●		3-wire	●	●	●	●	●	●
T2HR3	T2VR3			●	1-color LED bend resistant lead wire	2-wire	●	●	●	●	●	●
T3PH*	T3PV*			●	1-color LED (PNP output) (made to order)	3-wire	●	●	●	●	●	●
T2WH*	T2WV*			●	2-color LED	2-wire	●	●	●	●	●	●
T3WH*	T3WV*			●		3-wire	●	●	●	●	●	●
T2YD*	-			●	2-color LED	2-wire			●	●	●	●
T2YDT*	-			●	2-color LED	2-wire			●	●	●	●
T2JH*	T2JV*			●	1-color LED off-delay	2-wire			●	●	●	●
* Lead wire length												
Blank		1 m (standard)										
3		3 m (option)										
5		5 m (option)										
		*10										
F Switch quantity												
R		1 on rod side										
H		1 on head side										
D		2										
G Option												
Blank		Rod end female thread										
N		Rod end male thread										
M		Piston rod material (stainless steel)										
		*4										
H Mounting bracket												
Blank		Without mounting bracket										
LB		Axial foot										
CB		Clevis bracket (pin and snap ring attached)										
FA		Rod side flange										
FB		Head side flange										
I Accessory (available when rod end male thread "N" is selected)												
I		Rod eye										
Y		Rod clevis (pin and snap ring attached)										

SCP3	Long service life cylinder
CMK2	Environment-resistant cylinder
SCM	Linear Slide Hand
SSD2	Low-profile long stroke hand
MDC2	Wide Parallel Hand
MSD	Chuck
MSDG-L	Booster
SMG	Compatible with rechargeable batteries
LCR	Supports food mfg. processes
LCG	
STM	
STG	
STR2	
SCP3	
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCP3	
CMK2	
SCM	
SCG	
SSD2	
STG	

SSD2-HP1 Series

[Stroke table]

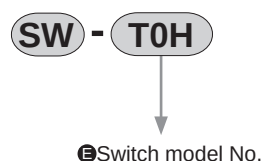
Stroke (mm)		Applicable bore size					
		12	16	20	25	32	40
Standard stroke	5	●	●	●	●	●	●
	10	●	●	●	●	●	●
	15	●	●	●	●	●	●
	20	●	●	●	●	●	●
	25	●	●	●	●	●	●
	30	●	●	●	●	●	●
	35			●	●	●	●
	40			●	●	●	●
	45			●	●	●	●
	50			●	●	●	●
	75					●	●
100					●	●	
Min. stroke (mm) *1		1					
Max. stroke (mm)		30		50		100	
Custom stroke *2		In 1 mm increments					

1: Less than 5 mm for 1-color LED switch, less than 10mm for the 2-color LED, off-delay, AC magnetic field proof, T1, and T8* switches are not available. Refer to page 10 for the min. stroke with switch.

*2: The total length when using a custom stroke is the same as that when using the next longer standard stroke.

*3: Refer to the dimensions in "Pneumatic Cylinders I (CB-029SA)" for the min. stroke with mounting bracket LB.

How to order switch



How to order mounting brackets

Bore size (mm)	ø12	ø16	ø20	ø25	ø32	ø40
Mounting bracket						
Foot (LB)	SSD2-LB-12	SSD2-LB-16	SSD2-LB-20	SSD2-LB-25	SSD2-LB-32	SSD2-LB-40
Flange (FA/FB)	SSD2-FA-12	SSD2-FA-16	SSD2-FA-20	SSD2-FA-25	SSD2-FA-32	SSD2-FA-40
Clevis bracket (CB)	SSD2-CB-12	SSD2-CB-16	SSD2-CB-20	SSD2-CB-25	SSD2-CB-32	SSD2-CB-40

*1: The foot mounting bracket is provided as 2 pcs./set.

SSD2 consumable parts list

Bore size (mm)	Kit No.	Part name
ø12	SSD2-12K-HP1	Rod metal gasket Rod packing Piston packing
ø16	SSD2-16K-HP1	
ø20	SSD2-20K-HP1	
ø25	SSD2-25K-HP1	
ø32	SSD2-32K-HP1	
ø40	SSD2-40K-HP1	

SCPDP3	Long service life cylinder	Environment-resistant cylinder	Linear Slide Hand	Low-profile long stroke hand	Wide Parallel Hand	Chuck	Air Booster	Compatible with rechargeable batteries	Supports food mfg. processes							
CMK2																
SCM																
SSD2																
MDC2																
MSD																
MSDG-L																
SMG																
LCR																
LCG																
STM																
STG																
STR2																
SCPDP3	Environment-resistant cylinder	Linear Slide Hand	Low-profile long stroke hand	Wide Parallel Hand	Chuck	Air Booster	Compatible with rechargeable batteries	Supports food mfg. processes								
CMK2																
SCM																
SCG																
SSD2																
SMG																
LCR																
STG																
STS																
STL																
LSH																
LSHL																
LSHM																
LST	Low-profile long stroke hand	HMC	CKW	ABP2	SCPDP3	CMK2	SCM	SSD2	MSD	MSDG-L						
LSTM																
HMC	Wide Parallel Hand	Chuck	Air Booster	Compatible with rechargeable batteries												
CKW																
ABP2	Supports food mfg. processes	SCPDP3	CMK2	SCM	SSD2	MSD	MSDG-L	SMG	STG	STM						
SCPDP3																
CMK2																
SCM																
SSD2																
MSD																
MSDG-L																
SMG																
STG																
STM																
LCR																
LCG																
STR2																
LSH																
LSHL																
SCPDP3																
CMK2																
SCM																
SCG																
SSD2																
STG																

Long service life cylinder

Environment-resistant cylinder

Linear Slide Hand

Low-profile long stroke hand

Wide-Parallel Hand

Chuck

Air Booster

Compatible with rechargeable batteries

Supports food mfg. processes

SCPD3

CMK2

SCM

SSD2

MDC2

MSD

MSDG-L

SMG

LCR

LCG

STM

STG

STR2

SCPD3

CMK2

SCM

SCG

SSD2

SMG

LCR

STG

STS

STL

LSH

LSHL

LSHM

LST

LSTM

HMC

CKW

ABP2

SCPD3

CMK2

SCM

SSD2

MSD

MSDG-L

SMG

STG

STM

LCR

LCG

STR2

LSH

LSHL

SCPD3

CMK2

SCM

SCG

SSD2

STG



Compact direct mounting cylinder Double acting/Single rod

Long service life cylinder

MDC2-HP1 Series

● Bore size: ø4, ø6, ø8, ø10



Specifications

Item	MDC2-HP1 MDC2-L-HP1 (with switch)			
Bore size mm	ø4	ø6	ø8	ø10
Actuation	Double acting			
Working fluid	Compressed air			
Max. working pressure MPa	0.7			
Min. working pressure MPa	0.2	0.15		0.1
Proof pressure MPa	1.05			
Ambient temperature °C	-10 to 60 (no freezing) *1			
Port size	M3			M5
Stroke tolerance mm	+0.5			
	0			
Working piston speed mm/s	50 to 500			
Cushion	No			
Lubrication	Not required			
Allowable absorbed energy J	This product cannot absorb the energy generated by an external load mounted on the cylinder. When using the product with no load, separately provide a shock absorber on the outside.			

*1: When using the proximity switch, use at 40°C or less.

Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke with two switches (mm)		Min. stroke with one switch (mm)	
			Reed switch	Proximity switch	Reed switch	Proximity switch
ø4	3/6	6	-	-	-	-
ø6	4/6/8	8	6	4 (8)	4	4
ø8	4/6/8	8	8	4 (8)	4	4
ø10	4/6/10	10	6	4 (10)	4	4

*1: Products with stroke other than standard stroke are not available.

*2: For F2Y, F3Y or F3P, the min. stroke will be the dimensions in ().

For dimensions, refer to the MDC2 Series in "Pneumatic Cylinders I (CB-029SA)".

How to order

- Without switch(without magnet for switch)

MDC2 - 6 - 4 - HP1

- With switch(built-in magnet for switch)

MDC2-L - 6 - 4 - F2V - R - HP1

A Model No.

B Bore size

C Stroke

D Switch model No.

*1
*2
*3
*4

E Switch quantity

⚠ Precautions for model No. selection

- *1: ø4 with switch cannot be selected.
- *2: For MDC2 with reed switch, the cylinder cannot be mounted on a magnetic substance (iron plate, etc.). Otherwise, this could lead to switch detection malfunction.
- *3: When using MDC2-L-6 with reed switch, use a non-magnetic bolt (stainless steel hexagon socket head cap screw, etc.) for the cylinder mounting bolt. Otherwise, this could lead to switch detection malfunction.
- *4: Refer to page 14 for the min. stroke with switch.

[Example of model No.]

MDC2-L-6-4-F2V-R-HP1

Model: Compact direct mounting cylinder

- A** Model No. : Double acting/Single rod/with switch
- B** Bore size : ø6 mm
- C** Stroke : 4 mm
- D** Switch model No. : Proximity F2V switch, lead wire 1 m
- E** Switch quantity : 1 on rod side

How to order switch

SW - F0H

Switch model No.
(Item **D** above)

Code		Description				
A Model No.						
MDC2	Double acting/Single rod	Without switch				
MDC2-L	Double acting/Single rod	With switch				
B Bore size						
4	ø4					
6	ø6					
8	ø8					
10	ø10					
C Stroke (mm)						
3	3 (ø4)					
4	4 (ø6 to ø10)					
6	6 (ø4 to ø10)					
8	8 (ø6, ø8)					
10	10(ø10)					
D Switch model No.						
Lead wire Straight	Lead wire L-shaped	Contact	Voltage		Indicator	Lead wire
			AC	DC		
F0H*	F0V*	Reed		●	1-color LED	2-wire
-	F2S*	Proximity		●		
F2H*	F2V*			●		
-	F3S*			●		
F3H*	F3V*			●		
F3PH*	F3PV*			●	1-color LED (PNP output) (Made to order)	3-wire
F2YH*	F2YV*			●	2-color LED	
F3YH*	F3YV*		●			3-wire
* Lead wire length						
Blank		1 m (standard)				
3		3 m (option)				
E Switch quantity						
R	1 on rod side					
H	1 on head side					
D	2					

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

Long service life cylinder

Environment-resistant cylinder

Linear Slide Hand

Low-profile long stroke hand

Wide-Parallel Hand

Chuck

Air Booster

Compatible with rechargeable batteries

Supports food mfg. processes

SCPD3

CMK2

SCM

SSD2

MDC2

MSD

MSDG-L

SMG

LCR

LCG

STM

STG

STR2

SCPD3

CMK2

SCM

SCG

SSD2

SMG

LCR

STG

STS

STL

LSH

LSHL

LSHM

LST

LSTM

HMC

CKW

ABP2

SCPD3

CMK2

SCM

SSD2

MSD

MSDG-L

SMG

STG

STM

LCR

LCG

STR2

LSH

LSHL

SCPD3

CMK2

SCM

SCG

SSD2

STG



Small compact cylinder Double acting/Single rod

Long service life cylinder

MSD-HP1 Series

● Bore size: $\varnothing 6/\varnothing 8$



Specifications

Item	MSD-HP1 MSD-L-HP1 (with switch)	
Bore size	mm	$\varnothing 6, \varnothing 8$
Actuation		Double acting
Working fluid		Compressed air
Max. working pressure	MPa	1.0
Min. working pressure	MPa	0.15
Proof pressure	MPa	1.6
Ambient temperature	°C	-10 to 60 (where, no freezing)
Port size		M3
Stroke tolerance	mm	+0.5
		0
Working piston speed	mm/s	50 to 500
Cushion		No
Lubrication		Not required
Allowable absorbed energy	J	This product cannot absorb the energy generated by an external load mounted on the cylinder. When using the product with no load, separately provide a shock absorber on the outside.

Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke with two switches (mm)		Min. stroke with one switch (mm)	
			Reed switch	Proximity switch	Reed switch	Proximity switch
$\varnothing 6$	5/10/15 20/25/30	30	10	5 (10)	5	5
$\varnothing 8$						

*1: Products with stroke other than standard stroke are not available.
*2: For F2Y, F3Y or F3P, the min. stroke will be the dimensions in ().

For dimensions, refer to the MSD Series in "Pneumatic Cylinders I (CB-029SA)".

How to order

- Without switch(without magnet for switch)

MSD - 6 - 5 - R - HP1

- With switch(built-in magnet for switch)

MSD-L - 6 - 5 - F0H - R - R - HP1

A Model No.

B Bore size

C Stroke

D Switch model No.

*1

E Switch quantity

F Option

*2

⚠ Precautions for model No. selection

*1: For ø6 or ø8 with switch, use a non-magnetic (stainless steel, etc.) mounting bolt.

*2: For rear piping, body side mounting is possible. Note that 2 bolts are used for rod side mounting and head side mounting.

[Example of model No.]

MSD-L-6-5-F0H-R-R-HP1

- A** Model No. : Double acting/Single rod/with switch
- B** Bore size : ø6 mm
- C** Stroke : 5 mm
- D** Switch model No. : Reed F0H switch, lead wire 1 m
- E** Switch quantity : 1 on rod side
- F** Option : Rear piping

How to order switch

SW - F0H

Switch model No.
(Item **D** above)

Code		Description				
A Model No.						
MSD	Double acting/Single rod	Without switch				
MSD-L		With switch				
B Bore size (mm)						
6	ø6					
8	ø8					
C Stroke (mm)						
5	5					
10	10					
15	15					
20	20					
25	25					
30	30					
D Switch model No.						
Lead wire Straight	Lead wire L-shaped	Contact Point	Voltage AC DC	Indicator lamp	Lead wire	
F0H*	F0V*	Reed		●	1-color LED	2-wire
-	F2S*	Proximity		●		
F2H*	F2V*			●		
-	F3S*			●		
F3H*	F3V*			●		
F3PH*	F3PV*			●	1-color LED (PNP output) (Made to order)	3-wire
F2YH*	F2YV*			●	2-color LED	2-wire
F3YH*	F3YV*			●		3-wire
* Lead wire length						
Blank	1 m (Standard)					
3	3 m (Options)					
E Switch quantity						
R	1 on rod side					
H	1 on head side					
D	2					
F Option						
Blank	Front piping					
R	Rear piping					

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	Environment-resistant cylinder
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Linear Slide Hand
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	Low-profile long stroke hand
STS	
STL	
LSH	
LSHL	
LSHM	
LST	
LSTM	Wire Parallel Hand
HMC	
CKW	
ABP2	
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	Supports food mfg. processes
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

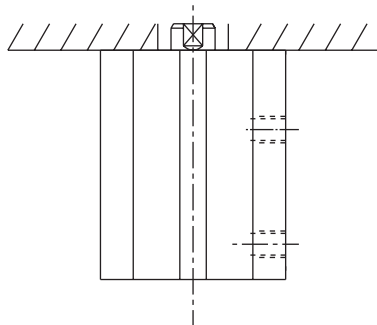
Switch selection table

Switches may not be installable depending on relations between cylinder installation and stroke.

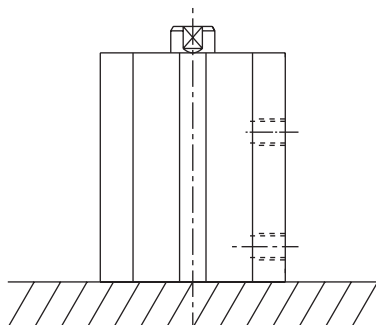
Refer to the table below to select a switch.

Switches cannot be used for side mounting in the following combinations.

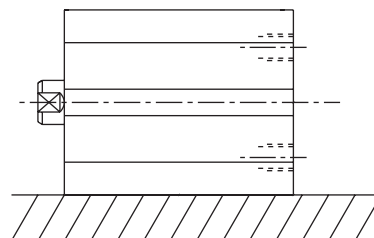
- Combinations in which F2YH/V, F3YH/V or F3PH/V is mounted at the switch mounting position H with stroke 5 mm
- Combinations in which F2YH, F3YH or F3PH is mounted at the switch mounting position H with stroke 10mm (For the min. stroke with switch, Page 16.)



For rod side installation



For head side mounting



For side mounting

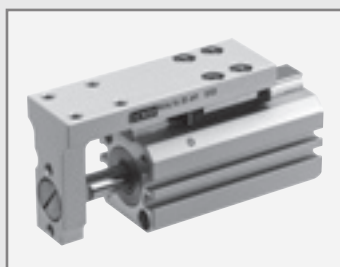
● For rod side installation

Tube Bore size (mm)	Stroke (mm)	Reed switch				Proximity switch									
		F0H		F0V		F2S/F3S		F2H/F3H		F2V/F3V		F2YH/F3YH/F3PH		F2YV/F3YV/F3PV	
		Switch mounting position		Switch mounting position		Switch mounting position		Switch mounting position		Switch mounting position		Switch mounting position		Switch mounting position	
		R	H	R	H	R	H	R	H	R	H	R	H	R	H
ø6	5	○	○	○	○	○	○	○	x	○	○	○	x	○	x
	10	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	15 to	○	○	○	○	○	○	○	○	○	○	○	○	○	○
ø8	5	○	○	○	○	○	○	○	x	○	○	○	x	○	x
	10	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	15 to	○	○	○	○	○	○	○	○	○	○	○	○	○	○

● For head side mounting

Tube Bore size (mm)	Stroke (mm)	Reed switch				Proximity switch									
		F0H		F0V		F2S/F3S		F2H/F3H		F2V/F3V		F2YH/F3YH/F3PH		F2YV/F3YV/F3PV	
		Switch mounting position		Switch mounting position		Switch mounting position		Switch mounting position		Switch mounting position		Switch mounting position		Switch mounting position	
		R	H	R	H	R	H	R	H	R	H	R	H	R	H
ø6	5	x	x	○	○	○	○	x	○	○	○	x	x	○	x
	10	○	x	○	○	○	○	x	○	○	○	x	○	○	○
	15	○	x	○	○	○	○	○	○	○	○	x	○	○	○
	20 to	○	x	○	○	○	○	○	○	○	○	○	○	○	○
ø8	5	x	x	○	○	○	○	x	○	○	○	x	x	○	x
	10	○	x	○	○	○	○	x	○	○	○	x	○	○	○
	15	○	x	○	○	○	○	○	○	○	○	x	○	○	○
	20 to	○	x	○	○	○	○	○	○	○	○	○	○	○	○

SCPD3	Long service life cylinder	SCPDP3	Environment-resistant cylinder	Linear Slide Hand	Low-profile long stroke hand	Wide Parallel Hand	Chuck	Air Booster	Compatible with rechargeable batteries	Supports food mfg. processes
CMK2										
SCM										
SSD2										
MDC2										
MSD										
MSDG-L										
SMG										
LCR										
LCG										
STM										
STG										
STR2										
SCPDP3										
CMK2										
SCM										
SCG										
SSD2										
SMG										
LCR										
STG										
STS										
STL										
LSH										
LSHL										
LSHM										
LST										
LSTM										
HMC										
CKW										
ABP2										
SCPD3										
CMK2										
SCM										
SSD2										
MSD										
MSDG-L										
SMG										
STG										
STM										
LCR										
LCG										
STR2										
LSH										
LSHL										
SCPDP3										
CMK2										
SCM										
SCG										
SSD2										
STG										

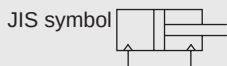


Small guided compact cylinder
Double acting/Guided/With switch

Long service life cylinder

MSDG-L-HP1 Series

● Bore size: ø6/ø8/ø12/ø16



Specifications

Item		MSDG-L-HP1(With switch)			
Bore size mm		ø6	ø8	ø12	ø16
Actuation		Double acting			
Working fluid		Compressed air			
Max. working pressure MPa		1.0			
Min. working pressure MPa		0.2	0.15	0.1	
Proof pressure MPa		1.6			
Ambient temperature °C		5 to 60			
Port size	Front piping	M3		M5	
	Rear piping	M3		M3	
Stroke tolerance	mm	+2.0			
		0			
Working piston speed mm/s		50 to 500			
Cushion		With rubber cushion			
Lubrication		Not required			
Allowable absorbed energy J		0.004	0.014	0.044	0.110

Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke with two switches (mm)		Min. stroke with one switch (mm)	
			Reed switch	Proximity switch	Reed switch	Proximity switch
ø6	5/10/15 20/25/30	30	10	5	5	5
ø8						
ø12						
ø16						

Note: Products with stroke other than standard stroke are not available.

For dimensions, refer to the MSDG-L Series in "Pneumatic Cylinders I (CB-029SA)".

How to order

● With switch(built-in magnet for switch)

MSDG-L-6-30-F0H-D-R-HP1

Model No.

A Bore size

B Stroke

C Switch model No.

*1

*2

D Switch quantity

E Option

*3

⚠ Precautions for model No. selection

- *1: For ø6 or ø8 with switch, use a non-magnetic (stainless steel, etc.) mounting bolt.
- *2: When using a proximity switch with ø12 or ø16, use a non-magnetic (stainless steel, etc.) through bolt.
- *3: For rear piping, body side mounting is possible.

[Example of model No.]

MSDG-L-6-30-F0H-D-R-HP1

Model No.: Double acting/guided/with switch

- A** Bore size : ø6 mm
- B** Stroke : 30 mm
- C** Switch model No. : Reed F0H switch
- D** Switch quantity : 2 pcs. included
- E** Option : Rear piping

How to order switch

SW - F0H

Switch model No.
(Item **C** above)

Code		Description				
A Bore size (mm)						
6	ø6					
8	ø8					
12	ø12					
16	ø16					
B Stroke (mm)						
5	5					
10	10					
15	15					
20	20					
25	25					
30	30					
C Switch model No.						
Lead wire	Lead wire	Contact	Voltage		Indicator lamp	Lead wire
Straight	L-shaped	Point	AC	DC		
F0H*	F0V*	Reed		●	1-color LED	2-wire
-	F2S*	Proximity		●		
F2H*	F2V*			●		
-	F3S*			●		
F3H*	F3V*			●		
F3PH*	F3PV*			●	1-color LED (PNP output) (Made to order)	3-wire
F2YH*	F2YV*			●	2-color LED	
F3YH*	F3YV*			●		
* Lead wire length						
Blank	1 m (Standard)					
3	3 m (Options)					
D Switch quantity						
R	1 on rod side					
H	1 on head side					
D	2					
E Option						
Blank	Front piping					
R	Rear piping					

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	Environment-resistant cylinder
SMG	
LCR	
LCG	
STM	
STG	
STR2	Linear Slide Hand
SCPD3	
CMK2	
SCM	
SCG	
SSD2	
SMG	Low-profile long stroke hand
LCR	
STG	
STS	
STL	
LSH	Wire Parallel Hand
LSHL	
LSHM	
LST	
LSTM	
HMC	Chuck
CKW	
ABP2	
SCPD3	Air Booster
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	Compatible with rechargeable batteries
STG	
STM	
LCR	
LCG	
STR2	
LSH	Supports food mfg. processes
LSHL	
SCPD3	
CMK2	
SCM	
SCG	
SSD2	
STG	

MSDG-L-HP1 Series

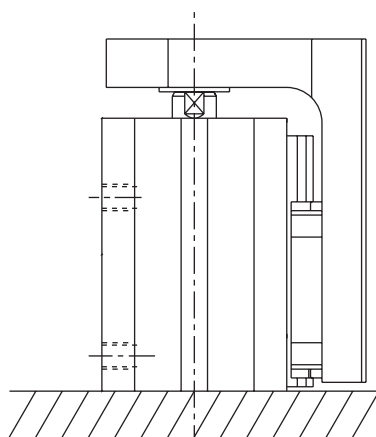
Switch selection table

Switches may not be installable depending on relations between cylinder installation and stroke.

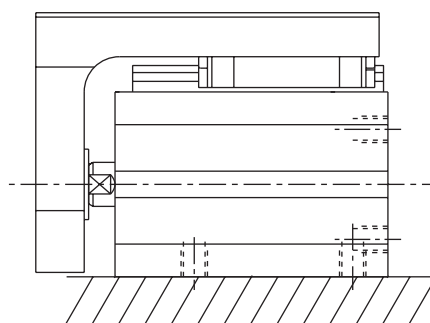
Refer to the table below to select a switch.

Switches cannot be used for side mounting in the following combinations.

- Combinations in which F2YH/V, F3YH/V or F3PH/V is mounted at the switch mounting position H with stroke 5 mm
- Combinations in which F2YH, F3YH or F3PH is mounted at the switch mounting position H with stroke 10mm
(For the min. stroke with switch, Page 20.)



For head side mounting



For side mounting

● For head side mounting

Tube Bore size (mm)	Stroke (mm)	Reed switch				Proximity switch									
		F0H		F0V		F2S/F3S		F2H/F3H		F2V/F3V		F2YH/F3YH/F3PH		F2YV/F3YV/F3PV	
		Switch mounting position		Switch mounting position		Switch mounting position		Switch mounting position		Switch mounting position		Switch mounting position		Switch mounting position	
		R	H	R	H	R	H	R	H	R	H	R	H	R	H
ø6	5	x	○	○	○	○	○	x	○	○	○	x	x	○	○
	10	○	○	○	○	○	○	x	○	○	○	x	○	○	○
	15 to	○	○	○	○	○	○	○	○	○	○	○	○	○	○
ø8	5	x	○	○	○	○	○	x	○	○	○	x	x	○	○
	10	○	○	○	○	○	○	x	○	○	○	x	○	○	○
	15 to	○	○	○	○	○	○	○	○	○	○	○	○	○	○
ø12	5	x	○	○	○	○	○	x	○	○	○	x	○	○	○
	10	○	○	○	○	○	○	x	○	○	○	x	x	○	○
	15 to	○	○	○	○	○	○	○	○	○	○	○	○	○	○
ø16	5	x	○	○	○	○	○	x	○	○	○	x	○	○	○
	10	○	○	○	○	○	○	x	○	○	○	x	○	○	○
	15 to	○	○	○	○	○	○	○	○	○	○	○	○	○	○

SCPD3	Long service life cylinder	Environment-resistant cylinder	Linear Slide Hand	Low-profile long stroke hand	Wide Parallel Hand	Chuck	Air Booster	Compatible with rechargeable batteries	Supports food mfg. processes
CMK2									
SCM									
SSD2									
MDC2									
MSD									
MSDG-L									
SMG									
LCR									
LCG									
STM									
STG									
STR2									
SCPD3									
CMK2									
SCM									
SCG									
SSD2									
SMG									
LCR									
STG									
STS									
STL									
LSH									
LSHL									
LSHM									
LST									
LSTM									
HMC									
CKW									
ABP2									
SCPD3									
CMK2									
SCM									
SSD2									
MSD									
MSDG-L									
SMG									
STG									
STM									
LCR									
LCG									
STR2									
LSH									
LSHL									
SCPD3									
CMK2									
SCM									
SCG									
SSD2									
STG									

Long service life cylinder

Environment-resistant cylinder

Linear Slide Hand

Low-profile long stroke hand

Wide-Parallel Hand

Chuck

Air Booster

Compatible with rechargeable batteries

Supports food mfg. processes

SCPD3

CMK2

SCM

SSD2

MDC2

MSD

MSDG-L

SMG

LCR

LCG

STM

STG

STR2

SCPD3

CMK2

SCM

SCG

SSD2

SMG

LCR

STG

STS

STL

LSH

LSHL

LSHM

LST

LSTM

HMC

CKW

ABP2

SCPD3

CMK2

SCM

SSD2

MSD

MSDG-L

SMG

STG

STM

LCR

LCG

STR2

LSH

LSHL

SCPD3

CMK2

SCM

SCG

SSD2

STG



Compact cylinder Double acting/Single rod

Long service life cylinder

SMG-HP1 Series

● Bore size: $\varnothing 6/\varnothing 10/\varnothing 16/\varnothing 20/\varnothing 25/\varnothing 32$



Specifications

Item	SMG-HP1 SMG-L-HP1 (with switch)						
Bore size	mm	$\varnothing 6$	$\varnothing 10$	$\varnothing 16$	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressure	MPa	0.7					
Min. working pressure	MPa	0.12	0.06			0.05	
Proof pressure	MPa	1.05					
Ambient temperature	°C	-10 to 60 (no freezing)					
Port size		M5					Rc1/8
Stroke tolerance	mm	+1.5 0					
Working piston speed	mm/s	50 to 500					
Cushion		With rubber cushion					
Lubrication		Not required					
Allowable absorbed energy J		0.012	0.036	0.1	0.1	0.19	0.5

Stroke

Bore size (mm)	Standard stroke (mm)	Min. stroke (mm)
ø6	5, 10, 15, 20, 25, 30, 40, 50, 60	5
ø10		
ø16		
ø20	5, 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100	
ø25		
ø32		

*1: The custom stroke is available in 5 mm increments.
However, the total length is the same as that of the next longer standard stroke.

Min. stroke with switch

Bore size	1-color LED		2-color LED	
	K □ H	K □ V	K □ YH	K □ YV
$\varnothing 6$	5		5	
$\varnothing 10$				
$\varnothing 16$				
$\varnothing 20$				
$\varnothing 25$				
$\varnothing 32$				

For dimensions, refer to the SMG Series in "Pneumatic Cylinders I (CB-029SA)".

How to order

Without switch (without magnet for switch)

SMG - **6** - **25** - **HP1**

With switch (built-in magnet for switch)

SMG-L - **6** - **25** - **K2H** - **R** - **HP1**

A Model No.

B Bore size

C Port thread

D Stroke

E Switch model No.

F Switch quantity



Precautions for model No. selection

*1: Refer to page 24 for min. stroke with switch.

*2: Copper and PTFE free as standard.

Code	Description
A Model No.	
SMG	Double acting
SMG-L	Double acting with switch

B Bore size (mm)	
6	ø6
10	ø10
16	ø16
20	ø20
25	ø25
32	ø32

C Port thread	
Blank	Rc thread
NN	NPT thread (ø32 and over) (made to order)
GN	G thread (ø32 and over) (made to order)

D Stroke (mm)		Applicable bore size					
		ø6	ø10	ø16	ø20	ø25	ø32
Standard stroke	5	●	●	●	●	●	●
	10	●	●	●	●	●	●
	15	●	●	●	●	●	●
	20	●	●	●	●	●	●
	25	●	●	●	●	●	●
	30	●	●	●	●	●	●
	40	●	●	●	●	●	●
	50	●	●	●	●	●	●
	60	●	●	●	●	●	●
	70				●	●	●
	80				●	●	●
	90				●	●	●
	100				●	●	●

E Switch model No.						
Lead wire straight	Rate type	Lead wire L-shaped	Contact	Voltage		Indicator
				AC	DC	
	K0H*	K0V*	Reed	●	●	1-color LED
	K5H*	K5V*		●	●	No LED
	K2H*	K2V*			●	1-color LED
	K3H*	K3V*	Proximity		●	1-color LED (made to order)
	K3PH*	K3PV*			●	2-color LED
	K2YH*	K2YV*			●	2-color LED
	K3YH*	K3YV*			●	2-color LED

* Lead wire length	
Blank	1 m (standard)
3	3 m
5	5m

F Switch quantity	
R	1 on rod side
H	1 on head side
D	2

SMG repair parts list

Bore size (mm)	Kit No.	Part name
ø6	SMG-6K-HP1	CR type snap ring (ø6, ø10, ø16) Rod packing Cushion rubber R/H Piston packing Cover gasket
ø10	SMG-10K-HP1	
ø16	SMG-16K-HP1	
ø20	SMG-20K-HP1	
ø25	SMG-25K-HP1	
ø32	SMG-32K-HP1	

How to order switch

SW - **K2H**

E Switch model No.

SCP3
CMK2
SCM
SSD2
MDC2
MSD
MSDG-L
SMG
LCR
LCG
STM
STG
STR2
SCP3
CMK2
SCM
SCG
SSD2
SMG
LCR
STG
STS
STL
LSH
LSHL
LSHM
LST
LSTM
HMC
CKW
ABP2
SCP3
CMK2
SCM
SSD2
MSD
MSDG-L
SMG
STG
STM
LCR
LCG
STR2
LSH
LSHL
SCP3
CMK2
SCM
SCG
SSD2
STG

Long service life cylinder

Environment-resistant cylinder

Linear Slide Hand

Low-profile long stroke hand

Wide Parallel Hand

Chuck

Air Booster

Compatible with rechargeable batteries

Supports food mfg. processes



Linear slide cylinder Double acting/Single rod

Long service life cylinder

LCR-HP1 Series

● Bore size: $\varnothing 6/\varnothing 8/\varnothing 12/\varnothing 16/\varnothing 20/\varnothing 25$



Specifications

Item		LCR-HP1					
Bore size mm		ø6	ø8	ø12	ø16	ø20	ø25
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressureMPa		0.7					
Min. working pressure MPa		0.15 (*1)					
Proof pressure MPa		1.05					
Ambient temperature °C		-10 to 60 (no freezing)					
Port size	Main body side	M3	M5			Rc1/8	
	Main body back	-	M3			M5	Rc1/8
Stroke tolerance mm		+2.0 0 (*2)					
Working piston speedmm/s		50 to 500 (*3)					
Cushion		With rubber cushion					
Lubrication		Not required					
Allowable absorbed energy J		Refer to the following table.					

*1: 0.2MPa when using the $\varnothing 6$ shock absorber stopper.
*2: Note that there will be a slight gap between the end plate and floating bush if no stopper is attached.
*3: Use the stroke adjusting stopper at 50 to 200mm/s.
*4: The stroke adjusting stopper for 0.3 MPa and over working pressure is the metal sealing type.

Stroke

Bore size (mm)	Standard stroke (mm)
$\varnothing 6$	10, 20, 30, 40, 50
$\varnothing 8$	10, 20, 30, 40, 50, 75
$\varnothing 12$	10, 20, 30, 40, 50, 75, 100
$\varnothing 16$	10, 20, 30, 40, 50, 75, 100, 125
$\varnothing 20$	10, 20, 30, 40, 50, 75, 100, 125, 150
$\varnothing 25$	10, 20, 30, 40, 50, 75, 100, 125, 150

*1: Products with strokes other than the above are not available.

LCR allowable absorbed energy (Eo)

Bore size	Standard (J)	With stroke adjusting stopper (J)	With shock absorber stopper (J)
$\varnothing 6$	0.025	0.0032	0.14
$\varnothing 8$	0.058	0.0032	0.25
$\varnothing 12$	0.112	0.014	0.25
$\varnothing 16$	0.176	0.043	0.65
$\varnothing 20$	0.314	0.055	1.3
$\varnothing 25$	0.314	0.14	1.3

For dimensions, refer to the LCR Series in "Pneumatic Cylinders II (CB-030SA)".

How to order

Without switch(built-in magnet for switch)

LCR - 8 - 40 - S506 DTN - HP1

With switch(built-in magnet for switch)

LCR - 12 - 40 - F2H* - R - S506 DTN - HP1

Model No.

A Tube
Bore size

B Stroke

D Switch quantity

F Option

C Switch model No.

⚠ Precautions for model No. selection

- *1: For the adjustable stroke range with a shock absorber stopper, refer to the stopper dimensions table in "Pneumatic Cylinders II (No. CB-030SA)".
- *2: For the port position, refer to the stopper dimensions in "Pneumatic Cylinders II (No. CB-030SA)".
- *3: The port positions of the standard without stopper are ① and ③ in the figure below.
- *4: Refer to stoppers "C*" and "W*" for combination of the stroke adjusting stopper and shock absorber type stopper.
- *5: Can be selected for the type with stopper only.
- *6: Refer to the selection table on page 30 for combinations of options.
- *7: A1**, A2**, A5** and A6** of ø6 to ø8 with 10 mm stroke or less and ø12 to ø25 with 20 mm stroke or less are made to order since they are not adjustable using the standard stopper.
- *8: When two switches are necessary for the type with S** or A** of ø6 to ø8 with 30 mm stroke or less, select the F □ H type switch.
- *9: Select when using rear piping.
- *10: Can be selected only when using stroke adjusting stopper (S) and one side mixed type (C).
- *11: When two switches are necessary or a switch is installed on the head side of W3 to 6 (both-sided combined stopper) of ø6 (all strokes), ø8 with 20 or 30 mm stroke, ø12 with 30 to 50 mm stroke or ø16 with 30 to 50 mm stroke, select the lead wire straight type.
- *12: Cannot be selected when choosing two-sided combined type (W).
- *13: The adjustable stroke range when choosing both-sided combined use (W) is ø6: 9 mm, ø8: 13.5 mm, ø12: 14.5 mm, ø16: 15 mm, ø20: 13 mm, ø25: 10 mm.
- *14: The stroke adjusting stopper for 0.3 MPa and over working pressure is the metal sealing type.

[Example of model No.]

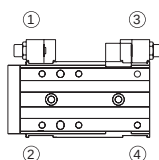
LCR-12-40-F2H-R-A1DT-HP1

Model: Linear slide cylinder Double acting/Single rod LCR

- A Bore size : ø12
- B Stroke : 40 mm
- C Switch model No. : Proximity/2-wire, Reed lead wire straight
- D Switch quantity : 1 (on rod side)
- E Stopper : Shock absorber stopper
Stopper position ①
- F Option : With side and bottom surface ports
Material, steel (nitriding)

E Stopper

● Stopper position



Code	Description
A Bore size	
6	ø6
8	ø8
12	ø12
16	ø16
20	ø20
25	ø25

		Bore size (ø)					
		6	8	12	16	20	25
10	10	●	●	●	●	●	●
20	20	●	●	●	●	●	●
30	30	●	●	●	●	●	●
40	40	●	●	●	●	●	●
50	50	●	●	●	●	●	●
75	75		●	●	●	●	●
100	100			●	●	●	●
125	125				●	●	●
150	150					●	●

C Switch model No.												
Straight lead wire	L-shaped lead wire	Contact	Voltage		Indicator lamp	Lead wire	Bore size					
			AC	DC			ø6	ø8	ø12	ø16	ø20	ø25
-	F2S*	Proximity		●	1-color LED	2-wire	●	●	●			
-	F3S*			●		3-wire						
F2H*	F2V*			●		2-wire						
F3H*	F3V*			●		3-wire						
F3PH*	F3PV*	Proximity		●	1-color LED (PNP output)(Made to order)	3-wire						
F2YH*	F2YV*			●	2-color	2-wire						
F3YH*	F3YV*			●	LED	3-wire						
T0H*	T0V*	Reed	●	●	1-color LED	2-wire						
T5H*	T5V*		●	●	No LED							
T2H*	T2V*			●	1-color							
T3H*	T3V*			●	LED							
T2HR3	T2VR3	Proximity		●	1-color LED Bending resistant lead wire	2-wire				●	●	●
T3PH*	T3PV*			●	1-color LED (PNP output)(Made to order)	3-wire						
T2WH*	T2WV*			●	2-color	2-wire						
T3WH*	T3WV*			●	LED	3-wire						

* Lead wire length		
Blank	1 m (standard)	●
3	3 m (option)	●
5	5 m (option)	●

D Switch quantity	
R	1 on rod side
H	1 on head side
D	2

E Stopper	
Page 28 for details on the [Stopper].	

F Option	
Blank	Port on stopper: without port
D	Port on stopper: side and bottom ports *2, *5, *12
Blank	Stopper block material: Steel
T	Stopper block material: steel (nitriding) *5
Plug included	
Blank	No
N	With side piping port plug (not available for ø6, ø25) *9

LCR-HP1 Series

[E Stopper]

Code	Description	Code	Description
E Stopper		C One side hybrid stopper mix (shock absorber stopper, stroke adjusting stopper)	
Blank	No option	C1**	A1+S3
S Stroke adjusting stopper		C2**	A2+S4
S1**	Stopper position ① (can be changed to ④)	C3**	A3+S1
S2**	Stopper position ② (can be changed to ③)	C4**	A4+S2
S3**	Stopper position ③ (can be changed to ②) *15	** part Adjustable stroke range ●Compatible with all. ▲Compatible with some. *10	
S4**	Stopper position ④ (can be changed to ①) *15		
S5**	Stopper position ①, ③		
S6**	Stopper position ②, ④		
A Shock absorber stopper			
A1	Stopper position ① (can be changed to ④)		
A2	Stopper position ② (can be changed to ③)		
A3	Stopper position ③ (can be changed to ②) *15		
A4	Stopper position ④ (can be changed to ①) *15		
A5	Stopper position ①, ③		
A6	Stopper position ②, ④		
W Two-sided combined double stopper(Shock absorber stopper, metal stopper)			
W1	A1 + metal stopper		
W2	A2 + metal stopper		
W3	A3 + metal stopper		
W4	A4 + metal stopper		
W5	A5 + metal stopper		
W6	A6 + metal stopper		

*15: When changing the stopper position from the head side to the rod side, the stopper must be purchased separately according to the stroke and adjustable stroke. Refer to "Precautions when purchasing discrete stopper" on page 32. A1, A2 and adjustable stroke of 15 mm and 25 mm may not be available depending on the stroke.

Stopper model No. selection method

1 Stopper combination table

Model No.-[①Stopper type] [②Stopper position][③] Example) LCR-8-40-[S] [5]06-HP1

		Adjustable stroke (one side)	Shock absorber(One side)	Two-sided combined double stopper	One side hybrid stopper mix
		Stopper model No. [①]			
		[S]	[A]	[W]	[C]
Stopper position model No. [②]	[1]				
	[2]				
	[3]				
	[4]				
	[5]				
	[6]				

▲shows the piping direction. When choosing two-sided combined type (W), the stopper bracket comes with piping on both sides. ▲The stopper bracket on the reverse side of (piping direction) is provided with a plug.

■: Shock absorber stopper
 ■: Stroke adjusting stopper (adjusting range 5 mm)
 ■: Metal adjusting stopper (adjusting range 15 mm)

Stopper model No. selection method

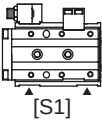
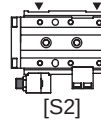
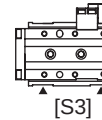
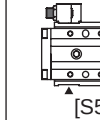
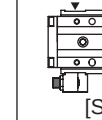
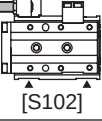
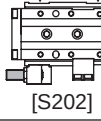
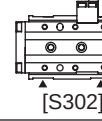
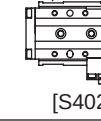
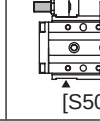
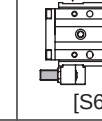
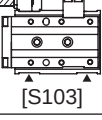
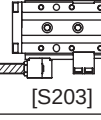
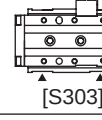
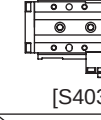
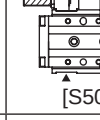
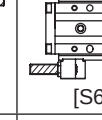
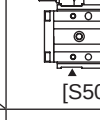
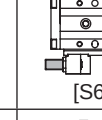
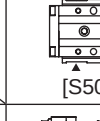
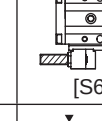
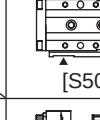
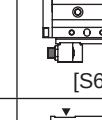
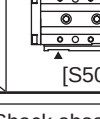
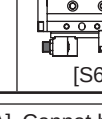
2 Stopper combination table

Model No. -[① ②Stopper type][③Adjustable stroke range]

(Example) LCR-8-40-S5[06]-HP1

For stroke adjusting stopper -S

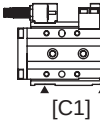
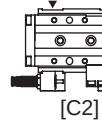
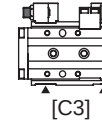
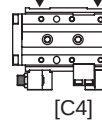
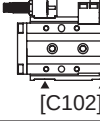
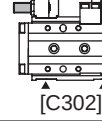
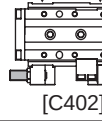
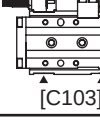
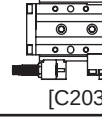
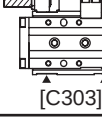
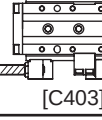
■: Stroke adjusting stopper (adjusting range 5 mm)
 ■: Stroke adjusting stopper (adjusting range 15 mm)
 ▨: Stroke adjusting stopper (adjusting range 25 mm)

		Stopper adjusting range		Stopper model No. [①②]					
		Protruding end	Return end	[S1]	[S2]	[S3]	[S4]	[S5]	[S6]
Adjustable stroke range model No. [③]	Blank	5 mm or None	5 mm or None	 [S1]	 [S2]	 [S3]	 [S4]	 [S5]	 [S6]
	[02]	15 mm or None	15 mm or None	 [S102]	 [S202]	 [S302]	 [S402]	 [S502]	 [S602]
	[03]	25 mm or None	25 mm or None	 [S103]	 [S203]	 [S303]	 [S403]	 [S503]	 [S603]
	[04]	15 mm	5 mm	Diagonal line				 [S504]	 [S604]
	[05]	25 mm	5 mm					 [S505]	 [S605]
	[06]	5 mm	15 mm					 [S506]	 [S606]
	[07]	5 mm	25 mm	Diagonal line				 [S507]	 [S607]

▲shows the piping direction. Shock absorber [A], Cannot be selected for two-sided combined type [W]N.

3 For one side hybrid stopper mix -C

■: Shock absorber stopper
 ■: Stroke adjusting stopper (adjusting range 5 mm)
 ■: Stroke adjusting stopper (adjusting range 15 mm)
 ▨: Stroke adjusting stopper (adjusting range 25 mm)

		Stopper adjusting range		Stopper model No. [①②]			
		Protruding end	Return end	[C1]	[C2]	[C3]	[C4]
Adjustable stroke range Model No. [③]	Blank	5 mm or shock Absorber	5 mm or shock Absorber	 [C1]	 [C2]	 [C3]	 [C4]
	[02]	15 mm or shock Absorber	15 mm or shock Absorber	 [C102]	 [C202]	 [C302]	 [C402]
	[03]	25 mm or shock Absorber	25 mm or shock Absorber	 [C103]	 [C203]	 [C303]	 [C403]

▲shows the piping direction.
 shock absorber adjustable stroke range is, Refer to "Pneumatic Cylinders II (No.CB-030SA)" Refer to the stopper dimensions table.

SCP03	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCP03	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCP03	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCG	
STR2	
LSH	
LSHL	
SCP03	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

LCR-HP1 Series

Long service life cylinder

Environment-resistant cylinder

Linear Slide Hand

Low-profile long stroke hand

Wide Parallel Hand

Chuck

Air Booster

Compatible with rechargeable batteries

Supports food mfg. processes

LCR Double acting/Single rod selection table																													
(Combination with stroke adjusting stopper, shock absorber stopper)																													
● : Available - : Not available																													
Model No.	Stopper type		Adjustable stroke																										
	Stopper code		S1			S2			S3			S4			S5						S6								
			Adjustment length code																										
	Bore size	Stroke	Blank	02	03	Blank	02	03	Blank	02	03	Blank	02	03	Blank	02	03	04	05	06	07	Blank	02	03	04	05	06	07	
LCR	ø6,ø8	10	●	-	-	●	-	-	●	●	-	●	●	-	●	-	-	-	-	●	-	●	-	-	-	-	●	-	
		20 or more	●	●	-	●	●	-	●	●	-	●	●	-	●	●	-	●	-	●	-	●	●	-	●	-	●	-	
	ø12 to ø25	10	●	-	-	●	-	-	●	●	-	●	●	-	●	-	-	-	-	●	-	●	-	-	-	-	●	-	
		20	●	●	-	●	●	-	●	●	●	●	●	●	●	●	●	-	●	-	●	●	●	●	-	●	-	●	●
		30 or more	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Model No.	Stopper type		Shock absorber						Two-sided combined double stopper						One side hybrid stopper mix														
	Stopper code		A1	A2	A3	A4	A5	A6	W1	W2	W3	W4	W5	W6	C1			C2			C3			C4					
															Adjustment length code														
	Bore size	Stroke													Blank	02	03	Blank	02	03	Blank	02	03	Blank	02	03			
LCR	ø6,ø8	10	-	-	●	●	-	-	-	-	●	●	-	-	-	-	-	-	-	-	●	-	-	●	-	-	-	-	
		20 or more	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	-	●	●	-	●	●	-	●	●	-	-	
	ø12 to ø25	10	-	-	●	●	-	-	-	-	●	●	-	-	-	-	-	-	-	-	●	-	-	●	-	-	-	-	
		20	-	-	●	●	-	-	-	-	●	●	-	-	-	-	-	-	-	-	●	●	-	●	●	-	-	-	
		30 or more	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

The table above also applies to a combination with option code D (with port on the stopper) or T (steel stopper block (nitriding)).

How to order switch

ø6 to ø12

SW - F2H

Switch model No.
(Page 27 Item ②)

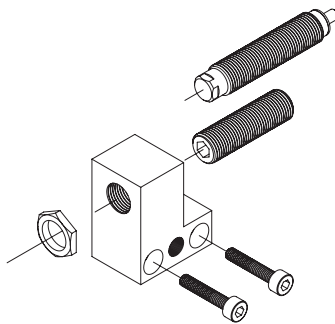
For ø16 to ø25

SW - T2H3

Switch model No.
(Page 27 Item ②)

How to order a stopper set

- Set of a stopper and stroke adjusting stopper or shock absorber stopper
- Use it when changing from the standard to the stroke adjusting stopper or shock absorber stopper.



LCR - 12 - S 2 D - S02

Bore size
(Page 27 Item ①)

A Stopper type	
S	Stroke adjusting stopper
A	Shock absorber stopper
B Stopper installation position *1	
1	For Stopper position ① or ④
2	For Stopper position ② or ③
C Port on the stopper	
Blank	Without port
D	With side and bottom ports
D Adjustable stroke *2, *3	
Blank	Adjustable stroke range 5 mm
S02	Adjustable stroke range 15 mm
S03	Adjustable stroke range 25 mm

- *1: When installing in the stopper mounting position ① or ② (refer to page 27), the stroke causes changes in the adjustable stroke; see the following table.
- *2: S03 is not available for ø6, ø8.
- *3: Cannot be selected for the shock absorber stopper "A".

Note) Bottom port is plug-sealed. ø 20. When using the bottom port with 25, buy a plug kit (LCR-20-N 2 pieces/set) and seal the side surface ports before use.

Precautions when purchasing the stopper set

When the stopper set is installed in the mounting position ① or ② (refer to page 27), note that the adjustable stroke will be as shown on the right according to the stroke.

Model No. code	Option code		Discrete stroke adjusting stopper		
			Adjustable stroke (mm)		
	Bore size	Stroke	-5	-15	-25
LCR Series	ø6, ø8	10	S02	-	-
		20 or more	Blank	S02	-
	ø12 to ø25	10	S03	-	-
		20	S02	S03	-
		30 or more	Blank	S02	S03

--: Not applicable

● Stopper set weight

(Unit : g)

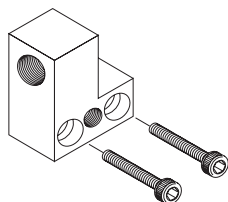
Stopper type	S1,S2			A1,A2
Port on the stopper	Blank, D			
Adjustable stroke	Blank	S02	S03	Blank
ø6	15	18	-	18
ø8	21	25	-	27
ø12	28	31	34	33
ø16	42	47	52	49
ø20	77	85	92	86
ø25	87	94	101	95

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	Linear Slide Hand
STL	
LSH	
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

How to order discrete stopper bracket

- Used when changing between □1 (□3) and □2 (□4) or when changing to the stopper with port.

□:SA



LCR - 12 - STB 1 D

Bore size
(Page 27 Item A)

A Stopper installation position

1	For stopper position ① or ④
2	For stopper position ② or ③

B Port on the stopper

Blank	Without port
D	With side and bottom ports

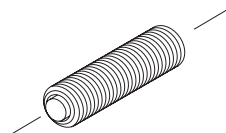
Note) Bottom port is plug-sealed. When using the bottom port with ø20 and ø25, purchase a plug kit (LCR-20-N 2 pieces/set) and seal the side surface ports before use.

- Stopper bracket weight (Unit : g)

Stopper installation position	1, 2
Port on the stopper	Blank, D
ø6	8
ø8	14
ø12	20
ø16	29
ø20	53
ø25	62

How to order discrete stroke adjusting stopper

- Hexagon socket set screw with urethane
- Use when changing the adjustable stroke range or when using a custom stroke.



LCR - 12 - S02

Bore size
(Page 27 Item A)

A Adjustable stroke range

S01	Single side 5 mm (standard)
S02	Single side 15 mm
S03	Single side 25 mm

● Select S01, S02 or S03 in .

Note: S03 is not available for ø6, ø8. Some models may not be available and adjustable stroke range may differ from the above depending on the Model No.

Precautions when purchasing discrete stopper

When a discrete stroke adjusting stopper or a discrete shock absorber stopper is installed in the ① or ② position (refer to page 27), the combination will be as shown on the right according to the stroke and adjustable stroke.

Model No. code	Option code		Discrete stroke adjusting stopper			Discrete shock absorber stopper
			Adjustable stroke (mm)			
	Bore size	Stroke	-5	-15	-25	
LCR Series -S1, S2, S5, S6 -A1, A2, A5, A6	ø6, ø8	10	S02	-	-	-
		20 or more	S01	S02	-	A01
	ø12 and up ø25	10	S03	-	-	-
		20	S02	S03	-	-
		30 or more	S01	S02	S03	A01

- : Not available

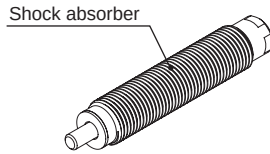
- Discrete stroke adjusting stopper weight

(Unit : g)

Adjustable stroke range	S01	S02	S03
ø6	6	9	-
ø8	7	10	-
ø12	7	11	14
ø16	11	16	22
ø20	22	30	37
ø25	23	30	37

How to order discrete shock absorber stopper

- Shock absorber set
- Use when changing from the stroke adjusting stopper to the shock absorber stopper



LCR - 12 - A01

Bore size
(Page 27 Item A)

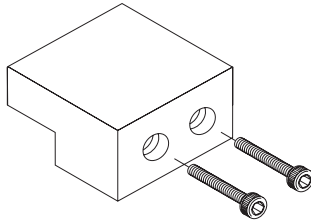
Note: Some models may not be available depending on the specifications. Refer to page 27. For the adjustable stroke range for a shock absorber stopper, refer to the stopper dimensions table in "Pneumatic Cylinders II (No. CB-030SA)".

Applicable shock absorber model No.

Model	Shock absorber model No.	Weight (g)
LCR-6-HP1	SKL-0804	9
LCR-8-HP1	SKL-0805	12
LCR-12-HP1	SKL-0805	12
LCR-16-HP1	SKL-1006	19
LCR-20-HP1	SKL-1208	31
LCR-25-HP1	SKL-1208	31

How to order discrete stopper block

- Use it when changing from the standard to the stroke adjusting stopper or shock absorber stopper.



LCR - 12 - SB1 T

Bore size
(Page 27 Item A)

A Stopper block	
SB1	ø6/ø8: For 30 stroke or less ø12 to ø25: For 50 stroke or less
SB2	ø6/ø8: For 40 stroke or more ø12 to ø25: For 75 stroke or more
B Material	
Blank	Stopper block material: Steel
T	Stopper block material: steel (nitriding)

● Discrete stopper block weight (Unit : g)

Block	SB1(T)	SB2(T)
ø6	11	21
ø8	14	24
ø12	23	37
ø16	38	72
ø20	60	99
ø25	112	206

Model No. of plug kit for side piping port

LCR - 12 - N (2/set)

Bore size
(Page 27 Item A)

● Weight of plug kit for side piping port

Bore size	Weight (g)
ø8	1
ø12	1
ø16	1
ø20	5

LCR repair parts list

Bore size (mm)	Kit No.	Part name
ø6	LCR-6K-HP1	Rod packing
ø8	LCR-8K-HP1	Metal gasket
ø12	LCR-12K-HP1	Cushion rubber R/H
ø16	LCR-16K-HP1	Piston packing
ø20	LCR-20K-HP1	Cover gasket
ø25	LCR-25K-HP1	Lube keeping structure



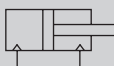
Linear slide cylinder Double acting/Single rod

Long service life cylinder

LCG-HP1 Series

● Bore size: ø6/ø8/ø12/ø16/ø20/ø25

JIS symbol



RoHS

CAD

Specifications

Item		LCG-HP1					
Bore size mm		ø6	ø8	ø12	ø16	ø20	ø25
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressure MPa		0.7					
Min. working pressure MPa		0.15 (*1)					
Proof pressure MPa		1.05					
Ambient temperature °C		-10 to 60 (no freezing)					
Port size	Main body side	M3	M5			Rc1/8	
	Main body back	M3			M5	Rc1/8	
Stroke tolerance mm		+2.0 0 (*2)					
Working piston speed mm/s		50 to 500 (*3)					
Cushion		With rubber cushion					
Lubrication		Not required					
Allowable absorbed energy J		Table below.					

*1: 0.2MPa when using the ø6 shock absorber stopper.

*2: Note that there will be a slight gap between the end plate and floating bush if no stopper is attached.

*3: Use the stroke adjusting stopper at 50 to 200mm/s.

*4: The stroke adjusting stopper for 0.3 MPa and over working pressure is the metal sealing type.

Stroke

Bore size (mm)	Standard stroke (mm)
ø6	10, 20, 30, 40, 50
ø8	10, 20, 30, 40, 50, 75
ø12	10, 20, 30, 40, 50, 75, 100
ø16	10, 20, 30, 40, 50, 75, 100, 125
ø20	10, 20, 30, 40, 50, 75, 100, 125, 150
ø25	10, 20, 30, 40, 50, 75, 100, 125, 150

Note: Products with strokes other than the above are not available.

Allowable absorbed energy (E₀)

Bore size	Standard (J)	With stroke adjusting stopper(J)	With shock absorber stopper(J)
ø6	0.025	0.0032	0.14
ø8	0.058	0.0032	0.25
ø12	0.112	0.014	0.25
ø16	0.176	0.043	0.65
ø20	0.314	0.055	1.3
ø25	0.314	0.14	1.3

For dimensions, refer to the LCG Series in "Pneumatic Cylinders II (CB-030SA)".

How to order (ø6 to ø16)

Without switch (built-in magnet for switch)

LCG - 8 - 40 - S5 - HP1

With switch (built-in magnet for switch)

LCG - 12 - 40 - F2H* - R - A1DT - HP1

Model No.

A Tube
Bore size

B Stroke

D Switch quantity

C Switch model No.

⚠ Precautions for model No. selection

- *1: To change the adjustable stroke range, use the discrete stroke adjusting stopper on page 38.
- *2: For the adjustable stroke range with a shock absorber stopper, refer to the stopper dimensions table in "Pneumatic Cylinders II (No. CB-030SA)".
- *3: For the port position, refer to the stopper dimensions in "Pneumatic Cylinders II (No. CB-030SA)".
- *4: The standard port positions without stopper are ① and ③ in the figure below.
- *5: Combination of the stroke adjusting stopper and shock absorber stopper is made to order.
- *6: Can be selected for the type with stopper only.
- *7: Refer to the selection table below for combinations of options.
- *8: A1**, A2**, A5** and A6** of ø6 to ø8 with 10 mm stroke and ø12 or ø16 with 20 mm stroke or less are made to order since adjustment is not possible with the standard stopper.
- *9: For the ø6 to ø8 30 stroke or less with S*** or A***, if using two switches, select the F □ H switch.
- *10: The rust proof type is made to order.
- *11: The stroke adjusting stopper for 0.3 MPa and over working pressure is the metal sealing type.
- *12: When changing the stopper position from the head side to the rod side, the stopper must be purchased separately according to the stroke and adjustable stroke. Refer to "Precautions when purchasing discrete stopper" on page 38.
A1, A2 and adjustable stroke of 15 mm and 25 mm may not be available depending on the stroke.

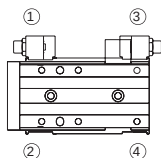
[Example of model No.]

LCG-12-40-F2H-R-A1DT-HP1

Model: Linear slide cylinder, Double acting/Single rod LCG

- A Bore size : ø12
B Stroke : 40 mm
C Switch model No. : Proximity/2-wire
Lead wire straight type
D Switch quantity : 1 (on rod side)
E Other options : Shock absorber stopper
Stopper position ①
With side and bottom ports
Material, steel (nitriding)

● Stopper position



LCG Double acting/Single rod selection table

(Combination with stroke adjusting stopper, shock absorber stopper)

Model No. code	Option code		Stroke adjusting stopper						Shock absorber stopper					
	Bore size	Stroke	S1	S2	S3	S4	S5	S6	A1	A2	A3	A4	A5	A6
LCG	ø6, ø8	10	○	○	○	○	○	○	-	-	○	○	-	-
		20 or more	○	○	○	○	○	○	○	○	○	○	○	○
	ø12 to ø25	10 to 20	○	○	○	○	○	○	-	-	○	○	-	-
		30 or more	○	○	○	○	○	○	○	○	○	○	○	○

The table above also applies to a combination with option code D (with port on the stopper) or T (steel stopper block (nitriding)).

Code		Description			
A Bore size					
6	ø6				
8	ø8				
12	ø12				
16	ø16				

B Stroke (mm)					
		Bore size (ø)			
		6	8	12	16
10	10	●	●	●	●
20	20	●	●	●	●
30	30	●	●	●	●
40	40	●	●	●	●
50	50	●	●	●	●
75	75		●	●	●
100	100			●	●
125	125				●

C Switch model No.										
Lead wire straight Type	L-type lead wire Type	Contact	Voltage		Indicator lamp	Lead Line	Bore size			
			AC	DC			ø6	ø8	ø12	ø16
-	F2S*	Proximity		●	1-color LED	2-wire	●	●	●	
-	F3S*			●		3-wire				
F2H*	F2V*			●		2-wire				
F3H*	F3V*			●		3-wire				
F3PH*	F3PV*			●	3-wire					
F2YH*	F2YV*	Reed		●	1-color LED (PNP output) (Made to order)	2-wire	●	●	●	
F3YH*	F3YV*			●		3-wire				
T0H*	T0V*		●	●	1-color LED	2-wire				
T5H*	T5V*		●	●	No LED	2-wire				
T2H*	T2V*			●	1-color LED	3-wire				
T3H*	T3V*	Proximity		●	1-color LED Bending resistant lead wire	2-wire				●
T2HR3	T2VR3			●		3-wire				
T3PH*	T3PV*			●	1-color LED (PNP output)	2-wire				
T2WH*	T2WV*			●	2-color LED	3-wire				
T3WH*	T3WV*			●	2-wire					

* Lead wire length			
Blank	1 m (standard)		●
3	3 m (option)		●
5	5 m (option)		●

D Switch quantity	
R	1 on rod side
H	1 on head side
D	2

E Option	
Blank	No option
S Stroke adjusting stopper	
5 mm stroke adjustment on one side *1, *5, *7, *11	
S1**	Stopper position ① (can be changed to ④)
S2**	Stopper position ② (can be changed to ③)
S3 **	Stopper position ③ (can be changed to ②) *12
S4**	Stopper position ④ (can be changed to ①) *12
S5**	Stopper position ① , ③
S6**	Stopper position ② , ④
A Shock absorber stopper *2, *5, *7	
A1**	Stopper position ① (can be changed to ④)
A2**	Stopper position ② (can be changed to ③)
A3 **	Stopper position ③ (can be changed to ②) *12
A4**	Stopper position ④ (can be changed to ①) *12
A5**	Stopper position ① , ③
A6**	Stopper position ② ④
** part	
Blank	Port on stopper: without port
D	Port on the stopper:With side and bottom ports *3, *6
Blank	Stopper block material: Steel
T	Stopper block material: steel (nitriding) *6
Plug included	
Blank	No
N	With side piping port plug (not available for ø6)

○: Available - : Not available

LCG-HP1 Series

How to order (ø20, ø25)

Without switch (built-in magnet for switch)

LCG - 20 - 40 — S5 U — HP1

With switch (built-in magnet for switch)

LCG - 20 - 40 - T2H* - R - A1DT U - HP1

Model No.

A Tube
Bore size

B Stroke

D Switch quantity

C Switch model No.

F Anti-rust treatment

⚠ Precautions for model No. selection

- *1: To change the adjustable stroke range, use the discrete stroke adjusting stopper on page 38.
 - *2: For the adjustable stroke range with a shock absorber stopper, refer to the stopper dimensions table in "Pneumatic Cylinders II (No. CB-030SA)".
 - *3: For the port position, refer to the stopper dimensions in "Pneumatic Cylinders II (No. CB-030SA)".
 - *4: The standard port positions without stopper are ① and ③ in the figure below.
 - *5: Combination of the stroke adjusting stopper and shock absorber stopper is made to order.
 - *6: Can be selected for the type with stopper only.
 - *7: Refer to the selection table on page 35 for combinations of options.
 - *8: A1**, A2**, A5** and A6** with 20 mm stroke or less are made to order, since adjustment is not possible with the standard stopper.
 - *9: The table is steel. To prevent rust, select "U" for an environment where the temperature and humidity is high or condensation may occur on the product surface.
 - *10: The stroke adjusting stopper for 0.3 MPa and over working pressure is the metal sealing type.
 - *11: When changing the stopper position from the head side to the rod side, the stopper must be purchased separately according to the stroke and adjustable stroke. Refer to "Precautions when purchasing discrete stopper" on page 38.
- A1, A2 and adjustable stroke of 15 mm and 25 mm may not be available depending on the stroke.

[Example of model No.]

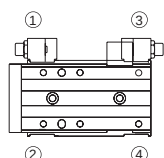
LCG-20-40-T2H-R-A1DT-HP1

Model: Linear slide cylinder Double acting/Single rod LCG

- A Bore size : ø20
- B Stroke : 40mm
- C Switch model No. : Proximity/2-wire
Axial lead wire

- D Switch quantity : 1 on rod side
- E Other options : Shock absorber stopper
Stopper position ①
With side and bottom ports
Material, steel (nitriding)

● Stopper position



Consumable parts list

Bore size (mm)	Kit No.	Part name
ø6	LCG-6K-HP1	Rod packing
ø8	LCG-8K-HP1	Metal gasket
ø12	LCG-12K-HP1	Cushion rubber R/H
ø16	LCG-16K-HP1	Piston packing
ø20	LCG-20K-HP1	Cover gasket
ø25	LCG-25K-HP1	Lube keeping structure

Code	Description
A Bore size	
20	ø20
25	ø25
B Stroke (mm)	
10	10
20	20
30	30
40	40
50	50
75	75
100	100
125	125
150	150

C Switch model No.						
Straight lead wire	Lead wire LType	Contact	Voltage		Indicator lamp	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No LED	
T2H*	T2V*	Proximity	●	●	1-color LED	2-wire
T3H*	T3V*		●	●	1-color LED (PNP output)	3-wire
T3PH*	T3PV*		●	●	1-color LED (PNP output)	3-wire
T2HR3	T2VR3		●	●	1-color LED Bending resistant lead wire	2-wire
T2WH*	T2WV*		●	●	2-color LED	2-wire
T3WH*	T3WV*		●	●	2-color LED	3-wire

* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

D Switch quantity	
R	1 on rod side
H	1 on head side
D	2

E Option	
Blank	No option

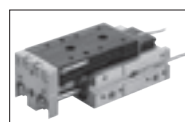
S Stroke adjusting stopper		
5 mm stroke adjustment on one side *1, *5, *7, *10		
S1**	Stopper position ① (can be changed to ④)	Stopper mounting position
S2**	Stopper position ② (can be changed to ③)	
S3**	Stopper position ③ (can be changed to ②)	
S4**	Stopper position ④ (can be changed to ①)	
S5**	Stopper position ①, ③	
S6**	Stopper position ②, ④	

A Shock absorber stopper *2, *5, *7		
A1**	Stopper position ① (can be changed to ④)	Stopper mounting position
A2**	Stopper position ② (can be changed to ③)	
A3**	Stopper position ③ (can be changed to ②)	
A4**	Stopper position ④ (can be changed to ①)	
A5**	Stopper position ①, ③	
A6**	Stopper position ②, ④	

** part	
Blank	Port on stopper: without port
D	Port on the stopper: With side and bottom ports *3, *6
Blank	Stopper block material: Steel
T	Stopper block material: Steel (Nitriding) *6
Plug included	
Blank	No
N	With side piping port plug (not available for ø25)

F Anti-rust treatment	
Blank	No
U	Anti-rust treated product (table/guide) *9

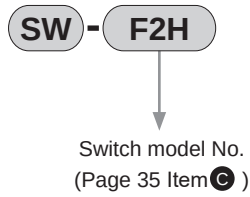
U: Anti-rust treated product (ø20, 25)



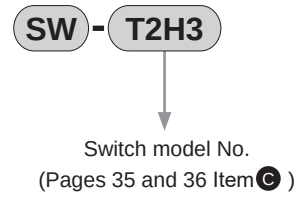
Anti-corrosion treatment is applied to the table surface and rail surface to reduce the occurrence of rust in humid environments such as near ionizers. The table and rail are black.

How to order switch

ø6 to ø12

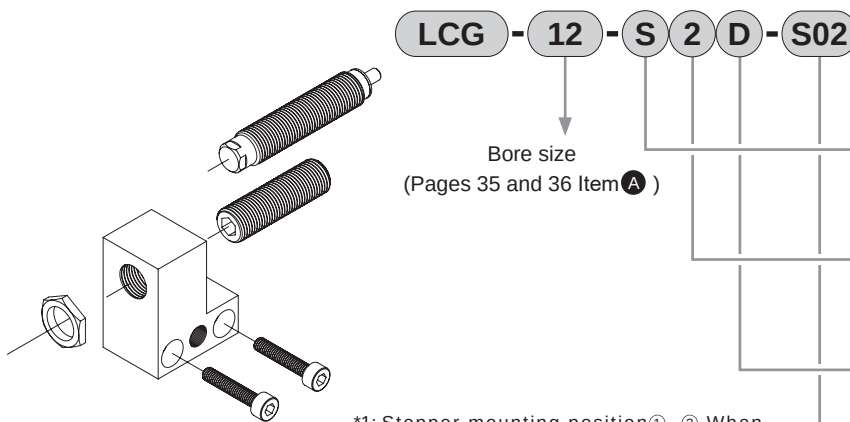


For ø16 to ø25



How to order a stopper set

- Set of a stopper and stroke adjusting stopper or shock absorber stopper
- Use it when changing from the standard to the stroke adjusting stopper or shock absorber stopper.



*1: Stopper mounting position①, ② When installing on (refer to pages 35 and 36), the stroke causes changes in the adjustable stroke; see the following table.

*2: ø6 and ø8 are not available for S03.

*3: Cannot be selected for the shock absorber stopper "A".

A Stopper type	
S	Stroke adjusting stopper
A	Shock absorber stopper
B Stopper mounting position *1	
1	Stopper position ① or ④
2	Stopper position ② or ③
C Port on the stopper	
Blank	Without port
D	With side and bottom ports
D Adjustable stroke *2, *3	
Blank	Adjustable stroke range 5 mm
S02	Adjustable stroke range 15 mm
S03	Adjustable stroke range 25 mm

Precautions when purchasing the stopper set

Installation position ①, ② (Pages 35 and 36), add the part shown on the right according to the stroke and adjustable stroke.

--: Not applicable

Model No. code	Option code		Discrete stroke adjusting stopper		
	Bore size	Stroke	Adjustable stroke (mm)		
LCG Series	ø6, ø8	10	S02	-	-
		20 or more	Blank	S02	-
	ø12 to ø25	10	S03	-	-
		20	S02	S03	-
		30 or more	Blank	S02	S03

● Stopper set weight

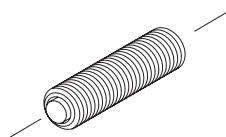
(Unit: g)

Stopper port	S1, S2			A1, A2
Port on stopper	Blank, D			
Adjustable stroke	Blank	S02	S03	Blank
ø6	15	18	-	18
ø8	21	25	-	27
ø12	28	31	34	33
ø16	42	47	52	49
ø20	77	85	92	86
ø25	87	94	101	95

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	Linear Slide Hand
STL	
LSH	
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

How to order discrete stroke adjusting stopper

- Hexagon socket set screw with urethane
- Use when changing the adjustable stroke range or when using a custom stroke.



LCG - 12 - S02

Bore size
(Pages 35 and 36 Item A)

A Adjustable stroke range

S01	Single side 5 mm (standard)
S02	Single side 15 mm
S03	Single side 25 mm

● Select S01, S02 or S03 in .

Note: S03 is not available for ø6, ø8. Some models may not be available and adjustable stroke range may differ from the above depending on the Model No.

Precautions when purchasing discrete stopper

Attach the discrete stroke adjusting stopper and the discrete shock absorber stopper.①,② (Pages 35 and 36) When the stopper set is installed in the , note that the combination will be as shown on the right according to the stroke and adjustable stroke.

Model No. code	Option code		Discrete stroke adjusting stopper			Discrete shock absorber stopper
			Adjustable stroke (mm)			
	Bore size	Stroke	-5	-15	-25	
LCG Series -S1, S2, S5, S6 -A1, A2, A5, A6	ø6, ø8	10	S02	-	-	-
		20 or more	S01	S02	-	A01
	ø12 and up ø25	10	S03	-	-	-
		20	S02	S03	-	-
		30 or more	S01	S02	S03	A01

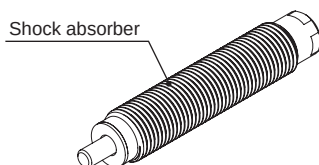
● Discrete stroke adjusting stopper weight

(Unit: g)

Adjustable stroke range	S01	S02	S03
ø 6	6	9	-
ø 8	7	10	-
ø 12	7	11	14
ø 16	11	16	22
ø 20	22	30	37
ø 25	23	30	37

How to order discrete shock absorber stopper

- Shock absorber set
- Use when changing from the stroke adjusting stopper to the shock absorber stopper



LCG - 12 - A01

Bore size
(Pages 35 and 36 Item A)

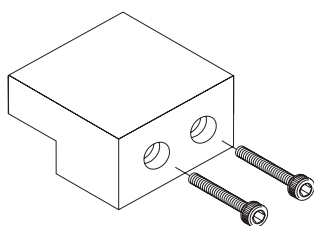
Note: Some models may not be available depending on the specifications. Pages 35 and 36. The adjustable stroke range of the shock absorber stopper is "Pneumatic Cylinders II (No.CB-030SA)".

Applicable shock absorber model No.

Model	Shock absorber model No.	Weight (g)
LCG-6	SKL-0804	9
LCG-8	SKL-0805	12
LCG-12	SKL-0805	12
LCG-16	SKL-1006	19
LCG-20	SKL-1208	31
LCG-25	SKL-1208	31

How to order discrete stopper block

- Use it when changing from the standard to the stroke adjusting stopper or shock absorber stopper.



LCG - 12 - SB1 T

Bore size
(Pages 35 and 36 Item A)

A Stopper block

SB1	ø6/ø8: For 30 stroke or less ø12 to ø25: For 50 stroke or less
SB2	ø6/ø8: For 40 stroke or more ø12 to ø25: For 75 stroke or more

B Material

Blank	Stopper block material: Steel
T	Stopper block material : Steel (nitriding)

● Discrete stroke adjusting stopper weight

(Unit: g)

Adjustable stroke range	SB1(T)	SB2(T)
ø6	11	21
ø8	14	24
ø12	23	37
ø16	38	72
ø20	60	99
ø25	112	206

SCPD3	Long service life cylinder	SCPDP3	Environment-resistant cylinder	Linear Slide Hand	Low-profile long stroke hand	Wide Parallel Hand	Chuck	Air Booster	Compatible with rechargeable batteries	Supports food mfg. processes
CMK2										
SCM										
SSD2										
MDC2										
MSD										
MSDG-L										
SMG										
LCR										
LCG										
STM										
STG										
STR2	SCPDP3	CMK2	SCM	SSD2	SMG	LCR	STG	STS	STL	LSH
SCPDP3										
CMK2										
SCM										
SCG										
SSD2										
SMG										
LCR										
STG										
STS										
STL										
LSH										
LSHL	LST	LSTM	HMC	CKW	ABP2	SCPDP3	CMK2	SCM	SSD2	MSD
LSHM										
LST										
LSTM										
HMC										
CKW										
ABP2										
SCPDP3										
CMK2										
SCM										
SSD2										
MSD										
MSDG-L	STM	LCR	LCG	STR2	LSH	LSHL	SCPDP3	CMK2	SCM	SCG
SMG										
STG										
STM										
LCR										
LCG										
STR2										
LSH										
LSHL										
SCPDP3										
CMK2										
SCM										
SCG										
SSD2										
STG										

Long service life cylinder

Environment-resistant cylinder

Linear Slide Hand

Low-profile long stroke hand

Wide Parallel Hand

Chuck

Air Booster

Compatible with rechargeable batteries

Supports food mfg. processes

SCPD3

CMK2

SCM

SSD2

MDC2

MSD

MSDG-L

SMG

LCR

LCG

STM

STG

STR2

SCPD3

CMK2

SCM

SCG

SSD2

SMG

LCR

STG

STS

STL

LSH

LSHL

LSHM

LST

LSTM

HMC

CKW

ABP2

SCPD3

CMK2

SCM

SSD2

MSD

MSDG-L

SMG

STG

STM

LCR

LCG

STR2

LSH

LSHL

SCPD3

CMK2

SCM

SCG

SSD2

STG

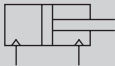


Guided cylinder Double acting/Single rod

STM-M-B-HP1 Series

● Bore size:ø6, ø10

JIS symbol



Long service life cylinder



Specifications

Item	STM-M/B-HP1	
Bore size mm	ø6	ø10
Actuation	Double acting	
Working fluid	Compressed air	
Max. working pressure MPa	0.7	
Min. working pressure MPa	0.15	
Proof pressure MPa	1.05	
Ambient temperature °C	-10 to 60 (no freezing)	
Port size	M3	
Stroke tolerance mm	+1.5	
	0	
Working piston speedmm/s	50 to 500	
Cushion	With rubber cushion	
Lubrication	Not required	
Allowable absorbed energy J	0.008	0.054

Stroke

Bore size	Standard stroke (mm)	Max. stroke (mm)	Min. stroke	Min. stroke with switch
ø6	5/10/15	15	5	5
ø10	5/10/15/20	20		

Note: Products other than standard stroke are made to order products.

For dimensions, refer to the STM Series in "Pneumatic Cylinders II (CB-030SA)".

How to order

Without switch (built-in magnet for switch)

STM - M - 10 - 15 - A - HP1

With switch (built-in magnet for switch)

STM - M - 10 - 15 - F2V - D - A - HP1

A Bearing

B Bore size

C Stroke

D Switch model No.
*1

E Switch quantity

F Option

⚠ Precautions for model No. selection

*1: When using a 2-color LED proximity switch for STM-B-6, avoid mounting the cylinder on a magnetic substance such as a metal plate. This could lead to switch detection malfunction.

[Example of model No.]

STM-M-10-15-F2H-D-A-HP1

Model: Guided cylinder

- A** Bearing : Metal bush bearing
- B** Bore size : $\varnothing 10$ mm
- C** Stroke : 15 mm
- D** Switch model No. : Proximity F2H switch, lead wire 1 m
- E** Switch quantity : 2 pcs. included
- F** Option : Side mounting

How to order switch

SW - F2V

Switch model No.
(Item **D** above)

Code		Description				
A Bearing						
M	Metal bush bearing					
B	Ball bearing					
B Bore size (mm)						
6	ø6					
10	ø10					
C Stroke (mm)						
			Bore size			
			6	10		
5	5		●	●		
10	10		●	●		
15	15		●	●		
20	20			●		
D Switch model No.						
Lead wire Straight	Lead wire L-shaped	Contact	Voltage		Indicator	Lead wire
			AC	DC		
-	F2S*	Proximity		●	1-color LED	2-wire
F2H*	F2V*			●		3-wire
-	F3S*			●		
F3H*	F3V*			●		
F3PH*	F3PV*			●	1-color LED (PNP output) (Made to order)	3-wire
F2YH*	F2YV*			●	2-color	2-wire
F3YH*	F3YV*			●	LED	3-wire
* Lead wire length						
Blank	1 m (standard)					
3	3 m (option)					
E Switch quantity						
R	1 on rod side					
H	1 on head side					
D	2					
F Option						
A	Side mounting					
R	Rear piping					

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	Environment-resistant cylinder
SMG	
LCR	
LCG	
STM	
STG	
STR2	Linear Slide Hand
SCPD3	
CMK2	
SCM	
SCG	
SSD2	
SMG	Low-profile long stroke hand
LCR	
STG	
STS	
STL	
LSH	Wide Parallel Hand
LSHL	
LSHM	
LST	
LSTM	
HMC	Chuck
CKW	
ABP2	
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	Supports food mfg. processes
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	
CMK2	
SCM	
SCG	
SSD2	
STG	



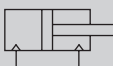
Guided cylinder Double acting/Single rod

Long service life cylinder

STG-M-B-HP1 Series

● Bore size: $\varnothing 12/\varnothing 16/\varnothing 20/\varnothing 25/\varnothing 32/\varnothing 40$

JIS symbol



Specifications

Item	STG-M/B-HP1					
Bore size mm	ø12	ø16	ø20	ø25	ø32	ø40
Actuation	Double acting					
Working fluid	Compressed air					
Max. working pressureMPa	1.0					
Min. working pressureMPa	0.15				0.1	
Proof pressure MPa	1.6					
Ambient temperature °C	-10 to 60 (no freezing)					
Port size	M5		Rc1/8			
Stroke tolerance mm	+2.0					
	0					
Working piston speedmm/s	50 to 500					
Cushion	With rubber cushion					
Lubrication	Not required					
Allowable absorbed energyJ	0.056	0.088	0.157	0.157	0.401	0.627

Stroke

Bore size	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)	Min. stroke with switch (mm)
$\varnothing 12$	10/20/30/40/50	150	5	5 (10) *2
$\varnothing 16$	75/100/125/150			
$\varnothing 20$	20/30/40/50/75			
$\varnothing 25$	100/125/150			
$\varnothing 32$	25/50/75/100			
$\varnothing 40$	125/150			

*1: The custom stroke is available in 5 mm increments. However, the total dimensions are the same as the longer standard stroke. A dedicated body with dimensions matched to the stroke is available. Contact CKD for details.

*2: For types with one or two switches. The value in () is the min. stroke for switches of the 2-color LED and AC magnetic field proof.

For dimensions, refer to the STG Series in "Pneumatic Cylinders II (CB-030SA)".

How to order

Without switch (built-in magnet for switch)

STG - M - 25 - 30 - HP1

With switch (built-in magnet for switch)

STG - M - 25 - 30 - T2H - R - HP1

Model No.

A Bearing

B Bore size

C Port thread

D Stroke

E Switch model No.
No. *1 *3 *4

⚠ Precautions for model No. selection

*1: Switches other than E Switch model No. are also available. (Made to order)

Refer to "Pneumatic Cylinders II (No. CB-030SA)" for details.

*2: Copper and PTFE free as standard for STG-B-12 to 32.

*3: T8H/V switch cannot be installed on STG-12 or 16.

*4: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

*5: The total dimensions are the same as the longer standard stroke.

*6: A dedicated body with dimensions matched to the stroke is available. Contact CKD for details.

*7: The value in () is the min. stroke for switches of the 2-color LED and AC magnetic field proof.

[Example of model No.]

STG-B-25-30-T0H-D-HP1

Model: Guided cylinder, Double acting/Single rod

A Bearing method : Ball bearing

B Bore size : ø25 mm

C Port thread : Rc thread

D Stroke : 30 mm

E Switch model No. : Reed T0H switch
Lead wire length 1 m

F Switch quantity : 2 pcs. included

How to order switch

SW - T0V

E Switch model No.

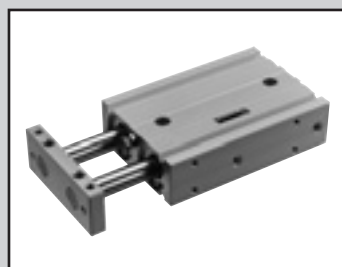
STG repair parts list

Bore size (mm)	Kit No.	Part name
ø12	STG-12K-HP1	Rod packing Metal gasket Cushion rubber Piston packing O-ring
ø16	STG-16K-HP1	
ø20	STG-20K-HP1	
ø25	STG-25K-HP1	
ø32	STG-32K-HP1	
ø40	STG-40K-HP1	

Code		Description			
A Bearing					
M	Metal bush bearing				
B	Ball bearing				
B Bore size (mm)					
12	ø12				
16	ø16				
20	ø20				
25	ø25				
32	ø32				
40	ø40				
C Port thread					
Blank	M5 (ø12 to ø16)				
	Rc thread (ø20 to ø40)				
NN	NPT thread (ø20 or more) (made to order)				
GN	G thread (ø20 or more) (made to order)				
D Stroke (mm)					
Refer to the stroke table below					
E Switch model No.					
Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC DC	Indicator	Lead wire
T0H*	T0V*	Reed	● ●	1-color LED	2-wire
T5H*	T5V*		● ●	No LED	
T8H*	T8V*		● ●	1-color LED	
T1H*	T1V*	Proximity	● ●	1-color LED	2-wire
T2H*	T2V*		● ●		3-wire
T3H*	T3V*		● ●		
T2HR3	T2VR3		● ●	1-color LED Bending resistant lead wire	2-wire
T3PH*	T3PV*		● ●	1-color LED (made to order)	3-wire
T2WH*	T2WV*		● ●	2-color LED	2-wire
T3WH*	T3WV*		● ●		3-wire
T2JH*	T2JV*		● ●	1-color LED off-delay	2-wire
T2YD*	-		● ●	2-color LED	2-wire
T2YDT*	-		● ●	2-color LED	
* Lead wire length					
Blank	1 m (standard)				
3	3 m (option)				
5	5 m (option)				
F Switch quantity					
R	1 on rod side				
H	1 on head side				
D	2				
T	3				

D Stroke

Stroke (mm)		Applicable bore size					
		ø12	ø16	ø20	ø25	ø32	ø40
Standard Stroke	10	●	●				
	20	●	●	●	●		
	25					●	●
	30	●	●	●	●		
	40	●	●	●	●		
	50	●	●	●	●	●	●
	75	●	●	●	●	●	●
	100	●	●	●	●	●	●
	125	●	●	●	●	●	●
	150	●	●	●	●	●	●
Min. stroke *7		5 (10)					
Custom stroke *5,*6		In 5 mm increments					



Twin rod cylinder Double acting/Standard

Long service life cylinder

STR2-M-HP1 Series

● Bore size: ø6/ø10/ø16/ø20/ø25/ø32

JIS symbol



Specifications

Item		STR2-M-HP1 (metal bush bearing) STR2-B-HP1 (ball bearing)					
Bore size mm		ø6	ø10	ø16	ø20	ø25	ø32
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressure MPa		0.7					
Min. working pressure MPa		0.2	0.15		0.1		
Proof pressure MPa		1.05					
Ambient temperature °C		-10 to 60 (no freezing)					
Port size		M5					Rc1/8
Stroke tolerance mm		+2.0					
		0					
Adjustable stroke range mm		0 to -5					
Working piston speed mm/s		50 to 500					
Non-rotating accuracy (reference value)	STR2-M	±0.4°		±0.3°		±0.2°	
	STR2-B	±0.2°		±0.1°		±0.3°	
Piston rod	STR2-M	Metal bush bearing					
Bearing	STR2-B	Ball bearing					
Cushion		With rubber cushion					
Lubrication		Not required					
Allowable absorbed energy	PUSH	0.008	0.061	0.181	0.303	0.68	1.3
	PULL	0.059	0.083	0.083	0.127	0.237	0.311

Stroke

Bore size	Stroke (mm)	Max. stroke (mm)	Min. stroke (mm)	Available stroke (mm)	Min. stroke with switch (mm)	
ø6	10, 20, 30, 40, 50	50	5	100	10	
ø10				150		
ø16	10, 20, 30, 40, 50 60, 70, 80, 90, 100	100				
ø20						
ø25						
ø32		*1				

*1: In the case of rear piping:

- ø16:70
- ø20, ø25:60
- ø32:50

*2: The custom stroke is available in 1 mm increments. However, the total length is the same as that of the next longer standard stroke.

For dimensions, refer to the STR2 Series in "Pneumatic Cylinders II (CB-030SA)".

How to order

Without switch (built-in magnet for switch)

STR2-M-16-30-F-HP1

With switch (built-in magnet for switch)

STR2-M-16-30-K0H-R-F-HP1

Model No.

A Bearing

B Bore size

C Port thread

D Stroke

*1

The custom stroke is available in 1 mm increments.

E Switch model No.

*2

⚠ Precautions for model No. selection

*1: The max. stroke of rear piping "R" is:

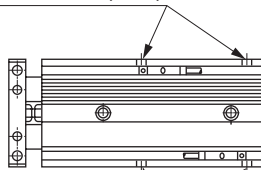
- ø6/10 : 50 stroke
- ø16 : 70 stroke
- ø20/25 : 60 stroke
- ø32 : 50 stroke.

*2: STR2-B-6 and 10 are not compatible with reed switches.

*3: The ball bearing is copper and PTFE free "P6" as standard.

*4: The piping port positions for "O" are as shown in the figure below.

Piping port positions for standard (blank)

Change piping port position by 180°
(Code: O) piping port

*5: For G thread, ports on the opposite side (option "O") are not available. Rather than plug sealing, they are simply not provided.
(The standard ports are not provided for option "O".)

[Example of model No.]

STR2-M-16-30-K0H-R-F-HP1

Model: Twin rod cylinder, standard

- A Bearing : Metal bush bearing
- B Bore size : ø16 mm
- C Port thread : Rc thread
- D Stroke : 30 mm
- E Switch model No. : Reed K0H switch
- F Switch quantity : 1 on rod side
- G Option : End plate material: Steel

Discrete switch
model No.

Indicator method

SW - K0H*

Switch model No.
(Item E above)

Code	Description				
A Bearing					
M	Metal bush bearing				
B	Ball bearing				
B Bore size(mm)					
6	ø6				
10	ø10				
16	ø16				
20	ø20				
25	ø25				
32	ø32				
C Port thread					
Blank	Rc thread				
NN	NPT thread (ø32 only) (made to order)				
GN	G thread (ø32 only) (made to order) *5				
D Stroke (mm)					
Bore size	Stroke	Available stroke	Stroke		
ø6	5 to 50	100	In 1 mm increments		
ø10	5 to 50				
ø16	5 to 100				
ø20	5 to 100	150			
ø25	5 to 100				
ø32	5 to 100				
E Switch model No.					
Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC DC	Indicator	Lead wire
K0H*	K0V*	Reed	● ●	1-color LED	2-wire
K5H*	K5V*		● ●	No LED	
K2H*	K2V*	Proximity	●	1-color LED	2-wire
K3H*	K3V*		●	1-color LED (made to order)	3-wire
K3PH*	K3PV*		●	2-color LED	2-wire
K2YH*	K2YV*		●		3-wire
K3YH*	K3YV*		●		
* Lead wire length					
Blank	1 m (standard)				
3	3 m (option)				
5	5 m (option)				
F Switch quantity					
R	1 on rod side				
H	1 on head side				
D	2				
G Option					
F	End plate material: steel				
O	Change piping port position by 180°				
R	Rear piping				

Consumable parts list

Bore size(mm)	Kit No.	Part name
ø6	STR2-6K-HP1	Cushion rubber R/H O-ring Rod packing Piston packing Wear ring
ø10	STR2-10K-HP1	
ø16	STR2-16K-HP1	
ø20	STR2-20K-HP1	
ø25	STR2-25K-HP1	
ø32	STR2-32K-HP1	

Note: Specify the kit No. when placing an order.



CONTENTS

●Pencil shaped cylinder (SCPD3-G-HP1)	48
●Small bore size cylinder (CMK2-G-HP1)	52
●Round shaped cylinder (SCM-G-HP1)	56
●Tie rod cylinder (SCG-G-HP1)	62
●Compact cylinder (SSD2-G-HP1)	66
●Compact cylinder (SMG-G-HP1)	70
●Linear Slide Hand (LCR-G-HP1)	74
●Guided cylinder (STG-G-HP1)	96
●Guided cylinder (STS/STL-G-HP1)	102
⚠ Safety precautions	232

Environment-resistant cylinder series variation

Model No.	Bore size (mm)	Stroke (mm)
SCPD3-G-HP1	ø6/ø10/ø16	5 to 270
CMK2-G-HP1	ø20/ø25/ø32/ø40	5 to 750
SCM-G-HP1	ø20/ø25/ø32/ø40/ø50/ø63/ø80/ø100	10 to 1500
SCG-G-HP1	ø32/ø40/ø50/ø63/ø80/ø100	1 to 1500
SSD2-G-HP1	ø12/ø16/ø20/ø25/ø32/ø40/ø50/ø63/ø80/ø100	1 to 100
SMG-G-HP1	ø6/ø10/ø16/ø20/ø25/ø32	5 to 100
LCR-G-HP1	ø6/ø8/ø12/ø16/ø20/ø25	10 to 150
STG-G-HP1	ø12/ø16/ø20/ø25/ø32/ø40/ø50/ø63/ø80/ø100	5 to 400
STS-G-HP1	ø8/ø12/ø16/ø20/ø25/ø32/	5 to 100
STL-G-HP1	ø40/ø50/ø63/ø80/ø100	30 to 400

⚠ Read the safety precautions in "Pneumatic Cylinders" (Catalog No.CB-029SA and CB-030SA) before use.

CAUTION

■ Some models use oil-impregnated bearings, and oil may be discharged outside of the cylinder. Do not use in places susceptible to oil.



Pencil shaped cylinder
Double acting/Single rod/Rubber scraper

Environment-resistant cylinder

SCPD3-G-HP1 Series

● Bore size: $\varnothing 6/\varnothing 10/\varnothing 16$

JIS symbol



Specifications

Item		SCPD3-G-HP1 SCPD3-GL-HP1 (with switch)		
Bore size	mm	ø6	ø10	ø16
Actuation		Double acting		
Working fluid		Compressed air		
Max. working pressure	MPa	1.0		
Min. working pressure	MPa	0.15	0.1	
Proof pressure	MPa	1.6		
Ambient temperature	°C	-10 to 60 (no freezing)		
Port size		M5		
Stroke tolerance	mm	+1.0 0		
Working piston speed	mm/s	50 to 750		
Cushion		With rubber cushion		
Lubrication		Not required		
Allowable absorbed energy	J	0.012	0.041	0.162

Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Available stroke (mm)	Min. stroke (mm)
$\varnothing 6$	15/30/45/60	100	105	5
$\varnothing 10$		200	210	
$\varnothing 16$		260	270	

*1: The custom stroke is available in 1 mm increments.

Min. stroke with switch

	with 1 pc.		with 2 pcs.	
	Rod side mount	Head side mount	Different surface mounting	Same surface mounting
Sketch				
Min. stroke	5 mm		10 mm	28 mm
	with 3 pcs.			
	Different surface mounting	Same surface mounting		
Sketch				
Min. stroke	38 mm		54 mm	

How to order

Without switch(without magnet for switch)

SCPD3-G - 00 - 10 - 15 - O ————— Y - HP1

With switch(built-in magnet for switch)

SCPD3-GL - 00 - 10 - 15 - O - T2H - R - Y - HP1

A Model No.

B Mounting
*1

C Bore size

D Stroke

E Head side port direction
*1

F Switch model No.
*3, *6
* Indicates the lead wire length.

G Switch quantity

H Accessory
*4

! Precautions for model No. selection

- *1: "CB" mounting is not available when the port direction is "O" (axial direction).
- *2: Refer to page 48 for the min. stroke with switch.
- *3: Magnet is not built into the type without switch.
- *4: "I" and "Y" cannot be selected together.
- *5: Copper and PTFE free as standard.
- *6: Switches are shipped with the product.

[Example of model No.]

SCPD3-GL-00-10-30-O-T2H-R-I-HP1

Model: Pencil shaped cylinder

- A** Model No. : Double acting/Single rod/rubber scraper/with switch
- B** Mounting : Basic
- C** Bore size : $\phi 10$ mm
- D** Stroke : 30mm
- E** Head side port direction : Axial direction
- F** Switch model No. : Proximity switch T2H, lead wire 1 m
- G** Switch quantity : 1 on rod side
- H** Accessory : Rod eye

Code	Description
A Model No.	
SCPD3-G	Double acting/Single rod/rubber scraper
SCPD3-GL	Double acting/Single rod/rubber scraper with

B Mounting		Bore size (ϕ)		
		6	10	16
00	Basic	●	●	●
LS	Axial foot (one side) (rod side)	●	●	●
FA	Rod side flange	●	●	●
CB	Clevis bracket (pin and snap ring attached)		●	●

C Bore size (mm)	
6	$\phi 6$
10	$\phi 10$
16	$\phi 16$

D Stroke (mm)			
Bore size	Stroke *2	Available Stroke	Custom stroke
$\phi 6$	5 to 100	105	In 1 mm increments
$\phi 10$	5 to 200	210	
$\phi 16$	5 to 260	270	

E Head side port direction	
Blank	Perpendicular
O	Axial direction

F Switch model No.					
Lead wire Straight	Lead wire L-shaped	Contact	Voltage		Indicator
			AC	DC	
T0H*	T0V*	Reed	●	●	1-color LED
T5H*	T5V*		●	●	No LED
T2H*	T2V*	Proximity		●	1-color LED
T3H*	T3V*			●	2-wire
T2HR3	T2VR3			●	1-color LED Bending resistant lead wire
T2WH*	T2WV*			●	2-wire
T3WH*	T3WV*			●	3-wire

* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

G Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

H Accessory		Bore size (ϕ)		
		6	10	16
I	Rod eye		●	●
Y	Rod clevis (pin and snap ring attached)		●	●
B1	Eye bracket		●	●
B2	Clevis bracket		●	●

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

SCPD3-G-HP1 Series

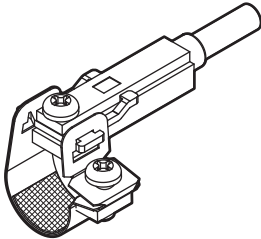
How to order switch

●Switch body + mounting bracket set

SCPD3 - T0H - 6

Bore size
(Page 49 Item **C**)

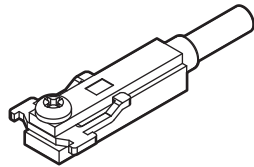
Switch model No.
(Page 49 Item **F**)



●Switch body (with fixing bracket)

SCPD3 - T0H

Switch model No.
(Page 49 Item **F**)

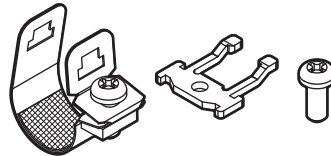


Note)T type standard switch and different fixing bracket and cross-recessed pan head machine screw.

●Mounting bracket set + fixing bracket

SCPD3 - TS - 6

Bore size
(Page 49 Item **C**)

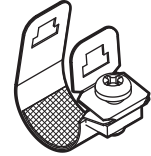


When 20 pcs or more are ordered, they will be packed together.

●Mounting bracket set

SCPD3 - T - 6

Bore size
(Page 49 Item **C**)



When 20 pcs or more are ordered, they will be packed together.

How to order mounting brackets

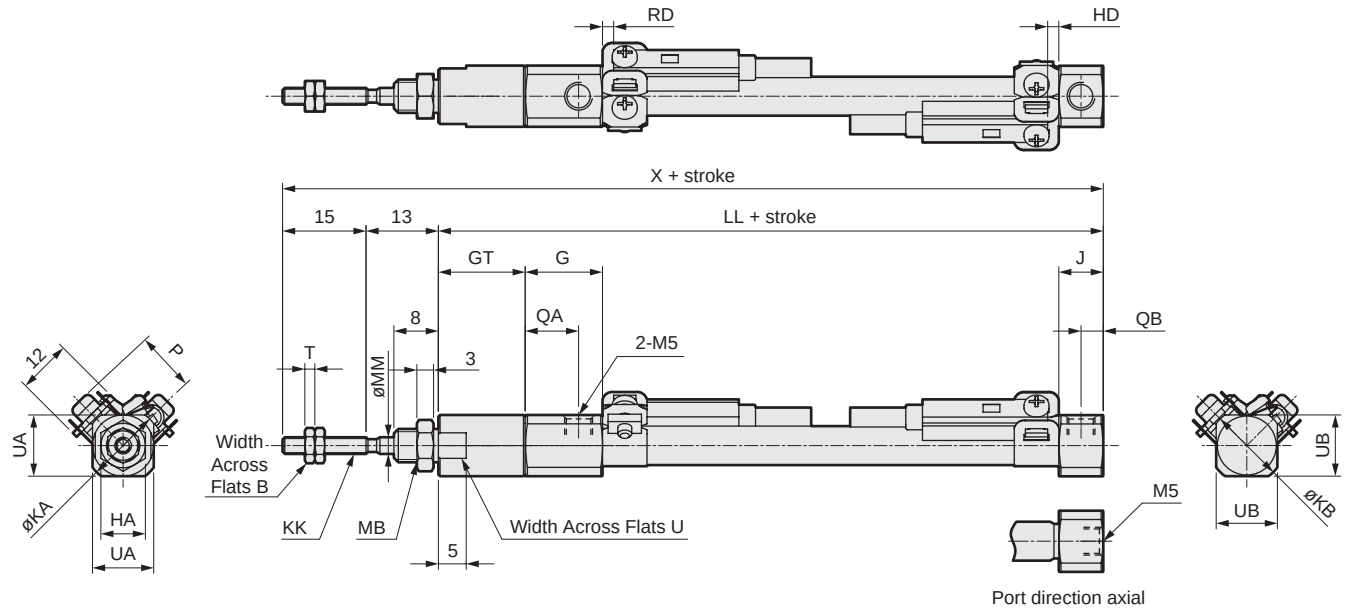
Bore size (mm)	ø6	ø10	ø16
Mounting bracket			
Foot (LS)	P2-LS-6	P2-LS-10	P2-LS-16
Flange (FA)	P2-FA-6	P2-FA-10	P2-FA-16

Note: The foot (LS) type mounting bracket is provided as 1 pc./set.

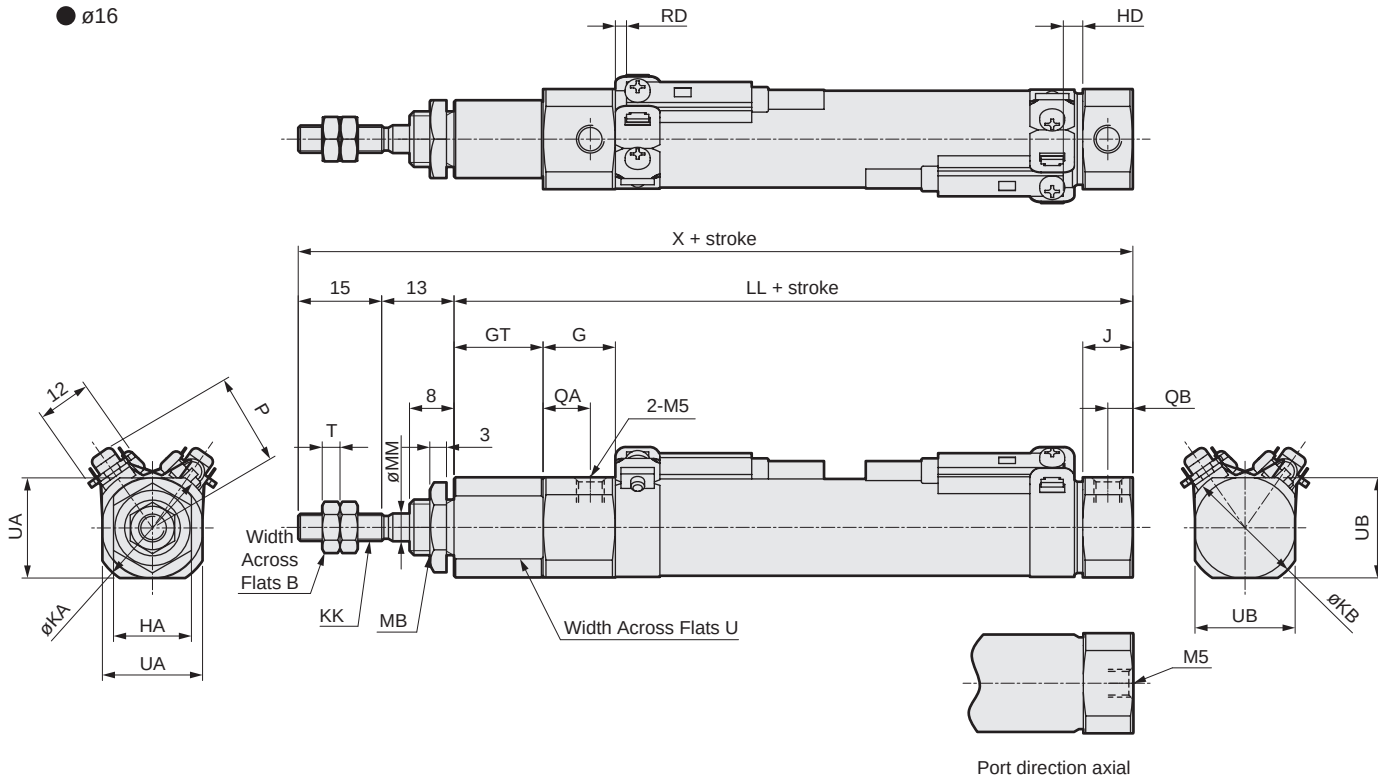
Dimensions

● SCPD3-G(L)-HP1 basic (00)

● $\phi 6/\phi 10$



● $\phi 16$



Code		Basic (00) basic dimensions																	With switch					
Bore size (mm)		B	G	GT	HA	J	KA	KB	KK	LL	MB	MM	QA	QB	T	U	UA	UB	X	T0,T5,T2,T3		T2W,T3W		P
																				RD	HD	RD	HD	
	ø6	5.5	13.5	15.5	8	8	13.5	13.5 (10)	M3	59.5	M6	3	9.5	4	1.8	10	11	11 (9)	87.5	2	2	4	3.5	11.5
	ø10	7	12.5	16	11	9	14.5	14.5	M4	62	M 8 x 1.0	4	8	4.5	2.4	10	12	12	90	3.5	2.5	5.5	4	13.5
	ø16	8	13	16	14	9	21.5	21.5	M5	62	M 10 x 1.0	5	8.5	4.5	3.2	14	18	18	90	2	3.5	3.5	5	17.0

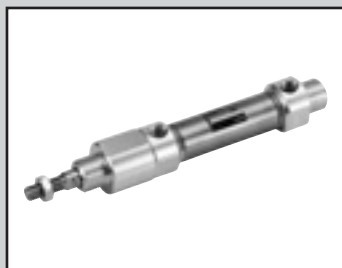
*1: The dimensions are the same in the type without switch. (Magnet is not built in.)

*2: As the thread depth of $\phi 6/\phi 10$ port is 3.8 mm, use a fitting with 3.8 mm or less thread length if necessary.

*3: For the dimensions of the accessories, refer to "Pneumatic Cylinders I (No. CB-029SA).

*4: Values shown in () are for the type with axial port direction.

* Refer to Double acting/Single rod in "Pneumatic Cylinders I" (No. CB-029SA) for dimensions of each mounting type.



Small bore size cylinder
Double acting/Single rod/Rubber scraper

Environment-resistant cylinder

CMK2-G-HP1 Series

● Bore size: $\varnothing 20/\varnothing 25/\varnothing 32/\varnothing 40$

JIS symbol



Specifications

Item		CMK2-G-HP1			
Bore size	mm	ø20	ø25	ø32	ø40
Actuation		Double acting			
Working fluid		Compressed air			
Max. working pressure	MPa	1.0			
Min. working pressure	MPa	0.15			
Proof pressure	MPa	1.6			
Ambient temperature	°C	-10 to 60 (no freezing)			
Port size		Rc1/8			
Stroke tolerance	mm	^{+2.0} ₀ (up to 200), ^{+2.4} ₀ (More than 200			
Working piston speed	mm/s	50 to 500			
Cushion		With rubber cushion			
Lubrication		Not required			
Allowable absorbed energy	J	0.166	0.308	0.424	0.639

Stroke

Bore size(mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
$\varnothing 20$	25/50/75/100/150/200/ 250/300	750	5
$\varnothing 25$			
$\varnothing 32$			
$\varnothing 40$			

*1: The custom stroke is available in 1 mm increments.

*2: One side foot (LS) has max. stroke of 50mm.

Min. stroke with switch

(Unit: mm)

Switch quantity	1						2						3					
	Proximity			Reed			Proximity			Reed			Proximity			Reed		
	T2,T3	T2W,T3W	T1	T0,T5	T8		T2,T3	T2W,T3W	T1	T0,T5	T8		T2,T3	T2W,T3W	T1	T0,T5	T8	
Bore size (mm)																		
$\varnothing 20$	10						25	30	35	25	35		50	55	55	50	55	
$\varnothing 25$	10						25	30	35	25	35		50	55	55	50	55	
$\varnothing 32$	10						25	30	35	25	35		50	55	55	50	55	
$\varnothing 40$	10						25	30	35	25	35		50	55	55	50	55	

*1: Up to 3 switches can be mounted.

How to order

Without switch (built-in magnet for switch)

CMK2-G - 00 - 20 - 100 - Y - HP1

With switch (built-in magnet for switch)

CMK2-G - 00 - 20 - 100 - T0H - R - V Y - HP1

A Mounting
*1

B Bore size

C Port thread

D Stroke

E Switch model No.

F Switch quantity
*6

G Option
*3

H Accessory
*4

⚠ Precautions for model No. selection

*1: One side foot (LS) has the max. stroke of 50 mm.

*2: Refer to page 52 for the min. stroke with switch.

*3: F; with push-in fitting (straight), FE; The compatible tube O.D. of push-in fitting (elbow) is ø6.

*4: "I" and "Y" cannot be selected together.

*5: Refer to "Pneumatic Cylinders I (Catalog No. CB-029SA)" for made-to-order specifications of rod end form.

*6: Up to three switches can be installed. If four or more switches are required, switch mounting brackets for the extra switches must be prepared separately.

*7: For 20 or 25 bore size, the rod is stainless steel as standard and the rod nut is zinc chromate. If a stainless steel rod nut is necessary, select the "M" option code.

*8: "CC1" mounting is not available for copper and PTFE free (P6).

[Model No. example]

CMK2-G-00-20-100-T0H-R-VY-HP1

Model: Small bore size cylinder double acting

- A Mounting : Basic
- B Bore size : ø20 mm
- C Port thread : Rc thread
- D Stroke : 100 mm
- E Switch model No. : Reed T0H switch, lead wire 1m
- F Switch quantity : 1 on rod side
- G Option : Boss cutoff
- H Accessory : Rod clevis

Code	Description
A Mounting	
00	Basic
LB	Axial foot (both sides)
LS	Axial foot (one side)
FA	Rod side flange
FB	Head side flange
CA	Eye bracket
CC	Eye bracket integrated
CC1	Eye bracket, bush pressfit
CB	Clevis Bracket (pin and split washer pin included)
TA	Rod side trunnion
TB	Head side trunnion

B Bore size (mm)	
20	ø20 *7
25	ø25 *7
32	ø32
40	ø40

C Port thread	
Blank	Rc thread
NN	NPT thread (made to order)
GN	G thread (made-to-order product)

D Stroke (mm)	
Stroke *2	Custom stroke
5 to 750	In 1 mm increments

E Switch model No.					
Lead wire	Lead wire	Contact	Voltage	Indicator	Lead Line
Straight	L-shaped		AC	DC	
T0H*	T0V*	Reed	●	●	1-color LED
T5H*	T5V*		●	●	No LED
T8H*	T8V*		●	●	1-color LED
T1H*	T1V*		●		1-color LED
T2H*	T2V*		●	●	1-color LED
T3H*	T3V*		●	●	1-color LED
T2HR3	T2VR3	Proximity	●		1-color LED
T3PH*	T3PV*		●		Bending resistant lead wire
T2WH*	T2WV*		●		1-color LED (made to order)
T3WH*	T3WV*		●		2-color LED
T2JH*	T2JV*		●		1-color LED off-delay

* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

F Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

G Option	
F	With push-in fitting (straight)
FE	With push-in fitting (elbow)
M	Piston rod material (stainless steel) *7
V	Boss cutoff
P6	Copper and PTFE free *8

H Accessory	
I	Rod eye
Y	Rod clevis (pin and split washer pin attached)
B2	Clevis bracket (pin and snap ring included)

SCP D3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCP D3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Booster
SCP D3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCP D3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

CMK2-G-HP1 Series

How to order switch

● Switch body + mounting bracket set

CMK2 - **T0H** - **20**

Bore size (page 53 Item **B**)

Switch model No. (page 53 Item **E**)

● Switch body only

SW - **T0H**

Switch model No. (page 53 Item **E**)

● Mounting bracket set

CMK2 - **T** - **20**

Bore size (page 53 Item **B**)

Mounting bracket

How to order mounting brackets

Bore size (mm)	ø20	ø25	ø32	ø40 *1
Mounting bracket *2				
Basic (00) *4	M1- 00 -20	M1- 00 -30	M1- 00 -30	M1- 00-30 (for head side)
Axial foot (LB/LS) *3	M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30(For head side) CMK2-G2-40-LS (LS, LB rod side)
Flange (FA/FB)	M1-FA-20	M1-FA-30	M1-FA-30	CMK2-G2-40-FA(FA) M1-FA-30(FB)
Trunnion (TA/TB)	M1-TA-20	M1-TA-30	M1-TA-30	CMK2-G2-40-TA(TA) M1-TA-40(TB)
Eye bracket (CA)	M1-CA-20	M1-CA-30	M1-CA-30	M1-CA-30
Clevis bracket (CB)	M1-CB-20	M1-CB-30	M1-CB-30	M1-CB-30

*1: The rod cover nut, LS bracket (LB rod side), FA bracket and TA bracket for bore size ø 40 are not the standard.

*2: Mounting nuts and toothed washers are included with the axial foot type and flange type. The trunnion type includes mounting nuts. However, toothed washers are not included with ø40,00, LB (rod side), LS and FA.

*3: For axial foot types (two-sided), 2 sets of the "M1-LB-*1" in the table above are required. For ø40, the brackets used on the rod side and head side are different. Refer to the table above for details.

*4: Mounting nut, toothed washer only. Although 1 set is included with the basic product (00) (only mounting nuts are included with the ø40), use them when needed.

SCPD3
CMK2
SCM
SSD2
MDC2
MSD

MSDG-L

SMG

LCR

LCG

STM

STG

STR2

SCPD3

CMK2

SCM

SCG

SSD2

SMG

LCR

STG

STS

STL

LSH

LSHL

LSHM

LST

LSTM

HMC

CKW

ABP2

SCPD3

CMK2

SCM

SSD2

MSD

MSDG-L

SMG

STG

STM

LCR

LCG

STR2

LSH

LSHL

SCPD3

CMK2

SCM

SSD2

MSD

MSDG-L

SMG

STG



Round shaped cylinder
Double acting/Single rod/rubber scraper

Environment-resistant cylinder

SCM-G-HP1 Series

● Bore size: $\phi 20/\phi 25/\phi 32/\phi 40/\phi 50/\phi 63/\phi 80/\phi 100$

JIS symbol

RoHS

CAD

Specifications

Item		SCM-G-HP1								
Bore size		mm	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation		Double acting								
Working fluid		Compressed air								
Max. working pressure		MPa	1.0							
Min. working pressure		MPa	0.1		0.15		0.1			
Proof pressure		MPa	1.6							
Ambient temperature		°C	-10 to 60 (no freezing)							
Port size	With rubber cushion	Rc1/8				Rc1/4		Rc3/8	Rc1/2	
	With air cushion	M5		Rc1/8		Rc1/4		Rc3/8	Rc1/2	
Stroke tolerance	mm	+1.4 0 (up to 1000)				+1.4 0 (up to 1500)		+2.3 0 (up to 1000), +2.7 0 (1001 to 1500)		
	With air cushion	+1.4 0 (up to 1000)				+1.4 0 (up to 1500)		+1.4 0 (up to 1000), +1.8 0 (1001 to 1500)		
Working piston speed		mm/s	30 to 1000 (Operate within the allowable absorbed energy.)							
Cushion		Either rubber cushion or air cushion can be selected.								
Effective air cushion length		mm	8.1	8.1	8.6	8.6	13.4	13.4	15.4	15.4
Lubrication		Not required								
Allowable absorbed energy	With rubber cushion	J	0.1	0.2	0.5	0.9	1.6	1.6	3.3	5.8
	With air cushion	J	0.8	1.2	2.5	3.7	8.0	14.4	25.4	45.6
	Without cushion	J	-	-	-	-	0.057	0.057	0.112	0.153

*1 : No cushion in the allowable absorption energy indicates the allowable absorption energy of the side that is not indicated ("R" → head side, "H" → rod side) when the one-side air cushion is selected.

*2: Without a cushion, large energy generated by the external load cannot be absorbed. Please provide an external shock absorber.

Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
$\phi 20$	25, 50, 75, 100, 125, 150, 200, 250, 300	1000	10
$\phi 25$			
$\phi 32$			
$\phi 40$			
$\phi 50$	150, 200, 250, 300	1500	10
$\phi 63$			
$\phi 80$			
$\phi 100$			

*1: The custom stroke is available in 1 mm increments.

Number of installed switches and min. stroke (mm)

● Switch mounting: Rail

Switch quantity	1			2		3			4			5		
	Proximity		Reed	Proximity	Reed	Proximity		Reed	Proximity		Reed	Proximity		Reed
Bore size (mm)	T2,T3	T2W,T3W		T2,T3		T2,T3	T2W,T3W		T2,T3	T2W,T3W		T2,T3	T2W,T3W	
$\phi 20$	10			25		50	70	55	55	70	55	75	110	90
$\phi 25$	10			25		50	70	55	55	70	55	75	110	90
$\phi 32$	10			25		50	70	55	55	70	55	75	110	90
$\phi 40$	10			25		50	70	55	55	70	55	75	110	90
$\phi 50$	10			25		50	65	55	55	65	55	75	110	90
$\phi 63$	10			25		50	65	55	55	65	55	75	110	90
$\phi 80$	10			25		50	65	55	55	65	55	75	110	90
$\phi 100$	10			25		50	65	55	55	65	55	75	110	90

*1: For types with one switch, when the stroke is between 10 and 24 mm, trunnion mounting is not available since the switch rail mounting position is different. For the mounting position, refer to "Pneumatic Cylinders I (No. CB-029SA).

● Switch mounting: Band

Switch mounting: Band															
Switch quantity	1			2			3			4			5		
Bore size (mm)	Proximity		Reed	Proximity		Reed	Proximity		Reed	Proximity		Reed	Proximity		Reed
	T2,T3	T2W,T3W		T0,T5 T2,T3	T2W,T3W		T0,T5 T2,T3	T2W,T3W		T0,T5 T2,T3	T2W,T3W		T0,T5 T2,T3	T2W,T3W	
ø20	10			25	30	25	50	55	50	70	75	70	95	100	95
ø25	10			25	30	25	50	55	50	70	75	70	95	100	95
ø32	10			25	30	25	50	55	50	70	75	70	95	100	95
ø40	10			25	30	25	50	55	50	70	75	70	95	100	95
ø50	10			25	30	25	50	55	50	70	75	70	95	100	95
ø63	10			25	30	25	50	55	50	70	75	70	95	100	95
ø83	10			25	30	25	50	55	50	70	75	70	95	100	95
ø100	10			25	30	25	50	55	50	70	75	70	95	100	95

How to order

Without switch (built-in magnet for switch)

SCM-G-LB-40B-100-MI-HP1

With switch (built-in magnet for switch)

SCM-G-LB-40B-100-T2H-D-MI-HP1

A Mounting
*1

B Bore size

C Port thread

D Cushion

E Stroke

F Switch model No.
*3
*4

G Switch quantity

H Switch mounting

I Option
*6J Accessory
*7

⚠ Precautions for model No. selection

*1: Mounting bracket will be shipped with the product. However, mounting types: LB and FA are assembled at shipment. In addition, when the mounting type is 00, it cannot be installed on the rod side.

*2: Refer to page 56 for the number of installed switches and the min. stroke.

*3: Switches other than F Switch model No. are also available. (Made to order) For details, refer to "Pneumatic Cylinders I (No. CB-029SA)".

*4: T8H/V switches cannot be mounted when the bore size is $\phi 20$ to $\phi 40$ and switch mounting is the rail type.

*5: Refer to "Pneumatic Cylinders I" (CB-029SA) for made-to-order specifications of rod end form.

*6: "Q" (switch rail attached at shipment) is not available for "Z" switch mounting.

*7: "I" and "Y" cannot be selected together.

*8: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

[Example of model No.]

SCM-G-LB-40B-100-T2H-D-MI-HP1

Model: Round shaped cylinder, double acting

- A Mounting : Axial foot
 B Bore size : $\phi 40$ mm
 C Port thread : Rc thread
 D Cushion : With two-sided air cushion
 E Stroke : 100 mm
 F Switch model No. : Proximity T2H switch, lead wire 1 m
 G Switch quantity : 2 pcs. included
 H Switch mounting : Rail
 I Option : Piston rod material (stainless steel)
 J Accessory : Rod eye

Code	Description								
A Mounting									
	Bore size (ø)	20	25	32	40	50	63	80	100
00	Basic	●	●	●	●	●	●	●	●
LB	Axial foot	●	●	●	●	●	●	●	●
FA	Rod side flange	●	●	●	●	●	●	●	●
FB	Head side flange	●	●	●	●	●	●	●	●
CA	Eye bracket	●	●	●	●	●	●		
CB	Clevis bracket (pin and snap ring attached)							●	●
TA	Rod side trunnion	●	●	●	●	●	●		
TB	Head side trunnion	●	●	●	●	●	●		
B Bore size (mm)									
20	ø20								
25	ø25								
32	ø32								
40	ø40								
50	ø50								
63	ø63								
80	ø80								
100	ø100								
C Port thread									
Blank	Rc thread								
N	NPT thread (made to order) With air cushion: ø32 and over								
G	G thread (made to order) With air cushion: ø32 and over								
D Cushion									
B	With two-sided air cushion								
R	Rod side air cushioned								
H	Head side air cushioned								
D	With two-sided rubber cushion								
E Stroke (mm)									
Bore size		Stroke *2		Custom stroke					
ø20 to ø32		10 to 1000		In 1 mm increments					
ø40 to ø100		10 to 1500							
F Switch model No.									
Lead wire Straight	Lead wire L-shaped	Contact	Voltage		Indicator	Lead wire			
			AC	DC					
T0H*	T0V*	Reed	●	●	1-color LED	2-wire			
T5H*	T5V*		●	●	No LED				
T8H*	T8V*		●	●	1-color LED				
T1H*	T1V*		Proximity	●		1-color LED	2-wire		
T2H*	T2V*			●			3-wire		
T3H*	T3V*			●					
T2HR3	T2VR3			●	1-color LED Bending resistant lead wire	2-wire			
T3PH*	T3PV*			●	1-color LED (made to order)	3-wire			
T2WH*	T2WV*			●	2-color LED	2-wire			
T3WH*	T3WV*			●		3-wire			
T2YD*	-			●	2-color LED	2-wire			
T2YDT*	-			●	2-color LED				
T2JH*	T2JV*			●	1-color LED off-delay	2-wire			
* Lead wire length									
Blank	1 m (standard)								
3	3 m (option)								
5	5 m (option)								
G Switch quantity									
R	1 on rod side								
H	1 on head side								
D	2								
T	3								
4	4 pcs. Included (when there are more than 4 switches, indicate switch quantity.)								
H Switch mounting									
Blank	Rail method								
Z	Band method								
I Option									
Q	Switch rail attached at shipment								
M	Piston rod material (stainless steel)								
P6	Copper and PTFE free								
J Accessory									
	Bore size (ø)	20	25	32	40	50	63	80	100
I	Rod eye	●	●	●	●	●	●	●	●
Y	Rod clevis (pin and snap ring attached)	●	●	●	●	●	●	●	●
B1	Eye bracket							●	●
B2	Clevis bracket	●	●	●	●	●	●		

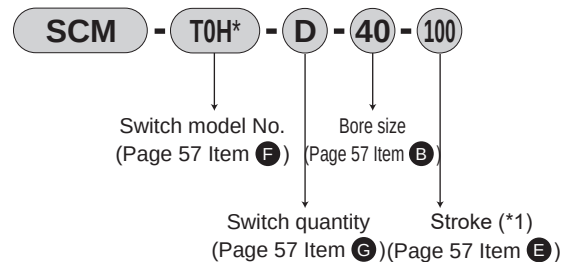
SCP03	Long service life cylinder	SCP03	Linear Slide Hand	Low-profile long stroke hand	Wide Parallel Hand	Chuck	Air Booster	Compatible with rechargeable batteries	Supports food mfg. processes
CMK2	SSD2	MDC2	MSD	MSD-G-L	SMG	LCR	STG	STM	LCG
STR2	SCP03	CMK2	SCM	SCG	SSD2	SMG	LCR	STG	STM
STL	LSH	LSHL	LSHM	LST	LSTM	HMC	CKW	ABP2	SCP03
									CMK2
									SCM
									SSD2
									MSD
									MSD-G-L
									SMG
									STG
									STM
									LCR
									LCG
									STR2
									LSH
									LSHL
									SCP03
									CMK2
									SCM
									SCG
									SSD2
									STG

SCM-G-HP1 Series

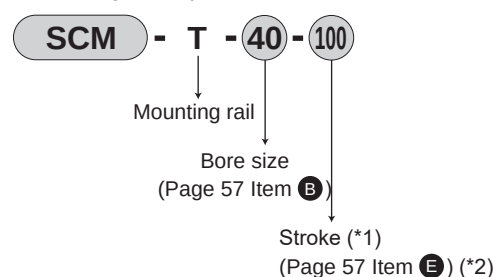
How to order switch

[Switch mounting: Rail]

- Switch body + mounting rail set



- Mounting rail only

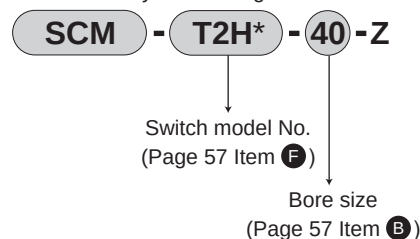


*1: Indicate X if the stroke exceeds 300mm. If exceeding 300 mm, a short rail (with 100 mm switch adjustment travel distance) will be included per switch.

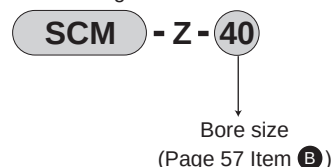
*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

[Switch mounting: Band]

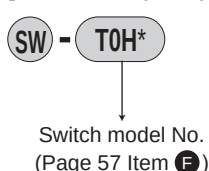
- Switch body + mounting bracket set + band



- Mounting bracket set + band



[Switch body only]



How to order mounting brackets

Bore size (mm)	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Mounting bracket								
Foot (LB)	SCM-LB-20-HP1	SCM-LB-25-HP1	SCM-LB-32-HP1	SCM-LB-40-HP1	SCM-LB-50-HP1	SCM-LB-63-HP1	SCM-LB-80-HP1	SCM-LB-100-HP1
Flange (FA/FB)	SCM-FA-20-HP1	SCM-FA-25-HP1	SCM-FA-32-HP1	SCM-FA-40-HP1	SCM-FA-50-HP1	SCM-FA-63-HP1	SCM-FA-80-HP1	SCM-FA-100-HP1
Eye bracket (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40	SCM-CA-50	SCM-CA-63	-	-
Clevis bracket (CB)	-	-	-	-	-	-	SCM-CB-80	SCM-CB-100
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63	-	-

*1: All mounting brackets are supplied with mounting bolts.

*2: The foot mounting bracket is provided as 2 pcs./set.

Material of mounting bracket

Mounting	Material
LB	Steel
FA/FB	Aluminum
TA/TB	Steel
CA	Steel
CB	Cast iron

Note: Mounting bracket will be shipped with the product. (Other than LB, FA)

Consumable parts list

- With air cushion

Bore size (mm)	Kit No.	Part name
ø 20	SCM-G-20BK-HP1	Rod packing
ø 25	SCM-G-25BK-HP1	Cylinder gasket
ø 32	SCM-G-32BK-HP1	Cushion rubber
ø 40	SCM-G-40BK-HP1	Piston packing
ø 50	SCM-G-50BK-HP1	Wear ring
ø 63	SCM-G-63BK-HP1	Needle gasket
ø 80	SCM-G-80BK-HP1	Holder gasket
ø100	SCM-G-100BK-HP1	Cushion packing
		Scraper
		Lube keeping structure

*1: Specify the kit No. when placing an order.

*2: Cushion rubber is not included in ø50 to ø100.

- With rubber cushion

Bore size (mm)	Kit No.	Part name
ø 20	SCM-G-20DK-HP1	Rod packing
ø 25	SCM-G-25DK-HP1	Cylinder gasket
ø 32	SCM-G-32DK-HP1	Cushion rubber
ø 40	SCM-G-40DK-HP1	Piston packing
ø 50	SCM-G-50DK-HP1	Wear ring
ø 63	SCM-G-63DK-HP1	Scraper
ø 80	SCM-G-80DK-HP1	Lube keeping structure
ø100	SCM-G-100DK-HP1	

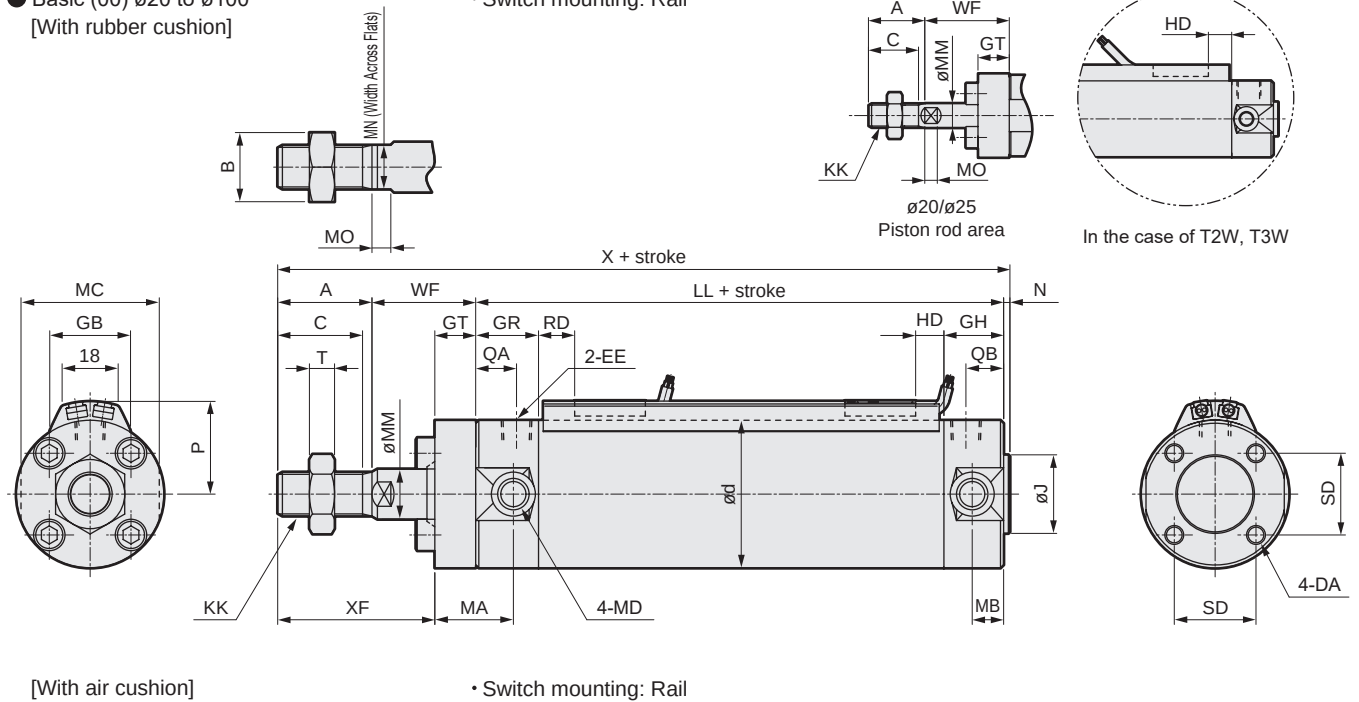
*1: Specify the kit No. when placing an order.

Dimensions



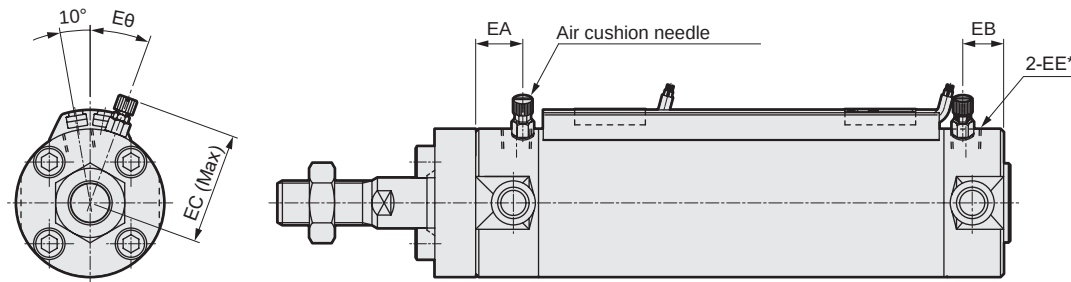
- Basic (00) $\phi 20$ to $\phi 100$
[With rubber cushion]

• Switch mounting: Rail



[With air cushion]

• Switch mounting: Rail



Code	Basic (00) basic dimensions																					
Bore size (mm)	A	B	C	D	DA	EE ^{*1}	GH	GR	GT	J	KK	LL	MA	MB	MC	MD	MM	MN	MO	N	QA	QB
ø 20	18	13	16	26	M4 depth 6.5	Rc1/8	17	19	10	12	M8	69	21	11	24	M5	8	6	4	2	12	10
ø 25	22	17	20	31	M5 depth 6.5	Rc1/8	17	19	10	14	M 10 x 1.25	69	21	11	29	M6	10	8	5	2	12	10
ø 32	22	17	20	38	M5 depth 7.5	Rc1/8	17	19	11	18	M 10 x 1.25	71	22	10	36	M8	12	10	5.5	2	12	10
ø 40	30	22	27	47	M6 depth 12	Rc1/8	19	20	13	25	M 14 x 1.5	78	25	10	44	M10	16	14	6	2	13	12
ø 50	35	27	32	58	M8 depth 16	Rc1/4	22	25	14	30	M 18 x 1.5	90	27	12	55	M12	20	17	8	2	15	12
ø 63	35	27	32	72	M10 depth 16	Rc1/4	22	25	14	32	M 18 x 1.5	90	27	12	69	M14	20	17	8	2	15	12
ø 80	40	32	37	89	M10 depth 22	Rc3/8	28	28	15	40	M 22 x 1.5	108	-	-	80	-	25	22	11	3	15	15
ø100	40	41	37	110	M12 depth 22	Rc1/2	28	28	15	50	M 26 x 1.5	108	-	-	100	-	30	27	13	3	15	15

Code						With air cushion					Switch mounting: Rail							
Bore size (mm)	SD	T	WF	X	XF	EA	EB	EC	EE*1	Eθ	P	GB	HD			RD		
													T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W
$\phi 20$	14	5	27	116	35	14	12	27	M5	30°	19.5	23	3.0	6.5	8.5	7.5	7.5	9.5
$\phi 25$	16.5	6	28	121	40	14	12	29.5	M5	30°	22	24.4	2.0	5.5	7.5	8.5	8.5	10.5
$\phi 32$	20	6	29	124	40	14	12	32.8	Rc1/8	25°	25.5	25	3.0	6.5	8.5	9.5	9.5	11.5
$\phi 40$	26	8	33	143	50	15	12	36.6	Rc1/8	20°	30	25.7	5.0	8.5	10.5	11.5	11.5	13.5
$\phi 50$	32	11	36	163	57	18.5	15.5	43	Rc1/4	20°	35.5	26.2	7.5	11.0	13.0	13.0	13.0	15.0
$\phi 63$	38	11	36	163	57	18.5	15.5	50	Rc1/4	20°	42.5	26.5	7.5	11.0	13.0	13.0	13.0	15.0
$\phi 80$	50	13	44	195	69	20	20	58.5	Rc3/8	20°	51	26.7	9.5	13.0	15.0	20.0	20.0	22.0
$\phi 100$	60	16	47	198	72	20	20	69	Rc1/2	20°	61.5	26.7	10.0	13.5	15.5	19.5	19.5	21.5

1: Piping port (EE) of $\phi 20$, $\phi 25$ is different. Refer to the dimensions (EE) of the type with air cushion.

*2: Refer to "Pneumatic Cylinders I (No. CB-029SA)" for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

*3: Refer to "Pneumatic Cylinders I (No. CB-029SA)" for the dimensions of accessories.

* Refer to Double acting/Single rod in "Pneumatic Cylinders I" (No. CB-029SA) for dimensions of each mounting type.

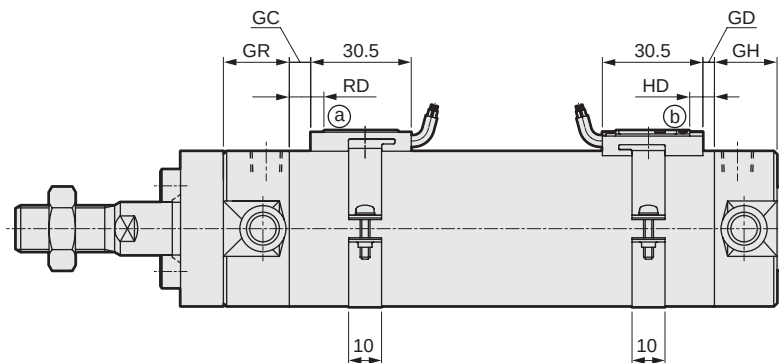
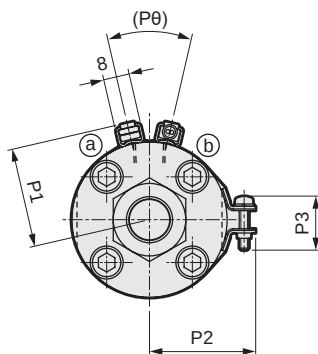
SCM-G-HP1 Series

Dimensions



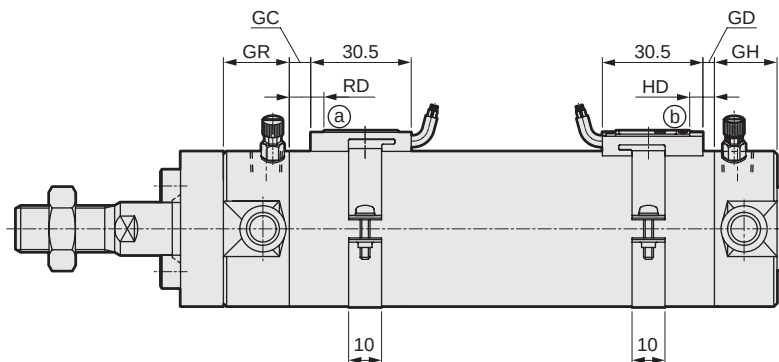
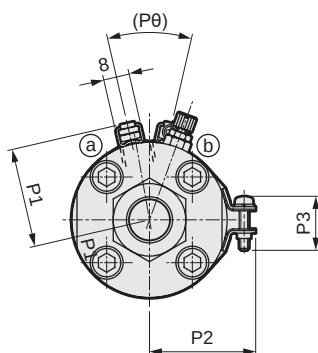
- Basic (00) $\varnothing 20$ to $\varnothing 100$
[With rubber cushion]

- Switch mounting: Band



- [With air cushion]

- Switch mounting: Band



Code	Switch mounting: Band																	
ChuBore size (mm)	GD			GC			GH	GR	HD			RD			P1	P2	P3	Pθ
	T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W			T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W				
∅ 20	2.5	2.5	4.5	3.5	3.5	5.5	17	19	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38)
∅ 25	1.5	1.5	3.5	4.5	4.5	6.5	17	19	5.5	5.5	7.5	8.5	8.5	10.5	22.1	23.9	14	(34)
∅ 32	2.5	2.5	4.5	5.5	5.5	7.5	17	19	6.5	6.5	8.5	9.5	9.5	11.5	25.6	27.6	16	(30)
∅ 40	4.5	4.5	6.5	7.5	7.5	9.5	19	20	8.5	8.5	10.5	11.5	11.5	13.5	30.2	32.1	16	(26)
∅ 50	7.0	7.0	9.0	9.0	9.0	11.0	22	25	11.0	11.0	13.0	13.0	13.0	15.0	35.7	37.4	16	(22)
∅ 63	7.0	7.0	9.0	9.0	9.0	11.0	22	25	11.0	11.0	13.0	13.0	13.0	15.0	42.7	44.4	16	(20)
∅ 80	9.0	9.0	11.0	16.0	16.0	18.0	28	28	13.0	13.0	15.0	20.0	20.0	22.0	51.2	53.0	16	(16)
∅100	9.5	9.5	11.5	15.5	15.5	17.5	28	28	13.5	13.5	15.5	19.5	19.5	21.5	61.7	63.5	16	(16)

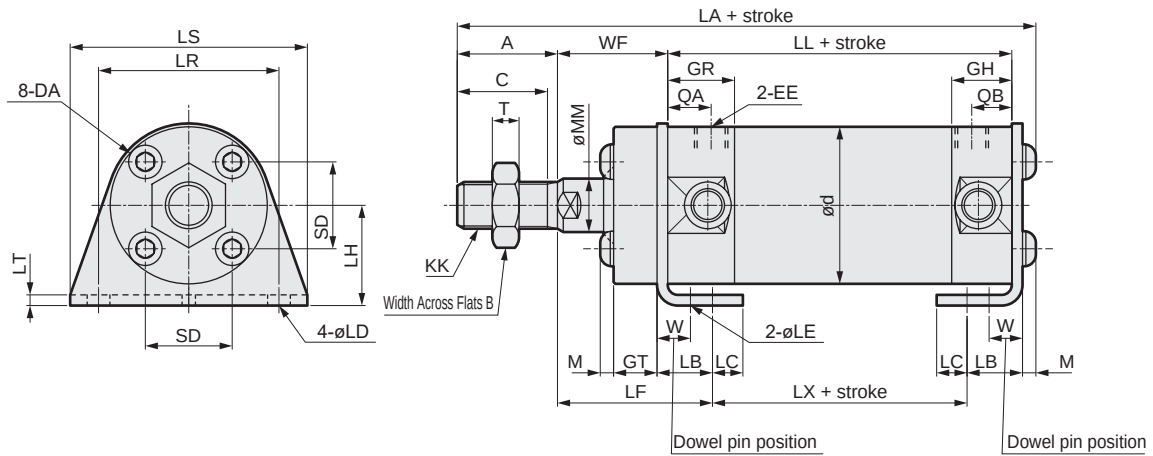
*1: Refer to "Pneumatic Cylinders I (No. CB-029SA)" for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

*2: Refer to "Pneumatic Cylinders I (No. CB-029SA)" for the dimensions of accessories.

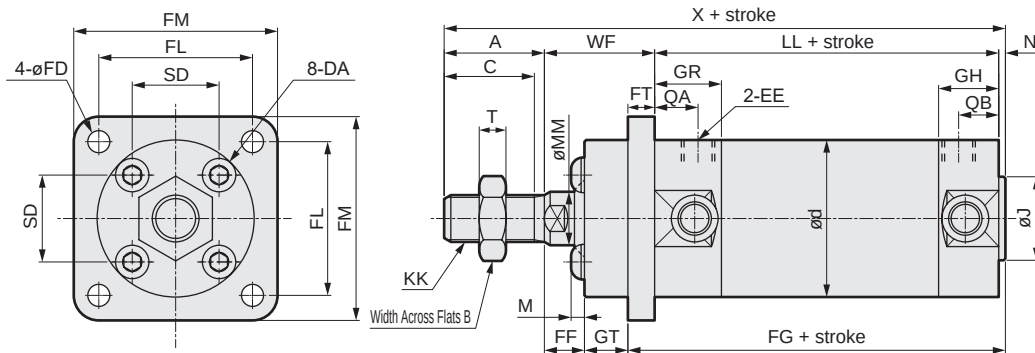
Dimensions



● Axial foot (LB)



● Rod side flange (FA)



Code	Axial foot (LB) basic dimensions																			
Bore size (mm)	A	B	C	D	DA	EE (*1)	GH	GR	GT	KK	LA	LB	LC	LD	LE	LF	LH	LL	LR	LS
ø 20	18	13	16	26	M4	Rc1/8	17	19	10	M8	119.8	15.1	7.1	5.7	4	38.9	20	69	32	44
ø 25	22	17	20	31	M5	Rc1/8	17	19	10	M 10 x 1.25	125.6	15.1	7.1	5.7	4	39.9	22	69	36	49
ø 32	22	17	20	38	M5	Rc1/8	17	19	11	M 10 x 1.25	128.6	16.1	8.1	6.8	4	41.9	25	71	44	58
ø 40	30	22	27	47	M6	Rc1/8	19	20	13	M 14 x 1.5	148.2	16.6	9.1	6.8	4	46.4	30	78	54	71
ø 50	35	27	32	58	M8	Rc1/4	22	25	14	M 18 x 1.5	170.5	22	11	9	5	53.5	40	90	66	86
ø 63	35	27	32	72	M10	Rc1/4	22	25	14	M 18 x 1.5	170.5	22	13	11	5	53.5	45	90	82	106
ø 80	40	32	37	89	M10	Rc3/8	28	28	15	M 22 x 1.5	202.5	28.5	14	11	6	68	55	108	100	125
ø100	40	41	37	110	M12	Rc1/2	28	28	15	M 26 x 1.5	208	30	16	14	6	71	65	108	120	150
Code	Rod side flange (FA) basic dimensions																			
Bore size (mm)	QA	QB	SD	T	W	WF	FD	FF	FG	FL	FM	FT	GH	GR	GT	J	KK	LL	MM	N
ø 20	12	10	14	5	10	27	5.5	11	77	28	40	6	17	19	10	12	M8	69	8	2
ø 25	12	10	16.5	6	10	28	5.5	11	78	32	44	7	17	19	10	14	M 10 x 1.25	69	10	2
ø 32	12	10	20	6	10	29	6.6	11	80	38	53	7	17	19	11	18	M 10 x 1.25	71	12	2
ø 40	13	12	26	8	10	33	6.6	12	88	46	61	8	19	20	13	25	M 14 x 1.5	78	16	2
ø 50	15	12	32	11	17.5	36	9	13	101	58	76	9	22	25	14	30	M 18 x 1.5	90	20	2
ø 63	15	12	38	11	17.5	36	11	13	101	70	92	9	22	25	14	32	M 18 x 1.5	90	20	2
ø 80	15	15	50	13	20	44	11	18	122	82	104	11	28	28	15	40	M 22 x 1.5	108	25	3
ø100	15	15	60	16	20	47	13	18	125	100	128	14	28	28	15	50	M 26 x 1.5	108	30	3
Code	Rod side flange (FA) basic dimensions																			
Bore size (mm)	A	B	C	D	DA	EE (*1)	FD	FF	FG	FL	FM	FT	GH	GR	GT	J	KK	LL	MM	N
ø 20	18	13	16	26	M4	Rc1/8	5.5	11	77	28	40	6	17	19	10	12	M8	69	8	2
ø 25	22	17	20	31	M5	Rc1/8	5.5	11	78	32	44	7	17	19	10	14	M 10 x 1.25	69	10	2
ø 32	22	17	20	38	M5	Rc1/8	6.6	11	80	38	53	7	17	19	11	18	M 10 x 1.25	71	12	2
ø 40	30	22	27	47	M6	Rc1/8	6.6	12	88	46	61	8	19	20	13	25	M 14 x 1.5	78	16	2
ø 50	35	27	32	58	M8	Rc1/4	9	13	101	58	76	9	22	25	14	30	M 18 x 1.5	90	20	2
ø 63	35	27	32	72	M10	Rc1/4	11	13	101	70	92	9	22	25	14	32	M 18 x 1.5	90	20	2
ø 80	40	32	37	89	M10	Rc3/8	11	18	122	82	104	11	28	28	15	40	M 22 x 1.5	108	25	3
ø100	40	41	37	110	M12	Rc1/2	13	18	125	100	128	14	28	28	15	50	M 26 x 1.5	108	30	3

*1: Needle relational dimensions and port sizes of the type with air cushion are the same as those of the basic type. Refer to pages 59 and 60. (Those of ø20/ø25 are different from the basic type.)

*2: Refer to "Pneumatic Cylinders I (No. CB-029SA)" for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

*3: Refer to "Pneumatic Cylinders I (No. CB-029SA)" for the dimensions of accessories.

SCP3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCP3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCP3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCP3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	



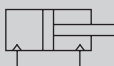
Tie rod cylinder Double acting/Rubber scraper

Environment-resistant cylinder

SCG-G-HP1 Series

● Bore size: $\varnothing 32/\varnothing 40/\varnothing 50/\varnothing 63/\varnothing 80/\varnothing 100$

JIS symbol



Specifications

Item		SCG-G-HP1					
Bore size mm		ø32	ø40	ø50	ø63	ø80	ø100
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressure MPa		1.0					
Min. working pressure MPa		0.15					
Proof pressure MPa		1.6					
Ambient temperature °C		-10 to 60 (no freezing)					
Port size		Rc1/8	Rc1/4		Rc3/8		Rc1/2
Stroke tolerance mm	With rubber cushion	^{+1.4} ₀ (up to 1000), ^{+1.8} ₀ (1001 to 1500)					
	With air cushion	^{+1.0} ₀ (up to 360), ^{+1.4} ₀ (361 to 1000), ^{+1.8} ₀ (1001 to 1500)					
Working piston speed mm/s		50 to 1000(Use the product within the allowable absorbed energy.)					
Cushion		Either air cushion or rubber cushion can be selected					
Effective air cushion length mm		8.6	8.6	13.4	13.4	15.4	15.4
Lubrication		Not required					
Allowable absorbed energy J	With rubber cushion	0.5	0.9	1.6	1.6	3.3	5.8
	With air cushion	2.5	3.7	8.0	14.4	25.4	45.6

Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Available stroke (mm)	Min. stroke (mm)
$\varnothing 32$	25/50/75/100	600	700	1
$\varnothing 40$			800	
$\varnothing 50$	150/200/250		1200	
$\varnothing 63$	300/350/400		1200	
$\varnothing 80$	450/500	700	1400	
$\varnothing 100$		800	1500	

*1: The custom stroke is available in 1 mm increments.

*2: If the max. stroke is exceeded, product specifications may not be met, depending on operating conditions. Contact CKD in this case.

Min. stroke with T0/T5 switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting Position cannot be detected at the rod side stroke end.	Head side trunnion mounting Position cannot be detected at the head side stroke end.
Bore size (mm)	1	2	3	4	1	2	3	4	1	2	3	4	1	1
$\varnothing 32$	9	17	34	51	9	48 (33)	78 (64)	109 (94)	94 (94)	94 (94)	169 (155)	169 (155)	42	42
$\varnothing 40$	9	18	36	54	9	48 (33)	78 (64)	109 (94)	81 (81)	81 (81)	164 (142)	164 (142)	38	38
$\varnothing 50$	9	18	36	54	9	18	36	54	112 (112)	112 (112)	121 (121)	121 (121)	51	53
$\varnothing 63$	10	19	38	57	10	19	38	57	85 (73)	85 (73)	91 (91)	91 (91)	41	42
$\varnothing 80$	10	20	39	59	10	20	39	59	96 (79)	96 (79)	99 (99)	99 (99)	41	47
$\varnothing 100$	10	20	40	60	10	20	40	60	101 (84)	101 (84)	105 (105)	105 (105)	47	53

*1: The values in () are of T*V (L-type lead wire).

*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

Min. stroke with T8 switch

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting Position cannot be detected at the rod side stroke end.	Head side trunnion mounting Position cannot be detected at the head side stroke end.
Bore size (mm)	1	2	3	4	1	2	3	4	1	2	3	4	1	1
$\varnothing 32$	9	17	34	51	9	54 (31)	84 (62)	115 (92)	100 (100)	100 (100)	191 (161)	191 (161)	45	45
$\varnothing 40$	9	18	36	54	9	54 (31)	84 (62)	115 (92)	87 (87)	87 (87)	178 (148)	178 (148)	41	41
$\varnothing 50$	9	18	36	54	9	18	36	54	116 (116)	116 (116)	121 (121)	121 (121)	54	55
$\varnothing 63$	10	19	38	57	10	19	38	57	89 (77)	89 (77)	99 (99)	99 (99)	44	44
$\varnothing 80$	10	20	39	59	10	20	39	59	100 (75)	100 (75)	111 (111)	111 (111)	43	49
$\varnothing 100$	10	20	40	60	10	20	40	60	105 (80)	105 (80)	117 (117)	117 (117)	49	55

*1: The values in () are of T*V (L-type lead wire).

*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

Min. stroke with T2/T3 switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting Position cannot be detected at the rod side stroke end.	Head side trunnion mounting Position cannot be detected at the head side stroke end.
Bore size (mm)	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø32	5	10	20	30	5	40 (33)	70 (64)	101 (94)	64 (55)	64 (55)	131 (116)	131 (116)	27	27
ø40	5	10	20	30	5	40 (33)	70 (64)	101 (94)	69 (60)	69 (60)	152 (121)	152 (121)	32	32
ø50	5	10	20	30	5	10	20	30	71 (62)	71 (62)	71 (61)	71 (61)	31	32
ø63	6	11	21	32	6	11	21	32	77 (68)	77 (68)	77 (68)	77 (68)	37	38
ø80	6	11	22	33	6	11	22	33	88 (79)	88 (79)	88 (80)	88 (80)	37	43
ø100	6	11	22	33	6	11	22	33	93 (84)	93 (84)	93 (85)	93 (85)	43	49

*1: The values in () are of T*V (L-type lead wire).

*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

Min. stroke with T1/T2YD/T2W/T3W switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting Position cannot be detected at the rod side stroke end.	Head side trunnion mounting Position cannot be detected at the head side stroke end.
Bore size (mm)	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø32	6	11	22	33	6	62 (49)	92 (80)	123 (110)	86 (61)	86 (61)	177 (122)	177 (122)	38	38
ø40	6	11	22	33	6	62 (49)	92 (80)	123 (110)	91 (66)	91 (66)	182 (127)	182 (127)	43	43
ø50	6	12	24	36	6	12	24	36	93 (68)	93 (68)	93 (68)	93 (68)	42	43
ø63	6	12	24	36	6	12	24	36	99 (74)	99 (74)	99 (74)	99 (74)	48	49
ø80	7	13	25	38	7	13	25	38	110 (85)	110 (85)	110 (86)	110 (86)	48	54
ø100	7	13	26	39	7	13	26	39	115 (90)	115 (90)	115 (92)	115 (92)	54	60

*1: The values in () are of T*V (L-type lead wire). T2YD does not have a L-type lead wire (V).

*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

How to order mounting brackets

Bore size (mm)	ø32	ø40	ø50	ø63	ø80	ø100
Mounting bracket						
Foot (LB)	SCG-LB-32	SCG-LB-40	SCG-LB-50	SCG-LB-63	SCG-LB-80	SCG-LB-100
Flange (FA) (FB)	SCG-FA-32	SCG-FA-40	SCG-FA-50	SCG-FA-63	SCG-FA-80	SCG-FA-100
Eye bracket (CA)	SCG-CA-32	SCG-CA-40	SCG-CA-50	SCG-CA-63	SCG-CA-80	SCG-CA-100
Clevis bracket (CB)	SCG-CB-32	SCG-CB-40	SCG-CB-50	SCG-CB-63	SCG-CB-80	SCG-CB-100

*1: The foot mounting bracket (LB) is provided as 2 pcs./set.

*2: All mounting brackets have mounting bolts attached.

Material of mounting bracket

Mounting	Material	Remarks
LB	Steel	Nickel plating
FA/FB	Steel	Painted
CA/CB	Cast iron	Painted
TA/TB/TC	Cast iron	Painted

Note: Mounting bracket will be shipped with the product.

Trunnion types (TA, TB, TC) are assembled at shipment.

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	Environment-resistant cylinder
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Linear Slide Hand
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	Low-profile long stroke hand
STS	
STL	
LSH	
LSHL	
LSHM	
LST	Wide Parallel Hand
LSTM	
HMC	
CKW	
ABP2	
SCPD3	Air Booster
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	Compatible with rechargeable batteries
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	Supports food mfg. processes
SCPD3	
CMK2	
SCM	
SCG	
SSD2	
STG	

SCG-G-HP1 Series

How to order

Without switch (built-in magnet for switch)

SCG-G - LB - 40 - B - 100 - M I - HP1

With switch (built-in magnet for switch)

SCG-G - LB - 40 - B - 100 - T2H - R - M I - HP1

Model No.

A Mounting
*1

B Bore size

C Port thread

D Cushion

E Stroke

F Switch model No.

G Switch quantity
*3

H Option

I Accessory
*4

⚠ Precautions for model No. selection

*1: Mounting bracket will be shipped with the product.
(Trunnion types are assembled at shipment.)

*2: Refer to pages 62 and 63 for the min. stroke with switch.

*3: When selecting TA or TB mounting, the switch quantity is limited to "H" (1 on head side) for TA, and "R" (1 on rod side) for TB.

*4: "I" and "Y" cannot be selected together.

[Example of model No.]

SCG-G-LB-40B-100-T2H-D-MI-HP1

Model: Tie rod cylinder, double acting

- A** Mounting : Axial foot
- B** Bore size : ø40 mm
- C** Port thread : Rc thread
- D** Cushion : With two-sided air cushion
- E** Stroke : 100mm
- F** Switch model No. : Proximity T2H switch, lead wire 1 m
- G** Switch quantity: 2 pcs. included
- H** Option : Piston rod material(Stainless steel)
- I** Accessories : Rod eye (included)

How to order switch

● Switch body + mounting bracket set

SCG - T0H - 40

Switch model No.
(Item **F**)

Bore size
(Item **B**)

● Switch body only

SW - T0H

Switch model No.
(Item **F**)

● Switch mounting bracket set

SCG - T - 40

Mounting bracket

Bore size
(Item **B**)

Code	Description
A Mounting	
00	Basic
LB	Axial foot
FA	Rod side flange
FB	Head side flange
CA	Eye bracket
CB	Clevis bracket (pin and split pin attached)
TA	Rod side trunnion
TB	Head side trunnion
TC	Intermediate trunnion

B Bore size (mm)

32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

C Port thread

Blank	Rc thread
N	NPT thread (made to order)
G	G thread (made-to-order product)

D Cushion

B	Two-sided air cushion (basic)
D	Two-sided rubber cushion

Note: The rubber cushioned type has a longer total length than the air cushioned type.

E Stroke (mm)

Bore size	Stroke *2	Available stroke	Custom stroke
ø32	1 to 600	700	In 1 mm increments
ø40		800	
ø50		1200	
ø63		1400	
ø80	1 to 700	1500	
ø100	1 to 800		

F Switch model No.

Lead wire	Lead wire	Contact	Voltage	Indicator	Lead wire
Straight	L-shaped		AC DC		
T0H*	T0V*	Reed	● ●	1-color LED	2-wire
T5H*	T5V*		● ●	No LED	
T8H*	T8V*		● ●	1-color LED	2-wire
T1H*	T1V*		● ●	1-color LED	
T2H*	T2V*	Proximity	● ●	1-color LED	3-wire
T3H*	T3V*		● ●	1-color LED	3-wire
T2HR3	T2VR3		● ●	1-color LED	2-wire
T3PH*	T3PV*		● ●	Bending resistant lead wire	2-wire
T2WH*	T2WV*		● ●	1-color LED (made to order)	3-wire
T3WH*	T3WV*		● ●	2-color LED	2-wire
T2YD*	-		● ●	2-color LED	3-wire
T2YDT*	-		● ●	2-color LED	2-wire
T2JH*	T2JV*		● ●	2-color LED	2-wire
			● ●	1-color LED off-delay	2-wire

* Lead wire length

Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

G Switch quantity

R	1 on rod side
H	1 on head side
D	2
T	3

H Option

M	Piston rod material (stainless steel)
P6	Copper and PTFE free

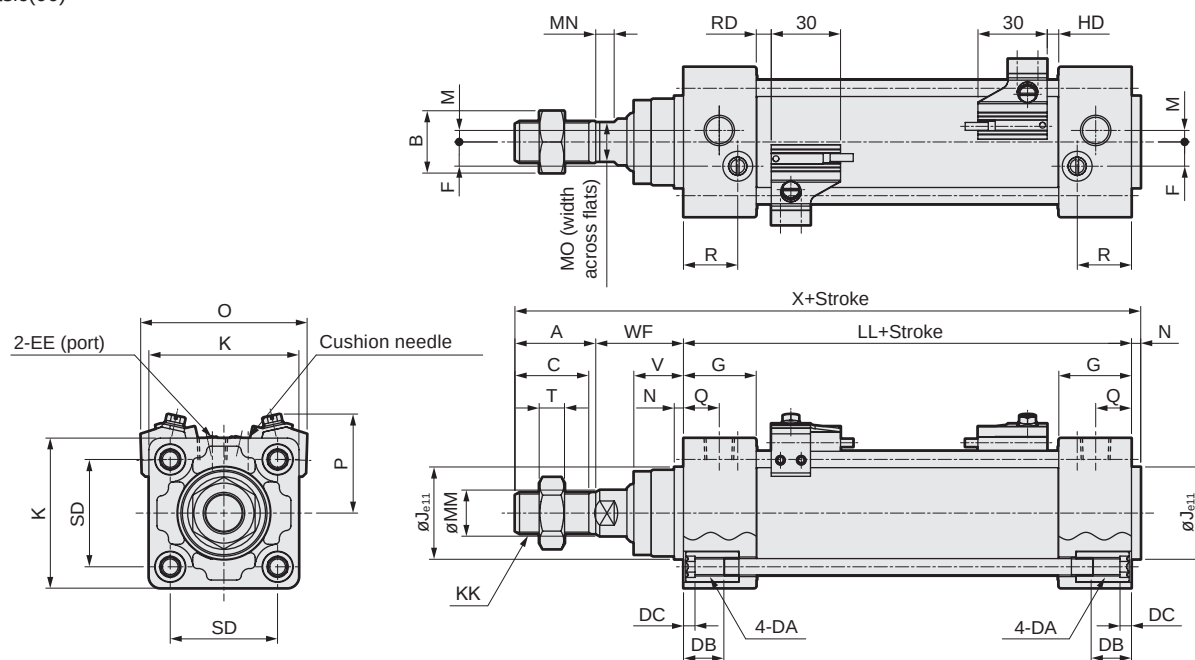
I Accessory

I	Rod eye
Y	Rod clevis (pin and split pin attached)
B1	Eye bracket
B2	Clevis bracket (pin and split pin attached)
B3	Eye bracket
B4	Trunnion No. 2 bracket (2 pcs./set)

Dimensions



● Basic(00)



Code	Basic (00) basic dimensions																
	A	B	C	DA	DB	DC	EE	F	G	J	K	KK	*1 LL	M	MM	MN	MO
ø32	22	17	19.5	M6	16	5	Rc1/8	6.5	27	30	46	M10X1.25	84(90)	4	12	5.5	10
ø40	30	22	27	M6	16	5	Rc1/4	9	27	35	52	M14X1.5	84(90)	4	16	6	14
ø50	35	27	32	M8	16	5	Rc1/4	10.5	31.5	40	65	M18X1.5	94(102)	5	20	8	17
ø63	35	27	32	M8	16	5	Rc3/8	12	31.5	45	75	M18X1.5	94(102)	9	20	8	17
ø80	40	32	37	M10	16	5	Rc3/8	14	38	45	95	M22X1.5	114(124)	11.5	25	11	22
ø100	40	41	37	M10	16	5	Rc1/2	15	38	55	114	M26X1.5	114(124)	17	30	13	27
Code	Mounting dimensions								With switch								
	Bore size (mm)	N	Q	R	SD	T	V	WF	*1 X	O	P	T0,T5,T2,T3		T2W,T3W			
												RD	HD	RD	HD		
ø32	4	13	19	32.5	6	19.5	30	140(146)	59	38	5(8)	5(8)	7.5 (10.5)	7.5 (10.5)			
ø40	4	14	19	38	8	19	31	149(155)	66	41	5(8)	5(8)	7.5 (10.5)	7.5 (10.5)			
ø50	4	15.5	23.5	46.5	11	21.5	38	171(179)	72	43	6.5 (10.5)	5(9)	9(13)	7(11)			
ø63	4	16.5	21.5	56.5	11	21.5	38	171(179)	83	48	6.5 (10.5)	5(9)	9(13)	7(11)			
ø80	4	19	28	72	13	27.5	47	205(215)	104	57	12.5 (17.5)	6(11)	15(20)	8(13)			
ø100	4	19	28	89	16	27.5	47	205(215)	121	63	12(17)	6.5 (11.5)	14.5 (19.5)	8.5 (13.5)			

*1: Dimensions in () are for the rubber cushion.

*2: For HD, RD and protruding dimensions of other switches, "Pneumatic Cylinders I (No. CB-029SA)".

*3: Refer to "Pneumatic Cylinders I (No. CB-029SA)" for the dimensions of accessories.

* Refer to Double acting/Single rod in "Pneumatic Cylinders I" (No. CB-029SA) for dimensions of each mounting type.

Consumable parts list

● With air cushion

Bore size (mm)	Kit No.	Part name
ø32	SCG-G-32BK-HP1	Rod packing
ø40	SCG-G-40BK-HP1	Cylinder gasket
ø50	SCG-G-50BK-HP1	Cushion packing
ø63	SCG-G-63BK-HP1	Piston packing
ø80	SCG-G-80BK-HP1	Wear ring
ø100	SCG-G-100BK-HP1	Needle gasket
		Scraper
		Lube keeping structure

Note: Specify the kit No. when placing an order.

● With rubber cushion

Bore size (mm)	Kit No.	Part name
ø32	SCG-G-32DK-HP1	Rod packing
ø40	SCG-G-40DK-HP1	Cylinder gasket
ø50	SCG-G-50DK-HP1	Piston packing
ø63	SCG-G-63DK-HP1	Wear ring
ø80	SCG-G-80DK-HP1	Needle gasket
ø100	SCG-G-100DK-HP1	Cushion rubber
		Scraper
		Lube keeping structure

Note: Specify the kit No. when placing an order.



Compact cylinder
Double acting/Single rod/rubber scraper

Environment-resistant cylinder

SSD2-G-HP1 Series

● Bore size: $\phi 12/\phi 16/\phi 20/\phi 25/\phi 32/\phi 40/\phi 50/\phi 63/\phi 80/\phi 100$

JIS symbol



Specifications

Item	SSD2-G-HP1 SSD2-GL-HP1 (with switch)									
Bore size mm	ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation	Double acting									
Working fluid	Compressed air									
Max. working pressure MPa	1.0									
Min. working pressure MPa	0.1	0.2						0.15		
Proof pressure MPa	1.6									
Ambient temperature °C	-10 to 60 (no freezing)									
Port size	M5				Rc1/8 *1		Rc1/4		Rc3/8	
Stroke tolerance mm	$\begin{smallmatrix} +1.0 \\ 0 \end{smallmatrix}$									
Working piston speed mm/s	50 to 500							50 to 300		
Cushion	No									
Lubrication	Not required									
Allowable absorbed energy J	0.004	0.01	0.016	0.021	0.025	0.092	0.1	0.12	0.27	0.56

*1: The $\phi 32$ bore size with a 5 mm stroke and without a switch has a port size of M5.

Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
ø12	5/10/15/20	30	1
ø16	25/30		
ø20	5/10/15/20/25	50	
ø25	30/35/40/45/50		
ø32	5/10/15/20/25/30/	100	
ø40	35/40/45/50/75/100		
ø50	10/15/20/25 30/35/40/45/50 75/100		
ø63			
ø80			
ø100			

*1: When using the type with switch, refer to the table of the min. stroke with switch.

Min. stroke with switch (2 switches)

Bore size (mm)	T0H/V / T5H/V	T2H/V / T3H/V
$\phi 12$	10 (5)	10 (5)
$\phi 16$		
$\phi 20$	5	5
$\phi 25$		
$\phi 32$		
$\phi 40$		
$\phi 50$		
$\phi 63$		
$\phi 80$		
$\phi 100$		

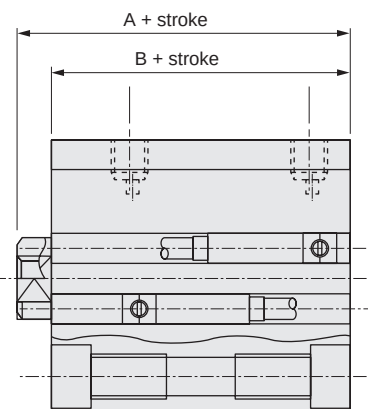
1: Less than 10mm with 2-color LED, off-delay, AC magnetic field proof, T1, T8* switches is not available.

*2: Values in () are for the type with 1 on rod side.

Custom stroke

● SSD2 Series

Item	Standard stroke body with spacer	
Model No.	Refer to How to order.	
Product Item	A spacer is added to the standard stroke body to adjust the stroke in 1 mm increments.	
Stroke range	Bore size	Stroke range
	12 to 16	1 to 29
	20 to 25	1 to 49
	32 to 100	1 to 99
Example of model No.	Model No.: SSD2-G-32-38-HP1 Add a +2 mm spacer to standard cylinder SSD2-G-32-40-HP1 to make it 38 mm. B + stroke is 73 mm.	



How to order

Without switch (without magnet for switch)

SSD2-G-32-5-N-LB-I-HP1

With switch (built-in magnet for switch)

SSD2-GL-32-10-T0H-R-N-LB-I-HP1

A Model No.

B Bore size

C Port thread

D Stroke

E Switch model No.

*1

*2

*3

*6

*7

F Switch quantity

G Option

H Mounting bracket
*4 *9

⚠ Precautions for model No. selection

- *1: The T2YD* switch cannot be mounted on the ø12 and ø16 bore sizes.
- *2: T8* switch cannot be installed on ø12 to ø32.
- *3: The F type switch can only be mounted on the piping port surface of bore sizes ø20 and ø25.
- *4: The mounting bracket is attached at shipment.
- *5: "I" and "Y" cannot be selected together.
- *6: The F type switch with L type lead wire on ø20 models cannot be selected on strokes 15 mm or under.
- *7: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.
- *8: F type switch cannot be selected.
- *9: The ø12 to ø32 structure does not permit retrofitting of the foot bracket (LB) or flange bracket (FA) on the rod side. Assembly before shipment is available as made to order.

[Example of model No.]

SSD2-GL-20-10-T0H-R-N-LB-I-HP1

Model: Compact cylinder double acting

- B Bore size : ø20 mm
- C Port thread : M5
- D Stroke : 10 mm
- E Switch model No. : Reed switch T0H*
Lead wire length 1 m
- F Switch quantity : 1 on rod side
- G Option : Rod end male thread
- H Mounting bracket: Axial foot
- I Accessory : Rod eye

I Accessory *5

Code		Description															
A Model No.																	
SSD2-G		Double acting/Single rod/rubber scraper															
SSD2-GL		Double acting/Single rod/rubber scraper with switch															
B Bore size (mm)																	
12		ø12															
16		ø16															
20		ø20															
25		ø25															
32		ø32															
40		ø40															
50		ø50															
63		ø63															
80		ø80															
100		ø100															
C Port thread																	
Blank		M5 (ø12 to ø25) Rc thread (ø32 to ø100)															
NN		NPT thread (ø32 and over) (made to order)															
GN		G thread (ø32 and over) (made-to-order product)															
D Stroke (mm)																	
Refer to the stroke table on the following page.																	
E Switch model No.																	
Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC DC	Indicator	Lead wire	Bore size											
F2S*		Proximity	●	1-color LED	2-wire	12	16	20	25	32	40	50	63	80	100		
F3S*			●		3-wire			●	●								
F2H*	F2V*		●		2-wire			●	●								
F3H*	F3V*		●		3-wire			●	●								
F3PH*	F3PV*	Proximity	●	1-color LED (PNP output) (made to order)	3-wire			●	●								
F2YH*	F2YV*		●		2-wire			●	●								
F3YH*	F3YV*		●		3-wire			●	●								
T0H*	T0V*		●		2-wire	●	●	●	●	●	●	●	●	●	●		
T5H*	T5V*	Reed	●	No LED	2-wire	●	●	●	●	●	●	●	●	●	●		
T8H*	T8V*		●		2-wire	●	●	●	●	●	●	●	●	●			
T1H*	T1V*		●		2-wire	●	●	●	●	●	●	●	●	●			
T2H*	T2V*		●		3-wire	●	●	●	●	●	●	●	●	●			
T3H*	T3V*	Proximity	●	1-color LED	2-wire	●	●	●	●	●	●	●	●	●	●		
T2HR3	T2VR3		●		3-wire	●	●	●	●	●	●	●	●	●			
T3PH*	T3PV*		●		3-wire	●	●	●	●	●	●	●	●	●			
T2WH*	T2WV*		●		2-wire	●	●	●	●	●	●	●	●	●			
T3WH*	T3WV*	Proximity	●	2-color LED	3-wire	●	●	●	●	●	●	●	●	●	●		
T2YD*	-		●		2-wire	●	●	●	●	●	●	●	●	●			
T2YD*	-		●		2-wire	●	●	●	●	●	●	●	●	●			
T2YD*	-		●		2-wire	●	●	●	●	●	●	●	●	●			
T2JH*	T2JV*	Proximity	●	1-color LED off-delay	2-wire	●	●	●	●	●	●	●	●	●	●		
* Lead wire length																	
Blank			1 m (standard)														
3			3 m (option)														
5		5 m (option)															
*8																	
F Switch quantity																	
R		1 on rod side															
H		1 on head side															
D		2															
G Option																	
Blank		Rod end female thread															
N		Rod end male thread															
H Mounting bracket																	
Blank		Without mounting bracket															
LB		Axial foot (made to order)															
CB		Clevis bracket (pin and snap ring attached)															
FA		Rod side flange (made to order)															
FB		Head side flange															
I Accessory (available when rod end male thread "N" is selected)																	
I		Rod eye															
Y		Rod clevis (pin and snap ring attached)															

SCP03	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCP03	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCP03	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCP03	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

SSD2-G-HP1 Series

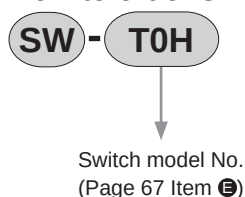
[Stroke table]

Stroke (mm)		Applicable bore size									
		12	16	20	25	32	40	50	63	80	100
Standard stroke	5	●	●	●	●	●	●				
	10	●	●	●	●	●	●	●	●	●	●
	15	●	●	●	●	●	●	●	●	●	●
	20	●	●	●	●	●	●	●	●	●	●
	25	●	●	●	●	●	●	●	●	●	●
	30	●	●	●	●	●	●	●	●	●	●
	35			●	●	●	●	●	●	●	●
	40			●	●	●	●	●	●	●	●
	45			●	●	●	●	●	●	●	●
	50			●	●	●	●	●	●	●	●
	75					●	●	●	●	●	●
	100					●	●	●	●	●	●
Min. stroke (mm) *1		1									
Max. stroke (mm)		30		50		100					
Custom stroke *2		In 1 mm increments									

1: Less than 5 mm for 1-color LED switch, 2-color LED, off-delay, AC magnetic field proof, T1, T8* switches less than 10mm stroke is not available. Refer to page 66 for the min. stroke with switch.

*2: The total length when using a custom stroke is the same as that when using the next longer standard stroke.

How to order switch



How to order mounting brackets

Bore size (mm)	ø12	ø16	ø20	ø25	ø32	ø40	ø50
Mounting bracket							
Foot (LB)						SSD2-LB-40	SSD2-LB-50
Flange (FA/FB)						SSD2-FA-40	SSD2-FA-50
Clevis bracket (CB)	SSD2-CB-12	SSD2-CB-16	SSD2-CB-20	SSD2-CB-25	SSD2-CB-32	SSD2-CB-40	SSD2-CB-50
Bore size (mm)	ø63	ø80	ø100				
Mounting bracket							
Foot (LB)	SSD2-LB-63	SSD2-LB-80	SSD2-LB-100				
Flange (FA/FB)	SSD2-FA-63	SSD2-FA-80	SSD2-FA-100				
Clevis bracket (CB)	SSD2-CB-63	SSD2-CB-80	SSD2-CB-100				

*1: The foot mounting bracket is provided as 2 pcs./set.

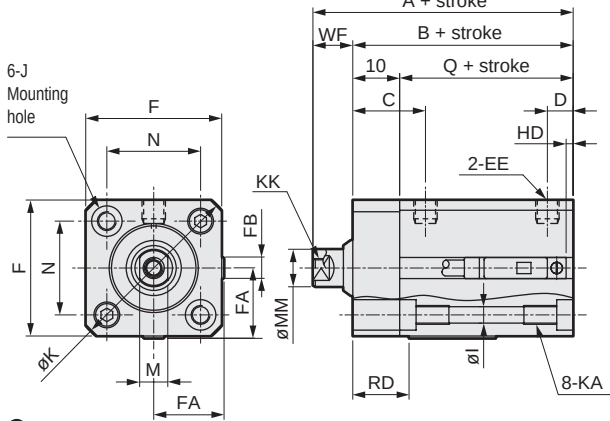
*2: The ø12 to ø32 structure does not permit retrofitting of the foot bracket (LB) or flange bracket (FA) on the rod side. Contact CKD for details.

Consumable parts list

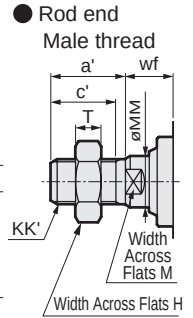
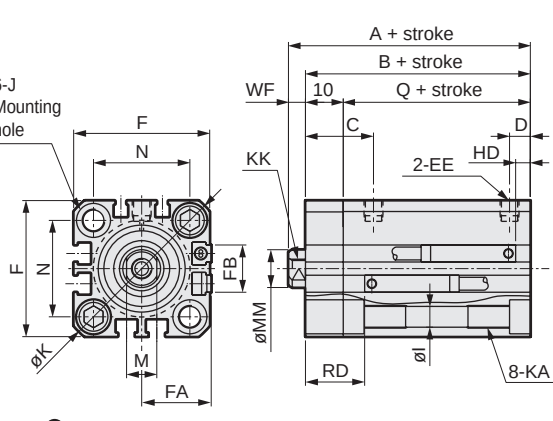
Part name	Kit No.	Part name
Bore size (mm)		
ø12	SSD2-G-12K-HP1	Scraper Rod packing Rod metal gasket Piston packing Lube keeping structure
ø16	SSD2-G-16K-HP1	
ø20	SSD2-G-20K-HP1	
ø25	SSD2-G-25K-HP1	
ø32	SSD2-G-32K-HP1	
ø40	SSD2-G-40K-HP1	
ø50	SSD2-G-50K-HP1	
ø63	SSD2-G-63K-HP1	
ø80	SSD2-G-80K-HP1	
ø100	SSD2-G-100K-HP1	

Dimensions

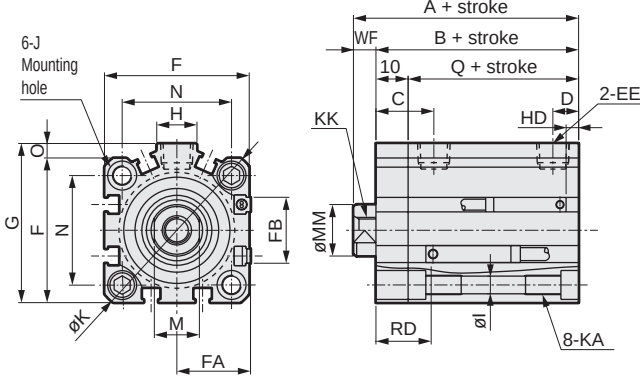
● $\phi 12/\phi 16$



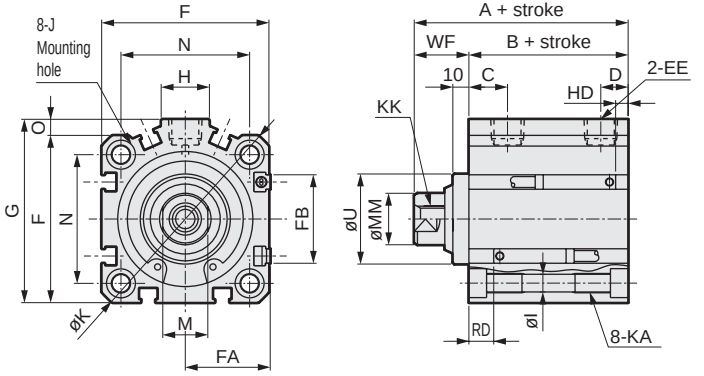
● $\phi 20/\phi 25$



● $\phi 32$



● $\phi 40$ to $\phi 100$



Code	Dimensions without switch			Common dimensions with switch															
Bore size (mm)	A ^{*1,7}	B ^{*1,7}	Q ^{*7}	A ^{*1}	B ^{*1}	Q	C	D	EE ^{*8}	F	FA ^{*4}	FB	G	H	I	J ^{*9}	K	KA	KK
$\phi 12$	35.5	27	17	40.5	32	22	15.5	5.5	M5	25	13 (16.5)	4.5	-	-	3.5	6.5 spot face depth 3.5 (13.5)	32	M4 depth 7	M3 depth 6
$\phi 16$	35.5	27	17	40.5	32	22	15.5	5.5	M5	29	15 (18.5)	4.5	-	-	3.5	6.5 spot face depth 3.5 (13.5)	38	M4 depth 7	M4 depth 8
$\phi 20$	39	29.5	19.5	49	39.5	29.5	18	5.5	M5	36	18.5 (22)	12.5	-	-	5.5	9 spot face depth 5.5 (15.5)	47	M6 depth 11	M5 depth 7
$\phi 25$	42.5	32.5	22.5	52.5	42.5	32.5	21	6	M5	40	20.5 (24)	13.5	-	-	5.5	9 spot face depth 5.5 (15.5)	51	M6 depth 11	M6 depth 12
$\phi 32$	45 (55)	33 (43)	23 (33)	55	43	33	18	8	Rc1/8	45	23 (26.5)	20.5	49.5	12.5	5.5	9 spot face depth 5.5 (15.5)	60	M6 depth 11	M8 depth 13
$\phi 40$	51.5 (61.5)	29.5 (39.5)	-	61.5	39.5	-	12	8.5	Rc1/8	52	26.5 (30)	27.5	57	15	5.5	9 spot face depth 5.5	69	M6 depth 11	M8 depth 13
$\phi 50$	53.5 (63.5)	30.5 (40.5)	-	63.5	40.5	-	10.5	10.5	Rc1/4	64	32.5 (36)	28.5	71	18	6.9	11 spot face depth 6.5	86	M8 depth 13	M10 depth 15
$\phi 63$	59 (69)	36 (46)	-	69	46	-	13	11	Rc1/4	77	39 (42.5)	28.5	84	23	8.7	14 spot face depth 9	103	M10 depth 25	M10 depth 15
$\phi 80$	68.5 (78.5)	43.5 (53.5)	-	78.5	53.5	-	16	13	Rc3/8	98	49.5 (53)	28.5	104	31	10.5	17.5 spot face depth 11	132	M12 depth 28	M16 depth 21
$\phi 100$	80 (90)	53 (63)	-	90	63	-	23	15	Rc3/8	117	59 (62.5)	28.5	123.5	38	10.5	17.5 spot face depth 11	156	M12 depth 28	M20 depth 27

Code	Common dimensions with switch						Reed T0H/T0V, T5H/T5V		Proximity T2H/T2V, T3H/T3V		Proximity T2WH/T2WV, T3WH/T3WV		Proximity F2H/F2V, F3H/F3V, F2YH/F2YV, F3YH/F3YV		Proximity F2S/F2S, F3S/F3S		Dimensions of rod end male thread part							
Bore size (mm)	M	MM	N	O	U	WF	HD	RD	HD	RD	HD	RD	HD	RD	HD	RD	a'	c'	H	KK'	M	MM	T	wf
$\phi 12$	5	6	15.5	-	-	8.5	1.5	11.5	1.5	11.5	3.5	13.5					10.5	9	8	M5	5	6	3.2	8.5
$\phi 16$	6	8	20	-	-	8.5	0	14	0	14.5	1	16					12	10	10	M6	6	8	3.6	8.5
$\phi 20$	8	10	25.5	-	-	9.5	3	17.5	3	17.5	5	19.5	7.5	22	6.5	21	14	12	13	M8	8	10	5	9.5
$\phi 25$	10	12	28	-	-	10	4	19.5	4	19.5	6	21.5	8.5	24	7.5	23	17.5	15	17	M 10 x 1.25	10	12	6	10
$\phi 32$	14	16	34	4.5	-	12	4	19.5	4	19.5	6	21.5					23.5	20.5	22	M 14 x 1.5	14	16	8	10
$\phi 40$	14	16	40	5	28	22	7	12	7	12	8.5	13.5					23.5	20.5	22	M 14 x 1.5	14	16	8	20
$\phi 50$	17	20	50	7	35	23	7.5	12.5	7.5	12.5	9	14					28.5	26	27	M 18 x 1.5	17	20	11	20
$\phi 63$	17	20	60	7	35	23	12.5	13	12.5	13	14	14.5					28.5	26	27	M 18 x 1.5	17	20	1	20
$\phi 80$	22	25	77	5	43	25	17.5	15.5	17.5	15.5	19	17					35.5	32.5	32	M 22 x 1.5	22	25	13	23
$\phi 100$	27	30	94	6.5	59	27	23	19.5	23	19.5	24.5	21					35.5	32.5	41	M 26 x 1.5	27	30	16	23

*1: To calculate A + stroke or B + stroke when using custom stroke, apply the next longer standard stroke (instead of the custom stroke) to the stroke value. (Example) If the custom stroke is 7 mm, apply the standard stroke of 10 mm.

*2: HD and RD dimensions for 5 mm stroke differ from these dimensions according to the setting.

3: Refer to "Pneumatic Cylinders I (Catalog No. CB-029SA)" for HD, RD, and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1, T8: switches.

*4: Dimensions in () of FA are for the radial lead wire type.

*5: Refer to "Pneumatic Cylinders I (No. CB-029SA)" for dimensions of individual accessories.

*6: Only F switch is available for the piping port surface of bore size $\phi 20$, 25.

*7: Dimensions in () of codes A, B and Q are for strokes of more than 50 mm.

*8: The 5 mm stroke of the $\phi 32$ without switch has a port size of M5.

*9: Dimensions in () of code J are for the rod side mounting hole.

*10: The $\phi 12$, $\phi 16$ has no switch groove on the rod end surface. Switches can be mounted only on the head side.

* Refer to Double acting/Single rod in "Pneumatic Cylinders I" (No. CB-029SA) for dimensions of each mounting type.



Compact cylinder
Double acting/Single rod/rubber scraper

Environment-resistant cylinder

SMG-G-HP1 Series

● Bore size: $\varnothing 6/\varnothing 10/\varnothing 16/\varnothing 20/\varnothing 25/\varnothing 32$

JIS symbol



Double acting



Specifications

Item	SMG-G-HP1 SMG-GL-HP1 (with switch)						
Bore size	mm	$\varnothing 6$	$\varnothing 10$	$\varnothing 16$	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressure	MPa	0.7					
Min. working pressure	MPa	0.12	0.06			0.15	
Proof pressure	MPa	1.05					
Ambient temperature	°C	-10 to 60 (no freezing)					
Port size		M5					Rc1/8
Stroke tolerance	mm	+1.5 0					
Working piston speed	mm/s	50 to 500					
Cushion		With rubber cushion					
Lubrication		Not required					
Allowable absorbed energy J		0.012	0.036	0.1	0.1	0.19	0.5

Stroke

Bore size (mm)	Standard stroke (mm)	Min. stroke (mm)
ø 6	5, 10, 15, 20, 25, 30, 40, 50, 60	5
ø10		
ø16		
ø20	5, 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100	
ø25		
ø32		

*1: The custom stroke is available in 5 mm increments. However, the total length is the same as that of the next longer standard stroke.

Min. stroke with switch

Bore size (mm)	1-color LED		2-color LED	
	K ☐ H	K ☐ V	K ☐ YH	K ☐ YV
$\varnothing 6$	5		5	
$\varnothing 10$				
$\varnothing 16$				
$\varnothing 20$				
$\varnothing 25$				
$\varnothing 32$				

How to order

Without switch (without magnet for switch)

SMG-G - 32 - 25 - HP1

With switch (built-in magnet for switch)

SMG-GL - 32 - 25 - K2H - R - HP1

A Model No.

B Bore size

C Port thread

D Stroke

E Switch model No.

! Precautions for model No. selection

***1: Refer to page 70 for min. stroke with switch.**

***2: Copper and PTFE free as standard.**

[Example of model No.]

SMG-GL-6-15-K0H-R-HP1

Model: Compact cylinder

B Bore size : $\phi 6$ mm

C Port thread : Rc thread

D Stroke : 15 mm

E Switch model No. : Reed switch K0H, lead wire length 1 m

F Switch quantity : 1 on rod side

F Switch quantity

How to order switch

SW - K2H

Switch model No.
(Item **E** above)

Code	Description
A Model No.	
SMG-G	Double acting/Single rod/rubber scraper
SMG-GL	Double acting/Single rod/rubber scraper with switch

B Bore size (mm)	
6	$\phi 6$
10	$\phi 10$
16	$\phi 16$
20	$\phi 20$
25	$\phi 25$
32	$\phi 32$

C Port thread	
Blank	Rc thread
NN	NPT thread ($\phi 32$ only) (made to order)
GN	G thread ($\phi 32$ only) (made-to-order product)

D Stroke (mm)		Applicable bore size					
		$\phi 6$	$\phi 10$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$
Standard stroke	5	●	●	●	●	●	●
	10	●	●	●	●	●	●
	15	●	●	●	●	●	●
	20	●	●	●	●	●	●
	25	●	●	●	●	●	●
	30	●	●	●	●	●	●
	40	●	●	●	●	●	●
	50	●	●	●	●	●	●
	60	●	●	●	●	●	●
	70				●	●	●
	80				●	●	●
	90				●	●	●
	100				●	●	●

E Switch model No.						
Lead wire straight	Lead wire L-shaped	Contact	Voltage		Indicator	Lead wire
Rate type			AC	DC		
K0H*	K0V*	Reed	●	●	1-color LED	2-wire
K5H*	K5V*		●	●	No LED	
K2H*	K2V*	Proximity		●	1-color LED	2-wire
K3H*	K3V*			●		3-wire
K3PH*	K3PV*			●	1-color LED (made to order)	3-wire
K2YH*	K2YV*			●	2-color LED	2-wire
K3YH*	K3YV*			●		3-wire

* Lead wire length	
Blank	1 m (standard)
3	3 m
5	5m

F Switch quantity	
R	1 on rod side
H	1 on head side
D	2

Consumable parts list (Note: Specify the kit No. when placing an order.)

Bore size (mm)	Kit No.	Part name
$\phi 6$	SMG-G-6K-HP1	Scraper, lube keeping structure, CR ring snap ring
$\phi 10$	SMG-G-10K-HP1	Rod packing, cushion rubber R, piston
$\phi 16$	SMG-G-16K-HP1	Packing, cushion rubber H, cover gasket
Bore size (mm)	Kit No.	Part name
$\phi 20$	SMG-G-20K-HP1	Scraper, lube keeping structure, rod packing,
$\phi 25$	SMG-G-25K-HP1	Cushion rubber R, piston packing,
$\phi 32$	SMG-G-32K-HP1	Cushion rubber H, cover gasket

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

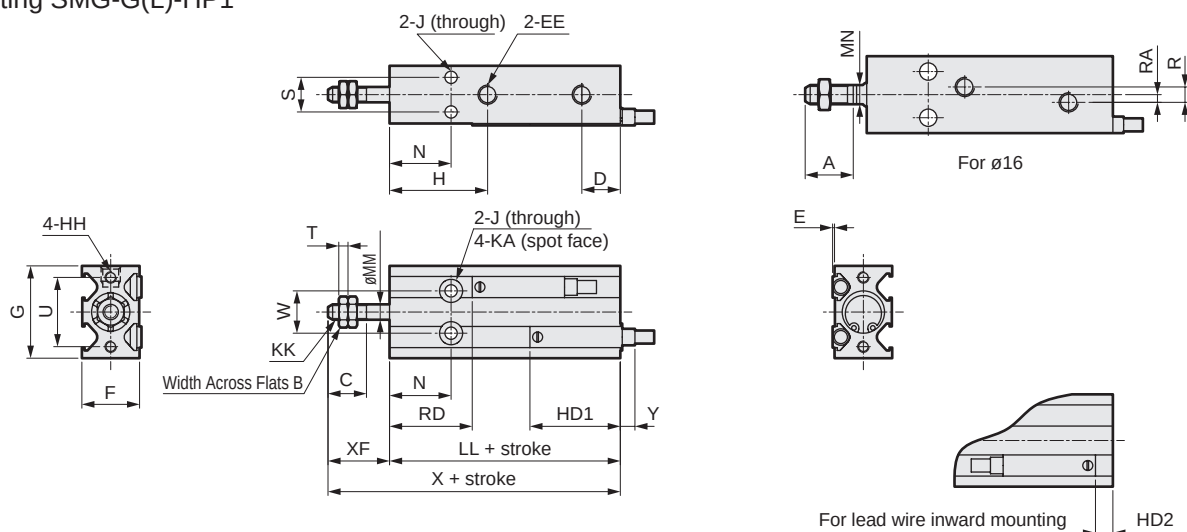
SMG-G-HP1 Series

Dimensions

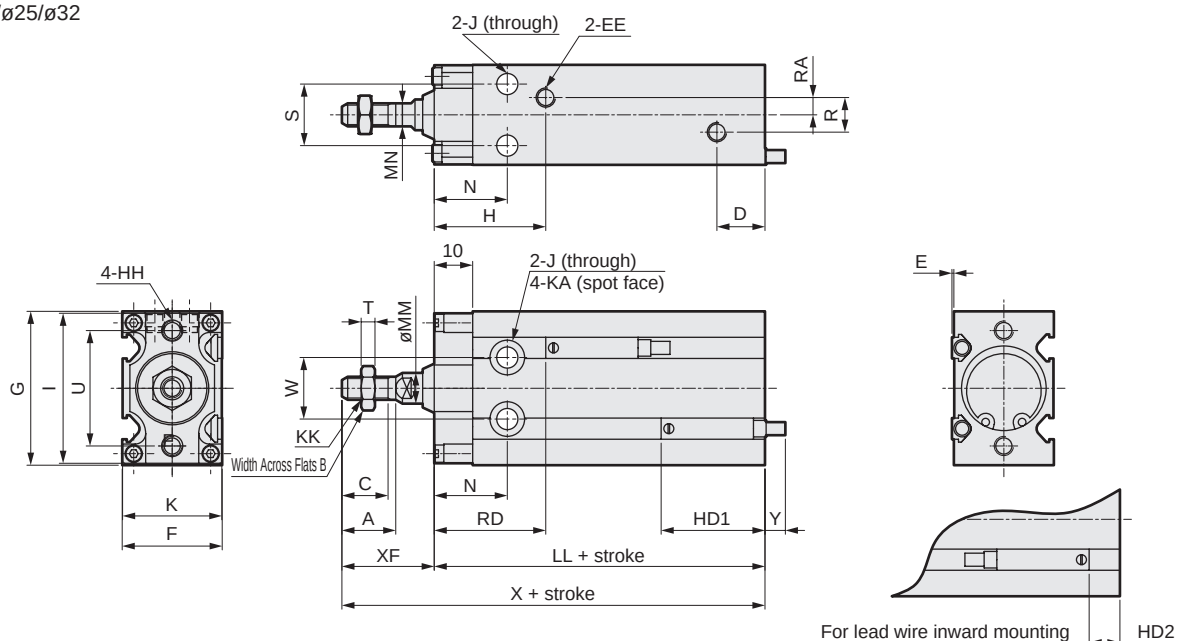


● Double acting SMG-G(L)-HP1

● $\varnothing 6/10/16$



● $\varnothing 20/\varnothing 25/\varnothing 32$



Code	A	B	C	D	EE	F	G	H	HH	I	J	K	KA	KK	MM	MN	N	R	RA	S
Bore size																				
$\varnothing 6$	-	5.5	7	10	M5	13	22	24.5	M3 depth 5	-	3.2	-	6 depth 4.8	M3	3	-	16.5	-	-	7
$\varnothing 10$	-	7	10	10	M5	15	24	26	M3 depth 5	-	3.2	-	6 depth 5	M4	4	-	16.5	-	-	9
$\varnothing 16$	12.5	8	11	11.5	M5	20	32	26 (*1)	M4 depth 6	-	4.5	-	7.5 depth 6.5	M5	6	5	16.5	4	2	12
$\varnothing 20$	14	10	12	12.5	M5	26	40	29	M5 depth 8	39	5.5	25.8	9 depth 8	M6	8	6	19	9	4.5	16
$\varnothing 25$	18	13	15.5	13	M5	32	50	31.5	M5 depth 8	49	5.5	22	9 depth 9	M8	10	8	20	9	4.5	20
$\varnothing 32$	22	17	19.5	12.5	Rc1/8	40	62	33	M6 depth 9	61	6.6	29	11 depth 11.5	M 10 x 1.25	12	10	21	13.5	4.5	24

Code	T	U	W	XF	LL		X		E	HD1	HD2	RD	Y (*2)
Bore size					Without switch	With switch	Without switch	With switch					
$\varnothing 6$	1.8	17	10	13	42.5	42.5	55.5	55.5	1	20	1	22.5	7
$\varnothing 10$	2.4	18	11	16	45.5	45.5	61.5	61.5	1	23.5	4.5	22	3.5
$\varnothing 16$	3.2	25	14	16	39.5	49.5	55.5	65.5	0.5	24.5	5.5	25	2.5
$\varnothing 20$	3.6	30	16	24	46	56	70	80	0.5	27	8	29	0
$\varnothing 25$	5	38	20	28	50	60	78	88	0.5	29	10	31	-2
$\varnothing 32$	6	48	24	32	52	62	84	94	0.5	30.5	11.5	31.5	-3.5

*1: 24 for 5 stroke without switch

*2: Y dimensions indicate the protruding dimensions from the end surface of the switch body. (Negative dimensions indicate the pull dimensions from the end surface of the body)

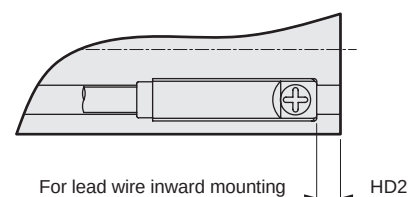
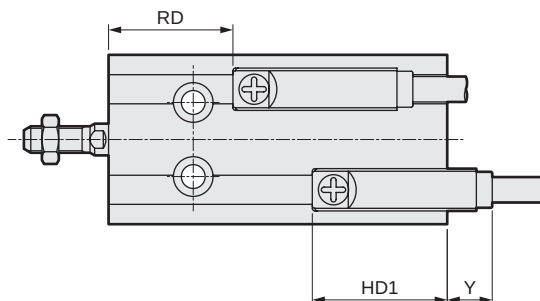
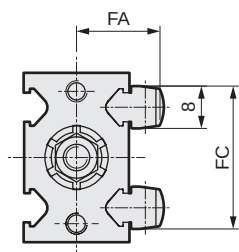
*3: To calculate LL+ stroke or X+ stroke when using custom stroke, apply the next longer standard stroke (instead of the custom stroke) to the stroke value. (Example: If the custom stroke is 35 mm, apply the standard stroke of 40 mm)

*4: Refer to page 73 for HD, RD, and protruding dimensions of 2-color LED switches.

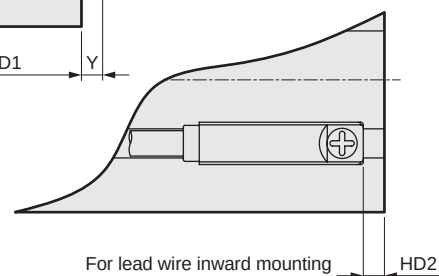
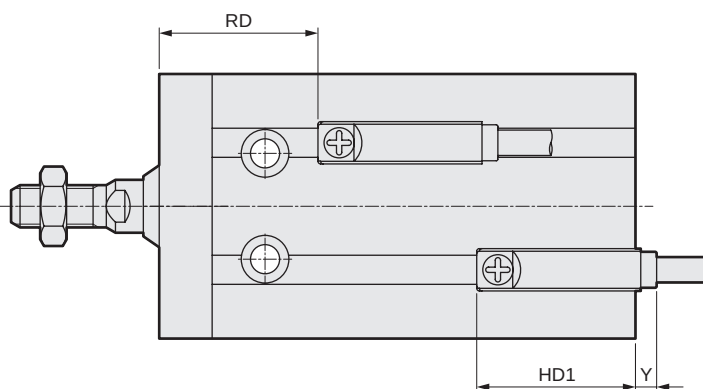
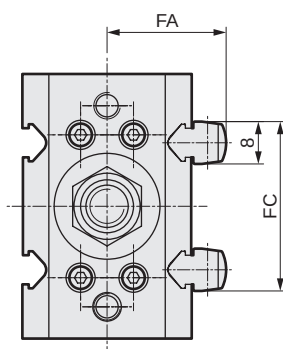
SMG-G-HP1 Series with switch common dimensions (2-color LED)

● SMG-GL-HP1 (With switch: K2Y^H/_V, K3Y^H/_V)

● ø6/10/16



● ø20/25/32



Code	FA	FC	HD1	HD2	RD	Y	
Bore size						Lead wire Straight Type	Lead wire L-type
ø6	13.5	18	21	0	21.5	13	10
ø10	14.5	21	24.5	3.5	21	9.5	6.5
ø16	16.5	27	25.5	4.5	24	8.5	5.5
ø20	19.5	29	28	7	28	6	3
ø25	22.5	32	30	9	30	4	1
ø32	26.5	34	31.5	10.5	30.5	2.5	-0.5

*1: Y dimensions indicate the protruding dimensions from the end surface of the switch body. (Negative dimensions indicate the pull dimensions from the end surface of the body)

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	Environment-resistant cylinder
STG	
STR2	
SCPD3	
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	Linear Slide Hand
STS	
STL	
LSH	
LSHL	
LSHM	
LST	
LSTM	
HMC	
CKW	Chuck
ABP2	
SCPD3	
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	Compatible with rechargeable batteries
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	
CMK2	
SCM	
SCG	
SSD2	
STG	Supports food mfg. processes

SCPDP3
CMK2
SCM
SSD2
MDC2
MSD
MSDG-L
SMG
LCR
LCG
STM
STG
STR2
SCPDP3
CMK2
SCM
SCG
SSD2
SMG
LCR
STG
STS
STL
LSH
LSHL
LSHM
LST
LSTM
HMC
CKW
ABP2
SCPDP3
CMK2
SCM
SSD2
MSD
MSDG-L
SMG
STG
STM
LCR
LCG
STR2
LSH
LSHL
SCPDP3
CMK2
SCM
SCG
SSD2
STG

Long service life cylinder

Environment-resistant cylinder

Linear Slide Hand

Low-profile long stroke hand

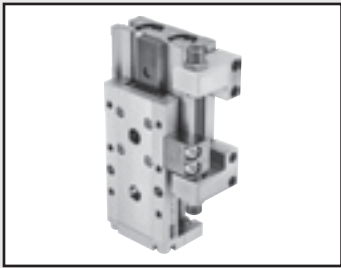
Wide-Parallel Hand

Chuck

Air Booster

Compatible with rechargeable batteries

Supports food mfg. processes



Linear slide cylinder
Double acting/Single rod/Rubber scraper

Environment-resistant cylinder

LCR-G-HP1 Series

● Bore size: $\varnothing 6/\varnothing 8/\varnothing 12/\varnothing 16/\varnothing 20/\varnothing 25$



Specifications

Item		LCR-G-HP1					
Bore size mm		ø6	ø8	ø12	ø16	ø20	ø25
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressure MPa		0.7					
Min. working pressure MPa		0.15 (*1)					
Proof pressure MPa		1.05					
Ambient temperature °C		-10 to 60 (no freezing)					
Port size	Main body side	M3	M5			Rc1/8	
	Main body back	-	M3			M5	Rc1/8
Stroke tolerance mm		+2.0 0 (*2)					
Working piston speedmm/s		50 to 500 (*3)					
Cushion		With rubber cushion					
Lubrication		Not required					

*1: 0.2 MPa when using the $\varnothing 6$ shock absorber stopper.
*2: Note that there will be a slight gap between the end plate and floating bush if no stopper is attached.
*3: Use the stroke adjusting stopper at 50 to 200 mm/s.
*4: The stroke adjusting stopper for 0.3 MPa and over working pressure is the metal sealing type.

Stroke

Bore size (mm)	Standard stroke (mm)
$\varnothing 6$	10, 20, 30, 40, 50
$\varnothing 8$	10, 20, 30, 40, 50, 75
$\varnothing 12$	10, 20, 30, 40, 50, 75, 100
$\varnothing 16$	10, 20, 30, 40, 50, 75, 100, 125
$\varnothing 20$	10, 20, 30, 40, 50, 75, 100, 125, 150
$\varnothing 25$	10, 20, 30, 40, 50, 75, 100, 125, 150

Note: Products with strokes other than the above are not available.

Allowable absorbed energy (Eo)

Bore size	Standard (J)	With stroke adjusting stopper (J)	With shock absorber stopper (J)
$\varnothing 6$	0.025	0.0032	0.14
$\varnothing 8$	0.058	0.0032	0.25
$\varnothing 12$	0.112	0.014	0.25
$\varnothing 16$	0.176	0.043	0.65
$\varnothing 20$	0.314	0.055	1.3
$\varnothing 25$	0.314	0.14	1.3

How to order

Without switch(built-in magnet for switch)

LCR-G - 8 - 40 - S506 DTN - HP1

With switch(built-in magnet for switch)

LCR-G - 12 - 40 - F2H* - R - S506 DTN - HP1

Model No.

A Tube
Bore size

B Stroke

D Switch quantity

F Option

C Switch model No.

⚠ Precautions for model No. selection

- *1: For the adjustable stroke range with a shock absorber stopper, refer to the stopper dimensions table on page 94.
- *2: For the port position, refer to the stopper dimensions on page 94.
- *3: The port position of the standard without stopper is ① and ③ position.
- *4: Refer to stoppers "C*" and "W*" for combination of the stroke adjusting stopper and shock absorber type stopper.
- *5: Can be selected for the type with stopper only.
- *6: Refer to the selection table on page 78 for combinations of options.
- *7: A1**, A2**, A5** and A6** of ø6 to ø8-10st, ø12 to ø25-20st or less cannot be adjusted with the standard stopper, so they are made to order.
- *8: Select the F/H type switch when using the type with two switches with S*** or A*** for ø6 to ø8-30st or less.
- *9: Select when using rear piping.
- *10: Can be selected only when using stroke adjusting stopper (S) and one side mixed type (C).
- *11: When using the W3 to 6 (two-sided combined stopper) with ø6 (full st) ø 8-20st to 30st, ø12-30st to 50st and ø16-30st to 50st, use a lead wire straight type when using the type with two switches or the head side.
- *12: Cannot be selected when choosing two-sided combined type (W).
- *13: The adjustable stroke range when choosing two-sided combined type (W) is ø6:9 mm, ø8:13.5 mm, ø12:14.5 mm, ø16:15 mm, ø20:13 mm, ø25:10 mm
- *14: The stroke adjusting stopper for 0.3MPa and over working pressure is the metal sealing type.
- *15: The shock absorber specs. is not dust-proof.

[Example of model No.]

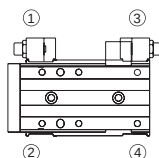
LCR-G-12-40-F2H-R-A1DT-HP1

Model: Linear slide cylinder Double acting/Single rod LCR

- A Bore size : ø12
- B Stroke : 40mm
- C Switch model No. : Proximity/2-wire
Axial lead wire
- D Switch quantity : 1 on rod side
- E Stopper : Shock absorber stopper
Stopper position ①
- F Option : With side and bottom ports
Material, steel (nitriding)

E Stopper

● Stopper position



Code	Description
A Bore size (mm)	
6	ø6
8	ø8
12	ø12
16	ø16
20	ø20
25	ø25

		Bore size (ø)					
		6	8	12	16	20	25
10	10	●	●	●	●	●	●
20	20	●	●	●	●	●	●
30	30	●	●	●	●	●	●
40	40	●	●	●	●	●	●
50	50	●	●	●	●	●	●
75	75		●	●	●	●	●
100	100			●	●	●	●
125	125				●	●	●
150	150					●	●

C Switch model No.												
Straight lead wire	L-shaped lead wire	Contact	Voltage		Indicator lamp	Lead wire	Bore size					
			AC	DC			ø6	ø8	ø12	ø16	ø20	ø25
-	F2S*	Proximity		●	1-color LED	2-wire	●	●	●			
-	F3S*			●		3-wire						
F2H*	F2V*			●		2-wire						
F3H*	F3V*			●	3-wire							
F3PH*	F3PV*			●	1-color LED (PNP output) (Made to order)	3-wire						
F2YH*	F2YV*			●	2-color	2-wire						
F3YH*	F3YV*			●	LED	3-wire						
T0H*	T0V*	Reed	●	●	1-color LED	2-wire						
T5H*	T5V*		●	●	No LED							
T2H*	T2V*			●	1-color							
T3H*	T3V*			●	LED							
T2HR3	T2VR3	Proximity		●	1-color LED Bending resistant lead wire	2-wire				●	●	●
T3PH*	T3PV*			●	1-color LED (PNP output) (Made to order)	3-wire						
T2WH*	T2WV*			●	2-color	2-wire						
T3WH*	T3WV*			●	LED	3-wire						

* Lead wire length		
Blank	1 m (standard)	●
3	3 m (option)	●
5	5 m (option)	●

D Switch quantity	
R	1 on rod side
H	1 on head side
D	2

E Stopper	
Page 76 for details on the [Stopper].	

F Option	
Blank	Port on stopper: without port
D	Port on stopper: side and bottom ports *2, *5, *12
Blank	Stopper block material: Steel
T	Stopper block material: steel (nitriding) *5

Plug included	
Blank	No
N	With side piping port plug (not available for ø6, ø25) *9

Long service life cylinder

Environment-resistant cylinder

Linear Slide Hand

Low-profile long stroke hand

Wide Parallel Hand

Chuck

Booster

Compatible with rechargeable batteries

Supports food mfg. processes

LCR-G-HP1 Series

[E Stopper]

Code	Description	Code	Description
E Stopper		C One side hybrid stopper mix (shock absorber stopper, stroke adjusting stopper)	
Blank	No option	C1**	A1+S3
S Stroke adjusting stopper		C2**	A2+S4
S1**	Stopper position① (Can be changed to ④)	C3**	A3+S1
S2**	Stopper position② (Can be changed to ③)	C4**	A4+S2
S3**	Stopper position③ (Can be changed to ②) *16		
S4**	Stopper position④ (Can be changed to ①) *16		
S5**	Stopper position①, ③		
S6**	Stopper position②, ④		
A Shock absorber stopper			
A1	Stopper position① (Can be changed to ④)		
A2	Stopper position② (Can be changed to ③)		
A3	Stopper position③ (Can be changed to ②) *16		
A4	Stopper position④ (Can be changed to ①) *16		
A5	Stopper position①, ③		
A6	Stopper position②, ④		
W Two-sided combined double stopper(Shock absorber stopper, metal stopper)			
W1	A1 + metal stopper		
W2	A2 + metal stopper		
W3	A3 + metal stopper		
W4	A4 + metal stopper		
W5	A5 + metal stopper		
W6	A6 + metal stopper		

*16:When changing the stopper position from the head side to the rod side, the stopper must be purchased separately according to the stroke and adjustable stroke. Refer to "Precautions when purchasing discrete stopper" on page 80. A1, A2 and adjustable stroke of 15mm and 25mm may not be available depending on the stroke.

Stopper model No. selection method

1 Stopper combination table

Model No.-[① Stopper type] [② Stopper position][③] Example) LCR-G-8-40-[S] [5]06-HP1

		Adjustable stroke (one side)	Shock absorber(One side)	Two-sided combined double stopper	One side hybrid stopper mix
		Stopper model No. [①]			
		[S]	[A]	[W]	[C]
Stopper position model No. [②]	[1]	[S1]	[A1]	[W1]	[C1]
	[2]	[S2]	[A2]	[W2]	[C2]
	[3]	[S3]	[A3]	[W3]	[C3]
	[4]	[S4]	[A4]	[W4]	[C4]
	[5]	[S5]	[A5]	[W5]	
	[6]	[S6]	[A6]	[W6]	

▲shows the piping direction. When choosing two-sided combined type (W), the stopper bracket comes with piping on both sides. ▲The stopper bracket on the reverse side of (piping direction) is provided with a plug.

■: Shock absorber stopper
 ■: Stroke adjusting stopper (adjusting range 5 mm)
 ■: Metal adjusting stopper (adjusting range 15 mm)

Stopper model No. selection method

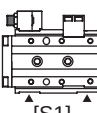
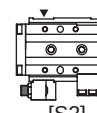
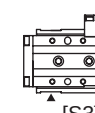
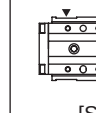
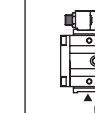
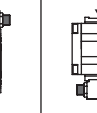
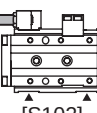
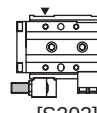
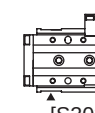
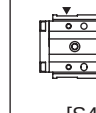
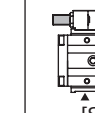
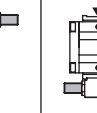
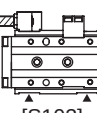
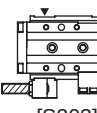
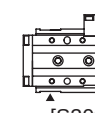
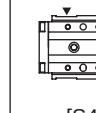
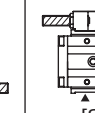
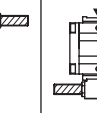
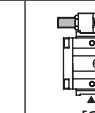
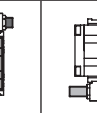
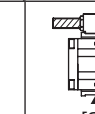
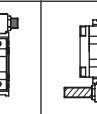
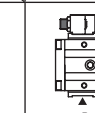
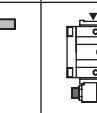
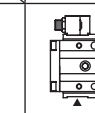
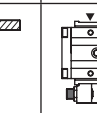
2 Stopper combination table

Model No. -[① ②Stopper type][③Adjustable stroke range]

(Example) LCR-G-8-40-S5[06]-HP1

For stroke adjusting stopper -S

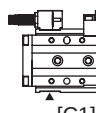
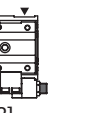
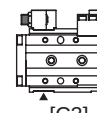
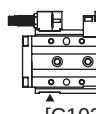
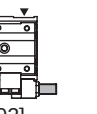
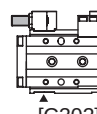
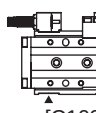
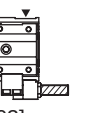
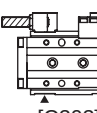
■: Stroke adjusting stopper (adjusting range 5 mm)
 ■: Stroke adjusting stopper (adjusting range 15 mm)
 ▨: Stroke adjusting stopper (adjusting range 25 mm)

		Stopper adjusting range		Stopper model No. [①②]					
		Protruding end	Return end	[S1]	[S2]	[S3]	[S4]	[S5]	[S6]
Adjustable stroke range model No. [③]	Blank	5 mm or None	5 mm or None	 [S1]	 [S2]	 [S3]	 [S4]	 [S5]	 [S6]
	[02]	15 mm or None	15 mm or None	 [S102]	 [S202]	 [S302]	 [S402]	 [S502]	 [S602]
	[03]	25 mm or None	25 mm or None	 [S103]	 [S203]	 [S303]	 [S403]	 [S503]	 [S603]
	[04]	15 mm	5 mm					 [S504]	 [S604]
	[05]	25 mm	5 mm					 [S505]	 [S605]
	[06]	5 mm	15 mm					 [S506]	 [S606]
	[07]	5 mm	25 mm					 [S507]	 [S607]

▲shows the piping direction. Shock absorber [A], Cannot be selected for two-sided combined type [W]N.

3 For one side hybrid stopper mix -C

■: Shock absorber stopper
 ■: Stroke adjusting stopper (adjusting range 5 mm)
 ■: Stroke adjusting stopper (adjusting range 15 mm)
 ▨: Stroke adjusting stopper (adjusting range 25 mm)

		Stopper adjusting range		Stopper model No. [①②]			
		Protruding end	Return end	[C1]	[C2]	[C3]	[C4]
Adjustable stroke range model No. [③]	Blank	5 mm or shock Absorber	5 mm or shock Absorber	 [C1]	 [C2]	 [C3]	 [C4]
	[02]	15 mm or shock Absorber	15 mm or shock Absorber	 [C102]	 [C202]	 [C302]	 [C402]
	[03]	25 mm or shock Absorber	25 mm or shock Absorber	 [C103]	 [C203]	 [C303]	 [C403]

▲shows the piping direction. For the adjustable stroke range with a shock absorber-type, refer to the stopper dimensions table on page 94.

SCP03	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCP03	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCP03	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCP03	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

LCR-G-HP1 Series

LCR Double acting/Single rod selection table

(Combination with stroke adjusting stopper, shock absorber stopper)

●: Available - : Not available

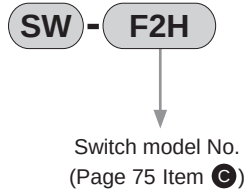
Model Model No.	Stopper type		Adjustable stroke																											
	Stopper code		S1			S2			S3			S4			S5							S6								
			Adjustment length code																											
	Bore size	Stroke	Blank	02	03	Blank	02	03	Blank	02	03	Blank	02	03	Blank	02	03	04	05	06	07	Blank	02	03	04	05	06	07		
LCR	ø6,ø8	10	●	-	-	●	-	-	●	●	-	●	●	-	●	-	-	-	-	●	-	●	-	-	-	-	●	-		
		20 or more	●	●	-	●	●	-	●	●	-	●	●	-	●	●	-	●	-	●	-	●	●	-	●	-	●	-		
	ø12 to ø25	10	●	-	-	●	-	-	●	●	-	●	●	-	●	-	-	-	-	●	-	●	-	-	-	-	●	-		
		20	●	●	-	●	●	-	●	●	●	●	●	●	●	●	-	●	-	●	●	●	●	-	●	-	●	●		
		30 or more	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		

Model Model No.	Stopper type		Shock absorber						Two-sided combined double stopper						One side hybrid stopper mix											
	Stopper code		A1	A2	A3	A4	A5	A6	W1	W2	W3	W4	W5	W6	C1			C2			C3			C4		
															Adjustment length code											
	Bore size	Stroke													Blank	02	03	Blank	02	03	Blank	02	03	Blank	02	03
LCR	ø6,ø8	10	-	-	●	●	-	-	-	-	●	●	-	-	-	-	-	-	-	-	●	-	-	●	-	-
		20 or more	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	-	●	●	-	●	●	-	●	●
	ø12 to ø25	10	-	-	●	●	-	-	-	-	●	●	-	-	-	-	-	-	-	-	●	-	-	●	-	-
		20	-	-	●	●	-	-	-	-	●	●	-	-	-	-	-	-	-	-	●	●	-	●	●	-
		30 or more	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

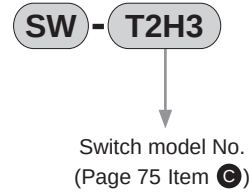
The table above also applies to a combination with option code D (with port on the stopper) or T (steel stopper block (nitriding)).

How to order switch

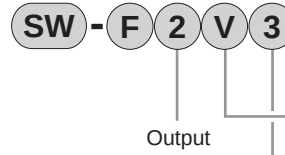
ø6 to ø12



For ø16 to ø25



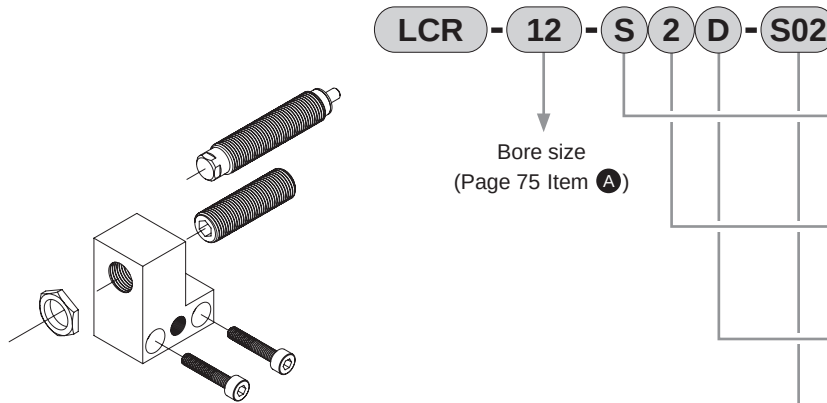
● For buffer



Output	
2	DC 2-wire proximity
3	DC 3-wire proximity
L-shaped lead wire	
Lead wire length	
Blank	1 m (standard)
3	3 m (option)

How to order a stopper set

- Set of a stopper and stroke adjusting stopper or shock absorber stopper
- Use it when changing from the standard to the stroke adjusting stopper or shock absorber stopper.



- *1: When installing in the stopper mounting position ① or ② (refer to page 27), the stroke causes changes in the adjustable stroke; see the following table.
- *2: ø6 and ø8 are not available for S03.
- *3: Cannot be selected for the shock absorber stopper "A".
- *4: The shock absorber specs. is not dust-proof.

A Stopper type	
S	Stroke adjusting stopper
A	Shock absorber stopper
B Stopper installation position *1	
1	For ① or ④ stopper position
2	For ② or ③ stopper position
C Port on the stopper	
Blank	Without port
D	With side and bottom ports
D Adjustable stroke *2, *3	
Blank	Adjustable stroke range 5 mm
S02	Adjustable stroke range 15 mm
S03	Adjustable stroke range 25 mm

Note) Bottom port is plug-sealed. ø 20. When using the bottom port with 25, buy a plug kit (LCR-20-N 2 pieces/set) and seal the side surface ports before use.

Precautions when purchasing the stopper set

∴ Not applicable

When the stopper set is installed in the mounting position ① or ② (refer to page 75), note that the adjustable stroke will be as shown on the right according to the stroke.

Model No. code	Option code		Discrete stroke adjusting stopper		
			Adjustable stroke (mm)		
LCR Series	ø6, ø8	10	S02	-	-
		20 or more	Blank	S02	-
	ø12 to ø25	10	S03	-	-
		20	S02	S03	-
		30 or more	Blank	S02	S03

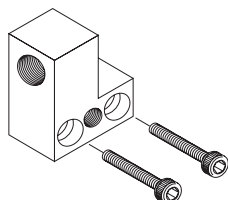
● Stopper set weight

(Unit : g)

Stopper type	S1,S2		
Port on the stopper	Blank, D		
Adjustable stroke	Blank	S02	S03
ø6	15	18	-
ø8	21	25	-
ø12	28	31	34
ø16	42	47	52
ø20	77	85	92
ø25	87	94	101

How to order discrete stopper bracket

- ☐1(☐3) ↔ ☐2(☐4) On change, Use when changing to the stopper with port.
- : SA



LCR - 12 - STB 1 D

Bore size
(Page 75 Item A)

A Stopper installation position

1	For stopper position ^b or ^d
2	For stopper position ^c or ^e

B Port on the stopper

Blank	Without port
D	With side and bottom ports

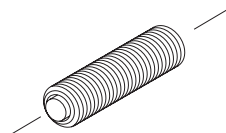
Note) Bottom port is plug-sealed. When using the bottom port with ø20 and ø25, purchase a plug kit (LCR-20-N 2 pieces/set) and seal the side surface ports before use.

- Stopper bracket weight (Unit : g)

Stopper installation position	1, 2
Port on the stopper	Blank, D
ø6	8
ø8	14
ø12	20
ø16	29
ø20	53
ø25	62

How to order discrete stroke adjusting stopper

- Hexagon socket set screw with urethane
- Use when changing the adjustable stroke range or when using a custom stroke.



LCR - 12 - S02

Bore size
(Page 75 Item A)

A Adjustable stroke range

S01	Single side 5 mm (standard)
S02	Single side 15 mm
S03	Single side 25 mm

Specify S01, S02 or S03 in A.

Note: S03 is not available for ø6, ø8. Some models may not be available and adjustable stroke range may differ from the above depending on the Model No.

Precautions when purchasing discrete stopper

When a discrete stroke adjusting stopper or a discrete shock absorber stopper is installed in the ① or ② position (refer to page 75), the combination will be as shown on the right according to the stroke and adjustable stroke.

Model No. code	Option code		Discrete stroke adjusting stopper			Discrete shock absorber stopper
			Adjustable stroke (mm)			
	Bore size	Stroke	-5	-15	-25	
LCR Series -S1, S2, S5, S6 -A1, A2, A5, A6	ø6, ø8	10	S02	-	-	-
		20 or more	S01	S02	-	A01
	ø12 and up ø25	10	S03	-	-	-
		20	S02	S03	-	-
		30 or more	S01	S02	S03	A01

- : Not available

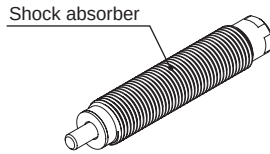
- Discrete stroke adjusting stopper weight

(Unit : g)

Adjustable stroke range	S01	S02	S03
ø6	6	9	-
ø8	7	10	-
ø12	7	11	14
ø16	11	16	22
ø20	22	30	37
ø25	23	30	37

How to order discrete shock absorber stopper

- Shock absorber set
- Use when changing from the stroke adjusting stopper to the shock absorber stopper



LCR - 12 - A01

Bore size
(Page 75 Item A)

Note: Some models may not be available depending on the specifications. Refer to page 75. For the shock absorber type stopper adjustable stroke range, refer to page 94.

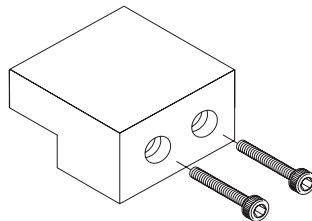
Note: The shock absorber specs. is not dust-proof.

Applicable shock absorber model No.

Model	Shock absorber model No.	Weight (g)
LCR-6	SKL-0804	9
LCR-8	SKL-0805	12
LCR-12	SKL-0805	12
LCR-16	SKL-1006	19
LCR-20	SKL-1208	31
LCR-25	SKL-1208	31

How to order discrete stopper block

- Use it when changing from the standard to the stroke adjusting stopper or shock absorber stopper.



LCR - 12 - SB1 T

Bore size
(Page 75 Item A)

A Stopper block

SBL	For ø6:30 Stroke or less For ① or ③ stopper position
SBR	For ø6:30 Stroke or less For ② or ④ stopper position
SB1	ø8: For 30 Stroke or less ø12 to ø25: For 50 Stroke or less
SB2	ø6/ø8: For 40 Stroke or more ø12 to ø25: For 75 Stroke or more

B Material

Blank	Stopper block material: Steel
T	Stopper block material: steel (nitriding)

- Discrete stopper block weight

(Unit : g)

Block	SBL/SBR/SB1(T)	SB2(T)
ø6	14	21
ø8	14	24
ø12	23	37
ø16	38	72
ø20	60	99
ø25	112	206

Model No. of plug kit for side piping port

LCR - 12 - N (2/set)

Bore size
(Page 75 Item A)

- Weight of plug kit for side piping port

Bore size	Weight (g)
ø8	1
ø12	1
ø16	1
ø20	5

LCR repair parts list

Bore size (mm)	Kit No.	Part name
ø6	LCR-G-6K-HP1	Scraper
ø8	LCR-G-8K-HP1	Lube keeping structure
ø12	LCR-G-12K-HP1	Metal gasket
ø16	LCR-G-16K-HP1	Rod packing
ø20	LCR-G-20K-HP1	Cushion rubber (R)
ø25	LCR-G-25K-HP1	Piston packing
		Cover gasket
		Cushion rubber (H)

SCP03	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCP03	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCP03	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCP03	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

LCR-G-HP1 Series

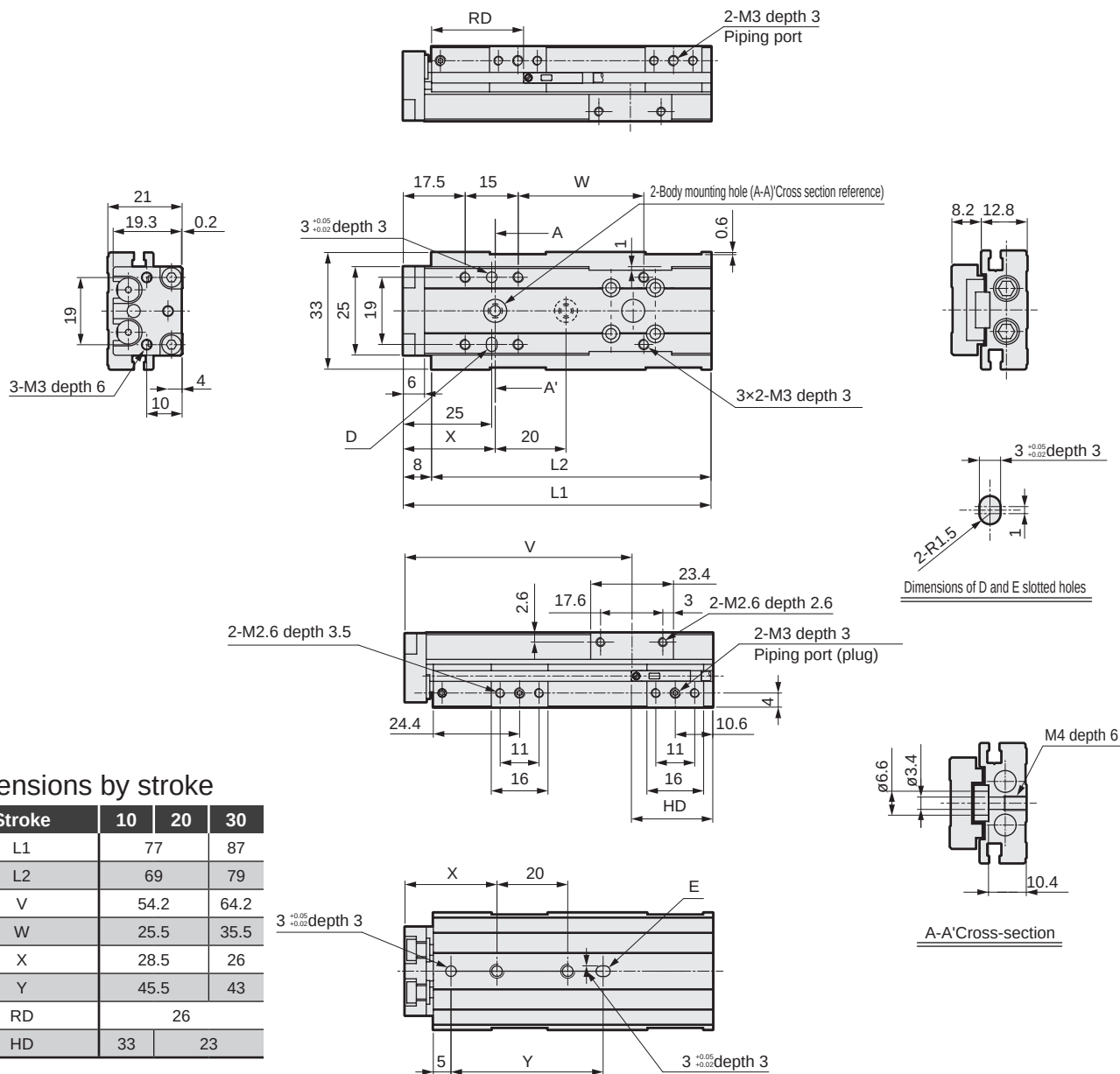


Dimensions (bore size: $\phi 6$)

● LCR-G-6-HP1

Stroke: 10, 20, 30

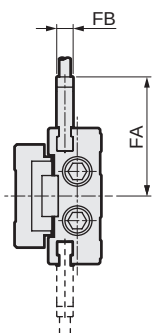
(Body mounting hole in the figure shows 30 mm stroke)



Dimensions by stroke

Stroke	10	20	30
L1	77	87	
L2	69	79	
V	54.2	64.2	
W	25.5	35.5	
X	28.5	26	
Y	45.5	43	
RD	26		
HD	33	23	

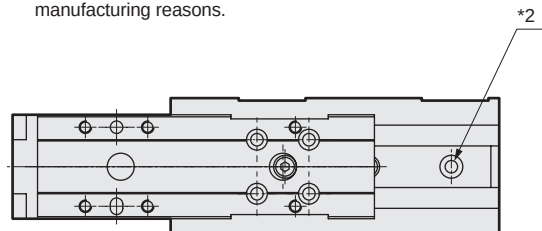
● Dimensions of protruding section when the F2S or F3S cylinder switch is mounted



Stroke	10	20	30
FA	29.1		
FB	4		
RD	25		
HD	34	24	

*1: When using the positioning hole, use a pin of dimensions that do not require press fitting. The recommended tolerance of the pin is JIS tolerance m6 or less.

*2: For 30 mm stroke, one hole is available which is not used for linear guide due to manufacturing reasons.



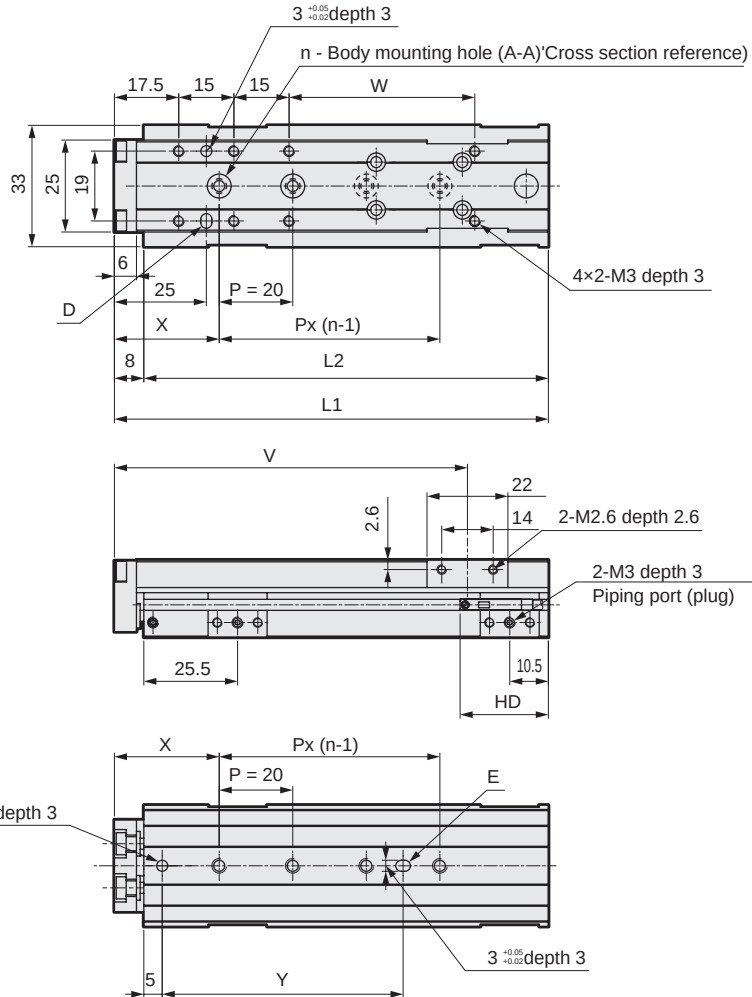
Dimensions (bore size: ø6)



● LCR-G-6-HP1

Stroke: 40, 50

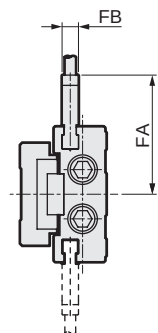
(Body mounting hole in the figure shows 50 mm stroke)



Dimensions by stroke

Stroke	40	50
L1	108	118
L2	100	110
n	3	4
V	86	96
W	40.5	50.5
X	27	28.5
Y	44	65.5
RD	26	
HD	24	

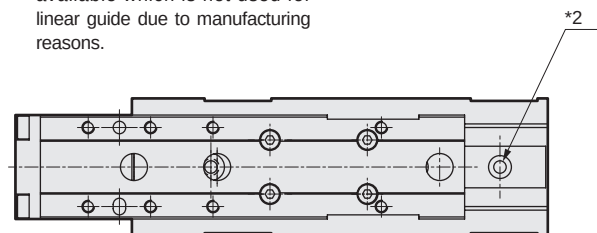
● Dimensions of protruding section when the F2S or F3S cylinder switch is mounted



Stroke	40	50
FA	29.1	
FB	4	
RD	25	
HD	25	

*1: When using the positioning hole, use a pin of dimensions that do not require press fitting. The recommended tolerance of the pin is JIS tolerance m6 or less.

*2: For 40 mm stroke, one hole is available which is not used for linear guide due to manufacturing reasons.



SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

LCR-G-HP1 Series

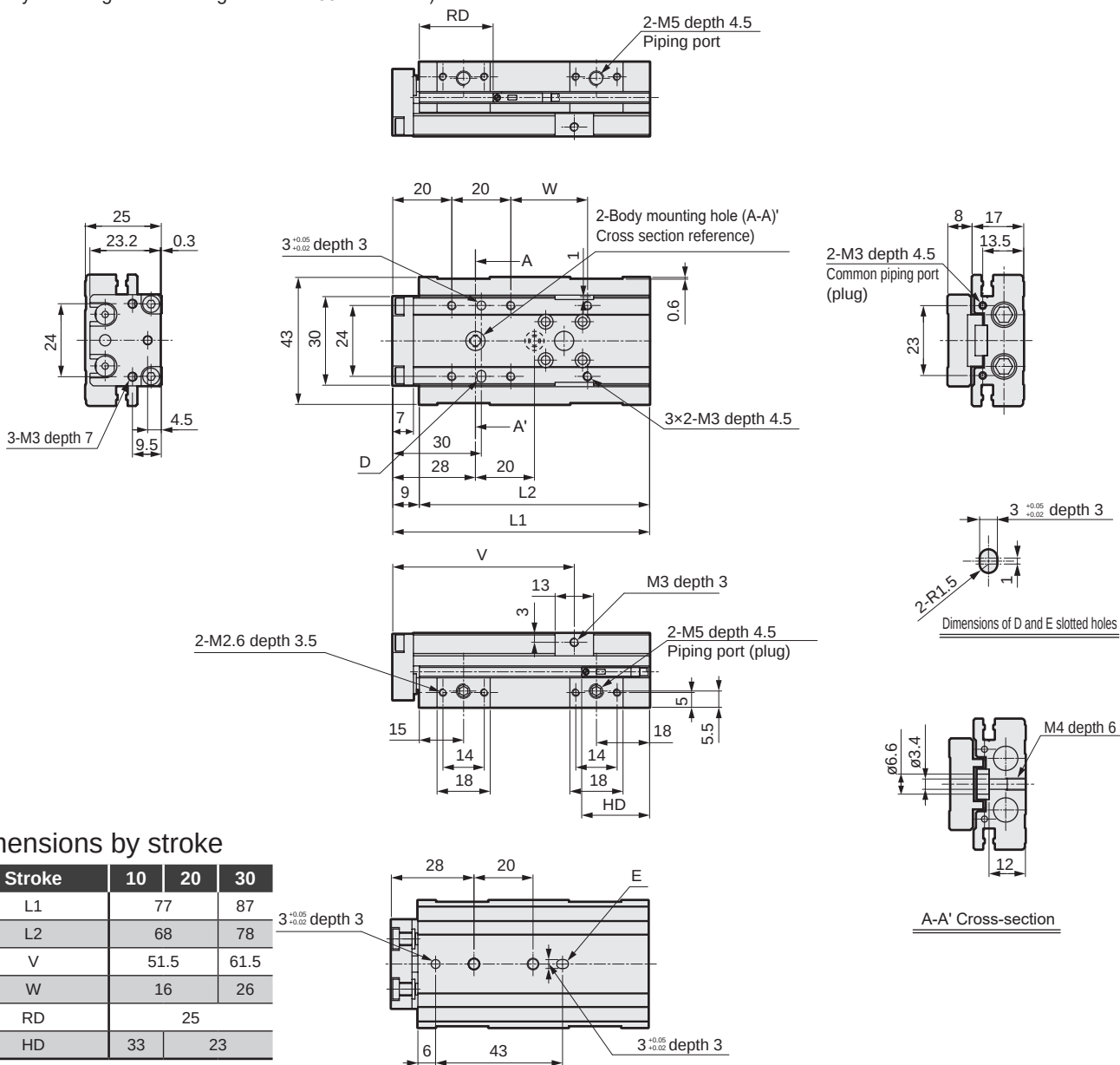


Dimensions (bore size: $\varnothing 8$)

● LCR-G-8-HP1

Stroke: 10, 20, 30

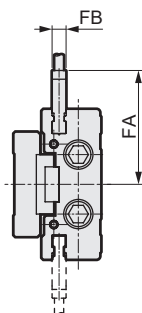
(Body mounting hole in the figure shows 30 mm stroke)



Dimensions by stroke

Stroke	10	20	30
L1	77	87	
L2	68	78	
V	51.5	61.5	
W	16	26	
RD	25		
HD	33	23	

● Dimensions of protruding section when the F2S or F3S cylinder switch is mounted

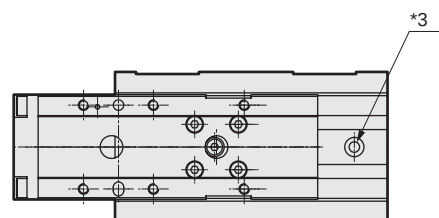


Stroke	10	20	30
FA	32.6		
FB	4		
RD	24		
HD	34	24	

*1: When using the positioning hole, use a pin of dimensions that do not require press fitting. The recommended tolerance of a pin is JIS tolerance m6 or less.

*2: When using rear piping, refer to the cautions of 1. Common; Piping in Pneumatic Cylinders II (No. CB-030SA).

*3: For 30 mm stroke, one hole is available which is not used for linear guide due to manufacturing reasons.



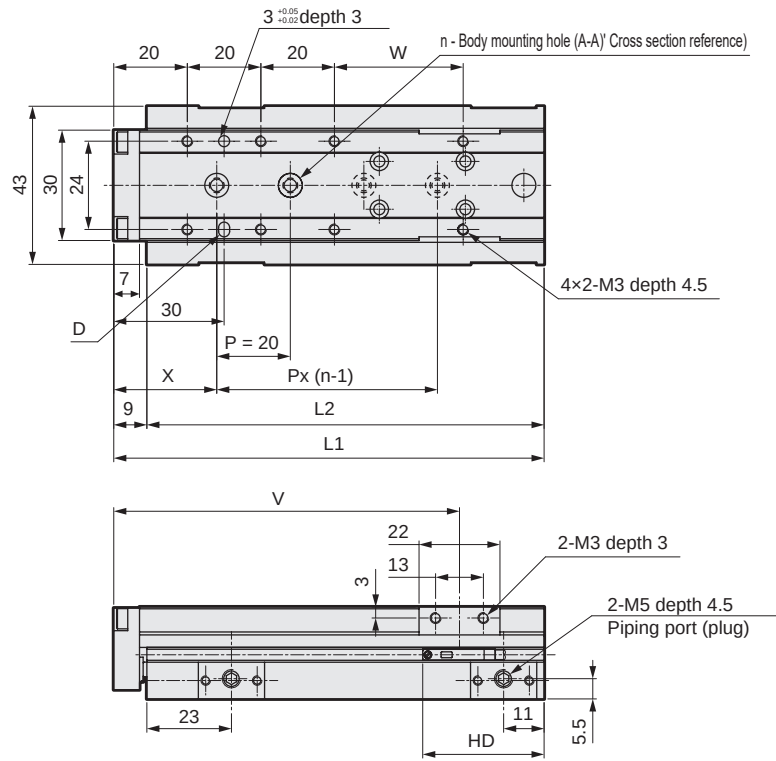
Dimensions (bore size: ø8)



● LCR-G-8-HP1

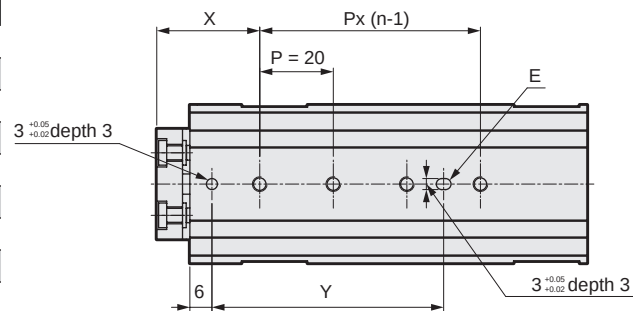
Stroke: 40, 50, 75

(Body mounting hole in the figure shows 50 mm stroke)

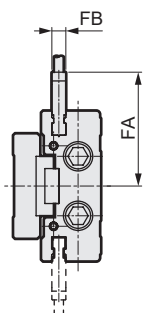


Dimensions by stroke

Stroke	40	50	75
L1	107	117	142
L2	98	108	133
n	3	4	5
V	84	94	119
W	25	35	60
X	26.5	28	25
Y	41.5	63	80
RD	25		
HD	33		



● Dimensions of protruding section when the F2S or F3S cylinder switch is mounted

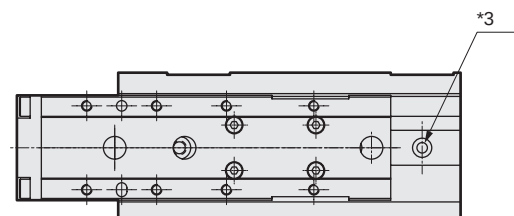


Stroke	40	50	75
FA	32.6		
FB	4		
RD	24		
HD	34		

*1: When using the positioning hole, use a pin of dimensions that do not require press fitting. The recommended tolerance of a pin is JIS tolerance m6 or less.

*2: When using rear piping, refer to the cautions of **1. Common; Piping** in **Pneumatic Cylinders II (No. CB-030SA)**.

*3: 40 and 75 mm stroke have one hole opened for manufacturing reasons not to use for linear guide.



LCR-G-HP1 Series

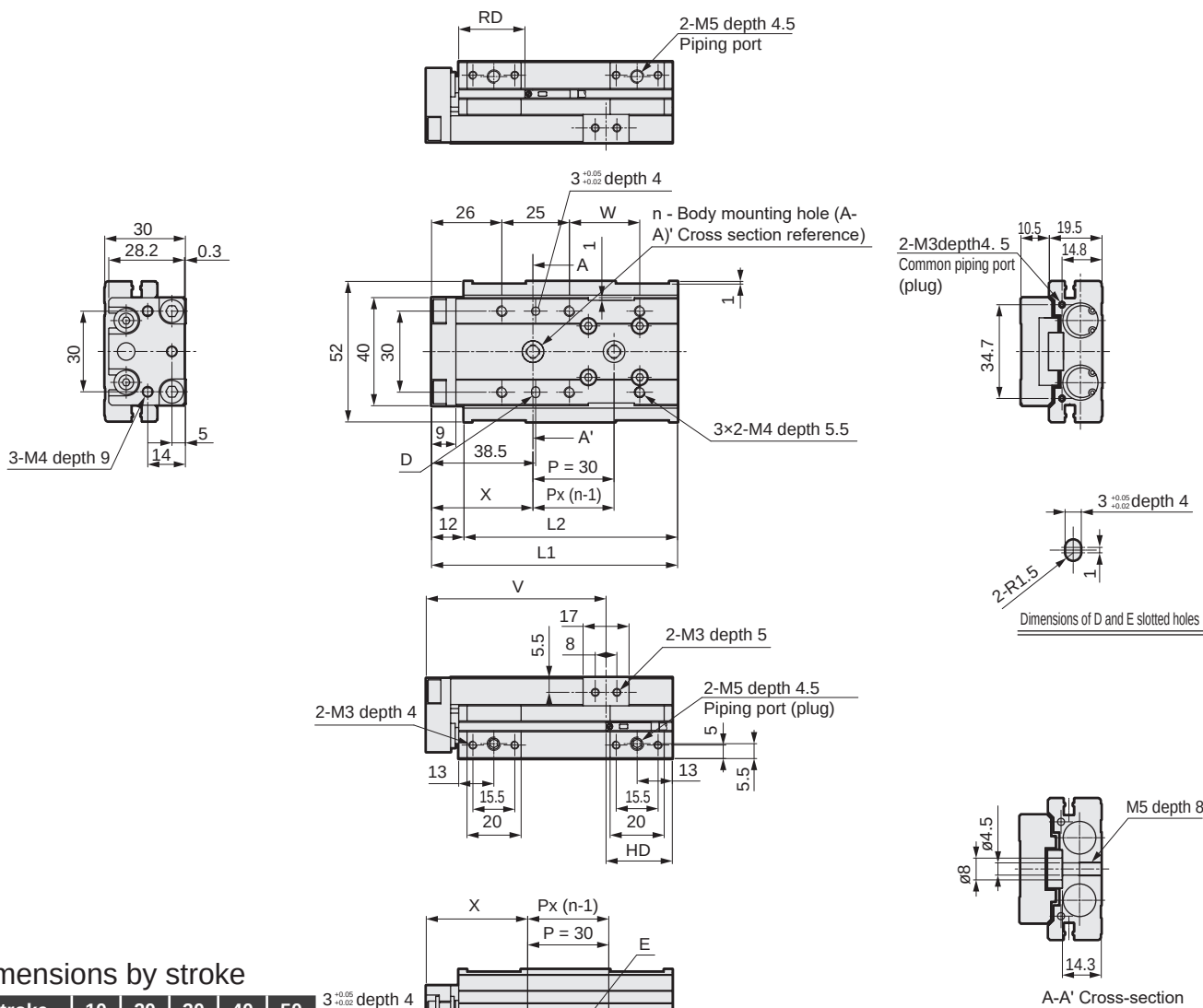


Dimensions (bore size: $\phi 12$)

● LCR-G-12-HP1

Stroke: 10, 20, 30, 40, 50

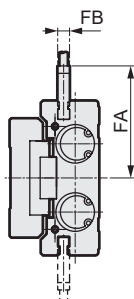
(Body mounting hole in the figure shows 30 mm stroke)



Dimensions by stroke

Stroke	10	20	30	40	50
L1		91		101	111
L2		79		89	99
n		2		3	
V		66.5		76.5	86.5
W		26		36	46
X		37.5		36	32
Y		32.5		31	57
RD		24.5			
HD	44.5	34.5		24.5	

● Dimensions of protruding section when the F2S or F3S cylinder switch is mounted



Stroke	10	20	30	40	50
FA			37.8		
FB			4		
RD			23.5		
HD	45.5	35.5		25.5	

*1: When using the positioning hole, use a pin of dimensions that do not require press fitting. The recommended tolerance of a pin is JIS tolerance m6 or less.

*2: When using rear piping, refer to the cautions of **1. Common; Piping** in Pneumatic Cylinders II (No. CB-030SA).

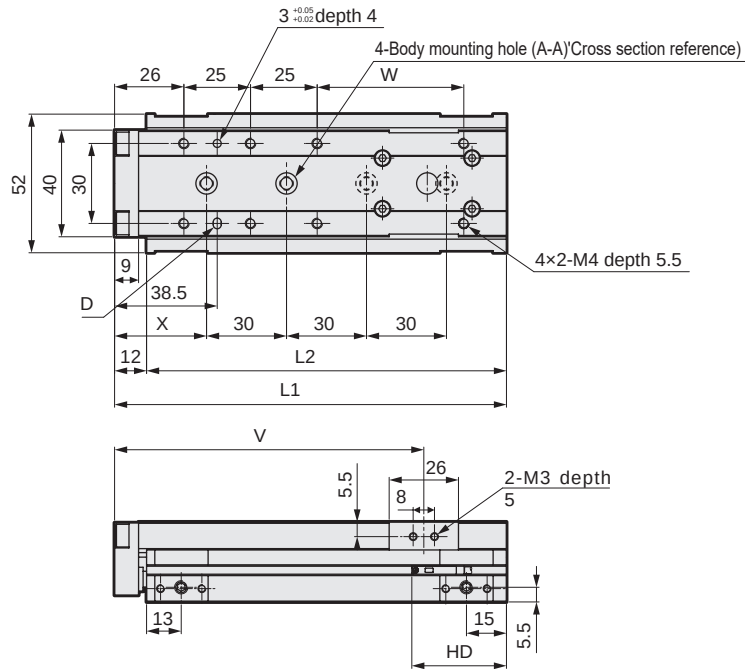
Dimensions (bore size: $\varnothing 12$)



● LCR-G-12-HP1

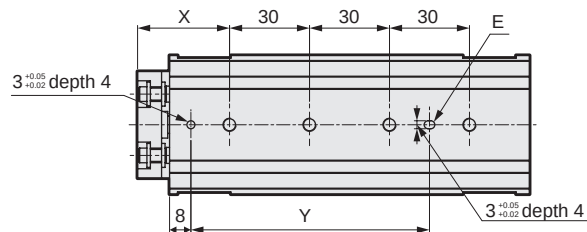
Stroke: 75, 100

(Body mounting hole in the figure shows 75 mm stroke)

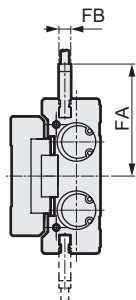


Dimensions by stroke

Stroke	75	100
L1	147	172
L2	135	160
V	116	141
W	55	80
X	34.5	47
Y	89.5	102
RD	24.5	
HD	35.5	



● Dimensions of protruding section when the F2S or F3S cylinder switch is mounted



Stroke	75	100
FA	37.8	
FB	4	
RD	23.5	
HD	36.5	

*1: When using the positioning hole, use a pin of dimensions that do not require press fitting. The recommended tolerance of a pin is JIS tolerance m6 or less.

*2: When using rear piping, refer to the cautions of **1. Common; Piping** in Pneumatic Cylinders II (No. CB-030SA).

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	Environment-resistant cylinder
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Linear Slide Hand
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	Low-profile long stroke hand
STS	
STL	
LSH	
LSHL	
LSHM	
LST	Wide Parallel Hand
LSTM	
HMC	
CKW	Chuck
ABP2	
SCPD3	
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	Compatible with rechargeable batteries
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	Supports food mfg. processes
LSHL	
SCPD3	
CMK2	
SCM	
SCG	
SSD2	
STG	

LCR-G-HP1 Series

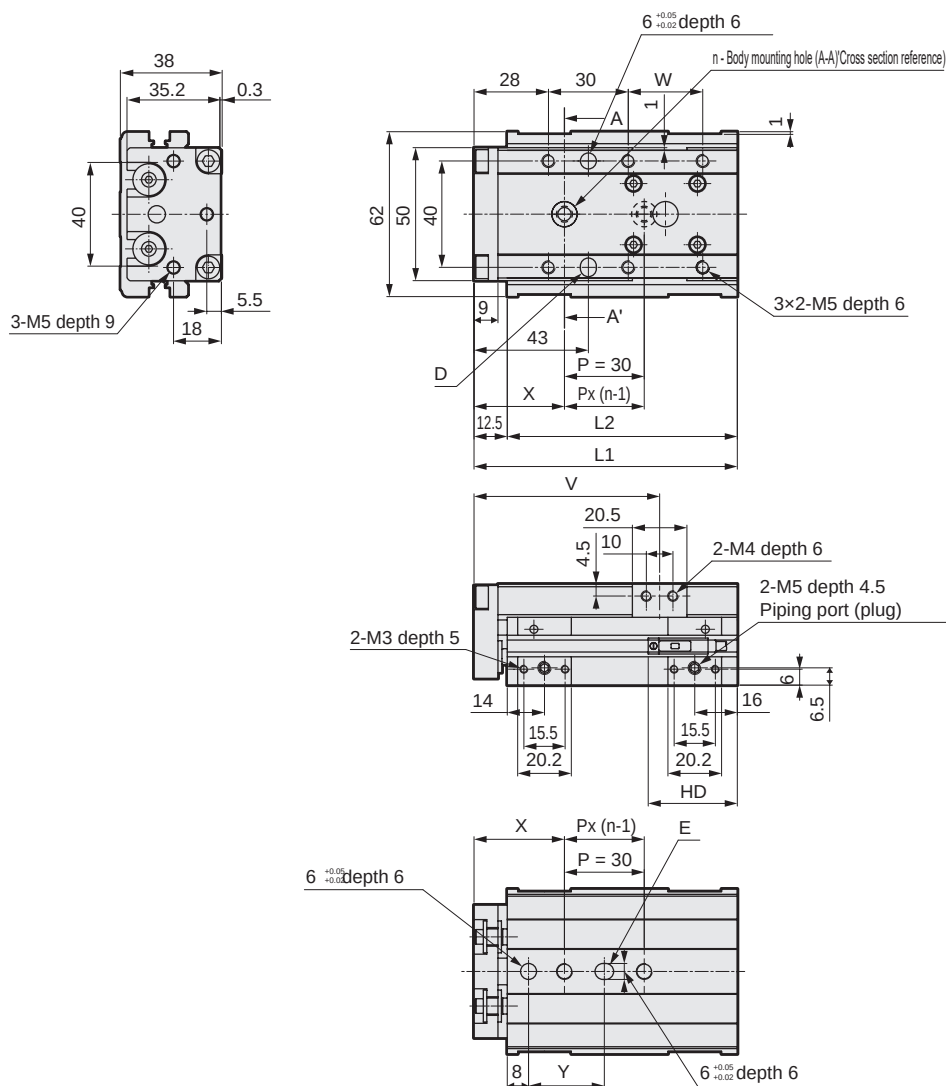
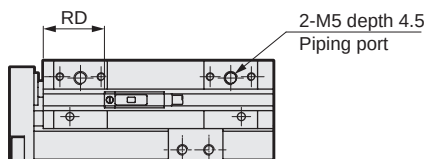


Dimensions (bore size: $\phi 16$)

● LCR-G-16-HP1

Stroke: 10, 20, 30, 40, 50

(Body mounting hole in the figure shows 30 mm stroke)



Dimensions by stroke

Stroke		10	20	30	40	50
L1		99			109	119
L2		86.5			96.5	106.5
n		2			3	
V		69.8			79.8	89.8
W		28			38	48
X		34			45.5	35.5
Y		28.5			40	60
T0/5* T2/3*	RD	23				
	HD	53.5	43.5	33.5		
T2/3W*	RD	25.5				
	HD	51	41	31		

*1: When using the positioning hole, use a pin of dimensions that do not require press fitting. The recommended tolerance of a pin is JIS tolerance m6 or less.

*2: When using rear piping, refer to the cautions of **1. Common; Piping** in Pneumatic Cylinders II (No. CB-030SA).

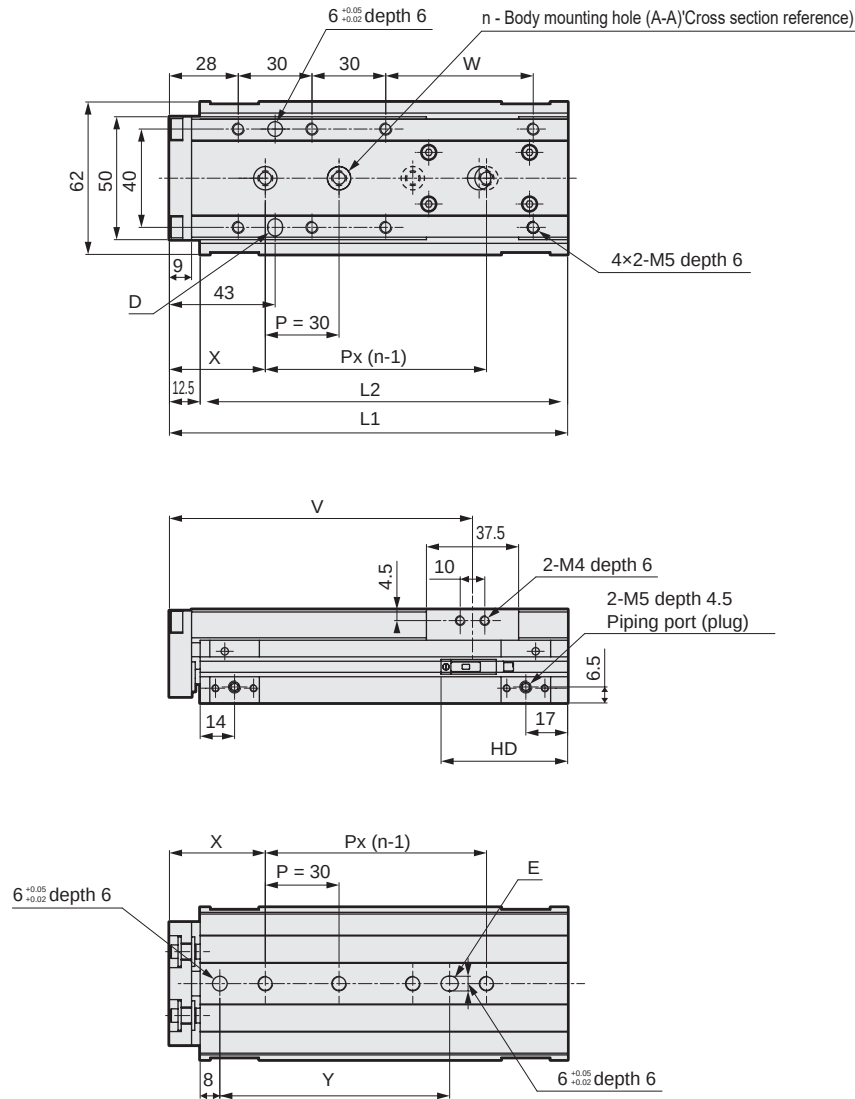
Dimensions (bore size: $\phi 16$)



● LCR-G-16-HP1

Stroke: 75, 100, 125

(Body mounting hole in the figure shows 75 mm stroke)



Dimensions by stroke

Stroke	75	100	125
L1	162	187	212
L2	149.5	174.5	199.5
n	4	5	
V	123.3	148.3	173.3
W	60	85	110
X	39	37	49
Y	93.5	121.5	133.5
T0/5*	RD	23	
T2/3*	HD	51.5	
T2/3W*	RD	25.5	
	HD	49	

*1: When using the positioning hole, use a pin of dimensions that do not require press fitting. The recommended tolerance of a pin is JIS tolerance m6 or less.

*2: When using rear piping, refer to the cautions of **1. Common; Piping** in Pneumatic Cylinders II (No. CB-030SA).

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

LCR-G-HP1 Series

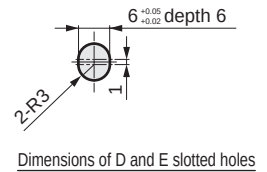
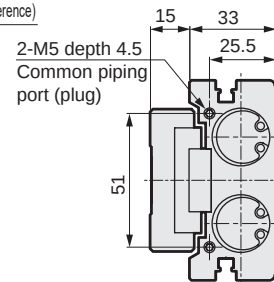
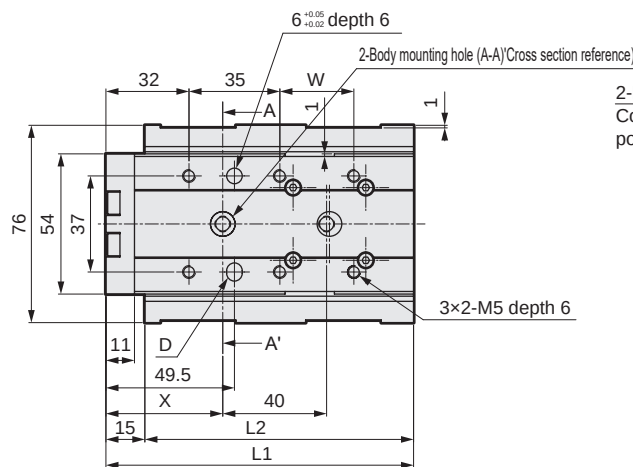
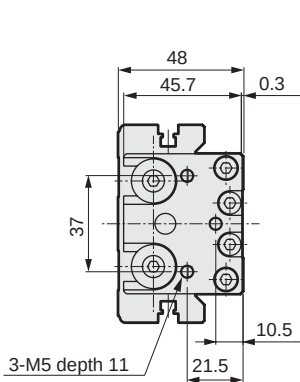
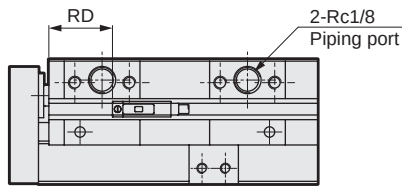


Dimensions (bore size: $\phi 20$)

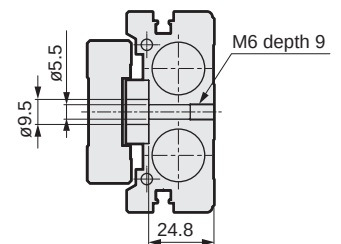
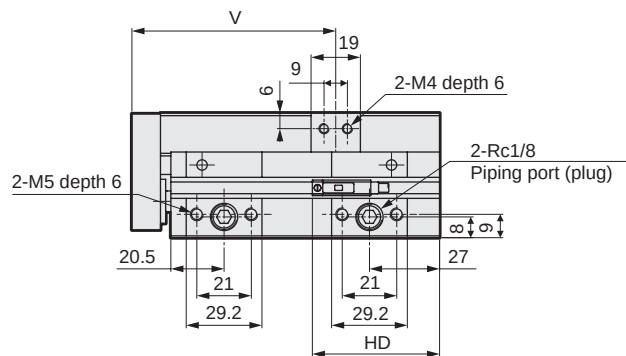
● LCR-G-20-HP1

Stroke: 10, 20, 30, 40, 50

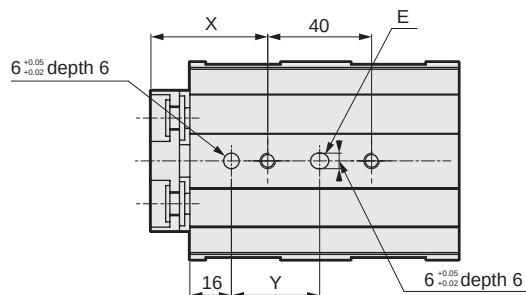
(Body mounting hole in the figure shows 30 mm stroke)



Dimensions of D and E slotted holes



A - A' Cross-section



Dimensions by stroke

Stroke		10	20	30	40	50
L1		118.5			128.5	138.5
L2		103.5			113.5	123.5
V		78.5			88.5	98.5
W		28.5			38.5	48.5
X		45			51	49
Y		34			40	38
T0/5*	RD	24.5				
T2/3*	HD	69	59	49		
T2/3W*	RD	26				
	HD	67	57	47		

*1: When using the positioning hole, use a pin of dimensions that do not require press fitting. The recommended tolerance of a pin is JIS tolerance m6 or less.

*2: When using rear piping, refer to the cautions of **1. Common; Piping** in Pneumatic Cylinders II (No. CB-030SA).

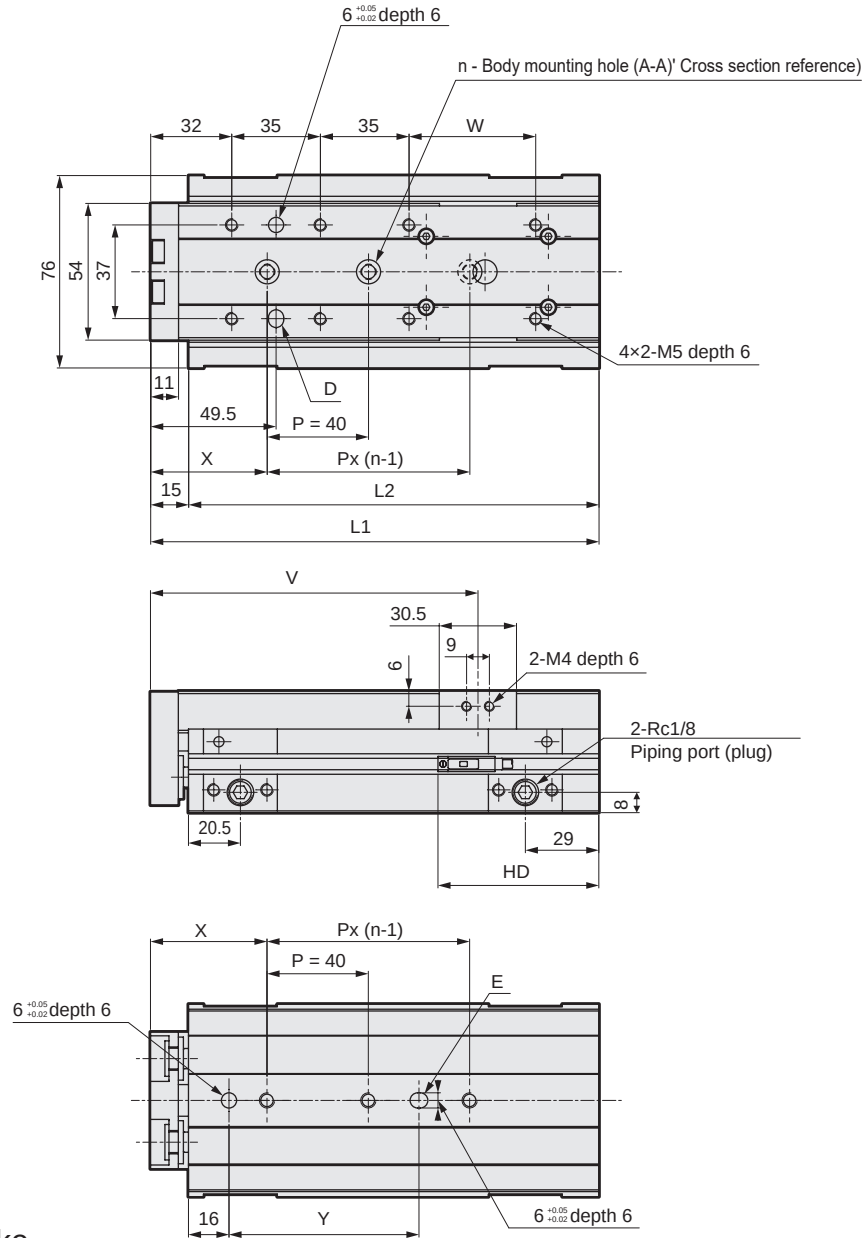
Dimensions (bore size: $\phi 20$)



● LCR-G-20-HP1

Stroke: 75, 100, 125, 150

(Body mounting hole in the figure shows 75 mm stroke)



Dimensions by stroke

Stroke	75	100	125	150
L1	177	202	227	252
L2	162	187	212	237
n	3	4	5	
V	129.3	154.3	179.3	204.3
W	50	75	100	125
X	46	53	51	
Y	75	115	122	160
T0/5*	RD	24.5		
T2/3*	HD	63.5		
T2/3W*	RD	26		
	HD	61.5		

*1: When using the positioning hole, use a pin of dimensions that do not require press fitting. The recommended tolerance of a pin is JIS tolerance m6 or less.

*2: When using rear piping, refer to the cautions of **1. Common; Piping** in Pneumatic Cylinders II (No. CB-030SA).

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

LCR-G-HP1 Series

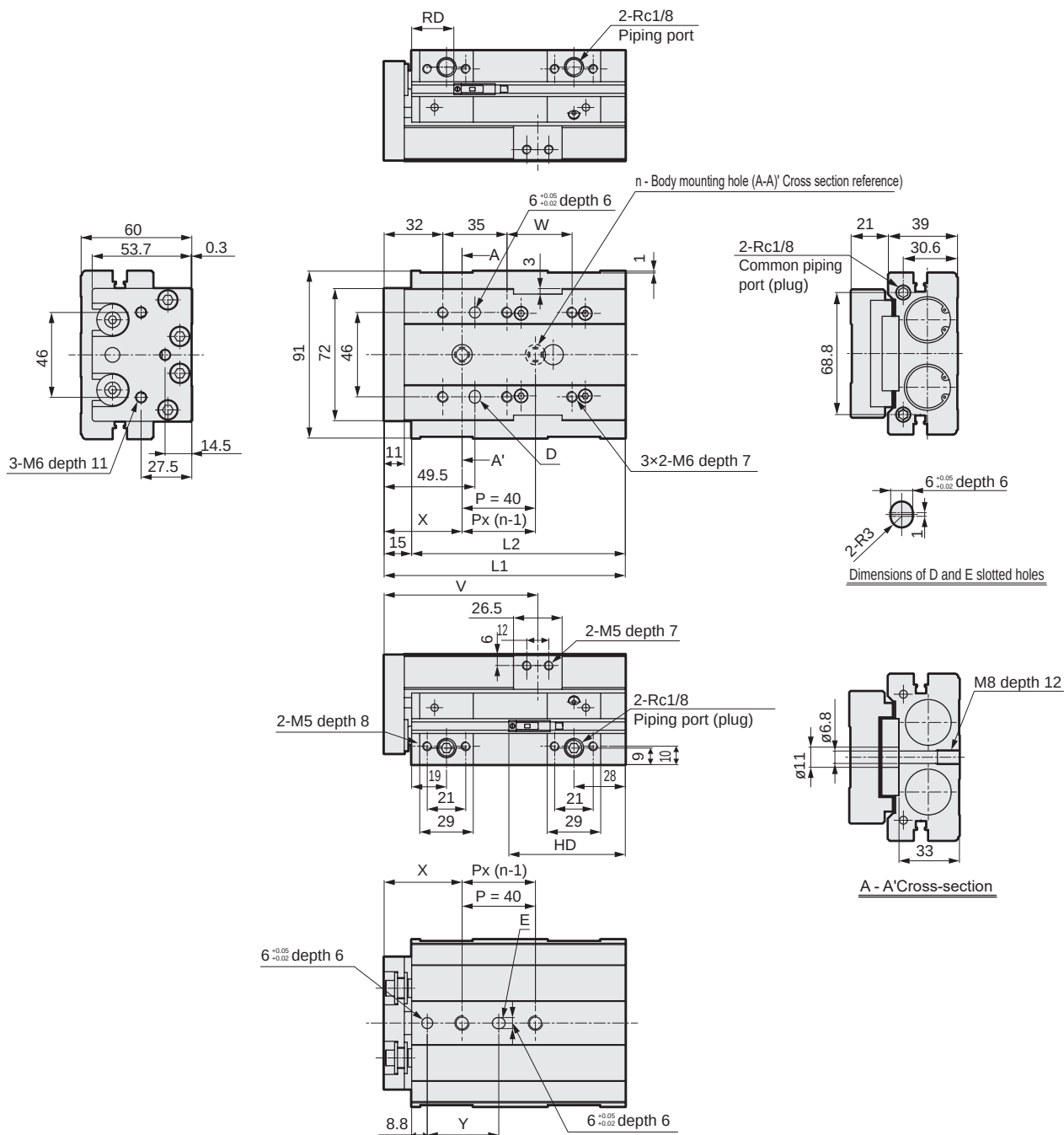


Dimensions (bore size:ø25)

● LCR-G-25-HP1

Stroke: 10, 20, 30, 40, 50

(Body mounting hole in the figure shows 30 mm stroke)



Dimensions by stroke

Stroke		10	20	30	40	50
L1		131.5			141.5	151.5
L2		116.5			126.5	136.5
n		2			3	2
V		83.8			93.8	103.8
W		35.5			45.5	55.5
X		42.5			45.5	60.5
Y		39			42	57
T0/5* T2/3*	RD	23				
	HD	83.5	73.5	63.5		
T2/3W*	RD	25				
	HD	81.5	71.5	61.5		

*1: When using the positioning hole, use a pin of dimensions that do not require press fitting. The recommended tolerance of a pin is JIS tolerance m6 or less.

*2: When using rear piping, refer to the cautions of 1. Common; Piping in Pneumatic Cylinders II (No. CB-030SA).

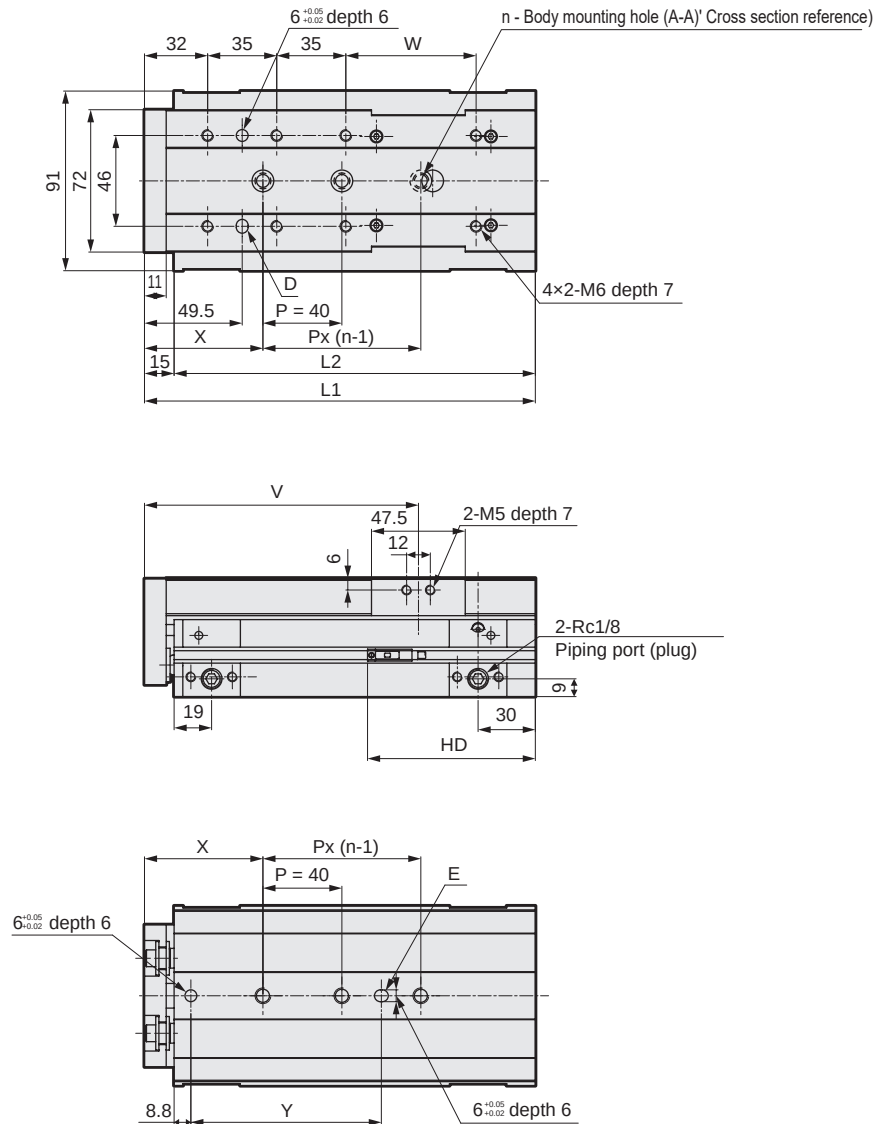
Dimensions (bore size: $\varnothing 25$)



● LCR-G-25-HP1

Stroke: 75, 100, 125, 150

(Body mounting hole in the figure shows 75 mm stroke)



Dimensions by stroke

Stroke	75	100	125	150
L1	199	224	249	274
L2	184	209	234	259
n	3	4	5	
V	138.8	163.8	188.8	213.8
W	66	91	116	141
X	60	55	45	60
Y	96.5	131.5	161.5	176.5
T0/5*	RD	23		
T2/3*	HD	86		
T2/3W*	RD	25		
	HD	84		

*1: When using the positioning hole, use a pin of dimensions that do not require press fitting. The recommended tolerance of a pin is JIS tolerance m6 or less.

*2: When using rear piping, refer to the cautions of **1. Common; Piping** in **Pneumatic Cylinders II (No. CB-030SA)**.

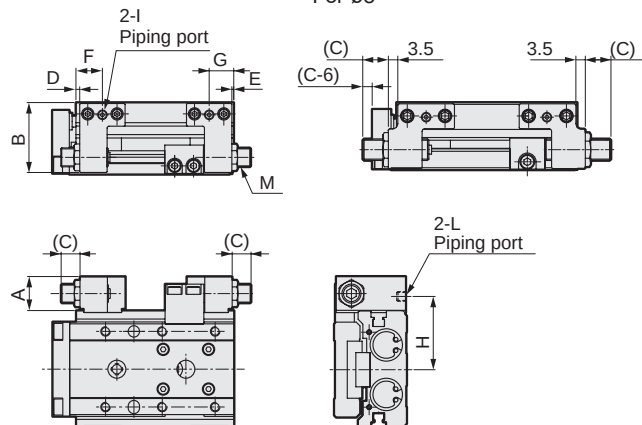
SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

LCR-G-HP1 Series

Dimensions: options

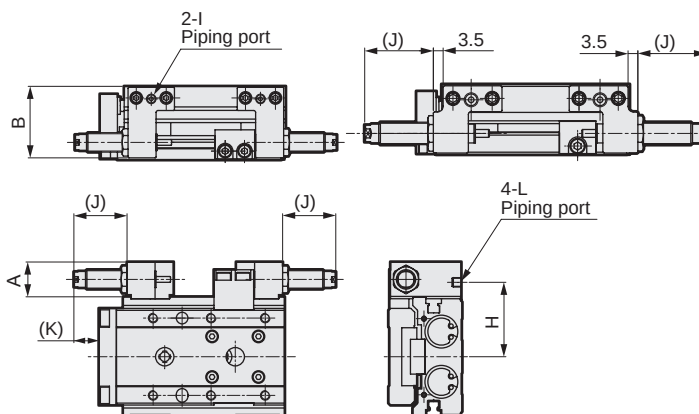
● Stroke adjusting stopper (S1 to S6)

• For ø8



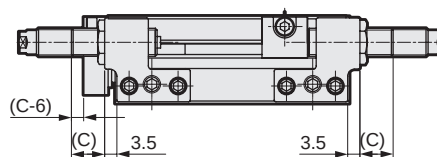
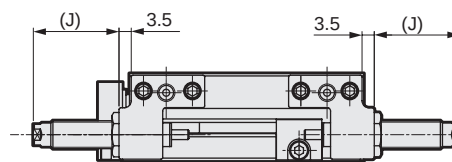
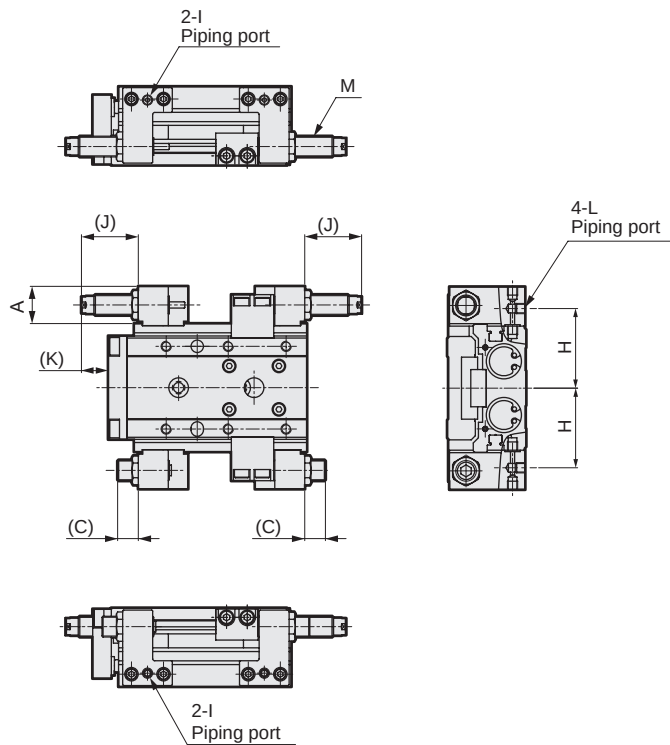
● Shock absorber stopper (A1 to A6)

• For ø8



● Two-sided combined double stopper (W1 to W6)

• For ø8



*1: F, G, H, I and L dimensions are only for the types with port on the stopper (S*D*, A*D*W*, W3** to W6**, C*D*).

2: For one side mixed type stopper mix (C), refer to the stroke adjusting stopper (S*) and shock absorber stopper (A*).

3: Dimension C is that of adjustable stroke range 15 mm for two-sided combined double stopper (W).

Code	A	B	C			D		E		F		G		H	I	J	K	L	M
Bore size (mm)			Adjustable stroke range																
			5 mm	15 mm	25 mm	Short	Long	Short	Long	Short	Long	Short	Long						
ø6	14	19.9	11	21	-	14.9	16	1.1	1	24.4	25.5	10.6	10.5	24	M3 depth 3	20.5	9	M3 depth 3	M 8 x 0.75
ø8	15.6	24.5	9.5	19.5	-	4.5	12.5	7.5	0.5	15	23	18	11	27.3	M5 depth 4	24.5	15.5	M5 depth 4	M 8 x 0.75
ø12	15.5	29	12	22	32	1	1	1	3	13	13	13	15	31	M5 depth 4	24.5	12	M5 depth 4	M 8 x 0.75
ø16	18	37	10	20	30	2	2	4	5	14	14	16	17	38.5	M5 depth 4	27.5	14	M5 depth 4	M 10 x 1
ø20	20.5	45.5	14.5	24.5	34.5	4	4	10.5	12.5	20.5	20.5	27	29	47	Rc1/8	27.5	9.5	M5 depth 4	M 12 x 1
ø25	20.5	57	11.5	21.5	31.5	2.5	2.5	11.5	12.5	19	19	28	30	54.5	Rc1/8	24.5	8	M5 depth 4	M 12 x 1

SCPD3	Long service life cylinder	Environment-resistant cylinder	Linear Slide Hand	Low-profile long stroke hand	Wide Parallel Hand	Chuck	Air Booster	Compatible with rechargeable batteries	Supports food mfg. processes
CMK2									
SCM									
SSD2									
MDC2									
MSD									
MSDG-L									
SMG									
LCR									
LCG									
STM									
STG									
STR2									
SCPDP3									
CMK2									
SCM									
SSCG									
SSD2									
SMG									
LCR									
STG									
STS									
STL									
LSH									
LSHL									
LSHM									
LST									
LSTM									
HMC									
CKW									
ABP2									
SCPDP3									
CMK2									
SCM									
SSD2									
MSD									
MSDG-L									
SMG									
STG									
STM									
LCR									
LCG									
STR2									
LSH									
LSHL									
SCPDP3									
CMK2									
SCM									
SSCG									
SSD2									
STG									

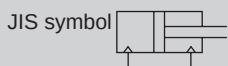


Guided cylinder Double acting/Rubber scraper

Environment-resistant cylinder

STG-M_BG-HP1 Series

● Bore size: $\phi 12/\phi 16/\phi 20/\phi 25/\phi 32/\phi 40/\phi 50/\phi 63/\phi 80/\phi 100$



Specifications

Item	STG- ^M _B G-HP1									
Bore size mm	ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation	Double acting									
Working fluid	Compressed air									
Max. working pressure MPa	1.0									
Min. working pressure MPa	0.25				0.2					
Proof pressure MPa	1.6									
Ambient temperature °C	-10 to 60 (no freezing)									
Port size	M5		Rc1/8				Rc1/4		Rc3/8	
Stroke tolerance mm	+2.0									
	0									
Working piston speedmm/s	50 to 500							50 to 300		
Cushion	With rubber cushion									
Lubrication	Not required									
Allowable absorbed energy J	0.056	0.088	0.157	0.157	0.401	0.627	0.980	1.560	2.510	3.920

Stroke

Bore size	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)	Min. stroke with switch(mm)
ø12	10/20/30/40/50/75/100	250	5	5 (10) *2
ø16	125/ 150/175/200/250			
ø20	20/30/40/50/75/100/125	400		
ø25	150/175/200/250/300/350/400			
ø32	25/50/75/100 125/150/175 200/250/300 350/400			
ø40				
ø50				
ø63				
ø80				
ø100				

*1: The custom stroke is available in 5 mm increments. However, the total length is the same as that of the next longer standard stroke.

*2: For types with one or two switches. The value in () is the min. stroke for switches of the 2-color LED and AC magnetic field proof.

How to order

Without switch (built-in magnet for switch)

STG - M G - 32 - 25 - HP1

With switch (built-in magnet for switch)

STG - M G - 32 - 25 - T2H - R - HP1

Model No.

A Bearing

B Model No.

E Stroke

C Bore size

F Switch model No.
*1 *2 *3

G Switch quantity

⚠ Precautions for model No. selection

*1: Switches other than F switch model No. are also available. (Made to order) For details, refer to "Pneumatic Cylinders II" (No. CB-030SA).

*2: T8H/V switch cannot be installed on STG-12 or 16.

*3: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

[Example of model No.]

STG-MG-40-50-T0H-H-HP1

Model: Guided cylinder, double acting/Rubber scraper

- A Bearing : Metal bush bearing
 B Model No. : Rubber scraper
 C Bore size : ø40 mm
 D Port thread : Rc thread
 E Stroke : 50mm
 F Switch model No. : Reed T0H switch, lead wire length 1 m
 G Switch quantity : 1 on head side

How to order switch

SW - T0V

F Switch model No.

E Stroke

Stroke (mm)	Applicable bore size									
	ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
10	●	●								
20	●	●	●	●						
25					●	●	●	●	●	●
30	●	●	●	●						
40	●	●	●	●						
50	●	●	●	●	●	●	●	●	●	●
75	●	●	●	●	●	●	●	●	●	●
100	●	●	●	●	●	●	●	●	●	●
125	●	●	●	●	●	●	●	●	●	●
150	●	●	●	●	●	●	●	●	●	●
175	●	●	●	●	●	●	●	●	●	●
200	●	●	●	●	●	●	●	●	●	●
250	●	●	●	●	●	●	●	●	●	●
300			●	●	●	●	●	●	●	●
350			●	●	●	●	●	●	●	●
400			●	●	●	●	●	●	●	●
Min. stroke *2	5 (10)									
Custom stroke *1	In 5 mm increments									

*1: The total dimensions are the same as the longer standard stroke.

*2: The value in () is the min. stroke for switches of the 2-color LED and AC magnetic field proof.

Code	Description					
A Bearing						
M	Metal bush bearing					
B	Ball bearing					
B Model No.						
G	Rubber scraper					
C Bore size (mm)						
12	ø12					
16	ø16					
20	ø20					
25	ø25					
32	ø32					
40	ø40					
50	ø50					
63	ø63					
80	ø80					
100	ø100					
D Port thread						
Blank	M5 (ø12 to ø16)					
	Rc thread (ø20 to ø100)					
NN	NPT thread (ø20 and over) (made to order)					
GN	G thread (ø20 and over) (made-to-order product)					
E Stroke (mm)						
Refer to the stroke table below						
F Switch model No.						
Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC DC		Indicator	Lead wire
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No LED	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*	Proximity	●		1-color LED	2-wire
T2H*	T2V*			●		
T3H*	T3V*			●	1-color LED bend resistant lead wire	3-wire
T2HR3	T2VR3			●		
T3PH*	T3PV*			●	1-color LED (made to order)	3-wire
T2WH*	T2WV*			●	2-color LED	2-wire
T3WH*	T3WV*			●		
T2YD*	-			●	2-color LED for AC magnetic field	2-wire
T2YDT*	-			●		
T2JH*	T2JV*			●	1-color LED off-delay	2-wire
* Lead wire length						
Blank	1 m (standard)					
3	3 m (option)					
5	5 m (option)					
G Switch quantity						
R	1 on rod side					
H	1 on head side					
D	2					
T	3					

Consumable parts list

(Note: Specify the kit No. when placing an order.)

● STG-MG-HP1 (rubber scraper)

Bore size (mm)	Kit No.	Part name
ø12	STG-MG-12K-HP1	Rod packing
ø16	STG-MG-16K-HP1	Metal gasket
ø20	STG-MG-20K-HP1	Cushion rubber
ø25	STG-MG-25K-HP1	Piston packing
ø32	STG-MG-32K-HP1	Cushion rubber
ø40	STG-MG-40K-HP1	Scraper (for piston rod)
ø50	STG-MG-50K-HP1	Scraper (for guide)
ø63	STG-MG-63K-HP1	Lube keeping structure (for guide)
ø80	STG-MG-80K-HP1	Lube keeping structure (for piston rod)
ø100	STG-MG-100K-HP1	

● STG-BG-HP1 (rubber scraper)

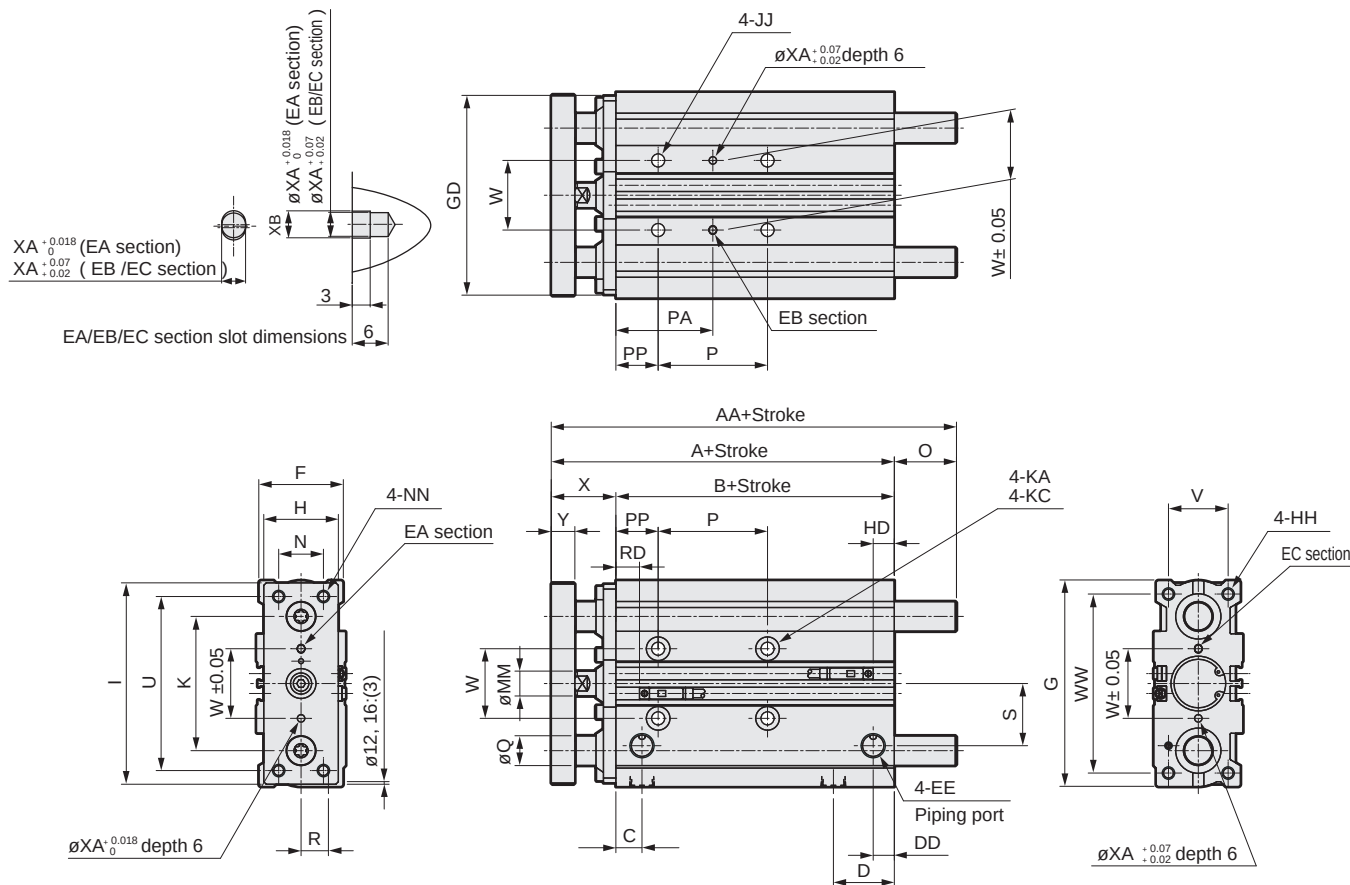
Bore size (mm)	Kit No.	Part name
ø12	STG-BG-12K-HP1	Rod packing
ø16	STG-BG-16K-HP1	Metal gasket
ø20	STG-BG-20K-HP1	Cushion rubber
ø25	STG-BG-25K-HP1	Piston packing
ø32	STG-BG-32K-HP1	Cushion rubber
ø40	STG-BG-40K-HP1	Scraper (for piston rod)
ø50	STG-BG-50K-HP1	Scraper (for guide)
ø63	STG-BG-63K-HP1	Lube keeping structure (for guide)
ø80	STG-BG-80K-HP1	Lube keeping structure (for piston rod)
ø100	STG-BG-100K-HP1	

STG-M_BG-HP1 Series



Dimensions (ø12, ø16, ø20, ø25)

● STG-M_BG-12, 16, 20, 25-HP1



● STG-M/B common

Code	Standard stroke (mm)	A	B	C	D	DD	EE	F	G	GD	H	HH	I	JJ
Bore size (mm)														
ø12	10, 20, 30, 40, 50, 75, 100	57	29	12	16	7	M5	26	58	56	22	M4 depth 10	56	M5 depth 10
ø16	125, 150, 175, 200, 250	61	33	12	18	7.5	M5	30	64	63	25	M5 depth 12	62	M5 depth 10
ø20	20, 30, 40, 50, 75, 100, 125, 150	68	37	10.5	24.5	8.5	Rc1/8	36	83	80	30	M5 depth 13	81	M6 depth 12
ø25	175, 200, 250, 300, 350, 400	68.5	37.5	11.5	25	9	Rc1/8	42	93	93	38	M6 depth 15	91	M6 depth 12

Code	K	KA	MM	N	NN	KC	P							
Bore size (mm)							30 or less	Over 30 st to 100 st	Over 100 st to 200 st	Over 200 st to 300 st	Over 300			
ø12	41	4.3 through	6	14	M4 through	7.5 spot face depth 4.5	20	40	110	200	-			
ø16	46	4.3 through	8	16	M5 through	8 spot face depth 4.5	24	44	110	200	-			
ø20	54	5.2 through	10	18	M5 through	9.5 spot face depth 5.5	24	44	120	200	300			
ø25	64	5.2 through	12	26	M6 through	9.5 spot face depth 5.5	24	44	120	200	300			

Code	PA					T0/T5/T2/T3									
Bore size (mm)	30 or less	Over 30 st to 100 st	Over 100 st to 200 st	Over 200 st to 300 st	Over 300 st	PP	R	S	U	V	W	WW	X	Y	
ø12	15	25	60	105	-	5	8	17	48	18	23	50	28 ₁₅	7.5	5
ø16	17	27	60	105	-	5	10	18	54	22	24	56	28 ₁₅	7.5	4
ø20	29	39	77	117	167	17	11	25	70	24	28	72	31	9.5	8.5
ø25	29	39	77	117	167	17	14	29	78	30	34	82	31	9.5	10

● STG-M

Code	AA			Q	O		
Bore size (mm)	50 or less	Over 50 st to 100 st	Over 100 st		50 or less	Over 50 st to 100 st	Over 100 st
ø12	57	70	100	8	0	13	43
ø16	61	78	110	10	0	17	49

Code	AA			Q	O		
Bore size (mm)	50 or less	Over 50 st to 200 st	Over 200 st		50 or less	Over 50 st to 200 st	Over 200 st
ø20	68	93	137	12	0	25	69
ø25	68.5	99	137	16	0	30.5	68.5

● STG-B

Code	AA				Q	O			
Bore size (mm)	30 or less	Over 30 st to 100 st	Over 100 st			30 or less	Over 30 st to 100 st	Over 100 st	
ø12	58	70	100	6	1	13	43		
ø16	64	80	110	8	3	19	49		

Code	AA				Q	O			
Bore size (mm)	30 or less	Over 30 st to 100 st	Over 100 st to 200 st	Over 200 st		30 or less	Over 30 st to 100 st	Over 100 st to 200 st	Over 200 st
ø20	74	93	115	137	10	6	25	47	69
ø25	80	99	118	137	13	11.5	30.5	49.5	68.5

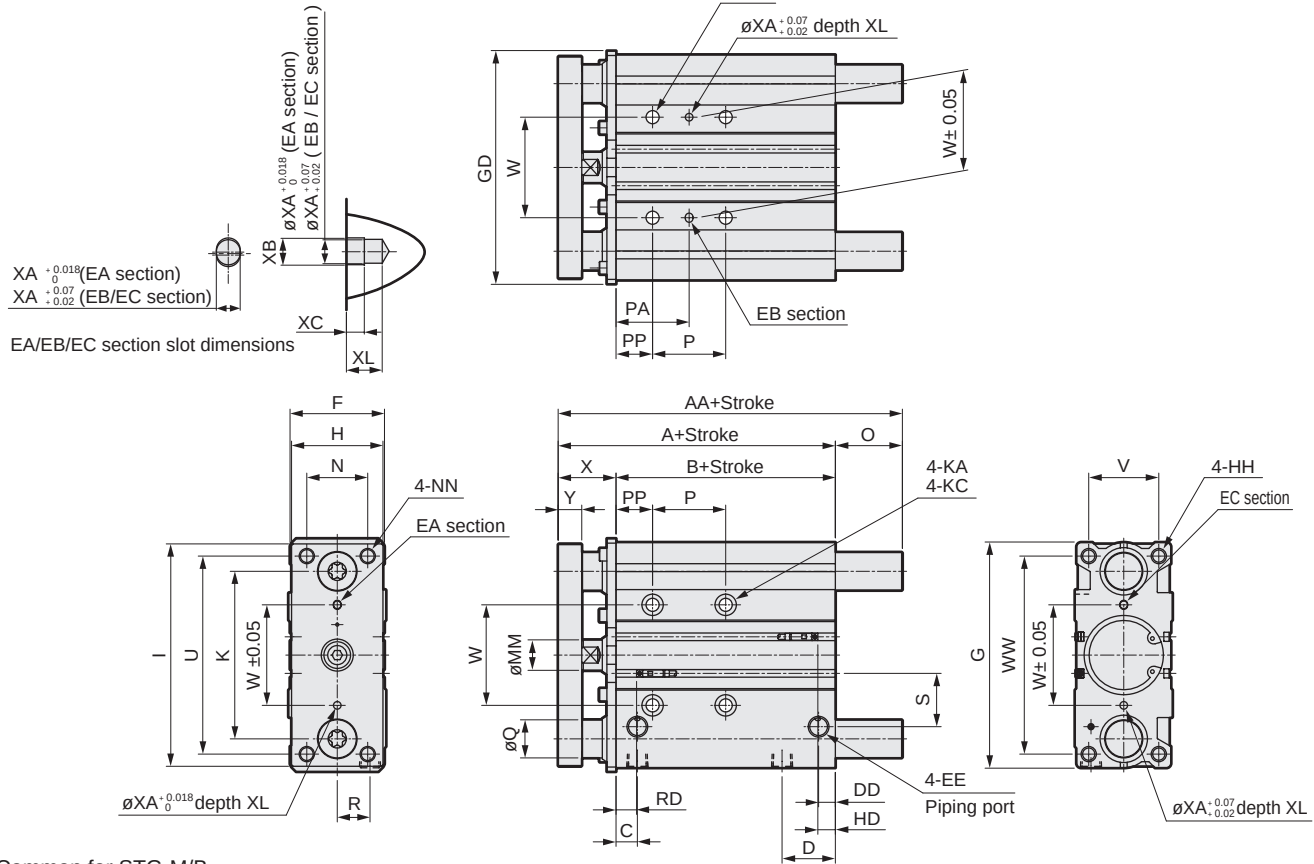
*1: When using a custom stroke, the total dimensions are the same as the longer standard stroke.

*2: Refer to "Pneumatic Cylinders II (No. CB-030SA)" for R D, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

Dimensions (ø32, ø40, ø50, ø63)



● STG-M G-32, 40, 50, 63-HP1



● Common for STG-M/B

Code	Bore size (mm)	Standard stroke(mm)	A	B	C	D	DD	EE	F	G	H	HH	I	JJ	K	KA
ø32		25, 50, 75, 100, 125,	74.5	37.5	12.5	30.5	9	Rc1/8	48	112	44	M8 depth 20	110	M8 depth 16	78	6.3 through
ø40		150, 175, 200, 250,	81	44	14	31	10	Rc1/8	54	120	44	M8 depth 20	118	M8 depth 16	86	6.3 through
ø50		300, 350, 400	87	44	14	35	11	Rc1/4	64	148	60	M10 depth 22	146	M10 depth 20	110	8.6 through
ø63			92	49	16.5	35	15	Rc1/4	78	162	70	M10 depth 22	158	M10 depth 20	124	8.6 through

Code	Bore size (mm)	KC	MM	N	NN	P					PA	
						25 or less	Over 25 st to 100 st	Over 100 st to 200 st	Over 200 st to 300 st	Over 300 st	25 or less	Over 25 st to 100 st
ø32		11 spot face depth 7.5	16	30	M8 through	24	48	124	200	300	33	45
ø40		11 spot face depth 7.5	16	30	M8 through	24	48	124	200	300	34	46
ø50		14 spot face depth 9	20	40	M10 through	24	48	124	200	300	36	48
ø63		14 spot face depth 9	20	50	M10 through	28	52	128	200	300	38	50

Code	Bore size (mm)	PA			PP	R	S	U	V	W	WW	X	Y	T0/T5/T2/T3		T2W/T3W		XA	XB	XC	XL
		Over 100 st to 200 st	Over 200 st to 300 st	Over 300 st										RD	HD	RD	HD				
ø32		83	121	171	21	15	34	96	34	42	98	37 ^{-0.02}	11.5	10	8.5	12	10.5	4	4.5	3	6
ø40		84	122	172	22	18	38	104	40	50	106	37 ^{-0.02}	11.5	13	12	15	14	4	4.5	3	6
ø50		86	124	174	24	21.5	47	130	46	66	130	43 ^{-0.02}	15.5	13.5	11.5	15.5	13.5	5	6	4	8
ø63		88	124	174	24	28	55	130	58	80	142	43 ^{-0.02}	15.5	14	16	16	18	5	6	4	8

● STG-M

Code	Bore size (mm)	AA			Q	GD	O		
		50 or less	Over 50 st to 200 st	Over 200 st			50 or less	Over 50 st to 200 st	Over 200 st
ø32		94	115	155	20	113	19.5	40.5	80.5
ø40		94	115	155	20	121	13	34	74
ø50		106	131	176	25	153	19	44	89
ø63		106	131	176	25	166	14	39	84

● STG-B

Code	Bore size (mm)	AA				Q	GD	O			
		50 or less	Over 50 st to 100 st	Over 100 st to 200 st	Over 200 st			50 or less	Over 50 st to 100 st	Over 100 st to 200 st	Over 200 st
ø32		94	113	133	155	16	113	19.5	38.5	58.5	80.5
ø40		94	113	133	155	16	118	13	32	52	74
ø50		106	129	149	176	20	146	19	42	62	89
ø63		106	129	149	176	20	160	14	37	57	84

*1: When using a custom stroke, the total dimensions are the same as the longer standard stroke.

*2: Refer to "Pneumatic Cylinders II (No. CB-030SA)" for RD, HD and protruding dimensions of the 2-color LED (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

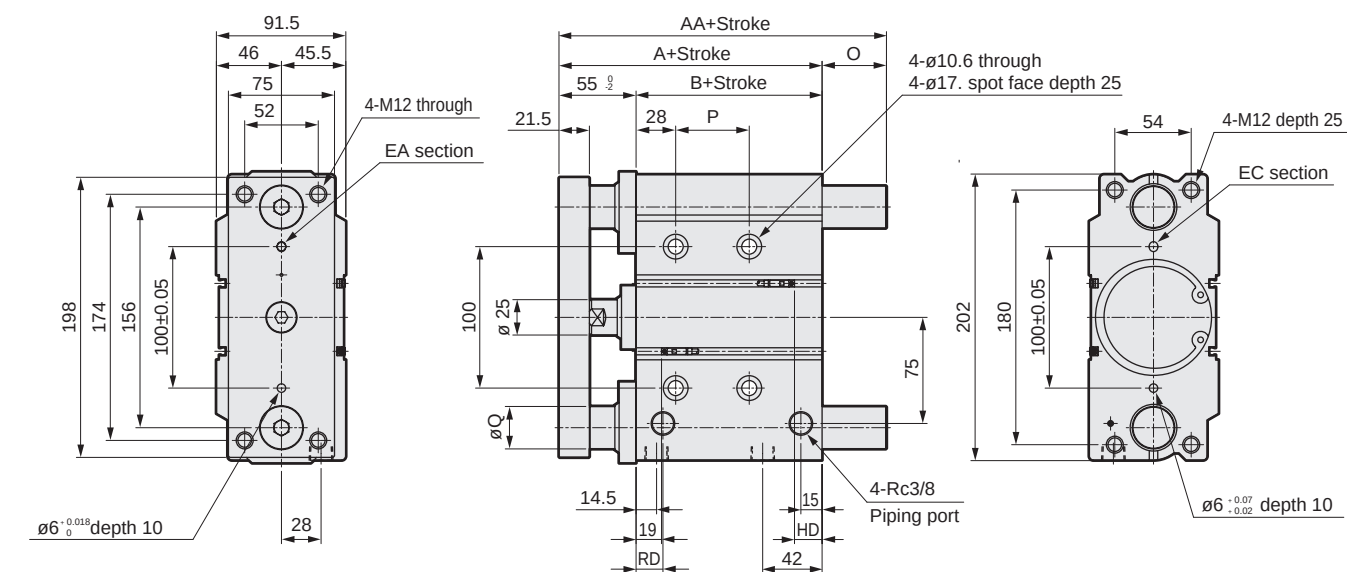
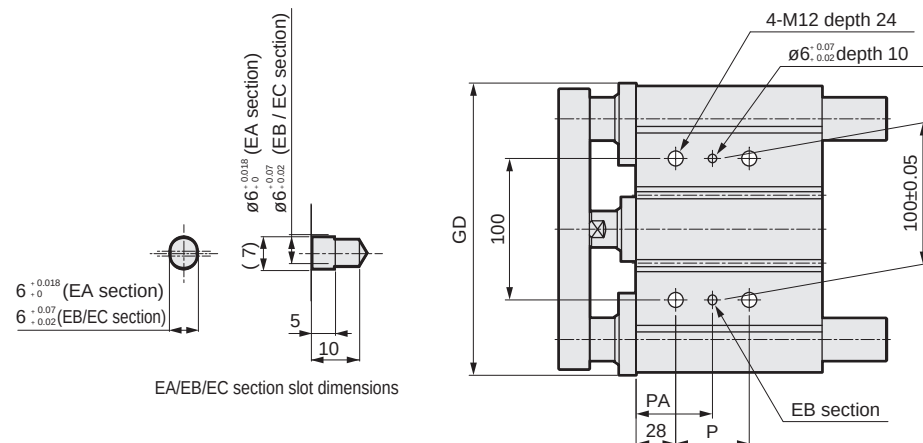
SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

STG-M_BG-HP1 Series



Dimensions (ø80)

● STG-M_BG-80-HP1



● STG-M/B common

Standard stroke	A	B	GD	P					PA					T0/T5/T2/T3		T2W/T3W	
				25 st or less	Over 25 st to 100 st	Over 100 st to 200 st	Over 200 st to 300 st	Over 300 st	25 st or less	Over 25 st to 100st	Over 100 st to 200 st	Over 200 st to 300st	Over 300 st	RD	HD	RD	HD
25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400	111.5	56.5	206	28	52	128	200	300	42	54	92	128	178	18	19.5	20	21.5

● STG-M

AA			Q	O		
50 st or less	Over 50 st to 200 st	Over 200 st		50 st or less	Over 50 st to 200 st	Over 200 st
130	157	208	30	18.5	45.5	96.5

● STG-B

AA				Q	O			
25 st or less	Over 25 st to 50 st	Over 50 st to 200 st	Over 200 st		25 st or less	Over 25 st to 50 st	Over 50 st to 200 st	Over 200 st
124.5	145	175	208	25	13	33.5	63.5	96.5

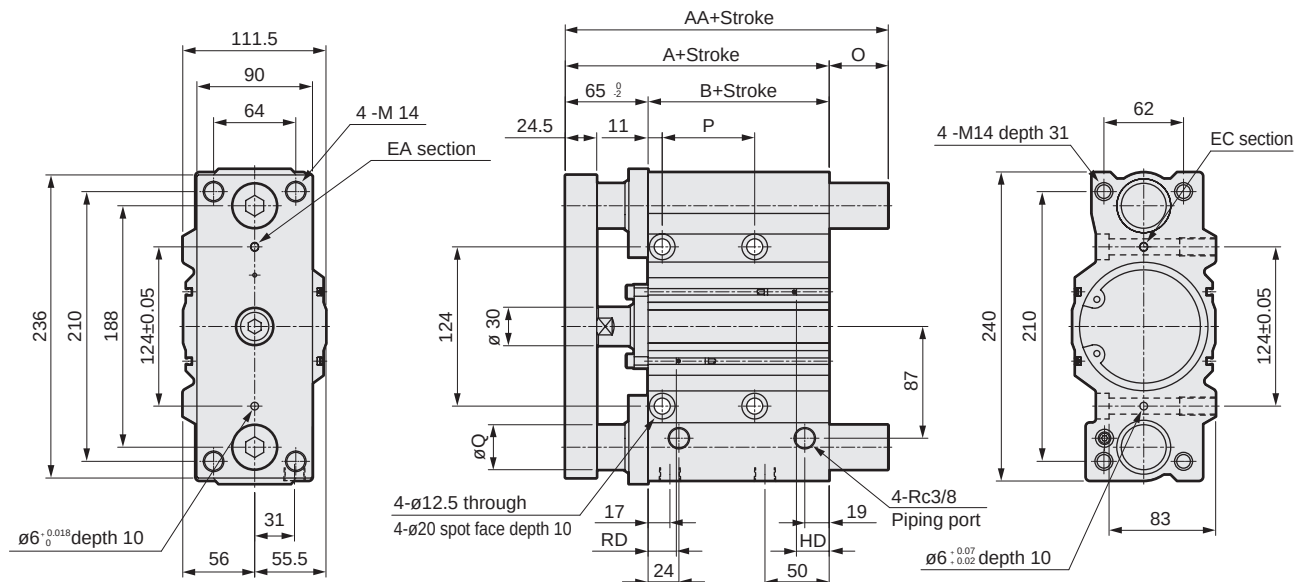
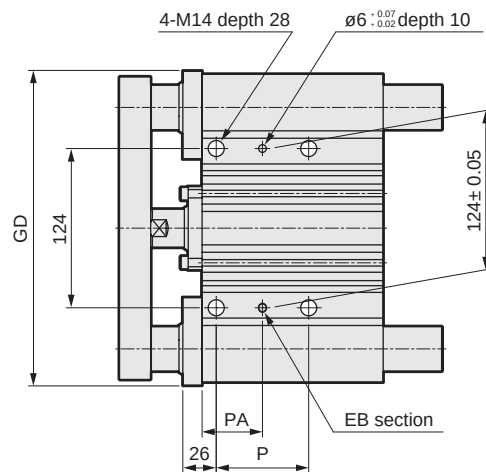
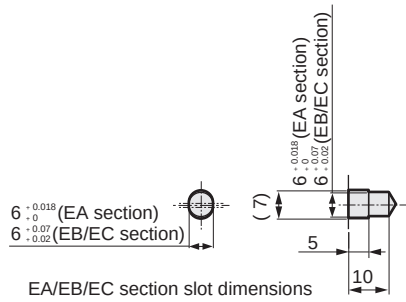
*1: When using a custom stroke, the total dimensions are the same as the longer standard stroke.

*2: Refer to "Pneumatic Cylinders II (No. CB-030SA)" for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

Dimensions (ø100)



● STG-^M_BG-100-HP1



● Common for STG-M/B

Standard stroke	A	B	P					PA					T0/T5/T2/T3		T2W/T3W	
			25 st or less	Over 25 st to 100 st	Over 100 st to 200 st	Over 200 st to 300 st	Over 300 st	25 st or less	Over 25 st to 100 st	Over 100 st to 200 st	Over 200 st to 300 st	Over 300 st	RD	HD	RD	HD
25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400	131	66	48	72	148	220	320	35	47	85	121	171	22	25.5	24	27.5

● STG-M

AA			Q	GD	O		
50 st or less	Over 50 st to 200 st	Over 200 st			50 st or less	Over 50 st to 200 st	Over 200 st
152	177	218	35	245	21	46	87

● STG-B

AA				Q	GD	O			
25 st or less	Over 25 st to 50 st	Over 50 st to 200 st	Over 200 st			25 st or less	Over 25 st to 50st	Over 50 st to 200 st	Over 200 s
136	162	195	218	30	240	5	31	64	87

*1: When using a custom stroke, the total dimensions are the same as the longer standard stroke.

SCP3	Long service life cylinder	Environment-resistant cylinder	Linear Slide Hand	Low-profile long stroke hand	Wide Parallel Hand	Chuck	Air Booster	Compatible with rechargeable batteries	SCP3																						
CMK2									CMK2																						
SCM									SCM																						
SSD2									SSD2																						
MDC2									MSD																						
MSD									MSDG-L																						
SMG									SMG																						
LCR									LCR																						
LCG									STG																						
STM									STR2																						
STG	STS	STL	LSH	LSHL	LSHM	LST	LSTM	HMC	CKW	ABP2	SCP3	CMK2	SCM	SSD2	MSD	MSDG-L	SMG	STG	STM	LCR	LCG	STR2	LSH	LSHL	SCP3	CMK2	SCM	SCG	SSD2	STG	Supports food mfg. processes

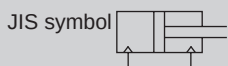


Guided cylinder Double acting/Rubber scraper

Environment-resistant cylinder

STS/STL-^M_B G-HP1 Series

● Bore size: $\varnothing 8/\varnothing 12/\varnothing 16/\varnothing 20/\varnothing 25/\varnothing 32/\varnothing 40/\varnothing 50/\varnothing 63/\varnothing 80/\varnothing 100$



Specifications

Item	STS- ^M _B G-HP1 STL- ^M _B G-HP1											
Bore size mm	ø8	ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100	
Actuation	Double acting											
Working fluid	Compressed air											
Max. working pressureMPa	1.0											
Min. working pressureMPa	0.25						0.2					
Proof pressure MPa	1.6											
Ambient temperature °C	-10 to 60 (no freezing)											
Port size	M5						Rc1/8		Rc1/4		Rc3/8	
Stroke tolerance mm	+2.0											
	0											
UsagePistonSpeed mm/s	50 to 500								50 to 300			
Cushion	With rubber cushion											
Lubrication	Not required											
Allowable absorbed energy J	0.029	0.056	0.088	0.157	0.157	0.401	0.627	0.980	1.560	2.510	3.920	

Stroke

• Short stroke STS

Bore size	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)	With switch, min. stroke(mm)
ø8	10, 20, 30 40, 50	50	5	5 With one switch or two switches.
ø12				
ø16				
ø20	25, 50			
ø25				
ø32				
ø40				
ø50				
ø63				
ø80	25, 50, 75, 100			
ø100				

• Long stroke STL

Bore size	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)	With switch, min. stroke (mm)
$\varnothing 8$	50, 75, 100	200	50	50 With one switch or two switches.
$\varnothing 12$	125, 150			
$\varnothing 16$	175, 200			
$\varnothing 20$	50, 75, 100 125, 150, 175 200, 225, 250 275, 300, 325 350, 375, 400	400	30	30 With one switch or two switches.
$\varnothing 25$				
$\varnothing 32$				
$\varnothing 40$				
$\varnothing 50$				
$\varnothing 63$				
$\varnothing 80$	75, 100, 125, 150, 175 200, 225, 250, 275, 300 325, 350, 375, 400		55	55 With one switch or two switches.
$\varnothing 100$	75, 100, 125, 150, 175, 200			

Note: The custom stroke is available in 5 mm increments. However, the total length is the same as that of the next longer standard stroke.

How to order

● Short stroke

Without switch (built-in magnet for switch)

STS - M G - 20 - 25 - F - HP1

With switch (built-in magnet for switch)

STS - M G - 20 - 25 - T2H - R - F - HP1

● Long stroke

Without switch (built-in magnet for switch)

STL - M G - 20 - 50 - F - HP1

With switch (built-in magnet for switch)

STL - M G - 20 - 50 - T2H - R - F - HP1

A Bearing

B Model No.

C Bore size

D Port thread

E Stroke

■ Custom stroke

Available in 5 mm increments. However, the total length is the same as that of the next longer standard stroke.

F Switch model No.

*1 *2 *4

⚠ Precautions for model No. selection

*1: Switches other than F switch model No. are also available. (Made to order) For details, refer to "Pneumatic Cylinders II" (No. CB-030SA).

*2: T8H/V switch cannot be installed on ø8 to ø16.

*3: ø8 to ø25 ball bearing B is copper and PTFE free as standard.

*4: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

[Example of model No.]

STS-MG-20-25-T0H-R-F-HP1

Model: Guided cylinder, short Stroke

A Bearing : Metal bush bearing

B Model No. : Rubber scraper

C Bore size : ø20 mm

D Port thread : M5

E Stroke : 25mm

F Switch model No. : Reed T0H switch, lead wire length 1 m

G Switch quantity : 1 on rod side

H Option : End plate material: steel

Code	Description				
A Bearing					
M	Metal bush bearing				
B	Ball bearing				
B Model No.					
G	Rubber scraper				
C Bore size (mm)					
8	ø8				
12	ø12				
16	ø16				
20	ø20				
25	ø25				
32	ø32				
40	ø40				
50	ø50				
63	ø63				
80	ø80				
100	ø100				
D Port thread					
Blank	M5 (ø8 to ø25)				
	Rc thread (ø32 to ø100)				
NN	NPT thread (ø32 and over) (made to order)				
GN	G thread (ø32 and over) (made to order)				
E Stroke (mm)					
Refer to the stroke table on the following page.					
F Switch model No.					
Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC DC	Indicator	Lead wire
T0H*	T0V*	Reed	● ●	1-color LED	2-wire
T5H*	T5V*		● ●	No LED	
T8H*	T8V*		● ●	1-color LED	2-wire
T1H*	T1V*		● ●		
T2H*	T2V*	● ●			
T3H*	T3V*	Proximity	● ●	3-wire	
T2HR3	T2VR3		● ●	1-color LED bend resistant lead wire	2-wire
T3PH*	T3PV*		● ●	1-color LED (made to order)	3-wire
T2WH*	T2WV*		● ●	2-color LED	2-wire
T2YH*	T2YV*		● ●		2-wire
T3WH*	T3WV*		● ●		3-wire
T3YH*	T3YV*		● ●		3-wire
T2YD*	—		● ●	2-color LED for AC magnetic field	2-wire
* Lead wire length					
Blank	1 m (standard)				
3	3 m (option)				
5	5 m (option)				
G Switch quantity					
R	1 on rod side				
H	1 on head side				
D	2				
T	3				
H Option					
F	End plate material (Steel)				
M	Corrosion proof (piston rod, guide rod SUS) (made-to-order product)				
M1	Corrosion proof (M+ end plate SUS) (made-to-order product)				
P6 *3	Copper and PTFE free specification (made to order)				

SCPD3	Long service life cylinder
CMK2	Environment-resistant cylinder
SCM	Linear Slide Hand
SSD2	Low-profile long stroke hand
MDC2	Wire Parallel Hand
MSD	Chuck
MSDG-L	Booster
SMG	Compatible with rechargeable batteries
LCR	Supports food mfg. processes
LCG	
STM	
STG	
STR2	
SCPD3	
CMK2	
SCM	
SCG	
SSD2	
STG	

STS/STL-M^BG-HP1 Series

Long service life cylinder

Environment-resistant cylinder

Linear Slide Hand

Low-profile long stroke hand

Wide Parallel Hand

Chuck

Air Booster

Compatible with rechargeable batteries

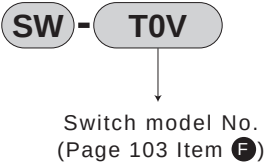
Supports food mfg. processes

Stroke

Series	Stroke (mm)		Applicable bore size										
			ø8	ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
STS	Standard Stroke	10	●	●	●								
		20	●	●	●								
		25				●	●	●	●	●	●	●	●
		30	●	●	●								
		40	●	●	●								
		50	●	●	●	●	●	●	●	●	●	●	●
		75										●	●
		100										●	●
	Min. stroke	*1	5										
Custom stroke	*1,*2	In 5 mm increments											
STL	Standard Stroke	50	●	●	●	●	●	●	●	●	●		
		75	●	●	●	●	●	●	●	●	●	●	●
		100	●	●	●	●	●	●	●	●	●	●	●
		125	●	●	●	●	●	●	●	●	●	●	●
		150	●	●	●	●	●	●	●	●	●	●	●
		175	●	●	●	●	●	●	●	●	●	●	●
		200	●	●	●	●	●	●	●	●	●	●	●
		225				●	●	●	●	●	●	●	
		250				●	●	●	●	●	●	●	
		275				●	●	●	●	●	●	●	
		300				●	●	●	●	●	●	●	
		325				●	●	●	●	●	●	●	
		350				●	●	●	●	●	●	●	
		375				●	●	●	●	●	●	●	
		400				●	●	●	●	●	●	●	
	Min. stroke	*1	50			30						55	
	Custom stroke	*1,*2	In 5 mm increments										

*1: The total dimensions are the same as the longer standard stroke.
*2: Special total length for custom stroke can be provided when a custom stroke is used. (Made to order)

How to order switch



Consumable parts list (Note: Specify the kit No. when placing an order.)

● STS-MG-HP1/STL-MG-HP1 (rubber scraper)

Bore size (mm)	Kit No.	Part name
ø8	STS-MG-8K-HP1	Metal gasket
ø12	STS-MG-12K-HP1	Rod packing
ø16	STS-MG-16K-HP1	Cushion rubber
ø20	STS-MG-20K-HP1	Piston packing
ø25	STS-MG-25K-HP1	O-ring
ø32	STS-MG-32K-HP1	Wear ring
ø40	STS-MG-40K-HP1	Scraper (for piston rod)
ø50	STS-MG-50K-HP1	Scraper (for guide)
ø63	STS-MG-63K-HP1	Lube keeping structure (for piston rod)
ø80	STS-MG-80K-HP1	Lube keeping structure (for guide)
ø100	STS-MG-100K-HP1	

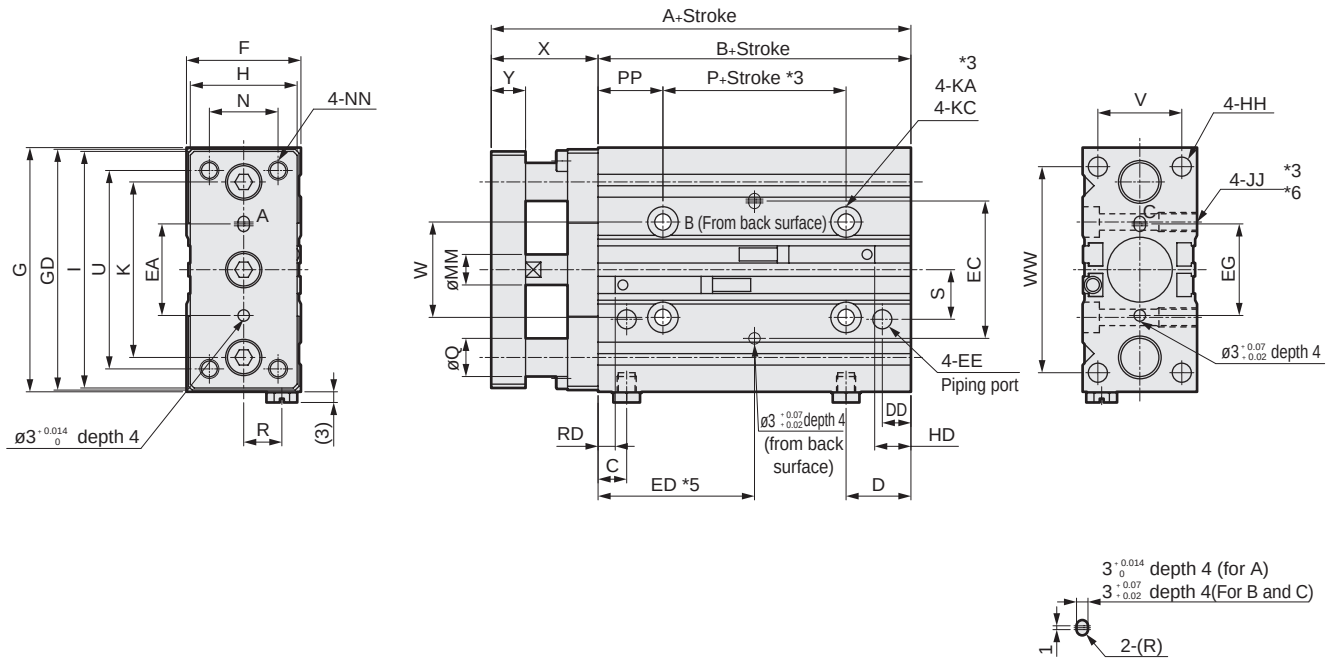
● STS-BG-HP1/STL-BG-HP1 (rubber scraper)

Bore size (mm)	Kit No.	Part name
ø8	STS-BG-8K-HP1	Metal gasket
ø12	STS-BG-12K-HP1	Rod packing
ø16	STS-BG-16K-HP1	Cushion rubber
ø20	STS-BG-20K-HP1	Piston packing
ø25	STS-BG-25K-HP1	O-ring
ø32	STS-BG-32K-HP1	Wear ring
ø40	STS-BG-40K-HP1	Scraper (for piston rod)
ø50	STS-BG-50K-HP1	Scraper (for guide)
ø63	STS-BG-63K-HP1	Lube keeping structure (for piston rod)
ø80	STS-BG-80K-HP1	Lube keeping structure (for guide)
ø100	STS-BG-100K-HP1	

Dimensions: ø8, ø12, ø16



- Standard single rod STS-M_BG-HP1
- Corrosion proof STS-M_BG-M/M1-HP1



Slot dimensions for A, B and C

Code	Standard stroke	A	B	C	D	DD	EE	EA	EC	ED	EG	F	G	GD	H	HH
Bore size (mm)	(mm)															
ø8	10, 20, 30, 40, 50	55	28	11	14.5	6.5	M5	20	25	15+ Stroke 2	20	24	53	51	22	M4 depth 8
ø12		59	32	7.5	14.5	7.5	M5	23	34	16+ Stroke 2	20	26	58	56	24	M4 depth 8
ø16		60	32	7.5	17	7.5	M5	24	36	16+ Stroke 2	24	30	64	63	28	M5 depth 10
Code	I	JJ	K	KA	KC	MM	N	NN	P	PP	Q		R			
Bore size (mm)											STS-M	STS-B				
ø8	51	M4 depth 10	40	3.3 through	6.5 spot face depth 3.3	4	15	M4 through	-10	20	6	5	7.5			
ø12	56	M4 depth 10	41	3.3 through	6.5 spot face depth 3.3	6	16	M4 through	-2	17	8	6	8			
ø16	62	M5 depth 10	46	4.3 through	8 spot face depth 4.4	8	18	M5 through	-2	17	10	8	10			
Code	S	U	V	W	WW	X	Y	T0/T5/T2/T3		T2W/T3W						
Bore size (mm)								RD	HD	RD	HD					
ø8	13.5	43	16	25	45	27 ⁰ _{-1.5}	8	6.5	2.5	8.5	4.5					
ø12	12.5	48	17	23	50	27 ⁰ _{-1.5}	8	5	8.5	7	10.5					
ø16	13	52	22	25	54	28 ⁰ _{-1.5}	9	4.5	9.5	6	11.5					

*1: HD and RD dimensions for 10 mm stroke differ from these dimensions according to the setting.

*2: When using a custom stroke, the dimensions are the same as the longer standard stroke.

*3: STS-M_B-8-10 (10mm stroke) is 2-KA, 2-KC, 2-JJ (two mounting holes).

*4: Refer to "Pneumatic Cylinders II (No. CB-030SA)" for RD, HD and protruding dimensions of the 2-color LED (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, and 1H/V switches.

*5: ED is 5 for STS-M_B-8-10 (10mm stroke).

*6: STS-M_B-16-10 (10mm stroke) has four JJM5 screws, as shown in the figure, but the mounting will be two.

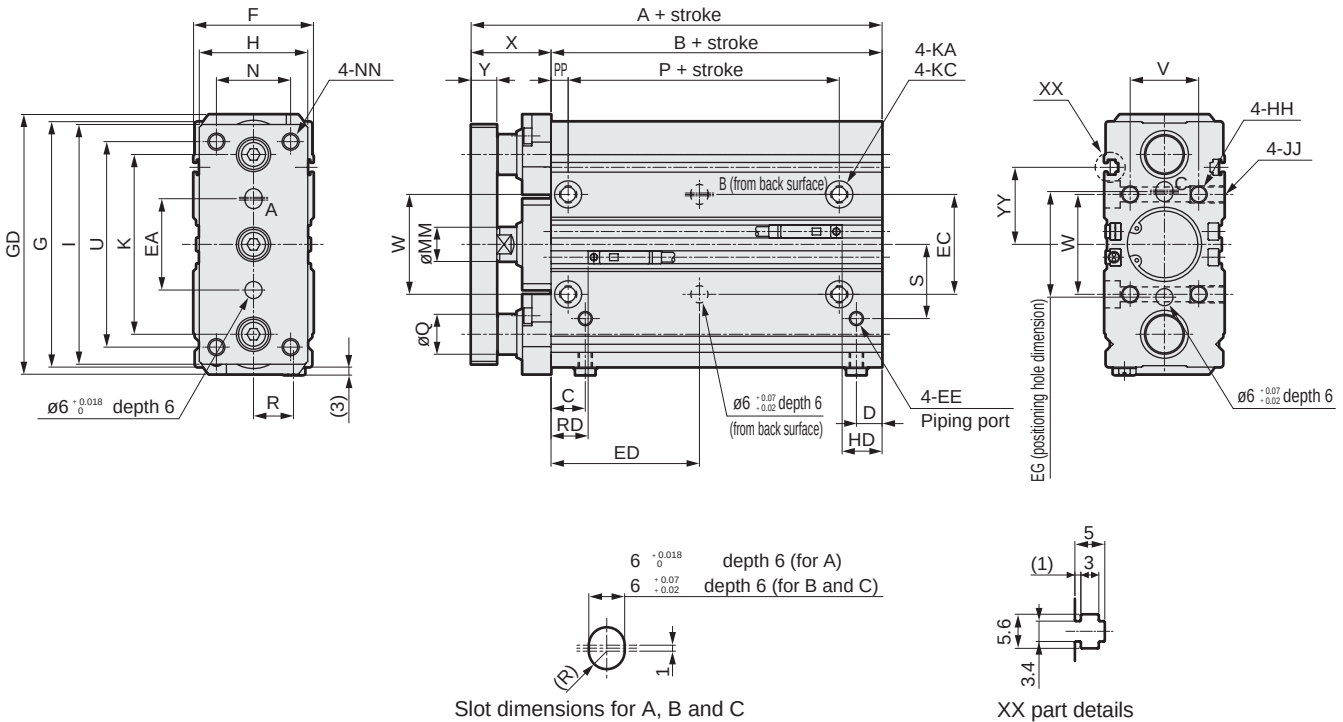
SCP3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCP3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCP3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCP3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

STS-M_BG-HP1 Series



Dimensions (ø20, ø25)

- Standard single rod STS-M_BG-HP1
- Corrosion proof STS-M_BG-M/M1-HP1



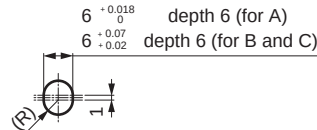
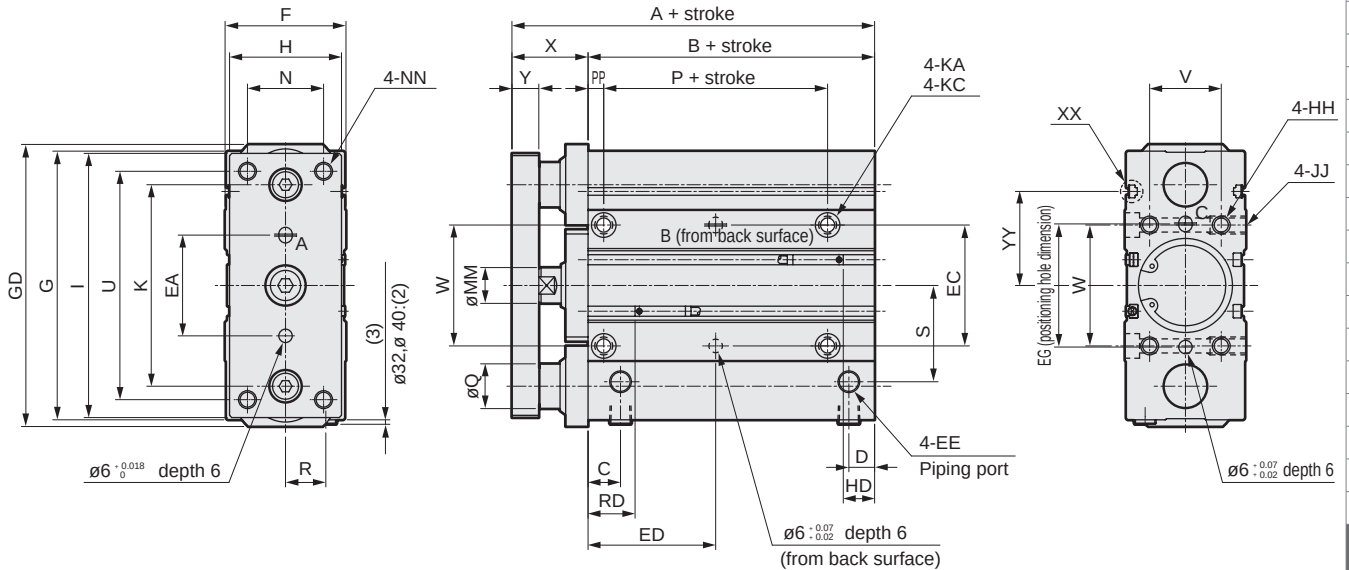
Code	Standard stroke(mm)		A	B	C	D	EE	EA	EC	EG	ED		F	G	GD	H	HH	
Bore size(mm)			68	40	12	8	M5	30	31	33	14+	$\frac{\text{Stroke}}{2}$	38	83	87	36	M6 depth 12	
ø20	25, 50		68	40	12	8	M5	30	31	33	14+	$\frac{\text{Stroke}}{2}$	38	83	87	36	M6 depth 12	
ø25			69	41	12	9	M5	32	35	37	14.5+	$\frac{\text{Stroke}}{2}$	42	86	91	38	M6 depth 12	
Code	I	JJ	K	KA	KC				MM	N	NN	P	PP	Q		R		
Bore size(mm)	81	M6 depth 12	59	5.2 through	9.5 spot face depth 5.4				10	24	M6 through	20	6	14	12	13		
ø20	81	M6 depth 12	59	5.2 through	9.5 spot face depth 5.4				10	24	M6 through	20	6	14	12	13		
ø25	84	M6 depth 12	63	5.2 through	9.5 spot face depth 5.4				12	26	M6 through	20	6	14	12	14		
Code	S	U	V	W	X	Y	YY	T0/T5/T2/T3		T2W/T3W								
Bore size(mm)								RD	HD	RD	HD							
ø20	24	69	20	31	28 ₋₂ ⁰	9	25	12	9.5	12.5	12.5							
ø25	26	72	24	35	28 ₋₂ ⁰	9	27	13	9	14.5	11							

*1: When using a custom stroke, the dimensions are the same as the longer standard stroke.
*2: Refer to "Pneumatic Cylinders II (No. CB-030SA)" for RD, HD and protruding dimensions of the 2-color LED (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

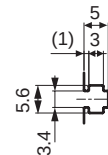
Dimensions (ø32, ø40, ø50, ø63)



- Standard single rod STS-M_BG-HP1
- Corrosion proof STS-M_BG-M/M1-HP1



Slot dimensions for A, B and C



XX part details

Code	Standard stroke(mm)				A	B	C	D	EE	EA	EC	EG	ED		F	G	GD	H	HH	
Bore size (mm)	25, 50				83	49	14	10.5	Rc1/8	42	45	46	17.5+	Stroke 2	47	111	117	45	M8 depth 16	
ø40					87	53	14.5	12	Rc1/8	45	54	55	19.5+	Stroke 2	54	120	126	50	M8 depth 16	
ø50					92	55	16	12.5	Rc1/4	55	66	69	19.5+	Stroke 2	66	147	152	64	M10 depth 20	
ø63					98	61	17.5	17.5	Rc1/4	62	79	82	22.5+	Stroke 2	79	162	166	75	M10 depth 20	
Code	I	JJ		K	KA		KC				MM	N	NN	P	PP	Q				R
Bore size(mm)																STS-M		STS-B		
ø32	109	M8 depth 16		81	6.3 through		11 spot face depth 6.5				16	29	M8 through	22	7	20		16		16
ø40	118	M8 depth 16		90	6.3 through		11 spot face depth 6.5				16	34	M8 through	25	7	20		16		18
ø50	145	M10 depth 20		110	8.6 through		14 spot face depth 8.6				20	44	M10 through	26	8	25		20		22
ø63	160	M10 depth 20		124	8.6 through		14 spot face depth 8.6				20	55	M10 through	26	8	25		20		26
Code	S	U	V	W	X	Y	YY	T0/T5/T2/T3		T2W/T3W										
Bore size(mm)								RD	HD	RD	HD									
ø32	39	93	25	45	34 ⁰ ₋₂	12	39	17.5	13.5	19	15									
ø40	43	102	32	54	34 ⁰ ₋₂	12	42	21	14	22.5	16									
ø50	49	125	38	66	37 ⁰ ₋₂	16	45	22	16	23.5	16.5									
ø63	56	140	50	79	37 ⁰ ₋₂	16	52	20	23	21.5	24.5									

*1: When using a custom stroke, the dimensions are the same as the longer standard stroke.

*2: Refer to "Pneumatic Cylinders II (No. CB-030SA)" for RD, HD and protruding dimensions of the 2-color LED (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

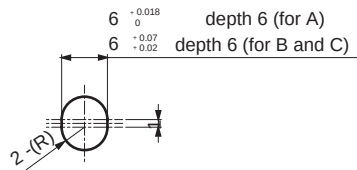
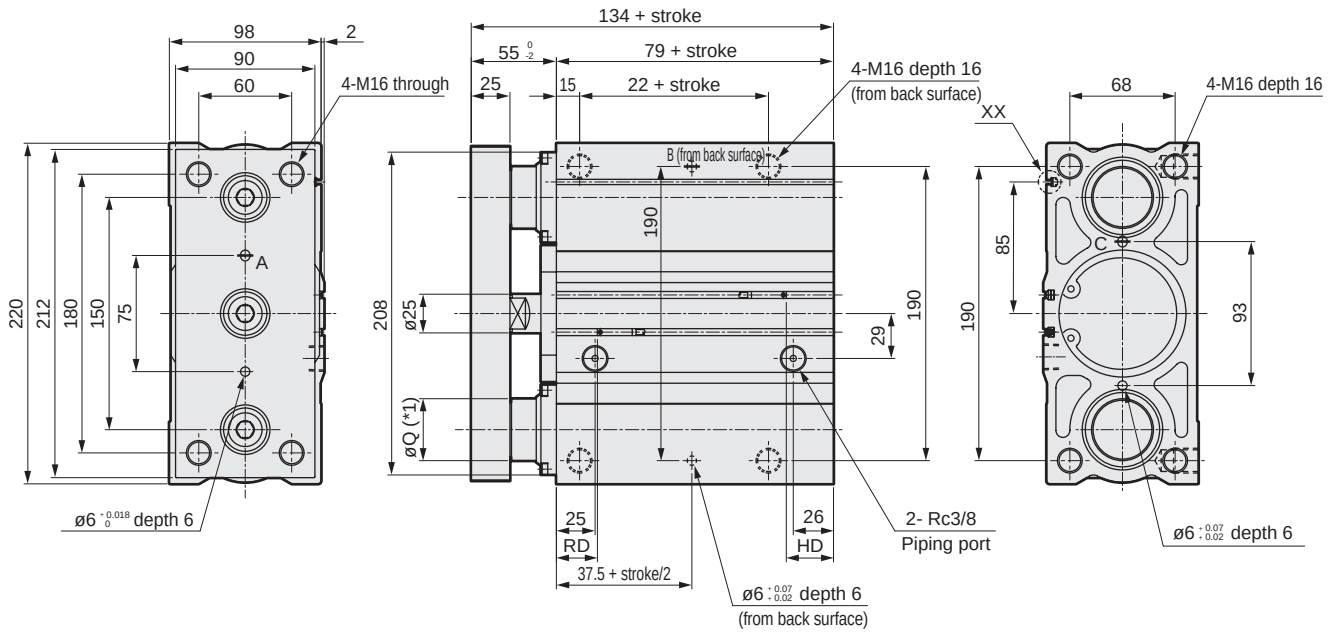
SCP D3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCP D3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCP D3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCP D3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

STS-M_BG-HP1 Series

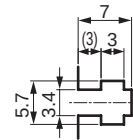


Dimensions (ø80)

- Standard single rod STS-^M_B G-HP1
- Corrosion proof STS-^M_B G-M/M1-HP1



Slot dimensions for A, B and C



XX part details

Code	T0/T5/T2/T3		T2W/T3W	
Bore size(mm)	RD	HD	RD	HD
ø80	26.5	30.5	28	35.5

*1: Dimension of Q is $\varnothing 40$ for M (metal bush bearing) and $\varnothing 35$ for B (ball bearing).

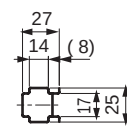
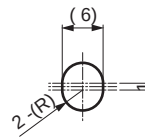
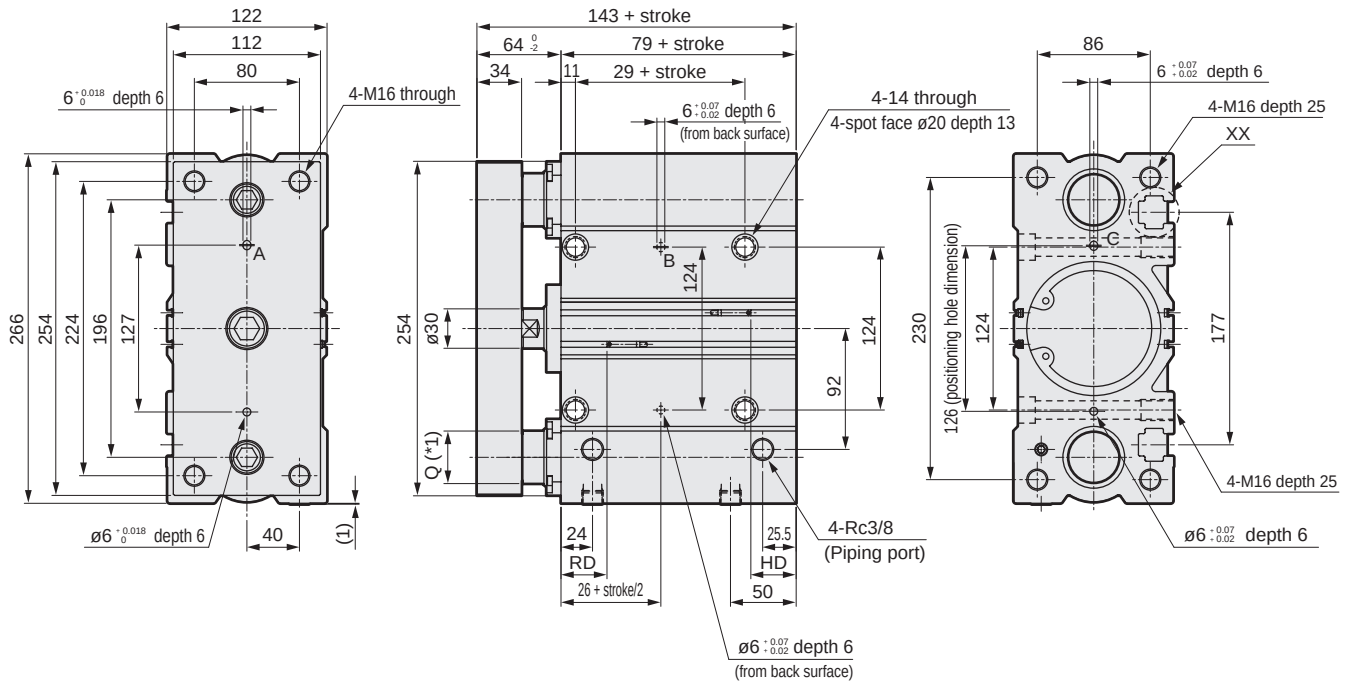
*2: When using a custom stroke, the dimensions are the same as the longer standard stroke. The $\varnothing$ 80 standard stroke is available in four types of 25, 50, 75, 100mm.

*3: Refer to "Pneumatic Cylinders II (No. CB-030SA)" for RD, HD and protruding dimensions of the 2-color LED (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

Dimensions (ø100)



- Standard single rod STS-^M_BG-HP1
- Corrosion proof STS-^M_BG-M/M1-HP1
- Copper and PTFE free STS-^M_BG-P6-HP1



Code	T0/T5/T2/T3		T2W/T3W	
Bore size(mm)	RD	HD	RD	HD
ø100	24	34.5	27	37

*1: Dimension of Q is ø40 for M (metal bush bearing) and ø35 for B (ball bearing).

*2: Refer to "Pneumatic Cylinders II (No. CB-030SA)" for RD, HD and protruding dimensions of the 2-color LED (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

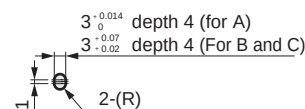
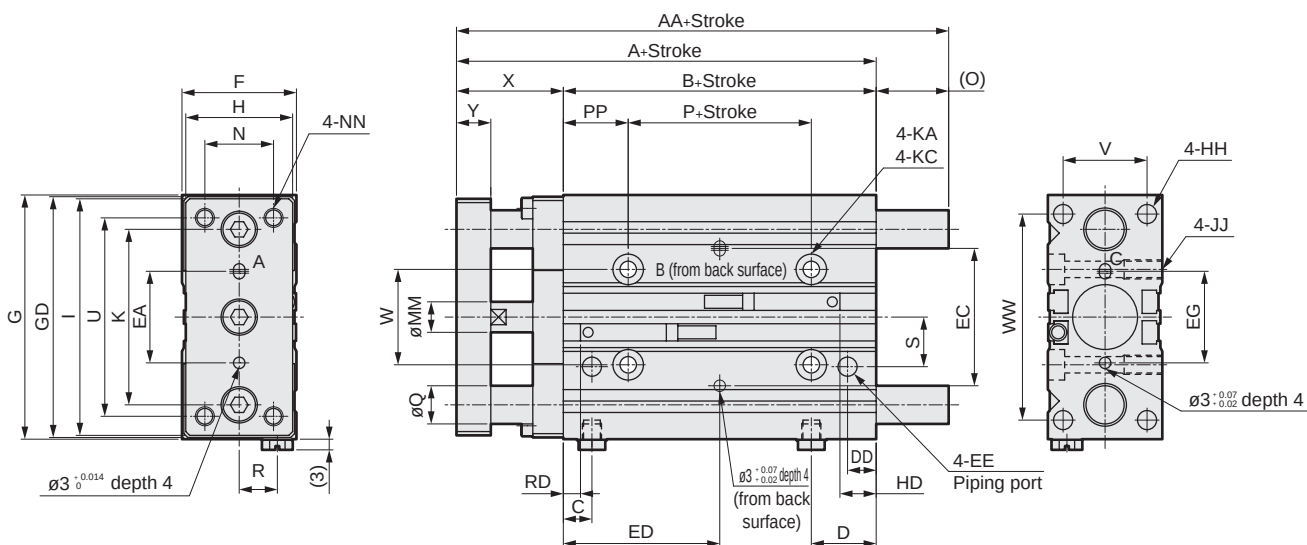
SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

STL-^M_BG-HP1 Series



Dimensions: ø8, ø12, ø16

- Standard single rod STL-^M_BG-HP1
- Corrosion proof STL-^M_BG-M/M1-HP1



Slot dimensions for A, B and C

Code	Standard stroke (mm)	A	AA	B	C	D	DD	EE	EA	EC	ED	EG	F	G	GD	H	HH
Bore size (mm)																	
ø8	50,75,100	55	61	28	11	14.5	6.5	M5	20	25	15+ Stroke 2	20	24	53	51	22	M4 depth 8
ø12	125,150	59	68.5	32	7.5	14.5	7.5	M5	23	34	16+ Stroke 2	20	26	58	56	24	M4 depth 8
ø16	175, 200	60	79	32	7.5	17	7.5	M5	24	36	16+ Stroke 2	24	30	64	63	28	M5 depth 10

Code	I	JJ	K	KA	KC	MM	N	NN	O	P	PP	Q		R
Bore size (mm)												STL-M	STL-B	
ø8	51	M4 depth 10	40	3.3 through	6.5 spot face depth 3.3	4	15	M4 through	6	-10	20	6	5	7.5
ø12	56	M4 depth 10	41	3.3 through	6.5 spot face depth 3.3	6	16	M4 through	9.5	-2	17	8	6	8
ø16	62	M5 depth 10	46	4.3 through	8 spot face depth 4.4	8	18	M5 through	19	-2	17	10	8	10

Code	S	U	V	W	WW	X	Y	T0/T5/T2/T3		T2W/T3W	
Bore size (mm)								RD	HD	RD	HD
ø8	13.5	43	16	25	45	27 ⁰ _{-1.5}	8	6.5	2.5	8.5	4.5
ø12	12.5	48	17	23	50	27 ⁰ _{-1.5}	8	5	8.5	7	10.5
ø16	13	52	22	25	54	28 ⁰ _{-1.5}	9	4.5	9.5	6	11.5

*1: When using a custom stroke, the dimensions are the same as the longer standard stroke.

*2: Refer to "Pneumatic Cylinders II (No. CB-030SA)" for RD, HD and protruding dimensions of the 2-color LED (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof and T1H/V switches.

- Slot dimensions for A, B and C

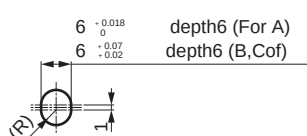
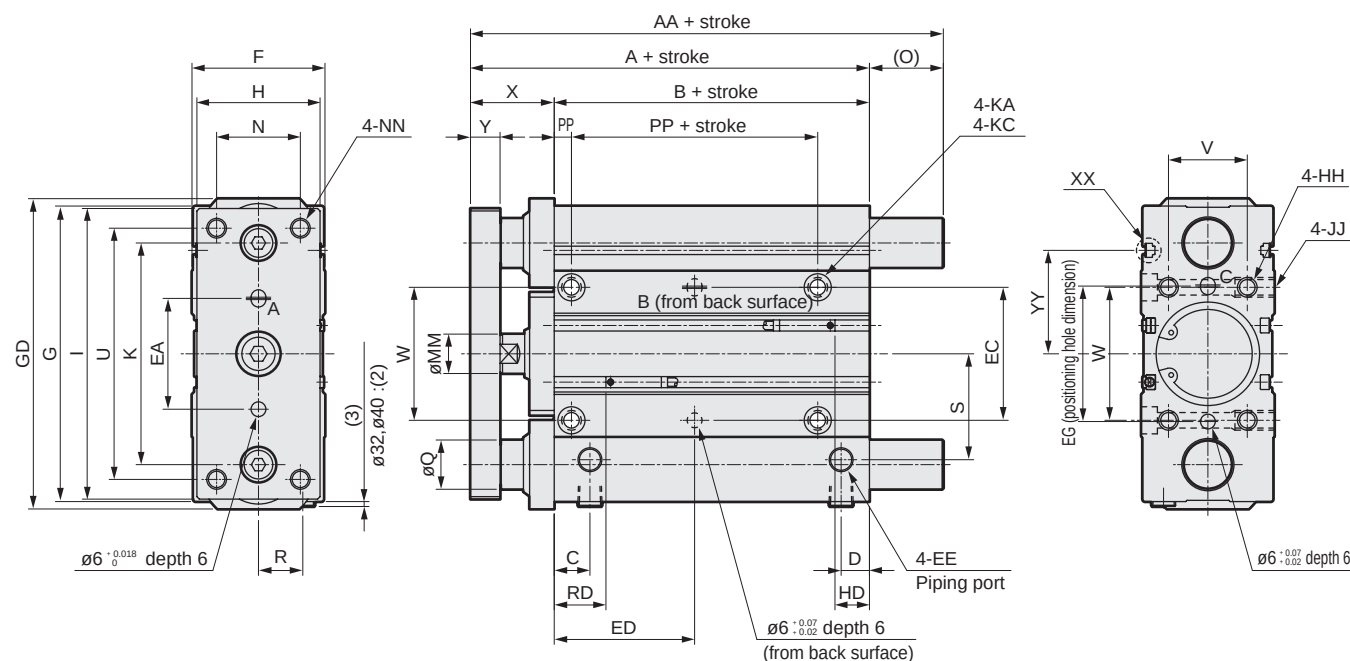
*1: When using a custom stroke, the dimensions are the same as the longer standard stroke.
*2 : Refer to "Pneumatic Cylinders II (No. CB-030SA)" for RD, HD and protruding dimensions of the 2-color LED (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

STL-B^MG-HP1 Series

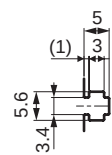


Dimensions (ø32, ø40, ø50, ø63)

- Standard single rod STL-B^MG-HP1
- Corrosion proof STL-B^MG-M/M1-HP1



Slot dimensions for A, B and C



XX part details

Code	Standard stroke(mm)	A	AA	B	C	D	EE	EA	EC	EG	ED	F	G	GD	H	HH
Bore size(mm)																
ø32	50, 75, 100, 125, 150,	83	117	49	14	10.5	Rc1/8	42	45	46	17.5+ Stroke 2	47	111	117	45	M8 depth 16
ø40	175, 200, 225, 250, 275,	87	117	53	14.5	12	Rc1/8	45	54	55	19.5+ Stroke 2	54	120	126	50	M8 depth 16
ø50	300, 325, 350, 375, 400	92	140	55	16	12.5	Rc1/4	55	66	69	19.5+ Stroke 2	66	147	152	64	M10 depth 20
ø63		98	140	61	17.5	17.5	Rc1/4	62	79	82	22.5+ Stroke 2	79	162	166	75	M10 depth 20

Code	I	JJ	K	KA	KC	MM	N	NN	O	P	PP	Q		R	S	U	V	W
Bore size(mm)												STL-M	STL-B					
ø32	109	M8 depth 16	81	6.3 through	11 spot face depth 6.5	16	29	M8 through	34	22	7	20	16	16	39	93	25	45
ø40	118	M8 depth 16	90	6.3 through	11 spot face depth 6.5	16	34	M8 through	30	25	7	20	16	18	43	102	32	54
ø50	145	M10 depth 20	110	8.6 through	14 spot face depth 8.6	20	44	M10 through	48	26	8	25	20	22	49	125	38	66
ø63	160	M10 depth 20	124	8.6 through	14 spot face depth 8.6	20	55	M10 through	42	26	8	25	20	26	56	140	50	79

Code	X	Y	YY	T0/T5/T2/T3		T2W/T3W	
Bore size(mm)				RD	HD	RD	HD
ø32	34 ^{+0/-2}	12	39	17.5	13.5	19	15
ø40	34 ^{+0/-2}	12	42	21	14	22.5	16
ø50	37 ^{+0/-2}	16	45	22	16	23.5	16.5
ø63	37 ^{+0/-2}	16	52	20	23	21.5	24.5

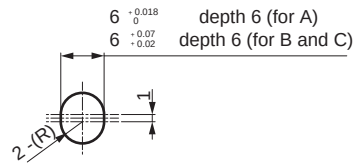
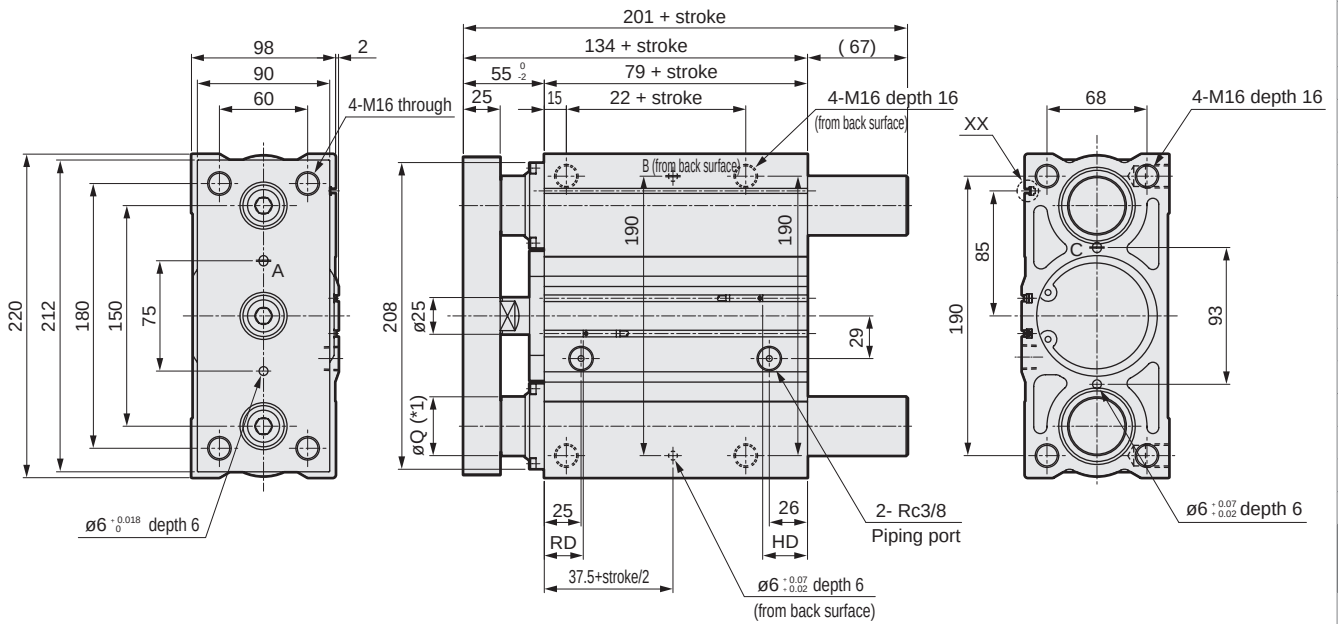
*1: All dimensions not shown are the same as those of the standard. When using a custom stroke, the dimensions are the same as the longer standard stroke.

*2: Refer to "Pneumatic Cylinders II (No. CB-030SA)" for RD, HD and protruding dimensions of the 2-color LED (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

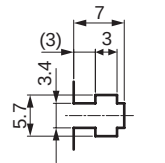
Dimensions (ø80)



- Standard single rod STL-B^MG-HP1
- Corrosion proof STL-B^MG-M/M1-HP1



Slot dimensions for A, B and C



XX part details

Code	T0/T5/T2/T3		T2W/T3W	
Bore size(mm)	RD	HD	RD	HD
ø80	26.5	30.5	28	35.5

*1: Dimension Q is ø40 for M (metal bush bearing) and ø35 for B (ball bearing).

*2: When using a custom stroke, the dimensions are the same as the longer standard stroke. The standard stroke of ø80 can be selected from 75 to 400 mm in 25 mm increments.

*3: Refer to "Pneumatic Cylinders II (No. CB-030SA)" for RD, HD and protruding dimensions of the 2-color LED (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

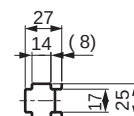
STL-^M_BG-HP1 Series



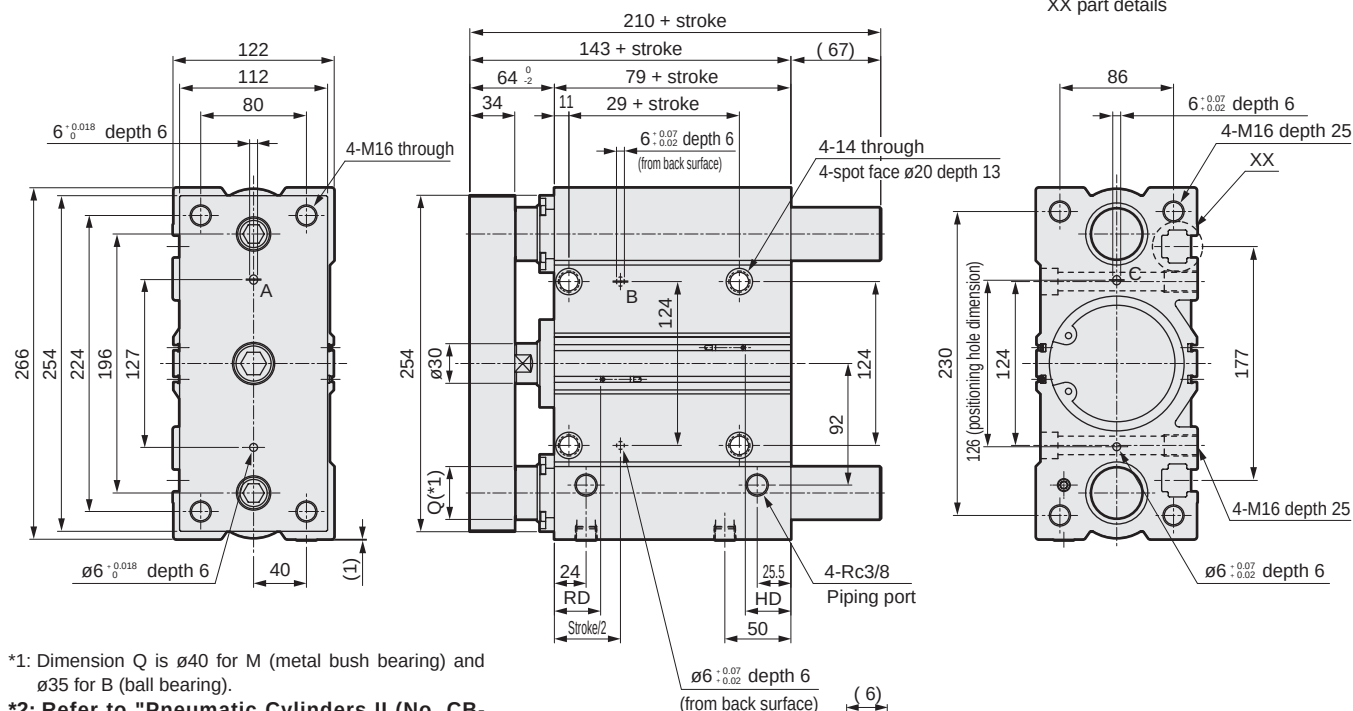
Dimensions (ø100)

- Standard single rod STL-^M_BG-HP1
- Corrosion proof STL-^M_BG-M/M1-HP1
- Copper and PTFE free STL-^M_BG-P6-HP1

[100 Stroke or less]



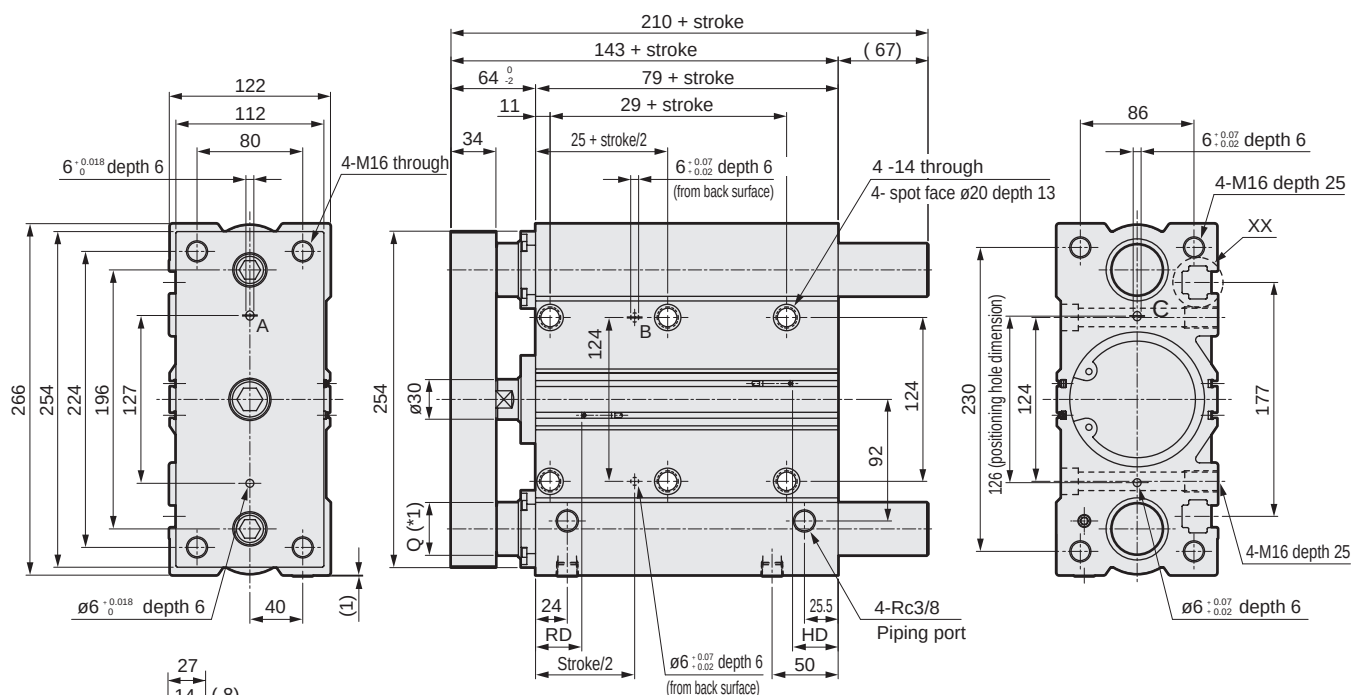
XX part details



Slot dimensions for A, B and C

Code	T0/T5/T2/T3		T2W/T3W	
Bore size(mm)	RD	HD	RD	HD
ø100	25	35	27	37

[stroke of 125 and over]



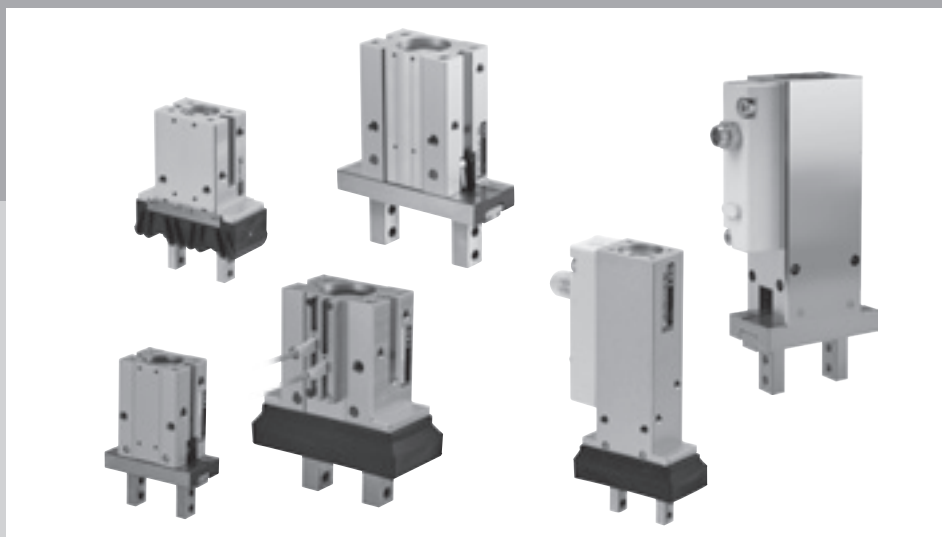
XX part details

CKD

SCPD3	Long service life cylinder	SCPDP3	Environment-resistant cylinder	Linear Slide Hand	Low-profile long stroke hand	Wide Parallel Hand	Chuck	Air Booster	Compatible with rechargeable batteries	Supports food mfg. processes
CMK2										
SCM										
SSD2										
MDC2										
MSD										
MSDG-L										
SMG										
LCR										
LCG										
STM										
STG										
STR2										
SCPDP3										
CMK2										
SCM										
SCG										
SSD2										
SMG										
LCR										
STG										
STS										
STL										
LSH										
LSHL										
LSHM										
LST										
LSTM										
HMC										
CKW										
ABP2										
SCPDP3										
CMK2										
SCM										
SSD2										
MSD										
MSDG-L										
SMG										
STG										
STM										
LCR										
LCG										
STR2										
LSH										
LSHL										
SCPDP3										
CMK2										
SCM										
SCG										
SSD2										
STG										

HP1 HP2 Series

Linear Slide Hand



CONTENTS

●HP1 Series

Double acting/single acting without rubber cover (LSH-A-HP1)	118
Double acting/single acting with rubber cover (LSH-G/LSH-F-HP1)	122
Double acting long stroke without rubber cover (LSHL-A-HP1)	126
Double acting long stroke with rubber cover (LSHL-G/LSHL-F-HP1)	130

●HP2 Series

With length measuring function, double acting without rubber cover (LSHM-A-HP2)	134
With length measuring function, double acting with rubber cover (LSHM-G/LSHM-F-HP2)	136

⚠ Safety precautions	232
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Linear slide hand system table

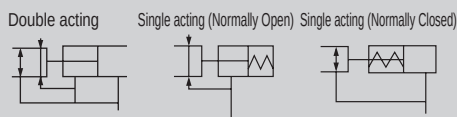
	Model No.	Bore size (mm)	Stroke (mm)
HP1 Series	LSH-A-HP1	ø6/ø10/ø16/ø20/ø25/ø32	4/4/6/10/14/22
	LSH-G/LSH-F-HP1	ø6/ø10/ø16/ø20/ø25/ø32	4/4/6/10/14/22
	LSHL-A-HP1	ø10/ø16/ø20/ø25	8/12/18/22
	LSHL-G/LSH-F-HP1	ø10/ø16/ø20	8/12/18
HP2 Series	LSHM-A-HP2	ø10/ø16/ø20/ø25	4/6/10/14
	LSHM-G/LSHM-F-HP2	ø10/ø16/ø20/ø25	4/6/10/14



Linear Slide Hand Double acting/Single acting

LSH-A-HP1 Series

●Operational stroke: 4, 6, 10, 14, 22 mm

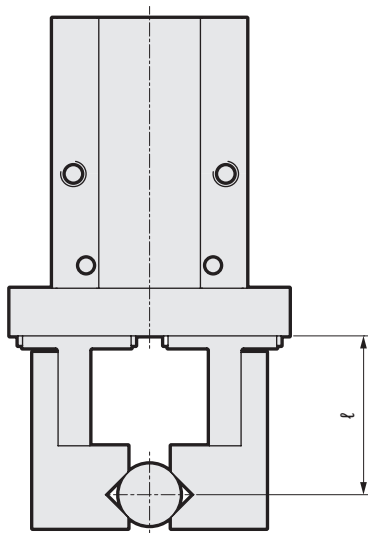


Specifications

Item		LSH-A					
Bore size mm		ø6	ø10	ø16	ø20	ø25	ø32
Actuation		Double acting/single acting (Normally Open/Normally Closed)					
Working fluid		Compressed air					
Max. working pressure MPa		0.7					
Min. working pressure MPa	Double acting	0.15	0.2	0.1			
	Single acting	0.3	0.35	0.25			
Port size		M3			M5		
Ambient temperature °C		-10 to 60 (no freezing)					
Operating stroke mm		4		6	10	14	22
Repeatability mm		±0.01					
Weight Double acting (Single acting) kg	Finger OP: 1, 2, 3	0.032	0.06	0.135	0.275 (0.28)	0.49 (0.495)	0.73 (0.78)
	0.14			0.28 (0.285)	0.495 (0.5)	0.76 (0.81)	
Lubrication		Not required					

Gripping force

Unit: N



Bore size (mm)	Double acting	
	Open side	Closed side
ø6	6.1	3.3
ø10	17	11
ø16	45	34
ø20	66	42
ø25	104	65
ø32	193	158
Bore size (mm)	Single acting (Normally Open)	
		Closed side
ø6	-	1.9
ø10		7.1
ø16		27
ø20		33
ø25		45
ø32		131
Bore size (mm)	Single acting (Normally Closed)	
	Open side	
ø6	3.7	-
ø10	13	
ø16	38	
ø20	57	
ø25	83	
ø32	161	

* At supply pressure of 0.5 MPa, $\ell = 20$ mm, value at stroke center
*1: Avoid gripping the workpiece with single acting spring force as much as possible. The gripping force may become unstable, leading to operation failure.

LSH-A-HP1 Series

Switch specifications

Switch specifications

Item	2-wire proximity	3-wire proximity	2-wire proximity	3-wire proximity	
	F2S	F3S	F2H/F2V	F3H/F3V	F3PH/F3PV
Applications	Programmable Controller dedicated	Programmable For controller, relay	Programmable Controller dedicated	Programmable For controller, relay	
Output method	-	NPN output	-	NPN output	PNP output
Power supply voltage	-	10 to 28 VDC	-	10 to 28 VDC	4.5 to 28 VDC
Load voltage/ current	10 to 30 VDC 5 to 20 mA	30 VDC 50 mA or less	10 to 30 VDC 5 to 20 mA	30 VDC, 50 mA or less	
Indicator lamp	LED (Lit when ON)		Yellow LED (Lit when ON)		
Leakage current	1 mA or less	10 μA or less	1 mA or less	10 μA or less	
Shock resistance	980m/s ²				
Weight	g 1m:10 3m:29				

*1: The F type switch uses a bend-resistant lead wire as standard.

Item	2-wire proximity		3-wire proximity	
	T2H/T2V	T2HR3/T2VR3 (Lead wire bending type)	T3H/T3V	T3PH/T3PV
Applications	Programmable Controller dedicated		Programmable For controller, relay	
Output method	-	-	NPN output	PNP output
Power supply voltage	-	-	10 to 28 VDC	
Load voltage/ current	10 to 30 VDC 5 to 20 mA	10 to 30 VDC 5 to 20 mA	30 VDC or less 100 mA or less	
Indicator lamp	Red LED (Lit when ON)	Red LED (Lit when ON)	Red LED (Lit when ON)	Yellow LED (Lit when ON)
Leakage current	1 mA or less	1 mA or less	10 μA or less	
Shock resistance	980m/s ²			
Weight	g 1m:18g 3m:49g			

Consumable parts list

Bore size	Kit No.	Consumable parts No.	Rail plate kit No.		
			For F-switch	For T-switch	Description
ø6	Cannot be disassembled	-	LSH-RPF-06-HP	-	Rail plate Small machine screw
ø10	LSH-10K-HP	CR ring/rod packing/ Piston packing/O-ring	LSH-RPF-10-HP	-	
ø16	LSH-16K-HP		LSH-RPF-16-HP	-	
ø20	LSH-20K-HP	Rod packing Piston packing O-ring	LSH-RPF-20-HP	-	
ø25	LSH-25K-HP		LSH-RPF-25-HP	-	
ø32	LSH-32K-HP		LSH-RPF-32-HP	LSH-RPT-32-HP	

Refer to the LSH-A Series of "Linear Slide Hand LSH-HP Series (No.CC-1419A)" for dimensions.

SCP03	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	Environment-resistant cylinder
LCR	
LCG	
STM	
STG	
STR2	
SCP03	Linear Slide Hand
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	Low-profile long stroke hand
STS	
STL	
LSH	
LSHL	
LSHM	
LST	Wide Parallel Hand
LSTM	
HMC	
CKW	
ABP2	
SCP03	
CMK2	Compatible with rechargeable batteries
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	Supports food mfg. processes
LCR	
LCG	
STR2	
LSH	
LSHL	
SCP03	
CMK2	
SCM	
SCG	
SSD2	
STG	

LSH-A-HP1 Series

How to order

Without switch (built-in magnet for switch)

LSH - A 06 D 1 R ————— **HP1**

With switch (built-in magnet for switch)

LSH - A 06 D 1 R - F2H - D ————— **HP1**

A Rubber cover

B Bore size

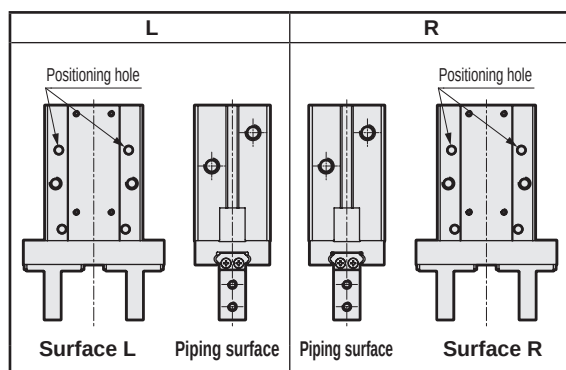
C Actuation

D Finger

E Grip center reference,
High precision positioning hole

F Switch model No.

Grip center reference,
High precision positioning hole position diagram



Details on each Dimensions "Linear Slide Hand LSH-HP Series
(No.CC-1419A).

G Switch quantity

How to order switch

SW - F2H*

Switch model No.
(above Item **F**)

[Example of model No.]

LSH-A06D1R-F2H-D-HP1

Model: Linear Slide Hand

A Rubber cover : Without rubber cover

B Bore size : ø6

C Actuation : Double acting

D Finger : Basic

E Grip center reference, : R

High precision positioning hole

F Switch model No. : Proximity F2H, lead wire 1 m

G Switch quantity : 2

Code	Description					
A Rubber cover						
A	Without rubber cover					
B Bore size (mm)						
06	ø6					
10	ø10					
16	ø16					
20	ø20					
25	ø25					
32	ø32					
C Actuation						
D	Double acting					
S	Single acting/Normally Open					
C	Single acting/Normally Closed					
D Finger * Refer to the dimentions for details.						
1	Basic					
2	Side tap					
3	Through hole					
4	Flat					
E Grip center reference, high precision positioning hole						
N	None					
L	Refer to the figure at left.					
R						
F Switch model No.						
Blank	No switch, with F-switch rail					
N	No switch, no switch rail					
A	No switch, with T-switch rail (ø32 only)					
Lead wire Straight	Lead wire L-shaped	Contact	Voltage		Indicator	Lead wire
			AC	DC		
-	F2S*	Proximity		●	1-color LED	2-wire
-	F3S*			●		3-wire
F2H*	F2V*			●		2-wire
F3H*	F3V*			●		3-wire
F3PH*	F3PV*			●		3-wire
T2H*	T2V*			●		2-wire
T2HR3	T2VR3			●		2-wire
T3H*	T3V*			●		3-wire
T3PH*	T3PV*			●		3-wire
* Lead wire length						
Blank	1 m (standard)					
3	3 m (option)					
G Switch quantity						
R	1 on open side					
H	1 on closed side					
D	2					

*1: If the one with the switch is selected, the product comes with a rail plate corresponding to the switch.

*2: Only ø32 can be selected for the T-switch

*3: Refer to page 121 for cylinder switch precautions.

Switch mounting availability table

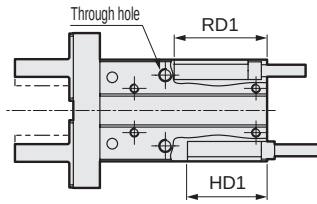
Model No.	Switch model No.	Side mounting	Rail mounting
LSH-A06	F2/3□	●	-
	F2/3S	-	●
LSH-A10	F2/3□	●	●
	F2/3S	●	●
LSH-A16	F2/3□	●	●
	F2/3S	●	●
LSH-A20	F2/3□	●	●
	F2/3S	●	●
LSH-A25	F2/3H/PH	-	●
	F2/3V/PV	●	●
	F2/3S	●	●
LSH-A32	F2/3□	●	●
	F2/3S	●	●
	T2/3□	-	●

Cylinder switch precautions

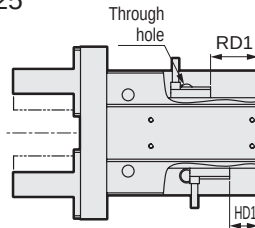
● Switch mounting position list

[Side mounting]

ø6 to 20, 32

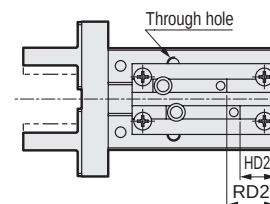


ø25



[Rail mount]

ø6 to 32



Model No.	Switch Model No.	Side mounting		Rail mounting	
		RD1	HD1	RD2	HD2
LSH-A06*	F2/3□	20.5	18	-	-
	F2/3S	-	-	9.5 (-)	7 (-)
LSH-A10*	F2/3□	21	18	11 (21)	8 (18)
	F2/3S	22	19	10 (22)	7 (19)
LSH-A16*	F2/3□	21	17	11 (21)	7 (17)
	F2/3S	22	18	10 (22)	6 (18)
LSH-A20*	F2/3□	26	20	16 (26)	10 (20)
	F2/3S	27	21	15 (27)	9 (21)
LSH-A25*	F2/3H/PH	-	-	20 (30)	12 (22)
	F2/3V/PV	20	12	20 (30)	12 (22)
	F2/3S	19	11	19 (31)	11 (23)
LSH-A32D	F2/3□	32.5	20.5	22.5 (32.5)	10.5 (20.5)
	F2/3S	33.5	21.5	21.5 (33.5)	9.5 (21.5)
	T2/3□	-	-	18.5 (36.5)	6.5 (24.5)
LSH-A32S/C	F2/3□	41	29	31 (41)	19 (29)
	F2/3S	42	30	30 (42)	18 (30)
	T2/3□	-	-	27 (45)	15 (33)

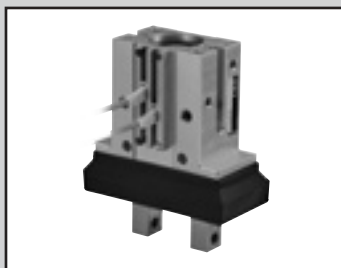
* When the lead wire is directed toward the head side, the dimension in parentheses apply.

* "-" indicates it cannot be mounted.

● Caution

Refer to precautions in the following table for the bore size to be used.

Category	Bore size						Caution												
	ø6	ø10	ø16	ø20	ø25	ø32													
Common items	●	●	●	●	●	●	• RD dimension is the max. sensitivity position at open side end position and HD dimension at closed side end position. The actual mounting position should be adjusted after confirming the operational status of the switch. • One switch can be mounted for one switch rail groove. • Since the opening and closing stroke is short, only one of the open or closed states is detected for each switch. Ex: A single switch alone cannot detect what is shown in the following illustration. Open (workpiece not gripped): switch OFF (2) Workpiece gripped: switch ON Closed (workpiece not gripped): switch OFF Switch OFF Switch ON Switch OFF												
	●	●	●	●	●	●													
	●	●	●	●	●	●													
	●	●	●	●	●	●													
Side mounting	●	●	●	●			• Be careful not to be caught in the lead wires when opening/closing the finger. • When using the L-switch for side mounting on the side of the port, the fittings may interfere with the switch. Use fittings whose outer diameters are below those indicated in the following table. Mount position: port side Switch-type: L-shaped-type <table><tr><th>Bore size (mount position)</th><th>Fitting O.D. øD</th></tr><tr><td>ø6 (RD)</td><td>ø5 or less</td></tr><tr><td>ø6 (HD)</td><td>ø6.9 or less</td></tr><tr><td>ø10</td><td>ø7.4 or less</td></tr><tr><td>ø16</td><td>ø7.9 or less</td></tr><tr><td>ø20</td><td>ø11 or less</td></tr></table> Cylinder switch ød Fitting	Bore size (mount position)	Fitting O.D. øD	ø6 (RD)	ø5 or less	ø6 (HD)	ø6.9 or less	ø10	ø7.4 or less	ø16	ø7.9 or less	ø20	ø11 or less
	Bore size (mount position)	Fitting O.D. øD																	
	ø6 (RD)	ø5 or less																	
	ø6 (HD)	ø6.9 or less																	
ø10	ø7.4 or less																		
ø16	ø7.9 or less																		
ø20	ø11 or less																		
●	●	●	●		●														
	●	●	●	●	●														
	●	●	●	●	●														
Rail mounting		●					• When using a lead wire straight F3PV switch, the switch and lead wire protrude from the end face of the head side.If this protrusion is a problem, use F2/3V or F2/3S, or mount a rail. • For switch side mounting, the through hole cannot be used. • For switch rail mounting, the through hole cannot be used.												

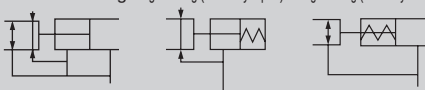


Linear Slide Hand Double acting/Single acting with rubber cover

LSH-G/LSH-F-HP1 Series

●Operational stroke: 4, 6, 10, 14, 22 mm

Double acting Single acting (Normally Open) Single acting (Normally Closed)

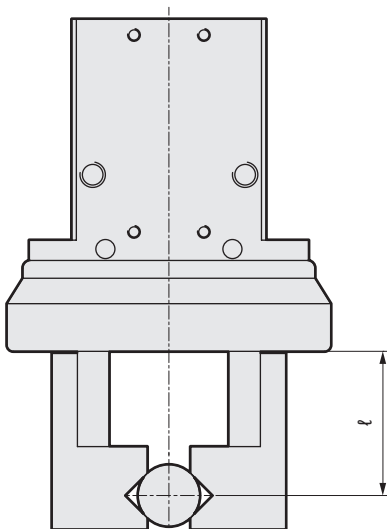


Specifications

Item		LSH-G, F								
Bore size		mm	ø6	ø10	ø16	ø20	ø25	ø32		
Actuation			Double acting/single acting (Normally Open/Normally Closed)							
Working fluid			Compressed air							
Max. working pressure			MPa		0.7					
Min. working pressure		Double acting	0.15	0.2	0.1					
MPa		Single acting	0.3	0.35	0.25			-		
Port size			M3		M5					
Ambient temperature			°C		-10 to 60°C (no freezing)					
Operating stroke			mm		4	6	10	14	22	
Repeatability			mm		±0.01					
Weight Double acting (single acting)			kg		0.033	0.07	0.15	0.3 (0.35)	0.53 (0.535)	0.81
Lubrication			Not required							

Gripping force

Unit: N



Bore size (mm)	Double acting	
	Open side	Closed side
ø6	6.1	3.3
ø10	17	9.8
ø16	40	30
ø20	66	42
ø25	104	65
ø32	193	158
Bore size (mm)	Single acting (Normally Open)	
		Closed side
ø6	-	1.9
ø10		6.3
ø16		24
ø20		28
ø25		45
Bore size (mm)	Single acting (Normally Closed)	
	Open side	
ø6	3.7	-
ø10	12	
ø16	31	
ø20	56	
ø25	83	

* At supply pressure of 0.5 MPa, $l = 20$ mm, value at stroke center

*1: Avoid gripping the workpiece with single acting spring force as much as possible. The gripping force may become unstable, leading to operation failure.

LSH-G/LSH-F-HP1 Series

Switch specifications

Switch specifications

Item	2-wire proximity	3-wire proximity	2-wire proximity	3-wire proximity	
	F2S	F3S	F2H/F2V	F3H/F3V	F3PH/F3PV
Applications	Programmable Controller dedicated	Programmable For controller, relay	Programmable Controller dedicated	Programmable For controller, relay	
Output method	-	NPN output	-	NPN output	PNP output
Power supply voltage	-	10 to 28 VDC	-	10 to 28 VDC	4.5 to 28 VDC
Load voltage/ current	10 to 30 VDC 5 to 20 mA	30 VDC, 50 mA or less	10 to 30 VDC 5 to 20 mA	30 VDC, 50 mA or less	
Indicator lamp	LED (Lit when ON)		Yellow LED (Lit when ON)		
Leakage current	1 mA or less	10 μA or less	1 mA or less	10 μA or less	
Shock resistance	980m/s ²				
Weight	g 1 m: 10 3 m: 29				

*1: The F-switch uses a bend-resistant lead wire as standard.

Item	2-wire proximity		3-wire proximity	
	T2H/T2V	T2HR3/T2VR3 (Lead wire bending type)	T3H/T3V	T3PH/T3PV
Applications	Programmable Controller dedicated		Programmable For controller, relay	
Output method	-	-	NPN output	PNP output
Power supply voltage	-	-	10 to 28 VDC	
Load voltage/ current	10 to 30 VDC 5 to 20 mA	10 to 30 VDC 5 to 20 mA	30 VDC or less 100 mA or less	
Indicator lamp	Red LED (Lit when ON)	Red LED (Lit when ON)	Red LED (Lit when ON)	Yellow LED (Lit when ON)
Leakage current	1 mA or less	1 mA or less	10 µA or less	
Shock resistance	980m/s ²			
Weight	g 1 m: 18 g 3 m: 49 g			

Consumable parts list

Tube Bore size	Kit No.	Consumable parts No.	Rubber cover (part No. 3)		Rail plate kit No.		Description
			LSH-G Chloroprene	LSH-F Fluorine	For F-switch	For T-switch	
ø6	Cannot be disassembled	-	LSH-G06K	LSH-F06K	LSH-RPF-06-HP	-	Rail plate Small machine screw
ø10	LSH-10K-HP	CR-ring Rod packing Piston packing O-ring	LSH-G10K	LSH-F10K	LSH-RPF-10-HP	-	
ø16	LSH-16K-HP		LSH-G16K	LSH-F16K	LSH-RPF-16-HP	-	
ø20	LSH-20K-HP	Rod packing Piston packing O-ring	LSH-G20K	LSH-F20K	LSH-RPF-20-HP	-	
ø25	LSH-25K-HP		LSH-G25K	LSH-F25K	LSH-RPF-25-HP	-	
ø32	LSH-32K-HP		LSH-G32K	LSH-F32K	LSH-RPF-32-HP	LSH-RPT-32-HP	

Refer to the LSH-G/LSH-F Series of "Linear Slide Hand LSH-HP Series (No.CC-1419A)" for dimensions.

SCP03	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	Environment-resistant cylinder
LCR	
LCG	
STM	
STG	
STR2	
SCP03	Linear Slide Hand
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	Low-profile long stroke hand
STS	
STL	
LSH	
LSHL	
LSHM	
LST	Wide Parallel Hand
LSTM	
HMC	
CKW	
ABP2	
SCP03	
CMK2	Compatible with rechargeable batteries
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	Supports food mfg. processes
LCR	
LCG	
STR2	
LSH	
LSHL	
SCP03	
CMK2	
SCM	
SCG	
SSD2	
STG	

LSH-G/LSH-F-HP1 Series

How to order

Without switch (built-in magnet for switch)

LSH - G 06 D 1 R ————— **HP1**

With switch (built-in magnet for switch)

LSH - G 06 D 1 R - F2H - D ————— **HP1**

A Rubber cover

B Bore size

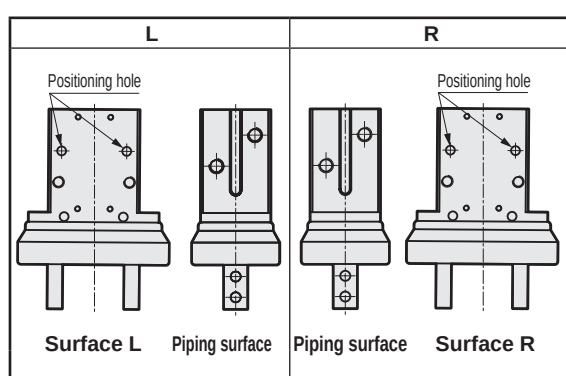
C Actuation

D Finger

E Grip center reference,
High precision positioning hole

F Switch model No.

Grip center reference, high precision positioning hole position diagram



Details on each dimensions "Linear Slide Hand LSH-HP Series (No.CC-1419A).

G Switch quantity

How to order switch

SW - F2H*

Switch model No.
(above Item **F**)

[Example of model No.]

LSH-G06D1R-F2H-D-HP1

Model: Linear Slide Hand

- A** Rubber cover : Chloroprene rubber
- B** Bore size : ø6
- C** Actuation : Double acting
- D** Finger : Basic
- E** Grip center reference, : R
high precision positioning hole
- F** Switch model No. : Proximity F2H, lead wire 1 m
- G** Switch quantity : 2

Code	Description
A Rubber cover	
G	Chloroprene rubber
F	Fluoro rubber

B Bore size (mm)	
06	ø6
10	ø10
16	ø16
20	ø20
25	ø25
32	ø32

C Actuation	
D	Double acting
S	Single acting / Normally Open (ø32 cannot be selected)
C	Single acting/Normally Closed (ø32 cannot be selected)

D Finger	
1	Basic

E Grip center reference, high precision positioning hole	
N	None
L	Refer to the figure at left.
R	

F Switch model No.	
Blank	No switch, with F-switch rail
N	No switch, no switch rail
A	No switch, with T-switch rail (ø32 only)

Lead wire Straight	Lead wire L-shaped	Contact	Voltage		Indicator	Lead wire
			AC	DC		
-	F2S*	Proximity		●	1-color LED	2-wire
-	F3S*			●		3-wire
F2H*	F2V*			●		2-wire
F3H*	F3V*			●		3-wire
F3PH*	F3PV*			●		3-wire
T2H*	T2V*			●		2-wire
T2HR3	T2VR3			●		2-wire
T3H*	T3V*			●		3-wire
T3PH*	T3PV*			●		3-wire

* Lead wire length	
Blank	1 m (standard)
3	3 m (option)

G Switch quantity	
R	1 on open side
H	1 on closed side
D	2

*1: If the one with the switch is selected, the product comes with a rail plate corresponding to the switch.

*2: Only ø32 can be selected for the T-switch

*3: Refer to page 125 for cylinder switch precautions.

Switch mounting availability table

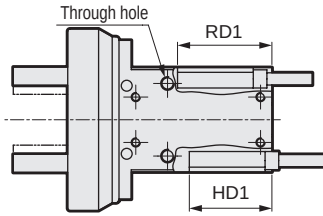
Model No.	Switch model No.	Side mounting	Rail mounting
LSH-G/F06	F2/3□	●	-
	F2/3S	-	●
LSH-G/F10	F2/3□	●	●
	F2/3S	●	●
LSH-G/F16	F2/3□	●	●
	F2/3S	●	●
LSH-G/F20	F2/3□	●	●
	F2/3S	●	●
LSH-G/F25	F2/3H/PH/PV	-	●
	F2/3V	●	●
	F2/3S	●	●
LSH-G/F32	F2/3□	●	●
	F2/3S	●	●
	T2/3□	-	●

Cylinder switch precautions

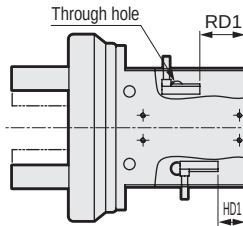
● Switch mounting position list

[Side mounting]

ø6 to 20, 32

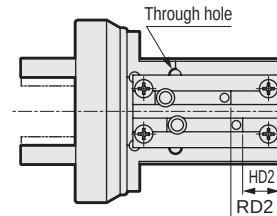


ø25



[Rail mount]

ø6 to 32



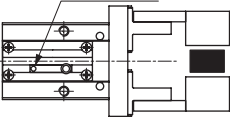
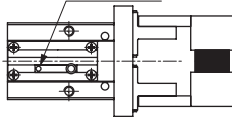
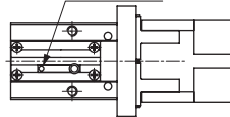
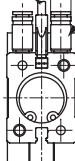
Model No.	Switch Model No.	Side mounting		Rail mounting	
		RD1	HD1	RD2	HD2
LSH-G/F06	F2/3□	20.5	18	-	-
	F2/3S	-	-	9.5 (-)	7 (-)
LSH-G/F10	F2/3□	21	18	11 (21)	8 (18)
	F2/3S	22	19	10 (22)	7 (19)
LSH-G/F16	F2/3□	21	17	11 (21)	7 (17)
	F2/3S	22	18	10 (22)	6 (18)
LSH-G/F20	F2/3□	26	20	16 (26)	10 (20)
	F2/3S	27	21	15 (27)	9 (21)
LSH-G/F25	F2/3□	-	-	20 (30)	12 (22)
	F2/3V	20	12	20 (30)	12 (22)
	F2/3S	19	11	19 (31)	11 (23)
LSH-G/F32	F2/3□	26	14	16 (26)	4 (14)
	F2/3S	27	15	15 (27)	3 (15)
	T2/3□	-	-	12 (30)	0 (18)

* When the lead wire is directed toward the head side, the dimension in parentheses apply.

* "-" indicates it cannot be mounted.

● Precautions

Refer to precautions in the following table for the bore size to be used.

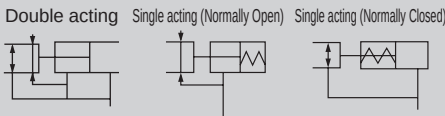
Category	Bore size						Caution												
	ø6	ø10	ø16	ø20	ø25	ø32													
Common items	●	●	●	●	●	●	• RD dimension is the max. sensitivity position at open side end position and HD dimension at closed side end position. The actual mounting position should be adjusted after confirming the operational status of the switch.												
	●	●	●	●	●	●	• One switch can be mounted for one switch rail groove.												
							• Since the opening and closing stroke is short, only one of the open or closed states is detected for each switch. Ex: A single switch alone cannot detect what is shown in the following illustration. Open (workpiece not gripped): switch OFF (2) Workpiece gripped: switch ON Closed (workpiece not gripped): switch OFF												
	●	●	●	●	●	●	Switch OFF  Switch ON  Switch OFF 												
	●	●	●	●	●	●	• Be careful not to be caught in the lead wires when opening/closing the finger.												
Side mounting	●	●	●	●			• When using the L-switch for side mounting on the side of the port, the fittings may interfere with the switch. Use fittings whose outer diameters are below those indicated in the following table. Mount position: port side Switch-type: L-shaped-type <table><thead><tr><th>Bore size (mount position)</th><th>Fitting O.D. øD</th></tr></thead><tbody><tr><td>ø6 (RD)</td><td>ø5 or less</td></tr><tr><td>ø6 (HD)</td><td>ø6.9 or less</td></tr><tr><td>ø10</td><td>ø7.4 or less</td></tr><tr><td>ø16</td><td>ø7.9 or less</td></tr><tr><td>ø20</td><td>ø11 or less</td></tr></tbody></table> Cylinder switch  Fitting	Bore size (mount position)	Fitting O.D. øD	ø6 (RD)	ø5 or less	ø6 (HD)	ø6.9 or less	ø10	ø7.4 or less	ø16	ø7.9 or less	ø20	ø11 or less
	Bore size (mount position)	Fitting O.D. øD																	
	ø6 (RD)	ø5 or less																	
	ø6 (HD)	ø6.9 or less																	
	ø10	ø7.4 or less																	
ø16	ø7.9 or less																		
ø20	ø11 or less																		
●	●	●	●		●	• When using a lead wire straight F3PV switch, the switch and lead wire protrude from the end face of the head side.If this protrusion is a problem, use F2/3V or F2/3S, or mount a rail.													
					●	• The F2/3V switch projects from the end face of the head side. If this protrusion is a problem, use F2/3S or mount a rail.													
	●	●	●	●		• For switch side mounting, the through hole cannot be used.													
Rail Mounting	●						• For switch rail mounting, the through hole cannot be used.												



Linear Slide Hand Long stroke Double acting/single acting

LSHL-A-HP1 Series

●Operating stroke: 8, 12, 18, 22 mm

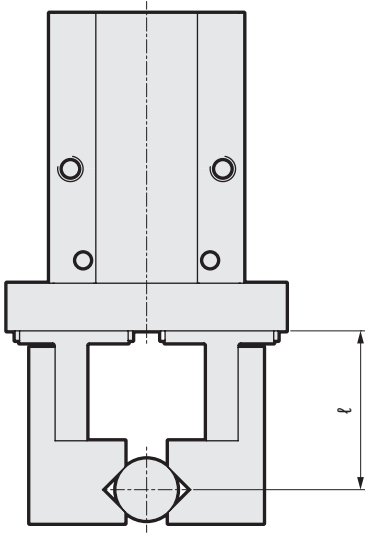


Specifications

Item		LSHL-A			
Bore size mm		ø10	ø16	ø20	ø25
Actuation		Double acting/single acting (Normally Open/Normally Closed)			
Working fluid		Compressed air			
Max. working pressure MPa		0.7			
Min. working pressure MPa	Double acting	0.2	0.1		
	Single acting	0.35	0.25		
Port size		M3	M5		
Ambient temperature °C		-10 to 60 (no freezing)			
Operating stroke mm		8	12	18	22
Repeatability mm		±0.01			
Weight Double acting (Single acting) kg	Finger OP: 1, 2, 3	0.065 (0.075)	0.155 (0.165)	0.315 (0.335)	0.54 (0.585)
	Finger OP: 4		0.16 (0.17)	0.32 (0.34)	0.545 (0.59)
Lubrication		Not required			

Gripping force

Unit: N



Bore size (mm)	Double acting	
	Open side	Closed side
ø10	17	11
ø16	45	34
ø20	66	42
ø25	104	65
Bore size (mm)	Single acting (Normally Open)	
		Closed side
ø10	-	7.1
ø16		27
ø20		33
ø25		50
Bore size (mm)	Single acting (Normally Closed)	
	Open side	
ø10	13	-
ø16	38	
ø20	57	
ø25	85	

* At supply pressure of 0.5 MPa, $l = 20$ mm, value at stroke center
*1: Avoid gripping the workpiece with single acting spring force as much as possible. The gripping force may become unstable, leading to operation failure.

Switch specifications

Item	2-wire proximity	3-wire proximity	2-wire proximity	3-wire proximity	
	F2S	F3S	F2H/F2V	F3H/F3V	F3PH/F3PV
Applications	Programmable Controller dedicated	Programmable For controller, relay	Programmable Controller dedicated	Programmable For controller, relay	
Output method	-	NPN output	-	NPN output	PNP output
Power supply voltage	-	10 to 28 VDC	-	10 to 28 VDC	4.5 to 28 VDC
Load voltage/ current	10 to 30 VDC 5 to 20 mA	30 VDC, 50 mA or less	10 to 30 VDC 5 to 20 mA	30 VDC, 50 mA or less	
Indicator lamp	LED (Lit when ON)		Yellow LED (Lit when ON)		
Leakage current	1 mA or less	10 μA or less	1 mA or less	10 μA or less	
Shock resistance	980m/s ²				
Weight g	1 m: 10 3 m: 29				

*1: The F type switch uses a bend-resistant lead wire as standard.

Refer to the LSHL-A Series of "Linear Slide Hand LSH-HP Series (No.CC-1419A)" for dimentions.

How to order

Without switch (built-in magnet for switch)

LSHL - A 10 D 1 R ————— **HP1**

With switch (built-in magnet for switch)

LSHL - A 10 D 1 R - F2H - D ————— **HP1**

A Rubber cover

B Bore size

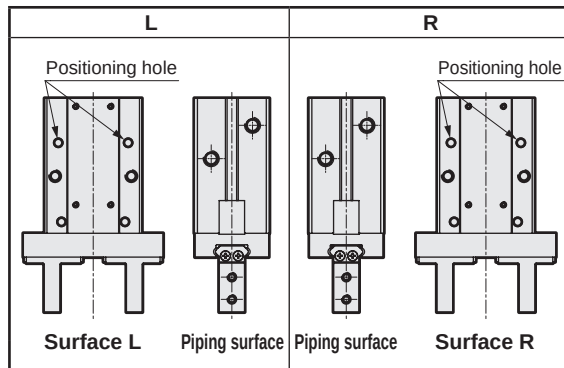
C Actuation

D Finger

E Grip center reference, High precision positioning hole

F Switch model No.

Grip center reference, High precision positioning hole position diagram



Details on each dimensions "Linear Slide Hand LSH-HP Series (No.CC-1419A).

How to order switch

SW - F2H*

Switch model No.
(above Item **F**)

[Example of model No.]

LSHL-A10D1R-N-HP1

Model: Linear Slide Hand, long stroke

A Rubber cover : Without rubber cover

B Bore size : ø10

C Actuation : Double acting

D Finger : Basic

E Grip center reference, : R
high precision positioning hole

F Switch model No. : No switch,
Without rail plate

Code	Description					
A Rubber cover						
A	Without rubber cover					
B Bore size (mm)						
10	ø10					
16	ø16					
20	ø20					
25	ø25					
C Actuation						
D	Double acting					
S	Single acting/Normally Open					
C	Single acting/Normally Closed					
D Finger * Refer to the dimentions for details						
1	Basic					
2	Side tap					
3	Through hole					
4	Flat					
E Grip center reference, high precision positioning hole						
N	None					
L	Refer to the figure at left.					
R						
F Switch model No.						
Blank		Without switch, rail plate attached				
N		Without switch or rail plate				
Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC DC		Indicator	Lead wire
-	F2S*	Proximity		●	1-color LED	2-wire
-	F3S*			●		3-wire
F2H*	F2V*			●		2-wire
F3H*	F3V*			●		3-wire
F3PH*	F3PV*			●		3-wire
* Lead wire length						
Blank		1 m (standard)				
3		3 m (option)				
G Switch quantity						
R		1 on open side				
H		1 on closed side				
D		2				

*1: When selecting "With switch", a rail plate is attached.

*2: Refer to page 128 for cylinder switch precautions.

Switch mounting availability table

Model No.	Switch model No.	Side mounting	Rail mounting
LSHL-A10	F2/3□	●	●
	F2/3S	●	●
LSHL-A16	F2/3□	●	●
	F2/3S	●	●
LSHL-A20	F2/3□	●	●
	F2/3S	●	●
LSHL-A25	F2/3□	●	●
	F2/3S	●	●

Consumable parts list

Tube Bore size	Kit No.	Consumable parts No.	Rail plate kit No.		
			For double acting	For single acting	Description
ø10	LSHL-10K-HP	CR-ring Rod packing	LSHL-RPF-10-HP	LSHL-RPF2-10-HP	Rail plate Small machine screw
ø16	LSHL-16K-HP	Piston packing O-ring	LSHL-RPF-16-HP		
ø20	LSH-20K-HP	Rod packing Piston packing	LSHL-RPF-20-HP		
ø25	LSH-25K-HP	O-ring	LSHL-RPF-25-HP		

Long service life cylinder
Environment-resistant cylinder
Linear Slide Hand
Low-profile long stroke hand
Wide Parallel Hand
Chuck
Air Booster
Compatible with rechargeable batteries
Supports food mfg. processes

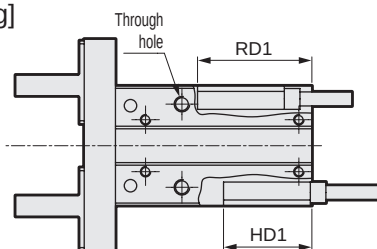
LSHL-A-HP1 Series

Cylinder switch precautions

● Switch mounting position list

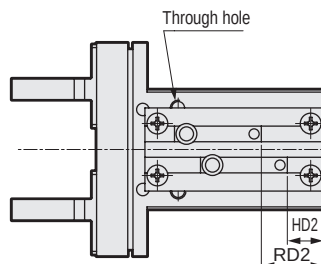
[Side mounting]

ø10 to 25



[Rail mount]

ø10 to 25

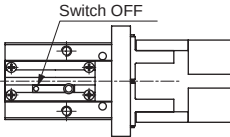
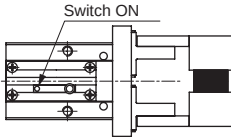
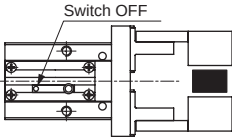
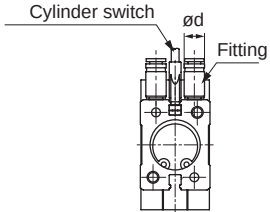


Model No.	Switch Model No.	Side mounting		Rail mounting	
		RD1	HD1	RD2	HD2
LSHL-A10D	F2/3□	22	17	12 (22)	7 (17)
	F2/3S	23	18	11 (23)	6 (18)
LSHL-A16D	F2/3□	24.5	16.5	14.5 (24.5)	6.5 (16.5)
	F2/3S	25.5	17.5	13.5 (25.5)	5.5 (17.5)
LSHL-A20D	F2/3□	30	20	20 (30)	10 (20)
	F2/3S	31	21	19 (31)	9 (21)
LSHL-A25D	F2/3□	33	21.5	23 (33)	11.5 (21.5)
	F2/3S	34	22.5	22 (34)	10.5 (22.5)
LSHL-A10S/C	F2/3□	28	23	18 (28)	13 (23)
	F2/3S	29	24	17 (29)	12 (24)
LSHL-A16S/C	F2/3□	27.5	20	17.5 (27.5)	10 (20)
	F2/3S	28.5	21	16.5 (28.5)	9 (21)
LSHL-A20S/C	F2/3□	33.5	23	23.5 (33.5)	13 (23)
	F2/3S	34.5	24	22.5 (34.5)	12 (24)
LSHL-A25S/C	F2/3□	38.5	27	28.5 (38.5)	17 (27)
	F2/3S	39.5	28	27.5 (39.5)	16 (28)

* When the lead wire is directed toward the head side, the dimension in parentheses apply.

● Caution

Refer to precautions in the following table for the bore size to be used.

Category	Bore size				Caution								
	ø10	ø16	ø20	ø25									
Common items	●	●	●	●	• RD dimension is the max. sensitivity position at open side end position and HD dimension at closed side end position. The actual mounting position should be adjusted after confirming the operational status of the switch. • One switch can be mounted for one switch rail groove. • Since the opening and closing stroke is short, only one of the open or closed states is detected for each switch. Ex: A single switch alone cannot detect what is shown in the following illustration. Open (workpiece not gripped): switch OFF (2) Workpiece gripped: switch ON Closed (workpiece not gripped): switch OFF 								
	●	●	●	●									
	●	●	●	●									
	●	●	●	●									
Side mounting	●	●	●		• Be careful not to be caught in the lead wires when opening/closing the finger. • When using the L-switch for side mounting on the side of the port, the fittings may interfere with the switch. Use fittings whose outer diameters are below those indicated in the following table. Mount position: port side Switch-type: L-shaped-type <table><thead><tr><th>Bore size</th><th>Fitting O.D. øD</th></tr></thead><tbody><tr><td>ø10</td><td>ø7.4 or less</td></tr><tr><td>ø16</td><td>ø7.9 or less</td></tr><tr><td>ø20</td><td>ø11 or less</td></tr></tbody></table> 	Bore size	Fitting O.D. øD	ø10	ø7.4 or less	ø16	ø7.9 or less	ø20	ø11 or less
	Bore size	Fitting O.D. øD											
	ø10	ø7.4 or less											
	ø16	ø7.9 or less											
	ø20	ø11 or less											
●	●	●	●	• For the lead wire straight switch, the switch and lead wire protrude from the end face on the head side. If this protrusion is a problem, use F2/3V or F2/3S, or mount a rail.									
●	●	●		• The F3PV switch projects from the end face of the head side. If this protrusion is a problem, use F2/3V or F2/3S, or mount a rail.									
●	●	●	●	• For switch side mounting, the through hole cannot be used.									
Rail mounting	●				• For switch rail mounting, the through hole cannot be used.								

Long service life cylinder	SCPD3
	CMK2
	SCM
	SSD2
	MDC2
	MSD
	MSDG-L
	SMG
	LCR
	LCG
	STM
	STG
	STR2
Environment-resistant cylinder	SCPD3
	CMK2
	SCM
	SCG
	SSD2
	SMG
	LCR
	STG
	STS
	STL
Linear Slide Hand	LSH
	LSHL
	LSHM
Low-profile long stroke hand	LST
	LSTM
Wide Parallel Hand	HMC
Chuck	CKW
Air Booster	ABP2
Compatible with rechargeable batteries	SCPD3
	CMK2
	SCM
	SSD2
	MSD
	MSDG-L
	SMG
	STG
	STM
	LCR
	LCG
	STR2
	LSH
	LSHL
Supports food mfg. processes	SCPD3
	CMK2
	SCM
	SCG
	SSD2
	STG



Linear Slide Hand

Long stroke

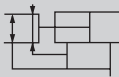
Double acting

With rubber cover

LSHL-G/LSHL-F-HP1 Series

●Operational stroke: 8, 12, 18 mm

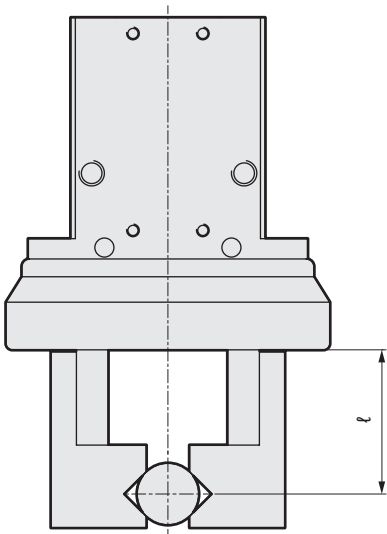
Double acting



Specifications

Item		LSHL-G, F		
Bore size	mm	ø10	ø16	ø20
Actuation		Double acting		
Working fluid		Compressed air		
Max. working pressure	MPa	0.7		
Min. working pressure	MPa	0.2	0.1	
Port size		M3	M5	
Ambient temperature	°C	-10 to 60°C (no freezing)		
Operating stroke	mm	8	12	18
Repeatability	mm	±0.01		
Weight	kg	0.09	0.18	0.39
Lubrication		Not required		

Gripping force



Unit: N

Bore size (mm)	Double acting	
	Open side	Closed side
ø10	17	11
ø16	45	34
ø20	66	42

* At supply pressure of 0.5 MPa, $l = 20$ mm, value at stroke

Switch specifications

Item	2-wire proximity	3-wire proximity	2-wire proximity	3-wire proximity	
	F2S	F3S	F2H/F2V	F3H/F3V	F3PH/F3PV
Applications	Programmable Controller dedicated	Programmable For controller, relay	Programmable Controller dedicated	Programmable For controller, relay	
Output method	-	NPN output	-	NPN output	PNP output
Power supply voltage	-	10 to 28 VDC	-	10 to 28 VDC	4.5 to 28 VDC
Load voltage/ current	10 to 30 VDC 5 to 20 mA	30 VDC 50 mA or less	10 to 30 VDC 5 to 20 mA	30 VDC, 50 mA or less	
Indicator lamp	LED (Lit when ON)		Yellow LED (Lit when ON)		
Leakage current	1 mA or less	10 μA or less	1 mA or less	10 μA or less	
Shock resistance	980m/s ²				
Weight	g	1 m: 10 3 m: 29			

*1: The F type switch uses a bend-resistant lead wire as standard.

Refer to the LSHL-G/LSHL-F Series of "Linear Slide Hand LSH-HP Series (No.CC-1419A)" for dimentions.

LSHL-G/LSHL-F-HP1 Series

How to order

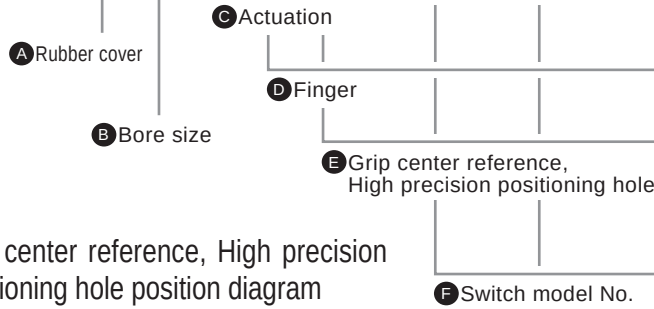
How to order

Without switch (built-in magnet for switch)

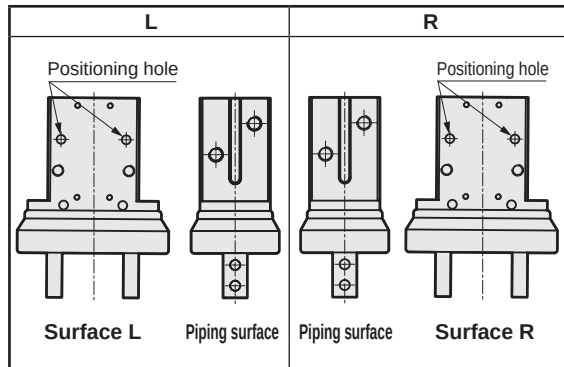
LSHL - G 10 D 1 R ————— **HP1**

With switch (built-in magnet for switch)

LSHL - G 10 D 1 R - F2H - D ————— **HP1**



Grip center reference, High precision positioning hole position diagram



Details on each dimensions "Linear Slide Hand LSH-HP Series (No.CC-1419A).

How to order switch

SW - F2H*

Switch model No.
(above Item F)

[Example of model No.]

LSHL-G10D1R-F2H-D-HP1

Model: Linear Slide Hand, long stroke

A Rubber cover : Chloroprene rubber

B Bore size : ø10

C Actuation : Double acting

D Finger : Basic

E Grip center reference, : R
high precision positioning hole

F Switch model No. : Proximity F2H, lead wire 1 m

G Switch quantity : 2

Consumable parts list

Bore size (mm)	Kit No.	Consumable parts No.	Rubber cover (part No. 3)		Rail plate Kit No.	Description
			LSHL-G Chloroprene	LSHL-F Fluorine		
ø10	LSHL-10K-HP	CR-ring Rod packing Piston packing O-ring	LSHL-G10K	LSHL-F10K	LSHL-RPF-10-HP	Rail plate Small machine screw
ø16	LSHL-16K-HP		LSHL-G16K	LSHL-F16K	LSHL-RPF-16-HP	
ø20	LSH-20K-HP	Rod packing Piston packing O-ring	LSHL-G20K	LSHL-F20K	LSHL-RPF-20-HP	

Code		Description				
A Rubber cover						
G	Chloroprene rubber					
F	Fluoro rubber					
B Bore size (mm)						
10	ø10					
16	ø16					
20	ø20					
C Actuation						
D	Double acting					
D Finger						
1	Basic					
E Grip center reference, high precision positioning hole						
N	None					
L	Refer to the figure at left.					
R						
F Switch model No.						
Blank	Without switch, rail plate attached					
N	Without switch or rail plate					
Lead wire Straight	Lead wire L-shaped	Contact	Voltage		Indicator	Lead wire
-	F2S*	Proximity	AC	DC	1-color LED	2-wire
-	F3S*			●		3-wire
F2H*	F2V*			●		2-wire
F3H*	F3V*			●		3-wire
F3PH*	F3PV*			●		3-wire
* Lead wire length						
Blank	1 m (standard)					
3	3 m (option)					
G Switch quantity						
R	1 on open side					
H	1 on closed side					
D	2					

*1: When selecting "With switch", a rail plate is attached.

*2: Refer to page 132 for cylinder switch precautions.

Switch mounting availability table

Model No.	Switch model No.	Side mounting	Rail mounting
LSHL-G/F10	F2/3□	●	●
	F2/3S	●	●
LSHL-G/F16	F2/3□	●	●
	F2/3S	●	●
LSHL-G/F20	F2/3□	●	●
	F2/3S	●	●

LSHL-G/LSHL-F-HP1 Series

Cylinder switch precautions

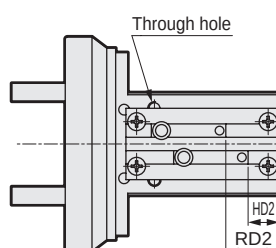
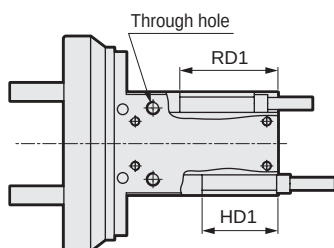
● Switch mounting position list

[Side mounting]

ø10 to 20

[Rail mount]

ø10 to 20

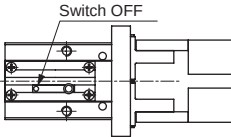
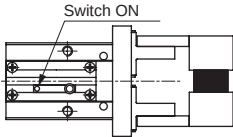
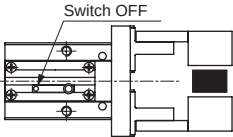
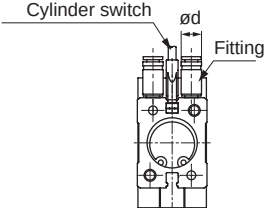


Model No.	Switch Model No.	Side mounting		Rail mounting	
		RD1	HD1	RD2	HD2
LSHL-G/F10	F2/3□	22	17	12 (22)	7 (17)
	F2/3S	23	18	11 (23)	6 (18)
LSHL-G/F16	F2/3□	25	17	15 (25)	7 (17)
	F2/3S	26	18	14 (26)	6 (18)
LSHL-G/F20	F2/3□	35.5	25.5	25.5 (35.5)	15.5 (25.5)
	F2/3S	36.5	26.5	24.5 (36.5)	14.4 (26.5)

* When the lead wire is directed toward the head side, the dimension in parentheses apply.

● Caution

Refer to precautions in the following table for the bore size to be used.

Category	Bore size			Caution								
	ø10	ø16	ø20									
Common items	●	●	●	• RD dimension is the max. sensitivity position at open side end position and HD dimension at closed side end position. The actual mounting position should be adjusted after confirming the operational status of the switch. • One switch can be mounted for one switch rail groove. • Since the opening and closing stroke is short, only one of the open or closed states is detected for each switch. Ex: A single switch alone cannot detect what is shown in the following illustration. Open (workpiece not gripped): switch OFF (2) Workpiece gripped: switch ON Closed (workpiece not gripped): switch OFF 								
	●	●	●									
	●	●	●									
	●	●	●									
Side mounting	●	●	●	• Be careful not to be caught in the lead wires when opening/closing the finger. • When using the L-switch for side mounting on the side of the port, the fittings may interfere with the switch. Use fittings whose outer diameters are below those indicated in the following table. Mount position: port side Switch-type: L-shaped-type <table><tr><th>Bore size</th><th>Fitting O.D. øD</th></tr><tr><td>ø10</td><td>ø7.4 or less</td></tr><tr><td>ø16</td><td>ø7.9 or less</td></tr><tr><td>ø20</td><td>ø11 or less</td></tr></table> 	Bore size	Fitting O.D. øD	ø10	ø7.4 or less	ø16	ø7.9 or less	ø20	ø11 or less
	Bore size	Fitting O.D. øD										
	ø10	ø7.4 or less										
	ø16	ø7.9 or less										
	ø20	ø11 or less										
●	●	●	• For the lead wire straight switch, the switch and lead wire protrude from the end face on the head side. If this protrusion is a problem, use F2/3V or F2/3S, or mount a rail.									
●	●		• The F3PV switch projects from the end face of the head side. If this protrusion is a problem, use F2/3V or F2/3S, or mount a rail.									
●	●	●	• For switch side mounting, the through hole cannot be used.									
Rail mounting	●			• For switch rail mounting, the through hole cannot be used.								

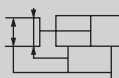
Long service life cylinder	SCPD3
	CMK2
	SCM
	SSD2
	MDC2
	MSD
	MSDG-L
	SMG
	LCR
	LCG
	STM
	STG
	STR2
	STR2
Environment-resistant cylinder	SCPD3
	CMK2
	SCM
	SCG
	SSD2
	SMG
	LCR
	STG
	STS
	STL
Linear Slide Hand	LSH
	LSHL
	LSHM
Low-profile long stroke hand	LST
	LSTM
Wide Parallel Hand	HMC
Chuck	CKW
Air Booster	ABP2
Compatible with rechargeable batteries	SCPD3
	CMK2
	SCM
	SSD2
	MSD
	MSDG-L
	SMG
	STG
	STM
	LCR
	LCG
	STR2
	LSH
	LSHL
Supports food mfg. processes	SCPD3
	CMK2
	SCM
	SCG
	SSD2
	STG



Length measurement function Linear Slide Hand Double acting

LSHM-A-HP2 Series

●Operating stroke: 4, 6, 10, 14 mm



Specifications

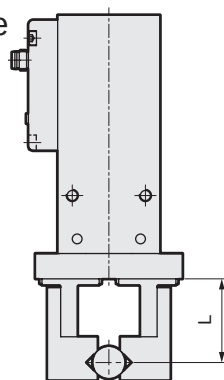
Item		LSHM-A																			
Bore size		mm		ø10		ø16		ø20		ø25											
Actuation		Double acting																			
Working fluid		Compressed air																			
Max. working pressure		MPa		0.7																	
Min. working pressure		MPa		0.2		0.1															
Port size				M3		M5															
Operating stroke		mm		4		6		10		14											
Power supply voltage		24 VDC ±10%																			
Current consumption		25 mA or less																			
Indicator lamp		Green LED ON when power applied																			
Analog output		1 V when finger closed - 5 V when open [†] , Connecting load 100kΩ and over																			
Analog output linearity		Without correction adapter		±3% F.S. or less (ambient temperature 25°C)																	
		With correction adapter		±0.5% F.S. or less (ambient temperature 25°C)																	
Repeatability of analog output		±0.02 mm or less (No deformation or wear of the actuator / jig when ambient temperature is 25 ° C)																			
Valid measured range length		mm		4.5		6.5		10		14											
Shock resistance (sensor/amplifier section)		294m/s ²																			
Vibration resistance (sensor / amplifier section)		10 to 55Hz Compound amplitude 1.5mm X, 2 hours each in Y, Z directions																			
Degree of protection (sensor/amplifier section)		IEC Standard IP65																			
Ambient temperature, humidity		10 to 60 °C, 85% RH or less (no freezing)																			
Amplifier mounting position		Side		Front		Side		Front		Side		Front									
Weight		kg		Finger OP: 1, 2, 3		0.108		0.120		0.221		0.238		0.437		0.457		0.752		0.773	
						Finger OP: 4		0.226		0.243		0.442		0.462		0.782		0.803			
Lubrication		Not required																			

Note: Refer to page 138 for the correction adapter.

*1: There is output fluctuation of 1 mV / °C.

Unit: N

Gripping force

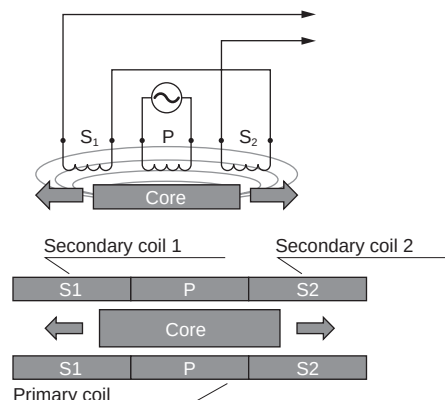


Bore size (mm)	Double acting	
	Open side	Closed side
ø10	17	11
ø16	45	34
ø20	66	42
ø25	104	65

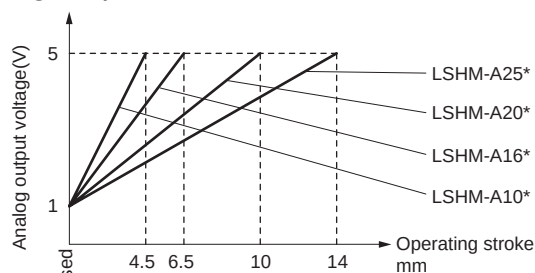
*Supply pressure: 0.5 MPa, L = 20 mm, value at stroke center

LVDT displacement sensor operation principle

When exciting the primary coil (P), induced voltage is generated in the two secondary coils (S1/S2) by electromagnetic induction. When the Hand is driven, the core position changes and a difference in induced voltage occurs between S1 and S2. This difference is used to output the position of the core as electric signals.



Analog output characteristics



*The analog output voltage at shipment is 1 V on the closed side and 5 V on the open side, with the port closed and pressurized.

Refer to the LSHM-A Series of "Linear Slide Hand LSH-HP Series (No.CC-1419A)" for dimensions.

How to order

LSHM - A 10 D 2 A - N - HP2

A Rubber cover

B Bore size

C Actuation

D Finger

E Amp mounting position/grip center reference, high precision positioning hole

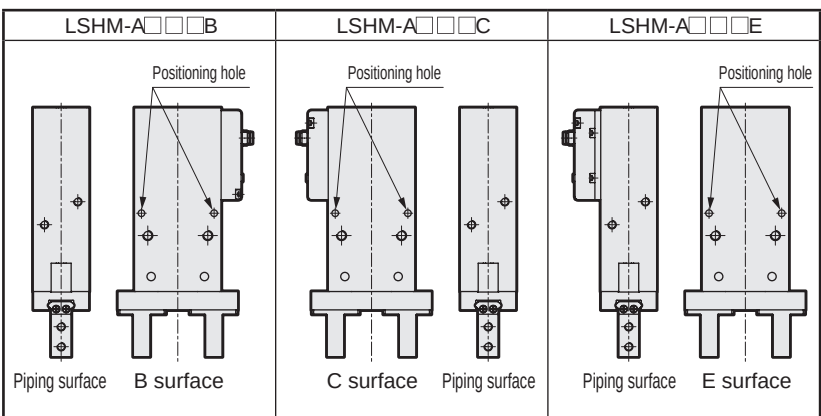
F Adaptor option

Code	Description
A Rubber cover	
A	Without rubber cover
B Bore size (mm)	
10	ø10
16	ø16
20	ø20
25	ø25
C Actuation	
D	Double acting
D Finger * Refer to the dimentions for details.	
1	Basic
2	Side tap
3	Through hole
4	Flat
E Amp mounting position / grip center reference, high precision positioning hole *1	
A	Amp side/no positioning hole
B	Amp side/rear with finger below and piping right
C	Amp side/rear with finger below and piping left
D	Amp front/no positioning hole
E	Amp front/rear with finger below and piping right
F Adaptor option *2	
N	Without adaptor
A	Correction adaptor
B	Switch output adapter (NPN)
C	Switch output adapter (PNP)
D	IO-Link adapter

*2: Shipped with the product.

*1

Amp mounting position/grip center reference, high precision positioning hole position diagram



Refer to "Linear Slide Hand LSH-HP Series (No.CC-1419A)" for details.

[Example of model No.]

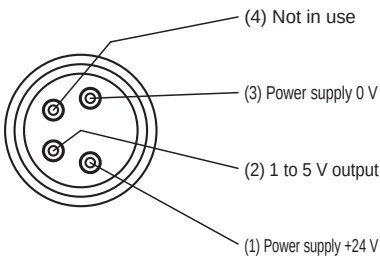
LSHM-A10D2A-N-HP2

Model: Linear Slide Hand

- A Rubber cover : Without rubber cover
- B Bore size : ø10
- C Actuation : Double acting
- D Finger : Side tap
- E Amp mounting position / grip center reference, high precision positioning hole : Amp side/no positioning hole
- F Adaptor option : Without adaptor

Plug contact array diagram

• Without adaptor



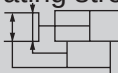
SCP03	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCP03	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCP03	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCP03	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	



Length measurement function Linear Slide Hand Double acting
with rubber cover

LSHM-G/LSHM-F-HP2 Series

● Operating stroke: 4, 6, 10, 14 mm



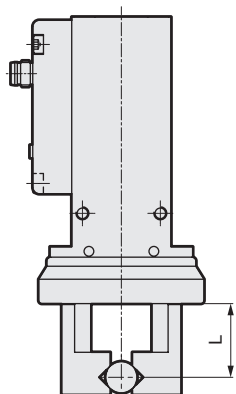
Specifications

Item		LSHM-G/LSHM-F									
Bore size		mm		ø10		ø16		ø20		ø25	
Actuation		Double acting									
Working fluid		Compressed air									
Max. working pressure		MPa		0.7							
Min. working pressure		MPa		0.2		0.1					
Port size				M3		M5					
Operating stroke		mm		4		6		10		14	
Power supply voltage		24 VDC ±10%									
Current consumption		25 mA or less									
Indicator lamp		Green LED ON when power applied									
Analog output		1 V when finger closed - 5 V when open ¹ , Connecting load 100kΩ and over									
Analog output linearity	Without correction adapter	±3% F.S. or less (ambient temperature 25°C)									
	With correction adapter	±0.5% F.S. or less (ambient temperature 25°C)									
Repeatability of analog output		±0.02 mm or less (No deformation or wear of the actuator / jig when ambient temperature is 25 °C)									
Valid measured range length		mm		4.5		6.5		10		14	
Shock resistance (sensor/amplifier section)		294m/s ²									
Vibration resistance (sensor / amplifier section)		10 to 55Hz Compound amplitude 1.5mm X, 2 hours each in Y, Z directions									
Degree of protection (sensor/amplifier section)		IEC Standard IP65									
Ambient temperature, humidity		10 to 60 °C, 85% RH or less (no freezing)									
Amplifier mounting position				Side	Front	Side	Front	Side	Front	Side	Front
Weight		kg		0.113	0.125	0.236	0.253	0.462	0.482	0.792	0.813
Lubrication		Not required									

Note: Refer to page 138 for the correction adapter.

*1: There is output fluctuation of 1 mV/°C.

Gripping force



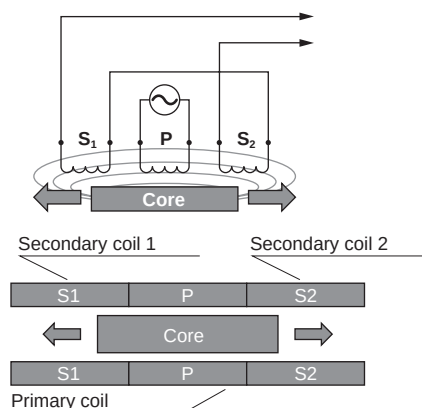
Unit: N

Bore size (mm)	Double acting	
	Open side	Closed side
ø10	17	11
ø16	45	34
ø20	66	42
ø25	104	65

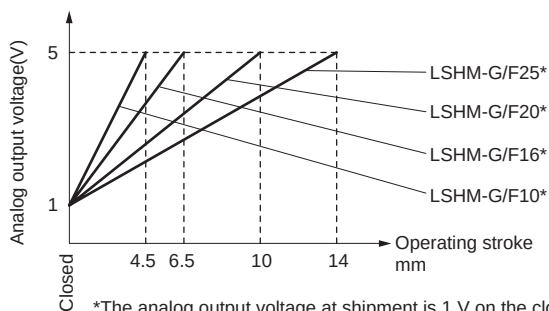
*Supply pressure: 0.5 MPa, L = 20 mm, value at stroke center

LVDT displacement sensor operation principle

When exciting the primary coil (P), induced voltage is generated in the two secondary coils (S1/S2) by electromagnetic induction. When the Hand is driven, the core position changes and a difference in induced voltage occurs between S1 and S2. This difference is used to output the position of the core as electric signals.



Analog output characteristics



*The analog output voltage at shipment is 1 V on the closed side and 5 V on the open side, with the port closed and pressurized.

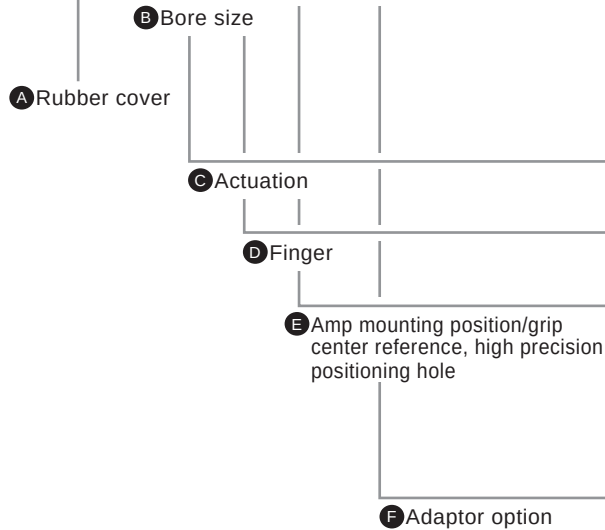
Refer to the LSHM-G/LSHM-F Series of "Linear Slide Hand LSH-HP Series (No.CC-1419A)" for dimensions.

LSHM-G/LSHM-F-HP2 Series

How to order

How to order

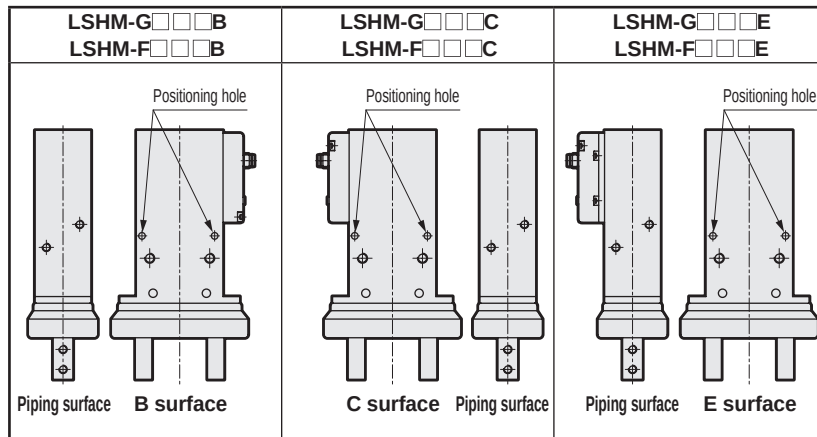
LSHM - G 10 D 1 A - N - HP2



Code	Description
A Rubber cover	
G	Chloroprene rubber
F	Fluoro rubber
B Bore size (mm)	
10	ø10
16	ø16
20	ø20
25	ø25
C Actuation	
D	Double acting
D Finger	
1	Basic
E Amp mounting position / grip center reference, high precision positioning hole *1	
A	Amp side/no positioning hole
B	Amp side/rear with finger below and piping right
C	Amp side/rear with finger below and piping left
D	Amp front/no positioning hole
E	Amp front/rear with finger below and piping right
F Adaptor option *2	
N	Without adaptor
A	Correction adapter
B	Switch output adapter (NPN)
C	Switch output adapter (PNP)
D	IO-Link adapter

*1

Amp mounting position/grip center reference, high precision positioning hole position diagram



Refer to "Linear Slide Hand LSH-HP Series (No.CC-1419A)" for details.

[Example of model No.]

LSHM-G10D1A-N-HP2

Model: Linear Slide Hand

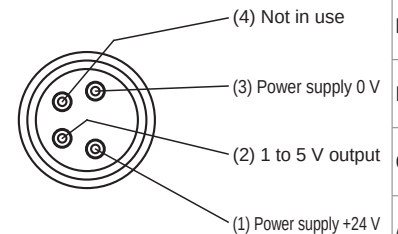
- A** Rubber cover : Chloroprene rubber
- B** Bore size : ø10
- C** Actuation : Double acting
- D** Finger : Basic
- E** Amp mounting position / grip center reference, high precision positioning hole : Amp side/no positioning hole
- F** Adaptor option : Without adaptor

Consumable parts list

Bore size (mm)	Material	Kit No.	Consumable parts No.	Bore size (mm)	Material	Kit No.	Consumable parts No.
ø10	Chloroprene rubber	LSH-G10K	Rubber cover	ø20	Chloroprene rubber	LSH-G20K	Rubber cover
	Fluoro rubber	LSH-F10K			Fluoro rubber	LSH-F20K	
ø16	Chloroprene rubber	LSH-G16K		ø25	Chloroprene rubber	LSH-G25K	
	Fluoro rubber	LSH-F16K			Fluoro rubber	LSH-F25K	

Plug contact array diagram

• Without adaptor



SCP03	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCP03	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCP03	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCP03	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

Correction adapter

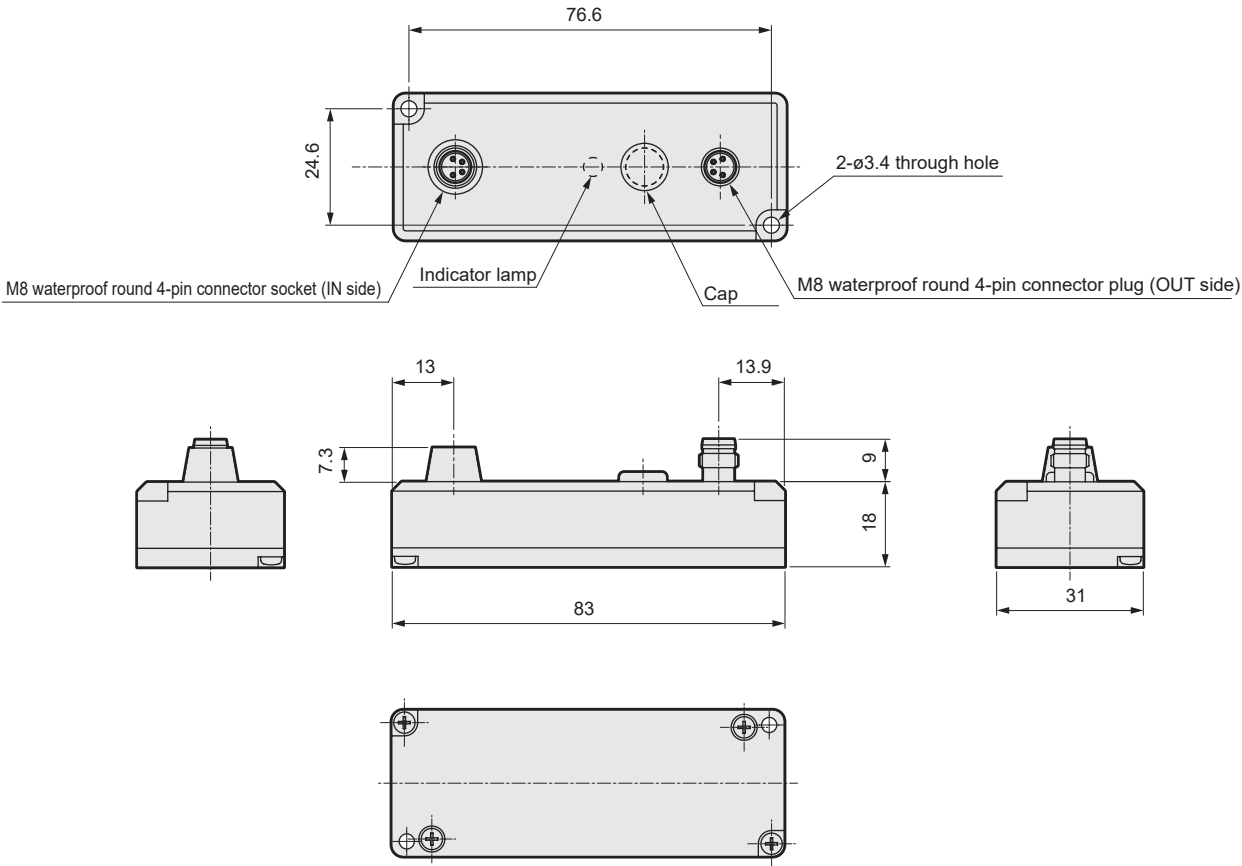
The analog output linearity will be corrected. Please use for applications where high-accuracy linearity is required.

Specifications

Item	Description
Power supply voltage	24 VDC ±10%
Current consumption	35 mA or less
Indicator lamp	Red LED lit when power applied
Analog input	1 to 5 V (LSHM Series output voltage)
Analog output	1 to 5 V, connection load 50 kΩ or more
Analog output linearity	±0.5% F.S. or less (ambient temperature 25°C, LSHM Series connection, CKD provided measuring method)
Repeatability of analog output	±0.02 mm or less (No deformation or wear of the actuator / jig when ambient temperature is 25 ° C)
Input connector	M8 waterproof round 4-pin connector socket
Output connector	M8 waterproof round 4-pin connector plug
Shock resistance	294m/s ²
Degree of protection	IEC Standard IP65
Ambient temperature, humidity	10 to 60 °C, 85% RH or less
Mounting method	Direct mounting
Weight	40g

*Use the default combination of LSHM and correction adapter.

Dimintions



Switch output adapter

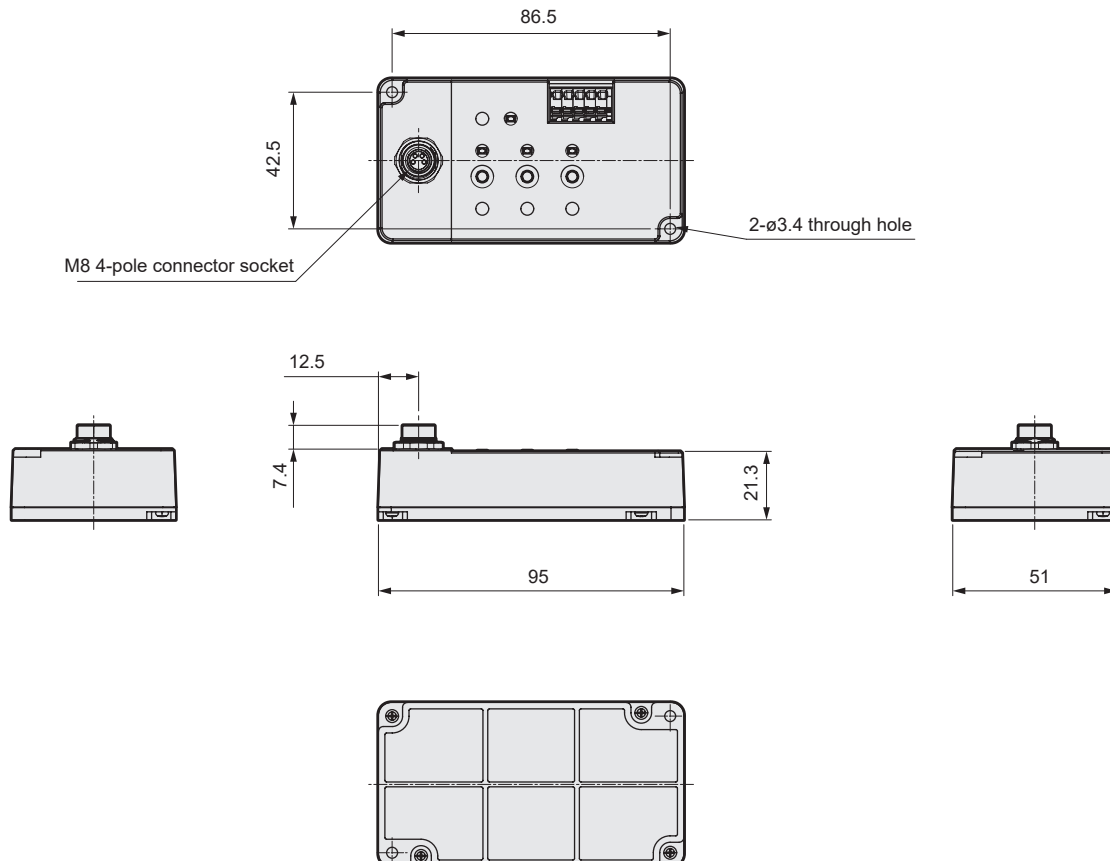
Specifications

Item	Switch output adapter (NPN) Option code: B	Switch output adapter (PNP) Option code: C
Power supply voltage	24 VDC $\pm 10\%$	
Current consumption	35 mA or less	
Power indicator lamp	Green LED ON when power applied	
Switch indicator lamp	Red Lit when LED ON	
Switch output point	3	
Switch output (per 1 ch)	NPN: Open collector Max. power supply voltage: 24 VDC Max. load current: 50 mA Internal voltage drop: 1.2V or less	PNP: Open collector Max. power supply voltage: 24 VDC Max. load current: 50mA (*1) Internal voltage drop: 1.5V or less
Operating range	0.2/0.5/1.0 mm (*2)	
Analog input	1 to 5 V (LSHM Series output voltage)	
Input connector	M8 connector 4-pin (socket)	
Shock resistance	294m/s ²	
Degree of protection	IEC Standards IP40	
Ambient temperature, humidity	10 to 60°C, 85% RH or less	
Mounting method	Direct mounting	
Insulation resistance	20 MΩ and over with 500 VDC megger	
Withstand voltage	No failure after 1 minute of 1,000 VAC application	
Vibration resistance	10 Hz-55Hz compound amplitude 1.5mm, X, Y, Z, 2 hours each in each direction	
Weight	65g	

*1: The total of all channels must be 100 mA or less.

*2: There is a hysteresis of 0.04mm on one side.

Dimentions

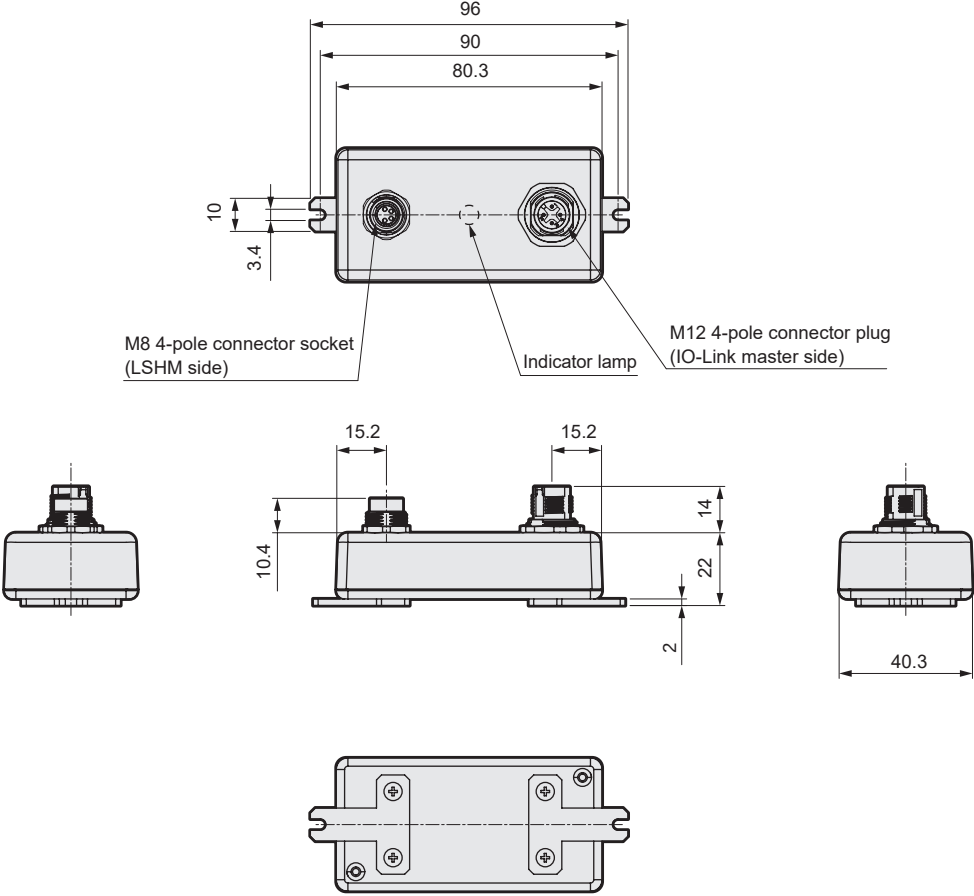


IO-Link adapter

Specifications

Item	Description
Power supply voltage	24 VDC ±10%
Current consumption	35 mA or less
Indicator lamp	Green LED ON when power applied
Analog input	1 to 5 V (LSHM Series output voltage)
Input connector	M8 connector 4-pin (socket)
Output connector	M12 connector 4-pin (plug)
nonlinearity	±0.5% F.S. or less (ambient temperature 25°C, LSHM Series connection, CKD provided measuring method)
Insulation resistance	20 MΩ and over with 500 VDC megger
Withstand voltage	No failure after 1 minute of 1,000 VAC application
Shock resistance	294m/s ²
Degree of protection	IEC Standards IP40
Ambient temperature, humidity	10 to 60°C, 85% RH or less
Mounting method	Direct mounting
Vibration resistance	10 Hz-55Hz compound amplitude 1.5mm, X, Y, Z, 2 hours each in each direction
Weight	70g

Dimensions



Long service life cylinder	SCPD3
	CMK2
	SCM
	SSD2
	MDC2
	MSD
	MSDG-L
	SMG
	LCR
	LCG
	STM
	STG
	STR2
	STR2
Environment-resistant cylinder	SCPD3
	CMK2
	SCM
	SCG
	SSD2
	SMG
	LCR
	STG
	STS
	STL
Linear Slide Hand	LSH
	LSHL
	LSHM
Low-profile long stroke hand	LST
	LSTM
Wide Parallel Hand	HMC
	CKW
Air Booster	ABP2
Compatible with rechargeable batteries	SCPD3
	CMK2
	SCM
	SSD2
	MSD
	MSDG-L
	SMG
	STG
	STM
	LCR
	LCG
	STR2
	LSH
	LSHL
Supports food mfg. processes	SCPD3
	CMK2
	SCM
	SCG
	SSD2
	STG

HP1, HP2 Series

Low-profile long stroke hand



CONTENTS

●HP1 Series	
Low-profile long stroke hand (LST-HP1)	144
●HP2 Series	
Length measurement function/Low-profile long stroke hand (LSTM-HP2)	146
⚠ Safety precautions	232

Low-profile long stroke hand series variation

Model No.	Bore size (mm)	Stroke (mm)
LST-HP1	ø8×2/ø12×2/ø16×2/ø20×2	8/16/32, 12/24/48, 16/32/64, 20/40/80
LSTM-HP2	ø12×2/ø16×2/ø20×2	12/16/20



Low-profile long stroke hand Double acting

LST-HP1 Series

- Operational stroke: Short stroke: 8, 12, 16, 20mm
Middle stroke: 16, 24, 32, 40mm
Long stroke: 32, 48, 64, 80mm

Double acting



Specifications

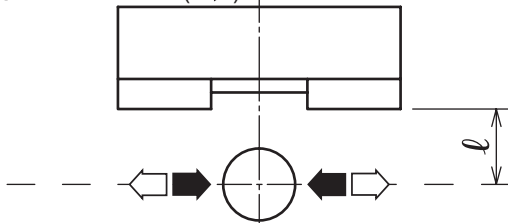
Item	LST-08			LST-12			LST-16			LST-20		
	A	B	C	A	B	C	A	B	C	A	B	C
Bore size mm	ø8 x 2			ø12 x 2			ø16 x 2			ø20 x 2		
Actuation	Double acting											
Working fluid	Compressed air											
Max. working pressure MPa	0.7											
Min. working pressure MPa	0.15			0.1								
Ambient temperature°C	-10 to 60 (no freezing)											
Port size	M3			M5								
Operating stroke mm	8	16	32	12	24	48	16	32	64	20	40	80
Repeatability mm	±0.03											
Weight kg	0.09	0.12	0.16	0.19	0.24	0.34	0.42	0.54	0.79	0.78	1.03	1.49
Lubrication	Not required											

Gripping force

- Gripping force is the thrust (one finger) in the direction of the arrow shown in the figure.

Unit: N

- Open direction (←)
- Close direction (→)



Bore size (mm)	Double acting
ø8	19
ø12	48
ø16	90
ø20	141

* Supply pressure 0.5MPa, $l=15\text{mm}$, value at the stroke center

Switch specifications

Item	2-wire proximity	3-wire proximity	2-wire proximity	3-wire proximity	
	F2S	F3S	F2H/F2V	F3H/F3V	F3PH/F3PV
Applications	Programmable Controller dedicated	Programmable For controller, relay	Programmable Controller dedicated	Programmable For controller, relay	
Output method	-	NPN output	-	NPN output	PNP output
Power supply voltage	-	10 to 28 VDC	-	10 to 28 VDC	4.5 to 28 VDC
Load voltage/ current	10 to 30 VDC 5 to 20 mA	30 VDC or less 50 mA or less	10 to 30 VDC 5 to 20 mA	30 VDC or less 50 mA or less	
Indicator lamp	Red LED (Lit when ON)		Yellow LED (Lit when ON)		
Leakage current	1 mA or less	10 μA or less	1 mA or less	10 μA or less	
Shock resistance	980m/s ²				
Weight	g1m:10 3m:29				

*1: The F-switch uses a bend-resistant lead wire as standard.

Refer to the LST-HP1 Series of "Low-profile long Stroke Hand LST-HP Series (No.CC-1529A)" for dimensions.

How to order

Without switch (built-in magnet for switch)

LST - **08** **A** **1** **N** ————— **HP1**

With switch (built-in magnet for switch)

LST - **08** **A** **1** **N** - **F2H** - **D** - **HP1**

A Bore size (mm)

B Stroke

C Port position

D High precision positioning hole

E Switch model No.

F Switch quantity

Code		Description				
A Bore size (mm)						
08	ø8					
12	ø12					
16	ø16					
20	ø20					
B Stroke						
A	Short stroke					
B	Middle stroke					
C	Long stroke					
C Port position						
1	Standard, axis direction					
2	Side piping					
D High precision positioning hole						
N	None					
A	Available					
E Switch model No.						
Lead wire Straight	Lead wire L-shaped	Contact	Voltage		Indicator	Lead wire
			AC	DC		
-	F2S*	Proximity		●	1-color LED	2-wire
-	F3S*			●		3-wire
F2H*	F2V*			●		2-wire
F3H*	F3V*			●		3-wire
F3PH*	F3PV*			●		3-wire
* Lead wire length						
Blank	1 m (standard)					
3	3 m (option)					
F Switch quantity						
R	1 on open side					
H	1 on closed side					
D	2					

How to order switch

SW - **F2H***

Switch model No.
(above Item **E**)

[Example of model No.]

LST-16B2A-F2H3-D-HP1

Model: Low-profile long stroke hand

- A** Bore size (mm) : ø16
- B** Stroke : Middle stroke
- C** Port position : Side piping
- D** High precision positioning hole : Available
- E** Switch model No. : Proximity F2H, lead wire 3 m
- F** Switch quantity : 2

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	



Low-profile long stroke hand with length measuring function
Double acting

LSTM-HP2 Series

● Operating stroke: 12, 16, 20 mm

Double acting



Specifications

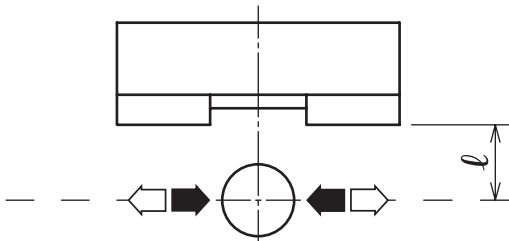
Item		LSTM		
Bore size	mm	ø12 x 2	ø16 x 2	ø20 x 2
Actuation		Double acting		
Working fluid		Compressed air		
Max. working pressure	MPa	0.7		
Min. working pressure	MPa	0.1		
Port size		M5		
Operating stroke	mm	12	16	20
Power supply voltage		24 VDC ±10%		
Current consumption		25 mA or less		
Indicator lamp		Green LED ON when power applied		
Analog output		1 V when finger is closed - 5V*1 when open, connection load 100kΩ or more		
Analog output linearity		±0.5% F.S. or less (ambient temperature 25°C)		
Repeatability of analog output		±0.04 mm or less (No deformation or wear of the actuator / jig when ambient temperature is 25 ° C)		
Valid measured range length	mm	12	16	20
Shock resistance (sensor/amplifier section)		294m/s ²		
Vibration resistance (sensor / amplifier section)		10 to 55Hz double amplitude 1.5mm, 2 hours in each X, Y, Z direction		
Degree of protection (sensor/amplifier section)		IEC Standard IP65		
Ambient temperature, humidity		10 to 60°C, 85% RH or less (no freezing)		
Weight	kg	0.26	0.50	0.90
Lubrication		Not required		

*1: There is output fluctuation of 1 mV / °C.

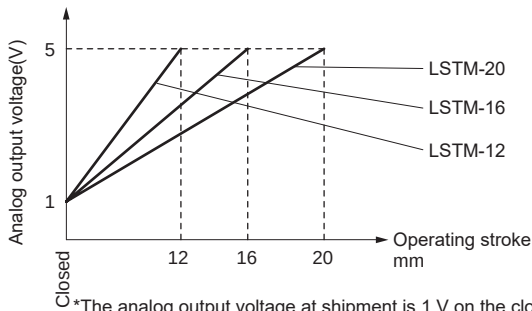
Gripping force

• Gripping force is the thrust (one finger) in the direction of the arrow shown in the figure.

- Open direction (←)
- Close direction (→)



Analog output characteristics



*The analog output voltage at shipment is 1 V on the closed side and 5 V on the open side, with the port closed and pressurized.

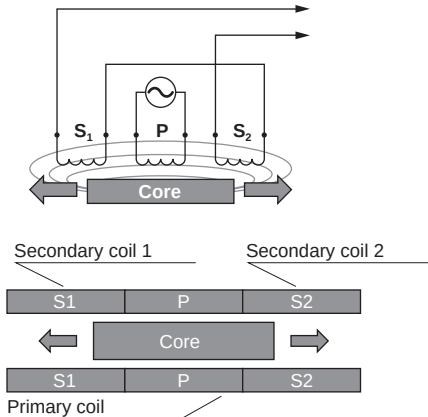
Unit: N

Bore size (mm)	Double acting
ø12	48
ø16	90
ø20	141

*Supply pressure: 0.5 MPa, ℓ=15mm value at stroke center

LVDT displacement sensor operation principle

When exciting the primary coil (P), induced voltage is generated in the two secondary coils (S1/S2) by electromagnetic induction. When the Hand is driven, the core position changes and a difference in induced voltage occurs between S1 and S2. This difference is used to output the position of the core as electric signals.



How to order

LSTM - 12 A 1 N - HP2

A Bore size (mm)

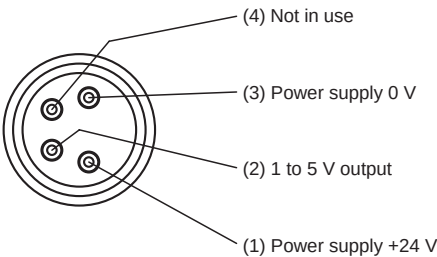
B Stroke

C Port position

D High precision positioning hole

Code	Description
A Bore size (mm)	
12	ø12
16	ø16
20	ø20
B Stroke	
A	Short stroke
C Port position	
1	Standard, axis direction
D High precision positioning hole	
N	None
A	Available

Plug contact array diagram



[Example of model No.]

LSTM-16A1A-HP2

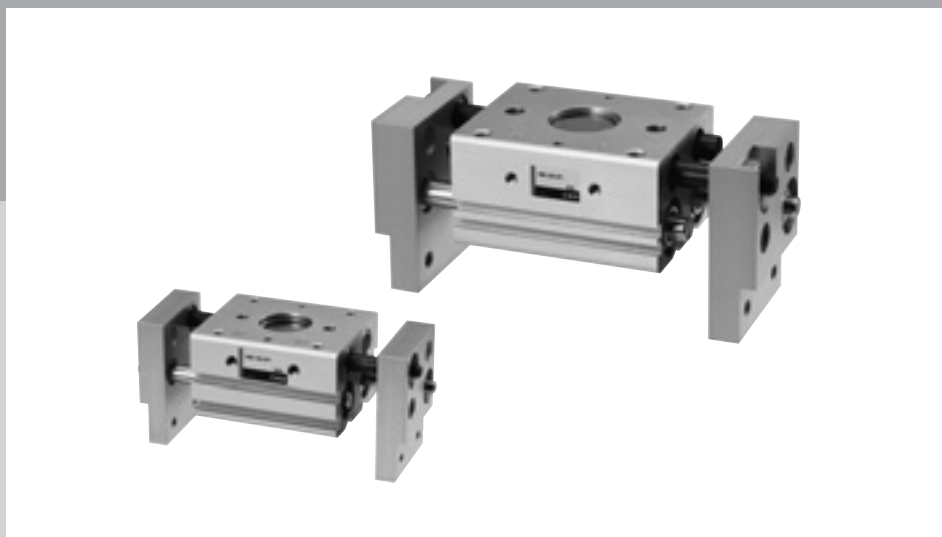
Model: Low-profile long stroke hand with length measuring function

- A Bore size (mm) : ø16
- B Stroke : Short stroke
- C Port position : Standard, axis direction
- D High precision positioning hole : Available

Refer to the LSTM-HP2 Series of "Low-profile long stroke hand LST-HP Series (No.CC-1529A)" for dimensions.

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	Environment-resistant cylinder
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Linear Slide Hand
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	Low-profile long stroke hand
STS	
STL	
LSH	
LSHL	
LSHM	
LST	Wide Parallel Hand
LSTM	
HMC	
CKW	
ABP2	
SCPD3	Chuck
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	Air Booster
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	Supports food mfg. processes
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	

HP1 Series Wide parallel hand

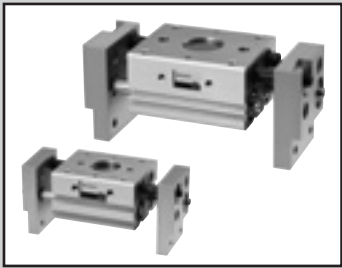


CONTENTS

● Wide parallel hand (HMC-HP1)	150
⚠ Safety precautions	232

Wide parallel hand series variation

Model No.	Bore size (mm)	Stroke (mm)
HMC-HP1	$\varnothing 10 \times 2 / \varnothing 16 \times 2 / \varnothing 20 \times 2$ $\varnothing 25 \times 2 / \varnothing 32 \times 2 / \varnothing 40 \times 2$	20/40/60, 30/60/80, 40/80/100, 50/100/120, 70/120/160, 100/160/200



Wide parallel hand (standard/long stroke)

HMC-HP1 Series

● Operating stroke: Short stroke: 20, 30, 40, 50, 70, 100mm
Middle stroke: 40, 60, 80, 100, 120, 160mm
Long stroke: 60, 80, 100, 120, 160, 200mm

Double acting



Specifications

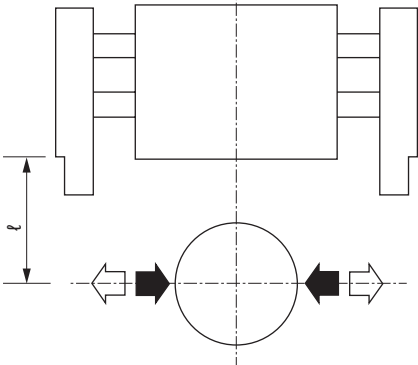
Item	HMC-10			HMC-16			HMC-20			HMC-25			HMC-32			HMC-40				
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C		
Bore size	mm	ø10x2			ø16 x 2			ø20 x 2			ø25 x 2			ø32 x 2			ø40x2			
Actuation	Double acting																			
Working fluid	Compressed air																			
Max. working pressure	MPa	0.6																		
Min. working pressure	MPa	0.15			0.1															
Ambient temperature	°C	-10 to 60 (no freezing)																		
Port size	M5												Rc1/8							
Operating stroke	mm	20	40	60	30	60	80	40	80	100	50	100	120	70	120	160	100	160	200	
Rod diameter	mm	ø6			ø8			ø10			ø12			ø16			ø20			
Volumetric capacity (reciprocating)	cm³	2.0	4.0	6.0	9.0	18.1	24.1	18.8	37.7	47.1	37.8	75.6	90.7	84.4	145	193	188	302	377	
Repeatability	mm	±0.1																		
Weight	kg	0.28	0.39	0.45	0.53	0.74	0.85	0.98	1.3	1.5	1.6	2.2	3.5	2.9	3.8	4.5	5.3	6.9	8.2	
Lubrication	Not required																			

Gripping force

Unit: N

• Gripping force is the thrust (one finger) in the direction of the arrow shown in the figure.

- Open direction (←)
- Close direction (→)



Bore size (mm)	Double acting
ø10	14
ø16	45
ø20	74
ø25	131
ø32	228
ø40	396

*Supply pressure 0.5MPa, ℓ = 40mm (ø10, 16, 20, 25), 80 mm (ø32, 40), value in stroke center

Refer to the HMC-HP1 Series of "Wide parallel hand HMC-HP1 Series (No.CC-1580A)" for dimentions.

Switch specifications

Item	2-wire proximity		3-wire proximity	
	T2H/T2V	T2HR3/T2VR3 (Lead wire bending type)	T3H/T3V	T3PH/T3PV
Applications	Programmable Controller dedicated		Programmable For controller, relay	
Output method	-	-	NPN output	PNP output
Power supply voltage	-	-	10 to 28 VDC	
Load voltage/ current	10 to 30 VDC 5 to 20mA (*1)	10 to 30 VDC 5 to 20 mA	30 VDC or less 100 mA or less	
Indicator lamp	Red LED (Lit when ON)	Red LED (Lit when ON)	Red LED (Lit when ON)	Yellow LED (Lit when ON)
Leakage current	1 mA or less	1 mA or less	10 μA or less	
Shock resistance	980m/s ²			
Weight	g 1m:18g 3m:49g 5m:80g			

*1: The above max. load current is 20 mA at 25°C. If the operating ambient temperature around the switch is higher than 25°C, the current is lower than 20 mA. (5 to 10 mA at 60°C)

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	Environment-resistant cylinder
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Linear Slide Hand
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	Low-profile long stroke hand
STS	
STL	
LSH	
LSHL	
LSHM	
LST	Wide Parallel Hand
LSTM	
HMC	
CKW	
ABP2	
SCPD3	Air Booster
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	Compatible with rechargeable batteries
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

HMC-HP1 Series

How to order

Without switch (built-in magnet for switch)

HMC - 32 A — HP1

With switch (built-in magnet for switch)

HMC - 32 A - T2H - R - HP1

A Bore size (mm)

B Stroke

C Switch model No.

D Switch quantity

Code		Description				
A Bore size (mm)						
10	ø10					
16	ø16					
20	ø20					
25	ø25					
32	ø32					
40	ø40					
B Stroke						
A	Short stroke					
B	Middle stroke					
C	Long stroke					
C Switch model No.						
Lead wire Straight	Lead wire L-shaped	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T2H*	T2V*	Proximity		●	1-color LED	2-wire
T3H*	T3V*			●		3-wire
T2HR3	T2VR3			●	1-color LED bend resistant lead wire	2-wire
T3PH*	T3PV*			●	1-color LED (made to order)	3-wire
* Lead wire length						
Blank	1 m (standard)					
3	3 m (option)					
5	5 m (option)					
D Switch quantity						
R	1 on open side					
H	1 on closed side					
D	2					

[Example of model No.]

HMC-32A-T2H-R-HP1

- A** Bore size (mm) : ø32
- B** Strokes : Short strokes
- C** Switch model No. : Proximity T2H switch, lead wire 1 m
- D** Switch quantity : 1 on open side

How to order switch

SW - T2H

Switch model No.
(above Item **C**)

Long service life cylinder	SCPD3
	CMK2
	SCM
	SSD2
	MDC2
	MSD
	MSDG-L
	SMG
	LCR
	LCG
	STM
	STG
	STR2
	STR2
Environment-resistant cylinder	SCPD3
	CMK2
	SCM
	SCG
	SSD2
	SMG
	LCR
	STG
	STS
	STL
Linear Slide Hand	LSH
	LSHL
	LSHM
Low-profile long stroke hand	LST
	LSTM
Wide Parallel Hand	HMC
Chuck	CKW
	ABP2
Air Booster	SCPD3
	CMK2
Compatible with rechargeable batteries	SCM
	SSD2
	MSD
	MSDG-L
	SMG
	STG
	STM
	LCR
	LCG
	STR2
	LSH
	LSHL
	SCPD3
	CMK2
Supports food mfg. processes	SCM
	SCG
	SSD2
	STG

HP1 Series

3-way chuck



CONTENTS

● Double acting without rubber cover (CKW-A-HP1)	156
● Double acting with rubber cover (CKW-G-HP1, CKW-F-HP1)	158
⚠ Safety precautions	232

3-way finger chuck series variation

Model No.	Bore size (mm)	Stroke (mm)
CKW-A-HP1	ø16/ø20/ø25/ø32/ø40	4/4/6/8/8
CKW-G-HP1		
CKW-F-HP1		



3-way chuck

CKW-A-HP1 Series

● Operational stroke: 4, 6, 8 mm

Double acting



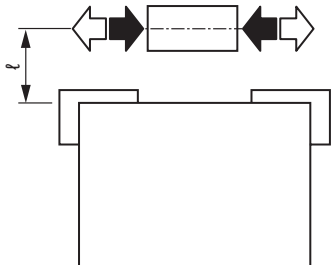
Specifications

Item	CKW-A-HP1				
Bore size mm	ø16	ø20	ø25	ø32	ø40
Actuation	Double acting				
Working fluid	Compressed air				
Max. working pressureMPa	0.7				
Min. working pressureMPa	0.2			0.1	
Ambient temperature °C	-10 to 60 (no freezing)				
Port size	M3	M5			
Operating stroke mm	4		6	8	
Rod diameter mm	ø6		ø8	ø10	ø12
Repeatability mm	±0.01				
Weight kg	0.08	0.13	0.17	0.31	0.46
Lubrication	Not required				

Gripping force

• Gripping force is the thrust (one finger) in the direction of the arrow shown in the figure.

- Open direction (↶)
- Close direction (↷)



Unit: N

Bore size (mm)	Double acting	
	Open side	Closed side
ø16	16	14
ø20	28	25
ø25	47	42
ø32	82	74
ø40	130	118

*Supply pressure 0.5MPa, $l = 20\text{mm}$ (ø16 to 25), 30 mm (ø32 to 40), value at stroke center

Switch specifications

Item	2-wire proximity	3-wire proximity	2-wire proximity	3-wire proximity	
	F2S	F3S	F2H/F2V	F3H/F3V	F3PH/F3PV
Applications	Programmable Controller dedicated	Programmable For controller, relay	Programmable Controller dedicated	Programmable For controller, relay	
Output method	-	NPN output	-	NPN output	PNP output
Power supply voltage	-	10 to 28 VDC	-	10 to 28 VDC	4.5 to 28 VDC
Load voltage/ current	10 to 30 VDC 5 to 20 mA	30 VDC or less 50 mA or less	10 to 30 VDC 5 to 20 mA	30 VDC or less 50 mA or less	
Indicator lamp	Red LED (Lit when ON)		Yellow LED (Lit when ON)		
Leakage current	1 mA or less	10 μA or less	1 mA or less	10 μA or less	
Shock resistance	980m/s ²				
Weight	g1m:10 3m:29				

*1: The F-switch uses a bend-resistant lead wire as standard.

Refer to the CKW-A Series of "3-way jaw chuck CKW-HP1 Series (No.CC-1581A)" for dimensions.

How to order

Without switch (built-in magnet for switch)

CKW - A 16 D N ————— **HP1**

With switch (built-in magnet for switch)

CKW - A 16 D N - F2H - D ————— **HP1**

A Rubber cover

B Bore size

C Actuation

D High precision positioning hole

E Switch model No.

F Switch quantity

Code		Description				
A Rubber cover						
A	Without rubber cover					
B Bore size (mm)						
16	ø16					
20	ø20					
25	ø25					
32	ø32					
40	ø40					
C Actuation						
D	Double acting					
D High precision positioning hole						
N	None					
A	Available					
E Switch model No.						
Lead wire Straight	Lead wire L-shaped	Contact	Voltage		Indicator	Lead wire
			AC	DC		
-	F2S*	Proximity		●	1-color LED	2-wire
-	F3S*			●		3-wire
F2H*	F2V*			●		2-wire
F3H*	F3V*			●		3-wire
F3PH*	F3PV*			●		3-wire
* Lead wire length						
Blank	1 m (standard)					
3	3 m (option)					
F Switch quantity						
R	1 on open side					
H	1 on closed side					
D	2					

How to order switch

SW - F2H*

Switch model No.
(above Item **E**)

[Example of model No.]

CKW-A16DN-F2H-D-HP1

Model: 3-way jaw chuck

- A** Rubber cover : Without rubber cover
- B** Bore size : ø16
- C** Actuation : Double acting
- D** High precision positioning hole : None
- E** Switch model No. : Proximity F2H, lead wire 1 m
- F** Switch quantity : 2

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	Environment-resistant cylinder
SMG	
LCR	
LCG	
STM	
STG	
STR2	Linear Slide Hand
SCPD3	
CMK2	
SCM	
SCG	
SSD2	
SMG	Low-profile long stroke hand
LCR	
STG	
STS	
STL	
LSH	Wire Parallel Hand
LSHL	
LSHM	
LST	
LSTM	
HMC	
CKW	Chuck
ABP2	Air Booster
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	Supports food mfg. processes
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	
CMK2	
SCM	
SCG	
SSD2	
STG	



3-way jaw chuck with rubber cover

CKW-G-HP1/CKW-F-HP1 Series

● Operating stroke: 4, 6, 8 mm

Double acting



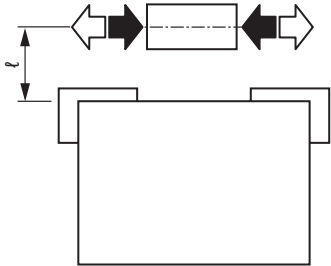
Specifications

Item	CKW-G-HP1/CKW-F-HP1				
Bore size mm	ø16	ø20	ø25	ø32	ø40
Actuation	Double acting				
Working fluid	Compressed air				
Max. working pressureMPa	0.7				
Min. working pressureMPa	0.2			0.1	
Ambient temperature °C	-10 to 60 (no freezing)				
Port size	M3	M5			
Operating stroke mm	4		6	8	
Rod diameter mm	ø6		ø8	ø10	ø12
Repeatability mm	±0.01				
Weight kg	0.12	0.19	0.26	0.50	0.65
Lubrication	Not required				

Gripping force

• Gripping force represents the thrust (per one finger) in the arrow direction shown in the figure.

- Open direction (←)
- Close direction (→)



Unit: N

Bore size (mm)	Double acting	
	Open side	Closed side
ø16	16	9
ø20	28	21
ø25	47	36
ø32	82	62
ø40	130	97

* Supply pressure 0.5MPa, $l = 20\text{mm}$ (ø16 to 25), 30 mm (ø32 to 40), value at stroke center

Switch specifications

Item	2-wire proximity	3-wire proximity	2-wire proximity	3-wire proximity	
	F2S	F3S	F2H/F2V	F3H/F3V	F3PH/F3PV
Applications	Programmable Controller dedicated	Programmable For controller, relay	Programmable Controller dedicated	Programmable For controller, relay	
Output method	-	NPN output	-	NPN output	PNP output
Power supply voltage	-	10 to 28 VDC	-	10 to 28 VDC	4.5 to 28 VDC
Load voltage/ current	10 to 30 VDC 5 to 20 mA	30 VDC or less 50 mA or less	10 to 30 VDC 5 to 20 mA	30 VDC or less 50 mA or less	
Indicator lamp	Red LED (Lit when ON)		Yellow LED (Lit when ON)		
Leakage current	1 mA or less	10 μA or less	1 mA or less	10 μA or less	
Shock resistance	980m/s ²				
Weight	g1m:10 3m:29				

*1: The F-switch uses a bend-resistant lead wire as standard.

Refer to the CKW-G/CKW-F Series of "3-way jaw chuck CKW-HP1 Series (No.CC-1581A)" for dimensions.

CKW-G-HP1/CKW-F-HP1 Series

How to order

How to order

Without switch (built-in magnet for switch)

CKW - G 16 D N ————— **HP1**

With switch (built-in magnet for switch)

CKW - G 16 D N - F2H - D ————— **HP1**

A Rubber cover

B Bore size

C Actuation

D High precision positioning hole

E Switch model No.

F Switch quantity

Code		Description			
A Rubber cover					
G	Chloroprene rubber				
F	Fluoro rubber				
B Bore size (mm)					
16	ø16				
20	ø20				
25	ø25				
32	ø32				
40	ø40				
C Actuation					
D	Double acting				
D High precision positioning hole					
N	None				
A	Available				
E Switch model No.					
Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC DC	Indicator	Lead wire
-	F2S*	Proximity		1-color LED	2-wire
-	F3S*				3-wire
F2H*	F2V*				2-wire
F3H*	F3V*				3-wire
F3PH*	F3PV*				3-wire
* Lead wire length					
Blank	1 m (standard)				
3	3 m (option)				
F Switch quantity					
R	1 on open side				
H	1 on closed side				
D	2				

How to order switch

SW - F2H*

Switch model No.
(above Item **E**)

[Example of model No.]

CKW-G20DA-F2H3-R-HP1

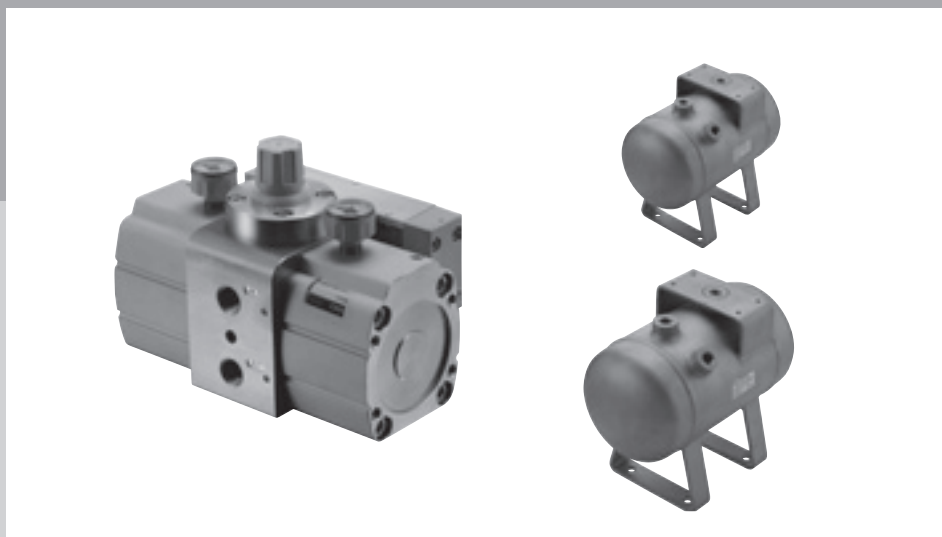
Model: 3-way jaw chuck with rubber cover

- A** Rubber cover : Chloroprene rubber
- B** Bore size : ø20
- C** Actuation : Double acting
- D** High precision positioning hole : Available
- E** Switch model No. : Proximity F2H, lead wire 3 m
- F** Switch quantity : 1 on open side

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	Environment-resistant cylinder
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Linear Slide Hand
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	Low-profile long stroke hand
STS	
STL	
LSH	
LSHL	
LSHM	
LST	Wire Parallel Hand
LSTM	
HMC	
CKW	
ABP2	
SCPD3	
CMK2	Compatible with rechargeable batteries
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	Supports food mfg. processes
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	
CMK2	
SCM	
SCG	
SSD2	
STG	

HP1 Series

Air booster



CONTENTS

● Air booster (ABP2-HP1)	162
● Air tank (AT2)	164
⚠ Safety precautions	232

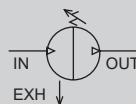
SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	Environment-resistant cylinder
STG	
STR2	
SCPD3	
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	Linear Slide Hand
STS	
STL	
LSH	
LSHL	
LSHM	
LST	
LSTM	
HMC	
CKW	Chuck
ABP2	
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	Supports food mfg. processes
STR2	
LSH	
LSHL	
SCPD3	
CMK2	
SCM	
SCG	
SSD2	
STG	



Air booster (Air booster)

ABP2-HP1 Series

JIS symbol



Specifications

Item	ABP2-HP1
Working fluid	Compressed air
Max. working pressure MPa	0.99
Min. working pressure MPa	0.2
Set pressure MPa	From a primary pressure of + 0.1MPa to twice the primary pressure (max.0.99 MPa)
Proof pressure MPa	1.5
Flow rate m ³ /min(ANR)	Refer to the flow characteristics in the graph on the right
Boosting ratio	Max. twice (or equivalent)
Ambient temperature°C	0 to 50 (no freezing)
Lubrication	Not available
Port size	Rc1/4 (bottom, back Rc1/8)
Weight kg	2.0
Durability	10 million cycles (nominal) (Refer to page 163)

Functions

● Primary pressure from IN passes through the check valve on IN side, and flows into booster chambers A and B. The primary pressure passes through the pressure adjustment section and switching valve, and flows into the driving chamber A. The piston moves to the left due to the pressure of the driving chamber A. Air in booster chamber A is compressed, passes through the check valve on the OUT side, and goes to the OUT side.

● When the piston reaches the stroke end, the changeover switch will be pushed, causing compressed air to be supplied to the switching valve pilot chamber and causing the switching valve to change over. Then the air in drive chamber A is exhausted, and the air is delivered to drive chamber B.

● Therefore, the piston moves to the right and air in booster chamber B is compressed, passes through the check valve at the OUT side and moves OUT.

● Boosting on the OUT side is compressed if the operations above are repeated. Feedback pressure is transmitted to the pressure adjustment section due to the OUT side pressure, and boosting is continued until the pressure adjustment spring pressure is balanced.

[Example of model No.]

ABP2-02R-GSN-HP1

Model: Air booster

- A Body piping thread: Rc thread
- B Pressure gauge option: Pressure gauge (2 included)
- C Silencer option: Silencer (2 pcs. included)
- D Bracket option: None

How to order

ABP2 - 02 R - N N N - HP1

Air booster

A Body piping thread

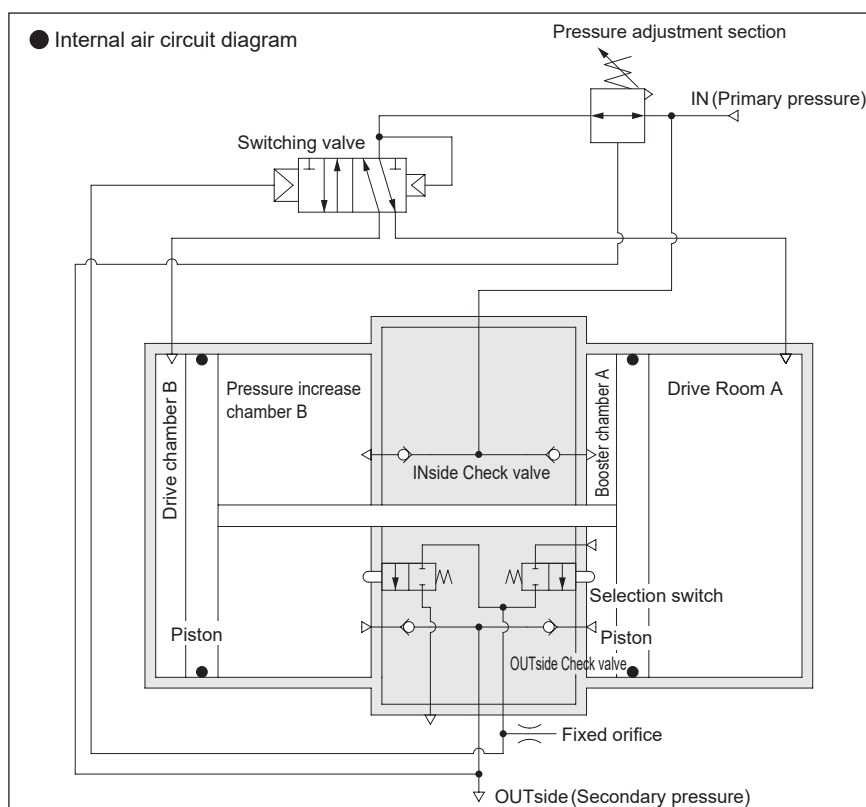
B Pressure gauge option

C Silencer option

D Bracket option

Code	Description
A Body port thread	
R	Rc thread
N	NPT thread (made to order) *1
G	G thread (made to order) *1
B Pressure gauge option	
N	No
G	Pressure gauge (2 included)
C Silencer option	
N	No
S	Silencer (2 pcs. included)
H	High performance silencer (2 pcs. included)
D Bracket option	
N	No
B	Foot bracket (2 included)
T	Tank mounting base (included)

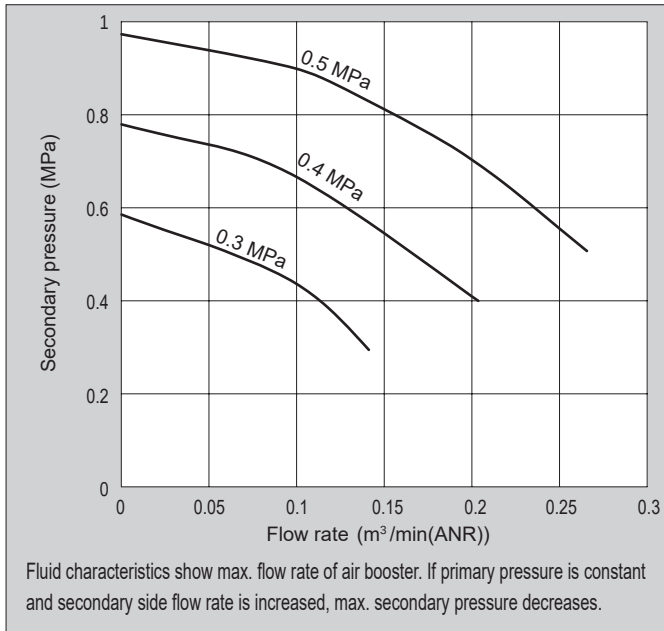
*1: IN, OUT gauge port, and EXH port are Rc threads



Refer to "Air booster ABP2-HP1 Series (No.CC-1533A)" for dimentions.

SCP03	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCP03	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCP03	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCP03	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

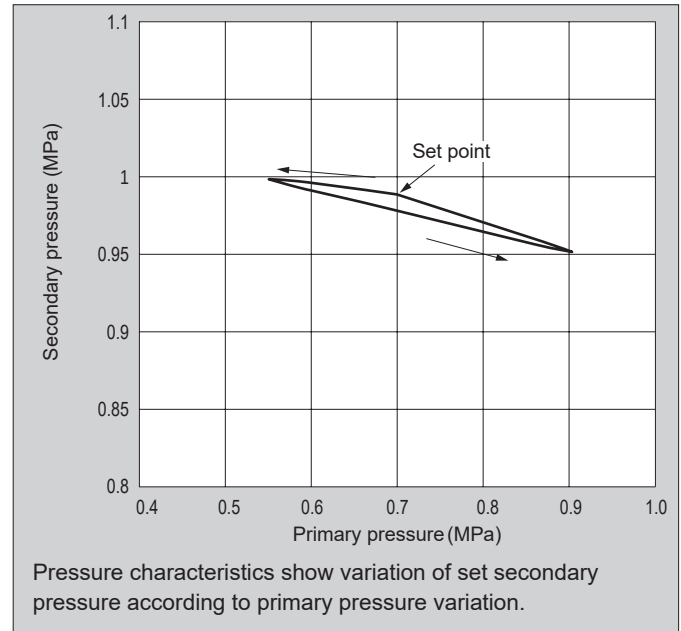
Flow characteristics (Air tank 5L, at twice the pressure)



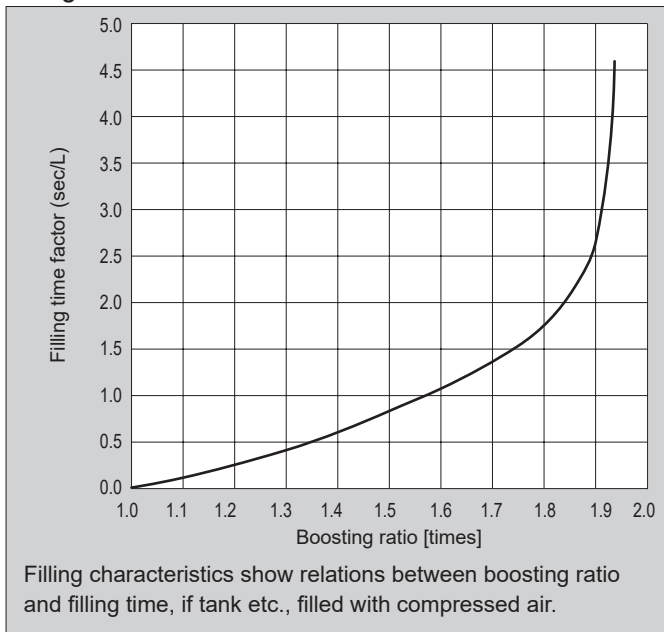
Note) Air booster needs approx. twice secondary side flow rate (max.) for primary side due to structure.
Confirm that the instantaneous flow rate is within the curve.

Pressure characteristics

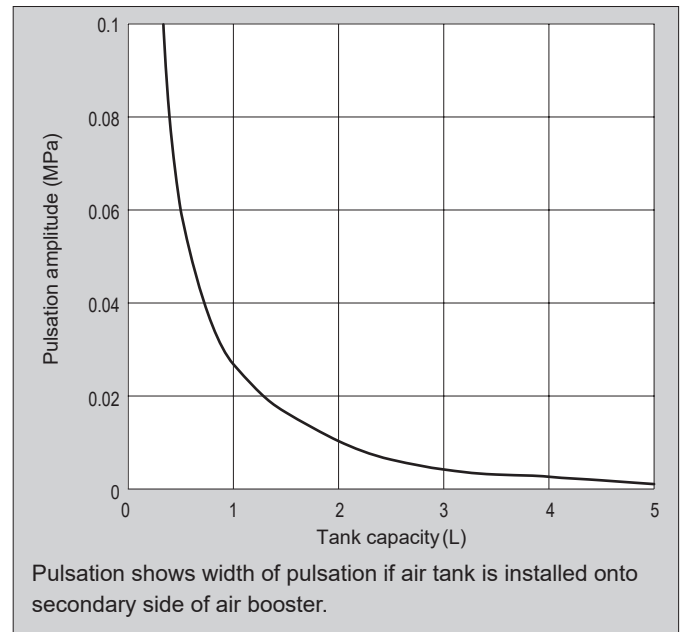
(Setting: Primary pressure: 0.7MPa Secondary pressure: 0.99MPa Flow rate: 0.02m³/min (ANR))



Filling characteristics (when the boosting ratio is equivalent to 2 times) Pulsation



The time required to fill the tank with air can be calculated as follows. With the primary side pressure P_0 , inner tank pressure before filling P_1 , inner tank pressure after filling P_2 , pre-filling ratio between primary side pressure and inner tank pressure k_1 , and post-filling ratio between primary side pressure and inner tank pressure k_2 , the formula will be $k_1 = \frac{P_1}{P_0}$, $k_2 = \frac{P_2}{P_0}$. Calculate k_1 and k_2 , find the filling time factors t_1 and t_2 at the boosting ratio points k_1 and k_2 in the graph and substitute the values into $t = (t_2 - t_1) A$ to obtain the filling time t of the tank capacity A (L).



Formula for air booster operational cycle

$$N = \frac{Q \times 10^3}{0.95P + 0.096}$$

N: Operational cycle
Q: Required flow rate (m³/min(ANR))
P: Primary pressure (MPa)

Formula for air booster service life

Since the nominal life of the operation cycle is 10 million cycles

$$T = \frac{10,000,000}{N \times 60}$$

T: Service life (Time)

The characteristics above are typical examples, not guaranteed values.

SCP03
CMK2
SCM
SSD2
MDC2
MSD
MSDG-L
SMG
LCR
LCG
STM
STG
STR2
SCP03
CMK2
SCM
SCG
SSD2
SMG
LCR
STG
STS
STL
LSH
LSHL
LSHM
LST
LSTM
HMC
CKW
ABP2
SCP03
CMK2
SCM
SSD2
MSD
MSDG-L
SMG
STG
STM
LCR
LCG
STR2
LSH
LSHL
SCP03
CMK2
SCM
SCG
SSD2
STG

Long service life cylinder

Environment-resistant cylinder

Linear Slide Hand

Low-profile long stroke hand

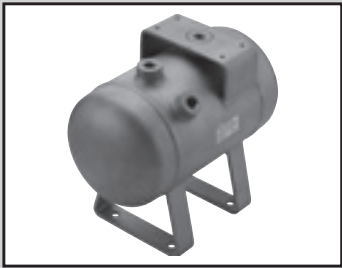
Wide-Parallel Hand

Chuck

Air Booster

Compatible with rechargeable batteries

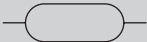
Supports food mfg. processes



Air tank (Related products)

AT2 Series

JIS symbol



Specifications

Item		AT2-05S	AT2-10S
Working fluid		Compressed air	
Max. working pressure MPa		0.99	
Water test pressure MPa		1.5	
Ambient temperature °C		0 to 50 (no freezing)	
Internal capacity	L	5	10
Port size		Rc3/8	
Material		Stainless steel	
Weight	kg	7.3	10.5

How to order

AT2 - 10 S

A Internal capacity

Code	Description
A Internal capacity	
05	5L
10	10L

Refer to AT2 of "Air booster ABP2-HP1 Series (No.CC-1533A)" for dimentions.

Long service life cylinder	SCPD3
	CMK2
	SCM
	SSD2
	MDC2
	MSD
	MSDG-L
	SMG
	LCR
	LCG
	STM
	STG
	STR2
	STR2
Environment-resistant cylinder	SCPD3
	CMK2
	SCM
	SCG
	SSD2
	SMG
	LCR
	STG
	STS
	STL
Linear Slide Hand	LSH
	LSHL
	LSHM
Low-profile long stroke hand	LST
	LSTM
Wide Parallel Hand	HMC
Chuck	CKW
Air Booster	ABP2
Compatible with rechargeable batteries	SCPD3
	CMK2
	SCM
	SSD2
	MSD
	MSDG-L
	SMG
	STG
	STM
	LCR
	LCG
	STR2
	LSH
	LSHL
Supports food mfg. processes	SCPD3
	CMK2
	SCM
	SCG
	SSD2
	STG

HP1 Series Components for rechargeable batteries



CONTENTS

● Long service life cylinder	Pencil shaped cylinder (SCPD3-P4/P40-HP1)	170
	Small bore size cylinder (CMK2-P4/P40-HP1)	172
	Round shaped cylinder (SCM-P4/P40-HP1)	174
	Compact cylinder (SSD2-P4/P40-HP1)	176
	Small compact cylinder (MSD-P4/P40-HP1)	178
	Small guided compact cylinder (MSDG-L-P4/P40-HP1)	180
	Compact cylinder (SMG-P4/P40-HP1)	182
	Guided cylinder (STG-P4/P40-HP1)	184
	Guided cylinder (STM-P4/P40-HP1)	186
	Linear slide cylinder (LCR-P4/P40-HP1)	188
	Linear slide cylinder (LCG-P4/P40-HP1)	192
	Twin rod cylinder (STR2-P4/P40-HP1)	196
● Linear Slide Hand	Double acting/single acting without rubber cover (LSH-A-P4/P40-HP1)	198
	Double acting/single acting with rubber cover (LSH-G/LSH-F-P4/P40-HP1)	200
	Double acting/single acting long stroke without rubber cover (LSHL-A-P4/P40-HP1)	202
	Double acting long stroke with rubber cover (LSHL-G/LSHL-F-P4/P40-HP1)	204
● Cylinder switch		
	Refer to the "Switch compatibility table" and order using the listed order model No.	210
⚠ Safety precautions		232

Long service life cylinder series variation

Model No.	Bore size (mm)	Stroke (mm)
SCPD3-P4/P40-HP1	ø6/ø10/ø16	5 to 150
CMK2-P4/P40-HP1	ø20/ø25/ø32/ø40	5 to 150
SCM-P4/P40-HP1	ø20/ø25/ø32/ø40	10 to 150
SSD2-P4/P40-HP1	ø12/ø16/ø20/ø25/ø32/ø40	1 to 100
MSD-P4/P40-HP1	ø6/ø8	5/10/15/20/25/30
MSDG-L-P4/P40-HP1	ø6/ø8/ø12/ø16	5/10/15/20/25/30
SMG-P4/P40-HP1	ø6/ø10/ø16/ø20/ø25/ø32	5 to 100
LCR-P4/P40-HP1	ø6/ø8/ø12/ø16/ø20/ø25	10/20/30/40/50/75/100/125/150
LCG-P4/P40-HP1	ø6/ø8/ø12/ø16/ø20/ø25	10/20/30/40/50/75/100/125/150
STM-P4/P40-HP1	ø6/ø10	5/10/15/20
STG-P4/P40-HP1	ø12/ø16/ø20/ø25/ø32/ø40	5 to 150
STR2-P4/P40-HP1	ø6/ø10/ø16/ø20/ø25/ø32	5 to 150

Linear slide hand system table

Model No.	Bore size (mm)	Stroke (mm)
LSH-A-P4/P40-HP1	ø6/ø10/ø16/ø20/ø25/ø32	4/4/6/10/14/22
LSH-G/LSH-F-P4/P40-HP1	ø6/ø10/ø16/ø20/ø25/ø32	4/4/6/10/14/22
LSHL-A-P4/P40-HP1	ø10/ø16/ø20/ø25	8/12/18/22
LSHL-G/LSH-F-P4/P40-HP1	ø10/ø16/ø20	8/12/18

⚠ Read the safety precautions in "Pneumatic Cylinders" (Catalog No.CB-029SA and CB-030SA) before use.

⚠ CAUTION

■ Some models use oil-impregnated bearings, and oil may be discharged outside of the cylinder. Do not use in places susceptible to oil.

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

For the rechargeable battery manufacturing processes, reduction

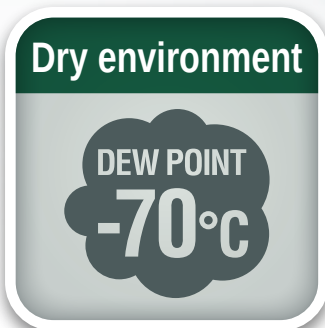
Make Progress!! P4 Series

With the progress of rechargeable and next-generation battery development, we have responded to the demand for components with improved dry environmental performance. Our products are compatible with the production stability of the manufacturing process and consistently meet the needs of rechargeable battery manufacturing, from electrode production to packaging.



Restrict materials for component parts.

Restricts the use of materials and surface treatments inappropriate for the rechargeable battery manufacturing process.



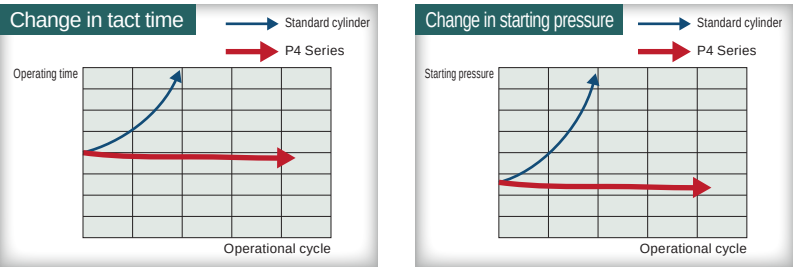
Long service life even in -70°C dew point environments

Adopted grease compatible with ultra-dry environments. Retains the smooth operation of the sliding part for long periods, even in dry environments.



Contributing to a system that never stops

Uses a special grease that supports low dew points and high frequency use. Contributes to stable operation of equipment.



of CO₂ emissions has been achieved with long service life products

Longer service life in environments with -70°C dew point. Contributes to reduced CO₂ emissions

By optimizing packing design and seal functions, and adopting high-frequency compliant grease suitable for ultra-low dew point environments, we have achieved a long service life with the same dimensions as those of the P4 Series.

Propose stable operation for long periods with CKD's proprietary sliding technology

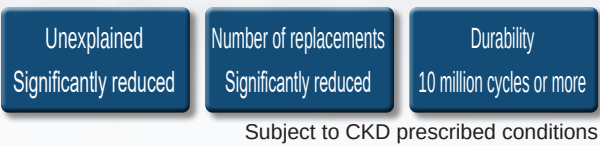


Realizes long-term stable operation in the rechargeable battery manufacturing process



Rechargeable battery compatible long service life cylinder

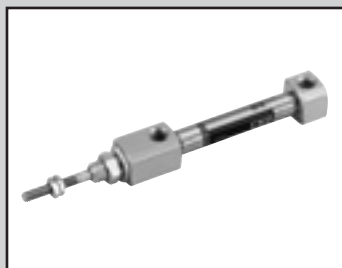
P4-HP1 Series



Subject to CKD prescribed conditions

Further Progress!! P4-HP1 Series





Pencil shaped cylinder Double acting/Single rod

Long service life cylinder

SCPD3-P4/P40-HP1 Series

● Bore size: $\phi 6/\phi 10/\phi 16$

JIS symbol



RoHS

Specifications

Item	SCPD3-P4/P40-HP1 SCPD3-L-P4/P40-HP1 (with switch)		
Bore size mm	ø6	ø10	ø16
Actuation	Double acting		
Working fluid	Compressed air		
Max. working pressure MPa	1.0		
Min. working pressure MPa	0.15	0.1	
Proof pressure MPa	1.6		
Ambient temperature °C	-10 to 60 (no freezing)		
Port size	M5		
Stroke tolerance mm	+1.0 0		
Working piston speed mm/s	50 to 750		
Cushion	Rubber cushion		
Lubrication	Not available		
Allowable absorbed energy J	0.012	0.041	0.162

Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
$\phi 6$	15/30/45/60	100	5
$\phi 10$		150	
$\phi 16$		150	

Note: The custom stroke is available in 1 mm increments.

How to order switch mounting bracket

P4	SCPD3-T-[Bore size]
P40	SCPD3-T-[Bore size]-P40

How to order mounting bracket P4

Bore size (mm)	$\phi 6$	$\phi 10$	$\phi 16$
Mounting bracket			
Foot (LS)	P2-LS-6	P2-LS-10	P2-LS-16
Flange (FA)	P2-FA-6	P2-FA-10	P2-FA-16

Note: The foot (LS) type mounting bracket is provided as 1 pc./set.

How to order mounting bracket P40

Bore size (mm)	$\phi 6$	$\phi 10$	$\phi 16$
Mounting bracket			
Foot (LS)	P2-LS-6-P40	P2-LS-10-P40	P2-LS-16-P40
Flange (FA)	P2-FA-6-P40	P2-FA-10-P40	P2-FA-16-P40

Note: The foot (LS) type mounting bracket is provided as 1 pc./set.

Refer to the SCPD3 Series in "Pneumatic Cylinders I (No. CB-029SA)" for dimensions.

How to order

Without switch (without magnet for sw*5)

SCPD3 - 00 - 10 - 15 - O ————— P40 Y - HP1

With switch (built-in magnet for switch)

SCPD3-L - 00 - 10 - 15 - O - SW11 - R - P4 P40 Y - HP1

A Model No.									
B Mounting *1									
C Bore size									
D Stroke									
E Head side port direction *1									
F Switch model No. *2, *4									
G Switch quantity									
H Accessory *3									

Code		Description		
A Model No.				
SCPD3	Double acting			
SCPD3-L	Double acting with switch			
B Mounting				
Bore size (ø)		6	10	16
00	Basic	●	●	●
LS	Axial foot (one side) (rod side)	●	●	●
FA	Rod side flange	●	●	●
CB	Clevis bracket (pin and snap ring attached)		●	●
C Bore size (mm)				
6	ø6			
10	ø10			
16	ø16			
D Stroke (mm)				
Bore size	Stroke	Stroke		
ø6	5 to 100	In 1 mm increments		
ø10	5 to 150			
ø16	5 to 150			
E Head side port direction				
Blank	Perpendicular			
O	Axial direction			
F Switch model No.				
Refer to the compatibility table on pages 210 to 213 for switch model No.				
G Switch quantity				
R	1 on rod side			
H	1 on head side			
D	2			
T	3			
H Accessory				
Bore size (ø)		6	10	16
I	Rod eye		●	●
Y	Rod clevis (pin and snap ring attached)		●	●
B1	Eye bracket		●	●
B2	Clevis bracket		●	●

Precautions for model No. selection

- *1: "CB" mounting is not available when the port direction is "O" (axial direction).
- *2: Magnet is not built into the type without switch.
- *3: "I" and "Y" cannot be selected together.
- *4: Switches are shipped with the product.
- *5: When without switch, supports P4 specifications with HP1

Related products

Speed controller				
Model No.	Appearance	Port size (Rc or R)	Compatible tube O.D.	
		M5	4 (ø4)	6 (ø6)
SC3W-M5- *P4		●	●	●

Specify the compatible tube O.D. code for *. Refer to "rechargeable battery compatible Component P4* Series" (No.CC-1226A) for details.

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

Long service life cylinder

Environment-resistant cylinder

Linear Slide Hand

Low-profile long stroke hand

Wide-Parallel Hand

Chuck

Air Booster

Compatible with rechargeable batteries

Supports food mfg. processes

SCPD3

CMK2

SCM

SSD2

MDC2

MSD

MSDG-L

SMG

LCR

LCG

STM

STG

STR2

SCPD3

CMK2

SCM

SCG

SSD2

SMG

LCR

STG

STS

STL

LSH

LSHL

LSHM

LST

LSTM

HMC

CKW

ABP2

SCPD3

CMK2

SCM

SSD2

MSD

MSDG-L

SMG

STG

STM

LCR

LCG

STR2

LSH

LSHL

SCPD3

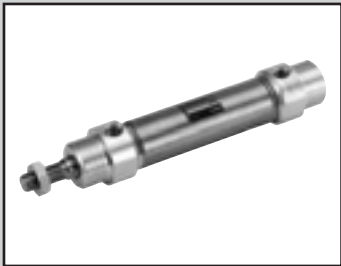
CMK2

SCM

SCG

SSD2

STG



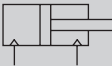
Small bore size cylinder Double acting/Single rod

Long service life cylinder

CMK2-P4/P40-HP1 Series

● Bore size: $\varnothing 20/\varnothing 25/\varnothing 32/\varnothing 40$

JIS symbol



Specifications

Item	CMK2-P4/P40-HP1			
Bore size mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
Actuation	Double acting			
Working fluid	Compressed air			
Max. working pressure MPa	1.0			
Min. working pressure MPa	0.1			
Proof pressure MPa	1.6			
Ambient temperature °C	-10 to 60 (no freezing)			
Port size	Rc1/8			
Stroke tolerance mm	$^{+2.0}_0$ (up to 150)			
Working piston speed mm/s	50 to 500			
Cushion	Rubber cushion			
Lubrication	Not available			
Allowable absorbed energy J	0.166	0.308	0.424	0.639

Stroke

Bore size(mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
$\varnothing 20$	25/50/75/ 100/150	150	5
$\varnothing 25$			
$\varnothing 32$			
$\varnothing 40$			

*1: The custom stroke is available in 1mm increments.

*2: One side foot (LS) is the max. stroke of 50mm.

How to order switch mounting bracket

P4	CMK2-T-[Bore size]
P40	CMK2-T-[Bore size]-P40

How to order mounting bracket P4

Bore size (mm)	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
Mounting bracket				
Axial foot (LB/LS)	M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30
Flange (FA/FB)	M1-FA-20	M1-FA-30	M1-FA-30	M1-FA-30
Trunnion (TA/TB)	M1-TA-20	M1-TA-30	M1-TA-30	M1-TA-40
Eye bracket (CA)	M1-CA-20	M1-CA-30	M1-CA-30	M1-CA-30
Clevis bracket (CB)	M1-CB-20	M1-CB-30	M1-CB-30	M1-CB-30

*1: Regarding mounting brackets, mounting nuts and toothed washers are attached with the axial foot type and flange type. Trunnions are supplied with mounting nuts.

*2: For axial foot types (two-sided), 2 sets of "M1-LB0** or [Bore size]" in the table above are required.

How to order mounting bracket P40

Bore size (mm)	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
Mounting bracket				
Axial foot (LB/LS)	M1-LB-20-P40	M1-LB-25-P40	M1-LB-30-P40	M1-LB-30-P40
Flange (FA/FB)	M1-FA-20-P40	M1-FA-25-P40	M1-FA-30-P40	M1-FA-30-P40
Trunnion (TA/TB)	M1-TA-20-P40	M1-TA-25-P40	M1-TA-30-P40	M1-TA-30-P40
Eye bracket (CA)	M1-CA-20-P40	M1-CA-25-P40	M1-CA-30-P40	M1-CA-30-P40
Clevis bracket (CB)	M1-CB-20-P40	M1-CB-25-P40	M1-CB-30-P40	M1-CB-30-P40

*1: For axial foot types (two-sided), 2 sets of "M1-LB-** or [Bore size]-P40" in the table above are required.

*2: Regarding mounting brackets, mounting nuts are attached with the axial foot type, flange type and trunnion type.

Refer to the CMK2 Series in "Pneumatic Cylinders I (No. CB-029SA)" for dimentions.

CMK2-P4/P40-HP1 Series

How to order

How to order

Without switch (built-in magnet for switch)

CMK2 - 00 - 20 - 100 - P4 P40 Y - HP1

With switch (built-in magnet for switch)

CMK2 - 00 - 20 - 100 - SW11 - R - M P4 P40 Y - HP1

A Mounting
*1

B Bore size

C Stroke

D Switch model No.

E Switch quantity
*4

F Option

G Accessory
*2

⚠ Precautions for model No. selection

*1: One side foot (LS) has the max. stroke of 50mm.

*2: "I" and "Y" cannot be selected together.

*3: Made-to-order specifications of rod end form refer to "Pneumatic Cylinders I (Catalog No.CB-029SA)".

*4: Up to three switches can be installed. If four or more switches are required, switch mounting brackets for the extra switches must be prepared separately.

*5: For 20 or 25 bore size, the rod material is stainless steel as standard and the rod nut is zinc chromate. If a stainless steel rod nut is necessary, select the "M" option code.

Related products

Speed controller					
Model No.	Appearance	Port size (Rc or R)	Compatible tube O.D.		
		1/8	4(ø4)	6(ø6)	8(ø8)
SC3W-6- *P4		●	●	●	●

Specify the compatible tube O.D. code for *. Refer to "rechargeable battery compatible Component P4" Series" (No.CC-1226A) for details.

Code	Description	
A Mounting		
00	Basic	
LB	Axial foot (both sides)	
LS	Axial foot (one side)	
FA	Rod side flange	
FB	Head side flange	
CA	Eye bracket	
CC	Eye bracket integrated	
CB	Clevis Bracket (pin and split washer pin included)	
TA	Rod side trunnion	
TB	Head side trunnion	
B Bore size (mm)		
20	ø20	*5
25	ø25	*5
32	ø32	
40	ø40	
C Stroke (mm)		
Bore size	Stroke	Custom stroke
ø20	5 to 150	In 1 mm increments
ø25	5 to 150	
ø32	5 to 150	
ø40	5 to 150	
D Switch model No.		
Refer to the switch model No.Refer to the compatibility table on pages 210 to 213.		
E Switch quantity		
R	1 on rod side	
H	1 on head side	
D	2	
T	3	
F Option		
M	Piston rod, rod nut material (stainless steel) *5	
G Accessory		
I	Rod eye	
Y	Rod clevis (pin and split washer pin attached)	
B2	Clevis bracket (pin and snap ring included)	

SCPD3	Long service life cylinder	CMK2	Environment-resistant cylinder	SCPD3	Linear Slide Hand	Low-profile long stroke hand	Wide Parallel Hand	Chuck	Air Booster	Compatible with rechargeable batteries	Supports food mfg. processes
CMK2		SCM		SSD2		LST	HMC				
SSD2		MSD		MSDG-L		LSTM	CKW				
MDC2		SMG		LCR			ABP2				
MSD		LCG		STM			SCPD3				
MSDG-L		STR2		LCR			CMK2				
SMG		LSH		LSHL			SCM				
LCR	Supports food mfg. processes	LSHM	Supports food mfg. processes	SSD2	Supports food mfg. processes		MSD	Supports food mfg. processes	Supports food mfg. processes	Supports food mfg. processes	Supports food mfg. processes
LCG		LST		MSDG-L			SMG				
STM		LSTM		LCR			STG				
STG				STM			LCG				
STR2				LCR			STR2				
SCPD3				STR2			LSH				
CMK2				LSH			LSHL				
SCM	Supports food mfg. processes		Supports food mfg. processes	LSHL	Supports food mfg. processes		SCPD3	Supports food mfg. processes	Supports food mfg. processes	Supports food mfg. processes	Supports food mfg. processes
SSD2				SCPD3			CMK2				
MSD				CMK2			SCM				
MSDG-L				SCG			SSD2				
SMG				STG			STG				
STG											
STM											



Round shaped cylinder Double acting/Single rod

Long service life cylinder

SCM-P4/P40-HP1 Series

●Bore size:ø20/ø25/ø32/ø40

JIS symbol



Specifications

Item		SCM-P4/P40-HP1			
Bore size	mm	ø20	ø25	ø32	ø40
Actuation		Double acting			
Working fluid		Compressed air			
Max. working pressure	MPa	1.0			
Min. working pressure	MPa	0.1			
Proof pressure	MPa	1.6			
Ambient temperature		-10 to 60 (no freezing)			
Port size	With rubber cushion	Rc1/8			
	With air cushion	M5		Rc1/8	
Stroke tolerance mm	With rubber cushion	+1.4			
	With air cushion	0 (up to 150)			
Working piston speed	mm/s	30 to 1000 (Operate within the allowable absorbed energy.)			
Cushion		Either rubber cushion or air cushion can be selected.			
Effective air cushion length	mm	8.1	8.1	8.6	8.6
Lubrication		Not available			
Allowable absorbed energy J	With rubber cushion	0.1	0.2	0.5	0.9
	With air cushion	0.8	1.2	2.5	3.7

Stroke

Bore size (mm)	Standard stroke (mm)	Min. stroke (mm)
ø 20	25, 50, 75, 100, 125, 150	10
ø 25		
ø 32		
ø 40		

*1: The custom stroke is available in 1 mm increments.

How to order switch mounting bracket

	[Rail] Mounting rail	[Band] Mounting bracket set + band
P4	SCM-T-[Bore size]	SCM-Z-[Bore size]
P40	- [Stroke length]	SCM-Z-[Bore size]-P40

How to order mounting bracket P4

Bore size (mm) Mounting bracket	ø20	ø25	ø32	ø40
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40
Eye bracket (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40

How to order mounting bracket P40

Bore size (mm) Mounting bracket	ø20	ø25	ø32	ø40
Foot (LB)	SCM-LB-20-P40	SCM-LB-25-P40	SCM-LB-32-P40	SCM-LB-40-P40
Flange (FA/FB)	SCM-FA-20-P40	SCM-FA-25-P40	SCM-FA-32-P40	SCM-FA-40-P40
Eye bracket (CA)	SCM-CA-20-P40	SCM-CA-25-P40	SCM-CA-32-P40	SCM-CA-40-P40
Trunnion (TA/TB)	SCM-TA-20-P40	SCM-TA-25-P40	SCM-TA-32-P40	SCM-TA-40-P40

*1: All mounting brackets have mounting bolts attached.

*2: The foot mounting bracket is provided as 2 pcs./set.

Refer to the SCM Series in "Pneumatic Cylinders I (No. CB-029SA)" for dimensions.

How to order

Without switch (built-in magnet for switch)

SCM - LB - 40 B - 100 - M P4 P40 I - HP1

With switch (built-in magnet for switch)

SCM - LB - 40 B - 100 - SW11 - D - M P4 P40 I - HP1

A Mounting
*1

B Bore size

C Cushion

D Stroke

E Switch model No.
*3

F Switch quantity

G Switch mounting

H Option
*4I Accessory
*5

Code	Description				
A Mounting					
Bore size (ø)		20	25	32	40
00	Basic	●	●	●	●
LB	Axial foot	●	●	●	●
FA	Rod side flange	●	●	●	●
FB	Head side flange	●	●	●	●
CA	Eye bracket	●	●	●	●
TA	Rod side trunnion	●	●	●	●
TB	Head side trunnion	●	●	●	●
B Bore size (mm)					
20	ø20				
25	ø25				
32	ø32				
40	ø40				
C Cushion					
B	With two-sided air cushion				
R	Rod side air cushioned				
H	Head side air cushioned				
D	With two-sided rubber cushion				
D Stroke (mm)					
Bore size		Stroke *2		Custom stroke	
ø20 to ø40		10 to 150		In 1 mm increments	
E Switch model No.					
Refer to the compatibility table on pages 210 to 213 for switch model No.					
F Switch quantity					
R	1 on rod side				
H	1 on head side				
D	2				
T	3				
4	4 pcs. Included (when there are more than 4 switches, indicate switch quantity.)				
G Switch mounting					
Blank	Rail method				
Z	Band method				
H Option					
Q	Switch rail attached at shipment				
M	Piston rod, rod nut material (stainless steel)				
I Accessory					
Bore size (ø)		20	25	32	40
I	Rod eye	●	●	●	●
Y	Rod clevis (pin and snap ring attached)	●	●	●	●
B2	Clevis bracket	●	●	●	●

⚠ Precautions for model No. selection

*1: Mounting bracket will be shipped with the product.

*2: Refer to the previous page for the min. stroke.

*3: When the bore size is ø20 to ø40 and switch mounting is the rail type, SW19, SWBW, SWCC, SWDK, SWDL, and SWDM cannot be mounted.

*4: "Q" (switch rail attached at shipment) is not available for "Z" switch mounting.

*5: "I" and "Y" cannot be selected together.

*6: Refer to "Pneumatic Cylinders I (Catalog No.CB-029SA)" for made-to-order specifications of rod end form.

*7: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

*8: Speed controllers are available as a related product. Contact CKD for details.

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	Environment-resistant cylinder
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Linear Slide Hand
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	Low-profile long stroke hand
STS	
STL	
LSH	
LSHL	
LSHM	
LST	Chuck
LSTM	
HMC	
CKW	
ABP2	
SCPD3	
CMK2	Compatible with rechargeable batteries
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	Supports food mfg. processes
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	
CMK2	
SCM	
SCG	
SSD2	
STG	



Compact cylinder Double acting/Single rod

Long service life cylinder

SSD2-P4/P40-HP1 Series

● Bore size: $\phi 12/\phi 16/\phi 20/\phi 25/\phi 32/\phi 40$

JIS symbol



Specifications

Item		SSD2-P4/P40-HP1 SSD2-L-P4/P40-HP1 (with switch)					
Bore size mm		ø12	ø16	ø20	ø25	ø32	ø40
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressure MPa		1.0					
Min. working pressure MPa		0.1					
Proof pressure MPa		1.6					
Ambient temperature °C		-10 to 60 (no freezing)					
Port size		M5				Rc1/8 *1	
Stroke tolerance mm		+1.0 0					
Working piston speed mm/s		50 to 500					
Cushion		No					
Lubrication		Not available					
Allowable absorbed Energy J	Without cushion	0.004	0.01	0.016	0.021	0.025	0.092

*1: The $\phi 32$ bore size with a 5 mm stroke and without a switch has a port size of M5.

Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
ø12	5/10/15/20	30	1
ø16	25/30		
ø20	5/10/15/20/25	50	
ø25	30/35/40/45/50		
ø32	5/10/15/20/25/30/	100	
ø40	35/40/45/50/75/100		

[Stroke table]

Stroke (mm)		Applicable bore size					
		12	16	20	25	32	40
Standard stroke	5	●	●	●	●	●	●
	10	●	●	●	●	●	●
	15	●	●	●	●	●	●
	20	●	●	●	●	●	●
	25	●	●	●	●	●	●
	30	●	●	●	●	●	●
	35			●	●	●	●
	40			●	●	●	●
	45			●	●	●	●
	50			●	●	●	●
75					●	●	
100					●	●	
Min. stroke (mm) *1		1					
Max. stroke (mm)		30		50		100	
Custom Stroke *2		In 1 mm increments					

1: Less than 5 mm with 1-color LED switch and less than 10 mm with the 2-color LED, off-delay, AC magnetic field proof, T1 or T8* switch are not available. Refer to "Pneumatic Cylinders I (Catalog No. CB-029SA)" for the min. stroke with switch.

*2: The dimensions of the total length with the custom stroke are handled the same as the next longer standard stroke.

Refer to the SSD2 Series in "Pneumatic Cylinders I (No. CB-029SA)" for dimensions.

How to order

Without switch (without magnet for switch)

SSD2 - **12** - **5** - **N** **P4** **P40** - **LB** - **I** - **HP1**

With switch (built-in magnet for switch)

SSD2-L - **12** - **10** - **SW11** - **R** - **N** **P4** **P40** - **LB** - **I** - **HP1**

A Model No.

B Bore size

C Stroke

D Switch model No.

*1
*2
*3
*8
*9

E Switch quantity

F Option*4

G Mounting bracket
*5
*6

H Accessory*7

⚠ Precautions for model No. selection

- *1: The T2YD* switch cannot be mounted on the ø12 and ø16 bore sizes.
- *2: T8* switch cannot be installed on ø12 to ø32.
- *3: The F type switch can only be mounted on the piping port surface of bore sizes ø20 and ø25.
- *4: Piston rod of ø12 to ø25 is stainless steel as standard. C-snap ring will be stainless steel, not steel. The rod end male thread nut is stainless steel.
- *5: The mounting bracket is attached at shipment.
- *6: The projection dimension of piston rod WF when LB or FA is selected is different from that of the standard. Refer to "Pneumatic Cylinders I (Catalog No. CB-029SA)" for details. The number of the specified protruding dimension will be added at the end of the model No. printed on the metal plate on the body.
- *7: "I" and "Y" cannot be selected together.
- *8: The F-switch with L-type lead wire on ø20 models cannot be selected on strokes of 15 mm or under.
- *9: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.
- *10: 5 m lead wire for the F switch is made to order.

Related products

Speed controller							
Model No.	Appearance	Port size (Rc or R)			Applicable tube bore		
		M5	1/8	1/4	4 (ø4)	6 (ø6)	8 (ø8)
SC3W-M5- *P4		●			●	●	
SC3W-6- *P4			●		●	●	
SC3W-8- *P4				●	●	●	●

Specify the compatible tube O.D. code for *. Refer to "rechargeable battery compatible Component P4* Series" (No.CC-1226A) for details.

Code	Description						
A Model No.							
SSD2	Double acting/Single rod						
SSD2-L	Double acting/Single rod with switch						
B Bore size (mm)							
12	ø12						
16	ø16						
20	ø20						
25	ø25						
32	ø32						
40	ø40						
C Stroke (mm)							
Refer to the stroke table on page 176.							
D Switch model No.							
Refer to the switch model No.							
Refer to the compatibility table on pages 210 to 213.							
E Switch quantity							
R	1 on rod side						
H	1 on head side						
D	2						
F Option							
	Bore size (mm)	12	16	20	25	32	40
Blank	Rod end female thread	●	●	●	●	●	●
N	Rod end male thread	●	●	●	●	●	●
M *4	Piston rod material (stainless steel)	●	●	●	●	●	●
		●	●	●	●	●	●
		●	●	●	●	●	●
G Mounting bracket							
Blank	Without mounting bracket						
LB	Axial foot						
CB	Clevis bracket (pin and snap ring attached)						
FA	Rod side flange						
FB	Head side flange						
H Accessory (available when rod end male thread "N" is selected)							
I	Rod eye						
Y	Rod clevis (pin and snap ring attached)						

SCP3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCP3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	Linear Slide Hand
STL	
LSH	
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCP3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCP3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

SCP03
CMK2
SCM
SSD2
MDC2
MSD
MSDG-L
SMG
LCR
LCG
STM
STG
STR2
SCP03
CMK2
SCM
SCG
SSD2
SMG
LCR
STG
STS
STL
LSH
LSHL
LSHM
LST
LSTM
HMC
CKW
ABP2
SCP03
CMK2
SCM
SSD2
MSD
MSDG-L
SMG
STG
STM
LCR
LCG
STR2
LSH
LSHL
SCP03
CMK2
SCM
SCG
SSD2
STG

Long service life cylinder

Environment-resistant cylinder

Linear Slide Hand

Low-profile long stroke hand

Wide-Parallel Hand

Chuck

Air Booster

Compatible with rechargeable batteries

Supports food mfg. processes



Small compact cylinder Double acting/Single rod

Long service life cylinder

MSD-P4/P40-HP1 Series

● Bore size: $\phi 6/\phi 8$

JIS symbol



Specifications

Item	MSD-P4/P40-HP1 MSD-L-P4/P40-HP1 (with switch)
Bore size mm	$\phi 6, \phi 8$
Actuation	Double acting
Working fluid	Compressed air
Max. working pressure MPa	1.0
Min. working pressure MPa	0.15
Proof pressure MPa	1.6
Ambient temperature °C	-10 to 60 (where, no freezing)
Port size	M3
Stroke tolerance mm	+0.5 0
Working piston speed mm/s	50 to 500
Cushion	No
Lubrication	Not available
Allowable absorbed energy J	This product cannot absorb the energy generated by an external load mounted on the cylinder. When using the product with no load, separately provide a shock absorber on the outside.

Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke with two switches (mm)		Min. stroke with one switch (mm)	
			Reed switch	Proximity switch	Reed switch	Proximity switch
$\phi 6$	5/10/15/20	30	10	5 (10)	5	5
$\phi 8$	25/30					

*1: Products with stroke other than standard stroke are not available.

*2: For F2Y, F3Y or F3P, the min. stroke length is the dimensions in ().

Refer to the MSD Series in "Pneumatic Cylinders I (No. CB-029SA)" for dimensions.

How to order

- Without switch (without magnet for switch)

MSD - 6 - 5 - R - P4 P40 - HP1

- With switch (built-in magnet for switch)

MSD-L - 6 - 5 - SW81 - R - R - P4 P40 - HP1

A Model No.

B Bore size

C Stroke

D Switch model No.

*1

E Switch quantity

F Piping port position

*2

Code	Description	
A Model No.		
MSD	Double acting/Single rod	Without switch
MSD-L		With switch
B Bore size (mm)		
6	ø6	
8	ø8	
C Stroke (mm)		
5	5	
10	10	
15	15	
20	20	
25	25	
30	30	
D Switch model No.		
Refer to the compatibility table on pages 210 to 213 for switch model No.		
E Switch quantity		
R	1 on rod side	
H	1 on head side	
D	2	
F Piping port position		
Blank	Front piping	
R	Rear piping	

⚠ Precautions for model No. selection

*1: When using the type with switch, use a non-magnetic (stainless steel, etc.) mounting bolt for ø6, ø8.

*2: For rear piping, body side installation is possible. Note that 2 bolts are used for rod side mounting and head side mounting.

Related products

Speed controller							
Model No.	Appearance	Port size (Rc or R)			Compatible tube O.D.		
		M3	M5	1/8	4 (ø4)	6 (ø6)	8 (ø8)
SC3W-M3- *-P4		●			●		

Specify the compatible tube O.D. code for *. Refer to "rechargeable battery compatible Component P4* Series" (No.CC-1226A) for details.

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	Environment-resistant cylinder
SMG	
LCR	
LCG	
STM	
STG	
STR2	Linear Slide Hand
SCPD3	
CMK2	
SCM	
SCG	
SSD2	
SMG	Low-profile long stroke hand
LCR	
STG	
STS	
STL	
LSH	Wide Parallel Hand
LSHL	
LSHM	
LST	
LSTM	
HMC	Chuck
CKW	
ABP2	
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	Supports food mfg. processes
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	
CMK2	
SCM	
SCG	
SSD2	
STG	

SCP03
CMK2
SCM
SSD2
MDC2
MSD
MSDG-L
SMG
LCR
LCG
STM
STG
STR2
SCP03
CMK2
SCM
SCG
SSD2
SMG
LCR
STG
STS
STL
LSH
LSHL
LSHM
LST
LSTM
HMC
CKW
ABP2
SCP03
CMK2
SCM
SSD2
MSD
MSDG-L
SMG
STG
STM
LCR
LCG
STR2
LSH
LSHL
SCP03
CMK2
SCM
SCG
SSD2
STG

Long service life cylinder

Environment-resistant cylinder

Linear Slide Hand

Low-profile long stroke hand

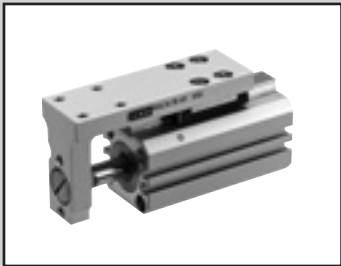
Wide-Parallel Hand

Chuck

Air Booster

Compatible with rechargeable batteries

Supports food mfg. processes



Small guided compact cylinder
Double acting/guided with switch

Long service life cylinder

MSDG-L-P4/P40-HP1 Series

● Bore size: $\varnothing 6/\varnothing 8/\varnothing 12/\varnothing 16$



Specifications

Item		MSDG-L-P4/P40-HP1(With switch)			
Bore size mm		ø6	ø8	ø12	ø16
Actuation		Double acting			
Working fluid		Compressed air			
Max. working pressure MPa		1.0			
Min. working pressure MPa		0.2	0.15	0.1	
Proof pressure MPa		1.6			
Ambient temperature °C		5 to 60			
Port size	Front piping	M3		M5	
	Rear piping	M3		M3	
Stroke tolerance mm		+2.0 0			
Working piston speed mm/s		50 to 500			
Cushion		With rubber cushion			
Lubrication		Not available			
Allowable absorbed energy J		0.004	0.014	0.044	0.110

Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke with two switches (mm)		Min. stroke with one switch (mm)	
			Reed switch	Proximity switch	Reed switch	Proximity switch
$\varnothing 6$	5/10/15/20 25/30	30	10	5	5	5
$\varnothing 8$						
$\varnothing 12$						
$\varnothing 16$						

Note: Products with stroke other than standard stroke are not available.

Refer to the MSDG Series in "Pneumatic Cylinders I (No. CB-029SA)" for dimentions.

How to order

- With switch (built-in magnet for switch)

MSDG-L - 6 - 30 - SW81 - D - R P4 P40 - HP1

Double acting
Guided

A Bore size

B Stroke

C Switch model No.

*1

*2

D Switch quantity

E Piping port position
*3

Code	Description
A Bore size(mm)	
6	ø6
8	ø8
12	ø12
16	ø16
B Stroke(mm)	
5	5
10	10
15	15
20	20
25	25
30	30
C Switch model No.	
Refer to the compatibility table on pages 210 to 213 for switch model No.	
D Switch quantity	
R	1 on rod side
H	1 on head side
D	2
E Piping port position	
Blank	Front piping
R	Rear piping

⚠ Precautions for model No. selection

- *1: When using the ø6/ø8 with switch, use a non-magnetic (stainless steel, etc.) mounting bolt.
- *2: When using a proximity switch with ø12/ø16, use a non-magnetic (stainless steel, etc.) through bolt.
- *3: For rear piping, body side installation is possible.

Related products

Speed controller							
Model No.	Appearance	Port size (Rc or R)			Compatible tube O.D.		
		M3	M5	1/8	4 (ø4)	6 (ø6)	8 (ø8)
SC3W-M3- *.P4		●			●		
SC3W-M5- *.P4			●		●	●	

Specify the compatible tube O.D. code for *. Refer to "rechargeable battery compatible Component P4* Series" (No.CC-1226A) for details.

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	Environment-resistant cylinder
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Linear Slide Hand
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	Low-profile long stroke hand
STS	
STL	
LSH	
LSHL	
LSHM	
LST	Wide Parallel Hand
LSTM	
HMC	
CKW	
ABP2	
SCPD3	
CMK2	Compatible with rechargeable batteries
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	Supports food mfg. processes
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	
CMK2	Supports food mfg. processes
SCM	
SCG	
SSD2	
STG	

Long service life cylinder

Environment-resistant cylinder

Linear Slide Hand

Low-profile long stroke hand

Wide-Parallel Hand

Chuck

Air Booster

Compatible with rechargeable batteries

Supports food mfg. processes

SCPD3

CMK2

SCM

SSD2

MDC2

MSD

MSDG-L

SMG

LCR

LCG

STM

STG

STR2

SCPD3

CMK2

SCM

SCG

SSD2

SMG

LCR

STG

STS

STL

LSH

LSHL

LSHM

LST

LSTM

HMC

CKW

ABP2

SCPD3

CMK2

SCM

SSD2

MSD

MSDG-L

SMG

STG

STM

LCR

LCG

STR2

LSH

LSHL

SCPD3

CMK2

SCM

SCG

SSD2

STG



Compact cylinder Double acting/Single rod

Long service life cylinder

SMG-P4/P40-HP1 Series

● Bore size: $\varnothing 6/\varnothing 10/\varnothing 16/\varnothing 20/\varnothing 25/\varnothing 32$

JIS symbol



Specifications

Item	SMG-P4/P40-HP1 SMG-L-P4/P40-HP1 (with switch)					
Bore size mm	ø6	ø10	ø16	ø20	ø25	ø32
Actuation	Double acting					
Working fluid	Compressed air					
Max. working pressureMPa	0.7					
Min. working pressureMPa	0.12	0.06		0.05		
Proof pressure MPa	1.05					
Ambient temperature°C	-10 to 60 (no freezing)					
Port size	M5					Rc1/8
Stroke tolerance mm	+1.5 0					
Working piston speed mm/s	50 to 500					
Cushion	With rubber cushion					
Lubrication	Not available					
Allowable absorbed energyJ	0.012	0.036	0.1	0.1	0.19	0.5

Stroke

Bore size (mm)	Standard stroke (mm)	Min. stroke (mm)
ø 6	5, 10, 15, 20, 25, 30, 40, 50, 60	5
ø10		
ø16		
ø20	5, 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100	
ø25		
ø32		

*1: The custom stroke is available in 5 mm increments.
However, the total length is the same as that of the next longer standard stroke.

For dimensions, refer to the SMG Series in "Pneumatic Cylinders I (No. CB-029SA)".

How to order

Without switch (without magnet for switch) *1

SMG - 32 - 25 - P40 - HP1

With switch (built-in magnet for switch)

SMG-L - 32 - 25 - SW51 - R - P40 - HP1

A Model No.

B Bore size

C Stroke

D Switch model No.

E Switch quantity

*1: When without switch, supports P4 specifications with HP1

Code	Description						
A Model No.							
SMG	Double acting						
SMG-L	Double acting with switch						
B Bore size (mm)							
6	ø6						
10	ø10						
16	ø16						
20	ø20						
25	ø25						
32	ø32						
C Stroke (mm)							
		Applicable bore size					
		ø6	ø10	ø16	ø20	ø25	ø32
Standard stroke	5	●	●	●	●	●	●
	10	●	●	●	●	●	●
	15	●	●	●	●	●	●
	20	●	●	●	●	●	●
	25	●	●	●	●	●	●
	30	●	●	●	●	●	●
	40	●	●	●	●	●	●
	50	●	●	●	●	●	●
	60	●	●	●	●	●	●
	70				●	●	●
	80				●	●	●
	90				●	●	●
100				●	●	●	
D Switch model No.							
Refer to the compatibility table on pages 210 to 213 for switch model No.							
E Switch quantity							
R	1 on rod side						
H	1 on head side						
D	2						

Related products

Speed controller						
Model No.	Appearance	Port size (Rc or R)		Applicable tube bore		
		M5	1/8	4 (ø4)	6 (ø6)	8 (ø8)
SC3W-M5- *-P4		●		●	●	
SC3W-6- *-P4			●	●	●	●

Specify the compatible tube O.D. code for *. Refer to "rechargeable battery compatible Component P4* Series" (No.CC-1226A) for details.

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	Linear Slide Hand
STL	
LSH	
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

SCP03
CMK2
SCM
SSD2
MDC2
MSD
MSDG-L
SMG
LCR
LCG
STM
STG
STR2
SCP03
CMK2
SCM
SCG
SSD2
SMG
LCR
STG
STS
STL
LSH
LSHL
LSHM
LST
LSTM
HMC
CKW
ABP2
SCP03
CMK2
SCM
SSD2
MSD
MSDG-L
SMG
STG
STM
LCR
LCG
STR2
LSH
LSHL
SCP03
CMK2
SCM
SCG
SSD2
STG

Long service life cylinder

Environment-resistant cylinder

Linear Slide Hand

Low-profile long stroke hand

Wide Parallel Hand

Chuck

Air Booster

Compatible with rechargeable batteries

Supports food mfg. processes



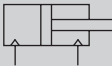
Guided cylinder Double acting/Single rod

Long service life cylinder

STG-M_B-P4/P40-HP1 Series

● Bore size: $\varnothing 12/\varnothing 16/\varnothing 20/\varnothing 25/\varnothing 32/\varnothing 40$

JIS symbol



Specifications

Item	STG-M/B-P4/P40-HP1					
Bore size mm	ø12	ø16	ø20	ø25	ø32	ø40
Actuation	Double acting					
Working fluid	Compressed air					
Max. working pressure MPa	1.0					
Min. working pressure MPa	0.15				0.1	
Proof pressure MPa	1.6					
Ambient temperature °C	-10 to 60 (no freezing)					
Port size	M5		Rc1/8			
Stroke tolerance mm	+2.0					
	0					
Working piston speedmm/s	50 to 500					
Cushion	With rubber cushion					
Lubrication	Not available					
Allowable absorbed energy J	0.056	0.088	0.157	0.157	0.401	0.627

Stroke

Bore size	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)	Min. stroke with switch(mm)
ø12	10/20/30/40/50/75/100	150	5	5 (10) *2
ø16	125/150			
ø20	20/30/40/50/75/100			
ø25	125/150			
ø32	25/50/75/100/125/150			
ø40				

*1: The custom stroke is available in 5 mm increments. However, the total dimensions are the same as the longer standard stroke. A dedicated body with dimensions matched to the stroke is available. Contact CKD for details.

*2: For types with one or two switches. The value in () is the min. stroke for switches of the 2-color LED and AC magnetic field proof.

Related products

Speed controller										
Model No.	Appearance	Port size (Rc or R)				Compatible tube O.D.				
		M5	1/8	1/4	3/8	4($\varnothing 4$)	6($\varnothing 6$)	8($\varnothing 8$)	10($\varnothing 10$)	12($\varnothing 12$)
SC3W-M5-*P4		●				●	●			
SC3W-6-*P4			●			●	●	●		
SC3W-8-*P4				●			●	●	●	
SC3W-10-*P4					●			●	●	●
SC3W-12-*P4										

Specify the compatible tube O.D. code for *. Refer to "rechargeable battery compatible component P4* Series" (No.CC-1226A) for details.

Dimensions is STG-M_B for details on the series.

How to order

Without switch (built-in magnet for switch)

STG - **M** - **32** - **25** - **P4** - **HP1**

With switch (built-in magnet for switch)

STG - **M** - **32** - **25** - **SW11** - **R** - **P4** - **HP1**

Model No.

A Bearing

B Bore size

C Stroke

D Switch model No. *1 *2

E Switch quantity

Code	Description						
A Bearing							
M	Metal bush bearing						
B	Ball bearing						
B Bore size (mm)							
12	ø12						
16	ø16						
20	ø20						
25	ø25						
32	ø32						
40	ø40						
C Stroke (mm)							
Applicable bore size							
	ø12	ø16	ø20	ø25	ø32	ø40	
Standard Stroke	10	●	●				
	20	●	●	●	●		
	25					●	●
	30	●	●	●	●		
	40	●	●	●	●		
	50	●	●	●	●	●	●
	75	●	●	●	●	●	●
	100	●	●	●	●	●	●
	125	●	●	●	●	●	●
150	●	●	●	●	●	●	
Min. stroke *5		5 (10)					
Custom stroke *3,*4		In 5 mm increments					
D Switch model No.							
Refer to the compatibility table on pages 210 to 213 for switch model No.							
E Switch quantity							
R	1 on rod side						
H	1 on head side						
D	2						
T	3						

⚠ Precautions for model No. selection

- *1: T8H/V switch cannot be installed on STG-12 or 16.
- *2: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.
- *3: The total dimensions are the same as the longer standard stroke.
- *4: A dedicated body with dimensions matched to the stroke is available. Contact CKD for details.
- *5: The value in () is the min. stroke for switches of the 2-color LED and AC magnetic field proof.

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STR2	
SCPD3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	Linear Slide Hand
STL	
LSH	
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

Long service life cylinder

Environment-resistant cylinder

Linear Slide Hand

Low-profile long stroke hand

Wide Parallel Hand

Chuck

Air Booster

Compatible with rechargeable batteries

Supports food mfg. processes

SCPD3

CMK2

SCM

SSD2

MDC2

MSD

MSDG-L

SMG

LCR

LCG

STM

STG

STR2

SCPD3

CMK2

SCM

SCG

SSD2

SMG

LCR

STG

STS

STL

LSH

LSHL

LSHM

LST

LSTM

HMC

CKW

ABP2

SCPD3

CMK2

SCM

SSD2

MSD

MSDG-L

SMG

STG

STM

LCR

LCG

STR2

LSH

LSHL

SCPD3

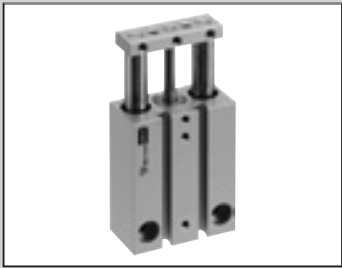
CMK2

SCM

SCG

SSD2

STG



Guided cylinder Double acting/Single rod

Long service life cylinder

STM-^M_B-P4/P40-HP1 Series

● Bore size: ø6, ø10

JIS symbol



Specifications

Item	STM-M/B-P4/P40-HP1	
Bore size mm	ø6	ø10
Actuation	Double acting	
Working fluid	Compressed air	
Max. working pressure MPa	0.7	
Min. working pressure MPa	0.15	
Proof pressure MPa	1.05	
Ambient temperature °C	-10 to 60 (no freezing)	
Port size	M3	
Stroke tolerance mm	+1.5	
	0	
Working piston speed mm/s	50 to 500	
Cushion	With rubber cushion	
Lubrication	Not available	
Allowable absorbed energy J	0.008	0.054

Stroke

Bore size	Standard stroke (mm)	Max. stroke (mm)	Min. stroke	Min. stroke with switch
ø6	5/10/15	15	5	5
ø10	5/10/15/20	20		

Note: Products other than standard stroke are made to order products.

Refer to the STM-^M_B Series in "Pneumatic Cylinders II (No. CB-030SA)" for dimensions.

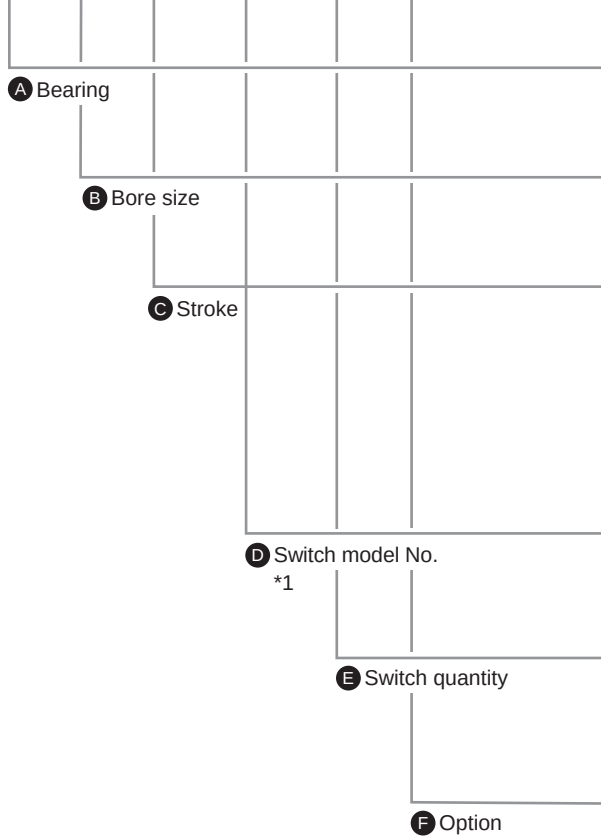
How to order

Without switch (built-in magnet for switch)

STM - M - 10 - 15 ————— A - ^{P4}_{P40} - HP1

With switch (built-in magnet for switch)

STM - M - 10 - 15 - SW83 - D - A - ^{P4}_{P40} - HP1



Code	Description		
A Bearing			
M	Metal bush bearing		
B	Ball bearing		
B Bore size (mm)			
6	ø6		
10	ø10		
C Stroke (mm)			
		Bore size	
		6	10
5	5	●	●
10	10	●	●
15	15	●	●
20	20		●
D Switch model No.			
Refer to the compatibility table on pages 210 to 213 for switch model No.			
E Switch quantity			
R	1 on rod side		
H	1 on head side		
D	2		
F Option			
A	Side mounting		
R	Rear piping		

Precautions for model No. selection

*1: When using a 2-color LED proximity switch for STM-B-6, avoid mounting the cylinder on a magnetic substance such as a metal plate. This could lead to switch detection malfunction.

Related products

Speed controller							
Model No.	Appearance	Port size (Rc or R)			Compatible tube O.D.		
		M3	M5	1/8	4(ø4)	6(ø6)	8(ø8)
SC3W-M3- *P4		●				●	
SC3*-P4			●			●	●

Specify the compatible tube O.D. code for *. Refer to "rechargeable battery compatible component P4* Series" (No.CC-1226A) for details.

[illegible]



LCR-P4/P40-HP1 Series

JIS symbol 



Item		LCR-P4/P40-HP1					
Bore size mm		ø6	ø8	ø12	ø16	ø20	ø25
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressure MPa		0.7					
Min. working pressure MPa		0.15 (*1)					
Proof pressure MPa		1.05					
Ambient temperature °C		-10 to 60 (no freezing)					
Port size	Main body side	M3	M5			Rc1/8	
	Main body back	-	M3			M5	Rc1/8
Stroke tolerance mm		+2.0 0 (*2)					
Working piston speedmm/s		50 to 500 (*3)					
Cushion		With rubber cushion					
Lubrication		Not available					
Allowable absorbed energy J		Refer to the following table.					

*4: The stroke adjusting stopper for 0.3 MPa and over working pressure is the metal sealing type.

Bore size (mm)	Standard stroke (mm)
ø6	10, 20, 30, 40, 50
ø8	10, 20, 30, 40, 50, 75
ø12	10, 20, 30, 40, 50, 75, 100
ø16	10, 20, 30, 40, 50, 75, 100, 125
ø20	10, 20, 30, 40, 50, 75, 100, 125, 150
ø25	10, 20, 30, 40, 50, 75, 100, 125, 150

Note: Products with strokes other than the above are not available.

Bore size	Standard (J)	With stroke adjusting stopper (J)	With shock absorber stopper (J)
ø6	0.025	0.0032	0.14
ø8	0.058	0.0032	0.25
ø12	0.112	0.014	0.25
ø16	0.176	0.043	0.65
ø20	0.314	0.055	1.3
ø25	0.314	0.14	1.3

Speed controller											
Model No.	Appearance	Port size (Rc or R)					Applicable tube bore				
		M3	M5	1/8	1/4	3/8	4(ø4)	6(ø6)	8(ø8)	10(ø10)	12(ø12)
SC3W-M3- *P4		●	●				●				
SC3W-M5- *P4			●					●			
SC3W-M6- *P4				●				●	●	●	

Specify the compatible tube O.D. code for *. Refer to "rechargeable battery compatible Component P4* Series" (No.CC-1226A) for details.

Refer to the LCR Series in "Pneumatic Cylinders II (No. CB-030SA)" for dimensions.

How to order

Without switch (built-in magnet for switch)

LCR - 8 - 40 — S506 DTN P4 P40 - HP1

With switch (built-in magnet for switch)

LCR - 12 - 40 - SW81 - R - S506 DTN P4 P40 - HP1

Model No.

A Tube
Bore size

B Stroke

C Switch model No.

D Switch quantity

E Stopper

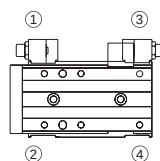
F Option

Code	Description						
A Bore size							
6	ø6						
8	ø8						
12	ø12						
16	ø16						
20	ø20						
25	ø25						
B Stroke (mm)							
		Bore size (ø)					
		6	8	12	16	20	25
10	10	●	●	●	●	●	●
20	20	●	●	●	●	●	●
30	30	●	●	●	●	●	●
40	40	●	●	●	●	●	●
50	50	●	●	●	●	●	●
75	75		●	●	●	●	●
100	100			●	●	●	●
125	125				●	●	●
150	150					●	●
C Switch model No.							
Refer to the compatibility table on pages 210 to 213 for switch model No.							
D Switch quantity							
R	1 on rod side						
H	1 on head side						
D	2						
E Stopper							
Refer to “Stopper” on page 190.							
F Option							
Blank	Port on stopper: without port						
D	Port on stopper: side and bottom ports						
Blank	Stopper block material: Steel						
T	Stopper block material: steel (nitriding)						
Plug included							
Blank	No						
N	With side piping port plug (not available for ø6, ø25)						

⚠ Precautions for model No. selection

- *1: The port positions of the standard without stopper are ① and ③ in the figure below.
- *2: Can be selected for the type with stopper only.
- *3: A1**, A2**, A5** and A6** of ø6 to ø8-10st, ø12 to ø25-20st or less cannot be adjusted with the standard stopper, so they are made to order.
- *4: Select the F/H type switch when using the two switches for the S*** or A*** type with ø6 to ø8-30st or less.
- *5: Select when using rear piping.
- *6: Can be selected only when using stroke adjusting stopper (S) and one side mixed type (C).
- *7: When using the W3 to 6 (two-sided combined stopper) with ø6 (all st), ø8-20st, 30st, ø12-30st to 50st and ø16-30st to 50st, use the axial lead wire when using the cylinder with two switches or the head side.
- *8: Cannot be selected when choosing two-sided combined type (W).
- *9: The adjustable stroke range when choosing two-sided combined type (W) is ø6:9 mm, ø8:13.5 mm, ø12:14.5 mm, ø16:15 mm, ø20:13 mm, ø25:10 mm.
- *10: The stroke adjusting stopper for 0.3 MPa and over working pressure is the metal sealing type.

● Stopper position



SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

LCR-P4/P40-HP1 Series

[E] Stopper

Code	Description	Code	Description
E Stopper		C One side hybrid stopper mix (shock absorber stopper, stroke adjusting stopper)	
Blank	No option	C1**	A1+S3
S Stroke adjusting stopper		C2**	A2+S4
S1**	Stopper position ① (Can be changed to ④)	C3**	A3+S1
S2**	Stopper position ② (Can be changed to ③)	C4**	A4+S2
S3**	Stopper position ③ (Can be changed to ②)	** part Adjustable stroke range ● Compatible with all. ▲ Compatible with some. *6	
S4**	Stopper position ④ (Can be changed to ①)		
S5**	Stopper position ①, ③		
S6**	Stopper position ②, ④		
A Shock absorber stopper			
A1**	Stopper position ① (Can be changed to ④)		
A2**	Stopper position ② (Can be changed to ③)		
A3**	Stopper position ③ (Can be changed to ②)		
A4**	Stopper position ④ (Can be changed to ①)		
A5**	Stopper position ①, ③		
A6**	Stopper position ②, ④		
W Two-sided combined double stopper (Shock absorber stopper, metal stopper) *7, *9			
W1**	A1 + metal stopper		
W2**	A2 + metal stopper		
W3**	A3 + metal stopper		
W4**	A4 + metal stopper		
W5**	A5 + metal stopper		
W6**	A6 + metal stopper		

Note: When changing the stopper position from the head side to the rod side, the stopper must be purchased separately according to the stroke and adjustable stroke. Refer to "HP Series General Catalog" (Catalog No. CC-1421A). A1, A2 and adjustable stroke of 15 mm and 25 mm may not be available depending on the stroke.

Stopper model No. selection method

1 Stopper combination table

Model No. - [① Stopper type] [② Stopper position] [③] Example) LCR-8-40-[S] [5] 06

		Adjustable stroke (one side)	Shock absorber (One side)	Two-sided combined double stopper	One side hybrid stopper mix
		Stopper model No. [①]			
		[S]	[A]	[W]	[C]
Stopper position model No. [②]	[1]	[S1]	[A1]	[W1]	[C1]
	[2]	[S2]	[A2]	[W2]	[C2]
	[3]	[S3]	[A3]	[W3]	[C3]
	[4]	[S4]	[A4]	[W4]	[C4]
	[5]	[S5]	[A5]	[W5]	/
	[6]	[S6]	[A6]	[W6]	

▲ shows the piping direction. When choosing two-sided combined type (W), the stopper bracket comes with piping on both sides. ▲ The stopper bracket on the reverse side of (piping direction) is provided with a plug.

: Shock absorber stopper
 : Stroke adjusting stopper (adjusting range 5 mm)
 : Metal adjusting stopper (adjusting range 15 mm)

LCR-P4/P40-HP1 Series

Stopper model No. selection method

LCR Double acting/Single rod selection table

(Combination with stroke adjusting stopper, shock absorber stopper)

●: Available - : Not available

Model Model No.	Stopper type		Adjustable stroke																											
	Stopper code		S1		S2		S3		S4		S5							S6												
			Adjustment length code																											
	Bore size	Stroke	Blank	02	03	Blank	02	03	Blank	02	03	Blank	02	03	Blank	02	03	04	05	06	07	Blank	02	03	04	05	06	07		
LCR	ø6,ø8	10	●	-	-	●	-	-	●	●	-	●	●	-	●	-	-	-	-	●	-	●	-	-	-	-	●	-		
		20 or more	●	●	-	●	●	-	●	●	-	●	●	-	●	●	-	●	-	●	-	●	●	-	●	-	●	-		
	ø12 to ø25	10	●	-	-	●	-	-	●	●	-	●	●	-	●	-	-	-	-	●	-	●	-	-	-	-	●	-		
		20	●	●	-	●	●	-	●	●	-	●	●	-	●	●	-	●	-	●	●	●	●	-	●	-	●	●		
		30 or more	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		

Model Model No.	Stopper type		Shock absorber						Two-sided combined double stopper						One side hybrid stopper mix											
	Stopper code		A1	A2	A3	A4	A5	A6	W1	W2	W3	W4	W5	W6	C1			C2			C3			C4		
	Bore size	Stroke													Adjustment length code											
LCR	ø6,ø8	10	-	-	●	●	-	-	-	-	●	●	-	-	-	-	-	-	●	-	-	●	-	-		
		20 or more	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	-	●	●	-	●	●	-		
	ø12 to ø25	10	-	-	●	●	-	-	-	-	●	●	-	-	-	-	-	-	●	-	-	●	-	-		
		20	-	-	●	●	-	-	-	-	●	●	-	-	-	-	-	-	●	●	-	●	●	-		
		30 or more	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

The table above also applies to a combination with option code D (with port on the stopper) or T (steel stopper block (nitriding)).

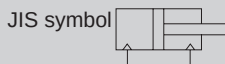
SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	Environment-resistant cylinder
SMG	
LCR	
LCG	
STM	
STG	
STR2	Linear Slide Hand
SCPD3	
CMK2	
SCM	
SCG	
SSD2	
SMG	Low-profile long stroke hand
LCR	
STG	
STS	
STL	
LSH	Wide Parallel Hand
LSHL	
LSHM	
LST	
LSTM	
HMC	Chuck
CKW	
ABP2	
SCPD3	Air Booster
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	Compatible with rechargeable batteries
STG	
STM	
LCR	
LCG	
STR2	Supports food mfg. processes
LSH	
LSHL	
SCPD3	
CMK2	
SCM	
SCG	
SSD2	
STG	



Linear slide cylinder Double acting/Single rod

Long service life cylinder

LCG-P4/P40-HP1 Series

● Bore size: $\phi 6/\phi 8/\phi 12/\phi 16/\phi 20/\phi 25$ 

Specifications

Item		LCG-P4/P40-HP1					
Bore size mm		ø6	ø8	ø12	ø16	ø20	ø25
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressure MPa		0.7					
Min. working pressure MPa		0.15 (*1)					
Proof pressure MPa		1.05					
Ambient temperature °C		-10 to 60 (no freezing)					
Port size	Main body side	M3	M5			Rc1/8	
	Main body back	M3				M5	Rc1/8
Stroke tolerance mm		+2.0 0 (*2)					
Working piston speed mm/s		50 to 500 (*3)					
Cushion		With rubber cushion					
Lubrication		Not available					
Allowable absorbed energy J		Refer to the following table.					

*1: 0.2MPa when using the $\phi 6$ shock absorber stopper.

*2: Note that there will be a slight gap between the end plate and floating bush if no stopper is attached.

*3: Use the stroke adjusting stopper at 50 to 200mm/s.

*4: The stroke adjusting stopper for 0.3 MPa and over working pressure is the metal sealing type.

Stroke

Bore size (mm)	Standard stroke (mm)
$\phi 6$	10, 20, 30, 40, 50
$\phi 8$	10, 20, 30, 40, 50, 75
$\phi 12$	10, 20, 30, 40, 50, 75, 100
$\phi 16$	10, 20, 30, 40, 50, 75, 100, 125
$\phi 20$	10, 20, 30, 40, 50, 75, 100, 125, 150
$\phi 25$	10, 20, 30, 40, 50, 75, 100, 125, 150

Note: Products with strokes other than the above are not available.

LCG allowable absorbed energy (Eo)

Bore size	Standard (J)	With stroke adjusting stopper (J)	With shock absorber stopper (J)
$\phi 6$	0.025	0.0032	0.14
$\phi 8$	0.058	0.0032	0.25
$\phi 12$	0.112	0.014	0.25
$\phi 16$	0.176	0.043	0.65
$\phi 20$	0.314	0.055	1.3
$\phi 25$	0.314	0.14	1.3

Related products

Speed controller							
Model No.	Appearance	Port size (Rc or R)			Applicable tube bore		
		M3	M5	1/8	4 ($\phi 4$)	6 ($\phi 6$)	8 ($\phi 8$)
SC3W-M3-*P4		●			●		
SC3W-M5-*P4			●		●	●	
SC3W-6-*P4				●	●	●	●

Specify the compatible tube O.D. code for *. Refer to "rechargeable battery compatible Component P4* Series" (No.CC-1226A) for details.

For dimensions, refer to the LCG Series in "Pneumatic Cylinders II (No. CB-030SA)".

LCG-P4/P40-HP1 Series

How to order

How to order (ø6 to ø16)

Without switch (built-in magnet for switch)

LCG - 8 - 40 - S5 P4 P40 - HP1

With switch (built-in magnet for switch)

LCG - 12 - 40 - SW81 - R - A1DT P4 P40 - HP1

Model No.

A Tube
Bore size

B Stroke

C Switch model No.

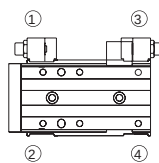
D Switch quantity

E Option

⚠ Precautions for model No. selection

- *1: The port positions of the standard without stopper are ① and ③ in the figure below.
- *2: Combination of the stroke adjusting stopper and shock absorber stopper is made to order.
- *3: Can be selected for the type with stopper only.
- *4: Refer to the selection table below for combinations of options.
- *5: A1**, A2**, A5** and A6** of ø6 to ø8 with 10 mm stroke or less and ø12 to ø16 with 20 mm stroke or less are made to order since adjustment is not possible with the standard stopper.
- *6: Select the F/H type switch when using the two switches for the S*** or A*** type with ø6 to ø8-30st or less.
- *7: The anti-rust type is made to order.
- *8: The stroke adjusting stopper for 0.3 MPa and over working pressure is the metal sealing type.
- *9: When changing the stopper position from the head side to the rod side, the stopper must be purchased separately according to the stroke and adjustable stroke. Refer to "Precautions when purchasing discrete stopper" in Pneumatic Cylinders II (Catalog No.CB-030SA) LCG Series. A1, A2 and adjustable stroke of 15mm and 25mm may not be available depending on the stroke.

● Stopper position



Code	Description
A Bore size	
6	ø6
8	ø8
12	ø12
16	ø16
B Stroke (mm)	
	Bore size (ø)
	6 8 12 16
10	10 ● ● ● ●
20	20 ● ● ● ●
30	30 ● ● ● ●
40	40 ● ● ● ●
50	50 ● ● ● ●
75	75 ● ● ● ●
100	100 ● ● ● ●
125	125 ● ● ● ●
C Switch model No.	
Refer to the compatibility table on pages 210 to 213 for switch model No.	
D Switch quantity	
R	1 on rod side
H	1 on head side
D	2
E Option	
Blank	No option
S Stroke adjusting stopper	
5 mm stroke adjustment on one side *2, *4	
S1**	Stopper position ① (Can be changed to ④)
S2**	Stopper position ② (Can be changed to ③)
S3 **	Stopper position ③ (Can be changed to ②) *9
S4**	Stopper position ④ (Can be changed to ①) *9
S5**	Stopper position ①, ③
S6**	Stopper position ②, ④
A Shock absorber stopper	
*2, *4	
A1**	Stopper position ① (Can be changed to ④)
A2**	Stopper position ② (Can be changed to ③)
A3 **	Stopper position ③ (Can be changed to ②) *9
A4**	Stopper position ④ (Can be changed to ①) *9
A5**	Stopper position ①, ③
A6**	Stopper position ②, ④
** part	
Blank	Port on stopper: without port
D	Port on stopper: side and bottom ports *3
Blank	Stopper block material: Steel
T	Stopper block material: steel (nitriding) *3
Plug included	
Blank	No
N	With side piping port plug (not available for ø6)

LCG Double acting/Single rod selection table

(Combination with stroke adjusting stopper, shock absorber stopper)

○: Available - : Not available

Model No. code	Option code		Stroke adjusting stopper						Shock absorber stopper					
	Bore size	Stroke	S1	S2	S3	S4	S5	S6	A1	A2	A3	A4	A5	A6
LCG	ø6, ø8	10	○	○	○	○	○	○	-	-	○	○	-	-
		20 or more	○	○	○	○	○	○	○	○	○	○	○	○
	ø12 to ø25	10 to 20	○	○	○	○	○	○	-	-	○	○	-	-
		30 or more	○	○	○	○	○	○	○	○	○	○	○	○

The table above also applies to a combination with option code D (with port on the stopper) or T (steel stopper block (nitriding)).

CKD

193

Long service life cylinder
Environment-resistant cylinder
Linear Slide Hand
Low-profile long stroke hand
Wide Parallel Hand
Chuck
Air Booster
Compatible with rechargeable batteries
Supports food mfg. processes

LCG-P4/P40-HP1 Series

How to order (ø20, ø25)

Without switch (built-in magnet for switch)

LCG - 20 - 40 — S5 U P4 P40 — HP1

With switch (built-in magnet for switch)

LCG - 20 - 40 - SW81 - R - A1DT U P4 P40 — HP1

Model No.

A Tube
Bore size

B Stroke

C Switch model No.

D Switch quantity

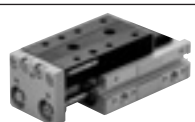
E Option

F Anti-rust treatment

⚠ Precautions for model No. selection

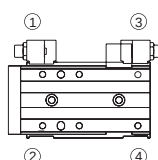
- *1: The port positions of the standard without stopper are ① and ③ in the figure below.
- *2: Combination of the stroke adjusting stopper and shock absorber stopper is made to order.
- *3: Can be selected for the type with stopper only.
- *4: Refer to the selection table below for combinations of options.
- *5: A1 **, A2 **, A5 **, and A6 ** of 20 st or less cannot be adjusted with the standard stopper, so they are made to order.
- *6: The table is alloy steel. To prevent rust, select "U" for an environment where the temperature and humidity are high or condensation may occur on the product surface.
- *7: The stroke adjusting stopper for 0.3MPa and over working pressure is the metal sealing type.
- *8: When changing the stopper position from the head side to the rod side, the stopper must be purchased separately according to the stroke and adjustable stroke. Refer to "Precautions when purchasing discrete stopper" in Pneumatic Cylinders II (Catalog No.CB-030SA) LCG Series. A1, A2 and adjustable stroke of 15 mm and 25 mm may not be available depending on the stroke.

Rust-proof (ø20,25)



Anti-corrosion treatment is applied to the table surface and rail surface to reduce the occurrence of rust in humid environments such as near ionizers.
The table and rail are black.

● Stopper position



Related products

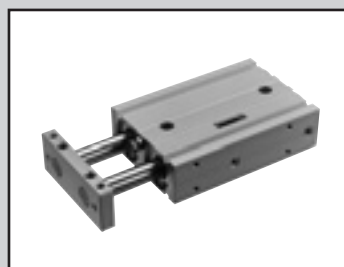
Speed controller

Model No.	Appearance	Port size (Rc or R)			Applicable tube bore		
		M3	M5	1/8	4 (ø4)	6 (ø6)	8 (ø8)
SC3W-M3- *-P4		●			●		
SC3W-M5- *-P4			●		●	●	
SC3W-6- *-P4				●	●	●	●

Specify the compatible tube O.D. code for *. Refer to "Rechargeable battery compatible component P4 * Series" (No.CC-1226A) for details.

Code	Description
A Bore size	
20	ø20
25	ø25
B Stroke (mm)	
10	10
20	20
30	30
40	40
50	50
75	75
100	100
125	125
150	150
C Switch model No.	
Refer to the compatibility table on pages 210 to 213 for switch model No.	
D Switch quantity	
R	1 on rod side
H	1 on head side
D	2
E Option	
Blank	No option
S Stroke adjusting stopper	
5 mm stroke adjustment on one side *2, *4	
S1**	Stopper position ①(Can be changed to ④)
S2**	Stopper position ②(Can be changed to ③)
S3 **	Stopper position ③(Can be changed to ②) *8
S4**	Stopper position ④(Can be changed to ①) *8
S5**	Stopper position ①, ③
S6**	Stopper position ②, ④
A Shock absorber stopper	
*2, *4	
A1**	Stopper position ①(Can be changed to ④)
A2**	Stopper position ②(Can be changed to ③)
A3 **	Stopper position ③(Can be changed to ②) *8
A4**	Stopper position ④(Can be changed to ①) *8
A5**	Stopper position ①, ③
A6**	Stopper position ②, ④
** part	
Blank	Port on stopper: without port
D	Port on stopper: side and bottom ports *3
Blank	Stopper block material: Steel
T	Stopper block material: Steel(Nitriding) *3
Plug included	
Blank	No
N	With side piping port plug (not available for ø25)
F Anti-rust treatment	
Blank	No
U	Rust proof (guide only) *6

Long service life cylinder	SCPD3
	CMK2
	SCM
	SSD2
	MDC2
	MSD
	MSDG-L
	SMG
	LCR
	LCG
	STM
	STG
	STR2
	STR2
Environment-resistant cylinder	SCPD3
	CMK2
	SCM
	SCG
	SSD2
	SMG
	LCR
	STG
	STS
	STL
Linear Slide Hand	LSH
	LSHL
	LSHM
Low-profile long stroke hand	LST
	LSTM
Wide Parallel Hand	HMC
Chuck	CKW
	ABP2
Compatible with rechargeable batteries	SCPD3
	CMK2
	SCM
	SSD2
	MSD
	MSDG-L
	SMG
	STG
	STM
	LCR
	LCG
	STR2
	LSH
	LSHL
Supports food mfg. processes	SCPD3
	CMK2
	SCM
	SCG
	SSD2
	STG



Twin rod cylinder Double acting/standard

Long service life cylinder

STR2-^M_B-P4/P40-HP1 Series

● Bore size:ø6/ø10/ø16/ø20/ø25/ø32

JIS symbol



Specifications

Item		STR2-M-P4/P40-HP1 (metal bush bearing) STR2-B-P4/P40-HP1 (ball bearing)					
Bore size mm		ø6	ø10	ø16	ø20	ø25	ø32
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressure MPa		0.7					
Min. working pressure MPa		0.2	0.15		0.1		
Proof pressure MPa		1.05					
Ambient temperature °C		-10 to 60 (no freezing)					
Port size		M5					Rc1/8
Stroke tolerance mm		+2.0					
		0					
Adjustable stroke rangemm		0 to -5					
Working piston speedmm/s		50 to 500					
Non-rotating accuracy	STR2-M	±0.4°		±0.3°		±0.2°	
	STR2-B	±0.2°		±0.1°		±0.3°	
Piston rod	STR2-M	Metal bush bearing					
Bearing	STR2-B	Ball bearing					
Cushion		Rubber cushion					
Lubrication		Not available					
Allowable absorbed energy J	PUSH	0.008	0.061	0.181	0.303	0.68	1.3
	PULL	0.059	0.083	0.083	0.127	0.237	0.311

Stroke

Bore size	Stroke (mm)	Max. stroke (mm)	Min. stroke (mm)	Min. stroke with switch
ø6	10, 20, 30, 40, 50	50	5	10
ø10				
ø16	10, 20, 30, 40, 50 60, 70, 80, 90, 100	100		
ø20				
ø25				
ø32				
		*1		

*1: In the case of rear piping:

- ø16:70
- ø20/ø25:60
- ø32:50

*2: Custom stroke

Available in 1 mm increments.

However, the total length is the same as that of the next longer standard stroke.

Refer to the STR2-^M_B Series in "Pneumatic Cylinders II (No.CB-030SA)" for dimensions.

STR2-^M_B-P4/P40-HP1 Series

How to order

How to order

Without switch (built-in magnet for switch)

STR2 - M - 16 - 30 - R - P4 - HP1

With switch (built-in magnet for switch)

STR2 - M - 16 - 30 - SW51 - R - R - P4 - HP1

Model No.

A Bearing

B Bore size

C Stroke

*2

■ The custom stroke is available in 1 mm increments.

D Switch model No.

*3

E Switch quantity

F Option

*4

Code	Description		
A Bearing			
M	Metal bush bearing		*1
B	Ball bearing		
B Bore size(mm)			
6	ø6		
10	ø10		
16	ø16		
20	ø20		
25	ø25		
32	ø32		
C Stroke(mm)			
Bore size	Stroke	Available Stroke	Intermediate Stroke
ø6	5 to 50	100	In 1 mm increments
ø10	5 to 50		
ø16	5 to 100	150	
ø20	5 to 100		
ø25	5 to 100		
ø32	5 to 100		
D Switch model No.			
Refer to the compatibility table on pages 210 to 213 for switch model No.			
E Switch quantity			
R	1 on rod side		
H	1 on head side		
D	2		
F Option			
O	Change piping port position by 180°		
R	Rear piping		

⚠ Precautions for model No. selection

*1: Bearing method M supports P4 specifications with HP1.

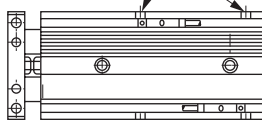
*2: The max stroke of rear piping "R" is:

- ø6, 10: 50 Stroke
- ø16: 70 Stroke
- ø20/25: 60 stroke
- ø32: 50 stroke

*3 : STR2-B-6,10 is not compatible with reed switch.

*4: The piping port positions for "O" are as shown in the figure below.

Piping port positions for standard (blank)



Change piping port position by 180°
(Code: O) piping port

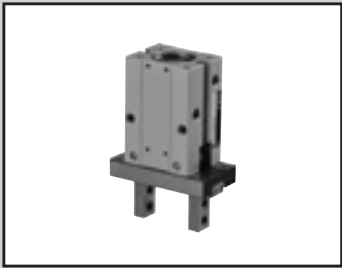
Related products

Speed controller							
Model No.	Appearance	Port size (Rc or R)			Compatible tube O.D.		
		M3	M5	1/8	4 (ø4)	6(ø6)	8(ø8)
SC3W-M5- *P4			●		●	●	
SC3W-6- *P4				●	●	●	●

Specify the compatible tube O.D. code for *. Refer to "rechargeable battery compatible Component P4" Series" (No.CC-1226A) for details.

CKD

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	Linear Slide Hand
STL	
LSH	
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

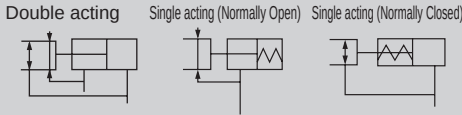


Linear Slide Hand

Double acting/Single acting

LSH-A-P4/P40-HP1 Series

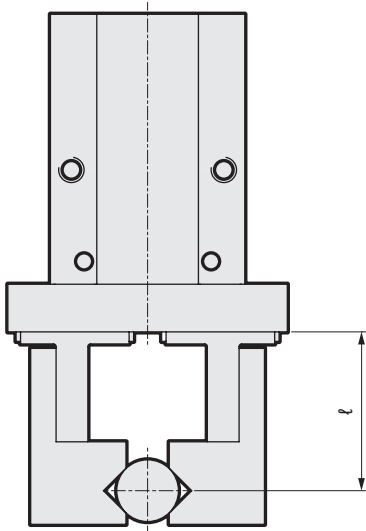
●Operational stroke: 4, 6, 10, 14, 22 mm



Specifications

Item		LSH-A-P4/P40-HP1					
Bore size mm		ø6	ø10	ø16	ø20	ø25	ø32
Actuation		Double acting/single acting (Normally Open/Normally Closed)					
Working fluid		Compressed air					
Max. working pressure MPa		0.7					
Min. working pressure MPa	Double acting	0.15	0.2	0.1			
	Single acting	0.3	0.35	0.25			
Port size		M3			M5		
Ambient temperature °C		-10 to 60 (no freezing)					
Operating stroke mm		4		6	10	14	22
Repeatability mm		±0.01					
Weight Double acting (Single acting) kg	Finger OP: 1, 2, 3	0.032	0.06	0.135	0.275 (0.28)	0.49 (0.495)	0.73 (0.78)
	0.14			0.28 (0.285)	0.495 (0.5)	0.76 (0.81)	
Lubrication		Not available					

Gripping force
Refer to pages 206 to 209 for details.



Unit: N

Bore size (mm)	Double acting	
	Open side	Closed side
ø6	6.1	3.3
ø10	17	11
ø16	45	34
ø20	66	42
ø25	104	65
ø32	193	158
Bore size (mm)	Single acting (Normally Open)	
		Closed side
ø6	-	1.9
ø10		7.1
ø16		27
ø20		33
ø25		45
ø32		131
Bore size (mm)	Single acting (Normally Closed)	
	Open side	
ø6	3.7	-
ø10	13	
ø16	38	
ø20	57	
ø25	83	
ø32	161	

* At supply pressure of 0.5 MPa, $l = 20$ mm, value at stroke center

Refer to the LSH-A Series of "Linear Slide Hand LSH-HP Series (No.CC-1419A)" for dimentions.

How to order

Without switch (built-in magnet for switch) *3

LSH - A 06 D 1 R - P40 - HP1

With switch (built-in magnet for switch)

LSH - A 06 D 1 R - SW81 - D - P4 P40 - HP1

A Rubber cover

B Bore size

C Actuation

D Finger

E Grip center reference, High precision positioning hole

F Switch model No.

G Switch quantity

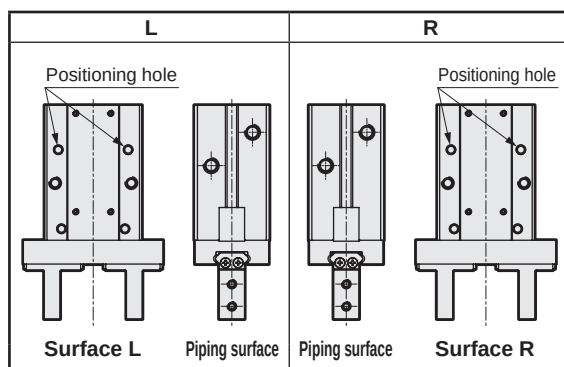
Code	Description
A Rubber cover	
A	Without rubber cover
B Bore size (mm)	
06	ø6
10	ø10
16	ø16
20	ø20
25	ø25
32	ø32
C Actuation	
D	Double acting
S	Single acting/Normally Open
C	Single acting/Normally Closed
D Finger * Refer to the dimentions for details.	
1	Basic
2	Side tap
3	Through hole
4	Flat
E Grip center reference, high precision positioning hole	
N	None
L	Refer to the figure at left.
R	
F Switch model No.	
Blank	No switch, with F-switch rail
N	No switch, no switch rail
A	No switch, with T-switch rail (ø32 only)
Refer to the compatibility table on pages 210 to 213 for switch model No.	
G Switch quantity	
R	1 on open side
H	1 on closed side
D	2

*1: If the one with the switch is selected, the product comes with a rail plate corresponding to the switch.

*2: Only ø32 can be selected for the T-switch

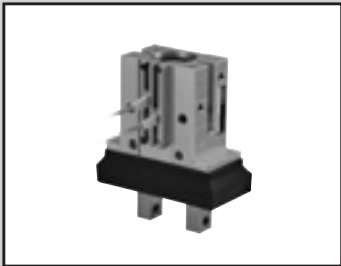
*3: When without switch, HP1 supports P4 specifications

Grip center reference, High precision positioning hole position diagram



Switch mounting availability table

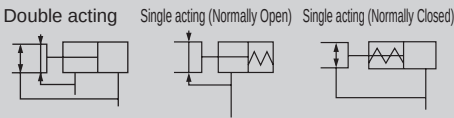
Model No.	Switch model No.	Side mounting	Rail mounting
LSH-A06	F2/3 □	●	-
	F2/3S	-	●
LSH-A10	F2/3 □	●	●
	F2/3S	●	●
LSH-A16	F2/3 □	●	●
	F2/3S	●	●
LSH-A20	F2/3 □	●	●
	F2/3S	●	●
LSH-A25	F2/3H/PH	-	●
	F2/3V/PV	●	●
	F2/3S	●	●
LSH-A32	F2/3 □	●	●
	F2/3S	●	●
	T2/3 □	-	●



Linear Slide Hand Double acting/Single acting with rubber cover

LSH-G/LSH-F-P4/P40-HP1 Series

●Operational stroke: 4, 6, 10, 14, 22 mm

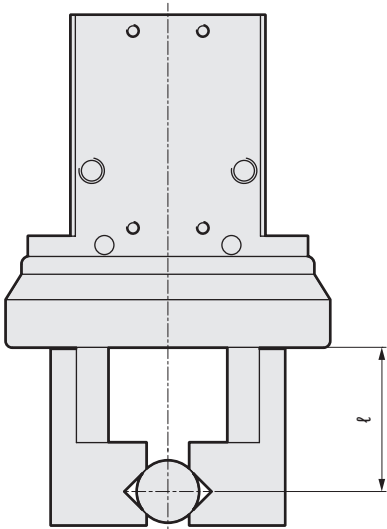


Specifications

Item		LSH-G, F-P4/P40-HP1					
Bore size mm		ø6	ø10	ø16	ø20	ø25	ø32
Actuation		Double acting/single acting (Normally Open/Normally Closed)					
Working fluid		Compressed air					
Max. working pressure MPa		0.7					
Min. working pressure MPa	Double acting	0.15	0.2	0.1			
	Single acting	0.3	0.35	0.25			-
Port size		M3		M5			
Ambient temperature °C		-10 to 60 (no freezing)					
Operating stroke mm		4		6	10	14	22
Repeatability mm		±0.01					
Weight Double acting (single acting) kg		0.033	0.07	0.15	0.3 (0.35)	0.53 (0.535)	0.81
Lubrication		Not available					

Gripping force

Refer to pages 206 to 209 for details.



Unit: N		
Bore size (mm)	Double acting	
	Open side	Closed side
ø6	6.1	3.3
ø10	17	9.8
ø16	40	30
ø20	66	42
ø25	104	65
ø32	193	158
Bore size (mm)	Single acting (Normally Open)	
		Closed side
ø6	-	1.9
ø10		6.3
ø16		24
ø20		28
ø25		45
Bore size (mm)	Single acting (Normally Closed)	
	Open side	
ø6	3.7	-
ø10	12	
ø16	31	
ø20	56	
ø25	83	

* At supply pressure of 0.5 MPa, ℓ = 20 mm, value at stroke center

Refer to the LSH-G/LSH-F Series of "Linear Slide Hand LSH-HP Series (No.CC-1419A)" for dimentions.

LSH-G/LSH-F-P4/P40-HP1 Series

How to order

How to order

Without switch (built-in magnet for switch) *3

LSH - G 06 D 1 R — P40 - HP1

With switch (built-in magnet for switch)

LSH - G 06 D 1 R - SW81 - D - P4 P40 - HP1

A Rubber cover

B Bore size

C Actuation

D Finger

E Grip center reference, High precision positioning hole

F Switch model No.

G Switch quantity

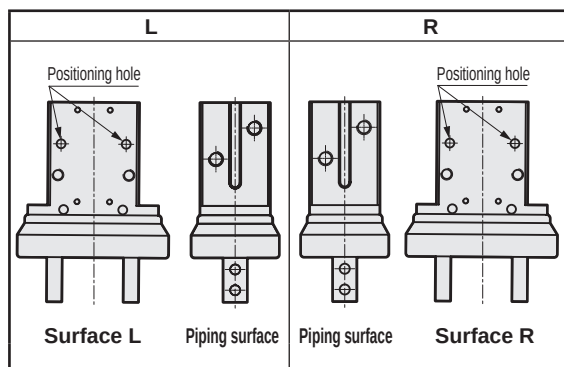
Code	Description
A Rubber cover	
G	Chloroprene rubber
F	Fluoro rubber
B Bore size (mm)	
06	ø6
10	ø10
16	ø16
20	ø20
25	ø25
32	ø32
C Actuation	
D	Double acting
S	Single acting / Normally Open (ø32 cannot be selected)
C	Single acting/Normally Closed (ø32 cannot be selected)
D Finger	
1	Basic
E Grip center reference, high precision positioning hole	
N	None
L	Refer to the figure at left.
R	
F Switch model No.	
Blank	No switch, with F-switch rail
N	No switch, no switch rail
A	No switch, with T-switch rail (ø32 only)
Refer to the compatibility table on pages 210 to 213 for switch model No.	
G Switch quantity	
R	1 on open side
H	1 on closed side
D	2

*1: If the one with the switch is selected, the product comes with a rail plate corresponding to the switch.

*2: Only ø32 can be selected for the T-switch

*3: When without switch, HP1 supports P4 specifications

Grip center reference, High precision positioning hole position diagram



Switch mounting availability table

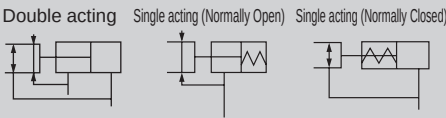
Model No.	Switch model No.	Side mounting	Rail mounting
LSH-G/F06	F2/3 □	●	-
	F2/3S	-	●
LSH-G/F10	F2/3 □	●	●
	F2/3S	●	●
LSH-G/F16	F2/3 □	●	●
	F2/3S	●	●
LSH-G/F20	F2/3 □	●	●
	F2/3S	●	●
LSH-G/F25	F2/3H/PH/PV	-	●
	F2/3V	●	●
	F2/3S	●	●
LSH-G/F32	F2/3 □	●	●
	F2/3S	●	●
	T2/3 □	-	●



Linear Slide Hand Long stroke Double acting/Single acting

LSHL-A-P4/P40-HP1 Series

●Operating stroke: 8, 12, 18, 22 mm

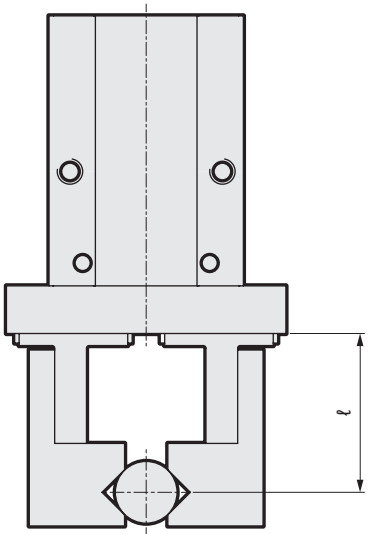


Specifications

Item		LSHL-A-P4/P40-HP1			
Bore size	mm	ø10	ø16	ø20	ø25
Actuation		Double acting/single acting (Normally Open/Normally Closed)			
Working fluid		Compressed air			
Max. working pressure	MPa	0.7			
Min. working pressure	Double acting	0.2		0.1	
	Single acting	0.35		0.25	
Port size		M3		M5	
Ambient temperature	°C	-10 to 60 (no freezing)			
Operating stroke	mm	8	12	18	22
Repeatability	mm	±0.01			
Weight Double acting (Single acting)	Finger OP: 1, 2, 3	0.065 (0.075)	0.155 (0.165)	0.315 (0.335)	0.54 (0.585)
	Finger OP: 4		0.16 (0.17)	0.32 (0.34)	0.545 (0.59)
Lubrication		Not available			

Gripping force

Refer to pages 206 to 209 for details.



Bore size (mm)	Double acting	
	Open side	Closed side
ø10	17	11
ø16	45	34
ø20	66	42
ø25	104	65
Bore size (mm)	Single acting (Normally Open)	
		Closed side
ø10		7.1
ø16		27
ø20		33
ø25		50
Bore size (mm)	Single acting (Normally Closed)	
	Open side	
ø10	13	
ø16	38	
ø20	57	
ø25	85	

* At supply pressure of 0.5 MPa, ℓ = 20 mm, value at stroke center

Refer to the LSHL-A Series of "Linear Slide Hand LSH-HP Series (No.CC-1419A)" for dimentions.

LSHL-A-P4/P40-HP1 Series

How to order

How to order

Without switch (built-in magnet for switch) *2

LSHL - A 10 D 1 R — P40 - HP1

With switch (built-in magnet for switch)

LSHL - A 10 D 1 R - SW81 - D - P4 P40 - HP1

A Rubber cover

B Bore size

C Actuation

D Finger

E Grip center reference, High precision positioning hole

F Switch model No.

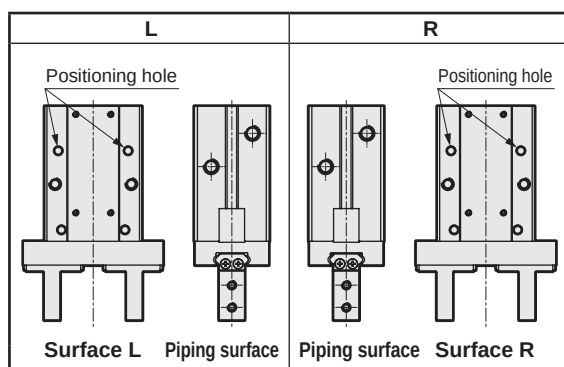
G Switch quantity

Code	Description
A Rubber cover	
A	Without rubber cover
B Bore size (mm)	
10	ø10
16	ø16
20	ø20
25	ø25
C Actuation	
D	Double acting
S	Single acting/Normally Open
C	Single acting/Normally Closed
D Finger * Refer to the dimentions for details.	
1	Basic
2	Side tap
3	Through hole
4	Flat
E Grip center reference, high precision positioning hole	
N	None
L	Refer to the figure at left.
R	
F Switch model No.	
Blank	Without switch, rail plate attached
N	Without switch or rail plate
Refer to the compatibility table on pages 210 to 213 for switch model No.	
G Switch quantity	
R	1 on open side
H	1 on closed side
D	2

*1: When selecting "With switch", a rail plate is attached.

*2: When without switch, supports P4 specifications with HP1

Grip center reference, High precision positioning hole position diagram



Switch mounting availability table

Model No.	Switch model No.	Side mounting	Rail mounting
LSHL-A10	F2/3 □	●	●
	F2/3S	●	●
LSHL-A16	F2/3 □	●	●
	F2/3S	●	●
LSHL-A20	F2/3 □	●	●
	F2/3S	●	●
LSHL-A25	F2/3 □	●	●
	F2/3S	●	●

SCP03	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCP03	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCP03	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCP03	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

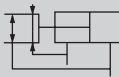


Linear Slide Hand, long stroke, double acting with rubber cover

LSHL-G/LSHL-F-P4/P40-HP1 Series

●Operational stroke: 8, 12, 18 mm

Double acting



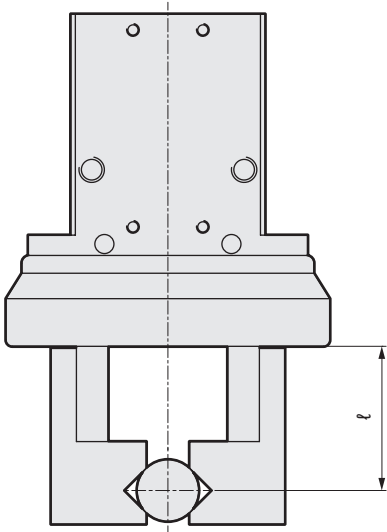
Specifications

Item		LSHL-G, F-P4/P40-HP1		
Bore size	mm	ø10	ø16	ø20
Actuation		Double acting		
Working fluid		Compressed air		
Max. working pressure	MPa	0.7		
Min. working pressure	MPa	0.2	0.1	
Port size		M3	M5	
Ambient temperature	°C	-10 to 60 (no freezing)		
Operating stroke	mm	8	12	18
Repeatability	mm	±0.01		
Weight	kg	0.09	0.18	0.39
Lubrication		Not available		

Gripping force

Refer to pages 206 to 209 for details.

Unit: N



Bore size (mm)	Double acting	
	Open side	Closed side
ø10	17	11
ø16	45	34
ø20	66	42

* At supply pressure of 0.5 MPa, $l = 20$ mm, value at stroke center

Refer to the LSHL-G/LSHL-F Series of "Linear Slide Hand LSH-HP Series (No.CC-1419A)" for dimensions.

LSHL-G/LSHL-F-P4/P40-HP1 Series

How to order

How to order

Without switch (built-in magnet for switch) *2

LSHL - G 10 D 1 R — P40 - HP1

With switch (built-in magnet for switch)

LSHL - G 10 D 1 R - SW81 - D - P4 P40 - HP1

A Rubber cover

B Bore size

C Actuation

D Finger

E Grip center reference, High precision positioning hole

F Switch model No.

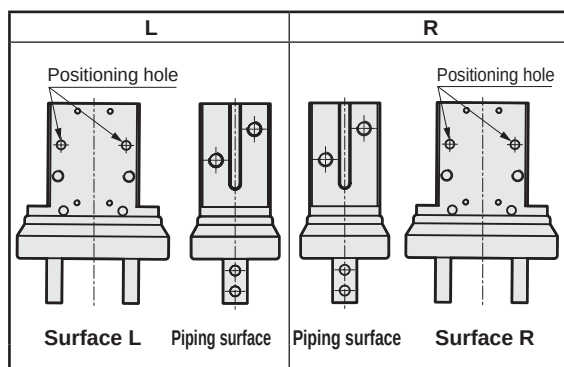
G Switch quantity

Code	Description
A Rubber cover	
G	Chloroprene rubber
F	Fluoro rubber
B Bore size (mm)	
10	ø10
16	ø16
20	ø20
C Actuation	
D	Double acting
D Finger	
1	Basic
E Grip center reference, high precision positioning hole	
N	None
L	Refer to the figure at left.
R	Refer to the figure at left.
F Switch model No.	
Blank	Without switch, rail plate attached
N	Without switch or rail plate
Refer to the compatibility table on pages 210 to 213 for switch model No.	
G Switch quantity	
R	1 on open side
H	1 on closed side
D	2

*1: When selecting "With switch", a rail plate is attached.

*2: When without switch, supports P4 specifications with HP1

Grip center reference, High precision positioning hole position diagram



Switch mounting availability table

Model No.	Switch model No.	Side mounting	Rail mounting
LSHL-G/F10	F2/3 □	●	●
	F2/3S	●	●
LSHL-G/F16	F2/3 □	●	●
	F2/3S	●	●
LSHL-G/F20	F2/3 □	●	●
	F2/3S	●	●

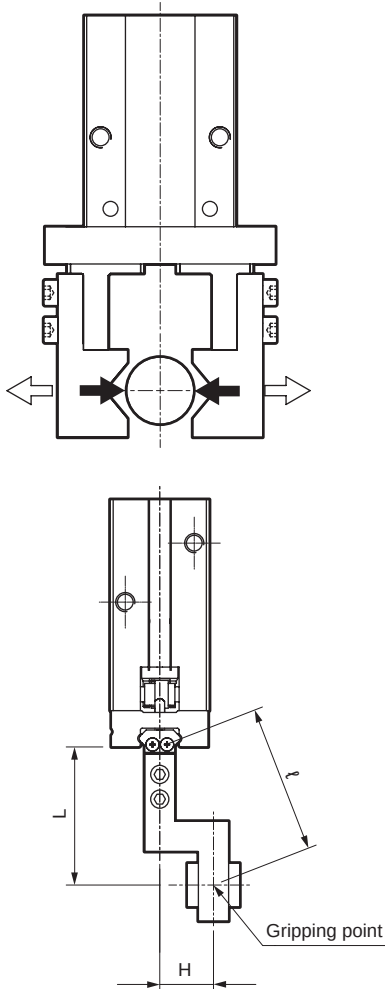
SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

LSH-A/LSHL-A-P4/P40-HP1 Series

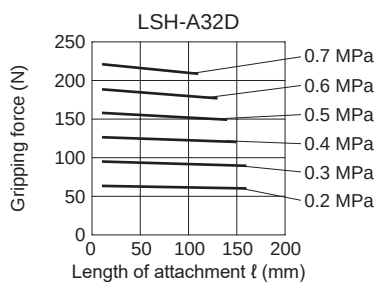
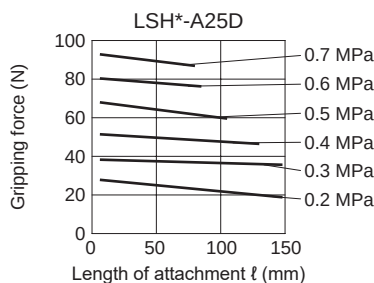
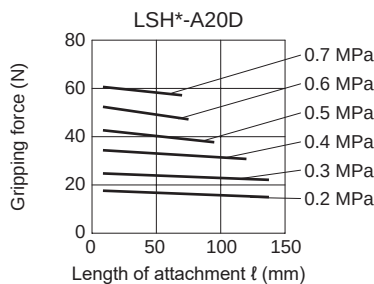
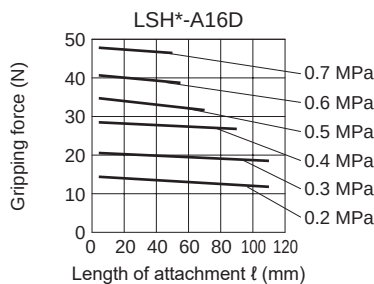
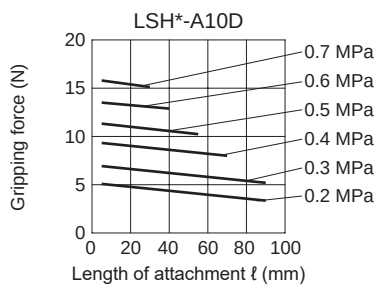
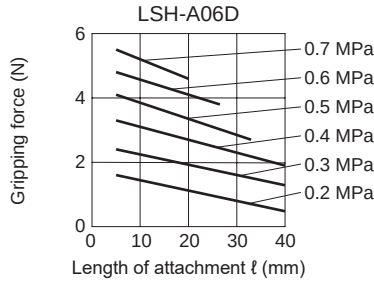
Gripping force performance data LSH-A**D/LSHL-A**D (double acting)

- Gripping force represents the thrust (per one finger) in the arrow direction shown in the figure.
- The gripping force operating in the opening/closing directions against the length () of the attachment when the supply pressure is 0.7 MPa or less is shown.

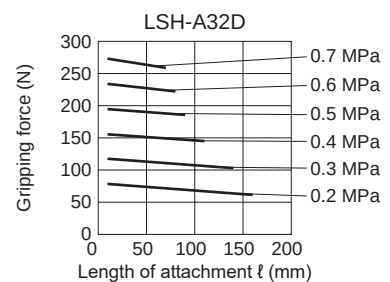
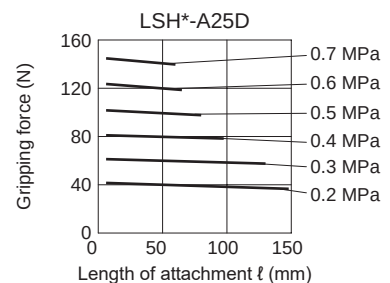
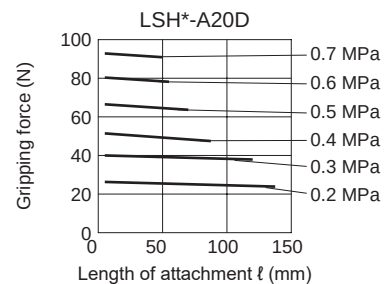
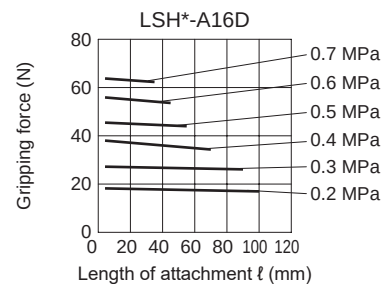
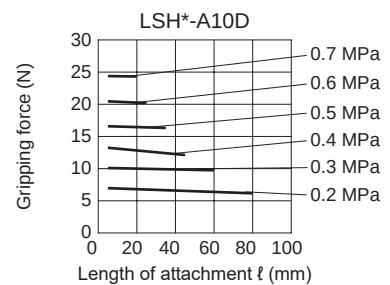
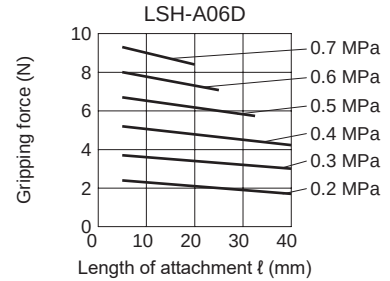
- Open direction (←)
- Close direction (→)



Close direction



Open direction



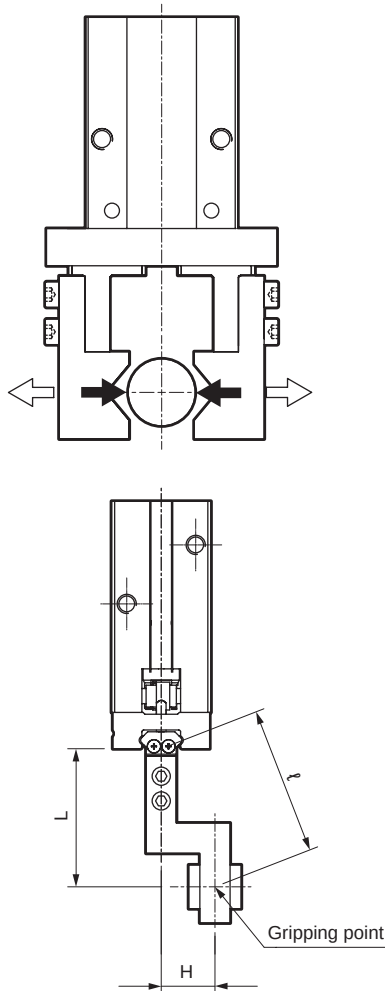
LSH-A/LSHL-A-P4/P40-HP1 Series

Gripping force performance data

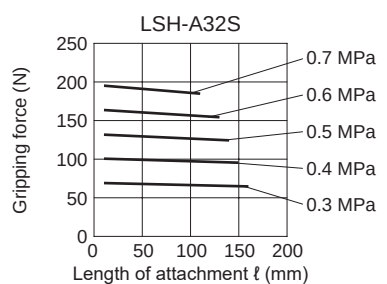
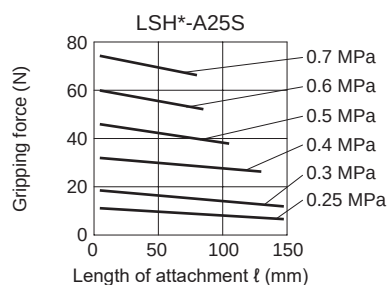
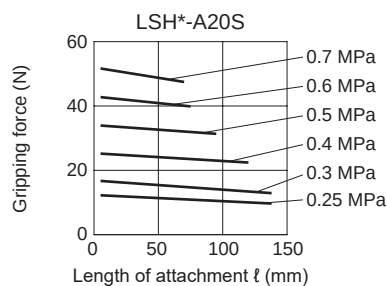
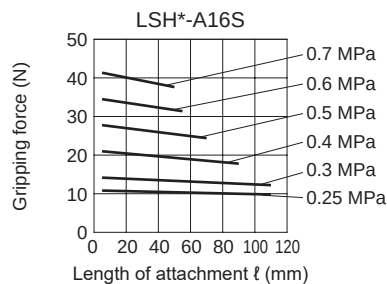
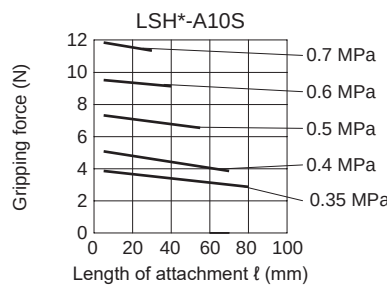
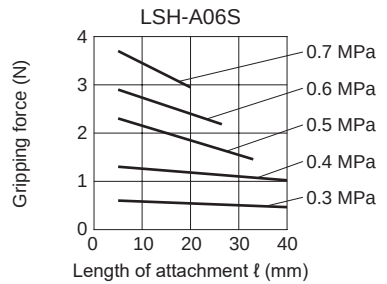
Gripping force performance data LSH-A**S/C/LSHL-A**S/C (single acting)

- Gripping force represents the thrust (per one finger) in the arrow direction shown in the figure.
- The gripping force operating in the opening/closing directions against the length () of the attachment when the supply pressure is 0.7 MPa or less is shown.

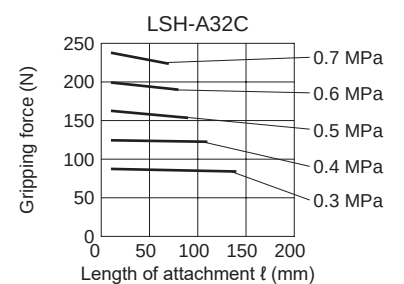
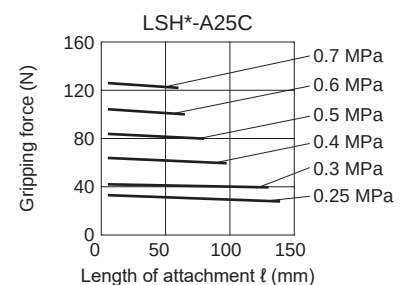
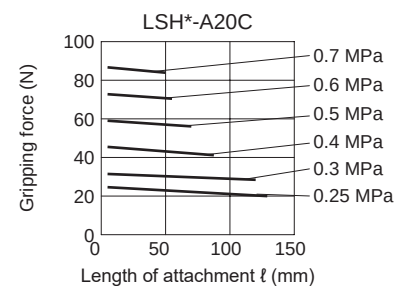
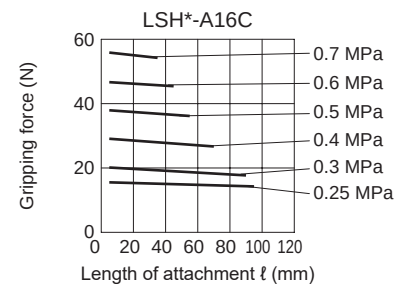
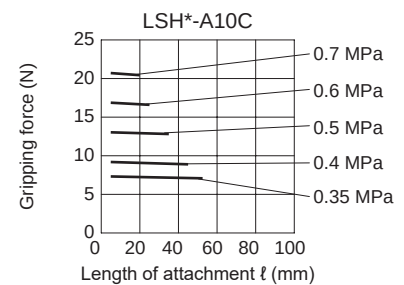
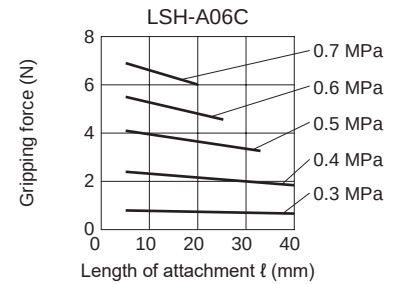
- Open direction (←)
- Close direction (→)



Close direction



Open direction



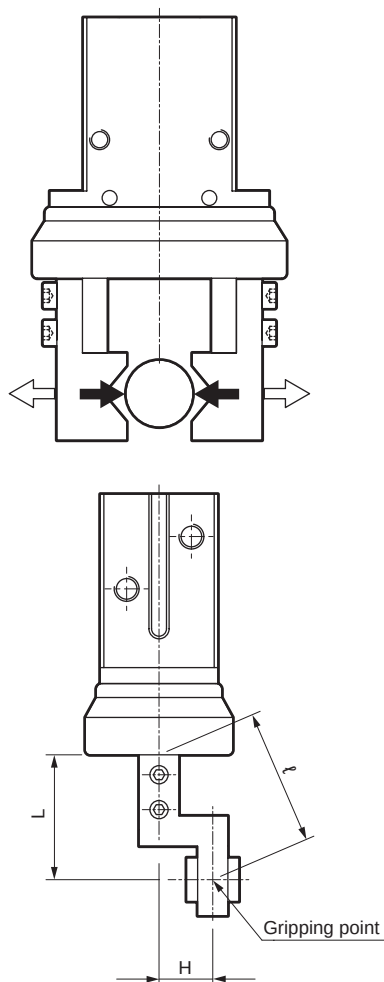
SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	Environment-resistant cylinder
SMG	
LCR	
LCG	
STM	
STG	
STR2	Linear Slide Hand
SCPD3	
CMK2	
SCM	
SCG	
SSD2	
SMG	Low-profile long stroke hand
LCR	
STG	
STS	
STL	
LSH	Chuck
LSHL	
LSHM	
LST	
LSTM	
HMC	Air Booster
CKW	
ABP2	
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	Supports food mfg. processes
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	
CMK2	
SCM	
SCG	
SSD2	
STG	

LSH-G_F/LSHL-G_F-P4/P40-HP1 Series

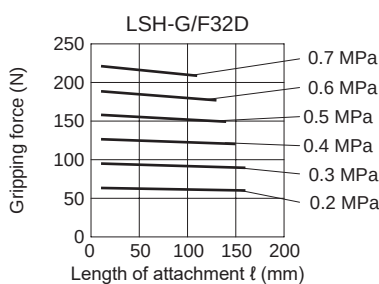
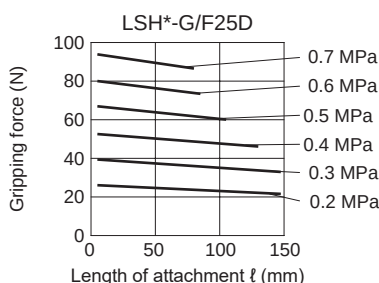
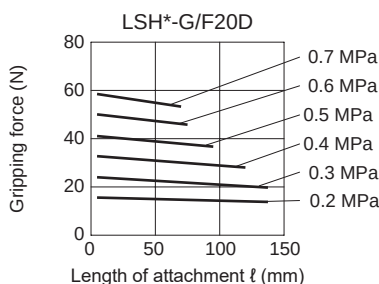
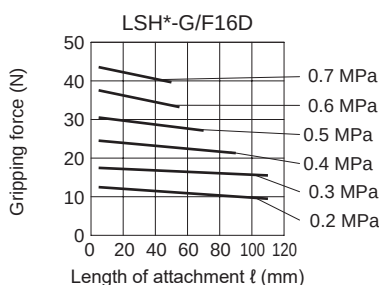
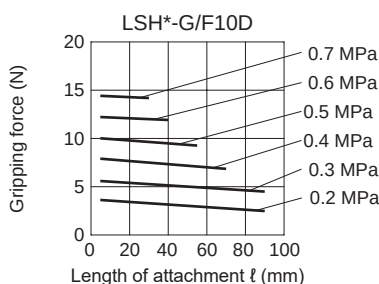
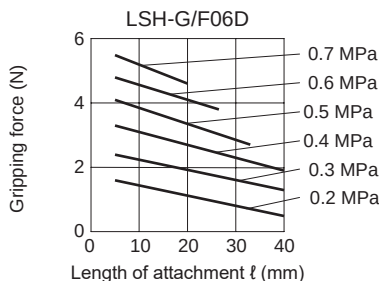
Gripping force performance data LSH-G/F**D/LSHL-G/F**D (double acting)

- Gripping force represents the thrust (per one finger) in the arrow direction shown in the figure.
- The gripping force operating in the opening/closing directions against the length () of the attachment when the supply pressure is 0.7 MPa or less is shown.

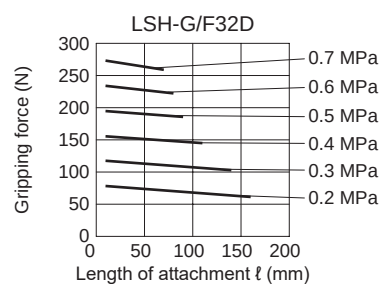
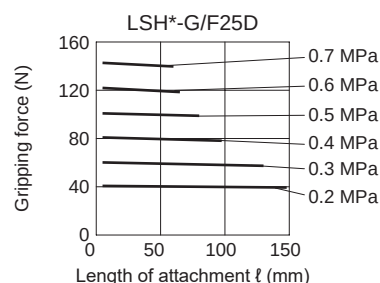
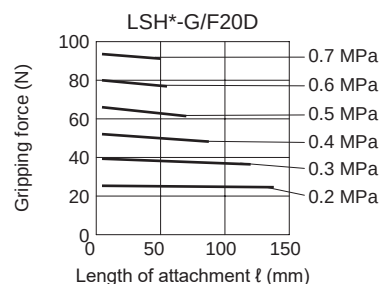
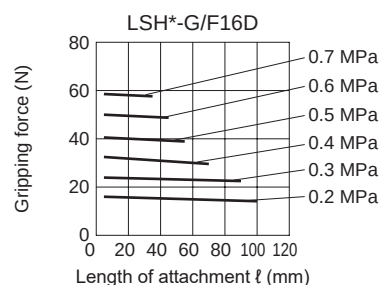
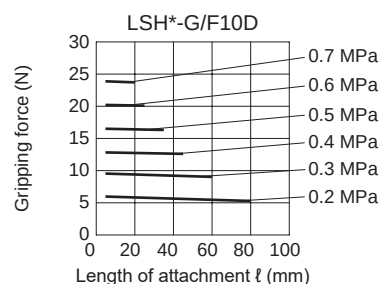
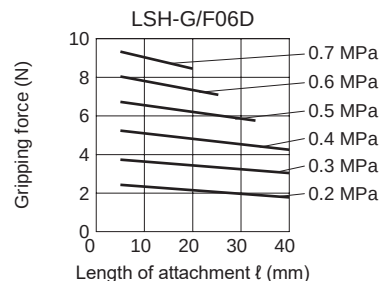
- Open direction (←)
- Close direction (→)



Close direction



Open direction



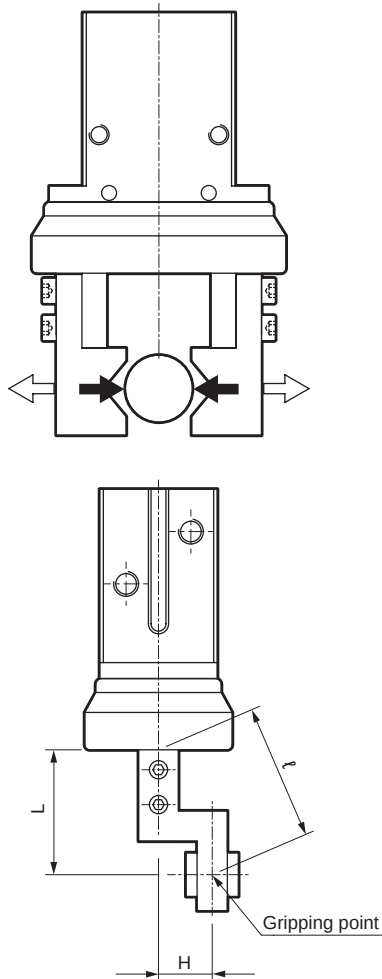
LSH-G/LSH-F-P4/P40-HP1 Series

Gripping force performance data

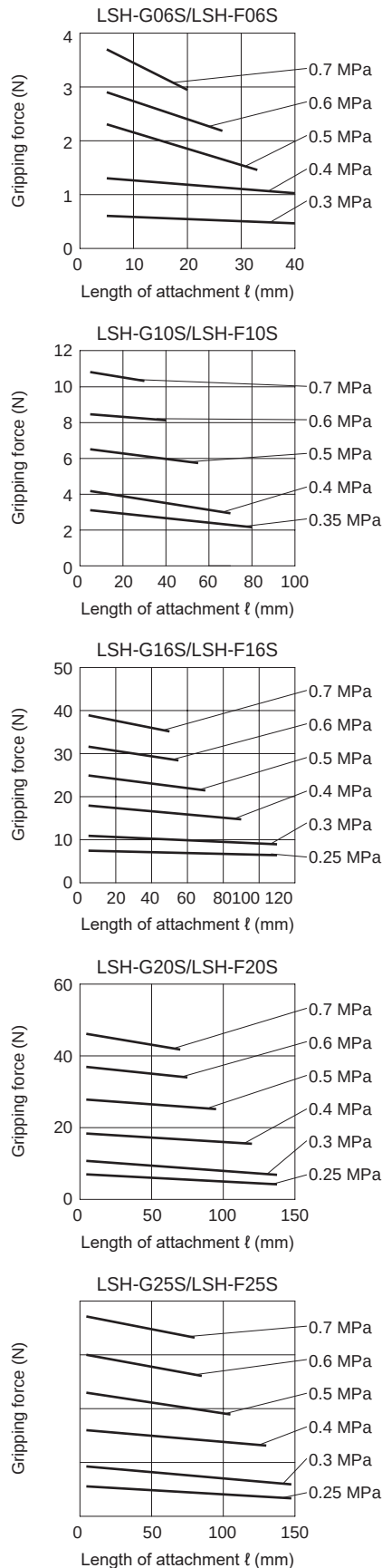
Gripping force performance data LSH-G/F**S/C (single acting)

- Gripping force represents the thrust (per one finger) in the arrow direction shown in the figure.
- The gripping force operating in the opening/closing directions against the length () of the attachment when the supply pressure is 0.7 MPa or less is shown.

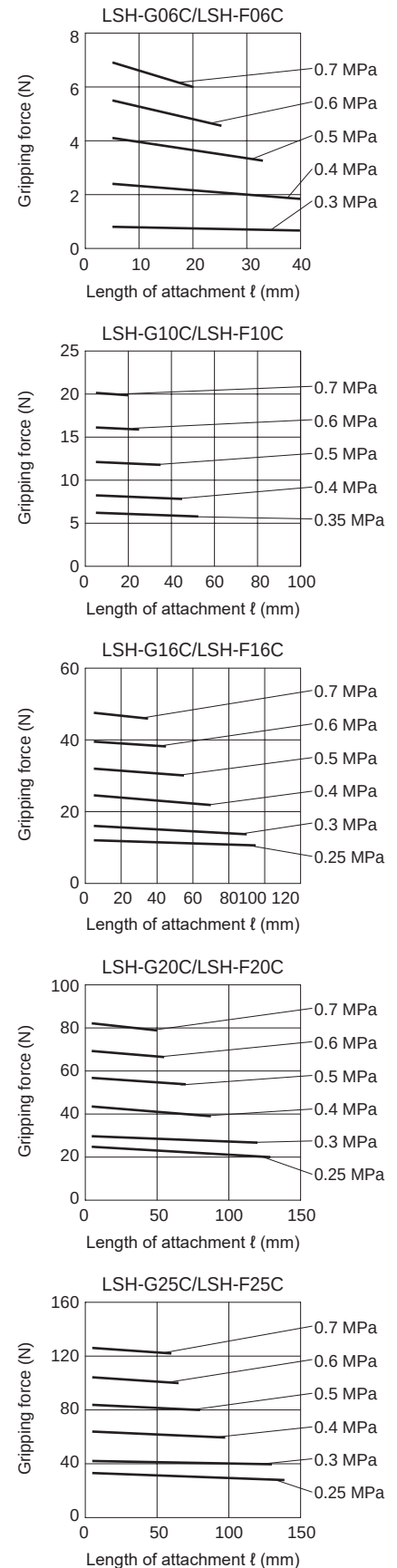
- Open direction (←)
- Close direction (→)



Close direction



Open direction



SCP03	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCP03	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCP03	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCP03	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

Switch Compatibility Table (Lead wire - straight outlet type)

*1: The cylinder equipped model No. is the order model No. in the table below.

*2: For discrete switch model numbers, add -P4 to the end of the basic switch model number in the table below.

*3: * products are with resin connectors.

[illegible]

Switch compatibility table

Axial lead wire

[illegible]

SCPD3	Long service life cylinder	SCPD3	Environment-resistant cylinder	LSH	Linear Slide Hand	Low-profile long stroke hand	Wide Parallel Hand	Chuck	Air Booster	Compatible with rechargeable batteries
CMK2		CMK2		LSHL						
SCM		SCM		LSHM						
SSD2		SCG		LST						
MDC2		SSD2		LSTM						
MSD		SMG		HMC						
MSDC-L		LCR		CKW						
SMG		STG		ABP2						
LCR		STM		SCPD3						
LCG		STR2		CMK2						
STM	LSH	SCM	Supports food mfg. processes							
STG	LSHL	SCG								
STR2	LSHM	SSD2								
	LST	STG								
	LSTM									
		HMC								
		CKW								
		ABP2								
		SCPD3								
		CMK2								

*3: * products are with resin connectors.

CKD

Lead-out L-type wire

213

Food manufacturing process HP1 Series compatible components



CONTENTS

● Environment-resistant cylinder	Pencil shaped cylinder (SCPD3-G-FP1-HP1)	218
	Small bore size cylinder (CMK2-G-FP1-HP1)	220
	Round shaped cylinder (SCM-G-FP1-HP1)	222
	Tie rod cylinder (SCG-G-FP1-HP1)	224
	Compact cylinder (SSD2-G-FP1-HP1)	226
	Guided cylinder (STG-G-FP1-HP1)	230
⚠ Safety precautions		232

Environment-resistant cylinder series variation

Model No.	Bore size (mm)	Stroke (mm)
SCPD3-G-FP1-HP1	ø6/ø10/ø16	5 to 270
CMK2-G-FP1-HP1	ø20/ø25/ø32/ø40	5 to 750
SCM-G-FP1-HP1	ø20/ø25/ø32/ø40/ø50/ø63/ø80/ø100	10 to 1500
SCG-G-FP1-HP1	ø32/ø40/ø50/ø63/ø80/ø100	1 to 1500
SSD2-G-FP1-HP1	ø12/ø16/ø20/ø25/ø32/ø40/ø50/ø63/ø80/ø100	1 to 100
STG-G-FP1-HP1	ø12/ø16/ø20/ø25/ø32/ø40/ø50/ø63/ø80/ø100	5 to 400

⚠ Read the safety precautions in "Pneumatic Cylinders" (Catalog No.CB-029SA and CB-030SA) and "Equipment for Food Manufacturing Processes FP Series" (Catalog No.CC-1271A) before use.

CAUTION

■ Some models use oil-impregnated bearings, and oil may be discharged outside of the cylinder.
Do not use in places susceptible to oil.

CKD

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

For food manufacturing processes. Reduced

Satisfies a variety of needs for food processing

A broad standard lineup ranging from air filters to actuators that can be used safely and securely in food manufacturing processes. We offer total support for food manufacturing with total engineering capacity in packaging machines as well as pneumatic, fluid control, and electric-driven products.

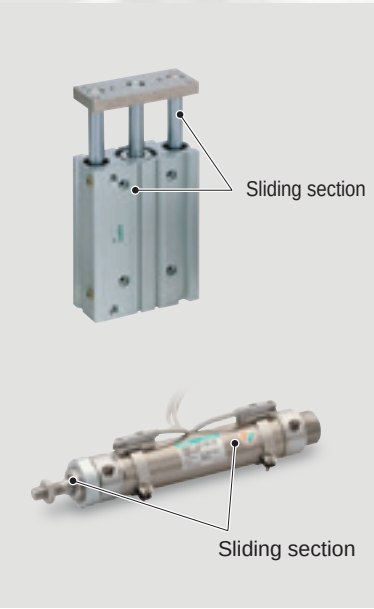


FP1 Series

Lubricant

Eliminates concerns over lubricant contamination!

Lubricant used in flow paths and sliding parts is changed to food-grade (NSF-H1), eliminating concerns over contamination caused by lubricant. The materials and dimensions are the same as those of the standard products



This logo represents CKD's stance to provide you with safe components for supporting your food manufacturing processes.

FP2 Series

Lubricant Materials Environment

Uses safe materials!

In addition to FP1, the flow path uses Food Sanitation Act compliant materials (resin, rubber)

CO₂ emissions with long service life products

Contributes to carbon neutrality by reducing maintenance and improving productivity.

HP
HIGH PRODUCTIVITY

Contributes to carbon neutrality by reducing maintenance and improving productivity.

Reduce production loss and waste

Durable

Rapid replacements

Early service-life notice

Contributes to food safety and security in food manufacturing processes.

FP
Food Process®

Contributes to food safety and security in food manufacturing processes.

FP1 Eliminates concerns over lubricant contamination

Environment-resistant cylinder For food manufacturing processes

FP1 - G-HP1 Series

Unexplained stops significantly reduced

Number of replacements Significantly reduced

Environmental resistance improved

Durability count 5 million cycles and over

Subject to CKD prescribed conditions



Pencil shaped cylinder
Double acting/Single rod/Rubber scraper

SCPD3-G-FP1-HP1 Series

● Bore size: $\varnothing 6/\varnothing 10/\varnothing 16$

JIS symbol 



Specifications

Item	SCPD3-G-FP1-HP1 SCPD3-GL-FP1-HP1 (with switch)		
Bore size mm	ø6	ø10	ø16
Actuation	Double acting		
Working fluid	Compressed air		
Max. working pressure MPa	1.0		
Min. working pressure MPa	0.15	0.1	
Proof pressure MPa	1.6		
Ambient temperature °C	-10 to 60 (no freezing)		
Port size	M5		
Stroke tolerance mm	+1.0 0		
Working piston speed mm/s	50 to 750		
Cushion	With rubber cushion		
Lubrication	Not required		
Allowable absorbed energy J	0.012	0.041	0.162

Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Available stroke (mm)	Min. stroke (mm)
$\varnothing 6$	15/30/45/60	100	105	5
$\varnothing 10$		200	210	
$\varnothing 16$		260	270	

*1: The custom stroke is available in 1 mm increments.

Refer to the SCPD3-G-HP1 Series on page 51 for dimensions.

How to order

Without switch(without magnet for switch)

SCPD3-G-00-10-15-O-———FP1Y-HP1

With switch(built-in magnet for switch)

SCPD3-GL-00-10-15-O-T2H-R-FP1Y-HP1

A Model No.

B Mounting
*1

C Bore size

D Stroke

E Head side port direction
*1

F Switch model No.
*3, *5
* indicates the lead wire length.

Precautions for model No. selection

- *1: Mounting type "CB" is not available when the port direction is "O" (axial direction).
- *2: Refer to SCPD3-G-HP1 Series on page 48 for the min. stroke with switch.
- *3: Magnet is not built into the type without switch.
- *4: "I" and "Y" cannot be selected together.
- *5: Switches are shipped with the product.

[Example of model No.]

SCPD3-GL-00-10-30-O-T2H-R-FP1I-HP1

Model: Pencil shaped cylinder Food-grade grease specifications

- A Model No. : Double acting/Single rod/rubber scraper/with switch
- B Mounting : Basic
- C Bore size : $\phi 10$ mm
- D Stroke : 30mm
- E Head side port direction : Axial direction
- F Switch model No. : Proximity switch T2H, lead wire 1 m
- G Switch quantity : 1 on rod side
- H Accessory : Rod eye

How to order mounting brackets

Bore size (mm)	$\phi 6$	$\phi 10$	$\phi 16$
Mounting bracket			
Foot (LS)	P2-LS-6	P2-LS-10	P2-LS-16
Flange (FA)	P2-FA-6	P2-FA-10	P2-FA-16

Note: The foot (LS) type mounting bracket is provided as 1 pc./set.

How to order accessories

Bore size (mm)	$\phi 10$	$\phi 16$
Accessory		
Rod eye (I)	P2-I-10-FP1	P2-I-16-FP1
Rod clevis (Y)	P2-Y-10-FP1	P2-Y-16-FP1
Eye bracket (B1)	P2-B1-10-FP1	P2-B1-16-FP1
Clevis bracket (B2)	P2-B2-10-FP1	P2-B2-16-FP1

Code	Description
A Model No.	
SCPD3-G	Double acting/Single rod/rubber scraper
SCPD3-GL	Double acting/Single rod/rubber scraper with

B Mounting		6	10	16
Bore size (ϕ)				
00	Basic	●	●	●
LS	Axial foot (one side) (rod side)	●	●	●
FA	Rod side flange	●	●	●
CB	Clevis bracket (pin and snap ring attached)		●	●

C Bore size (mm)	
6	$\phi 6$
10	$\phi 10$
16	$\phi 16$

D Stroke (mm)			
Bore size	Stroke *2	Available Stroke	Custom stroke
$\phi 6$	5 to 100	105	In 1 mm increments
$\phi 10$	5 to 200	210	
$\phi 16$	5 to 260	270	

E Head side port direction	
Blank	Perpendicular
O	Axial direction

F Switch model No.					
Lead wire Straight	Lead wire L-shaped	Contact	Voltage		Indicator
			AC	DC	
T0H*	T0V*	Reed	●	●	1-color LED
T5H*	T5V*		●	●	No LED
T2H*	T2V*	Proximity		●	1-color LED
T3H*	T3V*			●	2-wire
T2HR3	T2VR3			●	1-color LED Bending resistant lead wire
T2WH*	T2WV*			●	2-wire
T3WH*	T3WV*			●	3-wire

* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

G Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

H Accessory		6	10	16
Bore size (ϕ)				
I	Rod eye		●	●
Y	Rod clevis (pin and snap ring attached)		●	●
B1	Eye bracket		●	●
B2	Clevis bracket		●	●

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCPD3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCPD3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	



Small bore size cylinder
Double acting/Single rod/Rubber scraper

CMK2-G-FP1-HP1 Series

● Bore size: $\varnothing 20/\varnothing 25/\varnothing 32/\varnothing 40$



Specifications

Item	CMK2-G-FP1-HP1				
Bore size	mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
Actuation		Double acting			
Working fluid		Compressed air			
Max. working pressure	MPa	1.0			
Min. working pressure	MPa	0.15			
Proof pressure	MPa	1.6			
Ambient temperature	°C	-10 to 60 (no freezing)			
Port size		Rc1/8			
Stroke tolerance	mm	$^{+2.0}_{-0}$ (up to 200), $^{+2.4}_{-0}$ (More than 200)			
Working piston speed	mm/s	50 to 500			
Cushion		With rubber cushion			
Lubrication		Not required			
Allowable absorbed energy	J	0.166	0.308	0.424	0.639

Stroke

Bore size(mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
$\varnothing 20$	25/50/75/100/150/200/ 250/300	750	5
$\varnothing 25$			
$\varnothing 32$			
$\varnothing 40$			

*1: The custom stroke is available in 1 mm increments.

*2: One side foot (LS) has max. stroke of 50mm.

How to order mounting brackets

Bore size (mm)	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$ *1
Mounting bracket *2				
Basic (00) *4	M1- 00 -20	M1- 00 -30	M1- 00 -30	M1- 00-30 (for head side)
Axial foot (LB/LS) *3	M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30(For head side) CMK2-G2-40-LS (LS, LB rod side)
Flange (FA/FB)	M1-FA-20	M1-FA-30	M1-FA-30	CMK2-G2-40-FA(FA) M1-FA-30(FB)
Trunnion (TA/TB)	M1-TA-20	M1-TA-30	M1-TA-30	CMK2-G2-40-TA(TA) M1-TA-40(TB)
Eye bracket (CA)	M1-CA-20-FP1	M1-CA-30-FP1	M1-CA-30-FP1	M1-CA-30-FP1
Clevis bracket (CB)	M1-CB-20-FP1	M1-CB-30-FP1	M1-CB-30-FP1	M1-CB-30-FP1

*1: The rod cover nut, LS bracket (LB rod side), FA bracket and TA bracket for $\varnothing 40$ bore size are not the standard.

*2: Mounting nuts and toothed washers are included with the axial foot type and flange type. The trunnion type includes mounting nuts. However, toothed washers are not included with $\varnothing 40,00$, LB (rod side), LS and FA.

*3: For axial foot types (two-sided), 2 sets of the "M1-LB-*1" in the table above are required. For $\varnothing 40$, the brackets used on the rod side and head side are different. Refer to the table above for details.

*4: Mounting nut, toothed washer only. Although 1 set is included with the basic product (00) (only mounting nuts are included with the $\varnothing 40$), use them when needed.

Refer to the CMK2-G-HP1 Series on page 55 for dimensions.

How to order

Without switch (built-in magnet for switch)

CMK2-G - 00 - 20 - 100 - FP1 Y - HP1

With switch (built-in magnet for switch)

CMK2-G - 00 - 20 - 100 - T0H - R - V FP1 Y - HP1

A Mounting
*1

B Bore size

C Port thread

D Stroke

E Switch model No.

F Switch quantity
*5

G Option

H Accessory
*3

⚠ Precautions for model No. selection

*1: One side foot (LS) has the max. stroke of 50mm.

*2: Refer to CMK2-G-HP1 Series on page 52 for the min. stroke with switch.

*3: "I" and "Y" cannot be selected together.

*4: Refer to "Pneumatic Cylinders I (Catalog No. CB-029SA)" for made-to-order specifications of rod end form.

*5: Up to three switches can be installed. If four or more switches are required, switch mounting brackets for the extra switches must be prepared separately.

*6: For 20 or 25 bore size, the rod material is stainless steel as standard and the rod nut is zinc chromate. If a stainless steel rod nut is necessary, select the "M" option code.

[Model No. example]

CMK2-G-00-20-100-T0H-R-VFP1Y-HP1

Model: Small bore cylinder Food-grade grease specifications

- A Mounting : Basic
- B Bore size : $\varnothing 20$ mm
- C Port thread : Rc thread
- D Stroke : 100 mm
- E Switch model No. : Reed T0H switch, lead wire 1m
- F Switch quantity : 1 on rod side
- G Option : Boss cutoff
- H Accessory : Rod clevis

Code	Description
A Mounting	
00	Basic
LB	Axial foot (both sides)
LS	Axial foot (one side)
FA	Rod side flange
FB	Head side flange
CA	Eye bracket
CC	Eye bracket integrated
CC1	Eye bracket, bush pressfit
CB	Clevis Bracket (pin and split washer pin included)
TA	Rod side trunnion
TB	Head side trunnion

B Bore size (mm)	
20	$\varnothing 20$
25	$\varnothing 25$
32	$\varnothing 32$
40	$\varnothing 40$

C Port thread	
Blank	Rc thread
NN	NPT thread (made to order)
GN	G thread (made-to-order product)

D Stroke (mm)	
Stroke *2	Custom stroke
5 to 750	In 1 mm increments

E Switch model No.						
Lead wire	Lead wire	Indicator	Lead			
Straight	L-shaped		Line			
T0H*	T0V*	1-color LED	2-wire			
T5H*	T5V*	No LED	2-wire			
T8H*	T8V*	1-color LED	2-wire			
T1H*	T1V*	1-color LED	2-wire			
T2H*	T2V*	1-color LED	2-wire			
T3H*	T3V*	1-color LED	2-wire			
T2HR3	T2VR3	Bending resistant lead wire	2-wire			
T3PH*	T3PV*	1-color LED (made to order)	3-wire			
T2WH*	T2WV*	2-color LED	2-wire			
T3WH*	T3WV*	2-color LED	3-wire			
T2JH*	T2JV*	1-color LED Off-delay	2-wire			

* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

F Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

G Option	
M	Piston rod material (stainless steel) *6
V	Boss cutoff

H Accessory	
I	Rod eye
Y	Rod clevis (pin and split washer pin attached)
B2	Clevis bracket (pin and snap ring included)

SCPD3	Long service life cylinder
CMK2	Environment-resistant cylinder
SCM	Linear Slide Hand
SSD2	Low-profile long stroke hand
MDC2	Wide Parallel
MSD	Hard
MSDG-L	Chuck
SMG	Booster
LCR	Air
LCG	Compatible with rechargeable batteries
STM	Supports food mfg. processes
STR2	
LSH	
LSHL	
SCPD3	
CMK2	
SCM	
SCG	
SSD2	
STG	



Round shaped cylinder
Double acting/Single rod/rubber scraper

SCM-G-FP1-HP1 Series

● Bore size: $\phi 20/\phi 25/\phi 32/\phi 40/\phi 50/\phi 63/\phi 80/\phi 100$



Specifications

Item		SCM-G-FP1-HP1								
Bore size		mm	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation			Double acting							
Working fluid			Compressed air							
Max. working pressure		MPa	1.0							
Min. working pressure		MPa	0.1		0.15	0.1				
Proof pressure		MPa	1.6							
Ambient temperature		°C	-10 to 60 (no freezing)							
Port size	With rubber cushion		Rc1/8			Rc1/4		Rc3/8	Rc1/2	
	With air cushion		M5	Rc1/8		Rc1/4		Rc3/8	Rc1/2	
Stroke tolerance mm	With rubber cushion		+1.4 0 (up to 1000)		+1.4 0 (up to 1500)	+2.3 0 (up to 1000),		+2.7 0 (1001 to 1500)		
	With air cushion		+1.4 0 (up to 1000)		+1.4 0 (up to 1500)	+1.4 0 (up to 1000),		+1.8 0 (1001 to 1500)		
Working piston speed		mm/s	30 to 1000 (Operate within the allowable absorbed energy.)							
Cushion			Either rubber cushion or air cushion can be selected.							
Effective air cushion length		mm	8.1	8.1	8.6	8.6	13.4	13.4	15.4	15.4
Lubrication			Not required							
Allowable absorbed energy	With rubber cushion		0.1	0.2	0.5	0.9	1.6	1.6	3.3	5.8
	With air cushion		0.8	1.2	2.5	3.7	8.0	14.4	25.4	45.6
J	Without cushion		-	-	-	-	0.057	0.057	0.112	0.153

*1: The values of allowable absorbed energy for "No cushion" are the non-specified side when an air cushion is selected for the other side ("R" → Head side, "H" → Rod side) is the allowable absorbed energy.

*2: Without a cushion, large energy generated by the external load cannot be absorbed. Please provide an external shock absorber.

Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
ø 20	25, 50, 75, 100, 125, 150, 200, 250, 300	1000	10
ø 25			
ø 32			
ø 40		1500	
ø 50			
ø 63			
ø 80			
ø100			

*1: The custom stroke is available in 1 mm increments.

How to order mounting brackets

Bore size (mm)	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$	$\phi 100$
Mounting bracket								
Foot (LB)	SCM-LB-20-HP1	SCM-LB-25-HP1	SCM-LB-32-HP1	SCM-LB-40-HP1	SCM-LB-50-HP1	SCM-LB-63-HP1	SCM-LB-80-HP1	SCM-LB-100-HP1
Flange (FA/FB)	SCM-FA-20-HP1	SCM-FA-25-HP1	SCM-FA-32-HP1	SCM-FA-40-HP1	SCM-FA-50-HP1	SCM-FA-63-HP1	SCM-FA-80-HP1	SCM-FA-100-HP1
Eye bracket (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40	SCM-CA-50	SCM-CA-63	-	-
Clevis bracket (CB)	-	-	-	-	-	-	SCM-CB-80-FP1	SCM-CB-100-FP1
Trunnion (TA/TB)	SCM-TA-20-FP1	SCM-TA-25-FP1	SCM-TA-32-FP1	SCM-TA-40-FP1	SCM-TA-50-FP1	SCM-TA-63-FP1	-	-

*1: All mounting brackets are supplied with mounting bolts.

*2: The foot mounting bracket is provided as 2 pcs./set.

Refer to the SCM-G-HP1 Series on pages 59 to 61 for dimensions.

SCM-G-FP1-HP1 Series

How to order

How to order

Without switch(built-in magnet for switch)

SCM-G-LB-40-B-100-MFP1-I-HP1

With switch(built-in magnet for switch)

SCM-G-LB-40-B-100-T2H-D-MFP1-I-HP1

A Mounting
*1

B Bore size

C Port thread

D Cushion

E Stroke

F Switch model No.

*3

*4

H Switch mounting

G Switch quantity

I Option

*6

J Accessory

*7

⚠ Precautions for model No. selection

*1: Mounting bracket will be shipped with the product. However, mounting types: LB and FA are assembled at shipment. In addition, when the mounting type is 00, it cannot be installed on the rod side.

*2: Refer to SCM-G-HP1 Series on page 56 for the min. stroke with switch.

*3: Switches other than F Switch model No. are also available. (Made to order) For details, refer to "Pneumatic Cylinders I (No. CB-029SA)".

*4: T8H/V switches cannot be mounted when the bore size is ø20 to ø40 and switch mounting is the rail type.

*5: Refer to "Pneumatic Cylinders I (Catalog No. CB-029SA)" for made-to-order specifications of rod end form.

*6: "Q" (switch rail attached at shipment) is not available for "Z" switch mounting.

*7: "I" and "Y" cannot be selected together.

*8: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

[Example of model No.]

SCM-G-LB-40B-100-T2H-D-MFP1I-HP1

Model:Round shaped cylinder Food-grade grease specifications

- A Mounting : Axial foot
- B Bore size : ø40 mm
- C Port thread : Rc thread
- D Cushion : With two-sided air cushion
- E Stroke : 100 mm
- F Switch model No. : Proximity T2H switch, lead wire 1 m
- G Switch quantity : 2 pcs. included
- H Switch mounting : Rail
- I Option : Piston rod material (stainless steel)
- J Accessory : Rod eye

Code	Description								
A Mounting									
	Bore size (ø)	20	25	32	40	50	63	80	100
00	Basic	●	●	●	●	●	●	●	●
LB	Axial foot	●	●	●	●	●	●	●	●
FA	Rod side flange	●	●	●	●	●	●	●	●
FB	Head side flange	●	●	●	●	●	●	●	●
CA	Eye bracket	●	●	●	●	●	●		
CB	Clevis bracket (pin and snap ring attached)							●	●
TA	Rod side trunnion	●	●	●	●	●	●		
TB	Head side trunnion	●	●	●	●	●	●		
B Bore size (mm)									
20	ø20								
25	ø25								
32	ø32								
40	ø40								
50	ø50								
63	ø63								
80	ø80								
100	ø100								
C Port thread									
Blank	Rc thread								
N	NPT thread (made to order) With air cushion: ø32 and over								
G	G thread (made to order) With air cushion: ø32 and over								
D Cushion									
B	With two-sided air cushion								
R	Rod side air cushioned								
H	Head side air cushioned								
D	With two-sided rubber cushion								
E Stroke (mm)									
Bore size		Stroke *2		Custom stroke					
ø20 to ø32		10 to 1000		In 1 mm increments					
ø40 to ø100		10 to 1500							
F Switch model No.									
Lead wire Straight	Lead wire L-shaped	Contact	Voltage		Indicator	Lead wire			
			AC	DC					
T0H*	T0V*	Reed	●	●	1-color LED	2-wire			
T5H*	T5V*		●	●	No LED				
T8H*	T8V*		●	●	1-color LED				
T1H*	T1V*		●		1-color LED				
T2H*	T2V*		●	2-wire					
T3H*	T3V*		●			3-wire			
T2HR3	T2VR3	Proximity		●	1-color LED Bending resistant lead wire	2-wire			
T3PH*	T3PV*			●	1-color LED (made to order)	3-wire			
T2WH*	T2WV*			●	2-color LED	2-wire			
T3WH*	T3WV*			●		3-wire			
T2YD*	-			●	2-color LED	2-wire			
T2YDT*	-			●	2-color LED				
T2JH*	T2JV*			●	1-color LED off-delay	2-wire			
* Lead wire length									
Blank	1 m (standard)								
3	3 m (option)								
5	5 m (option)								
G Switch quantity									
R	1 on rod side								
H	1 on head side								
D	2								
T	3								
4	4 pcs. Included (when there are more than 4 switches, indicate switch quantity.)								
H Switch mounting									
Blank	Rail method								
Z	Band method								
I Option									
Q	Switch rail attached at shipment								
M	Piston rod material (stainless steel)								
J Accessory									
	Bore size (ø)	20	25	32	40	50	63	80	100
I	Rod eye	●	●	●	●	●	●	●	●
Y	Rod clevis (pin and snap ring attached)	●	●	●	●	●	●	●	●
B1	Eye bracket							●	●
B2	Clevis bracket	●	●	●	●	●	●		

SCPD3	Long service life cylinder	SCPD3	Environment-resistant cylinder	Linear	Slide Hand	Low-profile long stroke hand	Wide Parallel Hand	Chuck	Air Booster	Compatible with rechargeable batteries	SCPD3	Supports food mfg. processes		
CMK2		CMK2		LSH							LST		HMC	CMK2
SCM		SCM		LSHL							LSTM		CKW	SCM
SSD2		SCG		LSHM										SSD2
MDC2		SSD2												MSD
MSD		SMG												MSDG-L
MSDG-L		LCR												SMG
SMG		STG												STG
LCR		STS												STM
LCG		STL												LCR
STM					LCG					STR2				
STG										LSH				
STR2										LSHL				
										LSHM				
										LST				
										LSTM				
										HMC				
										CKW				
										ABP2				
										SCPD3				
										CMK2				
										SCM				
										SSD2				
										MSD				
										MSDG-L				
										SMG				
										STG				
										STM				
										LCR				
										LCG				
										STR2				
										LSH				
										LSHL				



Tie rod cylinder Double acting/Rubber scraper

SCG-G-FP1-HP1 Series

● Bore size: $\varnothing 32/\varnothing 40/\varnothing 50/\varnothing 63/\varnothing 80/\varnothing 100$ 

Specifications

Item		SCG-G-FP1-HP1					
Bore size mm		ø32	ø40	ø50	ø63	ø80	ø100
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressure MPa		1.0					
Min. working pressure MPa		0.15					
Proof pressure MPa		1.6					
Ambient temperature °C		-10 to 60 (no freezing)					
Port size		Rc1/8	Rc1/4		Rc3/8		Rc1/2
Stroke tolerance mm	With rubber cushion	$^{+1.4}_0$ (up to 1000), $^{+1.8}_0$ (1001 to 1500)					
	With air cushion	$^{+1.0}_0$ (up to 360), $^{+1.4}_0$ (361 to 1000), $^{+1.8}_0$ (1001 to 1500)					
Working piston speed mm/s		50 to 1000 (Use the product within the allowable absorbed energy.)					
Cushion		Either air cushion or rubber cushion can be selected					
Effective air cushion length mm		8.6	8.6	13.4	13.4	15.4	15.4
Lubrication		Not required					
Allowable absorbed energy J	With rubber cushion	0.5	0.9	1.6	1.6	3.3	5.8
	With air cushion	2.5	3.7	8.0	14.4	25.4	45.6

Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Available stroke (mm)	Min. stroke(mm)
$\varnothing 32$	25/50/75/100	600	700	1
$\varnothing 40$			800	
$\varnothing 50$			1200	
$\varnothing 63$			1200	
$\varnothing 80$	450/500	700	1400	
$\varnothing 100$		800	1500	

*1: The custom stroke is available in 1 mm increments.

*2: If the max. stroke is exceeded, product specifications may not be met, depending on operating conditions. Contact CKD in this case.

How to order mounting brackets

Bore size (mm)	$\varnothing 32$	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	$\varnothing 100$
Mounting bracket						
Foot (LB)	SCG-LB-32	SCG-LB-40	SCG-LB-50	SCG-LB-63	SCG-LB-80	SCG-LB-100
Flange (FA) (FB)	SCG-FA-32	SCG-FA-40	SCG-FA-50	SCG-FA-63	SCG-FA-80	SCG-FA-100
Eye bracket (CA)	SCG-CA-32-FP1	SCG-CA-40-FP1	SCG-CA-50-FP1	SCG-CA-63-FP1	SCG-CA-80-FP1	SCG-CA-100-FP1
Clevis bracket (CB)	SCG-CB-32-FP1	SCG-CB-40-FP1	SCG-CB-50-FP1	SCG-CB-63-FP1	SCG-CB-80-FP1	SCG-CB-100-FP1

*1: The foot mounting bracket (LB) is provided as 2 pcs./set.

*2: All mounting brackets have mounting bolts attached.

Refer to the SCG-G-HP1 Series on page 65 for dimensions.

SCG-G-FP1-HP1 Series

How to order

How to order

Without switch (built-in magnet for switch)

SCG-G-LB-40B-100-M-FP1-I-HP1

With switch (built-in magnet for switch)

SCG-G-LB-40B-100-T2H-R-M-FP1-I-HP1

Model No.

A Mounting
*1

B Bore size

C Port thread

D Cushion

E Stroke

F Switch model No.

G Switch quantity
*3

H Option

I Accessory
*4

⚠ Precautions for model No. selection

*1: Mounting bracket will be shipped with the product.
(Trunnion types are assembled at shipment.)

*2: Refer to S C G-G-H P1 Series on
pages 62 and 63 for the min. stroke
with switch.

*3: Mounting When selecting TA or TB with , the
switch quantity is limited to "H" (1 on head side)
for TAR (1 on rod side) for TB.

*4: "I" and "Y" cannot be selected together.

[Example of model No.]

SCG-G-LB-40B-100-T2H-D-MFP1I-HP1

Model: Tie rod cylinder Food-grade grease specifications

- A Mounting : Axial foot
- B Bore size : $\varnothing 40$ mm
- C Port thread : Rc thread
- D Cushion : With two-sided air cushion
- E Stroke : 100mm
- F Switch model No. : Proximity T2H switch, lead wire 1 m
- G Switch quantity : 2 pcs. included
- H Option : Piston rod material (Stainless steel)
- I Accessories : Rod eye (included)

Code	Description
A Mounting	
00	Basic
LB	Axial foot
FA	Rod side flange
FB	Head side flange
CA	Eye bracket
CB	Clevis bracket (pin and split pin attached)
TA	Rod side trunnion
TB	Head side trunnion
TC	Intermediate trunnion

B Bore size (mm)	
32	$\varnothing 32$
40	$\varnothing 40$
50	$\varnothing 50$
63	$\varnothing 63$
80	$\varnothing 80$
100	$\varnothing 100$

C Port thread	
Blank	Rc thread
N	NPT thread (made to order)
G	G thread (made-to-order product)

D Cushion	
B	Two-sided air cushion (basic)
D	Two-sided rubber cushion
Note: The rubber cushioned type has a longer total length than the air cushioned type.	

E Stroke (mm)			
Bore size	Stroke *2	Available stroke	Custom stroke
$\varnothing 32$	1 to 600	700	In 1 mm increments
$\varnothing 40$		800	
$\varnothing 50$		1200	
$\varnothing 63$		1400	
$\varnothing 80$	1 to 700	1500	
$\varnothing 100$	1 to 800		

F Switch model No.						
Lead wire	Lead wire	Contact	Voltage		Indicator	Lead wire
Straight	L-shaped		AC	DC		
TOH*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No LED	
T8H*	T8V*		●	●	1-color LED	2-wire
T1H*	T1V*		●	●	1-color LED	
T2H*	T2V*		●	●	1-color LED	3-wire
T3H*	T3V*	Proximity	●	●	1-color LED	2-wire
T2HR3	T2VR3		●	●	1-color LED	2-wire
T3PH*	T3PV*		●	●	1-color LED (made to order)	3-wire
T2WH*	T2WV*		●	●	2-color LED	2-wire
T3WH*	T3WV*		●	●	2-color LED	3-wire
T2YD*	-		●	●	2-color LED	2-wire
T2YDT*	-		●	●	2-color LED	2-wire
T2JH*	T2JV*		●	●	1-color LED off-delay	2-wire

* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

G Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

H Option	
M	Piston rod material (stainless steel)

I Accessory	
I	Rod eye
Y	Rod clevis (pin and split pin attached)
B1	Eye bracket
B2	Clevis bracket (pin and split pin attached)
B3	Eye bracket
B4	Trunnion No. 2 bracket (2 pcs./set)

SCPD3	Long service life cylinder	Environment-resistant cylinder	Linear Slide Hand	Low-profile long stroke hand	Wide Parallel Hand	Chuck	Air Booster	Compatible with rechargeable batteries	Supports food mfg. processes
CMK2									
SCM									
SSD2									
MDC2									
MSD	SMG	STG	LCR	STM	LST	LSTM	HMC	CKW	ABP2
MSDG-L									
SCPD3									
CMK2									
SCM									
SCG	SSD2	SMG	STG	LCR	STM	LST	LSTM	HMC	CKW
SSD2									
MSD									
MSDG-L									
SCPD3									
CMK2	SCM	SSD2	STG	LCR	STM	LST	LSTM	HMC	CKW
SCM									
SCG									
SSD2									
STG									



Compact cylinder
Double acting/Single rod/Rubber scraper

SSD2-G-FP1-HP1 Series

● Bore size: $\varnothing 12/\varnothing 16/\varnothing 20/\varnothing 25/\varnothing 32/\varnothing 40/\varnothing 50/\varnothing 63/\varnothing 80/\varnothing 100$

JIS symbol



Specifications

Item	SSD2-G-FP1-HP1 SSD2-GL-FP1-HP1 (with switch)									
Bore size mm	ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation	Double acting									
Working fluid	Compressed air									
Max. working pressure MPa	1.0									
Min. working pressure MPa	0.1	0.2						0.15		
Proof pressure MPa	1.6									
Ambient temperature °C	-10 to 60 (no freezing)									
Port size	M5				Rc1/8 *1		Rc1/4		Rc3/8	
Stroke tolerance mm	$\begin{matrix} +1.0 \\ 0 \end{matrix}$									
Working piston speed mm/s	50 to 500							50 to 300		
Cushion	No									
Lubrication	Not required									
Allowable absorbed energy J	0.004	0.01	0.016	0.021	0.025	0.092	0.1	0.12	0.27	0.56

*1: The $\varnothing 32$ bore size with a 5 mm stroke and without a switch has a port size of M5.

Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
ø12	5/10/15/20/25/30	30	1
ø16			
ø20	5/10/15/20/25/30/35/40/45/50	50	
ø25			
ø32	5/10/15/20/25/30/35/40/45/50/75/100	100	
ø40			
ø50	10/15/20/25/30/35/40/45/50/75/100		
ø63			
ø80			
ø100			

*1: When using the-type with switch, refer to the table of the min. stroke with switch.

Refer to the SSD2-G-HP1 Series on page 69 for dimensions.

SSD2-G-FP1-HP1 Series

How to order

How to order

Without switch (without magnet for switch)

SSD2-G-32-5-N-FP1-LB-I-HP1

With switch (built-in magnet for switch)

SSD2-GL-32-10-T0H-R-N-FP1-LB-I-HP1

A Model No.

B Bore size

C Port thread

D Stroke

E Switch model No.

*1
*2
*3
*6
*7

F Switch quantity

G Option

H Mounting bracket
*4
*9

⚠ Precautions for model No. selection

- *1: The T2YD* switch cannot be mounted on the ø12 and ø16 bore sizes.
- *2: T8* switch cannot be installed on ø12 to ø32.
- *3: The F type switch can only be mounted on the piping port surface of bore sizes ø20 and ø25.
- *4: The mounting bracket is attached at shipment.
- *5: "I" and "Y" cannot be selected together.
- *6: The F type switch with L type lead wire on ø20 models cannot be selected on strokes 15 mm or under.
- *7: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.
- *8: F type switch cannot be selected.
- *9: The ø12 to ø32 structure does not permit retrofitting of the foot bracket (LB) or flange bracket (FA) on the rod side. Assembly before shipment is available as made to order.

[Example of model No.]

SSD2-GL-20-10-T0H-R-NFP1-LB-I-HP1

Model: Compact cylinder Food-grade grease specifications

- B Bore size : ø20 mm
- C Port thread : M5
- D Stroke : 10 mm
- E Switch model No. : Reed switch T0H*
Lead wire length 1 m
- F Switch quantity : 1 on rod side
- G Option : Rod end male thread
- H Mounting bracket : Axial foot
- I Accessory : Rod eye

I Accessory
*5

Code		Description															
A Model No.																	
SSD2-G	Double acting/Single rod/rubber scraper																
SSD2-GL	Double acting/Single rod/rubber scraper with switch																
B Bore size (mm)																	
12	ø12																
16	ø16																
20	ø20																
25	ø25																
32	ø32																
40	ø40																
50	ø50																
63	ø63																
80	ø80																
100	ø100																
C Port thread																	
Blank	M5 (ø12 to ø25) Rc thread (ø32 to ø100)																
NN	NPT thread (ø32 and over) (made to order)																
GN	G thread (ø32 and over) (made-to-order product)																
D Stroke (mm)																	
Refer to the stroke table on the following page.																	
E Switch model No.																	
Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC DC	Indicator	Lead wire	Bore size											
						12	16	20	25	32	40	50	63	80	100		
F2S*		Proximity	●	1-color LED	2-wire			●	●								
F3S*			3-wire				●	●									
F2H*	F2V*		2-wire				●	●									
F3H*	F3V*		3-wire				●	●									
F3PH*	F3PV*	Proximity	●	1-color LED (PNP output) (made to order)	3-wire			●	●								
F2YH*	F2YV*		2-wire				●	●									
F3YH*	F3YV*		3-wire				●	●									
T0H*	T0V*		2-wire		●	●	●	●	●	●	●	●	●	●	●		
T5H*	T5V*	Reed	●	No LED	2-wire	●	●	●	●	●	●	●	●	●	●		
T8H*	T8V*		2-wire		●	●	●	●	●	●	●	●	●	●			
T1H*	T1V*		2-wire		●	●	●	●	●	●	●	●	●	●			
T2H*	T2V*		3-wire		●	●	●	●	●	●	●	●	●	●			
T3H*	T3V*	Proximity	●	1-color LED	2-wire	●	●	●	●	●	●	●	●	●	●		
T2HR3	T2VR3		2-wire		●	●	●	●	●	●	●	●	●	●			
T3PH*	T3PV*		3-wire		●	●	●	●	●	●	●	●	●	●			
T2WH*	T2WV*		2-wire		●	●	●	●	●	●	●	●	●	●			
T3WH*	T3WV*	Proximity	●	2-color LED	3-wire	●	●	●	●	●	●	●	●	●	●		
T2YD*	-		2-wire		●	●	●	●	●	●	●	●	●	●			
T2YDT*	-		2-wire		●	●	●	●	●	●	●	●	●	●			
T2JH*	T2JV*		2-wire		●	●	●	●	●	●	●	●	●	●			
* Lead wire length																	
Blank	1 m (standard)																
3	3 m (option)																
5	5 m (option)		*8														
F Switch quantity																	
R	1 on rod side																
H	1 on head side																
D	2																
G Option																	
Blank	Rod end female thread																
N	Rod end male thread																
H Mounting bracket																	
Blank	Without mounting bracket																
LB	Axial foot (made to order)																
CB	Clevis bracket (pin and snap ring attached)																
FA	Rod side flange (made to order)																
FB	Head side flange																
I Accessory (available when rod end male thread "N" is selected)																	
I	Rod eye																
Y	Rod clevis (pin and snap ring attached)																

SCP03	Long service life cylinder
CMK2	Environment-resistant cylinder
SCM	Linear Slide Hand
SSD2	Low-profile long stroke hand
MDC2	Wife Parallel Hand
MSD	Chuck
MSDG-L	Booster
SMG	Air
LCR	Compatible with rechargeable batteries
LCG	Supports food mfg. processes
STM	
STR2	
LSH	
LSHL	
SCP03	
CMK2	
SCM	
SCG	
SSD2	
STG	

SSD2-G-FP1-HP1 Series

Compatible with rechargeable batteries

Supports food mfg. processes

Long service life cylinder

Environment-resistant cylinder

Linear Slide Hand

Low-profile long stroke hand

Wide Parallel Hand

Chuck

Air Booster

SCPD3

CMK2

SCM

SSD2

MDC2

MSD

MSDG-L

SMG

STG

STR2

SCP3

CMK2

SCM

SCG

SSD2

STG

SCPD3

CMK2

SCM

SSD2

STG

SCP3

CMK2

SCM

SSD2

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SCP3

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SCP3

CMK2

SCM

SSD2

STG

SCP3

CMK2

SCM

SSD2

STG

SCP3

CMK2

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SSD2

STG

SCP3

CMK2

SCM

SSD2

1: Less than 5 mm for 1-color LED switch, 2-color LED, off-delay, AC magnetic field proof, T1, T8* switches less than 10mm stroke is not available. Refer to SSD2-G-HP1 Series on page 66 for the min. stroke length with switch.

*2: The total length when using a custom stroke is the same as that when using the next longer standard stroke.

How to order mounting brackets

Bore size (mm)	ø12	ø16	ø20	ø25	ø32	ø40	ø50
Mounting bracket							
Foot (LB)						SSD2-LB-40	SSD2-LB-50
Flange (FA/FB)						SSD2-FA-40	SSD2-FA-50
Clevis bracket (CB)	SSD2-CB-12-FP1	SSD2-CB-16-FP1	SSD2-CB-20-FP1	SSD2-CB-25-FP1	SSD2-CB-32-FP1	SSD2-CB-40-FP1	SSD2-CB-50-FP1

Bore size (mm)	ø63	ø80	ø100
Mounting bracket			
Foot (LB)	SSD2-LB-63	SSD2-LB-80	SSD2-LB-100
Flange (FA/FB)	SSD2-FA-63	SSD2-FA-80	SSD2-FA-100
Clevis bracket (CB)	SSD2-CB-63-FP1	SSD2-CB-80-FP1	SSD2-CB-100-FP1

*1: The foot mounting bracket is provided as 2 pcs./set.

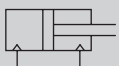
*2: The ø12 to ø32 structure does not permit retrofitting of the foot bracket (LB) or flange bracket (FA) on the rod side. Contact CKD for details.

Long service life cylinder	SCPD3
	CMK2
	SCM
	SSD2
	MDC2
	MSD
	MSDG-L
	SMG
	LCR
	LCG
	STM
	STG
	STR2
	STR2
Environment-resistant cylinder	SCPD3
	CMK2
	SCM
	SCG
	SSD2
	SMG
	LCR
	STG
	STS
	STL
Linear Slide Hand	LSH
	LSHL
	LSHM
Low-profile long stroke hand	LST
	LSTM
Wide Parallel Hand	HMC
Chuck	CKW
Air Booster	ABP2
Compatible with rechargeable batteries	SCPD3
	CMK2
	SCM
	SSD2
	MSD
	MSDG-L
	SMG
	STG
	STM
	LCR
	LCG
	STR2
	LSH
	LSHL
Supports food mfg. processes	SCPD3
	CMK2
	SCM
	SCG
	SSD2
	STG

Guided cylinder Double acting/Rubber scraper

STG-^M_BG-FP1-HP1 Series

● Bore size: $\varnothing 12/\varnothing 16/\varnothing 20/\varnothing 25/\varnothing 32/\varnothing 40/\varnothing 50/\varnothing 63/\varnothing 80/\varnothing 100$

JIS symbol 

**Specifications**

Item	STG- ^M _B G-HP1									
Bore size mm	ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation	Double acting									
Working fluid	Compressed air									
Max. working pressure MPa	1.0									
Min. working pressure MPa	0.25				0.2					
Proof pressure MPa	1.6									
Ambient temperature °C	-10 to 60 (no freezing)									
Port size	M5		Rc1/8				Rc1/4		Rc3/8	
Stroke tolerance mm	+2.0									
	0									
Working piston speedmm/s	50 to 500							50 to 300		
Cushion	With rubber cushion									
Lubrication	Not required									
Allowable absorbed energy J	0.056	0.088	0.157	0.157	0.401	0.627	0.980	1.560	2.510	3.920

Stroke

Bore size	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)	Min. stroke with switch(mm)
ø12	10/20/30/40/50/75/100	250	5	5 (10) *2
ø16	125/150/175/200/250			
ø20	20/30/40/50/75/100/125	400		
ø25	150/175/200/250/300/350/400			
ø32	25/50/75/100 125/150/175 200/250/300 350/400			
ø40				
ø50				
ø63				
ø80				
ø100				

*1: The custom stroke is available in 5 mm increments. However, the total length is the same as that of the next longer standard stroke.

*2: For types with one or two switches. The value in () is the min. stroke for switches of the 2-color LED and AC magnetic field proof.

Refer to STG-^M_BG-FP1 Series on pages 98 to 101 for dimensions.

STG-M^BG-FP1-HP1 Series

How to order

How to order

Without switch (built-in magnet for switch)

STG-MG-32-25-FP1-HP1

With switch (built-in magnet for switch)

STG-MG-32-25-T2H-R-FP1-HP1

Model No.

A Bearing

B Model No.

C Bore size

D Port thread

E Stroke

F Switch model No.
*1 *2 *3

G Switch quantity

⚠ Precautions for model No. selection

*1: **F** Switches other than Switch model No. are also available. (Made-to-order product) For details, "Pneumatic Cylinders II" (No.CB-030SA).

*2: T8H/V switch cannot be installed on STG-12 or 16.

*3: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

[Example of model No.]

STG-MG-40-50-T0H-H-FP1-HP1

Model: Guided cylinder Food-grade grease specifications

- A** Bearing : Metal bush bearing
- B** Model No. : Rubber scraper
- C** Bore size : ø40 mm
- D** Port thread : Rc thread
- E** Stroke : 50mm
- F** Switch model No. : Reed T0H switch, lead wire length 1 m
- G** Switch quantity : 1 on head side

Code	Description					
A Bearing						
M	Metal bush bearing					
B	Ball bearing					
B Model No.						
G	Rubber scraper					
C Bore size (mm)						
12	ø12					
16	ø16					
20	ø20					
25	ø25					
32	ø32					
40	ø40					
50	ø50					
63	ø63					
80	ø80					
100	ø100					
D Port thread						
Blank	M5 (ø12 to ø16)					
	Rc thread (ø20 to ø100)					
NN	NPT thread (ø20 and over) (made to order)					
GN	G thread (ø20 and over) (made-to-order product)					
E Stroke (mm)						
Refer to the stroke table below						
F Switch model No.						
Lead wire Straight	Lead wire L-shaped	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No LED	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*	Proximity	●		1-color LED	2-wire
T2H*	T2V*			●		
T3H*	T3V*			●		
T2HR3	T2VR3			●	1-color LED bend resistant lead wire	2-wire
T3PH*	T3PV*			●	1ColorDisplay (made to order)	3-wire
T2WH*	T2WV*			●	2-color LED	2-wire
T3WH*	T3WV*			●		3-wire
T2YD*	-			●	2-color LED for AC magnetic field	2-wire
T2YDT*	-			●		
T2JH*	T2JV*			●	1-color LED off-delay	2-wire
* Lead wire length						
Blank	1 m (standard)					
3	3 m (option)					
5	5 m (option)					
G Switch quantity						
R	1 on rod side					
H	1 on head side					
D	2					
T	3					

E Stroke

Stroke (mm)	Applicable bore size									
	ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Standard Stroke	10	●	●							
	20	●	●	●						
	25				●	●	●	●	●	●
	30	●	●	●	●					
	40	●	●	●	●					
	50	●	●	●	●	●	●	●	●	●
	75	●	●	●	●	●	●	●	●	●
	100	●	●	●	●	●	●	●	●	●
	125	●	●	●	●	●	●	●	●	●
	150	●	●	●	●	●	●	●	●	●
	175	●	●	●	●	●	●	●	●	●
	200	●	●	●	●	●	●	●	●	●
	250	●	●	●	●	●	●	●	●	●
	300			●	●	●	●	●	●	●
	350			●	●	●	●	●	●	●
	400			●	●	●	●	●	●	●
Min. stroke	*2	5 (10)								
Custom stroke	*1	In 5 mm increments								

*1: The total dimensions are the same as the longer standard stroke.

*2: The value in () is the min. stroke for switches of the 2-color LED and AC magnetic field proof.



Safety Precautions

Be sure to read this section before use.

When designing and manufacturing equipment using CKD wet fine system products, the manufacturer is obligated to ensure that the safety of the mechanism, pneumatic control circuit and/or water control circuit and the system that runs the electrical controls are secured. It is important to select, use, handle and maintain CKD products appropriately to ensure their safe usage.

Observe warnings and precautions to ensure device safety.

Check that device safety is ensured, and manufacture a safe device.

WARNING

1 This product is designed and manufactured as a general industrial machine part. It must be handled by an operator having sufficient knowledge and experience.

2 Use this product in accordance with specifications.

This product must be used within its stated specifications. In addition, never modify or additionally machine this product.

This product is intended for use in general industrial machinery equipment or parts. It is not intended for use outdoors (except for products with outdoor specifications) or for use under the following conditions or environments. (Note that this product can be used when CKD is consulted prior to its usage and the customer consents to CKD product specifications. The customer should provide safety measures to avoid danger in the event of problems.)

- ① Use for applications requiring safety, including nuclear energy, railways, aircraft, marine vessels, vehicles, medical devices, devices or applications in contact with beverages or foodstuffs, amusement devices, emergency cutoff circuits, press machines, brake circuits, or safety devices or applications.
- ② Use for applications where life or assets could be significantly affected, and special safety measures are required.

3 Observe organization standards and regulations, etc., related to the safety of the device design and control, etc.

ISO4414, JIS B 8370(Pneumatic fluid power - General rules and safety requirements for systems and their components)

JFPS2008 (Principles for pneumatic cylinder selection and use)

Including the High Pressure Gas Safety Act, Industrial Safety and Health Act, other safety rules, organization standards and regulations, etc.

4 Do not handle, pipe, or remove devices before confirming safety.

- ① Inspect and service the machine and devices after confirming safety of all systems related to this product.
- ② Note that there may be hot or charged sections even after operation is stopped.
- ③ When inspecting or servicing the device, turn OFF the energy source (air supply or water supply), and turn OFF power to the facility. Discharge any compressed air from the system, and pay attention to possible water leakage and leakage of electricity.
- ④ When starting or restarting a machine or device that incorporates pneumatic components, make sure that the system safety, such as pop-out prevention measures, is secured.

5 Observe the warnings and cautions on the following pages to prevent accidents.

■ Precautions are ranked as “DANGER”, “WARNING”, and “CAUTION” in this section.

 **DANGER:** In the case where the product operation is mishandled and/or when the urgency of a dangerous situation is high, it may lead to fatalities or serious injuries.

 **WARNING:** A dangerous situation may occur if handling is mistaken, leading to fatal or serious injuries.

 **CAUTION:** A dangerous situation may occur if handling is mistaken, leading to minor injuries or property damage.

Note that some items indicated with “CAUTION” may lead to serious results depending on the conditions. All items contain important information and must be observed.

Long service life cylinder	SCPD3
	CMK2
	SCM
	SSD2
	MDC2
	MSD
	MSDG-L
	SMG
	LCR
	LCG
Environment-resistant cylinder	STM
	STG
	STR2
	SCPD3
	CMK2
	SCM
	SCG
	SSD2
	SMG
	LCR
Linear Slide Hand	STG
	STS
	STL
	LSH
	LSHL
	LSHM
	LST
	LSTM
	HMC
	CKW
Low-profile long stroke hand	ABP2
	SCPD3
	CMK2
	SCM
	SSD2
	MSD
	MSDG-L
	SMG
	STG
	STM
Wide Parallel Hand	LCR
	LCG
	STR2
	LSH
	LSHL
	SCPD3
	CMK2
	SCM
	SCG
	SSD2
Chuck	STG
	STM
	LCR
	LCG
	STR2
	LSH
	LSHL
	SCPD3
	CMK2
	SCM
Air Booster	SCG
	SSD2
	STG
	STM
	LCR
	LCG
	STR2
	LSH
	LSHL
	SCPD3
Compatible with rechargeable batteries	CMK2
	SCM
	SCG
	SSD2
	STG
	STM
	LCR
	LCG
	STR2
	LSH
Supports food mfg. processes	LSHL
	SCPD3
	CMK2
	SCM
	SCG
	SSD2
	STG
	STM
	LCR
	LCG

Warranty

1 Warranty period

The product specified herein is warranted for one and a half (1.5) years from the date of delivery to the location specified by the customer.

2 Warranty coverage

If the product specified herein fails for reasons attributable to CKD within the warranty period specified above, CKD will promptly provide a replacement for the faulty product or a part thereof or repair the faulty product at one of CKD's facilities free of charge. However, following failures are excluded from this warranty:

- 1) Failure caused by handling or use of the product under conditions and in environments not conforming to those stated in the catalog, the Specifications, or the Instruction Manual.
- 2) Failure caused by use of the product exceeding its durability (cycles, distance, time, etc.) or caused by consumable parts.
- 3) Failure not caused by the product.
- 4) Failure caused by use not intended for the product.
- 5) Failure caused by modifications/alterations or repairs not carried out by CKD.
- 6) Failure caused by reasons unforeseen at the level of technology available at the time of delivery.
- 7) Failure caused by acts of nature and disasters beyond control of CKD.

The warranty stated herein covers only the delivered product itself. Any loss or damage induced by failure of the delivered product is excluded from this warranty.

Note: For details on the durability and consumable parts, contact your nearest CKD sales office.

3 Compatibility check

The customer is responsible for confirming the compatibility of CKD products with the customer's systems, machines and equipment.

Precautions for export

1 Security Trade Control

The products in this catalog and their related technologies may require approval before export or provision. For the sake of maintaining world peace and safety, there may be cases in which approval under the Foreign Exchange and Foreign Trade Control Law is required in advance, depending on the country to where the product or related technology is being exported or provided.

The scope of products and related technologies requiring approval is listed in the Export Trade Control Order Appendix Table 1 or Foreign Exchange Order Appendix Table.

The Export Trade Control Order Appendix Table 1 and Foreign Exchange Order Appendix Table contain the following two types of information:

- List controls, which are specified for items 1 to 15
- "Catch-all controls" that do not indicate specifications by item, but restrict by application (Section 16)

Scope of products or related technologies requiring approval

List controls, which are specified for items 1 to 15

Listed in the "Export Trade Control Order Appendix Table 1" or "Foreign Exchange Order Appendix Table"

Catch-all controls restricted by application (item 16)

Listed in the "Export Trade Control Order Appendix Table 1" or "Foreign Exchange Order Appendix Table"

An application for approval is received by the Security Export Licensing Division of the Ministry of Economy, Trade and Industry or local bureaus of the Ministry of Economy, Trade and Industry.

2 Products and related technologies in this catalog

The products and related technologies in this catalog are subject to the list controls of the Foreign Exchange and Foreign Trade Control Law.

For information on the products or related technologies subject to the list controls of the Foreign Exchange and Foreign Trade Control Law, refer to the applicable product page.

If exporting or providing products or related technologies that fall under the list controls, be sure to obtain export permission under the Foreign Exchange and Foreign Trade Control Law.

In addition, when exporting or providing the products or related technologies in this catalog, ensure that they are not used for arms or weapons.

3 Contact

Contact your local CKD Sales Office for information on the Security Trade Control of products and related technologies in this catalog.

SCPD3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	Environment-resistant cylinder
STG	
STR2	
SCPD3	
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	Linear Slide Hand
STS	
STL	
LSH	
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCPD3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	Supports food mfg. processes
STR2	
LSH	
LSHL	
SCPD3	
CMK2	
SCM	
SCG	
SSD2	
STG	

Compact cylinder Guided cylinder Rodless cylinder Compact cylinder Twin rod cylinder Linear slide cylinder Standard model



Table rotary actuator Linear Slide Hand Parallel hand Compact wide parallel hand Ultra thin parallel hand



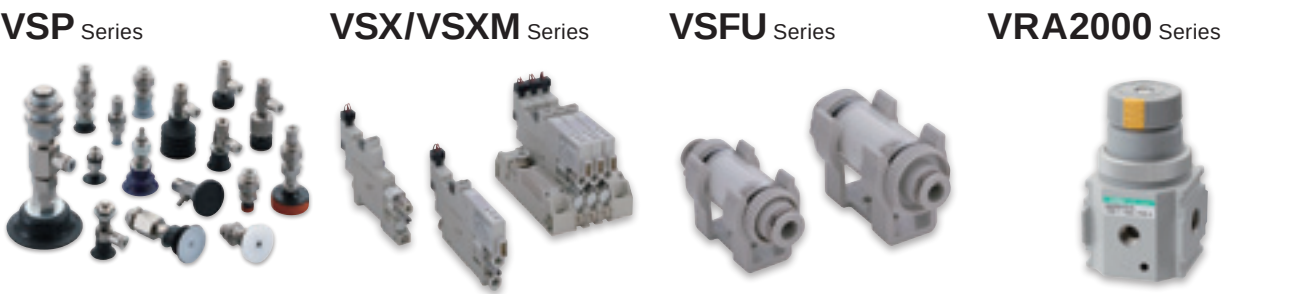
Precise suction plate Fine buffer Air bearing actuator Cylinder switch Pilot operated 3, 5-port valve Direct acting 3-port valve



Electric actuator Electric actuator



Suction pad Vacuum ejector Vacuum filter Vacuum regulator



Super heatless dryer High polymer membrane air dryer Super dryer (High polymer membrane air dryer) Nitrogen Gas Extraction Unit Medium main line filter Air filter



Precision regulator Electro-pneumatic regulator Pressure gauge Digital pressure sensor Compact flow rate sensor Residual pressure exhaust valve with spool position detection



Speed controller with adjusting dial Speed controller, elbow Fitting, tube 2, 3-port solenoid valve for dry air



Valve for high vacuum Air operated valve for chemical liquids Clean cylinder valve Air operated ball valve Diaphragm cylinder valve



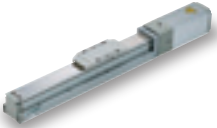
Compatible with more than 100 models
A line-up that can contribute to the evolving rechargeable battery manufacturing processes

Prevents food contamination by lubricants. Food-grade (NSF H1) lubricants are used.

FP1

Electric actuator Slider

EBS-M Series



Electric actuator Guide integrated rod

EBR-M Series



Electric actuator Slider

EBS-L Series



Electric actuator Guide integrated rod

EBR-L Series



Electric actuator Slider

ETS Series



Electric actuator Low dust generation

ECS Series



Electric actuator Belt type

ETV Series



Electric actuator Low dust generation belt type

ECV Series



Electric actuator Fast tact/high rigidity

EKS-L Series



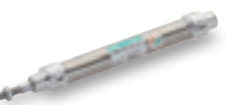
Pencil shaped cylinder

SCPD3 Series



Small bore size cylinder

CMK2 Series



Small bore size cylinder, stainless steel variation

CMK2-J Series



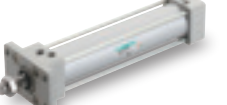
Round shaped cylinder

SCM Series



Tie rod air cylinders

SCG Series



Selex cylinder with T switch

SCA2 Series



Selex cylinder

SCS2 Series



Compact cylinder

SSD2 Series



Guided cylinder

STG Series



Rodless cylinder

SRL3 Series



Floating fitting

FJ Series



Feather hand (mini-parallel hand)

FH100 Series



Compact cross roller parallel hand

BHA/BHG Series



Compact wide parallel hand

HMF Series



Feather hand (mini-fulcrum hand)

FH500 Series



3-way finger bearing chuck

CKG Series



Powerful chuck

CKL2 Series



Powerful chuck with rubber cover

CKLG2 Series



PowerArm

PAW Series



Pilot operated 3, 4, 5-port valve

4G Series



Pilot operated 3, 5-port valve

W4G*2 Series



Filter/regulator combination

C*020/
C*030/
C*040/
C*050/
C*060/
Series



Filter/regulator

W1*00 to
W8*00
Series



Air filter

F1000 to
F8000
Series



Oil mist filter

M(X)1000 to
M(X)8000
Series



Regulator

R1*00 to
R8*00
Series



Drain separator

FX Series



Reed switch compact pressure switch

P1100 to
P8100
Series



Residual pressure exhaust valve

V1000/
V3000/
V3010/
V6010/
Series



Digital electro pneumatic regulator

EVD Series



Fitting

GW Series



Fitting (stainless steel Series)

ZW Series



Speed controller Elbow with push-in fitting

SC3W Series



Speed controller with adjusting dial

DSC Series



Speed controller line type with push-in fitting

SCL2 Series



Needle valve with adjusting dial

DVL-S Series



Speed controller

SC-M5 Series



Speed controller

SC1 Series



Metering valve with silencer

SMW/
SMW2
Series



Block valve

FPV Series



Quick valve

2QV/3QV Series



Single ejectors

VSH/VSC Series



Super dryer (High polymer membrane air dryer)

SU/SD Series



Nitrogen Gas Extraction Unit

NSU Series



Medium main line filter

AF Series



Pilot kick 2-port solenoid valve

APK Series



Air operated 2-port valve

SAB Series



Air operated 3-port valve

NAP Series



Materials compatible with the Food Sanitation Act are used

FP2

Nitrogen Gas Extraction Unit

NS Series



Oxygen monitor

PNA Series



Anti-bacterial/bacteria-removing filter

SFC/SFS Series



Suction pad

VSP Series



Pilot operated 2-port solenoid valve for compressed air

EXA Series



Compact pilot operated solenoid valve for water

FWD Series



Compact direct acting 2, 3-port solenoid valve

USB/G Series



Direct acting 2-port solenoid general purpose valve

AB31/41 Series



Direct acting 3-port solenoid general purpose valve

AG31/41/
33/43/
34/44
Series



Pilot 2-port solenoid general purpose valve for dry air

ADK11-Z Series



Diaphragm cylinder valve

LAD Series



Diaphragm cylinder valve

NAD Series



Diaphragm cylinder valve, manifold

GNAD Series



Compact rotary valves

CHB/
CHG
Series



Pilot 2-port solenoid general purpose valve for dry air

MXB/
MXG
Series



Pilot 2-port solenoid general purpose valve for dry air

SPK Series



Metal-free solenoid valves

MYB3 Series



High corrosion resistant direct acting 2-port solenoid valve

HB Series



Check valve (nozzle)

CCN Series





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