Pin Cylinder: Single Acting, Spring Return

New

RoHS

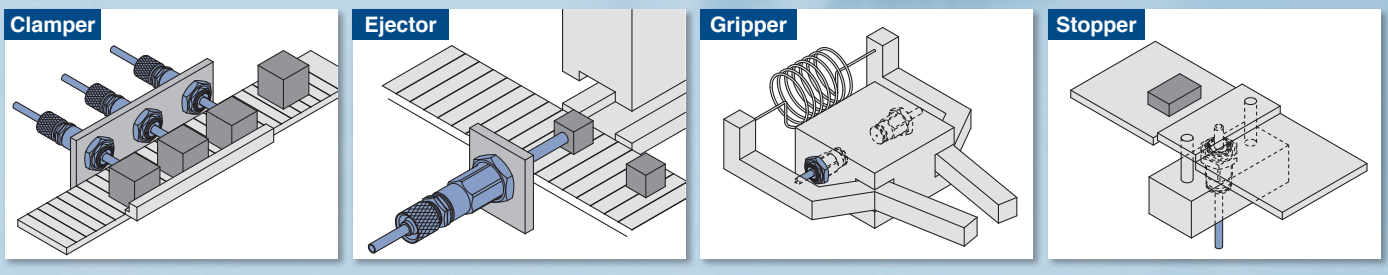
Ø 4, Ø 6, Ø 10, Ø 16

A short-stroke miniature cylinder with a shorter overall length

The installation space can be significantly reduced because this cylinder can be recessed directly into a machine or installed on a panel. Thus, the machine can be made more compact.

Actual size

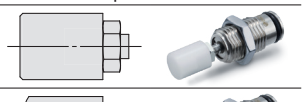
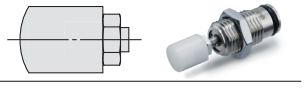
Application Examples



Rod end cap can now be ordered with the cylinder.

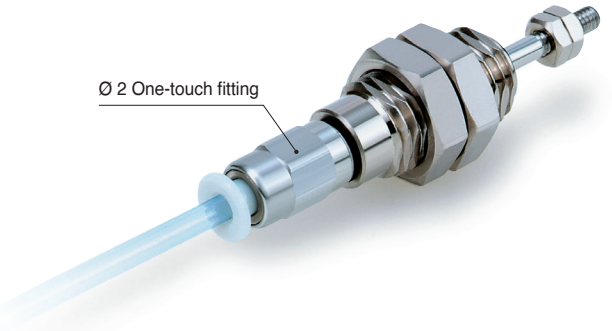
It is not necessary to order a rod end cap for the applicable cylinder separately.

Example CJPS16−15Z−**T**

Rod end cap		
—	Without cap	
T	Rod end cap (Flat type)	
U	Rod end cap (Round type)	

One-touch fitting can be connected. (Panel mount type)

Ø 2 One-touch fitting, miniature fitting, and speed controller can be connected.



16 mm bore size is now available.

(Changed from the existing product: 15 mm)

Specifications and dimensions are the same as the existing product.

CJP Series

SMC

CAT.EUS20-265A-UK

Pin Cylinder: Single Acting, Spring Return

CJP Series

Ø 4, Ø 6, Ø 10, Ø 16

Embedded type

Panel mount type

How to Order

CJP B 16 – 15 H4 Z – T –

Pin cylinder

Mounting

B	Panel mount type
S	Embedded type

Panel mount type Embedded type

Bore size

4	4 mm
6	6 mm
10	10 mm
16	16 mm

Standard stroke [mm]

Ø 4, Ø 6, Ø 10, Ø 16	5, 10, 15

Hose nipple

(Hose nipple is not attached to the embedded type.)

—	Without hose nipple
H4	For Ø 4/Ø 2.5 tubing
H6	For Ø 6/Ø 4 tubing

∗ For details, refer to page 8.

Rod end thread

—	With thread
B	Without thread

Rod end cap

—	Without cap	
T	Rod end cap (Flat type)	Rod end cap (Flat type)
U	Rod end cap (Round type)	Rod end cap (Round type)

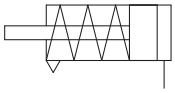
∗ Rod end cap is included in the same package. Use the rod end nut of the standard cylinder to tighten the rod end cap.
∗ Applicable for rod end with thread type

Made to order (Ø 6 to Ø 16)

∗ For details, refer to the table below.

Symbol

Single acting, Spring return



Made to Order (Ø 6 to Ø 16)

(For details, refer to pages 6 and 7.)

Symbol	Specifications
XC17	Pin cylinder with rod quenched
XC22	Fluororubber seals

Moisture Control Tube IDK Series

When operating an actuator with a small diameter and a short stroke at a high frequency, dew condensation (water droplets) may occur inside the piping depending on the conditions. Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to the **Catalogue on https://www.smc.eu**.

Specifications

Action		Single acting, Spring return	
Maximum operating pressure		0.7 MPa	
Minimum operating pressure	**Ø 4**	0.3 MPa	
	Ø 6	0.2 MPa	
	Ø 10, Ø 16	0.15 MPa	
Proof pressure		1 MPa	
Ambient and fluid temperatures		-10 to 70 °C (No freezing)	
Lubrication		Not required (Non-lube)	
Piston speed		50 to 500 mm/s	
Cushion		None	
Stroke length tolerance		$^{+1.0}_{0}$	
Rod end type		With thread/Without thread	
Mounting		Panel mount type	Embedded type
Accessory (Standard equipment)	**Standard equipment**	Mounting nut (2) Rod end nut (2)∗1	Mounting nut (1) Gasket (1) Rod end nut (2)∗1
	Option	Hose nipple (Excludes Ø 4)	—

∗1 When rod end is threaded
∗ For details about the hose nipple (accessory), refer to page 8.

Weight

[g]

Bore size [mm]	Stroke [mm]		
	5	10	15
4	10	13	15
6	10.6	13.1	15.6
10	28	33	38
16	72	82	92

∗ Weight of hose nipple (4 g) for panel mounting is excluded.

Hose Nipple Dedicated for Panel Mount Type (With fixed orifice)

Applicable tubing	Part no.
For Ø 4/Ø 2.5 tubing	CJ-5H-4
For Ø 6/Ø 4 tubing	CJ-5H-6

Theoretical Output

[N]

Bore size [mm]	Operating direction	Operating pressure [MPa]		
		0.3	0.5	0.7
4	OUT	0.97	3.48	6.00
	IN	1.0		
6	OUT	4.56	10.2	15.9
	IN	1.42		
10	OUT	17.6	33.3	49.0
	IN	2.45		
16	OUT	44.5	84.7	124.9
	IN	5.04		

Spring Reaction Force

[N]

Bore size [mm]	Stroke [mm]	Retracted side	Extended side
4	5, 10, 15	2.80	1.00
6	5, 10, 15	3.92	1.42
10	5, 10, 15	5.98	2.45
16	5, 10, 15	15.78	5.04

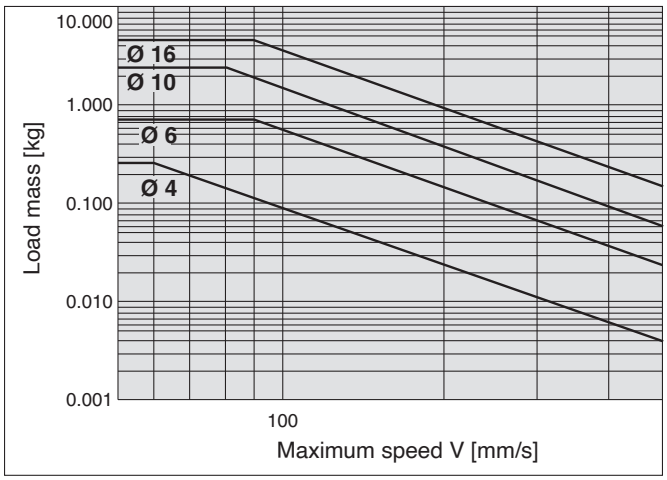
∗ Same spring force for each stroke

Allowable Kinetic Energy

⚠ Caution

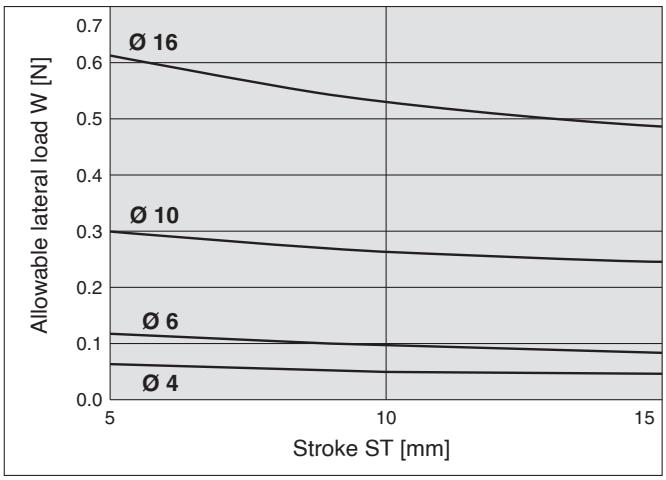
When driving an inertial load, operate a cylinder with kinetic energy within the allowable value. The range in the chart below that is delineated by bold solid lines indicates the relation between load mass and maximum driving speeds.

Bore size [mm]	**4**	**6**	**10**	**16**
Piston speed [m/s]	0.05 to 0.5			
Allowable kinetic energy [J]	0.5×10^{-3}	3×10^{-3}	8×10^{-3}	19×10^{-3}



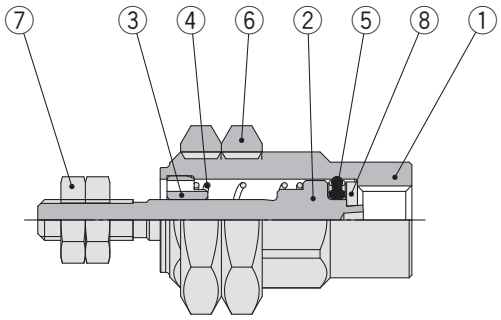
Allowable Lateral Load

Strictly observe the limiting range of lateral load on a piston rod. (Refer to the below graph.) If this product is used beyond the limits, it may shorten the machine's life or cause damage.

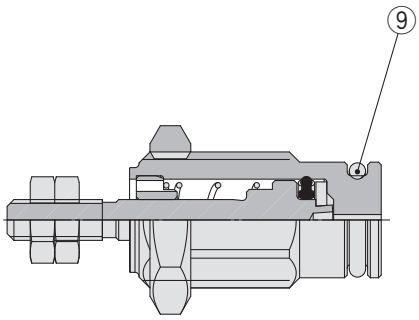


Construction (Not able to disassemble.)

Panel Mount Type



Embedded Type



Component Parts

No.	Description	Material		Note	
1	**Tube**	Brass		Electroless nickel plating	
2	**Piston**	Stainless steel			
3	**Collar**	Ø 4, Ø 6, Ø 10	Brass	Ø 4, Ø 6, Ø 10	Electroless nickel plating
		Ø 16	Oil-impregnated sintered alloy	Ø 16	—
4	**Return spring**	Steel wire		Zinc chromating	
5	**Piston seal**	NBR			
6	**Mounting nut**	Ø 4	Brass	Electroless nickel plating	
		Ø 6, Ø 10, Ø 16	Steel	Zinc chromating	
7	**Rod end nut**	Steel		Zinc chromating	
8	**Seal retainer**	Stainless steel		Only applicable to Ø 6, Ø 10, and Ø 16	
9	**Gasket**	NBR		Embedded type only	

Replacement Parts: Gasket

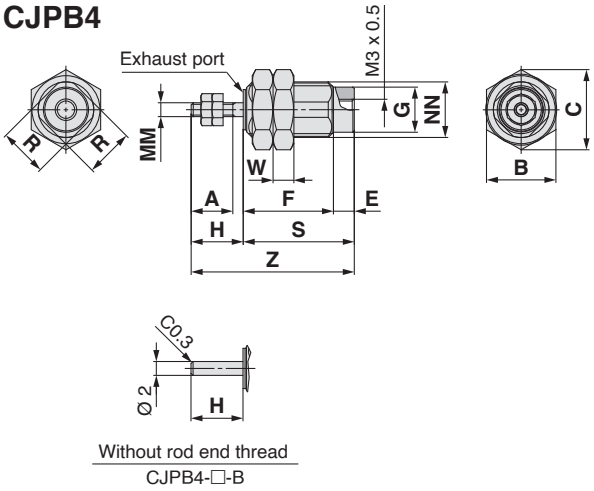
Bore size [mm]	Order no.	Contents
4	CJPS4-G	Above no. ⑨
6	CJPS6-G	
10	CJPS10-G	
16	CJPS16-G	

* For the embedded type
* Since gaskets (10 pcs./set) do not include a grease pack (10 g), order it separately.
  Grease pack part number:
  GR-S-010 (10 g)

Dimensions

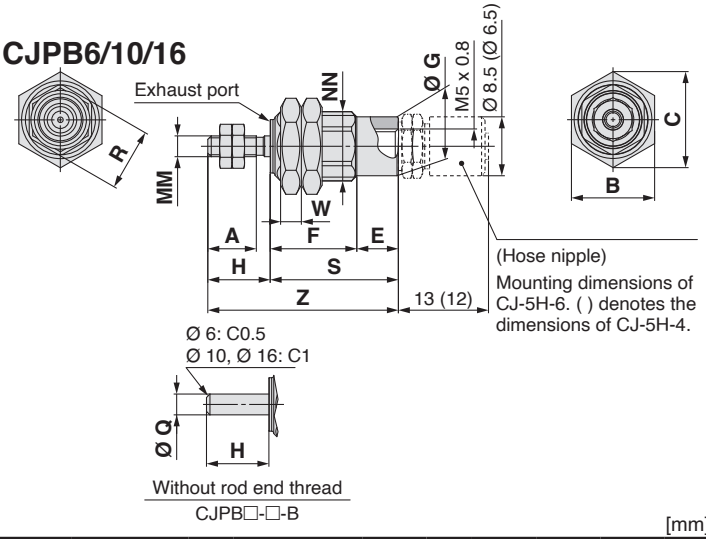
Panel Mount Type

CJPB4



Without rod end thread
CJPB4-□-B

CJPB6/10/16



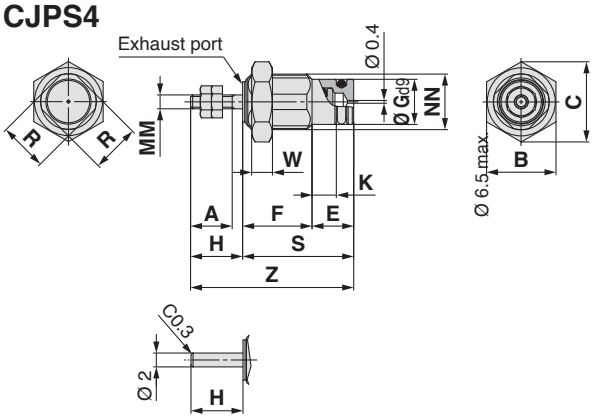
Without rod end thread
CJPB□-□-B

[mm]

Bore size	A	B	C	E	F			G	H	MM	NN	R	S			W	Z			Q
					5st	10st	15st						5st	10st	15st		5st	10st	15st	
4	6	10	11.5	3	13	21	29	6.5	7.5	M2 x 0.4	M8 x 1.0	7	16	24	32	3	23.5	31.5	39.5	2
6	7	12	13.9	6	12.5	19.5	26.5	8.5	9	M3 x 0.5	M10 x 1.0	9	18.5	25.5	32.5	3	27.5	34.5	41.5	3
10	10	19	22	6	14.5	21	28	12	12	M4 x 0.7	M15 x 1.5	13	20.5	27	34	4	32.5	39	46	5
16	12	27	31	7	16.5	22.5	29	19	14	M5 x 0.8	M22 x 1.5	20	23.5	29.5	36	5	37.5	43.5	50	6

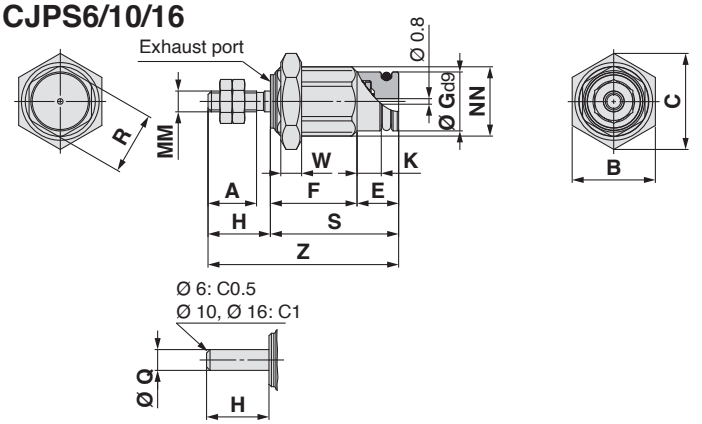
Embedded Type

CJPS4



Without rod end thread
CJPS4-□-B

CJPS6/10/16



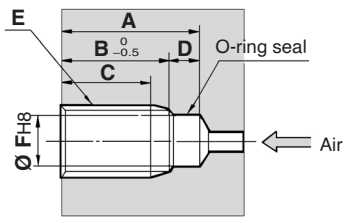
Without rod end thread
CJPS□-□-B

[mm]

Bore size	A	B	C	E	F			G	H	K	MM	NN	R	S			W	Z			Q
					5st	10st	15st							5st	10st	15st		5st	10st	15st	
4	6	10	11.5	6	10	18	26	6.5	7.5	—	M2 x 0.4	M8 x 1.0	7	16	24	32	3	23.5	31.5	39.5	2
6	12	12	13.9	6	12.5	19.5	26.5	8.5	9	3.5	M3 x 0.5	M10 x 1.0	9	18.5	25.5	32.5	3	27.5	34.5	41.5	3
10	10	19	22	6	14.5	21	28	12	12	3.5	M4 x 0.7	M15 x 1.5	13	20.5	27	34	4	32.5	39	46	5
16	12	27	31	7	16.5	22.5	29	19	14	4.2	M5 x 0.8	M22 x 1.5	20	23.5	29.5	36	5	37.5	43.5	50	6

Recommended Mounting Hole Dimensions for Embedded Type

Machining dimensions for mounting



[mm]

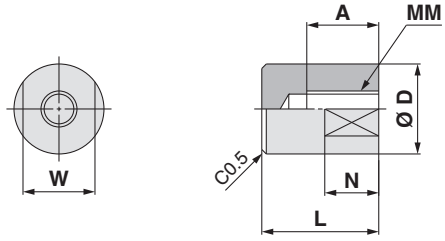
Bore size	Stroke	A	B	C	D	E	F
4	5	12	8.5	6	3.5	M8 x 1.0	6.5
	10	20	16.5	14			
	15	28	24.5	22			
6	5	16	12.5	10	3.5	M10 x 1.0	8.5
	10	23	19.5	17			
	15	30	26.5	24			
10	5	17	13.5	10.5	3.5	M15 x 1.5	12
	10	23.5	20	17			
	15	30.5	27	24			
16	5	19	14.5	11.5	4.5	M22 x 1.5	19
	10	25	20.5	17.5			
	15	31.5	27	24			

∗ E and Ø F should be machined in a concentric manner.

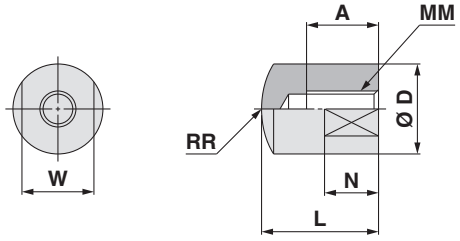
CJP Series
Accessory Bracket Dimensions

Rod End Cap

Flat Type: CJ-CF□



Round Type: CJ-CR□



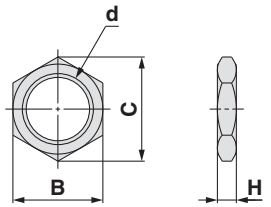
Material: Polyacetal [mm]

Part no.		Applicable bore size [mm]	A	D	L	MM	N	RR	W
Flat type	Round type								
CJ-CF004	**CJ-CR004**	**4**	5	6	9	M2 x 0.4	3	6	5
CJ-CF006	**CJ-CR006**	**6**	6	8	11	M3 x 0.5	5	8	6
CJ-CF010	**CJ-CR010**	**10**	8	10	13	M4 x 0.7	6	10	8
CJ-CF016	**CJ-CR016**	**16**	10	12	15	M5 x 0.8	7	12	10

∗ Rod end nut is not included when rod end cap is ordered individually. (Please use the rod end nut of the standard cylinder.)
∗ Applicable only for the rod end with the thread type

Accessory

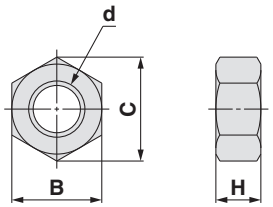
Mounting Nut (Standard equipment): SNPS-□□



Material: Ø 4 Brass Ø 6, Ø 10, Ø 16 Steel [mm]

Part no.	Applicable bore size [mm]	d	H	B	C	Maximum tightening torque [N·m]
SNPS-004	**4**	M8 x 1.0	3	10	11.5	1.2
SNPS-006C	**6**	M10 x 1.0	3	12	13.9	4.2
SNPS-010C	**10**	M15 x 1.5	4	19	22	16.7
SNPS-016C	**16**	M22 x 1.5	5	27	31	30.6

Rod End Nut (Standard equipment): NTJ-004, NTP-□



Material: Steel [mm]

Part no.	Applicable bore size [mm]	d	H	B	C	Maximum tightening torque [N·m]
NTJ-004	**4**	M2 x 0.4	1.6	4	4.6	0.1
NTP-006	**6**	M3 x 0.5	1.8	5.5	6.4	0.3
NTP-010	**10**	M4 x 0.7	2.4	7	8.1	0.8
NTP-016	**16**	M5 x 0.8	3.2	8	9.2	1.6

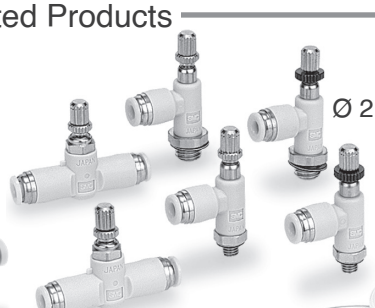
∗ With rod end thread

Related Products

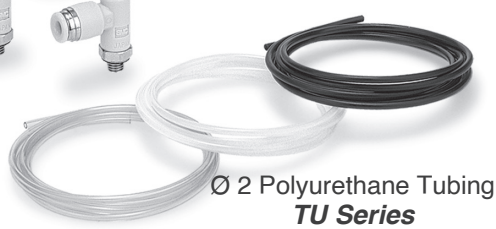
Refer to the **Catalogue on https://www.smc.eu**.

Ø 2 Miniature Fittings
M Series

Ø 2 One-touch Fittings



Ø 2 Speed Controller
AS Series



Ø 2 Polyurethane Tubing
TU Series

CJP Series
Made to Order Common Specifications

Please contact SMC for detailed dimensions, specifications, and delivery times.

Made to Order

1 Pin Cylinder with Rod Quenched

Symbol **-XC17**

The piston rod material is changed and the rod end is quenched.

Applicable Series

Series	Description	Model	Action	Note
CJP	Pin cylinder	CJPB	Single acting (Panel mount)	Excludes Ø 4
		CJPS	Single acting (Embedded)	Excludes Ø 4

How to Order

Standard model no. **–XC17**

Pin cylinder with rod quenched

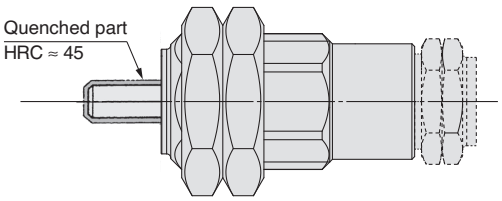
* Only the rod end without thread is available. The symbol B for the rod end type is not used any more.

Specifications: Same as the standard type

Construction (Dimensions are the same as the standard type.)

* The shape and the dimension of quenched part of the rod end are the same for both panel mount type and embedded type.
* The figure below shows the panel mount type.

CJPB



2 Fluororubber Seals

Symbol **-XC22**

Applicable Series

Series	Description	Model	Action	Note
CJP	Pin cylinder	CJPB	Single acting (Panel mount)	Excludes Ø 4
		CJPS	Single acting (Embedded)	Excludes Ø 4

How to Order

Standard model no. **– XC22**

Fluororubber seals

* Please confirm with SMC, as the type of chemical and the operating temperature may not allow the use of this product.

Specifications

Seal material	Fluororubber
Specifications other than the above and dimensions	Same as the standard type

Specific Product Precautions

Be sure to read this before handling the products. Please consult with SMC for the use other than the specifications.

Piping

⚠ Caution

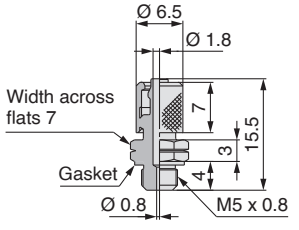
The following fittings are recommended for this cylinder connection. However, there may be a case where the piston speed exceeds 500 mm/s even with the recommended fittings for this cylinder. Use a speed controller in such cases.

Cylinder bore size	Applicable tubing O.D.	Fitting type	Connection thread	Model
Ø 4	Ø 2	One-touch fitting	M3 x 0.5	**KQ2□02-M3G**
		Miniature fitting		**M-3AU-2**
Ø 6 Ø 10 Ø 16		One-touch fitting	M5 x 0.8	**KQ2□02-M5N**
		Miniature fitting		**M-5AU-2**
	Ø 4/2.5	Dedicated hose nipple (with fixed orifice)		**CJ-5H-4**
	Ø 6/4			**CJ-5H-6**

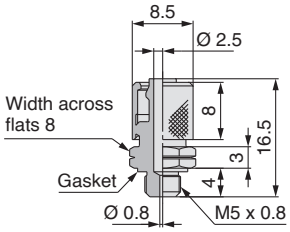
∗ Please be aware that cylinder speed may slow down on the retracting side when using the above One-touch fittings and miniature fittings with a cylinder bore size of Ø 16.

Hose nipple

CJ-5H-4
(For Ø 4/Ø 2.5 tubing)



CJ-5H-6
(For Ø 6/Ø 4 tubing)



In addition to the above fittings and hose nipples, the below fittings can also be attached to the cylinder. When using the below fittings, be sure to provide a speed controller after adjusting it to 500 mm/s or less.

Cylinder bore size	Applicable tubing O.D.	Fitting type	Connection thread	Model
Ø 4	3.2	One-touch fitting	M3 x 0.5	**KQ2□23-M3G**
	4			**KQ2□04-M3G**
Ø 6 Ø 10 Ø 16	3.2		M5 x 0.8	**KQ2□23-M5□**
	4			**KQ2□04-M5□**
	6			**KQ2□06-M5□**

Recommended Speed Controller

Applicable tubing O.D. [mm]	Connection thread	Elbow type meter-in	Universal type meter-in	In-line type meter-in
Ø 2	M3	AS1211F-M3-02	—	AS1002F-02
	M5	AS1211F-M5E-02A	—	
Ø 3.2	M3	AS1211F-M3-23	AS1311F-M3-23	AS1002F-23
	M5	AS1211F-M5E-23A	AS1311F-M5E-23A	
Ø 4	M3	AS1211F-M3-04	AS1311F-M3-04	AS1002F-04
	M5	AS1211F-M5E-04A	AS1311F-M5E-04A	
Ø 6	M5	AS1211F-M5E-06A	AS1311F-M5E-06A	AS1002F-06

∗ For details about One-touch fittings, miniature fittings and speed controllers (applicable tubing O.D. Ø 2 only), refer to the **Catalogue on https://www.smc.eu**. Also, for details about speed controllers (applicable tubing O.D. Ø 3.2 to Ø 6), refer to the **Catalogue on https://www.smc.eu**.
∗ Refer to the Fittings and Tubing Precautions (**Catalogue on https://www.smc.eu**) for handling One-touch fittings.

Mounting

⚠ Caution

Do not use it in such a way that a load could be applied to the piston rod during the retraction.
The spring that is built into the cylinder provides only enough force to retract the piston rod. Thus, if a load is applied, the piston rod may not be able to retract to the end of the stroke.

⚠ Safety Instructions

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

⚠ **Danger:**	**Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
⚠ **Warning:**	**Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
⚠ **Caution:**	**Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

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

⚠ Warning

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

2. Only personnel with appropriate training should operate machinery and equipment.
The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/ equipment until safety is confirmed.
1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Our products cannot be used beyond their specifications.
Our products are not developed, designed, and manufactured to be used under the following conditions or environments.
Use under such conditions or environments is not covered.
1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Use for nuclear power, railways, aviation, space equipment, ships, vehicles, military application, equipment affecting human life, body, and property, fuel equipment, entertainment equipment, emergency shut-off circuits, press clutches, brake circuits, safety equipment, etc., and use for applications that do not conform to standard specifications such as catalogues and operation manuals.
3. Use for interlock circuits, except for use with double interlock such as installing a mechanical protection function in case of failure. Please periodically inspect the product to confirm that the product is operating properly.

⚠ Caution

We develop, design, and manufacture our products to be used for automatic control equipment, and provide them for peaceful use in manufacturing industries.
Use in non-manufacturing industries is not covered.
Products we manufacture and sell cannot be used for the purpose of transactions or certification specified in the Measurement Act.
The new Measurement Act prohibits use of any unit other than SI units in Japan.

Limited warranty and Disclaimer/Compliance Requirements

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

Limited warranty and Disclaimer

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

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

Compliance Requirements

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

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