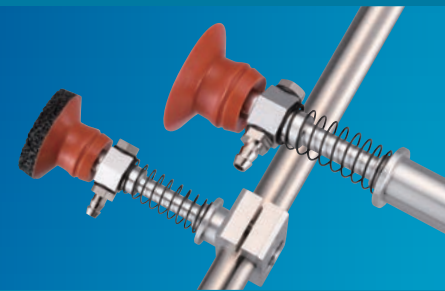
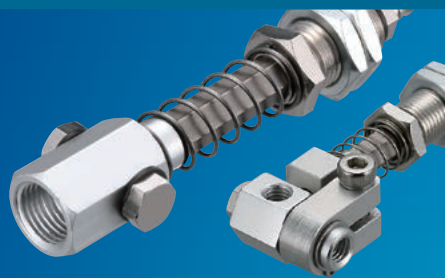


# Suction



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### Quick Chuck Change

Quick Chuck Change (Manual)

Tool Changer

Automated Chuck Exchange System

### Grip

Mini Cylinder

Accessories for Mini Cylinder

Container Cylinders

Accessories for Container Cylinder

Grippers

Buffer Material

### Suction

Suction Cups

Suction Stem

Pad in Pad

Air Ejector/Filter/Check Valve

Micro Mold E.O.A.T

### Cut

Mini Air Nippers

Air Nippers

### Frame/Module

Jungle Gym

Let's Joint

Rectangular Tube

Base Aluminum Material

Sliding Chuck

### Tubing/Sensors

Tubing

Sensors

### Other Products

Others

Information



# Suction Cups

## Suction Cups (Standard / Screw Mount Type)



The most suitable one can be selected from wide range of products.

3-4

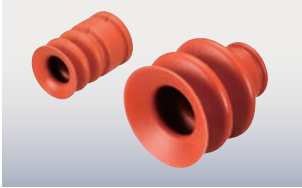
## Suction Stem Covers (Mini / Small)



Used as a cap when suction cup is not used.

3-6

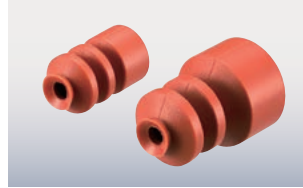
## Bellows Cups



Use bellows cups for medium-sized angled parts.

3-6

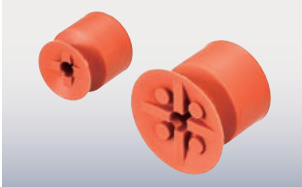
## Suction Cups (TR / TRN)



The most suitable one can be selected from wide range of products.

3-7

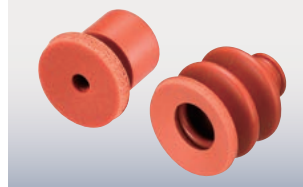
## Flat Face Suction Cups



Used for work pieces that are not released easily from suction cup.

3-6

## Suction Cups w/ Sponge



Use with parts with uneven suction surfaces. (For work piece with small unevenness)

3-8

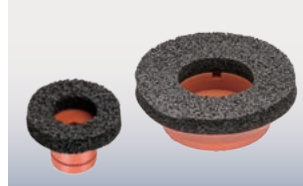
## Bellows Cups



Use for small sized parts with angle.

3-6

## Suction Cups w/ EP Sponge



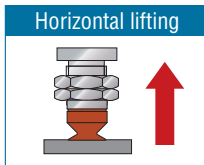
Use with parts with uneven suction surfaces. (For work piece with small unevenness)

3-9

Suction • Suction Cups

## Theoretical suction power of suction cup

The theoretical suction power can be obtained with the area of cup and the degree of vacuum caused by using the cup.



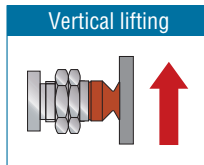
● Indication in kPa and N

$$W = \frac{C \times P}{101} \times 10.13 \times f$$

● Indication in mmHg and kg

$$W = \frac{C \times P}{760} \times 1.0332 \times f$$

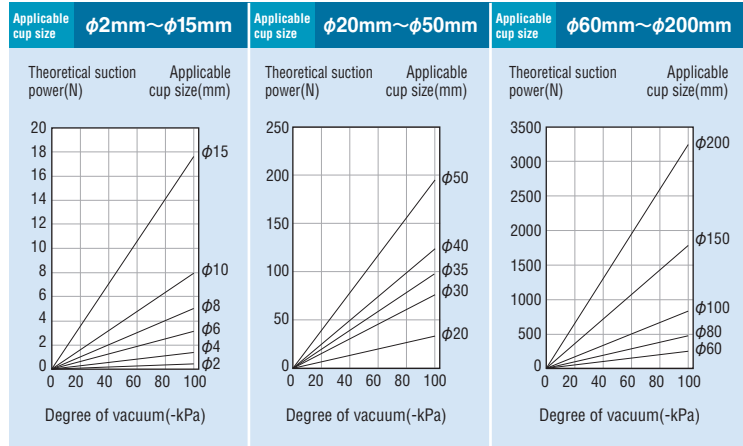
W : Theoretical suction power (N) · (Kg)  
 P : Degree of vacuum (-kPa) · (-mmHg)  
 C : Area of cup (cm<sup>2</sup>)      f : Safety factor



Since the theoretical suction power is a value under static conditions, use the safety factor of 1/4 for horizontal lifting and 1/8 for vertical lifting in practical use. Also for movement, take acceleration caused by the movement into consideration

### ● General type cup (rubber cup)

\*Safety factor is not considered.



### Accessory for Suction Cup



EP sponge/Sponge sheet/SD Sheet

Stick it to the end of the suction cup according to its use.

3-10

### Special Cup



Suction pad for press/Vacuum gripper

Used to transfer sheet steel, wood, resin, and corrugated cardboard.

3-11

### Flat Suction Cups



Flat basic type. Silicone type and a mark-free type are provided.

3-12

### Oval Cups



Oval type. There are silicone and mark-less types.

3-14

### Bellows Type Suction Cups 1.5-Stage



Bellows type suction cups 2.5-stage  
There are silicone and mark-less types.

3-15

### Bellows Type Suction Cups 2.5-Stage



Bellows type suction cups 2.5-stage  
There are silicone and mark-less types.

3-16

### Sheet Metal Suction Cups



Strong holding power in the horizontal direction and excellent balance of stability. Excellent followup ability to a curved surface. Excellent durability with original material.

3-18

### Suction Cups for Exchange

Suction cup for exchange in 3-12 - 3-17.

3-19

## Materials and characteristics of rubber

○ : Available    △ : Can be used according to the condition (specification)    × : Not available

Characteristics	Material	Silicone (brown)	Silicone (cloudy transparent*)	Urethane (milk white)	Fluorine (black)	Nitrile (green)	Mark-free (blue)
Heat-resistance (°C)		-60-250		-20-75	-10-230	-30-85	-10-140
Shore hardness (HS)		54-80		55	65	50	60
No mark of cup left		×		×	○	○	○
Food		×/○		×	×	×	×
Food packaging		○		○	○	○	○
Oil resistance		×		○	○	○	○
Heavy load		△		○	△	×	△
Antistatic agent		△		×	△	×	×
Rough surface (stone or wood)		×		○	×	×	×
Smooth surface (glass)		×		○	○	×	×
Alcohol resistance		○		△	△	○	○
Acid resistance		△		×	○	△	×

● Above shows the general characteristics of rubber, only. Check the shape of suction cup and operating conditions.  
\* Silicone pad (cloudy transparent) conforms to the U.S. food and drug administration (FDA) standard.

#### Quick Chuck Change

Quick Chuck Change (Manual)

Tool Changer

Automated Chuck Exchange System

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#### Suction

Suction Cups

Suction Stem

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#### Frame/Module

Jungle Gym

Let's Joint

Rectangular Tube

Base Aluminum Material

Sliding Chuck

#### Tubing/Sensors

Tubing

Sensors

#### Other Products







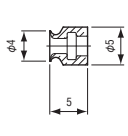
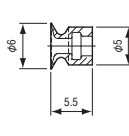
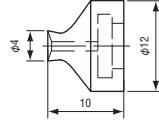
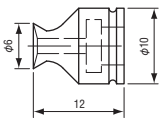
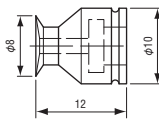
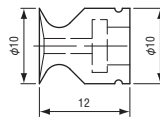
Others






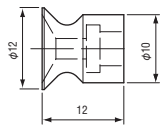
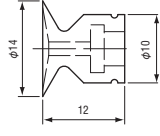
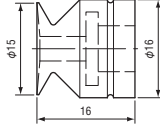
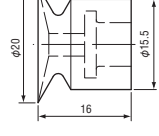
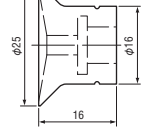
Information





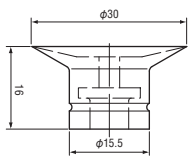
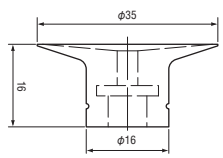
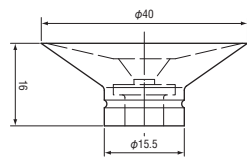
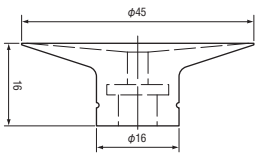






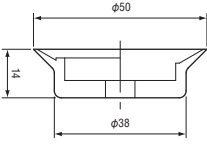
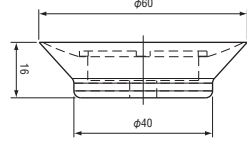
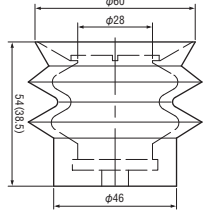
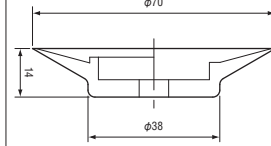
# Suction Cups (Standard / Screw Mount Type)

The most suitable one can be selected from wide range of products.

Applicable cup size	φ 4mm	φ 6mm	φ 4mm	φ 6mm	φ 8mm	φ 10mm	
Suction cups (standard)	 * Micro	 * Micro					
Drawing							
Reinforced silicone (brown)	Order code No.	<b>210789</b>	<b>210790</b>	<b>210700</b>	<b>210255</b>	<b>210191</b>	<b>210615</b>
	Standard	VAPH-4M	VAPH-6M	VAPH-4C	VAPH-6C	VAPH-8C	VAPH-10C
	Weight	0.2g	0.3g	0.4g	0.5g	0.6g	0.7g
Urethane (milk white)	Order code No.	—	—	<b>210701</b>	<b>210395</b>	<b>210396</b>	<b>210703</b>
	Standard	—	—	VAPU-4C	VAPU-6C	VAPU-8C	VAPU-10C
	Weight	—	—	0.4g	0.6g	0.7g	0.7g
Fluorine (black)	Order code No.	—	—	<b>210702</b>	<b>210402</b>	<b>210403</b>	<b>210704</b>
	Standard	—	—	VAPF-4C	VAPF-6C	VAPF-8C	VAPF-10C
	Weight	—	—	0.9g	0.9g	1.0g	1.0g
Nitrile (green)	Order code No.	—	—	<b>210791</b>	<b>210792</b>	<b>210793</b>	<b>210794</b>
	Standard	—	—	VAPN-4C	VAPN-6C	VAPN-8C	VAPN-10C
	Weight	—	—	0.7g	0.7g	0.6g	0.6g
Applicable Stem	Micro or VFILB-M,MSH → <a href="#">3-21,27</a>			Mini, VFIL-SS, or VFILB-SSH → <a href="#">3-21,22,27</a>			

Applicable cup size	φ 12mm	φ 14mm	φ 15mm	φ 20mm	φ 25mm	
Suction cups (standard)						
Drawing						
Reinforced silicone (brown)	Order code No.	<b>210192</b>	<b>210616</b>	<b>210193</b>	<b>210194</b>	<b>210617</b>
	Standard	VAPH-12C	VAPH-14C	VAPH-15C	VAPH-20C	VAPH-25C
	Weight	0.8g	1.0g	2.2g	2.6g	3.3g
Urethane (milk white)	Order code No.	<b>210397</b>	<b>210705</b>	<b>210398</b>	<b>210399</b>	—
	Standard	VAPU-12C	VAPU-14C	VAPU-15C	VAPU-20C	—
	Weight	0.8g	0.8g	2.4g	2.8g	—
Fluorine (black)	Order code No.	<b>210404</b>	<b>210706</b>	<b>210405</b>	<b>210406</b>	—
	Standard	VAPF-12C	VAPF-14C	VAPF-15C	VAPF-20C	—
	Weight	1.2g	1.2g	3.5g	3.8g	—
Nitrile (green)	Order code No.	<b>210795</b>	<b>210796</b>	<b>210797</b>	<b>210798</b>	—
	Standard	VAPN-12C	VAPN-14C	VAPN-15C	VAPN-20C	—
	Weight	1.0g	1.0g	3.1g	3.3g	—
Applicable Stem	Mini, VFIL-SS, or VFILB-SSH → <a href="#">3-21,22,27</a>			Small, VFIL-S, or VFILB-SH → <a href="#">3-23,24,27</a>		

Applicable cup size	φ 30mm	φ 35mm	φ 40mm	φ 45mm
Suction cups (standard)				
Drawing				
Reinforced silicone (brown)	Order code No.	<b>210195</b>	<b>210618</b>	<b>210196</b>
	Standard	<b>VAPH-30C</b>	<b>VAPH-35C</b>	<b>VAPH-40C</b>
	Weight	3.6g	4.0g	5.7g
Urethane (milk white)	Order code No.	<b>210400</b>	—	<b>210401</b>
	Standard	<b>VAPU-30C</b>	—	<b>VAPU-40C</b>
	Weight	3.6g	—	6.0g
Fluorine (black)	Order code No.	<b>210407</b>	—	<b>210408</b>
	Standard	<b>VAPF-30C</b>	—	<b>VAPF-40C</b>
	Weight	5.5g	—	8.8g
Nitrile (green)	Order code No.	<b>210799</b>	—	<b>210800</b>
	Standard	<b>VAPN-30C</b>	—	<b>VAPN-40C</b>
	Weight	4.6g	—	7.6g
Applicable Stem	Small, VFIL-S, or VFILB-SH → <a href="#">3-23,24,27</a>			

Applicable cup size	φ 50mm	φ 60mm	φ 60mm	φ 70mm
Suction cups (Screw mount type)				
Drawing			 *The value in ( ) indicates the dimension with suction.	
Reinforced silicone (brown)	Order code No.	<b>210619</b>	<b>210311</b>	<b>210044</b>
	Standard	<b>VAPH-50F</b>	<b>VAPH-60F</b>	<b>VAPH-60F-2</b>
	Weight	11.0g	17.0g	73.0g
Fluorine (black)	Order code No.	—	<b>210417</b>	—
	Standard	—	<b>VAPF-60F</b>	—
	Weight	—	28.0g	—
Nitrile (green)	Order code No.	—	<b>210801</b>	—
	Standard	—	<b>VAPN-60F</b>	—
	Weight	—	23.8g	—
Applicable Stem	Large, VFI-L, or VFIL-H → <a href="#">3-25,28</a>			

#### Quick Chuck Change

Quick Chuck Change (Manual)

Tool Changer

Automated Chuck Exchange System

#### Grip

Mini Cylinder

Accessories for Mini Cylinder

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Suction Stem

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Let's Joint

Rectangular Tube

Base Aluminum Material

Sliding Chuck

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Tubing

Sensors

#### Other Products

Others

Information



# Suction Cups (Bellows / Flat Face / Free) / Suction Stem Covers (Mini / Small)

The most suitable one can be selected from wide range of products.

▶ Used for parts with angle.

Applicable cup size	φ 3mm	φ 15mm	φ 20mm	φ 30mm	φ 40mm	
Suction cups (bellows)						
Drawing						
Reinforced silicone (brown)	Order code No.	<b>210897</b>	<b>210697</b>	<b>210661</b>	<b>210662</b>	<b>210663</b>
	Standard	VAPH-3C-3	VAPH-15C-3	VAPH-20C-3	VAPH-30C-3	VAPH-40C-3
	Weight	1.0g	2.7g	2.9g	7.0g	18.4g
Applicable Stem	Mini or VFILB-M, MSH → <a href="#">3-21,27</a>		Small, VFIL-S, or VFILB-SH → <a href="#">3-23,24,27</a>			

▶ Used for work pieces that are not released easily from suction cup.

Applicable cup size	φ 15mm	φ 20mm	
Suction cups (flat face)			
Drawing			
Reinforced silicone (brown)	Order code No.	<b>210389</b>	<b>210390</b>
	Standard	VAPH-15C-1	VAPH-20C-1
	Weight	2.0g	2.4g
Applicable Stem	Small, VFIL-S, or VFILB-SH → <a href="#">3-23,24,27</a>		

▶ Use for small sized parts with angle.

Applicable cup size	φ 12mm	φ 20mm	
Suction cups (free)			
Drawing			
Reinforced silicone (brown)	Order code No.	<b>210280</b>	<b>210310</b>
	Standard	VAPH-12C-2	VAPH-20C-2
	Weight	1.1g	2.8g
Urethane (milk white)	Order code No.	<b>210409</b>	<b>210410</b>
	Standard	VAPU-12C-2	VAPU-20C-2
	Weight	1.2g	3.0g
Fluorine (black)	Order code No.	<b>210411</b>	<b>210412</b>
	Standard	VAPF-12C-2	VAPF-20C-2
	Weight	1.9g	4.3g
Nitrile (green)	Order code No.	<b>210802</b>	<b>210803</b>
	Standard	VAPN-12C-2	VAPN-20C-2
	Weight	1.5g	3.9g
Applicable Stem	Mini, VFIL-SS, or VFILB-SSH → <a href="#">3-21,22,27</a>	Small, VFIL-S, or VFILB-SH → <a href="#">3-23,24,27</a>	

▶ Used to be attached to the end of suction stem.

Applicable cup size	φ 10mm	φ 16mm	
Suction stem covers			
Drawing			
Reinforced silicone (brown)	Order code No.	<b>211024</b>	<b>211023</b>
	Standard	VAPH-SSC	VAPH-SC
	Weight	0.35g	1.70g
Applicable Stem	Mini, VFIL-SS, or VFILB-SSH → <a href="#">3-21,22,27</a>	Small, VFIL-S, or VFILB-SH → <a href="#">3-23,24,27</a>	



# Suction Cups (TR/TRN)

The most suitable one can be selected from wide range of products.

Applicable cup size	φ 6mm	φ 8mm	φ 10mm	φ 12mm	
Suction cups (TR/TRN)					
Drawing					
* The value in ( ) indicates the dimension with suction.					
Reinforced silicone (brown)	Order code No.	<b>196327</b>	<b>196342</b>	<b>196406</b>	<b>196405</b>
	Standard	TR-1062-1M	TR-1062-2M	TR-1062-3M	TR-1062-4M
	Weight	1.0g	1.0g	1.0g	1.1g
Nitrile (green)	Order code No.	<b>196403</b>	<b>196401</b>	<b>196399</b>	<b>196397</b>
	Standard	TRN-1062-1M	TRN-1062-2M	TRN-1062-3M	TRN-1062-4M
	Weight	1.4g	1.4g	1.4g	1.5g
Applicable Stem	Mini, VFIL-SS, or VFILB-SSH → <a href="#">3-21,22,27</a>				

Applicable cup size	φ 6mm	φ 8mm	φ 10mm	φ 12mm	
Suction cups (TR/TRN)					
Drawing					
* The value in ( ) indicates the dimension with suction.					
Reinforced silicone (brown)	Order code No.	<b>193511</b>	<b>193512</b>	<b>196135</b>	<b>196136</b>
	Standard	TR-1062-1	TR-1062-2	TR-1062-3	TR-1062-4
	Weight	1.0g	1.0g	1.0g	1.1g
Nitrile (green)	Order code No.	<b>196404</b>	<b>196402</b>	<b>196400</b>	<b>196398</b>
	Standard	TRN-1062-1	TRN-1062-2	TRN-1062-3	TRN-1062-4
	Weight	1.4g	1.4g	1.4g	1.5g
Applicable Stem	Small, VFIL-S, or VFILB-SH → <a href="#">3-23,24,27</a>				

## Quick Chuck Change

Quick Chuck Change (Manual)

Tool Changer

Automated Chuck Exchange System

## Grip

Mini Cylinder

Accessories for Mini Cylinder

Container Cylinders

Accessories for Container Cylinder

Grippers

Buffer Material

## Suction

Suction Cups

Suction Stem

Pad in Pad

Air Ejector/Filter/Check Valve

Micro Mold E.O.A.T

## Cut

Mini Air Nippers

Air Nippers

## Frame/Module

Jungle Gym

Let's Joint

Rectangular Tube

Base Aluminum Material

Sliding Chuck

## Tubing/Sensors

Tubing

Sensors

## Other Products

Others

## Information



# Suction Cups w/ Sponge

Used for work pieces with uneven suction surfaces. (For work piece with small unevenness)

- Please inquire for more information on cups with sponges of other sizes.
- Sponge material: closed-cell foam silicone
- Heat resistance (continuously used for a long time): 150°C

Applicable cup size	φ8mm	φ12mm	φ15mm	φ20mm	φ30mm	
Suction cups w/ sponge						
Drawing						
Reinforced silicone (brown)	Order code No.	<b>210664</b>	<b>210665</b>	<b>210534</b>	<b>210535</b>	<b>210536</b>
	Standard	VAPH-8C-SP	VAPH-12C-SP	VAPH-15C-SP	VAPH-20C-SP	VAPH-30C-SP
	Weight	0.7g	0.9g	2.6g	2.9g	4.8g
	Heat resistance	200°C			200°C	
Applicable Stem	Mini, VFIL-SS, or VFILB-SSH → <a href="#">3-21,22,27</a>			Small, VFIL-S, or VFILB-SH → <a href="#">3-23,24,27</a>		

Applicable cup size	φ40mm	φ60mm	
Suction cups w/ sponge		 * Screw mount type	
Drawing			
Reinforced silicone (brown)	Order code No.	<b>210537</b>	<b>210538</b>
	Standard	VAPH-40C-SP	VAPH-60F-SP
	Weight	8.3g	22.0g
	Heat resistance	200°C	
Applicable Stem	Small, VFIL-S, or VFILB-SH → <a href="#">3-23,24,27</a>	Large, VFI-L, or VFIL-H → <a href="#">3-25,28</a>	





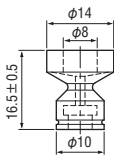
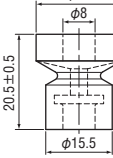
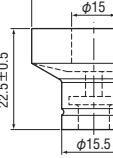
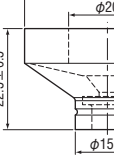
Applicable cup size	φ20mm	φ30mm	φ40mm	
Suction cups (bellows -w/ sponge)				
Drawing				
Reinforced silicone (brown)	Order code No.	<b>210914</b>	<b>210915</b>	<b>210916</b>
	Standard	VAPH-20C-10-3-SP	VAPH-30C-15-3-SP	VAPH-40C-20-3-SP
	Weight	3.0g	8.0g	19.0g
	Heat resistance	200°C		
Applicable Stem	Small, VFIL-S, or VFILB-SH → <a href="#">3-23,24,27</a>			



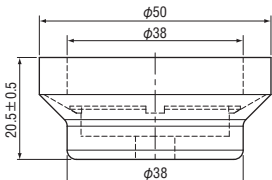
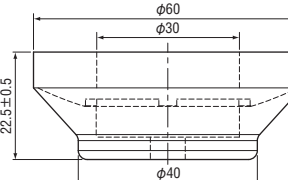




# Suction Cups w/ EP Sponge

Used for work pieces with uneven suction surfaces. (For work pieces with uneven suction surfaces.)

Applicable cup size	φ 14mm	φ 20mm	φ 30mm	φ 40mm	
Suction cups w/ EP sponge					
Drawing					
Reinforced silicone (brown)	Order code No.	<b>210859</b>	<b>210860</b>	<b>210861</b>	<b>210862</b>
	Standard	VAPH-14C-EPSP	VAPH-20C-EPSP	VAPH-30C-EPSP	VAPH-40C-EPSP
	Weight	1.1g	2.8g	4.0g	6.4g
	Heat resistance	80°C			
Applicable Stem	Mini, VFIL-SS, or VFILB-SSH → <a href="#">(3-21,22,27)</a>		Small, VFIL-S, or VFILB-SH → <a href="#">(3-23,24,27)</a>		

Applicable cup size	φ 50mm	φ 60mm	
Suction cups w/ EP sponge			
	* Screw mount type	* Screw mount type	
Drawing			
Reinforced silicone (brown)	Order code No.	<b>210863</b>	<b>210864</b>
	Standard	VAPH-50F-EPSP	VAPH-60F-EPSP
	Weight	11.5g	18.2g
	Heat resistance	80°C	
Applicable Stem	Large, VFI-L, or VFIL-H → <a href="#">(3-25,28)</a>		

## Precautions for Suction Cup

- Double-stick tape is used for adhesion to EP sponge. Use Silicone adhesive if the adhesive strength is low.
- Double-sided tape is weak when the oblique tension force is added. Use the tape for the vertical direction force.
- Your diagram may have a slightly different layout as the component is made of sponge.

## Quick Chuck Change

Quick Chuck Change (Manual)

Tool Changer

Automated Chuck Exchange System

## Grip

Mini Cylinder

Accessories for Mini Cylinder

Container Cylinders

Accessories for Container Cylinder

Grippers

Buffer Material

## Suction

Suction Cups

Suction Stem

Pad in Pad

Air Ejector / Filter / Check Valve

Micro Mold E.O.A.T

## Cut

Mini Air Nippers

Air Nippers

## Frame/Module

Jungle Gym

Let's Joint

Rectangular Tube

Base Aluminum Material

Sliding Chuck

## Tubing/Sensors

Tubing

Sensors

## Other Products

Others

Information



# Accessory for Suction Cup

Use as your situation.

▶ Static elimination sheet for suction cups surface.

Applicable cup size	φ 12mm	φ 15mm	φ 20mm	φ 30mm	φ 40mm
SD sheets					
Drawing					
Order code No.	<b>271682</b>	<b>271683</b>	<b>282552</b>	<b>297701</b>	<b>300485</b>
Standard	<b>12C-SD</b>	<b>15C-SD</b>	<b>20C-SD</b>	<b>30C-SD</b>	<b>40C-SD</b>
Weight	1.0g	1.0g	1.0g	1.0g	1.0g
Heat resistance	80°C				

\* Generation of leakage reduces vacuum force by 40% after SD sheet is attached.

\* With double-stick-tape processing.

▶ EP sponge sheet to be attached at the tip of the suction cup.

Applicable cup size	φ 14mm	φ 20mm	φ 30mm	φ 40mm
EP sponges (black)				
Drawing				
Order code No.	<b>271559</b>	<b>282010</b>	<b>294889</b>	<b>300386</b>
Standard	<b>14C-EPSP</b>	<b>20C-EPSP</b>	<b>30C-EPSP</b>	<b>40C-EPSP</b>
Weight	0.1g	0.2g	0.4g	0.7g
Heat resistance	80°C			

\* Your diagram may have a slightly different layout as the component is made of sponge. Adhesive strength is remarkably reduced after left for a long period of time.

▶ EP sponge sheet to be attached at the tip of the suction cup.

Applicable cup size	φ 50mm	φ 60mm
EP sponges (black)		
Drawing		
Order code No.	<b>310589</b>	<b>322949</b>
Standard	<b>50C-EPSP</b>	<b>60C-EPSP</b>
Weight	0.5g	1.2g
Heat resistance	80°C	

### Precautions for sticking (SD sheet, EP sponge)

- Use the purchases within one month after you buy them. Adhesive strength is remarkably reduced after left for a long period of time.
- Wipe the surface clean with ethanol before you stick it on the cup. Do not touch the surface with your hands.
- Push the adhesive surface with sufficient adhesion to the surface for about 24 hours.
- Use silicone adhesive if the adhesive strength is low.
- Double-sided tape is weak when the oblique tension force is added. Use the tape for the vertical direction force.

\* Your diagram may have a slightly different layout as the component is made of sponge. Adhesive strength is remarkably reduced after left for a long period of time.

▶ Sponge sheet to be attached at the tip of the suction pad (bellows).





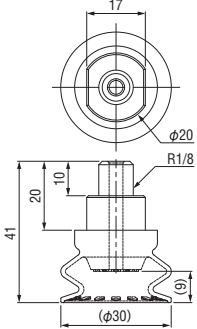
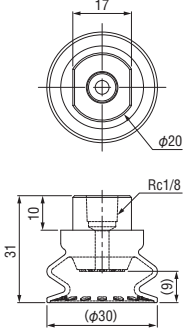
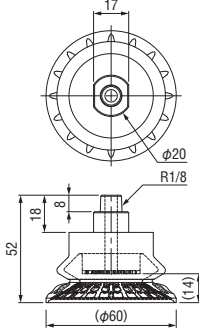
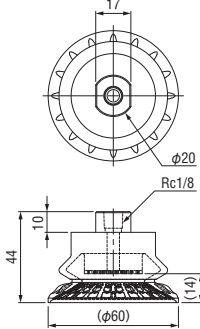
Applicable cup size	φ 40mm
Sponge sheet	
Drawing	
Order code No.	<b>072746</b>
Standard	<b>40C-SP</b>
Weight	1.0g
Heat resistance	200°C





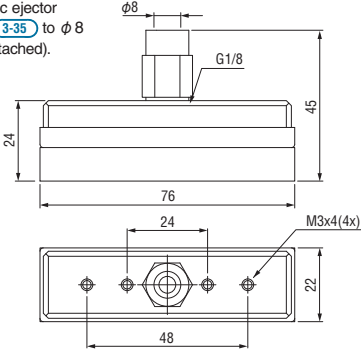
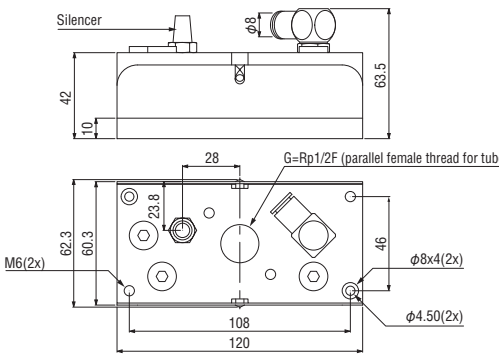
# Special Cup

Use as your situation.

► Use it for sheet metal conveyance.

Applicable cup size	φ 30mm		φ 60mm		
Sheet metal suction cups					
Drawing					
Nitrile (black)	Order code No.	<b>210918</b>	<b>210919</b>	<b>210920</b>	<b>210921</b>
	Standard	VAPNP-30C-1-M	VAPNP-30C-1-F	VAPNP-60C-1-M	VAPNP-60C-1-F
	Weight	15.0g	12.0g	47.0g	45.0g
	characteristics of rubber	Heat-resistance: : 85°C / Shore hardness : 60		Heat-resistance: : 85°C / Shore hardness : 60	
Applicable stem	Large, VFI-L, or VFIL-H → <a href="#">3-25,28</a>		—	Large, VFI-L, or VFIL-H → <a href="#">3-25,28</a>	

► One gripper can transport workpieces with different shapes (wood, resin, corrugated cardboard).

Vacuum grippers				
Drawing	<p>* Connect plastic ejector SSBP series <a href="#">3-35</a> to φ 8 (ejector not attached).</p> 			
Product name	Vacuum gripper 6×22 · 10mm	Sponge seal 76×22 w/o valve (for exchange)	Vacuum gripper 120×60 · 10mm	Sponge seal 120×60 w/o valve (for exchange)
Order code No.	<b>183977</b>	<b>183978</b>	<b>183979</b>	<b>183980</b>
Standard	SFM-76/22-SW-10-B	SFMSEAL76/22SW10BW/OV	SFX-120/60-SW-1.5-10-B	SFXFMSEAL120/60SW10BW/OV
Weight	50.0g	1.5g	500.0g	6.5g

## Specification

Product name	Standard	Number of cells	Inside diameter	Air consumption	Maximum holding power (at the time of -60kPa)	Heatproof	Ejector
Vacuum gripper	SFM-76/22-SW-10-B	26	5	—	40 (when all cells are covered)	80	Not provided
	SFX-120/60-SW-1.5-10-B	10	15	117 (suction 69)	98 (when all cells are covered)		Provided

\* If a workpiece does not hit the suction surface, the special valve will close to prevent vacuum leak, showing maximum holding power. A minimum of 30 to 50% of vacuum cells must be covered with workpieces.

\* Product confirmation requires separate circuit.wv

### Quick Chuck Change

Quick Chuck Change (Manual)

Tool Changer

Automated Chuck Exchange System

### Grip

Mini Cylinder

Accessories for Mini Cylinder

Container Cylinders

Accessories for Container Cylinder

Grippers

Buffer Material

### Suction

Suction Cups

Suction Stem

Pad in Pad

Air Ejector / Filter / Check Valve

Micro Mold E.O.A.T

### Cut

Mini Air Nippers

Air Nippers

### Frame/Module

Jungle Gym

Let's Joint

Rectangular Tube

Base Aluminum Material

Sliding Chuck

### Tubing/Sensors

Tubing

Sensors

### Other Products

Others

### Information

Information



# Flat Suction Cups

Flat basic type. Silicone type and a mark-free type are provided.

● Suction attach head of suction stem non-rotate (VFILB,VFILB2) can be removed.

Applicable cup size	φ 1.2mm	φ 1.8mm	φ 2mm	φ 3.5mm	φ 5mm	φ 6mm	
Flat suction cups							
Drawing							
Silicone (clearly transparent)	Order code No.	<b>183823</b>	<b>183824</b>	<b>183825</b>	<b>183826</b>	<b>183827</b>	<b>183828</b>
	Standard	<b>SQN 1 SI-M3 M</b>	<b>SQN 1.5 SI-M3 M</b>	<b>SQN 2 SI-M3 M</b>	<b>SQN 3.5 SI-M3 M</b>	<b>SQN 5 SI-M5 M</b>	<b>SQN 6 SI-M5 M</b>
	Weight	1.0g	1.0g	1.0g	1.0g	1.1g	1.1g
Mark-free (blue)	Order code No.	—	—	—	—	<b>183797</b>	<b>183798</b>
	Standard	—	—	—	—	<b>SQN 5 HT1-M5 M</b>	<b>SQN 6 HT1-M5 M</b>
	Weight	—	—	—	—	1.1g	1.1g
Applicable stem	Micro or VFILB-M,MSH → <a href="#">3-21,27</a>				Non-rotate for mini/small or VFILB/VFILBR → <a href="#">3-27,28</a>		

Applicable cup size	φ 8mm	φ 10mm	φ 15mm	φ 20mm	
Flat suction cups					
Drawing					
Silicone (clearly transparent)	Order code No.	<b>183829</b>	<b>183830</b>	<b>183831</b>	<b>183832</b>
	Standard	<b>SQN 8 SI-M5 M</b>	<b>SQN 10 SI-M5 M</b>	<b>SQN 15 SI-M5 M</b>	<b>SQN 20 SI-M5 M</b>
	Weight	1.2g	1.3g	4.5g	5.6g
Mark-free (blue)	Order code No.	<b>183799</b>	<b>183800</b>	<b>183801</b>	<b>183802</b>
	Standard	<b>SQN 8 HT1-M5 M</b>	<b>SQN 10 HT1-M5 M</b>	<b>SQN 15 HT1-M5 M</b>	<b>SQN 20 HT1-M5 M</b>
	Weight	1.2g	1.3g	4.5g	5.6g
Applicable stem	Non-rotate for mini/small or VFILB/VFILBR → <a href="#">3-27,28</a>				

**Quick Chuck Change**

Quick Chuck Change (Manual)

Tool Changer

Automated Chuck Exchange System

**Grip**

Mini Cylinder

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Accessories for Container Cylinder

Grippers

Buffer Material

**Suction**

Suction Cups

Suction Stem

Pad in Pad

Air Ejector/Filter/Check Valve

Micro Mold E.O.A.T

**Cut**

Mini Air Nippers

Air Nippers

**Frame/Module**

Jungle Gym

Let's Joint

Rectangular Tube

Base Aluminum Material

Sliding Chuck

**Tubing/Sensors**





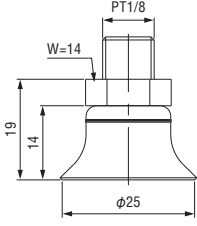
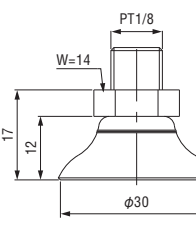
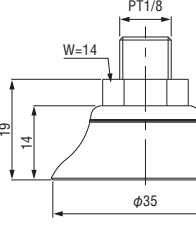
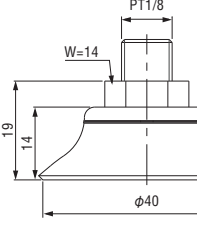
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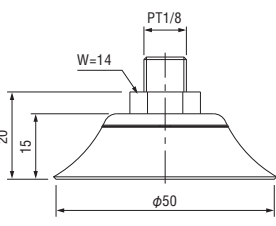
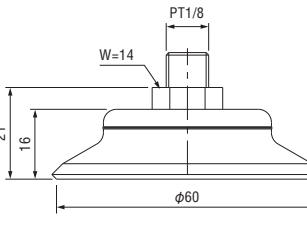
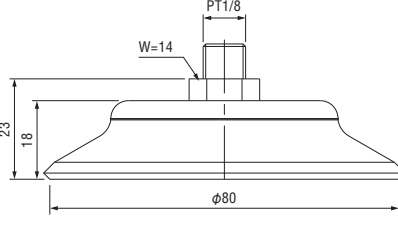
Sensors

**Other Products**

Others

Information

Applicable cup size	φ 25mm	φ 30mm	φ 35mm	φ 40mm
Flat suction cups				
Drawing				
Silicone (cloud transparent)	Order code No.	<b>183833</b>	<b>183834</b>	<b>183835</b>
	Standard	<b>SNQ 25 SI-PT1/8 M</b>	<b>SNQ 30 SI-PT1/8 M</b>	<b>SNQ 35 SI-PT1/8 M</b>
	Weight	7.2g	7.9g	10.6g
Mark-free (blue)	Order code No.	<b>183803</b>	<b>183804</b>	<b>183805</b>
	Standard	<b>SNQ 25 HT1-PT1/8 M</b>	<b>SNQ 30 HT1-PT1/8 M</b>	<b>SNQ 35 HT1-PT1/8 M</b>
	Weight	7.2g	7.9g	10.6g
Applicable stem	Non-rotate for small or VFILB-1/8, large VFI-L, VFI-L-H → <a href="#">3-25.28</a>			





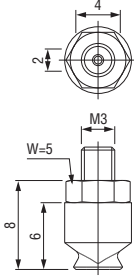
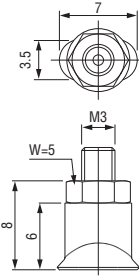
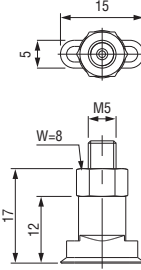
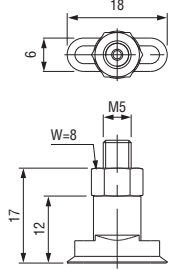
Applicable cup size	φ 50mm	φ 60mm	φ 80mm	
Flat suction cups				
Drawing				
Silicone (cloud transparent)	Order code No.	<b>183837</b>	<b>183838</b>	<b>183839</b>
	Standard	<b>SNQ 50 SI-PT1/8 M</b>	<b>SNQ 60 SI-PT1/8 M</b>	<b>SNQ 80 SI-PT1/8 M</b>
	Weight	15.3g	34.2g	62.5g
Mark-free (blue)	Order code No.	<b>183807</b>	<b>183808</b>	<b>183809</b>
	Standard	<b>SNQ 50 HT1-PT1/8 M</b>	<b>SNQ 60 HT1-PT1/8 M</b>	<b>SNQ 80 HT1-PT1/8 M</b>
	Weight	15.3g	34.2g	62.5g
Applicable stem	Non-rotate for small or VFILB-1/8, large VFI-L, VFI-L-H → <a href="#">3-25.28</a>			




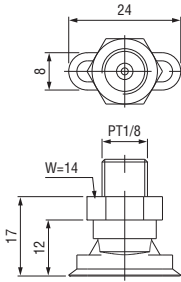
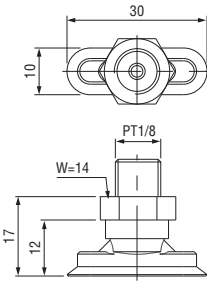
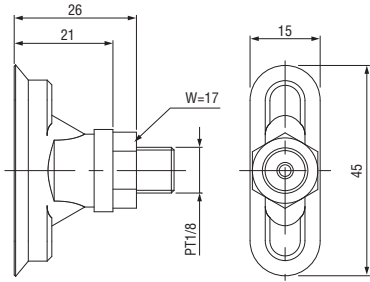


# Oval Cups

Oval type. There are silicone and mark-less types.

● Suction attach head of suction stem non-rotate (VFILB, VFILB2) can be removed.

Applicable cup size	2×4mm	3.5×7mm	5×15mm	6×18mm
Oval cups				
Drawing				
Silicone (clearly transparent)	Order code No.	<b>183948</b>	<b>183949</b>	—
	Standard	SSGON 2 * 4 SI-M3 M	SSGON 3.5 * 7 SI-M3 M	—
	Weight	2.0g	2.0g	—
Mark-free (blue)	Order code No.	<b>183932</b>	<b>183933</b>	<b>183935</b>
	Standard	SSGON 2 * 4 HT1-M3 M	SSGON 3.5 * 7 HT1-M3 M	SSGON 6 * 18 HT1-M5 M
	Weight	2.0g	2.0g	3.7g
Applicable stem	Micro or VFILB-MSH → <a href="#">3-21,27</a>		Non-rotate for mini/small or VFILB/VFILBR → <a href="#">3-27,28</a>	

Applicable cup size	8×24mm	10×30mm	15×45mm
Oval cups			
Drawing			
Silicone (clearly transparent)	Order code No.	—	<b>183951</b>
	Standard	—	SSGON 10 * 30 SI-PT1/8 M
	Weight	—	6.8g
Mark-free (blue)	Order code No.	<b>183936</b>	<b>183937</b>
	Standard	SSGON 8 * 24 HT1-PT1/8 M	SSGON 10 * 30 HT1-PT1/8 M
	Weight	6.7g	6.8g
Applicable stem	Non-rotate for small or VFILB-1/8, large, VFI-L, VFIL-H → <a href="#">3-25,28</a>		



# Bellows Type Suction Cups 1.5-Stage

The bellows section contracts with vacuum. There are silicone and mark-less types.

● Suction attach head of suction stem non-rotate (VFILB,VFILB2) can be removed.

Applicable cup size	φ 11mm	φ 13mm	φ 16mm	φ 19mm	φ 22mm	φ 24mm	
<b>Bellows type suction cups 1.5-stage</b>							
<b>Drawing</b>							
* The value in ( ) indicates the dimension with suction.							
<b>Silicone (shiny transparent)</b>	<b>Order code No.</b>	<b>183874</b>	<b>183875</b>	<b>183876</b>	<b>183877</b>	<b>183878</b>	<b>183994</b>
	<b>Standard</b>	SFSGA 11 SI-M5 M	SFSGA 14 SI-M5 M	SFSGA 16 SI-M5 M	SFSGA 20 SI-M5 M	SFSGA 22 SI-M5 M	SFSGA 25 SI-PT1/8 M
	<b>Weight</b>	2.0g	2.1g	2.3g	2.7g	3.1g	6.4g
<b>Mark-free (blue)</b>	<b>Order code No.</b>	<b>183857</b>	<b>183858</b>	<b>183859</b>	<b>183860</b>	<b>183861</b>	<b>183993</b>
	<b>Standard</b>	SFSGA 11 HT1-M5 M	SFSGA 14 HT1-M5 M	SFSGA 16 HT1-M5 M	SFSGA 20 HT1-M5 M	SFSGA 22 HT1-M5 M	SFSGA 25 HT1-PT1/8 M
	<b>Weight</b>	2.0g	2.1g	2.3g	2.7g	3.1g	6.4g
<b>Applicable stem</b>	Non-rotate for mini/small or VFILB/VFILBR → <a href="#">3-27,28</a>					Non-rotate for small or VFILB-1/8, large, VFI-L, VFIL-H → <a href="#">3-25,28</a>	

Applicable cup size	φ 33mm	φ 43mm	φ 53mm	φ 63mm	
<b>Bellows type suction cups 1.5-stage</b>					
<b>Drawing</b>					
<b>Silicone (shiny transparent)</b>	<b>Order code No.</b>	<b>183879</b>	<b>183880</b>	<b>183881</b>	<b>183882</b>
	<b>Standard</b>	SFSGA 33 SI-PT1/8 M	SFSGA 43 SI-PT1/8 M	SFSGA 53 SI-PT1/8 M	SFSGA 63 SI-PT1/8 M
	<b>Weight</b>	15.0g	18.0g	26.0g	33.0g
<b>Mark-free (blue)</b>	<b>Order code No.</b>	<b>183862</b>	<b>183863</b>	<b>183864</b>	—
	<b>Standard</b>	SFSGA 33 HT1-PT1/8 M	SFSGA 43 HT1-PT1/8 M	SFSGA 53 HT1-PT1/8 M	—
	<b>Weight</b>	15.0g	18.0g	26.0g	—
<b>Applicable stem</b>	Non-rotate for small or VFILB-1/8, large, VFI-L, VFIL-H → <a href="#">3-25,28</a>				

### Quick Chuck Change

Quick Chuck Change (Manual)

Tool Changer

Automated Chuck Exchange System

### Grip

Mini Cylinder

Accessories for Mini Cylinder

Container Cylinders

Accessories for Container Cylinder

Grippers

Buffer Material

### Suction

Suction Cups

Suction Stem

Pad in Pad

Air Ejector/Filter/Check Valve

Micro Mold E.O.A.T

### Cut

Mini Air Nippers

Air Nippers

### Frame/Module

Jungle Gym

Let's Joint

Rectangular Tube

Base Aluminum Material

Sliding Chuck

### Tubing/Sensors

Tubing

Sensors

### Other Products

Others

Information



# Bellows Type Suction Cups 2.5-Stage




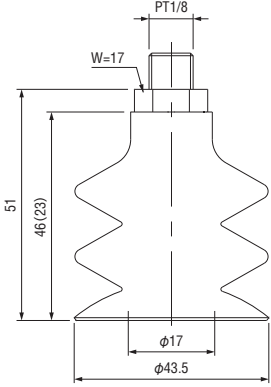
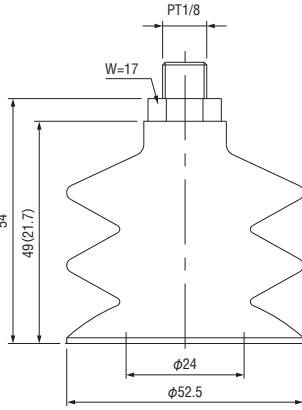
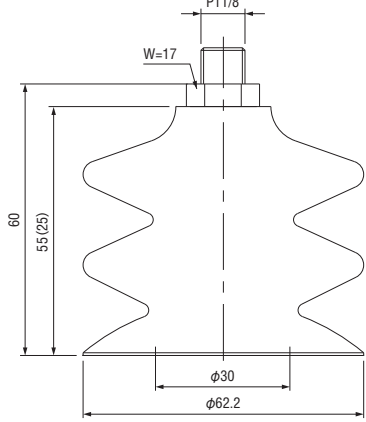
Effective for non-flat suction surface. There are silicone and mark-less types.

● Suction attach head of suction stem non-rotate (VFILB,VFILB2) can be removed.

Applicable cup size	φ 5.5mm	φ 6.5mm	φ 9.3mm	φ 12.7mm	φ 15mm	φ 18.5mm	
Bellows type suction cups 2.5-stage							
Drawing							
* The value in ( ) indicates the dimension with suction.							
Silicone (clearly transparent)	Order code No.	<b>183909</b>	<b>183910</b>	<b>183911</b>	<b>183912</b>	<b>183913</b>	<b>183914</b>
	Standard	SFSG 5 SI-M5 M	SFSG 7 SI-M5 M	SFSG 9 SI-M5 M	SFSG 12 SI-M5 M	SFSG 14 SI-M5 M	SFSG 18 SI-M5 M
	Weight	1.5g	1.6g	1.8g	2.2g	2.6g	2.9g
Mark-free (blue)	Order code No.	—	—	<b>183893</b>	<b>183894</b>	<b>183895</b>	<b>183896</b>
	Standard	—	—	SFSG 9 HT1-M5 M	SFSG 12 HT1-M5 M	SFSG 14 HT1-M5 M	SFSG 18 HT1-M5 M
	Weight	—	—	1.8g	2.2g	2.6g	2.9g
Applicable stem	Non-rotate for mini/small or VFILB/VFILBR → <a href="#">3-27,28</a>						

Applicable cup size	φ 20mm	φ 24.7mm	φ 32.6mm	
Bellows type suction cups 2.5-stage				
Drawing				
* The value in ( ) indicates the dimension with suction.				
Silicone (clearly transparent)	Order code No.	<b>183915</b>	<b>183916</b>	<b>183917</b>
	Standard	SFSG 20 SI-M5 M	SFSG 25 SI-PT1/8 M	SFSG 32 SI-PT1/8 M
	Weight	3.3g	8.0g	16.0g
Mark-free (blue)	Order code No.	<b>183897</b>	<b>183898</b>	<b>183899</b>
	Standard	SFSG 20 HT1-M5 M	SFSG 25 HT1-PT1/8 M	SFSG 32 HT1-PT1/8 M
	Weight	3.3g	8.0g	16.0g
Applicable stem	Non-rotate for mini/small or VFILB/VFILBR → <a href="#">3-27,28</a>	Non-rotate for small or VFILB-1/8, large VFI-L, VFIL-H → <a href="#">3-25,28</a>		



Applicable cup size	$\phi$ 43.5mm	$\phi$ 52.5mm	$\phi$ 62.2mm	
<b>Bellows type suction cups 2.5-stage</b>				
<b>Drawing</b>				
* The value in ( ) indicates the dimension with suction.				
<b>Silicone</b> (clearly transparent)	<b>Order code No.</b>	<b>183918</b>	<b>183919</b>	<b>183920</b>
	<b>Standard</b>	<b>SFSG 42 SI-PT1/8 M</b>	<b>SFSG 52 SI-PT1/8 M</b>	<b>SFSG 62 SI-PT1/8 M</b>
	<b>Weight</b>	26.0g	31.0g	59.0g
<b>Mark-free</b> (blue)	<b>Order code No.</b>	<b>183900</b>	—	—
	<b>Standard</b>	<b>SFSG 42 HT1-PT1/8 M</b>	—	—
	<b>Weight</b>	26.0g	—	—
<b>Applicable stem</b>	Large, VFI-L, or VFIL-H → <a href="#">3-25,28</a>			

**Quick Chuck Change**

Quick Chuck Change (Manual)

Tool Changer

Automated Chuck Exchange System

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Mini Cylinder

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Accessories for Container Cylinder

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Buffer Material

**Suction**

Suction Cups

Suction Stem

Pad in Pad

Air Ejector / Filter / Check Valve

Micro Mold E.O.A.T

**Cut**

Mini Air Nippers

Air Nippers

**Frame/Module**

Jungle Gym

Let's Joint

Rectangular Tube

Base Aluminum Material

Sliding Chuck

**Tubing/Sensors**

Tubing

Sensors

**Other Products**

Others

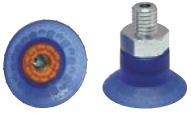
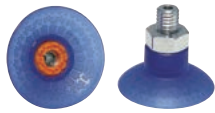


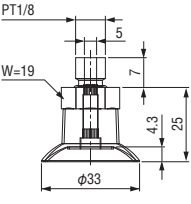
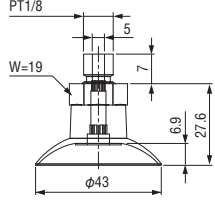
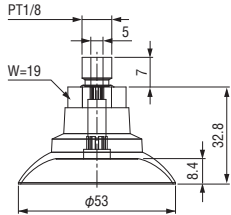
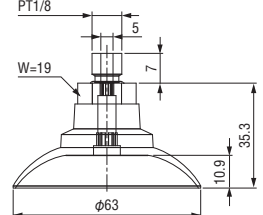
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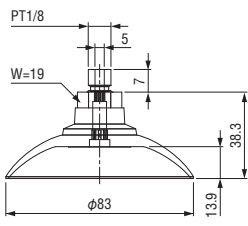
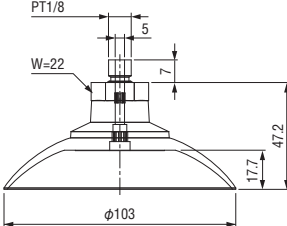
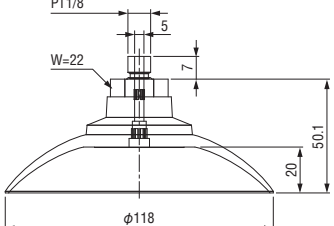


# Sheet Metal Suction Cups

Best for high-speed conveyance of oil-filmed sheet metal.

- ▶ Strong holding power in the horizontal direction and excellent balance of stability.
- ▶ Excellent followup ability to a curved surface. Excellent durability with original material.

Applicable cup size	φ33mm	φ43mm	φ53mm	φ63mm
Suction cups for sheet metal w/ screw				
Drawing				
Order code No.	<b>185338</b>	<b>185339</b>	<b>185340</b>	<b>185341</b>
Standard	<b>SSAXM-30-ED-85-PT1/8M</b>	<b>SSAXM-40-ED-85-PT1/8M</b>	<b>SSAXM-50-ED-85-PT1/8M</b>	<b>SSAXM-60-ED-85-PT1/8M</b>
Holding force* <sup>1</sup>	39N	69N	109N	154N
Horizontal power (with oil)* <sup>2</sup>	41N	71N	110N	155N
Weight	14.0g	15.0g	27.0g	30.0g

Applicable cup size	φ83mm	φ103mm	φ118mm
Suction cups for sheet metal w/ screw			
Drawing			
Order code No.	<b>185342</b>	<b>185343</b>	<b>185344</b>
Standard	<b>SSAXM-80-ED-85-PT1/8M</b>	<b>SSAXM-100-ED-85-PT1/8M</b>	<b>SSAXM-115-ED-85-PT1/8M</b>
Holding force* <sup>1</sup>	270N	412N	549N
Horizontal power (with oil)* <sup>2</sup>	269N	414N	584N
Weight	39.0g	73.0g	91.0g

\* Mounting screw diameters other than PT1/8 M can be used. Please contact us for more information.

\* 1 Above holding force is calculated with dried workpiece with a smooth surface (vertical direction, vacuum pressure -60 kPa) Safety factor is not included.

\* 2 Above horizontal force is calculated with dried/oil-filmed workpiece with a smooth surface (vacuum pressure -60 kPa). The calculated value may differ from the actual value according to the actual surface condition of workpiece. Safety factor is not included.



# Suction Cups for Exchange

Suction cup for exchange in 3-12 - 3-17.

► Flat suction cup.

Page	Order code No.	Standard	Material	Cup color
3-12	183840	SQ 1 SI	Silicone	Cloudy transparent
	183841	SQ 1.5 SI	Silicone	Cloudy transparent
	183842	SQ 2 SI	Silicone	Cloudy transparent
	183843	SQ 3.5 SI	Silicone	Cloudy transparent
	183844	SQ 5 SI	Silicone	Cloudy transparent
	183845	SQ 6 SI	Silicone	Cloudy transparent
	183846	SQ 8 SI	Silicone	Cloudy transparent
	183847	SQ 10 SI	Silicone	Cloudy transparent
	183848	SQ 15 SI	Silicone	Cloudy transparent
	183849	SQ 20 SI	Silicone	Cloudy transparent
3-13	183850	SQ 25 SI	Silicone	Cloudy transparent
	183851	SQ 30 SI	Silicone	Cloudy transparent
	183852	SQ 35 SI	Silicone	Cloudy transparent
	183853	SQ 40 SI	Silicone	Cloudy transparent
	183854	SQ 50 SI	Silicone	Cloudy transparent
	183855	SQ 60 SI	Silicone	Cloudy transparent
	183856	SQ 80 SI	Silicone	Cloudy transparent
3-12	183810	SQ 5 HT1	Mark-free	Blue
	183811	SQ 6 HT1	Mark-free	Blue
	183812	SQ 8 HT1	Mark-free	Blue
	183813	SQ 10 HT1	Mark-free	Blue
	183814	SQ 15 HT1	Mark-free	Blue
3-13	183816	SQ 25 HT1	Mark-free	Blue
	183817	SQ 30 HT1	Mark-free	Blue
	183818	SQ 35 HT1	Mark-free	Blue
	183819	SQ 40 HT1	Mark-free	Blue
	183820	SQ 50 HT1	Mark-free	Blue
	183821	SQ 60 HT1	Mark-free	Blue
	183822	SQ 80 HT1	Mark-free	Blue

► Suction pad for flat oval.

Page	Order code No.	Standard	Material	Cup color
3-14	183956	SSGO 2*4 SI	Silicone	Cloudy transparent
	183957	SSGO 3.5*7 SI	Silicone	Cloudy transparent
	183958	SSGO 5*15 SI	Silicone	Cloudy transparent
	183959	SSGO 10*30 SI	Silicone	Cloudy transparent
	183960	SSGO 15*45 SI	Silicone	Cloudy transparent
3-14	183940	SSGO 2*4 HT1	Mark-free	Blue
	183941	SSGO 3.5*7 HT1	Mark-free	Blue
	183942	SSGO 5*15 HT1	Mark-free	Blue
	183943	SSGO 6*18 HT1	Mark-free	Blue
	183944	SSGO 8*24 HT1	Mark-free	Blue
	183945	SSGO 10*30 HT1	Mark-free	Blue
183946	SSGO 15*45 HT1	Mark-free	Blue	

► Bellows type suction cup 1.5-stage.

Page	Order code No.	Standard	Material	Cup color
3-15	183883	SFGA 11 SI	Silicone	Cloudy transparent
	183884	SFGA 14 SI	Silicone	Cloudy transparent
	183885	SFGA 16 SI	Silicone	Cloudy transparent
	183886	SFGA 20 SI	Silicone	Cloudy transparent
	183887	SFGA 22 SI	Silicone	Cloudy transparent
	183888	SFGA 25 SI	Silicone	Cloudy transparent
	183889	SFGA 33 SI	Silicone	Cloudy transparent
	183890	SFGA 43 SI	Silicone	Cloudy transparent
	183891	SFGA 53 SI	Silicone	Cloudy transparent
	183892	SFGA 63 SI	Silicone	Cloudy transparent
3-15	183865	SFGA 11 HT 1	Mark-free	Blue
	183866	SFGA 14 HT1	Mark-free	Blue
	183867	SFGA 16 HT1	Mark-free	Blue
	183868	SFGA 20 HT1	Mark-free	Blue
	183869	SFGA 22 HT1	Mark-free	Blue
	183870	SFGA 25 HT1	Mark-free	Blue
	183871	SFGA 33 HT1	Mark-free	Blue
183872	SFGA 43 HT1	Mark-free	Blue	
183873	SFGA 53 HT1	Mark-free	Blue	

► Bellows type suction cup 2.5-stage.

Page	Order code No.	Standard	Material	Cup color
3-16	183921	SFG 5 SI	Silicone	Cloudy transparent
	183922	SFG 7 SI	Silicone	Cloudy transparent
	183923	SFG 9 SI	Silicone	Cloudy transparent
	183924	SFG 12 SI	Silicone	Cloudy transparent
	183925	SFG 14 SI	Silicone	Cloudy transparent
	184085	SFG 18 SI	Silicone	Cloudy transparent
	183926	SFG 20 SI	Silicone	Cloudy transparent
	183927	SFG 25 SI	Silicone	Cloudy transparent
	183928	SFG 32 SI	Silicone	Cloudy transparent
	183929	SFG 42 SI	Silicone	Cloudy transparent
3-17	183930	SFG 52 SI	Silicone	Cloudy transparent
	183931	SFG 62 SI	Silicone	Cloudy transparent
	183901	SFG 9 HT1	Mark-free	Blue
3-16	183902	SFG 12 HT1	Mark-free	Blue
	183903	SFG 14 HT1	Mark-free	Blue
	183904	SFG 18 HT1	Mark-free	Blue
	183905	SFG 20 HT1	Mark-free	Blue
	183906	SFG 25 HT1	Mark-free	Blue
	183907	SFG 32 HT1	Mark-free	Blue
	183908	SFG 42 HT1	Mark-free	Blue

Quick Chuck Change

Quick Chuck Change (Manual)

Tool Changer

Automated Chuck Exchange System

Grip

Mini Cylinder

Accessories for Mini Cylinder

Container Cylinders

Accessories for Container Cylinder

Grippers

Buffer Material

Suction

Suction Cups

Suction Stem

Pad in Pad

Air Ejector / Filter / Check Valve

Micro Mold E.O.A.T

Cut

Mini Air Nippers

Air Nippers

Frame/Module

Jungle Gym

Let's Joint

Rectangular Tube

Base Aluminum Material

Sliding Chuck

Tubing/Sensors

Tubing

Sensors

Other Products

Others

Information



## Suction Stem

Can be selected according to the type of suction cup and allows secure suction.



Micro

3-21



Mini

3-21



Small

3-23



Large

3-25

## Suction Stems Non-Rotate

Exchangeable head for suction stem.



Micro

3-27



Mini

3-27



Small

3-27

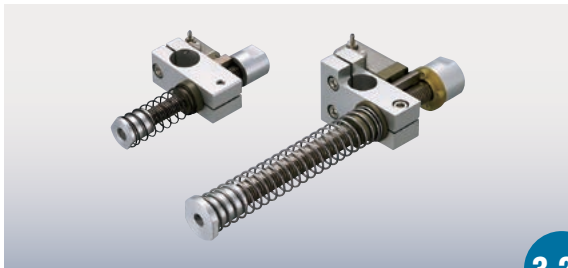


For 1/8 connection

3-28

## Suction Stems Locking Mechanism

Non-rotating suction stems. These feature a long stroke, holding unit in position at the stopper cylinder.



3-26



Angle adjustment

3-28



Large

3-28

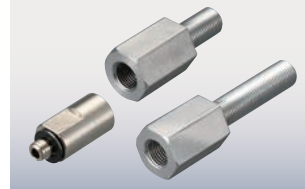
## Fixed



Attach pad to the end before use.

3-29

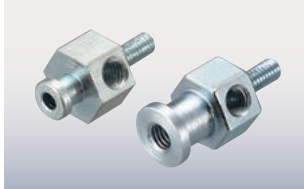
## Adjuster



Height of suction stem can be adjusted.

3-30

## Suction Stems for Mini Cylinder



Used when suction cup is attached to the end of mini cylinder.

3-29

## Suction Stem Angle Brackets



The angle can be adjusted according to the shape of workpiece.

3-31



# Suction Stems (Micro/Mini)



Direct connection on jungle gym series parts is possible.

Can be selected according to the type of suction cup and allows secure suction.

- The suction cup is sold separately.
- Cup fixing system: embedded
- Piping joint for suction stem (mini) was changed from BF-5 to BF-6.
- Holder section for suction stem (mini) pipe specification was changed from 13mm to 18mm.

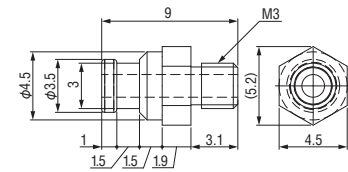
Applicable cup size	φ 1.2-6	
Suction stems (micro)		
Drawing		
Order code No.	<b>210785</b>	<b>210818</b>
Standard	<b>VFILB-M</b>	<b>VFILB-M-P8</b>
Weight	5g	6g
Piping/Mounting	φ 4 / M6×07.5	φ 4 / φ 8



**Suction fitting attach head/ M3, micro**

Order code No.	<b>131316</b>
Standard	<b>N01891-201</b>

- Weight : 1g
- W/ gasket
- Target: suction stem (micro), suction stem non-rotate (micro)



Applicable cup size	φ 4-14		
Suction stems (mini)			
Drawing (5st)			
Order code No.	<b>211029</b>	<b>211030</b>	<b>211031</b>
Standard	<b>VFIL1-SS-5</b>	<b>VFIL2-SS-5-P8</b>	<b>VFIL2-SS-5-P12</b>
Weight	14g	9g	13g
Piping/Mounting	φ 6 / M10 P=1.0	φ 6 / φ 8	φ 6 / φ 12

Applicable cup size	φ 4-14		
Suction stems (mini)			
Drawing (10st)			
Order code No.	<b>211032</b>	<b>211033</b>	<b>211034</b>
Standard	<b>VFIL1-SS-10</b>	<b>VFIL2-SS-10-P8</b>	<b>VFIL2-SS-10-P12</b>
Weight	15g	9g	14g
Piping/Mounting	φ 6 / M10 P=1.0	φ 6 / φ 8	φ 6 / φ 12

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Quick Chuck Change (Manual)

Tool Changer

Automated Chuck Exchange System

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Mini Cylinder

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Accessories for Container Cylinder

Grippers

Buffer Material

## Suction

Suction Cups

## Suction Stem

Pad in Pad

Air Ejector/ Filter/ Check Valve

Micro Mold E.O.A.T

## Cut

Mini Air Nippers

Air Nippers

## Frame/Module

Jungle Gym

Let's Joint

Rectangular Tube

Base Aluminum Material

Sliding Chuck

## Tubing/Sensors

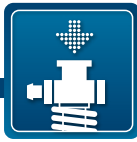
Tubing

Sensors

## Other Products

Others

## Information



# Suction Stems (Mini)



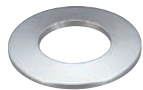
Direct connection on jungle gym series parts is possible.

Can be selected according to the type of suction cup and allows secure suction.

- The suction cup is sold separately. ● Cup fixing system: embedded ● Piping joint for suction stem (mini) was changed from BF-5 to BF-6.
- Holder section for suction stem (mini) pipe specification was changed from 13mm to 18mm.

Applicable cup size	φ 4-14		
Suction stems (mini)			
Drawing (20st)			
Order code No.	<b>211035</b>	<b>211036</b>	<b>211037</b>
Standard	<b>VFIL1-SS-20</b>	<b>VFIL2-SS-20-P8</b>	<b>VFIL2-SS-20-P12</b>
Weight	15g	10g	14g
Piping/Mounting	φ 6 / M10 P=1.0	φ 6 / φ 8	φ 6 / φ 12

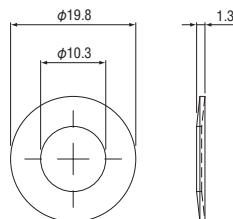
Applicable cup size	φ 4-14		
Suction stems (mini)			
Drawing (30st)			
Order code No.	<b>211038</b>	<b>211039</b>	<b>211040</b>
Standard	<b>VFIL1-SS-30</b>	<b>VFIL2-SS-30-P8</b>	<b>VFIL2-SS-30-P12</b>
Weight	16g	11g	15g
Piping/Mounting	φ 6 / M10 P=1.0	φ 6 / φ 8	φ 6 / φ 12



**Taper washer (mini)**

Order code No.	<b>371362</b>
Standard	<b>φ 10 taper washer for VFIL-SS</b>

- Use when fixing a suction stem to the plate.
- Target: suction stem (mini), suction stem non-rotate (mini, small)





# Suction Stem (Small)



Direct connection on jungle gym series parts is possible.

Can be selected according to the type of suction cup and allows secure suction.

- The suction cup is sold separately. • Cup fixing system: embedded
- Holder section for suction stem (small) pipe specification was changed from 16mm to 21mm.

Applicable cup size	φ 15-45		
Suction stems (small)			
Drawing (5st)			
Order code No.	<b>210974</b>	<b>211006</b>	<b>211007</b>
Standard	<b>VFIL-S-5A</b>	<b>VFIL1-S-5-P12</b>	<b>VFIL1-S-5-P20</b>
Weight	20g	15g	29g
Piping/Mounting	φ 6 / M12 P=1.0	φ 6 / φ 12	φ 6 / φ 20

Applicable cup size	φ 15-45		
Suction stems (small)			
Drawing (10st)			
Order code No.	<b>210975</b>	<b>211008</b>	<b>211009</b>
Standard	<b>VFIL-S-10A</b>	<b>VFIL1-S-10-P12</b>	<b>VFIL1-S-10-P20</b>
Weight	21g	16g	29g
Piping/Mounting	φ 6 / M12 P=1.0	φ 6 / φ 12	φ 6 / φ 20

Applicable cup size	φ 15-45		
Suction stems (small)			
Drawing (20st)			
Order code No.	<b>210976</b>	<b>211010</b>	<b>211011</b>
Standard	<b>VFIL-S-20A</b>	<b>VFIL1-S-20-P12</b>	<b>VFIL1-S-20-P20</b>
Weight	22g	18g	31g
Piping/Mounting	φ 6 / M12 P=1.0	φ 6 / φ 12	φ 6 / φ 20

## Quick Chuck Change

Quick Chuck Change (Manual)

Tool Changer

Automated Chuck Exchange System

## Grip

Mini Cylinder

Accessories for Mini Cylinder

Container Cylinders

Accessories for Container Cylinder

Grippers

Buffer Material

## Suction

Suction Cups

## Suction Stem

Pad in Pad

Air Ejector / Filter / Check Valve

Micro Mold E.O.A.T

## Cut

Mini Air Nippers

Air Nippers

## Frame/Module

Jungle Gym

Let's Joint

Rectangular Tube

Base Aluminum Material

Sliding Chuck

## Tubing/Sensors

Tubing

Sensors

## Other Products

Others

Information



# Suction Stem (Small)



Direct connection on jungle gym series parts is possible.

Can be selected according to the type of suction cup and allows secure suction.

- The suction cup is sold separately. ● Cup fixing system: embedded
- Holder section for suction stem (small) pipe specification was changed from 16mm to 21mm.

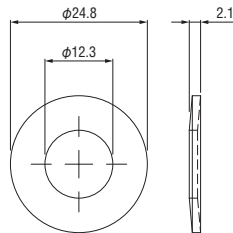
Applicable cup size	φ 15-45		
Suction stems (small)			
Drawing (30st)			
Order code No.	<b>210977</b>	<b>211012</b>	<b>211013</b>
Standard	<b>VFIL-S-30A</b>	<b>VFIL1-S-30-P12</b>	<b>VFIL1-S-30-P20</b>
Weight	24g	19g	32g
Piping/Mounting	φ6 / M12 P=1.0	φ6 / φ12	φ6 / φ20



**Taper washer (small)**

Order code No.	<b>370244</b>
Standard	Standard: φ12 taper washer for VFIL-S

- Use when fixing a suction stem to the plate.
- Target: suction stem (small)







# Suction Stems (Large)



Direct connection on jungle gym series parts is possible.

Can be selected according to the type of suction cup and allows secure suction.

- The suction cup is sold separately.
- Cup fixing system: embedded, screw mount
- The attach head of the suction metal fixture (large) is optionally available.

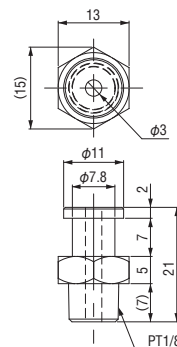
Applicable cup size	φ24-70			
Suction stems (large)				
Drawing				
Order code No.	<b>210886</b>	<b>210887</b>	<b>210888</b>	<b>210889</b>
Standard	VFI-L-20-P20	VFI-L-50-P20	VFI-L-20-M17	VFI-L-50-M17
Weight	45g	55g	50g	60g
Piping/Mounting	φ6 (RBF → <b>6-6</b> ) and BF6 → <b>6-5</b> are necessary for piping) / φ20 φ6 (RBF → <b>6-6</b> ) and BF6 → <b>6-5</b> are necessary for piping) / M17 P=1.0			

Applicable cup size	φ24-70
Suction stem (large)	
	* Use within 100mm stroke.
Drawing	
Order code No.	<b>210917</b>
Standard	VFI-L-100-M22
Weight	220g
Piping/Mounting	φ6 / M22 P=1.5

## Suction stem attachment head • embedded type • small

Order code No.	<b>230066</b>
Standard	<b>XL0037-106</b>

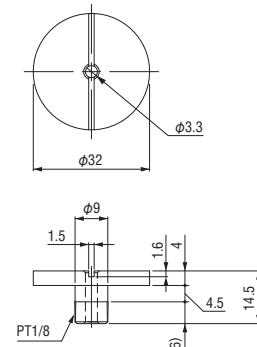
- Weight : 5g
- Target: suction stem (large), suction stem non-rotate (1/8 series), suction stem non-rotate (large)



## Suction stem attachment head • screw attach type

Order code No.	<b>230067</b>
Standard	<b>XL0037-103</b>

- Weight : 10g
- Target: suction stem (large), suction stem non-rotate (1/8 series), suction stem non-rotate (large)



### Quick Chuck Change

Quick Chuck Change (Manual)

Tool Changer

Automated Chuck Exchange System

### Grip

Mini Cylinder

Accessories for Mini Cylinder

Container Cylinders

Accessories for Container Cylinder

Grippers

Buffer Material

### Suction

Suction Cups

Suction Stem

Pad in Pad

Air Ejector/Filter/Check Valve

Micro Mold E.O.A.T

### Cut

Mini Air Nippers

Air Nippers

### Frame/Module

Jungle Gym

Let's Joint

Rectangular Tube

Base Aluminum Material

Sliding Chuck

### Tubing/Sensors

Tubing

Sensors

### Other Products

Others

Information





# Suction Stems Non-Rotate (Micro / Mini / Small)



Direct connection on jungle gym series parts is possible.

Exchangeable head for suction stems.  
Direct connection on jungle gym series parts is possible.

- Mounting hole diameter of end section piping joint of VFILB2-SSH (mini) and SH (small) was changed from M4 to M5.
- End section piping joint of VFILB2-SSH (mini) and SH (small) was changed to BF-6.

Applicable cup size	φ 1.2-6	
Non rotates (micro)		
Drawing		
Order code No.	<b>210823</b>	<b>210824</b>
Standard	<b>VFILB-MSH</b>	<b>VFILB-MSH-P8</b>
Weight	5g	6g
Piping/Mounting	φ 4 / M6 P=0.75	φ 4 / φ 8

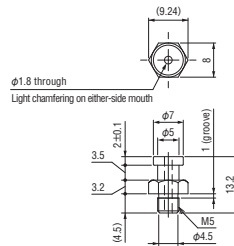
### Option of VFILB-SSH



Suction stem attachment head M5 mini

Order code No.	<b>131208</b>
Standard	<b>N01892-201</b>

- Mounting screw M5
- W/ gasket



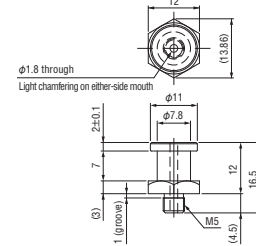
### Option of VFILB-SH



Suction stem attachment head M5 small

Order code No.	<b>131209</b>
Standard	<b>N01892-301</b>

- Mounting screw M5
- W/ gasket



\* See [3-21](#) for more details about suction stem accouchement head M3 micro.

Applicable cup size	φ 4-14			
Non rotates (mini)				
Drawing				
Order code No.	<b>211041</b>	<b>211042</b>	<b>211043</b>	<b>211044</b>
Standard	<b>VFILB2-SSH</b>	<b>VFILB2-SSH-P12</b>	<b>VFILB2-SSH-20</b>	<b>VFILB2-SSH-20-P12</b>
Weight	28g	26g	31g	24g
Piping/Mounting	φ 6 / M10 P=1.0	φ 6 / φ 12	φ 6 / M10 P=1.0	φ 6 / φ 12

Applicable cup size	φ 15-45			
Non rotates (small)				
Drawing				
Order code No.	<b>211045</b>	<b>211046</b>	<b>211047</b>	<b>211048</b>
Standard	<b>VFILB2-SH</b>	<b>VFILB2-SH-P12</b>	<b>VFILB2-SH-20</b>	<b>VFILB2-SH-20-P12</b>
Weight	31g	25g	35g	29g
Piping/Mounting	φ 6 / M10 P=1.0	φ 6 / φ 12	φ 6 / M10 P=1.0	φ 6 / φ 12

### Quick Chuck Change

Quick Chuck Change (Manual)

Tool Changer

Automated Chuck Exchange System

### Grip

Mini Cylinder

Accessories for Mini Cylinder

Container Cylinders

Accessories for Container Cylinder

Grippers

Buffer Material

### Suction

Suction Cups

### Suction Stem

Pad in Pad

Air Ejector / Filter / Check Valve

Micro Mold E.O.A.T

### Cut

Mini Air Nippers

Air Nippers

### Frame/Module

Jungle Gym

Let's Joint

Rectangular Tube

Base Aluminum Material

Sliding Chuck

### Tubing/Sensors

Tubing

Sensors

### Other Products

Others

Information



# Non Rotate (1/8 Connection / Angle / Large)



Direct connection on jungle gym series parts is possible.

Exchangeable head for suction stem.

- Mounting hole diameter of end section piping joint of VFILB2-SH was changed from M4 to M5.
- End section piping joint of VFILB2-SH was changed to BF-6.

Applicable cup size	φ 24-43			
Suction stems non-rotate mini (1/8)				
Drawing				
Order code No.	<b>211049</b>	<b>211050</b>	<b>211051</b>	<b>211052</b>
Standard	VFILB2-SH 1/8	VFILB2-SH 1/8-P12	VFILB2-SH 1/8-20	VFILB2-SH 1/8-20-P12
Weight	25g	19g	27g	22g
Piping/Mounting	φ 6 / M10 P=1.0	φ 6 / φ 12	φ 6 / M10 P=1.0	φ 6 / φ 12

\* Mounting bracket of suction cup is not attached. Use suction attach head-embedded type for small [3-25](#).

Applicable cup size	φ 4-45			
Suction stems non-rotate (angle adjustment)				
Drawing				
Order code No.	<b>210991</b>	<b>210993</b>	<b>210992</b>	<b>210994</b>
Standard	VFILBR-H-10	VFILBR-H-10-P12	VFILBR-H-20	VFILBR-H-20-P12
Weight	33g	27g	37g	30g
Piping/Mounting	φ 6 / M10 P=1.0	φ 6 / φ 12	φ 6 / M10 P=1.0	φ 6 / φ 12

- \* Use suction stem attachment head M5 mini/small [3-27](#) as mounting bracket of suction cup.
- \* Joint for air supply hole is not included.

Applicable cup size	φ 33-63	
Suction Stem Non-Rotate Mini (Large)		
Drawing		
Order code No.	<b>210788</b>	
Standard	VFIL-H	
Weight	102g	
Piping/Mounting	φ 6 (RBF → <a href="#">6-6</a> ) and BF6 → <a href="#">6-5</a> are necessary for piping) / φ 20	

- \* Joint for air supply hole is not included.
- \* Mounting bracket of suction cup is not attached. Use suction attach head-embedded type for small [3-25](#).
- Since the tip is PT1/8 female screw, fixture 1/8G of special cup is supported. For connection, Jungle gym φ 20 fixture is used.



# Suction Stems (Fixed / For Mini Cylinder)

Used to be mounted on the tip.

● Suction cup and joint are optionally available.

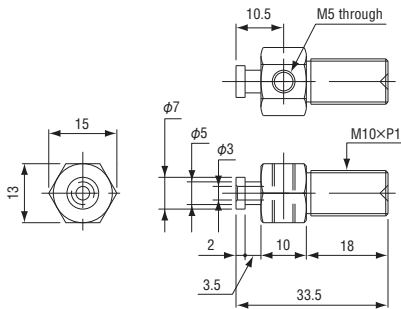
► Use by mounting a bellows cup.



## Suction stem • fixed • mini

Order code No.	210699
Standard	VFILK-SS-M10

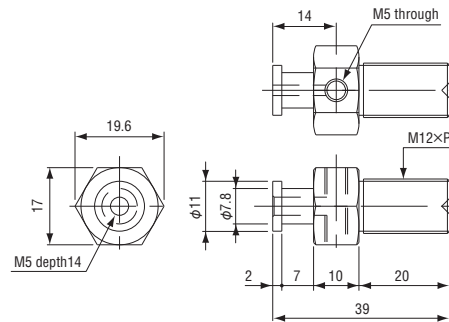
- Weight : 6g
- Applicable cup size :  $\phi$ 4-14
- Cup fixing system: embedded
- Suction stem nut (3-30) is not attached.



## Suction stem • fixed • small

Order code No.	210698
Standard	VFILK-S-M12

- Weight : 9g
- Applicable cup size :  $\phi$ 15-45
- Cup fixing system: embedded
- Suction stem nut (3-30) is not attached.



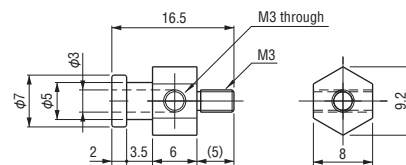
► Used when suction cup is attached to the end of mini cylinder.



## Suction stem • mini • for micro mini cylinder

Order code No.	230058
Standard	XL0010-105

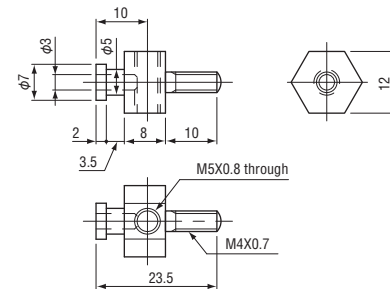
- Weight : 1g



## Suction stem • mini • for mini cylinder

Order code No.	020844
Standard	CP-064

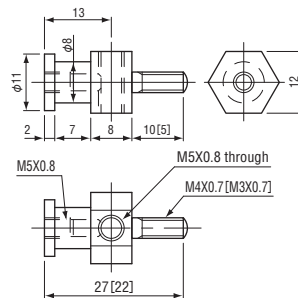
- Weight : 7g



## Suction stem • small • for micro mini cylinder

Order code No.	023128
Standard	CP-063A

- Weight : 10g
- Mounting screw section M3



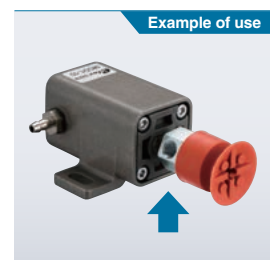
\* [ ] indicates CP-063A.



## Suction stem • small • for mini cylinder

Order code No.	023195
Standard	CP-063B

- Weight : 11g
- Mounting screw section M4



\* Picture shows CP-063B assembled with MCD-10 and VAPH-20C-1.

### Quick Chuck Change

Quick Chuck Change (Manual)

Tool Changer

Automated Chuck Exchange System

### Grip

Mini Cylinder

Accessories for Mini Cylinder

Container Cylinders

Accessories for Container Cylinder

Grippers

Buffer Material

### Suction

Suction Cups

Suction Stem

Pad in Pad

Air Ejector / Filter / Check Valve

Micro Mold E.O.A.T

### Cut

Mini Air Nippers

Air Nippers

### Frame/Module

Jungle Gym

Let's Joint

Rectangular Tube

Base Aluminum Material

Sliding Chuck

### Tubing/Sensors

Tubing

Sensors

### Other Products

Others

Information



# Suction Stem Brackets

Height of suction stem can be adjusted.

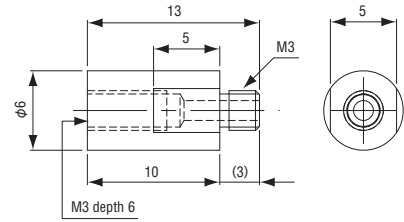
► Extension between suction cup and stem is possible.



## Suction stem bracket • micro

Order code No.	<b>230072</b>
Standard	<b>XL0061-100</b>

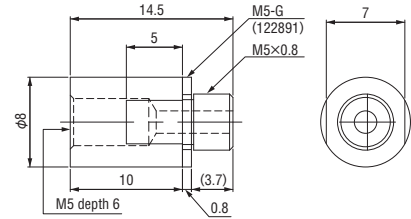
● Weight : 2g



## Suction stem adjuster • mini

Order code No.	<b>230114</b>
Standard	<b>XL0061-200</b>

● Weight : 3g



## Suction stem bracket • mini



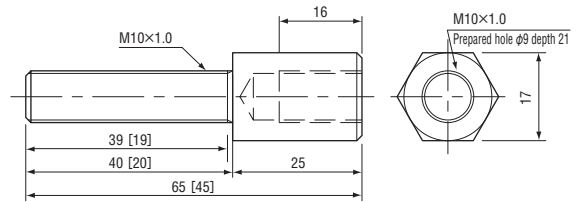
(20L)



(40L)

	20L	40L
Order code No.	<b>022544</b>	<b>022545</b>
Standard	<b>CP-023AL (20L)</b>	<b>CP-024AL (40L)</b>

● Weight : 17g (20L) 21g (40L)  
 ● Suction stem : VFIL1-SS-5  
 ● Suction stem nut is not attached.



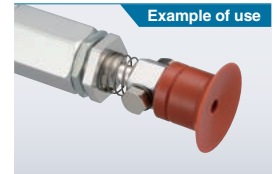
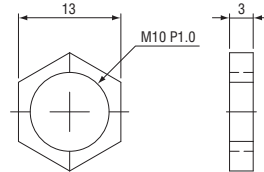
\* The value of [ ] indicates 20L.

## Suction stem nut • small (trivalent white)



Order code No.	<b>120482</b>
Standard	<b>VFIL-M10 (10*14*3 P1.0)</b>

● Weight : 2g ● Screw diameter : M10



## Suction stem bracket • small



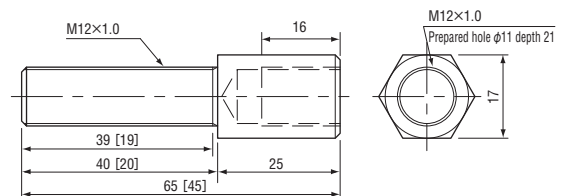
(20L)



(40L)

	20L	40L
Order code No.	<b>022542</b>	<b>022543</b>
Standard	<b>CP-021AL (20L)</b>	<b>CP-022AL (40L)</b>

● Weight : 17g (20L) 23g (40L)  
 ● Suction stem : VFIL-S-5  
 ● Suction stem nut is not attached.



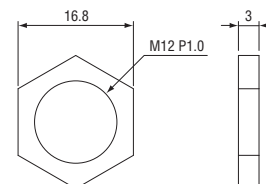
\* The value of [ ] indicates 20L.

## Suction stem nut • small (trivalent white)



Order code No.	<b>120483</b>
Standard	<b>VFIL-M12 (12*17*3 P1.0)</b>

● Weight : 3g ● Screw diameter : M12





# Suction Stem Angle Brackets

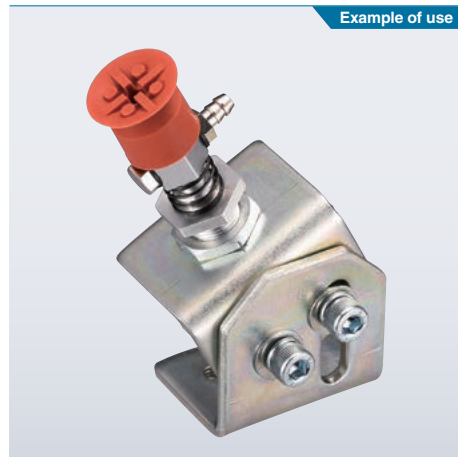
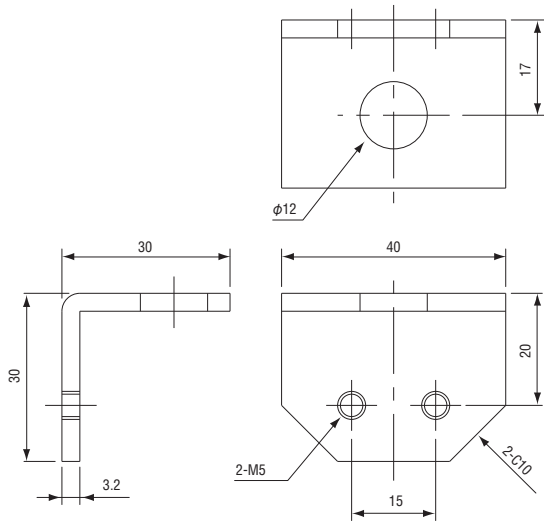
The angle can be adjusted according to the shape of workpiece.



## Suction stem angle bracket (upper)

Order code No.	<b>370698</b>
Standard	<b>CP-019</b>

- Weight : 48g
- Fixing bolt M5x15 is available separately.
- Assembly of parts is not available in delivery for an order.



● Photo shows right-hand mount type (CP-019R).

### Quick Chuck Change

Quick Chuck Change (Manual)

Tool Changer

Automated Chuck Exchange System

### Grip

Mini Cylinder

Accessories for Mini Cylinder

Container Cylinders

Accessories for Container Cylinder

Grippers

Buffer Material

### Suction

Suction Cups

Suction Stem

Pad in Pad

Air Ejector/Filter/Check Valve

Micro Mold E.O.A.T

### Cut

Mini Air Nippers

Air Nippers

### Frame/Module

Jungle Gym

Let's Joint

Rectangular Tube

Base Aluminum Material

Sliding Chuck

### Tubing/Sensors

Tubing

Sensors

### Other Products

Others

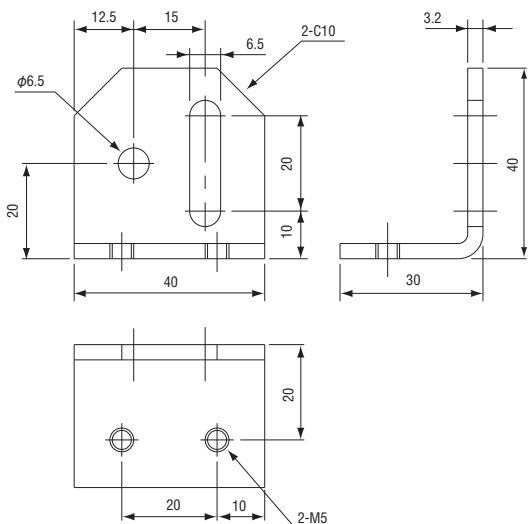
Information



## Suction stem angle bracket (L-lower)

Order code No.	<b>370789</b>
Standard	<b>CP-019L</b>

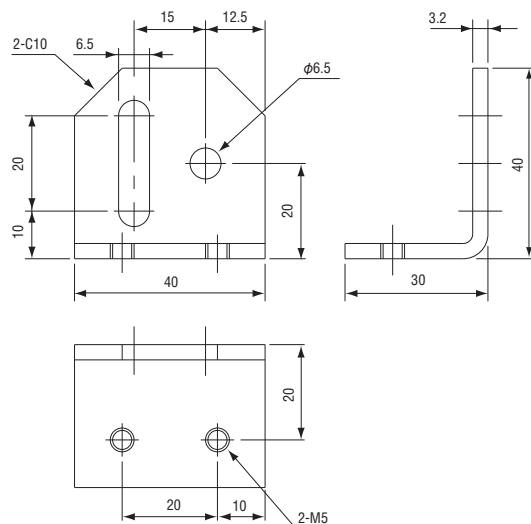
- Weight : 54g
- Fixing bolt M5x15 is available separately.
- Assembly of parts is not available in delivery for an order.



## Suction stem angle bracket (R-lower)

Order code No.	<b>370790</b>
Standard	<b>CP-019R</b>

- Weight : 54g
- Fixing bolt M5x15 is available separately.
- Assembly of parts is not available in delivery for an order.





Do you have any problems with work piece with holes (food container, cap and inner stopper for cosmetic container, and small gear) which falls automatically?

Pad in Pad can be used for hole opening workpieces.

**Example of combination**

Composed of outside bellows pad, suction metal fixture, tamping pad, and middle hardware. The flat face of a work is adsorbed with the outside bellows pad. And holes are stopped up with the tamping pad.

<b>Product name</b>	Inner stem (mini)	Inner stem (micro)	Stem spacer
<b>Drawing</b>			
<b>Order code No.</b>	<b>210911</b>	<b>210912</b>	<b>210913</b>
<b>Standard</b>	<b>VFILK-PS-M5</b>	<b>VFILK-PSS-M5</b>	<b>VFILK-P-S</b>
<b>Weight</b>	1.5g	1.0g	0.3g
<b>Applicable stem</b>	Suction stem small (also for some suction stem mini products)		—

\* Gasket (122891) is separately available when you buy the inner stem. → [6-8](#)

▶ Inner cup example \* Below cups are used with "Inner stem (mini)".

	<b>Suction cup</b>		<b>Suction cup</b>		<b>Suction cup</b>		<b>Suction cup</b>
<b>Order code No.</b>	<b>196663</b>	<b>Order code No.</b>	<b>196664</b>	<b>Order code No.</b>	<b>196665</b>	<b>Order code No.</b>	<b>196718</b>
<b>Standard</b>	<b>TPJG-6-S</b>	<b>Standard</b>	<b>TPJG-8-S</b>	<b>Standard</b>	<b>TPJG-10-S</b>	<b>Standard</b>	<b>TPJG-15-S</b>

**Procedures before delivery**  
\*Quotation for additional work can be provided.

- STEP 1 Check the No. of cavities and No. of suction circuits.
- STEP 2 Suction test with the target workpiece.
- STEP 3 Submission of quotation and lead time.
- STEP 4 Order.
- STEP 5 Evaluation of actual machine trial by customer.



**Reactions from customers.**

- Prevention of dust and stains with automatic drop.
- Time and troubles are reduced in the adjustment of product surveillance cameras for automatic drop.
- Inspection of all items is not required: only sampling inspection is required.
- No. of shots and No. of productions are nearly equal.
- Pushing some products only once (formerly three times) allows reduction of cycle time.



Pad in Pad



You can see moving images of products by using QR code reader of your smartphone.

### Example I

## Molded product Cap

Main components		
Outside cup with bellows	VAPH-20C-3	
Stop-gap cup	TPJG-8-S	
Suction stem	VFIL-S-5A	
Inner stem	VFILK-PS-M5	



### Example II

## Molded product Gear of sundry article

Main components		
Outside cup with bellows	VAPH-20C-3	
Stop-gap cup	TPJG-8-S	
Suction stem	VFIL-S-5A	
Inner stem	VFILK-PS-M5	



### Example III

## Molded product Industrial component

Main components		
Outside cup with bellows	VAPH-30C-3	
Stop-gap cup	VAPH-14C	
Suction stem	VFIL-S-5A	
Inner stem	VFILK-PS-M5	



### Example IV

## Molded product Metal nut

Main components		
Outside cup with bellows	VAPH-30C-3	
Stop-gap cup	VAPH-14C	
Suction stem	VFIL-S-5A	
Inner stem	VFILK-PS-M5	



## Pad in Pad test kit

Please try out Pad in Pad with our test kit!!



### Pad in Pad test kit (1)

Order code No.	196688
Standard	TEST KIT VERSION (1)

### Contents

Group	Product name	Order code No.	Standard	Qty	Applicable cup size
Outside cup with bellows	① Below suction cup (Silicone, brown)	210697	VAPH-15C-3	1	⑦⑧
	② Below suction cup (Silicone, brown)	210661	VAPH-20C-3	1	⑦⑧⑩⑪
	③ Below suction cup (Silicone, brown)	210662	VAPH-30C-3	1	⑦⑧⑩⑪⑫
	④ Below suction cup (Silicone, brown)	210663	VAPH-40C-3	1	⑦ - ⑫
	⑤ Below suction cup w/ sponge (Silicone, brown)	210914	VAPH-20C-10-3-SP	1	⑦⑧⑩⑪
	⑥ Below suction cup w/ sponge (Silicone, brown)	210915	VAPH-30C-15-3-SP	1	⑦⑧⑩⑪⑫
Stop-gap cup	⑦ Below suction cup (Silicone, brown)	210897	VAPH-3C-3	1	① - ⑥
	⑧ Suction cups (standard/micro/brown)	210790	VAPH-6M (シリコン)	1	① - ⑥
	⑨ Suction cups (standard/Silicone/brown)	210616	VAPH-14C	1	④
	⑩ Suction cup	196663	TPJG-6-S	1	② - ⑥
	⑪ Suction cup	196664	TPJG-8-S	1	② - ⑥
	⑫ Suction cup	196665	TPJG-10-S	1	③④⑥
Inner stem	⑬ Pad-in inner stem for micro	210912	VFILK-PSS-M5	1	—
	⑭ Pad-in inner stem for mini	210911	VFILK-PS-M5	1	—
	⑮ Pad-in inner stem (spacer)	210913	VFILK-P-S	5	—
Suction stem	⑯ Suction stem for small	211006	VFIL1-S-5-P12	1	—
	⑰ Suction stem fixed for small	210698	VFILK-S-M12	1	—

### Quick Chuck Change

Quick Chuck Change (Manual)

Tool Changer

Automated Chuck Exchange System

### Grip

Mini Cylinder

Accessories for Mini Cylinder

Container Cylinders

Accessories for Container Cylinder

Grippers

Buffer Material

### Suction

Suction Cups

Suction Stem

### Pad in Pad

Air Ejector/Filter/Check Valve

Micro Mold E.O.A.T

### Cut

Mini Air Nippers

Air Nippers

### Frame/Module

Jungle Gym

Let's Joint

Rectangular Tube

Base Aluminum Material

Sliding Chuck

### Tubing/Sensors

Tubing

Sensors

### Other Products

Others

Information



## Plastic Ejector Nozzles



Lightweight and high-performance low-price ejector.

**3-35**

## Small Air Filters



The product prevents water, oil, steel powder, and so on sucked from the vacuum side from entering the ejector.

**3-37**

## Air Ejectors



Small, lightweight, and long life.

**3-36**











## Small Check Valves for Suction Cup



When suction cup leak air, stop vacuum air line.

**3-38**

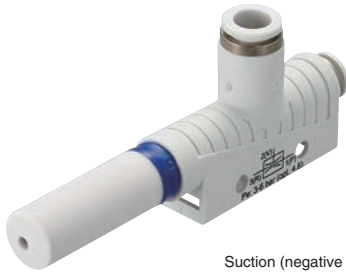
## Specification

Product name		Order code No.	Standard	Weight (g)	Page of details
Plastic ejector nozzle	 Plastic ejector nozzle 1.0mm	<b>183988</b>	SSBP-10-S2-SDA	22	<b>3-35</b>
	 Plastic ejector nozzle 1.5mm	<b>183989</b>	SSBP-15-S2-SDA		
	 Plastic ejector nozzle 2.0mm	<b>183991</b>	SSBP-20-S3-SDA	50	
Plastic ejector clip mount base		<b>183990</b>	SBEF-PL-110 * 45	—	
Air ejector		<b>183057</b>	STV-10HS	80	<b>3-36</b>
Air ejector w/ switch		<b>183058</b>	STV-10HSCK	120	
Small air filters		<b>183059</b>	STFC-4	20	<b>3-37</b>
		<b>183060</b>	STFC-6		
Small check valve for suction cup		<b>184150</b>	SSVK-M5	3	<b>3-38</b>
		<b>184151</b>	SSVK-G1/8	11	



# Plastic Ejector Nozzles

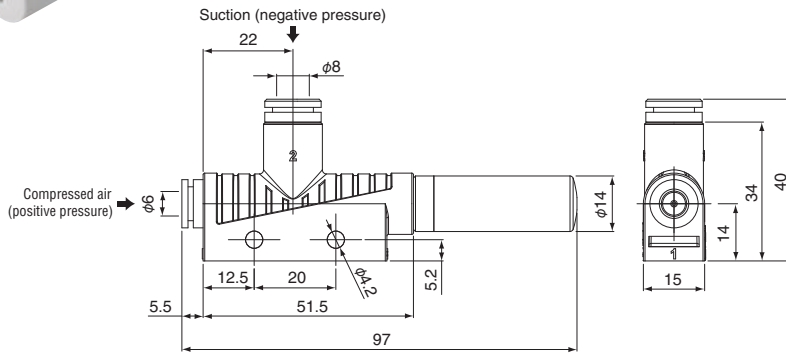
Lightweight and high-performance low-price ejector.



## Plastic ejector nozzle 1.0mm

Order code No.	<b>183988</b>
Standard	<b>SSBP-10-S2-SDA</b>

- Weight : 22g
- Recommended inner diameter of compressed air supply hose: 4mm (2m length)
- Recommended inner diameter of vacuum hose: 6mm (2 m length)



## Plastic ejector nozzle 1.5mm

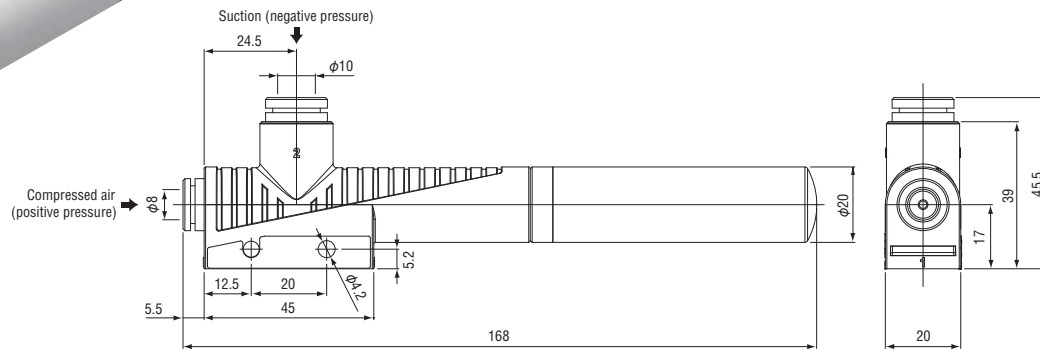
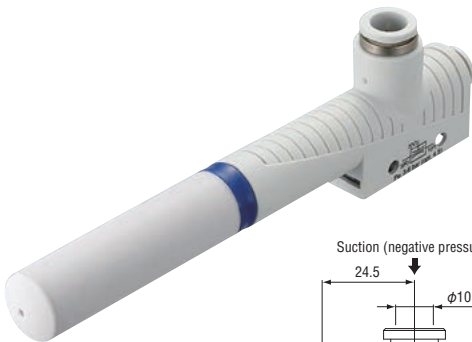
Order code No.	<b>183989</b>
Standard	<b>SSBP-15-S2-SDA</b>

- Weight : 22g
- Recommended inner diameter of compressed air supply hose: 4mm (2m length)
- Recommended inner diameter of vacuum hose: 6mm (2 m length)

## Plastic ejector nozzle 2.0mm

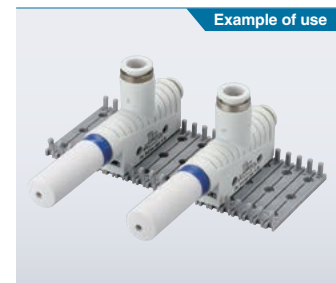
Order code No.	<b>183991</b>
Standard	<b>SSBP-20-S3-SDA</b>

- Weight : 50g
- Recommended inner diameter of compressed air supply hose: 6mm (2 m length)
- Recommended inner diameter of vacuum hose: 7mm (2 m length)



## Plastic ejector clip mount base

Order code No.	<b>183990</b>
Standard	<b>SBEF-PL-110 * 45</b>



### Specification

Product name	Standard	Nozzle diameter (mm)	Max. vacuum pressure (kPa)	Quantity of suction (L/min)	Working pressure (MPa)	Air consumption (L/min) *	Noise level (db (A))	
							W/o suction	W/ suction
Plastic ejector	SSBP-10-S2-SDA	φ 1.0	-85	37.7	0.45	48	65	59
	SSBP-15-S2-SDA	φ 1.5	-85	71.0	0.45	105	72	65
	SSBP-20-S3-SDA	φ 2.0	-85	127.0	0.45	197	77	68

\* When working pressure is 0.45 MPa.

#### Quick Chuck Change

Quick Chuck Change (Manual)

Tool Changer

Automated Chuck Exchange System

#### Grip

Mini Cylinder

Accessories for Mini Cylinder

Container Cylinders

Accessories for Container Cylinder

Grippers

Buffer Material

#### Suction

Suction Cups

Suction Stem

Pad in Pad

Air Ejector / Filter / Check Valve

Micro Mold E.O.A.T

#### Cut

Mini Air Nippers

Air Nippers

#### Frame/Module

Jungle Gym

Let's Joint

Rectangular Tube

Base Aluminum Material

Sliding Chuck

#### Tubing/Sensors

Tubing

Sensors

#### Other Products

Others

Information



# Air Ejectors

Small, lightweight, and long life.



Order code No.	<b>183057</b>
Standard	<b>STV-10HS</b>

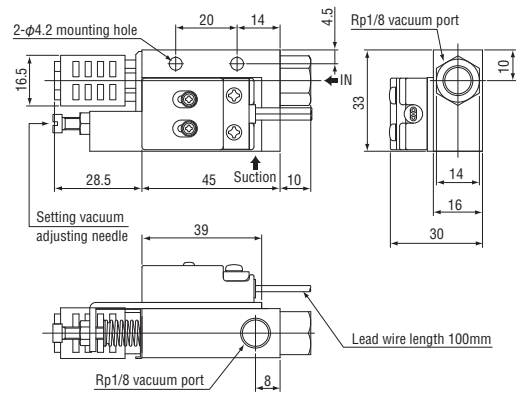
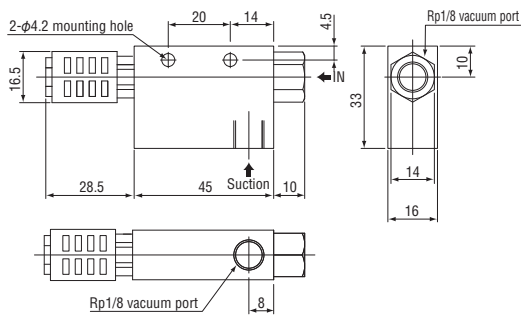
● Weight : 80g

▶ With vacuum switch



Order code No.	<b>183058</b>
Standard	<b>STV-10HSCK</b>

● Weight : 120g



Suction ● Air Ejector / Filter / Check Valve

## ■ Specification

Product name	Standard	Nozzle diameter (mm)	Quantity of suction (L/min)	Vacuum pressure (kPa)	Air consumption (L/min)	Supply air (MPa)
Air ejectors	STV-10HS	φ 1.0	27 (ANR)	-92	44 (ANR)	0.5
	STV-10HSCK					



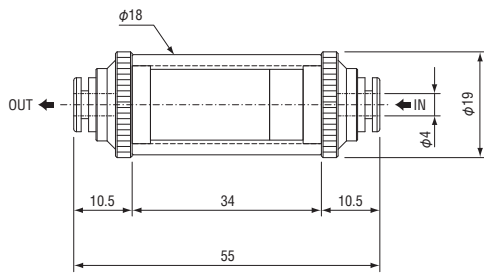
# Small Air Filters

The product prevents water, oil, steel powder, and so on sucked from the vacuum side from entering the ejector.



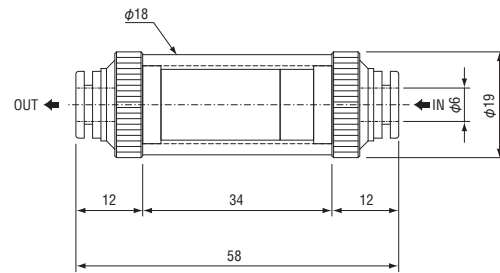
Order code No.	<b>183059</b>
Standard	<b>STFC-4</b>

● Weight : 20g ● Directional



Order code No.	<b>183060</b>
Standard	<b>STFC-6</b>

● Weight : 20g ● Directional



## Specification

Product name	Standard	Tube size (mm)	Pressure resistance (MPa)	Pressure (kPa)	Nominal filtration rating (μm)
Small air filters	STFC-4	φ4	0.5	-95.9-0	15
	STFC-6	φ6			

\* Vacuum filter

### Quick Chuck Change

Quick Chuck Change (Manual)

Tool Changer

Automated Chuck Exchange System

### Grip

Mini Cylinder

Accessories for Mini Cylinder

Container Cylinders

Accessories for Container Cylinder

Grippers

Buffer Material

### Suction

Suction Cups

Suction Stem

Pad in Pad

Air Ejector / Filter / Check Valve

Micro Mold E.O.A.T

### Cut

Mini Air Nippers

Air Nippers

### Frame/Module

Jungle Gym

Let's Joint

Rectangular Tube

Base Aluminum Material

Sliding Chuck

### Tubing/Sensors

Tubing

Sensors

### Other Products

Others

Information



# Small Check Valve for Suction Cup



When suction cup leak air, stop vacuum air line.

- Remove the head of suction stem before installation.
- Used to attach to the position between suction stem head and main body to use the bracket for VFILB.

Use of check valves eliminates the need for repositioning vacuum cups when lifting workpieces of different sizes simultaneously.

The check valve cuts off the airflow to the vacuum cup when there is no contact between the cup and the workpiece.



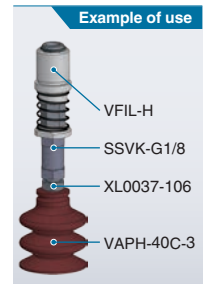
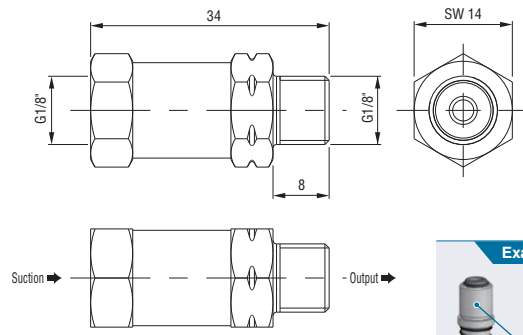
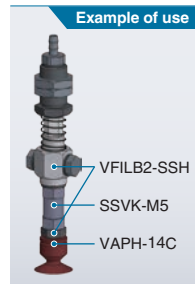
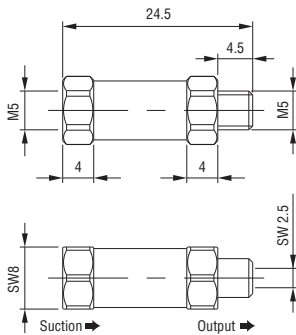
Order code No.	184150
Standard	SSVK-M5

● Weight : 3g



Order code No.	184151
Standard	SSVK-G1/8

● Weight : 11g



Suction ● Air Ejector / Filter / Check Valve

## Operation of check valve



The condition in which a vacuum cup is pressed against the work surface without permeability. The ball in the valve is in the open position under vacuum.



When the work does not cover a vacuum pad completely or a pad is separated during handling. A ball is pushed up in the direction of the sheet with airflow. And vacuum pressure in the system is maintained.



The condition in which the workpiece is released. The cross-sectional area of the valve is widened when the ball is pushed back. Much air is discharged. And the workpiece is released reliably and quickly.

(Reference value)

- Suction cup VAPH-15C
- Check valve SSVK-M5
- Supply pressure 0.5MPa

No. of uses	No. of suction operations	(kPa)				
		0 position	1 position	2 position	3 position	4 position
Check valve: 0		-20.5	-20.5	-20.5	-20.5	-66.5
Check valve: 1		-21.0	-21.0	-21.0	-61.0	-65.4
Check valve: 2		-22.0	-22.0	-55.2	-61.9	-65.3
Check valve: 3		-25.0	-47.6	-54.1	-59.2	-64.4

\*Above list: with maximum degree of vacuum of -66.5 kPa.

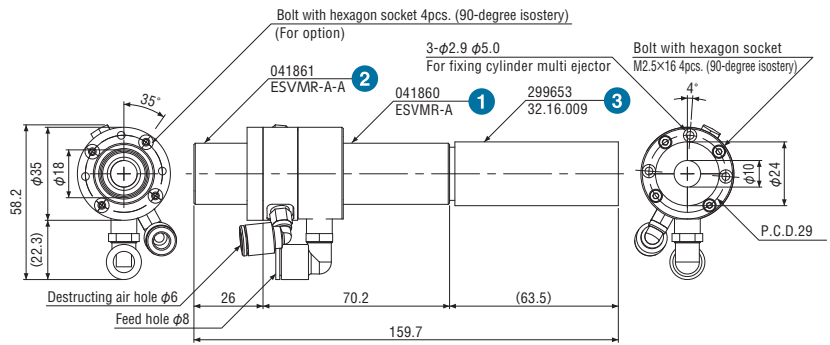
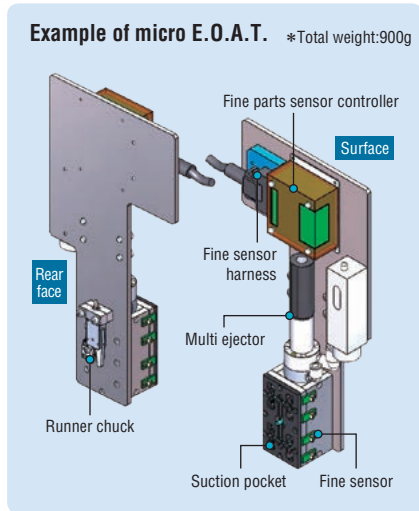
# MEMO

A series of horizontal dashed lines for writing.



Please submit technical information beforehand for our effective design/manufacturing.

- ▶ This application enable to separate each cavity products of micro molding process in small tonnage IMM (20ton or less).
- ▶ Compact and high-function multi ejector is used.
- ▶ Cylindrical multi ejector can be attached to jungle gym SS pipe.
- ▶ Fine sensor unit best suited to check the micro workpieces.



1



### Multi ejector

Order code No.	<b>041860</b>
Standard	<b>ESVMR-A</b>

- Weight : 104g
- Air consumption : 280 [L/min]
- Amount of suction fluid flow:700 [L/min]
- Noise:91.2 [dB]
- Attachments: sealing ring packing

2



### Option parts A

Order code No.	<b>041861</b>
Standard	<b>ESVMR-A-A</b>

- Weight : 19g
- Attachments: mounting bolt (M2.5 × 10) × 4

3



### Silencer

Order code No.	<b>299653</b>
Standard	<b>32.16.009</b>

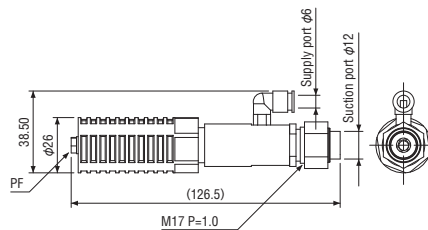
- Weight : 13g
- Silence, Amount of suction fluid flow: 400 [L/min]



### In-line cylinder multi ejector

Order code No.	<b>041836</b>
Standard	<b>ESVMR1-10-3</b>

- Weight : 64g
- Air consumption : 210 [L/min]
- Amount of suction fluid flow : 260 [L/min]
- Noise : 85 [dB]



### Silencer

Order code No.	<b>110663</b>
Standard	<b>L18382-106</b>

- Weight : 22g





You can see moving images of products by using QR code reader of your smartphone.



### Micro parts sensor controller

Order code No.	<b>010521</b>
Standard	<b>B-CONT-UNIT</b>

● Weight : 147g

- ▶ Product detection level mode: automatic or manual.
- ▶ Switching between AND output and OR (/OR) output is possible.
- ▶ Input and output for NPN/PNP.
- ▶ Up to 32 points can be detected (extension unit is used)
- ▶ The input condition of the sensor can be confirmed with the monitor LED.
- ▶ Method of product detection can be selected from level (product condition) and latch (product pass hold).
- ▶ Light ON / Dark ON can be selected.

\* The parts are subject to changes without notice.

#### About "AND", "/OR", and "OR"

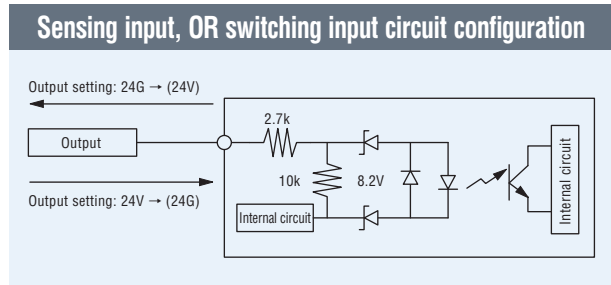
Input side

① ② ③

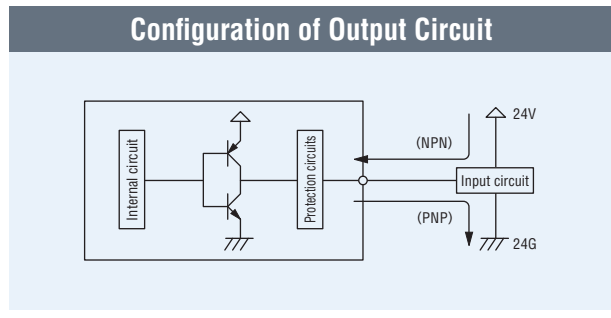
**AND, /OR, OR**

Output S

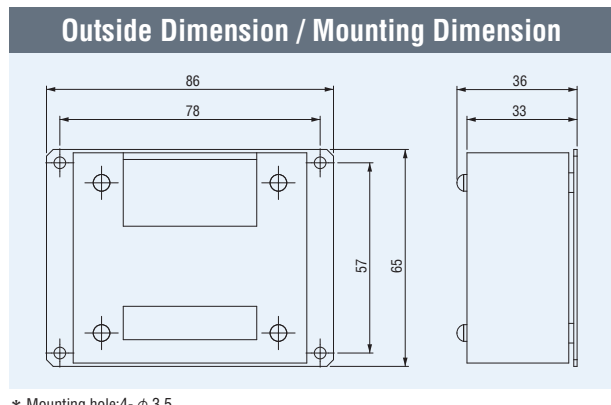
AND	/OR	OR
Output S is turned on when all the inputs (①②③) are ON.	Output S is turned on when all the inputs (①②③) are OFF.	Output S is turned on when either of input (①②③) is ON.



\* Sensing input switching: change the input setting with the switch according to the output circuit specification of the customer (as shown in the drawing).



\* Select NPN/PNP as illustrated above according to the input circuit specification of the customer.



### Specification

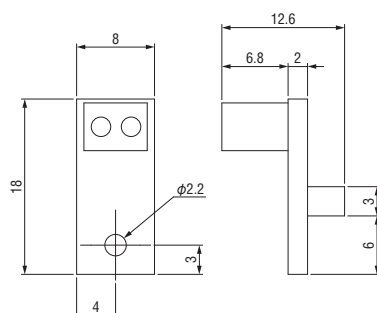
Power supply voltage (V)	Internal consumption current (mA)	Input current (mA)	Output current (mA)	Operating ambient humidity (%)	Ambient temperature (°C)	Environment
DC24 (±10%)	120 max. (DC24V)	10 or less / one point	100 (MAX)	35-80 (non-condensing)	0-40	There is no particulate and corrosive gas.



### Fine sensor unit

Order code No.	<b>010519</b>
Standard	<b>B-SENS-UNIT</b>

● Weight : 1g



### Fine sensor harness

Order code No.	<b>010522</b>
Standard	<b>B-SENS-H</b>

● Weight : 150g

#### Quick Chuck Change

Quick Chuck Change (Manual)

Tool Changer

Automated Chuck Exchange System

#### Grip

Mini Cylinder

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Buffer Material

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Suction Cups

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Tubing

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