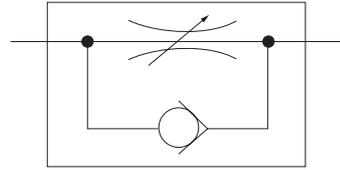


# SPEED CONTROLLERS WITH QUICK FITTINGS

## High Flow Rate Type

- Fittings for controlling the speed of actuators, such as cylinders.
- Superior flow rate characteristics and fine tuning adjustments in the low flow range are easy.

## Symbol



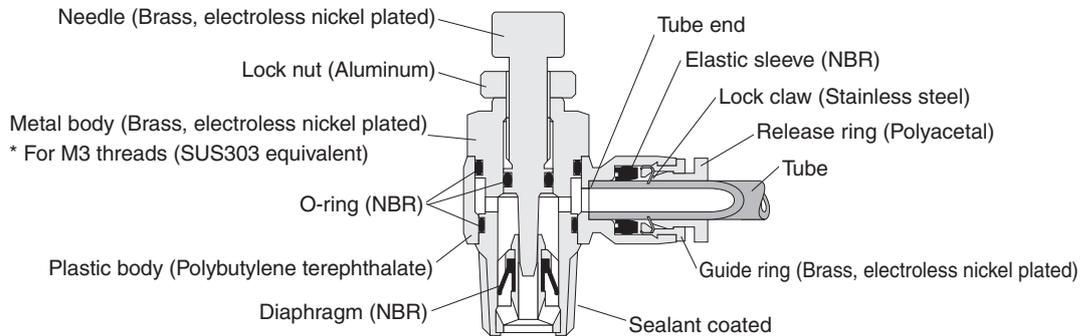
## Specifications

Item	Model	High flow rate type
Mounting method		Attached directly to cylinder
Media		Air (cannot be used for vacuum)
Operating pressure range		0.1~0.7 MPa [15~102 psi]
Cracking pressure		0.05 MPa [7 psi]
Operating temperature range		0~60°C [32~140°F]
Recommended tube		Nylon tube, urethane tube
Sales unit		1 pc.

Remarks: Gasket or seal is already attached.

## Inner Construction, Major Parts and Materials

### ● High flow rate type



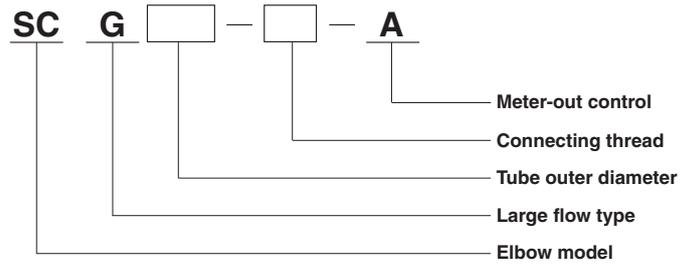
Elbow (large flow type)

● SCG

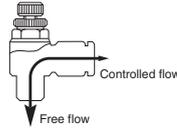


Tube size
6
8
10
12

Order codes



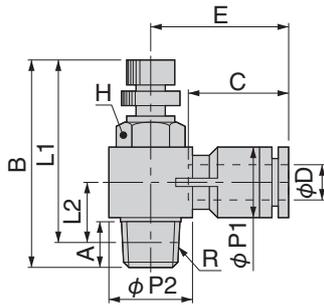
Body configuration and control direction



**NOTE** The large flow types can be differentiated by the AG engraved on the tip of the needle and the blue color of the lock nut.

Dimensions mm

Elbow (large flow type)  
SCG



Model	Tube outer diameter $\phi D$	R	A	B		L1 <sup>Note</sup>		L2 <sup>Note</sup>	$\phi P1$	$\phi P2$	C	E	Width across flats H	Mass g	
				MAX	MIN	MAX	MIN								
SCG6-01-A	6	R1/8	8.5	42.5	37.5	38.5	33.5	12.5	12.5	15.4	17	24.2	13	24	
SCG6-02-A		R1/4	11.6	50.8	44.8	44.7	38.7	14.1				19.6	26.8	17	43
SCG8-01-A	8	R1/8	8.5	42.5	37.5	38.5	33.5	12.8	14.5	15.4	18.1	26.2	13	26	
SCG8-02-A		R1/4	11.6	50.8	44.8	44.7	38.7	14.1				19.6	28.2	17	45
SCG8-03-A		R3/8	12.6	54.3	48.7	47.9	42.3	16.3				24.4	30.2	21	72
SCG10-02-A	10	R1/4	11.6	50.8	44.8	44.7	38.7	15.6	18	19.6	20.2	30.5	17	48	
SCG10-03-A		R3/8	12.6	54.3	48.7	47.9	42.3	16.3				24.4	32.5	21	75
SCG12-03-A	12	R3/8	12.6	54.3	48.7	47.9	42.3	17.8	21	24.4	23.4	35.2	21	78	
SCG12-04-A		R1/2	13.6	60.8	54.7	52.6	46.5	17.1				30	38.2	24	118

Note: The L1 and L2 dimensions for the tapered thread type are the reference dimensions after the fittings are assembled.

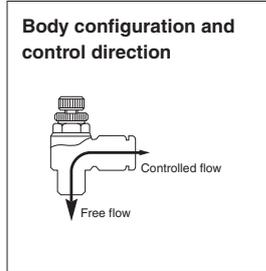
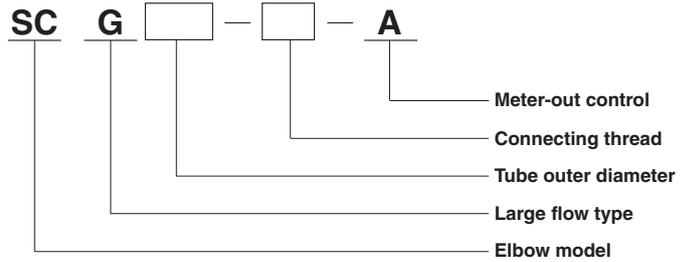
Elbow (large flow type)

● SCG



Tube size
0.236
0.315
0.394
0.472

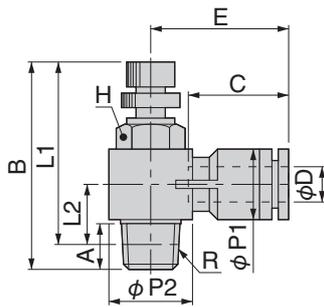
### Order codes



**NOTE** The large flow types can be differentiated by the AG engraved on the tip of the needle and the blue color of the lock nut.

### Dimensions in

#### Elbow (large flow type) SCG

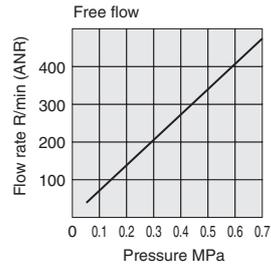
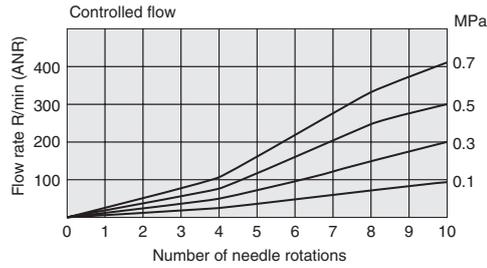


Model	Tube outer diameter φ D	R	A	B		L1 <sup>Note</sup>		L2 <sup>Note</sup>	φ P1	φ P2	C	E	Width across flats H	Mass oz				
				MAX	MIN	MAX	MIN											
SCG6-01-A	0.236	R1/8	0.335	1.673	1.476	1.516	1.319	0.492	0.492	0.606	0.669	0.953	0.512	0.847				
SCG6-02-A		R1/4	0.457	2.000	1.764	1.760	1.524	0.555							0.772	1.055	0.669	1.517
SCG8-01-A	0.315	R1/8	0.335	1.673	1.476	1.516	1.319	0.504	0.571	0.606	0.713	1.031	0.512	0.917				
SCG8-02-A		R1/4	0.457	2.000	1.764	1.760	1.524	0.555							0.772	1.110	0.669	1.587
SCG8-03-A		R3/8	0.496	2.138	1.917	1.886	1.665	0.642							0.961	1.189	0.827	2.540
SCG10-02-A	0.394	R1/4	0.457	2.000	1.764	1.760	1.524	0.614	0.709	0.772	0.795	1.201	0.669	1.693				
SCG10-03-A		R3/8	0.496	2.138	1.917	1.886	1.665	0.642							0.961	1.280	0.827	2.646
SCG12-03-A	0.472	R3/8	0.496	2.138	1.917	1.886	1.665	0.701	0.827	0.961	0.921	1.386	0.827	2.751				
SCG12-04-A		R1/2	0.535	2.394	2.154	2.071	1.831	0.673							1.181	1.504	0.945	4.2

Note: The L1 and L2 dimensions for the tapered thread type are the reference dimensions after the fittings are assembled.

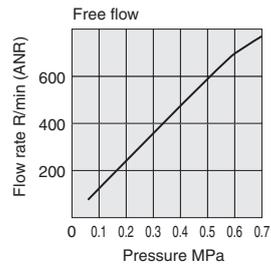
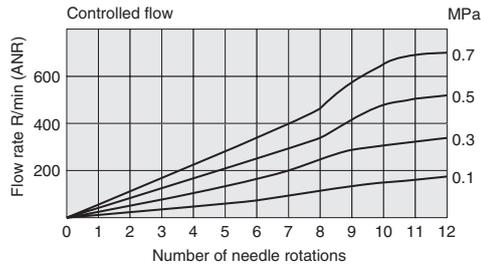
# Flow Rate Characteristics (High Flow Rate Type)

**SCG6-01-A**  
**SCG8-01-A**



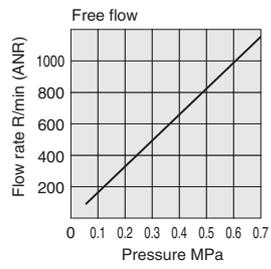
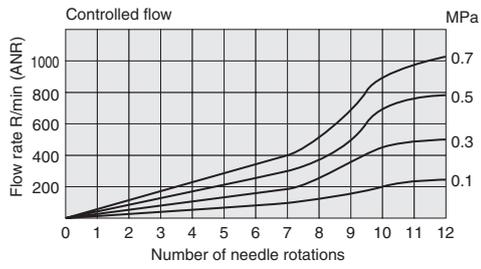
1 ℓ/min (ANR)  
= 0.03532 ft<sup>3</sup>/min (SCFM)  
1 MPa = 145 psi

**SCG6-02-A**



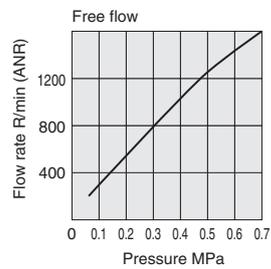
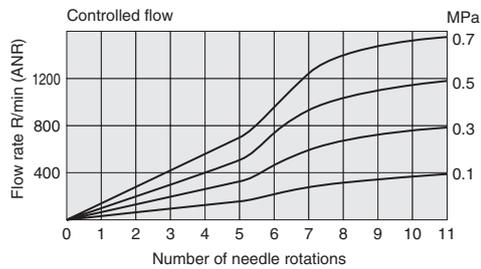
1 ℓ/min (ANR)  
= 0.03532 ft<sup>3</sup>/min (SCFM)  
1 MPa = 145 psi

**SCG8-02-A**  
**SCG10-02-A**



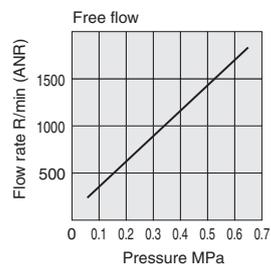
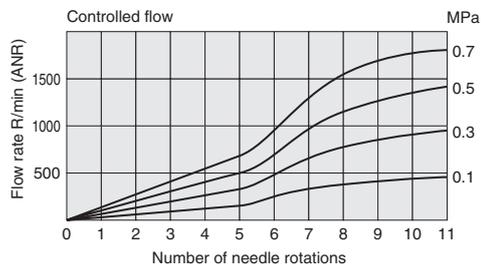
1 ℓ/min (ANR)  
= 0.03532 ft<sup>3</sup>/min (SCFM)  
1 MPa = 145 psi

**SCG8-03-A**



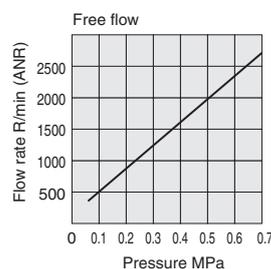
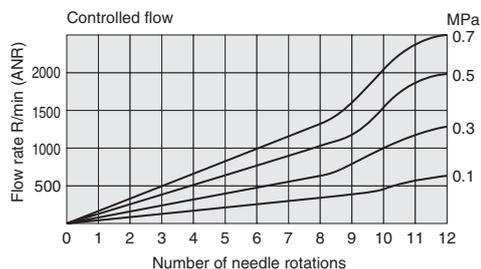
1 ℓ/min (ANR)  
= 0.03532 ft<sup>3</sup>/min (SCFM)  
1 MPa = 145 psi

**SCG10-03-A**  
**SCG12-03-A**



1 ℓ/min (ANR)  
= 0.03532 ft<sup>3</sup>/min (SCFM)  
1 MPa = 145 psi

**SCG12-04-A**



1 ℓ/min (ANR)  
= 0.03532 ft<sup>3</sup>/min (SCFM)  
1 MPa = 145 psi

## Safety precautions (speed controllers with quick fittings)

The safety precautions for the speed controllers with quick fittings are shown below. Be sure to read the material in the front of the General Personal Catalog regarding safety precautions other than those below.

### WARNING

- Air control direction varies depending on the product. Before using a product, confirm the direction as noted in this document and by identifying the product. Orienting the control direction incorrectly creates the risk of personal injury and machine damage.
- When adjusting the speed of the actuator, start with the product's needle fully closed and then gradually open it to adjust the speed. There is a risk of the actuator popping out if the needle is open. Note that the needle closes when turned to the right and opens when turned to the left.
- Do not forcibly twist or rotate products with rotating plastic bodies. Doing so causes a risk of leakage or damage to the body.

- When tightening the lock nut on a product, tighten it firmly by hand without using a tool. The lock nut or body may be damaged if tightened with a tool. However, if it is not firmly tightened, the lock nut may become loose and deviate from the initial settings.

### CAUTION

- Speed controllers have an allowable leakage, so do not use them if zero leakage is required.

## Handling instructions and precautions

### ● Mounting

#### Precautions for mounting fitting

- ① Use the appropriate tool to tighten the hex nuts on the fitting.
- ② Refer to the following table of recommended tightening torques when attaching the threaded parts. If you use more than the recommended torque when tightening the threaded parts, you may cause leaks by fracturing the threads or deforming the gaskets. Also, if you use less than the recommended torque when tightening the threaded parts, it may result in looseness or leaks.

Recommended tightening torque

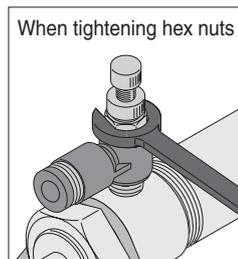
Thread type	Thread size	Tightening torque
Metric thread	M3×0.5	0.7 N·m [6.196 in·lbf]
	M5×0.8	1.5~1.9 N·m [13.277~16.817 in·lbf]
Tapered threads for pipes	R1/8	7~9 N·m [61.957~79.659 in·lbf]
	R1/4	12~14 N·m [106.212~123.914 in·lbf]
	R3/8	22~24 N·m [194.722~212.424 in·lbf]
	R1/2	28~30 N·m [247.828~265.530 in·lbf]

#### Precautions for disconnecting fittings

- ① Use the appropriate tool to remove the hex nuts from the fitting.
- ② Remove the sealant from the threads on the other parts. If the sealant is stuck to the other parts, it may get into peripheral devices and cause a malfunction.

#### Tightening threaded parts

- ① Tightening threaded parts  
Use a wrench on the hex nut to tighten the threaded parts.

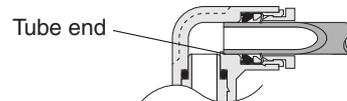


The sealant on the quick fittings can be reused multiple times, as is. However, the sealant may stick to the threaded parts of other devices. Be sure to clean the inside of the female threads on the devices.

### ● Attaching and detaching tubes

#### Precautions for attaching tubes

- ① Confirm that the cut surface of the tube is cut straight across, that the outer surface of the tube is not damaged, and that the tube has not become oval shaped.
- ② When connecting tubes, if you do not insert the tube all the way to the tube end, it may result in leaks.



- ③ After installing the tube, pull on it to check that it does not come off.
- ④ Do not meaninglessly press on the release ring before attaching a tube. Doing so may cause the tube to become detached.

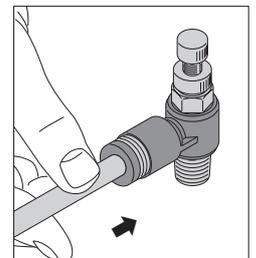
#### Precautions for removing tubes

- ① Before removing tubing, be sure to confirm that the pressure inside the tubing is zero.
- ② Uniformly press the release ring inwards as far as it goes and then pull out the tubing. If you do not fully press in on the release ring, the tube may not come out, or the tubing may become scratched causing debris to be left inside the fitting.

#### How to attach and detach tubes

- ① Attaching tubes

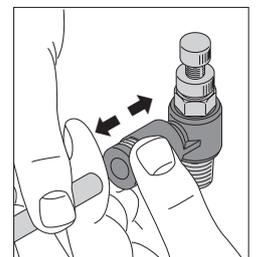
The quick fitting speed controller is equipped with a lock claw that holds the tube in place when it has been pushed all the way to the end, and with an elastic sleeve for sealing the tube periphery.



- ② Removing tubes

When removing a tube, pressing the release ring opens the lock claw and the tube can be pulled out.

Be sure to turn off the air before removing tubes.



KOGANEI

## Handling instructions and precautions

If removing pipes is difficult because the piping space is very constricted, consult your nearest Koganei sales office for a specialized tool that is available.

### Specialized tools for removing tubes

For  $\phi 3$  [0.118],  $\phi 4$  [0.157], and  $\phi 6$  [0.236] tubes  
Order codes: **UJ-1**



For  $\phi 6$  [0.236],  $\phi 8$  [0.315],  $\phi 10$  [0.394], and  $\phi 12$  [0.472] tubes  
Order codes: **UJ-2**



### Usable tubes

Use of both nylon tubing and urethane tubing are supported. Nylon tubing outside diameter precision should be within  $\pm 0.1$  mm [ $\pm 0.004$  in] (nominal) for nylon tubing and within  $\pm 0.15$  mm [ $\pm 0.006$  in] (nominal) for urethane tubing. Use tubing with ovality (difference between major axis and minor axis) within 0.2 mm [0.008 in] (use of Koganei tubing is recommended). Use of tubing that is not a Koganei genuine product or a compatible (recommended) product may result in tube disconnection, air leakage, or other problems. Be sure to check on tubing before building a pneumatic system. Also, note that you cannot use the conductive urethane tube U2A-B produced by Koganei.



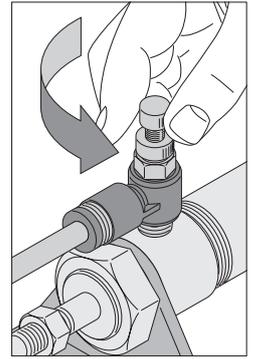
1. Use tubing with an exterior that is not damaged. If tubing becomes damaged after repeated use, cut off the damaged portion.
2. Do not allow tubing to become severely bent or twisted near the connection to a fitting. Such a condition creates the risk of air leakage. The table below shows minimum radius guidelines for nylon and urethane tubing.
3. Do not use extremely soft tubing, which causes a severe drop in pull-out strength.
4. Before removing any tubes, always turn off the air supply. Also, be sure to confirm that the air inside the pipes is completely vented before starting.

mm [in]

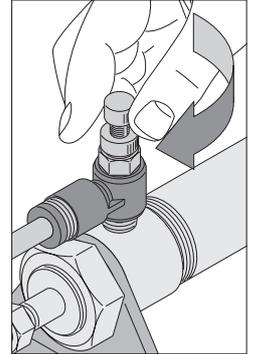
Tube size	Minimum bending radius	
	Nylon tube	Urethane tube
$\phi 1.8$ [0.071]	—	4 [0.157]
$\phi 3$ [0.118]	—	7 [0.276]
$\phi 4$ [0.157]	20 [0.787]	10 [0.394]
$\phi 6$ [0.236]	30 [1.181]	15 [0.591]
$\phi 8$ [0.315]	50 [1.969]	20 [0.787]
$\phi 10$ [0.394]	80 [3.150]	27 [1.063]
$\phi 12$ [0.472]	150 [5.9]	35 [1.378]

### Speed adjustment for actuators

- ① To increase the speed  
Start with the needle of the speed controller fully closed and turn it counterclockwise to increase the speed of the actuator. When you reach the desired speed, be sure to tighten the lock nut so that the speed setting does not deviate.



- ② To decrease the speed  
If you turn the needle of the speed controller too far (the speed is too fast), turn it clockwise to decrease the speed. When you reach the desired speed, be sure to tighten the lock nut so that the speed setting does not deviate.



# List of similar products

● Refer to the table below for how to differentiate products that look the same.

	Free type/straight type	Elbow type	Union Straight Type
<p><b>With quick fitting</b></p> <p><b>Speed Controllers</b></p>	<p>Text engraved on top of needle knob</p> <p><b>A</b> — Standard, meter-out  <b>B</b> — Standard, meter-in  <b>AK</b> — Low pressure type, meter-out  <b>BK</b> — Low pressure type, meter-in</p> <p>Color of lock nut</p> <p>White — Standard meter-out  Low pressure type meter-out  Black — Standard, meter in  Low pressure type meter-in</p> 	<p>Text engraved on top of needle knob</p> <p><b>A</b> — Standard, meter-out  <b>B</b> — Standard, meter in  <b>AK</b> — Low pressure type, meter-out  <b>BK</b> — Low pressure type, meter-in  <b>AG</b> — High flow rate type, meter out</p> <p>Color of lock nut</p> <p>White — Standard meter-out  Low pressure type meter-out  Black — Standard, meter in  Low pressure type meter-in  Blue — High flow rate type, meter out</p> 	<p>Text engraved on top of needle knob</p> <p><b>K</b> — Low pressure type</p> 
<p><b>Standard type</b></p> <p><b>Mini type</b></p> <p><b>High flow rate type</b></p> <p><b>Low pressure type</b></p>	<p>Needle knob Has one line</p> <p>Color of lock nut</p> <p>White — No control direction</p> 	<p>Needle knob Has one line</p> 	<p>Needle knob Has one line</p> 
<p><b>Power reducer</b></p>	<p>Mark on top of needle knob</p>  <p>Needle knob Made of black plastic</p> 	<p>Mark on top of needle knob</p>  <p>Needle knob Made of black plastic</p> 	