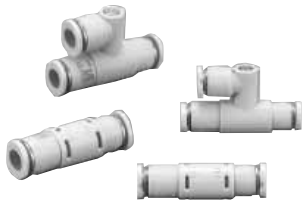
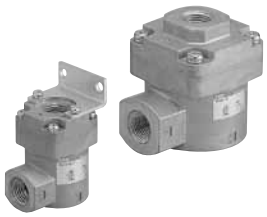
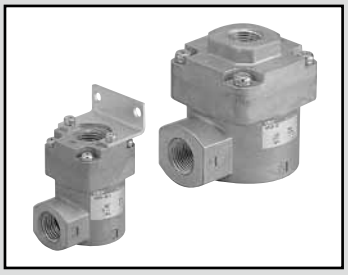
Series variation

Auxiliary valve

● Quick exhaust and circuit switching valves, etc., are available.

Model	Product appearance	Model No.	Port size (R or Rc)											Page
			M5	φ4	φ6	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	
Quick exhaust valve with push-in fitting		QEL-H44		●										700
		QEL-H66			●									
Quick exhaust valve		QEV2-6				●								702
		QEV2-8					●							
		QEV2-10						●						
		QEV2-15							●					
		QEV2-20								●				
		QEV2-25									●			
Shuttle valve		SHV2-6				●								706
		SHV2-8					●							
		SHV2-10						●						
		SHV2-15							●					
		SHV2-20								●				
		SHV2-25									●			
Compact check valve with push-in fitting		CHL-M54	●											710
		CHL-H44		●										
		CHL-H66			●									
Check valve		CHV2-6				●								712
		CHV2-8-J					●							
		CHV2-8					●							
		CHV2-10-J						●						
		CHV2-10						●						
		CHV2-15							●					
		CHV2-20								●				
		CHV2-25									●			
		CHV2-32										●		
		CHV2-40											●	
Block valve		FPV-M5	●											714
		FPV-6A				●								
		FPV-8A					●							
		FPV-10A						●						
		FPV-15A							●					
Threshold sensor		PWS-B155	●											718
		PWS-B1882				●								
		PWS-B1992					●							
		PWS-B1332						●						
		PWS-B1222							●					

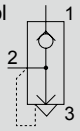


Quick exhaust valve

QEV2 Series

● Port size: Rc1/8 to Rc1

JIS symbol



RoHS CAD

Features

● Large flow rate design realizing outstanding exhaust

● Variety of bore sizes available
Series includes piping bore sizes Rc1/8 to Rc1.

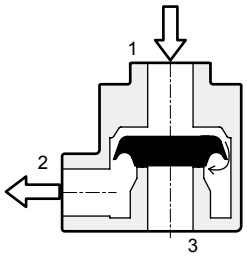
● Wide range of options
· Fluoro rubber specifications available as options
· Mounting bracket available (small bore)

● Eco-friendly product
· Eco-friendly design is free of lead and hexavalent chrome
· Paint-free
· Waste sorting is simplified

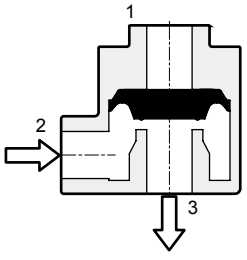
Specifications

Model No. / Descriptions		QEV2-6	QEV2-8	QEV2-10	QEV2-15	QEV2-20	QEV2-25
Working fluid		Compressed air					
Max. working pressure MPa		1.0 (≈150 psi, 10 bar)					
Min. working pressure MPa		0.05 (≈7.3 psi, 0.5 bar)					
Proof pressure MPa		1.5 (≈220 psi, 15 bar)					
Fluid temperature °C		5 (41°F) to 60 (140°F)					
Ambient temperature °C		0 (32°F) to 60 (140°F) (no freezing)					
Port size	1, 2	1/8	1/4	3/8	1/2	3/4	1
Rc	3	1/4	1/4	1/2	1/2	1	1
Weight g		80	78	250	250	710	660
Mounting bracket weight g		15		-			
Mounting orientation		Unrestricted					
Eff. X-sectional area mm^2	1→2	25	35	90	105	205	275
	2→3	30	40	100	115	280	330

Operational explanation



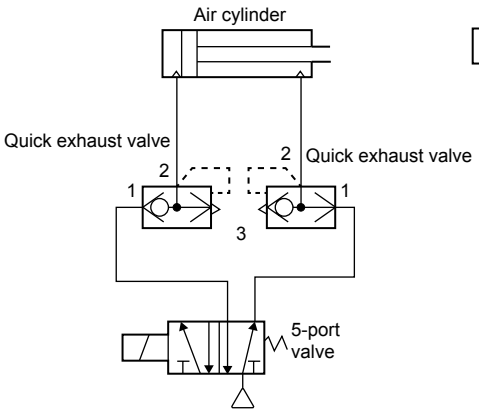
● 1→2
The valve closes port 3 with pressure from port 1. Air passes around the valve and flows to port 2.



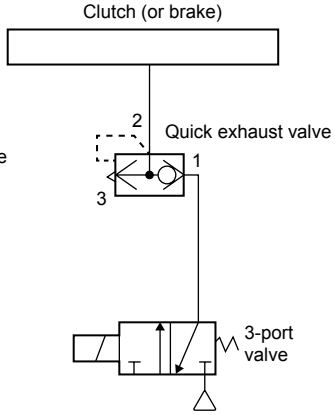
● 2→3
When port 1 pressure drops, the valve closes port 1, opens port 3 and exhausts port 2 air.

Applications

(1) Use to increase exhaust speed of air cylinder.



(2) Use to increase exhaust speed of clutch (or brake)



How to order

● Quick exhaust valve

QEV2 - 6 - A P

Model No.

Ⓐ Port size

Ⓑ Option

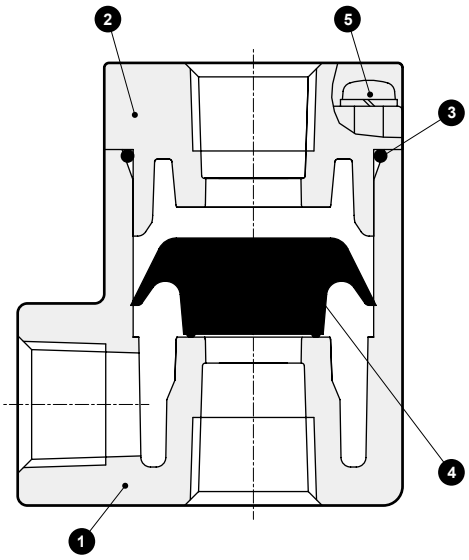
Ⓒ Accessory

Code	Content
Ⓐ Port size	
6	Rc 1/8
8	Rc 1/4
10	Rc 3/8
15	Rc 1/2
20	Rc 3/4
25	Rc 1
Ⓑ Option	
Blank	No option
A	Fluoro rubber specifications
Ⓒ Accessory	
Blank	None
P	Mounting bracket attached

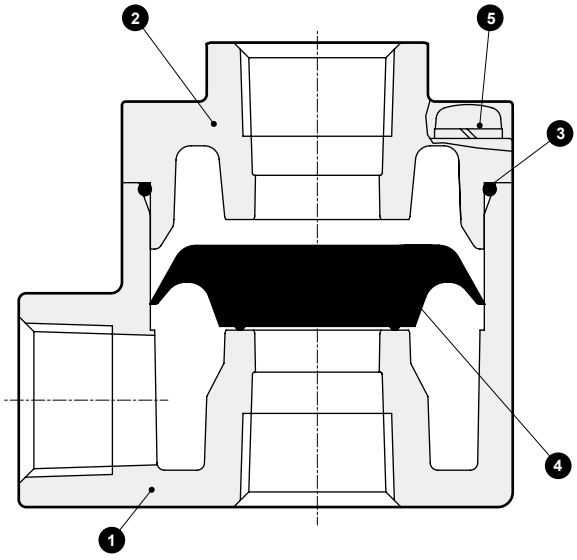
*1: Mounting bracket is available for QEV2-6 and QEV2-8 only.

Internal structure and parts list

● QEV2-6/8



● QEV2-10/15/20/25

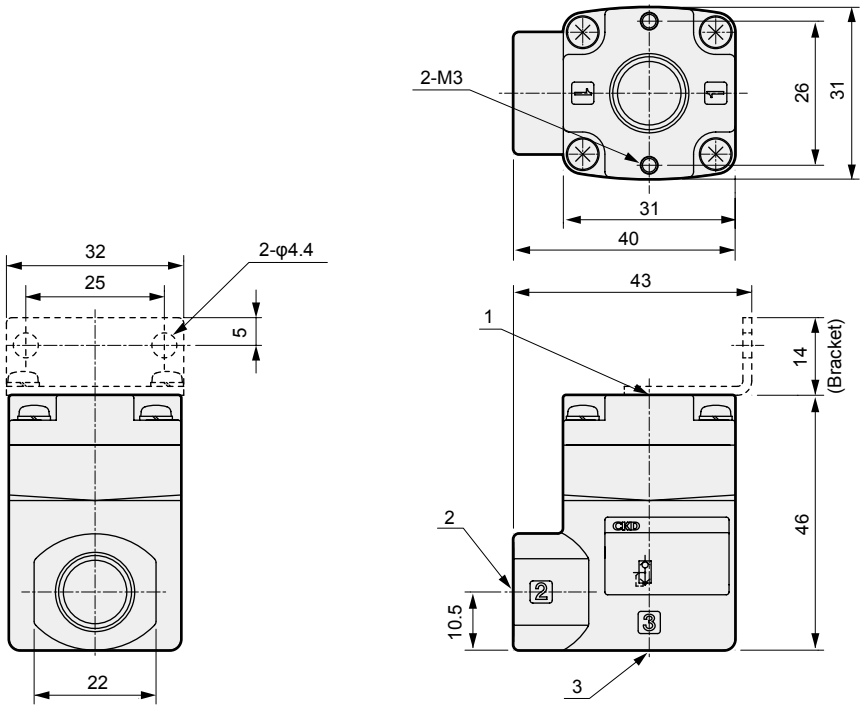


No.	Part name	Material
1	Body	Aluminum die-casting
2	Plug	Aluminum die-casting
3	O-ring	Nitrile rubber (fluoro rubber)
4	Valve	Hydrogenated nitrile rubber (fluoro rubber)
5	Cross-recessed pan head machine screw with switch	Stainless steel

* Materials shown in ( ) are for option “A” (fluoro rubber specifications).

Dimensions CAD

● QEV2-6/8

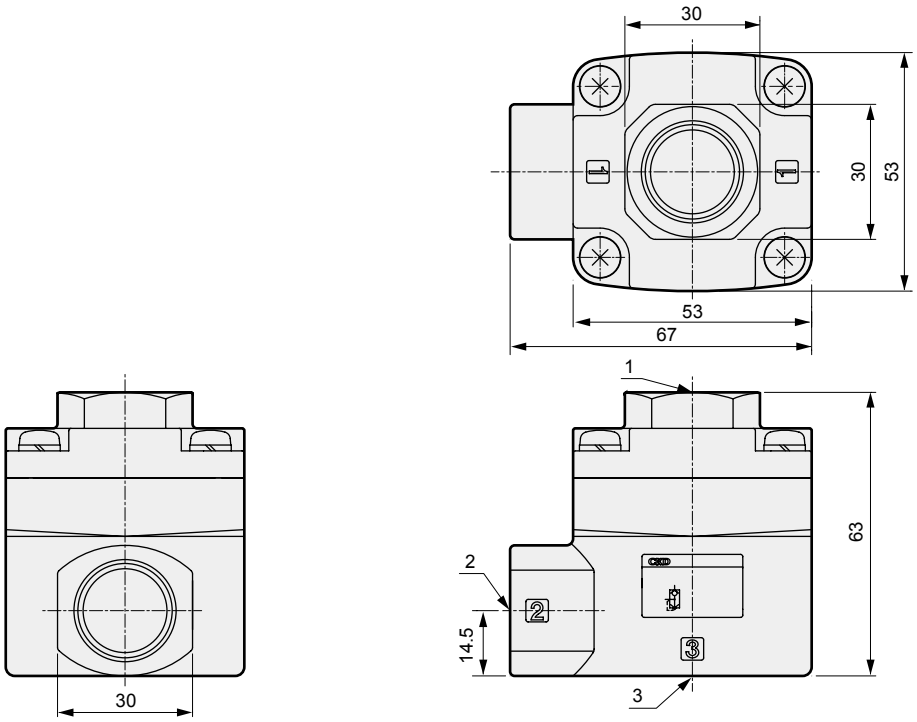


Model No.	Port position		
	1	2	3
QEV2-6	Rc 1/8		Rc 1/4
QEV2-8	Rc 1/4		

[Piping port indication]

Port code	Content
1	IN (Input)
2	OUT (Output)
3	EXH (Exhaust)

● QEV2-10/15



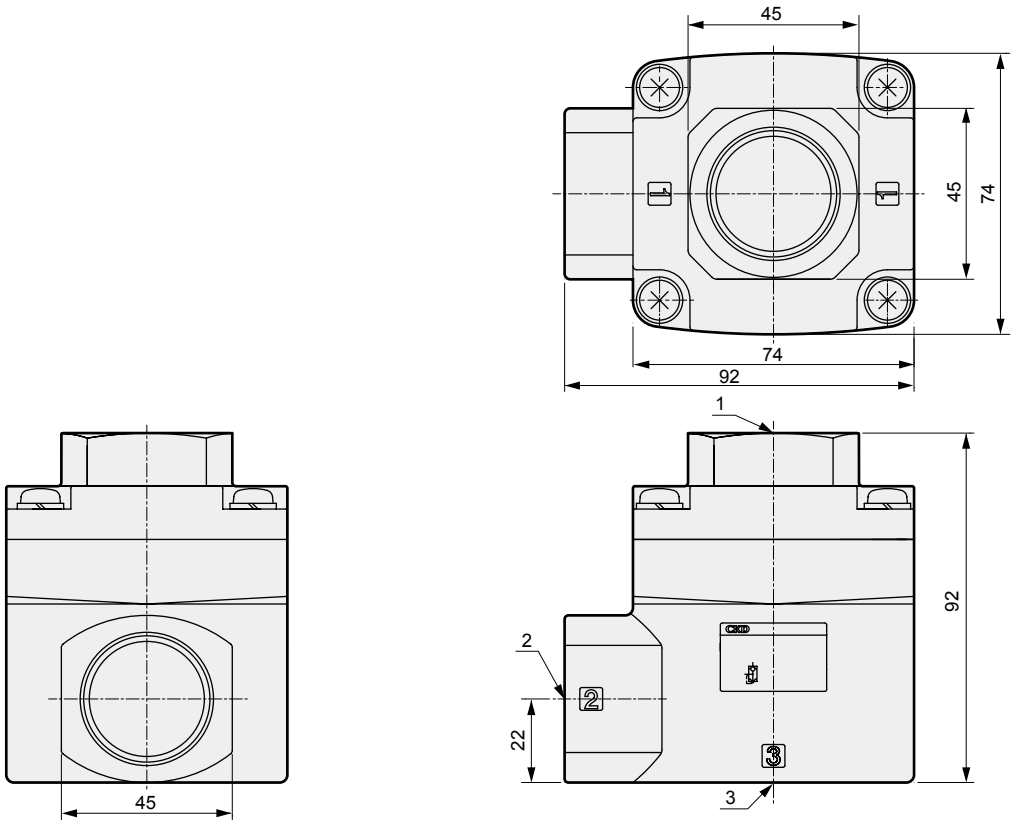
Model No.	Port position		
	1	2	3
QEV2-10	Rc 3/8		Rc 1/2
QEV2-15	Rc 1/2		

[Piping port indication]

Port code	Content
1	IN (Input)
2	OUT (Output)
3	EXH (Exhaust)

Dimensions

● QEV2-20/25



Model No.	Port position		
	1	2	3
QEV2-20	Rc 3/4		Rc 1
QEV2-25	Rc 1		

[Piping port indication]

Port code	Content
1	IN (Input)
2	OUT (Output)
3	EXH (Exhaust)

⚠Safety precautions

■ Design/selection

- This valve cannot be used as a stop valve that requires no leakage. Slight leakage is allowed for in this product's specifications.
- In the following cases, vibration may cause malfunctions or abnormal noise.
  - · When (IN) port 1 piping is extremely narrow and long or when the directional switching valve's orifice is small, generating residual or back pressure on the port 1 side.
  - · When differential pressure of (IN) port 1 and (OUT) port 2 is lower than min. working pressure (0.05 MPa).
  - · When the 2 (OUT) port side piping diameter is extremely restricted.

■ Mounting, installation and adjustment

- Apply the recommended tightening torque when connecting pipes.
  - · The purpose is to prevent air leakage and damage to bolts.
  - · First, tighten the bolts by hand to ensure that the threads are not damaged, then use a tool.
  - · Do not tighten while pressure is applied.
- Install a pneumatic filter just before the pneumatic component in the circuit.

[Recommended tightening torque]

	Tightening torque N·m
Rc 1/8	3 to 5
Rc 1/4	6 to 8
Rc 3/8	13 to 15
Rc 1/2	16 to 18
Rc 3/4	19 to 40
Rc 1	41 to 70

■ Use/maintenance

- Stop air flow and confirm that there is no residual pressure before replacing the tube.

Safety Precautions

Be sure to read this section before use.
Refer to Intro Page 63 for general precautions regarding pneumatic components and refer to "⚠Safety precautions" for detailed precautions for individual series.

Design/selection

⚠CAUTION

■ Use the product in the range of conditions specified for the product. Consult with CKD when using the product for special applications.

- Use of the product exceeding the specifications range may result in insufficient performance and its safety cannot be guaranteed.
- This product may not be usable in special applications and environments.
  For example, use for applications requiring safety, including nuclear energy, railways, aircraft, vehicles, medical devices, devices in contact with beverages or foodstuffs, amusement devices, emergency cutoff circuits, press machines, brake circuits, or safety devices or applications.

■ Confirm before use that the product will withstand the working environment.

- Cannot be used in environments where its functions will be impeded.
  Such environments include high temperatures, chemical atmospheres, or where chemical liquids, vibration, moisture, water dripping or gas is present. Environments where ozone is generated.
- Do not use the product in a place where it could come in direct contact with cutting oil, coolant or spatter, etc.

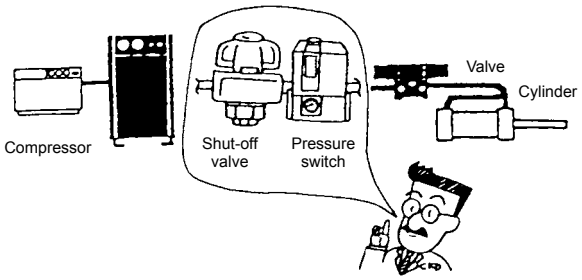
■ Understand the characteristics of compressed air before designing a pneumatic circuit.

- The same functions as the mechanical, hydraulic and electrical methods cannot be anticipated if instantaneous stopping and holding are required during an emergency stop.
- Pop-out, air discharge, or leakage due to air compression and expansion may occur.

■ This valve cannot be used as a stop valve that requires no leakage. Slight leakage is allowed for in this product's specifications.

■ Install a "pressure switch" and "shut-off valve" on the device's compressed air supply side.

- The pressure switch will disable operation until the set pressure is reached. The shut-off valve releases compressed air into the pneumatic pressure circuit to prevent accidents caused by operation of pneumatic components under residual pressure.



■ Indicate the maintenance conditions in the device's instruction manual.

- The product's performance may drop too low to maintain an appropriate safety level depending on usage conditions, working environment and maintenance status. With correct maintenance, the product functions can be used to the fullest.

■ Rubber parts deteriorate and service life is shortened if ultra dry air is used.

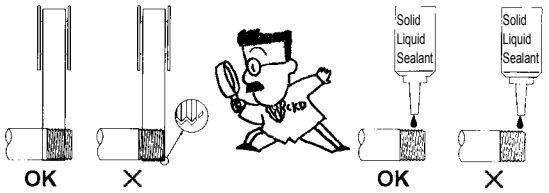
Mounting, installation and adjustment

Piping

⚠CAUTION

■ Do not remove the package or seal cap on the piping port until just before piping the product.
- Removing the piping port cap before piping work may cause foreign matter to enter the pneumatic components from the piping port, resulting in failure or malfunction.

■ When connecting pipes, wrap sealing tape in the opposite direction to the threading, from the inside position to within 2 mm from the pipe end.
- If sealing tape protrudes from the pipe threads, it could be cut when screwing the bolts in. This could cause the tape to enter the pneumatic components, causing failures.



■ Handling push-in fittings and tubes
- Refer to fitting and tube warnings and cautions (pages 822 to 825) for handling push-in fittings and tubes.

■ Always flush just before piping pneumatic components.
- Any foreign matter that has entered during piping must not enter the pneumatic components.

■ When supplying compressed air after connecting pipes, do not suddenly apply high pressure.
- The pipe connection could dislocate, causing the pipe tube to fly out, leading to accidents.

■ After connecting the pipes, always check all pipe connections for air leaks before supplying compressed air.
- Apply a leakage detection agent to pipe connections with a brush and check for air leaks.

■ Apply the recommended tightening torque when connecting pipes.
- The purpose is to prevent air leakage and damage to bolts.
- First tighten the bolts by hand to ensure that the threads are not damaged, then use a tool.
- Do not tighten while pressure is applied.

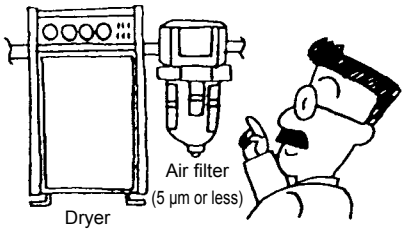
[Recommended tightening torque]

Port thread	Tightening torque N·m
M5	1.0 to 1.5
Rc1/8	3 to 5
Rc1/4	6 to 8
Rc3/8	13 to 15
Rc1/2	16 to 18
Rc3/4	19 to 40
Rc1	41 to 70
Rc1 1/4	43 to 75
Rc1 1/2	45 to 80

■ Connect piping so that connections are not dislocated by equipment movement, vibration, tension, etc.
- Control of actuator speed will be disabled if piping on the exhaust side of the pneumatic circuit is disengaged.
- When using the chuck holding mechanism, the chuck may be released, creating a hazardous state.

■ Around the pneumatic components, keep space for installation, removal and piping work.

■ Install a pneumatic filter just before the pneumatic component in the circuit.



- Observe the following precautions when using nylon or urethane tubes as the piping material.
  - ·Use the designated tube and CKD plastic plug (GWP Series). Do not use a metal plug as it may cause problems.
  - Tube outer diameter accuracy
    - · Polyamide tube.....Within ±0.1 mm
    - · Polyurethane tube (up to φ6).....Within ±0.1 mm
      (up to φ8).....Within $^{+0.1}_{-0.15}$ mm
  - Use a tube with hardness of 92˚ or more. If a tube that does not satisfy the diameter accuracy or hardness is used, the chucking force may decrease, the tube may come off or be difficult to insert. Contact CKD when using a non-designated tube or plug.
  - ·Cut the tube with a dedicated cutter and always at a right angle.
  - ·Use the tubing so that it does not become worn or damaged. Tubing could collapse or rupture.
  - ·A used tube could be deteriorated or deformed and so always use a new tube.
  - · Do not let the tube directly contact other surfaces, as there is a risk of wear or damage.
- Do not use this product for applications involving constant rotation or oscillations, or in which tubes move violently.
- Use the tubing so that it is within the min. bending radius and long enough to avoid sharp bends.
  - ·Consider changes in tubing length caused by pressure when tubing is connected and provide sufficient length within the min. tube bending radius.
- Make sure that there is no torsion, tension or moment load applied to the fitting or the tube.
- Do not tighten while pressure is applied.

Use/maintenance

⚠WARNING

■ Stop air flow and confirm that there is no residual pressure before replacing the tube.