

Quick Exhaust Valve With Push-in Fitting QEL Series

INSTRUCTION MANUAL

SM-P00166-A



- Read this Instruction Manual before using the product.
- Read the safety notes carefully.
- Keep this Instruction Manual in a safe and convenient place for future reference.

PREFACE

Thank you for purchasing CKD's **"QEL Series" Quick Exhaust Valve With Push-in Fitting**.

This Instruction Manual contains basic matters such as installation and usage instructions in order to ensure optimal performance of the product. Please read this Instruction Manual thoroughly and use the product properly.

Keep this Instruction Manual in a safe place and be careful not to lose it.

Product specifications and appearances presented in this Instruction Manual are subject to change without notice.

- The product is intended for users who have basic knowledge about materials, piping, electricity, and mechanisms of pneumatic components. CKD shall not be responsible for accidents caused by persons who selected or used the product without knowledge or sufficient training.
- Since there are a wide variety of customer applications, it is impossible for CKD to be aware of all of them. Depending on the application or usage, the product may not be able to exercise its full performance or an accident may occur due to fluid, piping, or other conditions. It is the responsibility of the customer to check the product specifications and decide how the product shall be used in accordance with the application and usage.

SAFETY INFORMATION

When designing and manufacturing any device incorporating the product, the manufacturer has an obligation to ensure that the device is safe. To that end, make sure that the safety of the machine mechanism of the device, the pneumatic or water control circuit, and the electric system that controls such mechanism is ensured.

To ensure the safety of device design and control, observe organization standards, relevant laws and regulations, which include the following:

ISO 4414, JIS B 8370, JFPS 2008 (the latest edition of each standard), the High Pressure Gas Safety Act, the Industrial Safety and Health Act, other safety rules, organization standards, relevant laws and regulations




In order to use our products safely, it is important to select, use, handle, and maintain the products properly.

Observe the warnings and precautions described in this Instruction Manual to ensure device safety.

Although various safety measures have been adopted in the product, customer's improper handling may lead to an accident. To avoid this:


**Thoroughly read and understand this Instruction Manual
before using the product.**

To explicitly indicate the severity and likelihood of a potential harm or damage, precautions are classified into three categories: "DANGER", "WARNING", and "CAUTION".

 DANGER	Indicates an imminent hazard. Improper handling will cause death or serious injury to people.
 WARNING	Indicates a potential hazard. Improper handling may cause death or serious injury to people.
 CAUTION	Indicates a potential hazard. Improper handling may cause injury to people or damage to property.

Precautions classified as "CAUTION" may still lead to serious results depending on the situation. All precautions are equally important and must be observed.

Other general precautions and tips on using the product are indicated by the following icon.

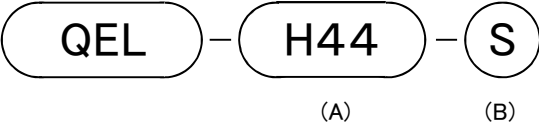
	Indicates general precautions and tips on using the product.
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1. PRODUCT

1.1 How to order



(A) Port size		(B)Option	
H44	φ 4	Blank	Type with exhaust port fitting
H66	φ 6	S	Atmosphere release
44P	φ 4plug		
66P	φ 6plug		

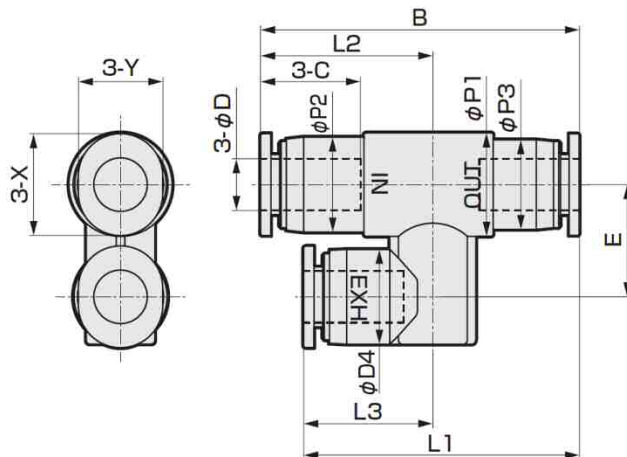
Note1 : For "44P" "66P", (B) "Blank" cannot be selected.

1.2 Specification

Model No.		QEL-H44	QEL-H44-S	QEL-44P-S	QEL-H66	QEL-H66-S	QEL-66P-S
Descriptions							
Working fluid		Compressed air					
Max.working pressure MPa		0.7					
Min.working pressure MPa		0.1					
Min.operating pressure MPa		0.05					
Proof pressure(normal temperature) MPa		1.35					
Ambient temperature °C		5 to 60 (no freezing)					
Port size	IN	φ 4	φ 4	φ 4	φ 6	φ 6	φ 6
	OUT	φ 4	φ 4	φ 4 plug	φ 6	φ 6	φ 6 plug
	EXH	φ 4	Atmosphere release	Atmosphere release	φ 6	Atmosphere release	Atmosphere release
Weight g		5.2	5.2	2.4	7.6	4.9	3.9
Mounting orientation		Unrestricted					
Effective cross-sectional area	IN→OUT mm ²	1.8		1.5	4		2.6
	OUT→EXH mm ²	1.8		1.5	4		2.6

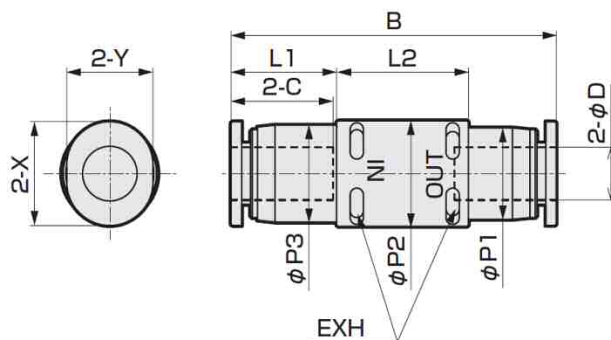
1.3 DIMENSIONS

1.3.1 Type with exhaust port fitting



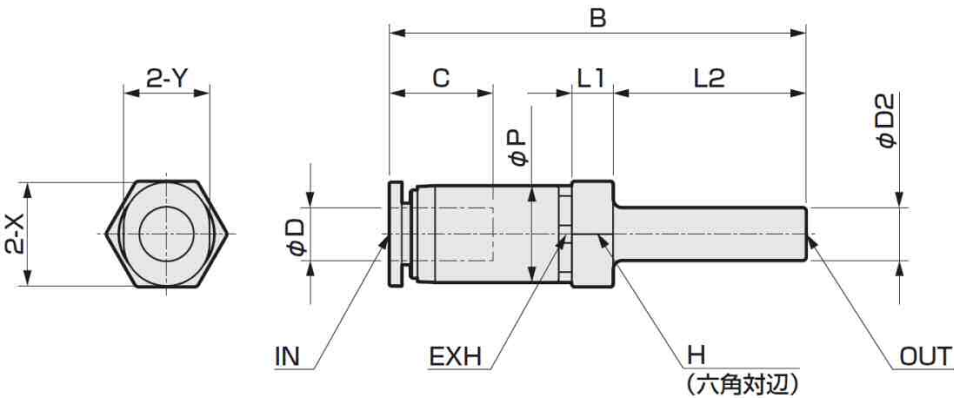
Code	φ D	B	L1	L2	L3	φ P1	φ P2	φ P3	φ P4	C	E	X	Y
Model No	Tube O.D.												
QEL-H44	φ 4	35.2	30.5	18.8	14.1	10	9	8.4	9	11.3	11	9.8	7.8
QEL-H66	φ 6	37.4	32.4	20.2	15.2	12	11	10.4	11	11.8	13	11.8	9.8

1.3.2 Atmosphere release



Code	φ D	B	L1	L2	φ P1	φ P2	φ P3	C	X	Y
Model No	Tube O.D.									
QEL-H44-S	φ 4	35.2	11.3	15	8.4	10	9	11.3	9.8	7.8
QEL-H66-S	φ 6	37.4	12.2	15	10.4	12	11	11.8	11.8	9.8

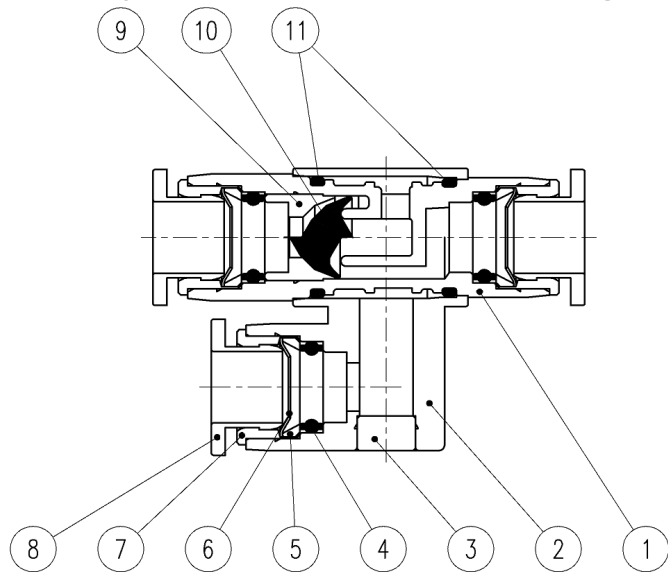
1.3.3 Plug type



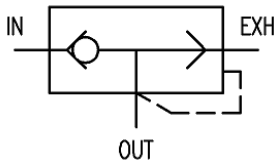
Code Model No	$\phi D1$ Tube O.D.	$\phi D2$ Port size	B	L1	L2	ϕP	C	H (六角对边)	X	Y
QEL-44P-S	$\phi 4$	$\phi 4$	41.3	4.1	19	9	11.3	10	9.8	7.6
QEL-66P-S	$\phi 6$	$\phi 6$	47.5	4.7	22	11	11.8	12	11.8	9.8

1.4 Internal structure and parts list

1.4.1 Type with exhaust port fitting

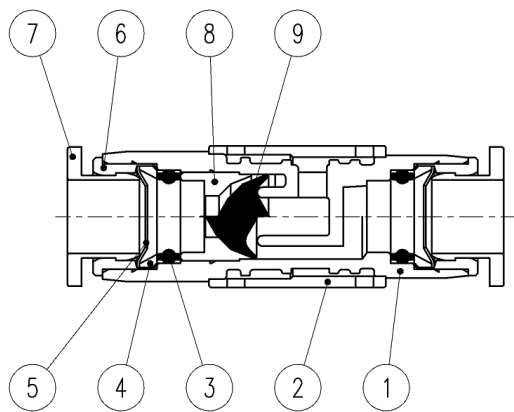


JIS SYMBOL

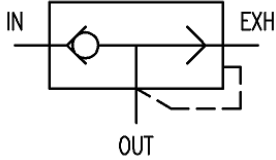


No	Part name	Material	No	Part name	Material
1	Resin body	Polybutylene terephthalate	7	Guide ring	Brass (with electroless nickeling)
2	Exhaust fitting body	Polybutylene terephthalate	8	Release ring	Acetal resin
3	Plug	Brass (with electroless nickeling)	9	Valving element stopper	Brass (with electroless nickeling)
4	Elastic sleeve	Nitrile rubber	10	Valving element	Hydrogenated nitrile rubber
5	Lock ring	Stainless steel	11	O-ring	Nitrile rubber
6	Lock claw	Brass (with electroless nickeling)			

1.4.2 Atmosphere release

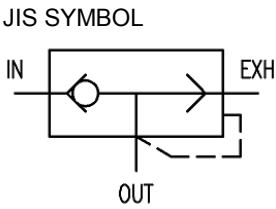
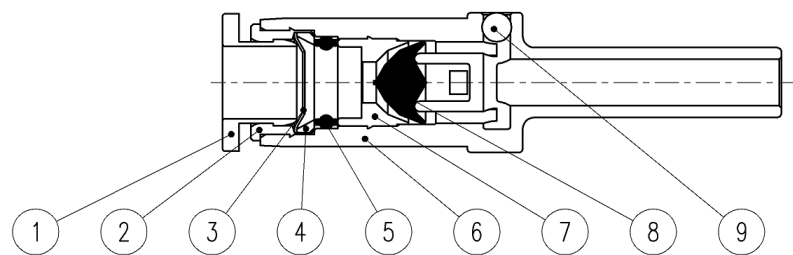


JIS SYMBOL



No	Part name	Material	No	Part name	Material
1	Resin body	Polybutylene terephthalate	6	Guide ring	Brass (with electroless nickeling)
2	Exhaust fitting body	Polybutylene terephthalate	7	Release ring	Acetal resin
3	Elastic sleeve	Nitrile rubber	8	Valving element stopper	Brass (with electroless nickeling)
4	Lock ring	Stainless steel	9	Valving element	Hydrogenated nitrile rubber
5	Lock claw	Brass (with electroless nickeling)			

1.4.3 Plug type



No	Part name	Material	No	Part name	Material
1	Release ring	Acetal resin	6	Resin body	Polybutylene terephthalate
2	Guide ring	Brass (with electroless nickeling)	7	Valve body presser	Aluminum
3	Lock claw	Brass (with electroless nickeling)	8	Valving element	Hydrogenated nitrile rubber
4	Lock ring	Stainless steel	9	Wrecking ball	Stainless steel
5	Elastic sleeve	Nitrile rubber			

2. INSTALLATION

2.1 Environment

Do not use the product in an environment where

- Many vibrations and shocks.
- Hot and humid.
- It is exposed to direct sunlight, rain, wind, or water.
- Do not use the product in a place where it could come in direct contact with cutting oil, coolant or spatter, etc.
- Ozone is produced.

2.2 Unpacking

CAUTION

Do not open the packing of the product until just before piping to prevent foreign matters from entering the product.

- Check that the model number ordered and the model number indicated on the product are the same.
- Check the exterior of the product for any damage.

2.3 Mounting

WARNING

Around the piping so that connections are not dislocated by equipment movement, vibration, Tension, etc

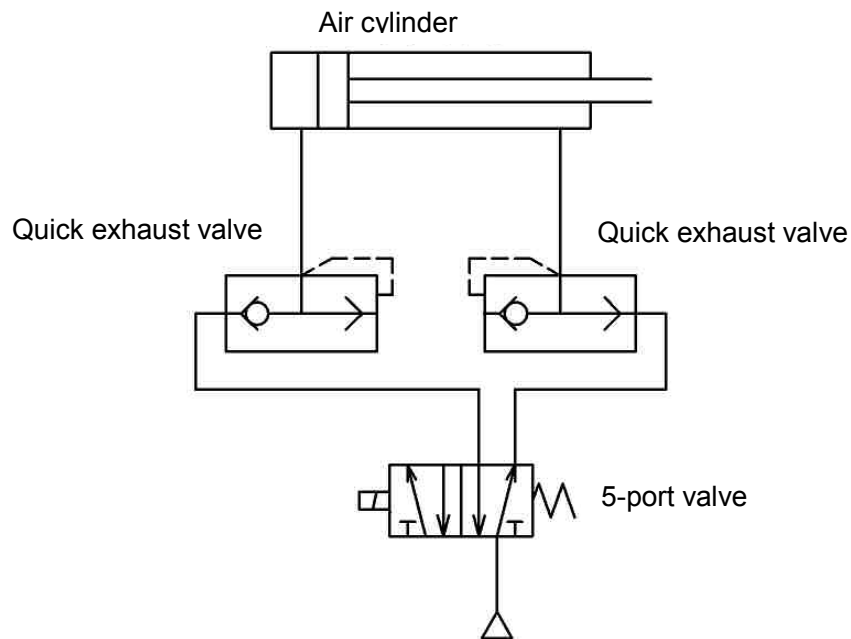
- Insert the plug type securely and check that it cannot be pulled out before using. If it is not securely inserted all the way in, it may cause a plug disconnection or air leakage.

2.4 Piping

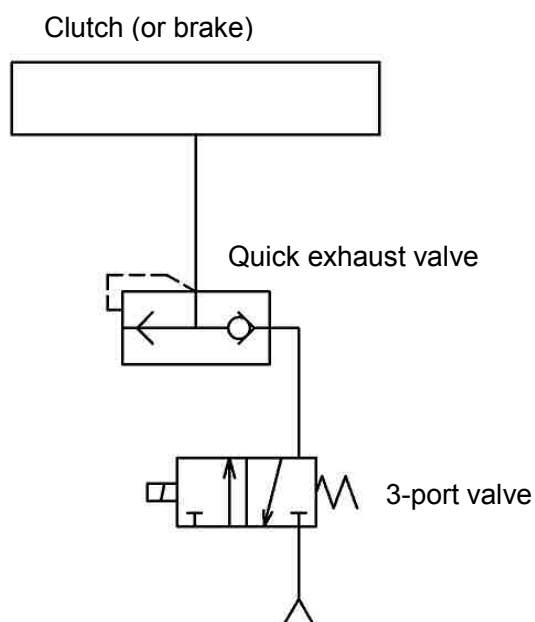
2.4.1 Fundamental circuit

The fundamental circuit diagram of quick exhaust valve is as per shown below.

■ How to speed up air cylinder exhaust



■ How to speed up the clutch (or brake) exhaust



2.4.2 Piping

WARNING

Stop air flow and confirm that there is no residual pressure before replacing the tube.
Securely insert the tube end and make sure that the tube cannot be pulled out.

CAUTION

Make sure that there is no torsion, tension or moment load applied to the fitting or the tube.



If the tubes can move around when disconnected, bind the tubes or use a safety cover.

■ Flushing

Flush the pipes/tubes just before connecting the product to the pneumatic components.

■ Outside diameter accuracy of tubes

When using anon-CKD tube, make sure that the outer diameter tolerance of the tube satisfies the specifications given in Table 1.

Urethane tube

Nominal port size $\pm 0.15\text{mm}$

Nylon tube

Nominal port size $\pm 0.1\text{mm}$

3. USAGE

3.1 CAUTION

WARNING

Always use within the product specifications.

Pressure range: 0.1 ~ 0.7 MPa.

- This product is used for compressed air. Do not use this unit for other fluids.
- Check that the tubing is not worn or damaged. Tubing could collapse, rupture, or become dislocated.
- After connecting piping, check pipe connections for air leaks before supplying compressed air. Also do not suddenly apply high pressure.
- Since the product is intended for use with compressed air, small amount of leakage to internal and external parts that do not affect product performance is permitted.
- Do not constantly push down or apply a load onto the push ring for the push-in fitting.

4. WARRANTY PROVISIONS

4.1 Warranty Conditions

■ Warranty coverage

If the product specified herein fails for reasons attributable to CKD within the warranty period specified below, CKD will promptly provide a replacement for the faulty product or a part thereof or repair the faulty product at one of CKD's facilities free of charge.

However, following failures are excluded from this warranty:

- Failure caused by handling or use of the product under conditions and in environments not conforming to those stated in the catalog, the Specifications, or this Instruction Manual.
- Failure caused by incorrect use such as careless handling or improper management.
- Failure not caused by the product.
- Failure caused by use not intended for the product.
- Failure caused by modifications/alterations or repairs not carried out by CKD.
- Failure that could have been avoided if the customer's machinery or device, into which the product is incorporated, had functions and structures generally provided in the industry.
- Failure caused by reasons unforeseen at the level of technology available at the time of delivery.
- Failure caused by acts of nature and disasters beyond control of CKD.

The warranty stated herein covers only the delivered product itself. Any loss or damage induced by failure of the delivered product is excluded from this warranty.

■ Confirmation of product compatibility

It is the responsibility of the customer to confirm compatibility of the product with any system, machinery, or device used by the customer.

■ Others

The terms and conditions of this warranty stipulate basic matters.

When the terms and conditions of the warranty described in individual specification drawings or the Specifications are different from those of this warranty, the specification drawings or the Specifications shall have a higher priority.

4.2 Warranty Period

The product is warranted for one (1) year from the date of delivery to the location specified by the customer.