



Operation Manual

PRODUCT NAME

OSHA Standards Nozzle for One-touch Fittings

MODEL / Series / Product Number

KNA(G)-Q10-180

SMC Corporation

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OSHA Standards Nozzle for One-touch Fittings KNA(G)-Q10-180 Series Safety Instructions

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

*1) ISO 4414: Pneumatic fluid power -- General rules relating to systems.

ISO 4413: Hydraulic fluid power -- General rules relating to systems.

IEC 60204-1: Safety of machinery -- Electrical equipment of machines .(Part 1: General requirements)

ISO 10218: Manipulating industrial robots -Safety.

etc.



Caution

Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.



Warning

Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.



Danger

Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.



Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results.

The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product.

This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly.

The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.

2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.

3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.

2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.

3. An application which could have negative effects on people, property, or animals requiring special safety analysis.

4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.



OSHA Standards Nozzle for One-touch Fittings KNA(G)-Q10-180 Series Safety Instructions

Caution

The product is provided for use in manufacturing industries.

The product herein described is basically provided for peaceful use in manufacturing industries.

If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.

If anything is unclear, contact your nearest sales branch.

Limited warranty and Disclaimer/Compliance Requirements

The product used is subject to the following "Limited warranty and Disclaimer" and "Compliance Requirements".

Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.*2)

Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.

2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.

This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.

3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

*2) Vacuum pads are excluded from this 1 year warranty.

A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.

Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction(WMD) or any other weapon is strictly prohibited.

2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulation of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

Caution

SMC products are not intended for use as instruments for legal metrology.

Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country.

Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.

2. Specific Product Precautions

Design/ Selection

Warning

(1) Confirm the specifications.

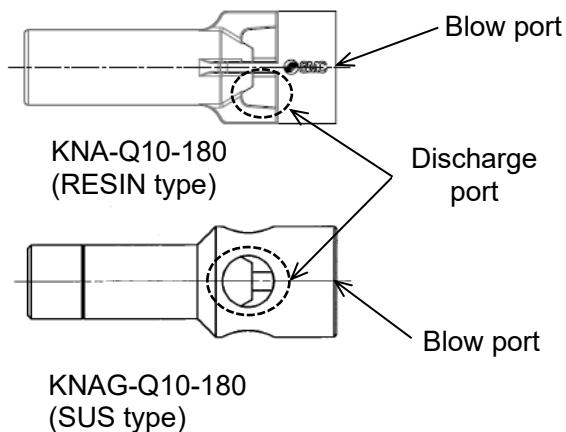
This product is designed to be used only in a compressed air system (including vacuum). Do not operate at pressures, temperatures, etc., beyond the range of specifications, as this can cause damage or malfunction. (Refer to the specifications.)

Please contact SMC when using a fluid other than compressed air. We do not guarantee against any damage if the product is used outside of the specifications range.

(2) Do not block the discharge port on the side face of the product.

For the safety purpose, this product is equipped with a discharge port on its side face so that the pressure does not rise even when the blow port is blocked. The product is compliant with the OSHA standard (1910.242(B)) (in use under a pressure of 0.5 MPa or below, the pressure rise is 30 psi (0.21 MPa) or below).

When the discharge port is blocked, the pressure may rise above the standard value and safe use of this product may be disabled.



Mounting

Warning

When mounting this product (nozzle) to a one-touch fitting, correctly insert this product all the way to the back.

After inserting the product all the way to the back, pull the product to make sure it cannot be removed. If the product is not correctly inserted all the way to the back or fitting condition of the product in the one-touch fitting is not good, this product may jump out when a pressure is applied, which poses a risk of injury and accident.

Mounting

Caution

(1) Do not give shock to this product (nozzle) and twist or strike it with a tool.

Otherwise, the product may be broken.

(2) KNAG-Q10-180 (SUS type) may not be able to be combined with a one-touch fitting depending on its series.

For one-touch fittings for which this product can be mounted, refer to Table 1.

Table 1

One-touch fittings Series	KNA-Q10-180	KNAG-Q10-180
	RESIN type	SUS type
KQ2	○	-*1
KS/KX	○	-*1
KC	○	-*1
KB	○	-*1
KG	○	-*1
KP	○	-*1
KQB2	○	○
KQG2	○	○

* Note 1: To incompatible one-touch fitting series, KNAG-Q10-180 (SUS type) cannot be mounted. The chuck of an incompatible one-touch fitting may not be able to retain the product, and the product may jump out when a pressure is applied, which poses a risk of injury and accident.

(3) Do not use one-touch fittings other than our brand products.

If a one-touch fitting from another manufacturer is used in combination with this product, this product may come off, which poses a great danger.

Separately purchase a compatible one-touch fitting manufactured by us in accordance with the combinations in Table 1, and then use it. For details of the tube fitting, refer to the WEB catalog.

(4) Keep the instruction manual and check its contents.

Install the products and operate it only after reading the operation Manual carefully and understanding its contents. Also, keep the Manual where it can be referred to as necessary.

(5) Do not use this product on the blow gun (VMG Series).

Otherwise, collision of the nozzle with a workpiece or wall surface may break the nozzle or one-touch fitting or, when a pressure is applied, may cause the nozzle to jump out, posing a risk of injury or accident.

Piping

Caution

- (1) **Refer to the Fittings & Tubing Precautions for handling One-touch fittings.**
- (2) **Preparation before piping**
Before piping is connected, it should be thoroughly blown out with air (flushing) or washed to remove chips, cutting oil and other debris from inside the pipe.

Air Supply

Warning

- (1) **Type of fluids**
Please consult with SMC when using the product in applications other than compressed air.
- (2) **When there is a large amount of drainage**
Compressed air containing a large amount of drainage can cause the malfunction of pneumatic equipment. An air dryer or water separator should be installed upstream from filters.
- (3) **Drain flushing**
If condensation in the drain bowl is not emptied on a regular basis, the bowl will overflow and allow the condensation to enter the compressed air lines. This causes the malfunction of pneumatic equipment.
If the drain bowl is difficult to check and remove, the installation of a drain bowl with an auto drain option is recommended.
For compressed air quality, refer to SMC catalog "Compressed Air Purification System".
- (4) **Use clean air**
Do not use compressed air that contains chemicals, synthetic oils that include organic solvents, salt, corrosive gases, etc., as it can cause damage or malfunction.

Air Supply

Caution

- (1) **Install an air filter.**
Install an air filter at the upstream side of valve. Select a filtration rating of 5 µm or below, or that equivalent to or lower than ISO 8573-1:2010 [6:4:4]
* This rating is equivalent to the rating produced when an air filter is installed for the purity class [7:4:4] of the inlet side compressed air.
- (2) **Ensure that the fluid and ambient temperatures are within the specified range.**
If the fluid temperature is 5°C or less, the moisture in the circuit could freeze, causing damage to the seals or leading to equipment malfunction. Therefore, take appropriate measures to prevent freezing.
For compressed air quality, refer to SMC catalog "Compressed Air Purification System".

Operating environment

Warning

- (1) **Do not use in an atmosphere containing corrosive gases, chemicals, sea water, water, water steam, or where there is direct contact with any of these.**
- (2) **Do not expose the product to direct sunlight for an extended period of time.**
- (3) **Do not use in locations subject to vibration or impact.**
- (4) **Do not mount the product in locations where it is exposed to radiant heat.**
- (5) **At such a location where the electrification characteristic of static electricity poses a problem, do not use this product. Otherwise, a system defect or failure may occur.**
- (6) **Do not use the product at such a location where spatter occurs.**
Otherwise, spatter may cause a fire.
- (7) **Do not use the product in an environment where the product is directly exposed to cutting oil, lubricant, coolant oil, etc.**

Maintenance

Warning

(1) Do not disassemble the product or make any modifications.

Do not disassemble the product or make any modifications, including additional machining. Doing so may cause human injury and/or an accident.

(2) Ensure sufficient space for maintenance.

(3) Perform maintenance and inspection according to the procedures indicated in the operation manual.

If handled improperly, malfunction or damage of machinery and equipment may occur.

(4) Maintenance work

If handled improperly, compressed air can be dangerous.

Assembly, handling, repair and element replacement of pneumatic systems should be performed by a knowledgeable and experienced person.

(5) Drain flushing

Remove drainage from air filters regularly.

(6) Removal of equipment, and supply/exhaust of compressed air.

Before components are removed, first confirm that measures are in place to prevent workpieces from dropping, run-away equipment, etc. Then, Cut the supply pressure and electric power, and exhaust all compressed air from the system using the residual pressure release function. When machinery is restarted, proceed with caution after confirming that appropriate measures are in place to prevent sudden movement.

Caution

Be sure to wear safety goggles for regular maintenance.

3.Application

This product is designed to discharge air, remove foreign matters, cool workpieces, eject NG workpieces, and others.

4.Specifications

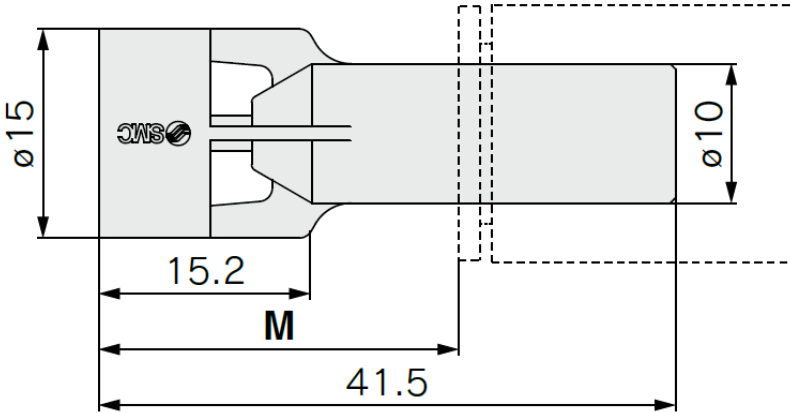
Model	KNA-Q10-180	KNAG-Q10-180
Material	PBT	SUS316
Fluid	Air	
Proof pressure	1.5MPa	
Maximum operating pressure	1MPa	
Ambient and fluid temperature	-5~60°C (No freezing)	-5~150°C (No freezing)
Nozzle dia.	Equivalent to ϕ 1.8	
Weight	3g	10g
Compatible one-touch fitting size	ϕ 10	

5.Troubleshooting

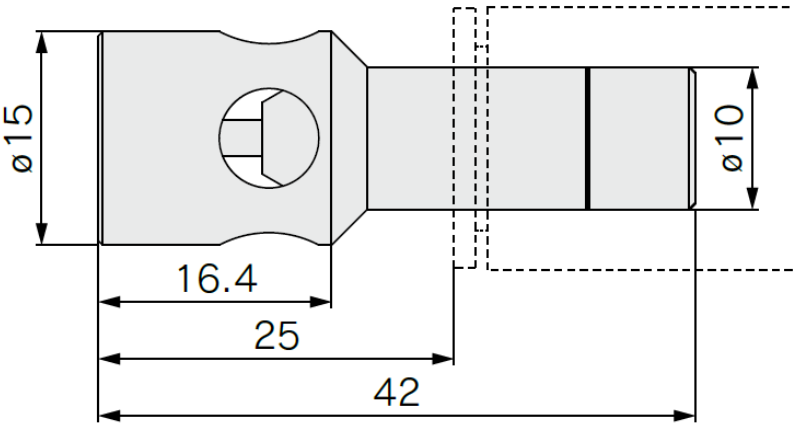
Trouble	Possible causes	Countermeasure
Air is not discharged.	There is a foreign matter in the orifice.	Remove the nozzle, and conduct air blow from the discharge side. Also check the air filter of the piping. Conduct re-assembly after air blow and, if air discharge is not observed, replace the nozzle with a new one.
The nozzle comes off from the one-touch fitting.	A compatible fitting is not used.	Check Table 1 in 2. Specific Product Precautions [Mounting] on page 5, and then use the product by combining with a compatible fitting.

6.Construction

KNA-Q10-180(RE SIN type)



KNAG-Q10-180(SUS type)



KNA-Q10-180 dimension table

	Compatible one-touch fitting.							
	KQ2	KS/KX	KC	KB	KG	KP	KQB2	KQG2
M	25.9	20.5	17.5	20.5	20.5	18.5	24.5	24.5

Revision history

1 : Blow port, Mounting(5)(P.5),
Specifications(P.8),
Compatible one-touch fitting added.(P.9)

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Note: Specifications are subject to change without prior notice and any obligation on the part of the manufacturer.
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