# Blow Gun

RoHS New

# 20% reduction in power consumption

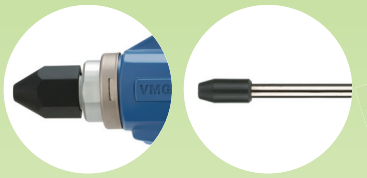
## with the SMC "Blow gun" + "S coupler" + "Coil tube"

*10% reduction with the "Blow gun (VMG)" only

New

**With cover**

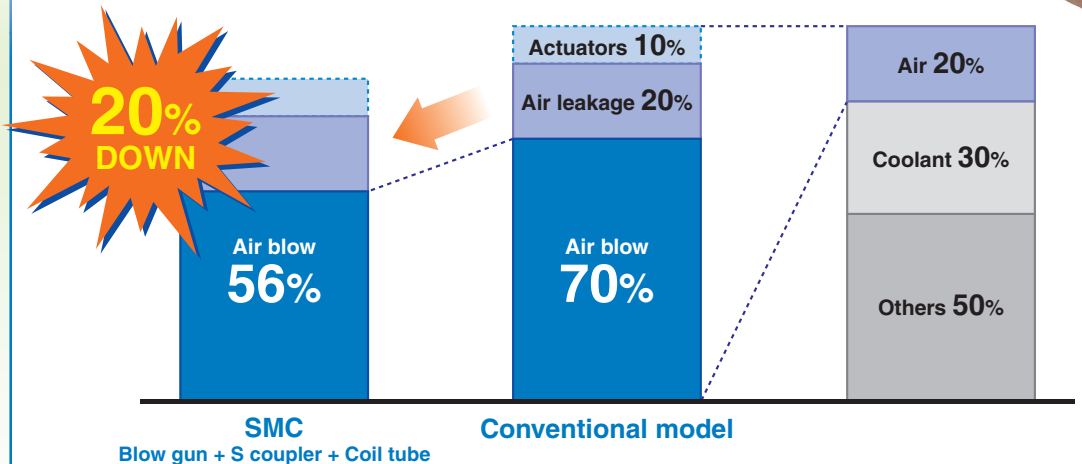
**Extension nozzle**
Added 100 mm and 150 mm lengths






Pressure loss 1% or less

■ Amount of electricity used in a factory




The electricity used by compressors for air accounts for **approximately 20%** of that consumed by the entire factory. Also, **70%** of the air consumed in the process is used for air blowing. SMC blow guns have minimal pressure loss compared with conventional models, so they can achieve equivalent performance at lower pressures and with less volume of air consumption. As a result, it is possible to achieve a **20% reduction** in power consumption.

## *Series VMG*

SMC

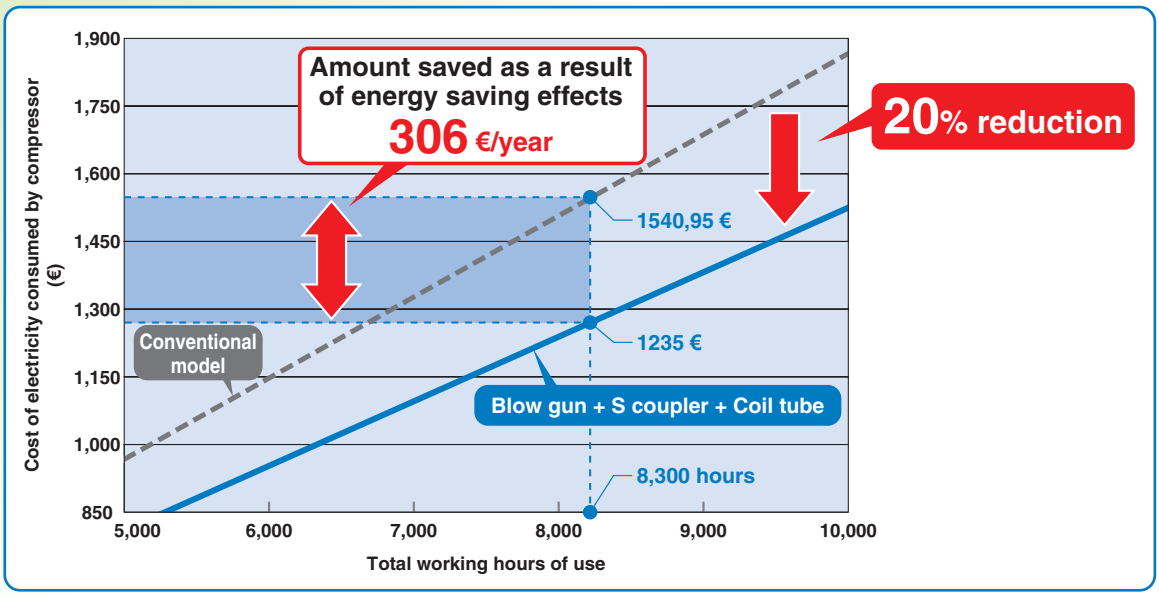
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# Energy Saving Pneumatic System Proposal

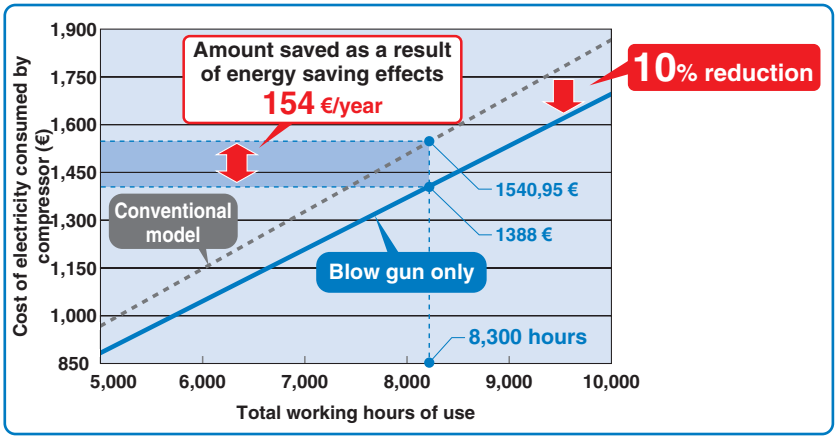
## Energy Saving Effects

When the yearly total working hours spent on air blowing amounts to 8,300 hours, the use of conventional models results in power consumption costs totaling 1540,95 €. When using the SMC system (Blow gun + S coupler + Coil tube), however, the yearly cost is reduced to 1235 €, for **a total yearly saving of 306 €, or 20% of the total**.

**Energy saving effects with** Blow gun (VMG) + S coupler + Coil tube




**Energy saving effects with** Blow gun (VMG) **only**




**Calculation conditions**

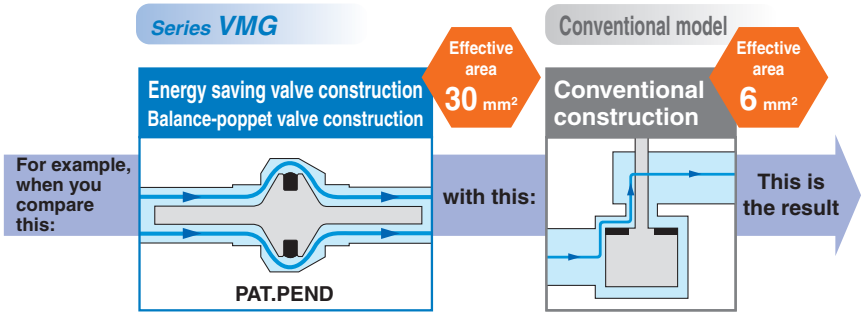
- Blowing distance: 100 mm
- Impact pressure: 0.011 MPa
- Cost of electricity: 0,12 €/kWh

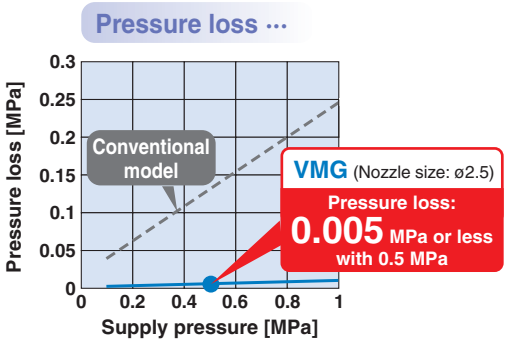
**Work model**

- Blow time: 10 seconds
- Frequency: 12 times/hour
- Working hours: 10 hours/day
- Working days: 250 days/year
- Units used: 100
- Resulting total working hours: 8,300 hours

## Valve Construction and Pressure Loss

Straighter flowing fluid **"improves pressure loss!"**





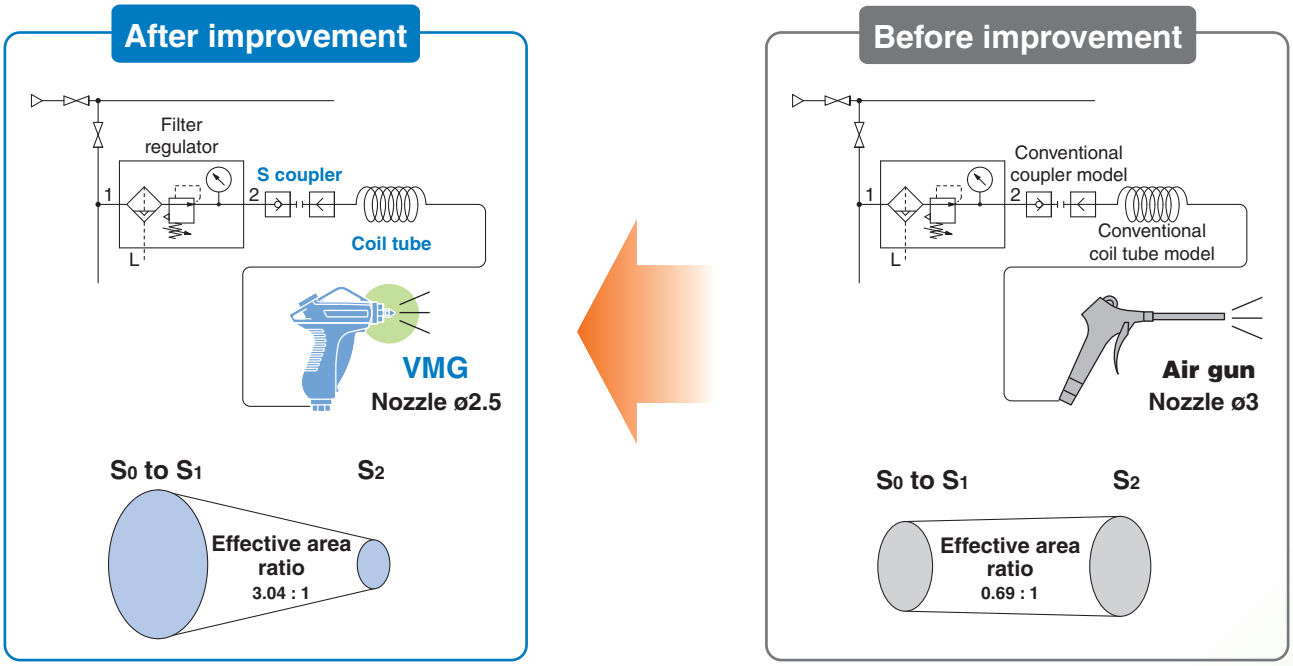

SMC



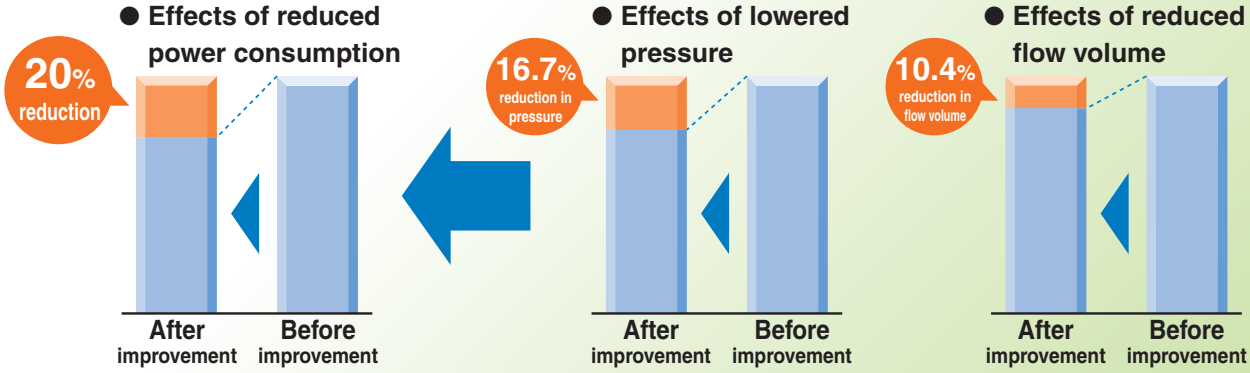
**SMC helps you work toward a revolutionized production system with a focus on saving-energy.**

# Example of Improvement

Review the air-blow job and change to the SMC blow gun, S coupler and coil tube to create a larger effective area.



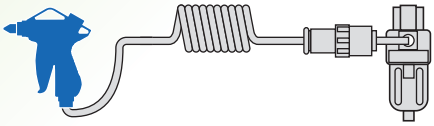

| | | After improvement | Before improvement |
|---|---|---|---|
| Equipment | Coupler | S coupler | Conventional model |
| | Piping | TCU1065-1-20-X6 | Conventional coil tube model (I.D. ø5, equivalent length 5 m) |
| | Air gun | VMG (Nozzle size ø2.5) | Conventional model (Nozzle size ø3) |
| Effective area | Coupler, Piping ($S_0$) | 13.45 mm² | 5.1 mm² |
| | Air gun ($S_1$) | 30 mm² | 6 mm² |
| | Nozzle ($S_2$) | 4.4 mm² | 6.3 mm² |
| Effective area ratio ($S_0$ to $S_1$: $S_2$) | | 3.04 : 1 | 0.69 : 1 |
| Impact pressure | | 0.011 MPa (at a distance of 100 mm) | 0.011 MPa (at a distance of 100 mm) |
| Regulator pressure | | 0.4 MPa | 0.5 MPa |
| Pressure inside nozzle | | 0.385 MPa | 0.276 MPa |
| Compressor pressure | | 0.5 MPa | 0.6 MPa |
| Air consumption | | 257 dm³/min (ANR) | 287 dm³/min (ANR) |
| Power consumption by compressor | | 1.25 kW | 1.56 kW |



# Blow Gun, Coil Tube and S Coupler Selection

Recommended system in accordance with the distance

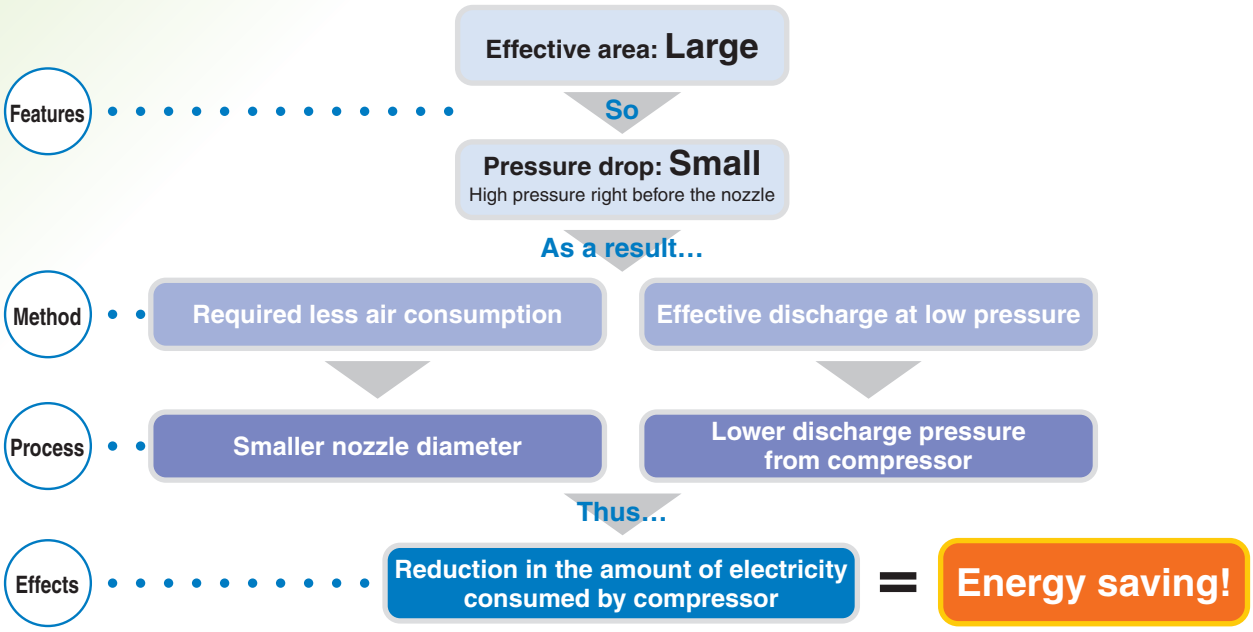
Energy saving effects are enhanced through the appropriate blow gun model selection in accordance with the distance from the target object.



| Distance | Recommended system | | | | |
|---|---|---|---|---|---|
| | Blow gun | Nozzle size | Fitting | Coil tube* | S coupler |
| Up to 20 mm | VMG1□□-02-01 | ø1 | KQ2H06-02AS | TCU0604□-1-20-X6 | KK4P-06H |
| Up to 40 mm | VMG1□□-02-02 | ø1.5 | KQ2H06-02AS | TCU0604□-1-20-X6 | KK4P-06H |
| Up to 60 mm | VMG1□□-02-03 | ø2 | KQ2H08-02AS | TCU0805□-1-20-X6 | KK4P-08H |
| Over 60 mm | VMG1□□-02-04 | ø2.5 | KQ2H10-02AS | TCU1065□-1-20-X6 | KK4P-10H |

# Energy Saving Flow

Air guns with an effective area around 6 mm² are most commonly used.
But the SMC blow gun achieves a 30 mm² effective area.




# Related Product

**For pressure loss improvement** **S coupler: *Series KK***

Improved fitting's restrictor and leakage

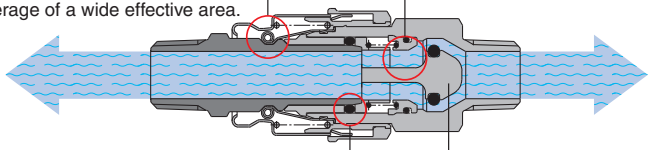


**■ Special method of connection and fixation**

With a structure that employs no steel balls, the coupler achieves a slim body without narrowing of the channel, allowing coverage of a wide effective area.

**■ Smooth channel with minimal unevenness**

By not blocking the channel with the valve spring, the loss of effective area can be minimised.



**■ Seal structure with minimal leakage**

The surface-to-surface design allows super-tight sealing.

**■ Conical structure of check valve tip**

This structure achieves smooth flow through the channel.

# Variations

## Nozzle type

### Low noise nozzle

Mono-porous nozzle (ø2) 90 to 100 dB
ø1 x 4 low noise nozzles 80 dB or less

Note) Supply pressure: 0.5 MPa
Measured at a 45 degree angle
according to JIS B 8379



* Achieving lower noise by dividing the air blow slit

### Male thread nozzle

Nozzie size: ø1, ø1.5, ø2, ø2.5, ø3, ø3.5, ø4



* Powerful and economical

### High efficiency nozzle



* Makes use of the Bernoulli effect to amplify the air blow flow rate

### Copper extension nozzle

Nozzle length: 100 mm, 150 mm,
300 mm, 600 mm



* Secures more power even at a greater distance from a workpiece.




## With cover

Cover for male thread nozzle



Cover for copper extension nozzle
(Outside diameter ø6 only)



Bottom
<Dark blue>

S coupler plug type

One-touch fitting type




Top
<White>

## Connection type

| | | |
|---|---|---|
| Screw-in type | Port size | Rc, NPT, G 1/4<br>Rc, NPT, G 3/8 |
| S coupler plug type | Plug part no. | KK4P-02MS<br>KK130P-02MS |
| One-touch fitting type | Applicable tube O.D. | Metric size: ø6, ø8, ø10<br>Inch size: ø1/4", ø5/16", ø3/8" |

# Operability, Safety, Environment

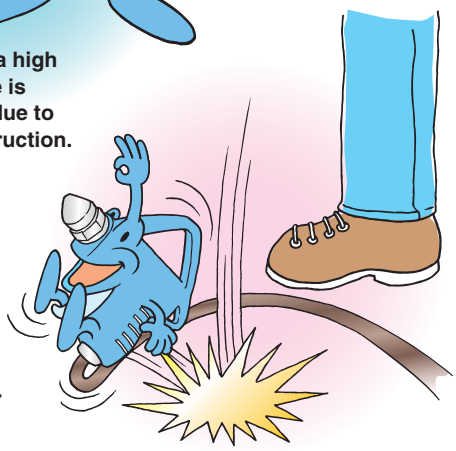
## Not affected by supply pressure, assured operability



When using this product even at a high pressure, the same gripping force is required as for a lower pressure due to the unique balance-poppet construction.

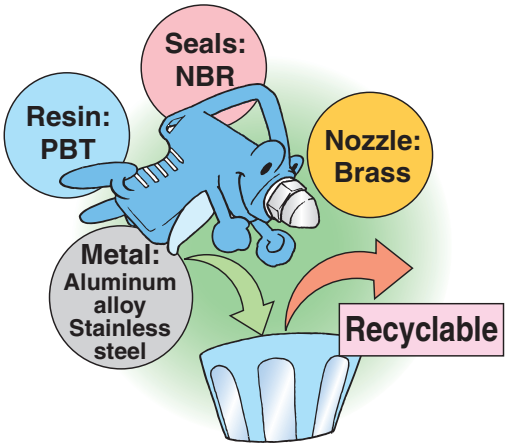
## Use of shock-resistant resin

Shock-resistant resin is used in the main body. No cracks, breaks or other damage occurred in a drop test from a 2-meter height or in a human stomp test.



## Components are separable. Environmentally friendly

Resin parts are inscribed with the name of the material. Additionally, all parts can be separated by material.



# Blow Gun
# Series VMG

RoHS



## How to Order

**VMG 1 [1] [W] – [02] – [32] – [C]**

**Piping entry**

| | |
|---|---|
| 1 | Bottom |
| 2 | Top |

**Body color**

| | |
|---|---|
| W | White |
| BU | Dark blue |

**Connection size**

| Symbol | Piping connection method | Size and model no. | |
|---|---|---|---|
| 02 | Threaded | Thread size | Rc1/4 |
| 03 | | | Rc3/8 |
| N02 | | | NPT1/4 |
| N03 | | | NPT3/8 |
| F02 | | | G1/4 |
| F03 | | | G3/8 |
| 11 | S coupler plug | Model no. of coupler used | KK4P-02MS |
| 12 | | | KK130P-02MS |
| H06 | Metric size one-touch fitting | Model no. of fitting used | KQ2H06-02AS |
| H08 | | | KQ2H08-02AS |
| H10 | | | KQ2H10-02AS |
| H07 | Inch size one-touch fitting | Model no. of fitting used | KQ2H07-35AS |
| H09 | | | KQ2H09-35AS |
| H11 | | | KQ2H11-35AS |

Note 1) S coupler and fitting are included in the same package.
Note 2) Port size is Rc1/4 if using the S coupler plug.
Note 3) The blow gun port size is Rc1/4 if using the metric size one-touch fitting.
Note 4) The blow gun port size is NPT1/4 if using the inch size one-touch fitting.

**With nozzle cover (Only for male thread nozzle, ø6 extension nozzle)**

| | |
|---|---|
| — | None |
| C | With nozzle cover/HNBR |
| CF | With nozzle cover/Fluororubber |

**Nozzle**

| Symbol | Type | Nozzle size | Nozzle part no. |
|---|---|---|---|
| — | Without nozzle | | |
| 01 | Male thread nozzle | ø1 | KN-R02-100 |
| 02 | | ø1.5 | KN-R02-150 |
| 03 | | ø2 | KN-R02-200 |
| 04 | | ø2.5 | KN-R02-250 |
| 05 | | ø3 | VMG1-R02-300 |
| 06 | | ø3.5 | VMG1-R02-350 |
| 07 | | ø4 | VMG1-R02-400 |
| 11 | High efficiency nozzle | ø1 | KNH-R02-100 |
| 12 | | ø1.5 | KNH-R02-150 |
| 13 | | ø2 | KNH-R02-200 |
| 21 | Low noise nozzle with male thread | ø0.75 x 4 | KNS-R02-075-4 |
| 22 | | ø0.9 x 8 | KNS-R02-090-8 |
| 23 | | ø1 x 4 | KNS-R02-100-4 |
| 24 | | ø1.1 x 8 | KNS-R02-110-8 |

**Extension nozzle**

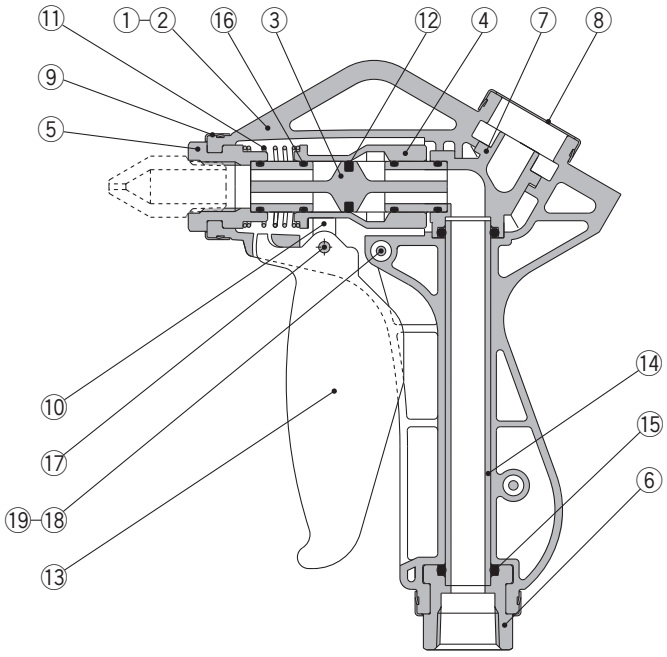
| Symbol | Type | Nozzle length | Nozzle size | Nozzle part no. |
|---|---|---|---|---|
| 31 | ø6 copper extension nozzle Note) | 300 mm | ø1.5 | VMG1-06-150-300 |
| 32 | | | ø2 | VMG1-06-200-300 |
| 33 | | 600 mm | ø1.5 | VMG1-06-150-600 |
| 34 | | | ø2 | VMG1-06-200-600 |
| 35 | | 100 mm | ø1.5 | VMG1-06-150-100 |
| 36 | | | ø2 | VMG1-06-200-100 |
| 37 | | 150 mm | ø1.5 | VMG1-06-150-150 |
| 38 | | | ø2 | VMG1-06-200-150 |
| 41 | ø8 copper extension nozzle Note) | 100 mm | ø2.5 | VMG1-08-250-100 |
| 42 | | | ø3 | VMG1-08-300-100 |
| 43 | | | ø3.5 | VMG1-08-350-100 |
| 44 | | 150 mm | ø2.5 | VMG1-08-250-150 |
| 45 | | | ø3 | VMG1-08-300-150 |
| 46 | | | ø3.5 | VMG1-08-350-150 |
| 47 | | 300 mm | ø2.5 | VMG1-08-250-300 |
| 48 | | | ø3 | VMG1-08-300-300 |
| 49 | | | ø3.5 | VMG1-08-350-300 |
| 50 | | 600 mm | ø2.5 | VMG1-08-250-600 |
| 51 | | | ø3 | VMG1-08-300-600 |
| 52 | | | ø3.5 | VMG1-08-350-600 |

Note) Part number for set of extension nozzle and fitting. Extension nozzle and fitting are included in the same package.
Refer to "How to attach extension nozzle" in the operation manual for assembly procedures.

## Specifications

| | | |
|---|---|---|
| **Fluid** | Air | |
| **Operating pressure range** | 0 to 1.0 MPa | |
| **Proof pressure** | 1.5 MPa | |
| **Ambient and fluid temperature** | –5 to 60°C (No freezing) | |
| **Flow-rate characteristics (With nozzle removed)** | C ($dm^3/s \cdot bar$): 6.0, b: 0.25 (Effective area: 30 $mm^2$) | |
| **Port size** | Rc, NPT, G 1/4, 3/8 | |
| **Piping entry** | Bottom | Top |
| **Nozzle port size** | Rc1/4 | |
| **Weight (Main unit only)** | 165 g | |
| **Operational force (when the valve is fully open)** | 7 N | |

## Construction




### Component Parts

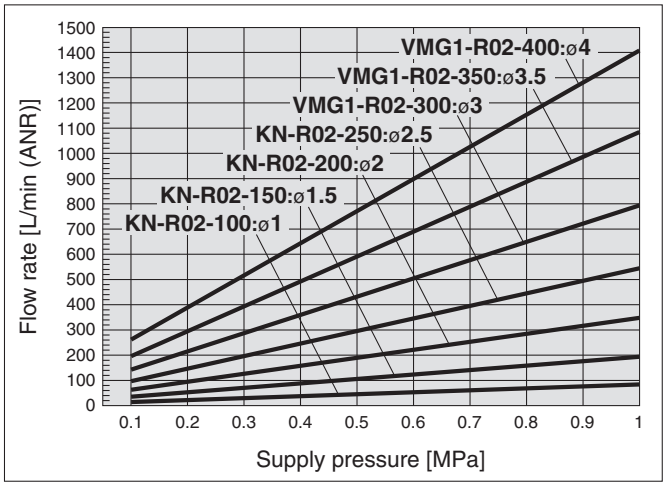
| No. | Description | Material | Note |
|---|---|---|---|
| 1 | **Body L** | PBT | |
| 2 | **Body R** | PBT | |
| 3 | **Main valve** | PBT | |
| 4 | **Valve guide** | POM | |
| 5 | **Nozzle holder** | Aluminium alloy | Anodized |
| 6 | **Port** | Aluminium alloy | Anodized |
| 7 | **Elbow** | PBT | Only for the VMG12□ |
| 8 | **Cover** | Stainless steel | |
| 9 | **Ring** | Stainless steel | |
| 10 | **Arm** | PBT | |
| 11 | **Spring** | Stainless steel | |
| 12 | **Main valve seal** | HNBR | |
| 13 | **Lever** | PBT | |
| 14 | **Piping (bottom)** | POM | Only for the VMG11□ Combined with the elbow ⑦. |
| 15 | **O-ring** | NBR | |
| 16 | **O-ring** | NBR | |
| 17 | **Parallel pin** | Stainless steel | |
| 18 | Cross recessed round head screw | Stainless steel | |
| 19 | **Hexagon nut** | Stainless steel | |

Note) Grease is used on rubber and sliding sections.

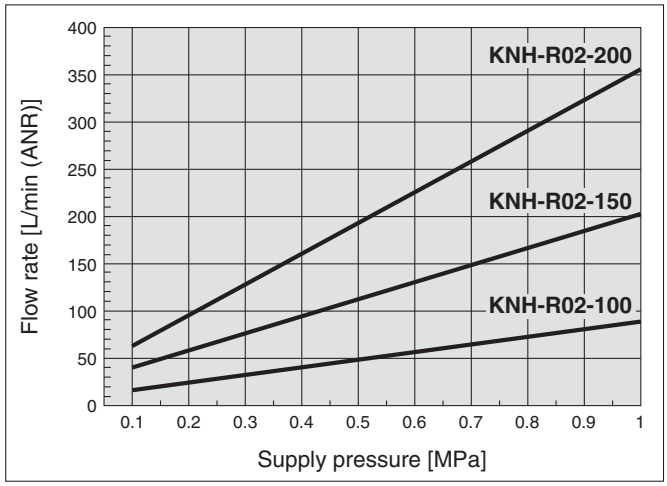
## Flow-rate Characteristics

Note) Values when the main valve is fully open

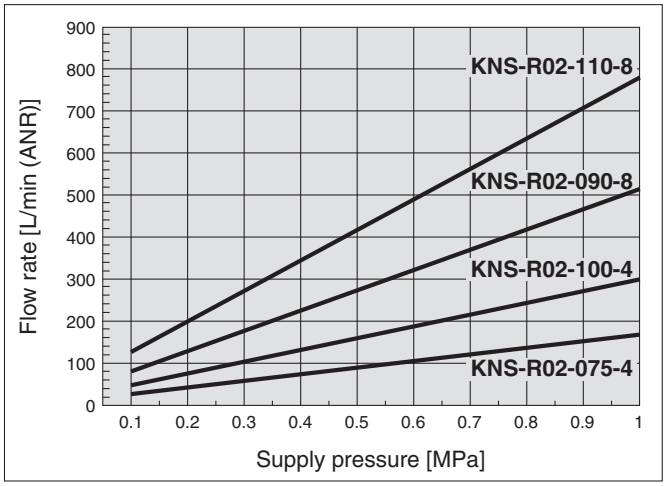
### Male thread nozzle



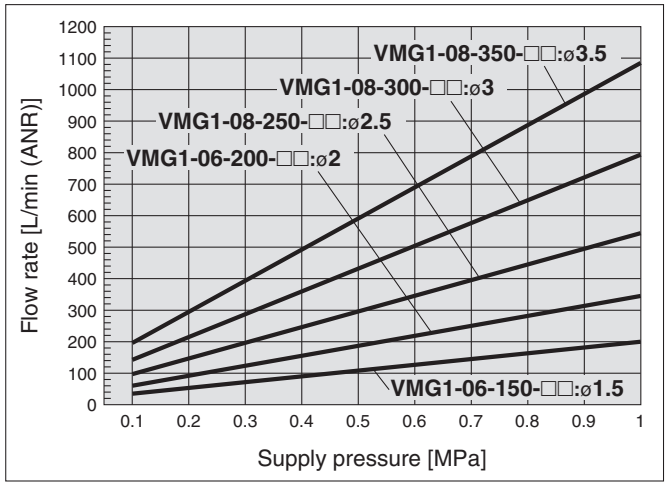

### High efficiency nozzle




### Low noise nozzle with male thread



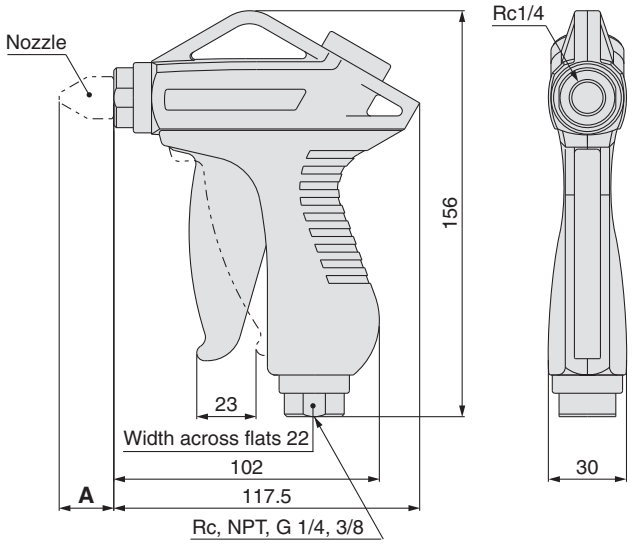

### Copper extension nozzle

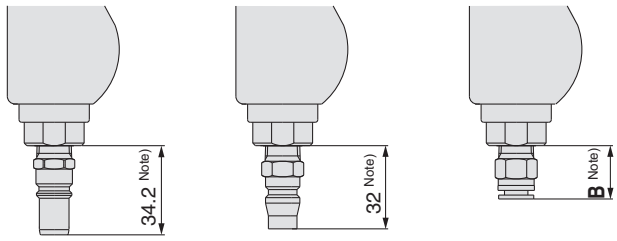


## Dimensions

### VMG11/Piping entry: Bottom

Note) Reference dimensions after installation



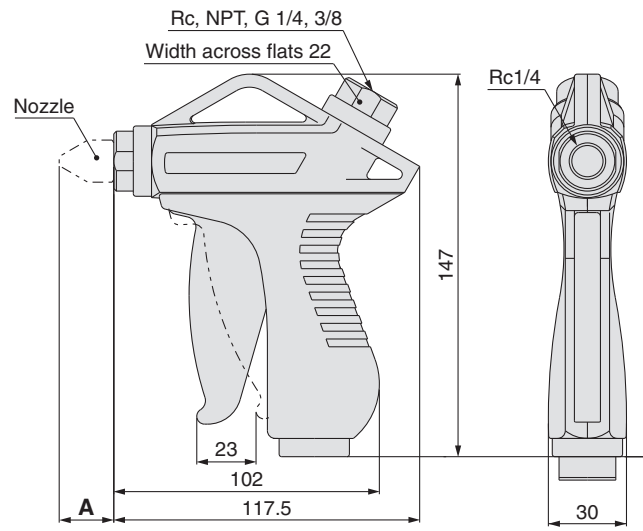



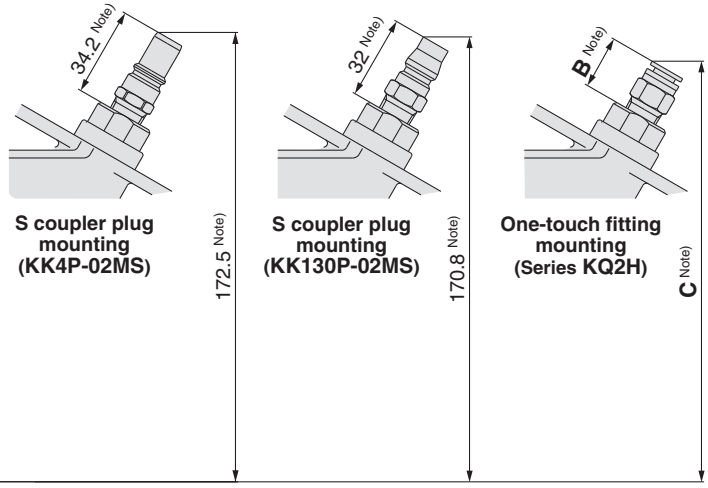

**S coupler plug mounting (KK4P-02MS)**

**S coupler plug mounting (KK130P-02MS)**

**One-touch fitting mounting (Series KQ2H)**

### VMG12/Piping entry: Top




**S coupler plug mounting (KK4P-02MS)**

**S coupler plug mounting (KK130P-02MS)**

**One-touch fitting mounting (Series KQ2H)**

[mm]

| Symbol | Type | | Nozzle part no. | Nozzle size | A Note) |
|---|---|---|---|---|---|
| 01 | Male thread nozzle | | KN-R02-100 | ø1 | 23.4 |
| 02 | | | KN-R02-150 | ø1.5 | 23 |
| 03 | | | KN-R02-200 | ø2 | 22.5 |
| 04 | | | KN-R02-250 | ø2.5 | 22.1 |
| 05 | | | VMG1-R02-300 | ø3 | 22 |
| 06 | | | VMG1-R02-350 | ø3.5 | 21.5 |
| 07 | | | VMG1-R02-400 | ø4 | |
| 11 | High efficiency nozzle | | KNH-R02-100 | ø1 | 44 |
| 12 | | | KNH-R02-150 | ø1.5 | |
| 13 | | | KNH-R02-200 | ø2 | |
| 21 | Low noise nozzle with male thread | | KNS-R02-075-4 | ø0.75 x 4 | 12 |
| 22 | | | KNS-R02-090-8 | ø0.9 x 8 | |
| 23 | | | KNS-R02-100-4 | ø1 x 4 | |
| 24 | | | KNS-R02-110-8 | ø1.1 x 8 | |
| 31 | ø6 copper extension nozzle Note) | Nozzle length: 300 mm | VMG1-06-150-300 | ø1.5 | 298 |
| 32 | | | VMG1-06-200-300 | ø2 | |
| 33 | | Nozzle length: 600 mm | VMG1-06-150-600 | ø1.5 | 598 |
| 34 | | | VMG1-06-200-600 | ø2 | |
| 35 | | Nozzle length: 100 mm | VMG1-06-150-100 | ø1.5 | 98 |
| 36 | | | VMG1-06-200-100 | ø2 | |
| 37 | | Nozzle length: 150 mm | VMG1-06-150-150 | ø1.5 | 148 |
| 38 | | | VMG1-06-200-150 | ø2 | |

Note) Reference dimensions after installation

[mm]

| Symbol | Type | | Nozzle part no. | Nozzle size | A Note) |
|---|---|---|---|---|---|
| 41 | ø8 copper extension nozzle Note) | Nozzle length: 100 mm | VMG1-08-250-100 | ø2.5 | 98 |
| 42 | | | VMG1-08-300-100 | ø3 | |
| 43 | | | VMG1-08-350-100 | ø3.5 | |
| 44 | | Nozzle length: 150 mm | VMG1-08-250-150 | ø2.5 | 148 |
| 45 | | | VMG1-08-300-150 | ø3 | |
| 46 | | | VMG1-08-350-150 | ø3.5 | |
| 47 | | Nozzle length: 300 mm | VMG1-08-250-300 | ø2.5 | 298 |
| 48 | | | VMG1-08-300-300 | ø3 | |
| 49 | | | VMG1-08-350-300 | ø3.5 | |
| 50 | | Nozzle length: 600 mm | VMG1-08-250-600 | ø2.5 | 598 |
| 51 | | | VMG1-08-300-600 | ø3 | |
| 52 | | | VMG1-08-350-600 | ø3.5 | |

[mm]

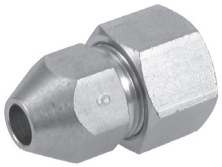
| Type | One-touch fitting model | B Note) | C Note) |
|---|---|---|---|
| Metric size one-touch fitting | KQ2H06-02AS | 12 | 153.2 |
| | KQ2H08-02AS | 17.3 | 158.6 |
| | KQ2H10-02AS | 22.6 | 163.8 |
| Inch size one-touch fitting | KQ2H07-35AS | 12.3 | 153.2 |
| | KQ2H09-35AS | 17.7 | 158.9 |
| | KQ2H11-35AS | 20.7 | 162 |

Note) Reference dimensions after installation

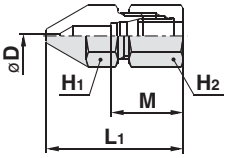
## Dimensions: Nozzles/Series KN

### Nozzle with self-align fitting/KN

(mm)



| Model | Nozzle size ø**D** | Applicable tubing O.D. | Width across flats **H1** | Width across flats **H2** | **L1** | **M** | Weight (g) |
|---|---|---|---|---|---|---|---|
| **KN-04-100** | ø1 | ø4 | 10 | 10 | 27 | 15 | 13 |
| **KN-04-150** | ø1.5 | ø4 | 10 | 10 | 27.7 | 15 | 14 |
| **KN-06-100** | ø1 | ø6 | 12 | 12 | 30.1 | 16 | 19 |
| **KN-06-150** | ø1.5 | ø6 | 12 | 12 | 30.8 | 16 | 20 |
| **KN-06-200** | ø2 | ø6 | 12 | 12 | 31.5 | 16 | 22 |
| **KN-08-150** | ø1.5 | ø8 | 14 | 14 | 33.8 | 16 | 28 |
| **KN-08-200** | ø2 | ø8 | 14 | 14 | 34.6 | 16 | 30 |
| **KN-10-250** | ø2.5 | ø10 | 14 | 17 | 35.6 | 17 | 35 |
| **KN-10-300** | ø3 | ø10 | 14 | 17 | 36.3 | 17 | 36 |
| **KN-10-350** | ø3.5 | ø10 | 14 | 17 | 37.1 | 17 | 37 |
| **KN-10-400** | ø4 | ø10 | 14 | 17 | 29.5 | 17 | 30 |
| **KN-10-600** | ø6 | ø10 | 14 | 17 | 27.7 | 17 | 28 |
| **KN-12-350** | ø3.5 | ø12 | 17 | 19 | 40.4 | 17 | 54 |
| **KN-12-400** | ø4 | ø12 | 17 | 19 | 41.3 | 17 | 55 |
| **KN-12-600** | ø6 | ø12 | 17 | 19 | 31.2 | 17 | 40 |
| **KN-16-400** | ø4 | ø16 | 22 | 24 | 40.1 | 17 | 77 |
| **KN-16-600** | ø6 | ø16 | 22 | 24 | 38.4 | 17 | 79 |
| **KN-20-400** | ø4 | ø20 | 26 | 27 | 45.6 | 17 | 117 |
| **KN-20-600** | ø6 | ø20 | 26 | 27 | 43.9 | 17 | 112 |



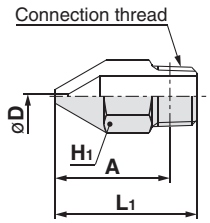

### Male thread nozzle: v

[mm]



| Model | Nozzle size ø**D** | Connection thread | Width across flats **H1** | **L1** | **A*** | Weight (g) |
|---|---|---|---|---|---|---|
| **KN-R01-100** | ø1 | R 1/8 | 10 | 21.4 | 17.4 | 8 |
| **KN-R01-150** | ø1.5 | R 1/8 | 10 | 21 | 17 | 8 |
| **KN-R02-100** | ø1 | R 1/4 | 14 | 31.4 | 25.4 | 19 |
| **KN-R02-150** | ø1.5 | R 1/4 | 14 | 31 | 25 | 20 |
| **KN-R02-200** | ø2 | R 1/4 | 14 | 30.5 | 24.5 | 21 |
| **KN-R02-250** | ø2.5 | R 1/4 | 14 | 30.1 | 24.1 | 21 |
| **KN-R02-600** | ø6 | R 1/4 | 14 | 27.1 | 21.1 | 22 |
| **KN-R03-400** | ø4 | R 3/8 | 17 | 31.8 | 25.4 | 36 |
| **KN-R03-600** | ø6 | R 3/8 | 17 | 30.1 | 23.7 | 37 |
| **KN-R04-400** | ø4 | R 1/2 | 22 | 41.8 | 33.6 | 75 |
| **KN-R04-600** | ø6 | R 1/2 | 22 | 40.1 | 31.8 | 76 |
| **KN-R06-600** | ø6 | R 3/4 | 27 | 49.6 | 40.1 | 149 |
| **KN-R06-800** | ø8 | R 3/4 | 27 | 47.8 | 38 | 152 |
| **KN-R10-800** | ø8 | R 1 | 36 | 62.8 | 52.4 | 328 |
| **VMG1-R02-300** | ø3 | R 1/4 | 14 | 30 | 24 | |
| **VMG1-R02-350** | ø3.5 | R 1/4 | 14 | 29.5 | 23.5 | |
| **VMG1-R02-400** | ø4 | R 1/4 | 14 | 29.5 | 23.5 | |

∗ Reference dimensions after R thread installation.

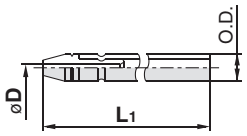



### Copper extension nozzle/KNL

(mm)



| Model | Nozzle size ø**D** | Outside diameter | **L1** | Weight (g) |
|---|---|---|---|---|
| **KNL3-06-150** | ø1.5 | ø6 | 300 | 43 |
| **KNL3-06-200** | ø2 | ø6 | 300 | 43 |
| **KNL3-08-200** | ø2 | ø8 | 300 | 61 |
| **KNL3-08-250** | ø2.5 | ø8 | 300 | 61 |
| **KNL3-10-250** | ø2.5 | ø10 | 300 | 94 |
| **KNL3-10-300** | ø3 | ø10 | 300 | 94 |
| **KNL6-06-150** | ø1.5 | ø6 | 600 | 84 |
| **KNL6-06-200** | ø2 | ø6 | 600 | 84 |
| **KNL6-08-200** | ø2 | ø8 | 600 | 117 |
| **KNL6-08-250** | ø2.5 | ø8 | 600 | 117 |
| **KNL6-10-250** | ø2.5 | ø10 | 600 | 183 |
| **KNL6-10-300** | ø3 | ø10 | 600 | 183 |

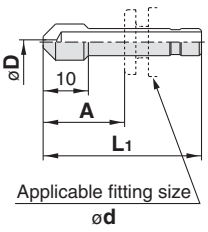



### Nozzle for One-touch fitting (Resin type)/KN-Q□A

(mm)



| Model | Nozzle dia. ø**D** | Applicable fitting size ø**d** | **L1** | **A**∗1 | Weight [g] |
|---|---|---|---|---|---|
| **KN-Q06A-100** | ø1 | ø6 | 35 | 21.8 | 1 |
| **KN-Q06A-150** | ø1.5 | ø6 | 35 | 21.8 | 1 |
| **KN-Q06A-200** | ø2 | ø6 | 35 | 21.8 | 1 |
| **KN-Q08A-150** | ø1.5 | ø8 | 39 | 24.8 | 2 |
| **KN-Q08A-200** | ø2 | ø8 | 39 | 24.8 | 2 |
| **KN-Q10A-200** | ø2 | ø10 | 43 | 27.4 | 3 |
| **KN-Q10A-250** | ø2.5 | ø10 | 43 | 27.4 | 3 |
| **KN-Q12A-250** | ø2.5 | ø12 | 45.5 | 28.5 | 4 |
| **KN-Q12A-300** | ø3 | ø12 | 45.5 | 28.5 | 4 |




∗1 Dimensions shown are for nozzle connected to the KQ2 series.

**⚠Warning [Mounting / Piping] Applicable nozzle: Nozzle for One-touch fitting (Resin/Metal type)**

When connecting the nozzle to the One-touch fitting, insert it securely until it cannot move any further. After setting the nozzle deep into the fitting, be sure to pull on the nozzle to confirm that it is firm and does not budge. If the nozzle is not secured all the way at the back of the fitting or if there is insufficient engagement with the One-touch fitting, the nozzle may dislodge during pressurization, which is dangerous and may result in injury or accident.

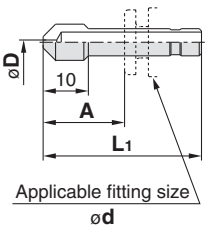
## Nozzle for One-touch fitting/KN

(mm)



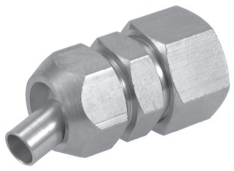
**Connecting products with metal rods**
Products with metal rods cannot be connected to the KQ2 series One-touch fittings. If connected, the metal rod cannot be retained by the chuck of the One-touch fitting and products with metal rods may project during pressurization, causing serious personal injury or accident.
For details about One-touch fittings that can connect products with metal rods, contact SMC.

| Model | Nozzle size ø**D** | Applicable fitting size ø**d** | **L1** | **A** | Weight (g) |
|---|---|---|---|---|---|
| **KN-Q06-100** | ø1 | ø6 | 35 | 18 | 5 |
| **KN-Q06-150** | ø1.5 | ø6 | 35 | 18 | 5 |
| **KN-Q06-200** | ø2 | ø6 | 35 | 18 | 5 |
| **KN-Q08-150** | ø1.5 | ø8 | 39 | 20.5 | 9 |
| **KN-Q08-200** | ø2 | ø8 | 39 | 20.5 | 9 |
| **KN-Q10-200** | ø2 | ø10 | 43 | 22 | 16 |
| **KN-Q10-250** | ø2.5 | ø10 | 43 | 22 | 16 |
| **KN-Q12-250** | ø2.5 | ø12 | 45.5 | 24 | 23 |
| **KN-Q12-300** | ø3 | ø12 | 45.5 | 24 | 23 |

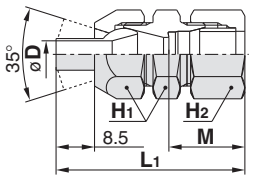



## Pivoting nozzle with self-align fitting/KNK

(mm)



| Model | Nozzle size ø**D** | Applicable tubing O.D. | Width across flats **H1** | Width across flats **H2** | **L1** | **M** | Weight (g) |
|---|---|---|---|---|---|---|---|
| **KNK-10-400** | ø4 | ø10 | 17 | 17 | 41.7 | 17 | 44 |
| **KNK-10-600** | ø6 | ø10 | 17 | 17 | 41.7 | 17 | 44 |
| **KNK-12-400** | ø4 | ø12 | 17 | 19 | 41.2 | 17 | 44 |
| **KNK-12-600** | ø6 | ø12 | 17 | 19 | 41.2 | 17 | 44 |
| **KNK-16-400** | ø4 | ø16 | 17 | 24 | 41.8 | 17 | 64 |
| **KNK-16-600** | ø6 | ø16 | 17 | 24 | 41.8 | 17 | 64 |
| **KNK-20-400** | ø4 | ø20 | 17 | 27 | 43.8 | 17 | 77 |
| **KNK-20-600** | ø6 | ø20 | 17 | 27 | 43.8 | 17 | 77 |



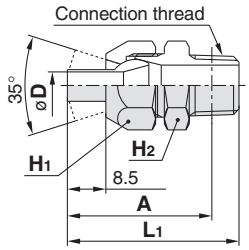

## Pivoting nozzle with male thread/KNK

(mm)



| Model | Nozzle size ø**D** | Connection thread | Width across flats **H1** | Width across flats **H2** | **L1** | **A*** | Weight (g) |
|---|---|---|---|---|---|---|---|
| **KNK-R02-400** | ø4 | R 1/4 | 17 | 17 | 38 | 31.9 | 32 |
| **KNK-R02-600** | ø6 | R 1/4 | 17 | 17 | 38 | 31.9 | 32 |
| **KNK-R03-400** | ø4 | R 3/8 | 17 | 17 | 39 | 32.4 | 40 |
| **KNK-R03-600** | ø6 | R 3/8 | 17 | 17 | 39 | 32.4 | 40 |
| **KNK-R04-400** | ø4 | R 1/2 | 17 | 22 | 42.2 | 34.1 | 54 |
| **KNK-R04-600** | ø6 | R 1/2 | 17 | 22 | 42.2 | 34.1 | 54 |

∗ Reference dimensions after R thread installation.



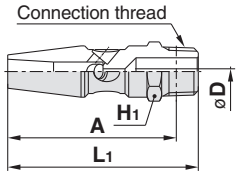

## High efficiency nozzle/KNH

(mm)



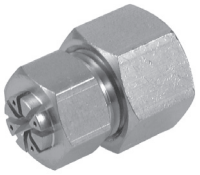
| Model | Nozzle size ø**D** | Connection thread | Width across flats **H1** | **L1** | **A*** | Weight (g) |
|---|---|---|---|---|---|---|
| **KNH-R02-100** | ø1 | R 1/4 | 14 | 52 | 46 | 38 |
| **KNH-R02-150** | ø1.5 | R 1/4 | 14 | 52 | 46 | 38 |
| **KNH-R02-200** | ø2 | R 1/4 | 14 | 52 | 46 | 38 |

∗ Reference dimensions after R thread installation.

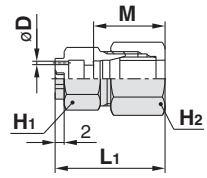



## Low noise nozzle with self-align fitting/KNS

(mm)



| Model | Nozzle size ø**D** | Applicable tubing O.D. | Width across flats **H1** | Width across flats **H2** | **L1** | **M** | Weight (g) |
|---|---|---|---|---|---|---|---|
| **KNS-08-075-4** | ø0.75 x 4 | ø8 | 12 | 14 | 24.3 | 16 | 17 |
| **KNS-08-100-4** | ø1 x 4 | ø8 | 12 | 14 | 24.3 | 16 | 17 |
| **KNS-10-075-4** | ø0.75 x 4 | ø10 | 14 | 17 | 24 | 17 | 24 |
| **KNS-10-090-8** | ø0.9 x 8 | ø10 | 14 | 17 | 24 | 17 | 24 |
| **KNS-10-100-4** | ø1 x 4 | ø10 | 14 | 17 | 24 | 17 | 24 |



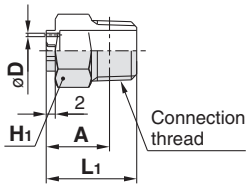

## Low noise nozzle with male thread/KNS

(mm)



| Model | Nozzle size ø**D** | Connection thread | Width across flats **H1** | **L1** | **A*** | Weight (g) |
|---|---|---|---|---|---|---|
| **KNS-R01-075-4** | ø0.75 x 4 | R 1/8 | 12 | 18 | 14 | 9 |
| **KNS-R01-100-4** | ø1 x 4 | R 1/8 | 12 | 18 | 14 | 9 |
| **KNS-R01-090-8** | ø0.9 x 8 | R 1/8 | 12 | 18 | 14 | 9 |
| **KNS-R02-075-4** | ø0.75 x 4 | R 1/4 | 14 | 20 | 14 | 13 |
| **KNS-R02-090-8** | ø0.9 x 8 | R 1/4 | 14 | 20 | 14 | 13 |
| **KNS-R02-100-4** | ø1 x 4 | R 1/4 | 14 | 20 | 14 | 13 |
| **KNS-R02-110-8** | ø1.1 x 8 | R 1/4 | 14 | 20 | 14 | 13 |

∗ Reference dimensions after R thread installation.



## Sensing Heads

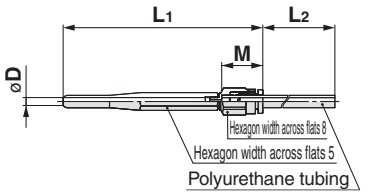
### Standard sensing head/KNP

(mm)



| Model | Nozzle size øD | Applicable tubing O.D. | Width across flats H1 | Width across flats H2 | M | L1 | L2 | Weight (g) |
|---|---|---|---|---|---|---|---|---|
| KNP-1 | ø2.5 | ø4 | 5 | 8 | 13.3 | 64.6 | 986.7 | 7 |

∗ A 1 m polyurethane tube is included.



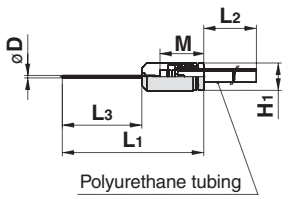

### Needle sensing head/KNP

(mm)

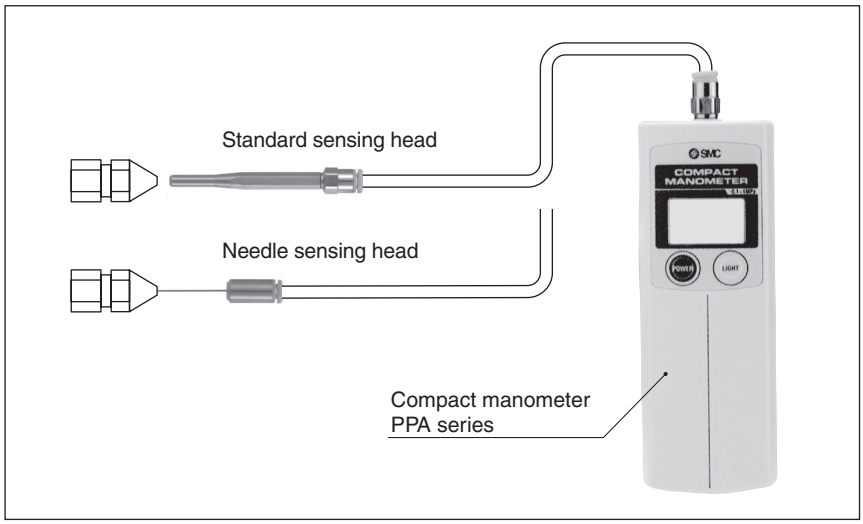


| Model | Nozzle size øD | Applicable tubing O.D. | Cassette size H1 | M | L1 | L2 | L3 | Weight (g) |
|---|---|---|---|---|---|---|---|---|
| KNP-2 | ø0.7 | ø4 | 5 | 12.7 | 41 | 987.3 | 23 | 4 |

∗ A 1 m polyurethane tube is included.




Use to measure workpiece collision pressure.




## Principal Parts Material

### KN, KNK, KNH, KNS

| | |
|---|---|
| Body, nut | C3604 |
| Sleeve (Self-align fitting type) | C2700 |
| Nozzle (Pivoting type) | Stainless steel 303 |

### KNL

| | |
|---|---|
| Pipe | C1220T-0 |
| Nozzle | C3604 |

### KNP-1

| | |
|---|---|
| Pressure spindle | Stainless steel 303 |
| One-touch fittings | POM, NBR, Stainless steel 303, Stainless steel 304 |
| Polyurethane tube (ø4, 1 m) | Polyurethane |

### KNP-2

| | |
|---|---|
| Pipe | Stainless steel 304 |
| One-touch fittings | POM, NBR, Stainless steel 304 |
| Polyurethane tube (ø4, 1 m) | Polyurethane |

## Specifications

### Nozzle (KN, KNK, KNH, KNS, KNL)

| | | |
|---|---|---|
| **Applicable tubing material** | | Nylon, Soft nylon, Flexible copper pipe (C1220T-O), OST pipe |
| **Applicable tubing O.D.** | | ø4, ø6, ø8, ø10, ø12, ø16, ø20 |
| **Fluid** | | Air, Coolant |
| **Maximum operating pressure** | | 1 MPa (0.3 MPa with OST pipe) |
| **Ambient and fluid temperature** | | -5 to 60°C (No freezing) |
| **Threads** | **Mounting** | JISB0203 (taper threads for piping) |
| | **Nut** | JISB0205 (Metric fine thread) |
| **Seal on the threads** | | None |
| **Copper-free (Standard)** | | Brass parts are all electroless nickel plated. |

### Sensing head (KNP)

| | |
|---|---|
| **Applicable tubing O.D.** | ø4 |
| **Fluid** | Air |
| **Maximum operating pressure (at 20°C)** | 0.8 MPa |
| **Ambient and fluid temperature** | -5 to 60°C (No freezing) |

### Copper extension nozzle set

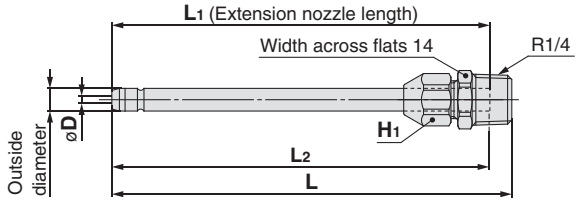
[mm]



| Part no. | Nozzle size D | Outside diameter | $L_1$ | $L_2$ Note1) | L Note1) | Width across flats $H_1$ |
|---|---|---|---|---|---|---|
| **VMG1-06-150-100** | ø1.5 | ø6 | 100 | 100 | 106 | 12 |
| **VMG1-06-200-100** | ø2 | | | | | |
| **VMG1-06-150-150** | ø1.5 | | 150 | 150 | 156 | |
| **VMG1-06-200-150** | ø2 | | | | | |
| **VMG1-06-150-300** | ø1.5 | | 300 | 300 | 306 | |
| **VMG1-06-200-300** | ø2 | | | | | |
| **VMG1-06-150-600** | ø1.5 | | 600 | 600 | 606 | |
| **VMG1-06-200-600** | ø2 | | | | | |
| **VMG1-08-250-100** | ø2.5 | ø8 | 100 | 100 | 106 | 14 |
| **VMG1-08-300-100** | ø3 | | | | | |
| **VMG1-08-350-100** | ø3.5 | | | | | |
| **VMG1-08-250-150** | ø2.5 | | 150 | 150 | 156 | |
| **VMG1-08-300-150** | ø3 | | | | | |
| **VMG1-08-350-150** | ø3.5 | | | | | |
| **VMG1-08-250-300** | ø2.5 | | 300 | 300 | 306 | |
| **VMG1-08-300-300** | ø3 | | | | | |
| **VMG1-08-350-300** | ø3.5 | | | | | |
| **VMG1-08-250-600** | ø2.5 | | 600 | 600 | 606 | |
| **VMG1-08-300-600** | ø3 | | | | | |
| **VMG1-08-350-600** | ø3.5 | | | | | |

Note 1) Reference dimensions after installation

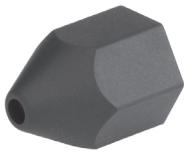
Note 2) Copper extension nozzle and self-align fitting are included in the same package, (but unassembled). Refer to “How to attach extension nozzle” in the operation manual for assembly procedures.



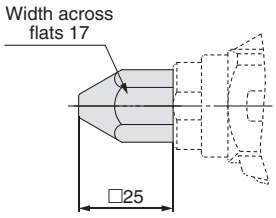

## Dimensios: Nozzle Cover

### Cover for male thread nozzle

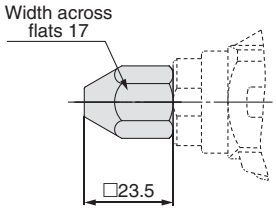
[mm]



| Nozzle cover part no. | Material | Applicable blow gun model | |
|---|---|---|---|
| | | Model | Nozzle type |
| **P5670129-01** | HNBR | VMG1□□-□-01 to 04 | Male thread nozzle ø1 to ø2.5 |
| **P5670129-01F** | Fluororubber | | |
| **P5670129-02** | HNBR | VMG1□□-□-05 to 07 | Male thread nozzle ø3 to ø4 |
| **P5670129-02F** | Fluororubber | | |




**VMG1□-□□-1 to 04**



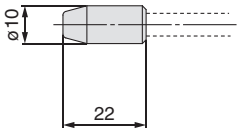

**VMG1□-□□-05 to 07**

### Cover for copper extension nozzle

[mm]



| Nozzle cover part no. | Material | Applicable blow gun model | |
|---|---|---|---|
| | | Model | Nozzle type |
| **P5670129-11** | HNBR | VMG1□□-□-31 to 38 | ø6 copper extension nozzle |
| **P5670129-11F** | Fluororubber | | |




**VMG1□-□□-31 to 38**

# Specific Product Precautions 1

**Be sure to read this before handling.**

## Selection

### ⚠Warning

**1. Check the specifications.**

The products in this catalogue are designed to be used in compressed air systems only. If the products are used in an environment where pressure or temperature is out of the specified range, damage and/or malfunction may result. Do not use under such conditions.

### ⚠Caution

**1. Do not apply the blow gun to flammable, explosive or toxic substances such as gas, fuel gas or refrigerant. Such substances may exude from inside the blow gun.**

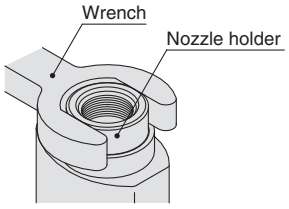
## Mounting

### ⚠Warning

**1. Install a stop valve on the supply pressure side of the blow gun to enable emergency shut off in case of unexpected leakage or damage.**

**2. When installing a nozzle on the blow gun, wrap pipe tape around the threads of the nozzle.**

**3. When installing the nozzle, secure the nozzle holder of the blow gun by applying a wrench of 22 mm width across flats to the two chamfered surfaces of the holder without applying force to the body. Then, tighten the nozzle with force within the torque range below. As a guideline, it is equivalent to 2 to 3 additional turns with a tool after manual tightening.**




| Nozzle tightening torque range | 12 to 14 N·m |
|---|---|

Insufficient tightening may cause loosening of the nozzle.

## Piping

### ⚠Caution

**1. Check the model, type and size before installation.**

Also, confirm that there is no scratches, gouges or cracks on the product.

**2. Before piping**

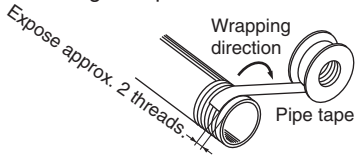
Before piping, it should be thoroughly blown out with air (flushing) or washed to remove chips, cutting oil and other debris from inside the pipe.

## Piping

### ⚠Caution

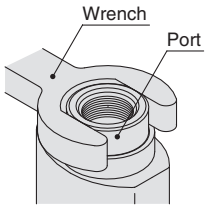
**3. Wrapping of pipe tape**

When screwing together pipes and fittings, etc., be certain that chips from the pipe threads and sealing material do not get inside the blow gun. Also, when the pipe tape is used, leave 1.5 to 2 thread ridges exposed at the end of the threads.




**4. When tightening the threads, secure the nozzle holder of the blow gun by applying a wrench of 22 mm width across flats to the two chamfered surfaces of the holder without applying force to the body. Then, tighten the nozzle with torque specified in the table below. As a guideline, it is equivalent to 2 to 3 additional turns with a tool after manual tightening.**

Be careful that tightening with torque beyond the ranges in the table below may cause damage to the body.




| Male thread | Tightening torque N·m |
|---|---|
| R1/4 | 12 to 14 |
| R3/8 | 22 to 24 |

**5. Allow extra length when connecting a tube to accommodate changes in tube length due to pressure.**

**6. Confirm that no twisting, turning or tensile force or moment load is applied to the port or tube. This may cause fittings to fracture or tubes to be crushed, burst or come loose.**

**7. Do not abrade, entangle or scratch the tube. This may cause the tube to be crushed, burst or come loose.**

## Lubrication

### ⚠Warning

**1. Do not lubricate the product.**

It may contaminate or damage the target object.

## Air Supply

### ⚠Warning

**1. Use clean air.**

Do not use compressed air which includes chemicals, synthetic oils containing organic solvents, salt or corrosive gases, etc., as it can cause damage or malfunction.

# Specific Product Precautions 2

**Be sure to read this before handling.**

## Air Supply

### ⚠Caution

**1. Install air filters.**

Install air filters at the upstream side of blow gun. Choose the filtration degree of 5 μm or finer.

**2. Install an after-cooler, air dryer or water droplet separator, etc.**

Air excessive drainage may cause a malfunction of blow gun and contaminate or damage the target object. To prevent this, install an after-cooler, air dryer or water droplet separator, etc.

## Operating Environment

### ⚠Warning

**1. Do not use in an atmosphere of corrosive gases, chemicals, sea water, water or water vapor or in an environment where such substances may adhere.**

**2. Provide shading in an environment where the product is exposed to the sunlight.**

**3. Do not use in an environment where a heat source is at a close distance.**

**4. Do not use in an environment where static electricity is a problem. It may cause malfunction or failure of the system. Please contact SMC for use in such an environment.**

**5. Do not use in an environment where spatters are generated. There is danger of fires caused by spattering. Please contact SMC for use in such an environment.**

**6. Do not use in an environment where the product is exposed to cutting oil, lubricating oil or coolant oil. Please contact SMC for use in an environment where the product is exposed to such liquid as cutting oil, lubricating oil or coolant oil.**

## Maintenance

### ⚠Caution

**1. In periodical inspections, check the following items and replace the parts if necessary.**

a) Scratches, gouges, abrasion, corrosion
b) Air leakage
c) Twisting, crushing and turning of connected tubes
d) Hardening, deterioration and softening of connected tubes
e) Loosening of nozzles

**2. When removing the product, first stop the pressure supply, exhaust compressed air in the piping and check the condition of atmospheric release.**

**3. Do not disassemble or remodel the body of the product.**

## Handling

### ⚠Warning

**1. To prevent lurching of the nozzle due to air pressure, confirm that the nozzle is not loosened or rattling by pulling it by hand before operation.**

**2. Make sure to wear safety goggles to protect yourself from splashed substances.**

**3. Do not direct the tip of the nozzle at the face or other parts of a human body. It may cause danger to personnel.**

**4. Do not use the product to clean or remove toxic substances or chemicals.**

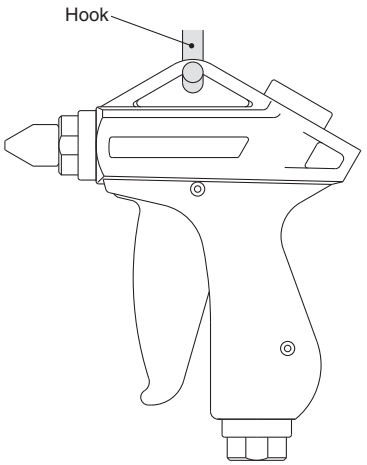
**5. Do not drop, step on or hit the product. It may cause damage to the product.**

**6. Do not use the product to disturb public order or public hygiene.**

**7. This product is not a toy.**

**8. After blowing, make sure to hang the product on a hook, etc.**

If leaving the product in a dusty place, particles will enter the product and may result in a malfunction.




**9. When the blow gun is used or stored, confirm that no twisting, turning or tensile force or moment load is applied to the port or tube. This may cause fittings to fracture or tubes to be crushed, burst or come loose.**

**10. When attaching a nozzle cover, align the hex parts of the nozzle and nozzle cover before covering. When attaching an extension nozzle cover, confirm that the nozzle tip is completely inserted into the extension nozzle cover.**

**11. Do not use a nozzle cover or extension nozzle cover if it is cracked or does not fit securely, and replace with a new cover.**

## ⚠ 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.

| | |
|---|---|
| ⚠ **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. |

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 10218-1: Manipulating industrial robots - Safety.
etc.

## ⚠ 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 catalogue 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 catalogue.
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.

## ⚠ Caution

**1. 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 catalogue 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 regulations 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.

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Printing BO 00 Printed in Spain

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