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.
## Energy Saving Pneumatic System Proposal

### Energy Saving Effects

When the yearly total working hours spent on air blowing amounts to 8,300 hours, use of conventional models results in power consumption costs totaling 1,942 dollar. When using the SMC system (Blow gun + S coupler + Coil tube), however, the yearly cost is reduced to 1,556 dollar, for a total yearly saving of 385 dollar, or 20% of the total.

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

<table>
<thead>
<tr>
<th>Total working hours of use (thousands of hour)</th>
<th>Cost of electricity consumed by compressor (thousands of dollar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5,000</td>
<td>1.942</td>
</tr>
<tr>
<td>6,000</td>
<td>1.556</td>
</tr>
<tr>
<td>7,000</td>
<td></td>
</tr>
<tr>
<td>8,000</td>
<td></td>
</tr>
<tr>
<td>9,000</td>
<td></td>
</tr>
<tr>
<td>10,000</td>
<td></td>
</tr>
</tbody>
</table>

**Cost of electricity consumed by compressor (thousands of dollar)**

- **Blow gun + S coupler + Coil tube** 1,556 dollar
- **Conventional model** 1,942 dollar

Amount saved as a result of energy saving effects:

- **Blow gun + S coupler + Coil tube** $385/year
- **Blow gun only** $194/year

**Calculation conditions**
- **Blowing distance:** 3.9 in
- **Impact pressure:** 1.59 psi
- **Cost of electricity:** $0.15/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

#### Series VMG
- Energy saving valve construction: 4.65 x 10^-2 in
- Balance-poppet valve construction

#### Conventional model
- Conventional construction: 0.93 x 10^-2 in

**Pressure loss**

- **Conventional model** 0.725 psi or less
- **VMG** (Nozzle size: ø2.5 mm)

**Features**

- PAT.PEND
- Blow gun only
- Blow gun + S coupler + Coil tube

**Straightener flowing fluid**

- improvement pressure loss!
SMC helps you work toward a revolutionized production system with a focus on saving-energy.

**Example of Improvement**

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

### Before improvement

- **S coupler**
- **Coil tube**
- **Nozzle ø2.5 mm**
- **Effective area ratio**: 0.69 : 1

### After improvement

- **Filter regulator**
- **S coupler**
- **Coil tube**
- **VMG Nozzle ø2.5 mm**
- **Effective area ratio**: 3.04 : 1

### Table Comparison


<table>
<thead>
<tr>
<th>Equipment</th>
<th>After improvement</th>
<th>Before improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coupler</td>
<td>S coupler</td>
<td>Conventional model</td>
</tr>
<tr>
<td>Piping</td>
<td>TCU1065:B-1-20-X6</td>
<td>Conventional coil tube model (I.D. ø5 mm, equivalent length 5 m)</td>
</tr>
<tr>
<td>Air gun</td>
<td>VMG (Nozzle size ø2.5 mm)</td>
<td>Conventional model (Nozzle size ø3 mm)</td>
</tr>
<tr>
<td>Effective area</td>
<td>Coupler, Piping (S₀)</td>
<td>2.1 x 10⁻² in²</td>
</tr>
<tr>
<td></td>
<td>Air gun (S₁)</td>
<td>4.6 x 10⁻² in²</td>
</tr>
<tr>
<td></td>
<td>Nozzle (S₂)</td>
<td>0.68 x 10⁻² in²</td>
</tr>
<tr>
<td>Effective area ratio (S₀ to S₁: S₂)</td>
<td>3.04 : 1</td>
<td>0.69 : 1</td>
</tr>
<tr>
<td>Impact pressure</td>
<td>1.59 psi (at a distance of 3.9 in)</td>
<td>1.59 psi (at a distance of 3.9 in)</td>
</tr>
<tr>
<td>Regulator pressure</td>
<td>58 psi</td>
<td>72.5 psi</td>
</tr>
<tr>
<td>Pressure inside nozzle</td>
<td>55.8 psi</td>
<td>40.3 psi</td>
</tr>
<tr>
<td>Compressor pressure</td>
<td>72.5 psi</td>
<td>87 psi</td>
</tr>
<tr>
<td>Air consumption</td>
<td>9.07 scfm</td>
<td>10.1 scfm</td>
</tr>
<tr>
<td>Power consumption by compressor</td>
<td>1.25 kW</td>
<td>1.56 kW</td>
</tr>
</tbody>
</table>

- **Effects of reduced power consumption**: 20% reduction
- **Effects of lowered pressure**: 16.7% reduction in pressure
- **Effects of reduced flow volume**: 10.4% reduction in flow volume
Blow Gun, Coil Tube and S Coupler Selection

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

<table>
<thead>
<tr>
<th>Distance</th>
<th>Blow gun</th>
<th>Nozzle size</th>
<th>Fitting</th>
<th>Coil tube</th>
<th>S coupler</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 0.8 in</td>
<td>VMG1□□-02-01</td>
<td>ø1 mm</td>
<td>KQ2H06-02S</td>
<td>TCU0604□□-1-20-X6</td>
<td>KK4P-06H</td>
</tr>
<tr>
<td>Up to 1.6 in</td>
<td>VMG1□□-02-02</td>
<td>ø1.5 mm</td>
<td>KQ2H06-02S</td>
<td>TCU0604□□-1-20-X6</td>
<td>KK4P-06H</td>
</tr>
<tr>
<td>Up to 2.4 in</td>
<td>VMG1□□-02-03</td>
<td>ø2 mm</td>
<td>KQ2H08-02S</td>
<td>TCU0805□□-1-20-X6</td>
<td>KK4P-08H</td>
</tr>
<tr>
<td>Over 2.4 in</td>
<td>VMG1□□-02-04</td>
<td>ø2.5 mm</td>
<td>KQ2H10-02S</td>
<td>TCU1085□□-1-20-X6</td>
<td>KK4P-10H</td>
</tr>
</tbody>
</table>

Energy Saving Flow

Air guns with an effective area around $0.93 \times 10^{-2}$ in² are most commonly used. But the SMC blow gun achieves a $4.65 \times 10^{-2}$ in² effective area.

- **Effective area: Large**
- **Pressure drop: Small**
  - High pressure right before the nozzle

As a result...

- **Required less air consumption**
- **Effective discharge at low pressure**
- **Smaller nozzle diameter**
- **Lower discharge pressure from compressor**

Thus...

**Reduction in the amount of electricity consumed by compressor** = Energy saving!

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.

- **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.
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

Components are separable. Environmentally friendly

Material name is indicated on resin parts. In addition, all components are separable according to their material composition.

Shock-resistant resin is used in the main body. No cracks, breaks or other damage occurred in a drop test from a 6.5 ft height or in a human stomp test.

Variations

Nozzle type

- Low noise nozzle
  Mono-porous nozzle (ø2 mm) 90 to 100 dB
  ø1 mm x 4 low noise nozzles 80 dB or less
  Note) Supply pressure: 72.5 psi
  Measured at a 45 degree angle according to JIS B 8379
  * Achieving lower noise by dividing the air blow slit

- Male thread nozzle
  * Powerful and economical

- High efficiency nozzle
  * Making use of Bernoulli effect and achieving high efficiency

- Copper extension nozzle
  Nozzle length: 11.8 in, 23.6 in
  * Secures more power even at a greater distance from a workpiece.

Connection type

- Screw-in type
- S coupler plug type
- One-touch fitting type

Port size

- Rc, NPT, G 1/4
- Rc, NPT, G 3/8
- KK4P-02MS
- KK130P-02MS

Applicable tube O.D.

- Metric size: ø6 mm, ø8 mm, ø10 mm
- Inch size: ø1/4", ø5/16", ø3/8"

Features

- Not affected by supply pressure, assured operability
- Components are separable.
- Environmentally friendly
How to Order

Blow Gun

Series VMG

VMG 1 1 W - 02 - 01

How to Order

Specifications

Blow gun

Standard type

Series

1 Resin body lever type

Piping entry

1 Bottom

2 Top

Body color

W White

BU Dark blue

How to Order

Nozzle

Symbol | Type | Nozzle model | Nozzle size (mm)
---|---|---|---
01 | Without nozzle | KN-R02-100 | ø1
02 | Male thread nozzle | KN-R02-150 | ø1.5
03 | | KN-R02-200 | ø2
04 | | KN-R02-250 | ø2.5
11 | High efficiency nozzle | KNH-R02-100 | ø1
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
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 | Copper nozzle | Length | KNL3-06-150 | ø1.5
32 | | 12 in (300 mm) | KNL3-06-200 | ø2
33 | | Length | KNL6-06-150 | ø1.5
34 | | 24 in (600 mm) | KNL6-06-200 | ø2

Note 1) When the copper extension nozzle is ordered in a blow gun set, one piece of H06-02 self-align fitting is attached.

Note 2) When a copper extension nozzle is ordered separately, a self-align fitting will be required for connection. Refer to nozzle models on page 4.

Connection size

Symbol | Piping connection type | Size/Part no.
---|---|---
02 | Screw-in type | Rc 1/4
03 | | Rc 3/8
02 | | NPT 1/4
03 | | NPT 3/8
F02 | | G 1/4
F03 | | G 3/8
11 | S coupler plug type | Plug part no.
12 | | KK4P-02MS
H06 | Metric size one-touch fitting type | Fitting part no.
H08 | | K2H06-02S (ø6 mm)
H10 | | K2H08-02S (ø8 mm)
H07 | Inch size one-touch fitting type | Fitting part no.
H09 | | K2H07-35S (ø1/4")
H11 | | K2H09-35S (ø5/16")

Note 1) S couplers and fittings are included.

Note 2) In the case of S coupler plug type, the port size is Rc 1/4.

Note 3) In the case of metric size one-touch fitting type, the port size is Rc 1/4.

Note 4) In the case of inch size one-touch fitting type, the port size is NPT 1/4.

Note 5) ( ): Applicable tube O.D.

Specifications

Fluid | Air
Operating pressure range | 0 to 145 psi
Proof pressure | 218 psi
Ambient and fluid temperature | 23 to 143°F (No freezing)
Effective area | 4.6 x 10^-2 in² (without nozzle)
Port size | Rc, NPT, G 1/4, 3/8
Piping entry | Bottom, Top
Nozzle port size | Rc 1/4
Weight | 0.4 lb(s)
Operational force (when the valve is fully open) | 0.93 lb(f)
**Construction**

**Component Parts**

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body L</td>
<td>PBT</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Body R</td>
<td>PBT</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Main valve</td>
<td>PBT</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Valve guide</td>
<td>Aluminium alloy Chromated</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Nozzle holder</td>
<td>Aluminium alloy Anodized</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Port</td>
<td>Aluminium alloy Anodized</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Elbow</td>
<td>PBT</td>
<td>Only for VMG12</td>
</tr>
<tr>
<td>8</td>
<td>Cover</td>
<td>Stainless steel</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Ring</td>
<td>Stainless steel</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Arm L</td>
<td>PBT</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Arm R</td>
<td>PBT</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Spring</td>
<td>Stainless steel</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Main valve seal</td>
<td>HNBR</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Lever</td>
<td>PBT</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Piping (bottom)</td>
<td>POM</td>
<td>Only for VMG11 Combined with the elbow in 7</td>
</tr>
<tr>
<td>16</td>
<td>O-ring</td>
<td>NBR</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>O-ring</td>
<td>NBR</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Parallel pin</td>
<td>Stainless steel</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Cross recessed round head screw</td>
<td>Stainless steel</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Hexagon nut</td>
<td>Stainless steel</td>
<td></td>
</tr>
</tbody>
</table>

Note: Grease is used on rubber and sliding sections.

**Flow-rate Characteristics**

**Male thread nozzle**

- KN-R02-250
- KN-R02-200
- KN-R02-150
- KN-R02-100

**High efficiency nozzle**

- KNH-R02-200
- KNH-R02-150
- KNH-R02-100

**Low noise nozzle with male thread**

- KNS-R02-110-8
- KNS-R02-090-8
- KNS-R02-100-4
- KNS-R02-075-4

**Copper extension nozzle**

- KNL3-06-200
- KNL6-06-200
- KNL3-06-150
- KNL6-06-150

Note: Values when the main valve is fully open.
**Dimensions**

**VMG11/Piping entry: Bottom**

Note) Reference dimensions after installation

**VMG12/Piping entry: Top**

Note) Reference dimensions after installation

<table>
<thead>
<tr>
<th>Type</th>
<th>Nozzle model</th>
<th>Nozzle size (mm)</th>
<th>A (max)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male thread nozzle</td>
<td>KN-R02-100</td>
<td>α1</td>
<td>0.92</td>
</tr>
<tr>
<td></td>
<td>KN-R02-150</td>
<td>α1.5</td>
<td>0.91</td>
</tr>
<tr>
<td></td>
<td>KN-R02-200</td>
<td>α2</td>
<td>0.88</td>
</tr>
<tr>
<td></td>
<td>KN-R02-250</td>
<td>α2.5</td>
<td>0.87</td>
</tr>
<tr>
<td>High efficiency nozzle</td>
<td>KNH-R02-100</td>
<td>α1</td>
<td>1.73</td>
</tr>
<tr>
<td></td>
<td>KNH-R02-150</td>
<td>α1.5</td>
<td>1.73</td>
</tr>
<tr>
<td></td>
<td>KNH-R02-200</td>
<td>α2</td>
<td>1.73</td>
</tr>
<tr>
<td>Low noise nozzle with male thread</td>
<td>KNS-R02-075-4</td>
<td>α0.75 x 4</td>
<td>0.47</td>
</tr>
<tr>
<td></td>
<td>KNS-R02-090-8</td>
<td>α0.9 x 8</td>
<td>0.47</td>
</tr>
<tr>
<td></td>
<td>KNS-R02-100-4</td>
<td>α1 x 4</td>
<td>0.47</td>
</tr>
<tr>
<td></td>
<td>KNS-R02-110-8</td>
<td>α1.1 x 8</td>
<td>0.47</td>
</tr>
<tr>
<td>Copper extension nozzle</td>
<td>KNL3-06-150</td>
<td>α1.5</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>KNL3-06-200</td>
<td>α2</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>KNL6-06-150</td>
<td>α1.5</td>
<td>23.8</td>
</tr>
<tr>
<td></td>
<td>KNL6-06-200</td>
<td>α2</td>
<td>23.8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>One-touch fitting model</th>
<th>B (max)</th>
<th>C (max)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metric size one-touch fitting</td>
<td>KQ2H06-02S</td>
<td>0.67</td>
<td>6.22</td>
</tr>
<tr>
<td></td>
<td>KQ2H08-02S</td>
<td>0.81</td>
<td>6.36</td>
</tr>
<tr>
<td></td>
<td>KQ2H10-02S</td>
<td>1.08</td>
<td>6.61</td>
</tr>
<tr>
<td>Inch size one-touch fitting</td>
<td>KQ2H07-35S</td>
<td>0.67</td>
<td>6.22</td>
</tr>
<tr>
<td></td>
<td>KQ2H09-35S</td>
<td>0.81</td>
<td>6.36</td>
</tr>
<tr>
<td></td>
<td>KQ2H11-35S</td>
<td>1.08</td>
<td>6.61</td>
</tr>
</tbody>
</table>

Note) Reference dimensions after installation
Dimensions: Nozzles/Series KN

Male thread nozzle: KN

<table>
<thead>
<tr>
<th>Model</th>
<th>Nozzle size D (mm)</th>
<th>Connection thread</th>
<th>Width across flats H1</th>
<th>L1</th>
<th>A*</th>
</tr>
</thead>
<tbody>
<tr>
<td>KN-R02-100</td>
<td>ø1</td>
<td>R 1/4</td>
<td>0.55</td>
<td>1.24</td>
<td>1</td>
</tr>
<tr>
<td>KN-R02-150</td>
<td>ø1.5</td>
<td>R 1/4</td>
<td>0.55</td>
<td>1.22</td>
<td>0.98</td>
</tr>
<tr>
<td>KN-R02-200</td>
<td>ø2</td>
<td>R 1/4</td>
<td>0.55</td>
<td>1.19</td>
<td>0.96</td>
</tr>
<tr>
<td>KN-R02-250</td>
<td>ø2.5</td>
<td>R 1/4</td>
<td>0.55</td>
<td>1.18</td>
<td>0.95</td>
</tr>
</tbody>
</table>

* Reference dimensions after R thread installation

High efficiency nozzle: KNH

<table>
<thead>
<tr>
<th>Model</th>
<th>Nozzle size D (mm)</th>
<th>Connection thread</th>
<th>Width across flats H1</th>
<th>L1</th>
<th>A*</th>
</tr>
</thead>
<tbody>
<tr>
<td>KNH-R02-100</td>
<td>ø1</td>
<td>R 1/4</td>
<td>0.55</td>
<td>2.1</td>
<td>1.81</td>
</tr>
<tr>
<td>KNH-R02-150</td>
<td>ø1.5</td>
<td>R 1/4</td>
<td>0.55</td>
<td>2.1</td>
<td>1.81</td>
</tr>
<tr>
<td>KNH-R02-200</td>
<td>ø2</td>
<td>R 1/4</td>
<td>0.55</td>
<td>2.1</td>
<td>1.81</td>
</tr>
</tbody>
</table>

* Reference dimensions after R thread installation

Low noise nozzle with male thread: KNS

<table>
<thead>
<tr>
<th>Model</th>
<th>Nozzle size D (mm)</th>
<th>Connection thread</th>
<th>Width across flats H1</th>
<th>L1</th>
<th>A*</th>
</tr>
</thead>
<tbody>
<tr>
<td>KNS-R02-075-4</td>
<td>ø0.75 x 4</td>
<td>R 1/4</td>
<td>0.55</td>
<td>0.79</td>
<td>0.55</td>
</tr>
<tr>
<td>KNS-R02-090-8</td>
<td>ø0.9 x 8</td>
<td>R 1/4</td>
<td>0.55</td>
<td>0.79</td>
<td>0.55</td>
</tr>
<tr>
<td>KNS-R02-100-4</td>
<td>ø1 x 4</td>
<td>R 1/4</td>
<td>0.55</td>
<td>0.79</td>
<td>0.55</td>
</tr>
<tr>
<td>KNS-R02-110-8</td>
<td>ø1.1 x 8</td>
<td>R 1/4</td>
<td>0.55</td>
<td>0.79</td>
<td>0.55</td>
</tr>
</tbody>
</table>

* Reference dimensions after R thread installation

Copper extension nozzle: KNL

<table>
<thead>
<tr>
<th>Model</th>
<th>Nozzle size D (mm)</th>
<th>Outside diameter L1 (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KNL3-06-150</td>
<td>ø1.5</td>
<td>ø6</td>
</tr>
<tr>
<td>KNL3-06-200</td>
<td>ø2</td>
<td>ø6</td>
</tr>
<tr>
<td>KNL6-06-150</td>
<td>ø1.5</td>
<td>ø6</td>
</tr>
<tr>
<td>KNL6-06-200</td>
<td>ø2</td>
<td>ø6</td>
</tr>
</tbody>
</table>

Note) When a copper extension nozzle is ordered separately, a self-align fitting will be required for connection with the blow gun. Order with the below set number.

Self-align fitting (for copper extension nozzle connection)

Male connector H06-02-X2

Copper Extension Nozzle + Self-align Fitting/Set No.

<table>
<thead>
<tr>
<th>Set no.</th>
<th>Nozzle size</th>
<th>Self-align fitting</th>
</tr>
</thead>
<tbody>
<tr>
<td>KNL3-06-150A02</td>
<td>KNL3-06-150</td>
<td>H06-02-X2 (1 pc.)</td>
</tr>
<tr>
<td>KNL3-06-200A02</td>
<td>KNL3-06-200</td>
<td>H06-02-X2 (1 pc.)</td>
</tr>
<tr>
<td>KNL6-06-150A02</td>
<td>KNL6-06-150</td>
<td>H06-02-X2 (1 pc.)</td>
</tr>
<tr>
<td>KNL6-06-200A02</td>
<td>KNL6-06-200</td>
<td>H06-02-X2 (1 pc.)</td>
</tr>
</tbody>
</table>

Note) The self-align fittings ordered in sets are nickel plated.
Series VMG
Specific Product Precautions 1
Be sure to read this before handling.

**Warning**

1. Check the specifications.
   The products in this catalog 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.

**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 spanner of 0.86 in 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 below table. As a guideline, it is equivalent to 2 to 3 additional turns with a tool after manual tightening.
4. When tightening the threads, secure the nozzle holder of the blow gun by applying a spanner of 0.86 in 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 below table. As a guideline, it is equivalent to 2 to 3 additional turns with a tool after manual tightening.

### Piping

<table>
<thead>
<tr>
<th>Male thread</th>
<th>Tightening torque lbf⋅in</th>
</tr>
</thead>
<tbody>
<tr>
<td>R 1/4</td>
<td>106 to 124</td>
</tr>
<tr>
<td>R 3/8</td>
<td>194 to 212</td>
</tr>
</tbody>
</table>

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.

---

1. Nozzle tightening torque range 106 to 124 lbf
   Insufficient tightening may cause loosening of the nozzle.

---

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.
**Series VMG**  
**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 separator, etc.**  
   Air excessive drainage may cause malfunction of blow gun and contaminate or damage the target object. To prevent this, install an after-cooler, air dryer or water 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. 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. 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. 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 confirm the condition of atmospheric release.

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

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### 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 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.
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), American National Standards Institute (ANSI) and other safety regulations.

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

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

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 equipment will be the responsibility of the person who has determined 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. If possible failure by using a mechanical protective function, and periodical check 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.

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.

Limited warranty and Disclaimer

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.

Compliance Requirements

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Revision history

Edition B
- Related products KK/KKH series S coupler, changed to the model
- Dchange products
- High efficiency nozzle data listed

Edition C
- Best Pneumatics No.1 (Pages 1889 to 1899) extracted
- Added the KK130 series S coupler and one-touch fitting type
- Number of pages from 16 to 12

Edition D
- Added the KK130 series S coupler and one-touch fitting type
- Number of pages from 16 to 12

Safety Instructions
Be sure to read “Handling Precautions for SMC Products” (M-E03-3) before using.

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