**Valve for Water and Chemical Base Fluids**

**VCC Series**

2/3 Port Air Operated Valve

**Applicable for 2 liquid paint (VCC12D)**

- PTFE diaphragm structure = Sliding part eliminated
- Less paint adhesion

**Mountable on a robot arm (space-saving, lightweight)**

- 2 valves per station (30 mm pitch)
- 2/3 port valves mixed mounting
- Resin manifold block

Weight: **2700 g**

**SUS316L Stainless steel fitting**

**VCK Series / \( \varnothing 6 \) to \( \varnothing 12 \)**

- 2 port valve **VCC12(D)**
- 3 port valve **VCC13**
Paint Line System
(Application example)

Water/Chemical Base Paint, Deionized Water, Cleaning Solvent type

Paint gun Built-in 2 port valve

Selects paint color. 2/3 port valve

Gate valve (2 port) (Built in the manifold)

Cleaning valve (2 port)

Note) Valves must be mounted in the right direction. Refer to page 657.

Leakage detection port
Paint leakage to the pilot piping can be checked visually. Even when leakage occurs, no backflow between the paint and pneumatics.

Paint supply
(Direct supply possible)
(Max. 40 colors)

Completely separates paint valve and cleaning valve so that the paint does not enter cleaning side.

Cleaning fluids
- Thinner
- Deionized Water
- Water solvent
- Air

Pressure cannot be applied from the RETURN port.
Valves must be mounted in the right direction. Refer to page 657.

Paint Line System (Application example)

Water/Chemical Base Paint, Deionized Water, Cleaning Solvent type

2 port valve (VCC12)

3 port valve (VCC13)

Note 1) Pressure cannot be applied from the RETURN port.
Note 2) Valves must be mounted in the right direction. Refer to page 657.

2 port valve (VCC12D)

3 port valve (VCC13)

Note) Valves must be mounted in the right direction. Refer to page 657.

2 Liquid Paint type/PTFE Diaphragm

Single Paint, Solvent, Ink Control type/Single Unit

2 port valve (VCC12D)

3 port valve (VCC13)

Note) Valves must be mounted in the right direction. Refer to page 657.
Manifold Valve

Separable Resin Manifold Block

- Easy addition and reduction of stations
- Tough PPS (Polyphenylene Sulfide) resin is used.
- Fluoro resin is contained. (Less fluid adhesion)
- Antistatic (Surface resistance $10^2$ to $10^5 \, \Omega$)
- SUS316L Stainless steel fitting is standardized.

Spherical surface + Tapered shape

Special fluoro resin seal

Less build-up of liquid → Better cleaning performance, reduce mixing of colors
Liquid build-up at valve is 0.01 cc or less.
Ensures stable sealing performance for misalignment.

Spherical surface + Tapered shape

O-ring back-up ensures sealing performance.

2 port valve manifold block assembly

- Antistatic One-touch fitting
  Easy attachment/removal by clip.
  No seal tape necessary. (Conductive)

3 port valve manifold block assembly

- Reduction of the paint deposit
  Sealing with resin surface + O-ring

- Indicator function
  Operating condition can be checked visually, or by touching.

  Indicator color
  Blue ... VCC12, 13
  Red ... VCC12D

Cartridge type valve
Valve can be replaced without touching the piping.
**Single Unit**

- **2 port valve**
  - IN PA (pilot) port
  - OUT

- **3 port valve**
  - IN PA (pilot) port
  - OUT

**SUS316L Stainless Steel Fitting**

VCKH  
VCKK  
VCKL

- **Male connector**  
- **40° swivel elbow**  
- **90° swivel elbow**

**Special Tools**

Disassembly and maintenance are possible. Product design takes maintenance performance into consideration.

**Attaching/Detaching valve**

- Special tool

**Disassembling/Cleaning valve element**

- Special tool

**Attaching/Detaching tubing**

- Special tool

**Check valve (Part no.: AK-DPO 00057)**

**Regulator (Part no.: XT13-406-X200)**

Note) Applicable to special manifold, too.
Valve for Water and Chemical Base Fluids
(2/3 Port Air Operated Valve)

VCC Series

INDEX

- How to Order .................................................. P.646
- Specifications/Weight ........................................... P.648
- Dimensions
  - Single valve unit ........................................ P.650
  - Manifold ....................................................... P.651
  - SUS316L Stainless steel fittings ......................... P.652
- Special Tools .................................................. P.654
- Disassembly/Assembly/Maintenance Procedure .......... P.656
- Replacement Parts ............................................ P.658
- Specific Product Precautions ............................... P.662
Valve for Water and Chemical Base Fluids
(2/3 Port Air Operated Valve)

**VCC Series**

How to Order

**Valve**

- **Passage number**
  - 2: 2 port valve
  - 3: 3 port valve
  - 2D: 2 port/Diaphragm type (Applicable for 2 liquid paint)

- **Port size**
  - 00: For manifold mounting
  - 02: Rc1/4 (for single unit)
  - 02F: G1/4 (for single unit)

- **Note 1)** Valves must be mounted in the right direction. Refer to page 657.
- **Note 2)** Pressure cannot be applied from a 3 port valve RETURN port.

**Manifold**

**Standard**

- **Type (Passage number)**
  - 2: 2 port valve, Cleaning valve
  - 3: 3 port valve
  - M: 2/3 port valves mixed mounting

- **2 port valve mountable number**
  - 00: No 2 port valves used
  - 02: 2 pcs. (colors)
  - 04: 4 pcs. (colors)

- **3 port valve mountable number**
  - 00: No 3 port valves used
  - 02: 2 pcs. (colors)
  - 04: 4 pcs. (colors)

- **Note)** Maximum mountable valve number: 40 pcs. (in total of 2 port and 3 port valves)

**Circuit example**

- **2 port valve**
  - IN PA
  - RETURN

- **3 port valve**
  - IN PA
  - RETURN

Please refer to “Manifold Specification Sheet” in the back of page 667.
Valve for Water and Chemical Base Fluids  \textbf{VCC Series}

\section*{How to Order}

\subsection*{Manifold}

\textbf{With gate valve} \quad \textbf{VV} \textbf{M CC1-0206C4-G04}

\begin{itemize}
  \item Passage number
  \begin{itemize}
    \item 2 port valve, Cleaning valve
    \item M 2/3 port valves mixed mounting
  \end{itemize}
  \item 2 port valve mountable number
  \begin{itemize}
    \item 00 No 2 port valves used
    \item 02 2 pcs. (colors)
    \item 04 4 pcs. (colors)
  \end{itemize}
  \item 3 port valve mountable number
  \begin{itemize}
    \item 00 No 3 port valves used
    \item 02 2 pcs. (colors)
    \item 04 4 pcs. (colors)
  \end{itemize}
\end{itemize}

\begin{itemize}
  \item \textbf{Gateway and cleaning valve mountable number}
    \begin{itemize}
      \item 02 Cleaning valve (2 port valve): 1 pc. + Gate valve: 1 pc.
      \item 04 Cleaning valve (2 port valve): 3 pcs. + Gate valve: 1 pc.
      \item 06 Cleaning valve (2 port valve): 5 pcs. + Gate valve: 1 pc.
    \end{itemize}
  \item \textbf{Pilot port fitting size}
    \begin{itemize}
      \item C4 ø4 One-touch fitting (Antistatic)
      \item C6 ø6 One-touch fitting (Antistatic)
    \end{itemize}
\end{itemize}

\textbf{Note} Maximum mountable valve number: 40 pcs. (in total of 2 port, 3 port and gate valves)

\subsection*{Circuit example}

\begin{itemize}
  \item Gate/Cleaning valve
  \begin{itemize}
    \item 2/3 port valve
  \end{itemize}
  \item Return
\end{itemize}

\subsection*{SUS316L Stainless steel fitting}

\textbf{VCK K 0604-02F}

\begin{itemize}
  \item Shape
    \begin{itemize}
      \item H Male connector
      \item K 40° swivel elbow
      \item L 90° swivel elbow
    \end{itemize}
  \item Port size
    \begin{itemize}
      \item 02F G1/4
    \end{itemize}
\end{itemize}

\textbf{Applicable tubing (O.D. x I.D.)}

\begin{itemize}
  \item 0604 6 x 4
  \item 0806 8 x 6
  \item 1075 10 x 7.5
  \item 1209 12 x 9
\end{itemize}

\textbf{Note} G1/4 has special shape of bottom seal. Please refer page 652 for details.

\subsection*{Option}

\textbf{Blanking Plug Assembly}

\begin{tabular}{|c|c|c|}
  \hline
  Type & Model & Description & Qty. \\
  \hline
  For 2 port valve & VVCC12-10A-1 & Blanking plug (with O-ring) & 1 \\
  & & Hexagon socket head plug (R1/4) & 1 \\
  For 3 port valve & VVCC13-10A-1 & Blanking plug (with O-ring) & 1 \\
  & & Hexagon socket head plug (R1/4) & 2 \\
  \hline
\end{tabular}
### Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>VCC12</th>
<th>VCC13</th>
<th>VCC12D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passage number</td>
<td>2 port</td>
<td>3 port</td>
<td>2 port (Diaphragm type)</td>
</tr>
<tr>
<td>Construction (Fluid contact material)</td>
<td>Poppet seal (PEEK resin + Stainless steel) + Special fluororesin sliding part</td>
<td>Poppet seal (PEEK resin + Stainless steel) + Special fluororesin diaphragm</td>
<td></td>
</tr>
<tr>
<td>Fluid</td>
<td>Water/Chemical base paint, Ink, Cleaning solvent (Water, Butyl acetate), Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating pressure range (MPa)</td>
<td>0 to 1.0 (Instantaneous pulsation pressure: 1.2)</td>
<td>0 to 0.7 (Instantaneous pulsation pressure: 0.9)</td>
<td></td>
</tr>
<tr>
<td>Withstand pressure (MPa)</td>
<td>2</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>Pilot pressure (MPa)</td>
<td></td>
<td>0.4 to 0.7</td>
<td></td>
</tr>
<tr>
<td>Orifice diameter (mm)</td>
<td></td>
<td>ø3.8</td>
<td></td>
</tr>
<tr>
<td>Flow rate characteristics Kv(Cv)</td>
<td>IN⇔OUT: 0.28(0.33)</td>
<td>IN⇔OUT: 0.28(0.33)</td>
<td>IN⇔RETURN: 0.25(0.3)</td>
</tr>
<tr>
<td>Fluid temperature (°C)</td>
<td></td>
<td>5 to 50</td>
<td></td>
</tr>
<tr>
<td>Ambient temperature (°C)</td>
<td></td>
<td>5 to 50</td>
<td></td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not possible (Initial lubricant: White vaseline is used.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mounting orientation</td>
<td>Unrestricted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valve leakage (cm³/min)</td>
<td>1 or less (3 port valve IN ⇔ RETURN: 20 or less) Note 1)</td>
<td>1 or less Note 2)</td>
<td></td>
</tr>
</tbody>
</table>

**SUS316L Stainless Steel Fitting Specifications**

<table>
<thead>
<tr>
<th>Applicable tubing</th>
<th>Nylon/Fluoro tubing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid</td>
<td>Water/Chemical base paint, Ink, Cleaning solvent (Water, Butyl acetate), Air</td>
</tr>
<tr>
<td>Max. operating pressure (at 20° C) (MPa)</td>
<td>1.0</td>
</tr>
<tr>
<td>Ambient and fluid temperature (°C)</td>
<td>0 to 60</td>
</tr>
</tbody>
</table>

### Weight

<table>
<thead>
<tr>
<th>Valve</th>
<th>VCC12 (2 port)</th>
<th>37 g</th>
</tr>
</thead>
<tbody>
<tr>
<td>VCC13 (3 port)</td>
<td>48 g</td>
<td></td>
</tr>
<tr>
<td>Blanking plug assembly</td>
<td>For 2 port</td>
<td>29 g</td>
</tr>
<tr>
<td></td>
<td>For 3 port</td>
<td>45 g</td>
</tr>
<tr>
<td>Manifold block</td>
<td>For 2 port (2 stations, one-piece type)</td>
<td>150 g</td>
</tr>
<tr>
<td></td>
<td>For 3 port (2 stations, one-piece type)</td>
<td>254 g</td>
</tr>
<tr>
<td></td>
<td>For gate valve</td>
<td>300 g</td>
</tr>
<tr>
<td>End plate</td>
<td>For 2 port</td>
<td>409 g</td>
</tr>
<tr>
<td></td>
<td>For 3 port</td>
<td>495 g</td>
</tr>
<tr>
<td></td>
<td>For 2/3 port mixed mounting</td>
<td>452 g</td>
</tr>
<tr>
<td>Fittings</td>
<td>VCKH</td>
<td>ø6 24 g</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ø8 25 g</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ø10 33 g</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ø12 36 g</td>
</tr>
<tr>
<td></td>
<td>VCKK</td>
<td>ø6 25 g</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ø8 26 g</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ø10 32 g</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ø12 37 g</td>
</tr>
<tr>
<td></td>
<td>VCKL</td>
<td>ø6 29 g</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ø8 30 g</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ø10 37 g</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ø12 41 g</td>
</tr>
</tbody>
</table>
Valve for Water and Chemical Base Fluids  

**VCC Series**

**Dimensions**

Mounting hole dimensions (When valve is built in to the device.)

**VCC12(D)-00**

![Diagram of VCC12(D)-00]

- Recommended surface roughness of inner surface where the valve is inserted is Rz6.3.

**VCC13-00**

![Diagram of VCC13-00]

- Recommended surface roughness of inner surface where the valve is inserted is Rz6.3.
**VCC Series**

**Dimensions**

Single valve unit

**VCC12(D)-02(F)**

- RC1/4 pilot (12) port
- G1/4, RC1/4 IN(1) port
- G1/4, RC1/4 OUT(2) port
- 2 x ø6 (for M5 mounting)

**VCC13-02(F)**

- G1/4, RC1/4 IN(1) port
- RC1/8 pilot (12) port
- G1/4, RC1/4 OUT(2) port
- 2 x ø6 (for M5 mounting)
- G1/4, RC1/4 RETURN(3) port

*Part number for sub-base VCC12-02F [G1/4]*

Sub-base material is aluminum + hard anodized containing PTFE.

*Part number for sub-base VCC13-02F [G1/4]*

Sub-base material is aluminum + hard anodized containing PTFE.
Valve for Water and Chemical Base Fluids

VCC Series

Dimensions

Manifold

L1 = n / 2 x 30 + 16
L2 = n / 2 x 30 + 32

n = Number of valves (cleaning valve + gate valve + other valves)

n: Stations (mm)

46 76 106 136 166 196 226 256 286 316 346 376 406 436 466 496 526 556 586 616

40

L1

L2

G1/4 (IN port)

G1/4 (RETURN port)

2 port valve

3 port valve

Leakage detection port

Pilot port

C4: ø4 One-touch fitting

C6: ø6 One-touch fitting

* Aluminum + hard anodized containing PTFE and POM are used for a part of the manifold material. Refer to page 660 for details.

< > Pilot port is C6.
**VCC Series**

**Dimensions**

**SUS316L Stainless steel fittings**

**Mounting female thread recommended dimensions**

<table>
<thead>
<tr>
<th>Part no.</th>
<th>Indication of A</th>
<th>øB</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>VCKH1209-02F</td>
<td>12/9</td>
<td>13</td>
<td>38.5</td>
<td>10</td>
<td>19</td>
<td>17</td>
<td>18.5</td>
<td>9 to 12 N·m</td>
</tr>
<tr>
<td>VCKH1008-02F</td>
<td>10/8</td>
<td>11</td>
<td>38</td>
<td>9</td>
<td>17</td>
<td>17</td>
<td>18.5</td>
<td>6 to 9 N·m</td>
</tr>
<tr>
<td>VCKH1075-02F</td>
<td>10·75</td>
<td>11</td>
<td>38</td>
<td>9</td>
<td>17</td>
<td>17</td>
<td>18.5</td>
<td>6 to 9 N·m</td>
</tr>
<tr>
<td>VCKH0806-02F</td>
<td>8/6</td>
<td>9</td>
<td>36.5</td>
<td>8</td>
<td>14</td>
<td>14</td>
<td>16</td>
<td>4 to 9 N·m</td>
</tr>
<tr>
<td>VCKH0604-02F</td>
<td>6/4</td>
<td>7</td>
<td>36.5</td>
<td>8</td>
<td>12</td>
<td>14</td>
<td>15</td>
<td>3 to 8 N·m</td>
</tr>
</tbody>
</table>

**VCKK 40° swivel elbow**

<table>
<thead>
<tr>
<th>Part no.</th>
<th>Indication of A</th>
<th>øB</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>VCKK1209-02F</td>
<td>12/9</td>
<td>13</td>
<td>49.5</td>
<td>10</td>
<td>19</td>
<td>18.5</td>
<td>9 to 12 N·m</td>
<td></td>
</tr>
<tr>
<td>VCKK1008-02F</td>
<td>10/8</td>
<td>11</td>
<td>48.5</td>
<td>9</td>
<td>17</td>
<td>18.5</td>
<td>6 to 9 N·m</td>
<td></td>
</tr>
<tr>
<td>VCKK1075-02F</td>
<td>10·75</td>
<td>11</td>
<td>48.5</td>
<td>9</td>
<td>17</td>
<td>18.5</td>
<td>6 to 9 N·m</td>
<td></td>
</tr>
<tr>
<td>VCKK0806-02F</td>
<td>8/6</td>
<td>9</td>
<td>46</td>
<td>8</td>
<td>14</td>
<td>16</td>
<td>4 to 9 N·m</td>
<td></td>
</tr>
<tr>
<td>VCKK0604-02F</td>
<td>6/4</td>
<td>7</td>
<td>45.5</td>
<td>8</td>
<td>12</td>
<td>15</td>
<td>3 to 8 N·m</td>
<td></td>
</tr>
</tbody>
</table>
Valve for Water and Chemical Base Fluids  

**Dimensions**

VCKL  90° swivel elbow

---

**Part no.**

<table>
<thead>
<tr>
<th>VCKL1209-02F</th>
<th>12/9</th>
<th>13</th>
<th>43.5</th>
<th>33</th>
<th>30.5</th>
<th>10</th>
<th>19</th>
<th>18.5</th>
<th>9 to 12 N·m</th>
</tr>
</thead>
<tbody>
<tr>
<td>VCKL1008-02F</td>
<td>10/8</td>
<td>11</td>
<td>42.5</td>
<td>33</td>
<td>30</td>
<td>9</td>
<td>17</td>
<td>18.5</td>
<td>6 to 9 N·m</td>
</tr>
<tr>
<td>VCKL1075-02F</td>
<td>10·75</td>
<td>11</td>
<td>42.5</td>
<td>33</td>
<td>30</td>
<td>9</td>
<td>17</td>
<td>18.5</td>
<td>6 to 9 N·m</td>
</tr>
<tr>
<td>VCKL0806-02F</td>
<td>8/6</td>
<td>9</td>
<td>40</td>
<td>32</td>
<td>27.5</td>
<td>8</td>
<td>14</td>
<td>16</td>
<td>4 to 9 N·m</td>
</tr>
<tr>
<td>VCKL0604-02F</td>
<td>6/4</td>
<td>7</td>
<td>38.5</td>
<td>32</td>
<td>27.5</td>
<td>8</td>
<td>12</td>
<td>16</td>
<td>3 to 8 N·m</td>
</tr>
</tbody>
</table>

**Dimensions (mm)**

- Width across flats G
- After tightening manually, tighten 1.5 to 2 more turns. (Equivalent tightening torque: T)
- Tightening torque: Tighten within 10 ± 1 N·m.

---

**Diagrams**

- Dimensions for VCKL 90° swivel elbow

---

**Notes**

- VNA
- VNB
- SGC
- SGH
- VNC
- VNH
- VND
- VCC
- TQ
**VCC Series**
**Special Tools**

**Tool for Attaching/Detaching Valve**

- **VCC-G-A**
  - For attaching/detaching valve
  - Ø8 Knurled
  - M16 x 1.5
  - 104

- **VCC-G-B (for socket wrench)**
  - Ø21 Knurled
  - 4 x Ø1.8
  - Socket wrench
  - A-type 6.3 square drive

**Tool for Disassembling/Cleaning Valve Element**

- **VCC12(D) 2 port valve**
  - 4 x Ø1.8
  - Ø12.4

- **VCC13 3 port valve**
  - 4 x Ø1.8
  - Ø13.4

- **VCC-G-C**
  - For 2 port valve
  - Ø6
  - 105
  - For 3 port valve
Valve for Water and Chemical Base Fluids  \textit{VCC Series}

**Union Nut Socket**

**VCC-G-D-1** (Applicable fitting VCK\textsuperscript{1209, 1008, 1075})

- Width across flats: 19

**VCC-G-D-2** (Applicable fitting VCK\textsuperscript{0806, 0604})

- Width across flats: 17

For extending the socket

**VCC-G-D-1**

- 113

**VCC-G-D-2**

- 97
Cleaning Valve Element

Special tool part no.: VCC-G-C

**Procedure**
1. Loosen the orifice body with a tool and remove it.
2. Clean the valve.
3. Assemble a new orifice body.

Tighten the screw until it hits the body by pressing the orifice body with approx. 100 to 200 N of force.

(Additional tightening is not necessary.)

Control dimension with full length. (2 port valve: 44.8 to 45.1 mm, 3 port valve: 54.6 to 54.9 mm)

Reference tightening torque is approx. 1 to 2 N·m for VCC12(D)-00 (2 port valve), and 0.5 to 1 N·m for VCC13-00 (3 port valve).

There is a possibility of damaging threads if tightening exceeds the tightening torque range.
How to Remove the Valve

Special tool part no.: VCC-G-A, VCC-G-B (Refer to page 654.)

Procedure
1. Loosen the mounting nut with a tool to remove.
2. Remove the indicator lamp cover.
3. Turn 45 to 90° (idle turn) clockwise with a tool (to avoid O-ring adhesion).
4. Pull out the valve straight.

How to Attach the Valve

Apply vaseline (commercially available) on the O-ring surface, and insert straight. (Note the direction shown on the label.)

After mounting the indicator lamp cover, tighten the mounting nut to a tightening torque of 2.5 to 3.5 N·m of tightening torque.
VCC Series
Replacement Parts

VV□□CC1□: Manifold

C: 2 port valve manifold block assembly
Manifold block assembly for gate valve

D: 3 port valve manifold block assembly

Block Assembly

Component Parts

<table>
<thead>
<tr>
<th>Model</th>
<th>Part no.</th>
<th>Description</th>
<th>Symbol</th>
<th>Component</th>
<th>Material</th>
<th>Qty.</th>
<th>Order qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VV2CC1</td>
<td>VVCC12-OR-1</td>
<td>O-ring between manifold blocks</td>
<td>C-②</td>
<td>O-ring</td>
<td>Special FKM</td>
<td>1</td>
<td>1 set unit</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>D-⑤</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VV3CC1</td>
<td>VVCC12-50A-L1C4</td>
<td>One-touch fitting</td>
<td>C-⑤</td>
<td>One-touch fitting</td>
<td>—</td>
<td>1</td>
<td>1 set unit</td>
</tr>
<tr>
<td></td>
<td>VVCC12-50A-LTC6</td>
<td>One-touch fitting</td>
<td>D-⑤</td>
<td>O-ring</td>
<td>HNBR</td>
<td>1</td>
<td>1 set unit</td>
</tr>
<tr>
<td>VVMCC1 (common)</td>
<td>VVCC12-OR-3</td>
<td>O-ring</td>
<td>F-③</td>
<td>O-ring</td>
<td>Special FKM</td>
<td>1</td>
<td>1 set unit</td>
</tr>
<tr>
<td>VV3CC1</td>
<td>VVMCC1</td>
<td>O-ring assembly between port blocks</td>
<td>D-④</td>
<td>O-ring</td>
<td>Special FKM</td>
<td>2</td>
<td>1 set unit</td>
</tr>
<tr>
<td></td>
<td>VVCC13-OR-1</td>
<td></td>
<td>D-③</td>
<td>O-ring</td>
<td>Special FKM</td>
<td>2</td>
<td>1 set unit</td>
</tr>
</tbody>
</table>

Note) If the manifold is disassembled or rearranged, replace the O-rings with new O-rings. (Specific Product Precautions 4/Maintenance 5 on page 665)

*M: Tighten on a flat surface (e.g. holding plate) so that the end plates on both ends are not twisted.
Valves must be inserted in the right direction. Refer to page 657.

Note)  If the manifold is disassembled or rearranged, replace the O-rings with new O-rings. (Specific Product Precautions 4/Maintenance 5 on page 665)
Valve for Water and Chemical Base Fluids  
**VCC Series**

### 2/3 Port Valve

**A: 2 port valve**  
**Standard VCC12-00**

![Diagram of a 2 port valve](image1)

- **Body:** Aluminum + Anodized
- **Valve element:** SUS316

**Diaphragm / 2 liquid paint type VCC12D-00**

![Diagram of a diaphragm valve](image2)

**B: 3 port valve**  
**VCC13-00**

![Diagram of a 3 port valve](image3)

### Component Parts

<table>
<thead>
<tr>
<th>Model</th>
<th>Part no.</th>
<th>Description</th>
<th>Symbol</th>
<th>Component</th>
<th>Material</th>
<th>Qty.</th>
<th>Order qty.</th>
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<tbody>
<tr>
<td>VCC12-00</td>
<td>VCC12-1A-1 (for VCC12-00)</td>
<td>Orifice body assembly</td>
<td>A-1</td>
<td>Orifice body</td>
<td>PEEK resin</td>
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<td>1 set unit</td>
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<tr>
<td></td>
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<td>A-2</td>
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<td>A-3</td>
<td>O-ring</td>
<td>Special FKM</td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>A-6</td>
<td>Sleeve</td>
<td>POM</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>A-5</td>
<td>O-ring</td>
<td>Special FKM</td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A-7</td>
<td>O-ring</td>
<td>Special FKM</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>A-8</td>
<td>Name plate</td>
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<td>1</td>
<td></td>
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<tr>
<td>VCC12D-00</td>
<td>VCC12D-1A-1 (for VCC12D-00)</td>
<td>Orifice body assembly</td>
<td>A-1</td>
<td>Orifice body</td>
<td>PEEK resin</td>
<td>1</td>
<td></td>
</tr>
<tr>
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<td></td>
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<td>A-3</td>
<td>O-ring</td>
<td>Special FKM</td>
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<tr>
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<td></td>
<td></td>
<td>A-6</td>
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<td>O-ring</td>
<td>Special FKM</td>
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<tr>
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<tr>
<td></td>
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<td>A-8</td>
<td>Name plate</td>
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<tr>
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<td>VCC13-OR-1</td>
<td>O-ring assembly</td>
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<tr>
<td>VCC13-00</td>
<td>VCC13-OR-2</td>
<td>O-ring assembly</td>
<td>A-4</td>
<td>O-ring</td>
<td>Special FKM</td>
<td>3</td>
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<tr>
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<td>O-ring</td>
<td>Special FKM</td>
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<td></td>
</tr>
<tr>
<td>VCC12-00</td>
<td>VCC12D-2A-1</td>
<td>Mounting nut assembly</td>
<td>A-9</td>
<td>Mounting nut</td>
<td>Aluminum</td>
<td>1</td>
<td>1 set unit</td>
</tr>
<tr>
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<td></td>
<td>A-10</td>
<td>Switching display cover</td>
<td>A-PET</td>
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<tr>
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<td>VCC12-OR-5</td>
<td>O-ring assembly</td>
<td>A-3</td>
<td>O-ring</td>
<td>Special FKM</td>
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<tr>
<td></td>
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<td></td>
<td>A-6</td>
<td>O-ring</td>
<td>Special FKM</td>
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<td></td>
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<tr>
<td></td>
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<td>A-8</td>
<td>O-ring</td>
<td>Special FKM</td>
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</tr>
</tbody>
</table>

**Note:** If the manifold is disassembled or rearranged, replace the O-rings with new O-rings. (Specific Product Precautions 4/Maintenance 5 on page 665)
### Parts Description

<table>
<thead>
<tr>
<th>Model Symbol</th>
<th>Part no.</th>
<th>Description</th>
<th>Material</th>
<th>Surface treatment</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>VCC12(D)-00</td>
<td>2 port valve</td>
<td>PPS resin</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>C</td>
<td>VCC12-1A-02F</td>
<td>Manifold block assembly for 2 port valve</td>
<td>Aluminum</td>
<td>Hard anodized containing PTFE</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>VCC12-1G-02F</td>
<td>Manifold block assembly for gate valve</td>
<td>Stainless steel</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>E</td>
<td>VVC12-2A-02F</td>
<td>U-side end plate assembly for 2 port valve</td>
<td>Aluminum</td>
<td>Hard anodized containing PTFE</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>VCC12-3A-1</td>
<td>D-side end plate assembly for 2 port valve</td>
<td>POM</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>VCC12-10A-1</td>
<td>Blanking plug assembly for 2 port valve</td>
<td>POM</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>B</td>
<td>VCC13-00</td>
<td>3 port valve</td>
<td>PPS resin</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>D</td>
<td>VCC13-1A-02F</td>
<td>Manifold block assembly for 3 port valve</td>
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<tr>
<td>E</td>
<td>VVC13-2A-02F</td>
<td>U-side end plate assembly for 3 port valve</td>
<td>Aluminum</td>
<td>Hard anodized containing PTFE</td>
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<tr>
<td>F</td>
<td>VCC13-3A-1</td>
<td>D-side end plate assembly for 3 port valve</td>
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<td>—</td>
</tr>
<tr>
<td>H</td>
<td>VCC13-10A-1</td>
<td>Blanking plug assembly for 3 port valve</td>
<td>POM</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>J</td>
<td>VCC12-20A-□</td>
<td>Tie-rod</td>
<td>—</td>
<td>—</td>
<td>□ = Three manifold blocks make up one set.</td>
</tr>
<tr>
<td>K</td>
<td>VCC12-21A</td>
<td>Tie-rod for adding stations</td>
<td>Stainless steel</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

**Note:** When the manifold is shipped out, tie-rods for two extra stations are used. You can add or reduce 2 stations of manifold block (4 valves in total).

**Example 1:** For manifold block 4 stations (8 valves)

- Tie-rod for 2 stations (VCC12-20A-2)
- Tie-rod for adding stations (VCC12-21A)

**Example 2:** For manifold block 5 stations (10 valves)

- Tie-rod for 3 stations (VCC12-20A-3)
- Tie-rod for adding stations (VCC12-21A)

---

**Table of Materials:**

<table>
<thead>
<tr>
<th>Material</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPS resin</td>
<td>—</td>
</tr>
<tr>
<td>Aluminum</td>
<td>—</td>
</tr>
<tr>
<td>Special FKM</td>
<td>—</td>
</tr>
<tr>
<td>Stainless steel</td>
<td>—</td>
</tr>
<tr>
<td>POM</td>
<td>—</td>
</tr>
<tr>
<td>Hexagon socket head cap screw with M5 x 20 SW</td>
<td>—</td>
</tr>
<tr>
<td>Round head combination screw with M4 x 16 SW</td>
<td>—</td>
</tr>
<tr>
<td>O-ring</td>
<td>—</td>
</tr>
<tr>
<td>O-ring</td>
<td>—</td>
</tr>
<tr>
<td>One-touch fitting</td>
<td>—</td>
</tr>
</tbody>
</table>

**Surface Treatment:**

<table>
<thead>
<tr>
<th>Surface Treatment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard anodized containing PTFE</td>
<td>—</td>
</tr>
<tr>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

---

**Part Symbol:***

- **VVCC12(D)-00**: 2 port valve
- **VVCC12-1A-02F**: Manifold block assembly for 2 port valve
- **VVCC12-1G-02F**: Manifold block assembly for gate valve
- **VVCC12-2A-02F**: U-side end plate assembly for 2 port valve
- **VVCC12-3A-1**: D-side end plate assembly for 2 port valve
- **VVCC12-10A-1**: Blanking plug assembly for 2 port valve
- **VVCC13-00**: 3 port valve
- **VVCC13-1A-02F**: Manifold block assembly for 3 port valve
- **VVCC13-2A-02F**: U-side end plate assembly for 3 port valve
- **VVCC13-3A-1**: D-side end plate assembly for 3 port valve
- **VVCC13-10A-1**: Blanking plug assembly for 3 port valve
- **VVCC12-20A-□**: Tie-rod
- **VVCC12-21A**: Tie-rod for adding stations

---

**Material Symbols:**

- **A**: PPS resin
- **B**: Aluminum
- **C**: Special FKM
- **D**: Stainless steel

---

**Example:**

- For 2 port valve
  - **For manifold block 4 stations (8 valves)**
    - Tie-rod for 2 stations (VCC12-20A-2)
    - Tie-rod for adding stations (VCC12-21A)

- For 3 port valve
  - **For manifold block 5 stations (10 valves)**
    - Tie-rod for 3 stations (VCC12-20A-3)
    - Tie-rod for adding stations (VCC12-21A)
### Component Parts

<table>
<thead>
<tr>
<th>Model</th>
<th>Symbol</th>
<th>Part no.</th>
<th>Description</th>
<th>Conforming item</th>
<th>Material</th>
<th>Qty.</th>
<th>Order qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VCKL0604-02F</td>
<td>K</td>
<td>KFN-06-X2</td>
<td>Union nut</td>
<td>VCKL0604-02F</td>
<td>C3604BD + Ni plated</td>
<td>1</td>
<td>1 set unit</td>
</tr>
<tr>
<td>VCKL0806-02F</td>
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<td>KFN-08-X2</td>
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<td>VCKL0806-02F</td>
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<td>V</td>
<td>KFS-06</td>
<td>Sleeve</td>
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<td>V</td>
<td>VCKL1209-02F</td>
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<td></td>
</tr>
</tbody>
</table>
Design

⚠️ Warning
1. Cannot be used as an emergency shutoff valve, etc.
The valves presented in this catalog are not designed for safety applications such as an emergency shutoff valve. If the valves are used in this type of system, other reliable safety assurance measures should also be adopted.

2. Maintenance space
The installation should allow sufficient space for maintenance activities.

3. When an impact, such as water hammer, etc., caused by the rapid pressure fluctuation is applied, the solenoid valve may be damaged. Use care when handling.

Selection

⚠️ Warning
1. Confirm the specifications.
Give careful consideration to the operating conditions such as the application, fluid and environment, and use within the operating ranges specified in this catalog. Also, be sure to carry out an evaluation using an actual product to ensure that problems do not occur under the working conditions.

2. Fluid
   1) Applicable fluid on the list may not be used depending on the operating condition.
   Give adequate confirmation, and then determine a model, just because the compatibility list shows the general case.

3. Air quality
   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.

   2) Install air filters.
   Install air filters close to valves at their upstream side. A filtration degree of 5 µm or less should be selected.

   3) Install an air dryer or after-cooler, etc.
   Compressed air that includes excessive drainage may cause malfunction of valves and other pneumatic equipment. To prevent this, install an air dryer or after-cooler, etc.

   4) If excessive carbon powder is generated, eliminate it by installing mist separators at the upstream side of valves.
   If excessive carbon powder is generated by the compressor, it may adhere to the inside of the valves and cause a malfunction.
   Refer to Best Pneumatics No.5 for further details on compressed air quality.

4. Ambient environment
   Use within the operable ambient temperature range. Confirm the compatibility between the product’s composition materials and the ambient atmosphere. Be sure that the fluid used does not touch the external surface of the product.

5. Countermeasures against static electricity
   Take measures to prevent static electricity since some fluids can cause static electricity.

Piping

⚠️ Caution
1. 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. Install piping so that it does not apply pulling, pressing, bending or other forces on the valve body.

2. Winding of sealant tape
When connecting pipes, fittings, etc., be sure that chips from the pipe threads and sealing material do not enter the valve. Furthermore, when sealant tape is used, leave 1.5 to 2 thread ridges exposed at the end of the threads.

3. Avoid connecting ground lines to piping, as this may cause electric corrosion of the system.

4. Always tighten threads with the proper tightening torque.
When attaching fittings to valves, tighten with the proper tightening torque shown below.

Tightening Torque for Piping

<table>
<thead>
<tr>
<th>Connection threads</th>
<th>Proper tightening torque N·m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rc 1/8</td>
<td>7 to 9</td>
</tr>
<tr>
<td>Rc 1/4</td>
<td>12 to 14</td>
</tr>
<tr>
<td>G 1/4</td>
<td>9 to 11</td>
</tr>
</tbody>
</table>

5. Connection of piping to products
When connecting piping to a product, refer to its instruction manual to avoid mistakes regarding the supply port, etc.

Operating Environment

⚠️ Warning
1. Do not use the valves in an atmosphere having corrosive gases, chemicals, salt water, water, steam, or where there is direct contact with any of these.
2. Do not use in locations subject to vibration or impact.
3. Do not use in locations where radiated heat will be received from nearby heat sources.
4. Employ suitable protective measures in locations where there is contact with water droplets, oil or welding spatter, etc.
VCC Series
Specific Product Precautions 2
Be sure to read this before handling the products.
Refer to back page 50 for Safety Instructions and pages 17 to 19 for 2 Port Solenoid Valve for Fluid Control Precautions.

Maintenance

⚠️ Caution

1. Filters and strainers
   1) Be careful regarding clogging of filters and strainers.
   2) Replace filter elements after one year of use, or earlier if the pressure drop reaches 0.1 MPa.
   3) Clean strainers when the pressure drop reaches 0.1 MPa.

2. Storage
   In case of long term storage after use with heated water, thoroughly remove all moisture to prevent rust and deterioration of rubber materials, etc.

3. Exhaust the drain from an air filter periodically.
VCC Series
Specific Product Precautions 3
Be sure to read this before handling the products.
Refer to back page 50 for Safety Instructions and pages 17 to 19 for 2 Port Solenoid Valve for Fluid Control Precautions.

⚠️ Warning

1. Leakage detection port
The valve has a leak detection area to completely separate the fluid area and pilot pressure area. If leakage is found, valve replacement and maintenance are necessary immediately. Fluids that solidify or being cured may block the leak detection so port and leak may not be detected.

2. If applying high voltage to the fluid, it must be earthed by using the bolt to mount the base.
Do not use sealing tape when piping, as it may insulate.

⚠️ Caution

Selection

1. Operating fluid
Eliminate all solid material larger than 150 µm in the fluid to avoid valve failure.

Piping

1. Piping to pilot port
Condensation may be formed in the piping to the pilot port, due to factors such as its length. The life of the valve will be shortened if condensed moisture enters the pilot port. To prevent condensation, the installation of a quick exhaust is recommended.

2. Tube attachment/detachment for One-touch fittings/stainless steel fittings
   1) Attaching of the tubing
      a Divide a tube with no external flaws at a right angle. Use tube cutter TK-1, 2, or 3 when dividing the tube. Do not use pliers, nipper pliers, scissors, etc. This may result in flattening and an inability to join, or the tube falling out and air leakage.
      b The outer diameter of polyurethane tubing will expand when internal pressure is applied, and so you may not be able to reattach One-touch fittings. Check the tubing outer diameter of all tubing other than for the release bushing, and reattach the One-touch fittings without dividing the tubing if the outer diameter precision is more than ±0.15 mm. When reattaching the One-touch fittings, check whether the tubing can smoothly pass through the release bushing.
      c Grasp the tubing, slowly push it straight (0 to 5°) into the One-touch fitting until it comes to a stop.
      d Once pushed all the way in, gently pull the tubing back, and check that it hasn’t come all the way out. If not firmly inserted all the way in, it may result in air leakage and the tube falling out.

   2) Detaching of the tubing
      a Push in the release button sufficiently, pushing the collar evenly.
      b Pull the tube out while pressing so that the release button is not returned. If the release button is not pressed sufficiently, gripping will instead increase and it will become harder to pull out.
      c Before reusing the detached tube, first cut off the portion of tubing that had been gripped. Using the portion of tubing that had been gripped will lead to air leakage and the tube will become harder to detach.

3. Joining a metal rod accessory
After joining a metal rod accessory (KC series, etc.) to a One-touch fitting, do not use a tube, resin plug, reducer, etc, as it may result in the tube falling out.

4. When attaching a tube, resin plug, metal rod, etc., do not attach while pressing on the release bushing.

5. When using another brand tubing, check whether the tubing material and outer diameter precision meet the following specifications:
   1) Nylon tubing within ±0.1 mm
   2) Soft nylon tubing within ±0.15 mm
   3) Polyurethane tubing within ±0.15 mm, -0.2 mm
   If tubing outer diameter tolerance is not met, do not use if tubing inner diameter differs from our brand. This may result in inability to join, leakage, the tube falling out, and damage to the fitting.

Lubrication

⚠️ Caution

1. Do not lubricate the valve.
The valve uses white vaseline as lubricant.


⚠️ Caution

1. Removing the product
   1) Shut off the fluid supply and release the fluid pressure in the system.
   2) Dismount the product.

2. Low frequency operation
   Switch valves at least once every 30 days to prevent malfunction. Also, in order to use it under the optimum state, conduct a regular inspection once a half year.

3. Stoppage of line
   When the line is stopped for a long time, clean the valve so that fluid (paint, ink, etc.) does not solidify or being cured.

4. Prolonged usage
   Leakage may occur with fittings and tube material as they change over time. Additionally tighten union nuts.
   If leakage occurs even after additional tightening, replace the sleeve with a new one.

5. Due to the characteristics of the material (Special FKM), the compression value of the O-rings of the VCC series is higher. Therefore, when disassembly or rearrangement of the product is performed, leakage may occur if the O-rings are not replaced. If disassembly or rearrangement is performed, replace the O-rings with new O-rings.

6. If disassembly, rearrangement, or maintenance is performed, perform sufficient safety checks before operating the system. In addition, SMC assumes no responsibility concerning damage caused by methods other than those described in the catalog and operation manual.
Manifold Specifications

VCC Series

1. How to Order Manifold

VV M CC1 – 06 10 C4 – G04

1. Type (Passage number)
   2 port valve
   3 port valve
   2/3 port valves mixed mounting

2. 2 port valve mountable number
   00 Without 2 port valve
   02 2 pcs. (colors)
   04 4 pcs. (colors)
   ... 
   40 40 pcs. (colors)

3. 3 port valve mountable number
   00 Without 3 port valve
   02 2 pcs. (colors)
   04 4 pcs. (colors)
   ... 
   40 40 pcs. (colors)

4. Pilot port fitting size
   C4 ø4 One-touch fitting
   C6 ø6 One-touch fitting

5. Gate valve and cleaning valve mountable number
   Nil Without gate valve
   G02 Cleaning valve: 1 pc. + Gate valve: 1 pc.
   G04 Cleaning valve: 3 pcs. + Gate valve: 1 pc.
   G06 Cleaning valve: 5 pcs. + Gate valve: 1 pc.

Note 1) Two valves can be installed per manifold block. Total valve number must be an even number.
Note 2) Maximum valve number is forty (40) valves (colors) by total of 2 + 3 + 5.
Note 3) When “Without gate valve” is selected, use 2 port valve of 2 as a cleaning valve.

2. How to Order Valve

VCC1 2 – 00

1. Type (Passage number)
   2 port valve
   3 port valve
   2D 2 port/Diaphragm type

3. How to Order Blanking Plug

VVCC1 2 – 10A – 1

1. Type (Passage number)
   2 For 2 port valve
   3 For 3 port valve

2. Piping port
   1209 Piping port for ø12 x ø9
   1008 Piping port for ø10 x ø8
   1075 Piping port for ø10 x ø7.5
   0806 Piping port for ø8 x ø6
   0604 Piping port for ø6 x ø4

4. How to Order SUS316L Stainless Steel Fitting

VCK K 1075 – 02F

1. Type (Shape)
   K 40° swivel elbow
   L 90° swivel elbow
   H Male connector

Cleaning valve with gate valve
Mountable number
   ※ In this case, four (4) cleaning valves (including gate valve)

2 port valve
Mountable number
   ※ In this case, six (6) 2 port valves

3 port valve
Mountable number
   ※ In this case, ten (10) 3 port valves

Cleaning unit (with gate valve) side Standard unit side
### SMC Corporation

**Manifold Specification Sheet (VCC Series: VV□CC1)**

- **Company name**: [Company name]
- **Department**: [Department]
- **Person in charge**: [Person in charge]

<table>
<thead>
<tr>
<th>Device description</th>
<th>Drawing number</th>
<th>Production number</th>
</tr>
</thead>
</table>

- **Ordered part number (Please order with this part number.)**
  - **Manifold valve part no.**
  - **Valve**
    - **V C C 1**
    - **V C C 1**

**Specification Sheet**

- Fill in the symbol for stainless steel fitting. For others, mark necessary items with a circle.

<table>
<thead>
<tr>
<th>Part number (Mountable valve number)</th>
<th>Description/Model</th>
<th>Option</th>
<th>Cleaning unit (with gate valve)</th>
<th>Standard unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>G06 G04 G02</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 port valve (Sliding type)</td>
<td>VCC12-00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 port valve (Diasphragm type)</td>
<td>VCC12D-00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blanking plug for 2 port valve</td>
<td>VWCC12-10A-1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Select stainless steel fitting for IN, RETURN port from the table below, and enter the symbol into the specification table.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
<th>Part no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>For piping ø12 x ø9 40° swivel elbow</td>
<td>VCKK1209-02F</td>
</tr>
<tr>
<td>B</td>
<td>For piping ø10 x ø8 40° swivel elbow</td>
<td>VCKK1008-02F</td>
</tr>
<tr>
<td>C</td>
<td>For piping ø10 x ø7.5 40° swivel elbow</td>
<td>VCKK1075-02F</td>
</tr>
<tr>
<td>D</td>
<td>For piping ø8 x ø6 40° swivel elbow</td>
<td>VCKK0806-02F</td>
</tr>
<tr>
<td>E</td>
<td>For piping ø6 x ø4 40° swivel elbow</td>
<td>VCKK0604-02F</td>
</tr>
</tbody>
</table>

- Fill in the model number in the table below for connecting the fitting to OUT port. (See SUS316L stainless steel fitting type.)

<table>
<thead>
<tr>
<th>OUT port</th>
<th>Stainless steel fitting</th>
</tr>
</thead>
</table>

- For 40° swivel elbow, piping direction is on D side.

#### Notes:
1. Two valves can be installed per manifold block. Assign two valves in one square.
2. Please order cleaning unit if gate valve is necessary.
3. When the fitting is necessary for IN, RETURN port, please order by putting necessary stainless steel fitting symbol in the port of each station.

---

**Customer code**

- **U/C**: [U/C]
- **Department code**: [Department code]
- **Code for person in charge**: [Code for person in charge]
- **Registered image no.**: [Registered image no.]

**Fill in for fixed order**

- **Customer's order no.**: [Customer's order no.]
- **Date of delivery**: [Date of delivery]
- **SMC order no.**: [SMC order no.]

**Component list**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>7</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>8</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>9</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>10</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Part no.**

- **VNA**
- **VNB**
- **SGC**
- **SGH**
- **VNC**
- **VNH**
- **VND**
- **VCC**
- **TQ**
**Manifold Specifications — Example of how to fill in**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Valve type</th>
<th>Valve arrangement</th>
<th>Fitting arrangement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 port valve</td>
<td>7 pcs.</td>
<td>IN port</td>
</tr>
<tr>
<td></td>
<td>3 port valve</td>
<td>24 pcs.</td>
<td>IN port, RETURN port</td>
</tr>
<tr>
<td>Cleaning unit</td>
<td>Gate valve</td>
<td>1 pc.</td>
<td>OUT port</td>
</tr>
<tr>
<td>Cleaning valve</td>
<td>4 pcs.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Put "M", because 2 port valves (including cleaning unit) and 3 port valves are installed together.

Note 1) Two valves can be installed per manifold block. Assign two valves in one square.

Seven (7) 2 port valves are installed. Since two valves are installed per manifold base, it must be an even number, so the number of valve that can be installed is "08".

Note 2) Please order cleaning unit if when the gate valve is necessary.

Specify when the gate valve is necessary for cleaning valve. This example requires one gate valve and four cleaning valves, but specify "06" for number of valves that can be installed, as this must be an even number.

When twenty-four (24) 3 port valves are used, specify "24".

Specify twelve (12) stations for manifold.

Fourteen (14) stations for manifold.

Select stainless steel fitting for IN, RETURN port from the table below, and enter the symbol into the specification table.

<table>
<thead>
<tr>
<th>Description/Model</th>
<th>Fitting port</th>
<th>Part no. (Mountable valve number)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleaning unit</td>
<td>1 pc.</td>
<td></td>
</tr>
<tr>
<td>Gate valve</td>
<td>IN port</td>
<td></td>
</tr>
<tr>
<td>Cleaning valve</td>
<td>RETURN port</td>
<td></td>
</tr>
</tbody>
</table>

Although eight 2 port valves can be installed, if you need only seven valves, select the blanking plug. The plug is connected to the port with the blanking plug.

When more than twenty valves are used, specify valve qty. in blank column. When the same valves and fittings are required, they can be specified by arrows.

Specify four (4) stations for manifold.

Specify twelve (12) stations for manifold.

Select the valve referring to the specification table.

Must be specified when the fitting is connected to OUT port.

**Component list**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>VVCC1-082404-G06</td>
<td>6</td>
<td>VCKK100F-02F</td>
<td>7</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>VCC/3-00</td>
<td>24</td>
<td>VCKK10806-02F</td>
<td>4</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>VVCC/2-00</td>
<td>24</td>
<td>VCKK100F-02F</td>
<td>4</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>VVCC/2-10A-1</td>
<td>2</td>
<td>VCKK10806-02F</td>
<td>1</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>VCKK209-02F</td>
<td>24</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2 port valve is specified for the gate valve and the cleaning valve. 7 valves + 1 valve + 4 valves = 12 valves