High-speed valve K2·K3·K4

K Series

Full model change!
K2 Series 2-port valves
For high-speed sorting and air blow applications

High-speed response
0.4 to 3.0 ms (ON)

Low power
9 W and higher specifications come with power saving circuit.
24 W → 1.5 W, 9 W → 1 W

New!
K3/K4 Series
3-, 4-port valves
For high-speed suction pickup, air blow, and high-speed cylinder operation applications

High-speed response
1.2 to 4.0 ms (ON)

Low power
24 W specifications come with power saving circuit.
24 W → 2 W

All products are RoHS compliant
High-speed 3- or 4-port valve **K3·K4 Series**

**Low-power type achieves world’s fastest response!**

- Meets the need for a 3-port valve in high-speed sorting applications.
- Perfect for high-speed suction pickup (K3).
- Compact, high-speed response direct operated 3- or 4-port valve (compared to Koganei products)

### High-speed response
1.2 to 4.0 ms (at ON)

### Low power
24 W specification comes with power saving circuit.

24 W → 2 W

### Compact/10 mm wide

### IP67 equivalent
IP67 equivalent protection structure enables use in a wide range of environments.

### Non-oil specification

### Vacuum specifications (K3)
Support for both vacuum and positive pressure

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**Piping variations** (Photographs show K3 Series.)

<table>
<thead>
<tr>
<th>Base piping</th>
<th>Direct piping</th>
<th>Output port</th>
</tr>
</thead>
<tbody>
<tr>
<td>With air supply block</td>
<td>No air supply block</td>
<td></td>
</tr>
<tr>
<td>Fitting block</td>
<td>Female thread block</td>
<td></td>
</tr>
</tbody>
</table>

---

**Supports a wide range of electrical control.**

- **No protection circuit type**
  - Circuit specifications -N
  - No surge absorbing circuit
- **Surge absorbing type**
  - Circuit specifications -Z
  - Surge absorbing circuit
- **Power saving type**
  - Circuit specifications -L
  - Power saving circuit
  - 24 W → 2 W
  - Surge absorbing circuit
- **PLC drive type**
  - Circuit specifications -R
  - PLC drive circuit
  - Power saving circuit
  - 24 W → 2 W
  - Surge absorbing circuit
- **Pulsed blow type**
  - Circuit specifications -X
  - Built-in microprocessor
  - Pulse oscillation circuit
  - Remote control setting configuration
  - Surge absorbing circuit

*For internal circuit, see page ➝.
## Application examples

### High-speed sorting applications (Supports high cycle time.)
- Chip component manufacturing, taping machines, parts feeders, packaging machines, color sorting machines, etc.

**An exhaust port ensures OFF air cutoff when secondary side piping is long.**

### High-speed suction pickup applications
- Sheet feeding, small electronic component production, etc.

**Perfect for improving productivity through high-speed response.**

#### Valve function and piping port position

**K3 Series (For both vacuum and positive pressure use)**

<table>
<thead>
<tr>
<th>Port Function</th>
<th>Deenergizing</th>
<th>Energizing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normally closed (NC)</td>
<td><img src="image1" alt="Diagram" /></td>
<td><img src="image2" alt="Diagram" /></td>
</tr>
<tr>
<td>Normally open (NO)</td>
<td><img src="image3" alt="Diagram" /></td>
<td><img src="image4" alt="Diagram" /></td>
</tr>
</tbody>
</table>

- Caution: Positive pressure cannot be applied to the 3(R) port.

**K3 (for vacuum use)**

<table>
<thead>
<tr>
<th>Port Function</th>
<th>Deenergizing</th>
<th>Energizing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normally closed (NC)</td>
<td><img src="image5" alt="Diagram" /></td>
<td><img src="image6" alt="Diagram" /></td>
</tr>
<tr>
<td>Normally open (NO)</td>
<td><img src="image7" alt="Diagram" /></td>
<td><img src="image8" alt="Diagram" /></td>
</tr>
</tbody>
</table>

- Caution: Positive pressure cannot be applied to the 3(R) port.

**K3 (for positive pressure use)**

<table>
<thead>
<tr>
<th>Port Function</th>
<th>Deenergizing</th>
<th>Energizing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normally closed (NC)</td>
<td><img src="image9" alt="Diagram" /></td>
<td><img src="image10" alt="Diagram" /></td>
</tr>
<tr>
<td>Normally open (NO)</td>
<td><img src="image11" alt="Diagram" /></td>
<td><img src="image12" alt="Diagram" /></td>
</tr>
</tbody>
</table>

- Caution: Positive pressure cannot be applied to the 3(R) port.

**K4 Series (For positive pressure use)**

<table>
<thead>
<tr>
<th>Port Function</th>
<th>Deenergizing</th>
<th>Energizing</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 ports</td>
<td><img src="image13" alt="Diagram" /></td>
<td><img src="image14" alt="Diagram" /></td>
</tr>
</tbody>
</table>

- Caution: Positive pressure cannot be applied to the 3(R) port.

#### Ultra-low pressure and high-speed actuator control
- The operating pressure range can be from 0 MPa, which makes this valve perfect for actuators (metal cylinders, low constant speed cylinders, etc.) that operate at ultra-low pressure.
- High-speed response also allows use for specific cylinder control (unloading of workpieces, pusher for defect removal, etc.) required in high-speed operation.

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**CAUTION** Before using this valve, be sure to read the “Safety Precautions” on page 3.
Safety precautions (K series high-speed valves)

Before selecting and using the products, please read all safety precautions carefully to ensure proper product use. The safety precautions described below are to help you use the product safely and correctly, and to prevent injury or damage to you, other people, and assets. Always adhere to the following safety regulations: ISO4414 (Pneumatic fluid power - General rules and safety requirements for systems and their components) and JIS B 8370 (General rules relating to pneumatic systems).

Items are ranked as follows according to degree of potential danger or damage: "DANGER", "WARNING", "CAUTION", and "ATTENTION".

| DANGER | Indicates situations that can be clearly predicted as dangerous. Failure to avoid the situation creates the risk of death or serious injury. It could also result in damage or destruction of assets. |
| WARNING | Indicates situations that, while not immediately dangerous, could become dangerous. Failure to avoid the situation creates the risk of death or serious injury. It could also result in damage or destruction of assets. |
| CAUTION | Indicates situations that, while not immediately dangerous, could become dangerous. Failure to avoid the situation creates the risk of minor or semi-serious injury. It could also result in damage or destruction of assets. |
| ATTENTION | While there is little chance of injury, this content refers to points that should be observed for appropriate use of the product. |

This product was designed and manufactured for use in general industrial machinery.

1. Medical equipment related to maintenance or management of human lives or bodies.
2. Machines or equipment designed for the purpose of moving or transporting people.
3. Critical safety components in mechanical devices.

This product has not been planned or designed for purposes that require high levels of safety. Using the product in any of the ways described above creates the risk of loss of human life.

Do not use the product in locations with or near dangerous substances such as flammable or ignitable substances. This product is not explosion-proof. Doing so creates the risk of ignition and fire.

When mounting the product and workpiece, always make sure they are firmly supported and secured in place. Falling, dropping, or abnormal operation of the product creates the risk of personal injury.

People using a pacemaker or other similar medical devices should keep a distance of at least one meter away from the product. Getting too close to the product creates the risk of malfunction of a pacemaker due to the strong magnet built into the product.

Never attempt to modify the product. Abnormal operation can lead to injury, etc.

Never attempt inappropriate disassembly, assembly or repair of the product relating to basic construction, or to its performance or to functions. Doing so creates the risk of injury, electric shock, fire, etc.

Do not splash water on the product. Spraying it with water, washing it, or using it under water could result in malfunction of the product leading to injury, electric shock, fire, etc.

While the product is in operation, avoid touching it with your hands or otherwise approaching too close. Also, do not attempt to make any adjustments to internal or attached mechanisms, or to perform any type of adjustment (manual override, connecting or disconnecting cable connectors, adjusting pressure switches, disconnecting tubes or sealed plugs, etc.) while the product is in operation. Under such conditions, the actuator may move suddenly, creating the risk of personal injury.

Do not allow lead wires and other cords to become damaged. Allowing a cord to become cut, bent excessively, pulled, rolled up, placed under heavy objects, or squeezed between two objects creates the risk of current leaks or defective continuity that can lead to fire, electric shock, or abnormal operation.

Never connect or disconnect connectors while power is turned on. Also, never apply unnecessary force to connectors. Doing so creates the risk of personal injury, device damage, and electric shock due to abnormal machine operation.

Always check the catalog and other reference materials for correct product wiring and piping. Improper wiring and piping creates the risk of damage to and abnormal operation of the actuator, etc.

Always read these precautions carefully before use.
While the product is in operation, avoid touching it with your hands or otherwise approaching too close. Heat generated by the product to operate unintentionally. Take leak current countermeasures against the control circuit so that the leak current do not exceed the allowance in the product specifications.

While the product is in operation, avoid touching it with your hands or otherwise approaching too close. Heat generated by the product can cause burn injury.

ATTENTION

When considering the possibility of using this product in situations or environments not specifically noted in the catalog or instruction manual, or in applications where safety is an important requirement such as in aircraft equipment, combustion equipment, leisure equipment, safety equipment, and other places where human life or assets may be greatly affected, take adequate safety precautions such as allowing plenty of margin for ratings and performance, or fail-safe measures. Contact the sales department at Koganei regarding use in such applications.

Always check the catalog and other reference materials for product wiring and piping.

When handling the product, wear protective gloves, safety glasses, safety shoes, and other protective clothing.

When the product can no longer be used, or is no longer necessary, dispose of it appropriately, according to the “Law Regarding the Disposal and Cleaning of Waste” or other local governmental rules and regulations, as industrial waste.

Pneumatic equipment can exhibit degraded performance and function over its operating life. Always conduct daily inspections of the pneumatic equipment, and confirm that all requisite system functions are satisfied, to prevent accidents from happening.

Air leakage of the solenoid valves cannot be cut to zero. Take volume and holding time requirements into consideration when designing pressure (including vacuum) retention in the pressure vessel, and other factors.

For inquiries about the product, consult your nearest Koganei sales office or Koganei Overseas Department. The addresses and telephone numbers are shown on the back cover of this catalog.

Attach a muffler to the exhaust port. This will reduce exhaust noise.

Warranty and General Disclaimer

1. Warranty Period
Koganei warrants this product for a period of no more than 180 days from the date of delivery.

2. Scope of Warranty and General Disclaimer
(1) The Koganei product warranty covers individual products. When a product purchased from Koganei or from an authorized Koganei distributor malfunctions during the warranty period in a way that is attributable to Koganei’s responsibility, Koganei will repair or replace the product free of charge. Even if a product is still within the warranty period, its durability is determined by its operation cycles and other factors. Contact your nearest Koganei sales office or the Koganei overseas department for details.

(2) Never attempt inappropriate disassembly or assembly of the product relating to basic configurations, or its performance or functions.

Koganei shall not be held responsible for any problems that occur as a result of these items not being properly observed.
### K3/K4 series

#### K3/K4 operation principle and symbols

3-port
K3-100SF-□-NL□-M5C

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Normally closed (NC)</th>
</tr>
</thead>
</table>

![Diagram of 3-port](image)

<table>
<thead>
<tr>
<th>Materials of major parts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong></td>
</tr>
<tr>
<td>Iron core</td>
</tr>
<tr>
<td>Magnet wire</td>
</tr>
<tr>
<td>Coil case</td>
</tr>
<tr>
<td>Wiring cover</td>
</tr>
<tr>
<td>Printed circuit board</td>
</tr>
<tr>
<td>Body</td>
</tr>
<tr>
<td>Stem</td>
</tr>
<tr>
<td>Back cover</td>
</tr>
<tr>
<td>Valve seat</td>
</tr>
<tr>
<td>End cover</td>
</tr>
<tr>
<td>Manual override</td>
</tr>
<tr>
<td>Armature</td>
</tr>
<tr>
<td>Poppet</td>
</tr>
</tbody>
</table>

K3-100SF-□-NL□-M5D

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Normally open (NO)</th>
</tr>
</thead>
</table>

![Diagram of 4-port](image)

K4-100SF-□-NL□-M5F

<table>
<thead>
<tr>
<th>Symbol</th>
</tr>
</thead>
</table>

![Diagram of 4-port](image)
Handling instructions and precautions

Wiring instructions
Plug connector connection and disconnection
When connecting the connector, use your finger to insert the connector onto the pin, and push in on the connector until the lever’s claw catches the indent of the housing. When removing the connector, squeeze the lever along with the connector making sure that the lever’s claw is disengaged from the indent of the housing, and then pull the connector out.

Using the 3-port valve NC and NO when using a sub-base
A plug comes with the K3 Series (3-port valve) -A2 specification (sub-base included), so the plug can be used to select the NC/NO setting.

Piping specifications
Cannot be used unless piping specifications filled in. Be sure to mount an air supply block or sub-base on the inlet side, and a fitting block, female thread block or plate on the outlet side.
*When mounting an air supply block on the inlet side, mount a fitting block or female thread block on the outlet side. When mounting a sub-base on the inlet side, mount a plate on the outlet side.

Mounting a valve on the air supply block and sub-base
The recommended tightening torque for the valve mounting screws when mounting a valve on the air supply block or sub-base is 7 N-cm.

Precautions when using a plate, fitting block, or female thread block
1. When mounting a plate, fitting block, or female thread block following purchase of a valve for which the piping specification is blank, the recommended tightening torque for the mounting screws (tapping screws) is 7 N-cm.

When screwing in a mounting screw (tapping screw), tighten the screw so it is parallel with the pilot hole of the body. After tightening a screw, check to make sure it is not loose. Exceeding the recommended tightening torque or tightening a tapping screw at an angle can cause deformation or cracking of the body.

The product is no longer under warranty if the plate, fitting block, or female thread block is removed or reassembled.

2. Do not remove a plate, fitting block, or female thread block that is later mounted or mounted at the factory.

When mounting an air supply block on the inlet side, mount a fitting block or female thread block on the outlet side. When mounting a sub-base on the inlet side, mount a plate on the outlet side.

*Port 2 for normally closed (NC).
*Port 4 for normally open (NO).
Handling instructions and precautions

### When mounting a fitting on the female thread block

When mounting a fitting on the female thread block, hold the female thread block to mount the fitting. Tightening torque is 10N•cm.

![Female thread block](image)

**Fix this part.**

---

### Manual override operation

Press the manual override as far as it will go to operate it. The valve is in the same state when energizing while the manual override is pressed. Releasing the manual override causes it to return.

- Performing manual override operation operates connected devices, so be sure to confirm that doing so does not create any danger before pressing the manual override.

---

### Tubing

Use of both nylon tubes and urethane tubes is supported. Use tubes with outside diameter precision within 0.1 mm of the nominal dimensions, and with ovality (difference between major axis and minor axis) within 0.2 mm. (Use of Koganei tubes is recommended.)

1. Do not use extremely soft tubes, which causes a severe drop in pull-out strength.
2. Do not use tubes whose outside surface is damaged or scratched. If tubes become damaged after repeated use, cut off the damaged portion.
3. Do not subject tubes to sharp bends in the vicinity of fittings. The table below shows minimum bending radius guidelines for nylon tubes.
4. Be sure to stop air supply from the air source before attaching or detaching tubes. Also be sure to check that all of the air within the manifold has been exhausted.

<table>
<thead>
<tr>
<th>Tube size</th>
<th>Minimum bending radius (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 4</td>
<td>20</td>
</tr>
<tr>
<td>Ø 6</td>
<td>30</td>
</tr>
</tbody>
</table>

---

### Vacuum holding

For K3-100V type, there is a minute amount of leakage at vacuum, but this is considered to be permissible. When vacuum holding is required, use a vacuum storage tank (chamber, etc.) and confirm that sufficient vacuum pickup force is maintained.

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### Standard vacuum circuitry

![Diagram of standard vacuum circuitry](image)
Handling instructions and precautions

### Internal circuit

<table>
<thead>
<tr>
<th>Circuit specifications</th>
<th>Internal circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>No-protection circuit type (-N)</td>
<td>-</td>
</tr>
<tr>
<td>Surge absorbing type (-Z)</td>
<td>-</td>
</tr>
<tr>
<td>Power saving type (-L)</td>
<td>-</td>
</tr>
<tr>
<td>PLC drive type (-R)</td>
<td>-</td>
</tr>
<tr>
<td>Pulsed blow type (-X)</td>
<td>-</td>
</tr>
</tbody>
</table>

- Refer to “No-protection circuit type (-N) LED usage precautions” on the top right if using LED.

### No-protection circuit type (-N) LED usage precautions

Using the same power supply to operate no-protection circuit type solenoid valve’s LED indicators and coil operation creates the risk of LED damage due to counter electromotive force generated when the coil is off. In this case, provide protection circuit (Diagram 1).

Note: Response times shown in the catalog specifications are values when LEDs are not used.

### Pulsed blow type (-X) externally connected circuit

Refer to the figure below (Diagram 2) when wiring to the pulsed blow type.

### Power saving circuit current waveforms

The power line waveform for the low energy type (-L) and PLC drive type (-R) with -24 power specifications is shown below.

### Installation

**WARNING**

1. Installing valves side-by-side or with a manifold will generate large amounts of coil heat. Provide at least 1 mm of space between coils.
2. Coils generate heat. Avoid energizing coils without applying air. During use in combination with a nozzle or other type of throttling valve, provide an air flow of at least 5 L/min while the valve is energized.
3. Allowing ferromagnetic material to come into contact with the solenoid valve (coil) can cause erratic operation. Keep such materials at least 1 mm away from solenoid valves.

### Restrictions on 4 W power specification type continuous energizing time

**WARNING**

In the case of the 4 W power specification type, be sure to use a continuous energizing time that is below the voltage waveform shown below. A longer energizing time results in heat build-up due to coil heat generation, which can lead to damage or burnout. Contact Koganei for details.

---

*Note: The startup time varies depending on the model.*
**Remote control program**

<table>
<thead>
<tr>
<th>Item</th>
<th>Manufacturer setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock release</td>
<td>Press [0] [10]³ times</td>
</tr>
<tr>
<td>ON/OFF</td>
<td>[Power]</td>
</tr>
<tr>
<td>Settings by value input</td>
<td>[1] to [9], [0] [10]³ times¹</td>
</tr>
<tr>
<td>[11] (Frequency)</td>
<td>Press after inputting a value to change the frequency (Hz).</td>
</tr>
<tr>
<td>[12] (Duty ratio)</td>
<td>Press after inputting a value to change the duty ratio (%). A duty ratio of 100% is continuous energizing.</td>
</tr>
<tr>
<td>Settings by variable input</td>
<td>[Volume +/-]</td>
</tr>
<tr>
<td>Registration</td>
<td>[Change input]</td>
</tr>
<tr>
<td>Registered value recall</td>
<td>[Mute]</td>
</tr>
</tbody>
</table>

Note 1: Through the [0] [10] button is used as a [0] button, the marking of the button depends on the remote control being used.

If your remote control does not have a [0] button, the [10] button is used for [0].

2: Holding down a button for more than 0.5 seconds will scroll the frequency value upwards or downwards.

3: Holding down a button for more than 0.5 seconds will scroll the duty ratio value upwards or downwards.

**Valve LED indicators**

- **During valve operation** The valve LED light timing is the same as the oscillation frequency and duty ratio.
- **During remote control input** When lock is released, the valve LED at the valve and operating a button causes the valve LED to light or go out for 0.1 seconds.
- **During lock release** Valve LED does not light with the first press of [0] [10], does not light with the second press of [0] [10], does not light with the third press of [0] [10], and lights for 0.1 seconds with the fourth press of [0] [10].

**Operation precautions**

1. When configuring settings, make sure that 24 VDC of power is supplied between the solenoid valve input (+) and GND (-).
2. Make sure that the remote control signal emitter is aimed at the valve when operating remote control buttons. Settings will not be configured if you operate the remote control without aiming at the valve.
3. Another pulsed blow type valve that is near the valve whose settings are being configured can cause interference in the infrared signal during remote control input. To avoid interference, be sure to disconnect the connectors and cut off the power supply of all valves except for the one being configured.
4. Perform remote control input slowly and carefully. Due to delay in the receive process, quick operation may result in incorrect input.
5. Input each value within 10 seconds. Input will be ignored after 10 seconds.
6. If you make a mistake during value input, wait for more than 10 seconds after the last input and then input it again.
7. Remote control input is not supported while a valve is ON by external input (lock release is also not supported).
8. The infrared receive lock function is automatically operational when power is turned on, so release the lock before configuring settings.
9. Executing “Registration” while configuring settings with a remote control automatically executes [Valve stop], performs memory registration, and locks infrared reception.
10. If the power supply is cut while settings are being configured with a remote control but have not been registered yet, the unregistered settings are discarded and previously registered settings are restored.
Operational flow with a remote control

Example 1: To set 5 Hz as the operating frequency of the valve.

Example 2: To set 10 Hz as the operating frequency of the valve.

Example 3: To set the duty ratio of the valve to 25%.

Recommended remote control buttons

Make sure that the remote control signal emitter is aimed at the valve when operating remote control buttons.
# K3 series specifications

## Positive pressure

<table>
<thead>
<tr>
<th>Item</th>
<th>Basic model</th>
<th>Direct piping</th>
<th>Base piping</th>
<th>Circuit specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media</td>
<td>Air/inert gas</td>
<td>K3-100SF-02</td>
<td>K3-100SA-02</td>
<td>-N -Z -R -X</td>
</tr>
<tr>
<td>Operation system</td>
<td>Direct operated</td>
<td>K3-100SF-04</td>
<td>K3-100SA-04</td>
<td>-N -Z -R -X</td>
</tr>
<tr>
<td>Number of Ports</td>
<td>3</td>
<td>K3-100SF-24</td>
<td>K3-100SA-24</td>
<td>-L -R -L -R</td>
</tr>
<tr>
<td>Number of Positions</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow rate characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sonic conductance C [dm³/(s·bar)]</td>
<td>0.2</td>
<td>0.2</td>
<td>0.3</td>
<td>0.4</td>
</tr>
<tr>
<td>Effective area [Cv][mm²]</td>
<td>1.0 [0.06]</td>
<td>1.0 [0.06]</td>
<td>1.5 [0.08]</td>
<td>2.0 [0.11]</td>
</tr>
<tr>
<td>Port size</td>
<td>Fitting block: φ 4 mm and φ 6 mm quick fitting, female thread block: M5 × 0.8 Air supply block, sub-base: M5 × 0.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not required</td>
<td>K3-100VF-02</td>
<td>K3-100VA-02</td>
<td>-N -Z -R -X</td>
</tr>
<tr>
<td>Operating pressure range</td>
<td>MPa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ON</td>
<td>0 to 0.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OFF</td>
<td>0 to 0.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response time Note 2, Note 3</td>
<td>ms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ON</td>
<td>4.0±1.0</td>
<td>3.0±1.0</td>
<td>1.2±0.5</td>
<td>1.2±0.5</td>
</tr>
<tr>
<td>OFF</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Maximum operating frequency Note 4</td>
<td>Hz</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Operating temperature range (atmosphere and media) °C</td>
<td>0 to 50 (non-condensation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shock resistance</td>
<td>m/s²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mounting direction</td>
<td>Any</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection structure</td>
<td>IP67 equivalent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating life Operations</td>
<td>100 million (under Koganei test conditions)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>g</td>
<td></td>
<td></td>
<td>Direct piping type: 52 for piping specifications -J4C, 53 for -J6C, 49 for -M5C (for 300 mm wire length) Base piping type: 64 for piping specifications -A2 (for 300 mm wire length)</td>
</tr>
</tbody>
</table>

## Vacuum

<table>
<thead>
<tr>
<th>Item</th>
<th>Basic model</th>
<th>Direct piping</th>
<th>Base piping</th>
<th>Circuit specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media</td>
<td>Air/inert gas/vacuum</td>
<td>K3-100VF-02</td>
<td>K3-100VA-02</td>
<td>-N -Z -R -X</td>
</tr>
<tr>
<td>Operation system</td>
<td>Direct operated</td>
<td>K3-100VF-04</td>
<td>K3-100VA-04</td>
<td>-N -Z -R -X</td>
</tr>
<tr>
<td>Number of Ports</td>
<td>3</td>
<td>K3-100VF-24</td>
<td>K3-100VA-24</td>
<td>-L -R -L -R</td>
</tr>
<tr>
<td>Number of Positions</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow rate characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sonic conductance C [dm³/(s·bar)]</td>
<td>0.2</td>
<td>0.2</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Effective area [Cv][mm²]</td>
<td>1.0 [0.06]</td>
<td>1.0 [0.06]</td>
<td>1.5 [0.08]</td>
<td>2.0 [0.11]</td>
</tr>
<tr>
<td>Port size</td>
<td>Fitting block: φ 4 mm and φ 6 mm quick fitting, female thread block: M5 × 0.8 Air supply block, sub-base: M5 × 0.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not required</td>
<td>K3-100VF-02</td>
<td>K3-100VA-02</td>
<td>-N -Z -R -X</td>
</tr>
<tr>
<td>Operating pressure range</td>
<td>MPa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ON</td>
<td>3 (R) port: −100 kPa to 0, 1 (P) port: −100 kPa to 0.7 MPa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response Note 2, Note 3</td>
<td>ms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ON</td>
<td>4.0±1.0</td>
<td>3.0±1.0</td>
<td>1.2±0.5</td>
<td>1.2±0.5</td>
</tr>
<tr>
<td>OFF</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Maximum operating frequency Note 4</td>
<td>Hz</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Operating temperature range (atmosphere and media) °C</td>
<td>0 to 50 (non-condensation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shock resistance</td>
<td>m/s²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mounting direction</td>
<td>Any</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection structure</td>
<td>IP67 equivalent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating life Operations</td>
<td>100 million (under Koganei test conditions)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>g</td>
<td></td>
<td></td>
<td>Direct piping type: 52 for piping specifications -J4C, 53 for -J6C, 49 for -M5C (for 300 mm wire length) Base piping type: 64 for piping specifications -A2 (for 300 mm wire length)</td>
</tr>
</tbody>
</table>

**Note:**
1. Effective area values are calculated values. They are not measured values.
2. Values when air pressure is 0.5 MPa. Values are for continuous operations, except for after a period of non-operation.
3. No-protection circuit type (−N) response times are values when LEDs are not used.
4. Contact Koganei when you wish to operate a valve in excess of this maximum operating frequency.
5. Continuous energizing time is limited. For details, see page 18.
6. For operating conditions and ordering procedures, you will need to consult with Koganei. Contact your nearest Koganei sales office.
# K4 series specifications

## Positive pressure

<table>
<thead>
<tr>
<th>Item</th>
<th>Direct piping</th>
<th>Base piping</th>
<th>Circuit specifications</th>
<th>Media</th>
<th>Operation system</th>
<th>Number of Ports</th>
<th>Number of Positions</th>
<th>Flow rate characteristics</th>
<th>Operating temperature range (atmosphere and media) °C</th>
<th>Shock resistance m/s²</th>
<th>Power specifications (Flow rate type)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic model</td>
<td>K4-100SF-02</td>
<td>K4-100SA-02</td>
<td>-N</td>
<td>Air/inert gas</td>
<td>Direct operated</td>
<td>4</td>
<td>2</td>
<td>Sonic conductance C dm³/(s·bar) 0.2</td>
<td>0 to 50 (non-condensation)</td>
<td>100</td>
<td>-O2, -O4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-Z</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Effective area [Cv]¹ mm²</td>
<td>1.0 [0.06]</td>
<td></td>
<td>-O2, -O4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-R</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-O2, -O4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-O2, -O4</td>
</tr>
</tbody>
</table>

### Circuit specifications

<table>
<thead>
<tr>
<th>Note</th>
<th>Circuit specifications</th>
<th>No-protection circuit type</th>
<th>Surge absorbing type</th>
<th>Power saving type</th>
<th>PLC drive type</th>
<th>Pulsed blow type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>-N</td>
<td>-Z</td>
<td>-R</td>
<td>-X</td>
<td>-L</td>
</tr>
<tr>
<td>2</td>
<td>Media</td>
<td>Air/inert gas</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Operation system</td>
<td>Direct operated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Number of Ports</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Number of Positions</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Media

- Air/inert gas

### Operation system

- Direct operated

### Number of Ports

- 4

### Number of Positions

- 2

### Flow rate characteristics

<table>
<thead>
<tr>
<th>Item</th>
<th>Basic model</th>
<th>K4-100SF-02</th>
<th>K4-100SF-04</th>
<th>K4-100SF-24</th>
<th>K4-100SF-24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sonic conductance C</td>
<td>dm³/(s·bar)</td>
<td>0.2</td>
<td>0.2</td>
<td>0.3</td>
<td>0.4</td>
</tr>
<tr>
<td>Effective area [Cv]¹ mm²</td>
<td></td>
<td>1.0 [0.06]</td>
<td>1.0 [0.06]</td>
<td>1.5 [0.08]</td>
<td>2.0 [0.11]</td>
</tr>
</tbody>
</table>

### Port size

- Fitting block: φ 4 mm and φ 6 mm quick fitting, female thread block: M5 × 0.8
- Air supply block, sub-base: M5 × 0.8

### Operating pressure range MPa

- 0 to 0.7
- 0 to 0.5

### Proof pressure MPa

- 1.05

### Response time ms

<table>
<thead>
<tr>
<th>Note</th>
<th>ON</th>
<th>OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>4.0±1.0</td>
<td>2.0</td>
</tr>
<tr>
<td>3</td>
<td>3.0±1.0</td>
<td>2.0</td>
</tr>
<tr>
<td>4</td>
<td>1.2±0.5</td>
<td>2.0</td>
</tr>
<tr>
<td>5</td>
<td>1.2±0.5</td>
<td>2.0</td>
</tr>
</tbody>
</table>

### Maximum operating frequency Hz

<table>
<thead>
<tr>
<th>Note</th>
<th>50</th>
<th>50</th>
<th>50</th>
<th>40</th>
<th>70</th>
<th>70</th>
<th>40</th>
<th>100</th>
<th>100</th>
<th>100</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>40</td>
<td>70</td>
<td>70</td>
<td>40</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

### Operating temperature range

<table>
<thead>
<tr>
<th>Note</th>
<th>°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>0 to 50 (non-condensation)</td>
</tr>
</tbody>
</table>

### Shock resistance m/s²

- 100

### Mounting direction

- Any

### Protection structure

- IP67 equivalent

### Operating life Operations

- 100 million (under Koganei test conditions)

### Weight g

- Direct piping type: 54 for piping specifications -J4F, 57 for -J6F, 49 for -M5F (for 300 mm wire length)
- Base piping type: 63 for piping specifications -A2 (for 300 mm wire length)

### Note

1. Effective area values are calculated values. They are not measured values.
2. Values when air pressure is 0.5 MPa. Values are for continuous operations, except for after a period of non-operation.
3. No-protection circuit type (-N) response times are values when LEDs are not used.
4. Contact Koganei when you wish to operate a valve in excess of this maximum operating frequency.
5. Continuous energizing time is limited. For details, see page 9.
6. For operating conditions and ordering procedures, you will need to consult with Koganei. Contact your nearest Koganei sales office.

---

# K3 and K4 series electrical specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Circuit specifications</th>
<th>No-protection circuit type</th>
<th>Surge absorbing type</th>
<th>Power saving type</th>
<th>PLC drive type</th>
<th>Pulsed blow type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>-N</td>
<td>-Z</td>
<td>-R</td>
<td>-X</td>
<td>-L</td>
</tr>
<tr>
<td></td>
<td>Power specifications (Flow rate type)</td>
<td>-O2, -O4</td>
<td>-O2, -O4</td>
<td>-24</td>
<td>-O2, -O4</td>
<td>-24</td>
</tr>
</tbody>
</table>

### Rated voltage

- 24 VDC

### System

- DC solenoid (parallel)

### Operating voltage range V

- 21.6 to 26.4 (24.0 ± 10%)

### Power specifications -02, -04

<table>
<thead>
<tr>
<th>Item</th>
<th>Current value (when rated voltage is applied) mA</th>
<th>84</th>
<th>167</th>
<th>84</th>
<th>167</th>
<th>84</th>
<th>167</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Power consumption W</td>
<td>2.0</td>
<td>4.0</td>
<td>2.0</td>
<td>4.0</td>
<td>2.0</td>
<td>4.0</td>
</tr>
</tbody>
</table>

### Power specifications -24

<table>
<thead>
<tr>
<th>Item</th>
<th>Current value (when rated voltage is applied) mA</th>
<th>Starting</th>
<th>1000</th>
<th>—</th>
<th>—</th>
<th>1000</th>
<th>—</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Holding</td>
<td>—</td>
<td>84</td>
<td>—</td>
<td>—</td>
<td>84</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Power consumption W</td>
<td>Starting</td>
<td>24</td>
<td>—</td>
<td>—</td>
<td>24</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Holding</td>
<td>—</td>
<td>2</td>
<td>—</td>
<td>—</td>
<td>2</td>
<td>—</td>
</tr>
</tbody>
</table>

### Vcc current value (standby) mA

- 6 (24 VDC)

### PLC input Rated voltage V

- 5 to 24 DC ±10% Shorted within valve

### PLC input Rated current mA

- 23 (24 VDC)

### External input Non-protection circuit type

- NPN open collector

### Allowable circuit leak current mA

- 3.5 | 7 | 3 | 3 | 3 |

### LED circuit consumption current (when connected) mA

- 4 (as standard)

### Insulation resistance MΩ

- 100 or greater

### LED indicator color

- Red

### Surge protection

- None

### Surge absorbing transistor

- Flywheel diode

### Note

1. Surge absorbing circuit is provided as standard in the case of circuit specifications -L, -R, and -X.
3. Continuous energizing time is limited. For details, see page 9.
K3 and K4 series flow rate

Explanation of diagrams
At supply pressure of 0.5 MPa, and flow rate of 49 l/min (ANR), valve outlet pressure becomes 0.4 MPa.

K3 series (vacuum) time of supplying air/exhausting air

Explanation of graph
Exhausting air: Time for chamber at ambient pressure to reach vacuum.
Supplying air: Time for chamber at -100 kPa to reach ambient pressure.

Measuring conditions

- Digital oscilloscope
- Pressure sensor
- Quick fittings
- Chamber
- Primary side tank
- TSH4-M5M

K3-100V-02, -04 Air being exhausted
K3-100V-24 Air being exhausted

K3-100V-02, -04 Air being supplied
K3-100V-24 Air being supplied

Vacuum degree

K3 series (vacuum) time of supplying air/exhausting air
K3 Series order codes

### Basic model
- **K3-100SF**: Direct piping, 3-port, standard flow rate type
- **K3-100HF**: Direct piping, 3-port, high flow rate type\(^{1}\)
- **K3-100VF**: Direct piping, 3-port, vacuum & standard flow rate type
- **K3-100SA**: Base piping, 3-port, standard flow rate type
- **K3-100HA**: Base piping, 3-port, high flow rate type\(^{2}\)
- **K3-100VA**: Base piping, 3-port, vacuum & standard flow rate type

### Power specifications
- **-02**: 2 W
- **-04**: 4 W\(^{1}\)
- **-24**: 24 W (with power saving circuit)

### Circuit specifications
- **-N**: No-protection circuit type (3-wire) (Without surge absorbing circuit)
- **-Z**: Surge absorbing type (2-wire) (With surge absorbing circuit)
- **-L**: Power saving type (2-wire) (With surge absorbing circuit)
- **-R**: PLC drive type (4-wire) (With surge absorbing circuit)
- **-X**: Pulsed blow type (3-wire) (With surge absorbing circuit)

### Wiring specifications
- **S0**: IP67 S-type plug connector, 300 mm lead wire
- **S1**: IP67 S-type plug connector, 1000 mm lead wire
- **S3**: IP67 S-type plug connector, 3000 mm lead wire
- **SN**: IP67 S-type plug connector, no connector
- **L0**: IP67 L-type plug connector, 300 mm lead wire
- **L1**: IP67 L-type plug connector, 1000 mm lead wire
- **L3**: IP67 L-type plug connector, 3000 mm lead wire
- **LN**: IP67 L-type plug connector, no connector

### Piping specifications
- **Blank**: No input/output block
- **-J4A**: No air supply block, with \(\Phi 4\) fitting block (NC)
- **-J4B**: No air supply block, with \(\Phi 4\) fitting block (NO)
- **-J4C**: With air supply block, with \(\Phi 4\) fitting block (NC)
- **-J4D**: With air supply block, with \(\Phi 4\) fitting block (NO)
- **-J6A**: No air supply block, with \(\Phi 6\) fitting block (NC)
- **-J6B**: No air supply block, with \(\Phi 6\) fitting block (NO)
- **-J6C**: With air supply block, with \(\Phi 6\) fitting block (NC)
- **-J6D**: With air supply block, with \(\Phi 6\) fitting block (NO)
- **-M5A**: No air supply block, with M5 female thread block (NC)
- **-M5B**: No air supply block, with M5 female thread block (NO)
- **-M5C**: With air supply block, with M5 female thread block (NC)
- **-M5D**: With air supply block, with M5 female thread block (NO)

### Voltage
- **24 VDC**

---

Notes:
1. Continuous energizing time is limited. For details, see page \(\xrightarrow[3]{1}\).
2. **K3-100HF** and **K3-100HA** are special specification products. For operating conditions and ordering procedures, you will need to consult with Koganei. Contact your nearest Koganei sales office.
3. A plug is included with the **-A2** (sub-base included), so the plug can be used to select the NC/NO setting. For details, see page \(\xrightarrow[2]{3}\).
4. Cannot be used if wiring specifications are blank.

Be sure to mount an input/output block (direct piping), or sub-base plate (base piping).
K3 Series additional parts order codes

**Mounting bracket**
- K310-21: Mounting bracket (with mounting screws), 1 set

**Air supply block**
- K310-MP: Air supply block (no mounting screws), 1 set

**Φ 4 fitting block for 3-port**
- K310-J4A: Φ 4 fitting block for 3-port (with gasket, mounting screws), 1 set

**Φ 6 fitting block for 3-port**
- K310-J6A: Φ 6 fitting block for 3-port (with gasket, mounting screws), 1 set

**Female thread block for 3-port**
- K310-M5A: Female thread block for 3-port (with gasket, mounting screws), 1 set

**Sub-base**
- K310-25: Sub-base (no mounting screws), 1 set

**Plate**
- K310-P: (with gasket, mounting screws), 1 set

**Block-off plate**
- K310-BP: Block-off plate (with gasket, mounting screws), 1 set

**Connector, lead wire type**
- K210-P20: IP67 plug connector, lead wire (2-wire) length: 300 mm
- K210-P21: IP67 plug connector, lead wire (2-wire) length: 1000 mm
- K210-P23: IP67 plug connector, lead wire (2-wire) length: 3000 mm
  
  Note 1: Use a cable type for a 3000 mm length for the power saving type (-L).

- K210-P30: IP67 plug connector, lead wire (3-wire) length: 300 mm
- K210-P31: IP67 plug connector, lead wire (3-wire) length: 1000 mm
- K210-P33: IP67 plug connector, lead wire (3-wire) length: 3000 mm

- K210-P40: IP67 plug connector, lead wire (4-wire) length: 300 mm
- K210-P41: IP67 plug connector, lead wire (4-wire) length: 1000 mm

**Connector, cable type**
- K210-C31: IP67 plug connector, cable (3-wire) length: 1000 mm
- K210-C33: IP67 plug connector, cable (3-wire) length: 3000 mm
- K210-C35: IP67 plug connector, cable (3-wire) length: 5000 mm
  
  Note 2: In the case of 2-wire specifications (-L, -Z), cut the white lead wire to use.

- K210-C41: IP67 plug connector, cable (4-wire) length: 1000 mm
- K210-C43: IP67 plug connector, cable (4-wire) length: 3000 mm

**Air supply block**
- K310-21: Mounting bracket (with mounting screws), 1 set
### K4 Series order codes

#### Basic model
- **K4-100SF**: Direct piping, 4-port, standard flow rate type
- **K4-100HF**: Direct piping, 4-port, high flow rate type
- **K4-100SA**: Base piping, 4-port, standard flow rate type
- **K4-100HA**: Base piping, 4-port, high flow rate type

#### Power specifications
- **-02**: 2 W
- **-04**: 4 W
- **-24**: 24 W (with power saving circuit)

#### Circuit specifications
- **-N**: No-protection circuit type (3-wire) (Without surge absorbing circuit)
- **-Z**: Surge absorbing type (2-wire) (With surge absorbing circuit)
- **-L**: Power saving type (2-wire) (With surge absorbing circuit)
- **-R**: PLC drive type (4-wire) (With surge absorbing circuit)
- **-X**: Pulsed blower type (3-wire) (With surge absorbing circuit)

#### Wiring specifications
- **S0**: IP67 S-type plug connector, 300 mm lead wire
- **S1**: IP67 S-type plug connector, 1000 mm lead wire
- **S3**: IP67 S-type plug connector, 3000 mm lead wire
- **SN**: IP67 S-type plug connector, no connector
- **L0**: IP67 L-type plug connector, 300 mm lead wire
- **L1**: IP67 L-type plug connector, 1000 mm lead wire
- **L3**: IP67 L-type plug connector, 3000 mm lead wire
- **LN**: IP67 L-type plug connector, no connector

#### Piping specifications
- **Blank**: No input/output block
- **-J4E**: No air supply block, with Φ4 fitting block
- **-J4F**: With air supply block, with Φ4 fitting block
- **-J6E**: No air supply block, with Φ6 fitting block
- **-J6F**: With air supply block, with Φ6 fitting block
- **-M5E**: No air supply block, with M5 female thread block
- **-M5F**: With air supply block, with M5 female thread block

#### Voltage
- **24 VDC**

---

**Note 1**: Continuous energizing time is limited. For details, see page ⤜.

**Note 2**: K4-100SF and K4-100HA are special specification products. For operating conditions and ordering procedures, you will need to consult with Koganei.

**Note 3**: Cannot be used if wiring specifications are blank.

Be sure to mount an input/output block (direct piping), or sub-base plate (base piping).

---

**Blank**: No input/output block
**-J4E**: No air supply block, with Φ4 fitting block
**-J4F**: With air supply block, with Φ4 fitting block
**-J6E**: No air supply block, with Φ6 fitting block
**-J6F**: With air supply block, with Φ6 fitting block
**-M5E**: No air supply block, with M5 female thread block
**-M5F**: With air supply block, with M5 female thread block

**Blank**: No sub-base, no plate
**-A1**: No sub-base, with plate
**-A2**: With sub-base, with plate
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>K410-J4E</td>
<td>4 fitting block for 4-port (with gasket, mounting screws), 1 set</td>
</tr>
<tr>
<td>K410-J6E</td>
<td>6 fitting block for 4-port (with gasket, mounting screws), 1 set</td>
</tr>
<tr>
<td>K410-M5E</td>
<td>Female thread block for 4-port (with gasket, mounting screws), 1 set</td>
</tr>
<tr>
<td>K310-25</td>
<td>Sub-base (no mounting screws), 1 set</td>
</tr>
<tr>
<td>K310-BP</td>
<td>Block-off plate (with gasket, mounting screws), 1 set</td>
</tr>
<tr>
<td>K210-P20</td>
<td>IP67 plug connector, lead wire (2-wire) length: 300 mm</td>
</tr>
<tr>
<td>K210-P21</td>
<td>IP67 plug connector, lead wire (2-wire) length: 1000 mm</td>
</tr>
<tr>
<td>K210-P23</td>
<td>IP67 plug connector, lead wire (2-wire) length: 3000 mm \textsuperscript{1}</td>
</tr>
</tbody>
</table>

\textsuperscript{1} Note: Use a cable type for a 3000 mm length with the power saving type (-L).

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>K210-P30</td>
<td>IP67 plug connector, lead wire (3-wire) length: 300 mm</td>
</tr>
<tr>
<td>K210-P31</td>
<td>IP67 plug connector, lead wire (3-wire) length: 1000 mm</td>
</tr>
<tr>
<td>K210-P33</td>
<td>IP67 plug connector, lead wire (3-wire) length: 3000 mm</td>
</tr>
<tr>
<td>K210-P40</td>
<td>IP67 plug connector, lead wire (4-wire) length: 300 mm</td>
</tr>
<tr>
<td>K210-P41</td>
<td>IP67 plug connector, lead wire (4-wire) length: 1000 mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>K210-C31</td>
<td>IP67 plug connector, cable (3-wire) length: 1000 mm \textsuperscript{2}</td>
</tr>
<tr>
<td>K210-C33</td>
<td>IP67 plug connector, cable (3-wire) length: 3000 mm \textsuperscript{2}</td>
</tr>
<tr>
<td>K210-C35</td>
<td>IP67 plug connector, cable (3-wire) length: 5000 mm \textsuperscript{2}</td>
</tr>
</tbody>
</table>

\textsuperscript{2} Note 2: In the case of 2-wire specifications (-L, -Z), cut the white lead wire to use.
K3 series dimensions (mm)

K3-100□F-□□□□S0-J□□□C (direct piping type)
With air supply block, with fitting block (NC),
S type plug connector

Note: Mounting bracket is an additional part (option).

Mounting bracket (K310-21)

Quick fitting
- J4A, J4C: φ4
- J6A, J6C: φ6

L-type plug connector

Quick fitting
- J4B, J4D: φ4
- J6B, J6D: φ6
K3 series dimensions (mm)

K3-100□□□F-□□□S0-M5C (direct piping type)
With air supply block, with female thread block (NC),
S-type plug connector

Mounting bracket (K310-21)
Note: Mounting bracket is an additional part (option).

Air supply block

2-M5×0.8
3 (R) port
1 (P) port

Note:

- □□□ (for NO specifications)
- □□□ (for NC specifications)

M5×0.8
4 (A) port

L-type plug connector

With air supply block, with female thread block (NC),
S-type plug connector

M5×0.8
2 (B) port

Air supply block

2-M5×0.8
2-ϕ3.2
(mounting hole)

Mounting bracket (K310-21)

Note: Mounting bracket is an additional part (option).
K3 series dimensions (mm)

K3-100[A-][S0-A2] (base piping type)

With sub-base, S-type plug connector

When NO specification are used

L-type plug connector
K3 series dimensions (mm)

K3-100 F (direct piping) manifold installation dimensions

Maximum hole diameter φ4 (exhaust port)

Maximum hole diameter φ4 (supply port)

Select a model from the following to mount on the manifold.

- K3-100 F-□-□-J4A DC24V
- K3-100 F-□-□-J4B DC24V
- K3-100 F-□-□-J6A DC24V
- K3-100 F-□-□-J6B DC24V
- K3-100 F-□-□-M5A DC24V
- K3-100 F-□-□-M5B DC24V

Note 1: Be careful not to drop the gasket during mounting.
2: 11 mm minimum pitch for valve installation when mounted on manifold.

K3-100 A (base piping) manifold installation dimensions

Maximum hole diameter φ4 (exhaust port)

Maximum hole diameter φ4 (output port)

Maximum hole diameter φ4 (supply port)

Select a model from the following to mount on the manifold.

K3-100 A-□-□-A1 DC24V

Note 1: Be careful not to drop the gasket during mounting.
2: 11 mm minimum pitch for valve installation when mounted on manifold.
K4 series dimensions (mm)

K4-100□F-□-□S0-J□F (direct piping type)

With air supply block,
with fitting block, S-type plug connector

Note: Mounting bracket is an additional part (option).
K4 series dimensions (mm)

K4-100-F-□-□S0-M5F (direct piping type)

With air supply block, with female thread block, S-type plug connector

Mounting bracket (K310-21)\textsuperscript{[note]}

Note: Mounting bracket is an additional part (option).

Manual override

L-type plug connector
K4 series dimensions (mm)

K4-100A-□-□S0-A2 (base piping type)

With sub-base, S-type plug connector

Sub-base
M5×0.8
4 (A) port
M5×0.8
2 (B) port

Plate

Manual override

L-type plug connector

With sub-base, L-type plug connector

L-type plug connector
K4 series dimensions (mm)

K4-100□F (direct piping) manifold installation dimensions

Select a model from the following to mount on the manifold.

- K4-100□F-□-J4E DC24V
- K4-100□F-□-J6E DC24V
- K4-100□F-□-M5E DC24V

Note 1: Be careful not to drop the gasket during mounting.
2: 11 mm minimum pitch for valve installation when mounted on manifold.

K4-100□A (base piping) manifold installation dimensions

Select a model from the following to mount on the manifold.

K4-100□□□□A1 DC24V

Note 1: Be careful not to drop the gasket during mounting.
2: 11 mm minimum pitch for valve installation when mounted on manifold.
Limited Warranty

KOGANEI CORP. warrants its products to be free from defects in material and workmanship subject to the following provisions.

Warranty Period
The warranty period is 180 days from the date of delivery.

Koganei Responsibility
If a defect in material or workmanship is found during the warranty period, KOGANEI CORP. will replace any part proved defective under normal use free of charge and will provide the service necessary to replace such a part.

Limitations
This warranty is in lieu of all other warranties, expressed or implied, and is limited to the original cost of the product and shall not include any transportation fee, the cost of installation or any liability for direct, indirect or consequential damage or delay resulting from the defects.

KOGANEI CORP. shall in no way be liable or responsible for injuries or damage to persons or property arising out of the use or operation of the manufacturer’s product.

This warranty shall be void if the engineered safety devices are removed, made inoperative or not periodically checked for proper functioning.

Any operation beyond the rated capacity, any improper use or application, or any improper installation of the product, or any substitution upon it with parts not furnished or approved by KOGANEI CORP., shall void this warranty.

This warranty covers only such items supplied by KOGANEI CORP. The products of other manufacturers are covered only by such warranties made by those original manufacturers, even though such items may have been included as the components.

The specifications are subject to change without notice.
Attention users of the old type K2 Series!

Protection structure

Though the old type K2 Series was equivalent to IP65, note that the protection structure is now IP67 equivalent.