KURODA

PILOT OPERATED SOLENOID VALVES PC/RC06,08,15 Series

Rubber Seal, Sub-base Mounting



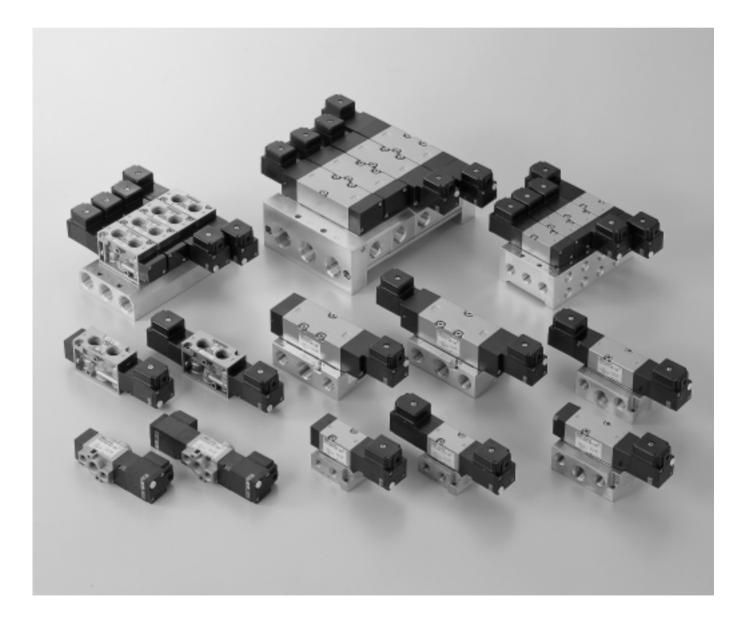


RUBBER SEAL, PILOT OPERATED SOLENOID VALVES PC/RC06, 08, 15 series

High flow from compact die casted body.

Single piece spool with patented TS seal rings featuring wear compensation design for long life.

Unique solenoid design minimizes burn-out and power consumption. 4-way, 4/5-port, 2/3-position valves, In-line, Sub-base and manifold. Manual override (None locking type) is standard on all PC/RC series. Locking type is available on request.



VARIATIONS Mounting

Sub-base type

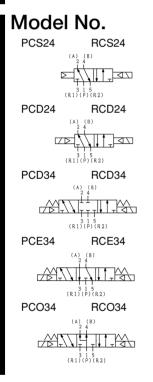


In-line type

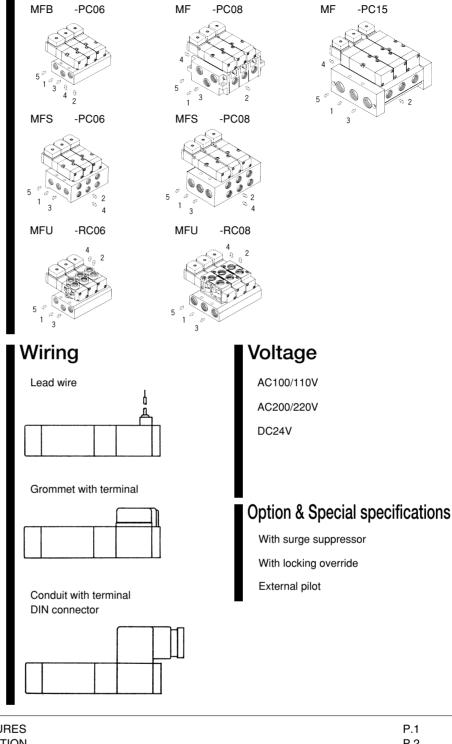


With mounting bracket





Manifold



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INTRODUCTION OF KURODA CAD DATA LIBRARY

KURODA CAD DATA LIBRARY contains CAD data of pneumatic equipment, ball screws, support units and single-axis modules.

In addition, various tools for selecting pneumatic equipment and ball screws are listed in it. Please use this library to improve the design performance of your FA related equipment.

How to Obtain CAD Data Library

CAD Data Library is available from CD-ROM supplied by our company or our company's Home Page via Internet. For a CD-ROM, please ask KURODA sales representative in charge of your company.



http://www.kuroda-precision.co.jp/e-top

Kind of CAD data

| Type of data | CD-ROM | Home Page | |
|-------------------|--------|-----------|----|
| DXF | r12 | | |
| DWG(AUTO CAD) * 1 | r12 | | *2 |

1 : Name of CAD software is our company's registered trademark.

2 : Some of DWG type product data are not contained

How to Download from Home Page



(Note) CAD data is classified by each product and contained in a self-extracting exectable file format (.exe).

CAD Data of Main Pneumatic Equipment

Pneumatic Actuators Series of air cylinders and rotary actuators are listed in CAD DATA LIBRARY. Pneumatic Grippers/Vacuum Equipment Series of parallel grippers, rotary opening/closing grippers, vacuum units and pads are listed in it. Control Valves Series of solenoid valves such as ADEX VALVEs are listed in it. Other Equipment

Series of speed controllers, joints, etc. are listed in it. Air Cleaning Equipment Series of FRL combination QUBE are listed in it.





FOR SAFETY USE

Be sure to read the following instructions before use. For common and individual instructions, refer to the text of this catalogue.

The following safety precautions are provided to prevent damage and danger to personnel and to provide instructions on the correct usage of this product. These precautions are classified into 3 categories; "CAUTION", "WARNING" and "DANGER" according to the degree of possible injury or damage and the degree of impendence of such injury or damage.

Be sure to comply with all precautions along with JIS B8370^(%1) and ISO 4414^(%2), as they include important content regarding safety.

| : | Indicates a potentially hazardous situation which may arise due to improper handling or operation and could result in personal injury or property-damage-only accidents. |
|---|--|
| • | Indicates a potentially hazardous situation which may arise due to improper handling or operation and could result in serious personal injury or death. |
| • | Indicates an impending hazardous situation which may arise due to improper handling or operation and could result in serious personal injury or death. |

(※1) JIS B8370 : General Rules for Pneumatic Systems
(※2) ISO 4414 : Pneumatic fluid power-General rules relating to systems

•The applicability of pneumatic equipment to the intended system should be judged by the pneumatic system designer or the personnel who determined specifications for such system.

As operating conditions for products contained in this catalogue are diversified, the applicability of pneumatic equipment to the intended system should be determined by the pneumatic system designer or the personnel who determined specifications for such system after conducting an analysis or testing as necessary.

The system designer shall be responsible for assuring the intended system performance and safety.

Before making a system, the system designer should thoroughly examine all specifications for such a system and also take into consideration the possibility of any trouble with the equipment.

The pneumatic equipment should be handled by persons who have sufficient knowledge and rich experience.

Inproper handling of compressed air will result in danger.

Assembling, operation and maintenance of machinery using pneumatic equipment should be performed by persons who have sufficient knowledge and rich experience.

•Never operate machinery nor remove the equipment until safety is assured.

- Before checking or servicing machinery and equipment, be sure to check that steps for prevention of dropping or runaway of the driven component have been completely taken.
- When removing the equipment, make sure that the above-mentioned safety measures have been done beforehand.

Then turn off air supply and power to the system and purge compressed air in the system.

- When restarting machinery and equipment, check that proper prevention of malfunction has been provided for and then restart carefully.
- •When using the pneumatic equipment in the following conditions or environments, take the proper safety measures and consult KURODA beforehand.
- · Conditions and environments other than specified and outdoor use.
- Applications to nuclear power equipment, railroads, aircraft, vehicles, medical equipment, equipment connected with food and drink, amusement facilities and safety devices such as emergency interruption devices, clutch/ brake circuits for a press and the likes.
- \cdot Applications which require extreme safety and will also greatly affect men and property.



Be sure to read them before use.

Also refer to Par. "For Safety Use" and instructions mentioned for each series of solenoid valves.

DESIGN

Stopping actuator at intermediate position

When stopping the actuator at an intermediate position using a solenoid valve listed in this catalogue, it is difficult to stop it accurately because of the compressibility of air, unlike a hydraulic cylinder can dose.

In addition, as the solenoid valve and air cylinder allow a certain degree of air leak, they cannot stop at the fixed position for a long period of time according to circumstances. When it is required to stop them at the fixed position for a long period of time, contact KURODA.

· Keeping pressure (including vacuum)

As the solenoid valve is designed to allow a certain degree of air leak, it cannot be used to keep pressure (including vacuum) in a pressure vessel etc.

· Do not use for emergency shutoff valves.

Solenoid valves listed in this catalogue are not designed for use in emergency shutoff valves and other safety applications.

When using the solenoid valve for such applications, provide an independent means to assure safety.

Exhausting residual air

Provide a residual air exhausting function in due consideration of maintenance and inspection. Doing maintenance and inspection without exhausting residual air may sometimes malfunction the actuator.

When using a 3-position closed center type solenoid valve, compressed air is shut in between solenoid valve and actuator even if residual air from the air supply side to the solenoid valve is exhausted.

Therefore, provide a means to exhaust the residual air pressure separately.

Use in vacuum

When using a solenoid valve for diverting vacuum and other applications, check specifications for the valve and select a proper one that can be used in vacuum.

In order to prevent sucking foreign matters from the suction pad and exhaust port, provide an inline filter between the suction pad and solenoid valve and at the exhaust port.

· Applying current continuously for long time

When using a solenoid valve while applying current to it continuously for a long period of time, contact KURODA beforehand.

Avoid applying current simultaneously.

When using a double-solenoid valve while applying current to it continuously for a long period of time, do not apply current to both solenoids simultaneously; otherwise the coil may be burnt out or the main valve may malfunction.

· Remodeling the solenoid valve

Do not remodel the solenoid valve.

DESIGN

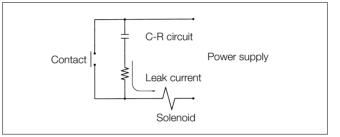
· Applying current momentarily

When using a double-solenoid type valve, apply current for the prescribed period of time (0.1 sec.). If current is not applied for the prescribed period of time, the solenoid valve may not perform the diverting action acording to circumstances.

Leak current

When a C-R element is used in the contact protective circuit (surge voltage protection), leak current will flow through the C-R element.

If this leak current becomes large, a malfunction will occur. Therefore, reduce leak current to less than 1 mA.



· Use at low temperature

When using a solenoid valve at 5 or below, provide an air dryer or other proper means to prevent moisture from solidifying or freezing.

Use with air blow

When using a solenoid valve with air blow, select a directoperated type or external pilot type solenoid valve.

When an internal pilot type solenoid valve is used, it may not perform the diverting action due to a pressure drop at the time of air blow.

When an external pilot type solenoid valve is used, supply compressed air within the specified pressure range to the pilot port.

· Mounting position and direction

A solenoid valve can be mounted in any position and direction as a general.

However, a metal seal type double-solenoid valve and a 3-position solenoid valve should be mounted so that the spool may be horizontal.

Shock and vibration

Reduce shocks and vibrations applied to the solenoid valve to less than the prescribed value. (refer to specifications.) Applying shocks and vibrations exceeding the prescribed value may result in a malfunction of the solenoid valve.



Be sure to read them before use.

Also refer to Par. "For Safety Use" and instructions mentiond for each series of solenoid valves.

SELECTION

Refer to specifications.

Solenoid valves listed in this catalogue are designed for compressed air. When using other fluid than compressed air, contact KURODA beforehand.

Do not use a solenoid valve at pressure and temperature outside the range of specifications, otherwise resulting in a breakdown or malfunction.

MOUNTING

WARNING

• When mounting the solenoid valve, firmly fix it while using care to prevent the stationary part and joint from loosening.

If the solenoid valve is mounted with insufficient strength, it may sometimes come off.

• Do not start the system until it is ensured that equipment works properly.

After mounting the solenoid valve, connect power supply and then perform a functional test and a leak test. Check that it has been correctly mounted and works properly, before starting the system.

· Coating with paint

When coating the resin portion with paint, it may be adversely affected by paint and solvent. For the propriety of painting, contact KURODA beforehand.

Do not peel off the nameplate affixed on the solenoid valve and do not erase or smear out the letter on it.

• Provide space for maintenance and inspection.

• Fit an air muffler to the exhaust port (ports 3, 5) of the solenoid valve.

Dust or foreign matter that enters it may cause a malfunction of the solenoid valve.

• Do not wipe off the model name inscribed on a nameplate etc. with organic solvent.

The inscribed indication may be erased.

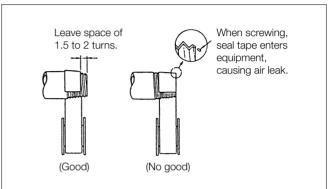
PIPING

Before piping

Thoroughly flush the inside of each pipe to remove chips, coolant, dust, etc. before piping.

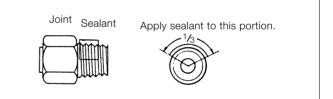
· How to wind a seal tape

When winding a seal tape around the threaded portion, leave space of 1.5 to 2 thread turns.



· How to apply liquid sealant

When applying liquid sealant to the threaded portion, apply a proper amount to about 1/3 of the periphery of the threaded portion and then screw it.



· Screw of pipe and joint

When screwing the pipe and joint, use care to prevent chips and sealant from entering the pipe and joint.

Tighten them within a proper range of clamping torque.

| Clamping torque (N·m) |
|-----------------------|
| 0.3 ~ 0.5 |
| 1.5 ~ 2.0 |
| 7.0 ~ 9.0 |
| 12 ~14 |
| 2 ~24 |
| 28 ~ 30 |
| 28 ~ 30 |
| 36 ~ 38 |
| 40 ~ 42 |
| 48 ~ 50 |
| |



Be sure to read them before use.

Also refer to Par. "For Safety Use" and instructions mentioned for each series of solenoid valves.

PIPING

Avoid wrong piping.

When connecting a pipe to a solenoid valve, be careful not to mistake the supply port by referring to the nameplate affixed to the product or the product catalogue.

• When using a 3-position closed center type solenoid valve :

Thoroughly check the piping between solenoid valve and actuator for air leak.

WIRING

• When doing wiring work, be sure to turn off compressed air and power supplies beforehand.

Wiring work without turning off air and power supplies may cause an electric shock or malfunction ; this sometimes results in an injury to the human body or a damage to property.

Avoid mis-wiring.

Some solenoid valves have polarity : Those operating on DC with built-in indicator light and those equipped with surge protective circuit.

When wiring to a solenoid valve, check whether or not it has polarity.

For a solenoid valve having polarity, check the lead wire color and symbol of the polarity by the catalogue or actual article beforehand and then make correct wiring.

Mis-wiring will result in the following problems :

(Where no polarity protective diode is incorporated :)

Wiring to the wrong polarity will burn out the diode in the solenoid valve, the switching element on the control unit side or the power supply unit.

(Where a polarity protective diode is provided :)

Wiring to the wrong polarity will not cause the solenoid valve to perform a diverting action.

• Avoid applying stress and tensile force to lead wire repeatedly.

Wiring made in such a manner that stress and tensile force are repeatedly applied to the lead wire will result in the breaking of wire. Provide some degree of margin for wiring.

· Check that there is no insulation failure.

If an insulation failure occurs in the lead wire connection, extension cable and terminal base, an excess flows to the switching element of the solenoid valve or control unit, sometimes resulting in a damage.

Do not mistake applied voltage.

Mistake in applied voltage in case of wiring to a solenoid valve will cause an operation failure or burn out the coil.

• After completion of wiring, check for wrong connection before turning on power.

OPERATING ENVIRONMENTS

· Do not use solenoid valve in a explosive environment.

WARNING

- Do not use a solenoid valve in atmospheres containing corrosive gases, chemicals, seawater, water and vapor and in places where a solenoid valve contacts these matters.
- Do not use a solenoid valve in a place where vibrations or shocks are directly applied to it.
- When a solenoid valve is exposed to the direct sunlight, fit a protective cover to the solenoid valve.
- When a solenoid valve is located around a heat source, shut off the radiant heat.
- When installing a solenoid valve in the control panel, take proper heat-radiating measures so that the inside temperature may be kept within the specified temperature range.
- When using a solenoid valve in a place where it is exposed to welding spatters, provide a protective cover or other proper prevention.

Welding spaters may burn out the plastic parts of the solenoid valve, sometimes resulting in a fire.

LUBRICATION

• Solenoid valves listed in this catalogue are nonlubrication.

The non-lubricated solenoid valve can be used without lubrication, but can be used with lubrication.

When using it with lubrication, do not discontinue supplying oil. Otherwise, the applied lubricant may run off, sometimes resulting in an operation failure.

When using a lubricant, Class 1 turbine oil ISO VG 32 (containning additive) is recommended.



Be sure to read them before use.

Also refer to Par. "For Safety Use" and instructions mentioned for each series of solenoid valves.

QUALITY OF AIR

• Use pure air.

Compressed air containing corrosive gases, chemicals, salt, etc. causes a breakdown or operation failure. So do not use such air.

• Fit an air filter with filtration of 5 μ m or fine.

• Install an air dryer.

Compressed air containing much drainage causes the operation failure of pneumatic equipment. Install an air dryer, lower the temperature and reduce drainage.

• Take proper countermeasures against sludge.

If sludge produced in compressor oil enters pneumatic equipment, it will cause the operation failure of pneumatic equipment. It is recommendable to use compressor oil (NISSEKI FAIRCALL A68, IDEMITSU DAPHUNY SUPER CS68) featuring minimized sludge production or use a sludge filter or mist cleaner to prevent sludge from entering the pneumatic equipment.

Filter Sludge filter Regulator Mist cleaner

MAINTENANCE AND INSPECTION

Inspection before maintenance

First check that load drop prevention has been provided. Then shut off air and power supplies to the system and exhaust residual air in the system beforehand.

For a 3-position closed center type solenoid valve, compressed air is sealed between solenoid valve and cylinder. Exhaust this residual compressed air.

Inspection after maintenance

When restarting the system, check that preventive measures against flying-out of the actuator have been taken. Then connect compressed air supply to the pneumatic system, and perform a proper functional test and a leak test to check that it works safely without fail, before starting the system.

Operation at low frequency

To prevent an operation failure, perform the switching action of the solenoid valve once per 30 days. (Be careful of air supply.)

Manual operation

When the solenoid valve is manually operated, the system connected to it is also operated. Make sure safety before operation.

Disassembly of solenoid valve

When disassembling the solenoid valve, contact KURODA beforehand.

Draining

To keep the quality of air to a certain level, drain the air filter at periodical intervals.



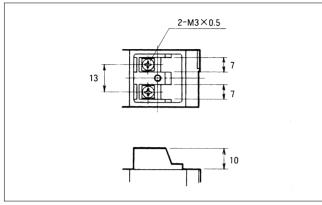
PC/RC06, 08, 15 SERIES/INDIVIDUAL INSTRUCTIONS

Be sure to read them before use.

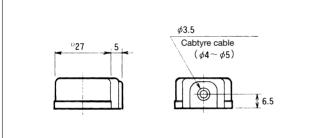
Also refer to Par." For Safety Use "and common instructions.

WIRING SPECIFICATIONS

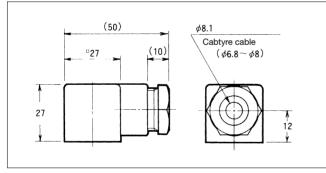
Terminal of grommet and conduit



Grommet cover



Conduit cover



LEAD WIRE SPECIFICATIONS

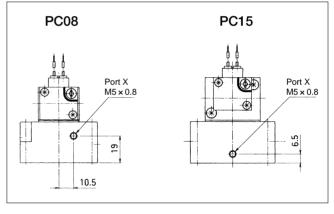
0.3mm² × 500 ℓ (O.D. 1.7) AWG22 (UL1007)

WITH SURGE SUPPRESSORE

The following varistor type surge suppressorAC100VTNR9G271K or equivalent of Z7D271AC200VTNR9G471K or equivalent of Z7D471DC24VTNR9G470K or equivalent of Z7D470

EXTERNAL PILOT TYPE (Made to order)

External pilot port position





PC/RC06, 08, 15 SERIES/INDIVIDUAL INSTRUCTIONS

Be sure to read them before use.

Also refer to Par." For Safety Use "and common instructions.

Κ

FLOW RATE

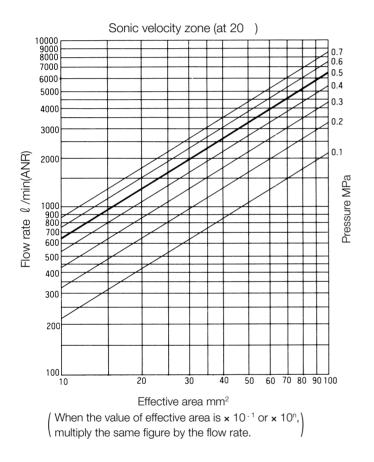
Flow rate can be calculated from the following formula :

- For values in the sonic velocity zone. find out from the attached table. P_H 1.89P_L (Subsonic velocity zone)
 - $Q = 240 \times S \times P_L \times (P_H P_L) \times$
 - P_H 1.89P_I (Sonic velocity zone)
 - Q = 120 × S × P_H × $\frac{273}{T_{H}}$
 - Q : Flow rate
 - ℓ /min(ANR) S : Effective area of orifice mm²

 - P_{H} : Pressure on upper stream MPa abs
 - P_L : Pressure on down stream MPa abs

 $T_{\mbox{\scriptsize H}}\,$: Absolute temperature on upper stream

(Note) Absolute pressure (MPa) = Supply pressure + 0.100 (MPa)

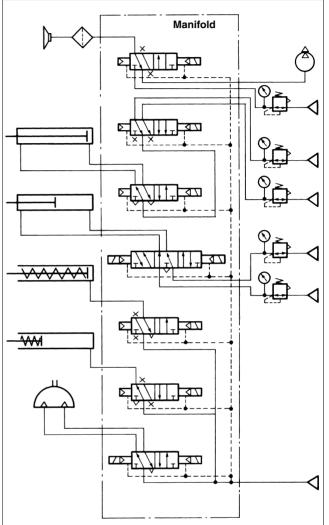


EFFECTIVE AREA

Effective areas mentioned in this catalog are measured between ports 1 2, 4 in accordance with JIS (JAPANESE INDUSTRIAL STANDARD) B8374/8375.

MULTI-PURPOSE FUNCTION

Solenoid valve designed with a balanced spool works as (common) external pilot system so that compressed air can be supplied from any port to provide multi-purpose functions.



5-PORT PILOT OPERATED SOLENOID VALVES **PC06 Series** Rubber Seal, Sub-base Mounting type

| PCS2406 | 2-position Single solenoid |
|---------|-------------------------------|
| PCD2406 | 2-position Double solenoid |
| PCD3406 | 3-position Closed center |
| PCE3406 | 3-position Exhaust center |
| PCO3406 | 3-position Pressure center |



SPECIFICATIONS

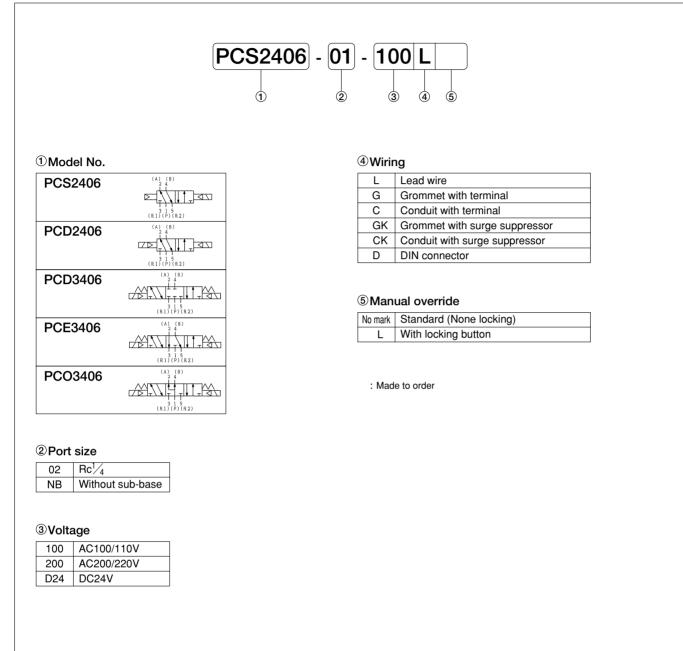
| Mode | el No. | | | Unit | PCS2406 | PCD2406 | PCD3406 PCE3406 | PCO3406 |
|----------------------|-----------------|-------------|---------|-----------|---|------------------------|----------------------------|-----------|
| Fluid | | | | | Non-lubricated/lubricated air | | | |
| Port s | size | | | | | R | c ¹ /4 | |
| Effect | tive are | ea | | mm² | 1 | 10 | 9 | |
| Cv va | alue | | | | 0. | .54 | 0.4 | 9 |
| Operat | ting amb | ient temp | erature | | | - 5 | ~ 50 | |
| Opera | ating p | ressure | range | MPa | | 0.2 | ~ 0.8 | |
| Maxir | mum fr | equenc | у | Cycle/min | 2 | 40 | 18 | 0 |
| Resp at 0.5 | onse ti 5MPa | me | | s | ON 0.021 OFF 0.021 | ON 0.015 | ON C OFF C | |
| Rateo | d voltag | ge | | V | AC100/110、200/220、DC24 | | | |
| Grade | e of ins | ulation | | | JIS grade B | | | |
| Permis | ssible vol | ltage fluct | uation | % | AC ± 10、 DC ⁺¹⁰ ₋₁₅ | | | |
| Rated | d frequ | ency | | Hz | | 50 | /60 | |
| u uutra | Holding | 50Hz | VA | | (100/2 | 00) 3.2 | | |
| Power consumption | . AC | noiding | 60Hz | VA | | (100/2 | 00) 2.6 | |
| Power consun | | Inlush | 50Hz | VA | | (100/2 | 00)5 | |
| PO DO | | mush | 60Hz | VA | | (100/2 | 00) 4.5 | |
| Powe | er cons | umptior | n DC | W | | | 2 | |
| Wiring | g | | | | Lead wire, | Grommet with terminal, | Conduit with terminal, DIN | connector |
| Mass | ; | | | kg | 0.2 | 0.27 | 0.36 | 0.36 |

(Note) • When temperature of valve site gose down below 5 , complete dry air shall be supplied to prevent from freezing.

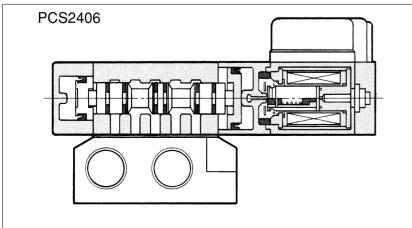
• Effective area shown above is value between ports 1 and 2, 4.

Response time shown above is in accordance with JIS B 8375.

ORDERING INSTRUCTION



CONSTRUCTION



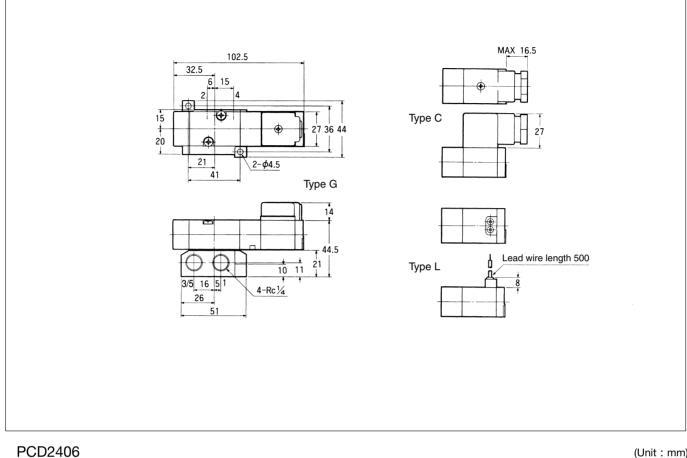
SPARE PARTS

| Sub-base | | | | |
|--------------------|------------|--|--|--|
| Port size | Model No. | | | |
| Rc ¹ ⁄4 | PC06-SB-02 | | | |

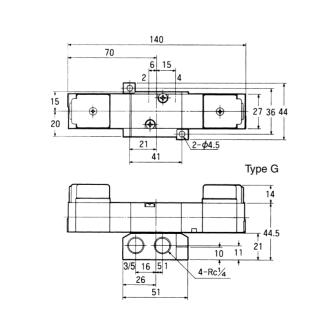
DIMENSIONS

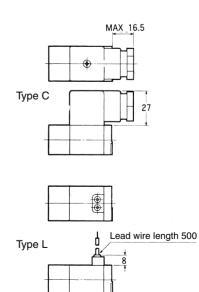
PCS2406

(Unit : mm)



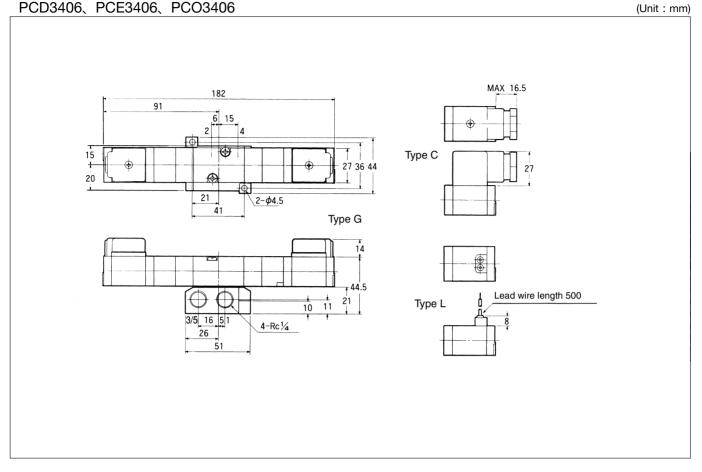
(Unit : mm)





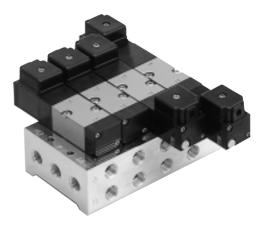
DIMENSIONS

PCD3406、PCE3406、PCO3406



INDIVIDUAL WIRING TYPE MANIFOLD MF –PC06 Bar type

| MFS | -PC06 | Common SUP, Common EXH Ports 2 & 4 on side |
|-----|-------|---|
| MFB | -PC06 | Common SUP, Common EXH Ports 2 & 4 on bottom |



MANIFOLD SPECIFICATIONS

| | | MFS -PC06 | MFB -PC06 | |
|---------------------------|----------------|---|------------------------------|--|
| Type of manifold | | Common SUP, common EXH | Common SUP, common EXH | |
| | | Ports 2 & 4 on side | Ports 2 & 4 on bottom | |
| | Port 1 | $Rc^{1}/_{4}$ (Both sides) | $Rc^{1}/_{4}$ (Both sides) | |
| Port size | Port 3, 5 | $Rc^{1}/_{4}$ (Both sides) | Rc1/4 (Both sides) | |
| | Port 2, 4 | Rc ¹ / ₄ (Side) | $Rc^{1}/_{4}$ (Bottom side) | |
| Number of stations 2 ~ 10 | | ~ 10 | | |
| | | PCS2406-NB- | | |
| | | PCD2406-NB- | | |
| Mountable s | solenoid valve | PCD3406-NB- | | |
| | | PCE3406-NB- | | |
| | | PCO3406-NB- | | |
| Blank plate | | PC | PC06-BP | |

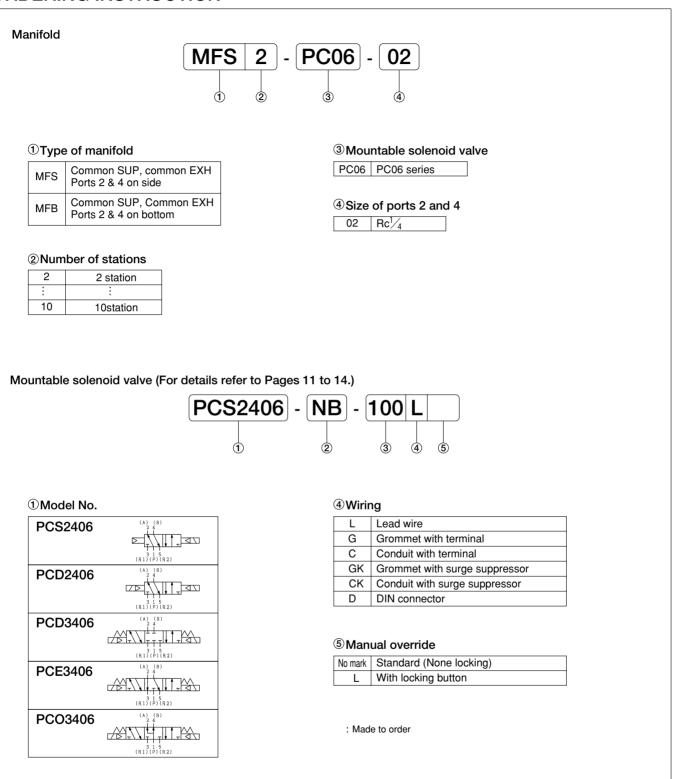
HOW TO ORDER

Specify the type and quantity of Manifold and Solenoid Valve to be mounted, and the quantity of Blank Plate (PC06-BP) in accordance with the following example of description.

(Example) MFS8-PC06-02

| PCS2406-NB-100G | 4 pcs. |
|-----------------|--------|
| PCD2406-NB-100G | 2 pcs. |
| PCD3406-NB-100G | 1 pc. |
| PC06-BP | 1 pc. |

ORDERING INSTRUCTION



2 Port size

NB Without sub-base

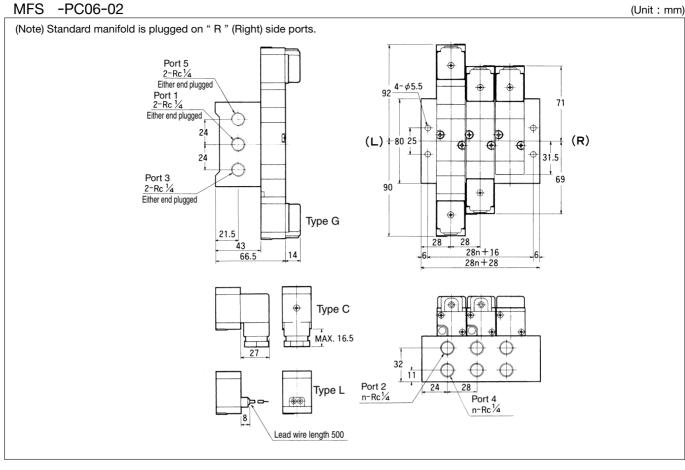
③Voltage

| 100 | AC100/110V |
|-----|------------|
| 200 | AC200/220V |
| D24 | DC24V |

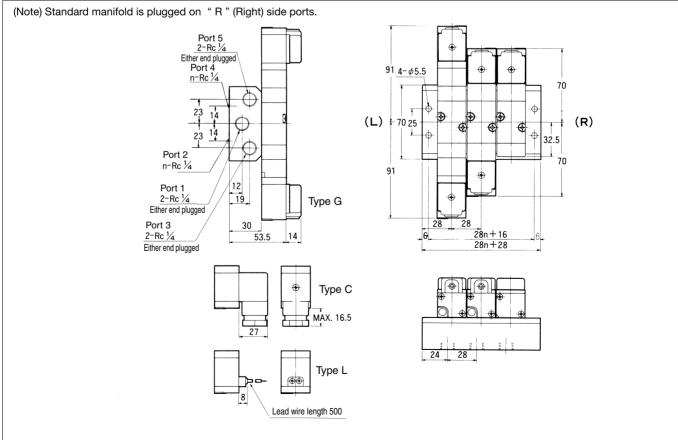
DIMENSIONS



(Unit : mm)



MFB -PC06-02



5-PORT PILOT OPERATED SOLENOID VALVES PC08 Series Rubber Seal, Sub-base Mounting type

| PCS2408 | 2-position Single solenoid |
|---------|-------------------------------|
| PCD2408 | 2-position Double solenoid |
| PCD3408 | 3-position Closed center |
| PCE3408 | 3-position Exhaust center |
| PCO3408 | 3-position Pressure center |



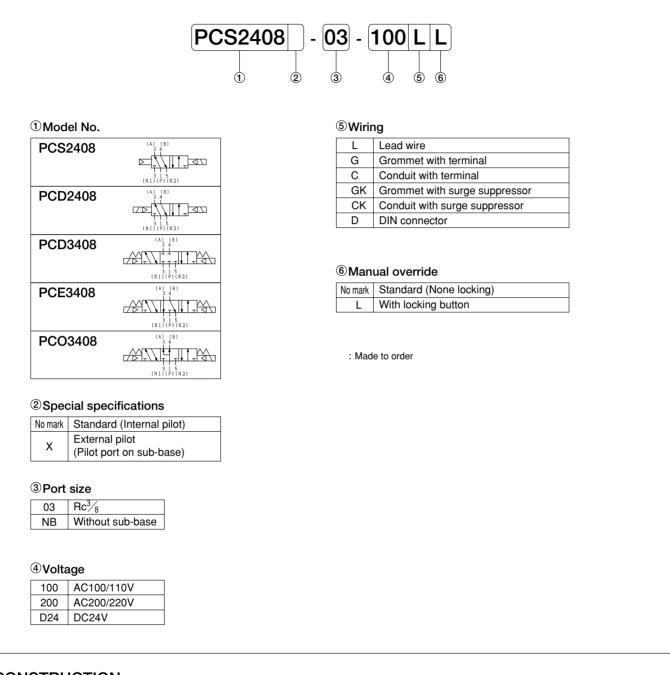
SPECIFICATIONS

| Model No. | | Unit | PCS2408 | PCD2408 | PCD3408 PCE3408 | PCO3408 | | |
|----------------------------|-----------|--------------|---------|-----------------------|--|---|--------------------------|------|
| Fluid | | | | | Non-lubricated/lubricated air | | | |
| Port s | size | | | | | Ports 1, 2 & 4 : Rc ³ / ₈ | Ports 3 & 5 : $Rc^{1/4}$ | |
| Effec | tive are | a | | mm² | 3 | 30 | 25 | 14 |
| Cv va | alue | | | | 1. | .63 | 1.36 | 0.76 |
| Operat | ting amb | ient temp | erature | | | - 5 | ~ 50 | |
| Opera | ating p | ressure | range | MPa | | 0.2 ~ | - 0.8 | |
| Maxir | mum fr | equenc | y | Cycle/min | | 18 | 30 | |
| Response time at 0.5MPa | | | s | ON 0.035 OFF 0.045 | ON 0.02 | ON 0.025 OFF 0.035 | | |
| Rateo | d voltag | ge | | V | AC100/110、200/220、DC24 | | | |
| Grade | e of ins | ulation | | | JIS grade B | | | |
| Permis | sible vol | tage fluct | uation | % | AC ± 10、 DC ⁺¹⁰ ₋₁₅ | | | |
| Rated frequency | | | Hz | 50/60 | | | | |
| uo | | L la lalia a | 50Hz | VA | | (100/20 | 00)3.2 | |
| npti | AC | Holding | 60Hz | VA | | (100/20 | 00)2.6 | |
| Power consumption | AU | Inlush | 50Hz | VA | | (100/20 | 00)5 | |
| COL COL | | musn | 60Hz | VA | | (100/20 | 00)4.5 | |
| Power consumption DC | | | n DC | W | 2 | | | |
| Wirin | g | | | | Lead wire, Grommet with terminal, Conduit with terminal, DIN connector | | | |
| Mass | ; | | | kg | 0.35 | 0.42 | 0.58 | 0.58 |

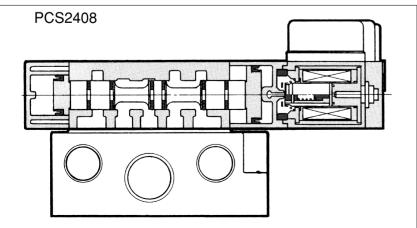
(Note) • When temperature of valve site gose down below 5 , complete dry air shall be supplied to prevent from freezing. • Effective area shown above is value between ports 1 and 2, 4.

Response time shown above is in accordance with JIS B 8375.

ORDERING INSTRUCTION



CONSTRUCTION



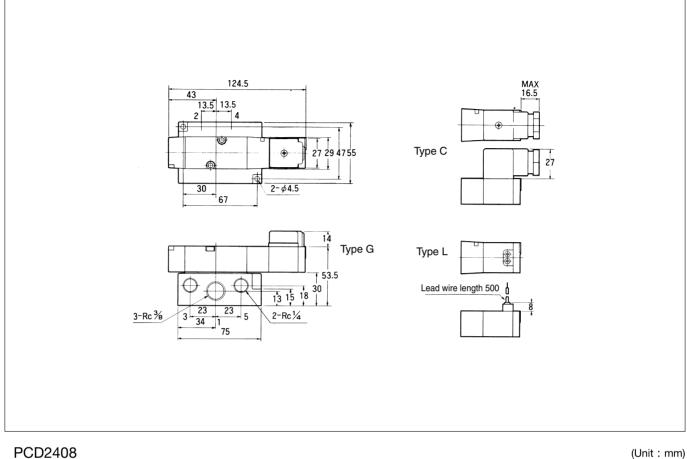
SPARE PARTS

| Sub-base | | | | |
|------------------------------------|-------------|--|--|--|
| Port size | Model No. | | | |
| Rc ³ / ₈ | PC08-SB-03 | | | |
| Rc^{3}_{8} (For external pilot) | PC08-SB-X03 | | | |

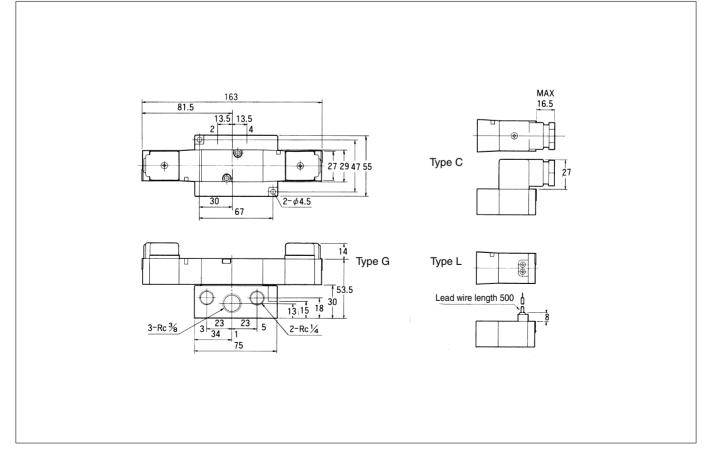
DIMENSIONS

PCS2408

(Unit : mm)



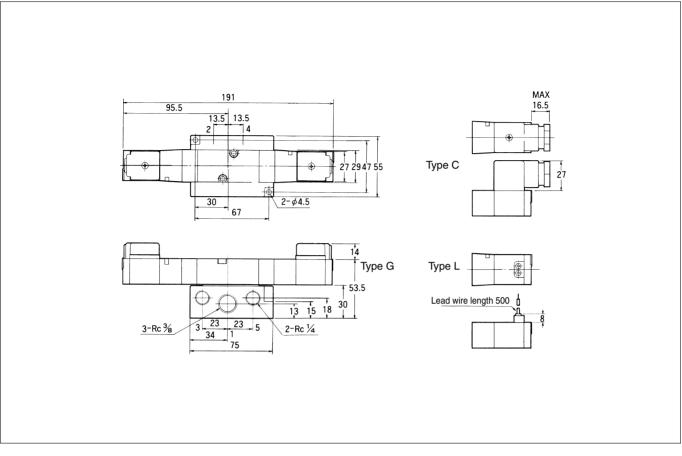
PCD2408



DIMENSIONS

PCD3408、PCE3408、PCO3408

(Unit : mm)



INDIVIDUAL WIRING TYPE MANIFOLD MF -PC08 Separate type/Bar type

MF-PC08Common SUP, Common EXH
Ports 2 & 4 on both sidesMFS-PC08Common SUP, Common EXH
Ports 2 & 4 on side

Available for multipurpose

As pilot air supply is branched in manifold, it can be used for special purposes such as double supply, low pressure, vacuum, etc. (Refer to Page 10)



MANIFOLD SPECIFICATIONS

| | | MF -PC08 | MFS -PC08 | |
|--------------------------|-----------|------------------------------|-------------------------|--|
| Type of manifold | | Common SUP, common EXH | Common SUP, common EXH | |
| | | Ports 2 & 4 on both sides | Ports 2 & 4 on side | |
| | Port 1 | $Rc^{1}/_{2}$ (Both sides) | $Rc^{1/2}$ (Both sides) | |
| Port size | Port 3, 5 | $Rc^{1/2}$ (Both sides) | $Rc^{1/2}$ (Both sides) | |
| | Port 2, 4 | $Rc^{3}/_{8}$ (Both sides) | Rc_{8}^{3} (Side) | |
| Number of s | stations | 2~10 | | |
| | | PCS240 |)8-NB- | |
| | | PCD2408-NB- | | |
| Mountable solenoid valve | | PCD3408-NB- | | |
| | | PCE3408-NB- | | |
| | | PCO340 | 08-NB- | |
| Blank plate | | PC | 08–BP | |

HOW TO ORDER

Specifi the type and quantity of Manifold and Solenoid Valve to be mounted, and the quantity of Blank Plate (PC08-BP) in accordance with the following example of description.

(Example) MFS8-PC08-03 PCS2408-NB-100G

| PCS2408-NB-100G | 4 pcs. |
|-----------------|--------|
| PCD2408-NB-100G | 2 pcs. |
| PCD3408-NB-100G | 1 pc. |
| PC08-BP | 1 pc. |
| | |

Parts of Separate type Manifold

| Patrs Name | Parts No. |
|----------------|------------|
| End block set | MF-PC08-MB |
| Manifold block | MF-PC08-BD |

(Note) Mounting screws & O-ring are supplied

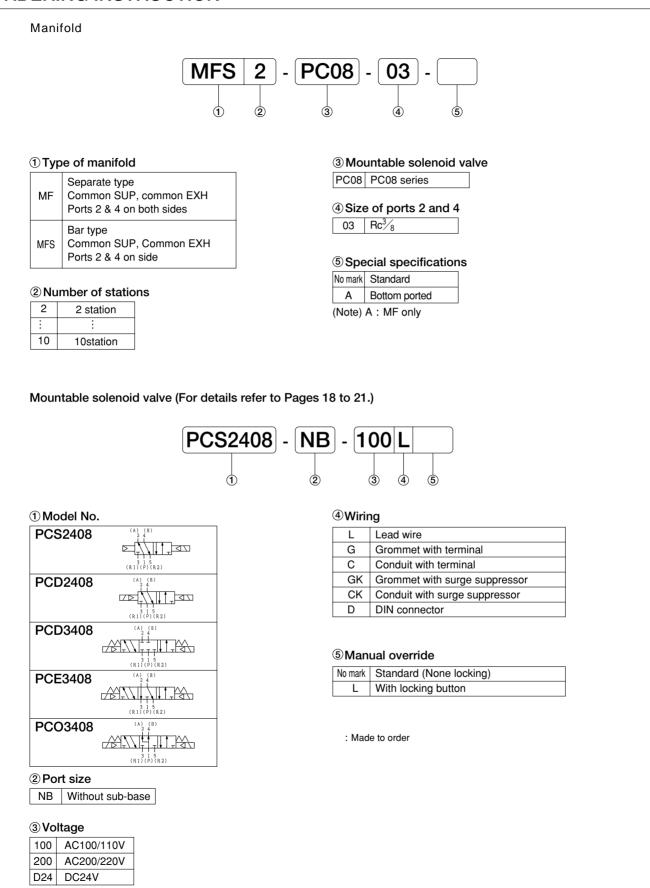


When mounting a solenoid valve to be used at different pressure on the same manifold, mount a solenoid valve intended to be used by supplying the highest pressure (0.8MPa maximum) from port 1 on one of the right end or left end.

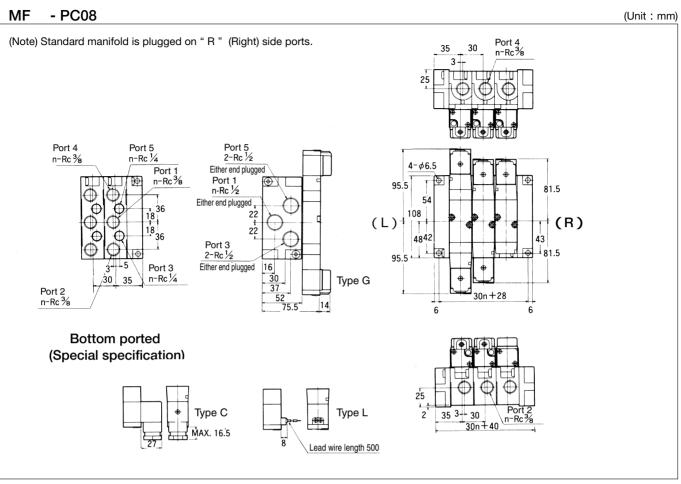
Manifold of MF -PC08 used a coupling method for single-station type manifold.

For special circuits, use " Specification for Manifold " .

ORDERING INSTRUCTION

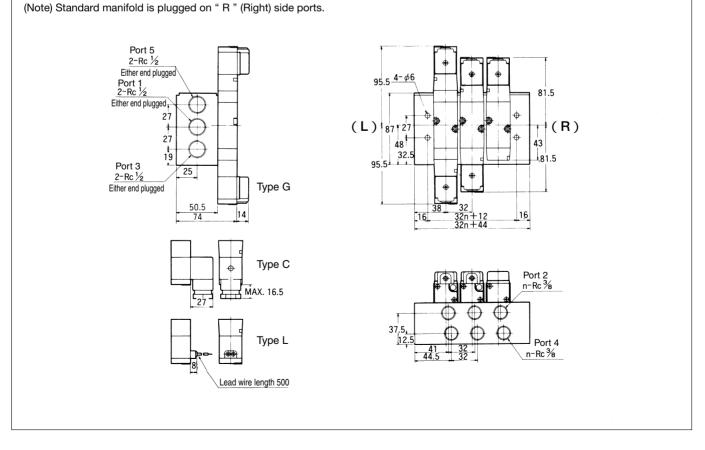


DIMENSIONS



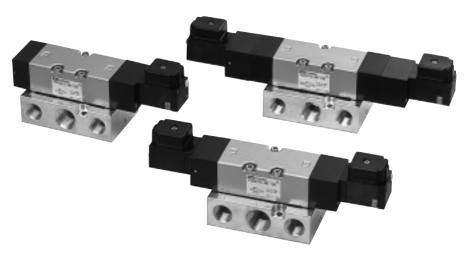
MFS - PC08

(Unit : mm)



5-PORT PILOT OPERATED SOLENOID VALVES PC15 Series Rubber Seal, Sub-base Mounting type

| PCS2415 | 2-position Single solenoid |
|---------|-------------------------------|
| PCD2415 | 2-position Double solenoid |
| PCD3415 | 3-position Closed center |
| PCE3415 | 3-position Exhaust center |
| PCO3415 | 3-position Pressure center |
| | |



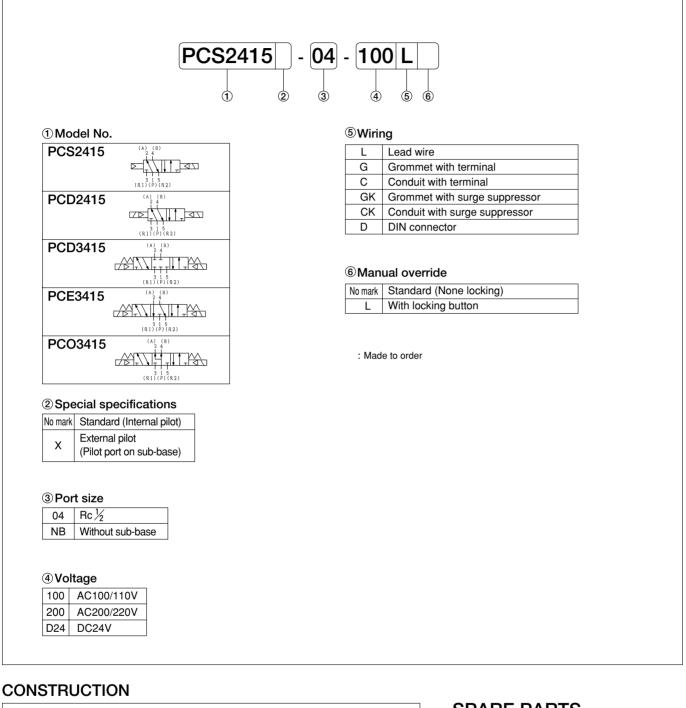
SPECIFICATIONS

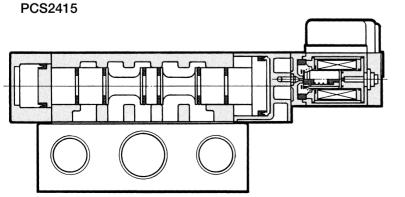
| Model No. | | | | Unit | PCS2415 | PCD24 | 15 | | CD3415 CE3415 | PCO3415 |
|----------------------|-----------|------------|---------|-----------|--|--------------|-----------------------|-----------|--|----------|
| Fluid | | | | | Non-lubricated/lubricated air | | | | | |
| Port s | size | | | | | Ports 1, 2 8 | $4 : \text{Rc}^{1/2}$ | Ports 3 | 3 & 5 : Rc ³ / ₈ | |
| Effec | tive are | a | | mm² | 7 | '0 | | | 6 | 0 |
| Cv va | alue | | | | 3. | 80 | | | 3. | 25 |
| Operat | ting amb | ient temp | erature | | | | - 5 | ~ 50 | | |
| Opera | ating p | ressure | range | MPa | 0.2 | ~ 0.8 | | | 0.25 | ~ 0.8 |
| Maxir | mum fr | equenc | y | Cycle/min | | | 12 | 20 | | |
| Resp | onse ti | me | | s | ON 0.0 | 35 | | ON 0.02 | | ON 0.025 |
| at 0.5MPa | | 5 | OFF 0.0 | 60 | 011 0.02 | | | OFF 0.110 | | |
| Rateo | d voltag | ge | | V | AC100/110、200/220、DC24 | | | | | |
| Grade | e of ins | ulation | | | JIS grade B | | | | | |
| Permis | sible vol | tage fluct | uation | % | AC ± 10, DC $^{+10}_{-15}$ | | | | | |
| Rateo | d frequ | ency | | Hz | 50/60 | | | | | |
| u | | Holding | 50Hz | VA | | | (100/20 | 00)3.2 | | |
| npti | AC | | 60Hz | VA | | | (100/20 | 00)2.6 | | |
| Power consumption | | Inluch | 50Hz | VA | | | (100/20 | 00)5 | | |
| Po Cor | | Inlush | 60Hz | VA | | | (100/20 | 00)4.5 | | |
| Power consumption DC | | | n DC | W | | | 2 | 2 | | |
| Wirin | g | | | | Lead wire, Grommet with terminal, Conduit with terminal, DIN connector | | | | l connector | |
| Mass | ; | | | kg | 0.73 | 0.81 | | | 0.94 | 0.94 |

(Note) • When temperature of valve site gose down below 5 , complete dry air shall be supplied to prevent from freezing. • Effective area shown above is value between ports 1 and 2, 4.

Response time shown above is in accordance with JIS B 8375.

ORDERING INSTRUCTION





SPARE PARTS Sub-base

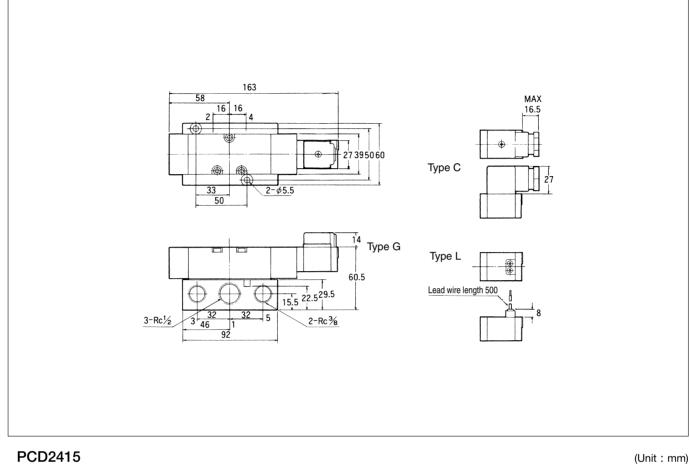
| Port size | Model No. |
|---|-------------|
| RcRc ¹ / ₂ | PC15-SB-04 |
| Rc ¹ / ₂ (For external pilot) | PC15-SB-X04 |

PC15 Series

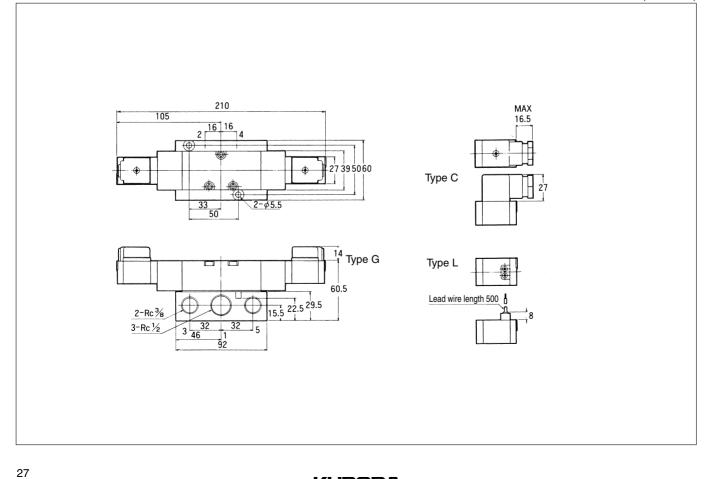
DIMENSIONS

PCS2415

(Unit : mm)



(Unit : mm)

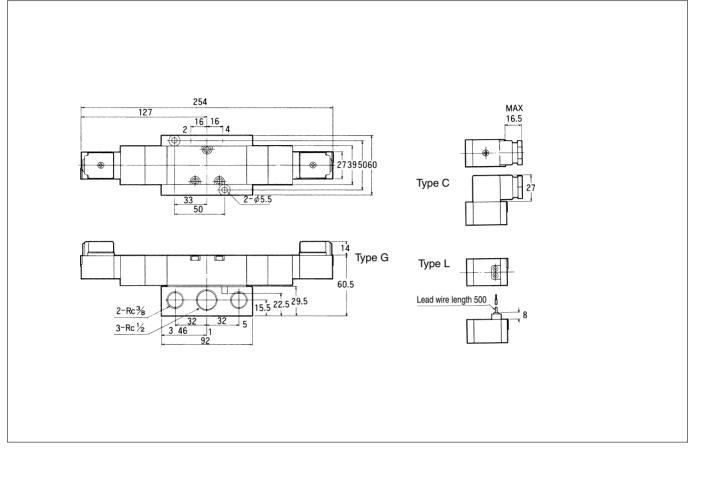


PC15 Series

DIMENSIONS

PCD3415, PCE3415, PCO3415

(Unit : mm)

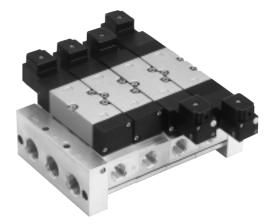


INDIVIDUAL WIRING TYPE MANIFOLD MF -PC15 Bar type

MF -PC15 Common SUP, Common EXH Ports 2 & 4 on both sides

Available for multipurpose

As pilot air supply is branched in manifold, it can be used for special purpose such as double supply, low pressure, vacuum, etc. (Refer to Page 10.)



MANIFOLD SPECIFICATIONS

| Type of manifold | | MF -PC15 | |
|--------------------|----------------|----------------------------|--|
| | | Common SUP, common EXH | |
| | | Ports 2 & 4 on both sides | |
| | Port 1 | Rc_4^3 (Both sides) | |
| Port size | Port 3, 5 | Rc^{3}_{4} (Both sides) | |
| | Port 2, 4 | $Rc^{1/2}$ (Both sides) | |
| Number of stations | | 2~10 | |
| | | PCS2415-NB- | |
| | | PCD2415-NB- | |
| Mountable s | solenoid valve | PCD3415-NB- | |
| | | PCE3415-NB- | |
| | | PCO3415-NB- | |
| Blank plate | | PC15-BP | |

HOW TO ORDER

Specify the type and quantity of Manifold and Solenoid valve to be mounted, and the quantity of Blank Plate (PC08-BP) in accordance with the following example of description.

(Example) MF8-PC15-04

| PCS2415-NB-100G | 4pcs. |
|-----------------|-------|
| PCD2415-NB-100G | 2pcs. |
| PCD3415-NB-100G | 1pc. |
| PC15-BP | 1pc. |
| | |

Parts of Separate type Manifold

| Patrs Name | Parts No. |
|----------------|-------------|
| End block set | MF-PC15-MB |
| Manifold block | MF1-PC15-BD |

(Note) Mounting screws & O-ring are supplied

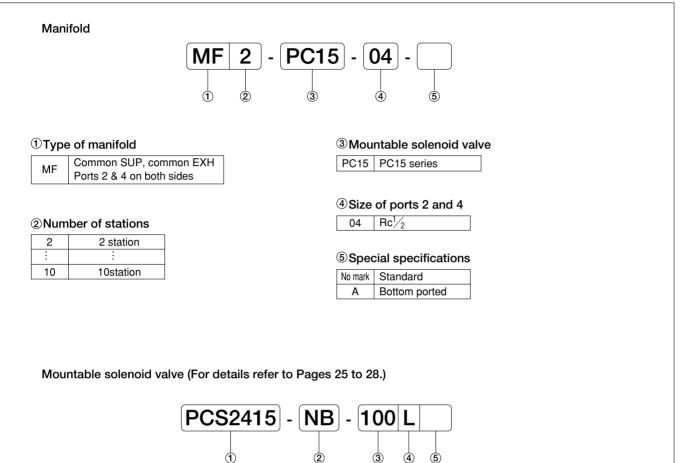


When mounting a solenoid valve to be used at different pressure on the same manifold, mount a solenoid valve intended to be used by supplying the highest pressure (0.8MPa maximum) from port 1 on one of the right end or left end.

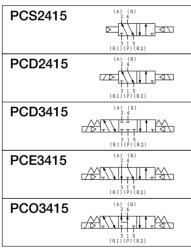
For special circuits, use " Specification for Manifold ".

PC15 Series

ORDERING INSTRUCTION



1 Model No.



L Lead wire

④Wiring

| G | Grommet with terminal |
|----|-------------------------------|
| С | Conduit with terminal |
| GK | Grommet with surge suppressor |
| CK | Conduit with surge suppressor |
| D | DIN connector |

⑤Manual override

| No mark | Standard (None locking) |
|---------|-------------------------|
| L | With locking button |

: Made to order

2 Port size

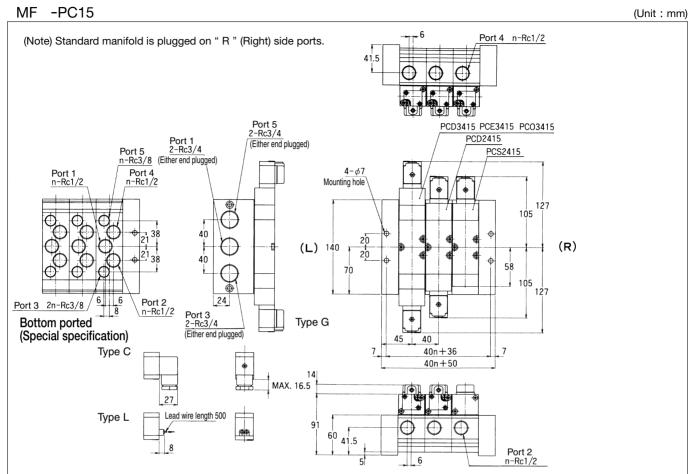
NB Without sub-base

③Voltage

| 100 | AC100/110V |
|-----|------------|
| 200 | AC200/220V |
| D24 | DC24V |

PC15 Series

DIMENSIONS



5-PORT PILOT OPERATED SOLENOID VALVES RC06 Series Rubber Seal, In-line Mounting type

| RCS2406 | 2-position Single solenoid |
|---------|-------------------------------|
| RCD2406 | 2-position Double solenoid |
| RCD3406 | 3-position Closed center |
| RCE3406 | |
| RCO3406 | 3-position Pressure center |



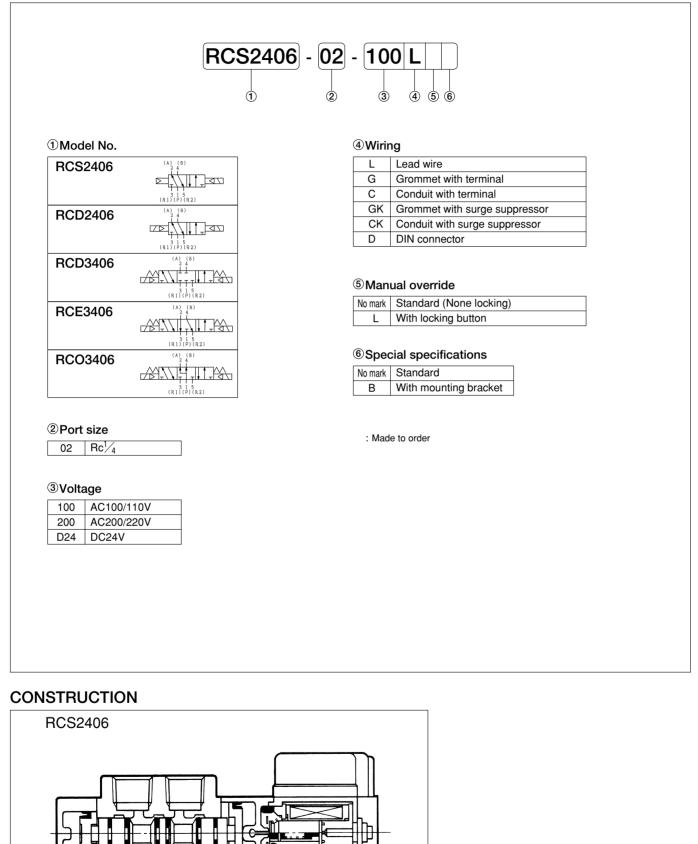
SPECIFICATIONS

| Model No. | | | | Unit | RCS2406 | RCD2406 | RCD3406 RCE3406 | RCO3406 |
|----------------------------|-----------|--------------|------------------------|-----------|---|---|--|-------------|
| Fluid | | | | | | Non-lubricated | /lubricated air | |
| Port s | size | | | | | Ports 1, 2 & 4 : Rc ¹ / ₄ | Ports 3 & 5 : Rc ¹ / ₈ | |
| Effect | tive are | ea | | mm² | 1 | 2 | 1 | 1 |
| Cv va | lue | | | | 0. | 65 | 0. | 60 |
| Operat | ting amb | ient temp | erature | | | - 5 | ~ 50 | |
| Opera | ating p | ressure | range | MPa | | 0.2 - | - 0.8 | |
| Maxir | num fr | equenc | y | Cycle/min | 2 | 40 | 18 | 30 |
| Response time at 0.5MPa | | s | ON 0.021 OFF 0.021 | ON 0.015 | - | 0.025 0.035 | | |
| Rated voltage | | V | AC100/110、200/220、DC24 | | | | | |
| Grade of insulation | | | | | JIS grade B | | | |
| Permis | sible vol | tage fluct | uation | % | AC ± 10、 DC ⁺¹⁰ ₋₁₅ | | | |
| Rateo | d frequ | ency | | Hz | 50/60 | | | |
| u | | Holding 60Hz | 50Hz | VA | | (100/20 | 00)3.2 | |
| npti | | | 60Hz | VA | | (100/20 | 00)2.6 | |
| Power consumption | AC | املامه | 50Hz | VA | | (100/20 | 00)5 | |
| Po Cor | | Inlush | 60Hz | VA | | (100/20 | 00)4.5 | |
| Power consumption DC | | | n DC | W | 2 | | | |
| Wiring | | | | | Lead wire, | Grommet with terminal, (| Conduit with terminal, DIN | l connector |
| Mass | | | | kg | 0.14 | 0.21 | 0.3 | 0.3 |

(Note) • When temperature of valve site gose down below 5 , complete dry air shall be supplied to prevent from freezing. • Effective area shown above is value between ports 1 and 2, 4.

· Response time shown above is in accordance with JIS B 8375.

ORDERING INSTRUCTION

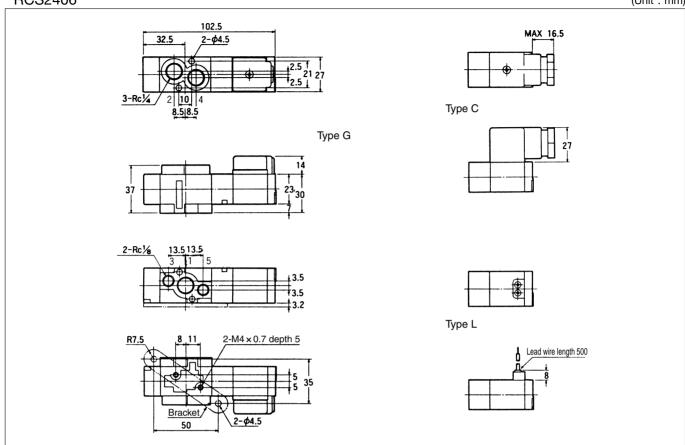


DIMENSIONS

RCS2406



(Unit : mm)



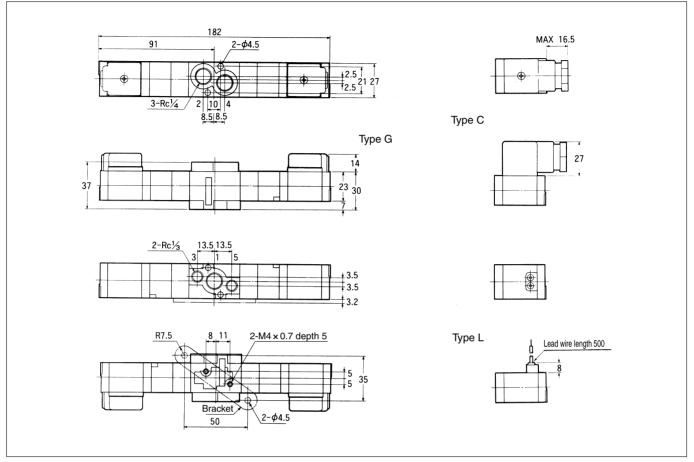
RCD2406

140 MAX 16.5 70 2-**\$**4.5 2.5 1 1 21 27 2.5 1 3-Rc1/4 2 2 10 8.5 8.5 Туре С 27 Type G 14 Г 37 ²³ 30 2-Rc1/8 13.5 13.5 3 Tı] 5 + 3.5 - 3.5 Ć **‡**3.2 Type L R7.5 2-M4 × 0.7 depth 5 Lead wire length 500 11 8 35 5 Bracket, 2-**\$**4.5 50

DIMENSIONS

RCD3406、RCE3406、RCO3406

(Unit : mm)



INDIVIDUAL WIRING TYPE MANIFOLD MF -RC06 Bar type

MFU -RC06 Common SUP, Common EXH Ports 2 & 4 on valve body



MANIFOLD SPECIFICATIONS

| Type of manifold | | MFU -RC06 |
|--------------------|----------------|------------------------------|
| | | Common SUP, common EXH |
| | | Ports 2 & 4 on valve body |
| | Port 1 | $Rc^{1}/_{4}$ (Both sides) |
| Port size | Port 3, 5 | $Rc^{1}/_{4}$ (Both sides) |
| | Port 2, 4 | $Rc^{1}/_{4}$ (Valve body) |
| Number of stations | | 2~10 |
| | | RCS2406MF |
| | | RCD2406MF |
| Mountable s | solenoid valve | RCD3406MF |
| | | RCE3406MF |
| | | RCO3406MF |
| Blank plate | | RC06-BP |

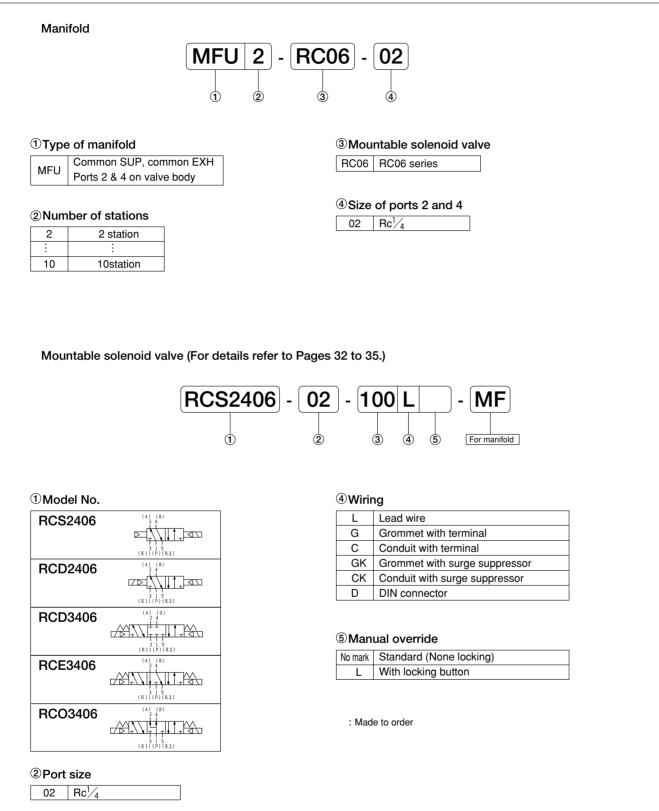
HOW TO ORDER

Specify the type and quantity of Manifold and Solenoid Valve to be mounted, and the quantity of Blank Plate (RC06-BP) in accordance with the following example of description.

(Example) MFU8-RC06-02

| RCS2406-02-100G-MF | 4 pcs. |
|--------------------|--------|
| RCD2406-02-100G-MF | 2 pcs. |
| RCD3406-02-100G-MF | 1 pc. |
| RC06-BP | 1 pc. |

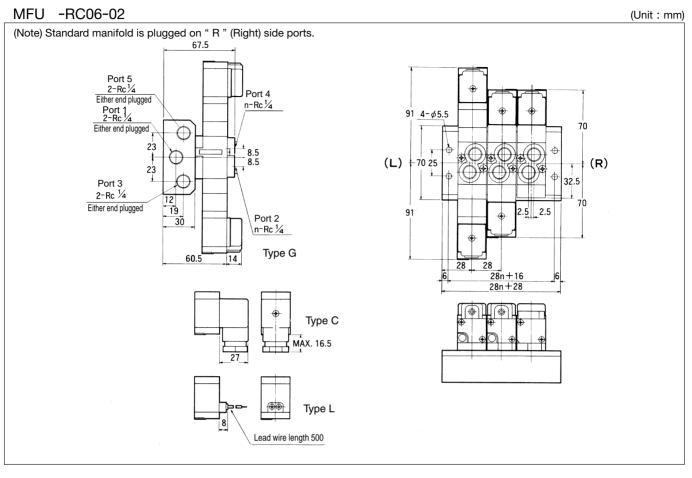
ORDERING INSTRUCTION



③Voltage

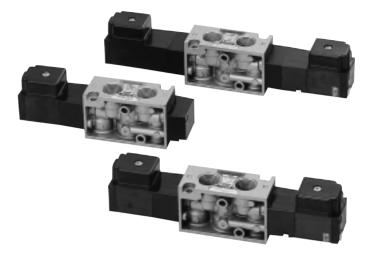
| 100 | AC100/110V |
|-----|------------|
| 200 | AC200/220V |
| D24 | DC24V |

DIMENSIONS



5-PORT PILOT OPERATED SOLENOID VALVES RC08 Series Rubber Seal, In-line Mounting type

| PCS2408 | 2-position Single solenoid |
|---------|-------------------------------|
| RCD2408 | 2-position Double solenoid |
| RCD3408 | 3-position Closed center |
| RCE3408 | 3-position Exhaust center |
| RCO3408 | 3-position Pressure center |



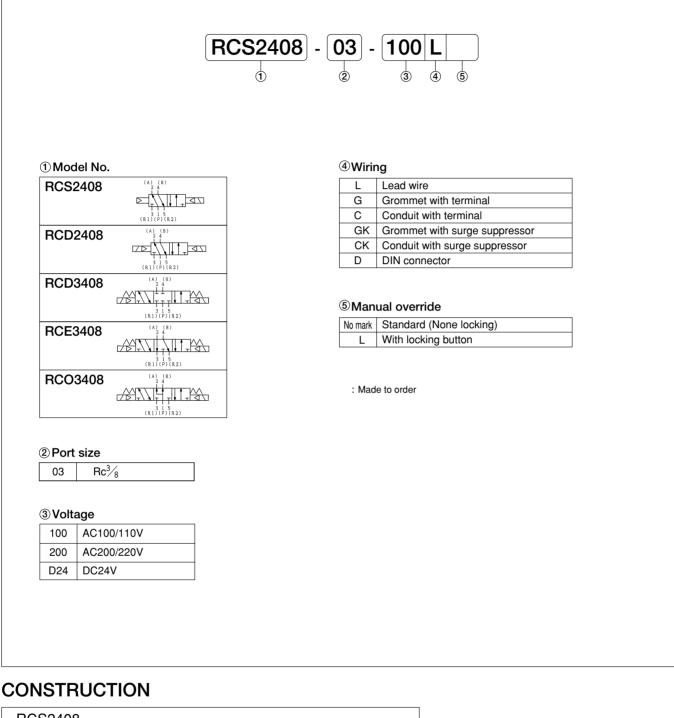
SPECIFICATIONS

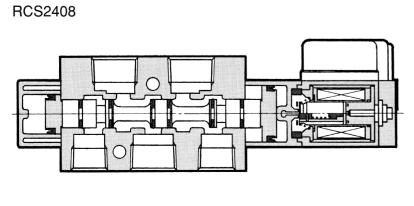
| Model No. | | | | Unit | RCS2408 | RCD2408 | RCD3408 RCE3408 | RCO3408 |
|----------------------------|-----------|------------|------------------------|-----------|---|---|-----------------------------|-----------|
| Fluid | | | | | | Non-lubricated | d/lubricated air | |
| Port s | size | | | | | Ports 1, 2 & 4 : Rc ³ / ₈ | Ports 3 & 5 : $Rc^{1}/_{4}$ | |
| Effect | tive are | ea | | mm² | 3 | 0 | 25 | 14 |
| Cv va | alue | | | | 1. | 63 | 1.36 | 0.76 |
| Operat | ting amb | ient temp | erature | | | -5 | ~ 50 | |
| Opera | ating p | ressure | range | MPa | | 0.2 - | - 0.8 | |
| Maxir | mum fr | equenc | y | Cycle/min | | 18 | 30 | |
| Response time at 0.5MPa | | s | ON 0.035 OFF 0.045 | ON 0.02 | ON (OFF | | | |
| Rated voltage | | V | AC100/110、200/220、DC24 | | | | | |
| Grade of insulation | | | | | JIS grade B | | | |
| Permis | sible vol | tage fluct | uation | % | AC ± 10、 DC ⁺¹⁰ ₋₁₅ | | | |
| Rated frequency | | | Hz | 50/60 | | | | |
| ы | | Llalding | 50Hz | VA | | (100/20 | 00)3.2 | |
| npti | AC | Holding | 60Hz | VA | | (100/20 | 00)2.6 | |
| Power consumption | | Inlunk | 50Hz | VA | | (100/20 | 00)5 | |
| Po Cor | | Inlush | 60Hz | VA | | (100/20 | 00)4.5 | |
| Power consumption DC | | | DC | W | 2 | | | |
| Wiring | | | | | Lead wire, | Grommet with terminal, (| Conduit with terminal, DIN | connector |
| Mass | | | | kg | 0.16 | 0.23 | 0.29 | 0.29 |

(Note) • When temperature of valve site gose down below 5 , complete dry air shall be supplied to prevent from freezing. • Effective area shown above is value between ports 1 and 2, 4.

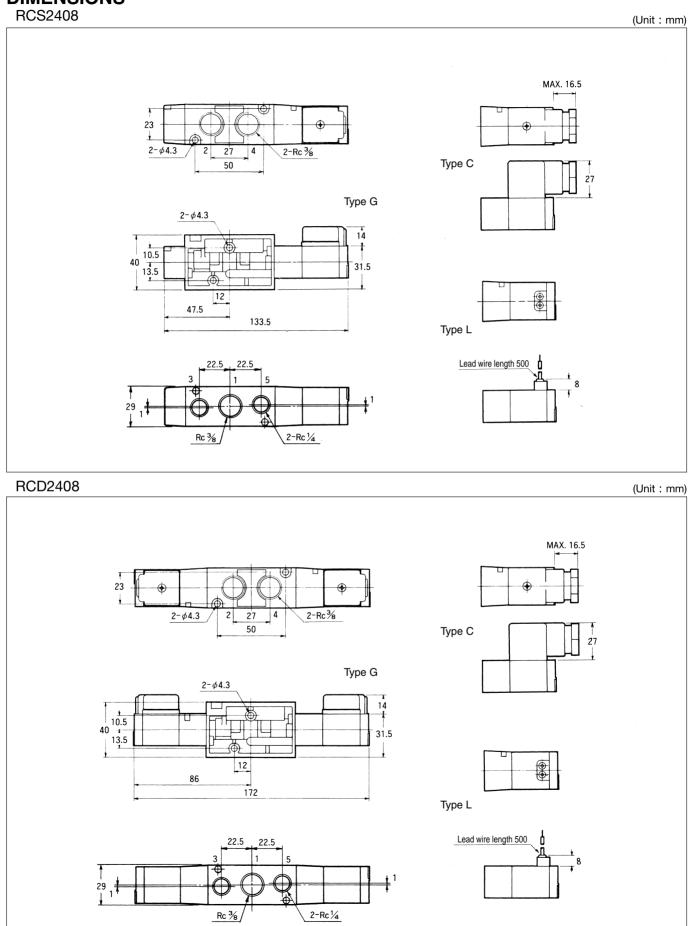
· Response time shown above is in accordance with JIS B 8375.

ORDERING INSTRUCTION



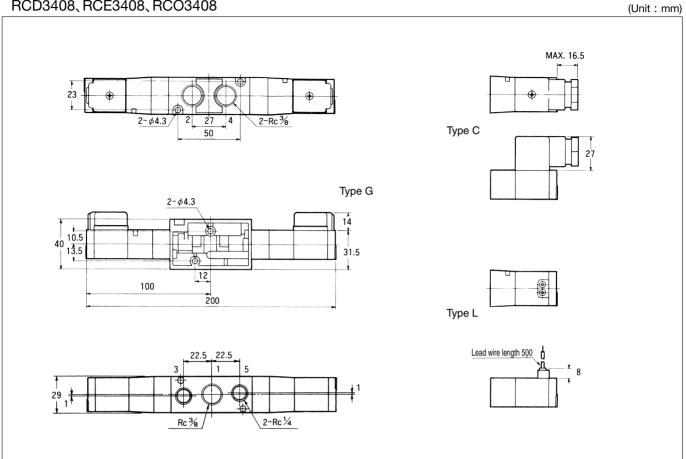


DIMENSIONS



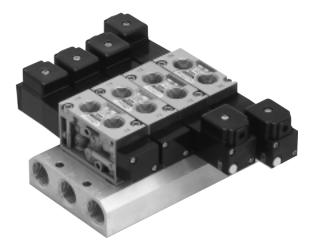
DIMENSIONS

RCD3408、RCE3408、RCO3408



INDIVIDUAL WIRING TYPE MANIFOLD MF -RC08 Bar type

MFU -RC08 Common SUP, Common EXH Ports 2 & 4 on valve body



MANIFOLD SPECIFICATIONS

| | | MFU -RC08 |
|------------------|----------------|---|
| Type of manifold | | Common SUP, common EXH |
| | | Ports 2 & 4 on valve body |
| | Port 1 | Rc1/2 (Both sides) |
| Port size | Port 3, 5 | Rc ¹ / ₂ (Both sides) |
| | Port 2, 4 | Rc ³ / ₈ (Valve body) |
| Number of s | stations | 2~10 |
| | | RCS2408MF |
| | | RCD2408MF |
| Mountable s | solenoid valve | RCD3408MF |
| | | RCE3408MF |
| | | RCO3408MF |
| Blank plate | | RC08-BP |

HOW TO ORDER

Specify the type and quantity of Manifold and Solenoid Valve to be mounted, and the quantity of Blank Plate (RC08-BP) in accordance with the following example of description.

(Example) MFU8-RC08-03

| RCS2408-03-100G-MF | 4 pcs. |
|--------------------|--------|
| RCD2408-03-100G-MF | 2 pcs. |
| RCD3408-03-100G-MF | 1 pc. |
| RC08-BP | 1 pc. |

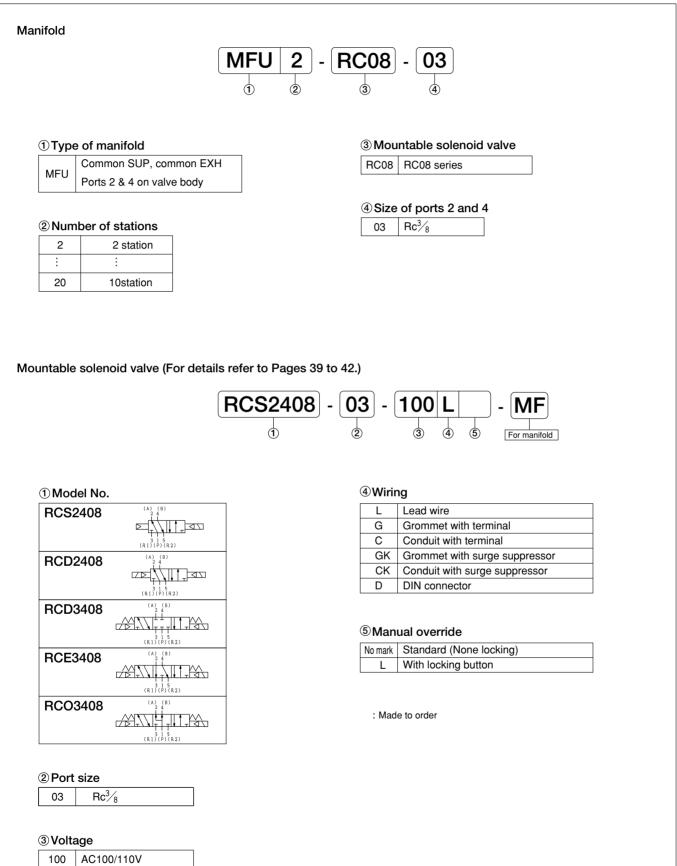
ORDERING INSTRUCTION

200

D24

AC200/220V

DC24V



8

Lead wire length 500

DIMENSIONS

MFU -RC08 (Unit : mm) (Note) Standard manifold is plugged on "R" (Right) side ports. 70.5 Port 5 Port 5 $2-\text{Rc} \frac{1}{2}$ Either end plugged Port 1 $2-\text{Rc} \frac{1}{2}$ Either end plugged ポート4 n-Rc ³⁄8 **4**-*¢*6.5 100 86 (G 32 Ŧ ð ¢ 13.5 13.5 32 92 32 (R) (L) . φ 47.5 1 $\frac{\text{Port 3}}{\frac{2-\text{Rc }\frac{1}{2}}{\text{Either end plugged}}}$ 86 100 16 30 Type G Port 2 n-Rc 3/8 62 14 5 30n+26 30n+40 Туре С ŧ MAX. 16.5 Type L ******



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