

Direct acting 3-port valve

Single valve; body piping/sub-plate piping

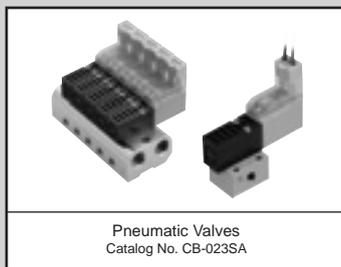
P4 compliant
as standard

3QRA/3QRB Series

Individual wiring manifold body piping / sub-plate piping

M3QRA/M3QRB Series

● Cylinder bore size: $\phi 6$ to $\phi 25$



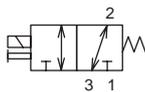
Pneumatic Valves
Catalog No. CB-023SA

P4
Series

Pneumatic actuator
Pneumatic actuator
Pneumatic actuator
Pneumatic valves
Pneumatic auxiliary components
Pneumatic auxiliary components
Gas generator
Electric actuator

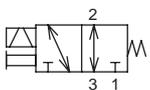
JIS symbol

● 2-position universal
(Self-reset)



Port No. item 1, 2, 3 is
Port G1: P, NC
Port G2: A, COM
Port G3: R, NO

(self-hold)



Port No. item 1, 2, 3 is
Port G1: P, NC
Port G2: A, COM
Port G3: R, NO

Common specifications

| Descriptions | Item |
|----------------------------------------|----------------------------------------------|
| Valve and operation | Direct acting poppet valve |
| Working fluid | Compressed air, low vacuum |
| Max. working pressure MPa | 0.70 |
| Min. working pressure MPa | Low vacuum: -100 kPa |
| Proof pressure MPa | 1.05 (low vacuum: -101 kPa) |
| Max. working pressure differential MPa | 0.70 |
| Ambient temperature °C | -5 to 50 (no freezing) |
| Fluid temperature °C | 5 to 50 |
| Lubrication | Unavailable - *1 |
| Degree of protection | Dust-proof |
| Vibration resistance m/s^2 | 50 or less |
| Shock resistance m/s^2 | 300 or less |
| Atmosphere | Cannot be used in corrosive gas environment. |

*1: Lubrication will degrade the performance.

Electrical specifications

| Descriptions | Standard specifications | Large flow rate specifications H | |
|---------------------------|-------------------------|----------------------------------|------------|
| | | Intermittent | Continuous |
| Rated voltage V/DC | 24, 12 | | |
| Energizing rate | *2 | *3 | |
| Voltage fluctuation range | ±10% | | |
| Starting current | 24 VDC | - | 0.13 |
| A | 12 VDC | - | 0.27 |
| Holding current | 24 VDC | 0.08 | 0.10 |
| A | 12 VDC | 0.17 | 0.20 |
| Power consumption W | 2.0 | 2.4 *4 | |
| Thermal class | B | | |

*2: Limit continuous energizing to within 5 minutes and energization ratio to 50% or less. Min. time of excitation for self-holding is 50 ms.

*3: Refer to the precautions for continuous energization in "Pneumatic Valves No. CB-023SA".

*4: 3.2W for 20ms after start.

Individual specifications

| Descriptions | 3QRA11 | 3QRB11 | 3QRA12 | 3QRB12 | M3QRA11 | M3QRB11 | M3QRA12 | M3QRB12 | |
|--------------|--------|--------|--------|--------|---------|---------|---------|---------|--|
| Port size | Port 1 | M5 | | | | Rc1/8 | | | |
| | Port 2 | M5 | | | | M5 | | | |
| | Port 3 | M5 | | | | Rc1/8 | | | |

Performance/characteristics

| Descriptions | 3QRA11 | 3QRB11 | 3QRA12 | 3QRB12 | M3QRA11 | M3QRB11 | M3QRA12 | M3QRB12 |
|----------------------------|-----------|--------|-----------|--------|----------------------------|---------|----------------------------|---------|
| Response time *5 ON/OFF ms | 4±1/1.5±1 | | 5 or less | | 4±1/1.5±1 | | 5 or less | |
| Weight g | 24 | 27 | 28 | 31 | 19 (single solenoid valve) | | 23 (single solenoid valve) | |

*5: JIS B 8419:2010 Dynamic performance test depends.

(Initial values at supply pressure 0.5MPa, 20°C, no lubrication, rated voltage, continuous operation)

Flow characteristics

| Model No. | Option | Port 1→2 | | Port 2→1 | | Port 2→3 | | Port 3→2 | |
|-----------|--------|-----------------------------|--------------------------------------|-----------------------------|--------------------------------------|-----------------------------|--------------------------------------|-----------------------------|--------------------------------------|
| | | C[dm ³ /(s·bar)] | S[reference value][mm ²] | C[dm ³ /(s·bar)] | S[reference value][mm ²] | C[dm ³ /(s·bar)] | S[reference value][mm ²] | C[dm ³ /(s·bar)] | S[reference value][mm ²] |
| 3QRA1 | Blank | 0.30 | 1.5 | 0.32 | 1.6 | 0.32 | 1.6 | 0.30 | 1.5 |
| | H | 0.36 | 1.8 | 0.38 | 1.9 | 0.38 | 1.9 | 0.36 | 1.8 |
| 3QRB1 | Blank | 0.30 | 1.5 | 0.34 | 1.7 | 0.36 | 1.8 | 0.34 | 1.7 |
| | H | 0.36 | 1.8 | 0.40 | 2.0 | 0.40 | 2.0 | 0.40 | 2.0 |
| M3QRA1 | Blank | 0.30 | 1.5 | 0.32 | 1.6 | 0.32 | 1.6 | 0.30 | 1.5 |
| | H | 0.36 | 1.8 | 0.38 | 1.9 | 0.38 | 1.9 | 0.36 | 1.8 |
| M3QRB1 | Blank | 0.30 | 1.5 | 0.34 | 1.7 | 0.36 | 1.8 | 0.34 | 1.7 |
| | H | 0.36 | 1.8 | 0.40 | 2.0 | 0.40 | 2.0 | 0.40 | 2.0 |

Ozone-proof specifications

Conforms to low-concentration ozone specifications as standard.

CE marking specifications

Available as standard.

• Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

How to order

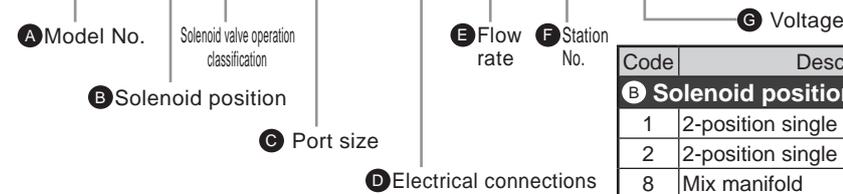
• Single solenoid valve



• Single solenoid valve



• Manifold



P4 compliant as standard

⚠ Precautions for model No. selection

*1: For connection using grommet lead wire (300 mm),

B Solenoid position "2" 2-position single solenoid (self-hold) and **E** Flow rate "H" large flow rate cannot be selected.

*2: For **B** Solenoid position "2" 2-position single (self-hold), **E** Flow rate "H" and **G** Voltage "4" cannot be selected.

*3: Combination with a masking plate. Combination of A and B types is not available. Solenoid positions "1" and "2" cannot be mixed.

[Example of model No.]

M3QRA110-M5-C2-7-3

- A** Model : M3QRA1 (body piping)
- B** Solenoid position : 2-position single
- C** Port size : M5
- D** Electrical connections : Lead wire 300mm
With surge suppressor and indicator lamp
- E** Flow rate : Standard 2 W
- F** Station No. : 7 stations
- G** Voltage : 24 VDC

How to order masking plate kit

3QR1 - MP - KIT

* Gasket/mounting screw attached

Electrical connections

● 3QRA11/3QRB11

| Blank | Grommet lead wire | C2 | C3 | D2 | D3 |
|-------|---------------------------------------------------------------------------------|--------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------------------------------------|-----------------------------------------------------------|
| | C-connector/with lead wire, with surge suppressor/lamp | C-connector/with lead wire, with surge suppressor/lamp | C-connector/without lead wire, with surge suppressor/lamp | D-connector/with lead wire, with surge suppressor/lamp | D-connector/without lead wire, with surge suppressor/lamp |
| | | | | | |
| | • Lead wire length C2 : 300 mm C20: 500 mm C21: 1000 mm C22: 2000mm | | | • Lead wire length D2 : 300 mm D20: 500 mm D21: 1000mm D22: 2000mm | |

● 3QRA12/3QRB12

| C2 | C3 | D2 | D3 |
|---------------------------------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------------------------------------|-----------------------------------------------------------|
| C-connector/with lead wire, with surge suppressor/lamp | C-connector/without lead wire, with surge suppressor/lamp | D-connector/with lead wire, with surge suppressor/lamp | D-connector/without lead wire, with surge suppressor/lamp |
| | | | |
| • Lead wire length C2 : 300 mm C20: 500 mm C21: 1000 mm C22: 2000mm | | • Lead wire length D2 : 300 mm D20: 500 mm D21: 1000mm D22: 2000mm | |

| | | A Model No. | | | |
|------------------------------------------------|------------------------------------------------|-------------|------------------|-------------|------------------|
| | | Single unit | | Manifold | |
| | | Body piping | Sub-plate piping | Body piping | Sub-plate piping |
| Code | Description | 3QRA1 | 3QRB1 | M3QRA1 | M3QRB1 |
| B Solenoid position | | | | | |
| 1 | 2-position single (self-reset) | ● | ● | ● | ● |
| 2 | 2-position single (self-hold) *2 | ● | ● | ● | ● |
| 8 | Mix manifold *3 | | | ● | ● |
| C Port size | | | | | |
| M5 | M5 | ● | ● | ● | ● |
| D Electrical connections | | | | | |
| Grommet lead wire | | | | | |
| Blank | Grommet lead wire (300 mm) *1 | ● | ● | ● | ● |
| C type connector (lead wire lateral direction) | | | | | |
| C2 | Lead wire (300 mm) with surge suppressor/lamp | ● | ● | ● | ● |
| C20 | Lead wire (500 mm) with surge suppressor/lamp | ● | ● | ● | ● |
| C21 | Lead wire (1000 mm) with surge suppressor/lamp | ● | ● | ● | ● |
| C22 | Lead wire (2000 mm) with surge suppressor/lamp | ● | ● | ● | ● |
| C3 | Without lead wire, with surge suppressor/lamp | ● | ● | ● | ● |
| D type connector (lead wire upward direction) | | | | | |
| D2 | Lead wire (300 mm) with surge suppressor/lamp | ● | ● | ● | ● |
| D20 | Lead wire (500 mm) with surge suppressor/lamp | ● | ● | ● | ● |
| D21 | Lead wire (1000 mm) with surge suppressor/lamp | ● | ● | ● | ● |
| D22 | Lead wire (2000 mm) with surge suppressor/lamp | ● | ● | ● | ● |
| D3 | Without lead wire, with surge suppressor/lamp | ● | ● | ● | ● |
| E Flow rate | | | | | |
| Blank | Standard 2W | ● | ● | ● | ● |
| H | Large flow rate 3.2W→2.4W | ● | ● | ● | ● |
| F Station No. | | | | | |
| 2 | 2 stations | | | | |
| to | to | | | ● | ● |
| 20 | 20 stations | | | | |
| G Voltage | | | | | |
| 3 | 24 VDC | ● | ● | ● | ● |
| 4 | 12 VDC | ● | ● | ● | ● |

P4 Series

Pneumatic actuator
Pneumatic cylinders
Hand/Chuck
Related products
Cylinder
Switch

Vacuum components

Pneumatic valves
Clean air components

Pneumatic auxiliary components
Speed controller

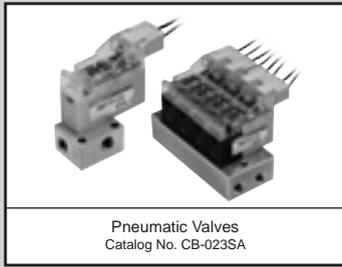
Fitting
Auxiliary valve

Silencer
Tube

Gas generator

Fluid control components

Electric actuator
Motor specification
Motorless specifications



Pneumatic Valves
Catalog No. CB-023SA

Direct acting 3-port valve

Single valve/sub-plate piping

3QB Series

Individual wiring manifold/sub-plate piping

M3QB Series

● Cylinder bore size: $\varnothing 6$ to $\varnothing 20$

P4 compliant as standard

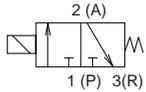


Pneumatic actuator
Pneumatic actuator
Pneumatic actuator
Pneumatic valves
Pneumatic auxiliary components
Pneumatic auxiliary components
Gas generator
Electric actuator

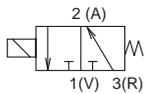
JIS symbol

- 2-position Single (NC)

3QB1-H(P)



3QB1-HV



Common specifications

| Descriptions | Item |
|------------------------------|-------------------------------------------------|
| Valve and operation | Direct acting poppet valve |
| Working fluid | Compressed air, low vacuum |
| Max. working pressure MPa | Refer to Individual specifications listed below |
| Min. working pressure MPa | Refer to Individual specifications listed below |
| Proof pressure MPa | 1.05 |
| Ambient temperature °C | 0 to 50 |
| Fluid temperature °C | 5 to 50 |
| Lubrication | Not available |
| Degree of protection | Dust-proof |
| Vibration resistance m/s^2 | 50 or less |
| Shock resistance m/s^2 | 300 or less |
| Atmosphere | Cannot be used in corrosive gas environments |

Electrical specifications

| Descriptions | | Standard specifications |
|---------------------------|--------|-------------------------|
| Rated voltage V | DC | 12, 24 |
| Voltage fluctuation range | | $\pm 10\%$ |
| Starting current A | 24 VDC | 0.092 |
| | 12 VDC | 0.183 |
| Holding current A | 24 VDC | 0.025 |
| | 12 VDC | 0.050 |
| Power consumption W | | 0.6 *1 |
| Thermal class | | B |

*1: 2.2W for 20ms after start.

Individual specifications

| Descriptions | 3QB110-H | 3QB110-HP | 3QB110-HV |
|---------------------------|----------|-----------|-----------|
| Max. working pressure MPa | 0.3 *2 | 0.65 | 0 |
| Min. working pressure MPa | -0.1 *2 | 0.1 | -0.1 |

*2: If the product is used only with positive pressure, it can be used within the pressure range of 0 to 0.4MPa.

Performance/characteristics

| Descriptions | 3QB110-H | 3QB110-HP | 3QB110-HV |
|---------------------------------------------------|--------------------------|-----------|--------------------------|
| Response time *3 ms | 5 or less | | |
| Flow characteristics C [dm ³ /(s·bar)] | 1 → 2: 0.11, 2 → 3: 0.11 | | 2 → 1: 0.18, 3 → 2: 0.11 |
| Weight *4 g | 12.5 | | |

*3: JIS B 8419:2010 Dynamic performance test depends. (Initial values at supply pressure 0.5MPa, 20°C, no lubrication, rated voltage, continuous operation)

*4: The weight listed is the weight without the base.

Ozone-proof specifications

Conforms to low-concentration ozone specifications as standard.

UL standards specifications

** - Voltage - **UL** (Made to order)

CE marking specifications

** - Voltage - **ST**

- Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

How to order

• Sub-plate piping

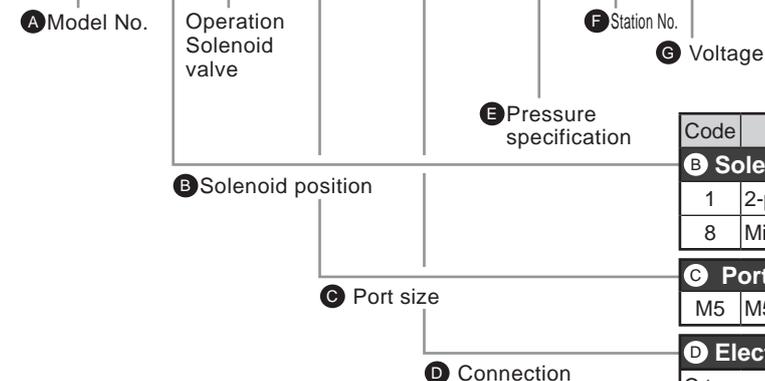
3QB1 **1** **0** - **M5** - **C2** H **3**

• Single solenoid valve

3QB1 **1** **9** - **00** - **D2** H **P** **3**

• Manifold

M3QB1 **1** **0** - **M5** - **C2** H **V** - **10** - **3**



P4 compliant as standard

⚠ Precautions for model No. selection

*1: Combination with a masking plate. For pressure specification option blank, P and V mixtures, Y01 - Y04

*2: Vacuum the negative pressure from port 3 (R). This will be the NO specification.

[Example of model No.]

M3QB110-M5-C2H-7-3

- A** Model : M3QB1
- B** Solenoid position : 2-position single
- C** Port size : M5
- D** Electrical connections : Lead wire (300 mm)
- E** Pressure specification : Blank
- F** Station No. : 7 stations
- G** Voltage : 24 VDC

How to order masking plate kit

3QB1- MP- KIT

3QB1- MP- KIT - V *3

*3: Negative pressure specification (V).

* Gasket/mounting screw attached

Electrical connections

● 3QB

| C2 | C type connector lead wire With surge suppressor and indicator lamp | D2 | D type connector lead wire With surge suppressor and indicator lamp |
|---------------------------------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------|
| • Lead wire length C2 :300 mm C20 :500 mm C21 :1000 mm C22 :2000 mm | | • Lead wire length D2 :300 mm D20 :500 mm D21 :1000 mm D22 :2000 mm | |

| | | A Model No. | |
|------------------------------------------------|---------------------------------------------------------------|-------------|-------|
| Code | Description | 3QB1 | M3QB1 |
| B Solenoid position | | | |
| 1 | 2-position single Normally Closed | ● | ● |
| 8 | Mix manifold *1 | | ● |
| C Port size | | | |
| M5 | M5 | ● | ● |
| D Electrical connections | | | |
| C type connector (lead wire lateral direction) | | | |
| C2 | Lead wire (300 mm) with surge suppressor/lamp | ● | ● |
| C20 | Lead wire (500 mm) with surge suppressor/lamp | ● | ● |
| C21 | Lead wire (1000 mm) with surge suppressor/lamp | ● | ● |
| C22 | Lead wire (2000 mm) with surge suppressor/lamp | ● | ● |
| C2N | Without lead wire (without socket) | ● | ● |
| C3 | Without lead wire (with socket/terminal) | ● | ● |
| D type connector (lead wire upward direction) | | | |
| D2 | Lead wire (300 mm) with surge suppressor/lamp | ● | ● |
| D20 | Lead wire (500 mm) with surge suppressor/lamp | ● | ● |
| D21 | Lead wire (1000 mm) with surge suppressor/lamp | ● | ● |
| D22 | Lead wire (2000 mm) with surge suppressor/lamp | ● | ● |
| D2N | Without lead wire (without socket) | ● | ● |
| D3 | Without lead wire (with socket/terminal) | ● | ● |
| E Pressure specification | | | |
| Blank | Positive/negative pressure specification (-0.1 to 0.3 MPa) *2 | ● | ● |
| P | Positive pressure specification (0.1 to 0.65 MPa) | ● | ● |
| V | Negative pressure specification (-0.1 to 0 MPa) | ● | ● |
| F Station No. | | | |
| 2 | 2 stations | | |
| to | to | | ● |
| 20 | 20 stations | | |
| G Voltage | | | |
| 3 | 24 VDC | ● | ● |
| 4 | 12 VDC | ● | ● |

P4 Series

Pneumatic actuator
Pneumatic cylinders
Hand/Chuck
Related products
Cylinder Switch

Vacuum components

Pneumatic valves

Clean air components
controller

Pneumatic auxiliary components

Speed Fitting
Auxiliary valve
Silencer
Tube

Gas generator

Fluid control components

Motor specification
Motorless specifications