

4/5 Port Air Operated Valve

Series VSA4□20

Model

| Valve model | Body size | Function | Port size Rc | Flow characteristics | | | | | | Pilot port size | Note) Weight (kg) |
|-------------|-----------|---------------------------|-----------------|----------------------------|------|------|----------------------------|------|-----|-----------------|----------------------|
| | | | | P→A/B | | | A/B→EA/EB | | | | |
| | | | | C[dm ³ (s·bar)] | b | Cv | C[dm ³ (s·bar)] | b | Cv | | |
| VSA4120-01 | 1/4 | 2 position single | 1/8 | 4.1 | 0.30 | 0.95 | 4.2 | 0.34 | 1.0 | Rc 1/8 | 0.60 |
| VSA4120-02 | | | 1/4 | 5.9 | 0.30 | 1.3 | 5.1 | 0.47 | 1.2 | Rc 1/8 | |
| VSA4120-03 | | | 3/8 | 6.5 | 0.33 | 1.5 | 5.6 | 0.51 | 1.4 | Rc 1/8 | |
| VSA4220-01 | 1/4 | 2 position double | 1/8 | 4.1 | 0.30 | 0.95 | 4.2 | 0.34 | 1.0 | Rc 1/8 | 0.70 |
| VSA4220-02 | | | 1/4 | 5.9 | 0.30 | 1.3 | 5.1 | 0.47 | 1.2 | Rc 1/8 | |
| VSA4220-03 | | | 3/8 | 6.5 | 0.33 | 1.5 | 5.6 | 0.51 | 1.4 | Rc 1/8 | |
| VSA4320-01 | 1/4 | 3 position closed center | 1/8 | 4.0 | 0.31 | 0.95 | 4.1 | 0.34 | 1.0 | Rc 1/8 | 0.86 |
| VSA4320-02 | | | 1/4 | 6.0 | 0.28 | 1.4 | 5.0 | 0.44 | 1.2 | Rc 1/8 | |
| VSA4320-03 | | | 3/8 | 6.6 | 0.31 | 1.5 | 5.4 | 0.48 | 1.3 | Rc 1/8 | |
| VSA4420-01 | 1/4 | 3 position exhaust center | 1/8 | 4.0 | 0.31 | 0.96 | 4.3 | 0.33 | 1.1 | Rc 1/8 | 0.86 |
| VSA4420-02 | | | 1/4 | 5.8 | 0.30 | 1.3 | 4.7 | 0.48 | 1.2 | Rc 1/8 | |
| VSA4420-03 | | | 3/8 | 6.4 | 0.33 | 1.5 | 5.1 | 0.53 | 1.3 | Rc 1/8 | |

Note) The table shows the valve without sub-plate. With sub-plate: Add 0.24 kg

Specifications

| | |
|---|-----------------------------------|
| Max. operating pressure | 1.0 MPa |
| Pilot air pressure | 0.1 to 1.0 MPa |
| Ambient temperature and operating fluid temperature | -10 to 60°C (1) |
| Lubrication | Not required (2) |
| Impact/Vibration resistance (m/s ²) (3) | 150/50 |
| Enclosure | Dustproof (Enclosure class 0) (4) |

Note 1) Use dry air to prevent condensation when operating at low temperature.

Note 2) Use turbine oil Class 1 (ISO VG32), if lubricated.

Note 3) Impact resistance: No malfunction from test using drop impact tester, to axis and right angle directions of main valve, each one time when pilot signal is ON and OFF. (Value in the initial stage)

Vibration resistance: No malfunction from test with 45 to 2000 Hz one sweep, to axis and right angle direction of main valve, each one time when pilot signal ON and OFF. (Value in the initial stage)

Note 4) As per JIS C0920

- Manifold possible.
- When requiring bottom piping, please specify it.

Sub-plate Assembly Part No.: VS4020-S-⁰¹/₀₂/₀₃

* Mounting bolt and gasket are not included.

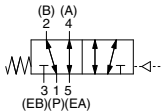
Mounting Bolts, Gasket Part No.: BG-VS4020

How to Order

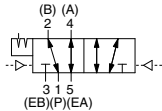


Symbol

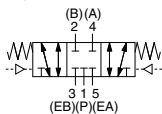
2 position single



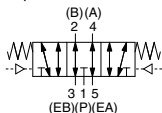
2 position double



3 position closed center



3 position exhaust center



VSA 4 1 2 0 - 02 [] - [] - []

Air operated valve (points to VSA)

4/5 port valve (points to 4)

Function

| | |
|---|---------------------------|
| 1 | 2 position single |
| 2 | 2 position double |
| 3 | 3 position closed center |
| 4 | 3 position exhaust center |

Body size

| | |
|---|--------------|
| 2 | 1/4 standard |
|---|--------------|

Piping

| | |
|----|----------------------------------|
| 0 | Sub-plate side ported |
| 1* | Sub-plate bottom ported |
| 4 | Without sub-plate (For manifold) |

* Semi-standard

Port size

| | |
|----|-------------------|
| 00 | Without sub-plate |
| 01 | Rc 1/8 |
| 02 | Rc 1/4 |
| 03 | Rc 3/8 |

* Bottom ported: Rc 1/8 and 1/4 only

Thread type

| | |
|-----|------|
| Nil | Rc |
| N* | NPT |
| T* | NPTF |
| F* | PF |

* Semi-standard

Pilot

| | |
|-----|-------------------------------|
| Nil | Body side |
| 1* | Base side (Without sub-plate) |

* Semi-standard

Option

| | |
|-----|-----------------------------|
| Nil | None |
| PA | Non-locking manual override |

⚠ Caution

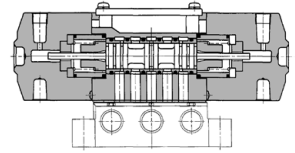
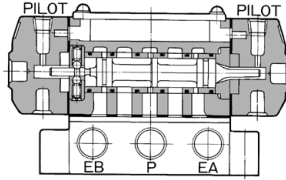
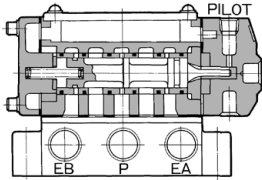
Be sure to read this before handling. Refer to front matter 53 for Safety Instructions and pages 3 to 8 for 3/4/5 Port Solenoid Valve Precautions.

Construction

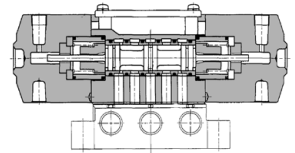
2 position single: VSA4120

2 position double: VSA4220

3 position closed center: VSA4320



3 position exhaust center: VSA4420



| |
|------|
| SYA |
| SYJA |
| VZA |
| VFA |
| VFRA |
| VPA4 |
| VSA4 |
| SYJA |
| VZA |
| VTA |
| VGA |
| VPA |
| VPA3 |

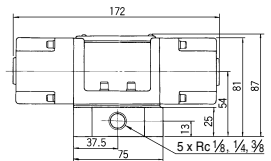
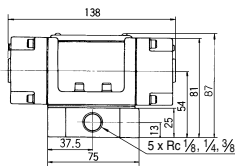
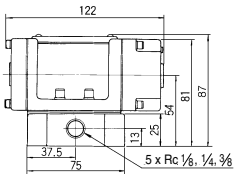
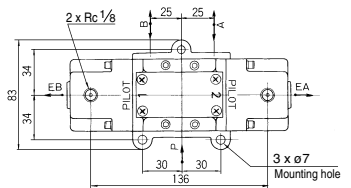
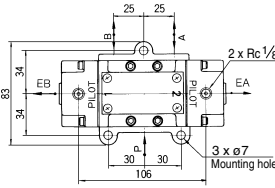
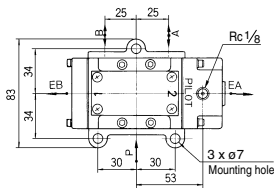
Dimensions

2 position single: VSA4120

2 position double: VSA4220

3 position closed center: VSA4320

3 position exhaust center: VSA4420



4/5 Port Air Operated Valve

Series VSA4□30

Model

| Valve model | Body size | Function | Port size Rc | Flow characteristics | | | | | | Pilot port size | Note) Weight (kg) |
|-------------|-----------|---------------------------|-----------------|----------------------------|------|-----|----------------------------|------|-----|-----------------|----------------------|
| | | | | P→A/B | | | A/B→EA/EB | | | | |
| | | | | C[dm ³ (s·bar)] | b | Cv | C[dm ³ (s·bar)] | b | Cv | | |
| VSA4130-02 | 3/8 | 2 position single | 1/4 | 6.4 | 0.16 | 1.4 | 6.3 | 0.13 | 1.4 | Rc 1/8 | 0.75 |
| VSA4130-03 | | | 3/8 | 8.7 | 0.28 | 2.1 | 8.2 | 0.13 | 1.9 | Rc 1/8 | |
| VSA4130-04 | | | 1/2 | 9.2 | 0.14 | 2.2 | 9.6 | 0.17 | 2.4 | Rc 1/8 | |
| VSA4230-02 | 3/8 | 2 position double | 1/4 | 6.4 | 0.16 | 1.4 | 6.3 | 0.13 | 1.4 | Rc 1/8 | 0.86 |
| VSA4230-03 | | | 3/8 | 8.7 | 0.28 | 2.1 | 8.2 | 0.13 | 1.9 | Rc 1/8 | |
| VSA4230-04 | | | 1/2 | 9.2 | 0.14 | 2.2 | 9.6 | 0.17 | 2.4 | Rc 1/8 | |
| VSA4330-02 | 3/8 | 3 position closed center | 1/4 | 6.2 | 0.23 | 1.4 | 5.8 | 0.15 | 1.3 | Rc 1/8 | 0.90 |
| VSA4330-03 | | | 3/8 | 8.1 | 0.27 | 2.0 | 7.5 | 0.11 | 1.7 | Rc 1/8 | |
| VSA4330-04 | | | 1/2 | 10 | 0.18 | 2.4 | 9.5 | 0.14 | 2.2 | Rc 1/8 | |
| VSA4430-02 | 3/8 | 3 position exhaust center | 1/4 | 6.6 | 0.24 | 1.5 | 5.5 | 0.15 | 1.2 | Rc 1/8 | 0.90 |
| VSA4430-03 | | | 3/8 | 8.9 | 0.25 | 2.2 | 6.7 | 0.14 | 1.5 | Rc 1/8 | |
| VSA4430-04 | | | 1/2 | 11 | 0.15 | 2.5 | 9.4 | 0.14 | 2.2 | Rc 1/8 | |

Note) The table shows the value without sub-plate. With sub-plate: Add 0.41 kg



Specifications

| | |
|---|-----------------------------------|
| Max. operating pressure | 1.0 MPa |
| Pilot air pressure | 0.1 to 1.0 MPa |
| Ambient temperature and operating fluid temperature | -10 to 60°C (1) |
| Lubrication | Not required (2) |
| Impact/Vibration resistance (m/s ²) (3) | 150/50 |
| Enclosure | Dustproof (Enclosure class 0) (4) |

Note 1) Use dry air to prevent condensation when operating at low temperature.

Note 2) Use turbine oil Class 1 (ISO VG32) if lubricated.

Note 3) Impact resistance: No malfunction from test using drop impact tester, to axis and right angle directions of main valve, each one time when pilot signal is ON and OFF. (Value in the initial stage)

Vibration resistance: No malfunction from test with 45 to 2000 Hz one sweep, to axis and right angle direction of main valve, each one time when pilot signal ON and OFF. (Value in the initial stage)

Note 4) As per JIS C0920

- Manifold possible.
- When requiring bottom piping, please specify it.

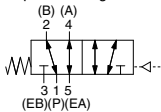
Sub-plate Assembly Part No.: VS4030-S ⁰²/₀₃ ⁰²/₀₄

* Mounting bolt and gasket are not included.

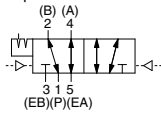
Mounting Bolts, Gasket Part No.: BG-VS4030

Symbol

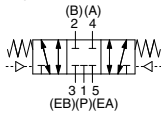
2 position single



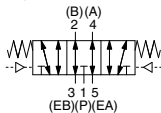
2 position double



3 position closed center



3 position exhaust center



Function

| | |
|---|---------------------------|
| 1 | 2 position single |
| 2 | 2 position double |
| 3 | 3 position closed center |
| 4 | 3 position exhaust center |

Piping

| | |
|----|----------------------------------|
| 0 | Sub-plate side ported |
| 1* | Sub-plate bottom ported |
| 4 | Without sub-plate (For manifold) |

* Semi-standard

Body size
3 3/8 standard

Port size

| | |
|----|-------------------|
| 00 | Without sub-plate |
| 02 | Rc 1/4 |
| 03 | Rc 3/8 |
| 04 | Rc 1/2 |

* Bottom ported: Rc 1/4 and 3/8 only

⚠ Caution

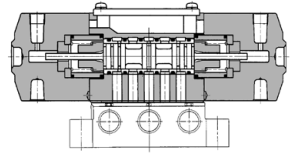
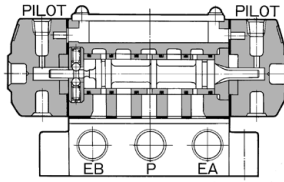
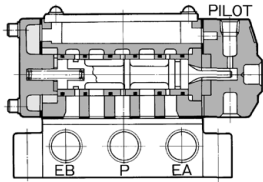
Be sure to read this before handling. Refer to front matter 53 for Safety Instructions and pages 3 to 8 for 3/4/5 Port Solenoid Valve Precautions.

Construction

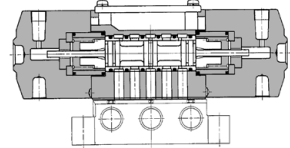
2 position single: VSA4130

2 position double: VSA4230

3 position closed center: VSA4330



3 position exhaust center: VSA4430



| |
|------|
| SYA |
| SYJA |
| VZA |
| VFA |
| VFRA |
| VPA4 |
| VSA4 |
| SYJA |
| VZA |
| VTA |
| VGA |
| VPA |
| VPA3 |

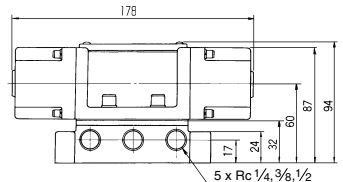
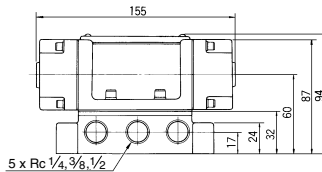
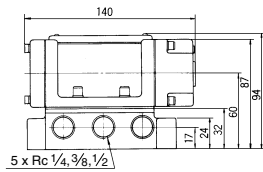
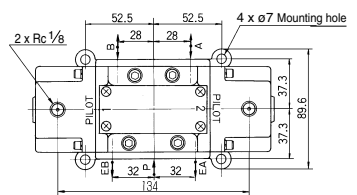
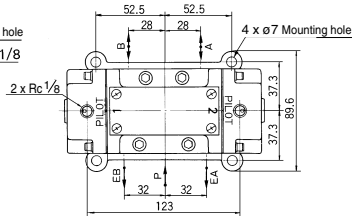
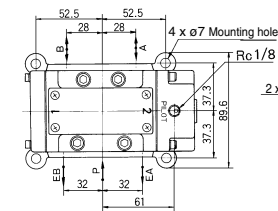
Dimensions

2 position single: VSA4130

2 position double: VSA4230

3 position closed center: VSA4330

3 position exhaust center: VSA4430



4/5 Port Air Operated Valve

Series VSA4□40

Model

| Valve model | Body size | Function | Port size Rc | Flow characteristics | | | | | | Pilot port size | Note) Weight (kg) |
|-------------|-----------|---------------------------|--------------|----------------------------|------|-----|----------------------------|------|-----|-----------------|-------------------|
| | | | | P→A/B | | | A/B→EA/EB | | | | |
| | | | | C[dm ³ (s·bar)] | b | Cv | C[dm ³ (s·bar)] | b | Cv | | |
| VSA4140-04 | 1/2 | 2 position single | 1/2 | 12 | 0.15 | 3.0 | 13 | 0.24 | 3.3 | Rc 1/8 | 1.31 |
| VSA4140-06 | | single | 3/4 | 15 | 0.31 | 4.1 | 16 | 0.32 | 4.2 | Rc 1/8 | |
| VSA4240-04 | 1/2 | 2 position double | 1/2 | 13 | 0.15 | 3.0 | 13 | 0.24 | 3.3 | Rc 1/8 | 1.50 |
| VSA4240-06 | | double | 3/4 | 15 | 0.31 | 4.1 | 16 | 0.32 | 4.2 | Rc 1/8 | |
| VSA4340-04 | 1/2 | 3 position closed center | 1/2 | 14 | 0.22 | 3.5 | 13 | 0.26 | 3.2 | Rc 1/8 | 1.73 |
| VSA4340-06 | | closed center | 3/4 | 17 | 0.27 | 4.2 | 16 | 0.25 | 4.2 | Rc 1/8 | |
| VSA4440-04 | 1/2 | 3 position exhaust center | 1/2 | 15 | 0.18 | 3.6 | 13 | 0.18 | 3.0 | Rc 1/8 | 1.73 |
| VSA4440-06 | | exhaust center | 3/4 | 17 | 0.39 | 4.6 | 17 | 0.30 | 4.3 | Rc 1/8 | |

Note) The table shows the value without sub-plate. With sub-plate: Add 0.6 kg for Rc 1/2, 1.4 kg for Rc 3/4.



Specifications

| | |
|---|-----------------------------------|
| Max. operating pressure | 1.0 MPa |
| Pilot air pressure | 0.1 to 1.0 MPa |
| Ambient temperature and operating fluid temperature | -10 to 60°C (1) |
| Lubrication | Not required (2) |
| Impact/Vibration resistance (m/s ²) (3) | 150/50 |
| Enclosure | Dustproof (Enclosure class 0) (4) |

Note 1) Use dry air to prevent condensation when operating at low temperature.

Note 2) Use turbine oil Class 1 (ISO VG32), if lubricated.

Note 3) Impact resistance: No malfunction from test using drop impact tester, to axis and right angle directions of main valve, each one time when pilot signal is ON and OFF. (Value in the initial stage)

Vibration resistance: No malfunction from test with 45 to 2000 Hz one sweep, to axis and right angle direction of main valve, each one time when pilot signal ON and OFF. (Value in the initial stage)

Note 4) As per JIS C0920

- Manifold possible.
- When requiring bottom piping, please specify it.

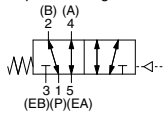
Sub-plate Assembly Part No.: VS4040-S⁰⁴₀₆

* Mounting bolt and gasket are not included.

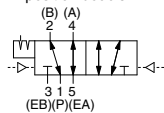
Mounting Bolts, Gasket Part No.: BG-VS4040

Symbol

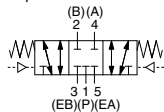
2 position single



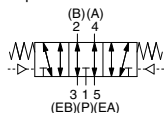
2 position double



3 position closed center



3 position exhaust center



Function

| | |
|---|---------------------------|
| 1 | 2 position single |
| 2 | 2 position double |
| 3 | 3 position closed center |
| 4 | 3 position exhaust center |

Piping

| | |
|----|----------------------------------|
| 0 | Sub-plate side ported |
| 1* | Sub-plate bottom ported |
| 4 | Without sub-plate (For manifold) |

* Semi-standard

How to Order

VSA 4 1 4 0 - 04 [] - [] - []

Function → 4/5 port valve

Body size → 4 1/2 standard

Piping → 0 Sub-plate side ported
1* Sub-plate bottom ported
4 Without sub-plate (For manifold)
* Semi-standard

Port size → 00 Without sub-plate
04 Rc 1/2
06 Rc 3/4

Thread type

| | |
|-----|------|
| Nil | Rc |
| N* | NPT |
| T* | NPTF |
| F* | PF |

* Semi-standard

Pilot

| | |
|-----|-------------------------------|
| Nil | Body side |
| 1* | Base side (Without sub-plate) |

* Semi-standard

Option

| | |
|-----|-----------------------------|
| Nil | None |
| PA | Non-locking manual override |

⚠ Caution

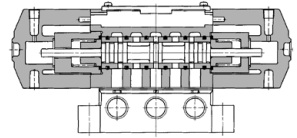
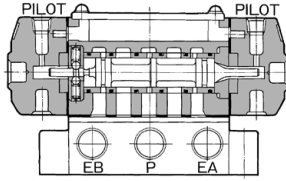
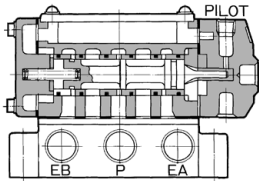
Be sure to read this before handling. Refer to front matter 53 for Safety Instructions and pages 3 to 8 for 3/4/5 Port Solenoid Valve Precautions.

Construction

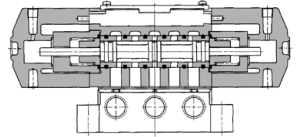
2 position single: VSA4140

2 position double: VSA4240

3 position closed center: VSA4340



3 position exhaust center: VSA4440



| |
|-------------|
| SYA |
| SYJA |
| VZA |
| VFA |
| VFRA |
| VPA4 |
| VSA4 |
| SYJA |
| VZA |
| VTA |
| VGA |
| VPA |
| VPA3 |

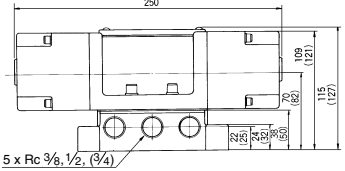
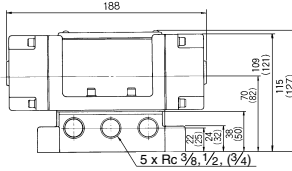
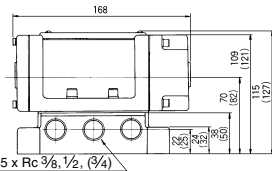
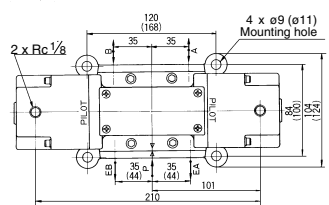
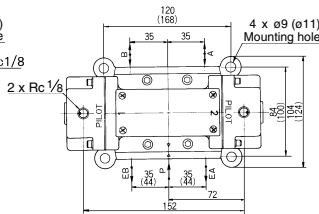
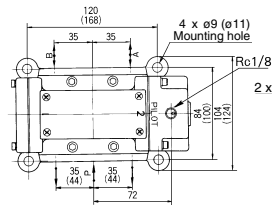
Dimensions

2 position single: VSA4140

2 position double: VSA4240

3 position closed center: VSA4340

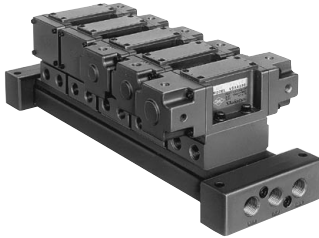
3 position exhaust center: VSA4440



(): Value for Rc 3/4

Series VSA4□□0

Manifold Specifications 1



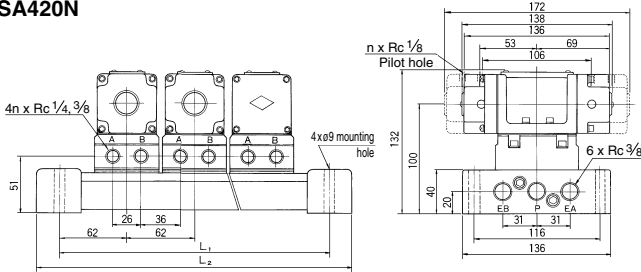
Specifications

| | | |
|---------------|--------|--|
| Manifold type | Type E | Valve manifold with the same body size * |
| | Type N | Valve manifold with the same body size |
| Stations | Type V | Valve manifold with the different body sizes |
| | | 2 to 10 stations (Standard) |
| EXH port | | Common EXH, Individual EXH |
| Piping | | Side piping, Bottom piping |

* Type E is available only for common EXH and side piping.

Manifold: Type N

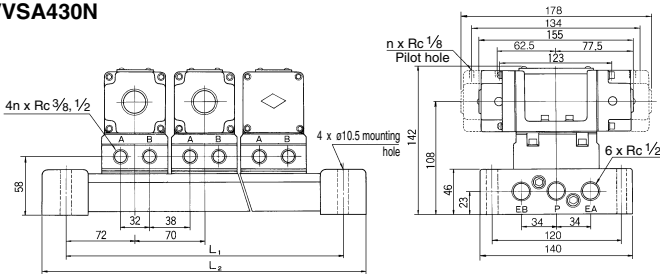
VVSA420N



| n | L | Dimensions (mm) | |
|------------------|---|--------------------------------------|----------------|
| | | L ₂ | L ₁ |
| 2 stations | | 226 | 186 |
| 3 stations | | 288 | 248 |
| 4 stations | | 350 | 310 |
| 5 stations | | 412 | 372 |
| n stations | | 62n + 102 | 62n + 62 |
| Applicable valve | | VSA4120, VSA4220 VSA4320, VSA4420 | |

Manifold weight general equation
M = 0.66n + 0.75 (kg) n: Station

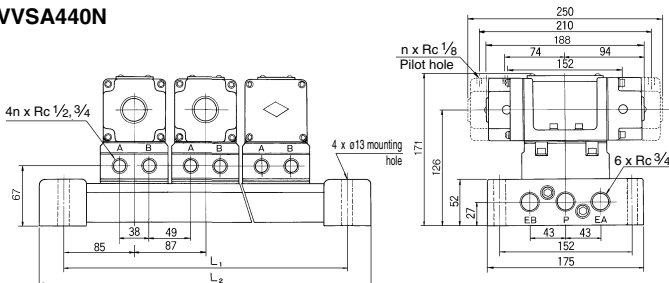
VVSA430N



| n | L | Dimensions (mm) | |
|------------------|---|--------------------------------------|----------------|
| | | L ₂ | L ₁ |
| 2 stations | | 256 | 214 |
| 3 stations | | 326 | 284 |
| 4 stations | | 396 | 354 |
| 5 stations | | 466 | 424 |
| n stations | | 70n + 116 | 70n + 74 |
| Applicable valve | | VSA4130, VSA4230 VSA4330, VSA4430 | |

Manifold weight general equation
M = 0.87n + 0.95 (kg) n: Station

VVSA440N



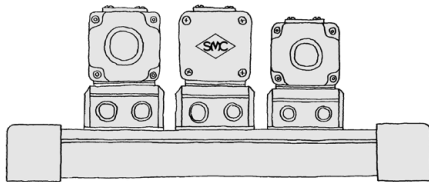
| n | L | Dimensions (mm) | |
|------------------|---|--------------------------------------|----------------|
| | | L ₂ | L ₁ |
| 2 stations | | 307 | 257 |
| 3 stations | | 394 | 344 |
| 4 stations | | 481 | 431 |
| 5 stations | | 568 | 518 |
| n stations | | 87n + 133 | 87n + 83 |
| Applicable valve | | VSA4140, VSA4240 VSA4340, VSA4440 | |

Manifold weight general equation
M = 1.56n + 1.73 (kg) n: Station

Series VSA4□□0

Manifold Specifications 2

Manifold: Type V



Type E/Valve Manifold with the Same Body Size

| Manifold base size | Applicable valve | EXH port | Port size Rc | | |
|--------------------|------------------|------------|--------------|---------------|--------|
| | | | P | A, B | EA, EB |
| 1/4 standard | VSA4□20 | Common EXH | 3/8 | 1/8, 1/4, 3/8 | 3/8 |
| 3/8 standard | VSA4□30 | Common EXH | 1/2 | 3/8, 1/2 | 1/2 |

Piping specifications/Side ported is only available.

Type N/Valve Manifold with the Same Body Size

| Manifold base size | Applicable valve | EXH port | Port size Rc | | |
|--------------------|------------------|----------------|--------------|---------------|----------|
| | | | P | A, B | EA, EB |
| 1/4 standard | VSA4□20 | Common EXH | 3/8 | 1/8, 1/4, 3/8 | 3/8 |
| | | Individual EXH | | | 1/4, 3/8 |
| 3/8 standard | VSA4□30 | Common EXH | 1/2 | 3/8, 1/2 | 1/2 |
| | | Individual EXH | | | 3/8, 1/2 |
| 1/2 standard | VSA4□40 | Common EXH | 3/4 | 1/2, 3/4 | 3/4 |
| | | Individual EXH | | | 1/2, 3/4 |

Piping specifications/Side and bottom ported.

Type V/Body Size

| Manifold base size | Applicable valve | EXH port | Valve size | Port size Rc | | |
|--------------------|------------------|----------------|------------|--------------|----------|----------|
| | | | | P | A, B | EA, EB |
| 3/8 standard | VSA4□20 | Common EXH | 1/4 | 1/2 | 1/4, 3/8 | 1/2 |
| | | | 3/8 | | | |
| | VSA4□30 | Individual EXH | 1/4 | 1/2 | 1/4, 3/8 | 1/4 |
| | | | 3/8 | | | 3/8, 1/2 |
| 1/2 standard | VSA4□30 | Common EXH | 3/8 | 3/4 | 3/8, 1/2 | 3/4 |
| | | | 1/2 | | | |
| | VSA4□40 | Individual EXH | 3/8 | 3/4 | 3/8, 1/2 | 3/8 |
| | | | 1/2 | | | 1/2, 3/4 |

Piping specifications/Side and bottom ported.

How to Order

VV SA 4 2 0 - 05 N 1 -

Manifold
Air operated valve,
Series VSA
4 port valve

Body size

| Symbol | Size |
|--------|------|
| 2 | 1/4 |
| 3 | 3/8 |
| 4 | 1/2 |

Piping

| Symbol | P | A, B | EA, EB |
|--------|--------|--------|--------|
| 0 | Side | Side | Side |
| 1 | Side | Bottom | Side |
| 9 | Others | | |

EXH port

| Symbol | Type |
|--------|------------|
| 1 | Common |
| 2 | Individual |

Thread type

| | |
|-----|------|
| NII | Rc |
| N * | NPT |
| T * | NPTF |
| F * | PF |

* Semi-standard

Manifold type

| Symbol | Type |
|--------|--------|
| E | Type E |
| N | Type N |
| V | Type V |

Stations

| Symbol | No. of stations |
|--------|-----------------|
| 02 | 2 stations |
| : | : |
| 10 | 10 stations |

* A and B port sizes are same as port sizes in standard body size. When requiring different port size, contact SMC.

Manifold Optional Parts

| Option | Body size | Assembly part no. | Attached parts |
|-------------------------|-----------|-------------------|----------------|
| Blanking plate | 1/4 | XT015-4A | Gasket, Bolt |
| | 3/8 | XT016-5A | |
| | 1/2 | XT038N-4A | |
| Interface speed control | 1/4 | AXT394A | Gasket, Bolt |
| | 3/8 | AXT393A | |
| | 1/2 | AXT396A | |

Indicate valve and option number with the manifold base number.

<Example>

(Manifold base) **VVSA430-05N1** 1
 (2 position single) VSA4134-00 3
 (2 position double) VSA4234-00 1
 (Blanking plate) XT016-5A 1

SYA

SYJA

VZA

VFA

VFRA

VPA4

VSA4

SYJA

VZA

VTA

VGA

VPA

VPA3