

# Direct Air Operated 3 Port Valve/Manifold For Air, Gas, Vacuum and Oil

## Series VVXA31/32



- **A wide variety of applicable fluids.**  
Combination of seal materials (NBR, FKM, or EPDM) can be selected freely, depending on the purpose.
- **Able to replace valves with the piping remained unchanged.**
- **N.C./N.O. switchover is easy.**
- **Weight-saving aluminum base and body.**  
(Not applicable to water or steam.)

VC□

VDW

VQ

VX2

VX□

VX3

**VXA**

VN□

LVC

LVA

LVH

LVD

LVQ

LQ

LVN

TI/  
TIL

PA

PAX

PB

### Variations

**Valve** ●

Common (C.O.)

Energized open (N.C.)    Energized closed (N.O.)

● **Material**

Base, Body — Aluminum  
Seal material — NBR, FKM, EPDM

**Manifold** ●

Manifold — B mount  
Manifold stations — 2 to 10 stations

**Model**

| Manifold base model | Port A Rc | Port P Rc | Port R Rc |
|---------------------|-----------|-----------|-----------|
| VVXA311-stations    | 1/8       | 1/4       | 1/4       |
| VVXA312-stations    | 1/4       |           |           |
| VVXA321-stations    | 1/8       | 1/4       | 1/4       |
| VVXA322-stations    | 1/4       |           |           |

## Common (C.O.)

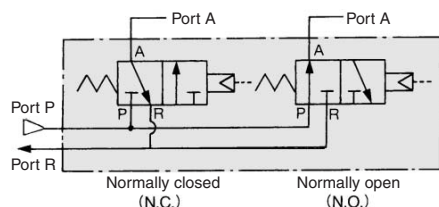
### Fluid

| Standard specifications   | Option <sup>Note)</sup>                                    |
|---|--|
| Air (Standard, Dry)   | Vacuum (up to $1.3 \times 10^{-1}$ Pa).....(V)             |
| Vacuum (up to $1.3 \times 10^2$ Pa)                               | Non-leak ( $10^{-6}$ Pa·m <sup>3</sup> /s or less).....(V) |
| Turbine oil   | .....  |
| Carbon dioxide (CO <sub>2</sub> ), Nitrogen gas (N <sub>2</sub> ) | Other  |

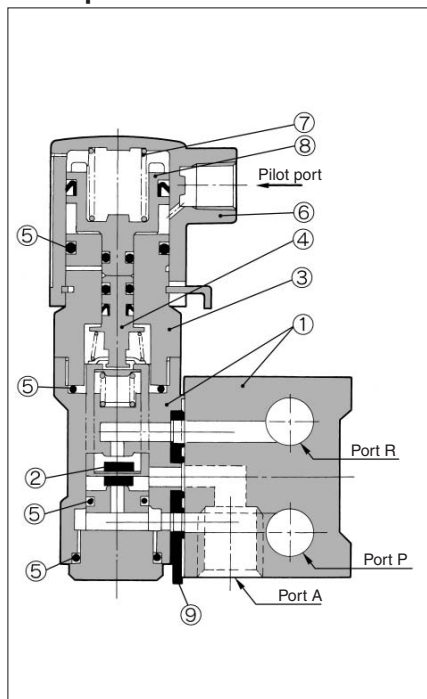


Note) Refer to page 17-3-14 "Applicable Fluids Check List" for details of special fluids outside of the standard options and specifications.

### JIS Symbol



### Construction/ Principal Parts Material



| No. | Description         | Material        |                                   |
|-----|---------------------|-----------------|-----------------------------------|
|     |                     | Standard        | Option                            |
| ①   | Manifold body, Base | Aluminum        | Brass (Base is made of aluminum.) |
| ②   | Valve assembly      | NBR, Polyacetal | FKM/EPDM                          |
| ③   | Adapter             | Aluminum        | FKM/EPDM                          |
| ④   | Travel assembly     | NBR, Polyacetal | FKM/EPDM                          |
| ⑤   | O-ring              | NBR             | FKM/EPDM                          |
| ⑥   | Pilot cover         | Aluminum        | —                                 |
| ⑦   | Piston spring       | Stainless steel | —                                 |
| ⑧   | Piston              | NBR, Polyacetal | —                                 |
| ⑨   | Gasket              | NBR             | FKM/EPDM                          |

### Manifold Specifications

| Manifold                             | B Mount                                       |           |
|--------------------------------------|---|-----------|
| Manifold type                        | Common supply, Common exhaust, Individual out |           |
| Number of valves                     | 2 to 10 stations                              |           |
| Blanking plate (with gasket, screws) | VVXA31  | VX011-004 |
|                                      | VVXA32  | VX011-005 |

### Manifold Base And Applicable Valve Part No.

| Manifold base    | Individual port Rc | Applicable valve | Base weight (g) |
|------------------|--------------------|------------------|-----------------|
| VVXA311-stations | 1/8                | VXA31 □ 5-00     | n x 100 + 50    |
| VVXA312-stations | 1/4                |                  |                 |
| VVXA321-stations | 1/8                | VXA32 □ 5-00     | n x 160 + 70    |
| VVXA322-stations | 1/4                |                  |                 |

### Model/Valve Specifications

| Orifice size (mm) | Model      | Max. operating pressure differential (MPa) | Flow characteristics                   |              |                              |      |      | Max system pressure (MPa) | Proof pressure (MPa) | Weight (g) |
|-------------------|------------|--|--|--------------|------------------------------|------|------|---------------------------|----------------------|------------|
|                   |            |  | Oil                                    |              | Air                          |      |      |                           |                      |            |
|                   |            |  | Av x 10 <sup>6</sup> (m <sup>2</sup> ) | Cv converted | C [dm <sup>3</sup> /(s·bar)] | b    | Cv   |                           |                      |            |
| 1.5               | VXA3115-00 | 1.0  | 1.9                                    | 0.08         | 0.29                         | 0.32 | 0.08 | 1.0                       | 1.5                  | 150        |
| 2.2               | VXA3125-00 | 0.5  | 3.8                                    | 0.16         | 0.60                         | 0.25 | 0.15 |                           |                      |            |
|                   | VXA3225-00 | 1.0  | 4.6                                    | 0.19         | 0.64                         | 0.40 | 0.17 |                           |                      |            |
| 3                 | VXA3135-00 | 0.3  | 8.0                                    | 0.24         | 0.82                         | 0.20 | 0.20 |                           |                      | 150        |
|                   | VXA3235-00 | 0.6  | 9.0                                    | 0.33         | 1.10                         | 0.25 | 0.27 |                           |                      |            |
| 4                 | VXA3245-00 | 0.3  | 12                                     | 0.60         | 1.66                         | 0.20 | 0.38 |                           |                      | 230        |



Note) • Add the V type (VXA31) 80 g, (VXA32) 130 g  
• Refer to "Glossary" on page 17-3-15 for details of max. operating pressure differential and max. system pressure.

### Operating Fluid and Ambient Temperature

| Temperature conditions | Operating fluid temperature (°C) |                   |                           | Ambient temperature (°C) |
|------------------------|----------------------------------|-------------------|---------------------------|--------------------------|
|                        | Air (Standard)                   | Oil (Standard)    | Vacuum <sup>(3)</sup> (V) |                          |
| Maximum                | 60                               | 40                | 40                        | 40                       |
| Minimum                | -5 <sup>(1)</sup>                | -5 <sup>(2)</sup> | -5                        | -5                       |



Note 1) Dew point: -5°C or less  
Note 2) 500 cSt or less  
Note 3) "V" in parentheses is option symbol.

### Tightness of Valve (Leak rate)

| Seal material  | Fluid                          |   |   |
|----------------|--------------------------------|---|---|
|                | Air                            | Liquid  | Non-leak, Vacuum <sup>(2)</sup>               |
| NBR, FKM, EPDM | 1 cm <sup>3</sup> /min or less | 0.1 cm <sup>3</sup> /min or less <sup>(1)</sup> | 10 <sup>-6</sup> Pa·m <sup>3</sup> /s or less |



Note 1) Differs depending on the operating conditions such as pressure, etc.  
Note 2) Value on option "V" (Non-leak, Vacuum).

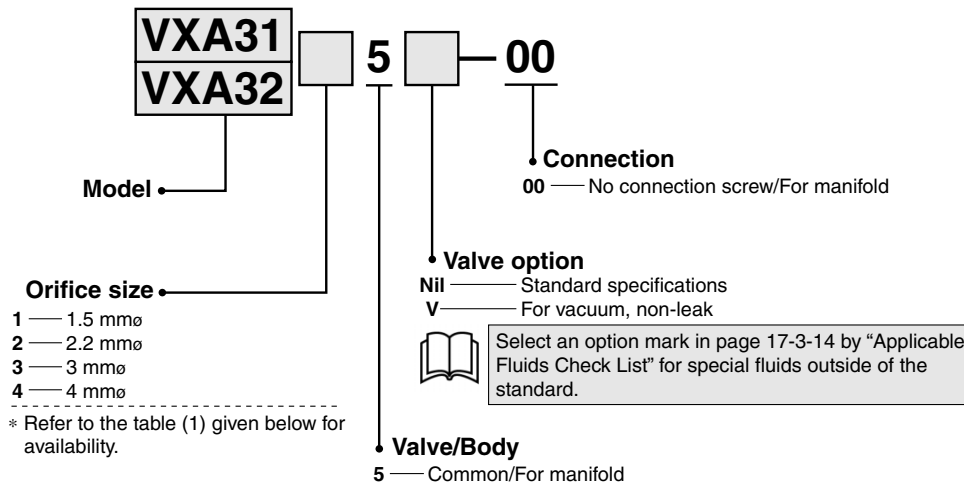
### Pilot Pressure

| Model                  | Pressure (MPa) |
|------------------------|----------------|
| VXA31 □ 5<br>VXA32 □ 5 | 0.25 to 0.7    |

# Direct Air Operated 3 Port Valve/Manifold For Air, Gas, Vacuum and Oil Series **VVXA31/32**

The VX\* series will be revised shortly.

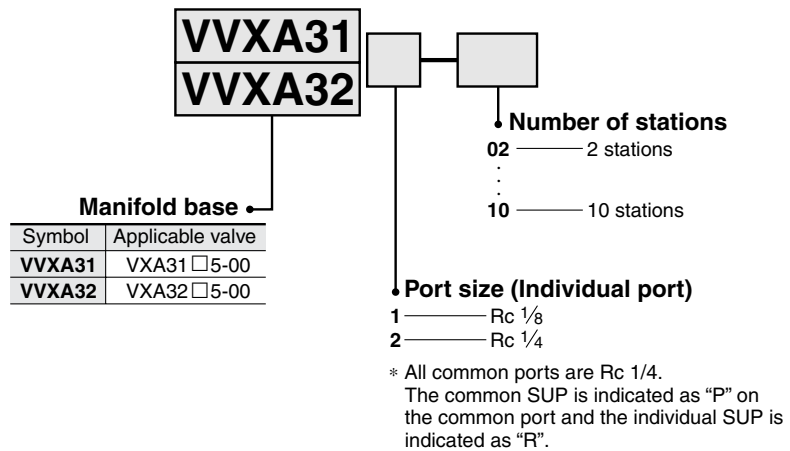
## How to Order



**Table (1) Orifice Size**

| Model | Orifice size (No)     |                       |                     |                     |
|-------|-----------------------|-----------------------|---------------------|---------------------|
|       | 1<br>(1.5 mm $\phi$ ) | 2<br>(2.2 mm $\phi$ ) | 3<br>(3 mm $\phi$ ) | 4<br>(4 mm $\phi$ ) |
| VXA31 | ●                     | ●                     | ●                   | —                   |
| VXA32 | —                     | ●                     | ●                   | ●                   |

## How to Order Manifold Base



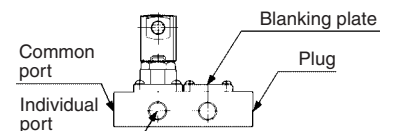
## How to Order Manifold

■ Write both the base part number and the solenoid valve to be mounted or blanking plate part number.

(Example)  
7 stations of VXA31, Individual port Rc 1/8

(Base P/N) VXA311-07..... 1 pc  
(Valve P/N) VXA3115-00..... 6 pcs  
(Blanking plate P/N) VX011-004..... 1 pc

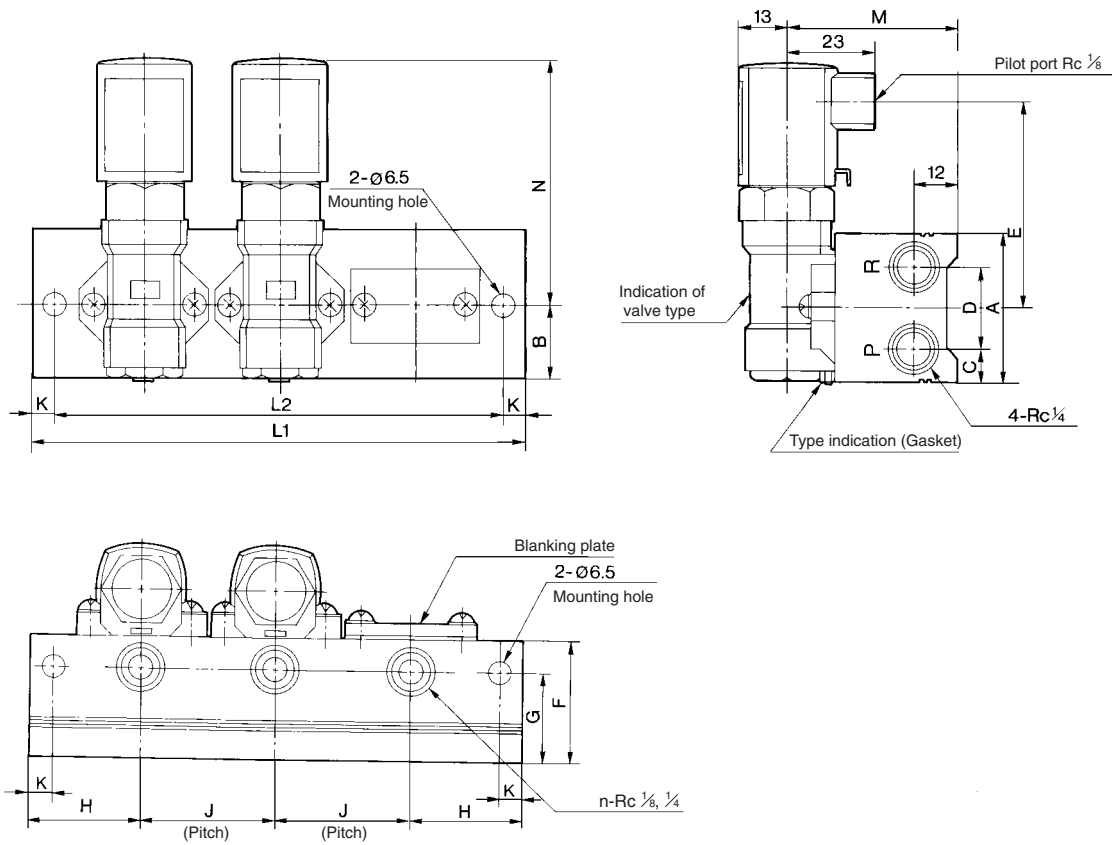
■ Arrangement of solenoid valves



The standard arrangement of manifolds should be placed on an individual port on this side, each solenoid valve from the left side and a blank plate in the right side. The right side of the common port provides a plug.

- VC □
- VDW
- VQ
- VX2
- VX □
- VX3
- VXA
- VN □
- LVC
- LVA
- LVH
- LVD
- LVQ
- LQ
- LVN
- TI/TIL
- PA
- PAX
- PB

## Dimensions



| Model  | Symbol | Stations |     |     |     |     |     |     |     |     |
|--------|--------|----------|-----|-----|-----|-----|-----|-----|-----|-----|
|        |        | 2        | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |
| VVXA31 | L1     | 96       | 132 | 168 | 204 | 240 | 276 | 312 | 348 | 384 |
|        | L2     | 84       | 120 | 156 | 192 | 228 | 264 | 300 | 336 | 372 |
| VVXA32 | L1     | 126      | 172 | 218 | 264 | 310 | 356 | 402 | 448 | 494 |
|        | L2     | 108      | 154 | 200 | 246 | 292 | 338 | 384 | 430 | 476 |

| Model  | Symbol | A  | B  | C  | D  | E  | F  | G  | H  | J  | K | M    | N  |
|--------|--------|----|----|----|----|----|----|----|----|----|---|------|----|
| VVXA31 |        | 40 | 20 | 9  | 22 | 59 | 33 | 24 | 30 | 36 | 6 | 45.5 | 69 |
| VVXA32 |        | 44 | 22 | 10 | 24 | 66 | 34 | 25 | 40 | 46 | 9 | 50.5 | 76 |