

Stainless Steel High Vacuum Angle/In-line Valve

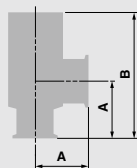
XM, XY Series



Angle type/
XM Series

In-line type
XY Series

- **Body material: SCS13**
(conforms to Stainless steel 304)
 - A precision casting, unified composition prevents accumulation of gas.
 - The XM series is interchangeable with the XL series, aluminum high vacuum angle valve.
- Lightweight & compact**

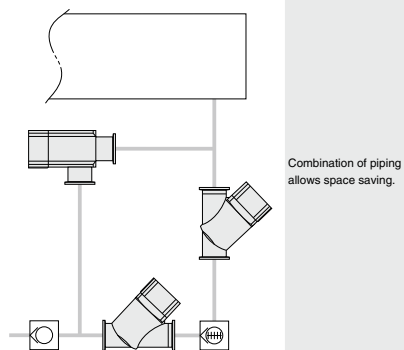


XMA series with KF (NW) flange

| Model | A* (mm) | B (mm) | Weight (kg) | Conductance (L/s) |
|--------|---------|--------|-------------|-------------------|
| XMA-16 | 40 | 103 | 0.33 | 5 |
| XMA-25 | 50 | 113 | 0.61 | 14 |
| XMA-40 | 65 | 158 | 1.40 | 45 |
| XMA-50 | 70 | 170 | 2.00 | 80 |
| XMA-63 | 88 | 196 | 3.60 | 160 |
| XMA-80 | 90 | 235 | 6.20 | 200 |

*: Common to all series.

Piping example



XLA

XL□

XL□Q

XM□

XY□

D-□









XSA

XVD

XGT

CVY

Series Variations

| Application | Shaft seal system | Models | | Valve type | Operating pressure Pa | Flange size | | | | | | Options | | | | |
|--|----------------------|--|--|----------------------|---|-------------|----|----|----|----|----|---------|-----------|--------------------------|--|--|
| | | Angle type | In-line type | | | 16 | 25 | 40 | 50 | 63 | 80 | Switch | Indicator | high temp. specification | | |
| Air operated | | | | | | | | | | | | | | | | |
| Particulate free | Bellows seal | XMA  | XYA  | Single acting (N.C.) | Atmospheric pressure to 1 x 10 ⁶ | Note | | | | | | | | | | |
| | | XMC  | XYC  | Double acting | | Note | | | | | | | | | | |
| Reduces particulates Eliminates pump overload | Bellows, O-ring seal | XMD  | XYD  | Single acting (N.C.) | | | | | | | | | Standard | | | |
| Manual | | | | | | | | | | | | | | | | |
| Particulate free | Bellows seal | XMH  | XYH  | Manual | Atmospheric pressure to 1 x 10 ⁶ | Note | | | | | | | Standard | Standard | | |

Please contact SMC for with solenoid valve.

Note) The in-line valve is not available in flange size 16.

Bellows seal, Single acting: XMA, XYA
Bellows seal, Double acting: XMC, XYC

- Bellows type is particulate free and completely cleaned.
- Pressure balancing mechanism.

2 stage control, Single acting: XMD, XYD

- Initial stage exhaust valve and main exhaust valve are combined. (flow rate 2-step control valve)
- Designed with a compact system and reduced piping.
- Prevents particulate turbulence inside the chamber during exhaustion.
- Prevents pumps from running while overloaded.
- Initial exhaust valve flow is adjustable and adjustment can be locked.

Bellows seal, Manual operation: XMH, XYH

- Bellows type is particulate free and completely cleaned.
- Pressure balance mechanism allows unrestricted exhaust direction.
- Low actuation torque (0.5 N-m or less).
- Spring provides standard sealing load.
- Handle height is the same when valve is open or closed.
- Indicator to confirm opening and closing of valve is standard equipment.

Stainless steel High Vacuum Angle/In-line Valve Normally Closed/Bellows Seal **XMA, XYA Series**



How to Order

Angle type

XMA - 16 - M9N A -

In-line type

XYA - 25 - M9N A -

Note) The XMAV and XYAV series with solenoid valve are also available. Please contact SMC for details.



① Flange size

| Size | XMA | XYA |
|------|-----|-----|
| 16 | ● | — |
| 25 | ● | ● |
| 40 | ● | ● |
| 50 | ● | ● |
| 63 | ● | ● |
| 80 | ● | ● |

② Flange type

XMA

| Symbol | Type | Applicable flange size |
|--------|---------|------------------------------|
| NII | KF (NW) | 16, 25, 40, 50, 63, 80 |
| D | K (DN) | 63, 80 |
| C | CF | 16 (034), 40 (070), 63 (114) |

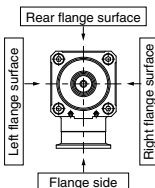
XYA

| | | |
|-----|---------|--------------------|
| NII | KF (NW) | 25, 40, 50, 63, 80 |
| D | K (DN) | 63, 80 |

③ Indicator/Pilot port direction

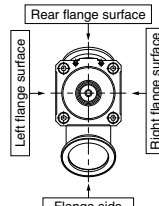
XMA

| Symbol | Indicator | Pilot port direction |
|--------|-------------------|----------------------|
| NII | Without indicator | Flange side |
| A | With indicator | Flange side |
| F | | Left flange surface |
| G | | Rear flange surface |
| J | | Right flange surface |
| K | Without indicator | Left flange surface |
| L | Without indicator | Rear flange surface |
| M | Without indicator | Right flange surface |



XYA

| Symbol | Indicator | Pilot port direction |
|--------|-------------------|----------------------|
| NII | Without indicator | Rear flange side |
| A | With indicator | Rear flange side |
| F | | Left flange surface |
| J | | Right flange surface |
| K | Without indicator | Left flange surface |
| M | Without indicator | Right flange surface |



④ Temperature specifications

| Symbol | Temperature range |
|--------|-------------------|
| NII | 5 to 60°C |
| H0 | 5 to 150°C |

⑤ Number of auto switches/Detecting position

| Symbol | Quantity | Detecting position |
|--------|---------------------|--------------------|
| NII | Without auto switch | — |
| A | 2 pcs. | Valve open/closed |
| B | 1 pc. | Valve open |
| C | 1 pc. | Valve closed |

⑤ Auto switch type

| Symbol | Auto switch | Remarks |
|--------------|----------------|---|
| NII | — | Without auto switch (without built-in magnet) |
| M9N(M)(L)(Z) | D-M9N(M)(L)(Z) | Solid state auto switch |
| M9P(M)(L)(Z) | D-M9P(M)(L)(Z) | |
| M9B(M)(L)(Z) | D-M9B(M)(L)(Z) | |
| A90(L) | D-A90(L) | Reed auto switch |
| A93(M)(L)(Z) | D-A93(M)(L)(Z) | (Flange size 16 is not available.) |
| M9// | — | Without auto switch (with built-in magnet) |

Note 1) Auto switches are not applicable for high-temperature specifications (Temperature specification H0). Standard lead wire length is 0.5 m. Add "L" to the end of the part number when 3 m is desired, "M" when 1 m, and "Z" when 5 m. Ex.) -M9NL
Note 2) A type with a pre-wired connector is also selectable. Ex.) -M9NSAPC
Note 3) Refer to the [Auto Switch Catalog](#) for further information on auto switches.

⑦ Seal material and its changed part

• Seal material

| Symbol | Seal material | Compound No. |
|--------|-------------------|--------------|
| NII | FKM | 1349-80* |
| N1 | EPDM | 2101-80* |
| P1 | Barrel Perfluoro® | 70W |
| Q1 | Kalrez® | 4079 |
| R1 | Chemraz® | SS592 |
| R2 | | SS630 |
| R3 | | SSE38 |
| S1 | | VMQ |
| T1 | FKM for Plasma | 3310-75* |
| U1 | ULTIC ARMOR® | UA4640 |

* Produced by Mitsubishi Cable Industries, Ltd.

Barrel Perfluoro® is a registered trademark of Matsumura Oil Co., Ltd.
Kalrez® is a registered trademark of E. I. du Pont de Nemours and Company or its affiliates.
Chemraz® is a registered trademark of Greene, Tweed Technologies, Inc.
ULTIC ARMOR® is a registered trademark of Nippon Valqua Industries, Ltd.

• Part numbers indicating changed seal material and leakage

| Symbol | Changed part (Note 2) | Leakage (Pa·m³/s or less) (Note 1) | |
|--------|-----------------------|------------------------------------|-----------------------------|
| | | Internal | External |
| NII | — | 1.3×10^{-10} (FKM) | 1.3×10^{-11} (FKM) |
| A | ②, ③ | 1.3×10^{-8} | 1.3×10^{-9} |
| B | ② | 1.3×10^{-8} | 1.3×10^{-11} (FKM) |
| C | ③ | 1.3×10^{-10} (FKM) | 1.3×10^{-9} |

Note 1) Values at ambient temperatures, excluding gas permeation.

Note 2) Refer to parts number of "Construction" on the page 482 for changed part. Number indicates parts number of "Construction" accordingly.

To order something else "NII" (standard), list the symbols starting with "X," followed by each symbol for "seal material" and then "changed parts" at last.

Ex.) XMA-16-M9NA-XN1A

XLA

XL□

XL□□

XL□□

D-□

XSA

XVD

XGT

CVV

XMA, XYA Series

Specifications

| Model | XMA-16 | | XMA-25 XYA-25 | XMA-40 XYA-40 | XMA-50 XYA-50 | XMA-63 XYA-63 | XMA-80 XYA-80 |
|--------------------------------------|--|--|------------------|------------------|------------------|------------------------|--------------------|
| Flange (valve) size | 16, CF034 | | 25 | 40, CF070 | 50 | 63, CF114 | 80 |
| Valve type | Normally closed (Pressurize to open, spring seal) | | | | | | |
| Fluid | Inactive gas under vacuum | | | | | | |
| Operating temperature (°C) | 5 to 60 (High temperature type: 5 to 150) | | | | | | |
| Operating pressure (Pa)(abs) | 1 x 10 ⁻⁶ up to atmospheric pressure | | | | | | |
| Conductance (L/s) ^{Note 1)} | 5 | | 14 | 45 | 80 | 160 | 200 |
| Leakage (Pa·m ³ /s) | Internal | 1.3 x 10 ⁻¹⁰ {1 x 10 ⁻¹⁰ } at ambient temperature, excluding gas permeation (Standard material: FKM) | | | | | |
| | External | 1.3 x 10 ⁻¹¹ {1 x 10 ⁻¹¹ } at ambient temperature, excluding gas permeation (Standard material: FKM) | | | | | |
| Flange type | KF (NW), CF | | KF (NW) | KF (NW), CF | KF (NW) | KF (NW), K (DN), CF | KF (NW), K (DN) |
| Principle materials | Body: SCS13 (Conforms to Stainless steel 304) Bellows: Stainless steel 316L Bellows holder: Stainless steel 304. FKM (Standard seal material) | | | | | | |
| Pilot pressure (MPa)(G) | 0.4 to 0.7 | | | | | | |
| Pilot port size | M5 | | | Rc 1/8 | | | |
| Weight (kg) ^{Note 2)} | XMA | 0.33 (0.37) | 0.61 | 1.40 (1.76) | 2.00 | 3.60 (4.96) | 6.20 |
| | XYA | — | 0.66 | 1.42 | 2.40 | 4.30 | 7.70 |

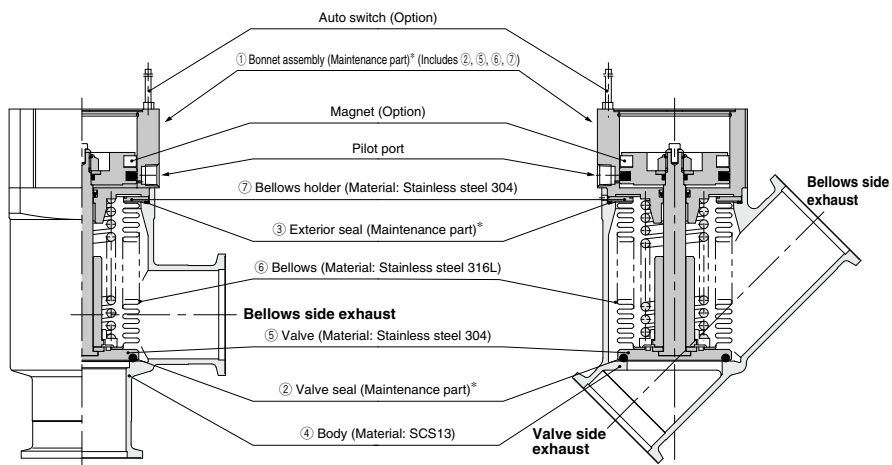
Note 1) Conductance is the value for the molecular flow of an elbow having the same dimensions.

Note 2) Figures in () indicates the weight of CF (conflate) fittings.

Construction

XMA/Angle type

XYA/In-line type



Valve side exhaust

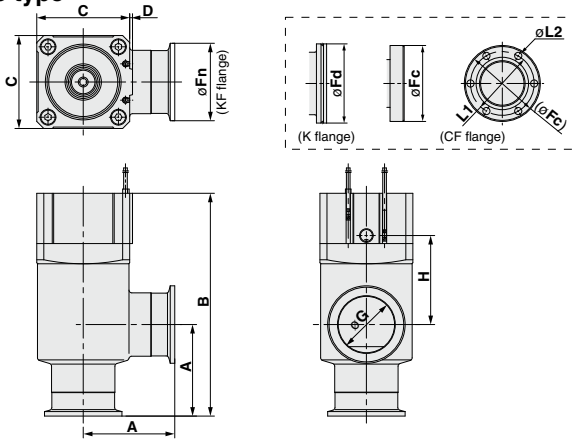
* Refer to page 497 for maintenance parts.

Stainless steel **XMA, XYA Series**

High Vacuum Angle/In-line Valve

Dimensions

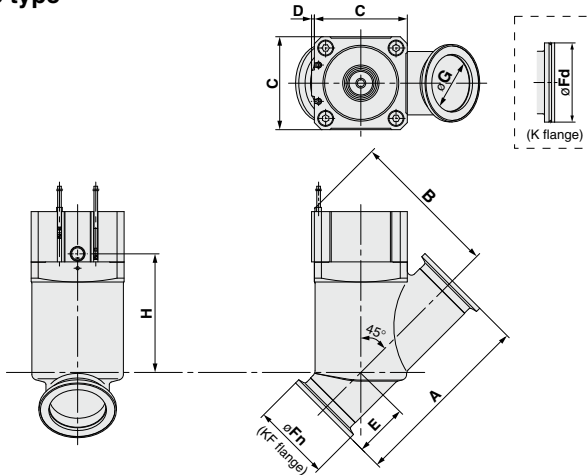
XMA/Angle type



| Model | A | B | C | D | Fn | Fd | Fc | G | H | P.C.D | L1 | L2 |
|---------------|----|-----|-----|---|-----|-----|-----|----|----|------------|----------------|----|
| XMA-16 | 40 | 103 | 38 | 1 | 30 | — | 34 | 17 | 40 | P.C.D 27 | 6 x $\phi 4.4$ | — |
| XMA-25 | 50 | 113 | 48 | 1 | 40 | — | — | 26 | 39 | — | — | — |
| XMA-40 | 65 | 158 | 66 | 2 | 55 | — | 70 | 41 | 63 | P.C.D 58.7 | 6 x $\phi 6.6$ | — |
| XMA-50 | 70 | 170 | 79 | 2 | 75 | — | — | 52 | 68 | — | — | — |
| XMA-63 | 88 | 196 | 100 | 3 | 87 | 95 | 114 | 70 | 69 | P.C.D 92.1 | 8 x $\phi 8.4$ | — |
| XMA-80 | 90 | 235 | 117 | 3 | 114 | 110 | — | 83 | 96 | — | — | — |

(mm)

XYA/In-line type



| Model | A | B | C | D | E | Fn | Fd | G | H |
|---------------|-------|------|-----|---|------|-----|-----|----|-----|
| XYA-25 | 100.2 | 79.5 | 48 | 1 | 23.5 | 40 | — | 26 | 64 |
| XYA-40 | 130 | 106 | 66 | 2 | 38 | 55 | — | 41 | 84 |
| XYA-50 | 178 | 119 | 79 | 2 | 53 | 75 | — | 52 | 95 |
| XYA-63 | 209 | 149 | 100 | 3 | 61 | 87 | 95 | 70 | 118 |
| XYA-80 | 268 | 178 | 117 | 3 | 80 | 114 | 110 | 83 | 142 |

(mm)

- XLA
- XL□
- XL□Q
- XLM□
- XY□
- D-□
- XSA
- XVD
- XGT
- CYV

Stainless steel High Vacuum Angle/In-line Valve Double Acting/Bellows Seal **XMC, XYC Series**

How to Order



Angle type

Flange size
16, 25, 40

XMC - 16 [] [] [] - M9N A - []

Flange size
50, 63, 80

XMC - 50 [] [] [] - 1 M9N A - []



In-line type

Flange size
25, 40

XYC - 25 [] [] [] - M9N A - []

Flange size
50, 63, 80

XYC - 50 [] [] [] - 1 M9N A - []

Note) The XMC and XYC series with solenoid valve are also available. Please contact SMC for details.

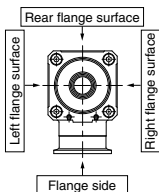
① Flange size

| Size | XMC | XYC |
|------|-----|-----|
| 16 | ● | — |
| 25 | ● | ● |
| 40 | ● | ● |
| 50 | ● | ● |
| 63 | ● | ● |
| 80 | ● | ● |

③ Pilot port direction

XMC

| Symbol | Pilot port direction |
|--------|----------------------|
| NII | Flange side |
| K | Left flange surface |
| L | Rear flange surface |
| M | Right flange surface |



④ Temperature specifications

| Symbol | Temperature range |
|--------|-------------------|
| NII | 5 to 60°C |
| H0 | 5 to 150°C |

⑥ Number of auto switches/Detecting position

| Symbol | Quantity | Detecting position |
|--------|---------------------|--------------------|
| NII | Without auto switch | — |
| A | 2 pcs. | Valve open/closed |
| B | 1 pc. | Valve open |
| C | 1 pc. | Valve closed |

⑦ Seal material and its changed part

• Seal material

| Symbol | Seal material | Compound No. |
|--------|-------------------|--------------|
| NII | FKM | 1349-80* |
| N1 | EPDM | 2101-80* |
| P1 | Barrel Perfluoro® | 70W |
| Q1 | Kalrez® | 4079 |
| R1 | | SS592 |
| R2 | Chemraz® | SS630 |
| R3 | | SSE38 |
| S1 | VMQ | 1232-70* |
| T1 | FKM for Plasma | 3310-75* |
| U1 | ULTIC ARMOR® | UA4640 |

* Produced by Mitsubishi Cable Industries, Ltd.

Barrel Perfluoro® is a registered trademark of Matsumura Oil Co., Ltd.
Kalrez® is a registered trademark of E. I. du Pont de Nemours and Company or its affiliates.
Chemraz® is a registered trademark of Greene, Tweed Technologies, Inc.
ULTIC ARMOR® is a registered trademark of Nippon Valqua Industries, Ltd.

② Flange type

XMC

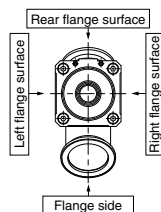
| Symbol | Type | Applicable flange size |
|--------|---------|------------------------------|
| NII | KF (NW) | 16, 25, 40, 50, 63, 80 |
| D | K (DN) | 63, 80 |
| C | CF | 16 (034), 40 (070), 63 (114) |

XYC

| | | |
|-----|---------|---------------------|
| NII | KF (NW) | 225, 40, 50, 63, 80 |
| D | K (DN) | 63, 80 |

XYC

| Symbol | Pilot port direction |
|--------|----------------------|
| NII | Rear flange surface |
| K | Left flange surface |
| M | Right flange surface |



⑤ Auto switch type

| Symbol | Auto switch | Remarks |
|--------------|----------------|---|
| NII | — | Without auto switch (without built-in magnet) |
| M9N(M)(L)(Z) | D-M9N(M)(L)(Z) | Solid state auto switch |
| M9P(M)(L)(Z) | D-M9P(M)(L)(Z) | |
| M9B(M)(L)(Z) | D-M9B(M)(L)(Z) | |
| A90(L) | D-A90(L) | Reed auto switch |
| A93(M)(L)(Z) | D-A93(M)(L)(Z) | (Flange size 16 is not available.) |
| M9// | — | Without auto switch (with built-in magnet) |

Note 1) Auto switches are not applicable for high-temperature specifications (Temperature specification H0). Standard lead wire length is 0.5 m. Add "L" to the end of the part number when 3 m is desired, "M" when 1 m, and "Z" when 5 m. Ex.) -M9NL

Note 2) A type with a pre-wired connector is also selectable. Ex.) -M9NSAP

Note 3) Refer to the [Auto Switch Catalog](#) for further information on auto switches.

• Part numbers indicating changed seal material and leakage

| Symbol | Changed part ^{Note 2)} | Leakage (Pa·m ³ /s or less) ^{Note 1)} | |
|--------|---------------------------------|---|-------------------------------|
| | | Internal | External |
| NII | — | 1.3 x 10 ⁻¹⁰ (FKM) | 1.3 x 10 ⁻¹¹ (FKM) |
| A | ②, ③ | 1.3 x 10 ⁻⁸ | 1.3 x 10 ⁻⁹ |
| B | ② | 1.3 x 10 ⁻⁸ | 1.3 x 10 ⁻¹¹ (FKM) |
| C | ③ | 1.3 x 10 ⁻¹⁰ (FKM) | 1.3 x 10 ⁻⁹ |

Note 1) Values at ambient temperatures, excluding gas permeation.

Note 2) Refer to parts number of "Construction" on the page 485 for changed part. Number indicates parts number of "Construction" accordingly.

To order something else "NII" (standard), list the symbols starting with "X," followed by each symbol for "seal material" and then "changed parts" at last.

Ex.) XMC-16-M9NA-XN1A

Stainless steel High Vacuum Angle/In-line Valve **XMC, XYC Series**

Specifications

| Model | XMC-16 | | XMC-25 XYC-25 | XMC-40 XYC-40 | XMC-50 XYC-50 | XMC-63 XYC-63 | XMC-80 XYC-80 |
|--------------------------------------|--|---|------------------|------------------|------------------|------------------------|--------------------|
| Flange (Valve) size | 16, CF034 | | 25 | 40, CF070 | 50 | 63, CF114 | 80 |
| Valve type | Double acting (Dual operation), pressurize to open/close | | | | | | |
| Fluid | Inactive gas under vacuum | | | | | | |
| Operating temperature (°C) | 5 to 60 (High temperature type: 5 to 150) | | | | | | |
| Operating pressure (Pa)(abs) | 1 x 10 ⁻⁶ up to atmospheric pressure | | | | | | |
| Conductance (L/s) ^{Note 1)} | 5 | | 14 | 45 | 80 | 160 | 200 |
| Leakage (Pa·m ³ /s) | Internal | 1.3 x 10 ⁻¹⁰ {1 x 10 ⁻¹⁰ } at ambient temperatures, excluding gas permeation (Standard material: FKM) | | | | | |
| | External | 1.3 x 10 ⁻¹¹ {1 x 10 ⁻¹¹ } at ambient temperatures, excluding gas permeation (Standard material: FKM) | | | | | |
| Flange type | KF (NW), CF | | KF (NW) | KF (NW), CF | KF (NW) | KF (NW), K (DN), CF | KF (NW), K (DN) |
| Principle materials | Body: SCS13 (Conforms to Stainless steel 304) Bellows: Stainless steel 316L Bellows holder: Stainless steel 304. FKM (Standard seal material) | | | | | | |
| Pilot pressure (MPa)(G) | 0.3 to 0.6 | | | | | | |
| Pilot port size | M5 | | | Rc 1/8 | | | |
| Weight (kg) ^{Note 2)} | XMC | 0.36 (0.40) | 0.62 | 1.40 (1.76) | 2.10 | 3.80 (5.16) | 6.30 |
| | XYC | — | 0.67 | 1.42 | 2.50 | 4.50 | 7.80 |

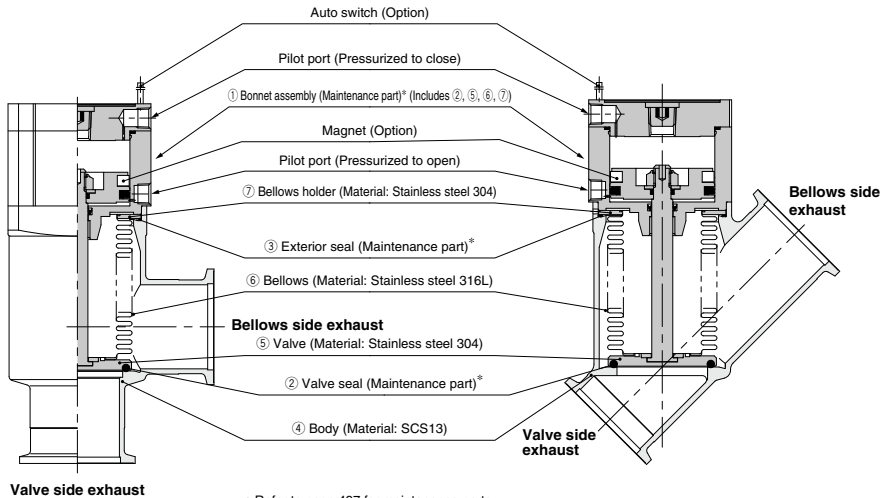
Note 1) Conductance is the value for the molecular flow of an elbow having the same dimensions.

Note 2) Figures in () indicates the weight of CF (conflate) fittings.

Construction

XMC/Angle type

XYC/In-line type



* Refer to page 497 for maintenance parts.

XLA

XL□

XL□Q

XM□

XY□

D-□

XSA

XVD

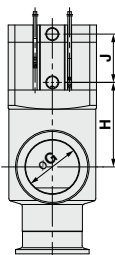
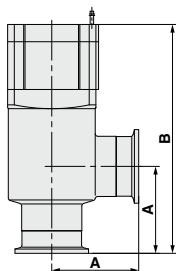
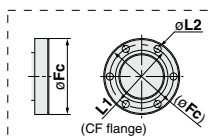
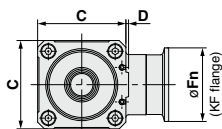
XGT

CVV

XMC, XYC Series

Dimensions

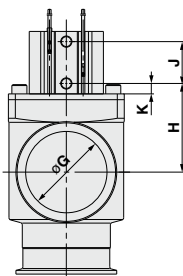
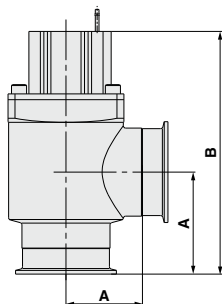
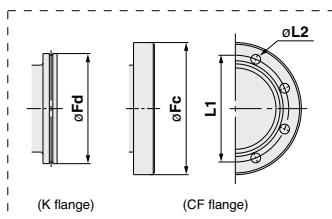
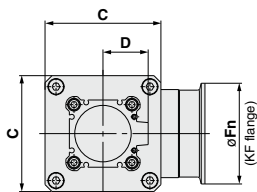
XMC-16 to 40/Angle type



| Model | A | B | C | D | F _n | F _c | G | H | J | P.C.D L1 | L2 |
|---------------|----|-----|----|---|----------------|----------------|----|----|----|------------|----------------|
| XMC-16 | 40 | 110 | 38 | 1 | 30 | 34 | 17 | 40 | 26 | P.C.D 27 | 6 x $\phi 4.4$ |
| XMC-25 | 50 | 120 | 48 | 1 | 40 | — | 26 | 39 | 28 | — | — |
| XMC-40 | 65 | 171 | 66 | 2 | 55 | 70 | 41 | 63 | 36 | P.C.D 58.7 | 6 x $\phi 6.6$ |

(mm)

XMC-50 to 80/Angle type



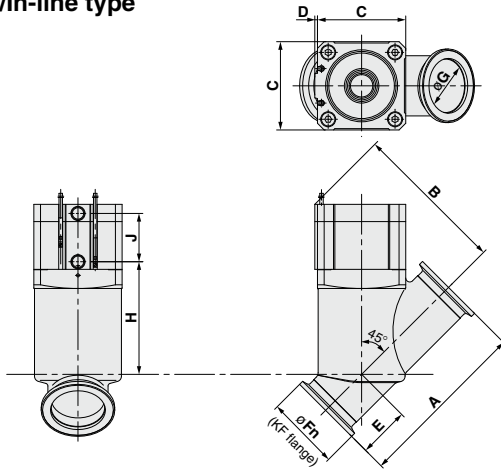
| Model | A | B | C | D | F _n | F _d | F _c | G | H | J | P.C.D L1 | L2 | K |
|---------------|----|-----|-----|------|----------------|----------------|----------------|----|------|----|------------|----------------|------|
| XMC-50 | 70 | 183 | 80 | 31 | 75 | — | — | 52 | 77 | 29 | — | — | 10.5 |
| XMC-63 | 88 | 209 | 100 | 39 | 87 | 95 | 114 | 70 | 76.5 | 36 | P.C.D 92.1 | 8 x $\phi 8.4$ | 9 |
| XMC-80 | 90 | 250 | 117 | 45.5 | 114 | 110 | — | 83 | 105 | 44 | — | — | 9 |

(mm)

Stainless steel
High Vacuum Angle/In-line Valve **XMC, XYC Series**

Dimensions

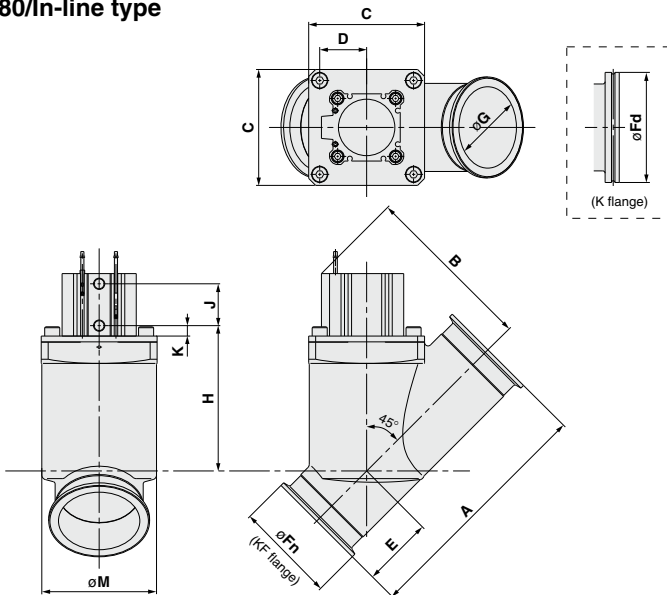
XYC-25, 40/In-line type



(mm)

| Model | A | B | C | D | E | F _n | G | H | J |
|---------------|-------|-----|----|---|------|----------------|----|----|----|
| XYC-25 | 100.2 | 85 | 48 | 1 | 23.5 | 40 | 26 | 64 | 28 |
| XYC-40 | 130 | 115 | 66 | 2 | 38 | 55 | 41 | 84 | 36 |

XYC-50 to 80/In-line type



(mm)

| Model | A | B | C | D | E | F _n | F _d | G | H | J | K | M |
|---------------|-----|-----|-----|------|----|----------------|----------------|----|-----|----|------|-----|
| XYC-50 | 178 | 121 | 80 | 31 | 53 | 75 | — | 52 | 104 | 29 | 10.5 | 78 |
| XYC-63 | 209 | 148 | 100 | 39 | 61 | 87 | 95 | 70 | 126 | 36 | 9 | 99 |
| XYC-80 | 268 | 177 | 117 | 45.5 | 80 | 114 | 110 | 83 | 150 | 44 | 9 | 116 |

- XLA
- XL□
- XL□Q
- XLM□
- XY□
- D-□
- XSA
- XVD
- XGT
- CYV

Stainless steel High Vacuum Angle/In-line Valve 2 Stage Control, Single Acting/Bellows, O-ring Seal

XMD, XYD Series

PAT.



How to Order

Angle type

XMD - 25 - [] - M9N A - []

In-line type

XYD - 25 - [] - M9N A - []

Note) The XMDV and XYDV series with solenoid valve are also available. Please contact SMC for details.

① ② ③ ④ ⑤ ⑥ ⑦



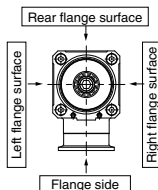
① Flange size

| Size | XMD | XYD |
|------|-----|-----|
| 25 | ● | ● |
| 40 | ● | ● |
| 50 | ● | ● |
| 63 | ● | ● |
| 80 | ● | ● |

③ Pilot port direction

XMD

| Symbol | Pilot port direction |
|--------|----------------------|
| NII | Flange side |
| K | Left flange surface |
| L | Rear flange surface |
| M | Right flange surface |



④ Temperature specifications

| Symbol | Temperature range |
|--------|-------------------|
| NII | 5 to 60°C |
| H0 | 5 to 150°C |

⑥ Number of auto switches/Detecting position

| Symbol | Quantity | Detecting position |
|--------|---------------------|--------------------|
| NII | Without auto switch | — |
| A | 2 pcs. | Valve open/closed |
| B | 1 pc. | Valve open |
| C | 1 pc. | Valve closed |

② Flange type

XMD

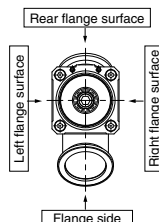
| Symbol | Type | Applicable flange size |
|--------|---------|------------------------|
| NII | KF (NW) | 25, 40, 50, 63, 80 |
| D | K (DN) | 63, 80 |
| C | CF | 40 (070), 63 (114) |

XYD

| Symbol | Type | Applicable flange size |
|--------|---------|------------------------|
| NII | KF (NW) | 25, 40, 50, 63, 80 |
| D | K (DN) | 63, 80 |

XYD

| Symbol | Pilot port direction |
|--------|----------------------|
| NII | Rear flange surface |
| K | Left flange surface |
| M | Right flange surface |



⑤ Auto switch type

| Symbol | Auto switch | Remarks |
|--------------|----------------|---|
| NII | — | Without auto switch (without built-in magnet) |
| M9N(M)(L)(Z) | D-M9N(M)(L)(Z) | Solid state auto switch |
| M9P(M)(L)(Z) | D-M9P(M)(L)(Z) | |
| M9B(M)(L)(Z) | D-M9B(M)(L)(Z) | |
| A90(L) | D-A90(L) | Reed auto switch |
| A93(M)(L)(Z) | D-A93(M)(L)(Z) | (Flange size 16 is not available.) |
| M9// | — | Without auto switch (with built-in magnet) |

Note 1) Auto switches are not applicable for high-temperature specifications (Temperature specification H0). Standard lead wire length is 0.5 m. Add "L" to the end of the part number when 3 m is desired, "M" when 1 m, and "Z" when 5 m. Ex.) -M9NL

Note 2) A type with a pre-wired connector is also selectable. Ex.) -M9NSAPC

Note 3) Refer to the [Auto Switch Catalog](#) for further information on auto switches.

⑦ Seal material and its changed part

• Seal material

| Symbol | Seal material | Compound No. |
|--------|-------------------|--------------|
| NII | FKM | 1349-80* |
| N1 | EPDM | 2101-80* |
| P1 | Barrel Perfluoro® | 70W |
| Q1 | Kalrez® | 4079 |
| R1 | Chemraz® | SS592 |
| R2 | | SS630 |
| R3 | | SSE38 |
| S1 | VMQ | 1232-70* |
| T1 | FKM for Plasma | 3310-75* |
| U1 | ULTIC ARMOR® | UA4640 |

The material used in the sliding part of the S-valve is: FKM * Produced by Mitsubishi Cable Industries, Ltd.

Barrel Perfluoro® is a registered trademark of Matsumura Oil Co., Ltd.
Kalrez® is a registered trademark of E. I. du Pont de Nemours and Company or its affiliates.
Chemraz® is a registered trademark of Greene, Tweed Technologies, Inc.
ULTIC ARMOR® is a registered trademark of Nippon Valqua Industries, Ltd.

• Part numbers indicating changed seal material and leakage

| Symbol | Changed part ^{Note 2)} | Leakage (Pa·m ³ /s or less) ^{Note 1)} | |
|--------|---------------------------------|---|-------------------------------|
| | | Internal | External |
| NII | — | 1.3 x 10 ⁻¹⁰ (FKM) | 1.3 x 10 ⁻¹¹ (FKM) |
| A | ②, ③, ④, ⑤ | 1.3 x 10 ⁻⁸ | 1.3 x 10 ⁻⁹ |
| B | ②, ④, ⑤ | 1.3 x 10 ⁻⁸ | 1.3 x 10 ⁻¹¹ (FKM) |
| C | ③ | 1.3 x 10 ⁻¹⁰ (FKM) | 1.3 x 10 ⁻⁹ |

Note 1) Values at ambient temperatures, excluding gas permeation.

Note 2) Refer to parts number of "Construction" on the page 490 for changed part. Number indicates parts number of "Construction" accordingly.

To order something else "Nil" (standard), list the symbols starting with "X," followed by each symbol for "seal material" and then "changed parts" at last.

Ex.) XMD-25-M9NA-XN1A

Stainless steel **XMD, XYD Series**

High Vacuum Angle/In-line Valve

Specifications

| Model | | XMD-25 XYD-25 | XMD-40 XYD-40 | XMD-50 XYD-50 | XMD-63 XYD-63 | XMD-80 XYD-80 |
|---|------------------------------|--|------------------|------------------|------------------------|--------------------|
| Flange (Valve) size | | 25 | 40, CF070 | 50 | 63, CF114 | 80 |
| Valve type | | Normally closed (Pressurize to open, spring seal) [both main & initial exhaust valves] | | | | |
| Fluid | | Inactive gas under vacuum | | | | |
| Operating temperature (°C) | | 5 to 60 (High temperature type: 5 to 150) | | | | |
| Operating pressure (Pa)(abs) | | 1 x 10 ⁻⁶ up to atmospheric pressure | | | | |
| Conductance (L/s) <small>Note 1)</small> | Main exhaust valve | 14 | 45 | 80 | 160 | 200 |
| | Initial exhaust valve | 0.5 to 3 | 2 to 8 | 2.5 to 11 | 4 to 18 | 4 to 18 |
| Leakage (Pa·m³/s) | Internal | 1.3 x 10 ⁻¹⁰ {1 x 10 ⁻¹⁰ } at ambient temperatures, excluding gas permeation (Standard material: FKM) | | | | |
| | External | 1.3 x 10 ⁻¹¹ {1 x 10 ⁻¹¹ } at ambient temperatures, excluding gas permeation (Standard material: FKM) | | | | |
| Flange type | | KF (NW) | KF (NW), CF | KF (NW) | KF (NW), K (DN), CF | KF (NW), K (DN) |
| Principle materials <small>Note 3)</small> | | Body: SCS13 (Conforms to Stainless steel 304) Bellows: Stainless steel 316L Bellows holder: Stainless steel 304. FKM (Standard seal material) | | | | |
| Pilot pressure (MPa)(G) | | 0.4 to 0.7 [both main and initial exhaust valves] | | | | |
| Pilot port size | | M5 | Rc 1/8 | | | |
| Weight (kg) <small>Note 2)</small> | XMD | 0.65 | 1.50 (1.86) | 2.20 | 4.10 (5.46) | 6.80 |
| | XYD | 0.71 | 1.52 | 2.60 | 4.80 | 8.30 |

Note 1) Main exhaust valve conductance is the valve for the molecular flow of an elbow having the same dimensions. The initial exhaust valve is the value for the viscous flow.

Note 2) Figures in () indicates the weight of CF (conflate) fittings.

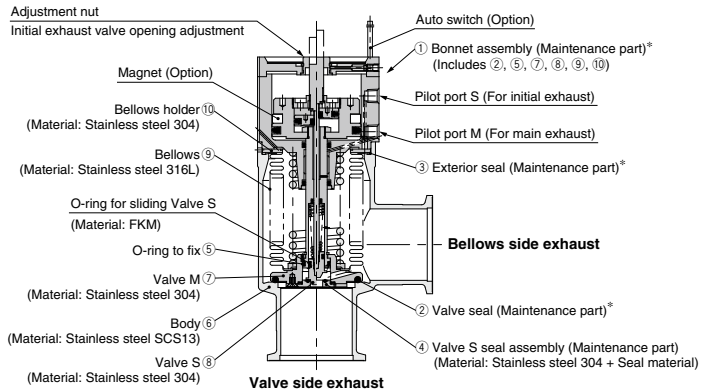
Note 3) A coating of vacuum grease [Y-VAC2] is applied to the seal-material sliding portion (initial exhaust valves sliding parts) of the vacuum part.

| |
|---------------|
| XLA |
| XL □ |
| XL □ □ |
| XMD □ |
| XYD □ |
| D - □ |
| XSA |
| XVD |
| XGT |
| CVY |

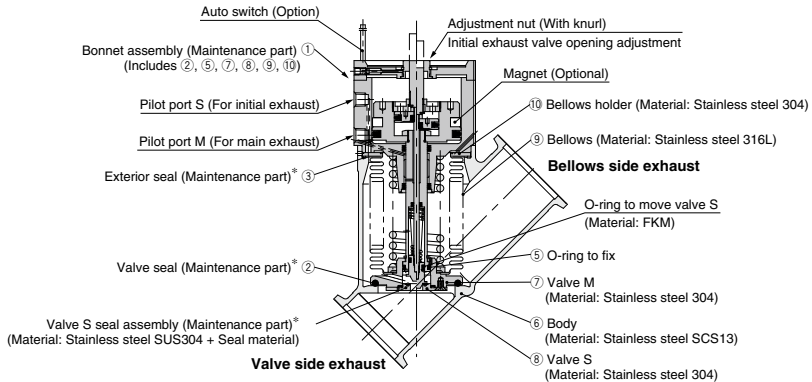
XMD, XYD Series

Construction

XMD/Angle type



XYD/In-line type



* Refer to page 497 for maintenance parts.

<Operating principle> XMD, XYD Series

1 Initial exhaust valve opening adjustment

The initial exhaust rate should be adjusted without applying the pilot pressure to the pilot port S before operation. The initial exhaust rate is set to zero by gently turning the adjustment nut clockwise until it stops. (Do not use any tools.) The initial exhaust rate is adjusted by turning the adjustment nut counterclockwise. The number of adjustment nut (its pitch is 1 mm) rotations and initial exhaust conductance should be confirmed referring to the figure on the right.

2 Opening of the initial exhaust valve (valve S)

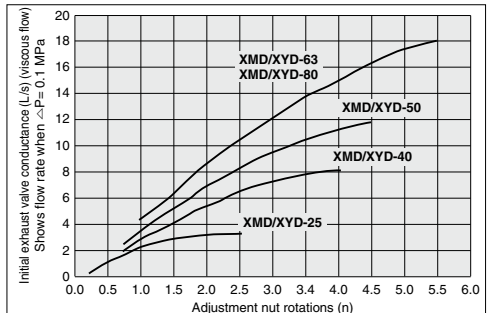
When the pilot pressure is applied to the pilot port S, the valve S is removed from the valve S seal assembly, and the valve opens the adjusted amount.

3 Opening of the main exhaust valve (valve M)

When the pilot pressure is applied to the pilot port M, the valve M is removed from the body seat portion, and the valve fully opens.

4 Closing of the initial exhaust valve, the main exhaust valve

By removing the pilot pressure from the pilot port S and pilot port M, both S and M valves return to their previous positions and they are sealed.

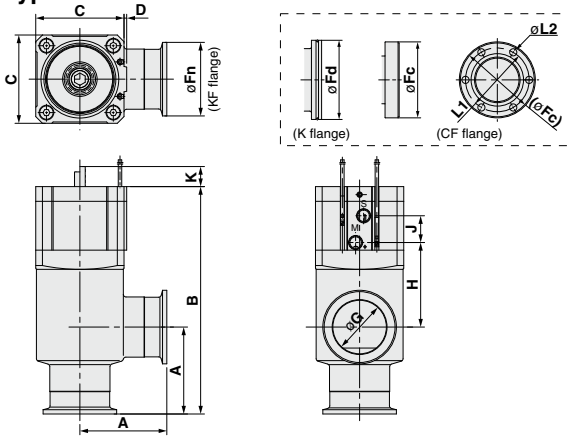


Stainless steel **XMD, XYD Series**

High Vacuum Angle/In-line Valve

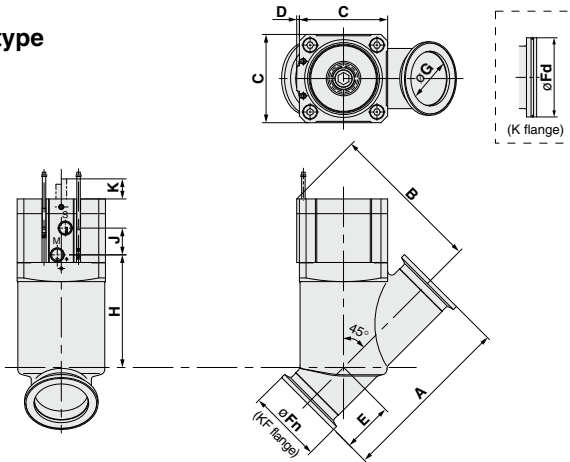
Dimensions

XMD/Angle type



| Model | A | B | C | D | F _n | F _d | F _c | G | H | J | K | P.C.D L1 | L2 |
|--------|----|-----|-----|---|----------------|----------------|----------------|----|----|----|------|------------|----------------|
| XMD-25 | 50 | 123 | 48 | 1 | 40 | — | — | 26 | 41 | 16 | 7.5 | — | — |
| XMD-40 | 65 | 170 | 66 | 2 | 55 | — | 70 | 41 | 63 | 20 | 15 | P.C.D 58.7 | 6 x $\phi 6.6$ |
| XMD-50 | 70 | 183 | 79 | 2 | 75 | — | — | 52 | 68 | 20 | 17.5 | — | — |
| XMD-63 | 88 | 217 | 100 | 3 | 87 | 95 | 114 | 70 | 72 | 20 | 19.5 | P.C.D 92.1 | 8 x $\phi 8.4$ |
| XMD-80 | 90 | 256 | 117 | 3 | 114 | 110 | — | 83 | 98 | 20 | 26.5 | — | — |

XYD/In-line type



| Model | A | B | C | D | E | F _n | F _d | G | H | J | K |
|--------|-------|------|-----|---|------|----------------|----------------|----|-----|----|------|
| XYD-25 | 100.2 | 86.7 | 48 | 1 | 23.5 | 40 | — | 26 | 66 | 16 | 7.5 |
| XYD-40 | 130 | 114 | 66 | 2 | 38 | 55 | — | 41 | 84 | 20 | 15 |
| XYD-50 | 178 | 128 | 79 | 2 | 53 | 75 | — | 52 | 95 | 20 | 17.5 |
| XYD-63 | 209 | 163 | 100 | 3 | 61 | 87 | 95 | 70 | 121 | 20 | 19.5 |
| XYD-80 | 268 | 193 | 117 | 3 | 80 | 114 | 110 | 83 | 144 | 20 | 26.5 |

XLA

XL□

XL□Q

XLM□

XY□

D-□

XSA

XVD

XGT

CVV

Stainless steel High Vacuum Angle/In-line Valve Manual Valve/Bellows Seal *XMH, XYH Series*

RoHS



How to Order

Angle type

XMH - 16 [] - []

In-line type

XYH - 25 [] - []

① ② ③



① Flange size

| Size | XMH | XYH |
|------|-----|-----|
| 16 | ● | — |
| 25 | ● | ● |
| 40 | ● | ● |
| 50 | ● | ● |

② Flange type

XMH

| Symbol | Type | Applicable flange size |
|--------|---------|------------------------|
| Nll | KF (NW) | 16, 25, 40, 50 |
| C | CF | 16 (034), 40 (070) |

XYH

| | | |
|-----|---------|------------|
| Nll | KF (NW) | 25, 40, 50 |
|-----|---------|------------|

③ Seal material and its changed part

• Seal material

| Symbol | Seal material | Compound No. |
|--------|-------------------|--------------|
| Nll | FKM | 1349-80* |
| N1 | EPDM | 2101-80* |
| P1 | Barrel Perfluoro® | 70W |
| Q1 | Kalrez® | 4079 |
| R1 | Chemraz® | SS592 |
| R2 | | SS630 |
| R3 | | SSE38 |
| S1 | VMQ | 1232-70* |
| T1 | FKM for Plasma | 3310-75* |
| U1 | ULTIC ARMOR® | UA4640 |

*: Produced by Mitsubishi Cable Industries, Ltd.

• Part numbers indicating changed seal material and leakage

| Symbol | Changed part ^{Note 2)} | Leakage (Pa·m ³ /s or less) ^{Note 1)} | |
|--------|---------------------------------|---|-------------------------------|
| | | Internal | External |
| Nll | — | 1.3 x 10 ⁻¹⁰ (FKM) | 1.3 x 10 ⁻¹¹ (FKM) |
| A | ②, ③ | 1.3 x 10 ⁻⁸ | 1.3 x 10 ⁻⁹ |
| B | ② | 1.3 x 10 ⁻⁸ | 1.3 x 10 ⁻¹¹ (FKM) |
| C | ③ | 1.3 x 10 ⁻¹⁰ (FKM) | 1.3 x 10 ⁻⁹ |

Note 1) Values at ambient temperatures, excluding gas permeation.

Note 2) Refer to parts number of "Construction" on the page 493 for changed part. Number indicates parts number of "Construction" accordingly.

To order something else "Nll" (standard), list the symbols starting with "X", followed by each symbol for "seal material" and then "changed parts" at last.

Ex.) XMH-16-XN1A

Barrel Perfluoro® is a registered trademark of Matsumura Oil Co., Ltd.
Kalrez® is a registered trademark of E. I. du Pont de Nemours and Company or its affiliates.
Chemraz® is a registered trademark of Greene, Tweed Technologies, Inc.
ULTIC ARMOR® is a registered trademark of Nippon Valqua Industries, Ltd.

Stainless steel High Vacuum Angle/In-line Valve **XMH, XYH Series**

Specifications

| Model | XMH-16 | XMH-25 XYH-25 | XMH-40 XYH-40 | XMH-50 XYH-50 |
|--------------------------------------|---|--|------------------|------------------|
| Flange (valve) size | 16, CF034 | 25 | 40, CF070 | 50 |
| Valve type | Manual type | | | |
| Fluid | Inactive gas under vacuum | | | |
| Operating temperature (°C) | 5 to 150 | | | |
| Operating pressure (Pa)(abs) | 1 x 10 ⁻⁶ up to atmospheric pressure | | | |
| Conductance (L/s) ^{Note 1)} | 5 | 14 | 45 | 80 |
| Leakage (Pa·m ³ /s) | Internal | 1.3 x 10 ⁻¹⁰ {1 x 10 ⁻¹⁰ } at ambient temperature, excluding gas permeation (Standard material: FKM) | | |
| | External | 1.3 x 10 ⁻¹¹ {1 x 10 ⁻¹¹ } at ambient temperature, excluding gas permeation (Standard material: FKM) | | |
| Flange type | KF (NW), CF | KF (NW) | KF (NW), CF | KF (NW) |
| Principle materials | Body: SCS13 (Conforms to Stainless steel SUS304), Bellows: Stainless steel SUS316L, Bellows holder: Stainless steel SUS304. FKM (Standard seal material) | | | |
| Pilot torque (N·m) | 0.1 ≤ | 0.15 ≤ | 0.35 ≤ | 0.5 ≤ |
| Handle revolutions | 5 | 7 | 10 | 13 |
| Weight (kg) ^{Note 2)} | XMH | 0.31 (0.35) | 0.57 | 1.35 (1.71) |
| | XYH | — | 0.62 | 1.37 |

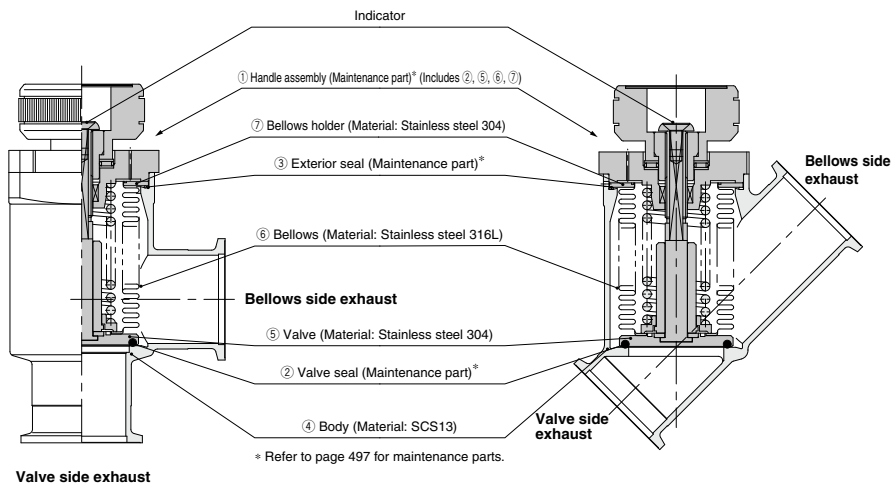
Note 1) Conductance is the value for the molecular flow of an elbow having the same dimensions.

Note 2) Figures in () indicates the weight of CF (conflate) fittings.

Construction

XMH/Angle type

XYH/In-line type



XLA

XL□

XL□Q

XM□

XY□

D-□

XSA

XVD

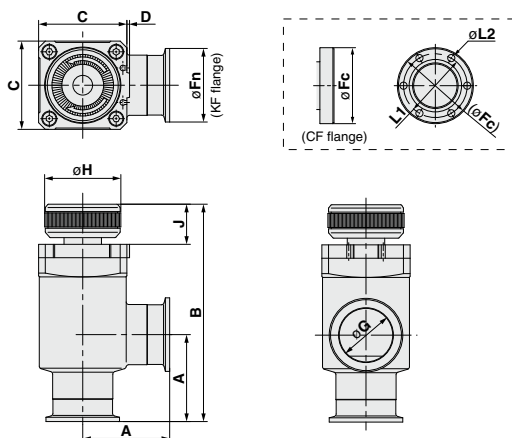
XGT

CVV

XMH, XYH Series

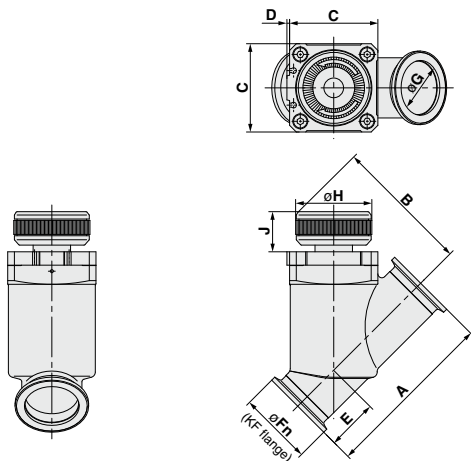
Dimensions

XMH/Angle type



| Model | A | B | C | D | F _n | F _c | G | H | J | P.C.D L1 | L2 |
|---------------|----|-------|----|---|----------------|----------------|----|------|------|------------|----------------|
| XMH-16 | 40 | 100.5 | 38 | 1 | 30 | 34 | 17 | 35 | 18 | P.C.D 27 | 6 x ϕ 4.4 |
| XMH-25 | 50 | 114 | 48 | 1 | 40 | — | 26 | 40.5 | 21.5 | — | — |
| XMH-40 | 65 | 162.5 | 66 | 2 | 55 | 70 | 41 | 57 | 30 | P.C.D 58.7 | 6 x ϕ 6.6 |
| XMH-50 | 70 | 179.5 | 79 | 2 | 75 | — | 52 | 70 | 35 | — | — |

XYH/In-line type



| Model | A | B | C | D | E | F _n | G | H | J |
|---------------|-------|-------|----|---|------|----------------|----|------|------|
| XYH-25 | 100.2 | 75.8 | 48 | 1 | 23.5 | 40 | 26 | 40.5 | 21.5 |
| XYH-40 | 130 | 102.5 | 66 | 2 | 38 | 55 | 41 | 57 | 30 |
| XYH-50 | 178 | 119 | 79 | 2 | 53 | 75 | 52 | 70 | 35 |

XMH, XYH Series Glossary

1 Seal Materials

Please note that the following are general features and subject to change depending on processing conditions. For details, please contact sealing component manufacturers.

FKM (Fluororubber)

With low outgassing, low permanent-setting and low gas permeation rates, this is the most popular seal material for high vacuums. Standard material used by SMC's high vacuum angle valve is Mitsubishi Cable Industries, Ltd. (Compound No. 1349-80). It is advisable to choose a model depending on its application, because an improved material compound (3310-75) which reduces the weight reduction ratio with O₂ plasma is also available.

Kalrez[®] * Kalrez[®] is a registered trademark of E. I. du Pont de Nemours and Company or its affiliates. This material, perfluoroelastomer (FFKM), has excellent heat and chemical resistance, but its permanent-setting is large, and special caution is required. Variations are available with improved plasma (O₂, CF₄) and particulate resistance; therefore it is advisable to select types based upon the application. Compound No. 4079: Standard Kalrez[®], excellent in gas and heat resistance.

Chemraz[®] * Chemraz[®] is a registered trademark of Greene, Tweed Technologies, Inc. This material, perfluoroelastomer (FFKM), has excellent chemical and plasma resistance and has slightly higher heat resistance than FKM. Several variations of Chemraz[®] are available and it is advisable to choose based upon the particular plasma being used and other conditions, etc.

Compound No. SS592: Excellent physical properties and especially effective for moving parts.

Compound No. SS630: Applicable to both fixed and moving parts and compatible with a wide variety of applications.

Compound No. SSE38: The cleanest material among Chemraz[®], developed for high-density plasma instruments.

Barrel Perfluoro[®] * Barrel Perfluoro[®] is a registered trademark of Matsumura Oil Co., Ltd. Compound No. 70W: Perfluoroelastomer (FFKM) which does not contain a metal filler. Resistant against NF₃, NH₃. Low particle generation under dry process conditions.

ULTIC ARMOR[®] * ULTIC ARMOR[®] is a registered trademark of Nippon Valqua Industries, Ltd. Fluoro-based rubber which does not contain a metal filler. Seal material which is plasma-resistant and has low gas emittance and heat resistance.

Silicone (Silicone rubber, VMQ)

This material is relatively inexpensive, has good plasma resistance, but its gas permeation rate is high. Optional seal material used by SMC's high vacuum angle valve is Mitsubishi Cable Industries, Ltd. (Compound No. 1232-70, White) It has a low weight-reduction ratio and low particle generation within O₂ plasma and NH₃ gas environments.

EPDM (Ethylenepropylene rubber)

Relatively lower priced and excellent in weatherability, chemical and heat resistance, but with no resistance at all to general mineral oil. Optional seal material used by SMC's high vacuum angle valve is Mitsubishi Cable Industries, Ltd. (Compound No. 2101-80) Resistant to NH₃ gas, etc.

2 Shaft Sealing Method

Bellows

Bellows offer cleaner sealing with reduced particle generation and less outgassing. The two major bellows types are: Formed-bellows and Welded-bellows. Formed-bellows produce less dusts and offer higher dust resistance. Welded-bellows allow longer strokes, but generate more dust particles and offer less dust resistance. Please note, the endurance depends on length and speed of the strokes.

3 Response time/Operation time

Valve opening

The time from the application of voltage to the actuation solenoid valve until 90% of the valve stroke has been completed is the valve opening response time. Valve opening operation time indicates the time from the start of the stroke until 90% of movement has been completed. Both of these become faster as the operating pressure is increased.

Valve closing

The time from the cut off of power to the actuation solenoid valve until 90% of the valve return stroke has been completed is the valve closing response time. Valve closing operation time indicates the time from valve opening until 90% of return movement has been completed. Both of these become slower as the operating pressure is increased.

XLA

XL□

XL□Q

XM□
XY□

D-□

XSA

XVD

XGT

CYV



XM, XY Series

Specific Product Precautions 1

Be sure to read this before handling the products.

Precautions on Design

⚠ Warning

• All models

1. The body material is SCS13 (conforms to Stainless steel 304), the bellows is Stainless steel 316L, and other metal seal material is Stainless steel 304. Standard seal material in the vacuum section is FKM that can be changed to the other materials (please refer "How to Order"). Use fluids those are compatible with using materials after confirming.
2. Select materials for the actuation pressure piping, and heat resistance for fittings that are suitable for the applicable operating temperatures.

• Model with auto switch

1. The switch section should be kept at a temperature no greater than 60°C.

Selection

⚠ Caution

• All models

1. When controlling valve responsiveness, take note of the size and length of piping, as well as the flow rate characteristics of the actuating solenoid valve.
2. Actuating pressure should be kept within the specified range. 0.4 to 0.5 MPa is recommended.
3. Use within the limits of the operating pressure range.
4. The actuating piston chamber and the bellows chamber are directly connected to the atmosphere. Please use in an environment in which dust emissions will not cause problems.

• High temperature types

1. In the case of gases which cause a large amount of deposits, heat the valve body to prevent deposits in the valve.

Mounting

⚠ Caution

• All models

1. In high humidity environments keep valves packaged until the time of installation.
2. In case with switches, secure the lead wires so that they have sufficient slack, without any unreasonable force applied to them.
3. Perform piping so that excessive force is not applied to the flange sections. In case there is vibration of heavy objects or attachments, etc., secure them so that torque is not applied directly to the flanges.
4. Vibration resistance allows for normal operation up to 30 m/s² (45 to 250 Hz), but continuous vibration may cause a decline in durability. Arrange piping to avoid excessive vibrations or shocks.

• High temperature types (Models/XMH, XYH; Temperature specifications/H0)

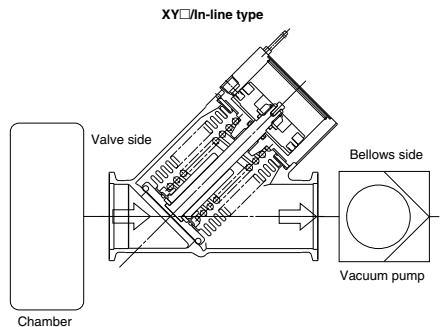
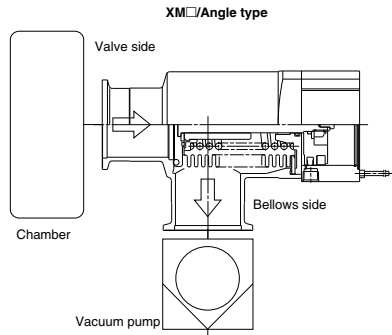
1. When a valve is to be heated, only the body section should be heated, excluding the bonnet (handle) section.

Piping

⚠ Caution

1. Before mounting, clean the surface of the flange seal and the O-ring with ethanol, etc.
2. There is an indentation of 0.1 to 0.2 mm in order to protect the flange seal surface, and it should be handled so that the seal surface is not damaged in any way.
3. Exhaust direction
During operation, the direction of the exhaust may be determined freely, but in cases where a flow is generated by the exhaust, a decline in durability may result. The exhaust direction shown in the figure below (bellows side exhaust) is recommended. Please take all available precautions, as the life of the equipment is affected by conditions of usage.

Recommended exhaust direction [Vacuum pump connected on bellows side]





XM, XY Series

Specific Product Precautions 2

Be sure to read this before handling the products.

Maintenance

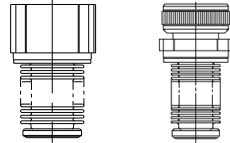
⚠ Caution

- When removing deposits from a valve, take care not to damage any of its parts.
- Replace the bonnet assembly and the O-ring when the end of its service life is approached.
- If damage is suspected prior to the end of the service life, perform early maintenance.
- SMC specified parts should be used for service. Refer to the Construction/Maintenance parts table.
- When removing seal material (such as valve, exterior seals), take care not to damage the sealing surfaces. When installing the valve and exterior seals, be sure that the O-ring is not twisted.

Maintenance Parts

⚠ Caution

- The bonnet or handle assembly should also be replaced when changing the seal material.
Due to the different materials used, changing only the seal may prove inadequate.



Bonnet assembly

Handle assembly

Bonnet & Handle assembly/Construction part number: 1

| Model | Temperature specifications | Indicator | Valve size | | | | | |
|------------|------------------------------|-----------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | 16 | 25 | 40 | 50 | 63 | 80 |
| XMA XYA | General use | — | XLA16-30-1 | XLA25-30-1 | XLA40-30-1 | XLA50-30-1 | XLA63-30-1 | XLA80-30-1 |
| | High temperature | ○ | XLA16A-30-1 | XLA25A-30-1 | XLA40A-30-1 | XLA50A-30-1 | XLA63A-30-1 | XLA80A-30-1 |
| XMC XYC | General use | — | XLC16-30-1 | XLC25-30-1 | XLC40-30-1 | XLC50-30-1 | XLC63-30-1 | XLC80-30-1 |
| | High temperature | ○ | XLC16-30-1H | XLC25-30-1H | XLC40-30-1H | XLC50-30-1H | XLC63-30-1H | XLC80-30-1H |
| XMD XYD | General use | ○ | — | XLD25-30-1 | XLD40-30-1 | XLD50-30-1 | XLD63-30-1 | XLD80-30-1 |
| | High temperature | Standard | — | XLD25-30-1H | XLD40-30-1H | XLD50-30-1H | XLD63-30-1H | XLD80-30-1H |
| XMH XYH | High temperature as standard | ○ | Standard | XLH16-30-1 | XLH25-30-1 | XLH40-30-1 | XLH50-30-1 | — |
| | | Standard | | | | | | |

Note 1) List the optional seal material symbol (refer to Table 1 below) after the model number, except for the standard seal material (FKM: compound no. 1349-80, produced by Mitsubishi Cable Industries, Ltd.)
 Note 2) An auto switch magnet is not attached. In cases where an auto switch magnet is attached, please add "M9/" at the end of the part number. (Not available for high temperature models)
 Note 3) Auto switch and solenoid valve are not attached. When a set including auto switch and solenoid valve is required, please add the symbols after the auto switch in "How to Order" at the end of the part number.

Exterior seal, (M) Valve seal, S Valve seal assemblies

| Model | Description Construction no. | Material | Valve size | | | | | |
|------------|------------------------------|----------|------------|------------|-----------------------------|-----------------------------|---------------|---------------|
| | | | 16 | 25 | 40 | 50 | 63 | 80 |
| XMA XYA | Exterior seal ③ | Standard | AS568-025V | AS568-030V | AS568-035V | AS568-039V | AS568-043V | AS568-045V |
| | | Special | AS568-025□ | AS568-030□ | AS568-035□ | AS568-039□ | AS568-043□ | AS568-045□ |
| XMC XYC | Valve seal ② | Standard | B2401-V15V | B2401-V24V | B2401-P42V | AS568-227V | AS568-233V | B2401-V85V |
| | | Special | B2401-V15□ | B2401-V24□ | B2401-P42□ | AS568-227□ | AS568-233□ | B2401-V85□ |
| XMD XYD | S Valve seal assembly ④ | Standard | — | AS568-009V | XLD40-2-9-1A AS568-016V | XLD50-2-9-1A AS568-016V | XLD63-2-9-1A | XLD80-2-9-1A |
| | | Special | — | AS568-009□ | XLD40-2-9-1A□ AS568-016□ | XLD50-2-9-1A□ AS568-016□ | XLD63-2-9-1A□ | XLD80-2-9-1A□ |

Note 1) List the optional seal material symbol (refer to Table 1 below) after the model number, except for the standard seal material (FKM: compound no. 1349-80, produced by Mitsubishi Cable Industries, Ltd.)
 Note 2) Refer to the Construction of each series for the construction numbers.

Table 1

Optional seal material

| Symbol | -XN1 | -XP1 | -XQ1 | -XR1 | -XR2 | -XR3 | -XS1 | XT1 | -XU1 |
|---------------|----------|----------------------|---------|-------|----------|-------|----------|----------------|--------------|
| Seal material | EPDM | Barrel® Perfluoro | Kalrez® | | Chemraz® | | VMQ | FKM for Plasma | ULTIC ARMOR® |
| Compound No. | 2101-80* | 70W | 4079 | SS592 | SS630 | SSE38 | 1232-70* | 3310-75* | UA4640 |

Note) Due to the different materials used, changing only the seal may prove inadequate.

*: Produced by Mitsubishi Cable Industries, Ltd.

Barrel Perfluoro® is a registered trademark of Matsumura Oil Co., Ltd.
 Kalrez® is a registered trademark of E. I. du Pont de Nemours and Company or its affiliates.

Chemraz® is a registered trademark of Greene, Tweed Technologies, Inc.
 ULTIC ARMOR® is a registered trademark of Nippon Valqua Industries, Ltd.