

For 300 mm wafer

# Parallel Seal Type Slit Valve

RoHS

## XGTP Series

Long service life

**3 million cycles**  
(at ordinary temperature)

Maintenance

**Replaceable bellows**

**Top accessible** (Made to order)

Air saving

**Air consumption reduced by 22%**

Low pressure operation possible during normal operation  
(when back pressure is absent.)

Operating environmental pressure

**Atmospheric pressure to  $1.0 \times 10^{-6}$  Pa (abs)**

Low particle generation

**Reduced by 1/5 or more**  
(compared with the current product)

Safety measures

**Mechanical end lock mechanism is adopted.**

Gate is held in opened or closed position in case of emergency stop.

Lightweight

**14 kg**

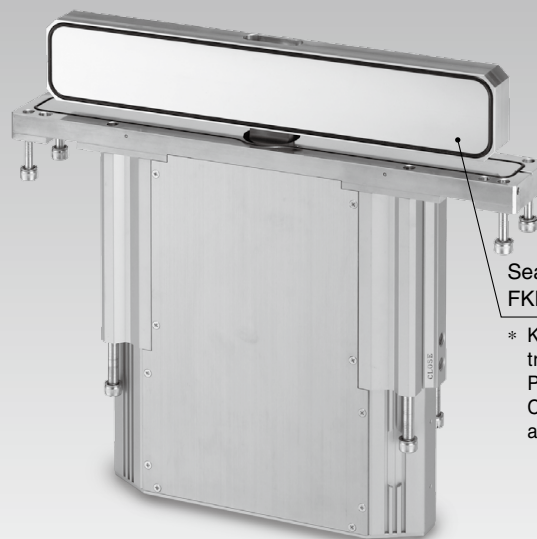
(For cassette type)

Opening window size

**50 mm x 336 mm**



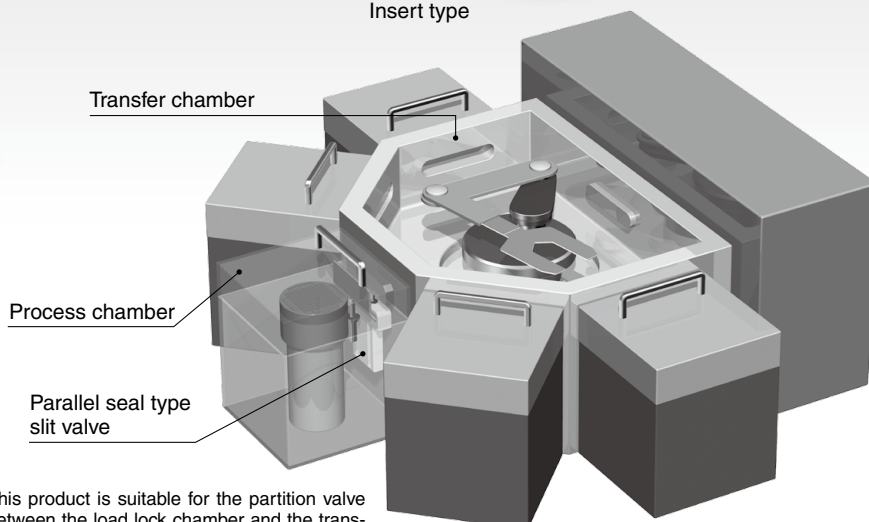
Body type



Insert type

Seal material:  
FKM/Kalrez® 4079

\* Kalrez® is a registered trademark of E. I. du Pont de Nemours and Company or its affiliates.



This product is suitable for the partition valve between the load lock chamber and the transfer chamber or between the transfer chamber and the process chamber in semiconductor equipment or other equipment.

Interchangeable with the current XGT product

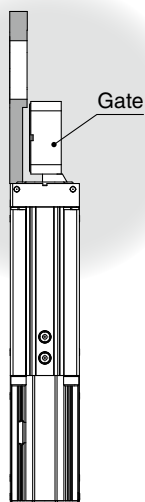
Low particle generation

Longer service life

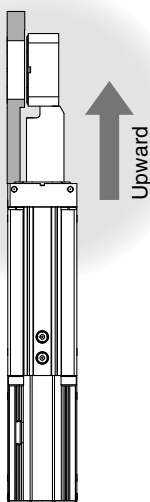
## Parallel sealing motion is used.

The gate moves vertically upward and downward, gate sealing/clamping is made with a parallel motion.

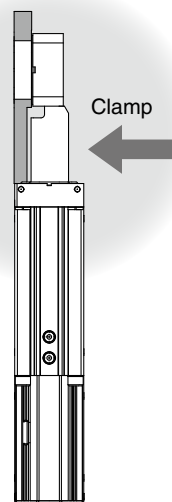
Gate open



Gate blocked



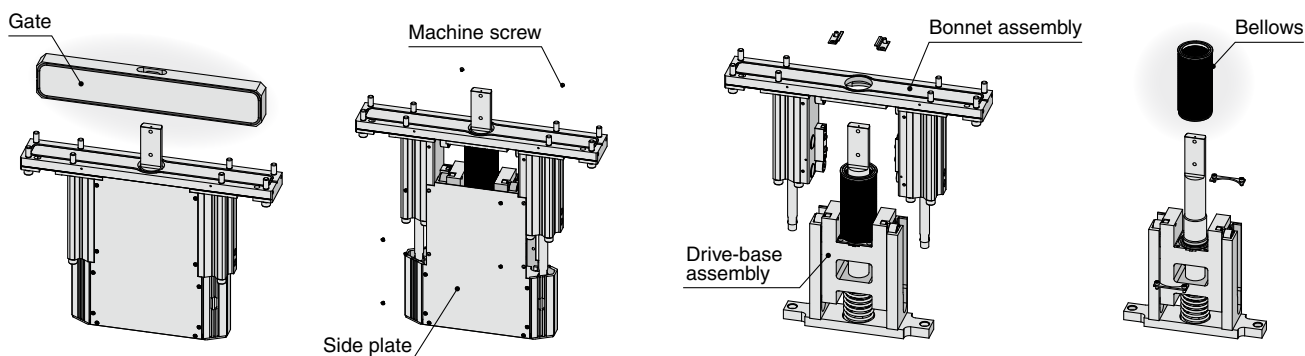
Gate clamp (Seal)



## Easier maintenance

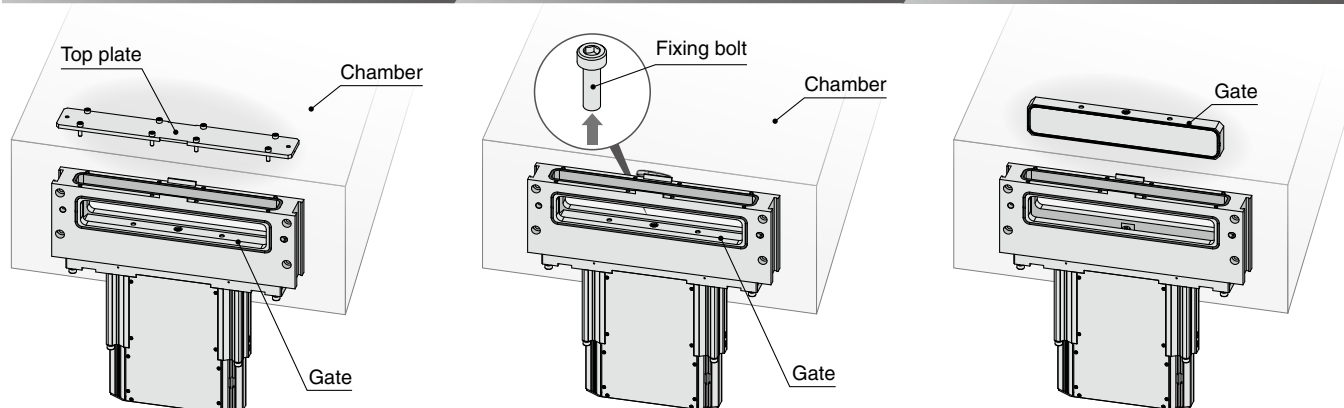
### Easy replacement of bellows

- 1 Remove the gate.
- 2 Remove the side plates.
- 3 Remove the bonnet assembly from the drive-base assembly.
- 4 Replace the bellows.

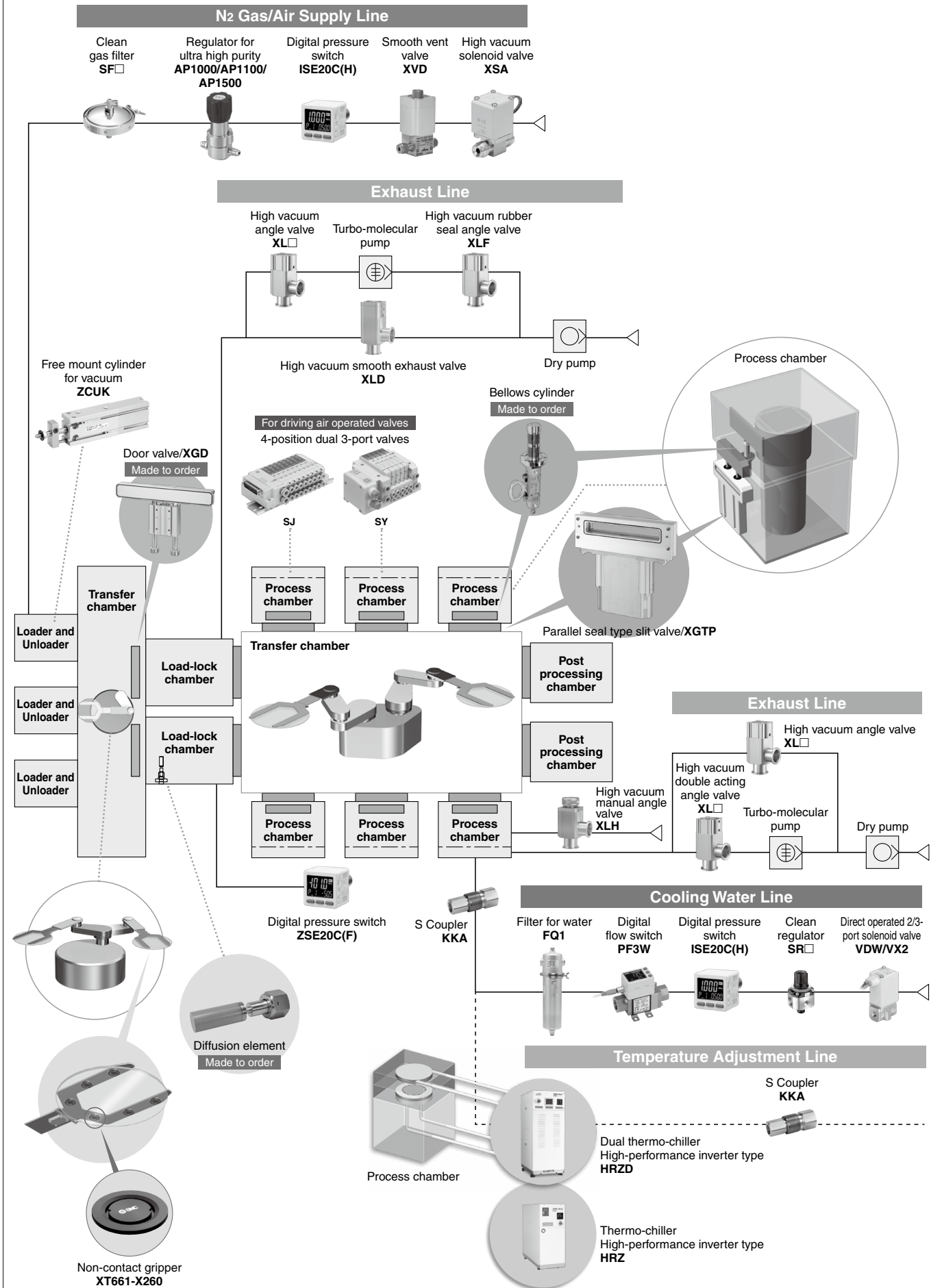


### Gate can be replaced from above. **Made to order**

- 1 Remove the top plate.
- 2 Remove the fixing bolt.
- 3 Remove the gate from the body for replacement.



**Related Products**



# Parallel Seal Type Slit Valve *XGTP Series*



Insert type (Without body)    Cassette type (Standard)



## How to Order

**XGTP 3 1 2 - 50336 - 1 C**

Parallel seal type slit valve

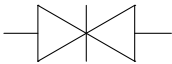
Applicable wafer size:  
For 300 mm wafer

Number of axes and seal type:  
One axis bellows

Valve type

| Symbol     | 1                          | 2                        | 3                         |
|------------|----------------------------|--------------------------|---------------------------|
|            | Insert type (Without body) | Cassette type (Standard) | Cassette type (Half MESC) |
| Valve type |                            |                          |                           |

Symbol



Opening window size:  
50 x 336 mm

Gate seal material

|    |                   |
|----|-------------------|
| 1  | FKM               |
| 2  | Kalrez® 4079*1    |
| F1 | FKM*2             |
| F2 | Kalrez® 4079*1, 3 |

\*1 Kalrez® 4079 is a registered trademark of E. I. du Pont de Nemours and Company or its affiliates.

\*2 Specifications equivalent to the standard FKM O-ring (From another manufacturer) The O-rings of vacuum parts which come in contact with gas have the same specifications.

\*3 Aside from the gate O-ring, the O-rings of vacuum parts which come in contact with gas have the same specifications as the standard FKM O-ring.

End lock

| Symbol | End lock            |
|--------|---------------------|
| Nil    | OPEN/CLOSE end lock |
| N      | None                |

Auto switch and the connector

| Symbol | Auto switch | Connector                      | Note  |
|--------|-------------|--------------------------------|---|
| Nil    | —           | —                              | —   |
| A      | D-A93       | —                              | Lead wire: 0.5 m<br><br>Operating temperature range: 20°C to 60°C |
| C      | D-A93       | Multiple connector (AMP)<br>*1 | <br>Operating temperature range: 20°C to 60°C                     |
| F      | D-A93       | D-sub connector<br>*2          | <br>Operating temperature range: 20°C to 60°C                     |

\*1 C016 30D006 made by AMP is recommended for the connector (female type).

\*2 CDE-9SF05 made by HIROSE ELECTRIC CO., LTD. is recommended for the connector (female type).



**Made to Order** For details, please contact SMC.

**1 With Built-in Heater (Up to 150°C)**

**2 Heat Resistant Specification (150°C)**

Heat resistant parts are used.

**3 New Materials of the Gas Contact Parts**

Oxalic acid anodized, Stainless steel, etc.

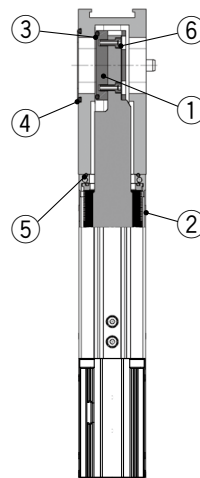
**4 Top-access gate**

Allows for removal of gate through top of cassette.

**5 Bonded seal gate**

Change the gate seal from O-ring to bonded style.

## Construction



### Component Parts

| No. | Description                | Material  | Part number          |
|-----|----------------------------|---|----------------------|
| 1   | Gate                       | A6063   | XGTP300-2-1S         |
| 2   | Bellows (Attached O-ring)  | Equivalent to AM350 [FKM]   | XGTP300-20AS         |
|     |                            | Equivalent to AM350 [FKM (Equivalent to the standard FKM O-ring)] | XGTP300-20A-F1S      |
| 3   | O-ring (Gate)              | FKM   | XGT300-9-9S          |
|     |                            | FKM (Equivalent to the standard FKM O-ring)                       | XGT300-9-9-F1S       |
| 4   | O-ring (Body opening side) | Kalrez® 4079  | XGT300-9-11S*1       |
|     |                            | FKM   | XGT300-9-10S         |
| 5   | O-ring (Bonnet assembly)   | FKM (Equivalent to the standard FKM O-ring)                       | XGT300-9-10-F1S      |
|     |                            | FKM   | XGT300-9-7S          |
| 6   | Holding bolt               | Stainless steel 316   | XGT300-2-5S (2 pcs.) |

\*1 Kalrez® 4079 is a registered trademark of E. I. du Pont de Nemours and Company or its affiliates.

For details on the specific product precautions, refer to the "Operation Manual" on the SMC website.

## Specifications

| Model  |                       | XGTP31□-50336                                    |
|--|-----------------------|--|
| Wafer size [mm]  |                       | 300  |
| Opening window size (Height x Width) [mm]  |                       | 50 x 336   |
| Number of axes   |                       | 1  |
| Operating environmental pressure*1 [Pa] (abs)  |                       | Atmospheric pressure to $1.0 \times 10^{-6}$     |
| Operating pressure differential [kPa]  |                       | 4 or less  |
| Operating pressure range [MPa] (G)   |                       | 0.45 to 0.6                                      |
| Internal leak*2 [Pa·m <sup>3</sup> /s] (He)  | O-ring: FKM           | $6.5 \times 10^{-10}$                            |
|  | O-ring: Kalrez®       | $6.5 \times 10^{-9}$                             |
| Internal leak at reversed pressure*2 [Pa·m <sup>3</sup> /s] (He)<br>[Reversed pressure: 0.1 MPa (abs) or less] | O-ring: FKM           | $6.5 \times 10^{-8}$                             |
|  | O-ring: Kalrez®       | $6.5 \times 10^{-7}$                             |
| External leak*2 [Pa·m <sup>3</sup> /s] (He)  |                       | $6.5 \times 10^{-11}$                            |
| Operating temperature*3 [°C]   | Gate part             | 20 to 120/up to 150 (During bake-out)            |
|  | Actuator part         | 20 to 90 (Except auto switch)                    |
| Fluid  |                       | Inert gas under vacuum                           |
| Operating time*4 [s]   |                       | 0.6 to 1   |
| Main material of vacuum part   | Seal material         | FKM, Kalrez® 4079*5                              |
|  | Bellows               | Equivalent to AM350                              |
|  | Gate                  | A6063  |
|  | Body                  | A5052  |
|  | Bonnet                | A6061  |
|  | Others                | Stainless steel 304                              |
| Exhaust direction  |                       | Free   |
| Mounting direction   |                       | Vertical   |
| Port size  |                       | Rc1/8  |
| End lock mechanism   |                       | With lock mechanism in opened or closed position |
| Cylinder volume [L]  |                       | 0.2  |
| Weight [kg]  | Insert type           | 10   |
|  | Body type (Standard)  | 14   |
|  | Body type (Half MESC) | 14   |

\*1 Absolute pressure

\*2 Value at normal temperature: Not including gas permeation

\*3 If the temperature at the gate exceeds 90°C, the operating temperature at actuator may go beyond the range. In this case, cool the actuator part.

\*4 This shows the time after the switching valve activates and causes the gate to open and close. (This may vary depending on the operating condition.)

\*5 Kalrez® 4079 is a registered trademark of E. I. du Pont de Nemours and Company or its affiliates.

\* If the gate is left closed for a long period of time, the O-ring may stick and fall out when opened. When opening the gate after it has been left closed for a long period of time, check to see if the O-ring has fallen out or if it is twisted.

## Auto Switch Specifications

| Auto switch model                           | D-A93   |            |
|---|---|------------|
| Applicable load                             | Relay, PLC  |            |
| Load voltage                                | 24 VDC  | 100 VAC    |
| Load current range and maximum load current | 5 to 40 mA  | 5 to 20 mA |
| Contact protection circuit                  | None  |            |
| Internal voltage drop                       | 2.4 V or less (to 20 mA)/3 V or less (40 mA)      |            |
| Indicator light                             | Red light emitting diode (LED) lights up when ON. |            |

\* When the temperature exceeds 60°C, please use the heat resistant specification (made to order).

## D-sub Connector Specifications

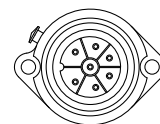
| Description     |                 | XGTP (on side of actuating body) | Application control circuit side |
|-----------------|-----------------|----------------------------------|----------------------------------|
| D-sub connector | Connection type | Plug (male)                      | Socket (female)                  |
|                 | Shell size      | E                                |                                  |
|                 | Poles           | 9                                |                                  |

XGTP has Male Plug connection on the side of the actuating body, so for connection to the application control circuit side, please prepare a female socket.

⚠ The product should be operated after thoroughly reading the operation manual and understanding its contents.

## Connector Wiring Diagram

### C: Multiple connector (6P)



| Terminal no. | Lead wire color | Auto switch |
|--------------|-----------------|-------------|
| 1            | Blue            | OPEN (-)    |
| 2            | Brown           | OPEN (+)    |
| 3            | —               | —           |
| 4            | —               | —           |
| 5            | Brown           | CLOSE (+)   |
| 6            | Blue            | CLOSE (-)   |

### F: D-sub connector (9P)

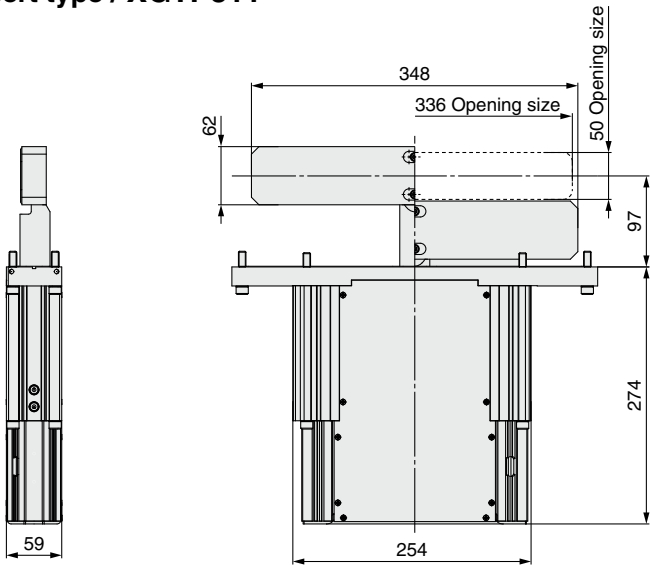


| Terminal no. | Lead wire color | Auto switch |
|--------------|-----------------|-------------|
| 1            | Brown           | OPEN (+)    |
| 2            | Brown           | CLOSE (+)   |
| 3            | —               | —           |
| 4            | —               | —           |
| 5            | —               | —           |
| 6            | —               | —           |
| 7            | Blue            | OPEN (-)    |
| 8            | Blue            | CLOSE (-)   |
| 9            | —               | —           |

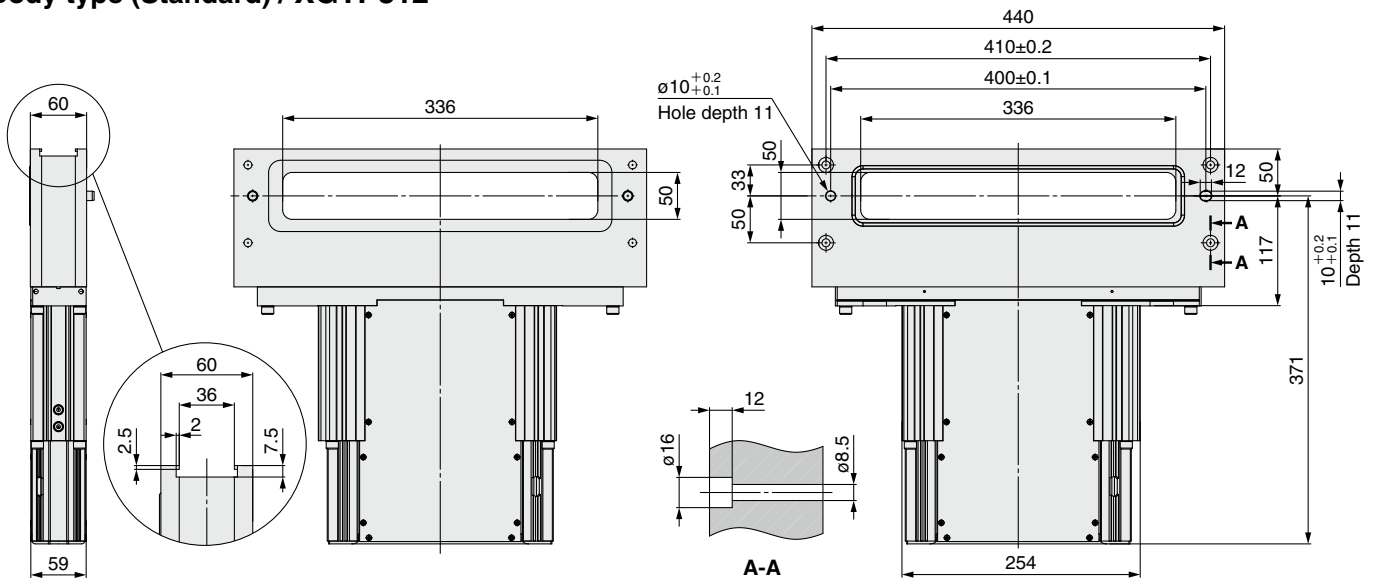
# XGTP Series

## Dimensions

### Insert type / XGTP311



### Body type (Standard) / XGTP312



Valve seat side  
(XGTP312, 313 common)

### Body type (Half MES-C) / XGTP313

