# Multistage Ejector
# Series ZL112

## How to Order

Without valve: ZL1 12 □□

With valve: ZL1 12 □□ K1 5 M Z □ E 25 □□

### Nozzle diameter

| | |
|---|---|
| 12 | 1.2 mm |

### Exhaust type

| | |
|---|---|
| Nil | Built-in silencer |
| P | Port exhaust |

### Exhaust port thread type (Port exhaust only)

| | |
|---|---|
| Nil | Rc 1/2 |
| F | G 1/2 |
| N | 1/2-14 NPT |
| T | 1/2-14 NPTF |

### Supply valve/Release valve combination

| | |
|---|---|
| K1 | With supply and release valves |
| K2 | With supply valve |

### Rated voltage

| | |
|---|---|
| DC specifications | |
| 5 | 24 V |
| 6 | 12 V |
| V | 6 V |
| S | 5 V |
| R | 3 V |
| AC specifications (50/60 Hz) | |
| 1 | 100 V |
| 2 | 200 V |
| 3 | 110 V [115 V] |
| 4 | 220 V [230 V] |

### Electrical entry

| | | |
|---|---|---|
| G | Grommet | Lead wire length 0.3 m |
| H | | Lead wire length 0.6 m |
| L | L plug connector | Lead wire length 0.3 m |
| LN | | Without lead wires |
| LO | | Without connector |
| M | M plug connector | Lead wire length 0.3 m |
| MN | | Without lead wires |
| MO | | Without connector |

### Manual override

| | |
|---|---|
| Nil | Non-locking push type |
| D | Locking slotted type |

### Light/Surge voltage suppressor

| | |
|---|---|
| Nil | Without light/surge voltage suppressor |
| S | With surge voltage suppressor |
| Z | With light/surge voltage suppressor |
| U | With light/surge voltage suppressor (Non-polar type) |

∗ Type U is 24 or 12 VDC only.
∗ Since surge voltage is prevented by a rectifier in the case of AC, there is no type “S”.

### Vacuum pressure sensor

| | |
|---|---|
| Nil | None |
| GN | Vacuum adapter Rc 1/8 |
| G | With vacuum pressure gauge |
| E | With digital vacuum pressure switch ZSE4 |
| EB | With digital vacuum pressure switch ZSE4B |
| EE | With digital vacuum pressure switch ZSE4E |

### Digital vacuum pressure switch specifications

| | | |
|---|---|---|
| For E (ZSE4) EB (ZSE4B) | | |
| 25 | NPN output | Lead wire length 0.5 (2.9) m |
| 26 | Analog output | Lead wire length 0.5 (2.9) m |
| 65 | PNP output | Lead wire length 0.5 (2.9) m |
| For EE (ZSE4E) | | |
| 27 | NPN output | Lead wire length 0.5 (2.9) m |
| 26 | Analog output | Lead wire length 0.5 (2.9) m |
| 67 | PNP output | Lead wire length 0.5 (2.9) m |

∗ Not required for Nil, vacuum adapter (“GN”) and vacuum pressure gauge (“G”).

### Lead wire length

| | |
|---|---|
| Nil | 0.5 m |
| L | 2.9 m |

### Unit specifications

| | |
|---|---|
| Nil | With unit switching function(1) |
| M | SI unit only(2) |

Note 1) W/ unit switching function is not permitted to sell for the domestic use in japan, because the new Weight and Measure Act has been implemented since October ’99.
Note 2) Fixed unit: kPa

**Standard**

**With valve**

**With vacuum pressure gauge**

**Adapter**

**Port exhaust**

## Ejector Specifications

| Model | **ZL112** |
|---|---|
| Nozzle diameter | ø1.2 mm |
| Maximum suction flow rate | 100 ℓ/min (ANR) |
| Air consumption | 63 ℓ/min (ANR) |
| Maximum vacuum pressure | –84 kPa |
| Maximum operating pressure | 0.7 MPa |
| Supply pressure range | 0.2 to 0.5 MPa |
| Standard supply pressure | 0.4 MPa |
| Operating temperature range | 5 to 50°C |

## Supply/Release Valve Specifications

| Part no. | **SYJ514-□□□** |
|---|---|
| Type of valve actuation | N.C. |
| Fluid | Air |
| Operating pressure range / Internal pilot type | 0.2 to 0.5 MPa |
| Ambient and fluid temperature | 5 to 50°C |
| Response time (For 0.5 MPa) | 25 ms or less |
| Maximum operating frequency (1) | 5 Hz |
| Manual override | Non-locking push type/Locking slotted type |
| Pilot exhaust type | Pilot valve individual exhaust, Main valve/Pilot valve common exhaust |
| Lubrication | Not required |
| Mounting position | Unrestricted |
| Impact/Vibration resistance | 150/30 m/s$^2$ |
| Enclosure (2) | Dust proof |

Note 1) Based on JIS B 8374-1981 dynamic performance test. (coil temperature 20°C, at rated voltage, without surge voltage suppressor)

Note 2) Impact resistance: No malfunction when tested with a drop tester in the axial direction and at a right angle to the main valve and armature, one time each in both energized and deenergized states. (initial value)

Vibration resistance: No malfunction when tested with one sweep of 45 to 2000 Hz in the axial direction and at a right angle to the main valve and armature, one time each in both energized and deenergized states. (initial value)

Note 3) Refer to “Best Pneumatics Vol. 4” for details on valves.

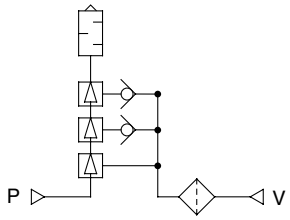
## Option Specifications

### Vacuum Pressure Gauge Specifications

| Part no. | **GZ30S** |
|---|---|
| Fluid | Air |
| Pressure range | –100 to 100 kPa |
| Scale range (Angular) | 230° |
| Accuracy | 3% F.S. (Full span) |
| Class | Class 3 |
| Operating temperature range | ±0 to 50°C |
| Material | Housing: Polycarbonate/ABS resin |

**JIS Symbol**

Standard



**With digital vacuum pressure switch (ZSE4)**

## Option Specifications

### Digital Vacuum Pressure Switch Specifications

| Part no. | | ZSE4-00-□□-□-X105 | ZSE4B-00-□□-□-X105 | ZSE4E-00-□□-□-X105 |
|---|---|---|---|---|
| Display | | LCD | LCD with backlight | LED |
| Pressure setting range | | –101 to 0 kPa | –101 to 10 kPa | |
| Maximum operating pressure | | 200 kPa | | |
| Operation indicator light (Lights up when ON) | | Green | | OUT1: Green<br>OUT2: Red |
| Response frequency | | 200 Hz (5 ms) | | |
| Hysteresis | Hysteresis mode | Variable (3 digits or more) | | Variable (can be set from 0) |
| | Window comparator mode | Fixed (3 digits) | | |
| Fluid | | Air, Non-corrosive gas | | |
| Temperature characteristics | | ±3% F.S. or less | | |
| Repeatability | | ±1% F.S. or less | | |
| Operating voltage | | 12 to 24 VDC (Ripple ±10% or less ) | | |
| Current consumption | | 25 mA or less | 45 mA or less | –26, –27: 50 mA or less<br>–67: 60 mA or less |
| Pressure indication | | 3 1/2 digits (Letter height 8 mm) | | |
| Self-diagnostic function | | Over current note), Over pressure, Data error, Presence of pressure at 0 clear | | |
| Operating temperature range | | 0 to 50°C (With no condensation) | | |
| Noise resistance | | 500 Vp-p, Pulse width: 1 mS, Start up: 1 nS | | |
| Withstand voltage | | Between external terminal batch and case: 1000 VAC 50/60 Hz for 1 min. | | |
| Insulation resistance | | Between external terminal batch and case: 2 MΩ (at 500 VDC) | | |
| Vibration resistance | | 2 hrs. each in X, Y, Z directions at smaller of 10 to 500 Hz with amplitude 1.5 mm, or acceleration 10 G | | |
| Impact resistance | | 100 G in X, Y, Z directions, 3 times each | | |

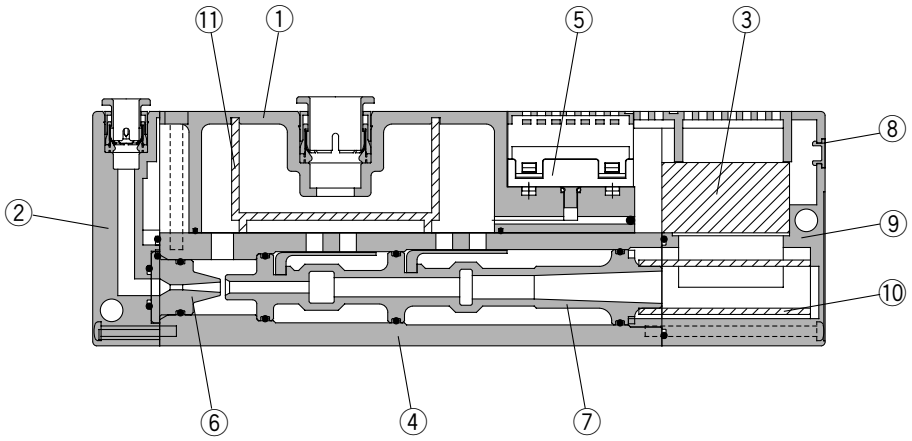
Note) Not available on analog output type.

### Output Specifications

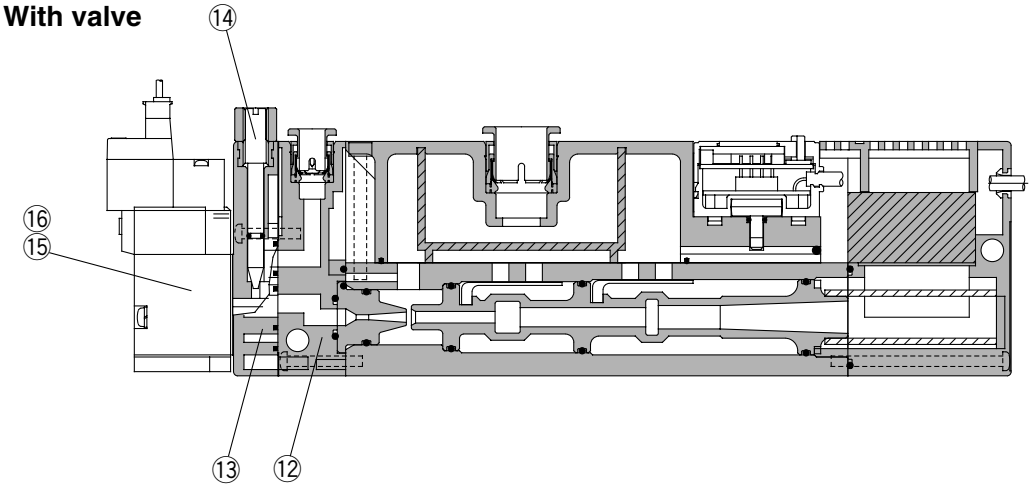
| | | |
|---|---|---|
| **ZSE4 ZSE4B** | –25(L) | 1 output NPN open collector 30 V, 80 mA or less |
| | –26(L) | Analog output (1 to 5 V) |
| | –67(L) | 1 output PNP open collector 80 mA or less |
| **ZSE4E** | –26(L) | Analog output (1 to 5 V) |
| | –27(L) | 2 outputs NPN open collector 30 V, 80 mA or less |
| | –67(L) | 2 outputs PNP open collector 80 mA or less |

## Construction

**Without valve**




**With valve**




### Comonent Parts

| No. | Description | Part no. | Note |
|---|---|---|---|
| ① | Suction cover | | |
| ② | Front cover | | Without valve |
| ③ | End cover | | |
| ④ | Body | | |
| ⑤ | Vacuum sensor unit | | |
| ⑥ | Nozzle | | |
| ⑦ | Diffuser | | |
| ⑧ | Detent plug | P397110 | Other than vacuum switch |
| | Lead wire cover | P397176 | Vacuum switch specifications |
| ⑫ | Front cover B | | With valve |
| ⑬ | Valve plate | | With valve |
| ⑭ | Needle | | With valve |
| ⑮ | Supply valve (N.C.) | SYJ514 | With valve |
| ⑯ | Release valve (N.C.) | SYJ514 | With valve |

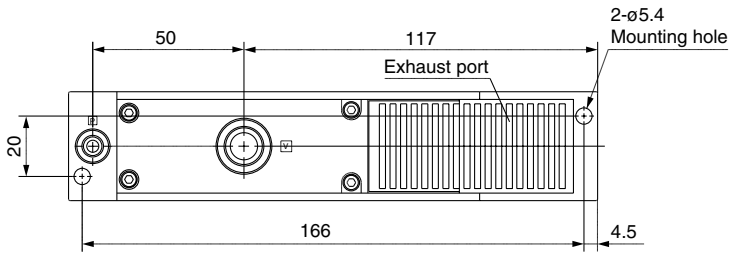
### Replacement Parts

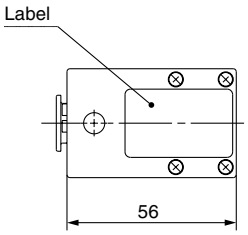
| No. | Description | Material | Part no. |
|---|---|---|---|
| ⑨ | Sound absorbing material B | PVF | ZL112-SP01 (Set no. for 9, 10 & 11) |
| ⑩ | Sound absorbing material A | PVF | |
| ⑪ | Suction filter | PE | |

∗ When ordering a vacuum pressure gauge or a digital vacuum pressure switch separately, use the part numbers shown in the option specifications on page 13-7-5.

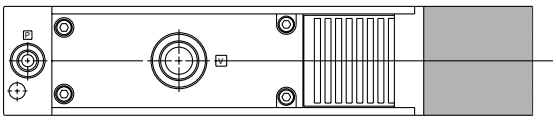
## Dimensions: Series ZL112 (Without valve)

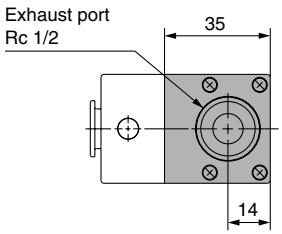
**Standard**
**ZL112**



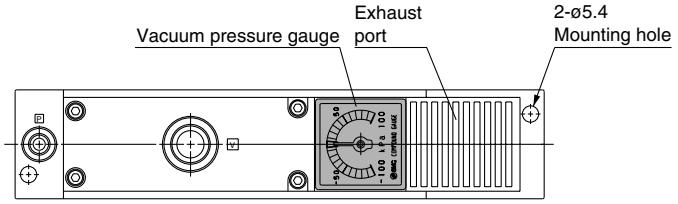



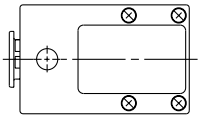

**Port exhaust**
**ZL112P**



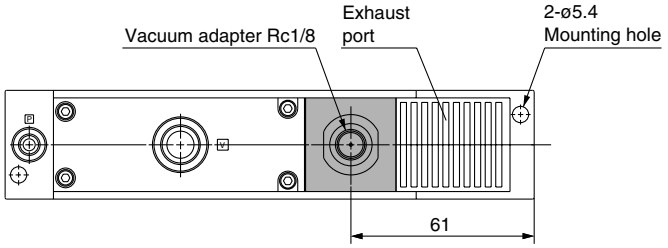


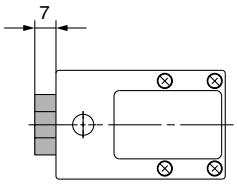

**With vacuum pressure gauge**
**ZL112-G**



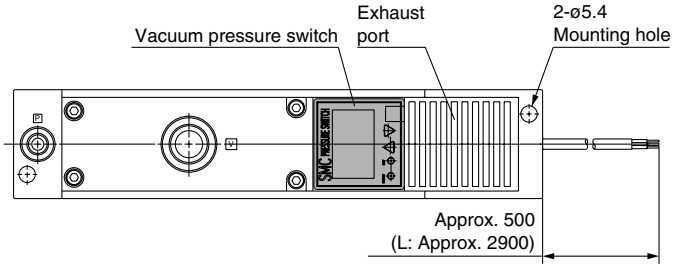



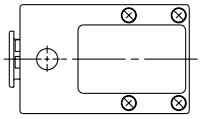
**With vacuum adapter**
**ZL112-GN**

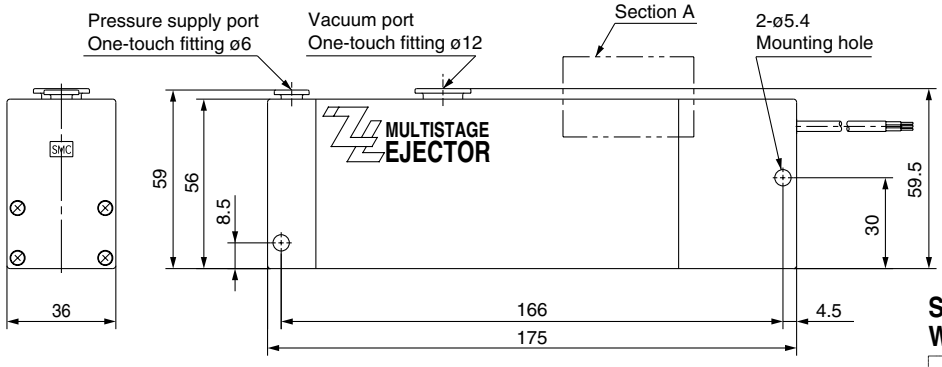


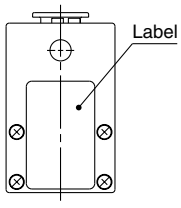



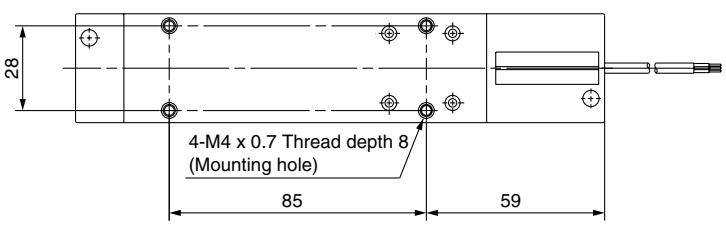

**With digital vacuum pressure switch**
**ZL112-E**



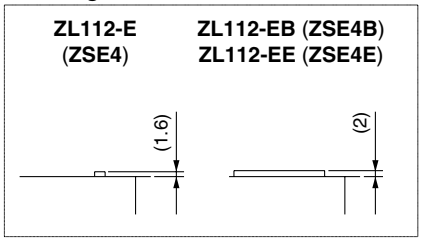





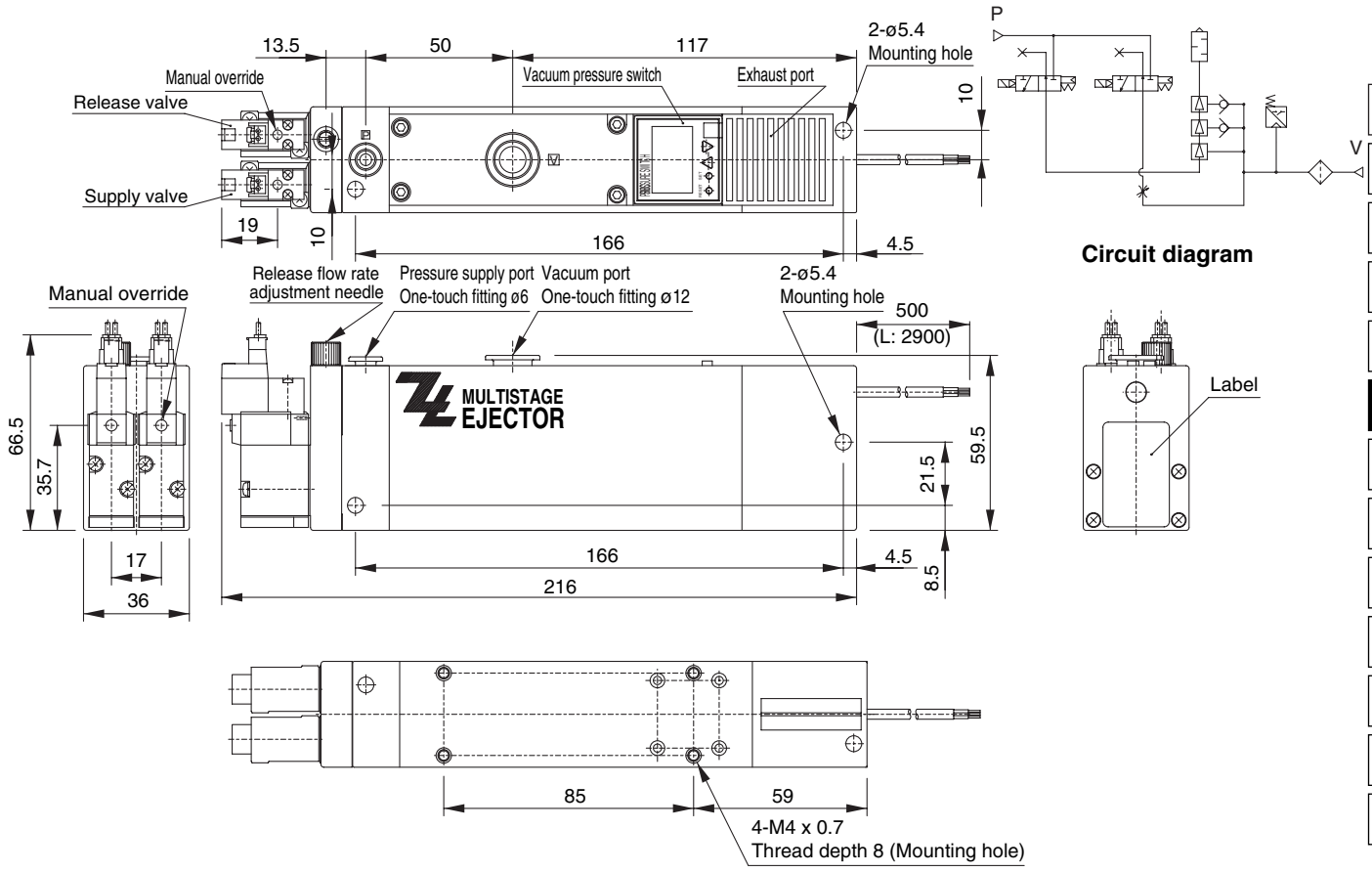




**Section A/**
**With Digital Vacuum Pressure Switch**

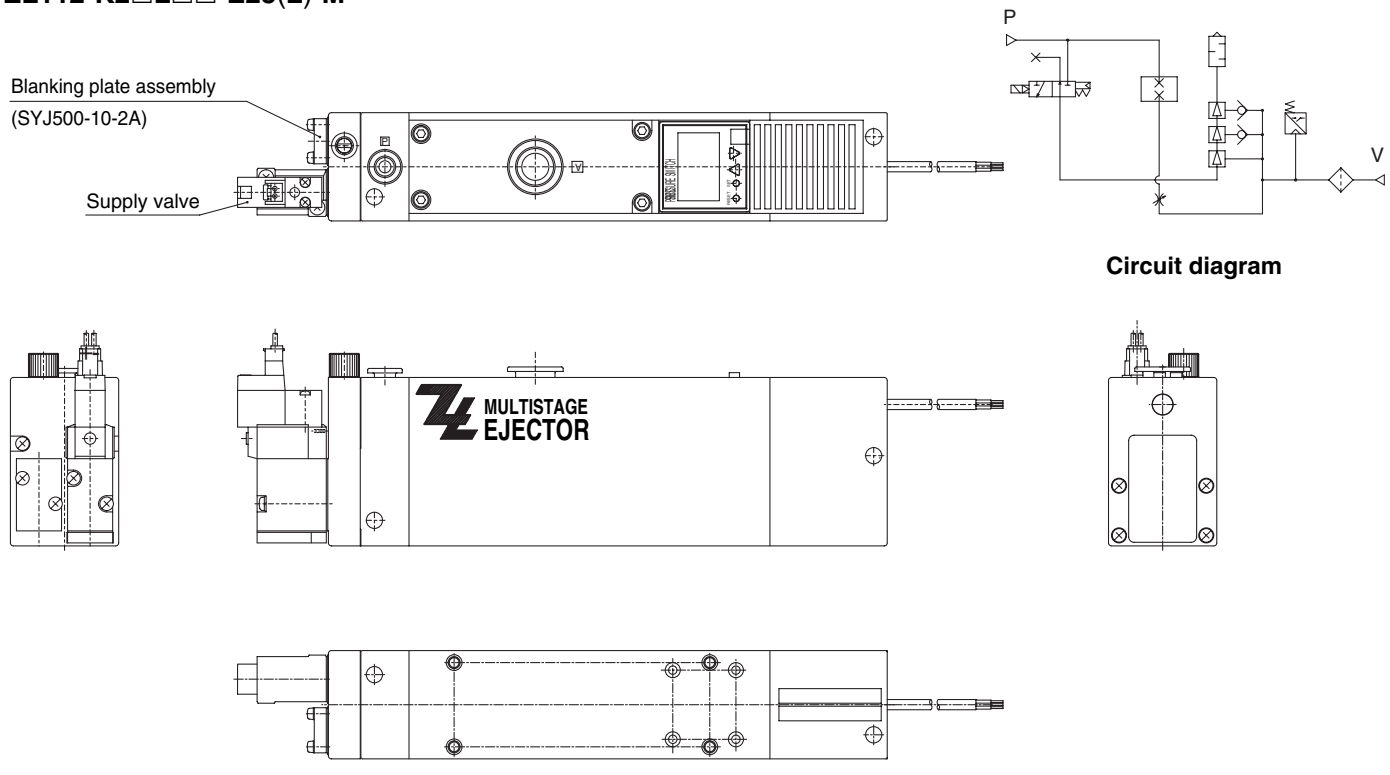


## Dimensions: Series ZL112 (With Valve)

### With supply valve and release valve
### ZL112-K1□L□□-E25(L)-M




### With supply valve
### ZL112-K2□L□□-E25(L)-M



# Multistage Ejector
# Series ZL212

**Standard**

**With vacuum pressure gauge**

**With digital vacuum pressure switch**

**With adaptor**

**Port exhaust**

## How to Order

**ZL2 12** □ □ □ □ □

**Nozzle diameter**

| | |
|---|---|
| **12** | 1.2 mm |

**Exhaust specifications**

| | |
|---|---|
| **Nil** | Built-in silencer |
| **P** | Port exhaust |

**Vacuum pressure sensor**

| | |
|---|---|
| **Nil** | None |
| **GN** | Adaptor Rc 1/8 |
| **G** | With vacuum pressure gauge |
| **E** | With digital vacuum pressure switch ZSE4 |
| **EB** | With digital vacuum pressure switch ZSE4B |
| **EE** | With digital vacuum pressure switch ZSE4E |

**Lead wire length**

| | |
|---|---|
| **Nil** | 0.5 m |
| **L** | 2.9 m |

**Unit specifications**

| | |
|---|---|
| **Nil** | With unit switching function (1) |
| **M** | SI unit only (2) |

Note 1) W/ unit switching function is not permitted to sell for the domestic use in japan, because the new Weight and Measure Act has been implemented since October '99.
Note 2) Fixed unit: kPa

**Digital vacuum pressure switch specifications**

| | | |
|---|---|---|
| For E (ZSE4) EB (ZSE4B) | | |
| **25** | NPN output | Lead wire length 0.6 (3.0) m |
| **26** | Analog output | Lead wire length 0.6 (3.0) m |
| **65** | PNP output | Lead wire length 0.6 (3.0) m |
| For EE (ZSE4E) | | |
| **27** | NPN output | Lead wire length 0.6 (3.0) m |
| **26** | Analog output | Lead wire length 0.6 (3.0) m |
| **67** | PNP output | Lead wire length 0.6 (3.0) m |

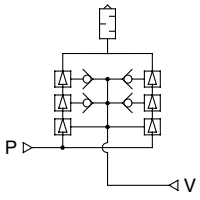
∗ Not required for Nil, vacuum adapter ("GN") and vacuum pressure gauge ("G").

## Ejector Specifications

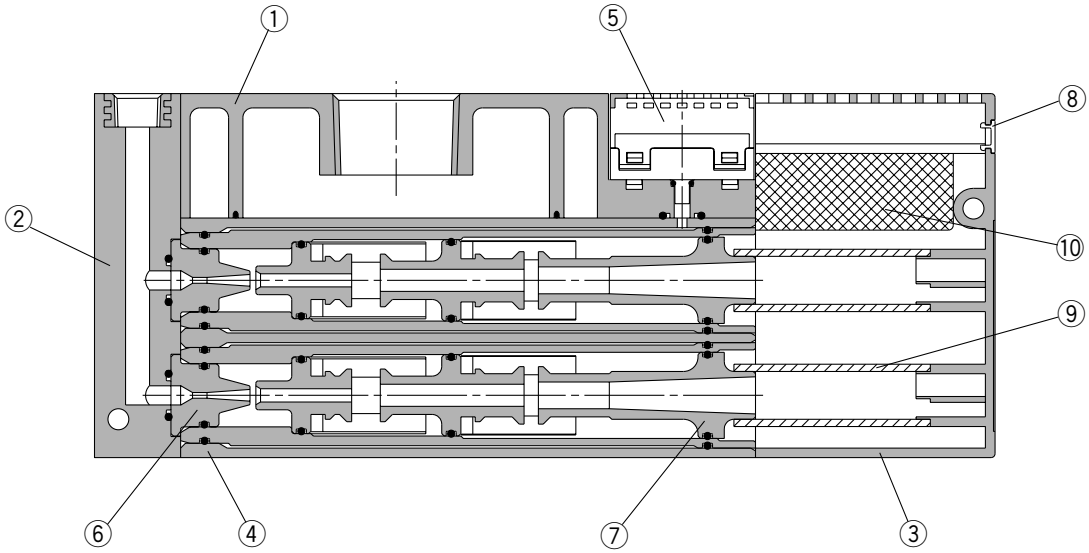
| Model | **ZL212** |
|---|---|
| Nozzle diameter | ø1.2 mm x 2 |
| Maximum suction flow rate | 200 ℓ/min (ANR) |
| Air consumption | 126 ℓ/min (ANR) |
| Maximum vacuum pressure | –84 kPa |
| Maximum operating pressure | 0.7 MPa |
| Supply pressure range | 0.2 to 0.5 MPa |
| Standard supply pressure | 0.4 MPa |
| Operating temperature range | 5 to 50°C |

∗ Refer to pages 13-7-4 to 13-7-5 for vacuum pressure gauge and digital vacuum pressure switch specifications.

**JIS Symbol**
Standard



## Construction




### Component Parts

| No. | Description | Part no. | Note |
|---|---|---|---|
| ① | Suction cover | | |
| ② | Front cover A | | |
| ③ | End plate | | |
| ④ | Body | | |
| ⑤ | Vacuum sensor unit | | |
| ⑥ | Nozzle | | |
| ⑦ | Diffuser | | |
| ⑧ | Detent plug | P397110 | Other than vacuum switch |
| | Lead wire cover | P397176 | Vacuum switch specifications |

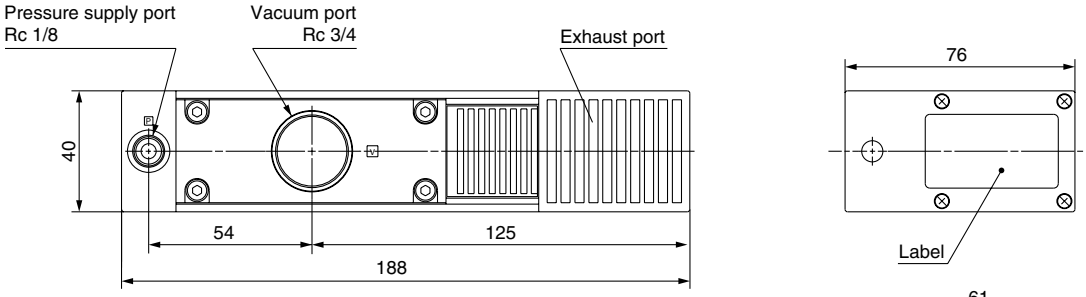
### Replacement Parts

| No. | Description | Material | Part no. |
|---|---|---|---|
| ⑨ | Sound absorbing material A | PVF | P397114 |
| ⑩ | Sound absorbing material | PVF | P397230 |

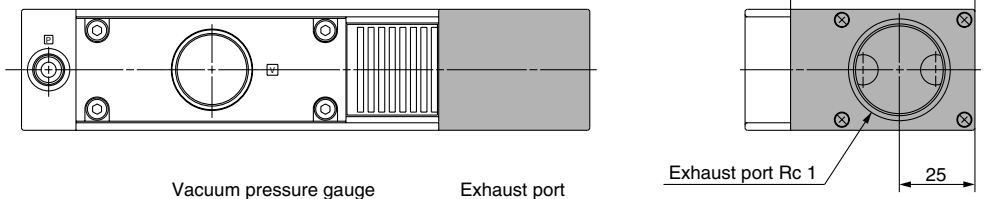
∗ When ordering a vacuum pressure gauge or a digital vacuum pressure switch separately, use the part numbers shown in the option specifications on page 13-7-5.

## Dimensions: Series ZL212

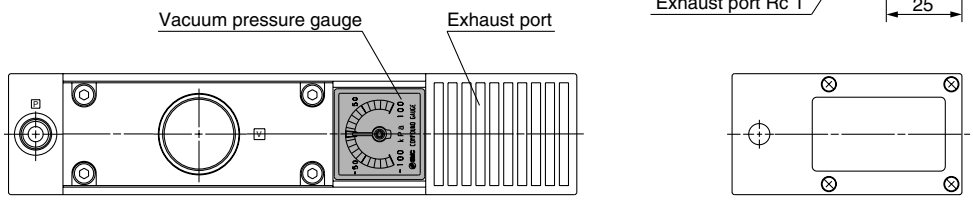
**Standard**
**ZL212**



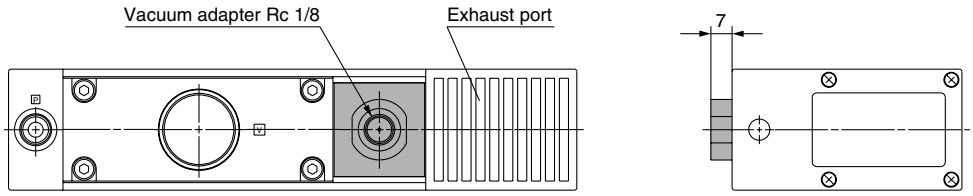

**Port exhaust**
**ZL212P**



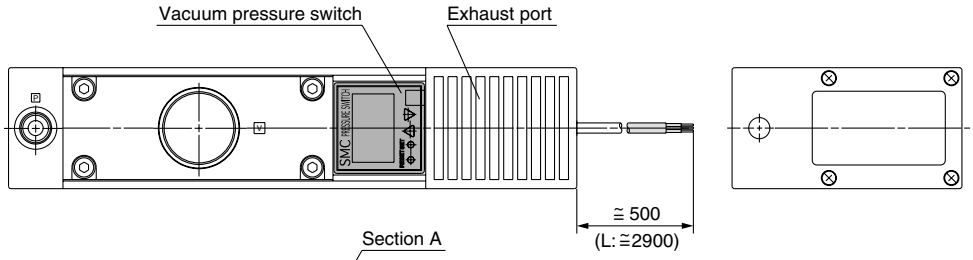

**With vacuum pressure gauge**
**ZL212-G**

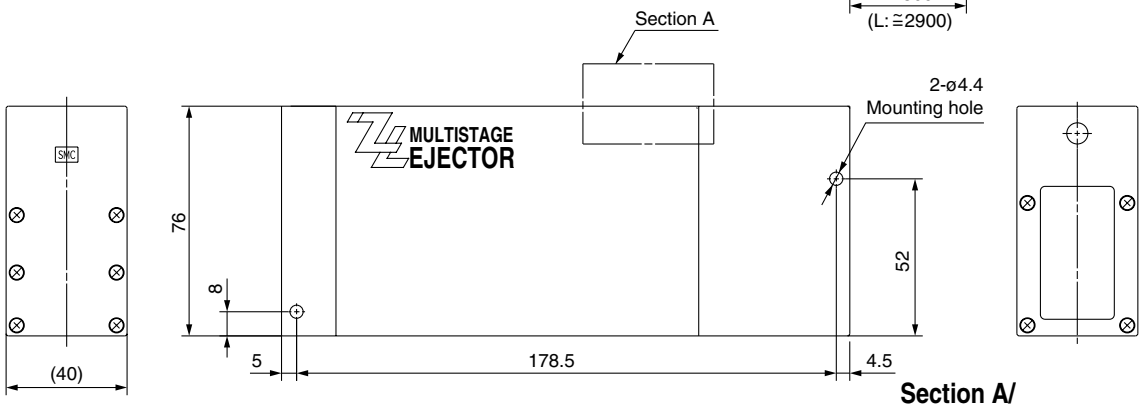


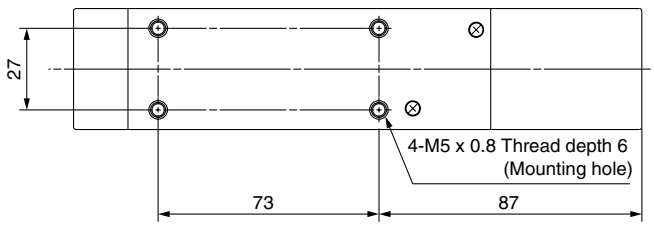

**With vacuum adapter**
**ZL212-GN**




**With digital vacuum pressure switch**
**ZL212-E**




**Section A/**
**With Digital Vacuum Pressure Switch**