Multistage Ejector

ZL112/212 Series

The production of the ZL112 series was discontinued. The ZL212 series has been remodeled. Click here for details.

Energy-saving, large flow rate, 3 stage diffuser construction

Suction flow rate increased 250% and air consumption reduced 20% with 3 stage diffuser construction (Versus ø1.3, one stage model)

ZL212 Series

Diffusers stacked and integrated
Compact size and large flow rate
(Twice the flow rate of the ZL112)

<table>
<thead>
<tr>
<th>Suction flow rate (L/min (ANR))</th>
<th>Air consumption (L/min (ANR))</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZL112</td>
<td>100</td>
</tr>
<tr>
<td>ZL212</td>
<td>200</td>
</tr>
</tbody>
</table>

With One-touch fittings
Makes piping work easy (ZL112 only)

Vacuum pressure sensor

- Rated pressure range: 0.0 to –101.0 kPa
- 3-step setting

Power-saving function
Power consumption is reduced by turning off the monitor. (Reduce power consumption by up to 20%.)

* For ZSE30A series, refer to the Best Pneumatics No. 8 for details.

Series Variations

<table>
<thead>
<tr>
<th>Series</th>
<th>Maximum suction flow rate (L/min (ANR))</th>
<th>Air consumption (L/min (ANR))</th>
<th>Exhaust port</th>
<th>With valve</th>
<th>Vacuum pressure sensor option</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZL112</td>
<td>100</td>
<td>63</td>
<td>Built-in silencer</td>
<td>Port exhaust</td>
<td>ZSE30A</td>
</tr>
<tr>
<td>ZL212</td>
<td>200</td>
<td>126</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

With adapter for vacuum

With vacuum pressure gauge

Digital vacuum pressure switch

ZSE30A

Release valve

Supply valve

Release flow rate adjusting needle

Exhaust port

Built-in silencer

Port exhaust

With adapter

Vacuum adapter

VQD-V

ZK2 ZQ ZR ZB ZA ZX ZM ZL ZH ZH ZH-Z267 ZHP ZU
### How to Order

**Multistage Ejector**

**ZL112 Series**

The production of the ZL112 series was discontinued. Click [here](#) for details.

#### Lead wire specifications

(Applicable only when the vacuum pressure sensor specification is "D" for digital pressure switch for vacuum)

<table>
<thead>
<tr>
<th>Lead wire specifications</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>2 m</td>
</tr>
</tbody>
</table>

* This is not available for models without lead wires.

#### Unit specifications

(Applicable only when the vacuum pressure sensor specification is "D" for digital pressure switch for vacuum)

<table>
<thead>
<tr>
<th>Unit specifications</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>With unit switching function</td>
</tr>
<tr>
<td>M</td>
<td>SI unit only</td>
</tr>
</tbody>
</table>

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

#### Output specifications

(Applicable only when the vacuum pressure sensor specification is "D" for digital pressure switch for vacuum)

<table>
<thead>
<tr>
<th>Output specifications</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>NPN open collector 1 output</td>
</tr>
<tr>
<td>P</td>
<td>PNP open collector 1 output</td>
</tr>
</tbody>
</table>

#### Vacuum pressure sensor

<table>
<thead>
<tr>
<th>Vacuum pressure sensor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>None</td>
</tr>
<tr>
<td>GN</td>
<td>Vacuum port adaptor Rc 1/8</td>
</tr>
<tr>
<td>G</td>
<td>Vacuum pressure gauge</td>
</tr>
<tr>
<td>D</td>
<td>Digital pressure switch for vacuum</td>
</tr>
</tbody>
</table>

---

**Without valve**

<table>
<thead>
<tr>
<th>Nozzle diameter</th>
<th>Exhaust type</th>
<th>Exhaust port (EXH) thread type</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Built-in silencer</td>
<td>Rc1/2</td>
</tr>
<tr>
<td>1.2</td>
<td>Port exhaust</td>
<td>G1/2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N 1/2-14 NPT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T 1/2-14 NPTF</td>
</tr>
</tbody>
</table>

**With valve**

<table>
<thead>
<tr>
<th>Nozzle diameter</th>
<th>Exhaust type</th>
<th>Exhaust port (EXH) thread type</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Built-in silencer</td>
<td>Rc1/2</td>
</tr>
<tr>
<td>1.2</td>
<td>Port exhaust</td>
<td>G1/2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N 1/2-14 NPT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T 1/2-14 NPTF</td>
</tr>
</tbody>
</table>

#### Supply valve/Release valve combination

<table>
<thead>
<tr>
<th>Supply valve</th>
<th>Release valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>K1</td>
<td>K2</td>
</tr>
</tbody>
</table>

The production was discontinued.

#### Rated voltage

<table>
<thead>
<tr>
<th>DC specifications</th>
<th>Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>24V</td>
</tr>
<tr>
<td>6</td>
<td>12V</td>
</tr>
<tr>
<td>6</td>
<td>6V</td>
</tr>
<tr>
<td>5</td>
<td>5V</td>
</tr>
<tr>
<td>3</td>
<td>3V</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AC specifications</th>
<th>Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100V</td>
</tr>
<tr>
<td>2</td>
<td>200V</td>
</tr>
<tr>
<td>3</td>
<td>110V(115V)</td>
</tr>
<tr>
<td>4</td>
<td>220V(230V)</td>
</tr>
</tbody>
</table>

#### Electrical entry

<table>
<thead>
<tr>
<th>Grommet</th>
<th>Lead wire length</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>0.3 m</td>
</tr>
<tr>
<td>H</td>
<td>0.6 m</td>
</tr>
<tr>
<td>L</td>
<td>0.3 m</td>
</tr>
<tr>
<td>M</td>
<td>0.3 m</td>
</tr>
</tbody>
</table>

#### Light/Surge voltage suppressor

<table>
<thead>
<tr>
<th>Light/Surge voltage suppressor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>Without light/surge voltage suppressor</td>
</tr>
<tr>
<td>S</td>
<td>With surge voltage suppressor</td>
</tr>
<tr>
<td>Z</td>
<td>With light/surge voltage suppressor</td>
</tr>
<tr>
<td>U</td>
<td>With light/surge voltage suppressor (Non-polar type)</td>
</tr>
</tbody>
</table>

* 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".

#### Manual override

<table>
<thead>
<tr>
<th>Manual override</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>Non-locking push type</td>
</tr>
<tr>
<td>D</td>
<td>Locking slotted type</td>
</tr>
</tbody>
</table>

---

Note 3) The thread ridge shape is conforming to G thread standard (JIS B 0202), but other shapes are not conforming to ISO16030 and ISO1179.

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[Click here](#) for details.
**Ejector Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>ZL112</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nozzle diameter</td>
<td>1.2 mm</td>
</tr>
<tr>
<td>Maximum suction flow rate</td>
<td>100 L/min (ANR)</td>
</tr>
<tr>
<td>Air consumption</td>
<td>63 L/min (ANR)</td>
</tr>
<tr>
<td>Maximum vacuum pressure</td>
<td>–84 kPa</td>
</tr>
<tr>
<td>Maximum operating pressure</td>
<td>0.7 MPa</td>
</tr>
<tr>
<td>Supply pressure range</td>
<td>0.2 to 0.5 MPa</td>
</tr>
<tr>
<td>Standard supply pressure</td>
<td>0.4 MPa</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>5 to 50°C</td>
</tr>
</tbody>
</table>

**Supply/Release Valve Specifications**

<table>
<thead>
<tr>
<th>Part no.</th>
<th>SYJ514-□□□□□</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of valve actuation</td>
<td>N.C.</td>
</tr>
<tr>
<td>Fluid</td>
<td>Air</td>
</tr>
<tr>
<td>Operating pressure range</td>
<td>0.15 to 0.7 Mpa</td>
</tr>
<tr>
<td>Ambient and fluid temperature</td>
<td>–10°C to 50°C (No freezing)</td>
</tr>
<tr>
<td>Response time (For 0.5 MPa)</td>
<td>25 ms or less</td>
</tr>
<tr>
<td>Maximum operating frequency</td>
<td>5 Hz</td>
</tr>
<tr>
<td>Manual override</td>
<td>Non-locking push type/Locking slotted type</td>
</tr>
<tr>
<td>Pilot exhaust type</td>
<td>Pilot valve individual exhaust, Main valve/Pilot valve common exhaust</td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not required</td>
</tr>
<tr>
<td>Mounting position</td>
<td>Unrestricted</td>
</tr>
<tr>
<td>Impact/Vibration resistance</td>
<td>150/30 m/s²</td>
</tr>
<tr>
<td>Enclosure</td>
<td>Dust proof</td>
</tr>
</tbody>
</table>

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 No. 1-2” for details on valves.

**Vacuum Pressure Gauge Specifications**

<table>
<thead>
<tr>
<th>Part no.</th>
<th>GZ30S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid</td>
<td>Air</td>
</tr>
<tr>
<td>Pressure range</td>
<td>–100 to 100 kPa</td>
</tr>
<tr>
<td>Scale range (Angular)</td>
<td>230°</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±3% F.S. (Full span)</td>
</tr>
<tr>
<td>Class</td>
<td>Class 3</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>0 to 50°C</td>
</tr>
<tr>
<td>Material</td>
<td>Housing: Polycarbonate/ABS resin</td>
</tr>
</tbody>
</table>

**Weight**

<table>
<thead>
<tr>
<th>Description</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZL112 (Basic)</td>
<td>450 g</td>
</tr>
<tr>
<td>Port exhaust</td>
<td>+110 g</td>
</tr>
<tr>
<td>Digital pressure switch for vacuum (Excluding lead wire)</td>
<td>+43 g</td>
</tr>
<tr>
<td>Digital pressure switch for vacuum (Including 3 cores lead wire)</td>
<td>+81 g</td>
</tr>
<tr>
<td>Digital pressure switch for vacuum (Including 4 cores lead wire)</td>
<td>+85 g</td>
</tr>
<tr>
<td>Valve (per 1 pc.)</td>
<td>+45 g</td>
</tr>
</tbody>
</table>
ZL112 Series

Vacuum Pressure Switch Unit/Digital Pressure Switch for Vacuum: ZSE30A-00-□-□□□

Specifications

- Rated pressure range: 0.0 to −101.0 kPa
- Set pressure range: 10.0 to −105.0 kPa
- Withstand pressure: 500 kPa
- Minimum unit setting: 0.1 kPa
- Applicable fluid: Air
- Power supply voltage: 12 to 24 VDC ±10% (with power supply polarity protection)
- Current consumption: 40 mA (at no load)
- Switch output: NPN or PNP open collector 1 output
- Maximum load current: 80 mA
- Maximum applied voltage: 28 V (at NPN output)
- Residual voltage: 1 V or less (with load current of 80 mA)
- Response time: 2.5 ms or less (with anti-chattering function: 20, 100, 500, 1000, 2000 ms)
- Short circuit protection: Yes
- Repeatability: ±0.2% F.S. ±1 digit

Hysteresis mode
- Variable (0 to variable)

Window comparator mode
- Output voltage (Rated pressure range): 1 to 5 V ±2.5% F.S.
- Linearity: ±1% F.S. or less

Output impedance
- Approx. 1 kΩ
- Output current (Rated pressure range): 4 to 20 mA ±2.5% F.S.
- Linearity: ±1% F.S. or less

Load impedance
- Maximum load impedance:
  - Power supply voltage 12 V: 300 Ω
  - Power supply voltage 24 V: 600 Ω
  - Minimum load impedance: 50 Ω

Display
- 4-digit, 7-segment, 2-color LCD (Red/Green)
- Sampling cycle: 5 times/sec.

Display accuracy
- ±2% F.S. ±1 digit (Ambient temperature of 25°C)

Indicator light
- Lights up when switch output is turned ON. (OUT1: Green, OUT2: Red)

Enclosure
- IP60

Operating temperature range
- Operating: 0 to 50°C, Stored: −10 to 60°C (No freezing or condensation)

Operating humidity range
- Operating/Storage: 35 to 85% RH (No condensation)

Withstand voltage
- 1000 VAC for 1 minute between terminals and housing

Temperature characteristics
- ±2% F.S. (Based on 25°C)

Insulation resistance
- 50 MΩ or more (500 VDC measured via megohmmeter) between terminals and housing

Linearity
- ±2% F.S. (Based on 25°C)

Insulator O.D.: 1.0 mm

Minimum load impedance:
- 50 Ω

Maximum load impedance:
- 4 to 20 mA ±2.5% F.S.

Maximum load impedance:
- 4 to 20 mA ±2.5% F.S.

±1% F.S. or less

±2% F.S.

±2% F.S.

±2% F.S.

±2% F.S.

±2% F.S.

±2% F.S.

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±2% F.S.

±2% F.S.

±2% F.S.
Exhaust Characteristics/Flow Rate Characteristics/Time to Reach Vacuum (Representative value)

**ZL112**

### Exhaust Characteristics

![Graph: Vacuum pressure vs. Supply pressure](image1)

- **Vacuum pressure** vs. **Supply pressure (MPa)**
- **Vacuum pressure** range: –100 to 0 kPa
- **Supply pressure** range: 0 to 0.6 MPa

### Flow Rate Characteristics

![Graph: Suction flow rate vs. Supply pressure](image2)

- **Supply pressure**: 0.4 MPa
- **Suction flow rate (L/min (ANR))**: 10 to 130

### Time to Reach Vacuum

![Graph: Time to reach vacuum vs. Vacuum pressure](image3)

- **Tank capacity**: 1L
- **Supply pressure**: 0.4 MPa
- **Vacuum pressure** reached: –89 kPa
- **Vacuum pressure** in tank (kPa): –100 to 0 kPa

---

**How to Read the Graph**

- The graphics indicate the time required to reach a vacuum pressure determined byadsorption conditions for workpieces, etc., starting from atmospheric pressure in a 1L sealed tank. Approximately 8.8 seconds are necessary to attain a vacuum pressure of –89 kPa.

---

**How to Read the Graph**

- The flow rate characteristics indicate the relationship between the vacuum pressure and the suction flow rate of the ejector, and show that when the suction flow rate changes the vacuum pressure also changes. In general, this indicates the relationship at the ejector’s standard operating pressure. In the graph, Pmax indicates the maximum vacuum pressure, and Qmax indicates the maximum suction flow rate. These are the values that are published as specifications in catalogs, etc. Changes in vacuum pressure are explained below.

1. If the ejector’s suction port is closed and sealed tight, the suction flow rate becomes “0” and the vacuum pressure increases to the maximum (Pmax).
2. If the suction port is opened and air is allowed to flow (the air leaks), the suction flow rate increases and the vacuum pressure decreases. (the condition of P1 and Q1)
3. If the suction port is opened completely, the suction flow rate increases to the maximum (Qmax), while the vacuum pressure then drops almost to “0” (atmospheric pressure). When adsorbing work pieces which are permeable or subject to leakage, etc., caution is required as the vacuum pressure will not be very high.
ZL112 Series

Construction

Table 1. How to order connector assembly

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Part no.</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Suction cover</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Front cover</td>
<td></td>
<td>Without valve</td>
</tr>
<tr>
<td>3</td>
<td>End cover</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Body</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Vacuum sensor unit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Nozzle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Diffuser</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Detent plug</td>
<td></td>
<td>Other than vacuum switch</td>
</tr>
<tr>
<td>9</td>
<td>Lead wire cover</td>
<td></td>
<td>Vacuum switch specifications</td>
</tr>
<tr>
<td>10</td>
<td>Front cover B</td>
<td></td>
<td>With valve</td>
</tr>
<tr>
<td>11</td>
<td>Valve plate</td>
<td></td>
<td>With valve</td>
</tr>
<tr>
<td>12</td>
<td>Needle</td>
<td></td>
<td>With valve</td>
</tr>
<tr>
<td>13</td>
<td>Supply valve (N.C.)</td>
<td>SYJ514-□□□</td>
<td>With valve</td>
</tr>
<tr>
<td>14</td>
<td>Release valve (N.C.)</td>
<td>SYJ514-□□□</td>
<td>With valve</td>
</tr>
<tr>
<td>15</td>
<td>Connector assembly</td>
<td>SYJ100-30-□□□</td>
<td>With valve (Table 1.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
<th>Part no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Sound absorbing material B</td>
<td>PVF</td>
<td>ZL112-SP01</td>
</tr>
<tr>
<td>10</td>
<td>Sound absorbing material A</td>
<td>PVF</td>
<td>(Set no. for 9, 10 &amp; 11)</td>
</tr>
<tr>
<td>11</td>
<td>Suction filter</td>
<td>PE</td>
<td></td>
</tr>
</tbody>
</table>

Table 1. How to order connector assembly

For DC

- SY100-30-4A-

For 100 VAC

- SY100-30-1A-

For other AC

- SY100-30-3A-

Lead wire length

- Nil: 300mm (Standard)
- 6: 600mm
- 10: 1000mm
- 15: 1500mm
- 20: 2000mm
- 25: 2500mm
- 30: 3000mm
- 50: 5000mm
Dimensions: ZL112 Series (Without Valve)

Standard
ZL112

Port exhaust
ZL112P

With vacuum pressure gauge
ZL112-G

With vacuum adapter
ZL112-GN

With digital pressure switch for vacuum
ZL112-D

Circuit diagram
**ZL112 Series**

**Dimensions: ZL112 Series (With Valve)**

*With supply valve and release valve*

**ZL112-K1□L□□-D□□□**

![Circuit diagram](image)

*With supply valve*

**ZL112-K2□L□□-D□□□**

![Circuit diagram](image)
Multistage Ejector
ZL212 Series

How to Order

ZL2 12

Nozzle diameter
12 1.2

Exhaust specifications
Nil Built-in silencer
P Port exhaust

Vacuum pressure sensor
Nil None
GN Vacuum port adaptor Rc 1/8
G Vacuum pressure gauge
D Digital pressure switch for vacuum

Lead wire specifications
(Applicable only when the vacuum pressure sensor specification is “D” for digital pressure switch for vacuum)

L Lead wire with connector (Length 2 m)

None

With vacuum pressure gauge

With digital vacuum pressure switch

With adaptor

Port exhaust

ZL212

Made to Order
(Refer to page 218 for details.)

Symbol Specifications/Contents
X132 Supply valve/Vacuum release valve

Ejector Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>ZL212</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nozzle diameter</td>
<td>1.2 mm x 2</td>
</tr>
<tr>
<td>Maximum suction flow rate</td>
<td>200 L/min (ANR)</td>
</tr>
<tr>
<td>Air consumption</td>
<td>126 L/min (ANR)</td>
</tr>
<tr>
<td>Maximum vacuum pressure</td>
<td>−84 kPa</td>
</tr>
<tr>
<td>Maximum operating pressure</td>
<td>0.7 MPa</td>
</tr>
<tr>
<td>Supply pressure range</td>
<td>0.2 to 0.5 MPa</td>
</tr>
<tr>
<td>Standard supply pressure</td>
<td>0.4 MPa</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>5 to 50°C</td>
</tr>
</tbody>
</table>

Weight

<table>
<thead>
<tr>
<th>Model</th>
<th>ZL212</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port exhaust</td>
<td>+300 g</td>
</tr>
<tr>
<td>Digital pressure switch for vacuum (Excluding lead wire)</td>
<td>+43 g</td>
</tr>
<tr>
<td>Digital pressure switch for vacuum (Including 3 cores lead wire)</td>
<td>+81 g</td>
</tr>
<tr>
<td>Digital pressure switch for vacuum (Including 4 cores lead wire)</td>
<td>+85 g</td>
</tr>
<tr>
<td>Valve (per 1 pc.)</td>
<td>+75 g</td>
</tr>
</tbody>
</table>

The ZL212 series has been remodeled. Click here for details.
ZL212 Series

Exhaust Characteristics/Flow Rate Characteristics/Time to Reach Vacuum (Representative value)

ZL212

Exhaust Characteristics

Flow Rate Characteristics

Supply pressure: 0.4 MPa

Time to Reach Vacuum

Vacuum pressure reached: –89 kPa

Tank capacity: 1L

Supply pressure: 0.4 MPa

Suction flow rate (L/min (ANR))

Vacuum pressure (kPa)

–100
–90
–80
–70
–60
–50
–40
–30
–20
–10
0

Air consumption (L/min (ANR))

Suction flow rate (L/min (ANR))

Supply pressure (MPa)

0.1
0.2
0.3
0.4
0.5
0.6

Suction pressure

Pmax

Qmax

Vacuum pressure

P1

Q1

Air consumption

<How to Read the Graph>
The flow rate characteristics indicate the relationship between the vacuum pressure and the suction flow rate of the ejector, and show that when the suction flow rate changes, the vacuum pressure also changes. In general, this indicates the relationship at the ejector's standard operating pressure. In the graph, Pmax indicates the maximum vacuum pressure, and Qmax indicates the maximum suction flow rate. These are the values that are published as specifications in catalogs, etc. Changes in vacuum pressure are explained below.

1. If the ejector's suction port is closed and sealed tight, the suction flow rate becomes "0" and the vacuum pressure increases to the maximum (Pmax).
2. If the suction port is opened and air is allowed to flow (the air leaks), the suction flow rate increases and the vacuum pressure decreases. (the condition of P1 and Q1)
3. If the suction port is opened completely, the suction flow rate increases to the maximum (Qmax), while the vacuum pressure drops almost to "0" (atmospheric pressure). When adsorbing work pieces which are permeable or subject to leakage, etc., caution is required as the vacuum pressure will not be very high.

<How to Read the Graph>
The graphics indicate the time required to reach a vacuum pressure determined by adsorption conditions for workpieces, etc., starting from atmospheric pressure in a 1L sealed tank. Approximately 8.8 seconds are necessary to attain a vacuum pressure of –89 kPa.

Construction

Component Parts

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Suction cover</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Front cover A</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>End plate</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Body</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Vacuum sensor unit</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Nozzle</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Diffuser</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Detent plug</td>
<td>Other than vacuum switch</td>
</tr>
<tr>
<td></td>
<td>Lead wire cover</td>
<td>Vacuum switch specifications</td>
</tr>
</tbody>
</table>

Replacement Parts

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
<th>Part no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Sound absorbing material A</td>
<td>PVA sponge</td>
<td>ZL212-SP01</td>
</tr>
<tr>
<td>10</td>
<td>Sound absorbing material</td>
<td>PVA sponge</td>
<td>(Set no. for 9 &amp; 10)</td>
</tr>
</tbody>
</table>
Dimensions: ZL212 Series

Standard
ZL212

Port exhaust
ZL212P

With vacuum pressure gauge
ZL212-G

With vacuum adapter
ZL212-GN

With digital pressure switch for vacuum
ZL212-D

Circuit diagram

Silencer
Port exhaust

With gauge
With adapter
ZSE30A
ZSE30A

ZL212 Series

Multistage Ejector

Air pressure supply (P) port Rc 1/8
Vacuum(V) port Rc 3/4
Exhaust port

Vacuum pressure gauge
Exhaust port

Vacuum adapter Rc 1/8
Exhaust port

Digital pressure switch for vacuum
Exhaust port

Section A

2 x ø4.4
Mounting hole

Section A/
With Digital Pressure Switch for Vacuum

ZL212-D
ZL Series
Made to Order Specifications

Please contact SMC for detailed specifications, dimensions and lead times.

1 With Supply and Release Valves

ZL212 - Valve Voltage Electrical entry — Vacuum pressure switch Electrical entry — X132

ZL212 type with supply and release valves

Dimensions

Release valve: SYJ714

Vacuum (V) port Rc3/4

Air pressure supply (P) port Rc1/8

Supply valve: SYJ714

Approx. (300)

Vacuum break flow adjustment needle

2 x ø4.4 Mounting hole

4 x M5 x 0.8 Thread depth 6 (Mounting hole)
Operation of Ejector Valves

⚠️ Caution

1. When the air supply valve is turned ON, vacuum is generated by the flow of compressed air from the nozzle to the diffuser. When the vacuum release valve is turned ON, the vacuum is quickly released as air passes through the release flow adjustment needle and flows to the vacuum port.

Operating Environment

⚠️ Caution

1. Avoid use exposed to direct sunlight.

Solenoid Valves (ZL112 Series)

⚠️ Caution

1. For specific product precautions on solenoid valves, refer to the Best Pneumatics No. 1-2.