Multistage Ejector

ZL112/212 Series

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>Vacuum pressure sensor option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series</td>
</tr>
<tr>
<td>ZL112</td>
</tr>
<tr>
<td>ZL212</td>
</tr>
</tbody>
</table>

For ZSE30A series, refer to the Best Pneumatics No. 8 for details.
## How to Order

### ZL112 Series

#### Without valve

<table>
<thead>
<tr>
<th>Nozzle diameter</th>
<th>Exhaust type</th>
<th>Exhaust port (EXH) thread type</th>
<th>Supply valve/Release valve combination</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZL1 12</td>
<td>P</td>
<td>F</td>
<td>K1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### With valve

<table>
<thead>
<tr>
<th>Nozzle diameter</th>
<th>Exhaust type</th>
<th>Exhaust port (EXH) thread type</th>
<th>Supply valve/Release valve combination</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZL1 12</td>
<td>K1</td>
<td>1/2-14 NPT</td>
<td>K1, K2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Lead wire specifications

<table>
<thead>
<tr>
<th>Lead wire specifications</th>
<th>Note 1</th>
<th>Note 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* This is not available for models without lead wires.

### Unit specifications

<table>
<thead>
<tr>
<th>Unit specifications</th>
<th>Note 1</th>
<th>Note 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Fixed unit: kPa

### Output specifications

<table>
<thead>
<tr>
<th>Output specifications</th>
<th>Note 1</th>
<th>Note 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td></td>
<td></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.

### Vacuum pressure sensor

<table>
<thead>
<tr>
<th>Vacuum pressure sensor</th>
<th>Note 1</th>
<th>Note 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Electrical entry

<table>
<thead>
<tr>
<th>Electrical entry</th>
<th>Electrical entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROMMET</td>
<td></td>
</tr>
<tr>
<td>H</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td></td>
</tr>
<tr>
<td>LN</td>
<td></td>
</tr>
<tr>
<td>LO</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td></td>
</tr>
<tr>
<td>MN</td>
<td></td>
</tr>
<tr>
<td>MO</td>
<td></td>
</tr>
</tbody>
</table>

### Light/Surge voltage suppressor

<table>
<thead>
<tr>
<th>Light/Surge voltage suppressor</th>
<th>Note 1</th>
<th>Note 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z</td>
<td></td>
<td></td>
</tr>
<tr>
<td>U</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Type U is 24 or 12 VDC only.

### Manual override

<table>
<thead>
<tr>
<th>Manual override</th>
<th>Manual override</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>

### Rated voltage

<table>
<thead>
<tr>
<th>Rated voltage</th>
<th>Rated voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>34V</td>
</tr>
<tr>
<td>6</td>
<td>12V</td>
</tr>
<tr>
<td>V</td>
<td>6V</td>
</tr>
<tr>
<td>S</td>
<td>5V</td>
</tr>
<tr>
<td>R</td>
<td>3V</td>
</tr>
</tbody>
</table>

### Lead wire specifications

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

### Unit specifications

<table>
<thead>
<tr>
<th>Unit specifications</th>
<th>Unit specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>SI unit only</td>
</tr>
</tbody>
</table>

### Output specifications

<table>
<thead>
<tr>
<th>Output specifications</th>
<th>Output specifications</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>
<tr>
<td>A</td>
<td>NPN open collector 2 outputs</td>
</tr>
<tr>
<td>B</td>
<td>PNP open collector 2 outputs</td>
</tr>
<tr>
<td>C</td>
<td>NPN open collector 1 output + Analog voltage output</td>
</tr>
<tr>
<td>D</td>
<td>NPN open collector 1 output + Analog current output</td>
</tr>
<tr>
<td>E</td>
<td>PNP open collector 1 output + Analog voltage output</td>
</tr>
<tr>
<td>F</td>
<td>PNP open collector 1 output + Analog current output</td>
</tr>
</tbody>
</table>

### Vacuum pressure sensor

<table>
<thead>
<tr>
<th>Vacuum pressure sensor</th>
<th>Vacuum pressure sensor</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>Digital pressure switch for vacuum</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.
### Ejector Specifications

<table>
<thead>
<tr>
<th></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)^1</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^2</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

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></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>
Vacuum Pressure Switch Replacement

It is impossible to replace only the vacuum pressure switch. Please replace the suction cover assembly. For ordering information, refer to How to Order.

The vacuum pressure switch mounted on this product is equivalent to our SMC product, the ZSE30A series compact digital pressure switch.

For details about vacuum pressure switch functions, refer to the ZSE30A series in the Best Pneumatics No. 8.

Digital pressure switch specification is “D” for digital pressure switch for vacuum

<table>
<thead>
<tr>
<th>Specifications</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated pressure range</td>
<td>0.0 to –101.0 kPa</td>
</tr>
<tr>
<td>Set pressure range</td>
<td>10.0 to –105.0 kPa</td>
</tr>
<tr>
<td>Withstand pressure</td>
<td>500 kPa</td>
</tr>
<tr>
<td>Minimum unit setting</td>
<td>0.1 kPa</td>
</tr>
<tr>
<td>Applicable fluid</td>
<td>Air</td>
</tr>
<tr>
<td>Power supply voltage</td>
<td>12 to 24 VDC ±10% (with power supply polarity protection)</td>
</tr>
<tr>
<td>Current consumption</td>
<td>40 mA (at no load)</td>
</tr>
<tr>
<td>Switch output</td>
<td>NPN or PNP open collector 1 output</td>
</tr>
<tr>
<td>Maximum load current</td>
<td>80 mA</td>
</tr>
<tr>
<td>Maximum applied voltage</td>
<td>28 V (at NPN output)</td>
</tr>
<tr>
<td>Residual voltage</td>
<td>1 V or less (with load current of 80 mA)</td>
</tr>
<tr>
<td>Response time</td>
<td>2.5 ms or less (with anti-chattering function: 20, 100, 500, 1000, 2000 ms)</td>
</tr>
<tr>
<td>Short circuit protection</td>
<td>Yes</td>
</tr>
<tr>
<td>Hysteresis mode</td>
<td>±0.2% F.S. ±1 digit</td>
</tr>
<tr>
<td>Window comparator mode</td>
<td>Variable (0 to variable)</td>
</tr>
<tr>
<td>Output voltage (Rated pressure range)</td>
<td>1 to 5 V ±2.5% F.S.</td>
</tr>
<tr>
<td>Linearity</td>
<td>±1% F.S. or less</td>
</tr>
<tr>
<td>Output impedance</td>
<td>Approx. 1 kΩ</td>
</tr>
<tr>
<td>Output current (Rated pressure range)</td>
<td>4 to 20 mA ±2.5% F.S.</td>
</tr>
<tr>
<td>Load impedance</td>
<td>Maximum load impedance: Power supply voltage 12 V: 300 Ω, Power supply voltage 24 V: 600 Ω Minimum load impedance: 50 Ω</td>
</tr>
<tr>
<td>Display</td>
<td>4-digit, 7-segment, 2-color LCD (Red/Green) Sampling cycle: 5 times/sec</td>
</tr>
<tr>
<td>Display accuracy</td>
<td>±2% F.S. ±1 digit (Ambient temperature of 25°C)</td>
</tr>
<tr>
<td>Indicator light</td>
<td>Lights up when switch output is turned ON. (OUT1: Green, OUT2: Red)</td>
</tr>
<tr>
<td>Enclosure</td>
<td>IP60</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>Operating: 0 to 50°C, Stored: –10 to 60°C (No freezing or condensation)</td>
</tr>
<tr>
<td>Operating humidity range</td>
<td>Operating/Stored: 35 to 85% RH (No condensation)</td>
</tr>
<tr>
<td>Withstand voltage</td>
<td>1000 VAC for 1 minute between terminals and housing</td>
</tr>
<tr>
<td>Temperature characteristics</td>
<td>±2% F.S. (Based on 25°C)</td>
</tr>
<tr>
<td>Lead wire</td>
<td>Oilproof heavy-duty vinyl cable, 3 cores ø3.5, 2 m 4 cores Conductor area: 0.15 mm² (AWG26)</td>
</tr>
<tr>
<td>Insulation resistance</td>
<td>50 MΩ or more (500 VDC measured via megohmmeter) between terminals and housing</td>
</tr>
<tr>
<td>Withstanding voltage</td>
<td>1000 VAC for 1 minute between terminals and housing</td>
</tr>
<tr>
<td>Operating/Stored: 35 to 85% RH (No condensation)</td>
<td></td>
</tr>
<tr>
<td>Enclosure</td>
<td>CE Marking, UL/CSA, RoHS compliance</td>
</tr>
</tbody>
</table>

Note 1) When analog voltage output is selected, analog current output cannot be used together.

Note 2) When analog current output is selected, analog voltage output cannot be used together.

Note 3) If the applied pressure fluctuates around the set value, the hysteresis must be set to a value more than the fluctuating width, otherwise, chattering will occur.

How to Order Suction Cover Assembly

<table>
<thead>
<tr>
<th>Ejector size</th>
<th>Vacuum pressure sensor</th>
<th>Multistage ejector</th>
<th>Output specifications</th>
<th>Unit specifications</th>
<th>Lead wire specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZL 12 – SC –</td>
<td>Nil</td>
<td>None</td>
<td>N</td>
<td>Nil With unit display switching function</td>
<td></td>
</tr>
<tr>
<td>1 ZL112</td>
<td>GN</td>
<td>Vacuum port adaptor Rc1/8</td>
<td>P</td>
<td>Fixed SI unit</td>
<td></td>
</tr>
<tr>
<td>2 ZL122</td>
<td>G</td>
<td>Vacuum pressure gauge</td>
<td>A</td>
<td>P With unit display switching function</td>
<td></td>
</tr>
<tr>
<td>3 ZL112</td>
<td>D</td>
<td>Digital pressure switch for vacuum</td>
<td>B</td>
<td>Note 1) With 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.</td>
<td></td>
</tr>
<tr>
<td>4 ZL122</td>
<td>C</td>
<td>NPN open collector 1 output</td>
<td>E</td>
<td>Note 2) Fixed unit: kPa</td>
<td></td>
</tr>
<tr>
<td>5 ZL112</td>
<td>B</td>
<td>PNP open collector 1 output</td>
<td>F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 ZL122</td>
<td>A</td>
<td>NPN open collector 2 outputs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 ZL112</td>
<td>D</td>
<td>NPN open collector 1 output + Analog output</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 ZL122</td>
<td>E</td>
<td>PNP open collector 1 output + Analog voltage output</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 ZL112</td>
<td>C</td>
<td>NPN open collector 1 output + Analog current output</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 ZL122</td>
<td></td>
<td>PNP open collector 1 output + Analog current output</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Exhaust Characteristics/Flow Rate Characteristics/Time to Reach Vacuum (Representative value)**

**ZL112**

### Exhaust Characteristics

- **Graph:**
  - **Supply pressure:** 0.4 MPa
  - **Vacuum pressure** vs. **Supply pressure**
  - **Suction flow rate** vs. **Supply pressure**
  - **Air consumption** vs. **Supply pressure**

### Flow Rate Characteristics

- **Supply pressure:** 0.4 MPa

### Time to Reach Vacuum

- **Tank capacity:** 1L
- **Supply pressure:** 0.4 MPa

- **Vacuum pressure** vs. **Time to reach vacuum**

**<How to Read the Graph>**

The graphs 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.

**<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.

**<How to Read the Graph>**

The vacuum pressure in tank (kPa)

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

**Supply pressure (MPa)**

- 0.1
- 0.2
- 0.3
- 0.4
- 0.5
- 0.6

**Vacuum pressure (kPa)**

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

**Suction flow rate (L/min (ANR))**

- 10
- 20
- 30
- 40
- 50
- 60
- 70
- 80
- 90
- 100

**Vacuum pressure reached**

- –89 kPa
- –80 kPa
- –76 kPa
- –66 kPa
- –53 kPa
- –26 kPa
- –13 kPa

**Suction flow rate (L/min (ANR))**

- 130

**Air consumption (L/min (ANR))**

- 10

**Pmax**

- 0.1

**Qmax**

- 0.2

**Vacuum pressure (kPa)**

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

**Supply pressure: 0.4 MPa**

- 0.1
- 0.2
- 0.3
- 0.4
- 0.5
- 0.6

**Vacuum pressure (kPa)**

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

**Supply pressure: 0.4 MPa**

- 0.1
- 0.2
- 0.3
- 0.4
- 0.5
- 0.6

**Vacuum pressure (kPa)**

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

**Supply pressure: 0.4 MPa**

- 0.1
- 0.2
- 0.3
- 0.4
- 0.5
- 0.6

**Vacuum pressure (kPa)**

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

**Supply pressure: 0.4 MPa**

- 0.1
- 0.2
- 0.3
- 0.4
- 0.5
- 0.6

**Vacuum pressure (kPa)**

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

**Supply pressure: 0.4 MPa**

- 0.1
- 0.2
- 0.3
- 0.4
- 0.5
- 0.6

**Vacuum pressure (kPa)**

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

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- –60
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- –40
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- –10
- 0
ZL112 Series

Construction

Table 1. How to order connector assembly

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Part no.</th>
<th>Part no.</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Suction cover</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Front cover</td>
<td></td>
<td></td>
<td>Without valve</td>
</tr>
<tr>
<td>3</td>
<td>End cover</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Body</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Vacuum sensor unit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Nozzle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Diffuser</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Detent plug</td>
<td></td>
<td></td>
<td>Other than vacuum switch</td>
</tr>
<tr>
<td>9</td>
<td>Lead wire cover</td>
<td></td>
<td></td>
<td>Vacuum switch specifications</td>
</tr>
<tr>
<td>10</td>
<td>Front cover B</td>
<td>SYJ514-□□□</td>
<td></td>
<td>With valve</td>
</tr>
<tr>
<td>11</td>
<td>Valve plate</td>
<td>SYJ514-□□□</td>
<td></td>
<td>With valve</td>
</tr>
<tr>
<td>12</td>
<td>Needle</td>
<td></td>
<td></td>
<td>With valve</td>
</tr>
<tr>
<td>13</td>
<td>Supply valve (N.C.)</td>
<td>SYJ100-30-□□□</td>
<td></td>
<td>With valve</td>
</tr>
<tr>
<td>14</td>
<td>Release valve (N.C.)</td>
<td>SYJ100-30-□□□</td>
<td></td>
<td>With valve</td>
</tr>
<tr>
<td>15</td>
<td>Connector assembly</td>
<td>SYJ100-30-□□□</td>
<td></td>
<td>With valve (Table 1)</td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comonent Parts

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 B</td>
<td>PVF</td>
<td>ZL112-SP01 (Set no. for 9, 10 &amp; 11)</td>
</tr>
<tr>
<td>10</td>
<td>Sound absorbing material A</td>
<td>PVF</td>
<td></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

Silencer
Port exhaust

With gauge
With adapter
ZSE30A (Without analog output)
ZSE30A (With analog output)

ZK2
ZQ
ZR
ZB
ZA
ZX
ZM
ZL
ZH
ZHP
ZU
VQD-V
Dimensions: ZL112 Series (With Valve)

With supply valve and release valve
ZL112-K1□L□□□-D□□□

Circuit diagram

With supply valve
ZL112-K2□L□□□-D□□□

Circuit diagram
Multistage Ejector
ZL212 Series

Standard

With vacuum pressure gauge

With digital vacuum pressure switch

With adaptor

Port exhaust

How to Order

ZL2 12

Nozzle diameter

Exhaust specifications

Vacuum pressure sensor

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)

* 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)

N Nil

M With unit switching function

P With unit switching function (Initial value psi)

Note 1) 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)

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

Symbol Specifications/Contents

X132 Supply valve/Vacuum release valve

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

N NPN open collector 1 output

P PNP open collector 1 output

A NPN open collector 2 outputs

B PNP open collector 2 outputs

C NPN open collector 1 output + Analog voltage output

D NPN open collector 1 output + Analog current output

E PNP open collector 1 output + Analog voltage output

F PNP open collector 1 output + Analog current output

Ejector Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>ZL212</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nozzle diameter</td>
<td>ø1.2 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>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZL212</td>
<td>700 g</td>
</tr>
<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>+45 g</td>
</tr>
</tbody>
</table>
ZL212 Series

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

ZL212

Exhaust Characteristics

<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.

Exhaust Characteristics

Flow Rate Characteristics

<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.

Construction

Component Parts

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</tr>
<tr>
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<td>9</td>
<td>Sound absorbing A</td>
<td>PVA sponge</td>
<td>ZL212-SP01</td>
</tr>
<tr>
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<td>Sound absorbing A</td>
<td>PVA sponge</td>
<td>(Set no. for 9 &amp; 10)</td>
</tr>
</tbody>
</table>
Multistage Ejector ZL212 Series

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

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

Circuit diagram
Silencer
Port exhaust

With gauge
With adapter
ZSE30A
ZSE30A
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

With supply and release valves

ZL212 type with supply and release valves

Dimensions

[Diagram showing dimensions and labels for various parts of the valve, including supply and release valves, vacuum and air pressure ports, and dimensions in millimeters.]
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.