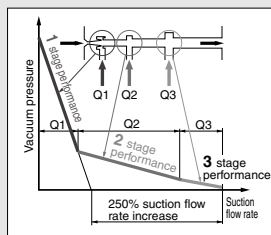


# Multistage Ejector

## ZL112/212 Series

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

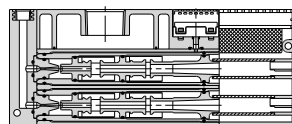
Suction flow rate increased 250% and air consumption reduced 20% with 3 stage diffuser construction  
(Versus  $\phi 1.3$ , one stage model)



	Suction flow rate (L/min (ANR))	Air consumption (L/min (ANR))
<b>ZL112</b>	<b>100</b>	<b>63</b>
<b>ZL212</b>	<b>200</b>	<b>126</b>

## ZL212 Series

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



#### Vacuum pressure sensor

With adaptor for vacuum



With vacuum pressure gauge

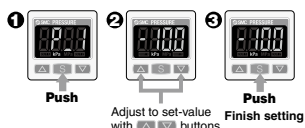


Digital vacuum pressure switch



ZSE30A

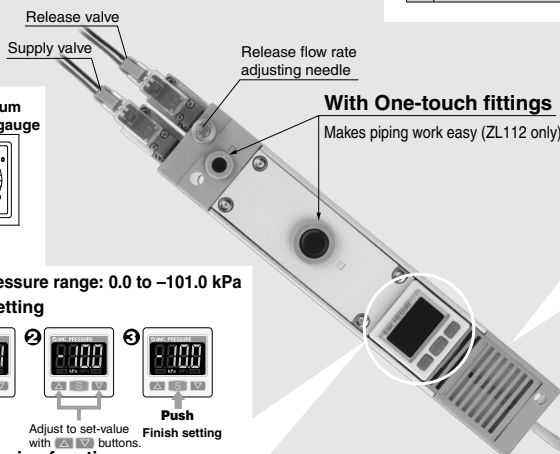
- Rated pressure range: 0.0 to -101.0 kPa
- 3-step setting



- 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.

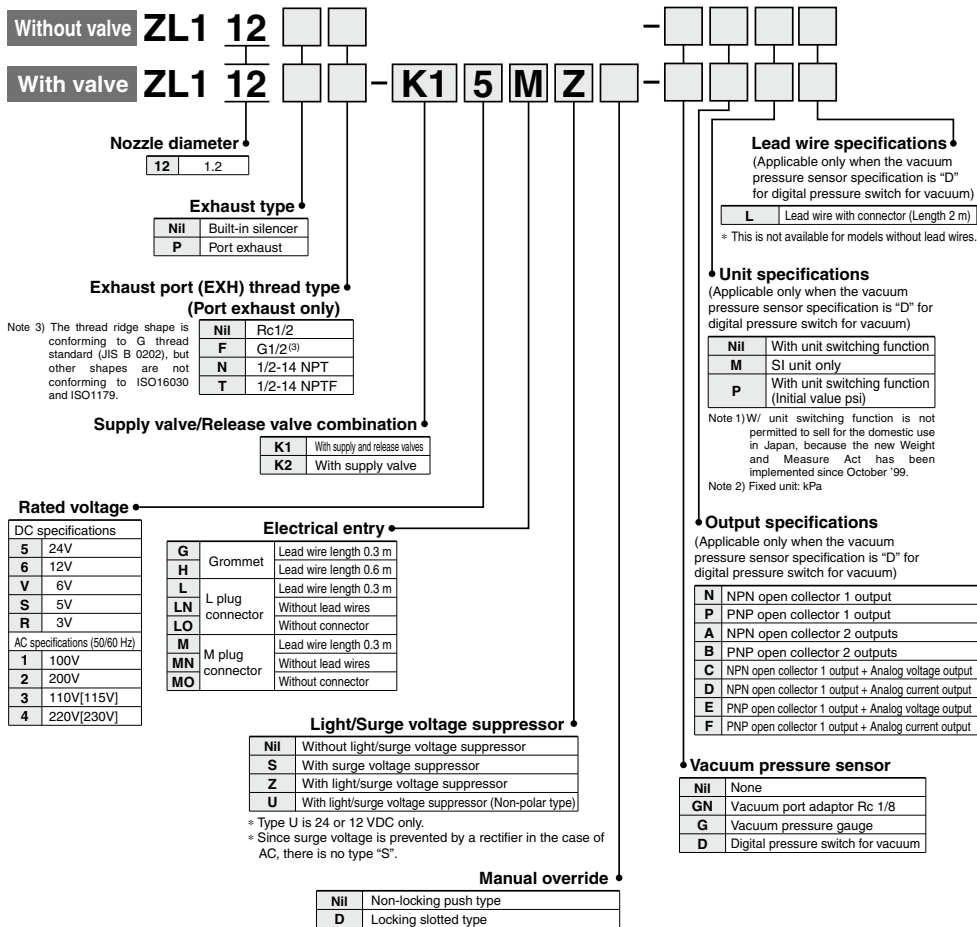


### Series Variations

Series	Maximum suction flow rate (L/min (ANR))	Air consumption (L/min (ANR))	Vacuum pressure sensor option					
			Exhaust port		With valve		With digital vacuum pressure switch ZSE30A	Vacuum pressure gauge
			Built-in silencer	Port exhaust	With supply and release valves	With supply valve		Vacuum adaptor
<b>ZL112</b>	100	63	●	●	●	●	●	●
<b>ZL212</b>	200	126	●	●			●	●

# Multistage Ejector **ZL112 Series**

## How to Order



**Standard**

**With valve**

**With vacuum pressure gauge**

**Vacuum port adapter**

**Port exhaust**


## Ejector Specifications

Model	ZL112
Nozzle diameter	1.2 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	0.15 to 0.7 Mpa
Internal pilot type	
Ambient and fluid temperature	-10°C to 50°C (No freezing)
Response time (For 0.5 MPa) <sup>(1)</sup>	25 ms or less
Maximum operating frequency	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 <sup>(2)</sup>	150/30 m/s <sup>2</sup>
Enclosure	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 No. 1-2" for details on valves.

## 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

## Weight

ZL112 (Basic)	450 g
Port exhaust	+110 g
Digital pressure switch for vacuum (Excluding lead wire)	+43 g
Digital pressure switch for vacuum (Including 3 cores lead wire)	+81 g
Digital pressure switch for vacuum (Including 4 cores lead wire)	+85 g
Valve (per 1 pc.)	+45 g

**ZK2**
**ZQ**
**ZR**
**ZB**
**ZA**
**ZX**
**ZM**
**ZL**
**ZH**
**ZH**
**ZH**
**-X267**
**ZHP**
**ZU**
**VQD-V**

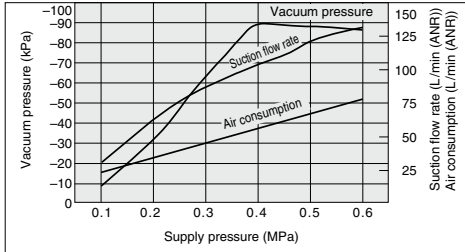
**Vacuum Pressure Switch Unit/Digital Pressure Switch for Vacuum: ZSE30A-00-□-□□□**



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

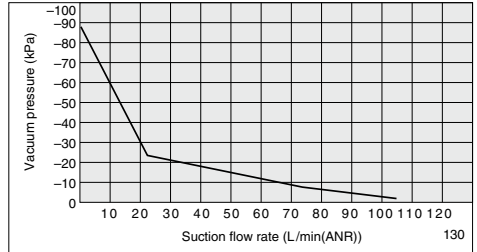
### ZL112

#### Exhaust Characteristics

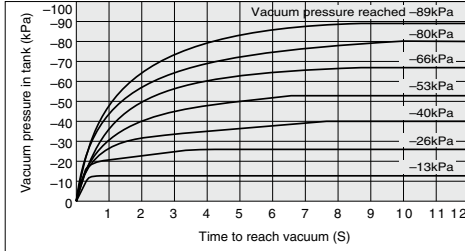


#### Flow Rate Characteristics

Supply pressure: 0.4 MPa



#### Time to Reach Vacuum

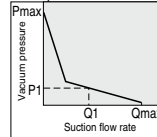
Tank capacity: 1L  
Supply pressure: 0.4 MPa


#### <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.

#### <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.



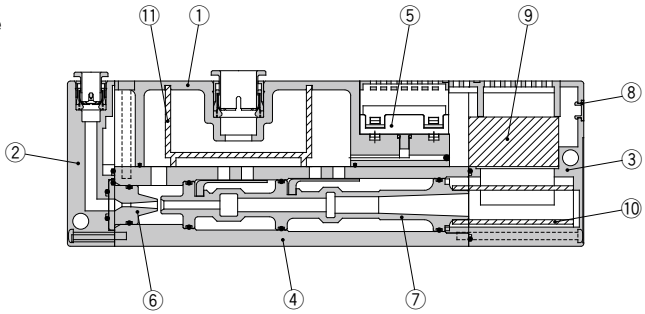
1. If the ejector's suction port is closed and sealed tight, the suction flow rate becomes "0" and the vacuum pressure increases to the maximum (Pmax).
2. If the suction port is opened and air is allowed to flow (the air leaks), the suction flow rate increases and the vacuum pressure decreases. (the 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.

ZK2  
ZQ  
ZR  
ZB  
ZA  
ZX  
ZM  
ZL  
ZH  
ZH  
ZH  
-X267  
ZHP  
ZU  
VQD-V

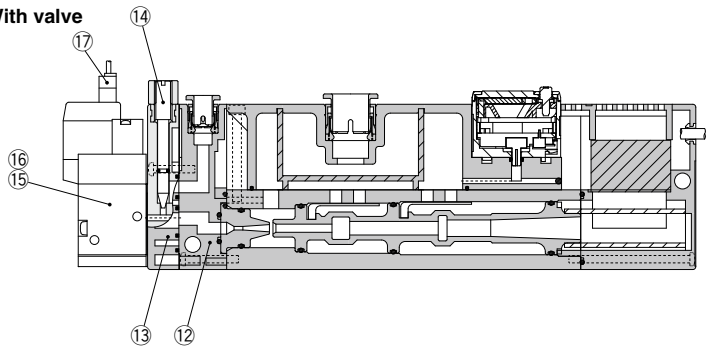
# ZL112 Series

## 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		Other than vacuum switch
	Lead wire cover		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
17	Connector assembly	SYJ100-30-□A-□	With valve (Table1.)

### 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	

### ●Table1. How to order connector assembly

For DC

SY100-30-4A-□

For 100 VAC

SY100-30-1A-□

For other AC

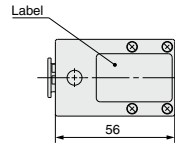
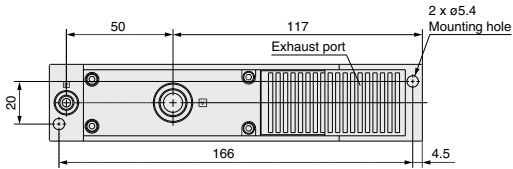
SY100-30-3A-□

### Lead wire length ●

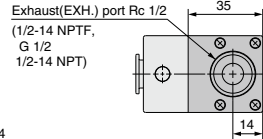
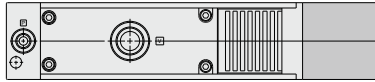
Nil	300mm(Standard)
6	600mm
10	1000mm
15	1500mm
20	2000mm
25	2500mm
30	3000mm
50	5000mm

## Dimensions: ZL112 Series (Without Valve)

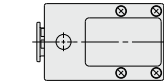
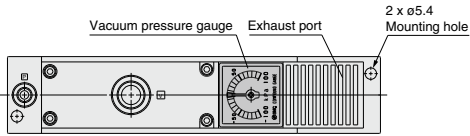
**Standard  
ZL112**



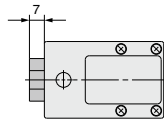
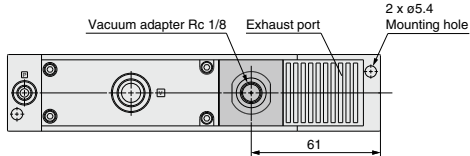
**Port exhaust  
ZL112P**



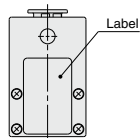
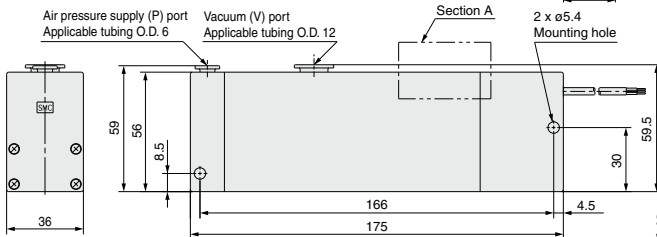
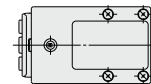
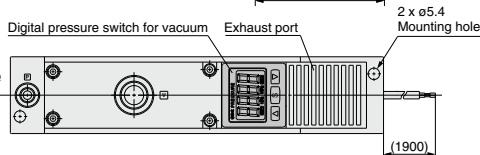
**With vacuum pressure  
gauge  
ZL112-G**



**With vacuum adapter  
ZL112-GN**

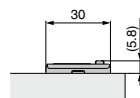


**With digital pressure  
switch for vacuum  
ZL112-D□□□**

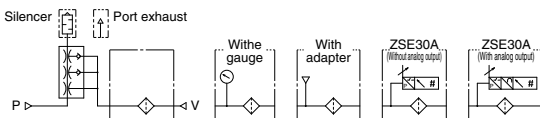


**Section A/  
With Digital Pressure Switch for Vacuum**

**ZL112-D□□□ (ZSE30A)**



## Circuit diagram

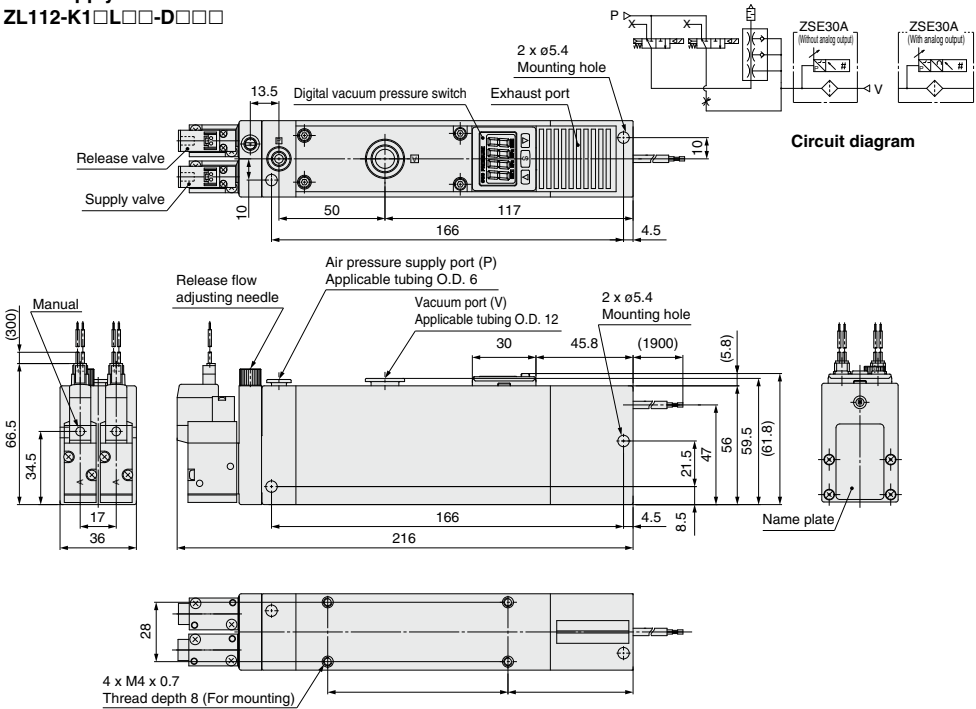


# ZL112 Series

## Dimensions: ZL112 Series (With Valve)

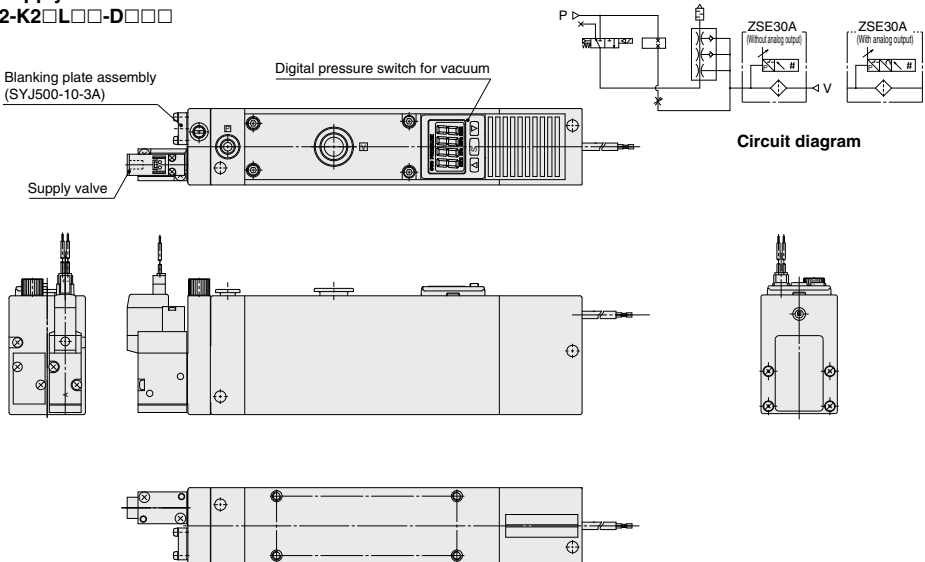
With supply valve and release valve

ZL112-K1□L□□-D□□□



With supply valve

ZL112-K2□L□□-D□□□





# 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**

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)  
\* 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)

Nil	With unit switching function
M	SI unit only
P	With unit switching function (Initial value psi)

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)

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



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

Symbol	Specifications/Contents
X132	Supply valve/Vacuum release valve

### 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

### Weight

ZL212	700 g
Port exhaust	+300 g
Digital pressure switch for vacuum (Excluding lead wire)	+43 g
Digital pressure switch for vacuum (Including 3 cores lead wire)	+81 g
Digital pressure switch for vacuum (Including 4 cores lead wire)	+85 g
Valve (per 1 pc.)	+45 g

ZK2

ZQ

ZR

ZB

ZA

ZX

ZM

ZL

ZH

ZH

ZH-X267

ZHP

ZU

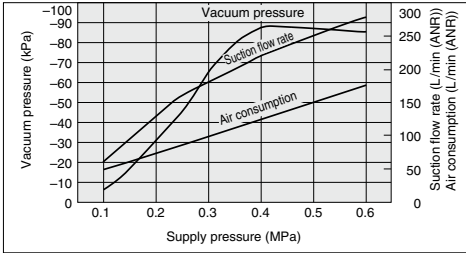
VQD-V

# ZL212 Series

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

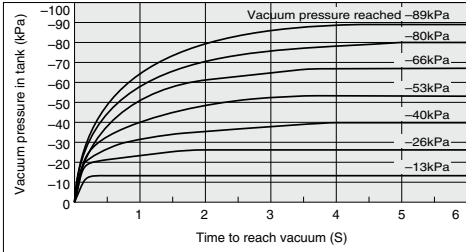
### ZL212

#### Exhaust Characteristics



#### Time to Reach Vacuum

Tank capacity: 1L  
Supply pressure: 0.4 MPa

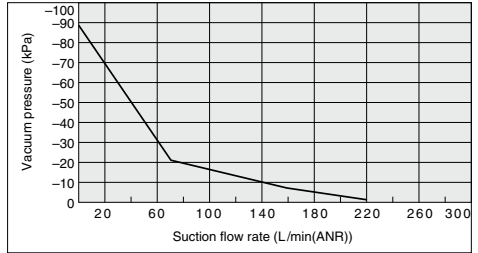


#### <How to Read the Graph>

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.

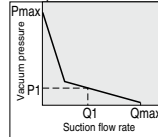
#### Flow Rate Characteristics

Supply pressure: 0.4 MPa



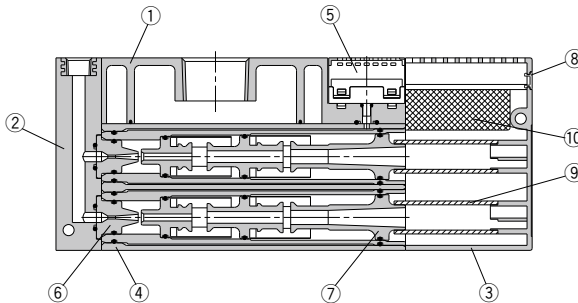
#### <How to Read the Graph>

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



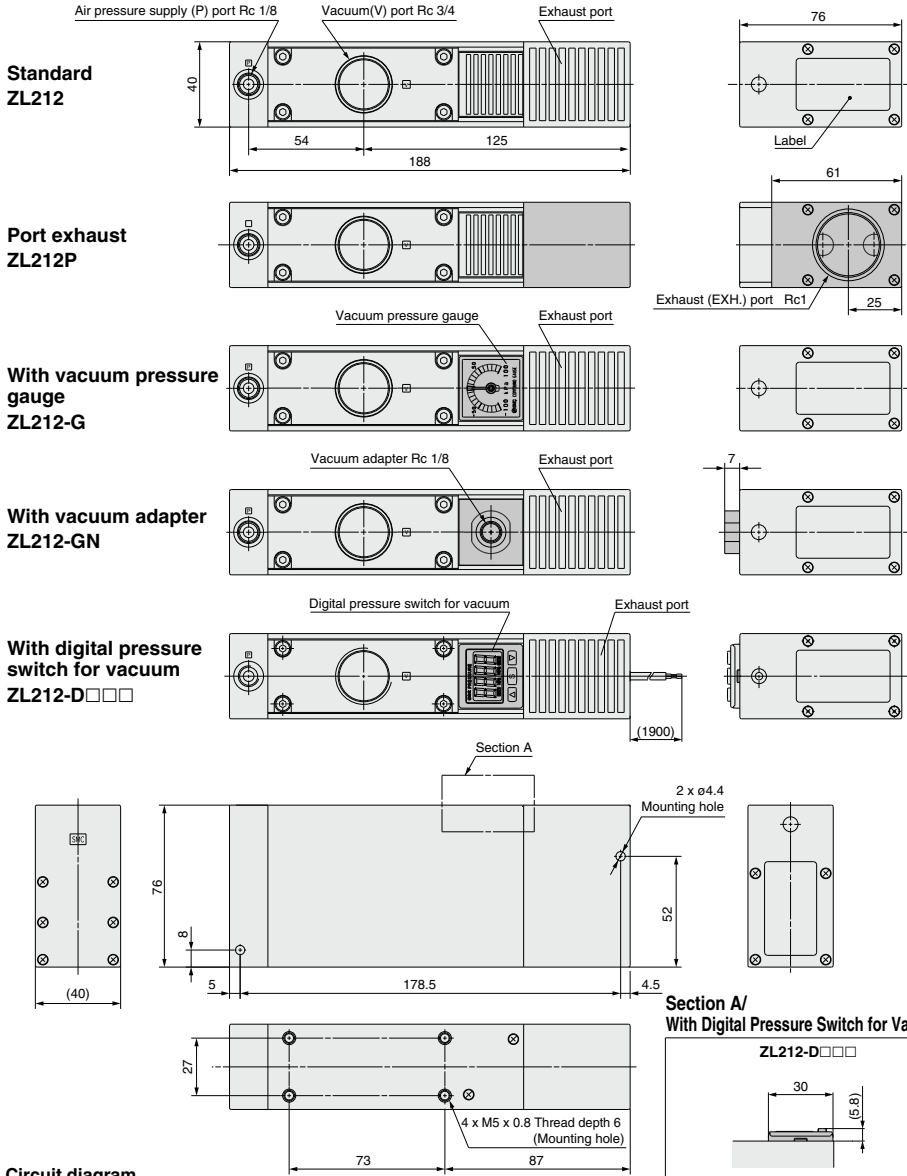
#### Component Parts

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

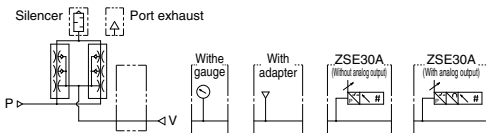
#### Replacement Parts

No.	Description	Material	Part no.
9	Sound absorbing material A	PVA sponge	ZL212-SP01
10	Sound absorbing material	PVA sponge	(Set no. for 9 & 10)

## Dimensions: ZL212 Series



### Circuit diagram



## 1 With Supply and Release Valves

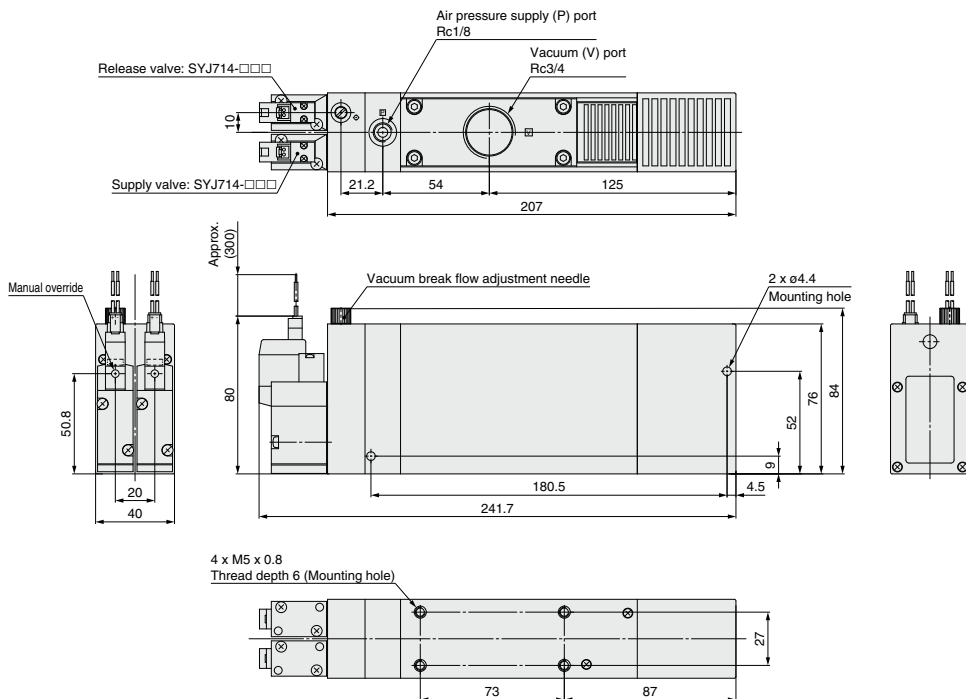
ZL212 [Valve] [Voltage] [Electrical entry] — [Vacuum pressure switch] [Electrical entry] — X132

With supply and release valves

ZL212 type with supply and release valves



## Dimensions





## ZL Series

# Specific Product Precautions

Be sure to read this before handling the products.

Refer to back page 50 for Safety Instructions and pages 49 to 51 for Vacuum Equipment Precautions.

### 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.

ZK2

ZQ

ZR

ZB

ZA

ZX

ZM

**ZL**

ZH

ZH

ZH  
-X267

ZHP

ZU

VQD-V