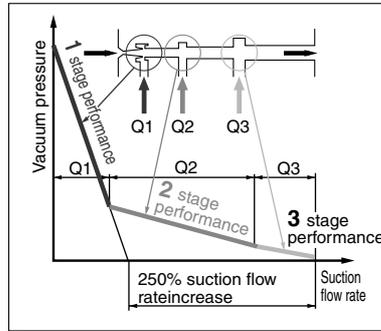




Multistage Ejector Series ZL112/212

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)

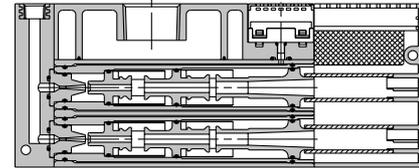


Design Award Winner 2000

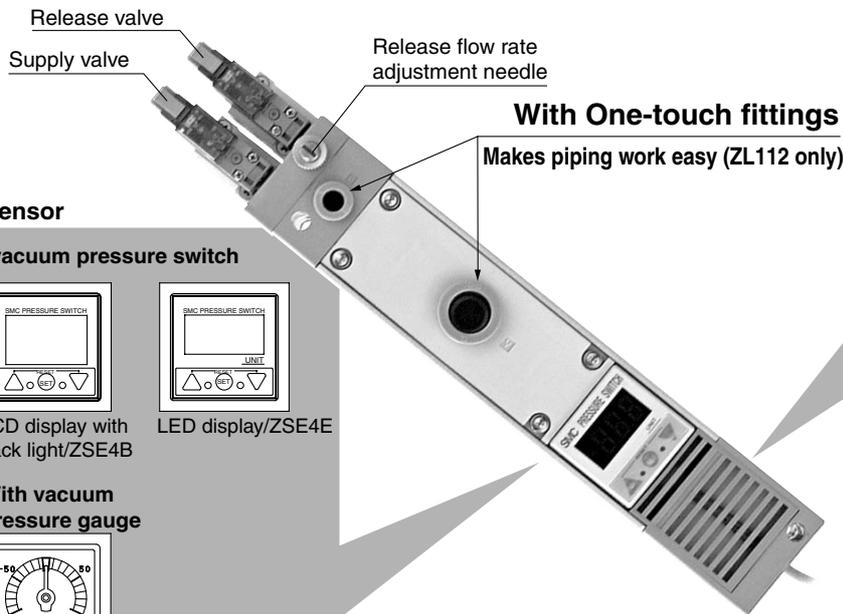
	Maximum suction flow rate (ℓ/min (ANR))	Air consumption (ℓ/min (ANR))
ZL112	100	63
ZL212	200	126

Series ZL212

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



Series ZL112 Valve option now available (ZL112 only)

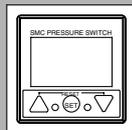


Vacuum pressure sensor

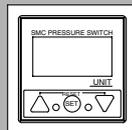
With digital vacuum pressure switch



LCD display/ZSE4

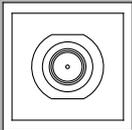


LCD display with back light/ZSE4B

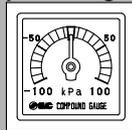


LED display/ZSE4E

With adaptor for vacuum



With vacuum pressure gauge



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			Vacuum pressure gauge	Vacuum adaptor
			Built-in silencer	Port exhaust	With supply and release valves	With supply valve	ZSE4E	ZSE4B	ZSE4		
ZL112	100	63	●	●	●	●	●	●	●	●	●
ZL212	200	126	●	●	●	●	●	●	●	●	●

- ZX
- ZR
- ZM
- ZH
- ZU
- ZL
- ZY
- ZQ
- ZF
- ZP
- ZCU
- AMJ
- Misc.

Precautions

Be sure to read before handling. Refer to pages 13-15-3 to 13-15-4 for Safety Instructions and Common Precautions on the products mentioned in this catalog, and refer to page 13-1-5 for Precautions on every series.

Piping

Caution

1. Connect the compressed air supply piping separately to the solenoid valves and ejector valves. Also, connect each ejector valve to separate piping system.

Operation of Ejector Valves

Caution

1. When the pilot valve for air supply is turned ON, the main valve switches, and vacuum is generated by the flow of compressed air from the nozzle to the diffuser. When the pilot valve for vacuum release is turned ON, the main valve switches, and 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 (Series ZL112/ZL212)

Caution

1. For specific product precautions on solenoid valves (Series ZL112), refer to the solenoid valve (Series SYJ500) catalog.

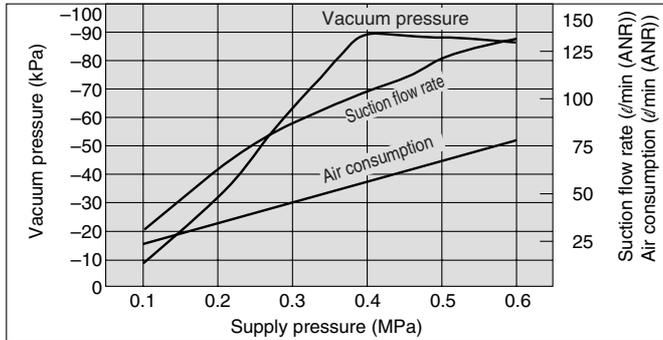
⚠ Precautions

Be sure to read before handling. Refer to pages 13-15-3 to 13-15-4 for Safety Instructions and Common Precautions on the products mentioned in this catalog, and refer to page 13-1-5 for Precautions on every series.

Selection

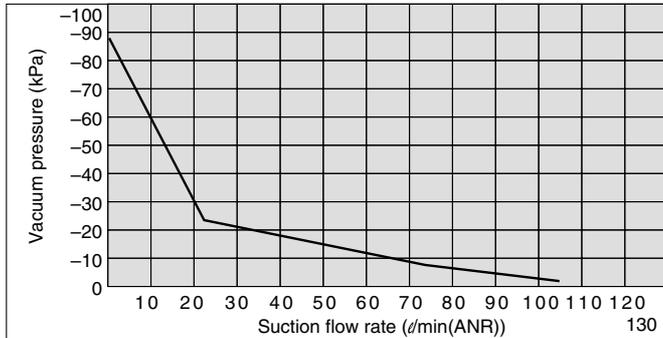
ZL112

Exhaust Characteristics



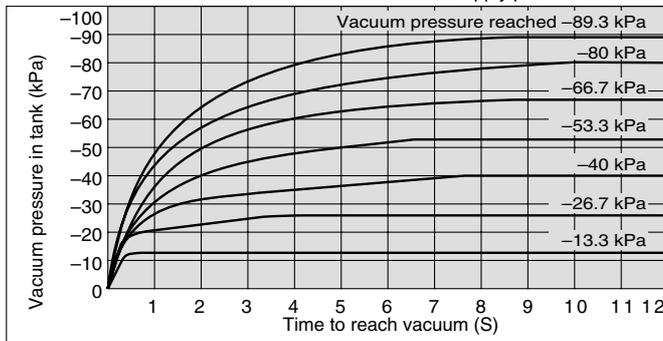
Flow Characteristics

Supply pressure: 0.4 MPa



Time to Reach Vacuum

Tank capacity: 1ℓ
Supply pressure: 0.4 MPa

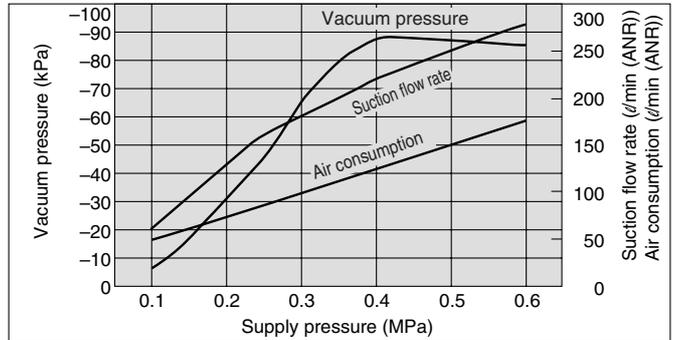


<How to Read the Graph>

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 -89.3 kPa.

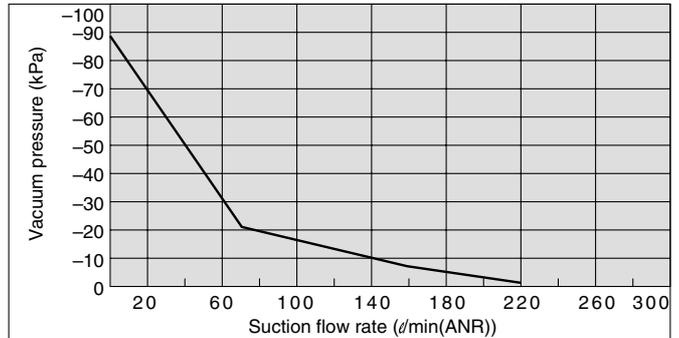
ZL212

Exhaust Characteristics



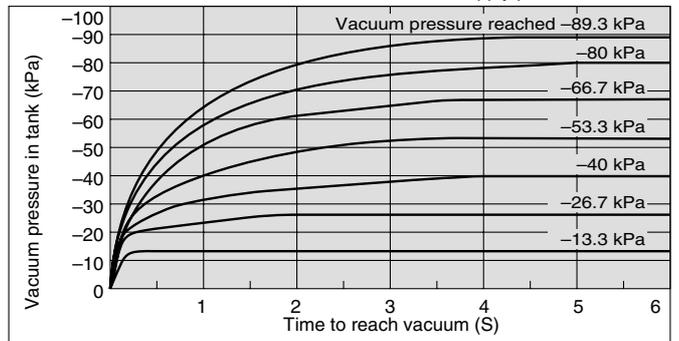
Flow Characteristics

Supply pressure: 0.4 MPa



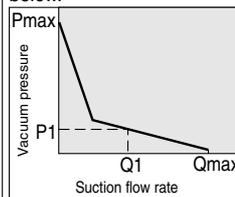
Time to Reach Vacuum

Tank capacity: 1ℓ
Supply pressure: 0.4 MPa



<How to Read the Graph>

The flow 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.

- ZX
- ZR
- ZM
- ZH
- ZU
- ZL
- ZY
- ZQ
- ZF
- ZP
- ZCU
- AMJ
- Misc.

Ejector Specifications

Standard



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

With valve



Supply/Release Valve Specifications

Part no.	SYJ514-□□□
Type of valve actuation	N.C.
Fluid	Air
Operating pressure range	0.2 to 0.5 MPa
Internal pilot type	
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

With vacuum pressure gauge



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.

Adapter



Option Specifications

Vacuum Pressure Gauge Specifications

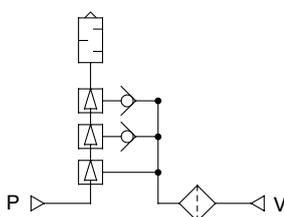
Part no.	GZ30S
Fluid	Air
Pressure range	-100 to 100 kPa
Scale range (Angular)	230°
Accuracy	3% F.S. (Full span)
Class	Class 3
Operating temperature range	±0 to 50°C
Material	Housing: Polycarbonate/ABS resin

Port exhaust



JIS Symbol

Standard



ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

ZCU

AMJ

Misc.

Series ZL

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 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 -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		

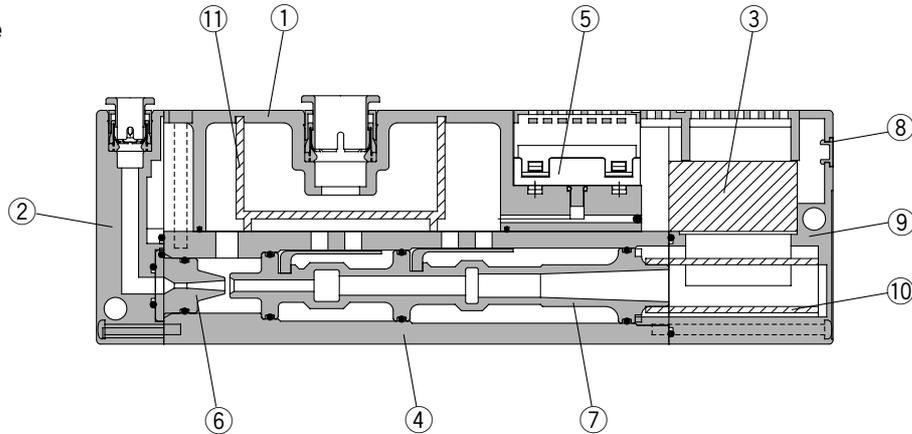
Note) Not available on analog output type.

Output Specifications

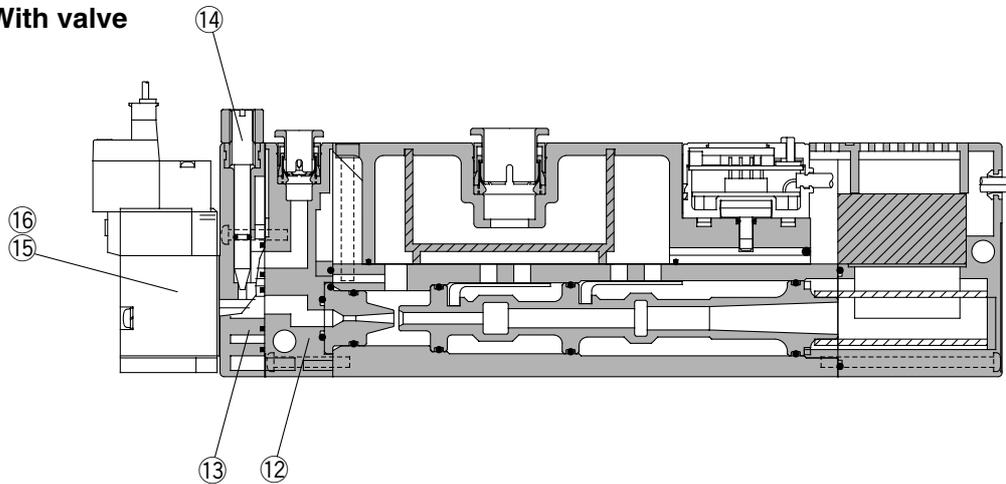
ZSE4 ZSE4B	-25(L)	1 output NPN open collector 30 V, 80 mA or less
	-26(L)	Analog output (1 to 5 V)
	-67(L)	1 output PNP open collector 80 mA or less
ZSE4E	-26(L)	Analog output (1 to 5 V)
	-27(L)	2 outputs NPN open collector 30 V, 80 mA or less
	-67(L)	2 outputs PNP open collector 80 mA or less

Construction

Without valve



With valve



ZX
ZR
ZM
ZH
ZU
ZL
ZY
ZQ
ZF
ZP
ZCU
AMJ
Misc.

Component 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

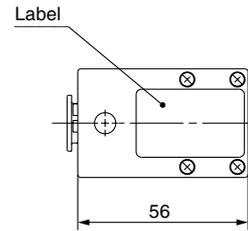
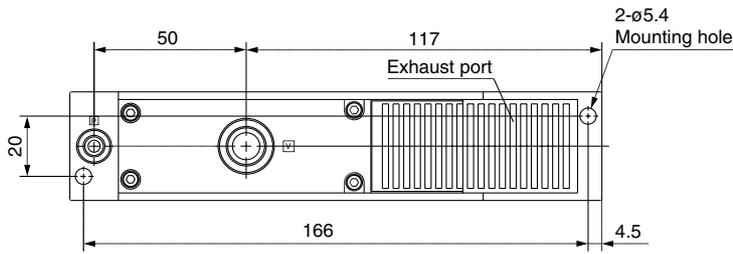
No.	Description	Material	Part no.
⑨	Sound absorbing material B	PVF	ZL112-SP01 (Set no. for 9, 10 & 11)
⑩	Sound absorbing material A	PVF	
⑪	Suction filter	PE	

* 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.

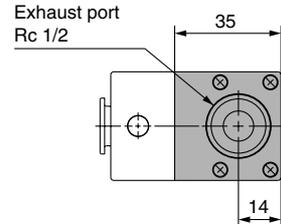
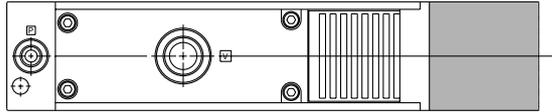
Series ZL

Dimensions: Series ZL112 (Without valve)

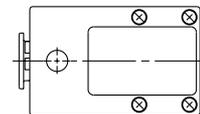
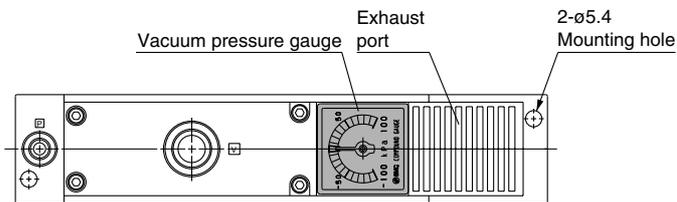
**Standard
ZL112**



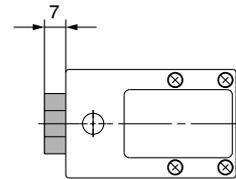
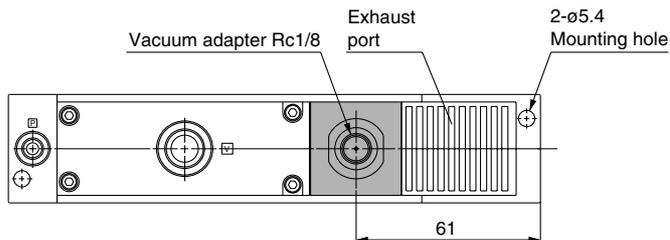
**Port exhaust
ZL112P**



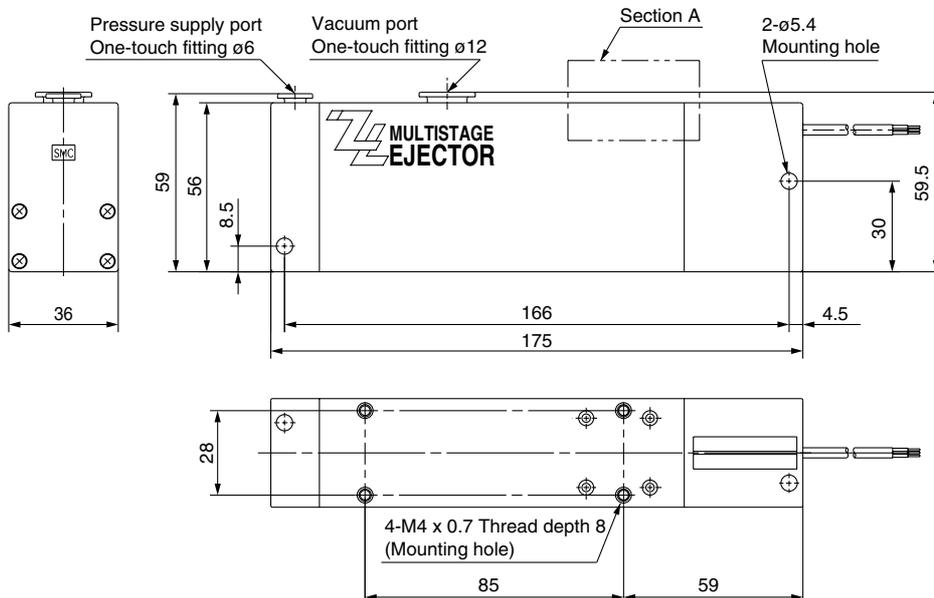
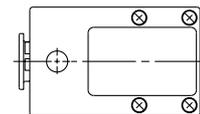
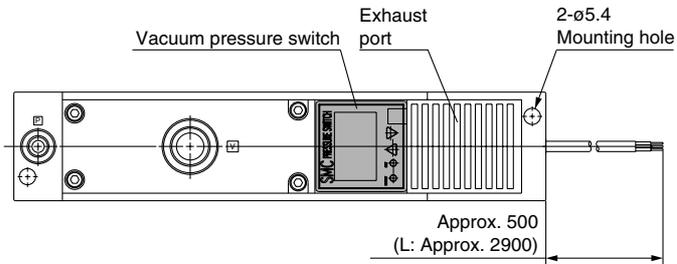
**With vacuum pressure
gauge
ZL112-G**



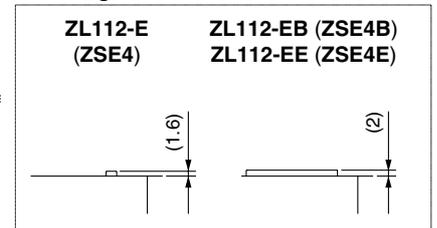
**With vacuum adapter
ZL112-GN**



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

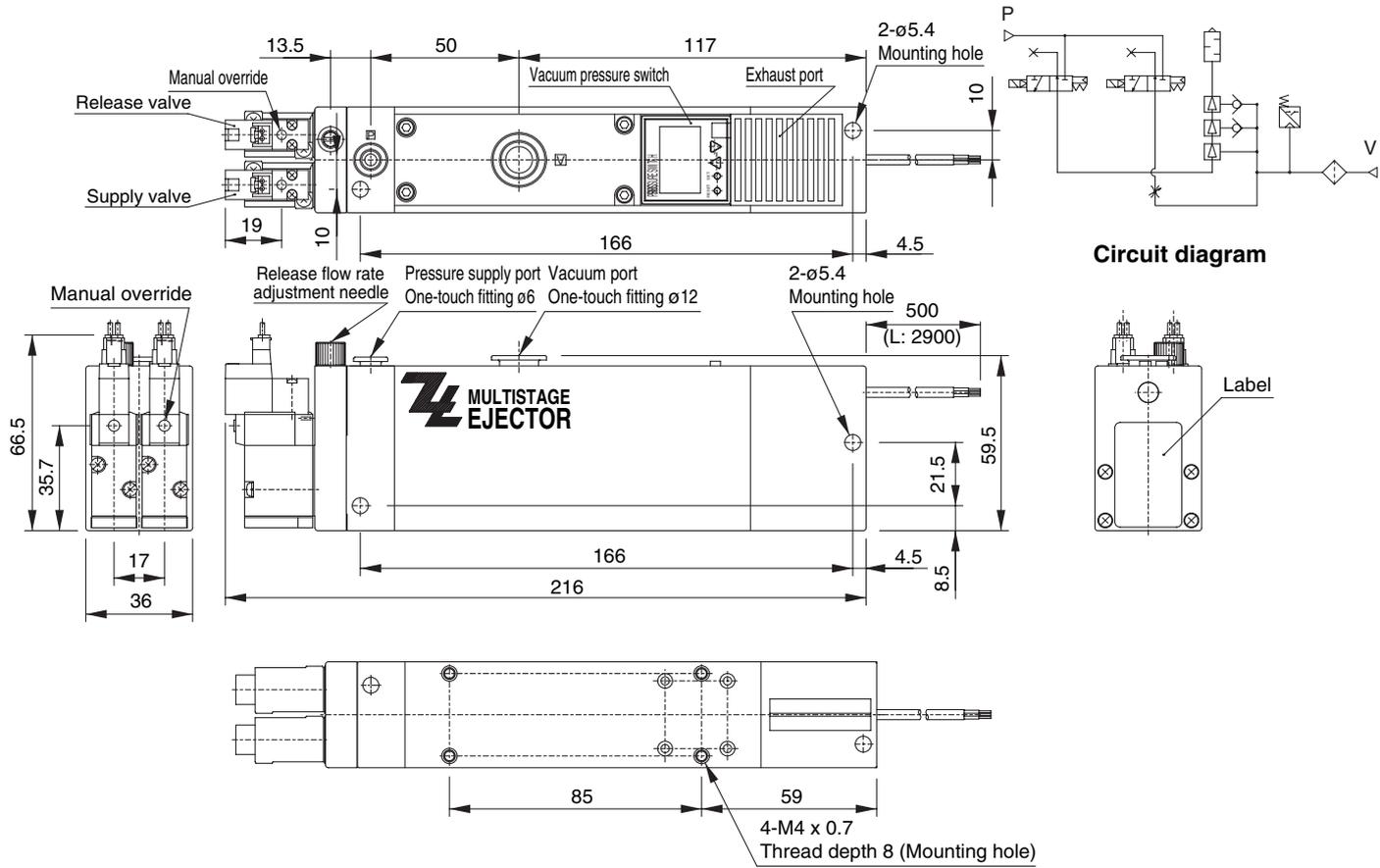


Section A/ With Digital Vacuum Pressure Switch

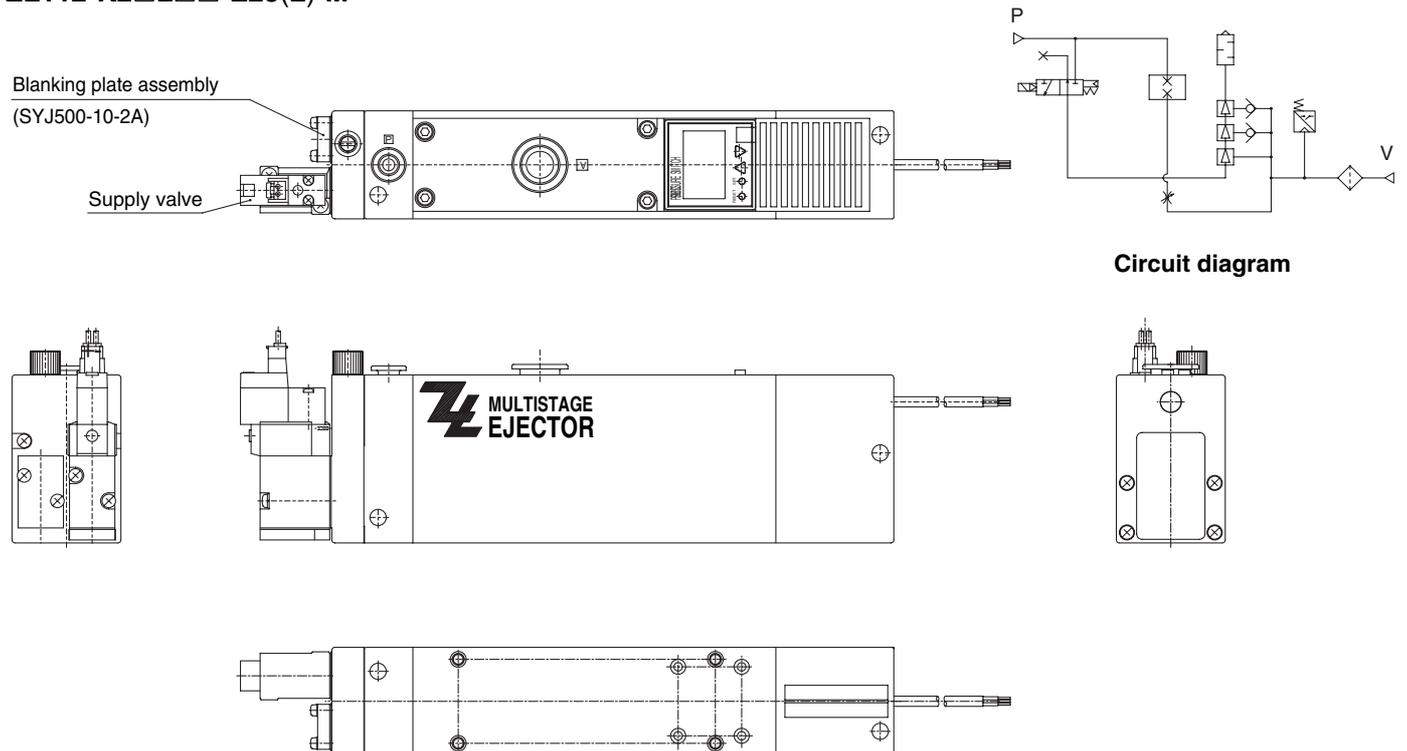


Dimensions: Series ZL112 (With Valve)

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

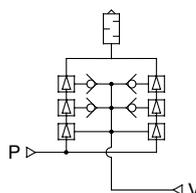
* Not required for Nil, vacuum adaptor ("GN") and vacuum pressure gauge ("G").

Ejector Specifications

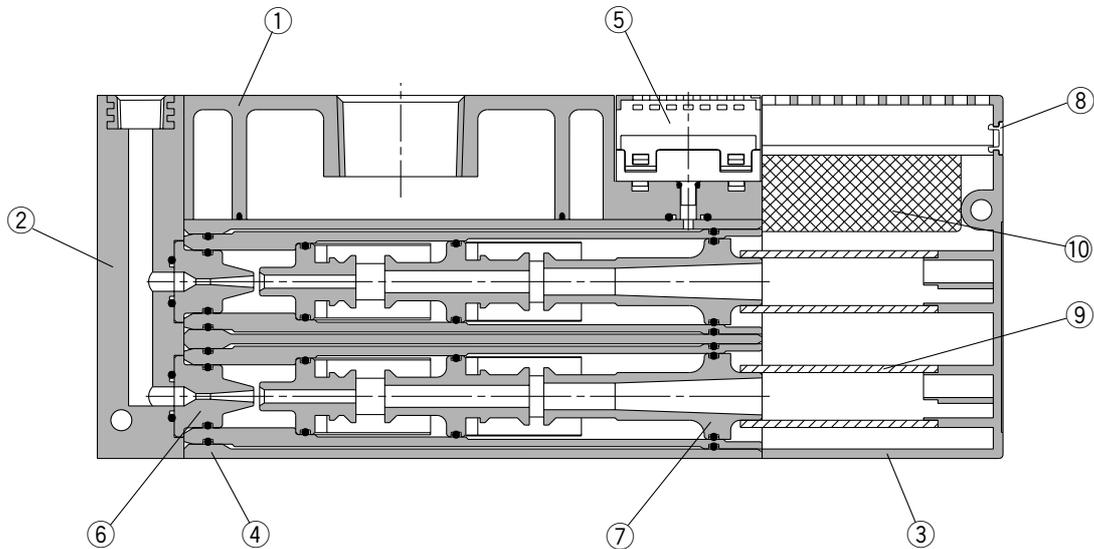
Model	ZL212
Nozzle diameter	ø1.2 mm x 2
Maximum suction flow rate	200 ℓ/min (ANR)
Air consumption	126 ℓ/min (ANR)
Maximum vacuum pressure	-84 kPa
Maximum operating pressure	0.7 MPa
Supply pressure range	0.2 to 0.5 MPa
Standard supply pressure	0.4 MPa
Operating temperature range	5 to 50°C

* 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.

ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

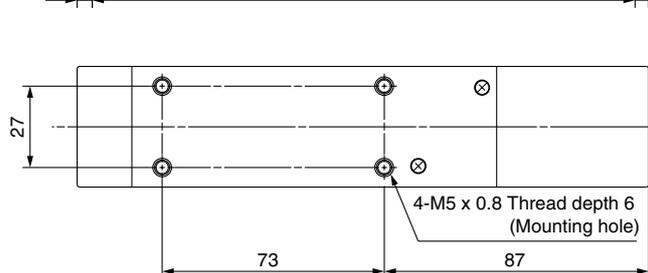
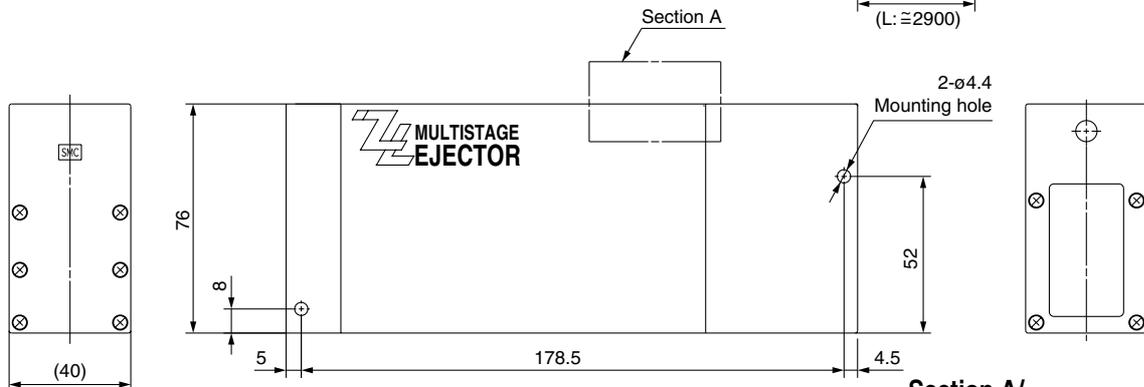
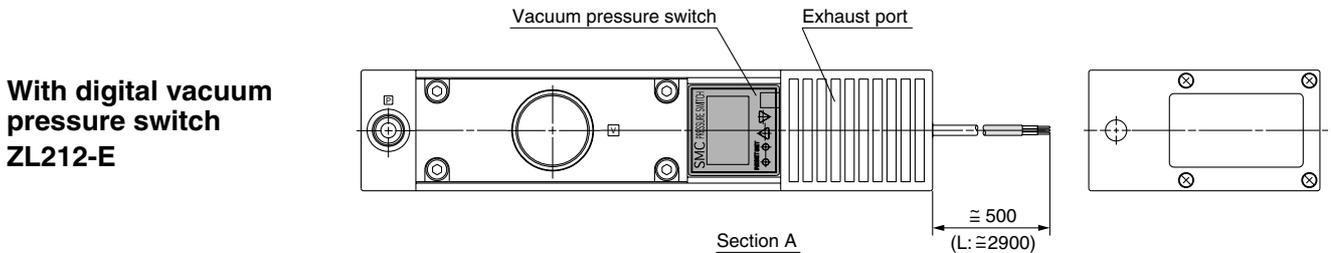
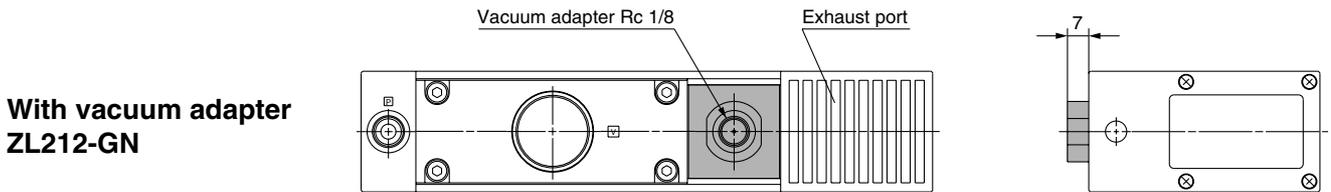
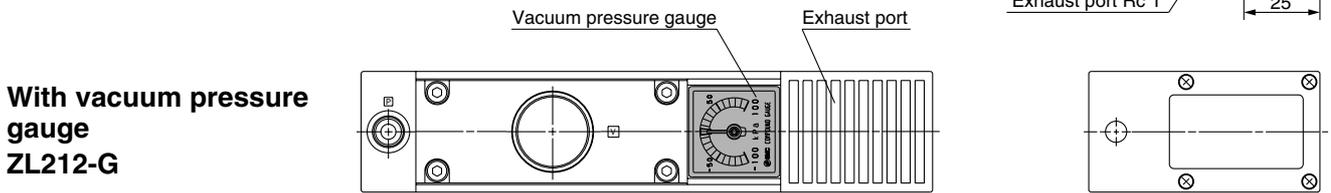
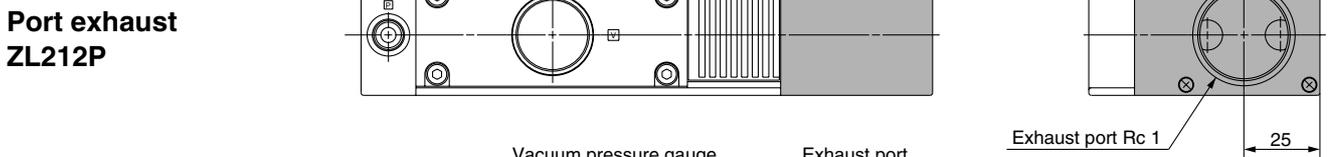
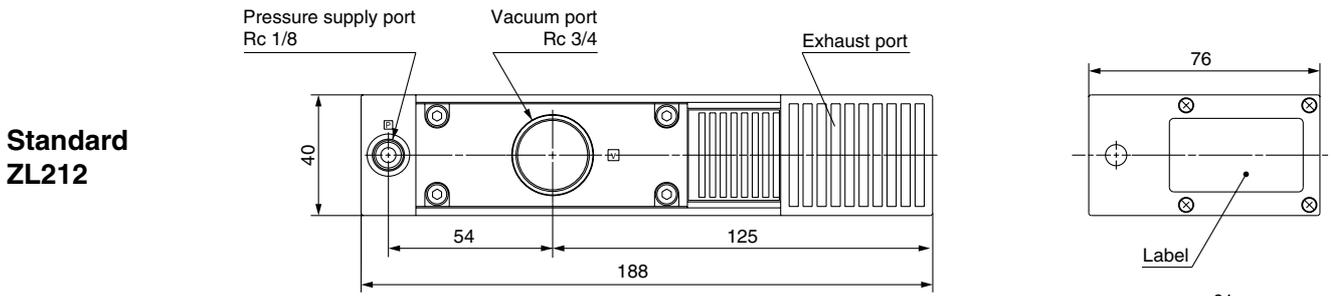
ZCU

AMJ

Misc.

Series ZL

Dimensions: Series ZL212



Section A/ With Digital Vacuum Pressure Switch

