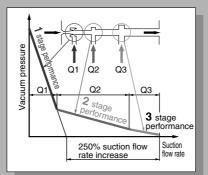
Multistage Ejector

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)



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

ZA

ZX

ZR

ZM

ZMA

ZQ

ZH

ZU

ZL

ZY

ZF

ZP

SP

ZCUK

AMJ

AMV

AEP

HEP

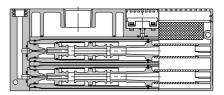
Equipment

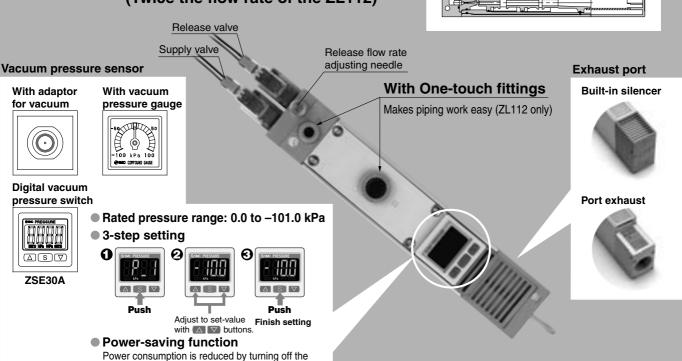
Series ZL212

monitor. (Reduce power consumption by up to 20%.)

* For series ZSE30A, refer to the separate catalog (CAT.ES100-70) for

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





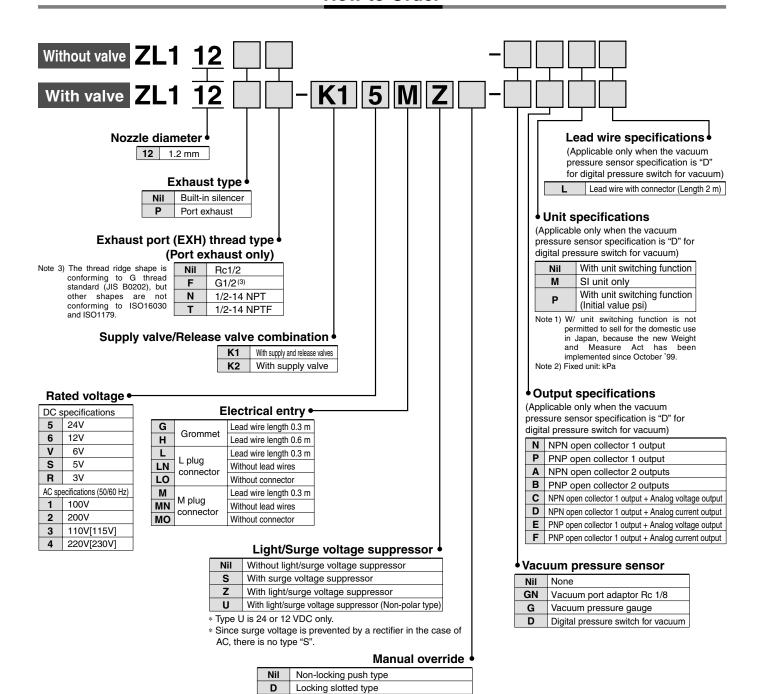
Series Variations Vacuum pressure sensor option With digital vacuum pressure switch Maximum suction Vacuum Exhaust port With valve Air consumption Vacuum Series With supply and release valves adapter (ℓ/min (ANR)) Built-in silencer | Port exhaust With supply valve ZSE30A (ℓ/min (ANR)) gauge **ZL112** 100 63 **ZL212** 200 126

多SMC

1067 ®

Multistage Ejector Series ZL112

How to Order



Multistage Ejector Series ZL112

Standard



With valve



With vacuum pressure gauge



Adapter



Port exhaust



Ejector Specifications

Model	ZL112
Nozzle diameter	1.2 mm
Maximum suction flow rate	100 ∉/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	on	N.C.
Fluid		Air
Operating pressure range	Internal pilot type	0.15 to 0.7 Mpa
Ambient and fluid tem	perature	-10°C to 50°C (No freezing)
Response time (For 0	.5 MPa) ⁽¹⁾	25 ms or less
Maximum operating fre	equency	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 (2)		150/30 m/s ²
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" for details on valves.

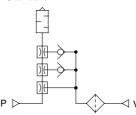
Option Specifications

auum Proceure Couge Specifications

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

JIS Symbol

Standard



Mass

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

ZA ZX

ZR

ZM

ZMA

ZQ

ZH

ZU

ZL ZY□

ZF□ ZP□

SP

ZCUK

AMJ

AMV AEP

HEP

Equipment

Vacuum Pressure Switch Unit/Digital Pressure Switch for Vacuum: ZSE30A-00-□-□□□-X505



How to Order

ZSE30A - 00 - Option					- X505			
Currente e l	Out	tput	Analog	output			Nil	Operating manual (Leaflet)
Symbol	Type	Point	Voltage	Current			Υ	Without operating manual
N	NPN	1	_	_				
Р	PNP	1	_	_		,	Option	1 (Connector/Lead wire specifications)
Α	NPN	2	_	_		l	Nil	Without lead wire
В	PNP	2	_	_			L	Lead wire with connector (Length 2 m)
С	NPN	1	0	_		'		
D	NPN	1	_	0		Displ	ay unit	
E	PNP	1	0	_	Г	Nil		unit display switching function
F	PNP	1	_	0	H	M		I SI unit
						P	With	unit display switching function

Specifications

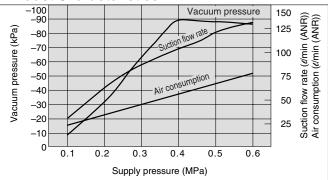
Dat	od n	roccuro rango	0.0 to -101.0 kPa	
Rated pressure range				
Set pressure range			10.0 to -105.0 kPa	
		nd pressure	500 kPa	
		m unit setting	0.1 kPa	
		ble fluid	Air, Non-corrosive gas, Non-flammable gas	
		supply voltage	12 to 24 VDC ±10% (with power supply polarity protection)	
Cur	rent	consumption	40 mA (at no load)	
Swi	tch (output	NPN or PNP open collector 1 output	
ļ -		<u> </u>	NPN or PNP open collector 2 outputs (selectable)	
		ximum load current	80 mA	
		ximum applied voltage	28 V (at NPN output)	
		sidual voltage	1 V or less (with load current of 80 mA)	
		sponse time	2.5 ms or less (with anti-chattering function: 20, 100, 500, 1000, 2000 ms)	
	Sho	ort circuit protection	Yes	
		ability	±0.2% F.S. ±1 digit	
Hystere- sis	Hys	steresis mode	Variable (0 to variable)	
Hys s		ndow comparator mode	variable (o to variable)	
	Note 1)	Output voltage (Rated pressure range)	1 to 5 V ±2.5% F.S.	
Ħ	ltag tpu	Linearity	±1% F.S. or less	
τb	≥ s	Linearity Output impedance	Approx. 1 kΩ	
Analog output	Note 2)	Output current (Rated pressure range)	4 to 20 mA ±2.5% F.S.	
<u> </u>	Current output	Linearity	±1% F.S. or less	
na			Maximum load impedance:	
۹	٥ ٥	Load impedance	Power supply voltage 12 V: 300 Ω , Power supply voltage 24 V: 600 Ω	
			Minimum load impedance: 50 Ω	
Dis	play		4-digit, 7-segment, 2-color LCD (Red/Green) Sampling cycle: 5 times/sec.	
Dis	play	accuracy	±2% F.S. ±1 digit (Ambient temperature of 25°C)	
Indi	cato	or light	Lights up when switch output is turned ON. (OUT1: Green, OUT2: Red)	
ce	End	closure	IP40	
tan	Оре	erating temperature range	Operating: 0 to 50°C, Stored: -10 to 60°C (No freezing or condensation)	
sis	Оре	erating humidity range	Operating/Stored: 35 to 85% RH (No condensation)	
re e	Wit	hstand voltage	1000 VAC for 1 minute between live parts and case	
Environment resistance	Ins	ulation resistance	50 MΩ or more between live parts and case (at 500 VDC Mega)	
E Vibratian madatana		ration resistance	10 to 150 Hz at whichever is smaller of 1.5 mm amplitude or	
Σį	VID	ration resistance	20 m/s ² acceleration, in X, Y, Z directions, for 2 hours each	
ய் Impact resistance		act resistance	100 m/s ² , in X, Y, Z directions, for 2 hours each	
Ten	nper	ature characteristics	±2% F.S. (Based on 25°C)	
			Oilproof heavy-duty vinyl cable, 3 cores ø3.5, 2 m	
Lead wire		re	4 cores Conductor area: 0.15 mm² (AWG26)	
			Insulator O.D.: 1.0 mm	
Standards			CE Marking, UL/CSA, RoHS compliance	
Note 1) When analog voltage cutout			is selected, analog current output cannot be used together	

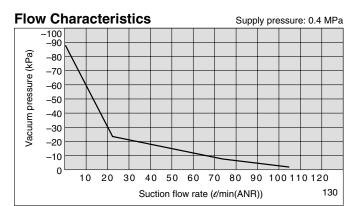
Note 1) When analog voltage output is selected, analog current output cannot be used together. Note 2) When analog current output is selected, analog voltage output cannot be used together.

Exhaust Characteristics/Flow Characteristics/Time to Reach Vacuum

ZL112

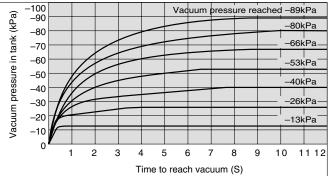






Time to Reach Vacuum

Tank capacity: 1*t* Supply pressure: 0.4 MPa

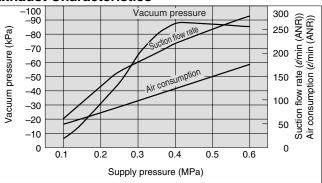


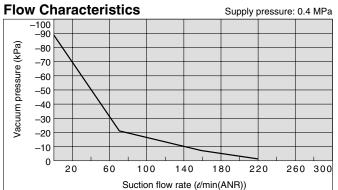
<How to Read the Graph>

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.

ZL212

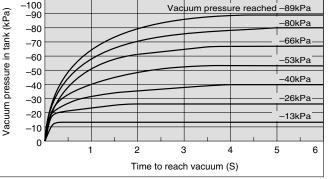
Exhaust Characteristics

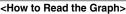




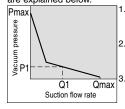
Time to Reach Vacuum

Tank capacity: 1*e* Supply pressure: 0.4 MPa





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.



. 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

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)

If the suction port is opened completely, the suction flow rate increases to the maximum

rithe 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.

ZA

ZX

ZM

ZR

ZMA

ZQ

ZH

ZU

ZL

ZY□

ZF□ ZP□

SP

ZCUK

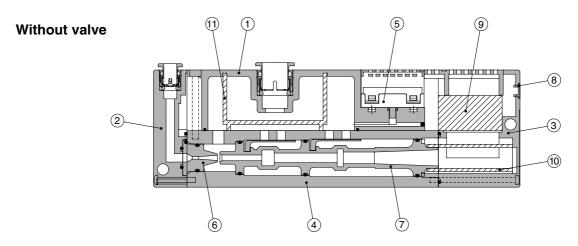
AMJ

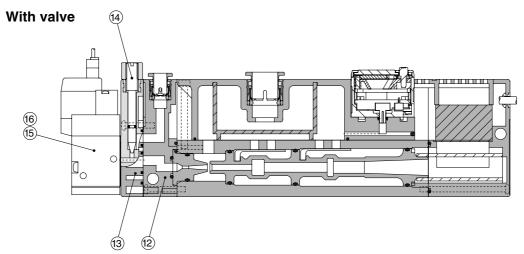
AMV

HEP

Related Equipment

Construction





Comonent Parts

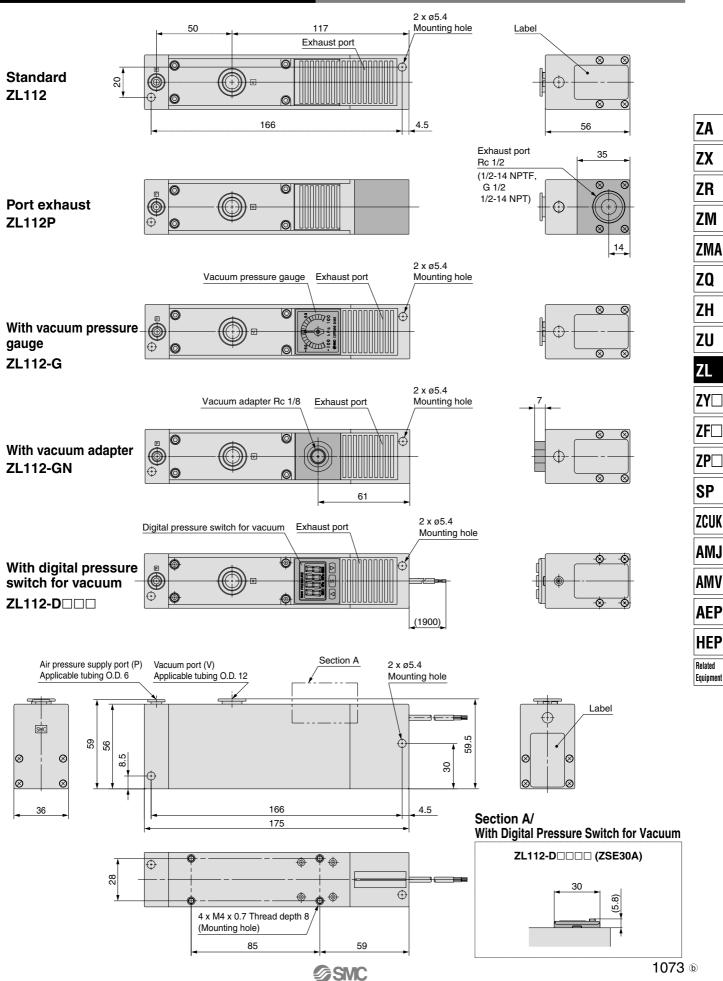
No.	Description	Part no.	Note
1	Suction cover		
2	Front cover		Without valve
3	End cover		
4	Body		
5	Vacuum sensor unit		
6	Nozzle		
7	Diffuser		
8	Detent plug		Other than vacuum switch
	Lead wire cover		Vacuum switch specifications
12	Front cover B		With valve
13	Valve plate		With valve
14	Needle	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

Replacement Parts

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

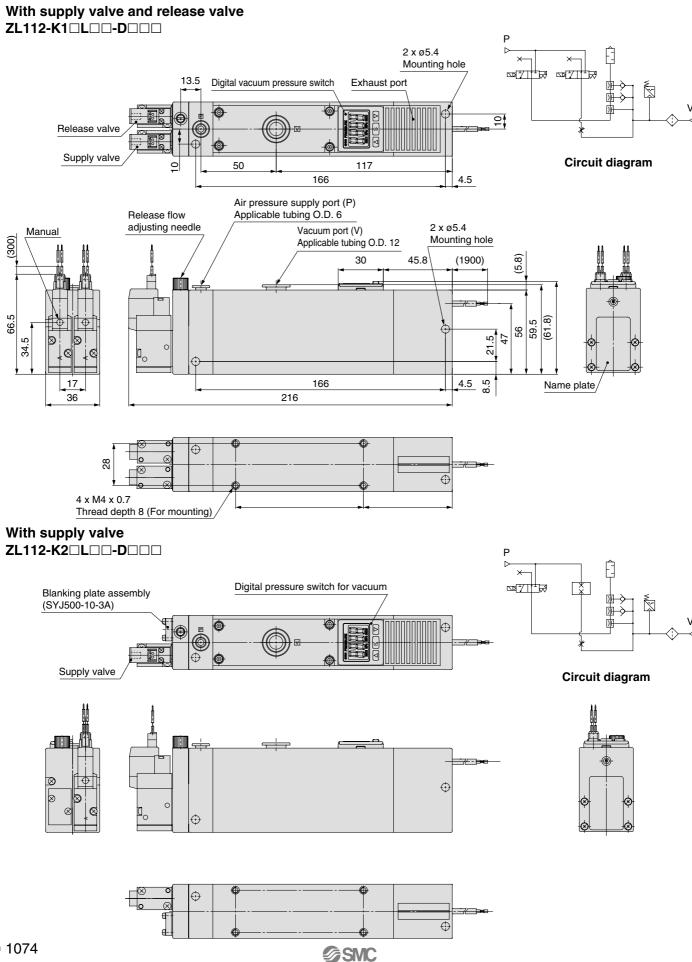
Multistage Ejector Series ZL112

Dimensions: Series ZL112 (Without Valve)



Series ZL112

Dimensions: Series ZL112 (With Valve)



Multistage Ejector

Series ZL212





With vacuum pressure gauge



With digital vacuum pressure switch



With adaptor



Port exhaust



Made to Order (Refer to page 1078 for details.)



ZL2 <u>12</u>

Nozzle diameter

12 1.2 mm

Exhaust specifications

Nil	Built-in silencer	
Р	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

ZA

ZX

ZR

ZM

ZMA

ZQ

ZH

ZU

ZL

ZY□

ZF□

ZP□

SP

ZCUK

AMJ

AMV

AEP

HEP

Equipment

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

Lead wire with connector (Length 2 m)

Unit specifications

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

Nil	Nil With unit switching function	
M	SI unit only	
Р	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)

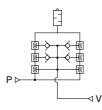
N	NPN open collector 1 output		
Р	PNP open collector 1 output		
Α	NPN open collector 2 outputs		
В	PNP open collector 2 outputs		
С	NPN open collector 1 output + Analog voltage output		
D	NPN open collector 1 output + Analog current output		
Е	PNP open collector 1 output + Analog voltage output		
_	BNB		

F PNP open collector 1 output + Analog current output

Ejector Specifications

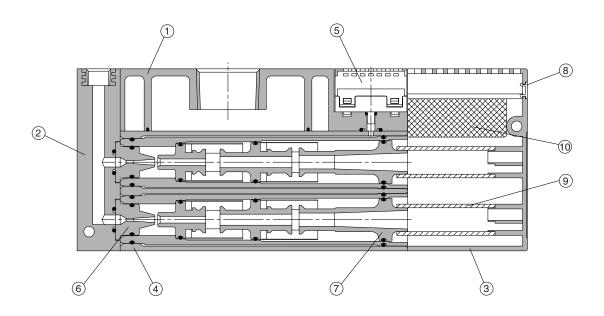
Model	ZL212		
Nozzle diameter	ø1.2 mm x 2		
Maximum suction flow rate	200 //min (ANR)		
Air consumption	126 ∉min (ANR)		
Maximum vacuum pressure	-84 kPa		
Maximum operating pressure	0.7 MPa		
Supply pressure range	0.2 to 0.5 MPa		
Standard supply pressure	0.4 MPa		
Operating temperature range	5 to 50°C		

JIS Symbol Standard



IVIASS			
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		

Construction



Component Parts

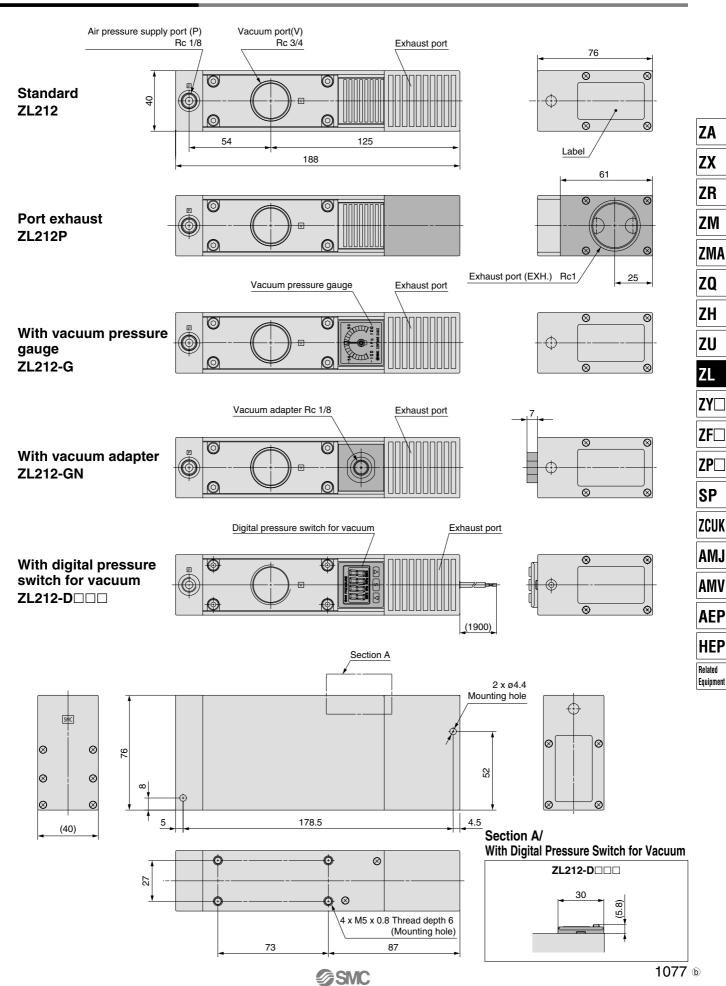
No.	Description	Note
1	Suction cover	
2	Front cover A	
3	End plate	
4	Body	
5	Vacuum sensor unit	
6	Nozzle	
7	Diffuser	
8	Detent plug	Other than vacuum switch
0	Lead wire cover	Vacuum switch specifications

Replacement Parts

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

Multistage Ejector Series ZL212

Dimensions: Series ZL212



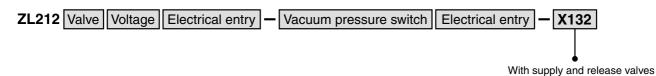
Series **ZL**

Made to Order Specifications



Please contact SMC for detailed specifications, dimensions and delivery.

1 With Supply and Release Valves

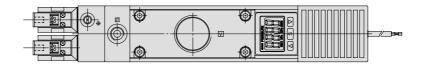


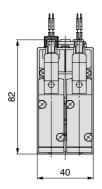
ZL212 type with supply and release valves

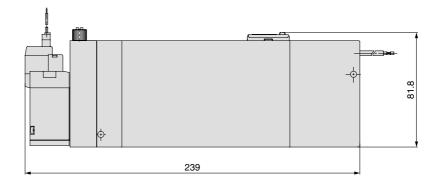


Dimensions

b 1078









Series ZL Specific Product Precautions

Be sure to read before handling. Refer to front matters 38 and 39 for Safety Instructions and pages 844 to 846 for Vacuum Equipment Precautions.

Operation of Ejector Valves

⚠ Caution

 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 (Series ZL112)

⚠ Caution

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

ZA

ZX

ZR

ZM

ZMA

ZQ

ZH

ZU

ZL

ZY□

ZF□ ZP□

SP

ZCUK

AMJ

AMV

AEP

HEP

Related Equipment