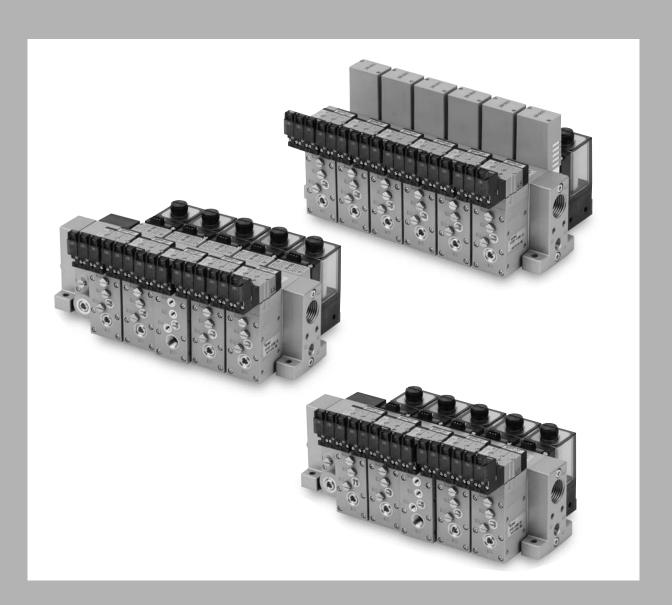
Large Size Vacuum Module:

Series ZR

Ejector System/Vacuum Pump System

- Large suction flow rate, suitable when used with large size pads or multiple pads.
- Nozzle dia. ø1.0, ø1.3, ø1.5, ø1.8, ø2.0
- Vacuum module suitable for handling workpieces of 0.5 to 5 kg.



ZA

ZX

ZR

ZM

ZMA

ZQ

ZH

ZU

ZL

ZY□

ZF□ ZP□

SP

ZCUK

AMV

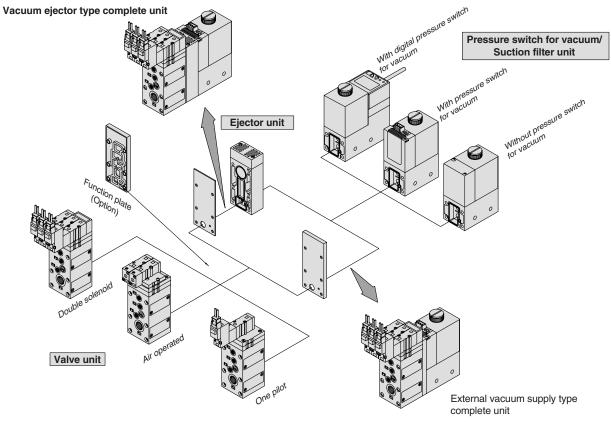
AEP

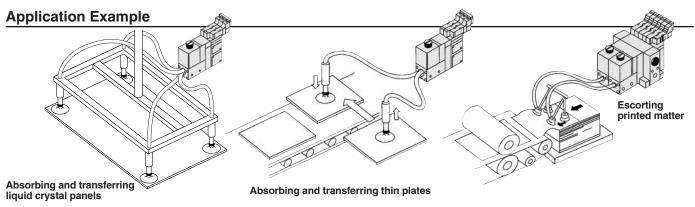
HEP

Large Size Vacuum Module: Ejector System/Vacuum Pump System Series ZR

Vacuum module suitable for handling workpieces of 0.5 to 5 kg.

- Modular design/Customized application function through selection of modular components.
 - Modules for use with external vacuum supply (from pump or mainline) or as an air driven ejector system.
 - Safe Vacuum self-holding function by means of double solenoid valves.
 - **■** Compact, Lightweight
 - Manifolding possible



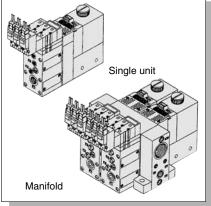


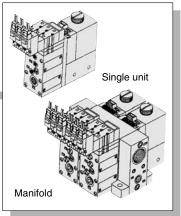
Absorbing and transferring copper plates, Automatic labeling machine, Absorbing and transferring veneers, Automatic screw fastening machine



Modular Components Introduction

	Syst	tem			Ejector System				Vacuum Pump System		
Component equipment		Character	istics			P.	940 to 9	067		=	P. 968 to 983
Ejector unit	Nozzle dia. (mm) Maximum suction flow rate (ℓ/min. (ANR)) Type S Type L			1.0	1.3	1.5	1.8	2.0	ì.		
ZR1-W				22 42	38 52	54 74	62 88	84 105			
	⊢ `	Air consumption (ℓ /min (ANR))			46	78	95	150	185	1	_
	Ma	ximum vacuum	pressure	r	S: -8	⊥ 4 kPa	L: -50	⊥ 3 kPa		┲	
	Exhaust release (Ejector exhaust)			1		er, Manifo aust port	ld exhaus	st			
alve unit	Cor	mponent equipm	nent	_			Supply va	alve (Pilot	type)/R	eleas	e valve (Pilot type)
'R1-V	Fur	nction							N.C./N	l.O.	
	Ope	eration		╠	Solenoid valve (Double, Single)/Air operated valve						
	Pov	ver supply volta	ge		3, 5, 6, 12, 24 VDC, 100, 110 VAC (50/60Hz)						
ressure switch for vacuum	Set pressure range						-101 to	0 kPa/-	101 to	o 10 kPa	
'SE2-0R-15 SE30A-00-□-□□□-X505	Hys	steresis		L	3% or less/variable						
	Operating voltage				12 to 24 VDC (Ripple ±10% or less)						
Suction filter unit	Оре	Operating pressure range			Vacuum to 100 kPa						
ZR1-F	Filtration degree			L	30 _/ um						
	Ma	terial			PVF						
unction plate	RV1			Air pressure supply port(PV)←→Pilot pressure supply port(PS)←→Release pressure supply port(PD)							
ZR1-RV		Symbol	RV2	L	Air pressure supply port(PV) ←→Pilot pressure supply port(PS) / Release pressure supply port(PD)						
			RV3		Air pressure supply port(PV) / Pilot pressure supply port(PS)←→Release pressure supply port(PD)						
		A:		_					Po	1/-	
	L C D I	Air supply port		1					Rc :		
		Vacuum pad co	•	1	Rc 1/8						
Common	٦	Pilot valve con			Rc 1/8 M5						
specifications	Manifol	Release valve o	· · · · · ·	r	M5						
	\mathbb{Z}	Common exha	•						Rc		
		External vacuu	•								Rc 1/8
Refer to pages for further speci					Ja.						





ZA

ZX

ZR

ZM

ZMA

ZQ

ZH

ZU

ZL

ZY□

ZF□

ZP□

SP

ZCUK

AMJ

AMV

AEP

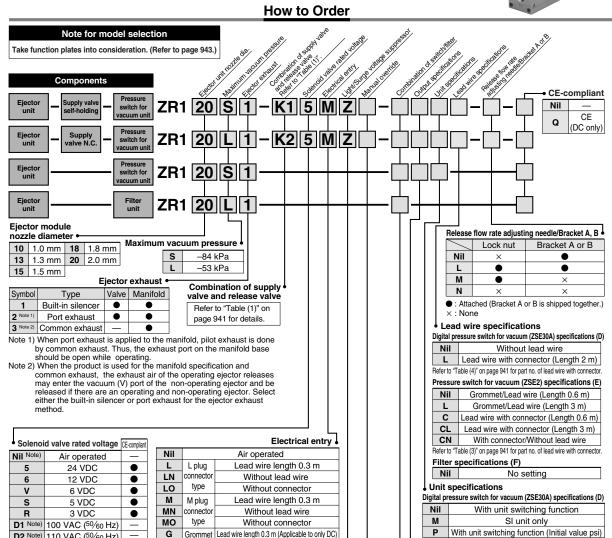
HEP
Related
Equipment

Large Size Vacuum Module: Ejector System

Series ZR







D1 Note) 100 VAC (50/60 Hz) D2 Note) 110 VAC (50/60 Hz) Note) Air operated, 100 VAC, and 110

INII	Air operated			
L	L plug	Lead wire length 0.3 m		
LN	connector	Without lead wire		
LO	type	Without connector		
M	M plug	Lead wire length 0.3 m		
MN	connector	Without lead wire		
МО	type	Without connector		
G	Grommet	Lead wire length 0.3 m (Applicable to only DC)		
Н	type	Lead wire length 0.6 m (Applicable to only DC)		

Refer to "Table (2)" on page 941 for part no. of lead wire with connector.

Manual override

Light/Surge voltage suppressor

VAC type are not CE-compliant.

Nil	None
Z	With light/surge voltage suppressor
S	With surge voltage suppressor

* S is not available for AC. DC voltage (with surge voltage suppressor) If the polarity is incorrect at DC (surge voltage suppressor), diode or switching element may be damaged.

Combination of switch/filter

Nil Non-locking push type Slotted locking type

Nil	None
D	Digital pressure switch for vacuum (ZSE30A) + Filter
E	Pressure switch for vacuum (ZSE2) + Filter
F	Filter

Output specifications

Digital pressure switch for vacuum (ZSE30A) specifications (D) NPN open collector 1 output N Р PNP open collector 1 output NPN open collector 2 outputs PNP open collector 2 outputs R С NPN open collector 1 output + Analog voltage output D NPN open collector 1 output + Analog current output PNP open collector 1 output + Analog voltage output

PNP open collector 1 output + Analog current output

Pressure switch for vacuum (ZSE2) specifications (E)

Note 1) This is no longer sold for use in Japan due to the Weight

and Measure Act (implemented October, 1999).

Pressure switch for vacuum (ZSE2) specifications (E)

No setting

No setting

Note 2) Fixed unit: kPa

Filter specifications (F)

(====) - (=)					
Nil	NPN open				
INII	collector 1 output				
55	PNP open				
ວວ	collector 1 output				
Filter specifications (F)					
Nil	No setting				



Table (1) Combination of Supply Valve and Release Valve

Valve	unit fund	Valve unit components			
Operation stop	Vacuum vacuum release		Supply valve	Release valve	
0	0	0	Double SOL. (VJ3233-X17)	N.C. (VJ3133)	
0	0	0	N.C. (VJ3133)	N.C. (VJ3133)	
0	0	0	Air operated (VJA3130)	Air operated (VJA3130)	
×	0	0	N.C. (VJ3133)		
×	0	0	Air operated (VJA3130)		
×	0	0	N.O. (VJ3133)		
×	0	0	Double SOL. (VJ3233-X18)		
: Possible (without self-hol	: Possible with	_	_		

ive ai	and Release valve									
		Supply	valve							
Cumbal	S	olenoid valv	е	Air operated	Solenoid valv		'e	Air operated		
Symbol	Double SOL. (VJ3233-X17)	Double SOL. (VJ3233-X18)	N.C (VJ3133)	(VJA3130)	Double SOL. (VJ3233-X17)	Double SOL. (VJ3233-X18)	N.C (VJ3133)	(VJA3130)		
K1	•	_	_	_		_	•	_		
K2	_	_	•	_	_	_	•	_		
КЗ	_	_	_	•		_	_	•		
C1	_	_	•	_		_	(Common with supply valve			
C2	ı	_	_	•	ı	ı	_	(Common with supply valve		
СЗ	_	_	•	_		_	(Common with supply valve	_		
C4	_	•	_	_	_	(Common with supply valve)	_	_		
Nil	Without valve module									

Table (2) How to Order Valve Plug Connector Assembly

VJ10 - 36 - 3A -

	aa wiic ichigiii
Nil	300 mm (Standard)
6	600 mm
10	1000 mm
15	1500 mm
20	2000 mm
25	2500 mm
30	3000 mm

Lead wire length

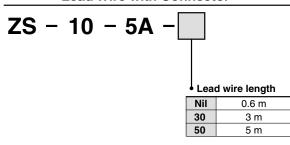
How to order

110 VAC

(with rectifier)

When requiring a vacuum unit equipped with valves with lead wires of 600 mm or more, specify the vacuum module valves without the standard connectors and order the required connector ass'ys separately.

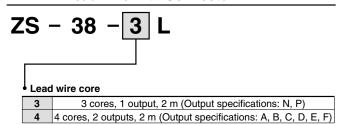
Table (3) Pressure Switch for Vacuum/ Lead Wire with Connector



How to order

When requiring a vacuum switch with a lead wire of 5 m, indicate the part numbers of the vacuum unit switch without a lead wire connector and the 5 m lead wire connector separately.

Table (4) Digital Pressure Switch for Vacuum/ Lead Wire with Connector



ZA

ZM

ZMA

ZQ

ZH

ZU ZL

ZY□

ZF□ ZP□

SP

ZCUK

AMJ

AMV

AEP

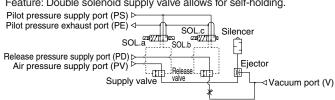
HEP Related

Equipment

Ejector System/Combination of Supply Valve and Release Valve

Combination Symbol: K1

Feature: Double solenoid supply valve allows for self-holding

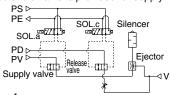


How to Operate

Pilot valve operation		/ valve	Release valve	Note
Operation	SOL.a	SOL.b	SOL.c	When power supply is cut
1. Adsorption	ON	OFF	OFF	off while the supply valve
2. Vacuum release	OFF	ON	ON	is ON, the operational
3. Operation stop	OFF	ON	OFF	state is held.

Combination Symbol: **K2**

Feature: Single solenoid valve is provided for supply valve.

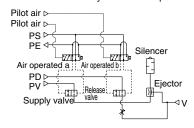


How to Operate

Pilot valve operation	Supply valve	Release valve	Note
Operation	SOL.a	SOL.c	1411
Adsorption	ON	OFF	When power supply is stopped, all operations
2. Vacuum release	OFF	ON	will be stopped.
3. Operation stop	OFF	OFF	20 etoppou.

Combination Symbol: K3

Feature: Operation can be controlled by an external pilot valve.



How to Operate

Pilot valve operation	Supply valve	Release valve	Note
Operation	Air operated a	Air operated b	The product is used under the environment in which
1. Adsorption	ON	OFF	solenoid valves cannot be
2. Vacuum release	OFF	ON	centralized control is
3. Operation stop	OFF	OFF	applied using external pilot air.

⚠ Caution

When pipe connection is made to one port connection (PV port) only, use a function plate (ZR1-RV1). Refer to page 943 for further information.

Combination Symbol: C1

Feature: Adsorption of workpieces (when energized) and release of vacuum (when de-energized) PE∢ are switched by single Silencer solenoid valve. Supply valve Release Ejector 咖

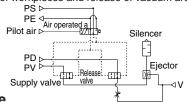
How to Operate

Pilot valve	Supply valve/Release valve	Note
Operation	SOL.a	Be careful for blowing off of workpieces or
1. Adsorption	ON	displacement of adsorption position in case
2. Vacuum release	OFF	of small and/or lightweight workpieces.

Combination Symbol: C2

pilot valve.

Feature: Adsorption of workpieces and release of vacuum are switched by external



How to Operate

Pilot valve operation	Supply valve/Release valve	Note
Operation	Air operated a	Be careful for blowing off of workpieces or
1. Adsorption	ON	displacement of adsorption position in case
2. Vacuum release	OFF	of small and/or lightweight workpieces.

Combination Symbol: C3

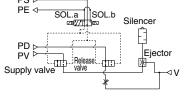
Feature: Adsorption of workpieces (when de-energized) and release of vacuum (when energized) are SOL.a switched by single solenoid válve. Ejector Release 幽 -111 Supply valve

How to Operate

_		
Pilot valve	Supply valve/Release valve	Note
Operation	SOL.a	Be careful for blowing off of workpieces or
 Adsorption 	OFF	displacement of adsorption position in case
2. Vacuum release	ON	of small and/or lightweight workpieces.

Combination Symbol: C4

Feature: Adsorption of workpieces and release of vacuum are switched by double solenoid PS ⊳ válve. PĒ ⊲-



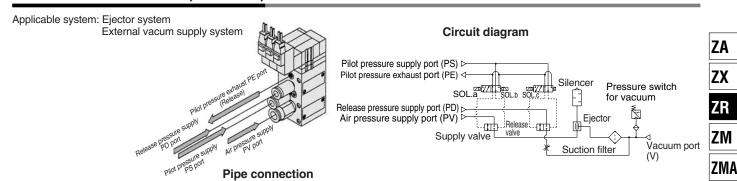
How to Operate

Pilot valve	Supply valve/Release valve		Note
Operation	SOL.a	SOL.b	When power supply is stopped,
1. Adsorption	ON	OFF	supply valve/ release valve will
2. Vacuum release	OFF	ON	hold the operation.

Function Plate/ZR1-RV□

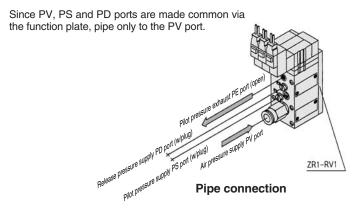
A function plate is used when each connecting port for the valve unit is common. If a function plate is not used (standard), make individual pipe connections to PV, PS, and PD ports respectively.

Without Function Plate (Standard)

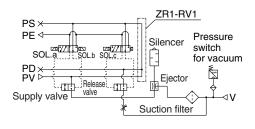


With Function Plate/Applicable to Ejector System Only

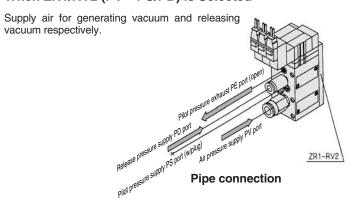
When ZR1/RV1 (PV⇔PS⇔PD) is Selected



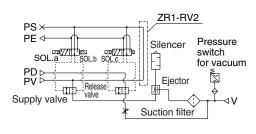
Circuit diagram



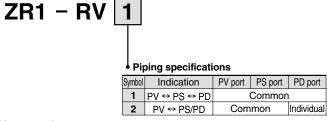
When ZR1/RV2 (PV⇔PS/PD) is Selected



Circuit diagram



How to Order Function Plate Unit (For Ejector System)



⚠ Caution

Length of assembling screw varies when adding function plate. Order from the mounting thread parts list for unit combination on page 982.

Order a plug (M-5P) separately in order to plug the PD and PS ports that are no longer used due to the addition of function plate.

How to order

Indicate the model numbers of the vacuum module and the function plate. Example) ZR120S1-K15MZ-EC 1 pc.

*ZR1-RV1 1 pc.



ZQ

ZH

ZU

ZL

 $ZY \square$

ZF□

 $\mathsf{ZP}\square$

SP

ZCUK

AMJ

AMV

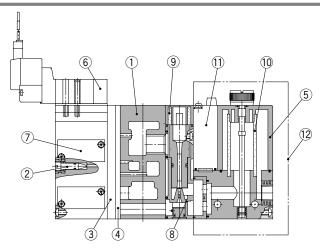
AEP

HEP

Related

Equipment

Construction



Component Parts

No.	Description	Material	Part Model
140.			1 art Wodel
1	Manifold base	Aluminum	
2	Release flow rate adjusting needle	Stainless steel	ZR-NANote 2)
3	Function plate	PBT	Refer to page 962.
4	Individual spacer	PBT	Refer to page 962.
5 ^{Note 1)}	Filter case	Polycarbonate	Refer to page 953.
6	Pilot valve assembly	_	Refer to "Table (5)" on page 944-1.
7	Valve body assembly	_	Refer to "Table (1)" on page 944-1.

No.	Description	Material	Part Model
8	Ejector assembly	jector assembly — R	
9	Silencer	PVF	Refer to "Table (3)" on page 944-1.
10	Filter element	PVF	ZR1-FZ(30 μm)
11	Pressure switch for		ZSE2-OR-15-□
11	vacuum	_	ZSE30A-00-□-□□□-X505
12	Filter switch unit for replacement	_	ZR1-F□□□□-D



- Note 1) Precautions on handling the filter case

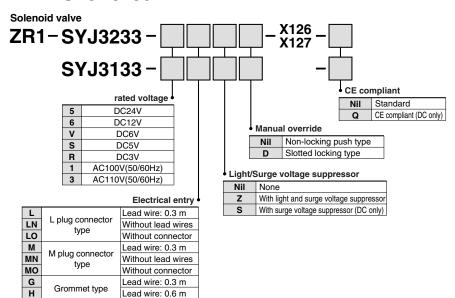
 1. The case is made of polycarbonate. Therefore, do not contact it or expose it to the following chemicals: paint thinner, carbon tetrachloride, chloroform, acetic ester, aniline, cyclohexane, trichloroethylene, sulfuric acid, lactic acid, water soluble cutting oil (alkalinic), etc. 2. Do not expose it to direct sunlight.
- Note 2) Turning the release flow rate adjusting needle 2 full turns from the fully closed position renders the needle valve fully open. Do not turn more than two times since turning excessively may cause the needle fall off.

In order to prevent the needle from loosening and falling out, the release flow rate adjusting (ZR-ND-L) lock nut is also available.

How to Order Solenoid Valves/Air Operated Valves

Air operated

ZR1-SYJA3130



Note) Pilot valve gasket (SYJ3000-14-6) is included. (ZR1-PVG-1 or ZR1-PVG-2)



Series ZR

Valve Unit : ZR1-V□□□□□-□-□





Specifications

Valve unit part no.	ZR1-V□□□□□-□-□		
Components	Supply valve	Release valve	
Operating method	Pilot operated	Pilot operated	
Combination of supply valve and release valve	Refer to the combination of supp	ly valve and release valve below.	
PV port supply pressure	-0.1 to 0.6 MPa		
PD port supply pressure	0.05 to 0.6 MPa		
PS port supply pressure	0.25 to 0.6 MPa		
Main valve effective area (mm²)	8.2	0.96	
Main valve effective area (Cv)	0.45	0.053	
Maximum operating frequency	5 Hz		
Operating temperature range	5 to	50°C	

Standard accessory - Bracket B

Solenoid Valve/Specifications

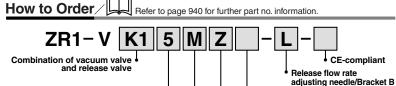
Solenoid	VJ3133-□□□□, VJ3233-□□□□-X17, VJ3233-□□□□-X18
Rated voltage	24, 12, 6, 5, 3 VDC, 100°, 110° VAC (50/60 Hz)
Electrical entry	100, 110 VAC-L/M plug connector (With rectifier)
	3, 5, 6, 12, 24 VDC-L/M plug connector, Grommet
Light/Surge voltage suppressor	Available, Not available (at grommet)
Manual operation	Non-locking push type, Locking slotted type

^{*} Applicable to plug connector; connector assembly with rectifier is attached.

Combination of Supply Valve and Release Valve

Combination symbol	Vacuum switch valve	Release valve	Mass (kg)
K1	Double SOL. (VJ3233-X17)	N.C. (VJ3133)	0.245
K2	N.C. (VJ3133)	N.C. (VJ3133)	0.213
K3	Air operated VJA3130	Air operated VJA3130	0.194
C1	N.C. (VJ3133)		0.187
C2	Air operated VJA3130		0.174
C3	N.C. (VJ3133)		0.184
C4	Double SOL. (VJ3233-X18)		0.214

^{*} Weight includes Bracket B. (Solenoid valve: 24 VDC, M plug connector type)



Solenoid valve rated voltage

Electrical entry Manual override
With light/surge
voltage suppressor

ZA ZX

ZR

ZM

ZMA

ZQ ZH

ΖП

ZU

ZL ZY□

ZF□ ZP□

SP

ZCUK

AMJ

AMV

AEP

HEP

Related Equipment

Ejector Unit/Series ZR1



Model/Max. Vacuum Pressure -84 kPa (S: Standard type)

		-		-
Model	Nozzle dia. (mm)	Maximum suction flow rate (<i>l</i> /min (ANR))	Air consumption (ℓ/min (ANR))	Weight (With bracket) (kg)
ZR1-W10S□	1.0	22	46	0.132
ZR1-W13S□	1.3	38	78	0.134
ZR1-W15S□	1.5	54	95	0.136
ZR1-W18S□	1.8	62	150	0.154
ZR1-W20S□	2.0	84	185	0.156

Model/Max. Vacuum Pressure –53 kPa (L: Large flow type)

Model	Nozzle dia. (mm)	Maximum suction flow rate (ℓ/min (ANR))	Air consumption (\ell/min (ANR))	Weight (With bracket) (kg)
ZR1-W10L□	1.0	42	46	0.133
ZR1-W13L□	1.3	52	78	0.133
ZR1-W15L□	1.5	74	95	0.135
ZR1-W18L□	1.8	88	150	0.155
ZR1-W20L□	2.0	105	185	0.154

Common Specifications

Supply pressure range	0.2 to 0.55 MPa
Standard supply pressure	0.45 MPa
Operating temperature range	5 to 50°C
Model (Ejector exhaust method)*	Code 1: Built-in silencer — For unit and manifold
	Code 2: Individual exhaust — For unit and manifold
Standard accessory	Bracket (ZR1-OBB)

How to Order: Code 1 and 2 are the suffixes in the ordering number to indicate the exhaust method.

Note) Operation outside of the specified supply pressure and operating temperature range may cause a serious accident or damage.

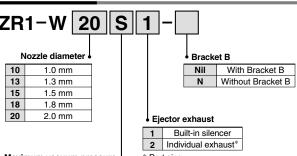
Release pressure supply (PD) port

√ Vacuum (V) port

JIS Symbol

Air pressure supply (P) port

How to Order



Maximum vacuum pressure

	aa p. oooa.o	-
S	– 84 kPa	Ī
L	– 53 kPa	٦

* Port size: RC 1/8 (Nozzle dia. 1.0 to 1.5 mm) RC 1/4 (Nozzle dia. 1.8, 2.0 mm) ZA

ZX ZR

ZM

ZMA

ZQ

ZH

ZU

ZL

ZY□ ZF□

ZP□

SP

ZCUK

AMJ

AMV

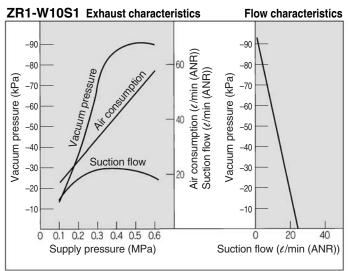
AEP HEP

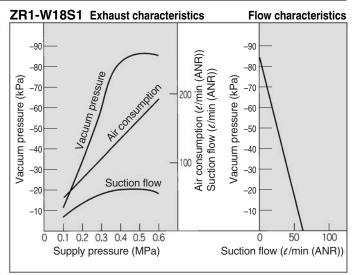
Related Equipment

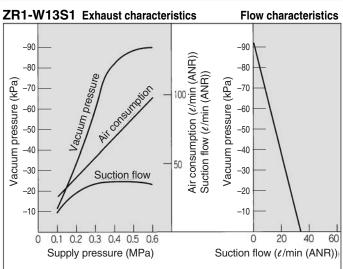
Characteristics (Representative value)

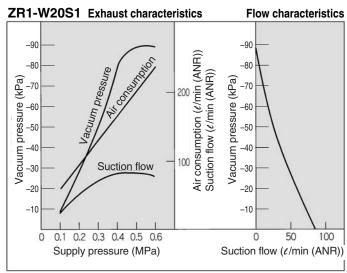
Ejector Unit/Standard Type (S): Max. Vacuum Pressure -84 kPa

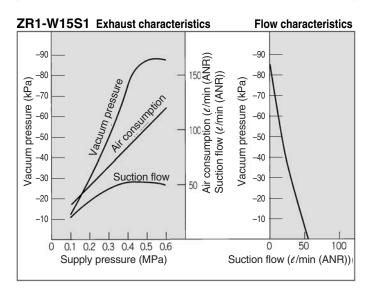
At 0.45 MPa





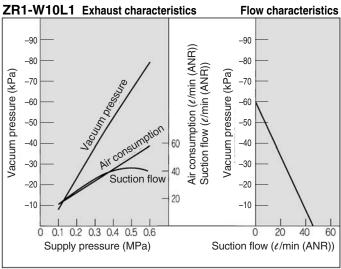


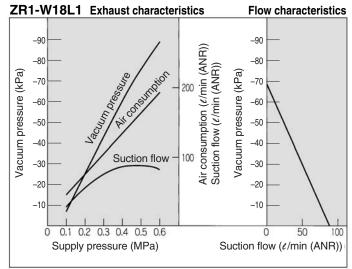


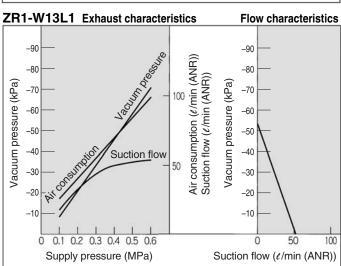


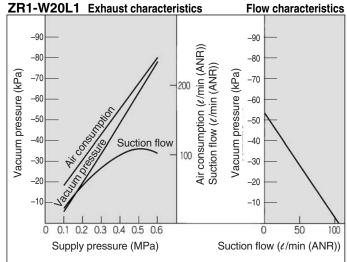
Ejector Unit/Large Flow Type (L): Max. Vacuum Pressure -53 kPa

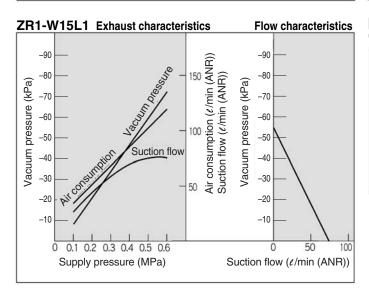
At 0.45 MPa



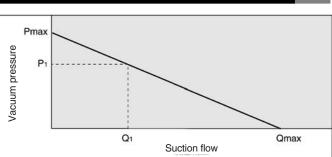








How to Read Flow Characteristics Graph



Flow characteristics are expressed in ejector vacuum pressure and suction flow. If suction flow rate changes, the vacuum pressure will also be changed. Normally this relationship is expressed in ejector standard use. In graph, Pmax is max. vacuum pressure and Qmax is maximum suction flow. The values are specified according to catalog use. Changes in vacuum pressure are expressed in the below order.

- When ejector suction port is covered and made airtight, suction flow becomes 0 and vacuum pressure is at maximum value (Pmax).
- When suction port is opened gradually, air can flow through, (air leakage), suction flow increases, but vacuum pressure decreases. (condition P1 and Q1)
- 3. When suction port is opened further, suction flow moves to maximum value (Qmax), but vacuum pressure is near 0 (atmospheric pressure).

Based on the above, when vacuum port (vacuum piping) has no leakage, vacuum pressure becomes maximum, and vacuum pressure decreases as leakage increases. When leakage value is the same as max. suction flow, vacuum pressure is near 0. In the case when ventirative or leaky work should be adsorbed, please note that vacuum pressure will not rise.



ZA ZX

ZR

ZM ZMA

ZQ

ZH

ZH

ZU

ZL ZY□

ZF□ ZP□

SP

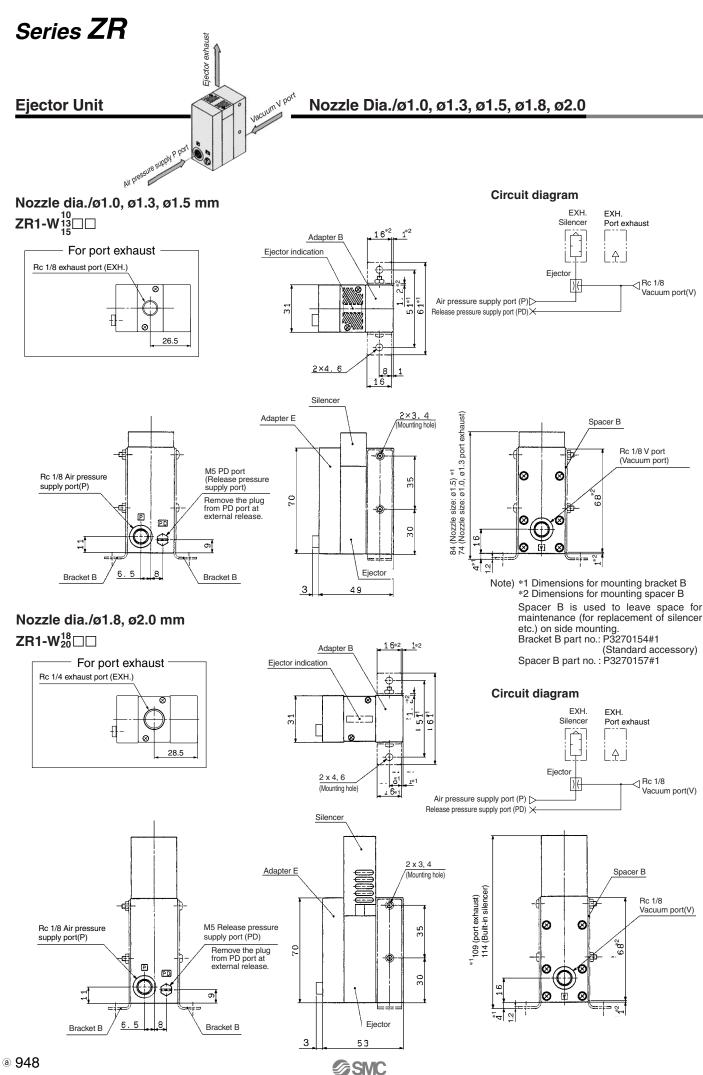
ZCUK

AMJ

AMV

AEP HEP

Related Equipment



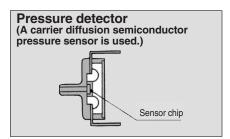
Pressure Switch Unit for Vacuum/Pressure Switch for Vacuum: ZSE2-0R-□□

Quick response: 10 mS

Compact size: 39H x 20W x 15D (except the connecting portion)

Improved wiring: Connector style

Uses a carrier diffusion semiconductor pressure sensor





Specifications

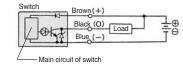
Pressure switch for vacuum part no.	ZSE2-0R-15□	ZSE2-0R-55□
Fluid	Air	
Setting pressure range	-101 to 0 kPa	
Hysteresis	3% F.S. or less (Fixed)	
Temperature characteristics (Based on 25°C)	± 3% F.S. or less	
Operating voltage	12 to 24 VDC (Ripple ±10% or less)	
Output	NPN Open collector 30 V, 80 mA PNP Open collector 80 mA	
Indicator light	Lights up when ON	
Current consumption	17 mA or less (when 24 VDC is ON)	
Proof pressure (Max. operating pressure)	0.5 MPa*	
Operating temperature range	5 to 50°C	

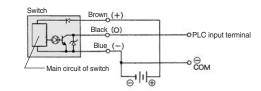
* When using ejector system, instantaneous pressure up to 0.5 MPa will not damage the switch. Note) Operation outside of the maximum operating pressure and operating temperature range may cause a serious accident or damage.

Wiring

ZSE2 connection

Connection with PLC at negative COM terminal





How to Order



15	NPN Open collector 30V 80mA
55	PNP Open collector 80mA

Nil	0	Lead wire length 0.6 m
L	Grommet type	Lead wire length 3 m
С		Lead wire length 0.6 m
CL	Connector type	Lead wire length 3 m
CN	•	W/o lead wire

With Connector/How to Order

●Without lead wire (housing and 3 sockets)ZS-10-A

●With lead wireZS-10-5A-□

.....25-10-5A-L

Note) When requiring a switch with lead wire of 5 m, indicate separately the model numbers of the connector type switch without lead wire and the connector assembly with 5 m lead wire.

Lead	l wire	length •
	Nil	0.6 m
	30	3 m
	50	5 m

* Refer to Best Pneumatics No. 6 for detailed specifications of pressure switches for vacuum.

ZA ZX

ZR

ZM

ZMA

ZQ

ZH

ZU

ZL

ZY□

ZP□

ZF□

SP

ZCUK

AMJ

AMV AEP

HEP

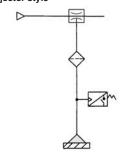
Related Equipment

Pressure Switch Unit for Vacuum/Pressure Switch for Vacuum: ZSE2-0R-□□

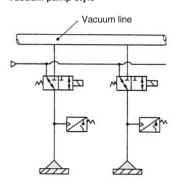
Guidelines for Use of Pressure Switch Unit for Vacuum

System circuit for work adsorption

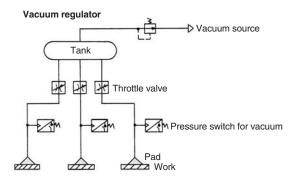
Ejector style



Vacuum pump style

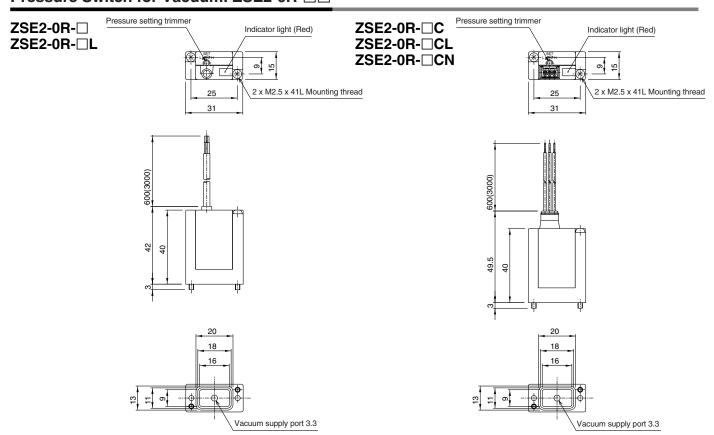


When pads and switches are common to one vacuum source, sometimes there is a possibility, depending on the number of adsorption and non-adsorption applications at each point in time, that the switches will not work within the range of set pressures due to pressure variations from the vacuum source. In particular, when small diameter nozzles are used for adsorption, the switches are greatly influenced by pressure variations. In order to remedy this situation, the following circuit is recommended.



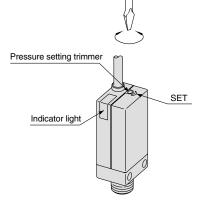
- Adjust the throttle valve to reduce the pressure fluctuation between absorption and nonabsorption.
- Stabilize the source pressure by providing a tank and a vacuum regulator.
- If a vacuum switch valve is inserted into individual lines and false absorption occurs, each valve should be turned OFF to minimize the influences on other pads.

Pressure Switch for Vacuum: ZSE2-0R-□□

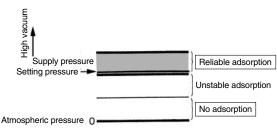


How to Set Vacuum Pressure

 Pressure trimmer selects the ON pressure.
 Clockwise rotation increases high vacuum set point.

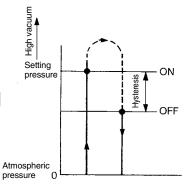


• When using the switch to confirm correct absorption, the vacuum pressure is set to the minimum value to reliably absorb. If the value is set below the minimum, the switch will be turned ON even when adsorption has failed or is insufficient. If the pressure is set too high, the switch may not operate stably even though it may absorb correctly.



Hysteresis

Hysteresis is the actual pressure variance from set pressure occuring when the output signal turns from ON to OFF. The set pressure is the pressure selected to switch from OFF to ON mode.



ZM

ZA

ZX

ZR

ZMA

ZO

ZH

ZU

ZL

ZY□ ZF□

ZP□

SP

ZCUK

AMJ

AMV

AEP

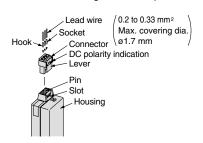
HEP

Related Equipment

How to Use Connector

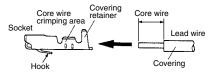
1. Attaching and detaching connectors

- When assembling the connector to the switch housing, push the connector straight onto the pins until the level locks into the housing slot.
- When removing the connector from the switch housing, push the lever down to unlock it from the slot and then withdraw the connector straight off of the pins.



2. Crimping of lead wires and sockets

Strip 3.2 to 3.7 mm at the end of the lead wires, insert the ends of core wires evenly into the sockets, and then crimp with a crimping tool. When this is done, take care that the coverings of the lead wires do not enter the core wire crimping area. (Crimping tool: model no. DXT170-75-1)



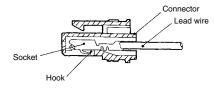
3. Attaching and detaching of socket to connector with lead wire

Attaching

Insert the sockets into the square holes of the connector (with +, 1, 2, – indication), and continue to push the sockets all the way end. (When they are pushed in their hooks open and they are locked automatically.) Then confirm that they are locked by pulling lightly on the lead wires.

Detaching

To detach a socket from a connector, pull out the lead wire while pressing the socket's hook with a stick having a thin tip (about 1 mm). If the socket will be used again, first spread the hook outward.



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.

Mounting

Warning

1. Do not give an excessive impact load.

Do not drop, bump or apply excessive impact (1000 m/s²) when handling. Even if the switch body is not damaged, the switch may suffer internal damage that will lead to malfunction.

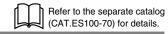
2. Hold the product from the body side when handling.

When raising and moving the product, do not raise it by holding the lead wire only, but hold the body. It may cause malfunction due to broken contacts.

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

SMC PRESSURE - IIII kPa GUR

How to Order





Output specifications

Symbol	Out	tput	Analog	output
Symbol	Type	Point	Voltage	Current
N	NPN	1	_	_
P	PNP	1	_	_
Α	NPN	2	_	_
В	PNP	2	_	_
С	NPN	1	0	_
D	NPN	1	_	0
E	PNP	1	0	_
F	PNP	1	_	0

Option 2 (Operating manual specifications) Nil Operating manual (Leaflet) Y Without operating manual

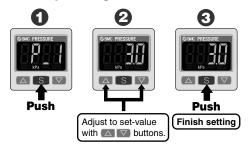
Option 1 (Connector/Lead wire specifications)

	(
Nil	Without lead wire
L	Lead wire with connector (Length 2 m)

Display unit

Nil	With unit display switching function
M	Fixed SI unit
Р	With unit display switching function (Initial value psi)

● 3-step setting



Power-saving function

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

Specifications

Pat	ed r	ressure range	0.0 to -101.0 kPa	
			10.0 to -105.0 kPa	
	•	ssure range		
		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)	
Cui	rent	consumption	40 mA (at no load)	
Switch output		output	NPN or PNP open collector 1 output NPN or PNP open collector 2 outputs (selectable)	
	Maximum load current		80 mA	
	Maximum applied voltage		28 V (at NPN output)	
		idual 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)	
_		ort circuit protection	Yes	
		ability	±0.2% F.S. ±1 digit	
Hystere- sis	Hysteresis mode		Variable (0 to variable)	
<u> </u>	Win Note 1)	dow comparator mode	, ,	
	8	Output voltage (Rated pressure range)	1 to 5 V ±2.5% F.S.	
Ę	Voltage output	Linearity	±1% F.S. or less	
Analog output			Approx. 1 kΩ	
g	Note 2)	Output ourient (nateu pressure range)	4 to 20 mA ±2.5% F.S.	
읉	Current output	Linearity	±1% F.S. or less	
Ä	늘		Maximum load impedance:	
	0 -	Load impedance	Power supply voltage 12 V: 300 Ω , Power supply voltage 24 V: 600 Ω	
<u> </u>			Minimum load impedance: 50 Ω	
	play		4-digit, 7-segment, 2-color LCD (Red/Green) Sampling cycle: 5 times/sec.	
_		accuracy	±2% F.S. ±1 digit (Ambient temperature of 25°C)	
		or light	Lights up when switch output is turned ON. (OUT1: Green, OUT2: Red)	
2		losure	IP40	
sta	_	rating temperature range	Operating: 0 to 50°C, Stored: -10 to 60°C (No freezing or condensation)	
res		erating humidity range	Operating/Stored: 35 to 85% RH (No condensation)	
Ĭ	_	hstand voltage	1000 VAC for 1 minute between live parts and case	
E E	ınsı	ulation resistance	50 MΩ or more between live parts and case (at 500 VDC Mega)	
Į.	Vib	ration resistance	10 to 150 Hz at whichever is smaller of 1.5 mm amplitude or	
Environment resistance	lma	and registeres	20 m/s ² acceleration, in X, Y, Z directions, for 2 hours each	
	•	act resistance	100 m/s², in X, Y, Z directions, for 2 hours each	
ren	nper	ature characteristics	±2% F.S. (Based on 25°C)	
1 62	ıd wi	ire	Oilproof heavy-duty vinyl cable, 3 cores ø3.5, 2 m 4 cores Conductor area: 0.15 mm² (AWG26)	
	Lead wire		Insulator O.D.: 1.0 mm	
Sta	ndar	rde	CE Marking, UL/CSA, RoHS compliance	
	iluai		tie celested english support extract english and the matter	

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.

Pressure Switch for Vacuum + Suction Filter Unit: ZR1-F□□□□-□

Combination unit of vacuum pressure switch for vacuum pressure detection and suction filter to protect the unit from dust and contamination.



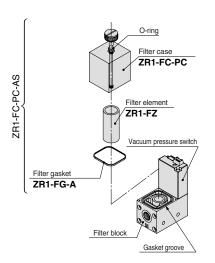
Filter case

⚠ Caution

- 1. The case is made of polycarbonate. Therefore, do not contact it or expose it to the following chemicals: paint thinner, carbon tetrachloride, chloroform, acetic ester, aniline, cyclohexane, trichloroethylene, sulfuric acid, lactic acid, water soluble cutting oil (alkalinic), etc.
- 2. Do not expose it to direct sunlight.

How to Replace Elements

When an element becomes clogged, adsorption performance and response times are degraded. Stop operation and replace element. (Element no. ZR1-FZ). Please ensure that gasket is in slot before re-installation.



Specification

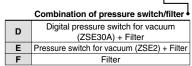
Ороони	Juli 011	
	Unit no.	ZR1-F□□□□-□
	Rated pressure range/Set pressure range	-100 to 100 kPa
Suction	Proof pressure	500 kPa
filter	Operating temperature range	5 to 50°C
	Filtration degree	30 μm
Filtr	ation material	PVF
Pres	ssure switch for vacuum	Refer to page 949 and 952 regarding pressure switch for vacuum.
Star	ndard option	Bracket A (ZR1-OBA)

Note) If not operated within the specified range of pressure and temperature, trouble may be caused.

Combination of Pressure Switch for Vacuum and Suction Filter

Combination symbol	Suction filter	Pressure switch for vacuum	Weight (with bracket A) (kg)
E	•	ZSE2	0.15
D	•	ZSE30A	0.23
F	•	_	0.15

How to Order



*The filter mounted on the product is a simplified one. When used in an environment with a lot of dust, the built-in filter is likely to be clogged soon. The use with the ZFA, ZFB and ZFC series is recommended.

Output specifications

Digital pressure switch for vacuum (ZSE30A) specifications (D)

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
E	PNP open collector 1 output + Analog voltage output
F	PNP open collector 1 output + Analog current output

Pressure switch for vacuum (ZSE2) specifications (E)

55	PNP open collector 1 output
1411	141 14 open collector i output

Filter specifications (F)

Nil	No setting
-----	------------

How to order

When requiring a switch with lead wire of 5 m, indicate separately the model numbers of a pressure switch unit for vacuum without a lead wire connector and the 5 m lead wire connector.

Ex.) ZR1 _ _ _ _ \ | D _ _ _ \ | CN \ \cdots \cdots 1 \ pc. \ \ ZS-10-5A-50 \cdots \cdots \cdots 2 \ pcs.

(1) Lead wire length for pressure switch for vacuum connector assembly

7S-10-5A-

Lead wire length

Nil	0.6 m
30	3 m
50	5 m

Bracket A Nil With Bracket A

1411	WILLI DIACKELA
N	Without Bracket A

ZA

ZX

ZR

ZM ZMA

ZQ ZH

ZU

ZL

 $ZY \square$

ZF□

 $\mathsf{ZP} \square$

SP ZCUK

AMJ

AMV

AEP

HEP

Related

Equipment

Nil Without lead wire
L Lead wire with connector (Length 2 m)
Refer to "Table (2)" for part numbers for lead

wire with connector. Pressure switch for vacuum (ZSE2) specifications (E)

Nil	Grommet/Lead wire (Length 0.6 m)
L	Grommet/Lead wire (Length 3 m)
С	Lead wire with connector (Length 0.6 m
CL	Lead wire with connector (Length 3 m)
CN	With connector/Without lead wire

Refer to "Table (1)" for part numbers for lead wire with connector.

Filter specifications (F)

Nil	No setting
-----	------------

Unit specifications

Digital pressure switch for vacuum (ZSE30A) specifications (D)

specifications (b)				
Nil	With unit switching function			
M	SI unit only			
Р	With unit switching function (Initial value psi)			

Note 1) This is no longer sold for use in Japan due to the Weight and Measure Act (implemented October, 1999).

Note 2) Fixed unit: kPa

Pressure switch for vacuum (ZSE2) specifications (E)

Nil	No setting		
Filter specifications (F)			
Nil	No setting		

(2) Lead wire length for digital pressure switch for vacuum

connector assembly ZS - 38 - 3 L

Lead wire core

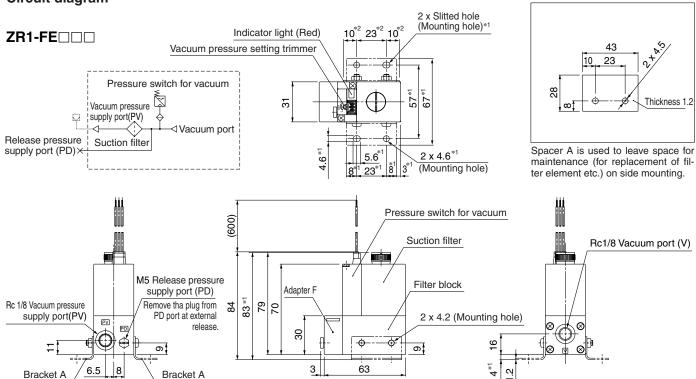
- LCau Wile cole			
3	3 cores, 1 output, 2 m (Output specifications: N, P)		
4	4 cores, 2 outputs, 2 m (Output specifications: A, B, C, D, E, F)		

Series **ZR**

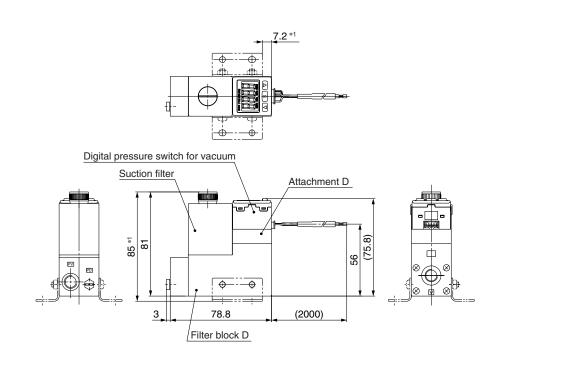
Pressure Switch for Vacuum + Suction Filter Unit: ZR1-F□□□□

Dimensions: ZR1-F□□□□

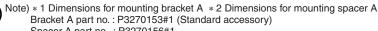
Circuit diagram



ZR1-FD□□□







Spacer A part no. : P3270156#1



Suction Filter: ZR1-FX-□

ZR1-FX is to be used alone and cannot be combined with other units.



Filter case

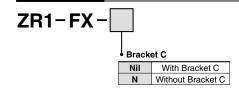
⚠ Caution

- 1. The case is made of polycarbonate. Therefore, do not use it with or expose it to the following chemicals: paint thinner, carbon tetrachloride, chloroform, acetic ester, aniline, cyclohexane, trichloroethylene, sulfuric acid, lactic acid, water soluble cutting oil (alkalinic), etc.
- 2. Do not expose it to direct sunlight.

Specification

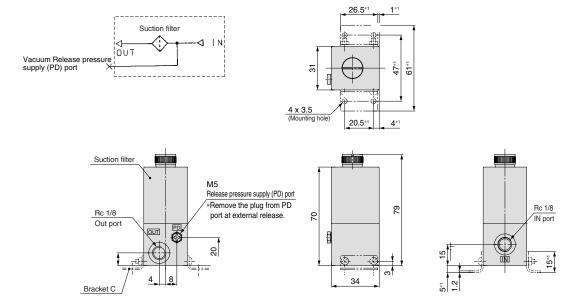
Model	ZR1-FX-□
Operating pressure range	-0.1 to 0.5 MPa
Operating temperature range	5 to 50°C
Filtration efficiency	30 μm
Element	PVF
Weight (With bracket)	0.1 kg
Standard	Bracket C (ZR1-OBC)

How to Order



Dimensions: ZR1-FX-□

Circuit diagram



Note) *1 Dimensions for mounting bracket C Bracket C part no. : ZR1-OBC (Standard accessory)

ZA ZX

ZR

ZM

ZMA

ZQ

ZH

ΖП

ZU ZL

ZY□

ZF□ ZP□

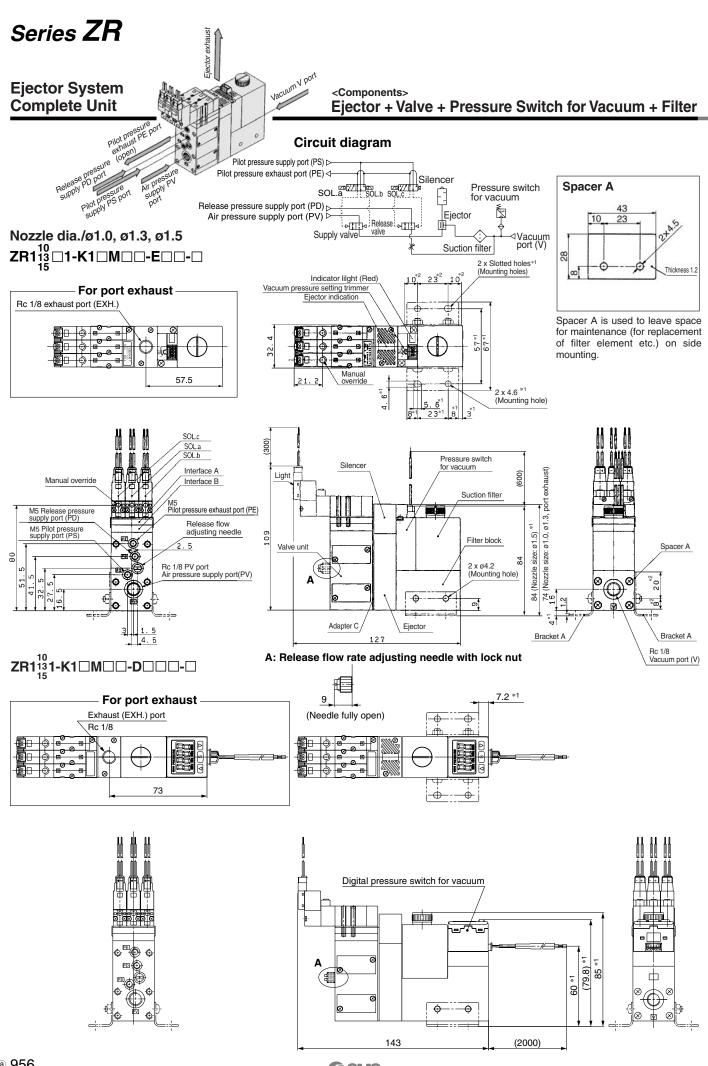
SP

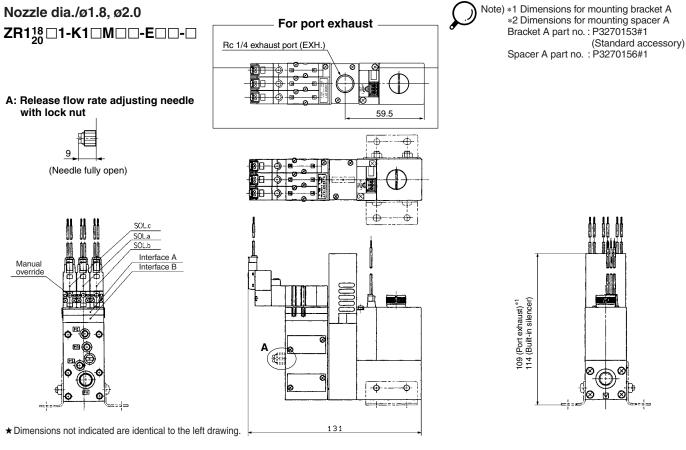
ZCUK

AMV

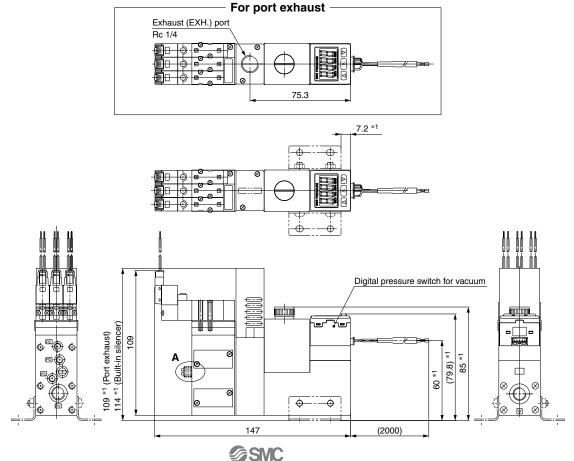
AEP

HEP
Related
Equipment





ZR1¹⁸₂₀1-K1 | M | | -D | | - -



ZA

ZX

ZR

ZM

ZMA

ZQ

ZH

ZU

ZL

 $\mathsf{ZY} \square$

 $\mathsf{ZF} \square$

 $\mathsf{ZP} \square$

SP

ZCUK

AMJ

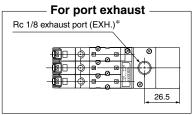
AMV

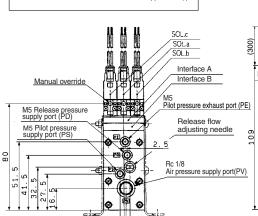
AEP

HEP
Related
Equipment

Series ZR Ejector System Piot pressure expenses pre port expense

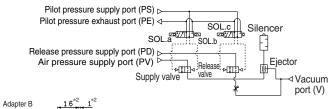
Nozzle dia./ø1.0, ø1.3, ø1.5 ZR1¹³₁₅□1-K1□M□□-□

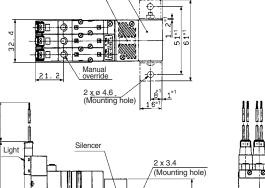




Bracket B

Circuit diagram





Ejector indication

Valve unit

A

Spacer A

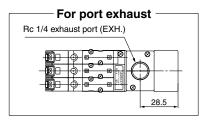
Spacer B

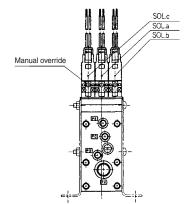
Spacer B is used leave space for representations.

Spacer B is used to leave space for maintenance (for replacement of silencer etc.) on side mounting.

Nozzle dia./ø1.8, ø2.0 ZR1¹⁸₂₀□1-K1□M□□-□

Bracket B



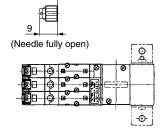


★ Dimensions not indicated are identical to the top drawing.

A: Release flow rate adjusting needle with lock nut

96

Ejector



Adapter C

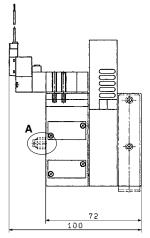


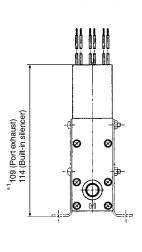
84 (Nozzle size: ø1.5) 74 (Nozzle size: ø1.0, ø1

Note) *1 Dimensions for mounting bracket B *2 Dimensions for mounting spacer B Bracket B part no. : P3270154#1

Rc1/8 Vacuum port (V)

(Standard accessory) Spacer B part no. : P3270157#1







ZA

ZX

ZR ZM

ZMA

ZQ

ZH

ZU

ZL ZY

ZF□

ZP□ SP

ZCUK

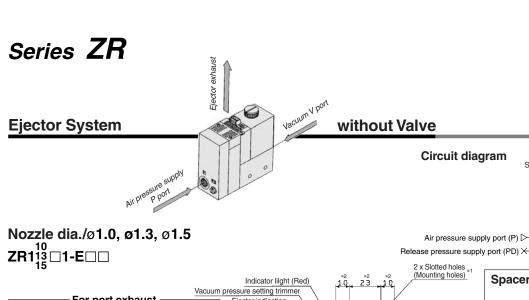
AMJ

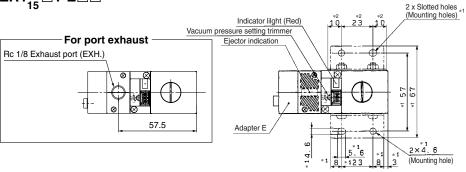
AMV

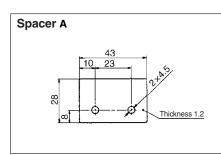
AEP

HEP

Related Equipment







EXH. Port exhaust

上 Ejector

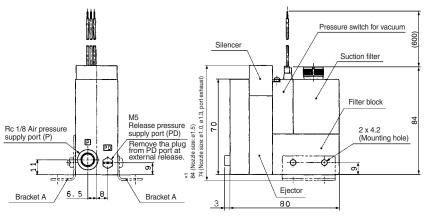
Suction filter

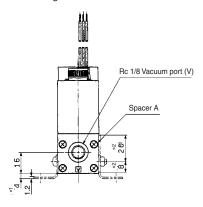
Pressure switch for vacuum

√ Vacuum port (V)

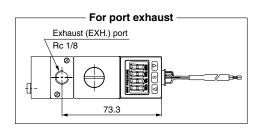
EXH Silence

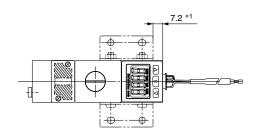
Spacer A is used to leave space for maintenance (for replacement of filter element etc.) on side mounting.

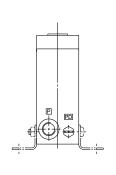


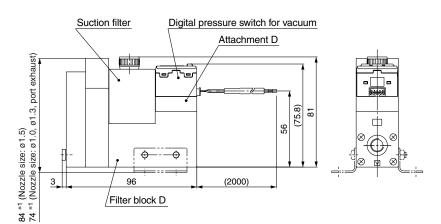


ZR1 10 13 -D□□□



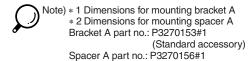






Large Size Vacuum Module: Ejector System Series ZR

Nozzle dia./ø1.8, ø2.0 ZR1¹⁸□1-E□□



ZA

ZX

ZR

ZM

ZMA

ZQ

ZH

ZU

ZL

 $\mathsf{ZY} \square$

 $\mathsf{ZF} \square$

 $\mathsf{ZP} \square$

SP

ZCUK

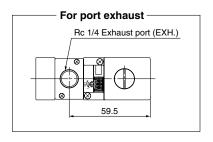
AMJ

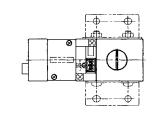
AMV

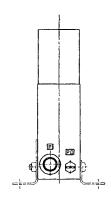
AEP

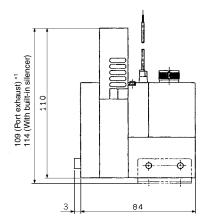
HEP Related

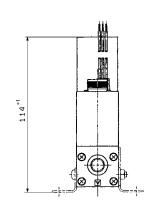
Equipment



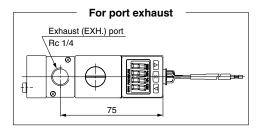


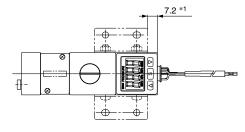


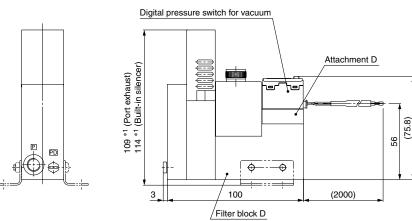




ZR1¹⁸₂₀-D□□□







[★] Dimensions not indicated are identical to the top drawing.



Ejector System/Manifold Specifications





Specifications

Max. number of units	Max. 6 stations		
Port	Port size		
Common air pressure supply port (PV)	¹∕8 (Rc, NPTF, G)		
Common pilot pressure supply port (PS)	M5		
Common release pressure supply port (PD)	M5		
Common exhaust port (EXH)	1/2 (Rc, NPTF, G)		
Mass	Basic mass for one station is 0.28 kg. Additional mass per one station is 0.12 kg.		

- (1) When using 3 or more stations with ZR120□□ manifold, utilize PV port as supply port on both sides.
- (2) When using 3 or more stations with ZR120□ 3 manifold, utilize EXH port as exhaust port on both sides.

Manifold Air Supply

Manifold	Left			Right		
Supply port location Port	PV	PS	PD	PV	PS	PD
L (Left side)	0	0	0	•	•	•
R (Right side)	•	•	•	0	0	0
B (Both sides)	0	0	0	0	0	0

Air supply to ○ port

Symbol

1 PV↔PS↔PD

2 PV↔PS·PD

BLANK plug attached to ● port

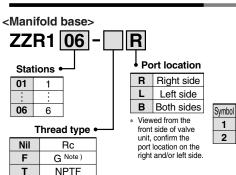
Note) BLANK plug is attached on all ports of valve unit.

Individual Spacer

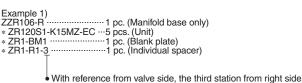
Part no.	Port	Function
PV		Possible to set the air supply pressure individually
ZR1-R1	PS	Possible to set the pilot valve air supply pressure individually
ZR1-R1	PD	Possible to set the release valve supply pressure individually
	PE	Possible to set the pilot valve exhaust individually

Individual spacer is used when the connecting port of each unit is not common for the manifold connecting port. Mixed specifications of common and individual unit connecting ports for each unit is possible on manifolds with this individual spacer.

How to Order Manifold



Note) The thread ridge shape is compatible with the G thread standard (JIS B 0203), but other shapes are not conforming to ISO16030 and ISO1179.

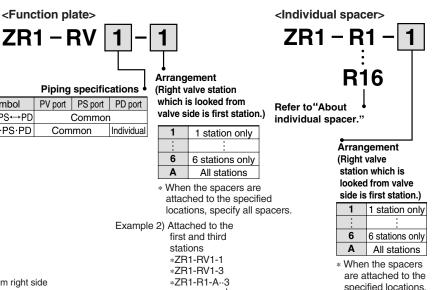


The asterisk denotes the symbol for assembly. Prefix it to the ejector part numbers to be mounted. When it is not added, the manifold base and ejector are shipped separately.

About individual spacers

- In the right table, ports with the symbol 1 mean that they are manifold supply, while others are individual supply from the valve
- · Symbols in the right table are printed on the surface of individual spacers.

Part no.		Symbol		Part no.		Symbo	l	
ZR1-R1	R1			ZR1-R9	R9	‡PV		
-R2	R2		ĴPE	-R10	R10	‡PV		ĴPE
-R3	R3	ĴPD		-R11	R11	‡PV	ĴPD	
-R4	R4	‡PD	ĴPE	-R12	R12	‡PV	ĴPD	ĴPE
-R5	R5	‡PS		-R13	R13	‡PV ‡PS		
-R6	R6	‡PS	ĴPE	-R14	R14	‡PV ‡PS		ĴPE
-R7	R7	‡PS ‡PD		-R15	R15	‡PV ‡PS	ĴPD	
-R8	R8	‡PS ‡PD	ĴΡΕ	-R16	R16	‡PV ‡PS	ĴPD	ĴΡΕ



Fill the number

<Blanking plate>

ZR1 – BM1

specify all spacers.

Example) Attached

to the first and third

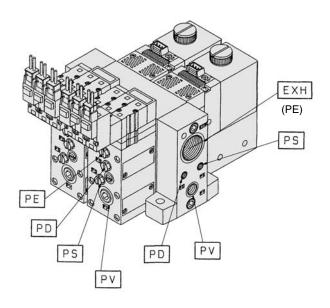
stations

*ZR1-R1-1 *ZR1-R1-3

Refer to Example 1).

Manifold/System Circuit Example

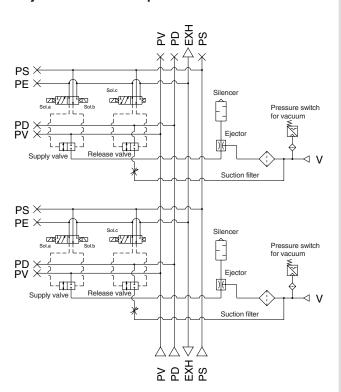
When not using individual spacer



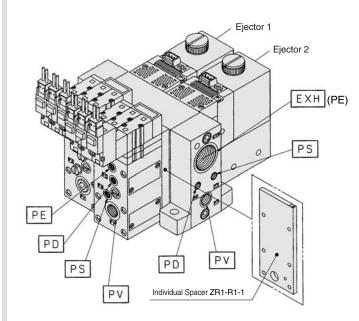
PV: Air pressure supply port
PS: Pilot pressure supply port
PD: Release pressure supply port
PE: Pilot pressure exhaust port
EXH: Common exhaust port

V: Vacuum Port

<System circuit example>



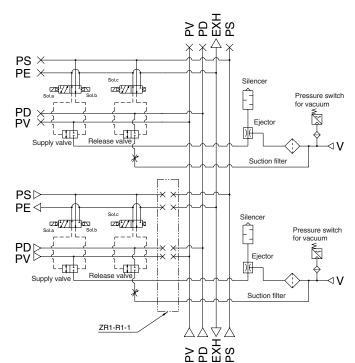
When using individual spacer



PV: Air pressure supply port PS: Pilot pressure supply port PD: Release pressure supply port PE: Pilot pressure exhaust port EXH: Common exhaust port V: Vacuum Port

<System circuit example>

SMC



ZA

ZX

ZR ZM

ZMA

ZQ

ZH

ZU

ZL

ZY□ ZF□

ZP□ SP

ZCUK

AMJ

AMV

AEP

HEP Related Equipment

Series ZR

Ejector System

Manifold Nozzle Dia./ø1.0, ø1.3, ø1.5

4 stations manifold: Ordering number example

ZZR104-□□ ·······1pc. (Manifold base)

* **ZR1**□□**2** ·······1pc. (Port exhaust type)

* **ZR1** \(\subseteq 1-EC \text{1pc. (Single unit)}

* **ZR1** \square **1-K1** \square **M** \square 1 pc. (Single unit)

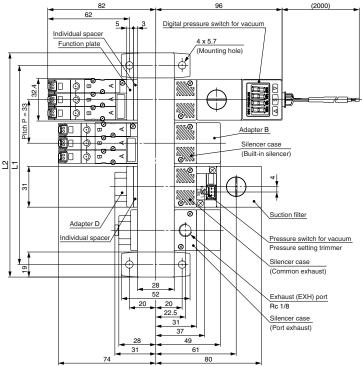
* **ZR1** \(\text{1-K1} \(\text{M} \(\text{-D} \(\text{U} \) \(\text{...} \text{1pc. (Single unit)} \)

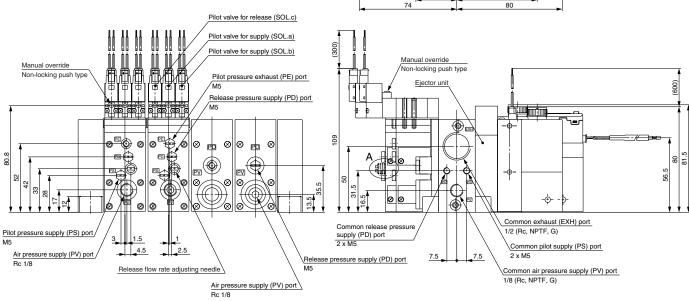
* **ZR1-RV1-4**1pc. (Function plate)

* ZR1-R1-4 ·······1pc. (Individual spacer)

A: Release flow rate adjusting needle with lock nut



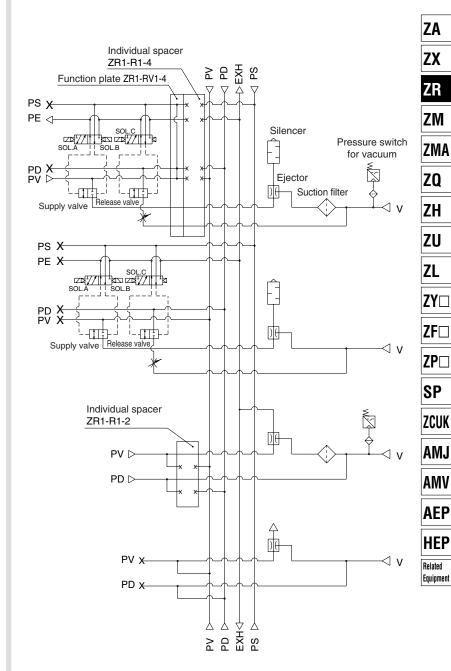


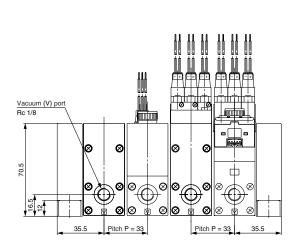


* 1 The common exhaust port (EXH.) is also used as the pilot pressure exhaust (PE) port of the pilot valve. Use while the port is open to the atmosphere.

						(mm)
Symbol Stations	1	2	3	4	5	6
L1	52	85	118	151	184	217
L2	71	104	137	170	203	236

Circuit diagram





PV: Air pressure supply port
PS: Pilot pressure supply port
PD: Release pressure supply port
PE: Pilot pressure exhaust port

EXH: Exhaust port **V:** Vacuum Port



ZZR104- —1pc. (Manifold base)

* **ZR1** □ □ **2** ········1pc. (Port exhaust type)

* ZR1 - 1-EC1pc. (Single unit)

* ZR1 - 1-K1 M -1 pc. (Single unit)

* ZR1 - 1-K1 - M - D - - - - - - - - - - - - (Single unit)

* ZR1-RV1-41pc. (Function plate)

* ZR1-R1-41pc. (Individual spacer)

A: Release flow rate adjusting needle with lock nut



Manual override Non-locking push type

Pilot pressure supply

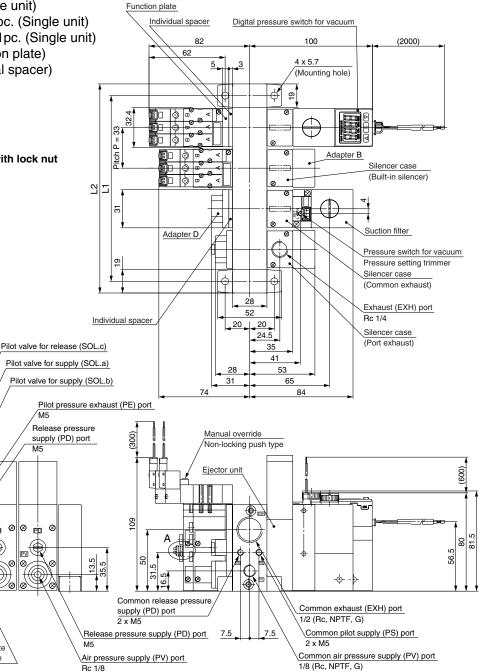
Air pressure supply

(PS) port

(PV) port

Rc 1/8

M5



1 The common exhaust port (EXH.) is also used as the pilot pressure exhaust (PE) port of the pilot valve. Use while the port is open to the atmosphere.

						(mm)
Symbol Stations	1	2	3	4	5	6
L1	52	85	118	151	184	217
L2	71	104	137	170	203	236

Ø

Ø

Release flow rate

adjusting needle

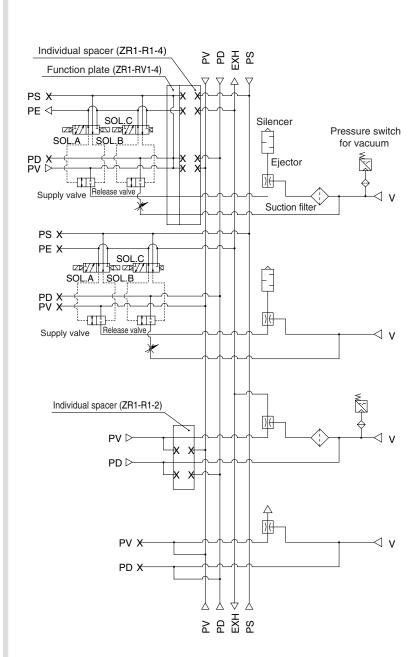
PD (

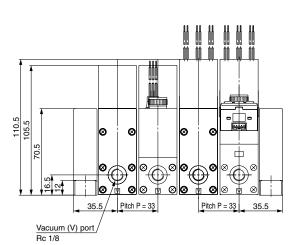
ØØ

4.5

 $\otimes \otimes$

Circuit diagram





PV: Air pressure supply port **PS:** Pilot pressure supply port

PD: Release pressure supply port

PE: Pilot pressure exhaust port **EXH:** Common exhaust port

V: Vacuum Port

ZA

ZX

ZR

ZM

ZMA

ZQ

ZH

ZU

ZL

 $\mathsf{ZY} \square$

 $\mathsf{ZF} \square$

 $\mathsf{ZP} \square$

SP

ZCUK

AMJ

AMV

AEP

HEP

Related

Equipment

Large Size Vacuum Module: Vacuum Pump System Series ZR





How to Order



Pressure switch for vacuum Suction filter

ZR100-K15MZ -

Release flow rate adjusting needle/Bracket A, B

	Lock nut	Bracket A or B
Nil	×	•
L	•	•
M	•	×
N	×	×

: Attached (Bracket A or B is shipped together.): None

Combination of vacuum valve and release valve

Refer to "Table (1)" in page 969 for details.

Solenoid valve rated voltage CE-compilar					
Nil Note)	Air operated				
5	24 VDC	•			
6	12 VDC	•			
٧	6 VDC	•			
S	5 VDC	•			
R	3 VDC	•			
D1 Note)	100 VAC (50/60Hz)	_			
D2 Note)	110 VAC (50/60Hz)	_			

Note) Air operated, 100 VAC, and 110 VAC type are not CE-compliant.

Air operated

Lead wire length 0.3 m

Without lead wire

Without connector

Lead wire length 0.3 m

Without lead wire

type Without connector

Grommet Lead wire length 0.3 m (Applicable to only DC)

Lead wire length 0.6 m (Applicable to only DC)

• Refer to "Table (2)" on page 969 for part no. of

Lead wire specifications

Digital pressure switch for vacuum (ZSE30A) specifications (D)
--

Nil	Without lead wire
L	Lead wire with connector (Length 2 m)

Refer to "Table (4)" on page 969 for part no. of lead wire with connector.

Pressu	Pressure switch for vacuum (ZSE2) specifications (
Nil	Grommet/Lead wire (Length 0.6 m)			
L	Grommet/Lead wire (Length 3 m)			
С	Lead wire with connector (Length 0.6 m)			
CL	Lead wire with connector (Length 3 m)			
CN	With connector/Without lead wire			

Refer to "Table (3)" on page 969 for part no. of lead wire with connector.

Filter specifications (F)

Nil	No setting

• Unit specifications

Jili specifications.

Digital pressure switch for vacuum (ZSE30A) specifications (D)

1
alue psi)

Note 1) This is no longer sold for use in Japan due to the Weight and Measure Act (implemented October, 1999). Note 2) Fixed unit: kPa

Pressure switch for vacuum (ZSE2) specifications (E)

Nil	No setting
Filter s	pecifications (F)
Nil	No setting

Output specifications

Nil

Digital pressure switch for vacuum (ZSE30A) specifications (D)

N	NPN open collector 1 output
P	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
E	PNP open collector 1 output + Analog voltage output
F	PNP open collector 1 output + Analog current output
_	

Pressure switch for vacuum (ZSE2) specifications (E)

No setting

	Nil	NPN open collector 1 output			
	55	PNP open collector 1 output			
Filter specifications (F)					

Light/Surge voltage suppressor

Nil

L

LO

М

MN

МО

G

н

For 24, 12, 6, 5, 3 VDC

L plug

type

M plua

connecto

lead wire with connector.

LN connecto

Nil	None
Z	With light/surge voltage suppressor
S	With surge voltage suppressor

* DC voltage: Be much careful about polarity, because it is incorrect at DC (surge voltage suppressor), diode or switching element may be damaged.

AC voltage: S is not available for AC.

Manual override Nil Non-locking push type

B Slotted lo		Slotted locking type

Electrical entry

Combination of switch/filter

Nil	None
D	Digital pressure switch for vacuum (ZSE30A) + Filter
E	Pressure switch for vacuum (ZSE2) + Filter
F	Filtor

Table (1) Valve Unit/Combination of Vacuum Switch Valve and Release Valve

Valve	unit fund	Valve unit o	omponents	
Operation Stop Vacuum adsorption		Vacuum release	Supply valve	Release valve
0	0	0	Double SOL. (VJ3233-X17)	N.C. (VJ3133)
0	0	0	N.C. (VJ3133)	N.C. (VJ3133)
0	0	0	Air operated (VJA3130)	Air operated (VJA3130)
×	0	0	N. (VJ3	
×	0	0	Air op	
×	0	0	N. (VJ3	
×	0	0		e SOL. 3-X18)
: Possible (without self-hol	: Possible with ding function) >	n limitations : Not possible	_	_

vacui	acuum Switch valve and nelease valve							
	Supply valve				Release valve			
Symbol	Solenoid valve		Air operated	S	Solenoid valve		Air operated	
Symbol	Double SOL.	Double SOL. (VJ3233-X18)	N.C (VJ3133)	(VJA3130)	Double SOL. (VJ3233-X17)	Double SOL. (VJ3233-X18)	N.C (VJ3133)	(VJA3130)
K1	•	_	_	_	_	_	•	_
K2	_	_	•	_	_	_	•	_
КЗ	_	_	_	•	_	_	_	•
C1	_	_	•	_	_	_	(Common with supply valve	_
C2	_	_	_	•	_	_	_	(Common with supply valve
СЗ	_	_	•	_	_	-	(Common with supply valve)	_
C4	_	•	_	_	_	(Common with supply valve)	_	_
Nil	Without valve module							

Table (2) How to Order Valve Plug **Connector Assembly**

100 VAC (with rectifier) VJ10 - 36 - 1A -

110 VAC (with rectifier) VJ10 - 36 - 3A -

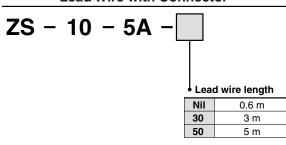
Lead wire length

Leau wire length				
Nil	300 mm (Standard)			
6	600 mm			
10	1000 mm			
15	1500 mm			
20	2000 mm			
25	2500 mm			
30	3000 mm			

How to order

When requiring a vacuum unit equipped with valves with lead wires of 600 mm or more, specify the vacuum module valves without the standard connectors and order the required connector ass'ys separately.

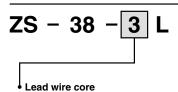
Table (3) Pressure Switch for Vacuum/ **Lead Wire with Connector**



How to order

When requiring a vacuum switch with a lead wire of 5 m, indicate the part numbers of the vacuum unit switch without a lead wire with connector and the 5 m lead wire connector separately.

Table (4) Digital Pressure Switch for Vacuum/ **Lead Wire with Connector**



3	3 cores, 1 output, 2 m (Output specifications: N, P)
4	4 cores, 2 outputs, 2 m (Output specifications: A, B, C, D, E, F)

ZH

ZA

ZX

ZR

ZM

ZMA

ZU

ZL

 $\mathsf{ZY} \square$ ZF□

 $\mathsf{ZP} \square$

SP

ZCUK

AMJ

AMV AEP

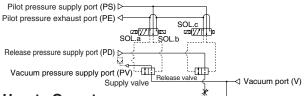
HEP

Related Equipment

Vacuum Pump System/Combination of supply valve and release valve

Combination Symbol : K1

Feature: Double solenoid vacuum valve allows for self-holding.

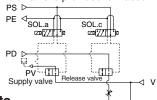


How to Operate

Pilot valve operation	Supply	/ valve	Release valve	Note
Operation	SOL.a	SOL.b	SOL.c	When power supply is
1. Adsorption	ON	OFF	OFF	cut off while the supply
2. Vacuum release	OFF	ON	ON	valve is ON, the opera-
3. Operation stop	OFF	ON	OFF	tional state is held.

Combination Symbol : K2

Feature: Single solenoid valve is provided for vacuum valve.

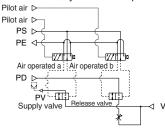


How to Operate

	Pilot valve operation	Supply valve	Release valve	Note
Operation	oporation	SOL.a	SOL.c	When newer cumply is
1. Adsorption		ON		When power supply is stopped, all operations
2. Vacuum	release	OFF	ON	will be stopped.
3. Operatio	n stop	OFF	OFF	so stopped.

Combination Symbol : K3

Feature: Operation can be controlled by an external pilot valve.



How to Operate

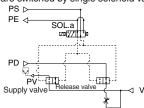
Pilot valve operation	Supply valve	Release valve	Note
Operation	Air operated a	Air operated b	The product is used under the
1. Adsorption	ON	OFF	environment in which solenoid valves cannot be used or when
2. Vacuum release	OFF	ON	the centralized control is applied
3. Operation stop	OFF	OFF	using external pilot air.

⚠ Caution

When pipe connection is made to two port connections (PV port, PD port) only, use a function plate (ZR1-RV3). Refer to page 971 for further information.

Combination Symbol : C1

Feature: Adsorption of workpieces (when energized) and release of vacuum (when de-energized) are switched by single solenoid valve.

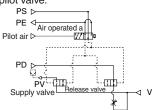


How to Operate

mon to opera		
Pilot valve operation	Supply valve/Release valve	Note
Operation	SOL.a	Be careful for blowing off of workpieces or
1. Adsorption	ON	displacement of adsorption position in case
2. Vacuum release	OFF	of small and/or lightweight workpieces.

Combination Symbol : C2

Feature: Adsorption of workpieces and release of vacuum are switched by an external pilot valve.

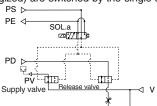


How to Operate

Pilot valve operation	Supply valve/Release valve	Note	
Operation		Be careful for blowing off of workpieces or	
1. Adsorption	ON	displacement of adsorption position in case	
2. Vacuum release	OFF	of small and/or lightweight workpieces.	

Combination Symbol : C3

Feature: Adsorption of workpieces (when de-energized) and release of vacuum (when energized) are switched by the single solenoid

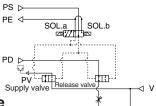


How to Operate

Pilot valve operation	Supply valve/Release valve	Note
Operation	SOL.a	Be careful for blowing off of workpieces or
1. Adsorption	OFF	displacement of adsorption position in case of small and/or lightweight workpieces.
2. Vacuum release	ON	

Combination Symbol : C4

Feature: Adsorption of workpieces and release of vacuum are switched by double solenoid valve.



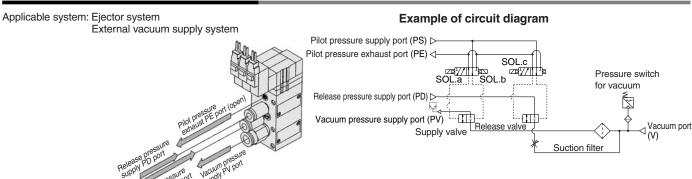
How to Operate

now to operate								
	Pilot valve operation	Supply valve/Release valve		Note				
	Operation	SOL.a	SOL.b	When power supply is stopped				
	1. Adsorption	ON	OFF	vacuum valve/vacuum release				
	2. Vacuum release	OFF	ON	valve will hold the operation.				

Function Plate : ZR1-RV3

A function plate is used when each connecting port for the valve unit is common. If a function plate is not used (standard), make individual pipe connections to PV, PS, and PD ports respectively.

Without Function Plate (Standard)

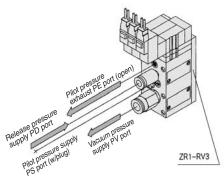


With Function Plate/Applicable to Vacuum Pump System Only

Pipe connection

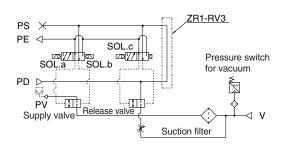
When ZR1-RV3 (PV/PS⇔PD) is Selected

Since compressed air is necessary to operate pilot valve in vacuum pump system, supply air to PD port (or PS port).

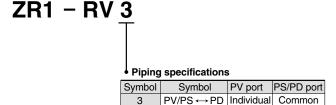


Pipe connection

Example of circuit diagram



How to Order Function Plate Unit (For Pump System)



How to order

Indicate the model numbers of the vacuum module and the function plate.

Example) ZR100-K15MZ-E 1 * ZR1-RV3 1

⚠ Caution

Length of assembling screw varies when adding function plate. Order from the mounting thread parts list for unit combination on page 983.

Order a plug (M-5P) separately in order to plug the PD and PS ports that are no longer used due to the addition of function plate.

ZA

ZX

ZR

ZM

ZMA

ZO

ZH

ZU

ZL

 $ZY \square$

ZF□

 $\mathsf{ZP} \square$

SP

ZCUK

AMJ

AMV

AEP

HEP

Related

Equipment

Valve Unit : ZR1-V□□□□□-□-□





Specifications

Valve unit part no.	ZR1-V□□□□□-□-□			
Components	Supply valve Release valve			
Operating method	Pilot operated Pilot operated			
Combination of supply valve and release valve	Refer to the combination of supp	ly valve and release valve below.		
PV port supply pressure	-0.1 to 0.6 MPa			
PD port supply pressure	0.05 to 0.6 MPa			
PS port supply pressure	0.25 to 0.6 MPa			
Main valve effective area (mm²)	8.2	0.96		
Main valve effective area (Cv)	0.45 0.053			
Maximum operating frequency	5 Hz			
Operating temperature range	5 to 50°C			
Standard	Bracket B(ZR1-OBB)			

Solenoid Valve/Specifications

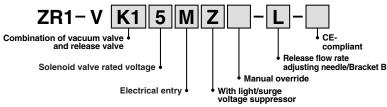
Solenoid	SYJ3133, SYJ3233X126, SYJ3233X127
Rated voltage	24, 12, 6, 5, 3 VDC, 100°, 110° VAC (50/60 Hz)
Electrical entry	VDC-L/M plug connector, Grommet
Light/Surge voltage suppressor	Available, Not available (at grommet)
Manual operation	Non-locking push type, Locking slotted type

Combination of Supply Valve and Release Valve

Combination symbol	Vacuum switch valve	Release valve	Weight (kg)	
K1	Double SOL. (SYJ3233-X126)	N.C. (SYJ3133)	0.34	
K2	N.C. (SYJ3133)	N.C. (SYJ3133)	0.27	
K3	Air operated (SYJA3130)	Air operated (SYJA3130)	0.194	
C1	N.C. (S)	0.22		
C2	Air operated SYJA3130		0.174	
C3	N.C. (SYJ3133)			
C4	Double SOL. (SYJ3233-X127)			

^{*} Weight includes Bracket B. (Solenoid valve: 24 VDC, M plug connector type)





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



Specifications

Rated pressure range		0.0 to -101.0 kPa		
Set	pressure range	10.0 to -105.0 kPa		
Withstand pressure		500 kPa		
App	plicable fluid	Air, Non-corrosive gas, Non-flammable gas		
Pov	wer supply voltage	12 to 24 VDC ±10% (with power supply polarity protection)		
Cui	rrent consumption	40 mA (at no load)		
e	itch output	NPN or PNP open collector 1 output		
SW		NPN or PNP open collector 2 outputs (selectable)		
ຮໍ່ _ຜ Hysteresis mode		Variable (O to variable)		
Hystere- sis	Window comparator mode	Variable (0 to variable)		
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)		
Ę ø	Enclosure	IP40		
Environment resistance	Operating temperature range	Operating: 0 to 50°C, Stored: -10 to 60°C (No freezing or condensation)		
S Operating humidity range		Operating/Stored: 35 to 85% RH (No condensation)		
ษ์ Withstand voltage		1000 VAC for 1 minute between live parts and case		
Temperature characteristics		±2% F.S. (Based on 25°C)		

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.

Refer to page 952 for further specifications.



Vacuum Pressure Switch : ZSE2-0R-□□







Specifications

Pressure switch for vacuum part no.	ZSE2-0R-15□ ZSE2-0R-55□		
Fluid	Air		
Rated pressure range/Set pressure range	0 to -1	01 kPa	
Proof pressure	500 kPa		
Hysteresis	3% F.S. or less (Fixed)		
Temperature characteristics (Based on 25°C)	± 3% F.S. or less		
Operating voltage	12 to 24 VDC (Rip	pple ±10% or less)	
Output	NPN Open collector 30 V, 80 mA	PNP Open collector 80 mA	
Indicator light	Lights up	when ON	
Current consumption	17 mA or less (who	en 24 VDC is ON)	
Proof pressure (Max. operating pressure)	0.5 MPa*		
Operating temperature range	5 to 50°C		

* When using the ejector system, instantaneous pressure up to 0.5 MPa will not damage the switch.

Note) Operation outside of the maximum operating pressure and operating temperature range may cause a serious accident or damage.

Pressure Switch for Vacuum/Suction Filter Unit : ZR1-F□



Specification

Unit no.		ZR1-F□□□□-□		
Suction	Rated pressure range/Set pressure range	-100 to 0.5 MPa		
filter	Operating temperature range	5 to 50°C		
inter	Filtration degree	30 μm		
Filtra	ation material	PVF		
Pressure switch for vacuum		Refer to page 949 and 952 regarding pressure switch for vacuun		
Standard option		Bracket A (ZR1-OBA)		



Note) Operation outside of the operating pressure and operating temperature range may cause a serious accident or damage.



Refer to page 953 for further specifications.

Filter case

- ① The case is made of polycarbonate. Therefore, do not use it with or expose it to the following chemicals: paint thinner, carbon tetrachloride, chloroform, acetic ester, aniline, cyclohexane, trichloroethylene, sulfuric acid, lactic acid, watersoluble cutting oil (alkalinic), etc.
- 2 Do not expose it to direct sunlight.

Suction Filter : ZR1-FX-□



Refer to page 955 for further specifications.

Specifications

ppecifications		
Model	ZR1-FX-□	
Operating pressure range	-0.1 to 0.5 MPa	
Operating temperature range	5 to 50°C	
Filtration efficiency	30 μm	
Filter media	PVF	
Weight (with bracket)	0.1 kg	
Standard option	Bracket C (ZR1-OBC)	



Note) Operation outside of the operating pressure and operating temperature range may cause a serious accident or damage.

Filter case

- ① The case is made of polycarbonate. Therefore, do not contact it or expose it to the following chemicals: paint thinner, carbon tetrachloride, chloroform, acetic ester, aniline, cyclohexane, trichloroethylene, sulfuric acid, lactic acid, watersoluble cutting oil (alkalinic), etc.
- 2 Do not expose it to direct sunlight.



ZA

ZX ZR

ZM

ZMA

ZO

ZH

ZU

ZL

ZY□

 $\mathsf{ZF}\square$

ZP□

SP

ZCUK

AMJ

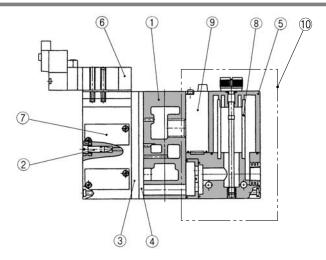
AMV

AEP

HEP

Related Equipment

Construction



Components Parts

No.	Description	Material	Note	
1	Manifold base	Aluminum		
2	Release flow rate adjusting needle	Stainless steel	Refer to Note 2)	
3	Function plate	PBT	→ Refer to page 978.	
4	Individual spacer	PBT	→ Refer to page 978.	
5 (1)	Filter case	Polycarbonate	ZR1-FC-PC (Assembly part no.:ZR1-FC-PC-AS)	



Note 1) Precautions on handling the filter case

- The case is made of polycarbonate. Therefore, do not contact it or expose it to the following chemicals: paint thinner, carbon tetrachloride, chloroform, acetic ester, aniline, cyclohexane, trichloroethylene, sulfuric acid, lactic acid, water soluble cutting oil (alkalinic), etc.
- oil (alkalinic), etc.
 2. Do not expose it to direct sunlight.

Note 2) Turning the release flow rate adjusting needle 4 full turns from the fully closed position renders the needle valve fully open. Do not turn more than four times since turning excessively may cause the needle fall off. In order to prevent the needle from loosening and falling out, a release flow rate adjusting needle with lock nut is available.

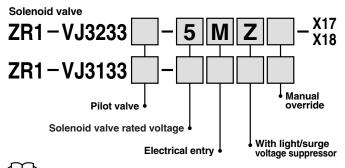
Replacement Parts

No.	Description	Material	Part No.	
6	Pilot valve assembly	_	→ Refer to Table (1)	
7	Valve body assembly	_	→ Refer to Table (2)	
8	Filter element	PVF	ZR1-FZ (30 μm)	
9	Pressure switch for		ZSE2-OR-15-□	
9	vacuum	_	ZSE30A-00X505	
10	Filter switch unit for replacement	_	ZR1-F 🗆 🗆 🗆 – D	

How to Order Solenoid Valves/Air Operated Valves

Air operated

ZR1-VJA3130



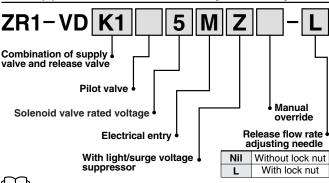
Refer to page 968 for further symbol specifications.

Note) Pilot valve gasket is included. (ZR1-PVG-1 or ZR1-PVG-2)

Table (1) How to Order Pilot Valves

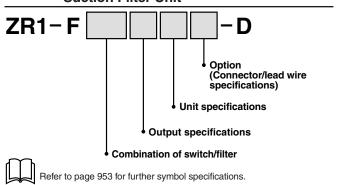
0	Components		Model	
Symbol	Supply valve Release valve			
	Double solenoid	Single solenoid	→ Refer to "How to Order" below.	
K1	valve N.C.	valve N.C.	Supply:ZR1-VJ3233- □□□□-X17	
	(VJ3233)	(VJ3133)	Release:ZR1-VJ3133-	
	Double solenoid	Double solenoid		
C4	valve N.O.	valve N.O.	Supply:ZR1-VJ3233- Cupply:ZR1-VJ3233-	
	(VJ3233)	(VJ3233)	Release:ZR1-VJ3233	
КЗ	Air operated	Air operated	ZR1-VJA3130	
K3	N.C (VJA3130)	N.O (VJA3130)	Zn1-VJA3130	

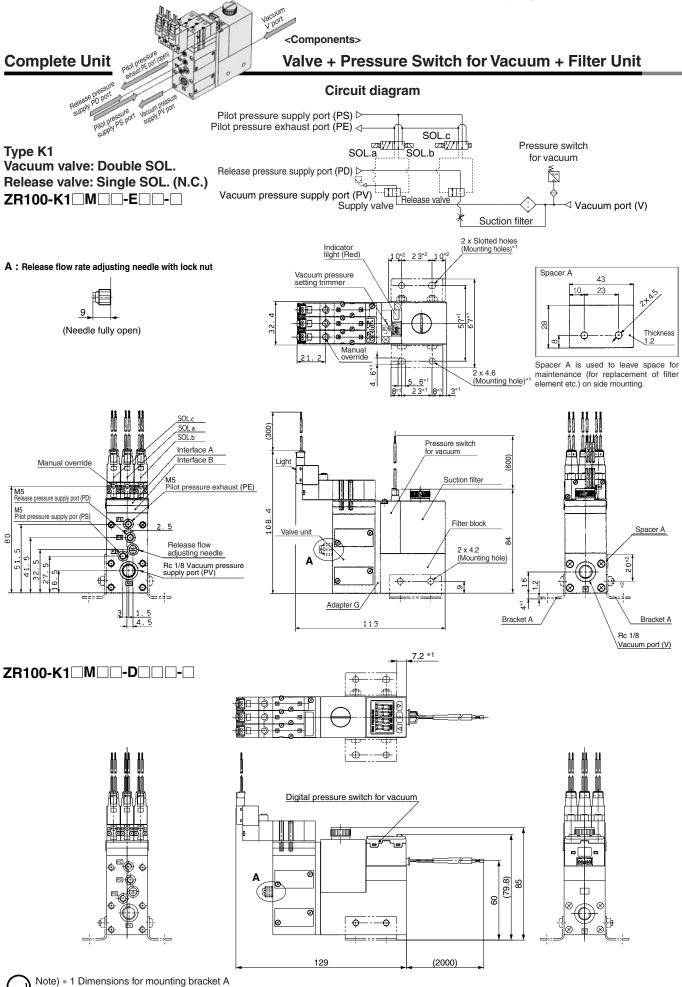
Table (2) How to Order Valve Body Assembly



Refer to page 968 for further symbol specifications.

Table (3) Pressure Switch for Vacuum + Suction Filter Unit





SMC

Bracket A part no.: P3270153#1 (Standard accessory) Spacer A part no.: P3270156#1

* 2 Dimensions for mounting spacer A

ZA

ZX

ZR

ZM

ZMA

ZQ

ZH

ZU

ZL

 $ZY \square$

ZF□

 $\mathsf{ZP}\square$

SP

ZCUK

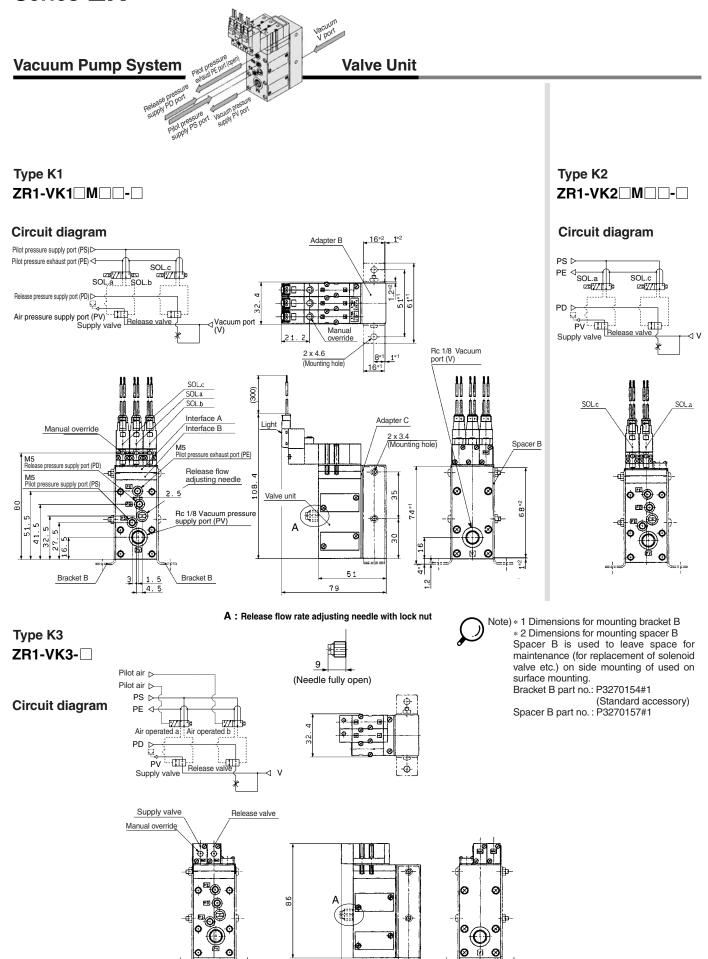
AMJ

AMV

AEP

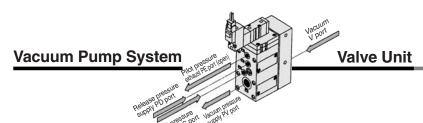
HEP
Related
Equipment

Series ZR



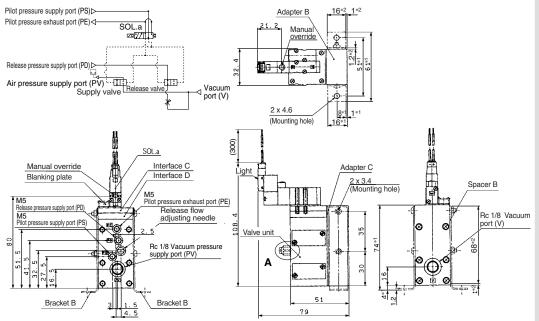
60

★ Dimensions not indicated are identical to type K2.



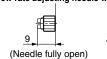
Type C1 ZR1-VC1 M --

Circuit diagram



A: Release flow rate adjusting needle with lock nut

Type C2 ZR1-VC2-□



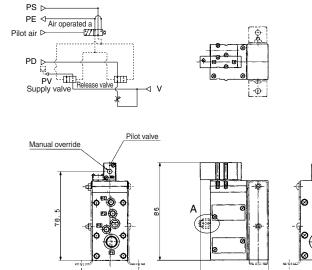
Note) * 1 Dimensions for mounting bracket B * 2 Dimensions for mounting spacer B Spacer B is used to leave space for maintenance (for replacement of solenoid valve etc.) on side mounting of used on surface mounting.

Surface mounting.

Bracket B part no.: P3270154#1
(Standard accessory)

Spacer B part no.: P3270157#1

Circuit diagram



★ Dimensions not indicated are identical to drawings above.

Type C3 ZR1-VC3 M C-C

ZA

ZX

ZR

ZM

ZMA

ZQ

ZH

ZU

ZL

 $\mathsf{ZY} \square$

 $\mathsf{ZF} \square$

 $\mathsf{ZP} \square$

SP

ZCUK

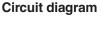
AMJ

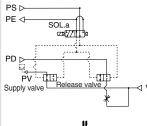
AMV

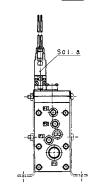
AEP

HEP

Related Equipment

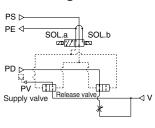


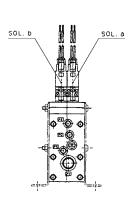




Type C4 ZR1-VC4□M□□-□

Circuit diagram





60

Manifold Specifications/Vacuum Pump System



Specifications

Max. number of units	6 stations	
Port	Port size	
Common vacuum pressure supply port (PV)	1/8 (Rc, NPTF, G)	
Common pilot pressure supply port (PS)	M5	
Common release pressure supply port (PD)	M5	
Common exhaust port (EXH)	1/2 (Rc, NPTF, G)	
Mass	Basic mass for one station is 0.275 kg. Additional mass per one station is 0.12 kg.	

Note) When using 3 or more stations with ZR100 manifold, utilize PV port as suction on both sides.

Manifold Vacuum/Air Supply

• • •						
Manifold	Left			Right		
Supply port location Port	PV	PV PS PD			PS	PD
L (Left side)	0	0	0	•	•	•
R (Right side)	•	•	•	0	0	0
B (Both sides)	0	0	0	0	0	0

Vacuum supply to ○ PV port.

Air supply to O port.

BLANK plug attached to • port.

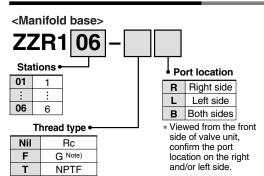
Note) BLANK plug is attached on all ports of valve unit.

Individual Spacer

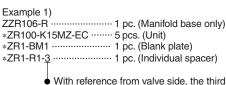
Part no. Port Function		Function
	PV	Possible to set the external vacuum pressure individually
ZR1-R1	PS	Possible to set the pilot valve air supply pressure individually
Zni-ni	PD	Possible to set the release valve supply pressure individually
	PE	Possible to set the pilot valve exhaust individually

Individual spacer is used when the connecting port of each unit is not common for the manifold connecting port. Mixed specifications of common and individual unit connecting ports for each unit is possible on manifolds with this individual spacer.

How to Order Manifold



Note) The thread ridge shape is compatible with the G thread standard (JIS B 0203), but other shapes are not conforming to ISO16030 and ISO1179.



With reference from valve side, the third station from right side

The asterisk denotes the symbol for assembly. Prefix it to the ejector part numbers to be mounted. When it is not added, the manifold base and ejector are shipped separately.

<Function plate>

ZR1 – RV3 Arrangement 4 (Right valve station which is looked from valve side is first station.)

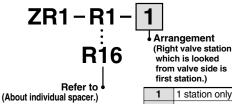
1	1 station only	
:	:	
6 6 stations on		
A All stations		

* When the spacers are attached to the specified locations, specify all spacers.

Example 2) Attached to the first and third stations *ZR1-RV3-1 *ZR1-RV3-3 *ZR1-RV3-A...2

Fill the number

<Individual spacer>



6 stations only 6 Α All stations * When the spacers are attached to the specified locations, specify all spacers.

Example 3) Attached to the first and third stations *ZR1-R1-1

*ZR1-R1-3

<Blanking plate> ZR1 – BM1

Refer to Example 1).

About individual spacers

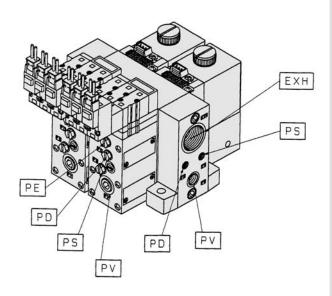
- Manifold supply or valve unit supply can be selectable for each port. In the right table, ports with the symbol 1 mean that they are manifold supply, while others are individual supply from the valve unit.
- · Symbols in the right table are printed on the surface of individual spacers.

Part no.		Symbol		Part no.		Symbo	l	
ZR1-R1	R1			ZR1-R9	R9	‡PV		
-R2	R2		ĴΡΕ	-R10	R10	‡PV		ĴPE
-R3	R3	ĴPI)	-R11	R11	‡PV	ĴPD	
-R4	R4	ĴРI	Ĵ₽E	-R12	R12	‡PV	ĴPD	ĴPE
-R5	R5	ĴPS		-R13	R13	‡PV ‡PS		
-R6	R6	‡PS	ĴPE	-R14	R14	‡PV ‡PS		ĴPE
-R7	R7	‡PS ‡PI)	-R15	R15	‡PV ‡PS	‡PD	
-R8	R8	‡PS ‡PI	D ĴPE	-R16	R16	‡PV ‡PS	ĴPD	ĴPE



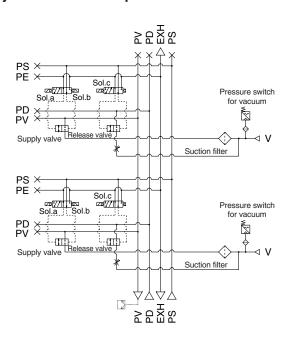
Manifold/System Circuit Example

When not using individual spacer

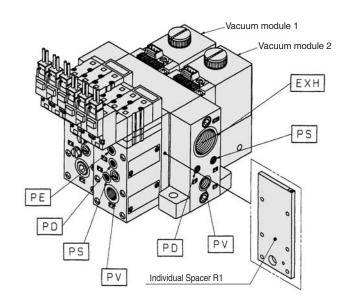


PV: Vacuum pressure supply port PS: Pilot pressure supply port PD: Release pressure supply port PE: Pilot pressure exhaust port EXH: Common exhaust port V: Vacuum Port

<System circuit example>

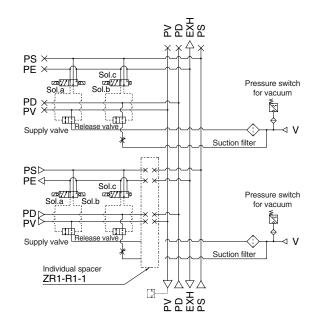


When using individual spacer



PV: Vacuum pressure supply port PS: Pilot pressure supply port PD: Release pressure supply port PE: Pilot pressure exhaust port EXH: Common exhaust port V: Vacuum Port

<System circuit example>



ZA

ZX

ZR ZM

ZMA

ZQ

ZH

ZU

ZL ZY□

ZF□

ZP□ SP

ZCUK

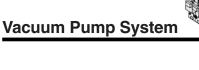
AMJ

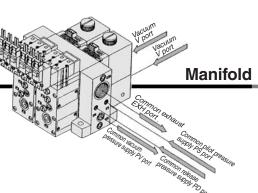
AMV

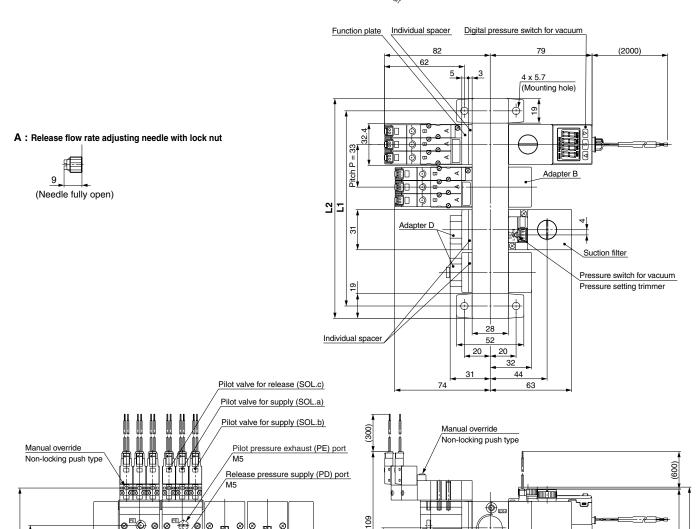
AEP

HEP
Related
Equipment

Series ZR







* 1 The common exhaust port (EXH.) is also used as the pilot pressure exhaust (PE) port of the pilot valve. Use while the port is open to the atmosphere.

-ф-

Common exhaust (EXH) port

Common pilot supply (PS) port

Common air pressure supply (PV) port 1/8 (Rc, NPTF, G)

/2 (Rc, NPTF, G)

81.5

						(mm)
Symbol Stations	1	2	3	4	5	6
L1	52	85	118	151	184	217
L2	71	104	137	170	203	236

ØØ

Release flow rate adjusting needle

4.5

Pilot pressure supply

Air pressure supply

(PS) port M5

(PV) port Rc 1/8 $\otimes \otimes /$



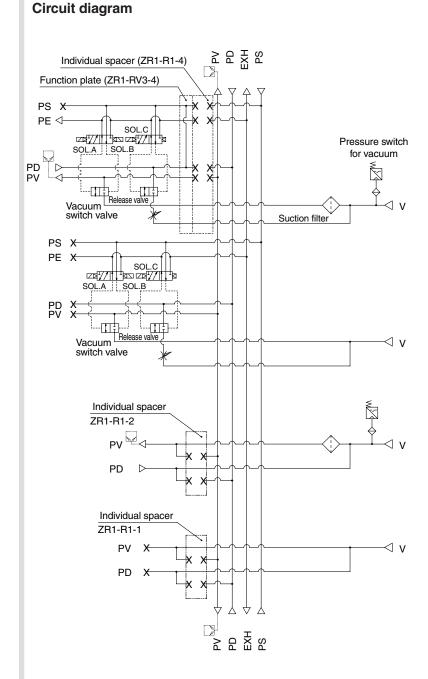
Common release pressure

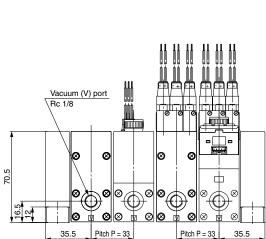
supply (PD) port 2 x M5

Release pressure supply (PD) port

Air pressure supply (PV) port

Rc 1/8





PV : Vacuum pressure supply port PS : Common pilot pressure supply port PD : Common release pressure supply port

PE : Pilot valve exhaust port EXH : Common exhaust port

V: Vacuum Port

ZA

ZX

ZR

ZM

ZMA

ZQ

ZH

ZU

ZL

 $\mathsf{ZY} \square$

 $\mathsf{ZF} \square$

 $\mathsf{ZP} \square$

SP

ZCUK

AMJ

AMV

AEP

HEP

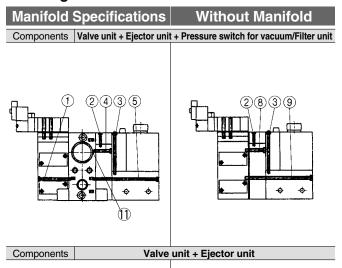
Related

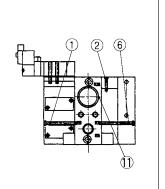
Equipment

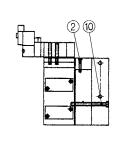
Series ZR

Ejector System

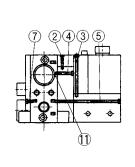
Mounting Thread Parts List for Unit Combination

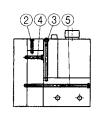






Components Ejector unit + Pressure switch for vacuum/Filter unit

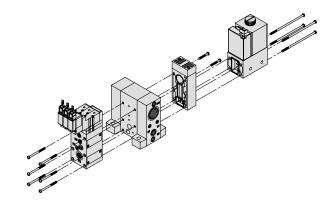




Components		Ejector unit
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Mounting Thread Parts List for Unit Combination

No.	Combination specifications	Assembly part numer		
1	Standard (without options)	ZR1-SR2-33-A(a set of six threads)		
	With individual spacer	ZR1-SR2-37-A(a set of six threads)		
'	With function plate	ZR1-SR2-39-A(a set of six threads)		
	With individual spacer + with function plate	ZR1-SR2-41-A(a set of six threads)		
2	Individual, common and port exhaust style for nozzle size 10, 13	ZR1-SR1-13-A(a set of two threads)		
	Common and port exhaust style for nozzle size 15	Zni-oni-10-A(a set of two tilleaus)		
	Individual exhaust style for nozzle size 15	ZR1-SR1-23-A(a set of two threads)		
	Common and port exhaust style for nozzle size 18, 20	ZR1-SR1-48-A(a set of two threads)		
	Individual exhaust style for nozzle size 18, 20	ZR1-SR1-53-A(a set of two threads)		
3	For vacuum switch and adapter A	ZR1-SR1-41-1A(a set of two threads)		
4	For nozzle size 10, 13, 15	ZR1-SR2-17-A(a set of two threads)		
_	For nozzle size 18, 20	ZR1-SR2-21-A(a set of two threads)		
	For nozzle size 10, 13, 15	ZR1-SR2-66-A(a set of four threads)		
5	For nozzle size 18, 20	ZR1-SR2-70-A(a set of four threads)		
3	For nozzle size 10, 13, 15 [For ZSE30A spec.]	ZR1-SR2-82-A(a set of four threads)		
	For nozzle size 18, 20 [For ZSE30A spec.]	ZR1-SR2-86-A(a set of four threads)		
6	For nozzle size 10, 13, 15	ZR1-SR2-35-A(a set of six threads)		
	For nozzle size 18, 20	ZR1-SR2-39-A(a set of six threads)		
7	Standard (without options)	ZR1-SR2-5-A(a set of six threads)		
_′	With individual spacer	ZR1-SR2-8-A(a set of six threads)		
	For nozzle size 10, 13, 15	ZR1-SR3-19-1A(a set of two threads)		
8	For nozzle size 18, 20	ZR1-SR3-23-A(a set of two threads)		
0	For nozzle size 10, 13, 15 + with function plate	ZR1-SR3-24-1A(a set of two threads)		
	For nozzle size 18, 20 + with function plate	ZR1-SR3-28-A(a set of two threads)		
	For nozzle size 10, 13, 15	ZR1-SR3-68-A(a set of four threads)		
	For nozzle size 18, 20	ZR1-SR3-72-A(a set of four threads)		
	For nozzle size 10, 13, 15 + with function plate	ZR1-SR3-73-A(a set of four threads)		
9	For nozzle size 18, 20 + with function plate	ZR1-SR3-77-A(a set of four threads)		
_	For nozzle size 10, 13, 15 [For ZSE30A spec.]	ZR1-SR3-84-A(a set of four threads)		
	For nozzle size 18, 20 [For ZSE30A spec.]	ZR1-SR3-88-A(a set of four threads)		
	For nozzle size 10, 13, 15 + with function plate [For ZSE30A spec.]	ZR1-SR3-89-A(a set of four threads)		
	For nozzle size 18, 20 + with function plate [For ZSE30A spec.]	ZR1-SR3-93-A(a set of four threads)		
10	For nozzle size 10, 13, 15	ZR1-SR3-37-A(a set of six threads)		
	For nozzle size 18, 20	ZR1-SR3-41-A(a set of six threads)		
	For nozzle size 10, 13, 15 + with function plate	ZR1-SR3-42-A(a set of six threads)		
	For nozzle size 18, 20 + with function plate	ZR1-SR3-46-A(a set of six threads)		
Note 1)	When the ejector is compatible with silencer exhaust or port exhaust	M12 x 12		
	When the ejector is compatible with common exhaust	Unnecessary		
Note 1) • Screw M12 x 12 screws (Hexagon socket head set screws) in until the he				

Note 1) • Screw M12 x 12 screws (Hexagon socket head set screws) in until the head aligns with the manifold base surface.

 The manifold base not assembled with the unit does not include M12 x 12 screws (Hexagon socket head set screws). Please order them separately.

Note 2) When the valve unit is assembled from a single unit function to a manifold function, 3 pcs. of ZX1-MP1 for PS, PD, PE ports and 1 pc. of R1/8 for PV port are required.

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.

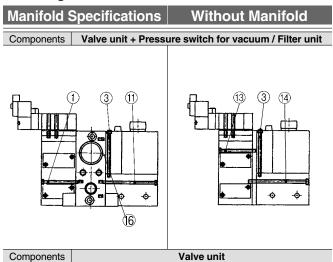
⚠ Caution

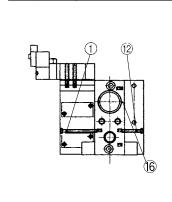
Refer to the Vacuum Equipment Model Selection on page 825 for precautions on matching with vacuum circuit.

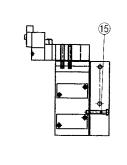


Large Size Vacuum Module: Vacuum Pump System Series ZR

Vacuum Pump System
Mounting Thread Parts List for Unit Combination

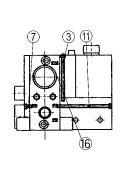


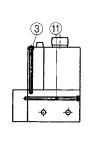


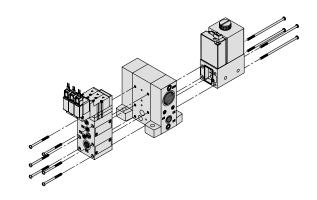


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Com	ponents	

Pressure switch for vacuum / Filter unit







Mounting Thread Parts List for Unit Combination

No.	Combination specifications	Assembly part numer
1	Standard (Without options)	ZR1-SR2-33-A(a set of six threads)
	With individual spacer	ZR1-SR2-37-A(a set of six threads)
	With function plate	ZR1-SR2-39-A(a set of six threads)
	With individual spacer + with function plate	ZR1-SR2-41-A(a set of six threads)
3	For vacuum switch and adapter A	ZR1-SR2-41-1A(a set of two threads)
	Standard (Without options)	ZR1-SR2-5-A(a set of six threads)
7	With individual spacer	ZR1-SR2-8-A(a set of six threads)
11	Standard (Without options)	ZR1-SR2-49-A(a set of four threads)
• • • • • • • • • • • • • • • • • • • •	Standard (Without options) [For ZSE30A spec.]	ZR1-SR2-66-A(a set of four threads)
12	Standard (Without options)	ZR1-SR2-18-A(a set of six threads)
-10	Standard (Without options)	ZR1-SR2-33-1A(a set of two threads)
13	With function plate	ZR1-SR2-39-1A(a set of two threads)
	Standard (Without options)	ZR1-SR3-54-A(a set of four threads)
14	With function plate	ZR1-SR3-59-A(a set of four threads)
14	Standard (Without options) [For ZSE30A spec.]	ZR1-SR3-70-A(a set of four threads)
	With function plate [For ZSE30A spec.]	ZR1-SR3-75-A(a set of four threads)
15	Standard (Without options)	ZR1-SR3-19-A(a set of six threads)
	With function plate	ZR1-SR3-24-A(a set of six threads)
16 Note 1	Standard Standard	M12 x 12

Note 1) • Screw M12 x 12 screws (Hexagon socket head set screws) in until the head aligns with the manifold base surface.

• The manifold base not assembled with the unit does not include M12 \boldsymbol{x} 12 screws (Hexagon socket head set screws). Please order them separately.

Note 2) When the valve unit is assembled from a single unit function to a manifold function, 3 pcs. of ZX1-MP1 for PS, PD, PE ports and 1 pc. of R1/8 for PV port are required.

ZA

ZX

ZR

ZM

ZMA

ZQ

ZH

ZU

ZL

ZY

ZF□

ZP□

SP

ZCUK

AMJ AMV

AEP

HEP

Related Equipment