

Vacuum Ejector With Valve and Switch Series ZM

Note) CE compliant: For
DC only.



How to Order

ZM

Nozzle diameter

05	0.5 mm
07	0.7 mm
10	1.0 mm
13	1.3 mm
15	1.5 mm

Vacuum port location

Nil	Side/Bottom entry
A	Side entry

Standard supply pressure

M	0.35 MPa
S	0.45 MPa
H	0.5 MPa

Thread type

Nil	Rc
T	NPTF
F	G Note)

Body style

1	Single unit: With valve + With standard silencer
1S	Single unit: With valve + With high noise reduction silencer
3 Note)	Manifold: With common SUP valve
5 Note)	Manifold: With individual SUP valve
2	Single unit: With standard silencer (Without valve)
2S	Single unit: With high noise reduction silencer (Without valve)
4 Note)	Manifold: Without common SUP valve
6 Note)	Manifold: Without individual SUP valve

Note) When the product is used for the manifold, the exhaust air of the operating ejector may enter the vacuum (V) port of the non-operating ejector and be released if there are an operating and non-operating ejector. If this becomes a problem, consider using a double check valve (-X107 on page 1004) or individual exhaust (-X111 on page 1005.)

Note) G thread
The thread ridge shape is compatible with the G thread standard (JIS B0202), but other shapes are not conforming to ISO16030 and ISO1179.

Supply valve/Release valve combination

J	Supply valve (N.C.)
K	Supply valve (N.C.), and release valve
A	Supply valve (N.O.)
B	Supply valve (N.O.), and release valve
P3	Air operated valve (supply valve), Port size connection M3 x 0.5
P5	Air operated valve (supply valve), Port size connection M5 x 0.8
Q3	Air operated valve (supply/release valve), Port size connection M3 x 0.5
Q5	Air operated valve (supply/release valve), Port size connection M5 x 0.8
Nil	Without valve

* As the double solenoid specifications, -X126 and -X135 are available as a special order. (Refer to page 1006.)
When selecting air operated valves, there will be no symbol specified for "pilot valves", "solenoid valve rated voltage", "electrical entry", "light/surge voltage suppressor" and "manual override".

Pilot valve

Nil	DC: 1 W (With indicator light: 1.05 W)
Y	DC: 0.45 W (With indicator light: 0.5 W)

Solenoid valve rated voltage

		CE compliant
1 Note)	100 VAC 50/60 Hz	—
3 Note)	110 VAC 50/60 Hz	—
5	24 VDC	●
6	12 VDC	●
V	6 VDC	●
S	5 VDC	●
R	3 VDC	●
Nil	Air operated/Without valve	—

Note) CE compliant products are not available for "1" and "3".

Release flow rate adjusting needle

Nil	Without lock nut
L	With lock nut

Compatible with release valves only.

Made to Order
Refer to pages 1004 to 1006 for details.

Vacuum switch electrical entry

Nil	Grommet type, with 0.6 m lead wire (ZSE1)
L	Grommet type, with 3 m lead wire (ZSE1)
C	Connector type, with 0.6 m lead wire (ZSE1)
CL	Connector type, with 3 m lead wire (ZSE1)
CN	Connector type, without connector assembly
Nil	Grommet type, with 0.5 m lead wire (ZSM1)
L	Grommet type, with 3 m lead wire (ZSM1)

Vacuum switch model

Nil	Without switch
E14	1 output, without analog output, 3 rotation setting (ZSE1)
E15	1 output, without analog output, 200° setting (ZSE1)
E16	2 outputs, without analog output, 3 rotation setting (ZSE1)
E17	2 outputs, without analog output, 200° setting (ZSE1)
E18	1 output, analog output, 3 rotation setting (ZSE1)
E19	1 output, analog output, 200° setting (ZSE1)
E55	1 output, without analog output, 200° setting, PNP output (ZSE1)
M15	1 output, without analog output, Diaphragm (18 rotation setting), Solid state(10 to 26 VDC) (ZSM1)
M21	1 output, without analog output, Diaphragm (18 rotation setting), Reed (AC/DC 100 VAC) (ZSM1)

Manual override

Nil	Non-locking push type
B	Locking slotted type

Light/Surge voltage suppressor

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.

Electrical entry

G	Grommet type, with 0.3 m lead wire (applicable to DC)
H	Grommet type, with 0.6 m lead wire (applicable to DC)
L	L plug connector, with 0.3 m lead wire
LN	L plug connector, without lead wire (applicable to DC)
LO	L plug connector, without connector (applicable to DC)
Nil	Air operated/Without valve

Combination of Nozzle Diameter and Standard Supply Pressure

Nozzle diameter	Standard supply pressure MPa		
	M (0.35)	S (0.45)	H (0.5)
0.5 mm	—	—	○
0.7 mm	○	—	○
1.0 mm	○	—	○
1.3 mm	○	○	○
1.5 mm	—	○	—

Table (1) How to Order Connector for Solid State Switch

- Without lead wire (A connector and 4 sockets) **ZS-20-A**
- With lead wire **ZS-20-5A-** 

Note) If ordering switch with 5 m lead wire, specify both switch and lead wire with connector part numbers.

Ex.) ZM -E15CN 1 pc.
* ZS-20-5A-50 1 pc.

Lead wire length ●

Nil	0.6 m
30	3 m
50	5 m

Table (2) How to Order Connector for Supply Valve and Vacuum Release Valve

VJ10-36-1A-  (Applicable to 100 VAC only)

VJ10-36-3A-  (Applicable to 110 VAC only)

VJ10-20-4A-  (Applicable to DC only)

Lead wire length ●

Nil	300 mm
6	600 mm
10	1000 mm
15	1500 mm
20	2000 mm
25	2500 mm
30	3000 mm

Note) If ordering a valve with 600 mm or longer lead wire, indicate the valve without connector and connector assembly.

Ex.) Lead wire length: 1000 mm

ZM -K1LO (-Q) 1 pc.
* VJ10-36-1A-10 2 pcs.

⚠ Caution

When using AC, the DC solenoids are operated via a rectifier. Therefore, when using this type, make sure to combine the connector assembly equipped with a rectifier with the exclusive solenoids. Using other combinations could lead to burned coils or other types of malfunctions.

How to Order

ZM - **Nozzle diameter** - **Body style** - **Standard supply pressure**

05	0.5 mm
07	0.7 mm
10	1.0 mm
13	1.3 mm
15	1.5 mm

● **<Without valve>**

2	For single unit
4	For manifold, common SUP
6	For Manifold, individual SUP

● **<With valve>**

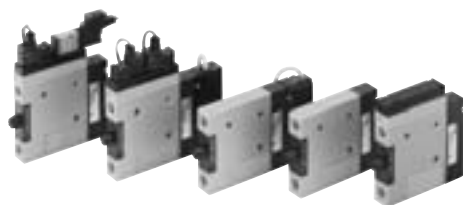
1	For single unit
3	For manifold, common SUP
5	For manifold, individual SUP

M	0.35 MPa (Double diffuser) (Except nozzles diameter "05" and "15" type)
S	0.45 MPa (Single diffuser) (Nozzle diameter "13" and "15" only)
H	0.5 MPa (Double diffuser) (Except nozzles diameter "15" type)

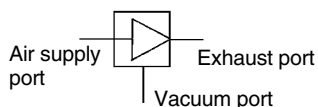
Quick Delivery/Model

- | | | |
|--|---------------------------------------|------------------------|
| <Without valve/Single unit> | <With valve/Single unit> | |
| ● ZM052H | ● ZM051H-K5LZ (-Q) | ● ZM131H-K5LZ (-Q) |
| ● ZM072H | ● ZM051H-K5LZ-E15 (-Q) | ● ZM131H-K5LZ-E15 (-Q) |
| ● ZM102H | ● ZM071H-K5LZ (-Q) | ● ZM131M-K5LZ (-Q) |
| ● ZM132H | ● ZM071H-K5LZ-E15 (-Q) | ● ZM131M-K5LZ-E15 (-Q) |
| | ● ZM101H-K5LZ (-Q) | |
| | ● ZM101H-K5LZ-E15 (-Q) | |

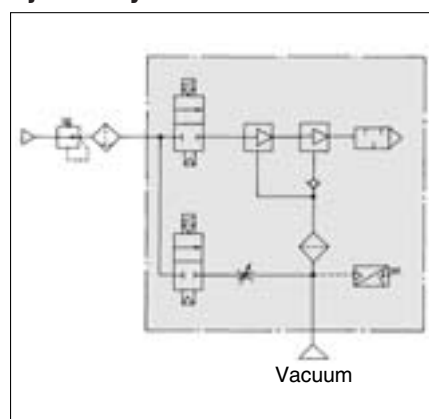
Series ZM



JIS Symbol



Ejector System Circuit



Model

Nozzle dia. ø (mm)	Model	Standard supply pressure			Maximum suction flow rate (ℓ/min (ANR))	Air consumption (ℓ/min (ANR))	Diffuser construction
		H	M	S			
0.5	ZM05□H	0.5 MPa	—	—	15	17	Double diffuser
0.7	ZM07□H				30	30	
1.0	ZM10□H				50	60	
1.3	ZM13□H				66	90	
0.7	ZM07□M	—	0.35 MPa	—	23	33	
1.0	ZM10□M				38	60	
1.3	ZM13□M				44	85	
1.3	ZM13□S	—	—	0.45 MPa	37	88	Single diffuser
1.5	ZM15□S				45	110	

Vacuum Ejector Specifications

Fluid	Air	
Maximum operating pressure	0.7 MPa	
Maximum vacuum pressure	- 84 kPa	
Supply pressure range	Without valve	0.2 to 0.55 MPa
	With valve	0.25 to 0.55 MPa
Operating temperature range	Without valve	5 to 60 °C
	With valve	5 to 50 °C
Air supply valve	Main valve	Poppet
Vacuum release valve	Pilot valve	VJ114, VJ324M
Vacuum pressure switch	Electronic	ZSE1-00-□□
	Diaphragm	ZSM1-0□□□
Suction filter	Filtration degree: 30 μm, Material: PE (Polyethylene)	

Valve Specifications

How to operate	Pilot type
Main valve	NBR poppet
Effective area	3 mm ²
Cv factor	0.17
Operating pressure range	0.25 to 0.7 MPa
Electrical entry	Plug connector, Grommet (available on DC)
Max. operating frequency	5 Hz
Voltage	24/12/6/5/3 VDC, 100/110 VAC (50/60 Hz)
Power consumption	DC: 1 W (With light: 1.05 W), 100 VAC: 1.4 W (1.45 W), 110 VAC: 1.45 W (1.5 W)



Made to Order

(Refer to pages 1004 to 1006 for details.)

Mass

Model	Without switch	-E□□	-E□□L	-M□□	-M□□L
ZM□□2□	0.17	0.21	0.26	0.27	0.32
ZM□□4□	0.17	0.21	0.26	0.27	0.32
ZM□□6□	0.17	0.21	0.26	0.27	0.32
ZM□□1□-J□□	0.24	0.28	0.33	0.34	0.39
ZM□□3□-J□□					
ZM□□5□-J□□					
ZM□□1□-K□□	0.25	0.29	0.34	0.35	0.4
ZM□□3□-K□□					
ZM□□5□-K□□					
ZM□□1□-A□□	0.25	0.29	0.34	0.35	0.4
ZM□□3□-A□□					
ZM□□5□-A□□					
ZM□□1□-B□□	0.26	0.3	0.35	0.36	0.41
ZM□□3□-B□□					
ZM□□5□-B□□					
ZM□□□□-P□□	0.24	0.28	0.33	0.34	0.39

Stations	-04R/L	-04B	-06R/L	-06B	-SR/L	-SB
1	0.209	0.219	0.219	0.229	0.239	0.269
2	0.214	0.224	0.224	0.234	0.244	0.274
3	0.219	0.229	0.229	0.239	0.249	0.279
4	0.224	0.234	0.234	0.244	0.254	0.284
5	0.229	0.239	0.239	0.249	0.259	0.289
6	0.234	0.244	0.244	0.254	0.264	0.294
7	0.239	0.249	0.249	0.259	0.269	0.299
8	0.244	0.254	0.254	0.264	0.274	0.304
9	0.249	0.259	0.259	0.269	0.279	0.309
10	0.254	0.264	0.264	0.274	0.284	0.314