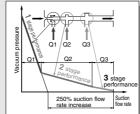
Multistage Ejector

ZL112/212 Series

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

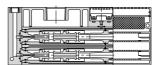
Suction flow rate increased 250% and air consumption reduced 20% with 3 stage diffuser construction (Versus \$\sigma 1.3\$, one stage model)

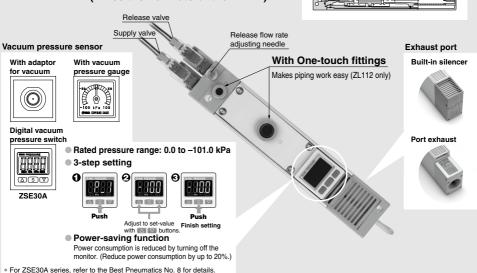


	Suction flow rate (L/min (ANR))	Air consumption (L/min (ANR))
ZL112	100	63
ZL212	200	126

ZL212 Series

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





■ Series Variations				Vacuum pre	ssure sensor	option			
Carrian	Maximum suction	Air consumption	Exhau	st port	With	valve	With digital vacuum pressure switch	Vacuum	Vacuum
Series	flow rate (L/min (ANR))	(L/min (ANR))	Built-in silencer	Port exhaust	With supply and release valves	With supply valve	ZSE30A	pressure gauge	adapter
ZL112	100	63							
ZLIIZ	100	00		Ť	T	T	Ť	Ť	T
ZL212	200	126							
22212	200	120		T			Ť	T	T
©SVC 207				207					

ZK2

ZQ ZR

ZB

ZA ZX

ZIL

ZH

ZH ZH

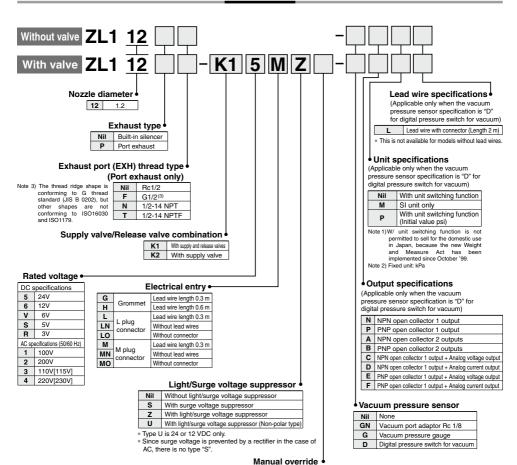
-X267 **ZHP**

ZU

VQD-V

Multistage Ejector **ZL112 Series**

How to Order



Nil Non-locking push type

D Locking slotted type

Standard



With valve



With vacuum pressure gauge



Vacuum port adapter



Port exhaust



Ejector Specifications

	- 1
Model	ZL112
Nozzle diameter	1.2 mm
Maximum suction flow rate	100 L/min (ANR)
Air consumption	63 L/min (ANR)
Maximum vacuum pressure	-84 kPa
Maximum operating pressure	0.7 MPa
Supply pressure range	0.2 to 0.5 MPa
Standard supply pressure	0.4 MPa
Operating temperature range	5 to 50°C

Supply/Release Valve Specifications

_			
Part no.		SYJ514-□□□	
Type of valve actuation	n	N.C.	
Fluid		Air	
Operating pressure range	Internal pilot type	0.15 to 0.7 Mpa	
Ambient and fluid tem	perature	-10°C to 50°C (No freezing)	
Response time (For 0.5 MPa) (1)		25 ms or less	
Maximum operating frequency		5 Hz	
Manual override		Non-locking push type/Locking slotted type	
Pilot exhaust type		Pilot valve individual exhaust, Main valve/Pilot valve common exhaust	
Lubrication		Not required	
Mounting position		Unrestricted	
Impact/Vibration resistance (2)		150/30 m/s ²	
Enclosure		Dust proof	

Note 1) Based on JIS B 8374-1981 dynamic performance test. (coil temperature 20°C, at rated

voltage, without surge voltage suppressor)

Note 2) Impact resistance: No malfunction when tested with a drop tester in the axial direction and at a right angle to the main valve and armature, one time each in both energized and deenergized states. (initial value)

Vibration resistance: No malfunction when tested with one sweep of 45 to 2000 Hz in the axial direction and at a right angle to the main valve and armature, one time each in both energized and deenergized states. (initial value) Note 3) Refer to "Best Pneumatics No. 1-2" for details on valves.

Vacuum Pressure Gauge Specifications

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

Weight

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

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VQD-V

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



Specifications

Rated pressure range		ressure range	0.0 to -101.0 kPa
Set pressure range		ssure range	10.0 to -105.0 kPa
Withstand pressure		nd pressure	500 kPa
Mini	imuı	m unit setting	0.1 kPa
App	lica	ble fluid	Air
Pow	er s	supply voltage	12 to 24 VDC ±10% (with power supply polarity protection)
Cur	rent	consumption	40 mA (at no load)
Ci			NPN or PNP open collector 1 output
SWII	icn (output	NPN or PNP open collector 2 outputs (selectable)
ſ	Max	kimum load current	80 mA
	Max	kimum applied voltage	28 V (at NPN output)
Γ	Res	sidual voltage	1 V or less (with load current of 80 mA)
ſ	Res	sponse time	2.5 ms or less (with anti-chattering function: 20, 100, 500, 1000, 2000 ms)
Ī	Sho	ort circuit protection	Yes
	eata	ability	±0.2% F.S. ±1 digit
Hystere- sis	Hys	steresis mode	\\\\(\frac{1}{2} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\
¥ Window comparator m		dow comparator mode	Variable (0 to variable)
	Note 1)	Output voltage (Rated pressure range)	1 to 5 V ±2.5% F.S.
±	tage	Linearity	±1% F.S. or less
ᇍ	Voltage	Output impedance	Approx. 1 kΩ
8 [Note 2)		4 to 20 mA ±2.5% F.S.
<u> </u>	ŧŧ	Linearity	±1% F.S. or less
Analog output	Current	Load impedance	Maximum load impedance: Power supply voltage 12 V: 300 Ω , Power supply voltage 24 V: 600 Ω
			Minimum load impedance: 50 Ω
Disp	olay		4-digit, 7-segment, 2-color LCD (Red/Green) Sampling cycle: 5 times/sec.
Disp	olay	accuracy	±2% F.S. ±1 digit (Ambient temperature of 25°C)
Indi	cato	or light	Lights up when switch output is turned ON. (OUT1: Green, OUT2: Red)
200	Enc	closure	IP40
esist	Enclosure Operating temperature range Operating humidity range Withstand voltage Insulation resistance		Operating: 0 to 50°C, Stored: -10 to 60°C (No freezing or condensation)
ig [Operating/Stored: 35 to 85% RH (No condensation)
E [Wit	hstand voltage	1000 VAC for 1 minute between terminals and housing
Ē	Insulation resistance		$50~\text{M}\Omega$ or more (500 VDC measured via megohmmeter) between terminals and housing
Temperature characteristics		ature characteristics	±2% F.S. (Based on 25°C)
Lead wire		re	Oilproof heavy-duty vinyl cable, 3 cores ø3.5, 2 m 4 cores Conductor area: 0.15 mm² (AWG26) Insulator O.D.: 1.0 mm
Star	ndar	rds	CE Marking, UL/CSA, RoHS compliance

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

Note 3) If the applied pressure fluctuates around the set value, the hysteresis must be set to a value more than the fluctuating width, otherwise, chattering will occur.

Vacuum Pressure Switch Replacement

It is impossible to replace only the vacuum pressure switch.

Please replace the suction cover assembly.

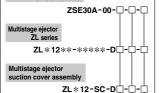
For ordering information, refer to How to Order

* The vacuum pressure switch mounted on this product is equivalent to our SMC product, the ZSE30A series compact digital pressure switch.

For details about vacuum pressure switch functions, refer to the ZSE30A series in the Best Pneumatics No. 8.

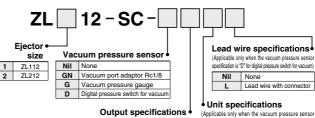
Pressure switch correspondence table

Digital pressure switch ZSE30A series



Output specifications Unit specifications Lead wire specifications

How to Order Suction Cover Assembly



(Applicable only when the vacuum pressure sensor

<u> </u>	ification is "D" for digital pressure switch for vacuum)	Nil	With unit displa	
N	NPN open collector 1 output	М	Fixed SI uni	
Р	PNP open collector 1 output	Р	With unit displa	
Α	NPN open collector 2 outputs	Note 1) M	// unit switchin	
В	PNP open collector 2 outputs		ermitted to sell	
С	NPN open collector 1 output+Analog voltage output		se in Japan, b	
D	NPN open collector 1 output+Analog current output		eight and M	
Е	PNP open collector 1 output+Analog voltage output		een implen ctober, 99.	
F	PNP open collector 1 output+Analog current output		xed unit: kPa	

specification is "D" for digital pressure switch for vacuum)

Nil	With unit display switching function
M	Fixed SI unit
Р	With unit display switching function

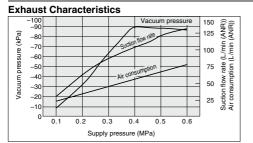
Note 1) W/ unit switching function is not permitted to sell for the domestic use in Japan, because the new Weight and Measure Act has been implemented since October, 99.

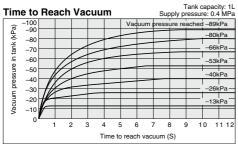


Multistage Ejector **ZL112** Series

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

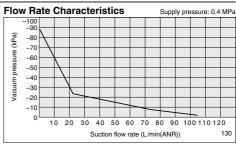
ZL112





<How to Read the Graph>

The graphics indicate the time required to reach a vacuum pressure determined by adsorption conditions for workpieces, etc., starting from atmospheric pressure in a 1L sealed tank. Approximately 8.8 seconds are necessary to attain a vacuum pressure of -89 kPa.



<How to Read the Graph>

The flow rate characteristics indicate the relationship between the vacuum pressure and the suction flow rate of the ejector, and show that when the suction flow rate changes the vacuum pressure also changes. In general, this indicates the relationship at the ejector's standard operating pressure. In the graph, Pmax indicates the maximum vacuum pressure, and Qmax indicates the maximum suction flow rate. These are the values that are published as specifications in catalogs, etc. Changes in vacuum pressure are explained below

Qmax Suction flow rate

. If the ejector's suction port is closed and sealed

1. If the ejector's suction port is closed and sealed tight, the suction flow rate becomes "O" and the vacuum pressure increases to the maximum (Pmax).
2. If the suction port is opened and air is allowed to flow (the air leaks), the suction flow rate increases and the vacuum pressure decreases. (the condition of Pri and OT)
3. If the suction port is opened completely, the Common of the condition of Pri and OT)

OTHER STATE OF THE STATE OF THE

(Qmax), while the vacuum pressure then drops (Qmax), while the vacuum pressure then drops almost to "0" (atmospheric pressure). When adsorbing work pieces which are permeable or subject to leakage, etc., caution is required as the vacuum pressure will not be very high. ZK2

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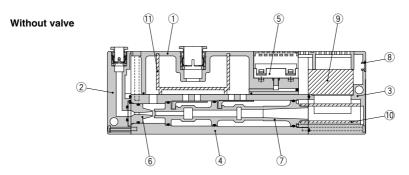
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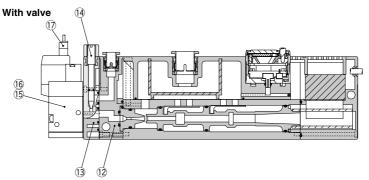
ZH -X267

ZHP

ZU VQD-V

Construction





Comonent Parts

Comonent i una			
No.	Description	Part no.	Note
1	Suction cover		
2	Front cover		Without valve
3	End cover		
4	Body		
5	Vacuum sensor unit		
6	Nozzle		
7	Diffuser		
8	Detent plug		Other than vacuum switch
•	Lead wire cover		Vacuum switch specifications
12	Front cover B		With valve
13	Valve plate		With valve
14	Needle		With valve
15	Supply valve (N.C.)	SYJ514-□□□	With valve
16	Release valve (N.C.)	SYJ514-□□□	With valve
17	Connector assembly	SYJ100-30-□A-□	With valve (Table1.)

Replacement Parts

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

●Table1. How to order connector assembly

For DC

SY100-30-4A
For 100 VAC

SY100-30-1A
For other AC

SY100-30-3A
Lead wire length

Nii 300mm(Standard)

6 600mm

10 1000mm

15 1500mm

20 2000mm

25

50

2500mm 3000mm

5000mm

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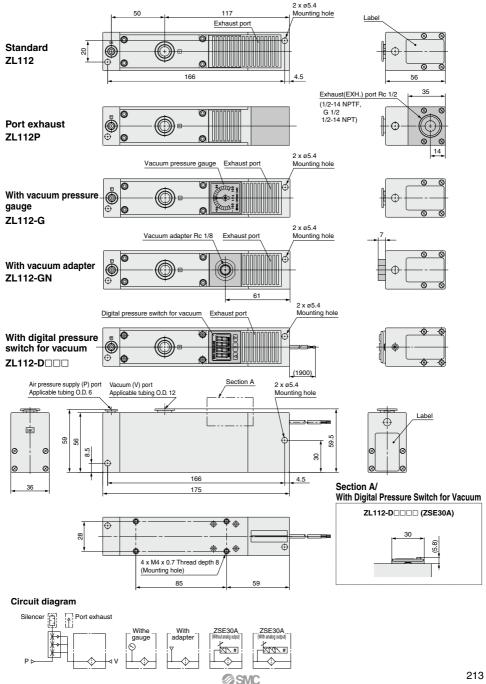
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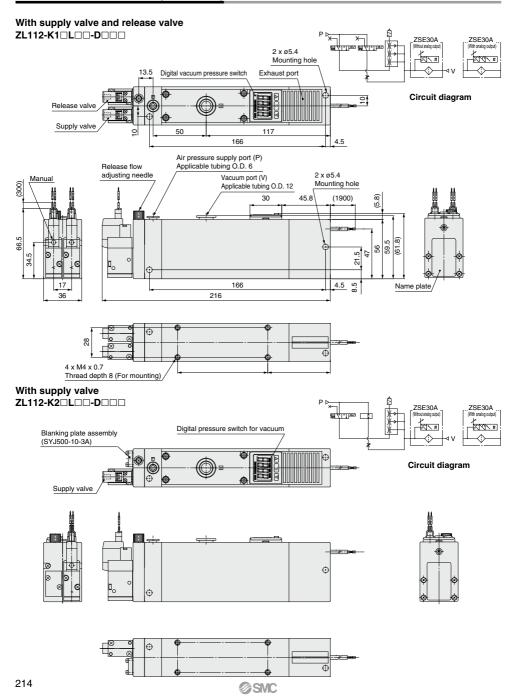
VQD-V

Dimensions: ZL112 Series (Without Valve)



ZL112 Series

Dimensions: ZL112 Series (With Valve)



Multistage Ejector **ZL212 Series**



With vacuum pressure gauge



With digital vacuum pressure switch



With adaptor



Port exhaust







Exhaust specifications

Nil	Built-in silencer
Р	Port exhaust

Vacuum prossure sense

vacuum pressure sensor		
Nil None		
GN	GN Vacuum port adaptor Rc 1/8	
G Vacuum pressure gauge D Digital pressure switch for vacuu		



Symbol	Specifications/Contents	
X132	Supply valve/Vacuum release valve	

Lead wire specifications

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ZX

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ZHP

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VQD-V

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

L Lead wire with connector (Length 2 m)

* This is not available for models without lead wires.

Unit specifications

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

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

Note 1) W/ unit switching function is not permitted to sell for the domestic use in Japan, because the new Weight and Measure Act has been implemented since October '99. Note 2) Fixed unit: KPa

Note 2) Fixed unit: kPa

Output specifications

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

SWIICH for vacuum)			
N	NPN open collector 1 output		
Р	PNP open collector 1 output		
Α	NPN open collector 2 outputs		
В	PNP open collector 2 outputs		
С	NPN open collector 1 output + Analog voltage output		
D	NPN open collector 1 output + Analog current output		
Е	PNP open collector 1 output + Analog voltage output		
F	PNP open collector 1 output + Analog current output		

Ejector Specifications

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

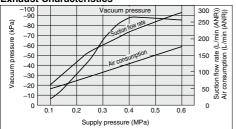
Weight

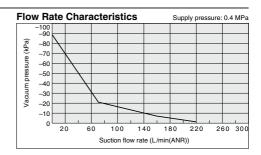
110.9.11	
ZL212	700 g
Port exhaust	+300 g
Digital pressure switch for vacuum (Excluding lead wire)	+43 g
Digital pressure switch for vacuum (Including 3 cores lead wire)	+81 g
Digital pressure switch for vacuum (Including 4 cores lead wire)	+85 g
Valve (per 1 pc.)	+45 a

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

ZL212







Tank capacity: 1L Supply pressure: 0.4 MPa Time to Reach Vacuum Vacuum pre ched –89kPa -90 -80 -70 Vacuum pressure in -60 -53kPa -50 -40kPa -40 -26kPa -30 -20 -13kPa -10

<How to Read the Graph>

The flow rate characteristics indicate the relationship between the vacuum pressure and the suction flow rate of the ejector, and show that when the suction flow rate changes the vacuum pressure also changes. In general, this indicates the relationship at the ejector's standard operating pressure. In the graph, Pmax indicates the maximum vacuum pressure, and Qmax indicates the maximum suction flow rate. These are the values that are published as specifications in catalogs, etc. Changes in vacuum pressure are explained below

Qmax Suction flow rate

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

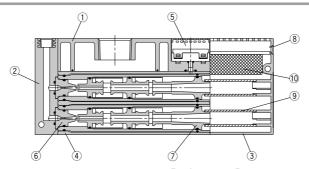
(Qmax), while the vacuum pressure then drops (Qmax), while the vacuum pressure then drops almost to "0" (atmospheric pressure). When adsorbing work pieces which are permeable or subject to leakage, etc., caution is required as the vacuum pressure will not be very high.

<How to Read the Graph>

The graphics indicate the time required to reach a vacuum pressure determined by adsorption conditions for workpieces, etc., starting from atmospheric pressure in a 1L sealed tank. Approximately 8.8 seconds are necessary to attain a vacuum pressure of -89 kPa.

Time to reach vacuum (S)

Construction



Component Parts

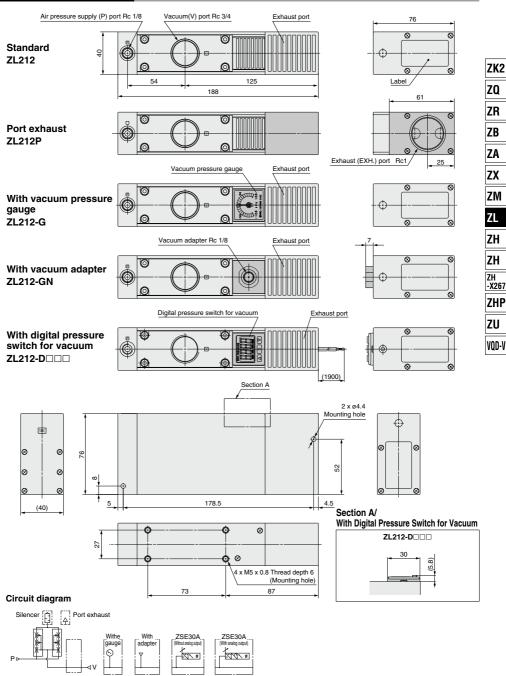
00	inponent i dito		
No.	Description	Note	
1	Suction cover		
2	Front cover A		
3	End plate		
4	Body		
5	Vacuum sensor unit		
6	Nozzle		
7	Diffuser		
8	Detent plug	Other than vacuum switch	
	Lead wire cover	Vacuum switch specifications	

Replacement Parts

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

Multistage Ejector **ZL212** Series

Dimensions: ZL212 Series



SMC

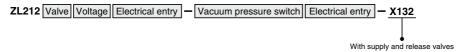
ZL Series

Made to Order Specifications

Please contact SMC for detailed specifications, dimensions and lead times.



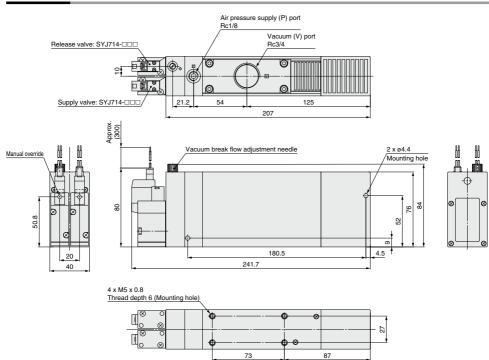
1 With Supply and Release Valves



ZL212 type with supply and release valves



Dimensions



SMC



ZL Series Specific Product Precautions

Be sure to read this before handling the products.

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

Operation of Ejector Valves

⚠ Caution

 When the air supply valve is turned ON, vacuum is generated by the flow of compressed air from the nozzle to the diffuser.

When the vacuum release valve is turned ON, the vacuum is quickly released as air passes through the release flow adjustment needle and flows to the vacuum port.

Operating Environment

⚠ Caution

1. Avoid use exposed to direct sunlight.

Solenoid Valves (ZL112 Series)

⚠ Caution

1. For specific product precuations on solenoid valves, refer to the Best Pneumatics No. 1-2.

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VQD-V