

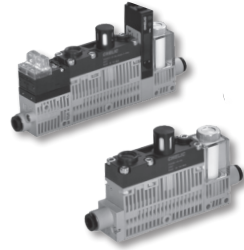
VQ20 series Energy-saving Vacuum Ejector

Product features

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Feature

- Energy saving function: vacuum maintenance structure design, air consumption 80% reduction
- Modularization: Simple structure which can be changed easily.
- Fitting design, easy piping.
- Visualization: Digital display of pressure sensor which can visualize by monitor.
- Multi-function: Vacuum ejector combined with breaking solenoid valve also with vacuum filter and silencer.
- It can be installed upright or sideways; Simple structure, easy installation and disassembly.



Specification

Item	Model	VQ20B	VQ20S	VQ20T	VQ20ST
Fluid		Air			
Pressure range	MPa (kPa)	0.4~0.7 (400~700)			
Proof pressure	MPa (kPa)	0.6 (600)			
Vacuum value	kPa(mmHg)	-91.8 (-690)			
Nozzle diameter	mm	1.0			
Max. suction flow	L/min	22			
Ambient and fluid temperature	°C	5 ~ 60			
Material	Body	NYLON, PBT			
	Plastic	NYLON, PBT			
Port size		Ø6			
Valve type		SR2 - 100			
Rated voltage	V	24±10%VDC			
Power consumption	W	1.2			

Pressure switch specification

Item	Model	PST 2	
Rated pressure range	kPa	-100.0~0	
Pressure range	kPa	-100.0~100.0	
Withstanding pressure	kPa	500	
Applicable fluid		Filtered air, Non-corrosive, Non-flammable gas	
Set pressure resolution		0.1kPa · 0.001kgf/cm ² · 0.001bar · 0.01psi · 0.1inHg · 1mmHg	
Power voltage		12 to 24V DC ± 10%, Ripple ≤ 10%	
Current consumption	mA	≤ 40(With no load)	
Switch output	output	2 NPN or 2 PNP open collector	
	Max. Load Current	80mA	
	Power voltage	24VDC	
	Residual Voltage	≤ 1.5V	
	Response time	ms	≤ 2.5(Chattering-proof function: 25, 100, 250, 500, 1000 and 1500 selectable)
	Output short circuit protection	Yes	
Linear analogy output	Voltage	Output Voltage	1~5V±2.5%F.S.
		Output Impedance	Approx. 1kΩ
	Linearity		±1%F.S.
Display	Display	4-digit, 7-step display (green)	
	Switch on indicator	OUT1 green/OUT2 green	
	Renewing	Approx. 0.2 sec	
	Indicator accuracy	±0.2% F.S. ± 1 digit (Temperature: 25±3° C)	
Repeatability		±0.2% F.S. ± 1 digit	
Environmental Resistance	Enclosure	IP40	
	Ambient Temp. Range	0~50° C (No condensation or freezing)	
	Ambient Humidity Range	Operation / S storage : 35 ~ 85 % RH (No condensation)	
	Withstand Voltage	1000 V AC in 1-min (between case and lead wire)	
	Insulation	≥ 50 MΩ (at 500 V DC, between case and lead wire)	
	Vibration	Total amplitude 1.5 mm, 10 Hz ~ 55 Hz scan for 1 minute, two hours each direction of X, Y and Z	
Impact	980 m/s ² (100G), 3 times each in direction of X, Y and Z		
Temperature Characteristic		±2% F.S. (within 0~50° C temperature range)	
Lead wire		oil-resistant cable (0.14 mm ²)	
Weight (With 1 Meter Lead Wire)	g	33	

EV

EVM

VA □

VM □

VM □ U

VHS

VSL

VKM

VKMT

VCK

VK20 □

VK30 □

VQ20 □

VFD

VFM

VFU

ERV

ERVL

MVS

DYC

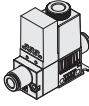
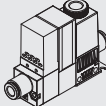
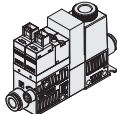
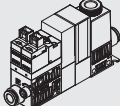
VQ20 series Energy-saving Vacuum Ejector

Code of order

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Code of order **VQ20 ST - 10 - 06 - DC24 - L - P04 - C**

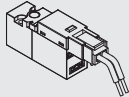
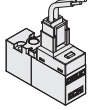

1
2
3
4
5
6
7

1	Mark	B	S	T	ST
Combination		Vacuum ejector + Filter	Vacuum ejector + Filter + Pressure switch	Vacuum ejector + Filter + Solenoid valve	Vacuum ejector + Filter + Solenoid valve + Pressure switch
Image					

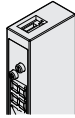
2	Mark	Nozzle diameter (mm)
	05	0.5
	07	0.7
	10	1.0

3	Mark	Port size (mm)
	06	Ø6

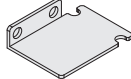
4	Mark	Voltage
	None	Without control valve
	DC12	DC 12, 1.2 W
	DC24	DC 24, 1.2 W

5	Mark	Electrical entry
	None	Without control valve
	L	
	T	
	W	

● With wire length 300mm

6	Mark	Output	Image
	None	Without pressure switch	—
	P04	2 NPN output + Analog output (1~5 V) numeric type	
	P05	2 PNP output + Analog output (1~5 V) numeric type	

● P04 · P05 with wire length 1 M

7	Mark	Bracket
	None	No bracket
	C	

● Vacuum ejector VQ20 Optional correspondence table:

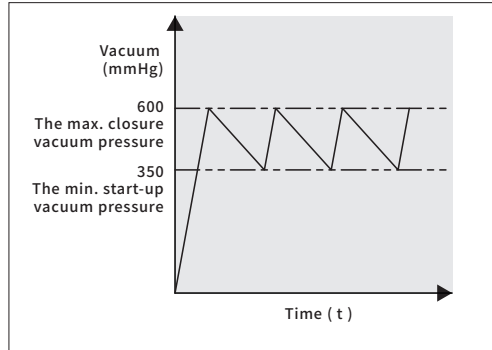
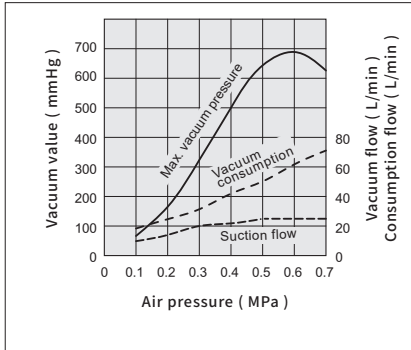
Model	1 Combination	2 Nozzle diameter	3 Port size	4 Voltage	5 Electrical entry	6 Output	7 Bracket
VQ20	B	05 · 07 · 10	06	— DC12 · DC24	— L · T · W	—	C
	S					—	
	T					—	
	ST	P04 · P05					

VQ20 series Energy-saving Vacuum Ejector

Characteristic graph

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Characteristic graph



Item		Datasheet
Max. vacuum pressure	kPa (mmHg)	-90.1(-680)
Air consumption/ Vacuum ejector - Energy saving	L/min	20
Air consumption/ Vacuum ejector - No energy saving	L/min	70
Air consumption/ Vacuum release	L/min	8 Note: 1
Power-saving section	mmHg	-600~-350 Note: 2
The min. start-up vacuum pressure	MPa	0.4

Note: 1. VQB, VQS without vacuum breaking.
 Note: 2. Power-saving section will be shifted along with pressure.

Product weight

Model	VQ20			
Specification	B	S	T	ST
Weight(g)	110	140	170	200

EV

EVM

VA

VM

VM U

VHS

VSL

VKM

VKMT

VCK

VK20

VK30

VQ20

VFD

VFM

VFU

ERV

ERVL

MVS

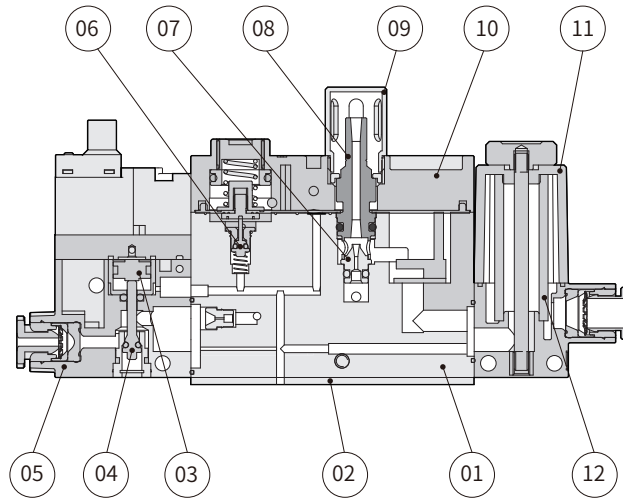
DYC

VQ20 series Energy-saving Vacuum Ejector

Product features

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Internal structure



Components and Material list

No.	Item	Material	No.	Item	Material
01	body	PBT+ fiber	07	Nozzle	Copper alloy
02	Fixed frame	PBT+ fiber	08	Copper tube	Copper alloy
03	Piston	Copper alloy	09	Filter cap	Copper alloy
04	Straight	Copper alloy	10	Top cover	PBT+ fiber
05	Main body	Nylon fiber	11	Filter cap	PC
06	Valve straight rod	Copper alloy	12	Filter	PU

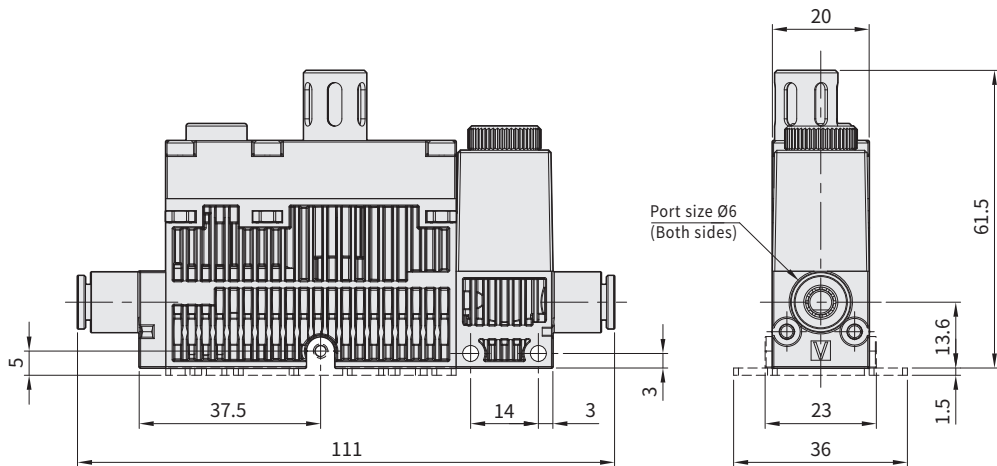
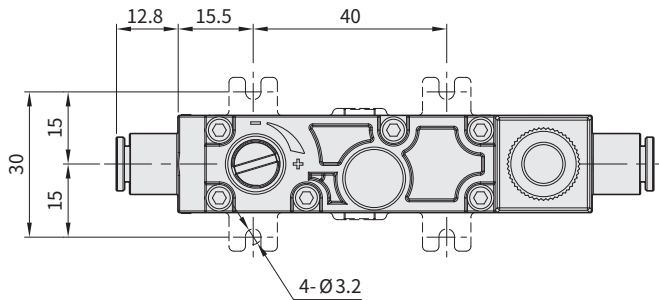
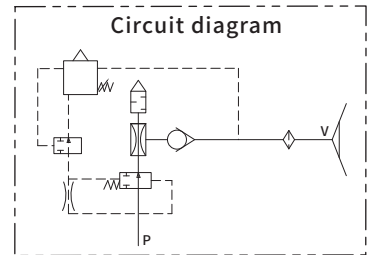
VQ20 series Energy-saving Vacuum Ejector

Dimensions

CHELIC

VQ20 B - 10 - 06 - C

- Note: VQ energy-saving series 「energy-saving structure」: when the vacuum reaches the set value, it will automatically be maintained to the low set value then automatically start.



EV

EVM

VA

VM

VM U

VHS

VSL

VKM

VKMT

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VK20

VK30

VQ20

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ERV

ERVL

MVS

DYC

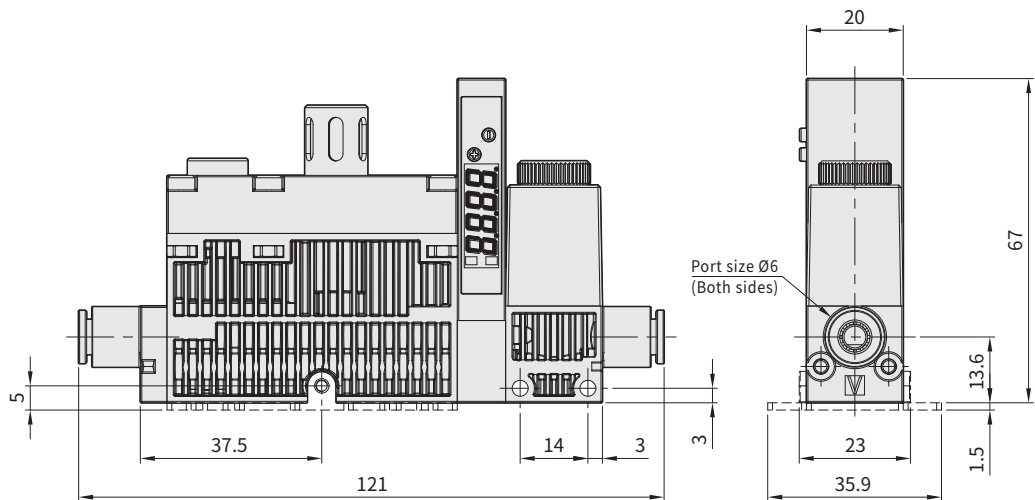
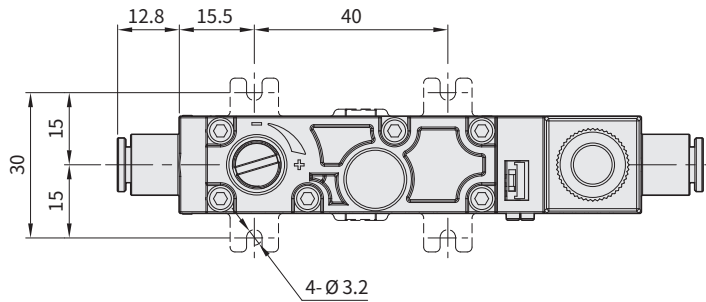
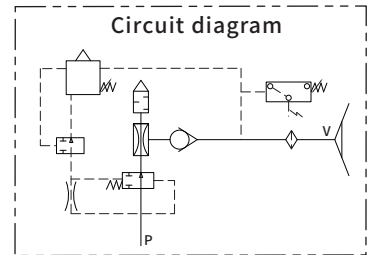
VQ20 series Energy-saving Vacuum Ejector

Dimensions

CHELIC

VQ20[S]-10-06-P04-C

- Note: VQ energy-saving series 「energy-saving structure」: when the vacuum reaches the set value, it will automatically be maintained to the low set value then automatically start.



- Note: The product is without vacuum breaking, the breaking air source should be set up separately.

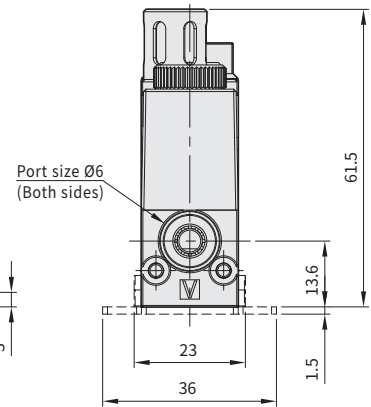
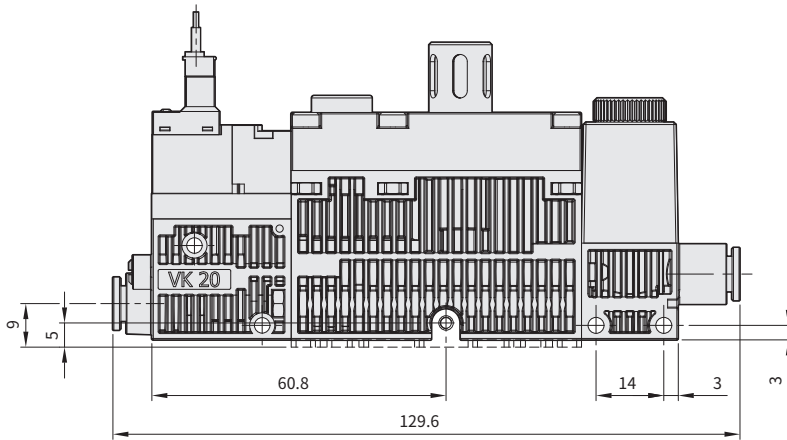
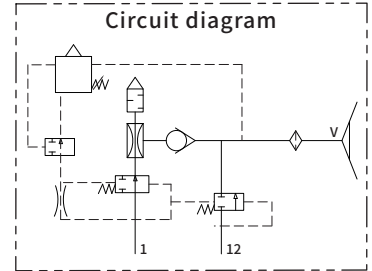
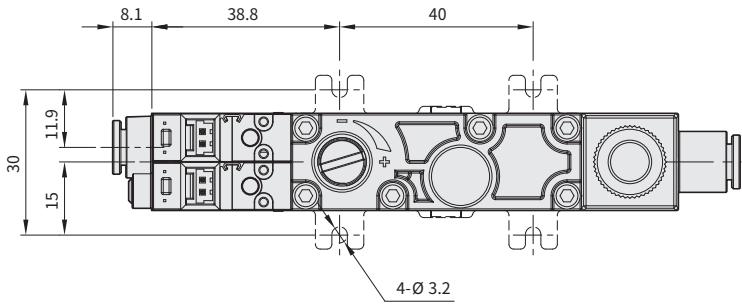
VQ20 series Energy-saving Vacuum Ejector

Dimensions

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VQ20 **T**-10-06-DC24-**T**-**C**

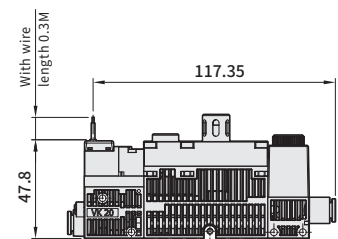
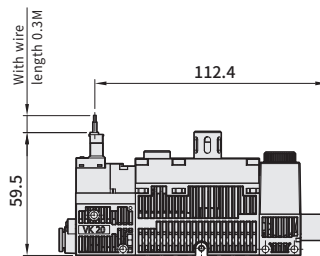
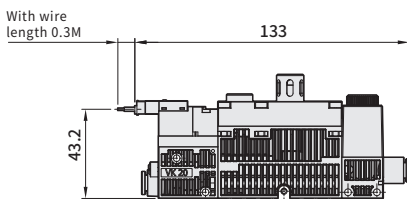
- Note: VQ energy-saving series 「energy-saving structure」: when the vacuum reaches the set value, it will automatically be maintained to the low set value then automatically start.



L type - **L**

T type - **T**

W type grommet - **W**



EV

EVM

VA □

VM □

VM □ U

VHS

VSL

VKM

VKMT

VCK

VK20 □

VK30 □

VQ20 □

VFD

VFM

VFU

ERV

ERVL

MVS

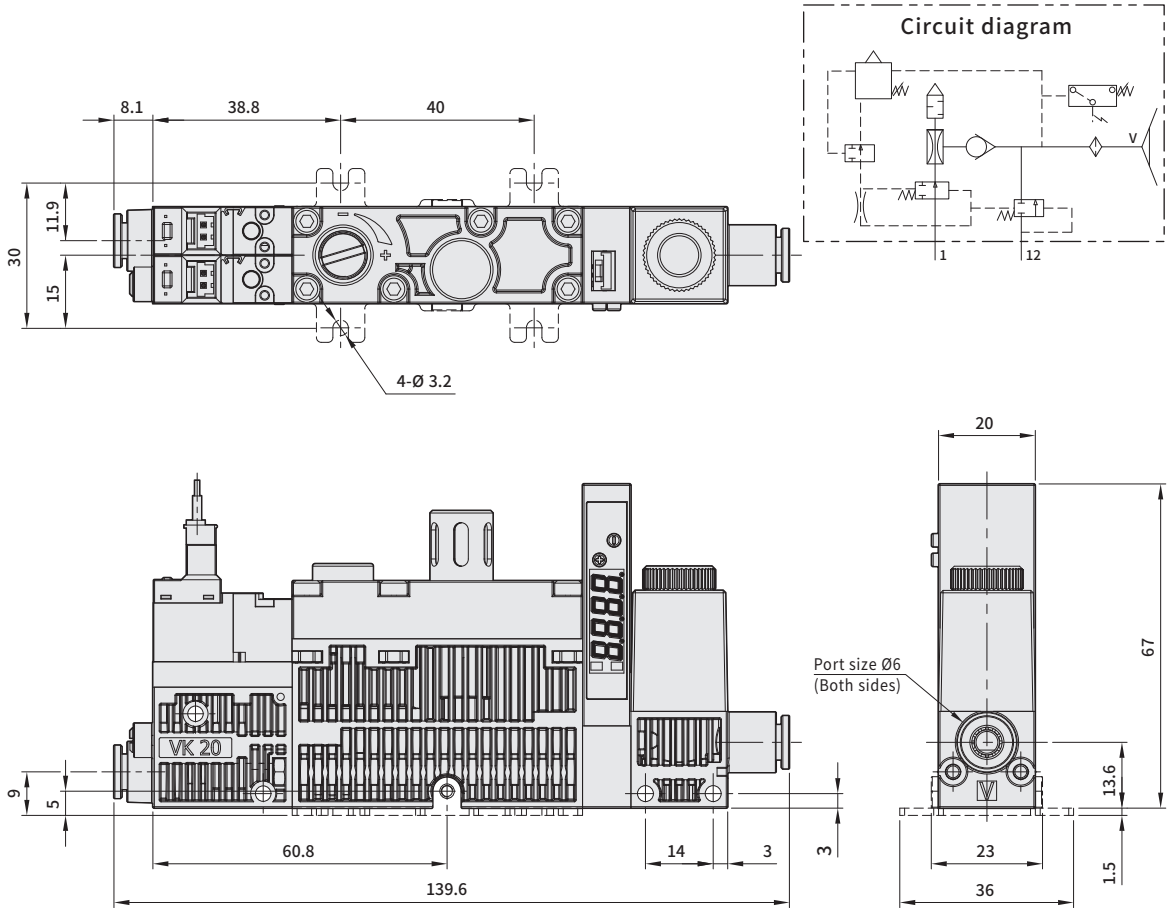
DYC

VQ20 series Energy-saving Vacuum Ejector

Dimensions

CHELIC

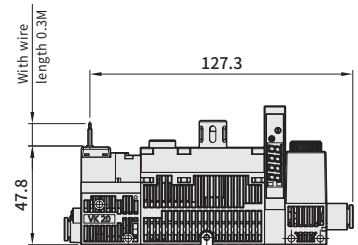
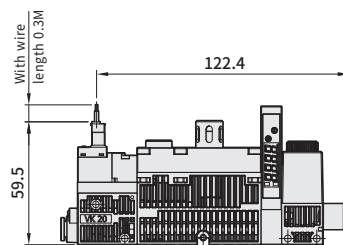
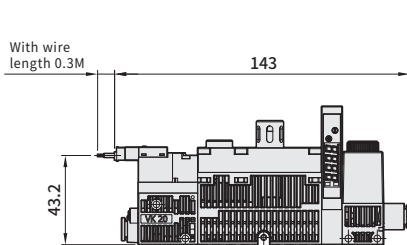
VQ20 **ST** - **10** - 06 - **DC24** - **T** - **P04** - **C**



L type - **L**

T type - **T**

W type grommet - **W**

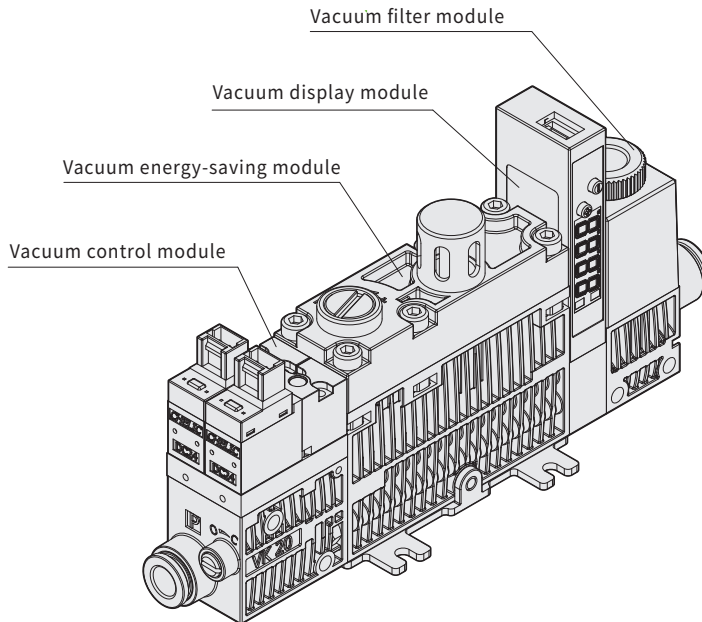


VQ20 series Energy-saving Vacuum Ejector

Installation

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■ VQ 20 Series - The Energy saving vacuum



■ VQ 20 Series - The Energy saving vacuum ejector consists of 4 modules:

- **Vacuum control module:**
to control the vacuum ejection and breaking, the flow of vacuum breaking can be adjusted manually.
- **Vacuum energy-saving module:**
to possess the functions of vacuum maintenance, the vacuum startup and closure.
- **Vacuum display module:**
to display current vacuum data. Output function is enable.
- **Vacuum filter module:**
to filter air and also to avoid dust entering.

■ Vacuum control module

2 sets of solenoid valves control the switch of air su

- SR2-100 solenoid valve input voltage DC24V 0.6W
- Valve function: Normally close
- Pressure range: 0.6MPa
- 3 port 2 position

EV

EVM

VA□

VM□

VM□U

VHS

VSL

VKM

VKMT

VCK

VK20□

VK30□

VQ20□

VFD

VFM

VFU

ERV

ERVL

MVS

DYC

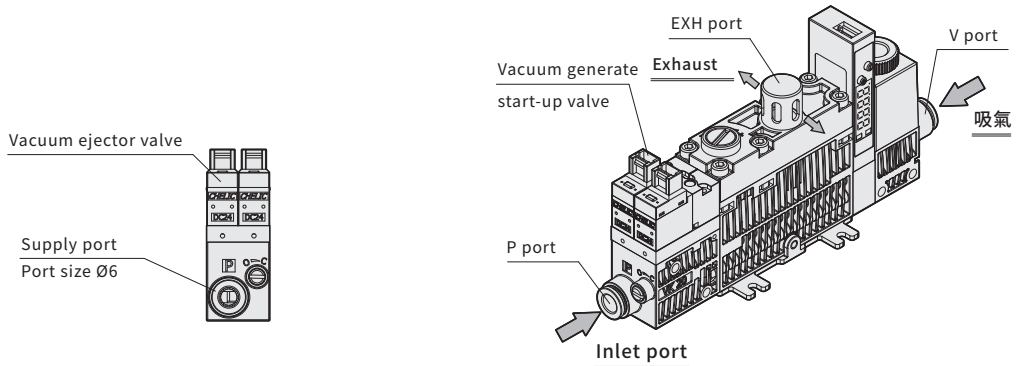
VQ20 series Energy-saving Vacuum Ejector

Installation

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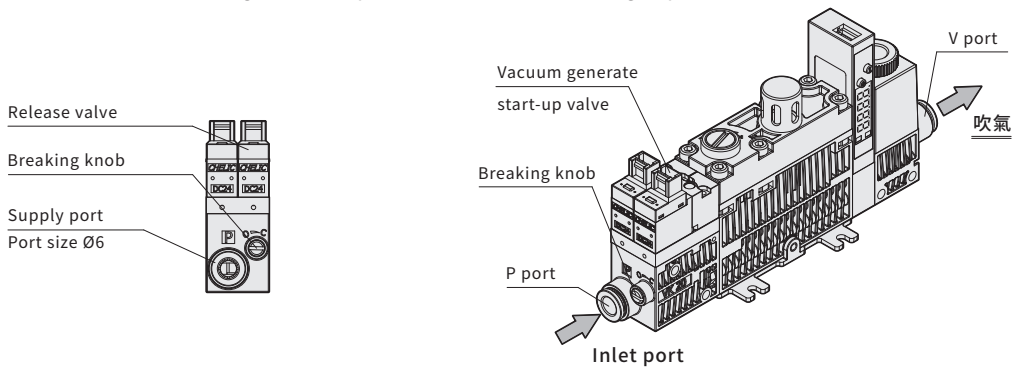
To start the vacuum ejector valve

- To connect the supply port with positive air supply. When the vacuum ejector valve activates the air entering and through vacuum ejector to reach vacuum.
- The vacuum generate ejection when the supply port with negative pressure. All of inhaling and exhaling are released via the exhaust port.



To start the vacuum breaking valve

- To connect the air inlet to positive air supply. When the vacuum breaking valve activates, air enters via supply port and passes through the vacuum breaking passageway. The air exhausted by supply port.
- Vacuum breaks when the supply port reaches positive pressure.
- The vacuum flow breaking can be adjusted by vacuum breaking adjustment knob.



VQ20 series Energy-saving Vacuum Ejector

Installation

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Vacuum energy-saving module

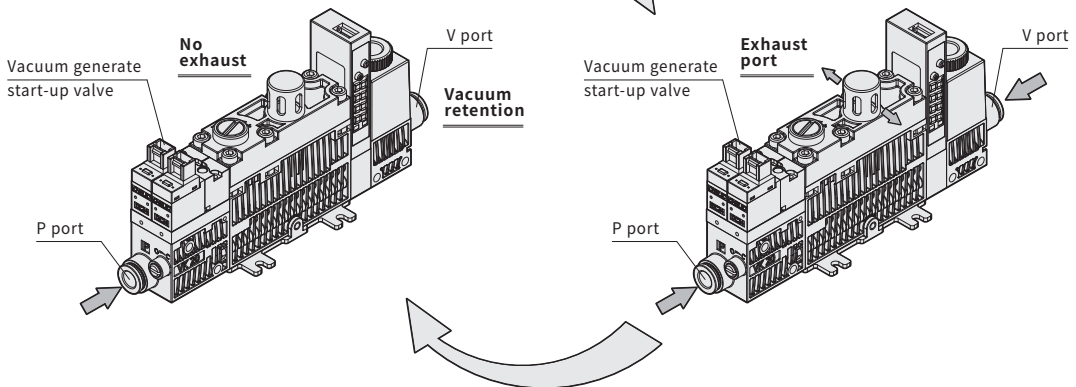
- Vacuum energy-saving module has the vacuum retention, the function control vacuum startup and closure.
- Vacuum energy-saving module can keep the vacuum at a given range and reducing air consumption
- Vacuum range -600 ~ -350 mmHg
- Pressure range: 5 Kgf/cm²

To operate the vacuum energy-saving ejector

- To connect the air supply port to positive air supply while the vacuum ejector valve activates
- Energy-saving range: When vacuum is higher than -600mmHg, the internal value will close and stop vacuum generation. It is the condition of vacuum retention. On the other hand, when vacuum is lower than -30mmHg, the value will open and start generating vacuum. It is the condition of vacuum generation.
- The flow of vacuum breaking can be adjusted by vacuum breaking adjustment knob.

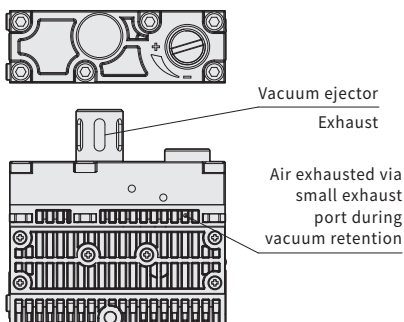
When vacuum is higher than -600mmHg, internal value will close and stop vacuum generation. It is the condition of vacuum retention.

When vacuum is lower than -350mmHg, the internal value will open and start generating vacuum. It is the condition of vacuum generation.



The exhaust condition of vacuum energy-saving module

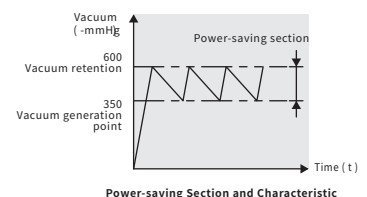
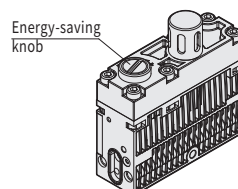
- Vacuum generate: air exhausting at exhaust port
- Vacuum retention: pressure balance port can keep internal balance by exhausting a fractional of air



Adjustment of energy-saving range

The range of power-saving is set -600 ~ -350mmHg

- The power-saving range can be adjusted by knob; however, it is not suggestable to change the current setting.
- Clockwise adjustment: to increase the vacuum range, if the adjustment is excessively high, the vacuum retention cannot be kept.
- Counterclockwise adjustment: to decrease the vacuum range, if the adjustment is too low, the vacuum generate could not happen.



EV

EVM

VA□

VM□

VM□U

VHS

VSL

VKM

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VK20□

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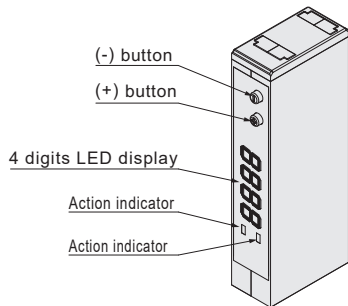
VQ20 series Energy-saving Vacuum Ejector

Installation

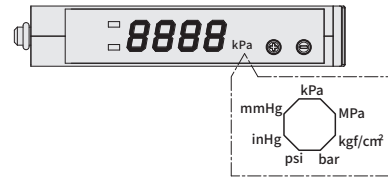
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■ PST2 Numeric Display Pressure Switch Setting Instructions

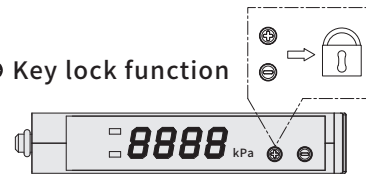
- 2 sets of output & linear analogy output (1~5V)
- Compact size: 50x10x20mm3(L x W x H)
- Key lock function
- Various pressure units available
kPa, MPa, kgf/cm², bar, psi, inHg, mmHg



● Various pressure units available



● Key lock function



Key lock mode can prevent improper operation to pressure switch.

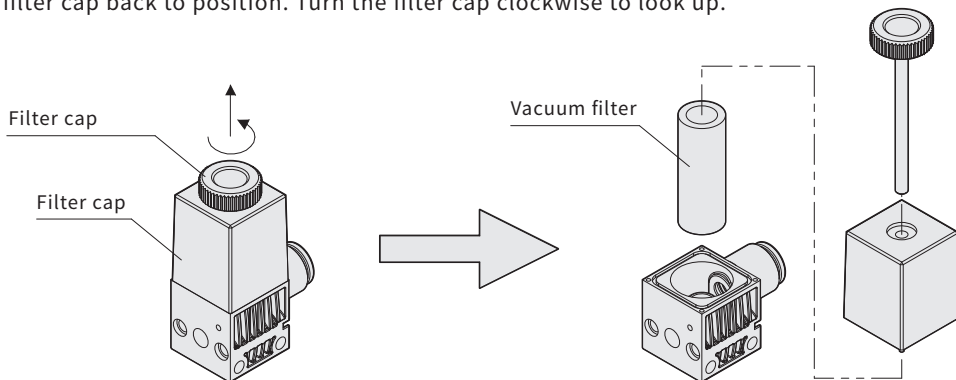
Key lock mode can pbe activated by pressing + and - for 3 seconds.

■ Vacuum filter module

- Vacuum filter module has the function of vacuum filter which can prolong life cycle by filter the dust from inhaling air.
- Easy filter replacement
- Filter density: 60μm

■ Filter replacement instruction

- Eject the filter cap counterclockwise to replace the filter. After filter replaced, please replace the filter cap back to position. Turn the filter cap clockwise to look up.



VQ20 series Energy-saving Vacuum Ejector

Precautions

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■ Caution For design, selection and maintenance

WARNING

- Avoid chemical , corrosive and inflammable gas; avoid sea water , steam high temperature place in surrounding.
- Avoid oil contain gas , don't oil mist in the pipeline, oil in pipeline will cause blockage resulting in poor effect.
- Please don't use fluid other than compressed air, never suck in fluid other than clean air.
- When using gas, the gas should be kept dry, and there should be no large amount of water vapor, which will cause the possibility of abnormal pressure detector.

CAUTION

- Please don't disassemble the vacuum generator in discretion , disassemble the vacuum generator in discretion will lead to displacement of the original calibration accuracy ; error disassembling will lead to hazard and cause problem on operation of the product.
- Please be sure to use the supply pressure within the product specification range.If the maximum operating pressure is exceeded, the product may be damaged.
- During operation, please do not drop, hit, or apply excessive impact (100m/s) even if the body is not damaged, the internal part may be damaged and may cause malfunction.