



Vacuum Ejector Units ideal for controlling large flow rates

VSQ Series

● Nozzle diameter: $\phi 0.7$, $\phi 1.0$, $\phi 1.2$, $\phi 1.5$, $\phi 2.0$



Specifications

Item	VSQ
Operating Fluid	Air
Operating Pressure MPa	0.3 to 0.7
Ambient/Fluid Temperatures (°C)	5 to 50

Ejector Characteristics

Nozzle Type	Nozzle Diameter (mm)		Rated Supply Pressure (MPa)	Ultimate Vacuum Pressure (-kPa)	Suction Flow Rate (L/min (ANR))	Air Consumption (L/min (ANR))	
Single Nozzle	H15	1.5	0.5	93	63	100	
	L15						
	E15	2.0	0.35	92	42	70	
	H20						
	L20						
E20		0.5	93	(96) 97.5	200		
						66	(143) 160
Twin Nozzle	T15	0.7 (Small diameter)	1.5 (Large diameter)	0.5	93		
	T20	1.0 (Small diameter)	2.0 (Large diameter)			70 [36]	200 [46]
2-Stage Nozzle	D07	0.7	-	0.5	93	52	23
	D10	1.0	-			75	46
	D12	1.2	-			85	70

*1: The value inside [] for the Twin Nozzle type is the value for the small diameter nozzle.

*2: The value inside () is the value for Vacuum Port: $\phi 8$ Push-in fitting.

Valve Specifications

● Pilot Valve

Item	Pilot Valve
Valve Type and Operation Method	Direct acting poppet valve
Rated Voltage (V)	24 VDC
Voltage Fluctuation range (V)	DC 24 $\pm 10\%$
Surge Suppressor	Varistor
Power Consumption	0.55 W
Manual Override	Locking push type
Operation Indicator	At coil excitation operation: Red LED lights

● Switching valve

• Twin Nozzle Type

Item	Valve for Small Diameter	Valve for Large Diameter	Vacuum Breaking Valve
Valve Type and Operation Method	Pilot operated poppet valve		
Valve Type	Normally Closed	Normally Closed	Normally Closed
Lubrication	Not required		
Effective Area mm ² (Cv value)	3.5 (0.19)	16.5 (0.89)	3.5 (0.19)

• 2-Stage Nozzle Type

Item	Vacuum Generation Valve	Vacuum Breaking Valve
Valve Type and Operation Method	Pilot operated poppet valve	
Valve Type	Normally Closed, Normally Open	Normally Closed
Lubrication	Not required	
Effective Area mm ² (Cv value)	3.5 (0.19)	3.5 (0.19)

• Single Nozzle Type

Item	Vacuum Generation Valve	Vacuum Breaking Valve
Valve Type and Operation Method	Pilot operated poppet valve	
Valve Type	Normally Closed, Normally Open, Self-holding	Normally Closed
Lubrication	Not required	
Effective Area mm ² (Cv value)	16.5 (0.89)	3.5 (0.19)
Minimum Energization Time (ms)	≥ 50	

Vacuum Pressure Switch Specifications

Item	Vacuum Pressure Switch	
	NPN Output (R)	PNP Output (RP)
Working pressure kPa	-100 to 100	
Proof pressure kPa	500	
Environmental Resistance	Ambient Temperature (During Storage) °C	-10 to 60 (No condensation or freezing)
	Ambient Temperature (During Operation) °C	0 to 50 (No condensation or freezing)
	Ambient Humidity (Storage/Operating)	35 to 85% RH (No condensation)
	Protection Structure	Equivalent to IEC Standard IP40
Power Supply Voltage (V)	DC 12 to 24 $\pm 10\%$ Ripple (P-P) $\leq \pm 10\%$	
Current Consumption (mA)	≤ 40 (No load)	
Pressure Display	Display Update Rate	5 times/sec
	Display Accuracy	$\pm 2\%$ F.S. ± 1 digit
	Digital Display	Main display: 2 colors (red, sub-display: orange)
Switch Output	Number of Output Points	2 points
	Output Method	NPN Open Collector / PNP Open Collector
	Switch Rating	≤ 30 VDC 125 mA
Internal Voltage Drop	≤ 1.5 V	
Temperature Characteristics	$\pm 2\%$ F.S. (0 to 50°C, at 25°C)	
Repeatability	$\pm 0.2\%$ F.S. ± 1 digit	
Differential (Hysteresis)	Adjustable	
Response Time	Selectable (50/250/500/1000/2000/3000 ms)	

Vacuum Filter Specifications

Item	Vacuum Filter
Element Material	Polyvinyl formal
Filtration Rating (μm)	10
Filtration area mm ²	1507

Vacuum Breaking Function

Item	Vacuum Breaking Function
Break Air Flow Rate L/min (ANR)	0 to 50 (at 0.5 MPa supply pressure)

Valve Lead Wire Color

● 24 VDC Plus Common Specification

Nozzle Type	Black	Gray	Blue	Brown
Twin Nozzle Type	Vacuum Generation (-)	Vacuum Breaking (-)	Minus (-)	24 VDC (+ common)
2-Stage Nozzle Type	Vacuum Generation (-)	Vacuum Breaking (-)	- (*1)	24 VDC (+ common)
Single Nozzle Type	Vacuum Generation (-)	Vacuum Breaking (-)	- (*1)	24 VDC (+ common)

● 24 VDC Minus Common Specification

Nozzle Type	Black	Gray	Blue	Brown
2-Stage Nozzle Type	Vacuum Generation (+)	Vacuum Breaking (+)	- (*1)	0 V (- common)
Single Nozzle Type	Vacuum Generation (+)	Vacuum Breaking (+)	- (*1)	0 V (- common)

*1: For 2-stage nozzle and single nozzle, the blue lead wire is not used.

For details,



CKD components Products website (<https://www.ckd.co.jp/kiki/en/>) → Refer to "Model No."

Compatibility table by variation

VSQ	
Connection Port Size	ø6, ø8, ø10
P4	●

●:Applicable Models ○: Semi-Applicable models ▲:Please inquire □:Not applicable

*1: Applicable only for common exhaust.

Model No. Notation Method

●31.5 mm width single unit dedicated vacuum ejector unit

VSQ - T15 B - 10 10 J - 3 - R - P4

A Vacuum Characteristics, Nozzle Diameter

B Valve Type

C Vacuum Port (V)

D Air Supply Port (PS)

E Exhaust Port (EX)

F Solenoid Valve Voltage

G Vacuum pressure Switch Specifications

Notes for model No. Selection

*1: When **A** is "T15" or "T20", **B** "A" and "D" cannot be selected.

*2: When **A** is "D07", "D10" or "D12", **B** "D" cannot be selected.

*3: **D** "6" can be selected only for **A** "D07", "D10" and "D12".

*4: When **A** is "T15" or "T20", **F** "3MC" cannot be selected.

Code	Content	
A Vacuum characteristics, nozzle diameter *1, *2, *3, *4		
	Vacuum Characteristics	Nozzle Diameter
H15	High Vacuum/Medium Flow Type	ø1.5
L15	Medium Vacuum/High Flow Type	ø1.5
E15	High Vacuum/Low Flow Type	ø1.5
H20	High Vacuum/Medium Flow Type	ø2.0
L20	Medium Vacuum/High Flow Type	ø2.0
E20	High Vacuum/Low Flow Type	ø2.0
T15	Twin Nozzle Type	ø1.5 (ø0.7)
T20	Twin Nozzle Type	ø2.0 (ø1.0)
D07	2-Stage Nozzle Type	ø0.7
D10	2-Stage Nozzle Type	ø1.0
D12	2-Stage Nozzle Type	ø1.2
B Valve *1, 2		
A	Normally Open Type	
B	Normally Closed Type	
D	Self-holding Type	
C Vacuum Port (V)		
8	ø8 Push-in fitting	
10	ø10 Push-in fitting	
D Air supply port (PS) *3		
6	ø6 Push-in fitting	
8	ø8 Push-in fitting	
10	ø10 Push-in fitting	
E Exhaust Port (EX)		
J	ø12 Push-in fitting centralized exhaust	
F Solenoid Valve Voltage ø4		
3	24 VDC (Positive Common specification)	
3MC	24 VDC (Negative Common specification)	
G Vacuum Pressure Switch Specifications		
Blank	Without Vacuum Pressure Switch	
R	NPN Output 2 points with Digital Display	
RP	PNP Output 2 points with Digital Display	

Circuit Diagram

●Single Nozzle Type

●2-Stage Nozzle Type

●Twin Nozzle Type

