Quick-Fittig Type Ejector

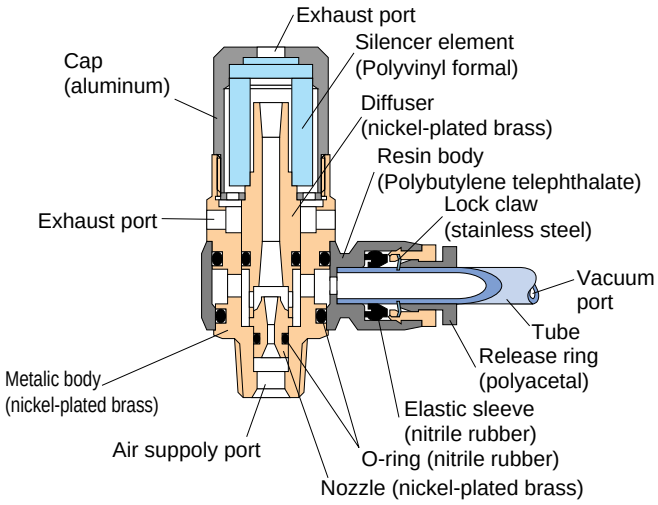
Vacuum Generator

Features

■The Vacuum Generator, creating vacuum by use of compressed air, can be used in combination with a Vacuum Pad to convey materials.

■Vacuum Generator comes in a variety of performances and types to meet your applications.

Constraction



Specification

Fluid admitted	Air	
Service pressure range	21.3~100psi	0.15 ~ 0.7MPa
Rated supply pressure	71.1psi (49.8psi)	0.5MPa (0.35MPa)
Service temperature range	32 ~ 140°F	0 ~ 60°C

VB·VUSM Vaccume switch specification

Pressure sensing mode	Diaphram micro switch
Fluid admitted	Air
Service temperature range	32~140°F (0 ~ 60°C) (No freezing)
Rated power	3A 250V
Pressure setting range	-5.9~-19.7in. Hg (-20~-67KPa)
Accuracy	±1.6in. Hg (±5KPa)
Differential response	2.0~4.7in. Hg (7~16KPa)
Set value at shipment	-15.7in. Hg (-53KPa)

Model Desiguation (Example)

VH (1) H (2) 07 (3) – 6 (4) 01 (5) (6) (7)

(1)Type

(2)Performance

H : High vacuum medium flow type
L : Medium vecuum Lange flow type
E : High vacuum small flow type

(3)Nozzle dia

Code	Size	H Type vacuum level suction flow	L Type vacuum level suction flow	E Type vacuum level suction flow
05	0.5mm	-26.8in.Hg(-90KPa) 0.25SCFM(7Nℓ/min)	-19.7in.Hg(-67KPa) 0.42SCFM(12Nℓ/min)	—
07	0.7mm	-27.2~-27.6in.Hg(-90~-93KPa) 0.44~0.46SCFM(12.5~13Nℓ/min)	-19.7in.Hg(-67KPa) 0.78~0.92SCFM(22~26Nℓ/min)	-26.8~-27.2in.Hg(-90~-92KPa) 0.35~0.37SCFM(10~10.5Nℓ/min)
10	1.0mm	-27.6in.Hg(-93KPa) 0.99SCFM(28Nℓ/min)	-19.7in.Hg(-67KPa) 1.48SCFM(42Nℓ/min)	-27.2in.Hg(-92KPa) 0.74SCFM(21Nℓ/min)
12	1.2mm	-27.6in.Hg(-93KPa) 1.34SCFM(38Nℓ/min)	—	-27.2in.Hg(-92KPa) 0.95SCFM(27Nℓ/min)
15	1.5mm	-27.6in.Hg(-93KPa) 2.22SCFM(63Nℓ/min)	-19.7in.Hg(-67KPa) 3.35SCFM(95Nℓ/min)	-27.2in.Hg(-92KPa) 1.48SCFM(42Nℓ/min)
20	2.0mm	-27.6in.Hg(-93KPa) 3.88SCFM(110Nℓ/min)	-19.7in.Hg(-67KPa) 6.35SCFM(180Nℓ/min)	-27.2in.Hg(-92KPa) 2.96SCFM(84Nℓ/min)

*Air supply pressure is 0.5MPa (71.1psi) for H and L types or 0.35MPa (49.8psi) for E type.

(4)Vacuum Port size

■Tube dia

Tube dia	mm size					in. size				
Code	4	6	8	10	12	5/32	1/4	5/16	3/8	1/2
Size	ϕ4	ϕ6	ϕ8	ϕ10	ϕ12	ϕ5/32	ϕ1/4	ϕ5/16	ϕ3/8	ϕ1/2

■Thread size

Thread size	Metric thread(mm)		Taper pipe thread			Unified fine thread	American standard Taper pipe thread	
Code	M5	M6	01	02	03	U10	N1	N2
Size	M5×0.8	M6×0.8	R1/8	R1/4	R3/8	10-32UNF	NPT1/8	NPT1/4

(5)Air supply port size

■Tube dia

Tube dia	mm size					in. size				
Code	4	6	8	10	12	5/32	1/4	5/16	3/8	1/2
Size(mm)	ϕ4	ϕ6	ϕ8	ϕ10	ϕ12	ϕ5/32	ϕ1/4	ϕ5/16	ϕ3/8	ϕ1/2

■Thread size

Thread size	Metric thread(mm)		Taper pipe thread			Unified fine thread	American standard Taper pipe thread	
Code	M5	M6	01	02	03	U10	N1	N2
Size	M5×0.8	M6×0.8	R1/8	R1/4	R3/8	10-32UNF	NPT1/8	NPT1/4

(6)Additional feature

J : Concentrated Exhaust type (VH, VS, VU)
A : Disassembly type (VU)

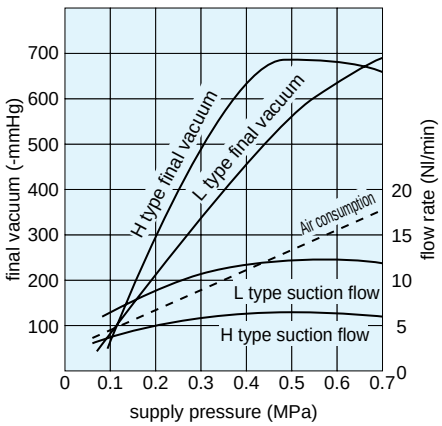
(7)Hexagon flat-to-flat specification

U: Hexagon flat-to-flat inch spec. (NPT)
No code: Hexagon flat-to-flat mm spec.

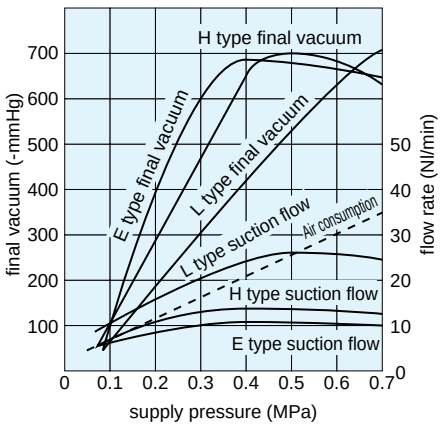
Characteristics

Pressure supply-Final Vacuum, Vacuum flow, Air consumption

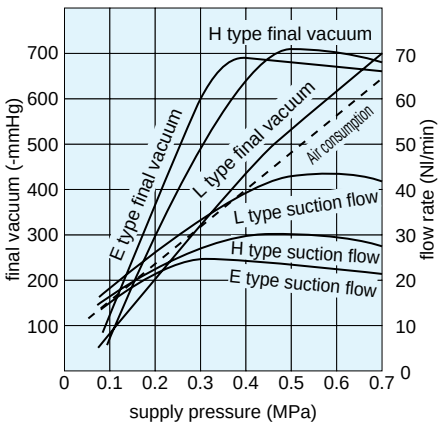
VHH 05 VHL 05
VSH 05 VSL 05
VBH 05 VBL 05
VGH 05 VGL 05



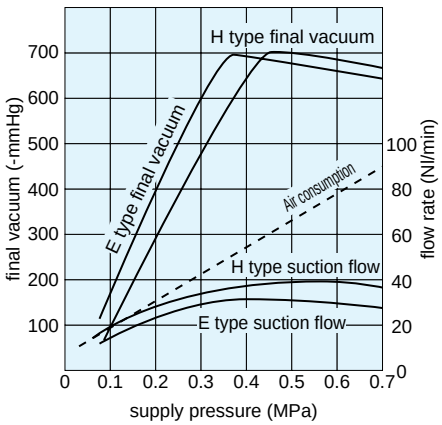
VHH 07 VHL 07 VHE 07
VSH 07 VSL 07 VSE 07
VBH 07 VBL 07 VBE 07
VGH 07 VGL 07 VGE 07



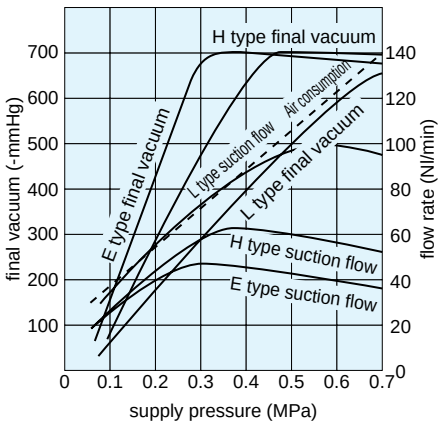
VHH 10 VHL 10 VHE 10
VSH 10 VSL 10 VSE 10
VBH 10 VBL 10 VBE 10
VGH 10 VGL 10



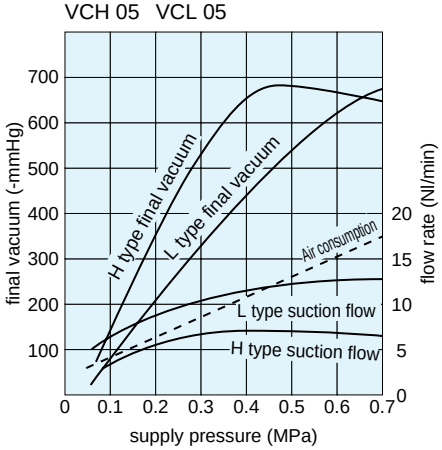
VHH 12 VHL 12
VSH 12 VSL 12
VBH 12 VBL 12



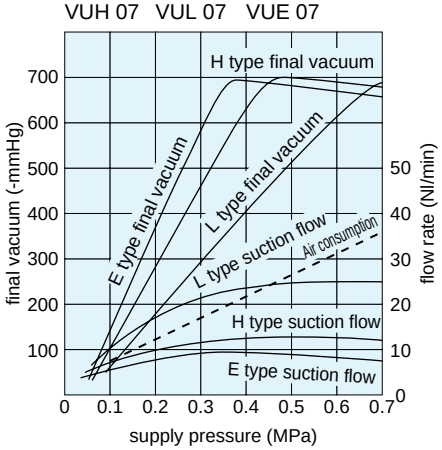
VHH 15 VHL 15 VHE 15
VSH 15 VSL 15 VSE 15



VUH 05 VUL 05
VMH 05 VML 05
VCH 05 VCL 05



VUH 07 VUL 07 VUE 07

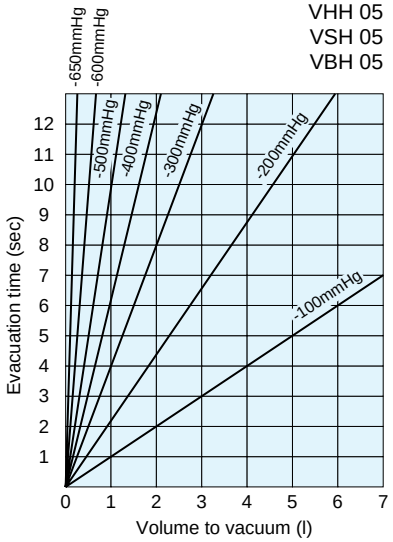


Charactorustics

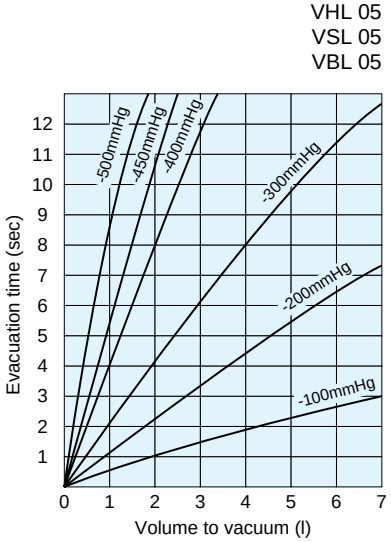
Evacuation time [Supply pressure H type : 0.5MPa(72.5psi), L type : 0.5MPa(72.5psi),E type : 0.3-0.5MPa(43.5~72.5psi)]

* These figures depend on the layout of vacuum system.

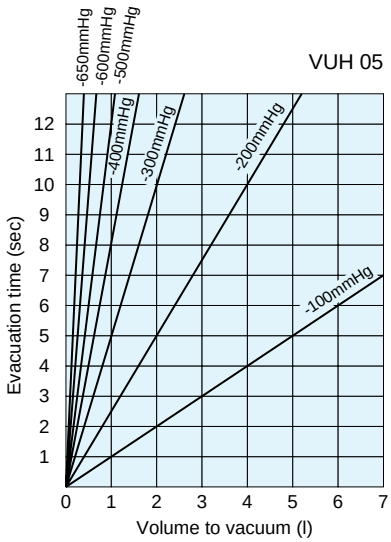
VHH 05
VSH 05
VBH 05



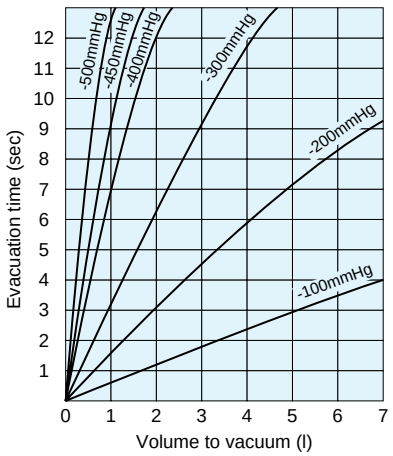
VHL 05
VSL 05
VBL 05



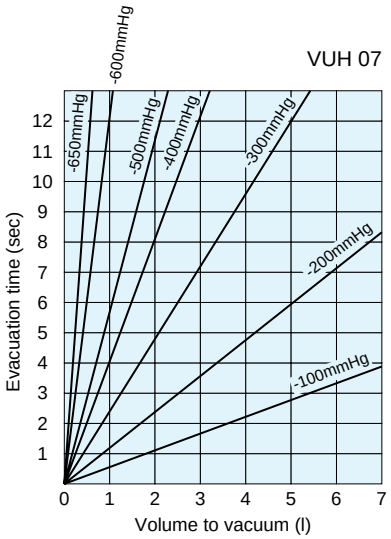
VUH 05



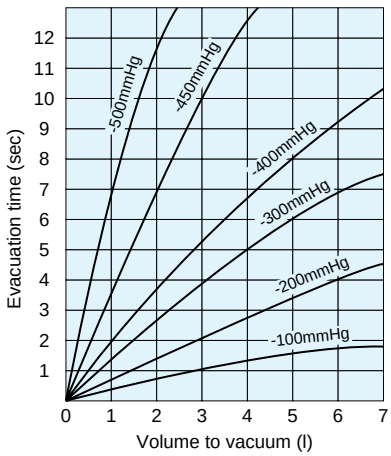
VUL 05



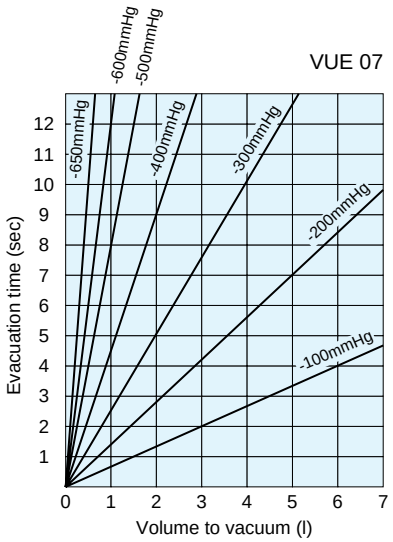
VUH 07



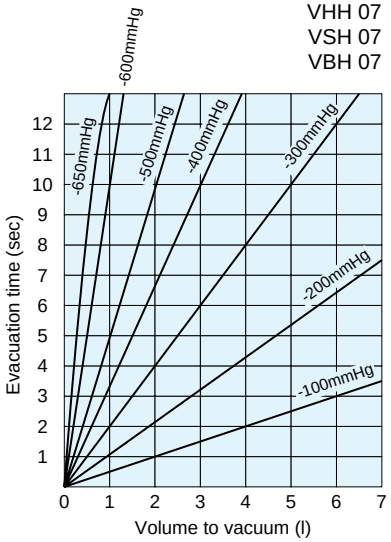
VUL 07



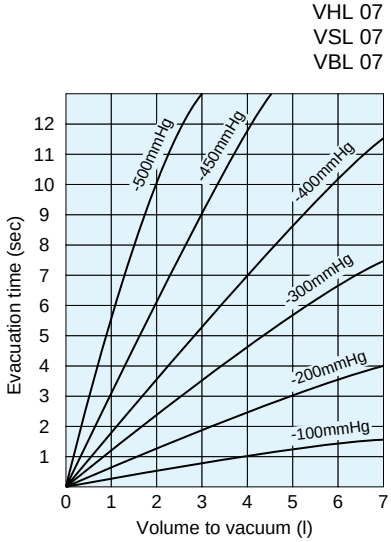
VUE 07



VHH 07
VSH 07
VBH 07



VHL 07
VSL 07
VBL 07

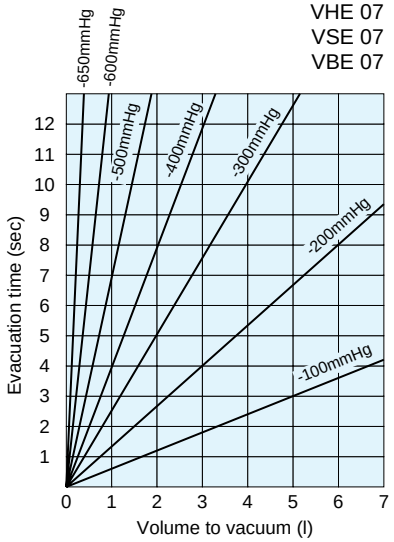


Characteristics

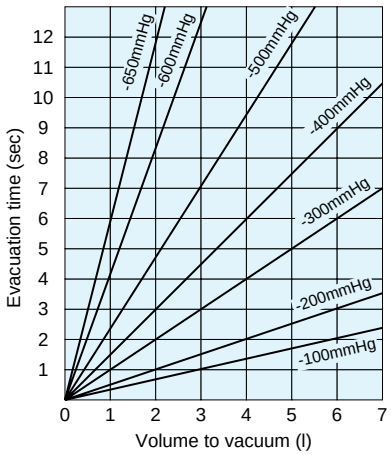
Evacuation time [Supply pressure H type : 0.5MPa(72.5psi), L type : 0.5MPa(72.5psi), E type : 0.3-0.5MPa(43.5~72.5psi)]

* These figures depend on the layout of vacuum system.

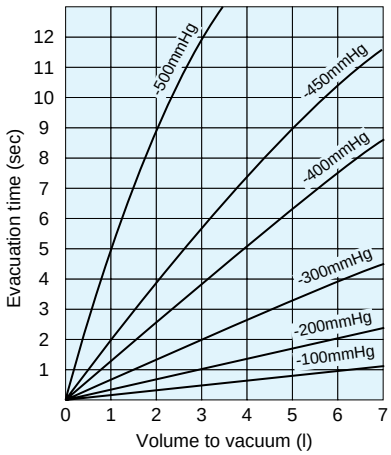
VHE 07
VSE 07
VBE 07



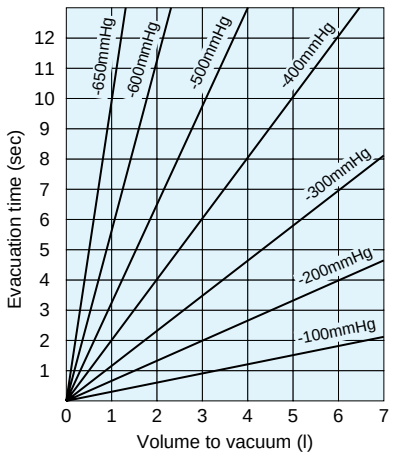
VHH 10
VSH 10
VBH 10



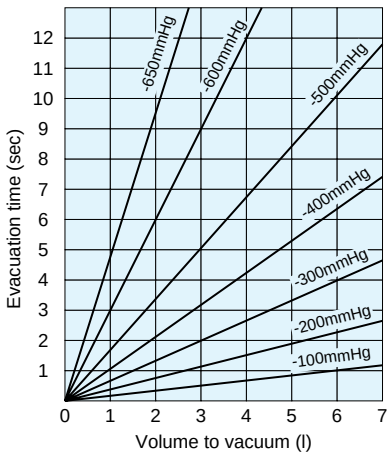
VHL 10
VSL 10
VBL 10



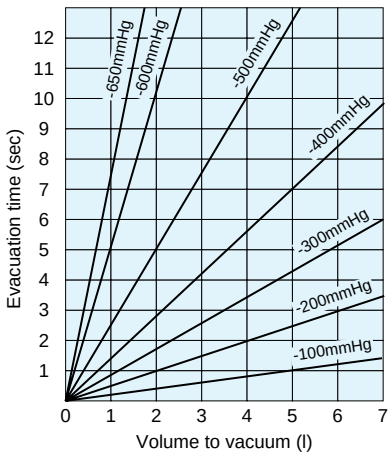
VHE 10
VSE 10



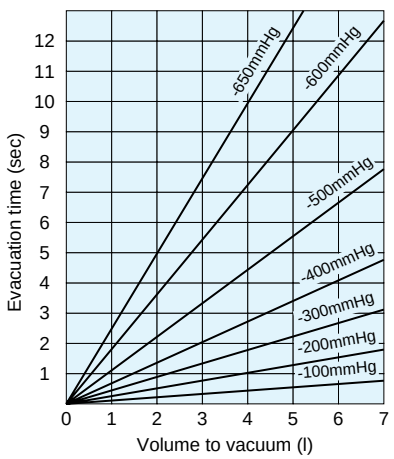
VHH 12
VSH 12
VBH 12



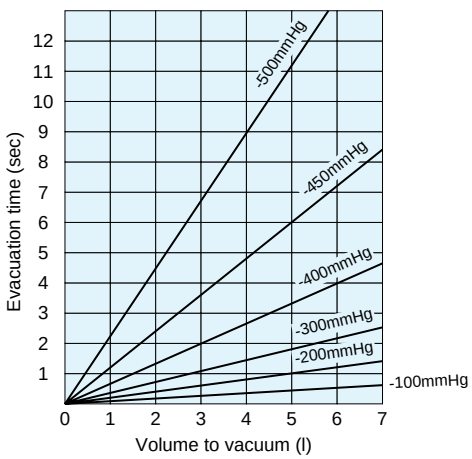
VHE 12
VSE 12
VBE 12



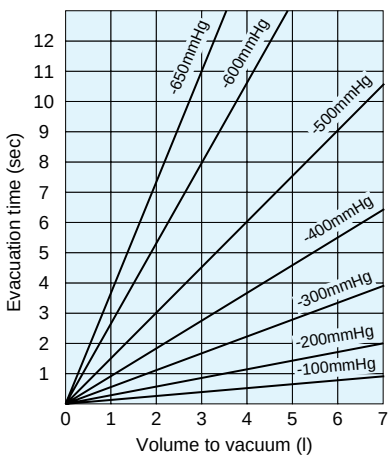
VHH 15
VSH 15



VHL 15
VSL 15



VHE 15
VSE 15



How to select

■Three different types of vacuum generators, H type (high vacuum), L type (large vacuum flow) and E type (low consumption-high vacuum), are provided to meet your requirements.

●H type - E type

When your primary concern is to get a high vacuum level; where 0.5MPa(72.5psi) of compressed air can be secured H type is suitable, and where it cannot be secured or air consumption needs to be lowered, E type is preferable.

●H type - L type

Where high vacuum is required, H type is recommended. When the vacuum needs to be adjusted, L type can be used to set the vacuum at a desired level by adjusting the pressure of the supply air with a regulator. Vacuum level of L type is almost in proportion to the force of supply air.

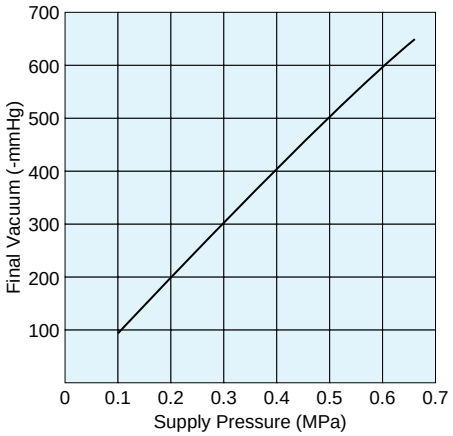
During the pressure range of 0.2~0.6MPa(29~87psi), L type is designed to set the vacuum level at; -27KPa(7.9in. Hg) at 0.2MPa(29psi), -40KPa(11.8in. Hg) at 0.3MPa(43.5psi), -54KPa(15.7in. Hg) at 0.4MPa(58psi), -67KPa(19.7in. Hg) at 0.5MPa(72.5psi), -80KPa(23.6in. Hg) at 0.6MPa(87psi). Although there is some differential between -5% to +15% against the setting level, it is still possible to set the vacuum level by adjusting the supply air pressure.

●When the vacuum cups do not hold the surface of works perfectly:

When the works cannot be held tight by vacuum cups (due to air leak), how to decide which type, H type or L type, should be used depends on the vacuum level in the vacuum system.

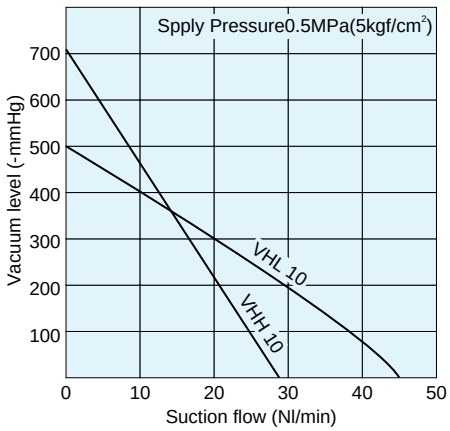
According to the vacuum level-vacuum flow table at the right, when the vacuum level in vacuum system is over -54KPa(15.7in. Hg), H type is preferable. When under -40KPa(11.8in. Hg), L type is better.

L Type Final Vacuum Characteristcs



(Fig.1)

VHH 10, VHL 10 Vacuum level-Suction flow



(Fig.2)

Remarks

●Valve

When solenoid valves or other valves are used in the system, ones that can secure adequate air flow should be used. (Valves' effective sectional areas should be three times bigger than the nozzle's cross section).

●Vacuum piping

Because the piping resistivity of vacuum system is bigger than you expect, we'd recommend you to make the vacuum piping as short as possible and to use a tube whose dia. is bigger than the general one. Especially, when vacuum switches are used in the system, too much piping resistance might cause wrong operations. It might also cause a reduction of vacuum flow.

●Piping for air supply side

It is necessary to play attention to the piping on the air supply side. Piping should be done in order to secure the rated pressure at the point of the inlet port of vacuum generator.

Detailed Safety Instructions

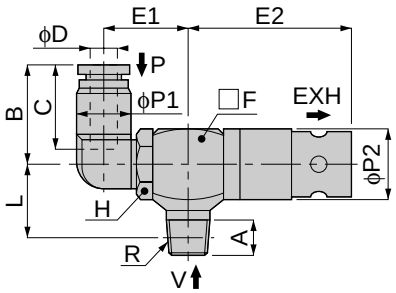
Before using the PISCO device, be sure to read the "Safety Instructions","Common Safety Instructions for Products Listed in This Manual" on pages 23~24 and "Common Safety Instructions for Vacuum" on pages 379~380 and "Common Safety Instructions for Mechanical Vacuum Switches" on page 381.

⚠Caution

1. Note that with the VC type (M5 only) piping can not be changed after installation of the body.

VC

Pad Direct-Mounting
Air Supply Port Elbow



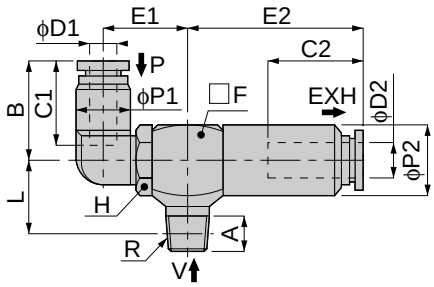
unit:mm

Model	Tube dia. ϕD	R	A	B	L	ϕP1	ϕP2	C	E1	E2	H	□F	∗1 (mm)	∗2 (-KPa)	∗3 (Nℓ/min)	∗4 (Nℓ/min)	Mass (g)
VCH 07-016L	6	R1/8	8	23	16	12.5	16	17	19	38	14	16	0.7	93(73)	13(13)	23(17)	31.5
VCH 07-018L	8			24		14.5		18.5	20								34
VCH 10-016L	6			23		12.5		17	19				1		28(28)	46(34)	31.5
VCH 10-018L	8			24		14.5		18.5	20								34
VCH 12-016L	6			23		12.5		17	19				1.2		38(36)	70(47)	31.5
VCH 12-018L	8			24		14.5		18.5	20								34
VCH 15-028L	8	R1/4	11	26	21	14.5	24	18.5	23	75	19	22	1.5		63(63)	100(70)	85.5
VCH 15-038L		R3/8	12		20.5												86.5
VCH 15-0210L	10	R1/4	11	30	21	17.5		21	25.5								90.5
VCH 15-0310L		R3/8	12		20.5												91.5
VCH 20-028L	8	R1/4	11	26	21	14.5		18.5	23				2	93	110(110)	200	90
VCH 20-038L		R3/8	12		20.5												91
VCH 20-0210L	10	R1/4	11	30	21	17.5		21	25.5								95
VCH 20-0310L		R3/8	12		20.5												96
VCL 07-016L	6	R1/8	8	23	16	12.5	16	17	19	38	14	16	0.7	67	26	23	31.5
VCL 07-018L	8			24		14.5		18.5	20								34
VCL 10-016L	6			23		12.5		17	19				1		42	46	31.5
VCL 10-018L	8			24		14.5		18.5	20								34
VCL 15-028L	8	R1/4	11	26	21	14.5	24	18.5	23	75	19	22	1.5		95	100	84
VCL 15-038L		R3/8	12		20.5												85
VCL 15-0210L	10	R1/4	11	30	21	17.5		21	25.5								89
VCL 15-0310L		R3/8	12		20.5												90
VCL 20-028L	8	R1/4	11	26	21	14.5		18.5	23				2		180	200	85.5
VCL 20-038L		R3/8	12		20.5												86.5
VCL 20-0210L	10	R1/4	11	30	21	17.5		21	25.5								90.5
VCL 20-0310L		R3/8	12		20.5												91.5
VCE 07-016L	6	R1/8	8	23	16	12.5	16	17	19	38	14	16	0.7	92	10.5	17	31.5
VCE 07-018L	8			24		14.5		18.5	20								34
VCE 10-016L	6			23		12.5		17	19				1		21	34	31.5
VCE 10-018L	8			24		14.5		18.5	20								34
VCE 12-016L	6			23		12.5		17	19				1.2		27	47	31.5
VCE 12-018L	8			24		14.5		18.5	20								34
VCE 15-028L	8	R1/4	11	26	21	14.5	24	18.5	23	75	19	22	1.5		42	70	86.5
VCE 15-038L		R3/8	12		20.5												87.5
VCE 15-0210L	10	R1/4	11	30	21	17.5		21	25.5								91.5
VCE 15-0310L		R3/8	12		20.5												92.5
VCE 20-028L	8	R1/4	11	26	21	14.5		18.5	23				2		84	150	91.5
VCE 20-038L		R3/8	12		20.5												92.5
VCE 20-0210L	10	R1/4	11	30	21	17.5		21	25.5								96.5
VCE 20-0310L		R3/8	12		20.5												97.5

∗1 Nozzle dia. ∗2 Final vacuum ∗3 Suction flow ∗4 Air consumption.

VC

Pad Direct-Mounting
Concentrated Exhaust
Air Supply Port Elbow



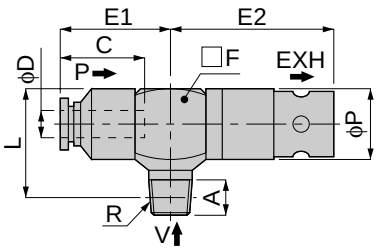
unit:mm

Model	Tube dia. ϕD1	Tube dia. ϕD2	R	A	B	L	ϕP1	ϕP2	C1	C2	E1	E2	H	□F	∗1 (mm)	∗2 (-KPa)	∗3 (N ℓ/min)	∗4 (N ℓ/min)	Mass (g)
VCH 07-016LJ	6	8	R1/8	8	23	16	12.5	16	17	18.5	19	40.5	14	16	0.7	93(73)	13(13)	23(17)	35.5
VCH 07-018LJ	8				24		14.5		18.5		20								38
VCH 10-016LJ	6				23		12.5		17		19				1		28(28)	46(34)	35.5
VCH 10-018LJ	8				24		14.5		18.5		20								38
VCH 12-016LJ	6				23		12.5		17		19				1.2		38(36)	70(47)	35.5
VCH 12-018LJ	8				24						20								38
VCH 15-028LJ	8	12	R1/4	11	26	21	14.5	22	18.5	23.5	23	65	19	22	1.5		63(63)	100(70)	97.5
VCH 15-038LJ			R3/8	12		20.5													98.5
VCH 15-0210LJ	10		R1/4	11	30	21	17.5		21		25.5								102
VCH 15-0310LJ			R3/8	12		20.5													103
VCH 20-028LJ	8		R1/4	11	26	21	14.5		18.5		23				2	93	110(110)	200	101.5
VCH 20-038LJ			R3/8	12		20.5													102.5
VCH 20-0210LJ	10		R1/4	11	30	21	17.5		21		25.5								106.5
VCH 20-0310LJ			R3/8	12		20.5													107.5
VCL 07-016LJ	6	8	R1/8	8	23	16	12.5	16	17	18.5	19	40.5	14	16	0.7	67	26	23	35.5
VCL 07-018LJ	8				24		14.5		18.5		20								38
VCL 10-016LJ	6				23		12.5		17		19				1		42	46	35.5
VCL 10-018LJ	8				24						20								38
VCL 15-028LJ	8	12	R1/4	11	26	21	14.5	22	18.5	23.5	23	65	19	22	1.5		95	100	95.5
VCL 15-038LJ			R3/8	12		20.5													96.5
VCL 15-0210LJ	10		R1/4	11	30	21	17.5		21		25.5								100.5
VCL 15-0310LJ			R3/8	12		20.5													101.5
VCL 20-028LJ	8		R1/4	11	26	21	14.5		18.5		23				2		180	200	97
VCL 20-038LJ			R3/8	12		20.5													98
VCL 20-0210LJ	10		R1/4	11	30	21	17.5		21		25.5								102
VCL 20-0310LJ			R3/8	12		20.5													103
VCE 07-016LJ	6	8	R1/8	8	23	16	12.5	16	17	18.5	19	40.5	14	16	0.7	92	10.5	17	35.5
VCE 07-018LJ	8				24		14.5		18.5		20								38
VCE 10-016LJ	6				23		12.5		17		19				1		21	34	35.5
VCE 10-018LJ	8				24		14.5		18.5		20								38
VCE 12-016LJ	6				23		12.5		17		19				1.2		27	47	35.5
VCE 12-018LJ	8				24						20								38
VCE 15-028LJ	8	12	R1/4	11	26	21	14.5	22	18.5	23.5	23	65	19	22	1.5		42	70	98
VCE 15-038LJ			R3/8	12		20.5													99
VCE 15-0210LJ	10		R1/4	11	30	21	17.5		21		25.5								103
VCE 15-0310LJ			R3/8	12		20.5													104
VCE 20-028LJ	8		R1/4	11	26	21	14.5		18.5		23				2		84	150	103
VCE 20-038LJ			R3/8	12		20.5													104
VCE 20-0210LJ	10		R1/4	11	30	21	17.5		21		25.5								108
VCE 20-0310LJ			R3/8	12		20.5													109

∗1 Nozzle dia. ∗2 Final vacuum ∗3 Suction flow ∗4 Air consumption.

VC

Pad Direct-Mounting Straight



unit:mm

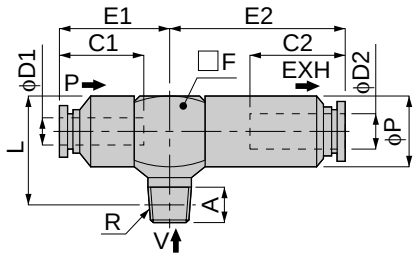
Model	Tube dia. ϕD	R	A	L	ϕP	C	E1	E2	□F	∗1 (mm)	∗2 (-KPa)	∗3 (N ℓ/min)	∗4 (N ℓ/min)	Mass (g)
VCH 07-016C	6	R1/8	8	24	16	17	24.5	38	16	0.7	93(73)	13(13)	23(17)	31.5
VCH 07-018C	8					18.5	28							
VCH 10-016C	6					17	24.5			1		28(28)	46(34)	
VCH 10-018C	8					18.5	28							
VCH 12-016C	6					17	24.5			1.2		38(36)	70(47)	
VCH 12-018C	8					18.5	28							
VCH 15-028C	8	R1/4	11	33	24	18	29.5	75	22	1.5		63(63)	100(70)	87
VCH 15-038C		R3/8	12	32.5										88
VCH 15-0210C	10	R1/4	11	33		20	31							
VCH 15-0310C		R3/8	12	32.5										89
VCH 20-028C	8	R1/4	11	33		18	29.5			2	93	110(110)	200	91
VCH 20-038C		R3/8	12	32.5										92
VCH 20-0210C	10	R1/4	11	33		20	31							92.5
VCH 20-0310C		R3/8	12	32.5										93.5
VCL 07-016C	6	R1/8	8	24	16	17	24.5	38	16	0.7	67	26	23	31.5
VCL 07-018C	8					18.5	28							
VCL 10-016C	6					17	24.5			1		42	46	
VCL 10-018C	8					18.5	28							
VCL 15-028C	8	R1/4	11	33	24	18	29.5	75	22	1.5		95	100	85
VCL 15-038C		R3/8	12	32.5										86
VCL 15-0210C	10	R1/4	11	33		20	31							86.5
VCL 15-0310C		R3/8	12	32.5										87.5
VCL 20-028C	8	R1/4	11	33		18	29.5			2		180	200	87
VCL 20-038C		R3/8	12	32.5										88
VCL 20-0210C	10	R1/4	11	33		20	31							
VCL 20-0310C		R3/8	12	32.5										89
VCE 07-016C	6	R1/8	8	24	16	17	24.5	38	16	0.7	92	10.5	17	31.5
VCE 07-018C	8					18.5	28							
VCE 10-016C	6					17	24.5			1		21	34	
VCE 10-018C	8					18.5	28							
VCE 12-016C	6					17	24.5			1.2		27	47	
VCE 12-018C	8					18.5	28							
VCE 15-028C	8	R1/4	11	33	24	18	29.5	75	22	1.5		42	70	87.5
VCE 15-038C		R3/8	12	32.5										88.5
VCE 15-0210C	10	R1/4	11	33		20	31							
VCE 15-0310C		R3/8	12	32.5										89.5
VCE 20-028C	8	R1/4	11	33		18	29.5			2		84	150	92.5
VCE 20-038C		R3/8	12	32.5										93.5
VCE 20-0210C	10	R1/4	11	33		20	31							94
VCE 20-0310C		R3/8	12	32.5										95

∗1 Nozzle dia. ∗2 Final vacuum ∗3 Suction flow ∗4 Air consumption.

Vacuum Series Vacuum Generator

VC

Pad Direct-Mounting Straight
Concentrated Exhaust



unit:mm

Model	Tube dia. ϕD1	Tube dia. ϕD2	R	A	L	ϕP	C1	C2	E1	E2	□F	∗1 (mm)	∗2 (-KPa)	∗3 (N ℓ/min)	∗4 (N ℓ/min)	Mass (g)
VCH 07-016CJ	6	8	R1/8	8	24	16	17	18.5	24.5	40.5	16	0.7	93(73)	13(13)	23(17)	36.5
VCH 07-018CJ	8						18.5		28							
VCH 10-016CJ	6						17		24.5			1		28(28)	46(34)	
VCH 10-018CJ	8						18.5		28							
VCH 12-016CJ	6						17		24.5			1.2		38(36)	70(47)	
VCH 12-018CJ	8						18.5		28							
VCH 15-028CJ	8	12	R1/4	11	32	22	18	23.5	29.5	65	22	1.5		63(63)	100(70)	98.5
VCH 15-038CJ			R3/8	12	31.5											99.5
VCH 15-0210CJ	10		R1/4	11	32		20		31							
VCH 15-0310CJ			R3/8	12	31.5											100.5
VCH 20-028CJ	8		R1/4	11	32		18		29.5			2	93	110(110)	200	103
VCH 20-038CJ			R3/8	12	31.5											104
VCH 20-0210CJ	10		R1/4	11	32		20		31							
VCH 20-0310CJ			R3/8	12	31.5											105
VCL 07-016CJ	6	8	R1/8	8	24	16	17	18.5	24.5	40.5	16	0.7	67	26	23	36.5
VCL 07-018CJ	8						18.5		28							
VCL 10-016CJ	6						17		24.5			1		42	46	
VCL 10-018CJ	8						18.5		28							
VCL 15-028CJ	8	12	R1/4	11	32	22	18	23.5	29.5	65	22	1.5		95	100	97
VCL 15-038CJ			R3/8	12	31.5											98
VCL 15-0210CJ	10		R1/4	11	32		20		31							
VCL 15-0310CJ			R3/8	12	31.5											99
VCL 20-028CJ	8		R1/4	11	32		18		29.5			2		180	200	98.5
VCL 20-038CJ			R3/8	12	31.5											99.5
VCL 20-0210CJ	10		R1/4	11	32		20		31							100
VCL 20-0310CJ			R3/8	12	31.5											100.5
VCE 07-016CJ	6	8	R1/8	8	24	16	17	18.5	24.5	40.5	16	0.7	92	10.5	17	36.5
VCE 07-018CJ	8						18.5		28							
VCE 10-016CJ	6						17		24.5			1		21	34	
VCE 10-018CJ	8						18.5		28							
VCE 12-016CJ	6						17		24.5			1.2		27	47	
VCE 12-018CJ	8						18.5		28							
VCE 15-028CJ	8	12	R1/4	11	32	22	18	23.5	29.5	65	22	1.5		42	70	99.5
VCE 15-038CJ			R3/8	12	31.5											100.5
VCE 15-0210CJ	10		R1/4	11	32		20		31							
VCE 15-0310CJ			R3/8	12	31.5											101.5
VCE 20-028CJ	8		R1/4	11	32		18		29.5			2		84	150	104.5
VCE 20-038CJ			R3/8	12	31.5											105.5
VCE 20-0210CJ	10		R1/4	11	32		20		31							
VCE 20-0310CJ			R3/8	12	31.5											106.5

∗1 Nozzle dia. ∗2 Final vacuum ∗3 Suction flow ∗4 Air consumption.