

Vacuum Generators

Venturi Vacuum Generator VB

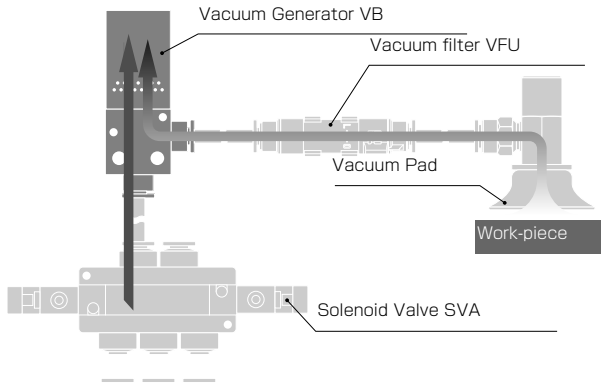


Compact plastic body

Light weight

Box type

■ Piping example



- Box Union Type VB and the option comes with Mechanical Vacuum Switch Type VUSM

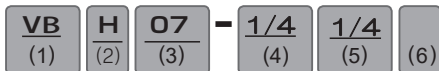


- Stand-alone Mechanical Vacuum Switch VUSM





Model Designation (Example)



(1) Type

(2) Performance

H: High-vacuum type (Rated air supply pressure: 72.5psi (0.5MPa))

L: Large-flow type (Rated air supply pressure: 72.5psi (0.5MPa))

E: High-vacuum at Low air pressure supply type (Rated air supply pressure: 50.8psi (0.35MPa))

(3) Nozzle size

* Air supply pressure is 72.5psi (0.5MPa) for H and L types or 50.8psi (0.35MPa) for E type.

* The flow rate in SCFM is a reference value converted by multiplying *l/min(ANR)* by 0.035.

Code	Bore (mm)	H type	L type	E type
		Vacuum level and suction flow	Vacuum level and suction flow	Vacuum level and suction flow
05	ø0.5	-26.8in. Hg (-90kPa) 0.25SCFM (7 <i>l/min</i> (ANR))	-19.7in. Hg (-66kPa) 0.42SCFM (12 <i>l/min</i> (ANR))	-26.8in. Hg (-90kPa) 0.11SCFM (3 <i>l/min</i> (ANR))
07	ø0.7	-27.6in. Hg (-93kPa) 0.46SCFM (13 <i>l/min</i> (ANR))	-19.7in. Hg (-66kPa) 0.92SCFM (26 <i>l/min</i> (ANR))	-27.2in. Hg (-92kPa) 0.37SCFM (10.5 <i>l/min</i> (ANR))
10	ø1.0	-27.6in. Hg (-93kPa) 0.99SCFM (28 <i>l/min</i> (ANR))	-19.7in. Hg (-66kPa) 1.48SCFM (42 <i>l/min</i> (ANR))	-27.2in. Hg (-92kPa) 0.74SCFM (21 <i>l/min</i> (ANR))
12	ø1.2	-27.6in. Hg (-93kPa) 1.34SCFM (38 <i>l/min</i> (ANR))	-	-27.2in. Hg (-92kPa) 0.95SCFM (27 <i>l/min</i> (ANR))

* The suction flow in the table is representing value and is varies by vacuum port size.

(4) Vacuum port size (V)

■ Tube dia.

Code	Inch tube size (in.)		Metric tube size (mm)	
	5/32	1/4	4	6
Dia.	ø5/32	ø1/4	ø4	ø6

(5) Air supply port (P)

■ Tube dia.

Code	Inch tube size (in.)		Metric tube size (mm)	
	5/32	1/4	4	6
Dia.	ø5/32	ø1/4	ø4	ø6

(6) P: Without switch

S: With mechanical vacuum switch (VUSM type)

Model Designation of Mechanical Vacuum Switch



VUSM10 - 1/4

Mechanical Vacuum Switch

① Pressure port (Negative pressure)

① Pressure port (Negative pressure)

Code	5/32	1/4	4	6
Tube dia.	5/32" (ø3.97)	1/4" O.D. (ø6.35)	ø4mm	ø6mm

Vacuum Generator Series

Vacuum Generator VB






Specification

Fluid medium	Air
Operating pressure range	21.8 ~ 102psi (0.15 ~ 0.7MPa)
Rated pressure supply	H, L type : 72.5psi (0.5MPa), E type : 51psi (0.35MPa)
Operating temp. range	32 ~ 140°F (0 ~ 60°C) (No freezing)

Specification of Box Union Switch Type VB and Mechanical Vacuum Switch Type VUSM

Pressure detection	Diaphragm to Micro switch
Fluid medium	Air
Operating temp. range	32 ~ 140°F (0 ~ 60°C) (No freezing)
Micro switch rating	3A 250V
Pressure setting range	-5.9inHg ~ -19.5inHg (-20 ~ -66kPa)
Accuracy	±1.5 inHg (±5kPa)
Differential response	6.5 inHg (22kPa)
Factory default pressure	-15.7 inHg (-53kPa)
Lead wire	Length: About 11.8" (300mm) White: Common, Red: Normally closed, Black: Normally open

Box Type Union

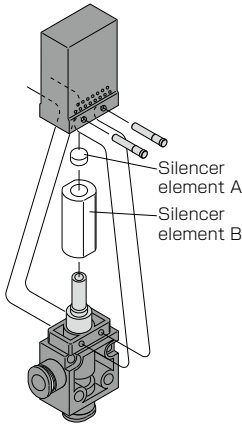
VB	Model	VB	Model
Box Type Union	VB ² ③-V-PP	Box Type Union Vacuum Switch	VB ² ③-V-PS
	VBH05- ⁵ / ₃₂₋₅ / ₃₂ P VBH05-44P		VBH05- ⁵ / ₃₂₋₅ / ₃₂ S VBH05-44S
	VBH07-1/4-1/4P VBH07-66P		VBH07-1/4-1/4S VBH07-66S
	VBH10-1/4-1/4P VBH10-66P		VBH10-1/4-1/4S VBH10-66S
	VBH12-1/4-1/4P VBH12-66P		VBH12-1/4-1/4S VBH12-66S
	VBL05- ⁵ / ₃₂₋₅ / ₃₂ P VBL05-44P		VBL05- ⁵ / ₃₂₋₅ / ₃₂ S VBL05-44S
	VBL07-1/4-1/4P VBL07-66P		VBL07-1/4-1/4S VBL07-66S
	VBL10-1/4-1/4P VBL10-66P		VBL10-1/4-1/4S VBL10-66S
	VBE07-1/4-1/4P VBE07-66P	* With vacuum vacuum switch incorporated.	VBE07-1/4-1/4S VBE07-66S
	VBE07-1/4-1/4P VBE10-66P		VBE07-1/4-1/4S VBE10-66S
	VBE07-1/4-1/4P VBE12-66P		VBE07-1/4-1/4S VBE12-66S
VUSM	Model		Cautions
Mechanical Vacuum Switch	VUSM10-øD		*1. The white-letter model type in is new model.
	VUSM10- ⁵ / ₃₂ VUSM10-4		*2. "-S3" spec.: no Cu alloy with HNBR seal
	VUSM10-1/4 VUSM10-6		*3. The model with low sales average may be build to order production. For details, please contact Pisco sales office or sales representative.
			Package specification
			1 pc. in a bag

Detailed Safety Instructions

Before using the PISCO device, be sure to read the "Safety Instructions", "Common Safety Instructions for Products Listed in This Manual" and "Common Safety Instructions for Vacuum" and Common Safety Instructions for "Mechanical Vacuum Switches"

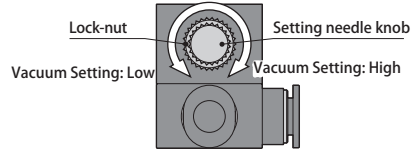
■ Replacement

Element A model code	Element B model code
SEE0602	VGED-G



■ How to adjust the vacuum level

As the knob is turned clockwise, the vacuum setting is higher, as turned counter-clockwise the setting is lower. Make sure to tighten the lock-nut to secure the setting.

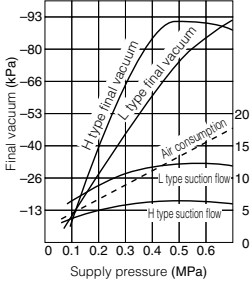


Characteristics

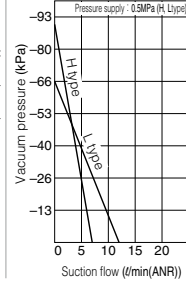
Supply pressure - Final vacuum / Suction Flow / Air Consumption

VBH05, VBL05

Vacuum characteristics

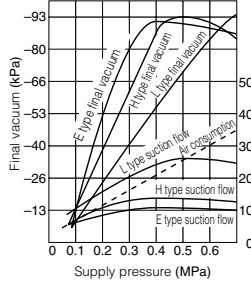


Flow characteristics

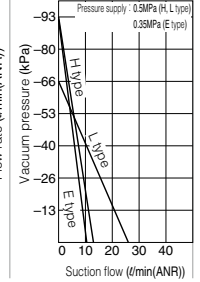


VBH07, VBL07, VBE07

Vacuum characteristics

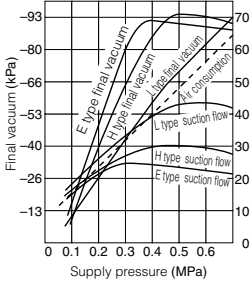


Flow characteristics

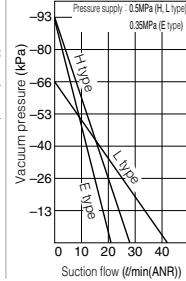


VBH10, VBL10, VBE10

Vacuum characteristics

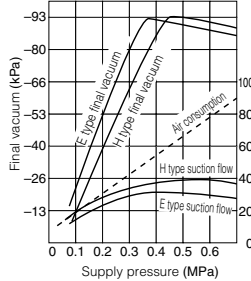


Flow characteristics

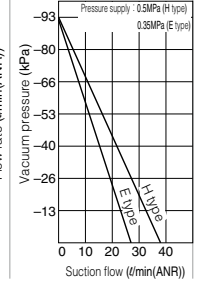


VBH12, VBE12

Vacuum characteristics



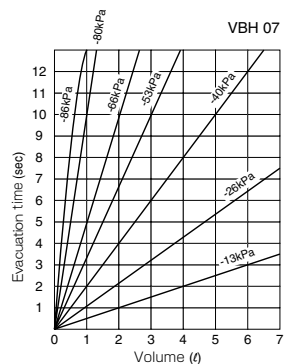
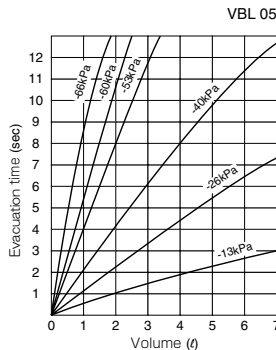
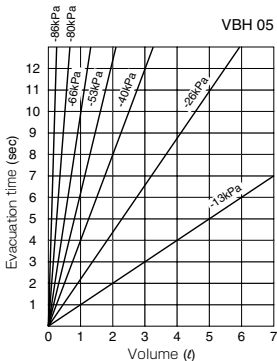
Flow characteristics



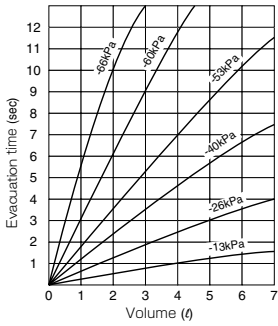
Characteristics

Evacuation time (Supply pressure H and L types: 0.5MPa, E type: 0.3 to 0.5Mpa)

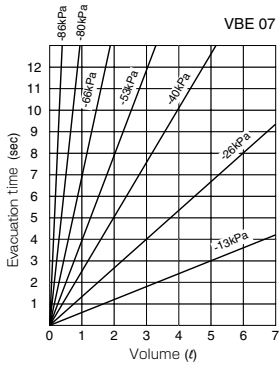
※ The following charts are for reference only since the values vary according to the piping arrangement.



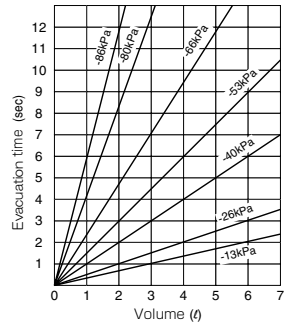
VBL 07



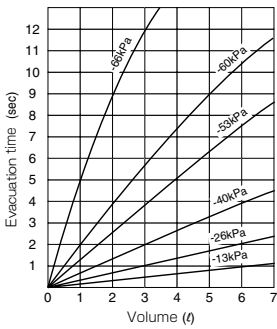
VBE 07



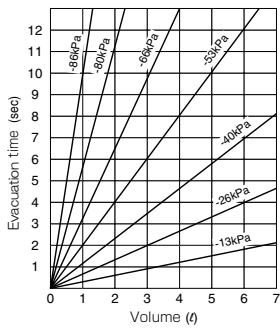
VBH 10



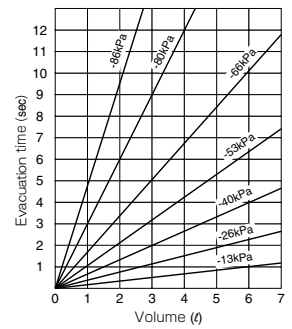
VBL 10



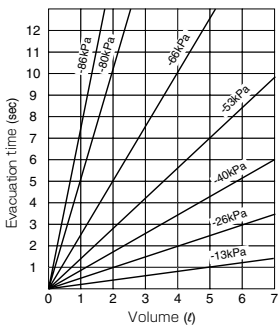
VBE 10



VBH 12

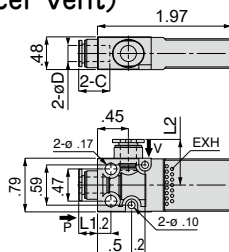


VBE 12



VB Box Type Union (Silencer vent)

RoHS compliant

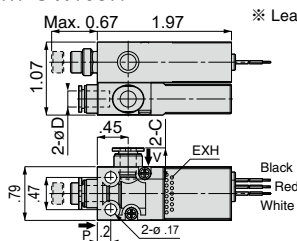


Unit : inch

Model code	Tube O.D. øD	C	L1	L2	Nozzle bore (mm)	Operating pressure (psi)	Final vacuum (-inHg)	Suction flow (scfm)	Air consumption (scfm)	
VBH05-5/32 5/32P	5/32	0.43	0.28	0.66	0.5	72.5	26.8	0.25	0.41	
VBH07-1/4 1/4P	1/4	0.67	0.73	1.12	0.7			27.5	0.46	0.81
VBH10-1/4 1/4P					1				0.99	1.62
VBH12-1/4 1/4P					1.2	1.34	2.47			
VBL05-5/32 5/32P	5/32	0.43	0.28	0.66	0.5	65.3	19.7	0.42	0.41	
VBL07-1/4 1/4P	1/4	0.67	0.73	1.12	0.7			27.2	0.92	0.81
VBL10-1/4 1/4P					1				1.48	1.62
VBE07-1/4 1/4P					1.2	0.37	0.60			
VBE10-1/4 1/4P	1/4	0.67	0.73	1.12	1	58.0	27.2	0.74	1.20	
VBE12-1/4 1/4P					1.2			0.95	1.66	

VB Box Type Union Vacuum Switch

RoHS compliant



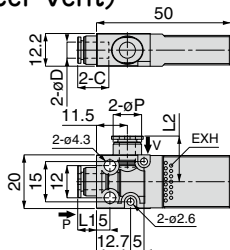
※ Lead wire White: Common
Red: Normally closed
Black: Normally open

Unit : inch

Model code	Tube O.D. øD	C	Nozzle bore (mm)	Operating pressure (psi)	Final vacuum (-inHg)	Suction flow (scfm)	Air consumption (scfm)	
VBH05-5/32 5/32S	5/32	0.43	0.5	72.5	26.8	0.25	0.41	
VBH07-1/4 1/4S	1/4	0.67	0.7			27.5	0.46	0.81
VBH10-1/4 1/4S			1				0.99	1.62
VBH12-1/4 1/4S			1.2	1.34	2.47			
VBL05-5/32 5/32S	5/32	0.43	0.5	65.3	19.7	0.42	0.41	
VBL07-1/4 1/4S	1/4	0.67	0.7			27.2	0.92	0.81
VBL10-1/4 1/4S			1				1.48	1.62
VBE07-1/4 1/4S			1.2	0.37	0.60			
VBE10-1/4 1/4S	1/4	0.67	1	58.0	27.2	0.74	1.20	
VBE12-1/4 1/4S			1.2			0.95	1.66	

VB Box Type Union (Silencer vent)

RoHS compliant

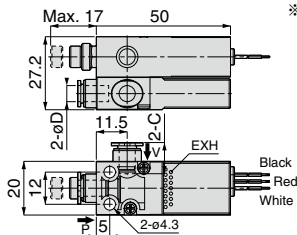


Unit : mm

Model code	Tube O.D. øD	øP	C	L1	L2	Nozzle bore (mm)	Operating pressure (MPa)	Final vacuum (-kPa)	Suction flow (l/min(ANR))	Air consumption (l/min(ANR))	Weight (g)	CAD file name
VBH05-44P	4	9	11	6.6	16.6	0.5	0.5	90	7	11.5	18	VB_05-44P
VBH07-66P	6	10.5	11.6	7	17	0.7		93	13	23	18.5	VB_-66P
VBH10-66P						1			28	46		
VBH12-66P						1.2	38		70	18		
VBL05-44P	4	9	11	6.6	16.6	0.5	0.45	66	12	11.5	18	VB_05-44P
VBL07-66P	6	10.5	11.6	7	17	0.7		66	26	23	18.5	VB_-66P
VBL10-66P						1			42	46		
VBE07-66P	6	10.5	11.6	7	17	0.7	0.4	92	10.5	17	18.5	VB_-66P
VBE10-66P						1			21	34		
VBE12-66P						1.2			27	47	18	

VB Box Type Union Vacuum Switch

RoHS compliant



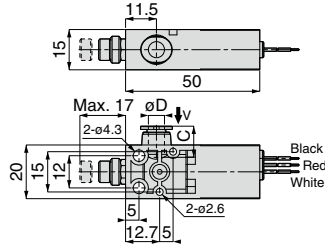
※ Lead wire White: Common
Red: Normally closed
Black: Normally open

Unit : mm

Model code	Tube O.D. øD	C	Nozzle bore (mm)	Operating pressure (MPa)	Final vacuum (-kPa)	Suction flow (l/min(ANR))	Air consumption (l/min(ANR))	Weight (g)	CAD file name	
VBH05-44S	4	11	0.5	0.5	90	7	11.5	46.5	VB_05-44S	
VBH07-66S	6	11.6	0.7		93	13	23	46	VB_-66S	
VBH10-66S			1			28	46	47		
VBH12-66S			1.2	38		70	47.5			
VBL05-44S	4	11	0.5	0.45	66	12	11.5	46.5	VB_05-44S	
VBL07-66S	6	11.6	0.7			66	26	23	48	VB_-66S
VBL10-66S			1				42	46	46.5	
VBE07-66S	6	11.6	0.7	0.4	92	10.5	17	48.5	VB_-66S	
VBE10-66S			1			21	34			
VBE12-66S			1.2			27	47	47.5		

VUSM Mechanical Vacuum Switch

RoHS compliant



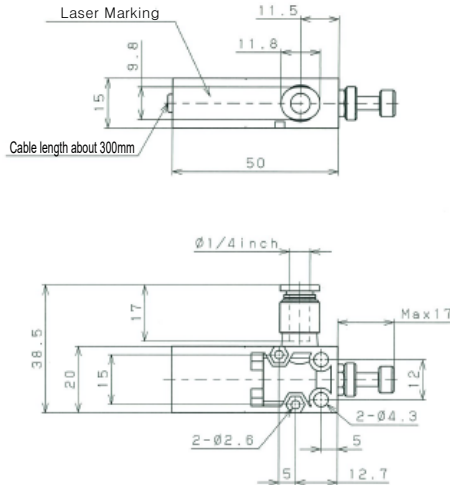
Unit : mm

Model code	Tube O.D. ϕD	C	Weight (g)	CAD file name
VUSM10-5/32	5/32"	11	29	N/A
VUSM10-1/4	1/4"	17	36	N/A
VUSM10-4	4	11	29	VUSM10-4
VUSM10-6	6	11.6	29	VUSM10-6

※ Lead wire White: Common
Red: Normally closed
Black: Normally open

VUSM10-1/4

Unit : mm





SAFETY Instructions

This safety instructions aim to prevent personal injury and damage to properties by requiring proper use of PISCO products.

Be certain to follow ISO 4414 and JIS B 8370

ISO 4414 : Pneumatic fluid power...Recommendations for the application of equipment to transmission and control systems.

JIS B 8370 : General rules and safety requirements for systems and their components.

This safety instructions is classified into "Danger", "Warning" and "Caution" depending on the degree of danger or damages caused by improper use of PISCO products.



Danger

Hazardous conditions. It can cause death or serious personal injury.



Warning

Hazardous conditions depending on usages. Improper use of PISCO products can cause death or serious personal injury.



Caution

Hazardous conditions depending on usages. Improper use of PISCO products can cause personal injury or damages to properties.

Warning

1. Selection of pneumatic products

- ① A user who is a pneumatic system designer or has sufficient experience and technical expertise should select PISCO products.
- ② Due to wide variety of operating conditions and applications for PISCO products, carry out the analysis and evaluation on PISCO products. The pneumatic system designer is solely responsible for assuring that the user's requirements are met and that the application presents no health or safety hazards. All designers are required to fully understand the specifications of PISCO products and constitute all systems based on the latest catalog or information, considering any malfunctions.

2. Handle the pneumatic equipment with enough knowledge and experience

- ① Improper use of compressed air is dangerous. Assembly, operation and maintenance of machines using pneumatic equipment should be conducted by a person with enough knowledge and experience.

3. Do not operate machine / equipment or remove pneumatic equipment until safety is confirmed.

- ① Make sure that preventive measures against falling work-pieces or sudden movements of machine are completed before inspection or maintenance of these machine.
- ② Make sure the above preventive measures are completed. A compressed air supply and the power supply to the machine must be off, and also the compressed air in the systems must be exhausted.
- ③ Restart the machines with care after ensuring to take all preventive measures against sudden movements.

Disclaimer

1. PISCO does not take any responsibility for any incidental or indirect loss, such as production line stop, interruption of business, loss of benefits, personal injury, etc., caused by any failure on use or application of PISCO products.
 2. PISCO does not take any responsibility for any loss caused by natural disasters, fires not related to PISCO products, acts by third parties, and intentional or accidental damages of PISCO products due to incorrect usage.
 3. PISCO does not take any responsibility for any loss caused by improper usage of PISCO products such as exceeding the specification limit or not following the usage the published instructions and catalog allow.
 4. PISCO does not take any responsibility for any loss caused by remodeling of PISCO products, or by combinational use with non-PISCO products and other software systems.
 5. The damages caused by the defect of Pisco products shall be covered but limited to the full amount of the PISCO products paid by the customer.
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