

Vacuum Filter

PISCO®

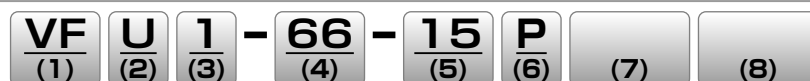
>>> <https://www.pisco.co.jp/en/>

Vacuum Filter for Various Vacuum Piping

! Safety instructions for this product

Safety instructions, Common safety instructions for each product category and Detailed safety instructions for each product are in the end of this catalog and our website.

Model Designation (Example) of VFU (union type)



(1) Vacuum Filter

(2) Type

U: Union type

(3) Filter size

Code	0	1	2	3	
Filter area (cm ²)	1.4	2.8 (*1)	4.7 (*2)	7.5	12.5

*1. Filter area for element length: 15mm type

*2. Filter area for element length: 25mm type

(4) Connection type and size

Code	Tube O. D. (mm)						Tube O. D. (inch)				Female thread size	
	180180	33	44	66	88	1010	5/32-5/32	3/16-3/16	1/4-1/4	3/8-3/8	M3M3	55
Size	ø1.8	ø3	ø4	ø6	ø8	ø10	ø5/32	ø3/16	ø1/4	ø3/8	M3×0.5	M5×0.8

(5) Element length (Code entry for VFU 1 only)

Code	15	25
Element length (mm)	15	25

(6) Body material (Code entry for VFU1, 2, 3)

P: Resin body type

(7) Holder

Code	No code	-NH
Holder	With holder	Without holder

(8)-S3 spec. (Metal option)

Code	No code	-S3 (*)
Metal material	Standard spec.	No copper-based metallic materials used in flow paths.
Seal rubber material	Standard spec.	HNBR or FKM
Release-ring color	Light gray	Dark blue

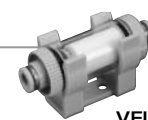
*1. VFU0 type and connection size dia. 3mm are not available for -S3 spec.

*2. -S3 spec. is not available for inch size.

Characteristics of VFU type (union type)

VFU2, 3 type

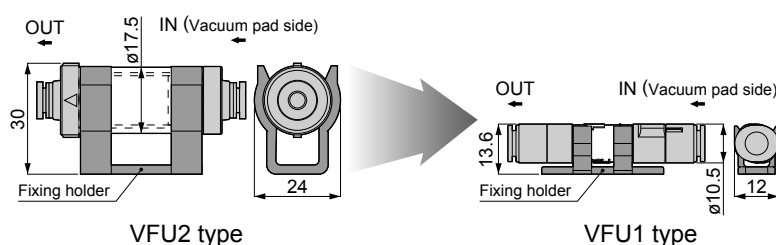
Easy installing in-line type. Pipe resistance is small and stable.



VFU0, 1 type

Smallest footprint. Best suitable for applications where a high-cycle vacuum system is required.

As shown in the drawings below, VFU0, 1 types can be installed in narrow spaces.



2 options (for VFU1 type only) of element size (Filter area)

Selectable from 2 types, depending on dust size or replacement timing of the element.

For IN and OUT side connection, Push-in fitting and female thread are selectable.

Piping with various items, especially with a Minimal fitting, can save installation space.

Example of connection with a Minimal fitting.▶



-S3 spec. (Metal option)

No copper-based metallic materials used in flow paths.

Seal rubber material is HNBR or FKM, both of which have good ozone resistance.

Vacuum

Vacuum Filter

■ Model designation (Example) of VFB (large capacity: union type) and VFR (large capacity : bowl capacity 60 m² type)



(1) Vacuum Filter

(2) Type

Code	B	R
Type	Large capacity union type	Large capacity (bowl capacity 60 m ²) type

(3) Filter size
20: 20cm²

(4) IN side tube dia.

Code	6	8	10	12	16
Size	ø6	ø8	ø10	ø12	ø16

(5) OUT side tube dia.

Code	6	8	10	12	16	3/16	1/4	5/16	3/8	1/2	No code
Tube O.D.	ø6mm	ø8mm	ø10mm	ø12mm	ø16mm	ø3/16"	ø1/4"	ø5/16"	ø3/8"	ø1/2"	Open to air (VFR only) type

(6) Body color

Code	No code	-W
Body color	Black	Light gray

■ Characteristics of VFB (large capacity: union type) and VFR (large capacity : bowl capacity 60m² type)

• VFB (Union) type

Easy detachment of dust case prevents scattering of dust.

To be used in the vacuum circuit, between vacuum generator and vacuum pad, or between vacuum pump and matched device.



• VFR (bowl capacity 60m²) type

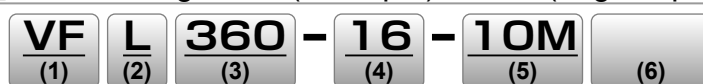
Removing dust and water droplets sucked in by vacuum generator or vacuum pump by cyclone effect and element.

Large dust case reduces maintenance frequency.

Filter for vacuum generator exhaust port is also available.



■ Model Designation (Example) of VFL (large capacity: bowl capacity 90m² type)



(1) Vacuum Filter

(2) Type

L: Large capacity (bowl capacity 90m²) type

(3) Processing flow rate

360: 360ℓ / min [ANR]

(4) Connection type and size

Code	Push-in fitting			Taper pipe female thread			Parallel pipe female thread		
	10	12	16	03	04	06	G3	G4	G6
Size	ø10	ø12	ø16	R3/8	R1/2	R3/4	G3/8	G1/2	G3/4

(5) Filtering accuracy

Code	1M	5M	10M	200M
Filtering accuracy (μm)	1	5	10	200

(6) Bracket

Code	No code	-NB
Bracket	With bracket	Without bracket

■ Characteristics of VFL (large capacity: bowl capacity 90m²) type

Flow rate: 360ℓ/min [ANR]. Large capacity ensures large flow rate.

Four types of filtration accuracy can be selected according to applications.

Filtration accuracy: 1μm, 5μm, 10μm, 200μm

Various types of connections.

Taper pipe female thread, Parallel pipe female thread and Push-in fitting are available.



Model Designation (Example) of VFJ (Plug-in type)



(1) Vacuum Filter

(2) Type

J: Plug-in type

(3) Joint size

Code	33M	44	66	1/8-1/8M	1/4-1/4
Size	ø3mm	ø4mm	ø6mm	ø1/8"	ø1/4"

Characteristics of VFJ (Plug-in type)

■ Suitable for vacuum generator stand-alone type without built-in filter.

■ Plug-in type with filter. PP material achieves a low price.

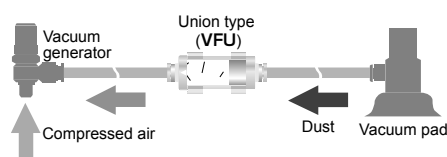
■ Built-in filter inside.



Piping example

Union type (VFU), Large capacity union type (VFB)

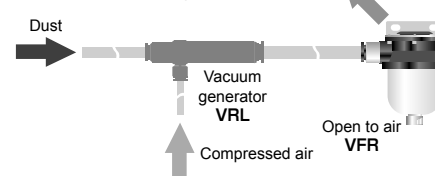
Place a vacuum filter between vacuum generator and vacuum pad, or between vacuum pump and matched device to filter out dust and prevent damage to vacuum generator or vacuum pump.



Large capacity type (bowl capacity 60m³) Open to air exhaust (VFR)

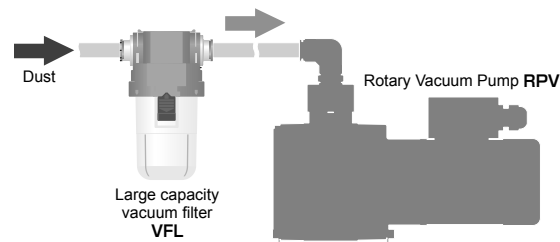
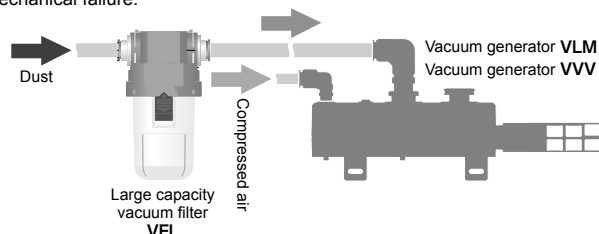
Open to air exhaust "VFR" is to be installed on the exhaust side of Vacuum Generator VRL for transferring tiny work-pieces like particles and powder.

* Contact us for particle transferring application.



Large capacity type (bowl capacity 90m³) (VFL)

Large capacity vacuum filter, by being installed close to the large flow vacuum generator or the vacuum pump, would remove dust particles and prevent their mechanical failure.



Specifications

■ VFU type

Type	VFU0	VFU1	VFU2	VFU3
Fluid medium	Air			
Operating pressure range	-100 to 0 kPa			
Filtering accuracy (*1)	5 μm (Trapping efficiency : 95%)			
Operating temp. range	0 to 60 °C (No freezing)			
Filter area	1.4cm²	2.8cm² (*2) 4.7cm² (*3)	7.5cm²	12.5cm²

*1. Based on PISCO measuring condition.

*2. Filter area for element length: 15mm type

*3. Filter area for element length: 25mm type

■ VFR, VFB type

Type	VFR	VFB
Fluid medium	Air	
Operating pressure range	-100 to 0 kPa	
Filtering accuracy (*)	10 μm	
Operating temp. range	0 to 60 °C (No freezing)	
Filter area	20 cm²	

* Based on PISCO measuring condition.

■ VFL type

Fluid medium	Air
Operating pressure range	-101 to 0 kPa
Filtering accuracy (*1)	1, 5, 10, 200 μm (Trapping efficiency : 95%)
Operating temp. range	0 to 60 °C (No freezing)
Filter area	64.4 cm²
Processing flow rate (*2)	360 l/min [ANR]
Bowl capacity	90 cm³
Blow-off pressure (*3)	0.1 MPa max

*1. Based on PISCO measuring condition.

*2. Processing flow rate with the condition under which the filtration accuracy is 5 μm and the pressure loss is 3 kPa of a representative filter.

*3. Allowable internal pressure when a momentary positive pressure is applied for blow-off purpose.

■ VFJ type

Fluid medium	Air
Operating pressure range	-100 to 0 kPa
Filtering accuracy (*1)	5 μm (Trapping efficiency : 95%)
Operating temp. range	0 to 60 °C (No freezing)
Filter area	Joint size 33M, 44, 1/8-1/8M: 0.8cm² Joint size 66 1/4-1/4 : 1.1cm²

*1. Based on PISCO measuring condition.

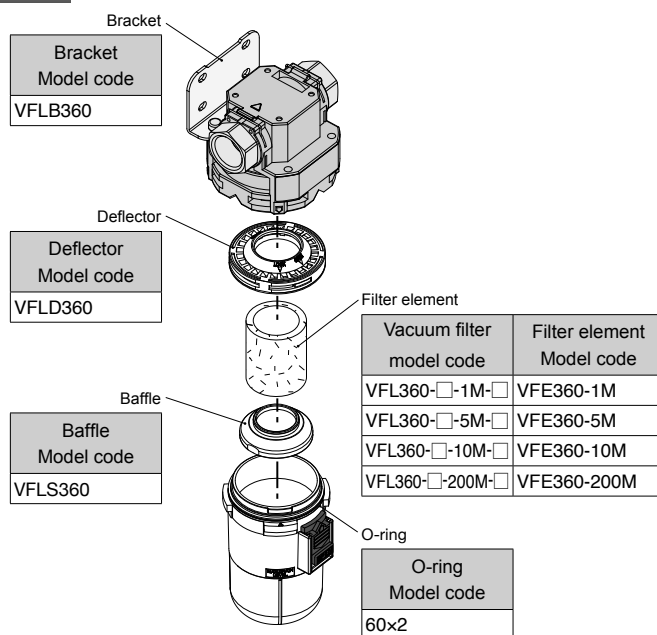
*2. Proof pressure is 0.2MPa (29psi) max. when blow-off pressure is applied.

RoHS2 (2011/65/EU+EU2015/863) compliant

Large capacity type (bowl capacity 90m ²)				
Type	Model code VFL360-øD-[5][6]	Type	Model code VFL360-R-[5][6]	Model code VFL360-R-[5][6]
Push-in fitting type VFL	VFL360-10-1M[6] VFL360-10-5M[6] VFL360-10-10M[6] VFL360-10-200M[6] VFL360-12-1M[6] VFL360-12-5M[6] VFL360-12-10M[6] VFL360-12-200M[6] VFL360-16-1M[6] VFL360-16-5M[6] VFL360-16-10M[6] VFL360-16-200M[6]	Female thread type VFL	Taper pipe female thread VFL360-03-1M[6] VFL360-03-5M[6] VFL360-03-10M[6] VFL360-03-200M[6] VFL360-04-1M[6] VFL360-04-5M[6] VFL360-04-10M[6] VFL360-04-200M[6] VFL360-06-1M[6] VFL360-06-5M[6] VFL360-06-10M[6] VFL360-06-200M[6]	Parallel pipe female thread VFL360-G3-1M[6] VFL360-G3-5M[6] VFL360-G3-10M[6] VFL360-G3-200M[6] VFL360-G4-1M[6] VFL360-G4-5M[6] VFL360-G4-10M[6] VFL360-G4-200M[6] VFL360-G6-1M[6] VFL360-G6-5M[6] VFL360-G6-10M[6] VFL360-G6-200M[6]
* The picture shows the product with Bracket.		* The picture shows the product with Bracket.		
Plug-in Type		Option [6]: -NB ⇒ No bracket		
Type	Model code VFJøDøD			
Plug-in Type VFJ	VFJ33M VFJ44 VFJ66 VFJ ¹ / ₈ - ¹ / ₈ M VFJ ¹ / ₄ - ¹ / ₄			

Replacement element

VFL



CAD data is available
at PISCO website.

Packaging specifications
1 pc. /bag

Vacuum Regulator Push-lock type

Push-lock type vacuum pressure control valve

Safety instructions for this product

Safety instructions, Common safety instructions for each product category and Detailed safety instructions for each product are in the end of this catalog and our website.

Model Designation (Example)



(1) Vacuum Regulator Push-lock type

(2) Tube dia.

Code	6	8
Tube O.D. (mm)	ø6	ø8

*Male thread size for elbow type is R1/4 only regardless of tube size.

(3) Type (Flow direction)

Code	A	B	U
	Elbow A type (Fitting → thread)	Elbow B type (Thread → fitting)	Union type (Fitting → fitting)
Flow direction			

(4) Pressure indication

Code	Indication		
No code	No pressure indication (with plug)		
M	No pressure indication (with M5x0.8 female thread)		
G	ø30mm negative pressure gauge		
D	Digital pressure gauge (□ 30mm negative pressure gauge)		
V4	Digital pressure sensor with LCD	2 switch outputs + 1 analog output	NPN output
V4P			PNP output
V5	Dual-display (Connector type 2m cable)	2 switch outputs + copy function	NPN output
V5P			PNP output

ø30mm negative pressure gauge



Digital pressure gauge



Digital pressure sensor with LCD Dual-display



* Gauge and sensor types are excluded for -S3 (No copper-based metallic materials used in flow paths, Rubber material: HNBR) specifications.

(5) Bracket (Code entry for Elbow type only)

Code	No code	B
Bracket	Without bracket	With bracket

* Union type is equipped with bracket as standard.

Characteristics

Push-lock knob for easy pressure adjustment.

Achieved max. 50% weight saving compared to the previous model.

Aluminum is used for the metal part.

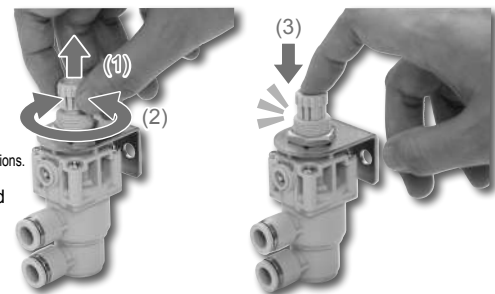
Standard product equivalent to -S3 specifications. * Gauges and sensors are excluded for -S3 specifications.

No copper-based metallic materials used in flow paths. The rubber material is HNBR, which has good ozone resistance.

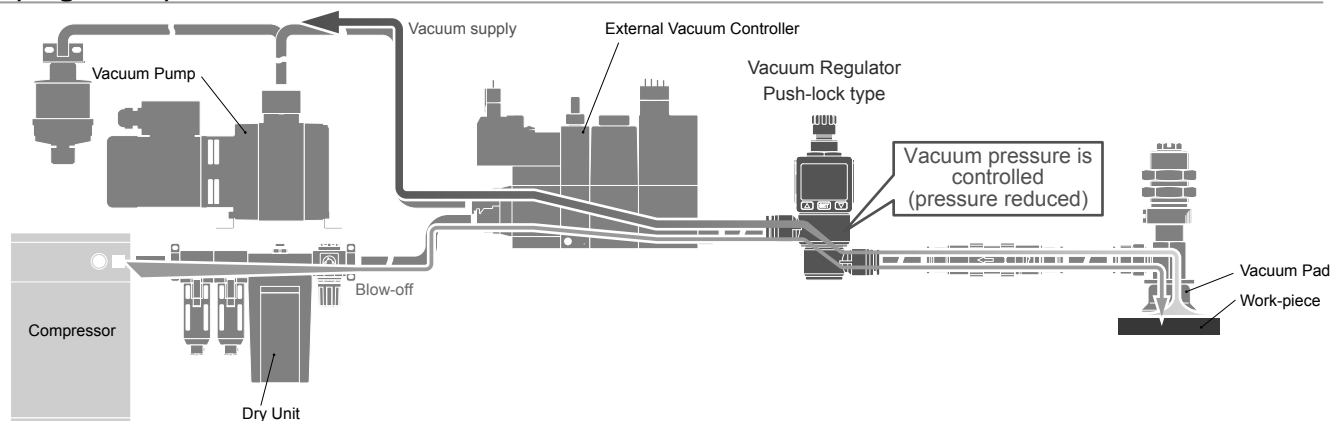
Easy and flexible piping as each port rotates independently.

Suitable for pressure control of vacuum source, and vacuum pressure control of end effectors.

Elbow A type can be directly mounted on a vacuum port of vacuum source. Elbow B type can be directly mounted on pad holders with pad dia. 150 mm and 200 mm.



Piping examples



Regulator specifications

Pressure indication code	M, No code	V4 (P), V5 (P)	D	G
Fluid medium	Air			
Operating pressure range	-100 to 100 kPa		-100 to 0 kPa	
Pressure setting range	-100 to -1.3 kPa(*)			
Max. suction flow rate	30 l/min[ANR]			
Operating temp. range	0 to 50 °C (No freezing)			0 to 40 °C (No freezing)

* Please note that it changes depending on the pressure of the vacuum source.

ø30 mm negative pressure gauge specifications

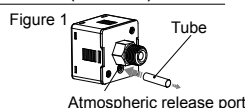
Fluid medium	Air
Indicated pressure range	-100 to 0 kPa
Pressure indication accuracy	±5% F.S. (at 25°C)

Digital pressure gauge specifications

Rated pressure range	-101 to 0 kPa
Indicated pressure range	-101 to 10 kPa (*1)
Proof pressure	300 kPa
Fluid medium	Air, non-corrosive gas, incombustible gas
Battery life	Approx. 3 years (when display turns on 5 times/day)
Low-power indicator	Incorporated
Battery replaceability	Possible
Turn-on interval	Display turns off after 60sec.
Sampling rate	2Hz (2 times/sec.)
Repeatability	≤ ±1% F.S. ±1 digit
LCD display	7 segment, 3.5 digit
Indication accuracy	±2% F.S. ±1 digit max. (ambient temperature: 25 ±3°C)
Protective structure	IEC standard IP65 equivalent (*2)
Ambient temp. range	Operation : 0 to 50°C, Storage: -10 to 60°C (No dew condensation or freezing)
Ambient humidity range	Operation/Storage: 35 to 85%RH (No dew condensation)
Vibration resistance	Total amplitude 1.5mm or 100m/s ² , 10Hz-55Hz-10Hz scan for 1 min., two hours each direction of X, Y and Z.
Shock resistance	100m/s ² , 3 times each direction of X, Y and Z
Temperature characteristics	±2%F.S. of detected pressure (at 25°C)

*1. Indicator accuracy is not guaranteed for the pressure range 0 to 10kPa.

*2. A tube must be inserted into the air release port (Fig.1) to secure IP65.



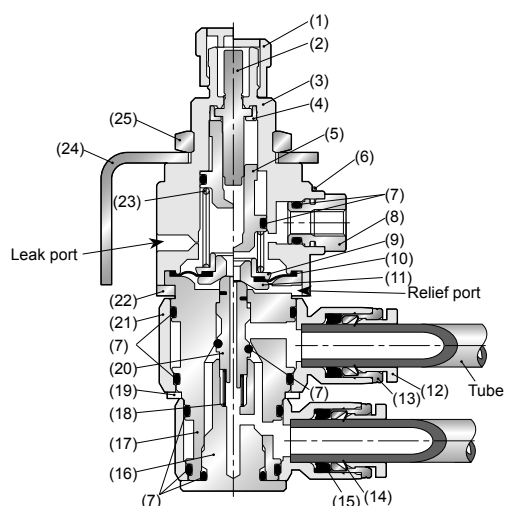
Digital pressure sensor with LCD Dual-display specifications

		V4	V5	V4P	V5P
Model code		VUS-32R-NV (Compound pressure)	VUS-32R-N2 (Compound pressure)	VUS-32R-PV (Compound pressure)	VUS-32R-P2 (Compound pressure)
Rated pressure range		-100.0 to 100.0 kPa			
Proof pressure		300 kPa			
Fluid medium		Air, non-corrosive gas, incombustible gas			
Power requirements		12 to 24 VDC Ripple $\pm 10\%$ max.			
Current consumption		40 mA max. (at no load)			
Switch output	Switch output	NPN open collector		PNP open collector	
	Max. load current	125mA			
	Max. supply voltage	30 VDC		24 VDC	
	Int. voltage drop	1.5V max.			
Repeatability		$\pm 0.2\%$ F.S. ± 1 digit max.			
Hysteresis	One point set mode	Adjustable (*)			
	Hysteresis mode				
	Int. voltage drop				
Response time		2.5 ms or less (Chattering-proof function : 25ms, 100ms, 250ms, 500ms, 1000ms, and 1500ms selections)			
Output short circuit protection		Incorporated			
LCD display		3 colors (Red/Green/Orange) (Sampling rate: 5 times/sec.)			
Indication accuracy		$\pm 2\%$ F.S. ± 1 digit max. (ambient temperature: at 25 $\pm 3^{\circ}\text{C}$)			
Operation indicator		Orange (1 & 2 Indicator)			
Analog output (Voltage output)		Output Voltage: 1 to 5V $\pm 2.5\%$ F.S. max. (within rated pressure range) Linearity: $\pm 1\%$ F.S.max. , Output impedance: about 1 k Ω			
Weatherability	Protective structure	IEC standard IP40 equiv.			
	Ambient temp. range	Operation : 0 to 50 $^{\circ}\text{C}$, Storage : -10 to 60 $^{\circ}\text{C}$ (No dew condensation or freezing)			
	Ambient humidity range	Operation/Storage : 35 to 85%RH (No dew condensation)			
	Withstand voltage	100V AC 1 min. (between case and lead wire)			
	Insulation resistance	50M Ω max. (at 500V DC, between case and lead wire)			
	Vibration resistance	Total amplitude 1.5mm or 100m/s ² 10Hz-55Hz-10Hz scan for 1 min., two hours each direction of X, Y and Z			
		shock resistance 100m/s ² , 3 times each direction of X, Y and Zs			
Temperature characteristics		$\pm 2\%$ F.S. max. (at 25 $^{\circ}\text{C}$. Range of 0 to 50 $^{\circ}\text{C}$)			
Lead wire		Oil-resistant cable (0.15 mm ²)			

* Hysteresis value is adjustable within 1 to 8 digits for one point set mode and window comparator mode.

Sectional drawing

Union type



No.	Parts	Material
(1)	Pressure adjusting knob	POM
(2)	Pressure adjusting screw	SWCH (Nickel-plated)
(3)	Bonnet	PBT
(4)	Guide bush	Aluminum (Anodized)
(5)	Pressure adjusting bush	Aluminum (Anodized)
(6)	Pin	Stainless steel
(7)	O-ring	HNBR
(8)	Cartridge	Aluminum (Anodized)
(9)	Center disc A	Aluminum (Anodized)
(10)	Diaphragm	HNBR
(11)	Center disc B	Aluminum (Anodized)
(12)	Release-ring	POM
(13)	Guide ring	Special stainless steel (Austenite or ferritic)
(14)	Lock claws	Special stainless steel (Austenite or ferritic)
(15)	Elastic sleeve	HNBR
(16)	Plug	Aluminum (Anodized)
(17)	Metallic body	Aluminum (Anodized)
(18)	Valve spring	Stainless steel
(19)	Plate	Aluminum (Anodized)
(20)	Valve	Aluminum (Anodized)
(21)	Resin body	PBT
(22)	Body plate	Aluminum (Anodized)
(23)	Pressure adjusting spring	Stainless steel
(24)	Bracket	SPCC (Nickel-plated)
(25)	M16x1 Hexagon nut	SWCH (zinc plated)

Vacuum Regulator Push-lock type

RoHS2 (2011/65/EU+EU2015/863) compliant

No pressure indication (with plug)								
Type		Model code	Type		Model code	Type		Model code
		RVZøDA[5]			RVZøDB[5]			RVZøDU
Elbow A Type RVZ		RVZ6A[5]	Elbow B Type RVZ		RVZ6B[5]	Union type RVZ		RVZ6U
		RVZ8A[5]			RVZ8B[5]			RVZ8U
No pressure indication (with M5x0.8 female thread)								
Type		Model code	Type		Model code	Type		Model code
		RVZøDAM[5]			RVZøDBM[5]			RVZøDUM
Elbow A Type RVZ		RVZ6AM[5]	Elbow B Type RVZ		RVZ6BM[5]	Union type RVZ		RVZ6UM
		RVZ8AM[5]			RVZ8BM[5]			RVZ8UM
With ø30mm negative pressure gauge								
Type		Model code	Type		Model code	Type		Model code
		RVZøDAG[5]			RVZøDBG[5]			RVZøDUG
Elbow A Type RVZ		RVZ6AG[5]	Elbow B Type RVZ		RVZ6BG[5]	Union type RVZ		RVZ6UG
		RVZ8AG[5]			RVZ8BG[5]			RVZ8UG
With Digital pressure gauge								
Type		Model code	Type		Model code	Type		Model code
		RVZøDAD[5]			RVZøDBD[5]			RVZøDUD
Elbow A Type RVZ		RVZ6AD[5]	Elbow B Type RVZ		RVZ6BD[5]	Union type RVZ		RVZ6UD
		RVZ8AD[5]			RVZ8BD[5]			RVZ8UD
With Digital pressure sensor with LCD Dual-display								
Type		Model code	Type		Model code	Type		Model code
		RVZøDA[4][5]			RVZøDB[4][5]			RVZøDU[4]
Elbow A Type RVZ		RVZ6AV4[5]	Elbow B Type RVZ		RVZ6BV4[5]	Union type RVZ		RVZ6UV4
		RVZ6AV4P[5]			RVZ6BV4P[5]			RVZ6UV4P
		RVZ6AV5[5]			RVZ6BV5[5]			RVZ6UV5
		RVZ6AV5P[5]			RVZ6BV5P[5]			RVZ6UV5P
		RVZ8AV4[5]			RVZ8BV4[5]			RVZ8UV4
		RVZ8AV4P[5]			RVZ8BV4P[5]			RVZ8UV4P
		RVZ8AV5[5]			RVZ8BV5[5]			RVZ8UV5
		RVZ8AV5P[5]			RVZ8BV5P[5]			RVZ8UV5P

 Packaging specifications
1 pc. /bag

 Option
[5]: B ⇒ with bracket