Rotary Vacuum Pump Series

Vacuum pumps with special shaped rotor

⚠ 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)

RPV06 (1) 2-60 (2) V200 (3) – 12 (4) – 30 (5) – 6 (6)

(1) Rotary Vacuum Pump Series

(2) Cylinder numbers and layout, motor power output

Code	2-60	3-90	4-200	A-60
Combination	Parallel twin, 60 W motor	Parallel triple, 90 W motor	Parallel quad, 200 W motor	In-line twin, 60 W motor
Final vacuum (50Hz/60Hz) (Pa abs)	≦3,500／≦3,000			≦350／≦300
Final vacuum (50Hz/60Hz) (kPa G)	≦-97.8 ／≦-98.3			≦-100.98 ／≦-101.03

(3) Motor type (○: Available)

Code	U100	U100SW	U110	V200
Type	Single phase 100 VAC induction motor	Single phase 100 VAC induction motor with a built-in power switch	Single phase 110/115 VAC induction motor	3 phase 200/220/230 VAC induction motor
RPV06A-60	○	○	○	○
RPV062-60	○	○	○	○
RPV063-90	—	—	—	○
RPV064-200	—	—	—	○

*1 For U100SW type, an electrical power cable (2m), a 3-prong to 2-prong electrical adapter, and a tubular fuse (5A) are enclosed.
*2 U100SW type is not CE marked.

(4) Vacuum port

Code	Combination \ Tube O.D.		ø10 mm (*1)		ø12 mm		ø16 mm		ø3/8 (*1)		ø1/2		ø5/8	
	Push-in fitting (*3)	Straight	10		12		16		13/8		11/2		15/8	
		Elbow	20		22		26		23/8		21/2		25/8	
	Compression fitting	Straight	A0	B0	A2	B2	A6	B6	–	–	–	–	–	–
		Tube I.D. (mm)	ø6.5	ø7.5	ø8	ø9	ø11	ø13	–	–	–	–	–	–
	No fitting (*2)		No code											

*1 ø10 mm or ø3/8" fitting cannot be selectable for RPV064.
*2 The thread sizes of pump's port are different depending on (2) : the cylinder numbers, layout and motor power output. Please refer to Table- 1.
*3 Push-in fittings permit a leakage. Use compression fittings if there is any usability problem.

(5) Exhaust port

Code	Combination \ Tube O.D.		ø10 m (*1)		ø12 mm		ø16 mm (*2)		ø3/8 (*1)		ø1/2		ø5/8 (*2)	
	Push-in fitting	Straight	30		32		36		33/8		31/2		35/8	
		Elbow	40		42		46		43/8		41/2		45/8	
	Compression fitting	Straight	C0	D0	C2	D2	C6	D6	–	–	–	–	–	–
		Tube I.D. (mm)	ø6.5	ø7.5	ø8	ø9	ø11	ø13	–	–	–	–	–	–
	No fitting(*3)		No code											

*1 ø10 mm or ø3/8" fitting cannot be selectable for RPV064.
*2 ø16 mm or ø5/8" fitting cannot be selectable for RPV06A.
*3 The thread sizes of pump's port are different depending on (2) : the cylinder numbers, layout and motor power output. Please refer to Table- 1.

(6) Exhaust cleaner (with fittings)

Code	Combination \ Tube O.D.	ø10 mm (*1)	ø12 mm	ø16 (*2)	ø3/8 (*1)	ø1/2	ø5/8 (*2)
	Exhaust cleaner only	0					
	Exhaust cleaner & straight fitting	5					
	Exhaust cleaner & elbow fitting	6					
	No exhaust cleaner & fittings	No code					

*1 ø10 mm or ø3/8" fitting cannot be selectable for RPV064.
*2 ø16 mm or ø5/8" fitting cannot be selectable for RPV06A.
*3 When selecting code “5” or “6”, the tube O.D. of the fitting is same size as the exhaust port (selected in ⑤).
*4 Connection thread size of exhaust cleaner is Rc1/2.

●Table-1. Thread size of vacuum & exhaust port (○: Available)

Thread size	Vacuum port												Exhaust port											
	G3/8						G1/2						G1/4						G3/8					
Tube O.D. (mm/in.)	ø10	ø12	ø16	ø3/8	ø1/2	ø5/8	ø10	ø12	ø16	ø3/8	ø1/2	ø5/8	ø10	ø12	ø16	ø3/8	ø1/2	ø5/8	ø10	ø12	ø16	ø3/8	ø1/2	ø5/8
RPV06A	○	○	○	○	○	○	–	–	–	–	–	–	○	○	–	○	○	–	–	–	–	–	–	–
RPV062	–	–	–	–	–	–	○	○	○	○	○	○	–	–	–	–	–	–	○	○	○	○	○	○
RPV063	–	–	–	–	–	–	○	○	○	○	○	○	–	–	–	–	–	–	○	○	○	○	○	○
RPV064	–	–	–	–	–	–	–	○	○	–	○	○	–	–	–	–	–	–	–	○	○	–	○	○

*1 The pump without a built-in power switch does not come with electrical power cables for motor. Properly connect cables by following the enclosed motor handling instruction manual and detailed safety instructions.
*2 For motor type U 100 (without built-in power switch type), a power supply box with cable, which is designed based on the recommended circuit (See the enclosed motor handling instruction manual.) can be provided. For details, please contact your nearest sales office.

Characteristics

Contribute to energy saving

The top level high efficiency in the industry is realized for the pumping speed per motor power 1(W).
→ 1.0 / 1.2 [pumping speed (ℓ/min) /motor power (W)] (50 / 60 Hz)

Light weight and compact

Space saving is realized by adoption of the special rotor form.
Max weight: about 11.5 kgs. Max. dimension: 125 x 391.6 x 181 mm (width x depth x height) (For 120 L type RPV 064-120 V 200) (Can be installed in narrow space.)

Low heat generation

Low generation of heat is realized by adoption of forced air-cooling system.
No rotating seal structure by magnet coupling minimizes slide section. Thus, there is no heat generation by the seal. The pump can be kept at approx. 20°C lower than equivalent other brand models. (Based on our research.)
Suppressing a rise in room temperature.

Low driving noise and vibration

Low noise operation and low vibration are realized by thorough balancing design for rotary part.
Noise : ≦ 58/ ≦ 63 dB (50/60 Hz) (Same level as air conditioner or quiet car) Vibration is about 1/10 of equivalent other brand models. (Our investigation)

Long life

High durability is realized by adopting of super engineering plastic, which is excellent in self-lubricity and wear resistance, and special surface treatment.
With minimum clearance between rotor and cylinder wall, the fundamentally contactless structure and minimization of sliding parts are realized.
Adoption of magnet-coupling, no sliding seal required.
⇒ No maintenance necessary by seal abrasion
⇒ Support to longer operation life of motor by minimizing load to the motor shaft part.
Maintenance free for 3 years. (Based on our operational conditions. Life varies depending on operational conditions, suction air (dust, moisture, etc.) *1 year for RPV06A.

Low generation of dust

Lubrication is unnecessary by adoption of the excellent clean vacuum grease for low dust and low volatile. Low dust generation is realized by minimization of sliding parts.
⇒ Suppress environmental pollution such as abrasion powder created by vane pump.
Suppressing environmental pollution by exhausting cleaner air.

Eco friendly and safe design

RoHS compliance, CE marking corresponding (Single phase 100 VAC type with a built-in power switch does not have CE marking.)

Variety of options.

Not only a pump but also push-in fittings, compression fittings for medium vacuum model, and exhaust cleaners (exhaust mufflers) are prepared as optional.

Single phase 100 VAC (Parallel twin / In-line twin) type with a built-in power switch is available.

It can be used immediately by plugging into an outlet.

Single phase 110 / 115 V type and inch size push-in fitting are selectable.

Applications

Suction Conveyance

Vacuum packing

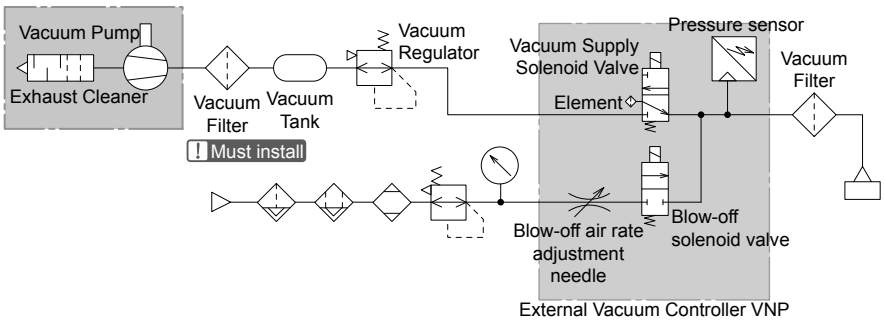
Defoaming·Deaeration

Vacuum forming

Others

Various vacuum system where scattering of oil or abrasion powder to circumference should be avoided.

■ Schematic diagram (example) when using for suction conveyance



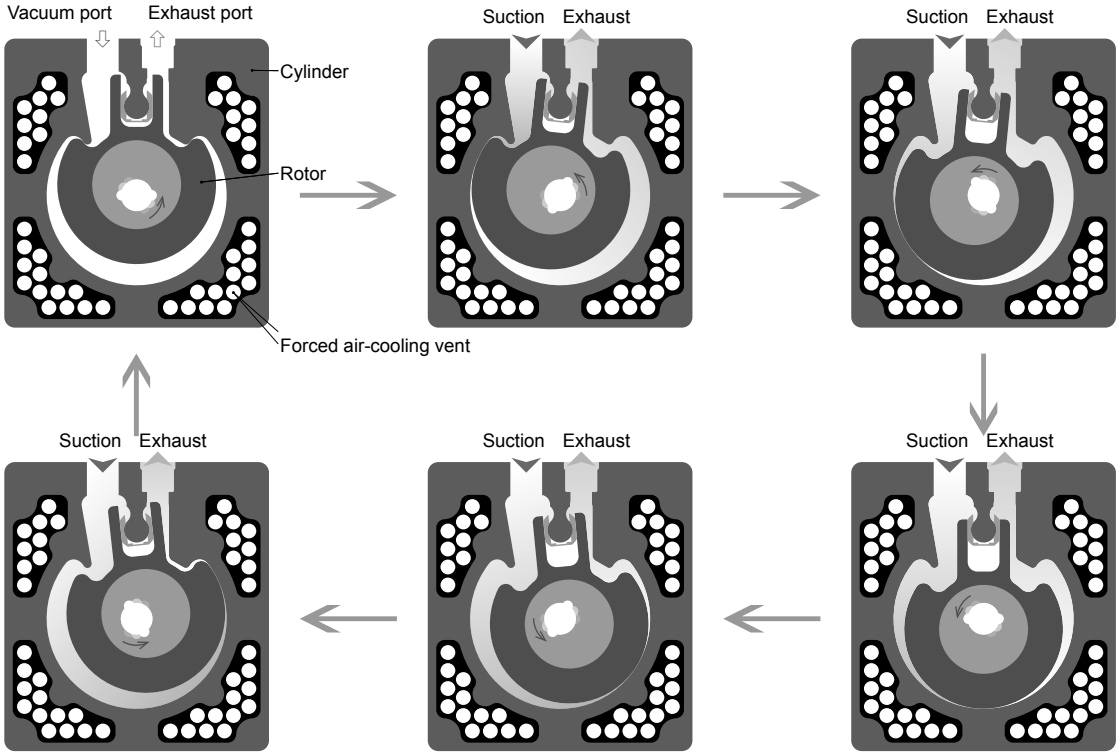
* Compressed air is not necessary for suction conveyance by using the external vacuum controller VNP, which have direct operating valve for vacuum supply and blow-off solenoid valve. (Compressed air is necessary for blow-off.) Therefore, the consumption amount of compressed air can be remarkably reduced.

⚠ Since the rotary vacuum pump is the delicate and precision equipment, make sure to install a vacuum filter, which filtration rate is 5 µm or less, on vacuum port in order to prevent water mist, dust or particles entering the pump. It causes deterioration in a lifetime or damage of the pump when they enter.

Related Products

Rotary Vacuum Pump Series
► P.326 to

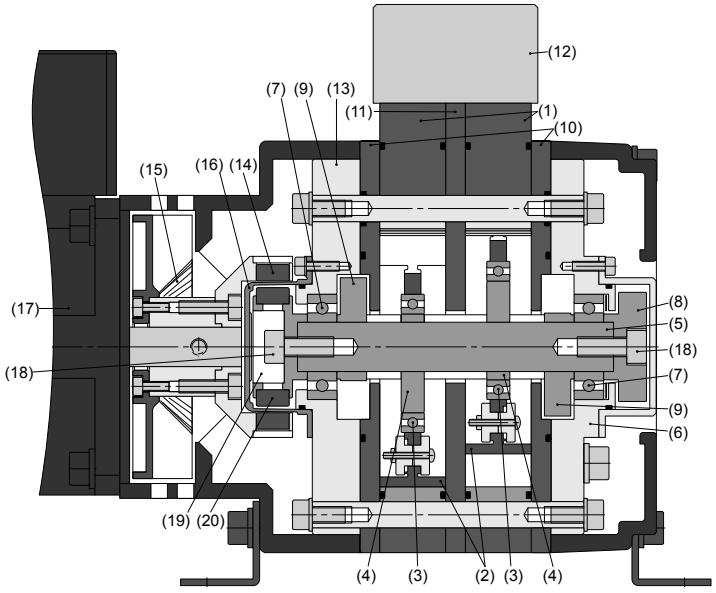
Operating principle



1. The eccentric rotor is placed in the space formed by the cylinder and plates which sandwich the cylinder.
2. When the rotor carries out eccentric rotations, air is inhaled by the pressure difference to atmospheric pressure with increasing capacity of the space formed between the rotor of vacuum port side and cylinder. At the same time, air is discharged with decreasing capacity of the space formed between the rotor of exhaust port side and cylinder.
3. By performing this operation continuously, the air transfer from the vacuum port to the exhaust port is realized.

Sectional drawing

Parallel twin, 60W motor type : RPV062-60



No.	Parts	Material
(1)	Cylinder	aluminum alloy
(2)	Rotor	PPS resin
(3)	Bearing	Stainless steel
(4)	Crank plate	Stainless steel
(5)	Main shaft	Stainless steel
(6)	Side block E	aluminum alloy
(7)	Bearing	Stainless steel
(8)	Balancer E	Stainless steel
(9)	Balancer R	Stainless steel
(10)	Side plate	aluminum alloy
(11)	Center plate	aluminum alloy
(12)	Manifold	aluminum alloy
(13)	Side block M	aluminum alloy
(14)	Magnet	Neodymium magnet
(15)	Cooling fan	PPS resin
(16)	Sealing cup	PPS resin
(17)	Motor	aluminum alloy, etc.
(18)	Cap screw	Stainless steel
(19)	Inner coupling	Stainless steel
(20)	Magnet	Neodymium magnet

* All seal rubber material is FKM.

Specifications

Type			Medium vacuum· 30 ℓ		
Model code			RPV06A-60V200	RPV06A-60U100 (U100SW*2)	RPV06A-60U110
Numbers of cylinder			Twin (2) 		
Cylinder layout			Parallel layout		
Pumping speed (ℓ/min)		50 Hz	30		
		60 Hz	36		
Final vacuum (Pa abs)		50 Hz	≦350		
		60 Hz	≦300		
Final vacuum (kPa G)		50 Hz	≦-100.98		
		60 Hz	≦-101.03		
Max. suction pressure			Atmospheric pressure		
Ambient temperature (indoor) (℃)			5 to 40		
Ambient humidity (indoor)			Max. 85%RH (no dew condensation)		
Gas (inhaled gas)			No corrosive or exposable gas		
Vibration of installation site			Max. 4.9 m/s² (10 to 60 Hz)		
Altitude of installation site			1000 m ASL or less		
Install orientation			Motor axis to be horizontal		
Motor	Output (W)		60		
	Type		3-phase motor, Built-in thermal protector Heat proof class: 130 (B)	Single-phase capacitor type induction motor Built-in thermal protector, Heat proof class: 130 (B)	
	Voltage (V) *3		200 / 220 / 230	100	110 / 115
	Rated current (A)	50 Hz	0.50 / — / —	1.2	—
		60 Hz	0.43 / 0.45 / 0.46	1.19	1.09 / 1.1
	Rated rotation speed (min^{-1})	50 Hz	1,300 / — / —	1,200	—
		60 Hz	1,550 / 1,600 / 1,600	1,450	1,450 / 1,450
	Striking current (A)	50 Hz	1.51 / — / —	2.66	—
		60 Hz	1.37 / 1.51 / 1.52	2.55	2.74 / 2.79
Operation noise (dB (A)) *1		50 Hz	≦58		—
		60 Hz	≦63		
Vacuum port size			G 3/8		
Exhaust port size			G 1/4		
Dimensions (width x depth x height) (mm)			125 × 299.6 × 166.5 (U 100 SW*2: 125 × 299.6 × 180.8)		
Weight (kg)			7.0	7.2 (U100SW*2 : 7.5 (including accessories))	
Cooling system			Forced air cooling		

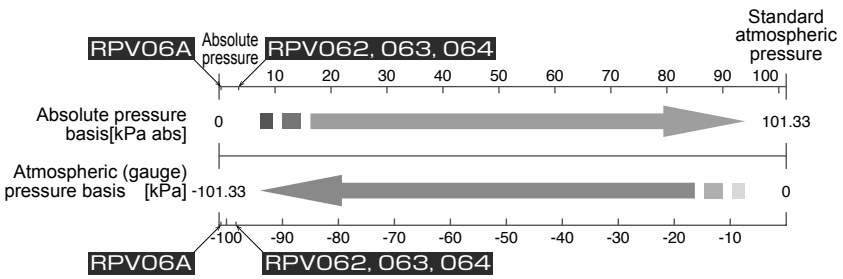
*1. Operating noise is an actually measured value excluding suction and exhaust noises, and is not a guaranteed value. Operating noise varies depending on operating condition.
*2. Power switch built-in type. Not CE marking product
*3. Temporary fluctuation range of voltage is within ±10% of rated voltage. In case of continuous fluctuation, ±3% of rated voltage is allowable.
*4. The final vacuum and the pumping speed described in the specification are confirmed at the time of delivery inspection according to our standard. The performance after normal operation for a certain running period of time will be the following table possibly.

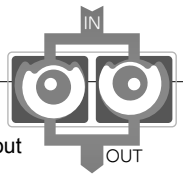
Type	Operation period	Final vacuum		Pumping speed
RPV06A	1 year	50 Hz	1.2 kPa abs -100.1 Kpa G	-20% compared with spec. value
		60 Hz	1.0 kPa abs -100.3 Kpa G	

*The values are based on our operating conditions. The product life varies depending on the operation conditions and the inhaled gas (moisture or dust), etc.

About vacuum pressure indication

■ Absolute pressure (kPa abs or Pa abs) and gauge pressure (kPa G) are used in Pisco's vacuum pump catalogue. Please be careful not to make a mistake in a unit when selecting a pump. For other Vacuum equipment in this catalog, Gauge pressure (-kPa) is used.



Type			Low vacuum· 60 ℓ		
Model code			RPV062-60V200	RPV062-60U100 (U100SW*2)	RPV062-60U110
Numbers of cylinder			Twin (2)		
Cylinder layout			Parallel layout 		
Pumping speed (ℓ/min)		50 Hz	60		
		60 Hz	72		
Final vacuum (Pa abs)		50 Hz	≦3,500		
		60 Hz	≦3,000		
Final vacuum (kPa G)		50 Hz	≦-97.8		
		60 Hz	≦-98.3		
Max. suction pressure			Atmospheric pressure		
Ambient temperature (indoor) (ºC)			5 to 40		
Ambient humidity (indoor)			Max. 85%RH (no dew condensation)		
Gas (inhaled gas)			No corrosive or exposable gas		
Vibration of installation site			Max. 4.9 m/s² (10 to 60 Hz)		
Altitude of installation site			1000 m ASL or less		
Install orientation			Motor axis to be horizontal		
Motor	Output (W)		60		
	Type		3-phase motor, Built-in thermal protector Heat proof class: 130 (B)	Single-phase capacitor type induction motor Built-in thermal protector, Heat proof class: 130 (B)	
	Voltage (V) *3		200 / 220 / 230	100	110 / 115
	Rated current (A)	50 Hz	0.50 / — / —	1.2	—
		60 Hz	0.43 / 0.45 / 0.46	1.19	1.09 / 1.1
	Rated rotation speed (min^{-1})	50 Hz	1,300 / — / —	1,200	—
		60 Hz	1,550 / 1,600 / 1,600	1,450	1,450 / 1,450
	Striking current (A)	50 Hz	1.51 / — / —	2.66	—
		60 Hz	1.37 / 1.51 / 1.52	2.55	2.74 / 2.79
Operation noise (dB (A)) *1		50 Hz	≦58		—
		60 Hz	≦63		
Vacuum port size			G1/2		
Exhaust port size			G3/8		
Dimensions (width × depth × height) (mm)			125 × 299.6 × 176 (U100SW *2: 125 × 299.6 × 180.8)		
Weight (kg)			7.2 (U100SW *2: 7.6 (including accessories))		
Cooling system			Forced air cooling		

*1. Operating noise is an actually measured value excluding suction and exhaust noises, and is not a guaranteed value. Operating noise varies depending on operating condition.
*2. Power switch built-in type. Not CE marking product
*3. Temporary fluctuation range of voltage is within ±10% of rated voltage. In case of continuous fluctuation, ±3% of rated voltage is allowable.
*4. The final vacuum and the pumping speed described in the specification are confirmed at the time of delivery inspection according to our standard. The performance after normal operation for a certain running period of time will be the following table possibly.

■ Table. Final vacuum and pumping speed based on the running period

Type	Operation period	Final vacuum		Pumping speed
RPV062	3 years	50 Hz	12 kPa abs	-20% compared withspec. value
			-89.3 Kpa G	
		60 Hz	10 kPa abs	
			-91.3 Kpa G	

*The values are based on our operating conditions. The product life varies depending on the operation conditions and the inhaled gas (moisture or dust), etc.

Type			Low vacuum· 90 ℓ				Low vacuum· 120 ℓ			
Model code			RPV063-90V200				RPV064-200V200			
Numbers of cylinder			Triple (3)				Quad (4)			
Cylinder layout			Parallel layout				Parallel layout			
Pumping speed (ℓ/min)		50 Hz	90				120			
		60 Hz	108				144			
Final vacuum (Pa abs)		50 Hz	≦3,500							
		60 Hz	≦3,000							
Final vacuum (kPa G)		50 Hz	≦-97.8							
		60 Hz	≦-98.3							
Max. suction pressure			Atmospheric pressure							
Ambient temperature (indoor) (ºC)			5 to 40							
Ambient humidity (indoor)			Max. 85%RH (no dew condensation)							
Gas (inhaled gas)			No corrosive or exposable gas							
Vibration of installation site			Max. 4.9 m/s² (10 to 60 Hz)							
Altitude of installation site			1000 m ASL or less							
Install orientation			Motor axis to be horizontal							
Motor	Output (W)		90				200			
	Type		3-phase motor, Built-in thermal protector Heat proof class: 130 (B)							
	Voltage (V) *3		200	/ 220	/ 230		200	/ 220	/ 230	
	Rated current (A)	50 Hz	0.64	/ —	/ —		1.1	/ —	/ —	
		60 Hz	0.59	/ 0.6	/ 0.61		1.1	/ 0.95	/ 0.95	
	Rated rotation speed (min^{-1})	50 Hz	1,300	/ —	/ —		1,250	/ —	/ —	
		60 Hz	1,550	/ 1,600	/ 1,600		1,500	/ 1,550	/ 1,600	
	Striking current (A)	50 Hz	2.01	/ —	/ —		3.60	/ —	/ —	
		60 Hz	1.86	/ 2.00	/ 2.05		3.27	/ 3.54	/ 3.63	
Operation noise (dB (A)) *1		50 Hz	≦58							
		60 Hz	≦63							
Vacuum port size			G1/2							
Exhaust port size			G3/8							
Dimensions (width × depth × height) (mm)			125 × 340.6 × 181				125 × 391.6 × 181			
Weight (kg)			8.8 *2				11.5 *2			
Cooling system			Forced air cooling							

*1. Operating noise is an actually measured value excluding suction and exhaust noises, and is not a guaranteed value. Operating noise varies depending on operating condition.
*2. Weight includes attached 2 plugs.
*3. Temporary fluctuation range of voltage is within ±10% of rated voltage. In case of continuous fluctuation, ±3% of rated voltage is allowable.
*4. The final vacuum and the pumping speed described in the specification are confirmed at the time of delivery inspection according to our standard. The performance after normal operation for a certain running period of time will be the following table possibly.

■ Table. Final vacuum and pumping speed based on the running period

Type	Operation period	Final vacuum		Pumping speed
RPV063 RPV064	3 years	50 Hz	12 kPa abs	-20% compared withspec. value
			-89.3 Kpa G	
		60 Hz	10 kPa abs	
			-91.3 Kpa G	

*The values are based on our operating conditions. The product life varies depending on the operation conditions and the inhaled gas (moisture or dust), etc.

RoHS2 (2011/65/EU+EU2015/863) compliant CE (*2)

In-line/Twin

Type	Model code
Medium vacuum, 30 ℓ RPV06A 	RPV06A-60V200-[4]-[5]-[6] RPV06A-60U100-[4]-[5]-[6] RPV06A-60U110-[4]-[5]-[6]

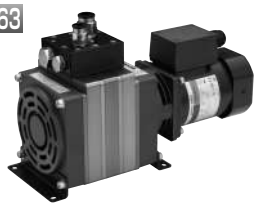
Parallel/Twin

Type	Model code
Low vacuum·60 ℓ RPV062 	RPV062-60V200-[4]-[5]-[6] RPV062-60U100-[4]-[5]-[6] RPV062-60U110-[4]-[5]-[6]

Type	Model code
Medium vacuum, 30 ℓ (Single-phase motor & Built-in power switch type) RPV06A 	RPV06A-60U100SW-[4]-[5]-[6]

Type	Model code
Low vacuum, 60 ℓ (Built-in power switch type) RPV062 	RPV062-60U100SW-[4]-[5]-[6]

Parallel/Triple

Type	Model code
Low vacuum·90 ℓ RPV063 	RPV063-90V200-[4]-[5]-[6]

Parallel/Quad

Type	Model code
Low vacuum·120 ℓ RPV064 	RPV064-200V200-[4]-[5]-[6]

Notes
*1. For [4] in model code, please select a vacuum port size. For [5], select an exhaust port size and for [6], select a code for exhaust cleaner (and fitting).
*2. U100SW type is not CE marked.

CAD data is available at PISCO website.

Packaging specifications
1 pc. /box

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

Optional parts

For vacuum port

Type	Model code PCøD-G	Type	Model code PLøD-G	Type	Model code NBCøD-G
Push-in fitting Straight PC	PC10-G3	Push-in fitting Elbow PL	PL10-G3	Compression fitting Straight NBC	NBC1065-G3
	PC10-G4		PL10-G4		NBC1065-G4
	PC12-G3		PL12-G3		NBC1075-G3
	PC12-G4		PL12-G4		NBC1075-G4
	PC16-G3		PL16-G3		NBC1280-G3
	PC16-G4		PL16-G4		NBC1280-G4
	PC3/8-G3		PL3/8-G3		NBC1290-G3
	PC3/8-G4		PL3/8-G4		NBC1290-G4
	PC1/2-G3		PL1/2-G3		NBC1611-G3
	PC1/2-G4		PL1/2-G4		NBC1611-G4
	PC5/8-G3		PL5/8-G3		NBC1613-G3
	PC5/8-G4		PL5/8-G4		NBC1613-G4

For exhaust port

Type	Model code PCøD-G	Type	Model code PLøD-G	Type	Model code NBCøD-G
Push-in fitting Straight PC	PC10-G2	Push-in fitting Elbow PL	PL10-G2	Compression fitting Straight NBC	NBC1065-G2
	PC10-G3		PL10-G3		NBC1065-G3
	PC12-G2		PL12-G2		NBC1075-G2
	PC12-G3		PL12-G3		NBC1075-G3
	PC16-G3		PL16-G3		NBC1280-G2
	PC3/8-G2		PL3/8-G2		NBC1280-G3
	PC3/8-G3		PL3/8-G3		NBC1290-G2
	PC1/2-G2		PL1/2-G2		NBC1290-G3
	PC1/2-G3		PL1/2-G3		NBC1611-G3
	PC5/8-G3		PL5/8-G3		NBC1613-G3

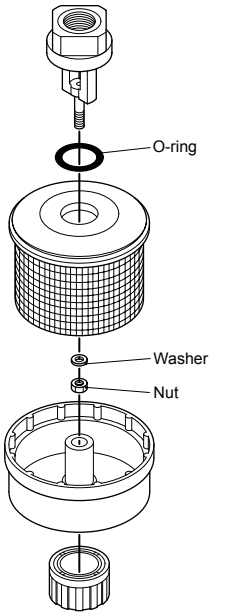
Exhaust air cleaner

Type	Model code
Exhaust air cleaner RPVF-04	RPVF-04

Type	Model code PCøD-R
Push-in fitting Straight for Exhaust air cleaner PC	PC10-04
	PC12-04
	PC16-04
	PC3/8-04
	PC1/2-04
	PC5/8-04

Type	Model code PLøD-R
Push-in fitting Elbow for Exhaust air cleaner PL	PL10-04
	PL12-04
	PL16-04
	PL3/8-04
	PL1/2-04
	PL5/8-04

Replacement element



Exhaust air cleaner element Model code
RPVFE-04

CAD data is available at PISCO website.

Packaging specifications

1 pc. /box: Exhaust air cleaner, Exhaust air cleaner element

10 pcs. /bag: Straight/Elbow fitting for vacuum/exhaust port or for exhaust air cleaner