

Spec.No. KRF70-VBH-03E-1

Orion Trade Name DRY PUMP

Orion Model KRF70-VBH-03

Date June.25.2009

APPD	CKD	DWN
<i>F</i> <i>Yamada</i>	<i>y.</i> <i>Takahashi</i>	<i>T.</i> <i>Kobayashi</i>

## 1. Warranty

### 1-1. Warranty information

When the breakdown occurs by any chance in the guaranteed term because of our clear responsibility, I will repair by the following free of charge. (note)It limits it when using it in Japan.

It wishes actual expenses to be borne responsibility for the adjustment exclusion item. (The alternative part transportation fee and the serviceman movement cost, etc. are included. )

### 1-2. Warranty period

The product shall be warranted for a period of one year from the date of purchase, or for 3000 hours of operation, whichever comes first.

### 1-3. Items exempted from warranty

Consumable parts and periodic replacement parts.

Fault caused by careless handling or improper use and maintenance. (Operation not following the specifications and the instruction manual. Operation under abnormal environmental conditions.)

Fault caused by fire, flood, lightning stroke, abnormal voltage or unforeseen disasters.

Fault caused by repair or modification not performed by ORION or ORION authorized service contractors.

Change of appearance, such as damage or deterioration caused in general use.

Secondary damages caused by the fault (Incidental damages such as loss, inconvenience, and commercial loss resulting from the failed product).

(Note) In case of a fault or an accident, contact the dealer with the model name and serial number.

## 2. Consumable parts / Periodic replacement parts

## (1) Consumable parts (Parts to be replaced depending on the state at the time of inspection)

Name of Parts	Parts Number	Qty/ unit	Inspection period	Replacement criterion
Filter element (Inlet side)	04000451010	1	1 week	When damaged, or dirt cannot be removed by blowing air.
Delivery element (Exhaust side)	04044336010	1	1 week	When damaged, or dirt cannot be removed by blowing air.
Liner *1	040000410 0	To be decided by actual positioning	Replacement of vane	When damaged.
Gasket (B)	04010297010	4	Removal of suction case and delivery case	When damaged or worn.
Gasket	03042561010	2	Removal of suction case and delivery case	When damaged or worn.
Rubber packing	03042560010	2	Replacement of element	When damaged or worn.
Packing	04001458010	2	Replacement of element	When damaged or worn.
Spring tube	04042925010	2	Replacement of element	When damaged or worn.
Spider	04101313010	1	6 months	When it was cracked or damaged

\*1 The second digit from the right is subject to thickness.

0.2t(white) 1, 0.1t(black) 2, 0.05t(yellow) 3, 0.03t(red) 4

## (2) Maintenance of plastic parts affecting safe operation

Replace the following plastic parts that may affect safe operation promptly when any damage or deformation is found. Failure to do so may cause injury.

Name of Parts	Parts Number	Qty/ unit
Front cover 70	03101447010	2

## (3) Replacement parts (Parts to be replaced at regular time intervals)

Name of Parts	Parts Number	Qty / unit	Exchange time
			Operation under normal pressure.
Vane	04101504010	6	6,000
Bearing	0A000332000	2	6,000

\* The indicated blade replacement period is recommended in order to help prevent breakdown due to blade wear, and assumes average blade wear at 60Hz operation; specific performance is not guaranteed. The blade should be replaced soon if performance decreases or noise levels increase.

\* When vanes are replaced, replace bearing at the same time. Use ORION specified bearings that are lubricated with special grease.

\* Use the maintenance kit for replacement parts.

Name of Parts	Parts Number	Items	Pcs / kit
Maintenance kit 70 Assembly	04101347010	Vane	6
		Bearing	2
		Liner (white)	2
		Liner (black)	2
		Liner (yellow)	4
		Liner (red)	6

## 3. Specifications

Model		KRF70-VBH-03	
Frequency	Hz	50	60
Designed capacity *1	L / min	1130	1350
Continuous operative pressure *2	kPa	Vacuum and pressure in total: 80 or less	
Diameter of piping connection		Rc1	
Acceptable motor	Installation method	The leg of the motor is installed	
	Phase · output · pole	Three-phase · 2.2 kW · 6 P	
	Frame no.	112M	
	Frequency	50/60Hz	
Setting for thermal protection *3	A	Rated current shown in the name plate of motor	
Mass	kg	48	
Painting color		Black (Except some parts)	
Installation condition (Suction air)	Installation site	Indoor	
	Permissible ambient temperature	0to40	
	Permissible ambient humidity	65 ± 20% (JIS Z8703)	
	Conditions	Conditions where there is no corrosive and explosive gas exist. Clean air without vapor and dew condensation, and less dirt and dust.	
Operation noise *4	dB	73	74

\*1 Designed capacity: It is the theoretical value calculated from capacity. Please use the pressure-flow rate diagram for the actual flow rate.

\*2 Continuous operative pressure: Operative range of pressure. Install the gauge and controller to the pump or the piping, and use the Dry Pump at the continuous operative pressure or less.

\*3 Use the thermal set value as a target since the apparatus and acceptable motor are different individually

\*4 Operating noise level is only an actually measured value vacuum 80kPa, and not guaranteed.

4. Precautions

- (1) Observe precautions, and operate the product within specifications.
- (2) Read the instruction manual prior to installation, operation, maintenance and inspection of the product. Especially pay attention to safety.
- (3) The vanes may get damaged if the residual pressure reverses the rotation when the pump stops. A check valve must be installed within 50 cm from the inlet port or exhaust port for protection.
- (4) Be sure to install the product horizontally on the flat surface.
- (5) Operating the product in an enclosed space may cause malfunction due to heat generated from the pump. Provide good ventilation around the product, so the ambient temperature does not exceed the permissible level.
- (6) Be sure to clean the filters periodically. Failure to do so may cause clogging and result in trouble due to overload.
- (7) Wiring work has to be performed by qualified personnel according to applicable laws and in-house regulations.
- (8) Be sure to install an overload protection such as a thermal relay in the electric circuit.
- (9) Allowable intermittent power supply voltage fluctuation range is  $\pm 10\%$  of the specified voltage; allowable sustained supply voltage fluctuation range is  $\pm 5\%$  of the specified voltage.
- (10) Be sure to use the product 1,000m or below above sea level.
- (11) The pump is not equipped with Motor, needed to install the motor as specified in this specification sheet.
- (12) Adjust Alignment (less than 0.3 mm) correctly when install the motor onto the Pump. Under the miss-alignment operation, it may cause abnormal noise with vibration then damaged.

5. Accessories

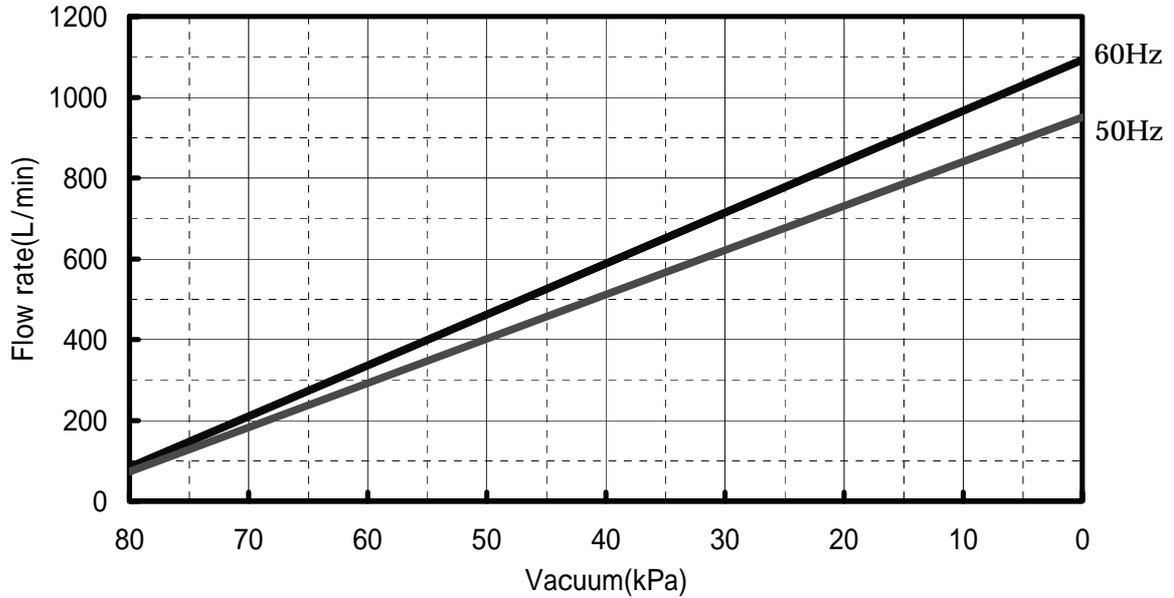
D type compound gauge	60	2 piece
Coupling (Motor side)		1 piece
Spider		1 piece

6. Pressure-Flow rate diagram

KRF70-VBH-03

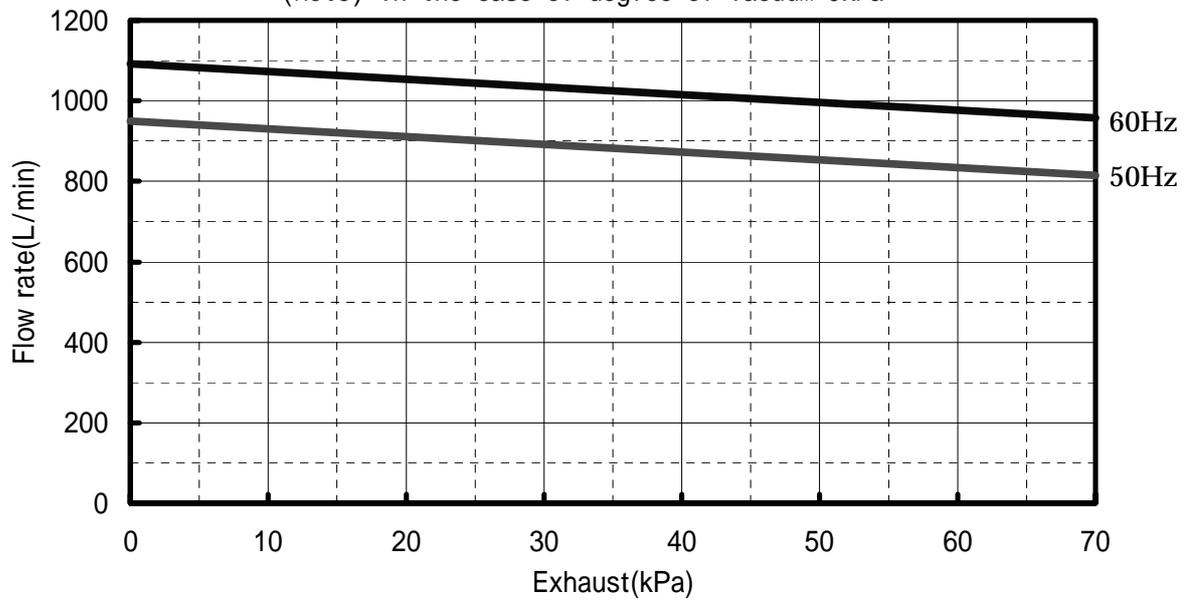
Vacuum Specification

(Note) In the case of exhaust pressure 0kPa

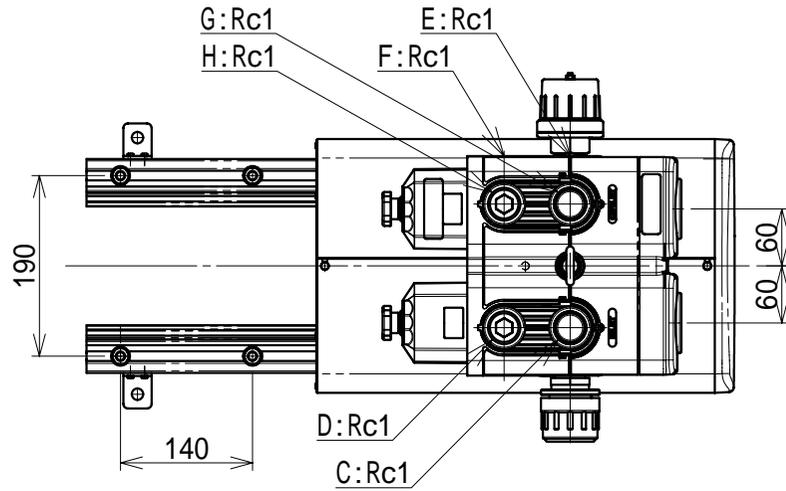


Pressure Specification

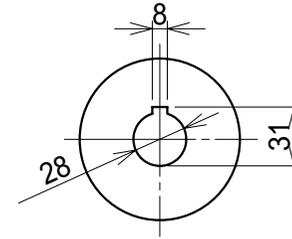
(Note) In the case of degree of vacuum 0kPa



Conditions: 1 atmospheric pressure  
20



The vacuum controller and the inlet port can be attached to A,B,C and D. The pressure controller can be attached to E,F,G and H. However, the outlet port can only be attached to E and G.



Detail of coupling shape

