

**ORION**

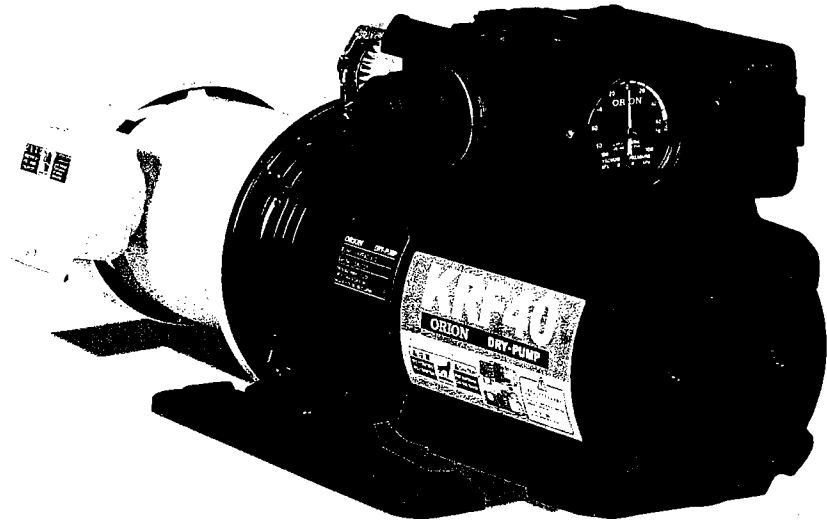
# INSTRUCTION MANUAL

OILLESS ROTARY VACUUM PUMP & BLOWER

**ORION DRY PUMP**

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**KRF15**  
**KRF25**  
**KRF40**



KRF40



## CAUTION

- This product is intended only for industrial use. Use with caution.
- Read this Instruction Manual and follow the instructions described herein.
- Please keep this Instruction Manual for future reference.

**JALLO**

*Equipment and Supply, Inc.*

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**Sales & Service**



**No lubrication!**

# Operation Procedure

## Pressure range during operation/ Stop

### Pressure range during operation

		kPa	KRF15	KRF25 · KRF40
■ Use as vacuum pump(V type)	Vacuum	Standard operative vacuum (*1)	60 or lower	
		Continuous operative vacuum (*2)	75	80
■ Use as blower pump(B type)	Exhaust pressure	Standard exhaust pressure (*1)	60 or lower	
		Continuous operative exhaust pressure (*2)	70	
■ Use as vacuum pump and blower pump (V, B type)	Vacuum and exhaust pressure	Standard Vacuum and exhaust pressure (*1)	Total of continuous operative vacuum and continuous exhaust pressure: 60kPa or lower	
		Continuous operative vacuum and exhaust pressure (*2)	Total of continuous operative vacuum and continuous exhaust pressure: 75kPa	Total of continuous operative vacuum and continuous exhaust pressure: 80kPa




- ※1. Standard operative vacuum / pressure: This is the standard operative vacuum / pressure that can realize the optimum performance (life, operation noise, etc.). If high vacuum or pressure is not necessary, the operation below the standard operative vacuum / pressure is recommended.
- ※2. Continuous operative vacuum / pressure: This is the upper limit vacuum / pressure of the continuous operation of the dry pump. Be sure to avoid operating the pump over than the continuous operative vacuum / pressure. Operate the pump over than the continuous operative vacuum / pressure may cause malfunction.
- ※If using the machine over the specified pressure, it may shorten the life of product and may cause failure or trouble.
- ※Contact with Orion or Orion dealer for other usage.

### Stop

Shut off the power switch.

Thank you very much for your purchase of the Orion pump. Read this instruction manual in advance to use this pump safely and to ensure continuing good performance. The product mechanism and specifications are subject to change without notice. If mechanism or specifications are changed, contents of this manual may not match the actual product.

## Safety Information

Read "Precautions for Safety" before operation to ensure safe operation. Safety instructions in this manual are intended to ensure safe and correct pump operation and to prevent damage or personal injury. Safety instructions in this manual are classified into  Danger,  Warning, and  Caution.



### Danger

Indicates an imminently hazardous situation that, if the product is misused, may bring about death or serious injury to the operator.



### Warning

Indicates a potentially hazardous situation that, if the product is misused, may bring about death or serious injury to the operator.











### Caution

Indicates a critical situation that, if the product is misused, may bring about injury to the operator or damage to the product.

Additionally, the situation that is explained in  Caution column may cause serious accident. All safety information must be followed for safe operation.

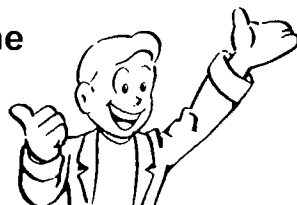
- After reading this manual, keep it where an operator can refer to it anytime.
- When transferring or renting this product, attach this manual to the product where a new owner can easily refer to it for proper operation.

### ■ Symbols

	The symbol  represents warning or caution. What is shown inside or described near informs of an actual hazard. The example on the left means caution for electric shock.
	The symbol  represents prohibition. What is shown inside or described near informs of an actual action which is prohibited. The example on the left means prohibition of disassembly.
	The symbol  represents essential action or instruction. What is shown inside or described near informs of an actual instruction about operation. The example on the left means disconnect the power plug from the outlet.
	The symbol  represents important information other than warning or caution.

Although model KRF40 is used as description pictures and figures in the manual, the other models in the KRF-series are operated the same way as KRF40 if there is no note.

**Be sure to read through the safety information.**



## Contents

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Precautions for Safety.....	2
Precautions for Proper Operation.....	6
Names of Components .....	7
Preparation and Confirmation .....	8
Operation Procedure.....	13
Maintenance and Inspection .....	15
Troubleshooting .....	17
Consumable Parts.....	19
Storage (Not in Use for a Long Time) .....	22
Disposal .....	22
Specifications .....	23
Standard Single-Phase Motor Wiring Diagram.....	24
Dimensional Outline Drawing.....	25

# Precautions For Safety

## Precautions for Use (Warning)



### **Do not modify the product.**

Do not modify the product.

**It may cause abnormal operation and may result in injury, electric shock or fire.**



### **Be sure to ground this product.**

Be sure to ground the product with the screw for grounding inside the terminal box or at the lower part of the frame of the motor. **Failure to do so may cause electric shock.**



### **Installation must be done by specialized personnel.**

The product may fall down or drop if it is improperly installed. **It may result in personal injury, electric shock or fire.**

### **Do not operate this product under abnormal conditions.**

Stop the operation when it is abnormal. Then, pull out the power plug or shut off the main power supply, and consult with our dealer or a specialized company. If the operation is continued under such conditions, **it may cause electric shock or fire.**

### **Shut off the main power supply before cleaning, maintenance and inspection.**

Shut off the main power supply before cleaning, maintenance, and inspection, and clearly post a sign on the power supply switch to indicate it is under cleaning, maintenance, and inspection. **Failure to do so may result in electric shock or personal injury.**

※Consult with a specialized company for maintenance and inspection.

### **Inspect the power plug periodically.**

If the product is operated with the power plug, periodically inspect the power plug and confirm it is not covered with dust. The power plug must be fully inserted to the root of pins. If the power plug is covered with dust or not fully inserted, **it may cause electric shock or fire.**

### **Be sure to install the protective device.**

Consult with a specialized company to install an earth leakage breaker. **Failure to do so may cause electric shock or fire.** Also, install an overload protection device (thermal relay). **Operation without such a device may cause malfunction due to overload or fire.**

### **Contact with a specialized company when the earth leakage breaker is activated.**

When the earth leakage breaker is activated, contact with a specialized company. If you force to turn on the power supply, **it may cause electric shock or fire.**

### **Do not use this product outdoors.**

This product is intended for indoor use. If the product is used outside and is exposed to wind or rain, the motor may suffer from incomplete insulation and may cause **electric shock or fire.**

# Precautions For Safety

## Precautions for Use (Caution)



## Caution

Indicates a critical situation that, if the product is misused, may bring about injury to the operator or damage to the product.



### **Do not use the machine over the specified pressure.**

If using the machine over the specified pressure, it may shorten the life of the product and may cause failure, abnormal generation of heat or trouble.

### **Do not sit on, lean on, or place objects on this product.**

Do not place heavy objects or object containing water on the product, and do not get on it. If you get on the product, you may fall and be injured. If water spills, it may cause rust inside or poor insulation and **may cause leakage or electric shock.**

### **Do not operate this product with any voltage other than the rated one specified for the motor.**

Operation with any voltage other than the rated voltage specified for the motor may **result in failure or accident.**

### **Prevention of melting of distribution cable covering due to contact.**

Install the motor so that wiring cables do not touch the motor frame. **Contacting with cables may result in melting covering or fire.**



### **Be alert to burn.**

Do not touch areas around the dry pump, and the exhaust port and the piping surface of exhaust side. **They are heated to high temperature, and it may result in burn.**



### **Inspect the earth leakage breaker periodically.**

Periodically check performance of the earth leakage breaker. If using the product with failure of the earth leakage breaker, **it may cause electric shock in case of short circuit.**

### **Installation of check valve**

Residual pressure may reverse the rotation when the pump is stopped. Be sure to install the check valve horizontally within 50cm from the inlet port (or the exhaust port) of pump. **No installation of check valve may cause malfunction.**

### **Turn off the main power supply in case of not using the pump for a long time.**

When you do not use the product for a long time, shut off the main power supply. **Otherwise, it may cause electric shock or short circuit fire due to degenerated insulation.**

### **Be sure to wear personal protective equipment for cleaning and maintenance.**

When you carry out cleaning or maintenance, be sure to wear gloves. **Failure to do so may result in injury or burn.**

When you transfer the product, be sure to wear nonslip gloves and safety shoes. **Failure to do so may result in injury.**

### **Continuous operation is recommended.**

If the start and stop frequency is high, start and stop cycle in 5 minutes or less, **it may cause significant lifetime deterioration or malfunction of the product.**

# Precautions For Safety

## Precautions for Use (Caution)



### Pull out the power plug to disconnect it.

When the product is used with power plug, pull the power plug to disconnect it. Pulling the power cord may result in disconnection of part of the core wire, and may cause generation of heat or deterioration.

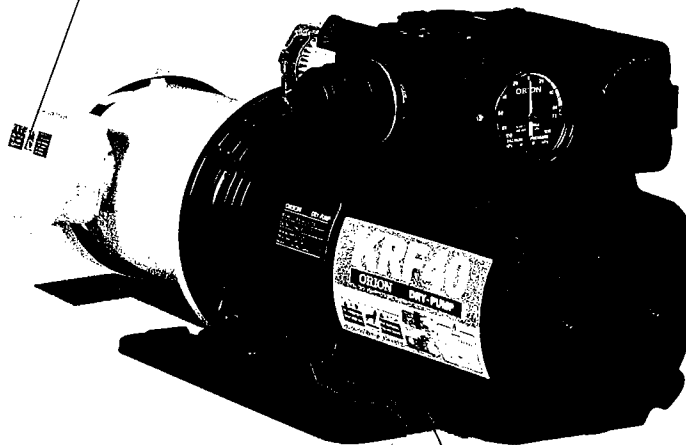
# Precautions For Safety

## Warning Label Position on the Product

### ⚠ Warning Label Position on the Product

The following warning labels are selected as most important ones out of Safety Information and are placed on the product. Read the labels before operating the product. When the labels become unreadable due to scratch or dirt, contact with your dealer to get new ones for replacement.

#### ■ Electric shock



#### ■ Burn

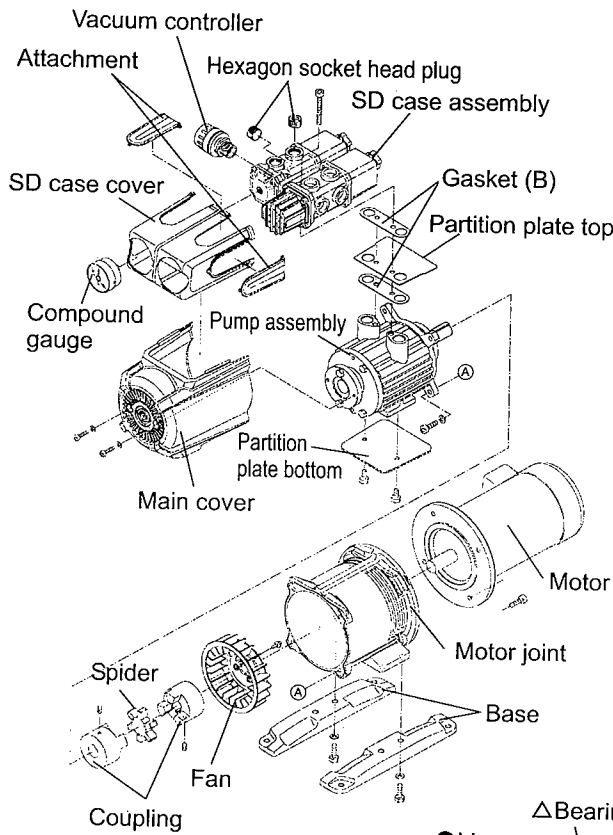


# Name of Components

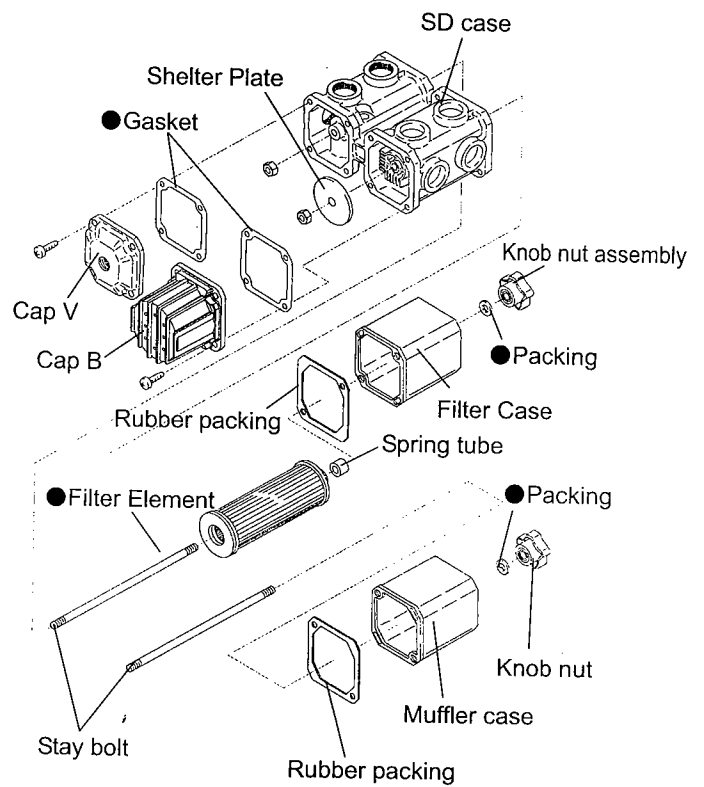
※●mark indicates consumable parts that is replaced depending on wear condition when checking.  
(Refer to page 19.)

※△mark indicates replacement parts that is replaced periodically at the specified period.  
(Refer to page 21.)

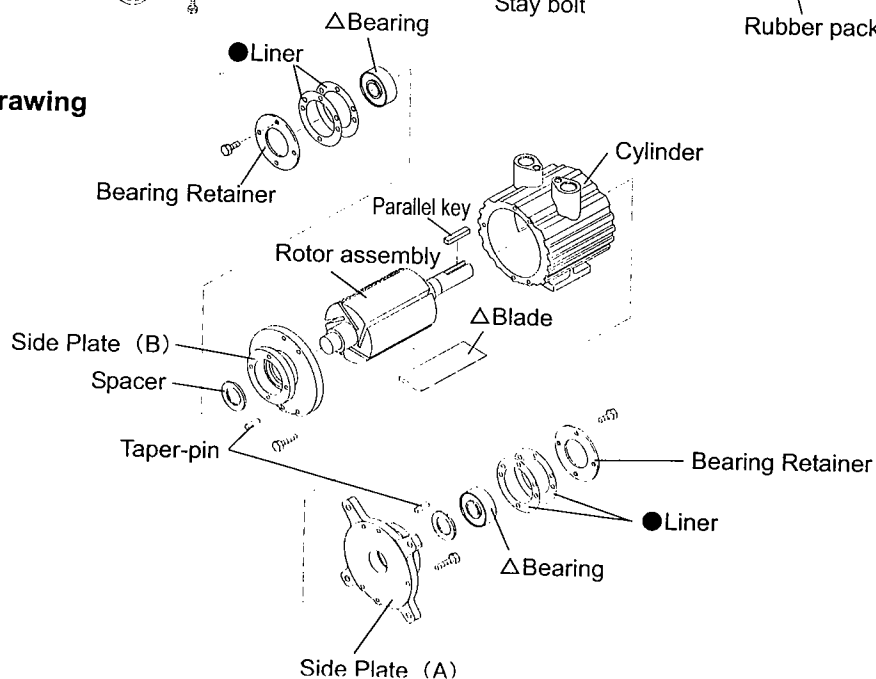
**Dry pump deal drawing**



**Exploded view of filter**



**Pump deal drawing**





# Preparation and Confirmation

## Before Installation/ Installation

### Danger

- Do not use the product where flammable gas or explosive gas may exist.

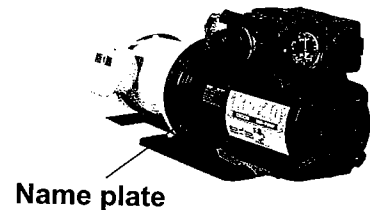
### Warning

- Set up the product where it is protected from water, oil and dust.
- Please use the product indoors.
- Do not set up the product where corrosive gas (chlorine or sulfur dioxide gas) exists.
- Do not set up the product under direct sunlight.
- Use the product where the ambient temperature ranges 0 to 40 degrees in Celsius.
- When the product weighs 25kg or over, **hold the product with two persons for transfer.**

## Before Installation

### IMPORTANT

- The product is heavy. Be careful enough when moving the product.
- Upon receiving the product, check it carefully for signs of shipping-related damage like scratches, deformation, etc. If you notice a problem, contact with your dealer.
- Be sure to check the name plate whether purchased product is right model as you ordered.
- When the product is delivered with accessories, be sure to check the accessories whether there are all the parts or not.



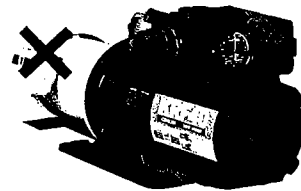
Name plate

## Installation

### IMPORTANT

- When the product is 25kg or over, **hold the product with two persons.** Also, **do not hold the terminal box of motor, filter case, and controller** when holding with two persons. **Holding the terminal box and filter case of the motor may result in injury, damage or malfunction if product or parts of it are dropped.**
- In case of using a hanging belt, be sure to belt as shown in the photo.

Do not hold these parts.



Photo

# Preparation and Confirmation

## Installation Site/ Gauge Controller

### Installation Site

#### Warning

- Installation should be carried out by your dealer or special service company. Improper installation may result in vibration, electric shock, or fire.
- Set up the product in a wide space where you can easily maintain, inspect and overhaul the product.
- Ambient temperature of the pump is 40 deg. C or less. If there is any heat source near the pump, be sure to check the ambient temperature does not exceed 40 deg. C.
- Using the product in the enclosed space may result in malfunction due to the generation of heat of the pump. Ventilate adequately around the pump, and be careful not to exceed the permissible ambient temperature.
- Be sure to install the product horizontally while the whole base plate is touching the level surface.

#### Warning

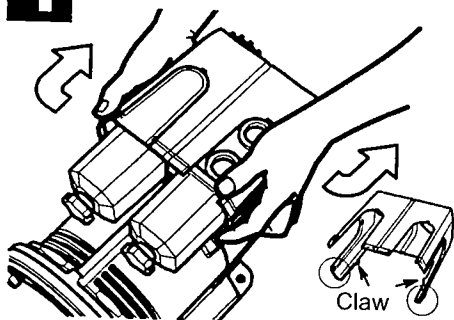
Installation of check valve

Residual pressure may reverse rotation when the pump is stopped. Be sure to install the check valve within 50cm from the inlet port of the pump. No installation of check valve may cause malfunction.

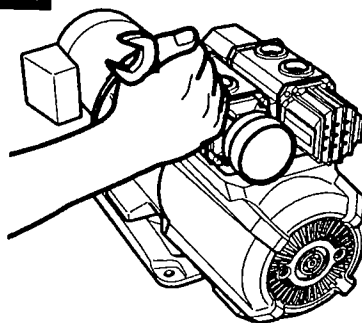
### Gauge controller

Be sure to install the gauge and controller according to following procedure.

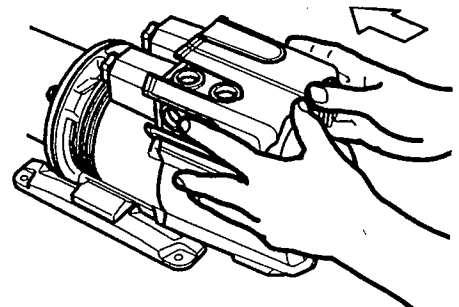
**1** Remove the cover.



**2** Install the gauge.



**3** Press it back in place until the cover claw is locked.



Spread the figure part, unlock the claw and pull forward.

# Preparation and Confirmation

## Electrical Wiring

### (8) Motor name plate (V, B, or VB enters into the □.)

- Matsushita-made motor is mounted for three-phase specification. Mitsubishi-made motor is mounted as standard for single-phase specification.

#### ■KRF15-□-01

<b>National</b>			
Model No. EMFL514PH001			
THREE PHASE INDUCTION MOTOR			
RATING	S1	THERMAL	E
JEC-2137		FRAME NO.	FLH-63M
IP44 IC411		BEARING	6203. 6202
SER. NO.			
I ME <b>0.4 kW</b> 4 POLE	Hz	V	A
	50	200	2.3
	60	200	2.0
	60	220	2.0
r/min			
1395			
1675			
1700			
Matsushita Electric Industrial Co., Ltd. Made in Japan			

#### ■KRF25-□-01

<b>National</b>			
Model No. EMFL514PK002			
THREE PHASE INDUCTION MOTOR			
RATING	S1	THERMAL	E
JEC-2137		FRAME NO.	FLH-71M
IP44 IC411		BEARING	6204. 6202
SER. NO.			
I ME <b>0.75 kW</b> 4 POLE	Hz	V	A
	50	200	3.8
	60	200	3.4
	60	220	3.4
r/min			
1415			
1695			
1715			
Matsushita Electric Industrial Co., Ltd. Made in Japan			

#### ■KRF40-□-01

<b>National</b>			
Model No. EMFL514P0001			
THREE PHASE INDUCTION MOTOR			
RATING	S1	THERMAL	E
JEC-2137		FRAME NO.	FLH-80M
IP44 IC411		BEARING	6205. 6203
SER. NO.			
I ME <b>1.1 kW</b> 4 POLE	Hz	V	A
	50	200	5.3
	60	200	5.2
	60	220	5.2
r/min			
1430			
1715			
1730			
Matsushita Electric Industrial Co., Ltd. Made in Japan			

#### ■KRF15-□-02

<b>SUPER LINE</b>			
SINGLE PHASE CAPACITOR MOTOR			
CAPACITOR		START	
400 W	4 POLE		TYPE SCL-KF
Hz	50 60	FRAME	C71
V	100/200 100/200	RATING	S1
A	6.8/3.4 6.0/3.0	TH. CLASS	E
r/min	1420 1720	ST CAP	170 μF
JEC-2137-2000		OP CAP	40 μF
IP 20		BRG	6202ZZ 6201ZZ
IC 01		SERIAL	
LICENSED BY & MITSUBISHI ELECTRIC CORPORATION MANUFACTURED BY MURAI KIKI CORP., JAPAN			

#### ■KRF25-□-02

<b>SUPER LINE</b>			
SINGLE PHASE CAPACITOR MOTOR			
CAPACITOR		START	
750 W	4 POLE		TYPE SCL-KF
Hz	50 60	FRAME	A80
V	100/200 100/200	RATING	S1
A	11.0/5.5 10.4/5.2	TH. CLASS	E
r/min	1420 1720	ST CAP	350 μF
ST AMP	56/28 56/28	OP CAP	76 μF
JEC-2137-2000		BRG	6204ZZ 6202ZZ
IP 20 IC 01		SERIAL	
LICENSED BY & MITSUBISHI ELECTRIC CORPORATION MANUFACTURED BY MURAI KIKI CORP., JAPAN			

# Consumable parts

## List of Replacement Parts

List of Replacement Parts (Parts to be replaced periodically at specified period.)

Name of parts	Model		KRF15	KRF25	KRF40
Vane	Parts Number		04044372010	04044373010	04044374010
	Quantity /unit		4	4	5
	Replace- ment time	Standard operative vacuum/pressure (*1)	10,000	10,000	8,500
		Continuous operative vacuum/pressure (*2)	7,500	7,500	6,500
Bearing	Parts Number		0A000227000	0A000228000	0A000229000
	Quantity /unit		2	2	2
	Replace- ment time	Standard operative vacuum/pressure (*1)	10,000	10,000	8,500
		Continuous operative vacuum/pressure (*2)	7,500	7,500	6,500

※1. Standard operative vacuum / pressure: This is the standard operative vacuum / pressure that can realize the optimum performance (life, operation noise, etc.). If high vacuum or pressure is not necessary, the operation below the standard operative vacuum / pressure is recommended.

※2. Continuous operative vacuum / pressure: This is the upper limit vacuum / pressure of the continuous operation of the dry pump. Be sure to avoid operating the pump over than the continuous operative vacuum / pressure. Operate the pump over than the continuous operative vacuum / pressure may cause malfunction.

※Consider the replacement time as a guide, and carry out the periodic replacement.

※Advanced technologies are required to replace vanes and bearings, so contact with our dealer or service personnel.

### Use the maintenance kit for replacement parts.

Name of Parts		Unit	Maintenance kit Assembly 15	Maintenance kit Assembly 25	Maintenance kit Assembly 40
Model			KRF15	KRF25	KRF40
Parts no.			04100311010	04100312010	04100313010
Items	Vane	Pcs/Unit	4		5
	Bearing		2		
	Liner (white)		4		
	Liner (black)		4		
	Liner (yellow)		6		
	Liner (red)		8		

# Consumable parts

## List of Consumable Parts

List of Consumable Parts (Parts to be replaced depending on wear condition when checking.)

Name of Parts	Model	KRF15	KRF25	KRF40
Filter element (Inlet side)	Parts Number	04000028010		04009779010
	Quantity /unit	1		
	Inspection period	Every week		
	Replacement criterion	When it was damaged, or when dirt cannot be removed by blowing air.		
Filter element (exhaust side) ※2	Parts Number	04000028010		
	Quantity /unit	1		
	Inspection period	Every week		
	Replacement criterion	When it was damaged, or when dirt cannot be removed by blowing air.		
Delivery element (exhaust side) ※3	Parts Number			04044334010
	Quantity /unit	1		
	Inspection period	Every week		
	Replacement criterion	When it was damaged, or when dirt cannot be removed by blowing air.		
Metacoat (A) ※4	Parts Number	04000028010	04010303010	
	Quantity /unit	1		
	Inspection period	At the time of removal of SD case		
	Replacement criterion	When it was damaged or crushed.		
Metacoat (A) ※5	Parts Number		03037234010	
	Quantity /unit		1	
	Inspection period		At the time of removal of SD case	
	Replacement criterion		When it was damaged or crushed.	
Gasket (B)	Parts Number		04009579010	
	Quantity /unit		※6	2
	Inspection period		At the time of removal of SD case	
	Replacement criterion		When it was damaged or crushed.	
Packing	Parts Number		04000695010	
	Quantity /unit		2	
	Inspection period		At the time of removal of SD case	
	Replacement criterion		When it was damaged or crushed.	
Rubber packing	Parts Number		03039263010	
	Quantity /unit		2	
	Inspection period		At the time of replacement of element	
	Replacement criterion		When it was damaged or crushed.	
Gasket	Parts Number		03039292010	
	Quantity /unit		2	
	Inspection period		At the time of removal of cap	
	Replacement criterion		When it was damaged or crushed.	
Liner ※5	Parts Number	040000370□0	040000380□0	040000400□0
	Quantity /unit	To be decided by actual positioning.		
	Inspection period	At the time of replacement of vane.		
	Replacement criterion	When it was damaged.		
Spring tube	Parts Number		04039359010	
	Quantity /unit		※7	
	Inspection period		At the time of replacement of element	
	Replacement criterion		When it was damaged or crushed.	
Spider	Parts Number	04044059010	04002338010	04002338020
	Quantity /unit	1		
	Inspection period	Six months		
	Replacement criterion	When it was damaged or crushed.		

# Consumable parts

## List of Consumable Parts /List of Motor Maintenance Cycle

- ※1 Parts number of second digits from the right side differs depending on thickness.  
0.2t (white) becomes 1, 0.1t (black) becomes 2, 0.05t (yellow) becomes 3, 0.03t (red) becomes 4.
- ※2 Only used for KRF15, KRF25 blowers, and vacuum & blower models.  
(KRF15-B-01, KRF15-B-02, KRF15-VB-01, KRF15-VB-02, KRF25-B-01, KRF25-B-02, KRF25-VB-01, and KRF25-VB-02)
- ※3 Only used for KRF40 blower, and vacuum & blower models.  
(KRF40-B-01, and KRF40-VB-01)
- ※4,5 Used for vacuum, and vacuum & blower models.  
(KRF15-V-01, KRF15-V-02, KRF15-VB-01, KRF15-VB-02, KRF25-V-01, KRF25-V-02, KRF25-VB-01, and KRF25-VB-02)
- ※6 (1)2 pcs for blower models.  
(KRF15-B-01, KRF15-B-02, KRF25-B-01, and KRF25-B-02)  
(2)1 pc for vacuum, and vacuum & blower models.  
(KRF15-V-01, KRF15-V-02, KRF15-VB-01, KRF15-VB-02, KRF25-V-01, KRF25-V-02, KRF25-VB-01, and KRF25-VB-02)
- ※7 (1)1 pc for vacuum models.  
(KRF15-V-01, KRF15-V-02, KRF25-V-01, KRF25-V-02, and KRF40-V-01)  
(2)2 pcs for blower, and vacuum & blower models.  
(KRF15-B-01, KRF15-B-02, KRF15-VB-01, KRF15-VB-02, KRF25-B-01, KRF25-B-02, KRF25-VB-01, KRF25-VB-02, KRF40-B-01, and KRF40-VB-01)

## List of Motor Maintenance Cycle

Name of parts	Model			
	Parts no.	KRF15	KRF25	KRF40
Motor Single-phase 100V spec. Single-phase 200V spec.	Parts no.	0A001239000	0A001240000	—
	Model	Mitsubishi SCL-KF 0.4kW 4P	Mitsubishi SCL-KF 0.75kW 4P	—
	Qty.	1		
	※Maintenance cycle	20,000Hr		
Motor Three-phase 200V spec.	Parts no.	0A001168010	0A001169010	0A001170010
	Model	Matsushita EM-FL51 0.4kW 4P	Matsushita EM-FL51 0.75kW 4P	Matsushita EM-FL51 1.1kW 4P
	Qty.	1		
	※Maintenance cycle	20,000Hr		

※Time on the list is the time that possibility to reaching the friction damage range becomes high. It is not necessary to replace the motor on time because it differs depending on the installation site. However, be sure to replace and repair the motor whenever troubles happen.

## Storage (Not in Use for a Long Time)

### Storing method/ Storage location

#### Storing method

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**Pay attention to formation of rust** if the pump is not used immediately after received or if the regularly used pump has not been used for a long time.

#### Storage location

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7. Store the product indoors and place the cover on the pump to protect it from water and dust.
8. Store the product where it is protected from water, oil and dust.
9. Store the product in a dry and clean place.
10. Store the product in an airy place where the ambient temperature is 40 degrees in Celsius or less.
11. Do not store the product where toxic gas such as chlorine gas or sulfur dioxide gas, which corrodes the pump, is generated.
12. Store the product in a low humidity place to prevent the pump from rusting.

## Disposal

Be sure to entrust the disposal of the Product to the specialists in the trade of disposal of industrial wastes, observing Law about Disposal of Wastes and the Cleaning.

# Specifications

## Specification list

### Specification list

Model		KRF15	KRF25	KRF40
Designed capacity	L/min	235/280	405/480	575/685
Speed	Single-phase	1450/1730		—
	Three-phase	1450/1730		
Ultimate vacuum	kPa	84 or more / 86 or more	86 or more / 90 or more	
Vacuum	Standard operative vacuum	60 or less		
	Continuous operative vacuum	75	80	
Exhaust pressure	Standard exhaust pressure	60 or less		
	Continuous operative exhaust pressure	70		
Diameter of piping connection		Rc3/4		
Power supply	Single-phase	100/200V 50/60Hz		—
	Three-phase	200V 50/60Hz 220V 60Hz		
Motor	Single-phase	0.4 (4P)	0.75 (4P)	—
	Three-phase			
Current	Single-phase	6.8/6.0 (100V 50/60Hz) 3.4/3.0 (200V 50/60Hz)	11.0/10.4 (100V 50/60Hz) 5.5/5.2 (200V 50/60Hz)	—
	Three-phase	2.3/2.0 (200V 50/60Hz) 2.0 (220V 60Hz)	3.8/3.4 (200V 50/60Hz) 3.4 (220V 60Hz)	5.3/5.2 (200V 50/60Hz) 5.2 (220V 60Hz)
Mass	Single-phase	21	32	—
	Three-phase	19	28	36
Operation noise Single-phase ※1	(V)	62/64	64/66	—
	(B)	64/65	67/69	—
Operation noise Three-phase ※1	(V)	60/62	62/64	66/67
	(B)	64/65	65/67	68/70
Supply of power	Overcurrent classification ※2: Classification 3 (supply from fixed wiring facility)			
Applicable environment	Degree of contamination ※2: Degree of contamination 3 (Worse environment than normal environment)			

※Permissible ambient temperature is 0 to 40 deg.C.

※Standard operative vacuum / pressure: This is the standard operative vacuum / pressure that can realize the optimum performance (life, operation noise, etc.). If high vacuum or pressure is not necessary, the operation below the standard operative vacuum / pressure is recommended.

※Continuous operative vacuum / pressure: This is the upper limit vacuum / pressure of the continuous operation of the dry pump. Be sure to avoid operating the pump over than the continuous operative vacuum / pressure. Operate the pump over than the continuous operative vacuum / pressure may cause malfunction.

※KRF series has VB specification (Vacuum & Blower).

Since VB specification has pressure limit, contact with your dealer in details.

※Consult with your dealer if the product is used in extremely low humidity for adjustment. It may cause the malfunction of pump.

※Permissible fluctuation range of power supply voltage is within +/- 10%.

※Refer to the motor name plate for the power supply of different voltage specification.

※Only three-phase specification is complied with CE marking.

※1 Operation noise is actual measured value at standard operative vacuum / pressure operation with new Orion standard motor loading (three-phase motor).

※2 Refer to IEC664-1.



# Standard Single-Phase Motor Wiring Diagram

This is the wiring for standard motor shipped from Orion.

The wiring method is different if the special ordered motor or the other motor on the market is used.

Pump model	Motor model	Voltage	Wiring diagram
KRF15	MITSUBISHI SCL-KF 0.4kW 4P	100V	
		200V	
KRF25	MITSUBISHI SCL-KF 0.75kW 4P	100V	
		200V	

# Dimensional Outline Drawing

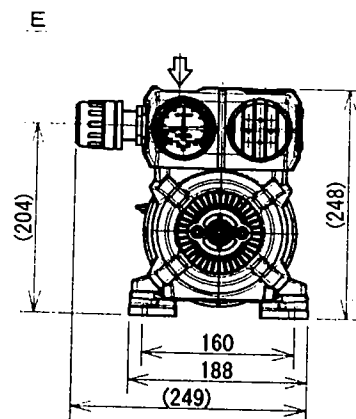
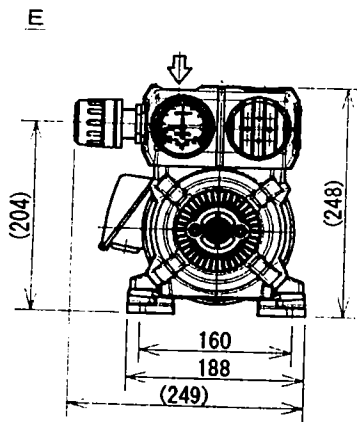
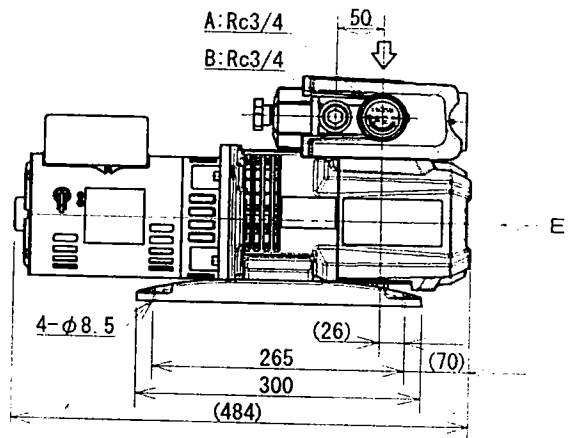
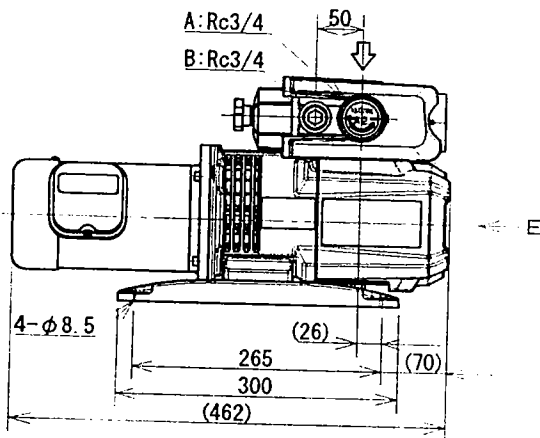
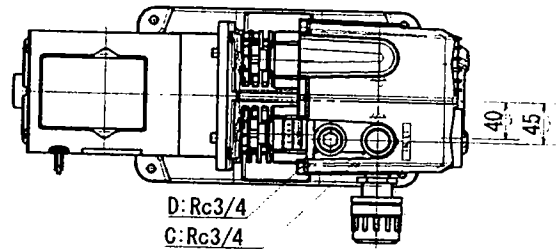
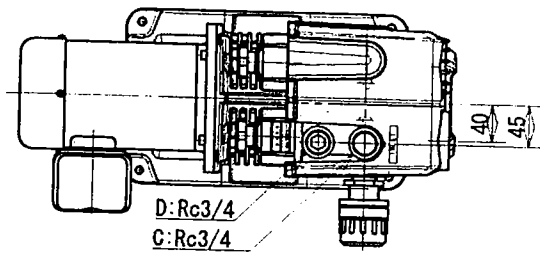
KRF15-V-01,02

※The controller and the inlet port can be attached to A, B, C, and D.

(unit : mm)

KRF15-V-01

KRF15-V-02



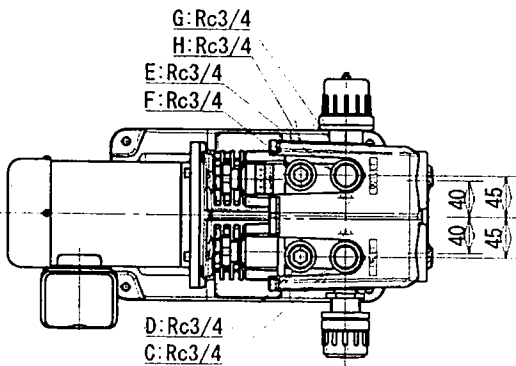
# Dimensional Outline Drawing

KRF15-VB-01,02

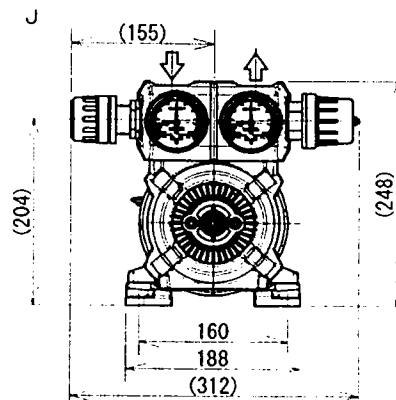
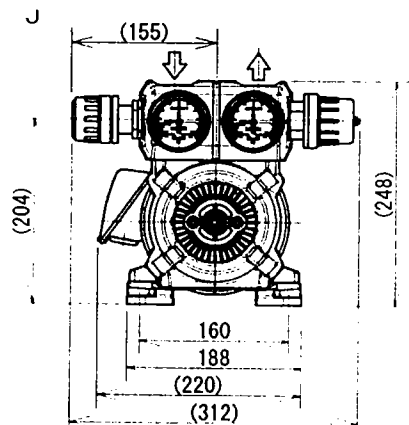
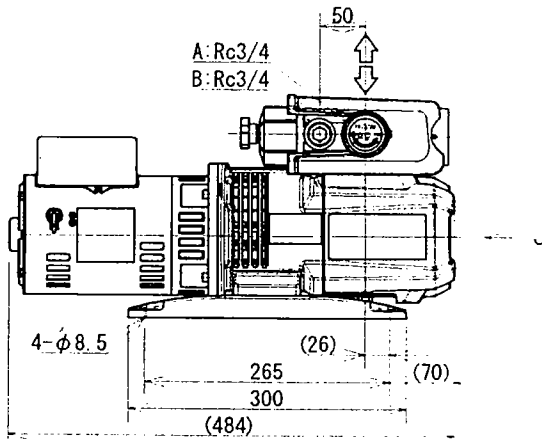
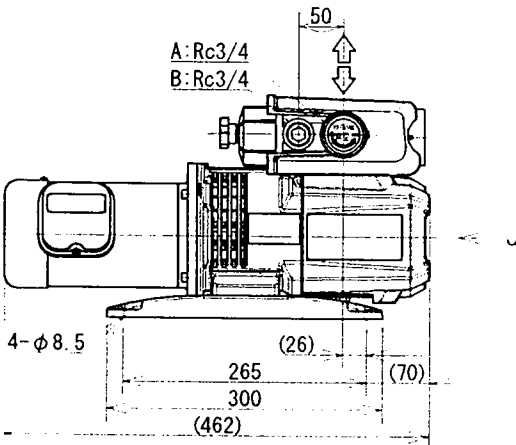
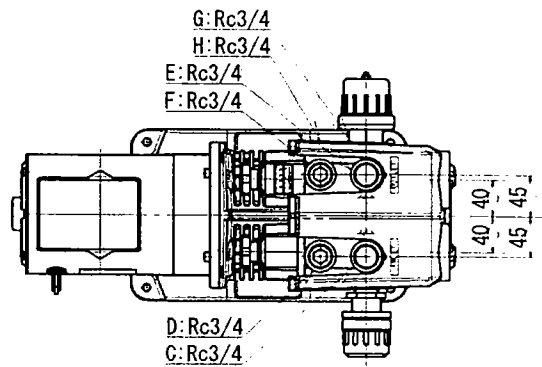
※The vacuum controller and the inlet port can be attached to A, B, C, and D.  
The pressure controller can be attached to E, F, G, and H. However, the outlet port can only be attached to G and E.

(unit : mm)

KRF15-VB-01



KRF15-VB-02



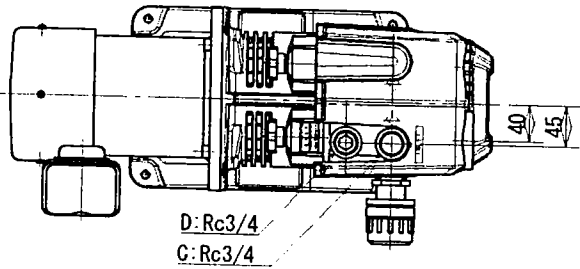
# Dimensional Outline Drawing

KRF25-V-01,02

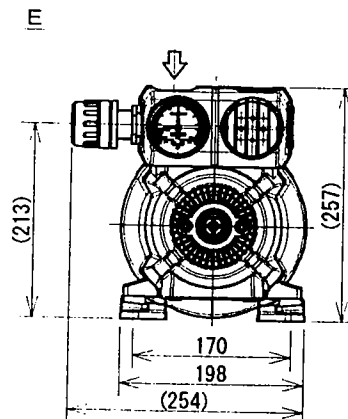
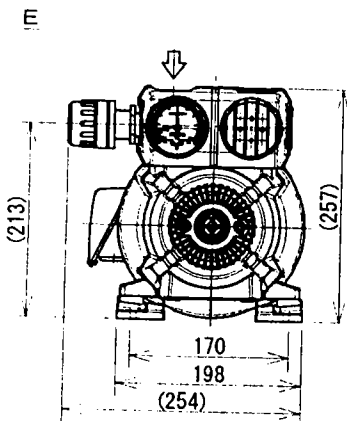
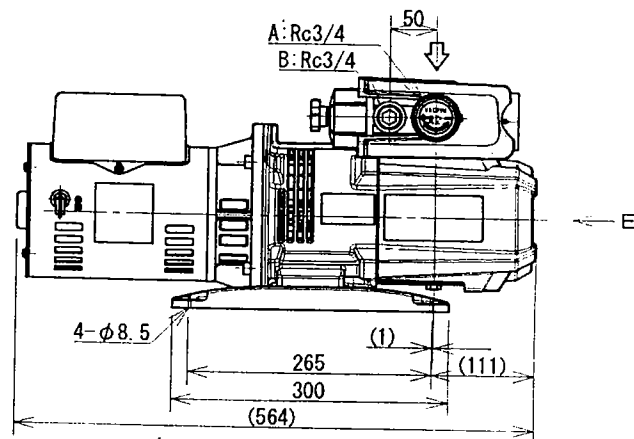
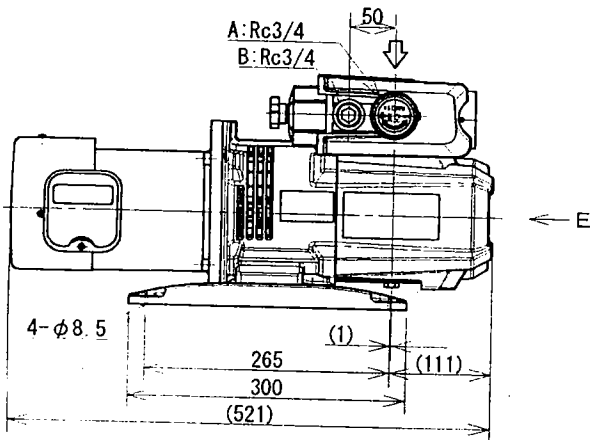
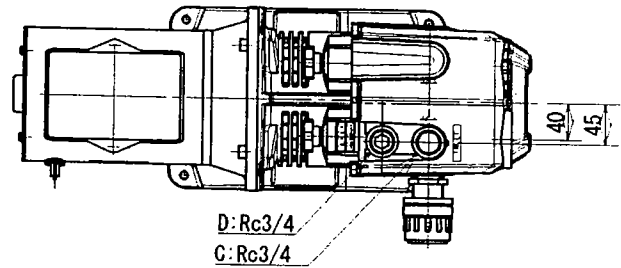
※The controller and the inlet port can be attached to A, B, C, and D.

(unit : mm)

KRF25-V-01



KRF25-V-02



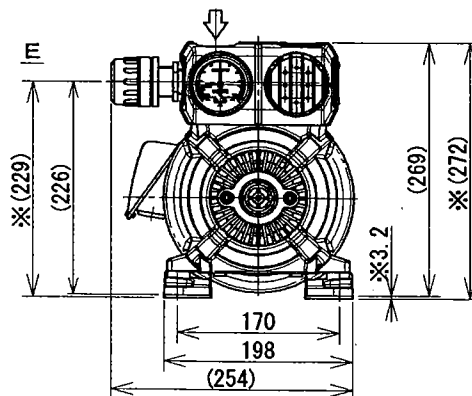
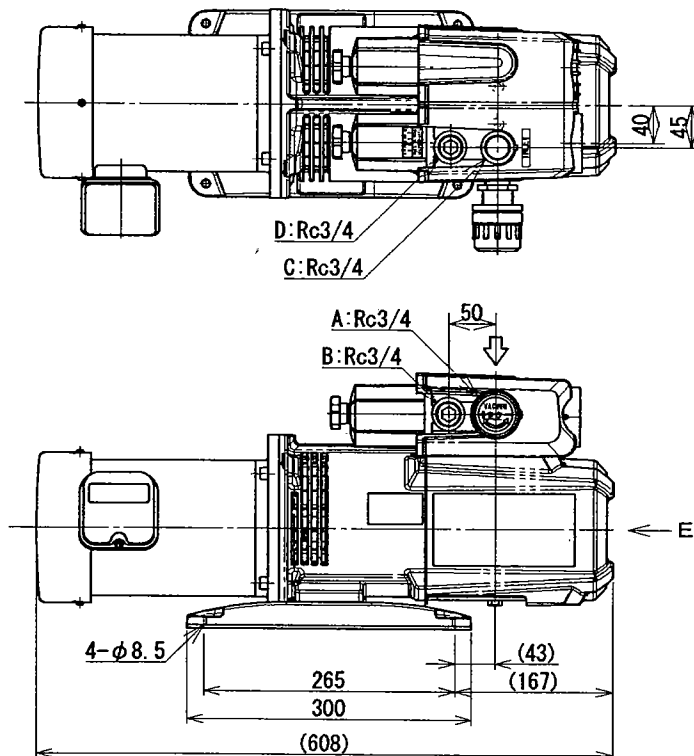
# Dimensional Outline Drawing

KRF40-V-01

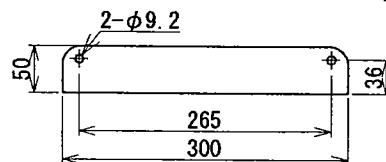
※The controller and the inlet port can be attached to A, B, C, and D.

(unit : mm)

KRF40-V-01



※ In case reinforcement plates is attached.



※ Details of reinforcement plate.

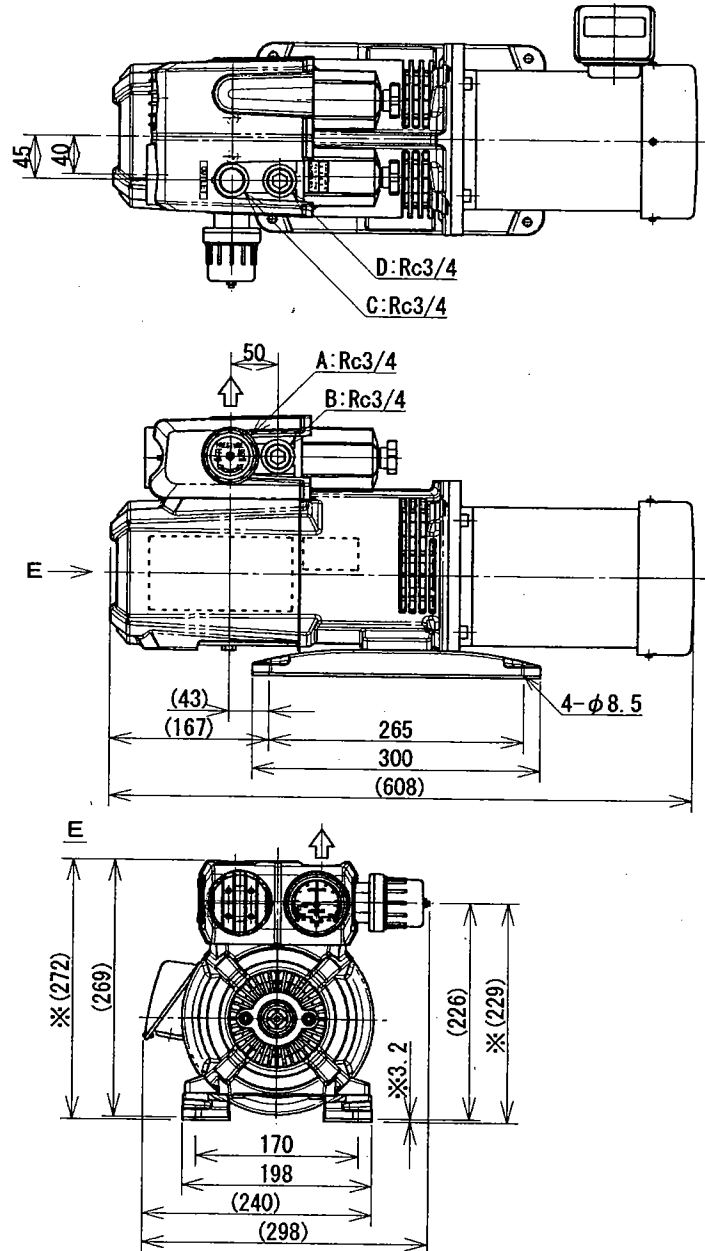
# Dimensional Outline Drawing

KRF40-B-01

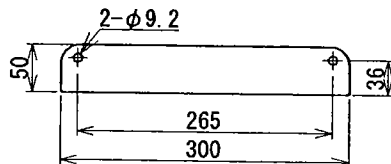
※The controller can be attached to A, B, C, and D.  
However, the outlet port can only be attached to A and C.

(unit : mm)

KRF40-B-01



※ In case reinforcement plates is attached.



※ Details of reinforcement plate.

# Dimensional Outline Drawing

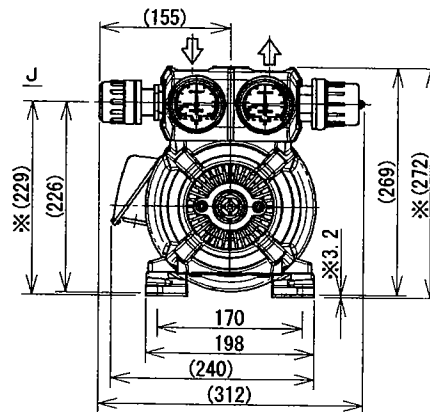
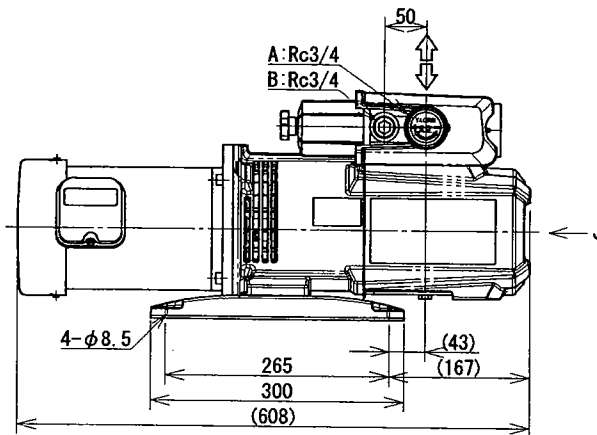
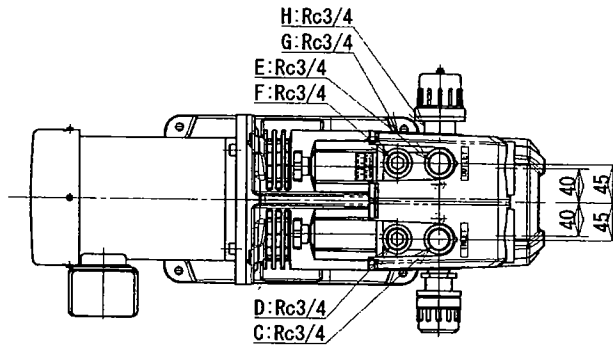
KRF40-VB-01

※The vacuum controller and the inlet port can be attached to A, B, C, and D.

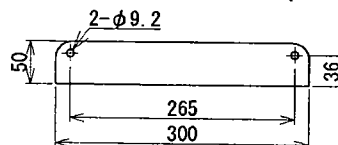
The pressure controller can be attached to E, F, G, and H. However, the outlet port can only be attached to G and E.

(unit : mm)

KRF40-VB-01



※ In case reinforcement plates is attached.



※ Details of reinforcement plate.

**JALLO**  
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**Sales & Service**