



Operating Instructions

Side Channel Vacuum Pumps/Compressors

Series ORB_ & ORB4

Types ORB 0...	ORB 1...	ORB 2...	ORB 3...	ORB 4...
ORB 5...	ORB 6...	ORB 7...	ORB 8...	ORB 9...
ORB4 2	ORB4 3	ORB4 4	ORB4 5	ORB4 6



Single-impeller model
(single-stage)



Two-impeller model
(two-stage and double-flow)



Thanks for choosing an Olympias Blower / Vacuum Pump. This pump is designed to give years of reliable service with minimal maintenance. Please read the following instructions carefully, as the longevity of the pump and safe use, is dependent upon adherence to these instructions.

Failure to comply with these instructions could invalidate the warranty.

Olympias
Olympias Blower/Vacuum Pumps
www.olympias.co.nz
www.olympias.com.au

Contents

1 Safety 3

2 Intended and Correct Use 4

 2.0 Protection of the pump..... 5

3 Operating Conditions 6

5 Installation 7

 5.1 Installation..... 8

 5.2 Electrical connection (motor) 8

 5.3 Connecting pipes/hoses (vacuum pump/compressor) 9

 5.3.1 Inlet connection 9

 5.3.2 Discharge connection 9

 5.3.3 Procedure when connecting pipes/hoses 11

6 Commissioning 11

 6.1 Preparation 11

 6.2 Start-up and shut-down 12

8 Shut-Down and Longer Standstills 12

 8.1 Preparing for shut-down or longer standstill 12

 8.2 Storage conditions 13

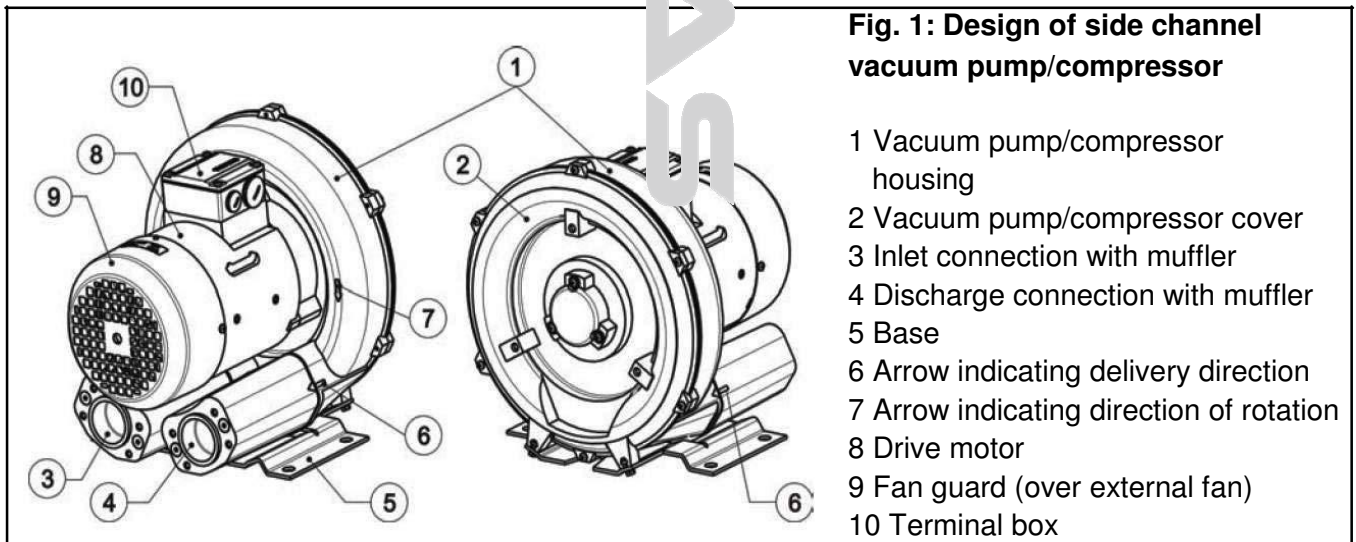
9 Servicing 13

 9.1 Repairs/troubleshooting..... 13

10 Olympias ORB Models 14

11 Accessories..... 15

12 Key Reminders 16



1 Safety - General safety precautions



WARNING

Improper use of the unit can result in serious or even fatal injuries!

These operating instructions:

- must have been read completely and understood before beginning any work with or at the pump-motor unit,
- must be strictly observed,
- must be available at the operating location

Only operate the pump-motor unit:

- for the purposes indicated under "Intended Use"!
- With the fluids indicated under 'Intended Use'!
- with the values indicated under 'Technical Data'

All work on and with the pump-motor unit

(transport, installation, operation, shut-down, maintenance, disposal) may only be carried out by trained, reliable expert personnel.

When working on the unit, there is a danger of injury, e.g. in the form of cuts/cutting off, crushing and burns!

During all work on and with the pump-motor unit (transport, installation, operation, shutdown, maintenance, disposal) wear necessary personal safety equipment

This pump contains moving parts:

- Do not wear long, loose hair or wide, loose clothes! Use a hair net!

Hot surface up to approx. 160°C [320 °F].

- Hazard: Possible burns.
- Protective measures: Cover the pump-motor unit with a suitable touch protection (e.g. perforated plate cover or wire cover)

Possible serious hearing damage due to emitted noise.

- Conduct a noise measurement in the system during operation after installing the pumpmotor unit.
- Appropriate measures can be taken from 85 dB(A) and must be taken from 90 dB(A):
- Mark noise area with a warning sign.
- Wear hearing protection.
- With free entry and exit of gases, i.e. with direct intake out of or direct feeding into the atmosphere without piping, attach an additional muffler.



WARNING

Danger from lifting heavy loads!

Manual handling of the unit is only permitted within the following limits:

- max. 20 kg [max. 44 lbs]
- lift within your personal limits

For the weight of the pump-motor unit, see Chapter 3.1, "Mechanical data".

Use lifting equipment when possible.

Smaller models below 30kg (ORB 0, ORB 1, ORB2, ORB 3, ORB 4 and ORB51) are not fitted with a threaded hole for a lifting eye.

A threaded hole for an eye bolt is fitted to the models heavier than 30kg (ORB 52, ORB 6, ORB 7, ORB 8 & ORB 9) and should be used with proper lifting equipment.

Danger due to vacuum and gauge pressure! Danger due to escaping fluid!

During operation, connected pipes and vessels are vacuumized or pressurized!

Use only mounting elements, connections, lines, fittings and containers with sufficient freedom from leaks and strength for the pressures which occur.

Make sure that the mounting elements and connections are mounted sufficiently firmly and leak-free!



Danger

Electrical Danger

Work on electrical installations may be carried out by trained and authorised electricians only!

Before beginning work on the unit or system, the following measures must be carried out:

- De-energize.
- Secure against being switched on again.
- Determine whether de-energized.
- Ground and short-circuit.
- Cover or block off adjacent energized parts.

Do not open the motor terminal box until absence of electricity has been ensured!

Following the wiring diagram on the electrical control box

Intended Use

2.0 Intended Use

These operating instructions apply to side channel vacuum pumps/ compressors of the series ORB_

Types ORB 0... ORB 1... ORB 2... ORB 3...
ORB 4... ORB 5... ORB 6... ORB 7... ORB
8... ORB 9...

The ORB_s

- are pump-motor units for generating vacuum or gauge pressure;
- are used to extract, pump and compress the following gases:
 - Air,
 - Non-flammable, non-aggressive, nontoxic and non-explosive gases or gas-air mixtures.
 - With differing gases/gas-air mixtures, inquire with the Service Department.
- are equipped with one of the following kind of drive motors:
 - 3-phase AC drive motor with a standard or explosion-protected design
 - Single-phase AC drive motorThese operating instructions apply only to pump-motor units with a standard design.

- exist in the following designs:

- single-impeller
- two-impeller

The two-impeller pump-motor units in turn differ in the following designs:

- two-stage design
(for increased pressure difference)
- double-flow design
(for increased feed volume)

- are intended for industrial applications,
- are designed for continuous operation.
With an increased switch-on frequency or an increased gas entry and ambient temperature, the limit over temperature of the winding and the bearing can be exceeded. Consultation with the Service Department is required for operating conditions of this kind.

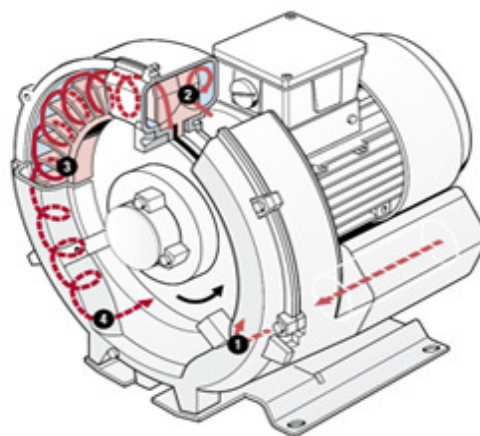
When operating the ORB_, the limits listed on the machine label must not be exceeded.

Foreseeable Misuse

It is prohibited

- to use the ORB_ in applications other than industrial applications unless the necessary protection is provided on the system, e.g. guards suitable for children's fingers;
- to use the device in rooms in which explosive gases can occur.

to extract, to deliver and to compress explosive, flammable, corrosive or toxic fluids.



Protection of the blower

The majority of blower failures are due to improper installation and /or operation. Because there are so few moving parts, there is not much that can go wrong but paying attention to the points below will give you years of trouble free operation.

- Clean Air – The blower is designed to move clean air. Debris such as swarf from pipe installation can cause major failure if it is caught in the tight clearances of the impellor. Filtration should be fitted to prevent this. The standard blower is die-cast aluminum and as such, care should be take with corrosive chemicals or contaminates such as high concentrations of salt in the air.
- Over Pressure – The pressure across the blower must not exceed the rated pressure on the name plate. The rated pressure for the blower is given for the blower in vacuum or pressure not both at once. Relief valves can be fitted to limit the max pressure within the blowers range. As the air is compressed in the blower it also increases in temperature. Catastrophic failure can occur if the temperature goes past what the bearings can handle or the impellor thermal expansion exceeds the close clearances and touching occurs.
- Over current – Blowers should allways be fitted with over current protection set at the motors rated current. Increased load from over pressure or low voltages or frequent starting will cause the motor to run hotter than designed. A good rule of thumb for an electric motor is for every 10° C hotter a motor runs, its expected life is halved. It is recommended to have no more than 6 starts/hour.
- Ambient temperature – Our blowers are to be operated between -30°C and +25°C. The blower can be operated between +25°C and +40°C but the rated pressure or vacuum must be dropped by 10%.
- Cooling – The blower must be installed with adequate ventilation. It is also recommend that the blower is installed with a gap to any surface of no less that 100mm. Dust should not be allowed to accumulate on the blower as this will reduce the cooling. The blower should also be protected from direct sunlight, or any other sources of strong radiation heat.
- Rotation – For correct performance the blower should be operated in the correct rotation.
- Speed drives – Speed drives can be fitted to side channel blowers. The frequency should not exceed 60Hz and if used below 25Hz an external fan should be fitted to cool the motor.

Olympias can supply relief valves and filters to protect the blowers.

Setting the relief valve

- You will need the correct size relief valve with the right weight spring installed and a gauge.
 - Wind the relief valve all the way out so it has the least tension on the spring.
 - Install the relief valve and gauge in the piping of the blower.
 - Turn the blower on and close off the outlet after the relief valve and gauge
 - Now all of the air should be flowing through the relief valve
 - Slowly wind in the relief valve until the pressure/vacuum on the gauge is just not quite at the rated pressure of the blower.
 - Now lock the relief valve into position and if required twist some wire through the tamper proof holes.
 - Now connect up the application
- With this setup, even if the application becomes totally blocked, the pump will not go over pressure/vacuum due to the relief valve.

Operating Conditions

3.0 Operating Conditions Temperatures

<p>Temperature of pumped gases:</p>	<p>max. permissible temperature: +40 °C [+104 °F] Nominal value +15 °C [+59 °F]</p> <p>Pump-motor units for higher fluid temperatures on request.</p>	<p>Permissible total pressure difference:</p>	<p>The total pressure difference specified on the rating plate only applies under the following conditions:</p> <ul style="list-style-type: none"> • Ambient temperature: 25 °C [77 °F]. • Inlet temperature (temperature of pumped gases at inlet connection): 15 °C [59 °F]. • Pressure: <ul style="list-style-type: none"> during vacuum-pump operation: 1,013 mbar [14.7 psia] at discharge connection; during compressor operation: 1,013 mbar [14.7 psia] at inlet connection; <p>At an ambient temperature of 40 °C [104 °F] the total pressure difference specified on the rating plate must be reduced by 10%. If the ambient temperature is between 25 °C [77 °F] and 40 °C [104 °F], then the total pressure difference specified on the rating plate must be reduced.</p>
<p>Ambient temperature:</p>	<p>max. permissible temperature: +40 °C [+104 °F]</p> <p>min. permissible temperature: -30 °C [-22 °F] Nominal value: +25 °C [+77 °F] Ambient temperatures between 25 °C [+77 °F] and 40 °C [+104 °F] affect the permissible total pressure difference (see Section "Permissible total pressure difference"). At higher temperatures the winding may be damaged and the grease change interval may be shortened.</p>		
<p>Pressures Min. inlet pressure:</p>	<p>See rating plate.</p>		
<p>Max. Discharge pressure during compressor operation:</p>	<p>See rating plate.</p>		
<p>Max. permissible pressure in pump-motor unit:</p>	<p>2 bar abs. [29 psia] At this pressure the operation of the pump-motor unit may be considerably impaired. Provide a corresponding protective device (e.g. pressure relief valve) if necessary.</p>		

Installation altitude

Max. of 1,000 m [3,280 ft] above sea level.

When installing the pump-motor unit at an altitude of more than 1,000 m [3,280 ft] above sea level, first inquire with the Service department.

Ambient conditions:

The pump-motor unit is suitable for installation in the following environments:

- In a dusty or damp environment,
- in buildings,
- in the open.

When properly installed in the open, the pump-motor unit must be protected from exposure to intensive sunlight, e.g. by attaching a protective roof. otherwise, no special protective devices against the effects of weathering are required.

Installation conditions:

The pump-motor unit must be installed as follows:

- On level surfaces
- At a maximum height of 1000 m [3280 ft] above sea level
- When installing at an altitude of more than 1,000 m [3,280 ft] above sea level. first inquire with the Service Department.

Minimum distances:

To ensure sufficient cooling of the pump-motor unit it is absolutely necessary that the required minimum distances to the fan guard and to the face of the vacuum pump/compressor cover be maintained with a gap to any surface of no less than 100mm.

The minimum distances to the face of the vacuum pump /compressor cover are especially important when installing on the vacuum pump/compressor cover or near a wall.

Noise radiation:

To reduce the noise radiation, the following must be observed:

- Do not mount pump-motor unit on noise conducting or noise-radiating parts (e.g. thin walls or sheet-metal plates).

Provide pump-motor unit with sound-insulating intermediate layer (e.g. rubber buffers under the base of the pump-motor unit) if necessary.

Install the pump-motor unit on a stable foundation or on a rigid mounting surface. This provides for smooth, low-vibration running of the pump-motor unit.

Components for reducing noise on the pump-motor unit:

Mufflers (included as standard equipment): On delivery the pump-motor units are equipped with attached mufflers as standard. The noise radiation is considerably reduced by the mufflers.

Additional mufflers (available as an option): The additional mufflers enable a further noise reduction. They may only be used with free entry and exit of gases, i.e. with direct intake out of or direct feeding into the atmosphere without piping.

Installation variants/axis position:

Basically, when installing the pump-motor unit, the following variants are possible with a different axis position (horizontal or vertical):

- Horizontal installation
- Vertical installation on the vacuum pump/compressor cover (cover installation")
- Vertical mounting on the wall

Horizontal installation

Screw the base of the pump-motor unit to the surface with suitable mounting elements. Proceed as follows:

- Provide the base of the pump-motor unit with mounting holes.

Basically, all variants are possible with all pumps.

Exception: With type ORB 94 vertical installation on the vacuum pump/compressor cover (cover installation") is mandatory.

Eye bolt:

Following installation the eye bolt can be removed.

Installation

Regulations:

The electrical connection must be carried out as follows:

- According to the applicable national and local laws and regulations.
- By a qualified professional.
- according to the applicable system dependent prescriptions and requirements,
- according to the applicable regulations of the utility company.

Electrical power supply:

Observe the rating plate.

It is imperative that the operating conditions correspond to the data given on the rating plate! Deviations permissible without reduction in performance:

- ± 5 % voltage deviation
- ± 2 % frequency deviation

Mount cable glands on the terminal box so that no moisture, dirt etc. can penetrate into the terminal box.

Carry out the connection and the arrangement of the jumpers in accordance with the circuit diagram in the terminal box.

Connect the protective conductor to the terminal with the following symbol:



The electrical connection must be carried out as follows:

- The electrical connection must be permanently safe.
- There may be no protruding wire ends.
- Clearance between bare live parts and between bare live parts and ground: ≥ 5.5 mm [0.217"] (at a nominal voltage of UN ≤ 690 V).

Operation with frequency converter:

With a power supply by a frequency converter, the following must be observed:

- High-frequency current and voltage harmonics in the motor supply cables can lead to emitted electromagnetic interference. This is dependent on the converter design (type, manufacturer, interference suppression measures).
- Be sure to observe the EMC notes of the converter manufacturer!
- Use screened power supply cables if necessary. For optimal screening, the screen must be conductively connected over a large area to the metal terminal box of the drive motor with a screwed metal gland.
- In the case of drive motors with integrated sensors (e.g. PTC thermistors) interference voltage can occur on the sensor cable depending on the converter type.
- Limit speed:
see specifications on the rating plate.

⚠ DANGER

Electrical danger!
 The terminal box must be free from

- foreign bodies,
- dirt,
- humidity.

Terminal box cover and cable entries must be tightly closed so as to make them dustproof and waterproof. Check for tightness at regular intervals

⚠ DANGER

Electrical danger!
 Clearance between bare live parts and ground:
 at least 5.5 mm [0.217"] (at a nominal voltage of UN ≤ 690V).
 There may be no protruding wire ends!

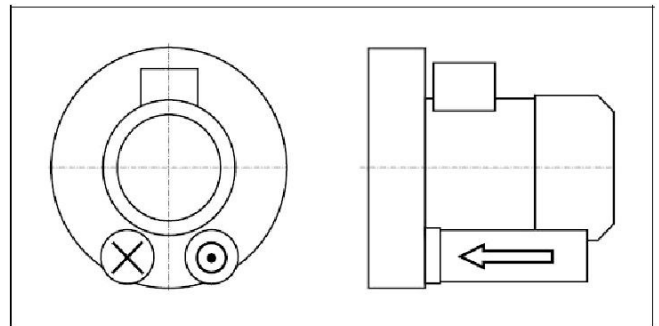
For motor overload protection:

- Use motor circuit breakers.
- This must be adjusted to the specified nominal current (see rating plate).

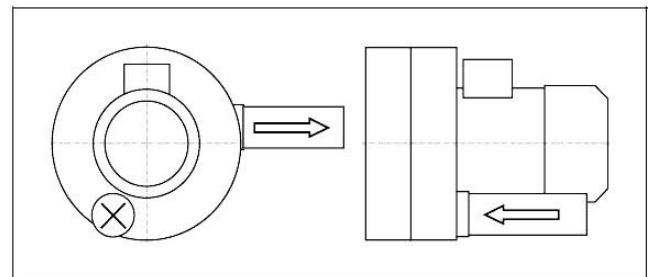
⚠ DANGER

Electrical danger!
 Mount motor circuit breaker.
 Have electrical equipment checked regularly by an electrician.

**ORB 01,11,21,31,41,51,61,71,81,91
 (single-impeller pump-motor units)**



On **two-impeller pump-motor units with a two-stage design of the types ORB 22 to ORB 92** the discharge-side muffler is included loose for packing-related reasons and must be mounted by the customer.



To prevent foreign bodies from entering the pump all connections are sealed off when delivered. **DO NOT** remove the sealing plugs until immediately before commissioning.

The pumped gases are sucked in via the inlet and discharged via the outlet. The shaft rotation is marked on the motor housing.

Installation

Connections:

To prevent foreign bodies from entering the unit, all connections are sealed off when delivered. Do not remove the sealing plugs until immediately before connecting the pipes/hoses.



WARNING

Danger due to vacuum and gauge pressure!

Danger due to escaping fluid!

During operation, connected pipes and vessels are vacuumized or pressurized!

Use only mounting elements, connections, lines, fittings and containers with sufficient freedom from leaks and strength for the pressures which occur.

Make sure that the mounting elements and connections are mounted sufficiently firmly and leak-free!

Danger from interchanging inlet and pressure line!

Interchanged inlet and pressure lines can lead to damage to the pump -motor unit and the system, and as a result of this to serious injuries!

Make sure that the inlet and pressure line cannot be confused when connecting. Look for the clear marking with the arrow indicating the delivery direction on the inlet and discharge connections.

Danger from rotating impeller:

Cutting/cutting of extremities!

The rotating impeller is accessible with the inlet and discharge connections open!

With free entry and exit of gases, i.e. with direct intake out of or direct feeding into the atmosphere without piping, the following therefore applies:

Provide the inlet and discharge connections of the pump-motor unit either with additional mufflers or with additional piping of a sufficient length to prevent access to the impeller!

The following applies for the arrangement of the pipe/hose connections:

The pumped gases are sucked in via the inlet connection and discharged via the discharge connection

The **shaft rotating direction** is marked with an arrow on the back of the vacuum pump/compressor housing

The **delivery direction of the gases** is marked with arrows on both connections

NOTICE

(Fig. 1, Pg. 2, Item 3) is marked with an arrow pointing into the vacuum pump/compressor. Connect the inlet pipe here. The pumped gases are sucked in via this.

WARNING**Danger from solid bodies and impurities in the pump-motor unit!**

If solid bodies penetrate into the pump-motor unit, blades of the impellers can break and broken pieces can be thrown out. Install a filter in the inlet pipe. Replace filter regularly!

5.3.2 Discharge connection

The discharge connection with the related muffler is marked with an arrow pointing out of the vacuum pump/compressor. Connect the discharge pipe here. The pumped gases are discharged via this.

5.3.3 Procedure when connecting pipes/hoses

Attach the pipes/hoses to the unit as described in the following. The pipes/hoses are connected differently to inlet and discharge connections depending on the muffler design and the type of line (pipe or hose):

- Muffler with inside threads: "
 - The pipe is screwed directly into the muffler.
 - Muffler without inside thread:
 - Screw threaded flange (available as an accessory) onto the muffler.
 - Screw the pipe into the threaded flange.
 - Hose connection:
 - Screw hose flange (available as an accessory) onto the muffler.
 - Push the hose onto the hose flange and secure it with a hose clamp.
- Mechanical data"Section "Tightening torques for screw connections.Pg. 10 for information on this topic.

6 Commissioning**WARNING**

Danger from rotating parts (external fan, impeller ,shaft): Cutting/cutting off of extremities, Grasping/winding up of hair and clothing!

Danger due to vacuum and gauge pressure: sudden escape of fluids (skin and eye injuries), sudden drawing in of hair and clothing!

Danger due to escaping fluid: Burns!

Start-up and **operation** only under the following conditions:

- The pump-motor unit must be completely assembled. When doing so, pay particular attention to the following components:
 - the vacuum pump/compressor cover,
 - the muffler on inlet and discharge connections,
 - the fan guard.
- The pipes/hoses must be connected to inlet and discharge connections.
- Inlet and discharge connections and the connected pipes/hoses may not be closed, clogged or soiled.
- Check the mounting elements of the pipe/hose connections, lines, fittings and containers for strength, leaks and firm seating at regular intervals.

6.1 Preparation**WARNING**

Danger from closed connections!

With closed/soiled intake or discharge connections vacuum or gauge pressure results in the pump-motor unit.

This can overheat and damage the drive motor winding.

Before start-up, make sure that the inlet and discharge connections are not closed, clogged or soiled!

Commissioning

CAUTION

Before starting up again after a longer standstill: Measure the insulation resistance of the motor. With values $\leq 1 \text{ k}\Omega$ per volt of nominal voltage, the winding is too dry.

Measures before start-up:

If a shut-off device is installed in the discharge pipe: Make sure that the unit is NOT operated with the shut-off device closed.

Before starting up the pump-motor unit observe the values specified on the rating plate. Specifications on the drive-motor nominal current apply at a gas entry and ambient temperature of $+40 \text{ }^\circ\text{C}$ [$104 \text{ }^\circ\text{F}$].

Adjust the motor circuit breaker to the drive-motor nominal current."



Check direction of rotation:

The intended rotating direction of the shaft is marked with arrows on the vacuum pump/compressor housing.

The gas delivery direction is marked with arrows on the inlet and discharge connections.

Make sure the pipes/hoses on the inlet and discharge connections are properly connected.

Switch the pump-motor unit on briefly and then off again.

Compare the actual rotating direction of the external fan with the intended shaft rotating direction indicated with the arrows shortly before the pump-motor unit comes to a standstill.

If necessary, reverse the direction of rotation of the motor.

CAUTION

Danger of overheating due to high temperature!

When storing in an environment with a temperature of over $40 \text{ }^\circ\text{C}$ [$104 \text{ }^\circ\text{F}$], the winding may be damaged and the grease change interval may be shortened.

Commissioning after longer standstill:

Before re-commissioning after a longer standstill, measure the insulation resistance of the drive motor. With values $\leq 1 \text{ k}\Omega$ per volt of nominal voltage, the winding is too dry.

9.1 Repairs/troubleshooting

Fault	Cause	Remedy	Carried out by
Motor does not start; no motor noise	At least two power supply leads interrupted.	Eliminate interruption by fuses, terminals or power supply cables.	Electrician
Motor does not start; humming noise..	One power supply lead interrupted.	Eliminate interruption by fuses, terminals or power supply cables.	Electrician
	Impeller is jammed.	Open vacuum pump/compressor cover, remove foreign body, clean.	Service

Fault	Cause	Remedy	Carried out by	
Protective motor switch trips when motor is switched on Power consumption too high.	Impeller defective.	Replace impeller	Service*)	
	Rolling bearing on drive motor side or vacuum pump/compressor side defective.	Replace motor bearing or vacuum pump/compressor bearing.	Service*)	
	Winding shortcircuit.	Have winding checked.	Electrician	
	Motor overloaded. Throttling does not match specification on rating plate.	Reduce throttling	Service*)	
	Pump-motor unit does not generate any or generates insufficient pressure difference.	Compressor is jammed.	Clean filters, mufflers and connection pipes if necessary.	Service*)
		Leak in system. Wrong direction of rotation	See fault: "Motor does not start; humming noise. Impeller is jammed.	Service*)
Seal leak in the system. Reverse direction of rotation by interchanging two connecting leads.		Operator Electrician		
Abnormal Operator flow noises.	Incorrect frequency (on pump-motor units with frequency converter). Shaft seal defective.	Correct frequency.	Electrician	
	Different density of pumped gas.	Replace shaft seal.	Service*)	
	Take conversion of pressure values into account. Inquire with Service Department.	Service		
Abnormal running noise Compressor leaky.	Change in blade profile due to soiling.	Clean impeller, check for wear and replace if necessary.	Service*)	
	Flow speed too high.	Clean pipes. Use pipe with larger cross-section if necessary.	Operator	
Abnormal running noise Compressor leaky.	Muffler soiled.	Clean muffler inserts, check condition and replace if necessary.	Service*)	
	Ball bearing lacking grease or defective.	Regrease or replace ball bearing.	Service*)	
Abnormal running noise Compressor leaky.	Seals on muffler defective.	Check muffler seals and replace if necessary.	Service*)	

*) Only when the maintenance manual is at hand: rectification by the operator.

Standard Olympias Side Channel Blower Vacuums

3 Phase Models

Model	Motor KW	Capacity m3/hr	Vacuum mbar	Pressure mbar	Port	Noise dBa	Weight KG
ORB 21-0.4-3	0.4	80	-110	110	G1 1/4"	53	10
ORB 22-0.7-3	0.7	88	-210	240	G1 1/4"	55	14
ORB 32-1.3-3	1.3	110	-280	290	G1 1/4"	58	18
ORB 41-0.85-3	0.85	145	160	160	G1 1/2"	63	15
ORB 41-1.3-3	1.3	145	-170	200	G1 1/2"	63	16
ORB 42-2.2-3	2.2	150	-330	440	G1 1/2"	66	27
ORB 51-1.6-3	1.6	210	-200	190	G 2"	64	21
ORB 51-2.2-3	2.2	210	-220	270	G 2"	64	25
ORB 52-3.0-3	3	230	-340	410	G 2"	72	39
ORB 52-4.0-3	4	150	-390	490	G 2"	72	43
ORB 71-3.0-3	3	318	-270	290	G 2"	69	34
ORB 72-3.0-3	3	320	-280	260	G 2"	73	48
ORB 72-4.3-3	4.3	320	-360	380	G 2"	73	53
ORB 73-4.0-3	4	310	-260	420	G 2"	72	43
ORB 81-5.5-3	5.5	530	-300	320	G2 1/2"	80	65
ORB 81-7.5-3	7.5	530	-320	430	G2 1/2"	70	72
ORB 82-7.5-3	7.5	520	-400	400	G2 1/2"	74	56
ORB4 32-1.5-3	1.5	65	-440	540	G1 1/4"	59	30
ORB4 42-3.3-3	3.3	87	-500	750	G1 1/2"	61	39
ORB4 52-2.2-3	2.2	120	-470	460	G1 1/4"	64	40
ORB4 61-2.2-3	2.2	165	-340	360	G1 1/4"	65	32

Single Phase Models

Model	Motor KW	Capacity m3/hr	Vacuum mbar	Pressure mbar	Port	Noise dBa	Weight KG
ORB 01-0.2-1	0.2	40	-70	80	G 1"	46	6
ORB 11-0.25-1	0.25	55	-80	80	G 1"	51	7
ORB 21-0.4-1	0.4	80	-110	110	G1 1/4"	53	11
ORB 32-1.1-1	1.1	120	-240	280	G1 1/4"	58	17
ORB 41-0.8-1	0.8	145	-150	160	G1 1/2"	63	15
ORB 41-1.1-1	1.3	145	-150	190	G1 1/2"	63	17
ORB 42-1.5-1	1.5	150	-280	290	G1 1/2"	66	25
ORB 51-1.1-1	1.1	210	-160	160	G 2"	64	21
ORB 51-1.5-1	1.5	210	-190	200	G 2"	64	24
ORB 71-2.2-1	2.2	318	-190	190	G 2"	72	30
ORB4 32-1.5-1	1.5	65	-400	550	G1 1/4"	59	32
ORB4 41-1.1-1	1.1	87	-300	380	G1 1/2"	55	23

Performace above is at 50Hz, contact Olympias for 60Hz information

Relief Valves Part No

Part No	Description
OA-RV-1.25	1 1/4" BSP vac/pressure relief valve
OA-RV-1.5	1 1/2" BSP vac/pressure relief valve
OA-RV-2	2" BSP vac/pressure relief valve
OA-RV-2.5	2 1/2" BSP vac/pressure relief valve
OA-RV-3	3" BSP vac/pressure relief valve
OA-RV-4	4" BSP vac/pressure relief valve

Gauge Part No

OA-0/-100kPaSS	0/-100kPa liquid filled vacuum gauge Ø63mm, 1/4"BSP bottom entry SS body
OA-0/100KPA	0/100kPa pressure gauge, Ø63mm 1/4BSPT rear connection

Mufflers Part No

OA-FS001	1 1/4" silencer, thread both ends
OA-FS002	1 1/2" silencer, thread both ends
OA-FS003	2" silencer, thread both ends
OA-FS004	3" silencer, thread both ends

Filters Part No

OA-F001	3/8" BSP Vacuum prefilter unit complete with 5-7 micron paper element. Flows 24m3/h
OA-F002	3/4" BSP Vacuum prefilter unit complete with 5-7 micron paper element. Flows 42m3/h
OA-F003	1 1/4" BSP Vacuum prefilter unit complete with 5-7 micron paper element. Flows 108m3/h
OA-F004	1 1/4" BSP Vacuum prefilter unit complete with 5-7 micron paper element. Flows 96m3/h
OA-F005	1 1/2" BSP Vacuum prefilter unit complete with 5-7 micron paper element. Flows 192m3/h
OA-F006	2" BSP Vacuum prefilter unit complete with 5-7 micron paper element. Flows 310m3/h
OA-F006/1	2 1/2" BSP Vacuum prefilter unit c/w K2050 5-7 micron paper element. Flows 360m3/h
OA-F007	3" BSP Vacuum prefilter unit c/w K2063 5-7 micron paper element. Flows 550m3/h
OA-FA1007/10	M12 x 1.5mm blower filter housing unit complete with 5-7 micron paper element. 100m3/hr
OA-FA1010/10	3/4" BSP blower filter housing unit complete with 5-7 micron paper element. 36m3/hr
OA-FA1020/10	1" BSP blower filter housing unit complete with 5-7 micron paper element. 84m3/hr
OA-FA1020/20	1 1/4" BSP blower filter housing unit complete with 5-7 micron paper element. 96m3/hr
OA-FA1030/10	1 1/2" BSP blower filter housing unit complete with 5-7 micron paper element. 210m3/hr
OA-FA1040/10	2" BSP blower filter housing unit complete with 5-7 micron paper element. 270m3/hr
OA-FA1050/10	2 1/2" BSP blower filter housing unit complete with 5-7 micron paper element. 498m3/hr
OA-FA1060/10	3" BSP blower filter housing unit complete with 5-7 micron paper element. 900m3/hr

Compact Exhaust Adaptor

OA-CEA-1.25	90 deg bend 1 1/4"
OA-CEA-1.5	90 deg bend 1 1/2"
OA-CEA-2	90 deg bend 2"

Diffusers

OA-DSK250	250mm diffuser disk
OA-DSK320	320mm diffuser disk
OA-25diff	1 meter diffuser tube, can be cut to length
OA-Diff-300	300mm diffuser tube with threaded ends
OA-Diff-600	600mm diffuser tube with threaded ends

Key Reminders

Professional Installation

ORB pumps are industrial quality and must be installed by professionals. The warranty will be invalid if incorrect installation causes damage.

Safety

This pump has moving parts, can run hot and has high voltage power supply. It is also heavy and bulky to move. Please make sure that all necessary safety precautions are taken.

Keep It Cool

Your ORB Pump is designed to be operated at ambient temperatures below 40°C so leave plenty of space around the pump and shield from direct sunlight.

Clean Air

All side channel blower / vacuum pumps need clean air. Fit intake air filters and renew/clean them regularly.

Over Pressure

Exceeding the pressure/vacuum parameters of the pump will shorten the life. Ensure that correctly calibrated pressure relief valves are fitted.

Over Current

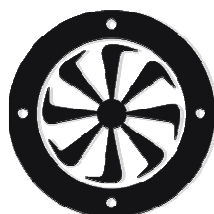
Allowing the motor to draw too much power could damage the motor. Make sure that the motor has current supply protection.

Rotational Direction

The intended rotating direction of the shaft is marked with arrows on the vacuum pump/compressor housing. Compare the actual rotating direction of the external fan with the intended shaft rotating direction and correct if necessary.

Continuous Operation

Being an industrial pump it is designed for continuous operation or occasional on/off operation. Avoid situations where it is turned on and off regularly.



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