Ecotao Enterprises cc CK 2001/053814/23 VAT:4590247682
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PO Box 15781, Panorama, Parow, Cape Town, 7506
Tel: 021-9115835; Fax: 086 694 8396 Cell: 0823903989
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July 16, 2020

SHORT SUMMARY

1. A qualified electrician should do the electrical installation.
2. Place the blower above the water level to prevent back-syphoning of water into the air blower.
3. Do a quick on-off test to check that the 3-phase blower motor is running in the right direction. Do not let the blower run backwards.
4. Prevent stones or insects from entering the intake with a proper filter, as the impellor tolerances are precise and the impeller can get damaged.
    a. Newly installed PVC pipes can have stones inside. Please ensure airflow to impellors is clean and free of stones.
5. Airflow cools the blower, so the blower size needs to be correct for the application. Delivery pipes need to be large enough for the selected blower. Restricted airflow can lead to the blower heating and the motor burning out. The airflow must match the blower's operating curve range. 95% of bower problems are due to air restriction causing the blower to run hot.
    a. For 12 month warranty purposes and free advice, please send the installation design to Ecotao Enterprise cc. We will review the installation plan to ensure the blower airflow will not be restricted.
    b. As a simple check, run the blower unconnected for 20 minutes. Hold your hand on the housing. It is warm or hot, but easy to keep your hand on the blower fan housing. Now run the blower on your system. If you can no longer easily hold your hand on the blower housing, then airflow is being restricted to the extent that the blower is running hot. Delivery pipe diameters and air release points will need to be reviewed.
6. Establish an air filter cleaning schedule – especially important in dusty environments.
7. The bearings are the only wearing part and can be easily replaced by a qualified armature winder.

USAGE CRITERIA

This applied to standard blowers. We also supply custom made explosion-proof blowers were some instances do not apply.

Use Criteria

- Use only clean, dry air.
- Do not use flammable or explosive gases or atmosphere that contains such gases.
- Operate at 0°C – 40°C (32°F – 104°F).
- Protect unit from contaminants and moisture.
- Protect all surrounding items from exhausted air. This exhausted air can be very hot.
- Air particles, water vapor, oil based contaminants or other liquids must be filtered out.
- This blower must be installed with the proper sized inlet and inline filter, gauge and relief valve to protect the blower from contaminants and over-heating.

Safety Notice

To insure safe operation, we have provided many important safety guidelines in this manual for the Republic Regenerative Blower. Please read this instruction manual carefully and pay particular attention to instructions with the following signs:

DANGER: Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING: Indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

Installation

Installation

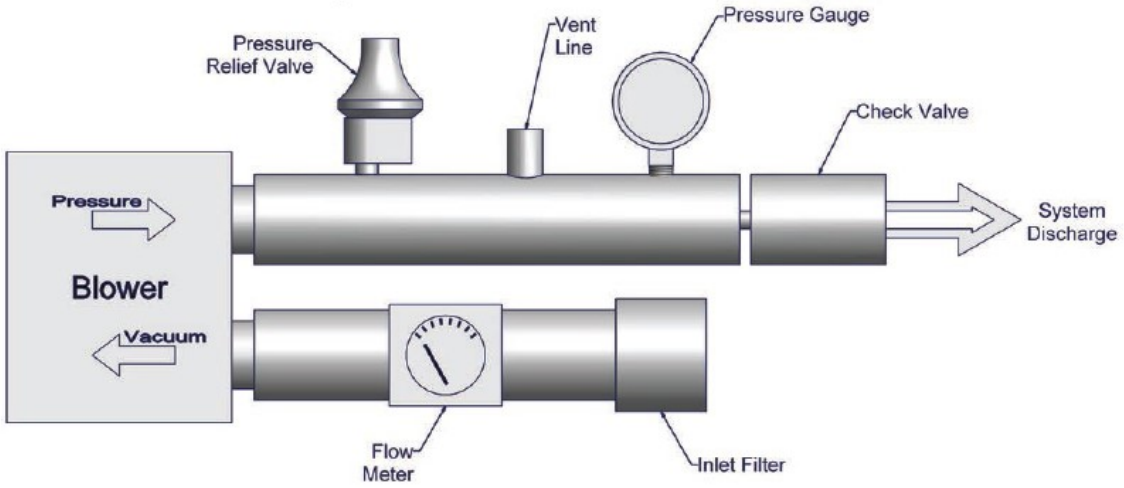
Electrical Shock Hazard

- Disconnect electrical power at the circuit breaker or fuse box before installing this product.
- Install the blower in a location where it will not come into contact with water or other liquids.
- Install the blower in a location protected from the weather.
- Electrically ground the blower.
- Failure to follow these instructions can result in death, fire or electrical shock.

Notice of Installation

- Correct installation is your responsibility.
- Make sure you have the proper installation conditions and that installation clearances do not block air flow.
- Blocking air flow over the blower in any way can cause the product to overheat.
- The blower must be installed with the proper sized inlet filter, gauge and relief valve to protect the product from contaminants and over-heating.

Standard Installation Layout



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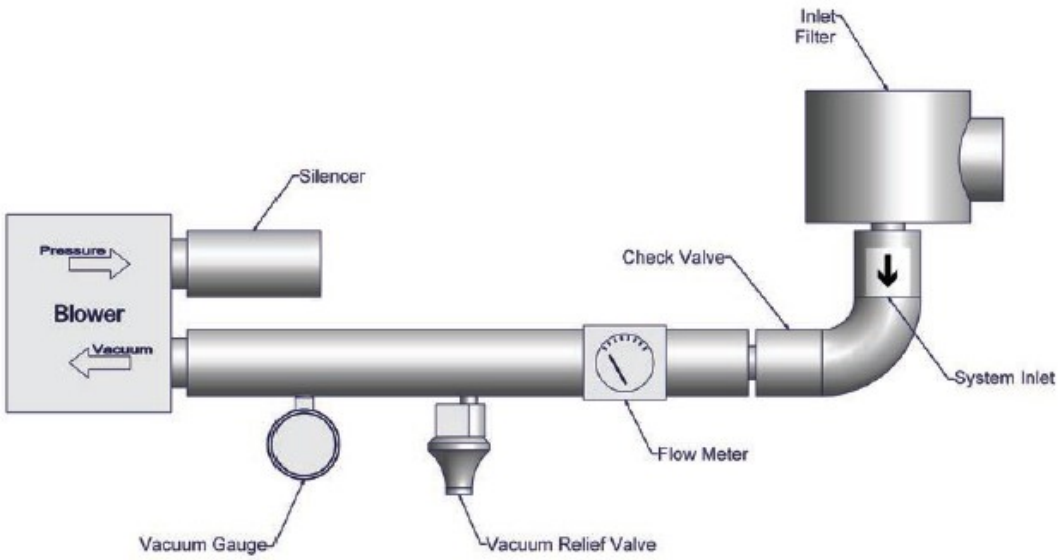
Typical Vacuum Arrangement



1. Recommended piping should be, at minimum, the same size as the inlet and outlet ports.
2. Metal piping is recommended for the first five (5') to eight (8') feet from the blower on pressure systems.
3. Elbows increase friction. Minimizing the amount of elbows in the piping run will decrease friction loss.
4. Pressure or relief valves should be installed in a "T" that is at least one (1) pipe size larger than the port diameter.
5. Exhaust air temperature increases significantly above 65" of water column. Discharged air is typically too hot for most plastic piping. Therefore, metal piping is recommended for at least the first five (5') to eight (8') feet from the blower on the discharge side. In addition, this piping MUST be guarded and marked "DANGER–HOT–DO NOT TOUCH."

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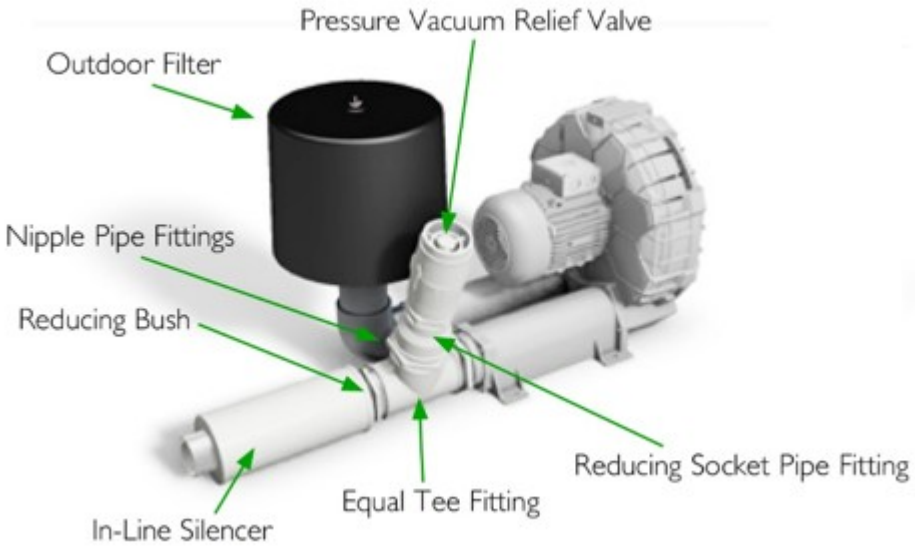

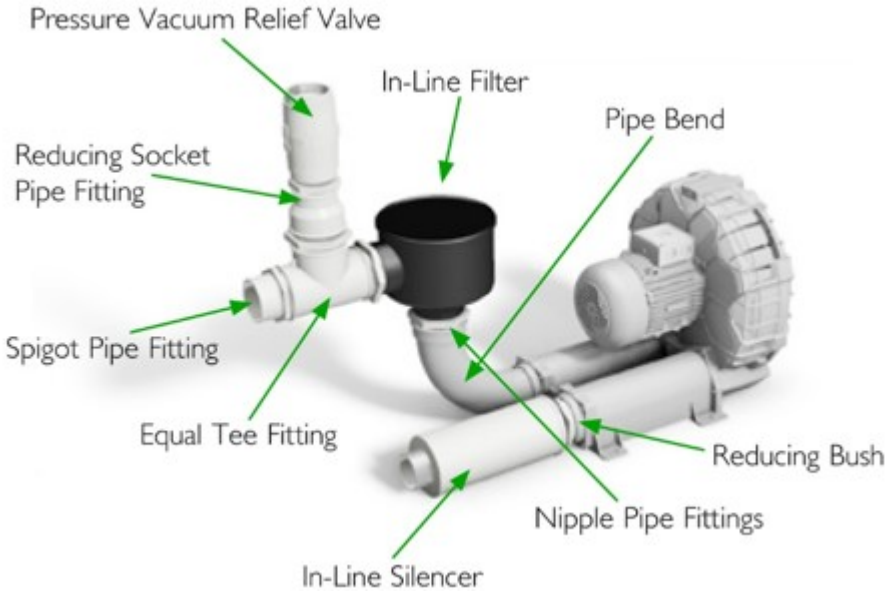

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1-1. Installation

Install the blower on a level, stable operating surface and use the isolation pads provided to reduce noise and vibration.

Horizontal Position

Vertical Position

Position Unapproved

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1-2. Rotation

From the motor side of the blower, verify the blower is rotating in the direction indicated by the arrow on the motor. (The motor side is marked with an arrow on most models.) Proper rotation can also be checked by the air flow at the inlet and outlet ports. On blowers powered by a 3-phase motor, change the connection of any two (2) wires to reverse blower rotation.

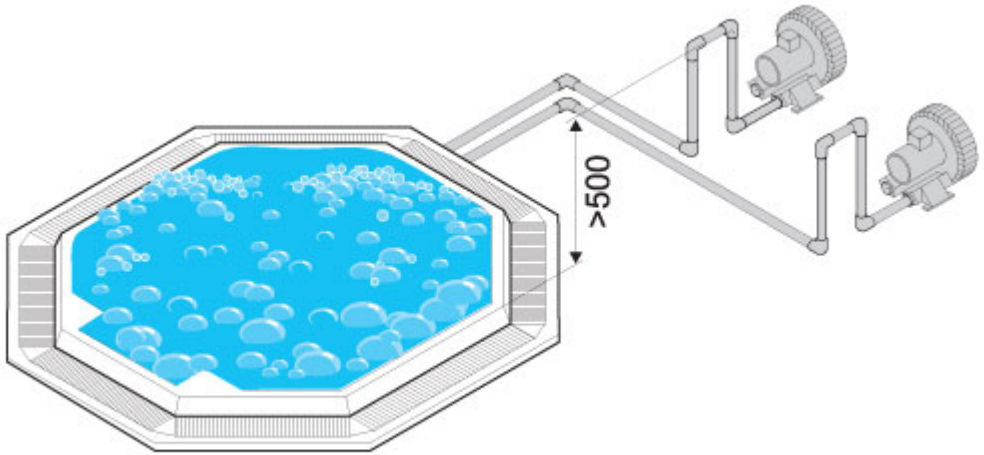
1-3. Plumbing

Remove any foreign material (burrs, chips, welding drops, slag, pipe cuttings, excess sealant, sand or lime) from plumbing.

Verify the motor is securely mounted and proper blower rotation before connecting to plumbing. The inlet and outlet port are not designed to support the plumbing without proper supporting elements. Remove safety rubber plugs from the inlet and outlet ports. Connect the plumbing with properly sized fittings.

Use a relief valve to discharge excess air beyond the preset level on pressure applications. Use a vacuum relief valve to draw in excess air when preset vacuum level is achieved.

Install an intake filter to prevent foreign material from entering the blower. In applications where there is high humidity or liquids being used in the process, install a moisture separator with a drain valve.



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1-4. Accessories

Install two gauges (vacuum or pressure), one before and one after the filter, to monitor differential through the filter element. As filters become clogged, performance efficiency will be reduced. Filters should be checked periodically and replaced when necessary. The recommended check valves provide minimal pressure drop, positive sealing, and are resistant to the high discharge temperatures of the blowers. (Refer to Republic Regenerative Blower Check Valves List)

1-5. Motor Control

It is your responsibility to contact a qualified electrician and assure that the electrical installation is adequate and in compliance with all national and local electrical codes.

Select fuses, motor protective switches, or thermal protective switches to provide protection. Fuses act as short circuit protection for the motor, not as protection against overload. Incoming line fuses must be able to withstand the motor's starting current. Motor starters with thermal magnetic overload or circuit breakers protect motor from overload or reduced voltage conditions. Motors without automatic restart require thermal protection or magnetic over-current cutout to prevent motor overloading from single phasing in a 3-phase circuit, high starting frequency, or locked blower.

1-6. Electrical Connection

Electrical Shock Hazard

- This product must be properly grounded.
- Do not modify the plug provided. If it will not fit the outlet, have the proper outlet installed by a qualified electrician.
- If repairing the cord or plug, do not connect the ground wire (green or green with yellow stripes) to either terminal.
- Check the condition of the power supply wires.

Connecting Electrically

WARNING

Risk of electrical shock, risk of damage to equipment.

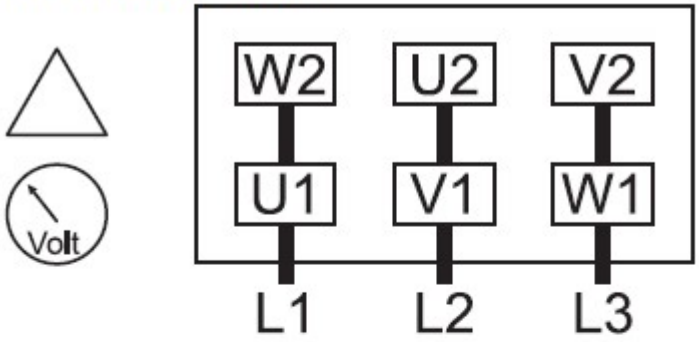
Electrical installation work must only be executed by qualified personnel that knows and observes the following regulations:
- IEC 364 or CENELEC HD 384 or DIN VDE 0100, respectively,
- IEC-Report 664 or DIN VDE 0110,
- BGV A2 (VBG 4) or corresponding national accident prevention regulation.

Note: The standard scope of supply of the drive motor includes a metric female thread in the terminal box. A conduit adapter to convert metric thread size to NPT thread size is available on request.

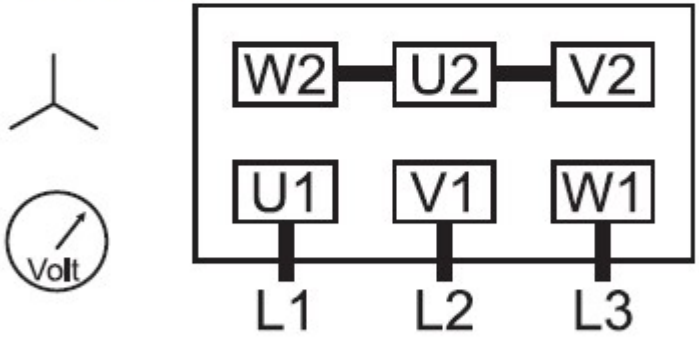
- Electrically connect the drive motor
- Connect the protective earth conductor

Connection Scheme Three-Phase Motor

Delta connection (low voltage):



Star connection (high voltage):



CAUTION

Operation in the wrong direction of rotation can destroy the side channel blower in short time.

Prior to starting-up it must be made sure that the side channel blower is operated in the proper direction.

See: https://www.youtube.com/watch?v=lbbM1-SxS_g

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Start Up

Operate blower for an hour and then check:

1. **Ambient temperature –** Increased room temperatures may require stronger ventilation especially for larger blowers. Room temperature should not exceed 100°F.
2. **Pressure and vacuum valves –** Adjust relief valve pressure or vacuum setting, if needed.
3. **Motor current** - Check that supply current matches recommended current rating on blower nameplate.
4. **Electrical overload cutout –** Check that current matches rating on blower nameplate.

If motor fails to start or slows down significantly under load, shut off and disconnect from power supply. Check that the voltage is correct for the motor and that the motor is turning in the proper direction.

Injury Hazard

- ▲ Blower surfaces become very hot during operation. Allow blower surfaces to cool before handling.
- ▲ Wear proper eye protection. Air stream from product may contain solid or liquid material that can result in eye or skin damage.
- ▲ Failure to follow these instructions can result in burns, eye injury or other serious injury.
- ▲ It is the customer's responsibility to regularly inspect and make necessary repairs to the blower in order to maintain proper operation. Make sure that pressure and vacuum is released from product before starting maintenance.

Preventive Maintenance

- ▲ After the first 500 hours of operation, the following need to be checked:
  - filter elements
  - noise absorbing foam used in mufflers
  - clean motor and blower
- ▲ Replace filter elements as needed. Mufflers should be checked on a monthly basis.

Lubrication Interval

To lubricate the bearings, the roller contact bearings and adjacent bearing housing should have the used grease removed and replaced with fresh grease. About 50 percent of the roller balls should be filled. No more than 65 percent of the adjacent bearing housing should be filled. Sealed bearings should be replaced within the listed conditions below with new bearings or as conditions warrant.

Hours of Service Per Year	Relubrication Intervals
5,000	3 years
Continual Normal Services	1 year
Seasonal Service (motor idle for 6+ months)	1 year at beginning of season
Continuous–high ambients, dirty or moist applications	6 months

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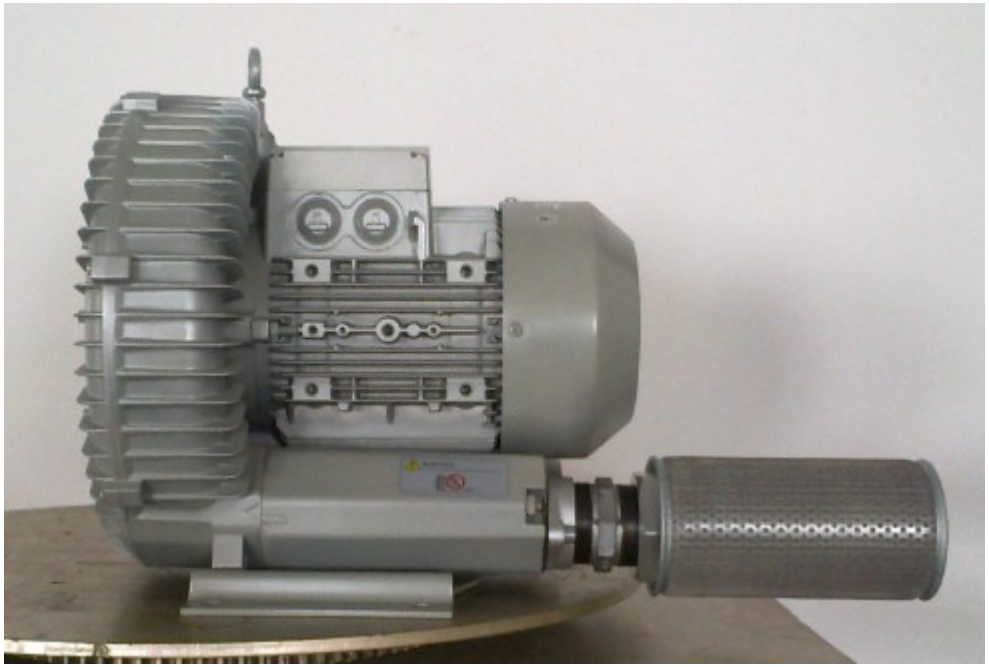

Key detail
Make sure the blower rotation is in the correct direction.
A qualified electrician should do the electrical installation.

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Fig. 1: Side channel blower parts

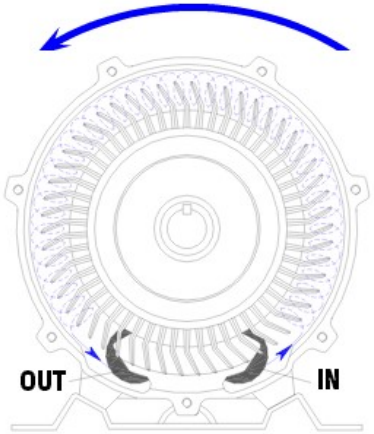

Fig. 2: Rotation and movement of air through the impeller, as seen from the compressor cover.

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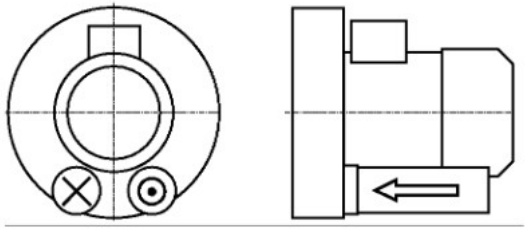

Fig. 3: Single stage side channel blower (one impeller)

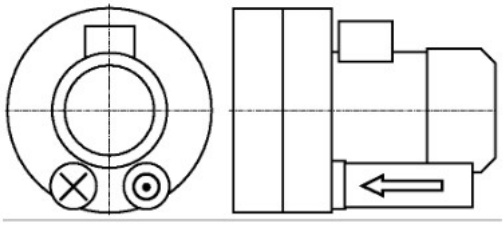

Fig. 4: Double stage side channel blower (two impellers in parallel)

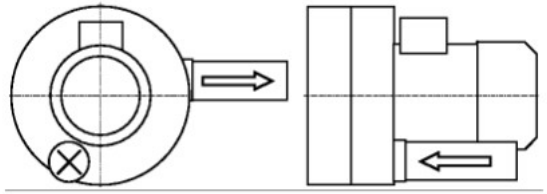

Fig. 5: Double stage side channel blower (two impellers in serial)

Double stage side channel blowers with Impellers in serial are supplied with the outlet silencer loose and it must be mounted by the installer.

Double stage blowers have air outlet on the side

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Use standard galvanized steel fittings or PVC fittings for installation.

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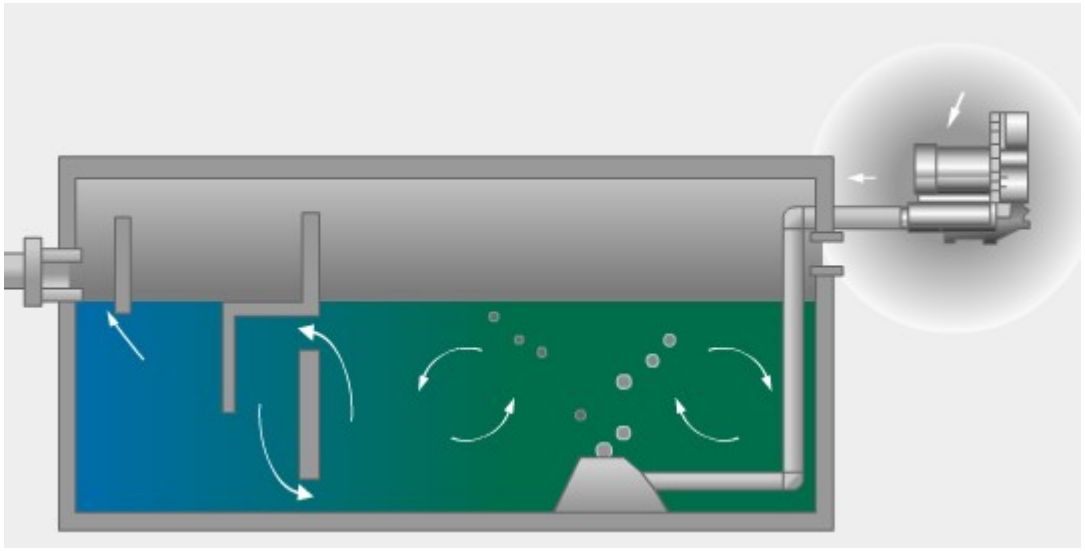

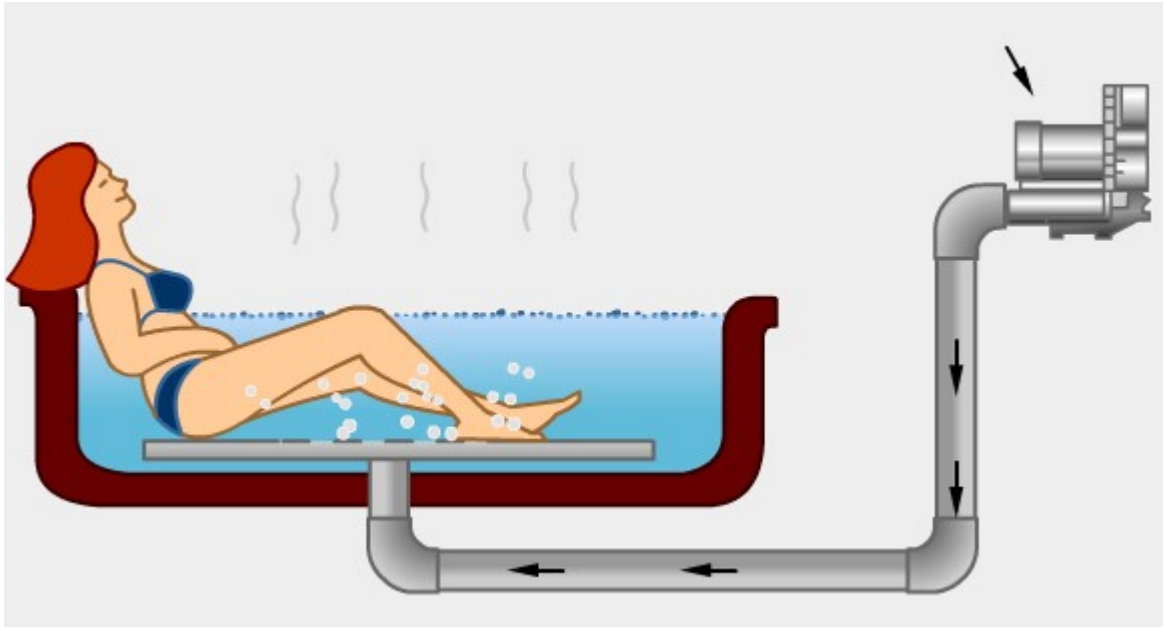

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Deliver pipe diameters needed. Please ensure the delivery line diameter is correct.
See
https://www.engineeringtoolbox.com/pressure-drop-compressed-air-pipes-d_852.html

https://apps.engineeringtoolbox.com/compressed-air-pipe-lines-a_14.html

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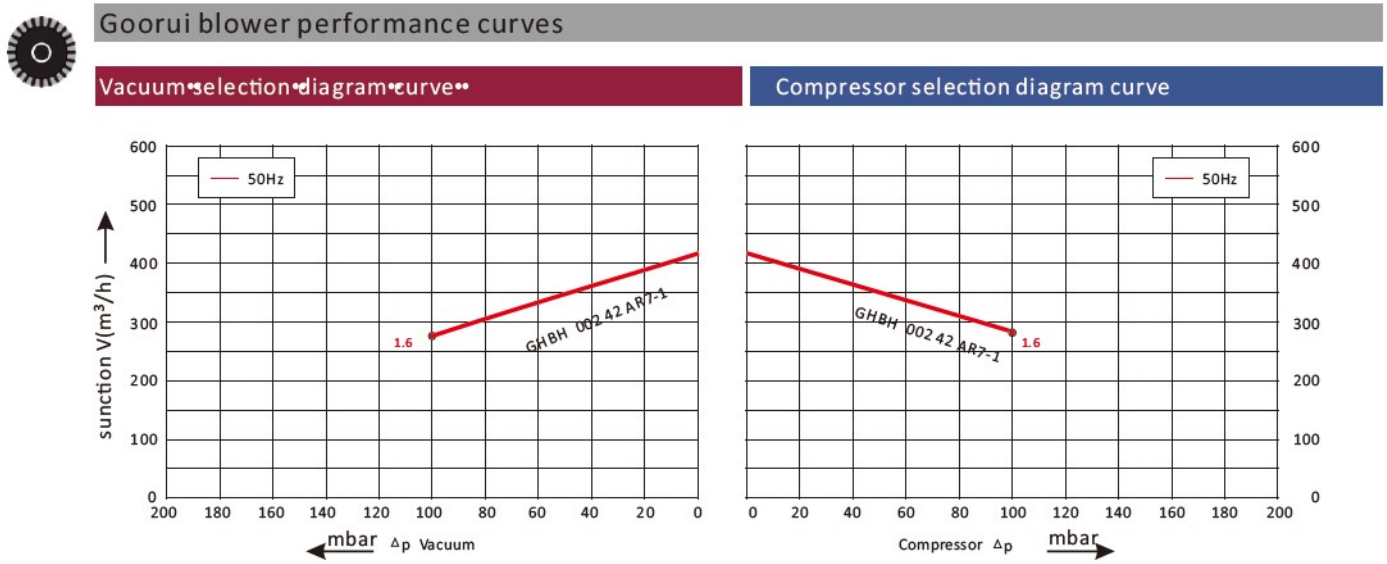
BLOWER SPECIFICATION

Custom order blower motor is fitted to the below blower.

SHBH 002 34 AR7 (1.6kw 50Hz 550V) is the mode description with this motor.



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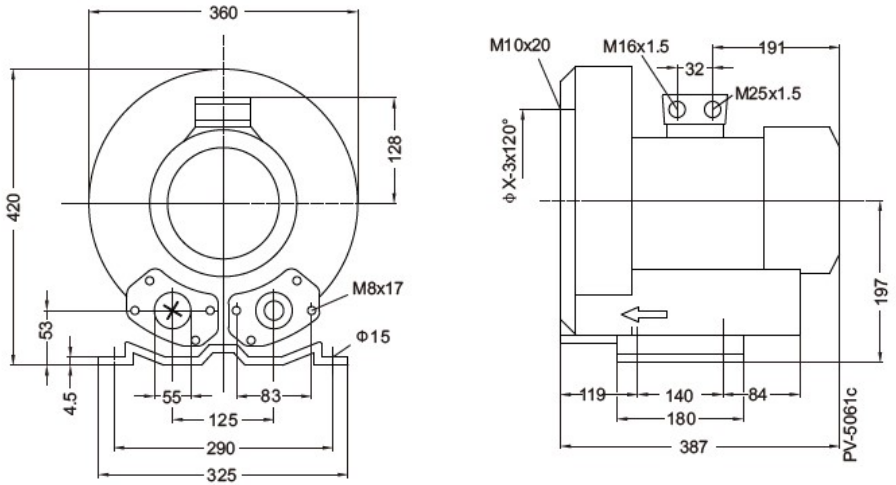
Goorui blower installation drawing



Goorui blower parameter

Model	Frequency	Output	voltage	Current	airflow	pressure		noise	Weight
	Hz	KW	V	A	m^3/h	vacuum mbar	compressor mbar	dB(A)	kg
3~ 50/60Hz IP54 INSULATION class **F**									
GHBH 002 42 AR7-1	50	1.6	550	8.5△/4.9Y	420	-100	100	70	29

The performance curves of Goorui blower is tested through below ways:
Under one atmospheric pressure, suck15℃ air and then you can calculate the data,of course allow 10% difference,and when the sucked air

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and surroundings temperature are not higher than 25°C,you s□ll can get total pressure difference as the curves shows.

GHBH series 7

Specification for pressure & vacuum operation.

Three-phase motor

Model	Frequency	MOTOR Rated Power	Voltage	Current	Weight	Sound	Max airflow	Rated vacuum	Rated pressure	Pressure relief valve / filter
	Hz	KW	V	A	Kg	db(A)	m^3/h	mbar	mbar	
GHBH 002 34 1R7	50	1.6	200-240Δ/345-415Y	8.5Δ/4.9Y	26	69	318	-160	150	RV-01/MF-16
	60	2.1	220-275Δ/380-480Y	8.8Δ/5.5Y		72	376	-160	150	RV-01/MF-16
GHBH 003 34 1R7	50	2.2	200-240Δ/345-415Y	10Δ/5.6Y	29	69	318	-210	200	RV-01/MF-16
	60	2.55	220-275Δ/380-480Y	10.3Δ/6.5Y		72	376	-210	200	RV-01/MF-16
GHBH 004 34 1R7	50	3.0	200-240Δ/345-415Y	12.5Δ/7.2Y	34	69	318	-270	290	RV-01/MF-16
	60	3.45	220-275Δ/380-480Y	12.6Δ/7.3Y		72	376	-250	230	RV-01/MF-16
GHBH 5D5 36 1R7	50	4.0	345-415Δ/600-720Y	9.0Δ/5.2Y	42	70	318	-290	330	RV-01/MF-16
	60	4.6	380-480Δ/660-720Y	9.0Δ/5.2Y		73	376	-330	330	RV-01/MF-16
GHBH 003 34 2R7	50	2.2	200-240Δ/345-415Y	9.7Δ/5.6Y	42	73	320	-220	210	RV-01/MF-16
	60	2.55	220-275Δ/380-480Y	10.3Δ/6.0Y		76	385	-170	150	RV-01/MF-16
GHBH 004 34 2R7	50	3.0	200-240Δ/345-415Y	12.5Δ/7.2Y	47	73	320	-280	260	RV-01/MF-16
	60	3.45	220-275Δ/380-480Y	12.6Δ/7.3Y		76	385	-230	200	RV-01/MF-16
GHBH 5D7 36 2R7	50	4.3	345-415Δ/600-720Y	10.0Δ/5.2Y	53	73	320	-360	380	RV-02/MF-16
	60	4.8	380-480Δ/660-720Y	10.4Δ/6.0Y		76	385	-350	320	RV-02/MF-16
GHBH 7D5 36 2R7	50	5.5	345-415Δ/600-720Y	13.3Δ/7.7Y	70	73	320	-440	500	RV-02/MF-16
	60	6.3	380-480Δ/660-720Y	13.3Δ/7.7Y		76	385	-440	500	RV-02/MF-16
GHBH 010 36 2R7	50	7.5	345-415Δ/600-720Y	16.7Δ/9.6Y	77	73	320	-440	570	RV-02/MF-16
	60	8.6	380-480Δ/600-720Y	17.3Δ/10.0Y		76	385	-460	660	RV-02/MF-16
GHBH 002 34 AR7	50	1.6	200-240Δ/345-415Y	8.5Δ/4.9Y	32	70	420	-100	100	RV-01/MF-16
	60	2.05	220-275Δ/380-480Y	8.8Δ/5.1Y		73	500	-110	80	RV-01/MF-16

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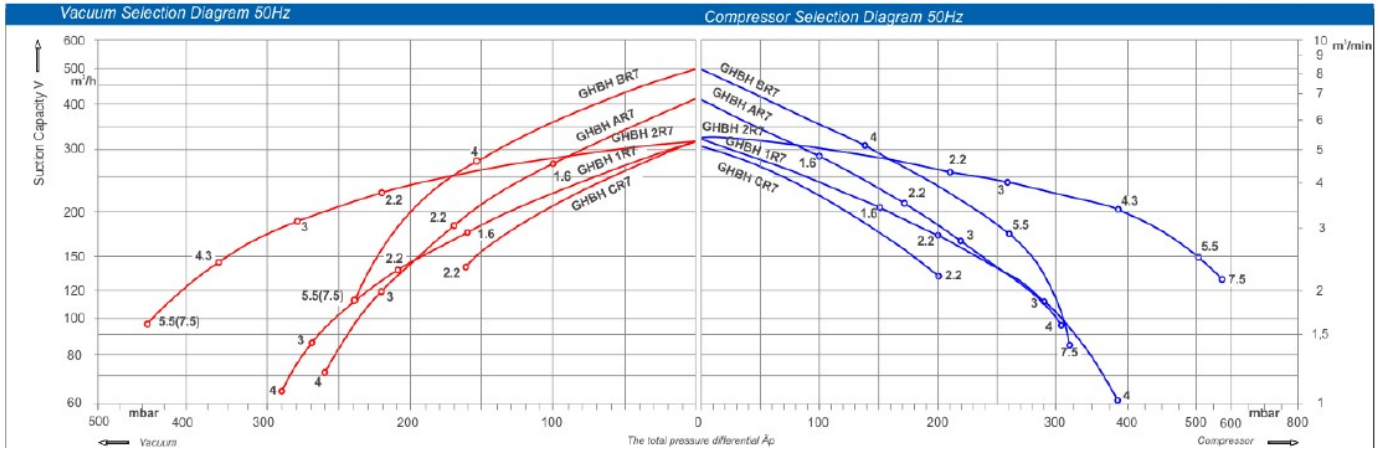
GHBH Series7 performance curves

The performance curves data of GOORUI regenerative blower are tested under atmospheric pressure and air temperature at 15° C. It is allowed error by ±10%. When our suction and environment temperature is less than 25° C, the differential pressure in the form still can be reached.



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