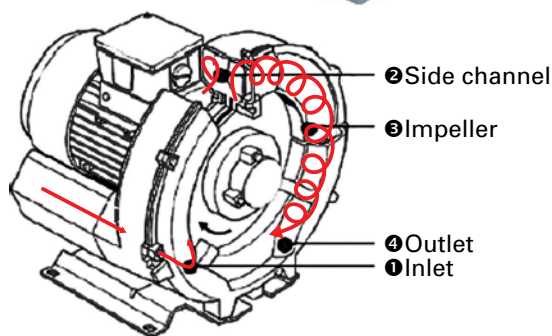


Regenerative Blowers



Pneumofore blower



Blowers used in aquaculture.

Introduction

Regenerative blowers can be utilised as either compressors or exhausters to move clean, filtered, non-corrosive, non-explosive gases. They produce a pulse-free, oil-free gas flow and are compact, quiet, and easy to install.

In addition to this, regenerative blowers are relatively maintenance-free. The impeller is the only moving part and does not come into contact with the housing. The blowers have no intake/exhaust valves.

These blowers offer an ideal solution for moving low volumes of air at relatively high suction or delivery pressures. Unlike positive displacement compressors and vacuum pumps, regenerative blowers “regenerate” air through a process of centrifugal and rotational forces. They are also referred to as **side channel blowers, lateral channel blowers, or ring compressors.**

They are an economical solution to a wide variety of applications and operate as follows. The impeller in the monoblock direct drive construction is mounted directly on the electric motor shaft and rotates typically at 2900RPM (50Hz supply) or 3500RPM (60Hz supply). There is no contact between the impeller and the casing and therefore no lubrication is required. The motor bearings are mounted outside the compression chamber.

Principle of Operation

The gas is drawn in through the inlet silencer 1. As it enters the side channel 2, the impeller 3 imparts velocity to the gas in the direction of rotation. Centrifugal force accelerates the gas outward and increases the pressure. Each rotation adds kinetic energy resulting in a further increase in pressure along the side channel. A narrowing at the end of the side channel causes the gas to exit the blower through outlet silencer 4.

Precautions

The majority of blower failures are due to improper installation and/or operation. Regenerative blowers have very close tolerances between the impeller and the housing. All precautions must be taken to ensure no foreign matter or dust can pass through the blower. A 10µm filter is usually adequate. Failure to take precautions here can lead to catastrophic failure.

Also, contrary to centrifugal fans and pumps, the regenerative blower draws *more* power when the gas flow is restricted. Restrictions can be caused by blocked inlet filters, incorrectly designed or blocked piping systems, closed valves, and in the case of liquid aeration, deeper than specified fluid levels, to name a few. This can lead to the driving motor overloading, resulting in overheating and burnout if no protection is in place. The blower must, in all installations, be protected with a correctly set electrical overload device. This should include single phasing protection where three phase power supply is being used.

Blowers must have a flow of air passing through to cool them. If air does not flow through the blower, a build-up of heat could cause the impeller to expand and lock-up in the casing. These high temperatures can also melt the grease in the drive-end motor bearing, resulting in bearing failure. A pressure relief valve will prevent over pressurization and allow air to pass through the blower. Pressure relief valves are also used in applications where valves in the piping system are constantly opening and closing (such as vacuum lifting systems). The pressure relief valve reduces the detrimental effects of constant loading and unloading of the electric motor.

Operation using a variable frequency drive is not recommended.

REGENERATIVE BLOWERS



Applications

- Aquaria
- Spa baths
- Yarn drying
- Aquaculture
- Air flotation
- Atomisation
- Gas analysis
- Laser Printers
- Glass working
- Vacuum tables
- Combustion air
- Fluidized beds
- Fluid aeration
- Air regeneration
- Instrumentation
- Soil remediation
- Thermo forming
- Packing machines
- Bag & bottle filling
- Textile machines
- Yeast production
- Food processing
- Paper processing
- Vacuum lifting systems
- Waste water treatment
- Medical suction systems
- Bag filters: pulse cleaning
- Air knives/Blow-off drying
- Industrial vacuum cleaners
- Chemical plants: process air
- Sorting & enveloping of letters
- Pneumatic conveying systems
- Plastics manufacturing machines
- Pneumatic tube: Capsule transport
- Centralised vacuum cleaning systems
- Electroplating: oil free agitation of electrolyte



ZXB Single Stage



ZXB Two Stage



ZXB-H Multistage

Performance & Range

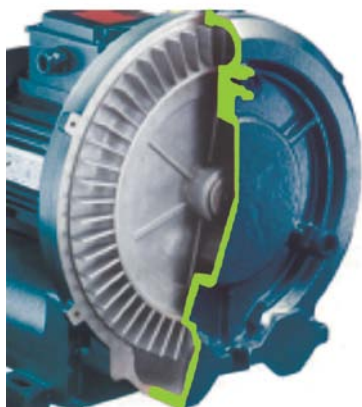
ZXB Single Stage Blowers: Gas volumes of 80 – 1050m³/hour and pressures up to 460mbar (50Hz), with motor sizes 0.4kW up to 18.5kW.

ZXB Multi-Stage Blowers: Gas volumes of 85 – 2000m³/hour and pressures up to 680mbar (50Hz), with motor sizes 0.4kW up to 25kW.

ZXB-H Single and Multi-Stage Blowers: Gas volumes of 47 – 170m³/hour and pressures up to 1040mbar (50Hz), with motor sizes 1.5kW up to 7.5kW.

Pneumofore Single & Multi-Stage blowers: Gas volumes of 70 – 2000m³/hour and pressures up to 750mbar (50Hz), with motor sizes 0.37kW up to 30kW.

A full catalogue of performance curves, including technical and dimensional data is available.



Construction

These blowers and motors are manufactured in injection moulded aluminium and finished in high quality grey enamel paint. The induction type motors are designed to run on 345 – 414V three-phase 50Hz supply, or 380 – 480V three-phase 60Hz power supply. Single phase blowers are available in 200 – 240V 50Hz only. Motors are protected to IP54 with Class F insulation, and sealed-for-life ball bearings.

Accessories

1. Inlet filters (disposable high efficiency)
2. Inlet filters (high efficiency disposable cartridge)
3. Inlet filter (basic economical option)
4. Filter Service Indicators
5. In-line Cyclonic Filter (high efficiency disposable cartridge)
6. Inlet Manifolds (stainless steel)
7. Inlet Manifolds (PVC)
8. Pressure Relief Valves
9. Safety Valves
10. Pressure Gauges
11. Flexible Connectors
12. Supplementary Silencers
13. Check Valves



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ISO 9001

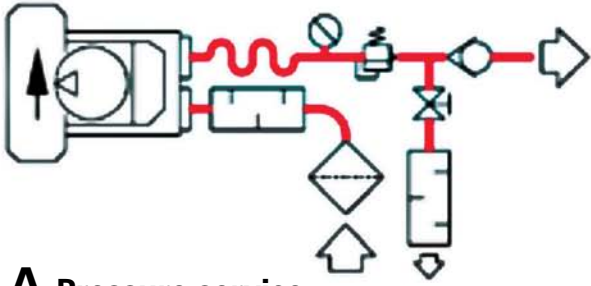
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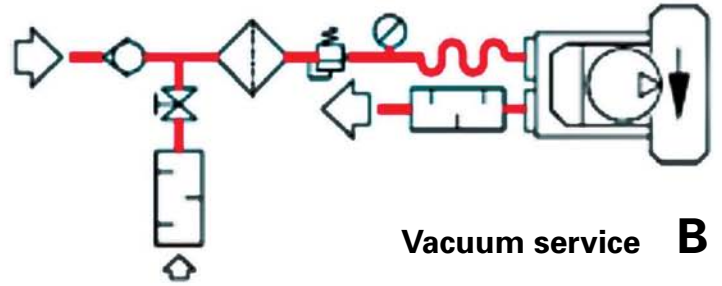
REGENERATIVE BLOWERS



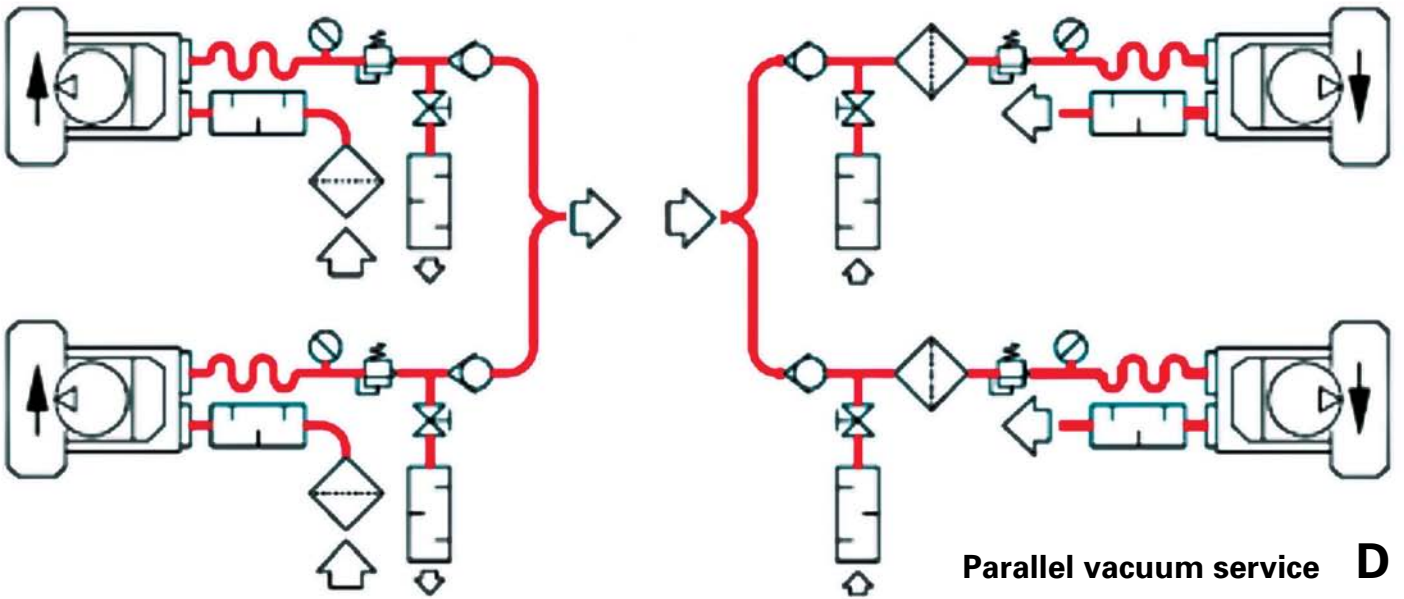
Installation Diagrams



A Pressure service

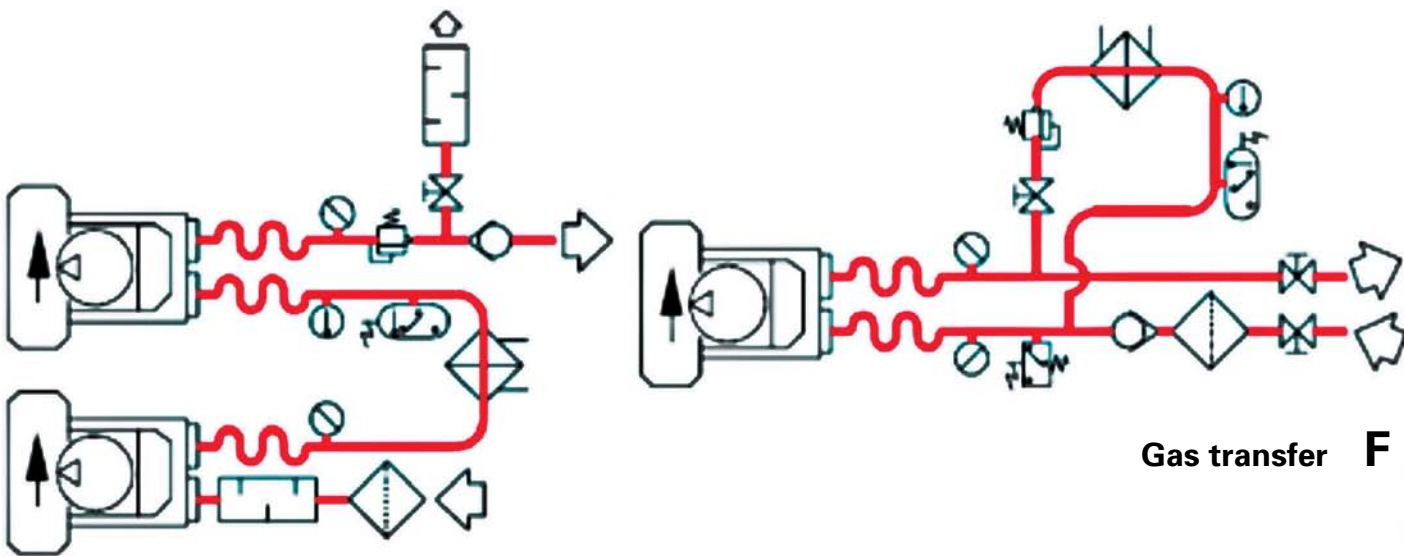


Vacuum service **B**



C Parallel pressure service

Parallel vacuum service **D**



E Series pressure service

Gas transfer **F**



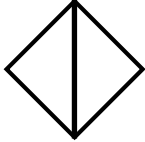

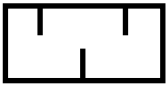


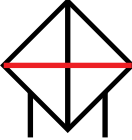



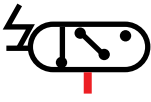

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REGENERATIVE BLOWERS



Item	Denomination	Item	Denomination
1	 Filter-Inline filter	7	 Check valve
(2)	 Silencer	8	 Valve
3	 Flexible coupling	(9)	 Cooler
4	 Pressure – Vacuum gauge	(10)	 Thermometer
5	 Pressure – Vacuum switch	(11)	 Temperature switch
6	 Relief valve		

(x) If necessary