

ROBUSCH®

by Gardner Denver



Rotary Lobe Blowers





First class Leading manufacturer

Optimal
performance

Our commitment to quality

Unmatched Reliability



Experience and expertise

Robuschi has developed pressure and vacuum solutions since 1941 with manufacturing facilities in Parma (Italy).

A world leader in blowers and pumps for different industries, we are committed to playing a vital role by saving energy and protecting the environment.

Our equipment, systems and services are dedicated to helping customers' optimise the performance of their processes.

Using modern machining systems and state-of-the-art production processes, our product range is constantly evolving.

Our Rotary Lobe Blower range has been redeveloped in line with our customers' exacting requirements.

You can count on our PD Blower:

- Carry out the toughest tasks with consistent quality and reliability
- Trust in convenient solutions through our continuous technology innovation
- Get optimal performance, maximum uptime and operating efficiency

We enhance and add value to our customers, taking on challenges, innovating and working together.

Robuschi - the perfect partner for your evolving needs





The perfect fit for every application

Our team of experienced engineers is focused on developing products that offer maximum benefit to each customer. Our wide range of rotary lobe blowers covers most environmental and industrial applications, ensuring the best choice for your needs.

Wastewater treatment

(Industrial and municipal sectors)



Benefits at a glance

- Highly reliable
- Simple configuration
- Operation-friendly and low maintenance
- Wide turndown capability
- Precise capacity fitting
- Robust design
- High durability

Modern wastewater treatment requires the movement of large volumes of air at low pressure and Robuschi's PD blower range provides a reliable source of air for its different processes.

• **Aeration process:** The aeration tanks in wastewater treatment plants are activated with oxygen by using compressed air. Blower technologies can be found in various types of wastewater treatment plants, including aerobic activated sludge systems, SBR, nitrification-denitrification in a single basin and MBR.

- **Primary sedimentation in the oxidation compartment**
- **Back washing sand filtration**
- **Desalinization**
- **Ozonation**

First Class
Limitless Applications
Processed-oriented

Benefits at a glance

- Dry running
- Low temperature process
- Extremely reliable and robust
- Easy to install and maintain
- Wide range
- Cost efficient
- Long uptime and low service costs
- ATEX certification

Industrial sector

(Pressure operation)

Robuschi offer a wide range of PD blowers in pressure operation, which can fit the process requirements of different industries: food and beverage, lime and cement, mines, chemical and pharmaceutical and many other.

• **Pneumatic conveying:** Pneumatic conveying systems are typically used to convey food ingredients (sugar, flour, powders) from a starting position (typically stocking silos) to another (typically buffer silos or process). Thanks to the air flow and the pressure build up in the piping, solid items float and are guided to destination points where they are separated by means of a cyclone separator/filter receiver.

- **Lime cement fluidisation**
- **Combusted gas recovery**

• **FGD (Flue-gas Desulfurisation):** The circulating fluidised bed technique allows the burning of highly sulphurated products while respecting a low emission rate of sulfur and nitrogen oxides in the fireplace.

• **Bed combustion fluidisation:** The fluidisation air of the outlet beds, siphons and ash coolers is supplied by positive displacement blowers.

- **Cooling and drying**
- **Methane gas extraction**
- **Feeding inert**



Industrial sector (Vacuum operation)

Robuschi offers a wide range of rotary lobe blowers for vacuum operation in different configurations, depending on customers' requirements and technical application specifications.

- **Pneumatic conveying**
- **Food packaging**
- **Removal of impurities**
- **Pulp dryin**

• **Tissue:** Suction pickup and transfer rolls use vacuum to transfer the paper from the forming section to the press section, and guide the sheet from one felt to another in the press section.

- **Pick & place**
- **Lifting system**
- **Industrial cleaning**
- **Vacuum in glass forming**
- **Central vacuum systems**
- **Coating**
- **Metallisation**

• **Methane gas extraction:** Blowers are used to remove methane gas from underground coal mine basin

Benefits at a glance

- Robust and reliable
- Minimum maintenance
- Vacuum adjustment
- No water consumption
- Environmental friendly without any oil contamination
- Complete package with primary vacuum system available



Aquaculture

Sustainable fish farming and processing requires a comprehensive range of advanced technologies to provide efficiency at every stage of the operation. Robuschi therefore design and manufacture a wide range of rotary lobe blowers with uncompromising quality and reliability to not only meet, but exceed the demands of the application.

• Fish feeding:

The fish food distribution is delivered through pressure pneumatic systems from barges or ships to the fish in open water (aquaculture cages)

- **Packaging**
- **Fish pond aeration**
- **Wastewater treatment**

Benefits at a glance

- Premium performance
- Space-saving design
- Resistant and robust
- Long uptime and low service costs
- Robox Aqua series specifically designed for aquaculture applications

Environmental sector

(Heavy-duty applications)

Robuschi can offer PD blowers equipped with special seals and different components in stainless steel (AISI 316 or DUPLEX) to provide excellent corrosion resistance.



• Mechanical vapor compression & recompression:

This process uses thermo-compression to extract water as clean condensate from polluted fluids. Because only the heavy residuals require further treatment, a considerable amount of water is recyclable.

- **Solvent recovery**
- **Slurry drying process**

Benefits at a glance

- Different configurations available with various sealing systems
- Excellent resistance to corrosion
- Maintenance friendly

Biogas industry

Robox Lobe Biogas – CRBIO – GRBIO is a specific range, developed especially for the conveying and compression of biogas, as well as natural and landfill gases in power generation plants.

• **Biogas recovery:** This is the process of transferring the biogas from the digester to the endothermic cogenerating engine or from digesters to upgrading stations.

- **Landfill gas recovery**
- **Gas handling**

Benefits at a glance

- *Reliable*
- *Safe*
- *Resistant*
- *Full range of accessories*
- *ATEX certification*
- *Customised solutions for different biogas applications*



Mobile application

It is possible to transport different types of material, such as food, waste or liquids for use in other processes. The Robuschi RB-DV vacuum series can reach vacuum levels of up to 93% on a dead head - 28" Hg without the need to water inject and without overheating, thanks to a Robuschi patented atmospheric air injection device.

- **Soil gas extraction**

• **Suction vehicles for wastewater:** The blower provides vacuum for removing and flushing out contaminants in wastewater and for cleaning sewer networks.

- **Truck-Hydroexcavation**
- **Sand oil fields recovery**



Benefits at a glance

- *Gases and vapours can be handled*
- *Patented and unique air inlet design*
- *Cool operating temperatures*
- *Low maintenance thanks to its robustness and heavy-duty operation*
- *Environmental friendly without any oil contamination or water use*



Robox Lobe - what's new?

Robox is an integrated package designed to convey gas at low pressure. It is based on the RBS lobe positive displacement rotary lobe blower, operated by an electric motor through belt drive, including all accessories and noise enclosure.

Robox Lobe can be supplied in pressure (up to 1,000 mbar(g)) and in vacuum operation (up to 500 mbar(a) with RBS and up to 100 mbar(a) with RB-DV air injection rotary lobe blower).

Globally, the Robox Lobe package means reliability, extreme sturdiness and compactness. We have taken this to a new level by improving the layout, reducing maintenance costs and increasing flexibility, to better meet the different plant requirements.

Smart oil system

- One oil level (all models, only frame 1 excluded) to check from outside
- Better reading reliability
- Easier oil filling operation
- Lower oil top-up times with lower maintenance costs

New performance cooling fan

- Better air circulation inside the noise enclosure
- Extended operating range capacity
- Greater reliability
- Easy connection by means of terminal board
- Better efficiency due to inner enclosure's lower temperature

RBS Air-end HT Version (High temperature)

- Pirex mirrors for better visibility of oil level
- Steel cage bearings for heavy duty (standard in all versions)
- Greater reliability
- Increased operating temperature for a wider range
- Lower maintenance costs thanks to bearing extended life



Discharge silencer optimisation

New silencer design
for increased energy efficiency

Enhanced noise enclosure

- Restyled and painted noise enclosure
- Improved noise level reduction

Smart and compact design

Robox Lobe machines can be placed side by side, thereby significantly reducing the space they require and therefore the dimensions of the blower room, thus also decreasing system costs.



Pressure up to 1,000 mbar(g)
vacuum up to 500 mbar(g)
Capacity up to 10,500 m³/h





The keys to success

Easy maintenance

Robox Lobe allows maintenance operations to be carried out in an even easier and effortless manner:

- Simplified access: all maintenance operations are performed from the front with the removal of the front panel or panels and/or the opening of the upper panel with gas springs
- Effortless adjustment and replacement of soundproof filter SPF: by simply opening the noise enclosure's upper panel (or removal of the front panel)
- Instant oil level check: the oil level can be checked externally with the blower running, by means of level positioned on the front panel of the enclosure
- Easy oil change: an oil change can be performed directly from the front panel with easily accessible fill and drain hoses
- Automatic belt tensioning: an oscillating suspension system of the motor maintains the correct belt tension at all times, thereby reducing the load on the bearings
- Simple belt replacement: this is carried out from the front without the use of any additional equipment thanks to the automatic tensioning device





Peace of mind

The Robox Lobe package is ready to accept the new Sentinel electronic monitoring system, which allows:

- Better machine operation monitoring
- Improved visualisation of main operating parameters
- Remote transmission of machine data with SCADA customer system (only for Sentinel Pro version)
- Data logger function for service trouble-shooting
- Alarms management
- Tracking maintenance schedule

Quiet operation

The Robuschi blower package offers smooth operation by utilising cutting edge technology with a combination of innovative components:

- Robuschi RBS blower: equipped with a special device to reduce the flow pulsation
- SPF inlet silencer: consisting of a patented interference device to eliminate the sound pressure generated at the inlet and adjustable according to the blower speed
- Discharge silencer: consisting of a resonance chamber, no internal sound absorbing materials
- Noise enclosure: intake air conveyance optimisation and restyled noise enclosure deliver minimal noise levels

Energy savings

Robox Lobe packages are equipped with IE3 drive motors and premium efficiency (IE4) on request. Star/Delta and Soft starters are also available.

- Inverter duty motors for variable frequency driver (VFD) for wide turndown capability
- Better efficiency belts with additional noise reduction

Special solutions for every application

Robuschi is constantly researching and developing new equipment and technical features for customised packages that will match our customer specific requirements. Our engineers support our customers to provide tailored options.

CRBS - GRBS

Complete rotary lobe blower packages, which can be fitted with a special belt drive (GRBS) or directly coupled by means of coupling joint with or without reduction gear (CRBS).

CRBS - GRBS packages can be supplied for capacities up to 25,000 m³/h and for power up to 600 kW.

- Customised with many options available
- Robust and reliable
- ATEX certification available



Pressure up to 1,000 mbar(g)
vacuum up to 500 mbar(g)
Capacity up to 25,000 m³/h

Robox Bio&Gas

Robox Bio&Gas is especially developed for the conveying and compression of biogas, as well as natural and landfill gases, and special gases in wastewater, power generation and industrial applications.

- Reliable
- Safe
- Resistant
- Full range of accessories
- ATEX certification
- Customised solutions for different biogas applications



Pressure up to 1,000 mbar(g)
vacuum up to 500 mbar(g)
Capacity up to 2,850 m³/h

CRBIO - GRBIO

Blower package group, assembled on a skid and available with belt transmission or directly coupled. The CRBIO - GRBIO packages are certified according to the most important and recent EC guideline 94/9/EC (ATEX) - group II in category 2, in order to guarantee the best safety usage in this range of application.

Pressure up to 400 mbar(g)
vacuum up to 500 mbar(g)
Capacity up to 2,850 m³/h



Robox Aqua

Robox Aqua is a compact rotary lobe blower package, specifically designed for the needs of the aquaculture industry.

- Modular design
- Direct coupling
- Reduced noise levels
- Small footprint
- Ease of access

Pressure up to 1,000 mbar(g)
Capacity up to 700 m³/h
Motor Power up to 30 kW



RBS Family

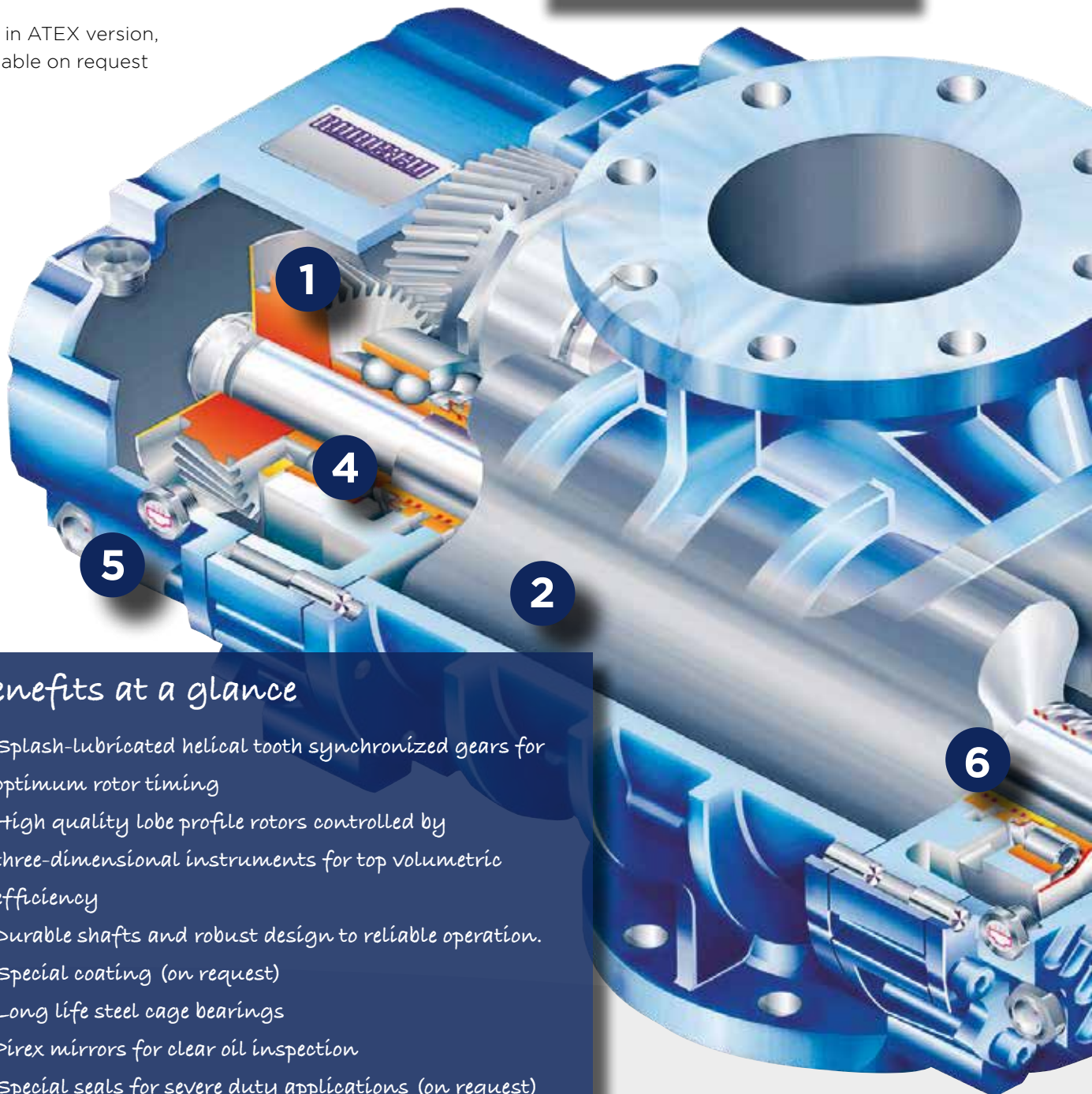
RBS - The heart of the Rotary Lobe Blower package

RBS is the innovative positive displacement rotary blower with 3 special profile lobes that, combined with a new configuration of the LOW-PULSE system, reduces the residual pressure pulsation of the conveyed gas below 2% of the operating pressure.

RBS in ATEX version, available on request



Pressure up to 1,000 mbar(g)
vacuum up to 500 mbar(g)
Capacity up to 25,000 m³/h



Benefits at a glance

1. Splash-lubricated helical tooth synchronized gears for optimum rotor timing
2. High quality lobe profile rotors controlled by three-dimensional instruments for top volumetric efficiency
3. Durable shafts and robust design to reliable operation. Special coating (on request)
4. Long life steel cage bearings
5. Pyrex mirrors for clear oil inspection
6. Special seals for severe duty applications (on request)

RBS-INOX - Rotary Lobe Blower in stainless steel



Made with all components in contact with the conveyed fluid in stainless steel (AISI 316 or DUPLEX), these blowers are resistant to corrosion and therefore suitable for use in heavy-duty applications such as evaporation processes and in the field of wastewater treatment. Different configurations are available with various sealing systems such as lip and mechanical seal, and combinations of materials (stainless steel and cast iron), which allows the customer to select the most suitable solution, depending on the chemical composition and the type of system. For easier maintenance, the special sides on the PRV version allow immediate access to the sealing system.

Pressure up to 1,000 mbar(g)
vacuum up to 500 mbar(g)
Capacity up to 14,000 m³/h

RB-DV - Air Injection Vacuum Rotary Lobe Blowers

The RB-DV series consists of 3 lobe rotary blowers used as exhausters which makes it possible to reach a high compression ratio by means of a patented atmospheric air injection device that reduces overheating of the gas and the power absorbed by the blower.

The main characteristics of these blowers are as follows:

- Maximum vacuum 93% - 28" Hg on a dead head
- Gases and vapours can be handled
 - No sliding parts, therefore no wear
 - Safe operation and minimum maintenance
 - No oil mist
 - RB-DV in the ATEX version available on request



vacuum up to 930 mbar(g)
Capacity from 840 to 10,500 m³/h

RBS-AV - Vacuum Booster Rotary Lobe Blowers

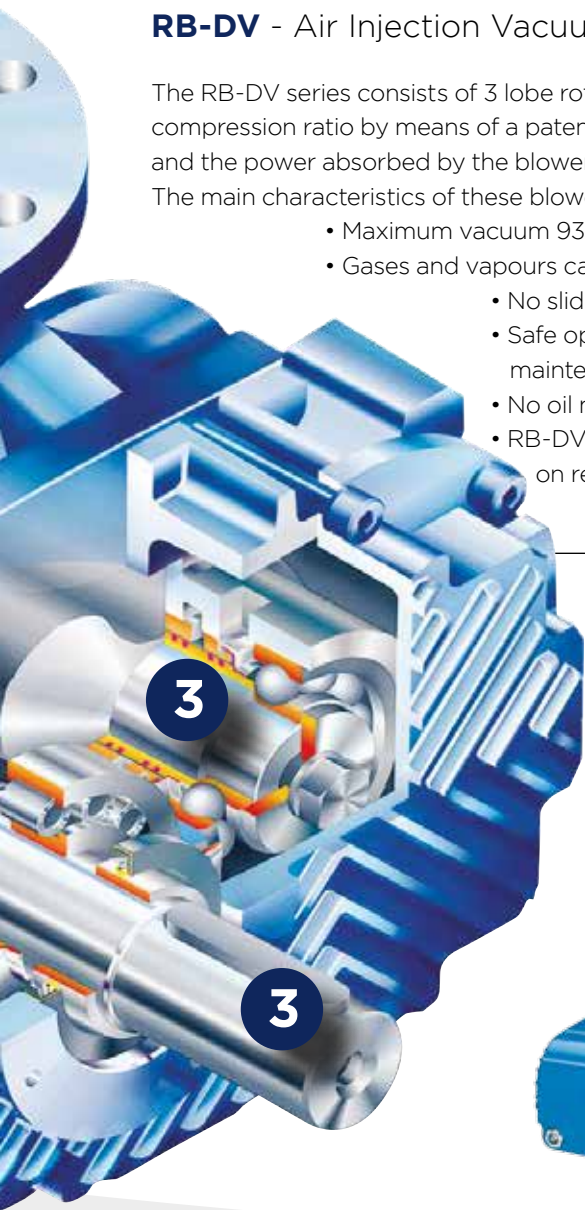
The RBS-AV series are rotary lobe blowers used to increase the capacity of the primary vacuum pumps when operating at their minimum suction pressure (as a booster).

The main characteristics of these blowers are as follows:

- Gases and vapors can be handled
- No sliding parts, therefore no wear
- Safe operation and minimum maintenance
- RBS/AV in the ATEX version available on request



vacuum from 0.001 to 20 mbar(a)
Capacity from 300 to 9,400 m³/h



Options and accessories

The wide range of options and accessories available for the Robox Lobe package means units can be configured to meet the customer's exacting requirements.

- Sentinel 2 / PRO controllers with auxiliaries board
- HMI touchscreen control panel with electric power board
- Electronic instrument kit (pressure/temperature transmitters at suction and discharge side)
- Relief and starting valve
- Reactive discharge silencer (PED, extra noise reduction)
- Electric power cabinet: Star/delta, soft starter, frequency converter VFD
- ATEX II version for category 2 or 3 in zone 2 or 22, with max. permitted temperature T3

Different accessories on request

Robox Lobe package – “plug & play” version

It is possible to select different Robox Blower package configurations, according to customers' requirements.

The unit can be equipped with a main power electric cabinet:

- Star/delta starter
- Soft starter
- Frequency converter

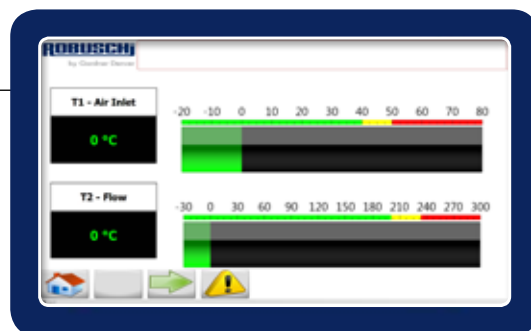
Controllers (optional)

Robuschi has developed a continuous monitoring system to ensure first class efficiency and reliability for the Robox Lobe unit.

- **Sentinel controllers** are able to manage a variety of operating parameters, with a connection for uploading or downloading the measured parameters along with any possible alarms. It is configured with an LCD display with remote connection via the MODBUS communication protocol and a GSM device

- **HMI controller** (touchscreen) features an intuitive menu and the widespread Windows CE operating system, which makes it easy to use and program. The parameters are very simple to check either through an Ethernet cable or via the internet so that the blower group can be constantly monitored.

The functions of remote diagnostics and predictive maintenance are proven to contribute to reducing downtime.

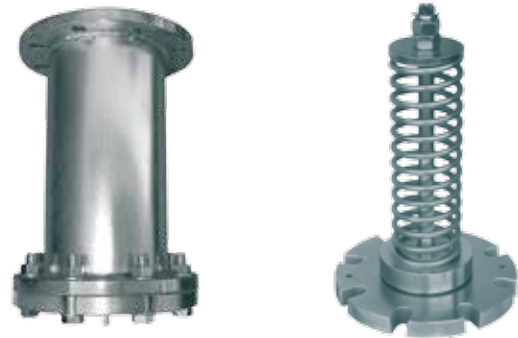


Relief valves

RVP - RVV (standard)

RVP: Direct relief valve for pressure operation.

RVV: Direct relief valve for vacuum operation.



Relief and starting valve

VSM (optional)

This valve allows starting of the group with a low absorbed power when the blower is started with a static back pressure (e.g. in wastewater treatment plants). The starting time is adjusted by means of a special screw.

The VSM valve is also equipped with a special PSM pilot valve fitted on the lid, which also makes it work as a relief valve in pressure, with a maximum over pressure 5% lower than the setting pressure.



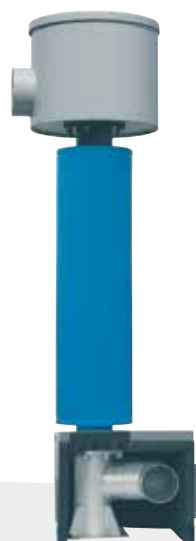
Additional silencers (optional)

SDL - SCE

Absorption silencers are fitted in particular sections of the system's pipework connected to the Robox unit, to further reduce the noise levels generated.



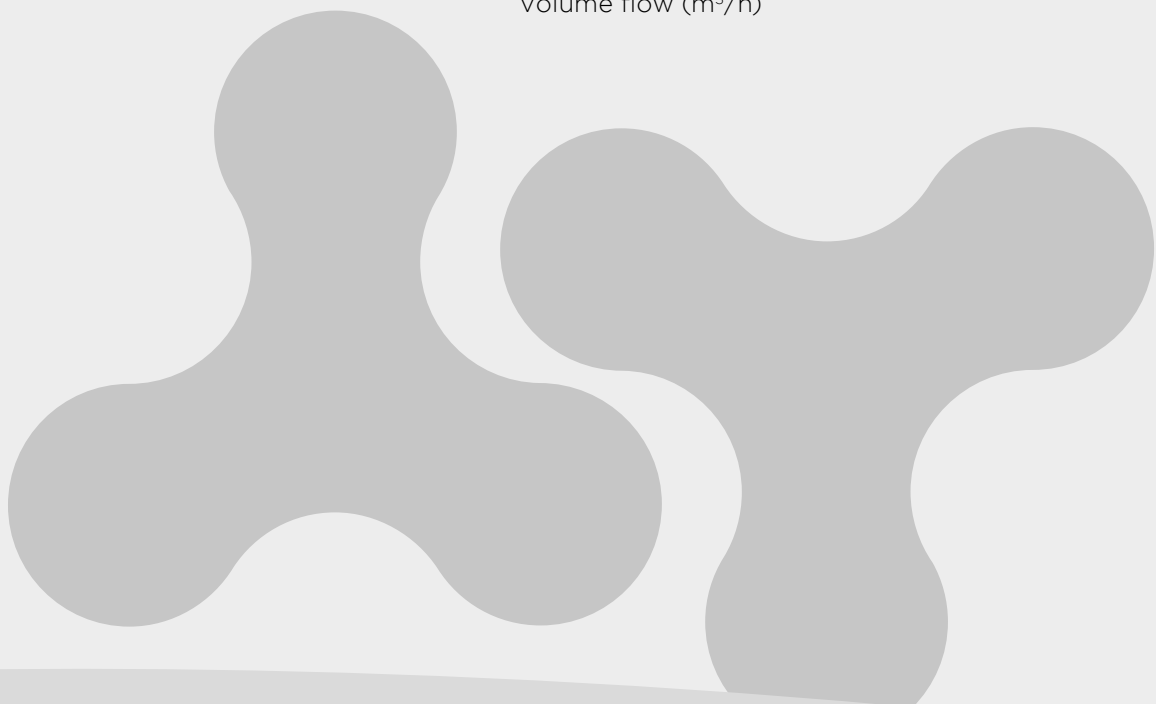
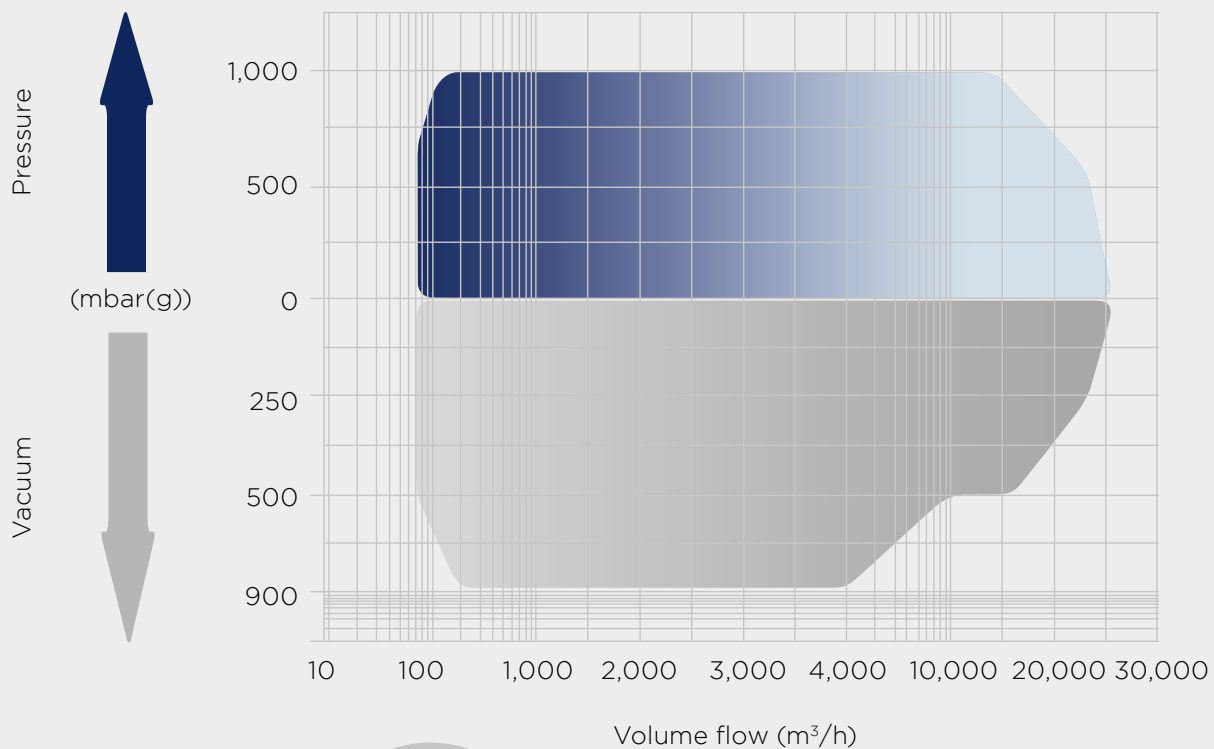
Vacuum silencer kit



A specific kit for Robox packages in vacuum operation, consisting of SDL absorption silencers and SPS exhaust silencers. This reduces the sound level generated by the exhaust outlet by approximately 25 dB(A) within the frequency field ranging from 200 Hz to 20 kHz.

Rotary Lobe Blower performance

RBS Air Map



Robox Lobe Performance

| ROBOX | | OPERATION | | | | | | | |
|-----------------|------------------|-------------------|-------------------|-------|--------|-----------------|-------------------|-------|--------|
| | | MAX PRESSURE DATA | | | | MAX VACUUM DATA | | | |
| ROBOX dimension | Blower dimension | Pressure | Capacity | Motor | Noise | Vacuum mbar(g) | Capacity | Motor | Noise |
| | | mbar(g) | m ³ /h | kW | dB (A) | mbar(g) | m ³ /h | kW | dB (A) |
| 1 | ES 15 | 900 | 240 | 11 | <70 | 500 | 235 | 11 | <70 |
| | ES 25 | 700 | 320 | | 70 | 500 | 300 | | <70 |
| 2 | ES 35 | 1000 | 480 | 22 | 73 | 500 | 480 | 18,5 | 70 |
| | ES 45 | 1000 | 690 | 30 | 76 | 500 | 690 | | 73 |
| | ES 46 | 700 | 1080 | | 75 | 500 | 1050 | 30 | 72 |
| | ES 55 | 1000 | 1010 | 45 | 76 | 500 | 1010 | | 73 |
| | ES 65 | 1000 | 1070 | | 77 | 500 | 1350 | 45 | 74 |
| 3 | ES 65 | 1000 | 1370 | 55 | 77 | - | - | 45 | - |
| | ES 66 | 700 | 1950 | | 77 | 500 | 1850 | | 73 |
| | ES 75 | 1000 | 1600 | 75 | 76 | 500 | 1590 | | 76 |
| | ES 85 | 1000 | 2850 | 90 | 77 | 500 | 2330 | 55 | 74 |
| | ES 86 | 700 | 2360 | 75 | 77 | 500 | 3000 | 75 | 78 |
| | ES 95 | 1000 | 2590 | 90 | 77 | 500 | 2590 | | 75 |
| 4 | ES 86 | 700 | 3100 | 90 | 76 | - | - | 75 | - |
| | ES 105 | 1000 | 3370 | 132 | 78 | 500 | 3370 | | 76 |
| | ES 106 | 700 | 4710 | | 78 | 500 | 4500 | 110 | 78 |
| | ES 115 | 1000 | 4025 | 160 | 77 | 500 | 4025 | 90 | 76 |
| | ES 125 | 1000 | 5190 | 200 | 78 | 500 | 5190 | 110 | 78 |
| | ES 126 | 700 | 5300 | 160 | 78 | 500 | 7200 | 160 | 77 |
| | ES 135 | 1000 | 5400 | 200 | 78 | 500 | 5400 | 110 | 76 |
| 5 | ES 126 | 700 | 7360 | 250 | 78 | - | - | - | - |
| | ES 145 | 1000 | 8000 | 315 | 78 | 500 | 8000 | 200 | 79 |
| | ES 155 | 700 | 10300 | 315 | 78 | 500 | 10200 | 200 | 79 |
| | ES 165 | 1000 | 10400 | 400 | 81 | 500 | 10400 | 250 | 82 |

CRBS - GRBS Performance

| GRBS-CRBS | | OPERATION | | | | | | |
|-------------|----------|-------------------|-------|--------|---------|-------------------|-------|--------|
| | | MAX PRESSURE DATA | | | | MAX VACUUM DATA | | |
| Blower size | Pressure | Capacity | Motor | Noise | Vacuum | Motor | Motor | Noise |
| | mbar(g) | m ³ /h | kW | dB (A) | mbar(g) | m ³ /h | kW | dB (A) |
| 165 | 1000 | 10420 | 400 | 84 | 500 | 10430 | 250 | 84 |
| 175 | 1000 | 14420 | 550 | 85 | 500 | 14430 | 315 | 85 |
| 205 | 1000 | 16430 | 600 | 84 | 500 | 16440 | 355 | 84 |
| 225 | 700 | 24870 | 650 | 84 | 450 | 24580 | 450 | 84 |

Performance related to atmospheric air: absolute pressure 1,013 mbar, temperature 20°C, relative humidity 50%, specific weight 1.2 kg/m³

Maximum uptime. Extending performance.

We provide a range of services to ensure our customers' machines are well maintained to deliver maximum performance.

We offer preventative and planned maintenance programs, genuine parts, on-site service, professional maintenance and efficient training.

Within our service portfolio, you will find different options and services needed for optimal performance, maximum uptime and operating efficiency from your Robuschi equipment.

Visit us:

www.robuschi.com

www.gardnerdenver.com/Industrials

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