ROBUSCH®

by Gardner Denver

# High-efficiency Oil-free Screw Compressor

## In a competitive global market, our long history of supplying compressed air solutions that suit the customers' exacting requirements sets us apart from the rest.

Using modern machining systems and state-of-the-art production processes, our product range is constantly evolving. With a presence in over 50 countries we offer local service capability, ensuring our advanced technology is backed by technical support.
One of our latest product innovation is the new Robox Screw compressor unit in pressure and vacuum configurations, the oil-free screw compressor package combines the features of the proven P.D. Blower Robox Lobe compact units with innovative components and design:

- **Efficient** thanks to its unique RSW patented rotors, which reduce the number of revolutions and enhance the capacity-pressure ratio
- **Silent** as a result of high-efficiency internal compression, silencers and a noise-reducing enclosure
- **Simple** installation and configuration
- **Flexible** to ensure the operation at the point of best efficiency

Oil-Free Air Class Zero ISO 8573-1

**Oil free** for a more environmentally-friendly operation (Class 0 certification, according to ISO 8573-1)

- **Ease of maintenance** thanks to its simple and robust construction
- **Customised** with a wide range of options available

*Robuschi – the perfect partner for your evolving needs.*

ROBOX SCREW

# ...the perfect solution for every application

Our team of highly skilled and experienced engineers is focused on developing products that offer maximum benefits to the customer.
With flexible configurations and enhanced technical features, the Robox Screw compressor package is the perfect solution for a broad range of environmental and industrial applications.
Read on to find out how Robuschi can make the difference in industrial applications.

Robox Screw
in vacuum operation

Robox Screw
in pressure operation

# Wastewater treatment

In wastewater treatment plants, energy consumption accounts for over 50% of annual costs. The Robox Screw range meets all cost reduction requirements, allowing customers to save between 15% and 30% on energy consumption when compared with other technologies.

Offering the maximum amount of air with minimum energy consumption thanks to its internal RSW compression, the Robox Screw is also extremely versatile in both continuous and 'stop and start' use. In addition, the ability to provide pressure levels of more than 1 bar (g) means the Robox Screw can feed tall collection tanks in wastewater applications - combining the best possible use of limited urban space with low levels of noise pollution.

## Benefits at a glance

### Aerobic activated sludge system for water treatment

- High efficiency
- Wide turndown capability
- Simple installation
- Reliable
- Silent
- Precise capacity fitting

### SBR (Sequencing Batch Reactor) water treatment system

### Nitrification - denitrification wastewater treatment in a single basin

- High efficiency
- Intermittent use
- Pressure variation with a constant capacity
- Simple installation
- Reliable

### Silent Membrane water treatment system (MBR)

- High efficiency
- Intermittent use
- Pressure variation with a constant capacity
- Simple installation
- Reliable
- Silent

Industrial WWT Plant: A worldwide gelatine manufacturer chose Robox Screw technology in its wastewater plants because of its advanced standards' compliance, reliability and high efficiency.

Municipal WWT Plant: Robox Screw packages provide wide turndown capability, low noise and high energy efficiency.

# Industrial sector

In the industrial sector, the Robox Screw is used in a number of pneumatic transport processes, for transferring powders or granules of any type (plastics, flours, seeds, etc.) both in pressure and vacuum configuration, for fluidification and fermentation, for centralised vacuum processes, for lifting systems, as well as in the conveyance of air and neutral gases.

The oil-free Robox Screw ensures low temperatures – 20% less than that of the other technologies - without any risk of deterioration and/or pollution of the material transported.

This is combined with outstanding reliability and improved efficiency when compared with more traditional technologies.By integrating the Robox Screw with the company's other technology options, Robuschi is able to provide a complete package for the industrial sector with pressure levels of up to 2,500 mbar (g) and vacuum levels up to 300 mbar (a) (up to 200 mbar (a) for vacuum spikes). (See the 'options' section in the technical attachment for further information).

## Benefits at a glance

### Pneumatic transport
- High efficiency
- Intermittent use
- Accurate flow rate setting
- Low temperature process
- Oil-free technology (Class 0 certification, according to ISO 8573-1)
- Wide range
- Highly reliable process thanks to low rotor rotation speeds (max. 6.000 rpm)
- ATEX 3 certification

### Centralised vacuum and lifting systems
- High efficiency
- Vacuum adjustment
- No water consumption
- Environmental friendly without any oil contamination

### Combustion air
### Cooling air
- High efficiency
- Precise capacity fitting
- Reliable

### Cushion under keel air carpet in the shipyard industry
- High efficiency
- Reliable
- Wide pressure range

### Air knives
- High efficiency
- Reliable
- Silent low pulse

One of the European leaders in the production of disposable plastic tableware and food containers, collaborating with leading international distribution chains too, replaced old vacuum technology with the Robox Screw in vacuum operation. The unit is working at 300 mbar(a) with a consistent energy savings (up to 30kW/h comparing to the previous technology).

One of the world's leading suppliers of cement and aggregates was impressed by the low speeds of the Robox Screw, and thanks to the new Robuschi package has solved its breakdown problems with screw machines. Before installing the Robox Screw, dust in the atmosphere would enter the previous screw unit, which, when combined with the high-speed operation of the compressor (causing high temperatures on the shaft sealing) would result in damages to the machine.

A famous pasta maker installed Robox Screw for flour and sugar pneumatic transport due to its lower temperature operation, lack of deterioration of the conveyed material and high energy performance.

The worldwide yeast producer relies on the Robuschi Robox Screw for the fluidisation air for its yeast fermenter.

The customer decided to install Robox Screw in order to provide a curtain of air bubbles to prevent floating and submerged objects from entering the docking area. They are impressed by the unit's robustness and heavy-duty capabilities.

# Limitless industries

We are able to offer the best solution in diverse areas and sectors

- **Cement**
- **Petrochemical**
- **Iron Industry**
- **Tanning Industry**
- **Energy**
- **Wood**
- **Paints**
- **Shipyards**
- **Chemical/Pharmaceutical**
- **Food**
- **Plastics**
- **Textiles**
- **Glas Industry**
- **Ceramics**
- **Pulp & paper**
- **Renewable Energy**

**Robox Screw in pressure operation**
Extremely efficient oil-free compressor unit, in two versions: up to 1,000 mbar (g) with a maximum capacity of 10,100 m³/h and up to 2,500 mbar (g) with a maximum capacity of 9,400 m³/h.

**Robox Screw in vacuum operation**
The perfect centralised vacuum solution, granting heavy duty, high reliability and low maintenance costs, with a maximum vacuum of 300 mbar (a) and a capacity of 8,700 m³/h.

ROBOX SCREW

# Key Features

**Robox Screw is available with a wide range of options to meet the needs of even the most demanding customers.**

## Low life cycle costs

The expense of a blower ownership is comprised of equipment, installation, energy, and maintenance costs. Equipment and installation are a one-time expense, while energy and maintenance are continuous costs of ownership. Robox Screw ensures a high level of efficiency (> 75%) within a wide compressor rotation speed range reducing energy consumption. In addition thanks to its robust construction and use of minimum parts contribute to high reliability and long intervals between maintenance.

## Quiet operation

The optimum efficiency of the internal compression, guaranteed by the innovative Robuschi rotor profile, means less noise during the compression phase. The low rotor rotation speed (max. 6,000 rpm) and the absence of a step-up gear, along with special silencers and a noise-reducing enclosure (also available without sound hood – WL version), guarantee low noise levels from the compressor, thus allowing installation in a variety of applications.

## Flexible

The RSW screw compressor offers a turndown capability in flow to meet the needs of the customer. It's also suitable for intermittent use with frequent stops and restarts to best satisfy the specific process requirements. The belt drive ensures the right capacity for the application, and also allows the installation of the motor most suitable for the power absorbed by the compressor (therefore operating at optimum efficiency).

## Easy installation and maintenance

As it can be transported with a forklift and/or pallet truck, the Robox Screw offers easy installation. The electrical system connection is also simple, using the rear auxiliaries' cabinet for configuration with controller.
Furthermore, maintenance costs are reduced as every component of the Robox Screw has a simple and robust construction, thereby guaranteeing a long working life.

Thanks to the simple layout of the unit components, all routine maintenance tasks can be carried out from the front of the compressor, ensuring:

- easy oil change
- easy oil filter replacement
- easy oil pressure adjustment and air filter replacement
- easy drive belt replacement

## Reliable

The painstaking design and meticulous choice of each component of the compressor, together with a low operating speed, make the Robox Screw extremely reliable. At the same time, the Sentinel and HMI controllers ensure optimum machine operation via the continuous monitoring of the operating parameters. The functions of remote diagnostics and predictive maintenance are proven to contribute to reducing downtown.

## Tailor made

The design of the Robox Screw can be tailored in order to meet customer needs and match the application requirements.

## Vacuum adjustment (vacuum operation)

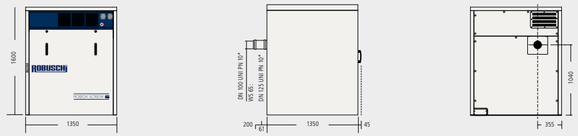
New vacuum valve (patented) with high precision vacuum regulation (+/-2%) all over the working range avoids any waste of energy and it grants high reliability along with the required performance.

## Robox Screw dimensions and weights

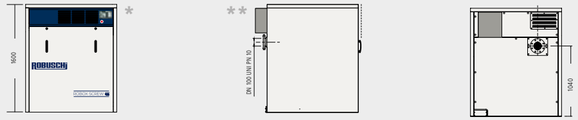
2

ROBOX SCREW

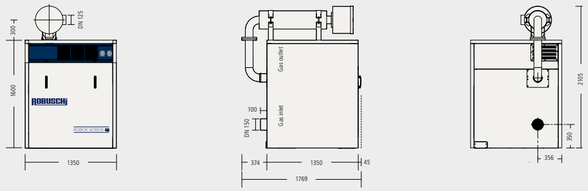
### Pressure operation




### Pressure operation




### Vacuum operation

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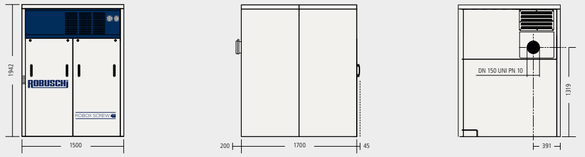
ROBOX SCREW

### Pressure operation

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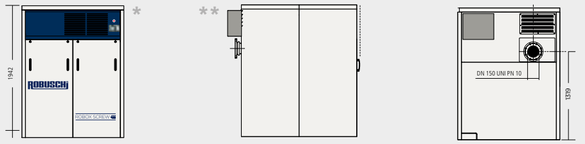


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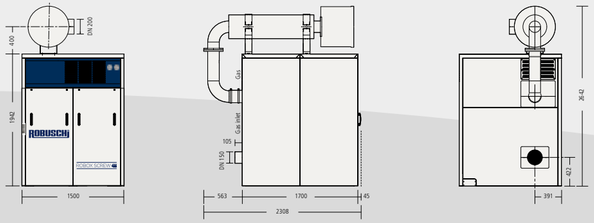




## Robox Screw dimensions and weights

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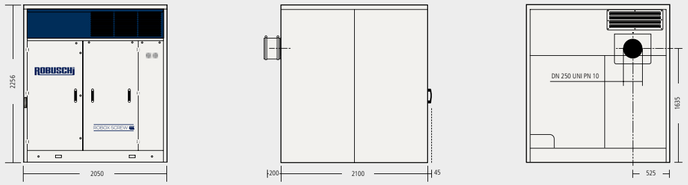
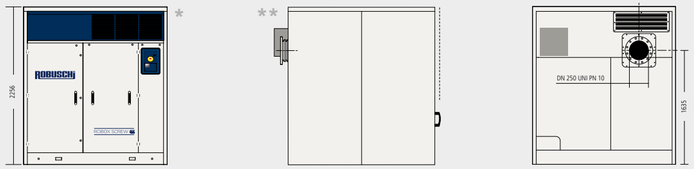
ROBOX SCREW

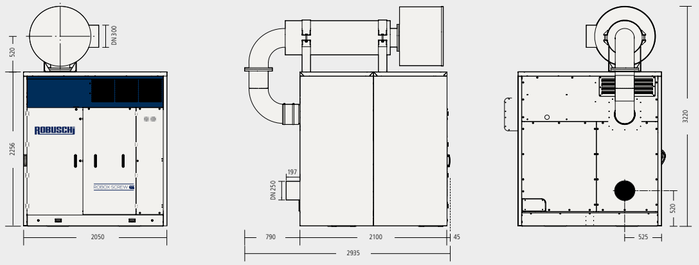
### Pressure operation




### Pressure operation




### Vacuum operation

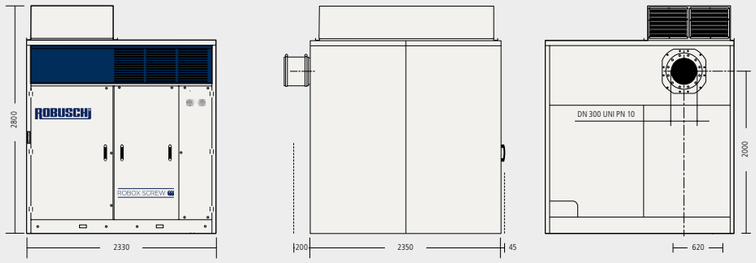



* Controller optional for pressure and vacuum operation

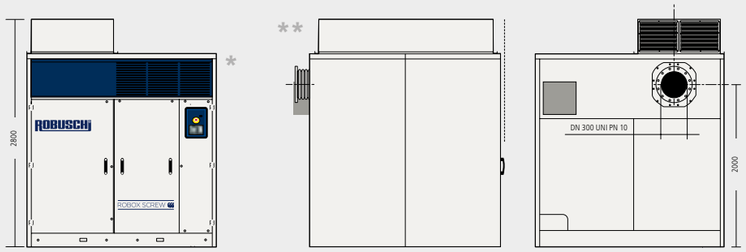
** Only with controller

ROBOX SCREW

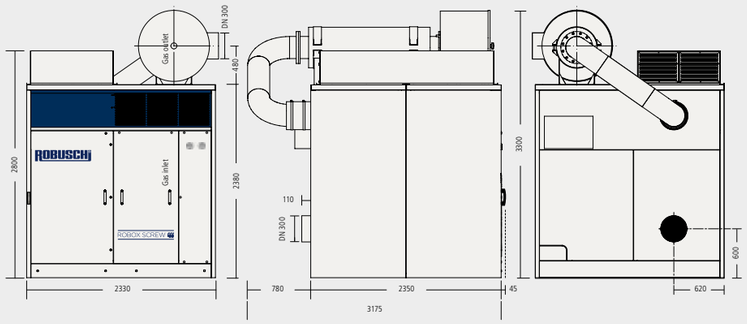
**Pressure operation**




**Pressure operation**




**Vacuum operation**




* Controller optional for pressure and vacuum operation

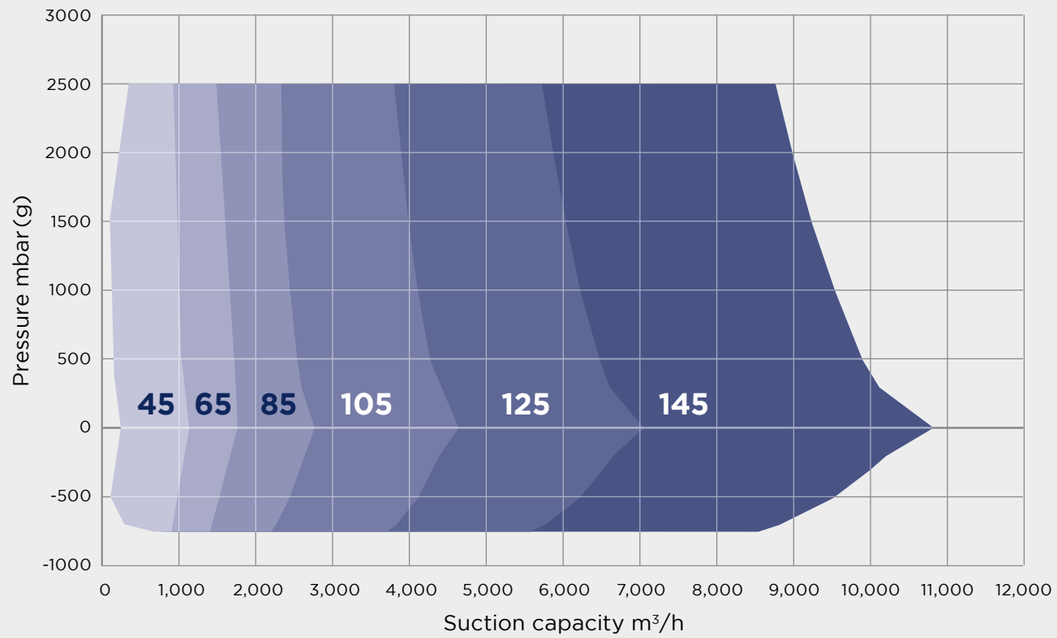
**Weights**

| Robox Screw | | Pressure - Vacuum with forced lubrication | | Pressure with splash lubrication | |
|---|---|---|---|---|---|
| Size | | WL kg# | WS kg# | WL kg# | WS kg# |
| 2 | 45 | 530 | 620 | 490 | 580 |
| | 65 | 570 | 660 | 530 | 620 |
| 3 | 65 | 840 | 1050 | 800 | 1010 |
| | 85 | 950 | 1155 | 910 | 1115 |
| 4 | 105 | 1210 | 1900 | 1150 | 1840 |
| | 125 | 1600 | 2285 | 1540 | 2230 |
| 5 | 125 | 2850 | 3625 | 2790 | 3565 |
| | 145 | 3590 | 4365 | 3530 | 4305 |

\# without motor

# Performances

## Air Map




| Robox Screw | | Pressure | | | | Vacuum | |
|---|---|---|---|---|---|---|---|
| | | Up to 1 bar(g) | | Up to 2.5 bar(g) | | Up to 0.3 bar(a) | |
| WS – WL Size | | Capacity m³/h | Motor** kW | Capacity m³/h | Motor** kW | Capacity m³/h | Motor** kW |
| 2 | 45 | 1,050 | 37 | 980 | 75 | 900 | 18,5 |
| | 65 | 1,680 | 55 | 1,150 | 75 | 1,420 | 30 |
| 3 | 65 | – | – | 1,550 | 110 | – | – |
| | 85 | 2,600 | 90 | 2,400 | 132 | 2,250 | 45 |
| 4 | 105 | 4,400 | 132 | 4,060 | 315 | 3,800 | 75 |
| | 125 | 5,400 | 160 | 4,900 | 315 | 5,800 | 132 |
| 5 | 125 | 6,600 | 200 | 6,100 | *400 | – | – |
| | 145 | 10,100 | 315 | 9,400 | *600 | 8,700 | 200 |

* Version with direct coupling **Max rated power

Gardner Denver

# 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.

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ROBUSCHI reserves the right to make any modification aimed at the continual improvement of their products.

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