

ROBUSCH®

by Gardner Denver

High-efficiency oil-free Compressor

ROBOX
SCREW 
Low Pressure

ROBOX
SCREW 
Hi Pressure

ROBOX
SCREW 
Vacuum



ROBUSCH[®]



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.

Our latest product innovation is the **new ROBOX screw compressor unit**. Available in Hi pressure, Low-pressure and Vacuum configurations, the oil-free screw compressor package combines the features of the proven P.D. Blower ROBOX 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** 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.

Low pressure Hi pressure Vacuum

**...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.







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.

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

Benefits at a glance

Aerobic activated sludge system for water treatment

- High efficiency
- Wide turndown capability
- Simple configuration
- 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 configuration
- Reliable
- Silent



Industrial WWT Plant: WW gelatine manufacturer chose ROBOX screw technology in its wastewater plants because of its advanced standards' compliance, reliability and high efficiency.

Membrane water treatment system (MBR)

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



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 2.5 bar (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

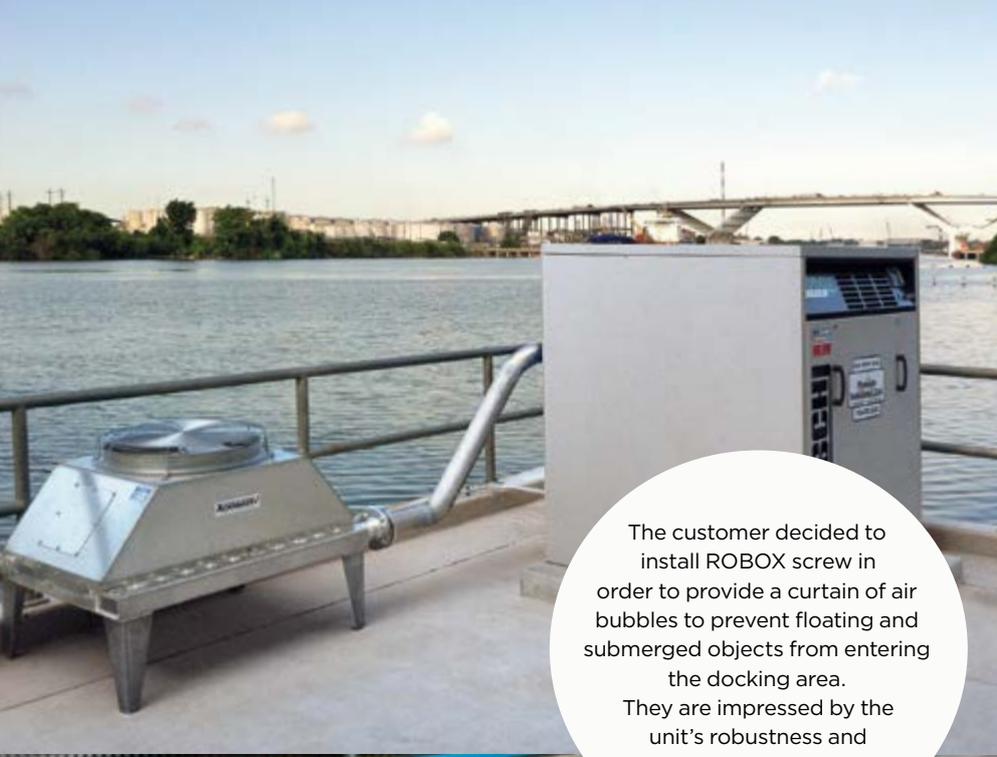
- High efficiency
- Precise capacity fitting
- Reliable

Cushion under keel air carpet in the shipyard industry

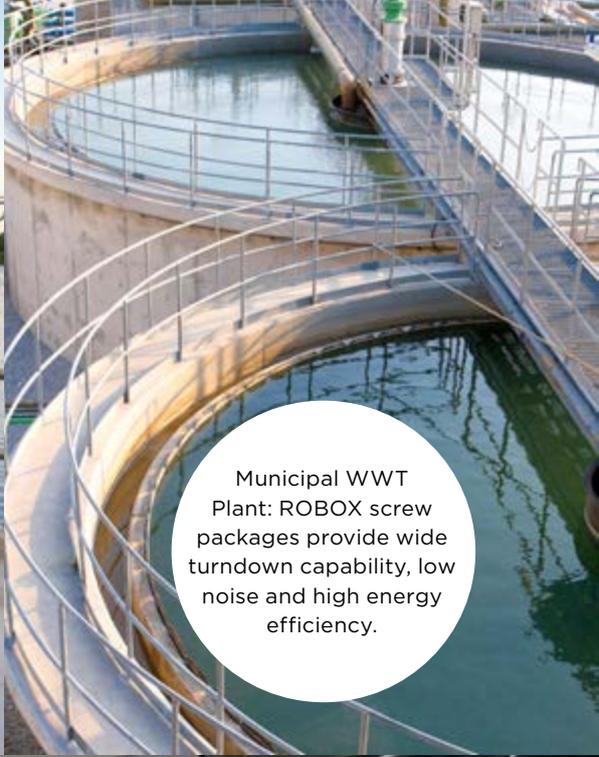
- High efficiency
- Reliable
- Wide pressure range

Air knives

- High efficiency
- Reliable
- Silent low pulse



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.



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



Industrial sector:
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.



Industrial sector:
The WW yeast producer relies on the Robuschi ROBOX screw for the fluidisation air for its yeast fermenter.



Industrial sector: 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 Vacuum package. The unit is working at 300 mbar(a) with a consistent energy savings (up to 30kW/h comparing to the previous technology).



Industrial sector: 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.

Sectors

- **Environment**
wastewater treatment of public municipalities and industrial sector
- **Cement**
- **Petrochemical**
- **Iron Industry**
- **Tanning Industry**
- **Energy**
- **Wood**
- **Paints**
- **Shipyards**
- **Chemical/ Pharmaceutical**
- **Food**
- **Plastics**
- **Textiles**
- **Glas Industry**
- **Ceramics**
- **Pulp & paper**
- **Renewable Energy**



ROBOX screw Low pressure

The ideal solution for wastewater treatment applications thanks to its simple, userfriendly components, with a pressure of 1 bar (g) and a capacity of 10,100 m³/h.

ROBOX screw Hi pressure

Extremely efficient oil-free compressor unit, able to reach 2.5 bar (g) and a capacity of 9,400 m³/h.

ROBOX screw Vacuum

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.

The ROBOX screw key features

The ROBOX screw Hi pressure, Low pressure and Vacuum are available with a wide range of options to meet the needs of even the most demanding customers.

Efficient

The innovative profile of the patented Robuschi rotors optimises the capacity-pressure ratio thanks to the maximum internal compression rate and the reduced number of revolutions, thereby increasing the efficiency of the ROBOX screw unit. The characteristics of ROBOX screw ensure a high level of efficiency (> 75%) within a wide compressor rotation speed range (100% - 25%), reducing energy consumption in all working conditions.

The high efficiency of the ROBOX screw, plus its reduced maintenance costs, guarantees a quick return on the initial investment (2 years on average - depending on the application and the operating conditions).

Silent

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.

Simple

Robuschi's experience in the low-pressure sector has enabled the ROBOX screw to be developed in an innovative way, notably reducing the number of parts that make up the compressor itself. The low-pressure version has a more simple and compact design than many of the lobe blower units typically used in wastewater treatment plants all over the world.

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 the SENTINEL control panels. 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:

- immediate oil level check
- 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 2 and SENTINEL PRO control panels ensure optimum machine operation via the continuous monitoring of the operating parameters.

Tailor made

The design of the ROBOX screw Hi pressure, Low pressure and Vacuum can be tailored in order to meet customer needs and match the application requirements.

Vacuum adjustment

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.

2



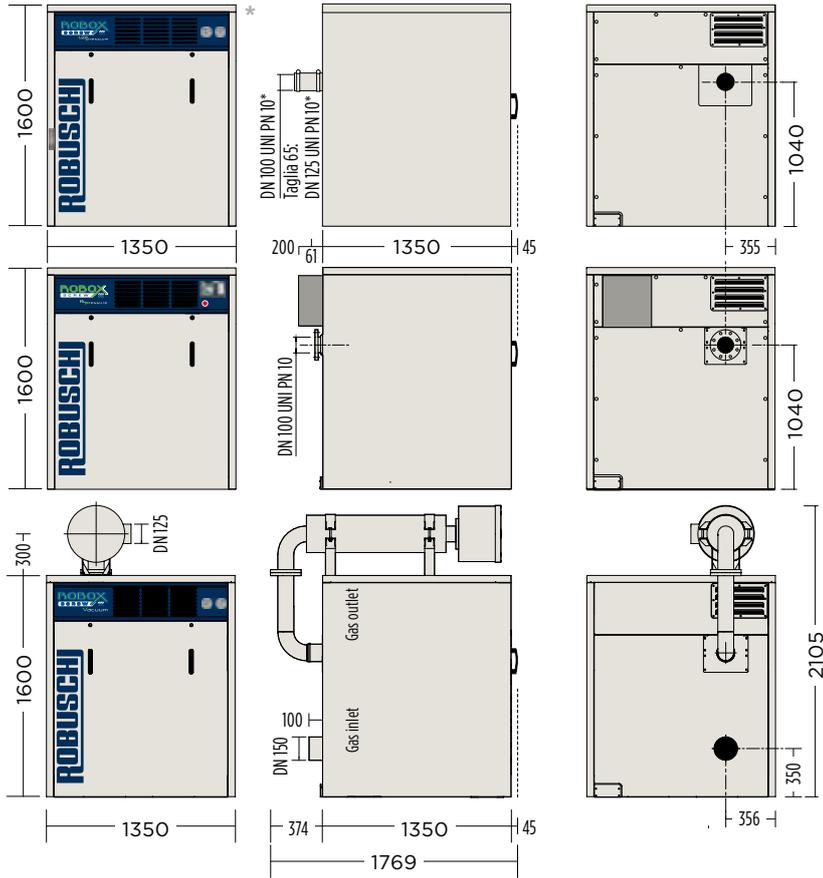
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Weight**: 720 kg



Weight**: 720 kg



3



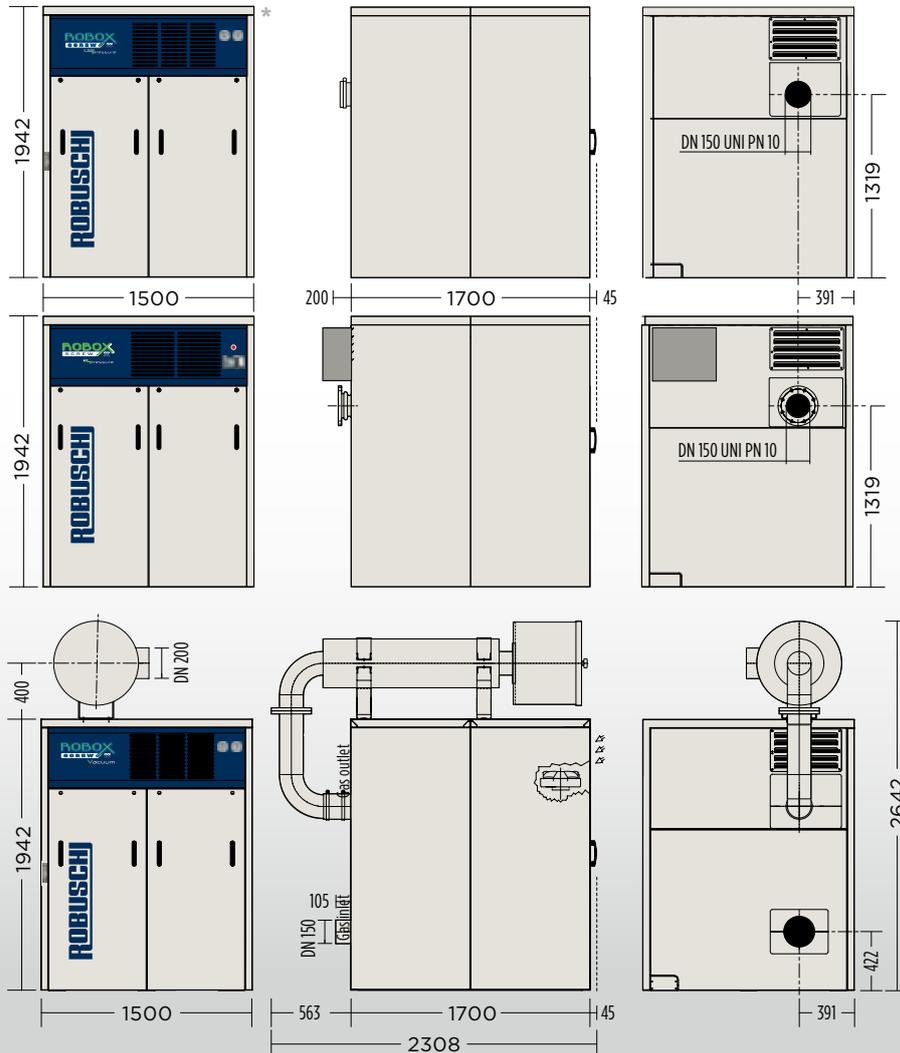
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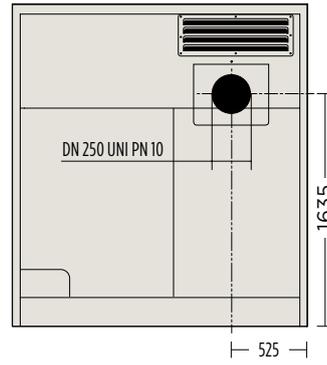
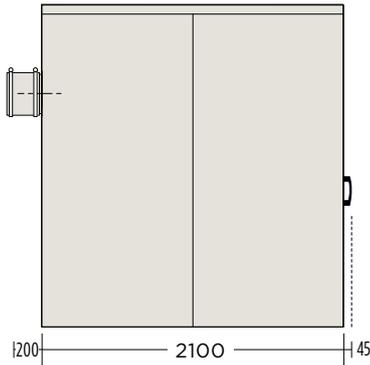
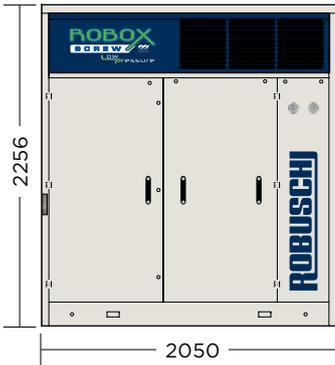


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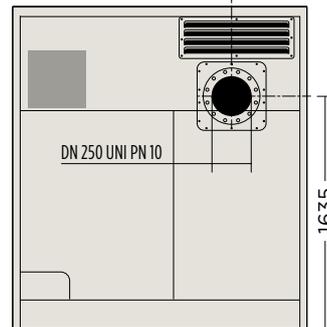
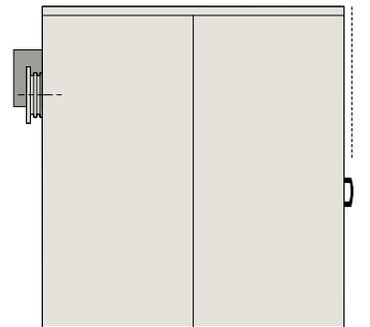


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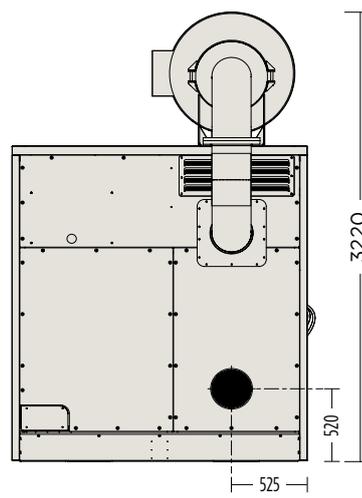
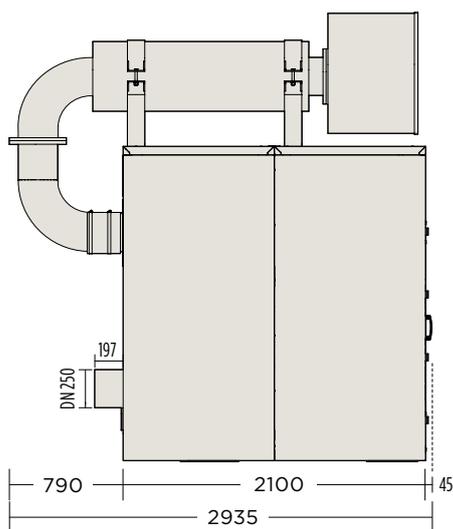
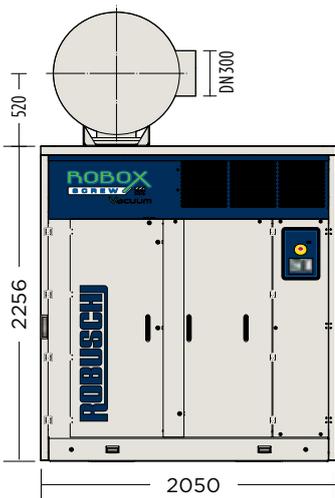




Weight**: 2,455 kg



Weight**: 2,455 kg



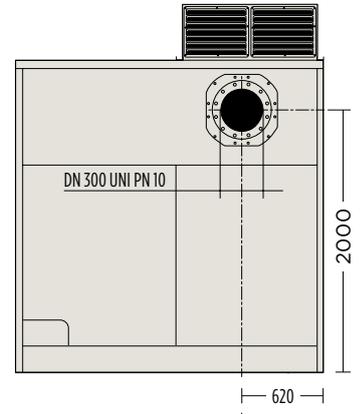
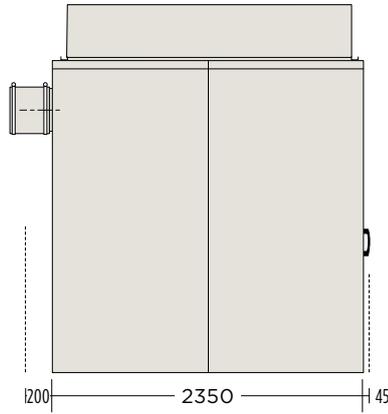
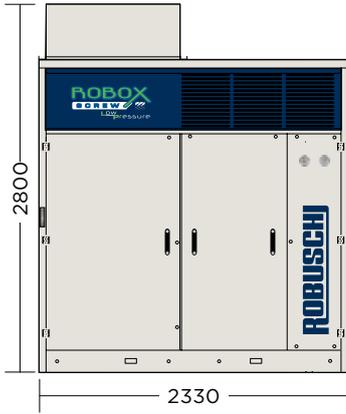
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* Sentinel optional for Low pressure, Hi pressure and Vacuum

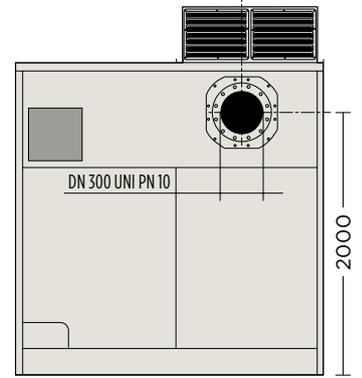
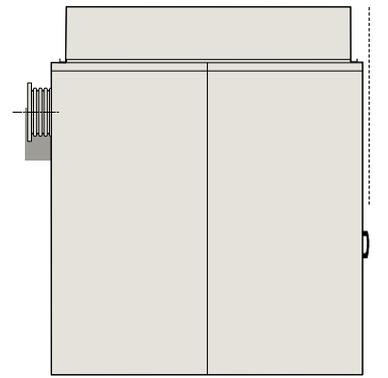
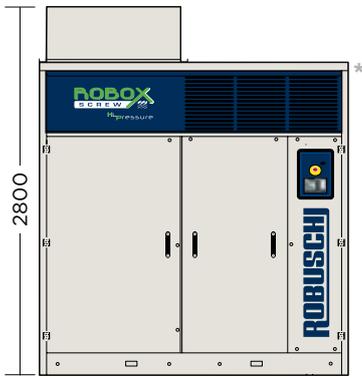
** Weight without motor



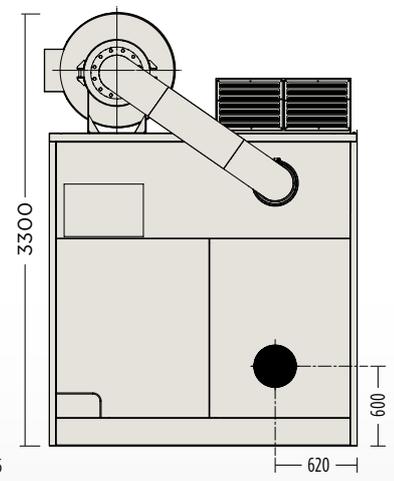
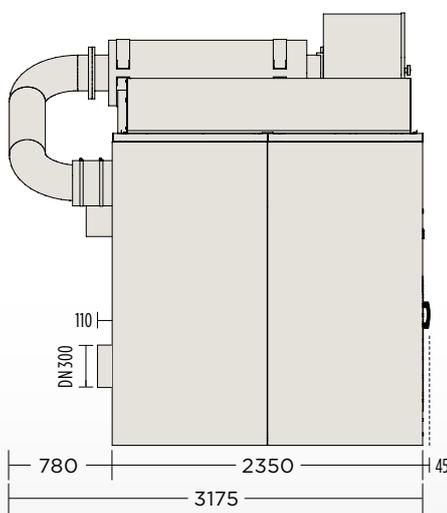
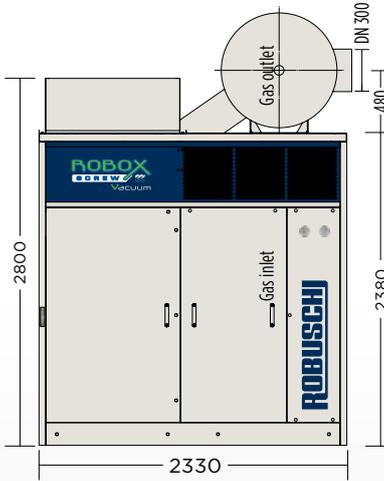
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Weight**: 4,540 kg



Weight**: 4,540 kg



* Sentinel optional for Low pressure, Hi pressure and Vacuum

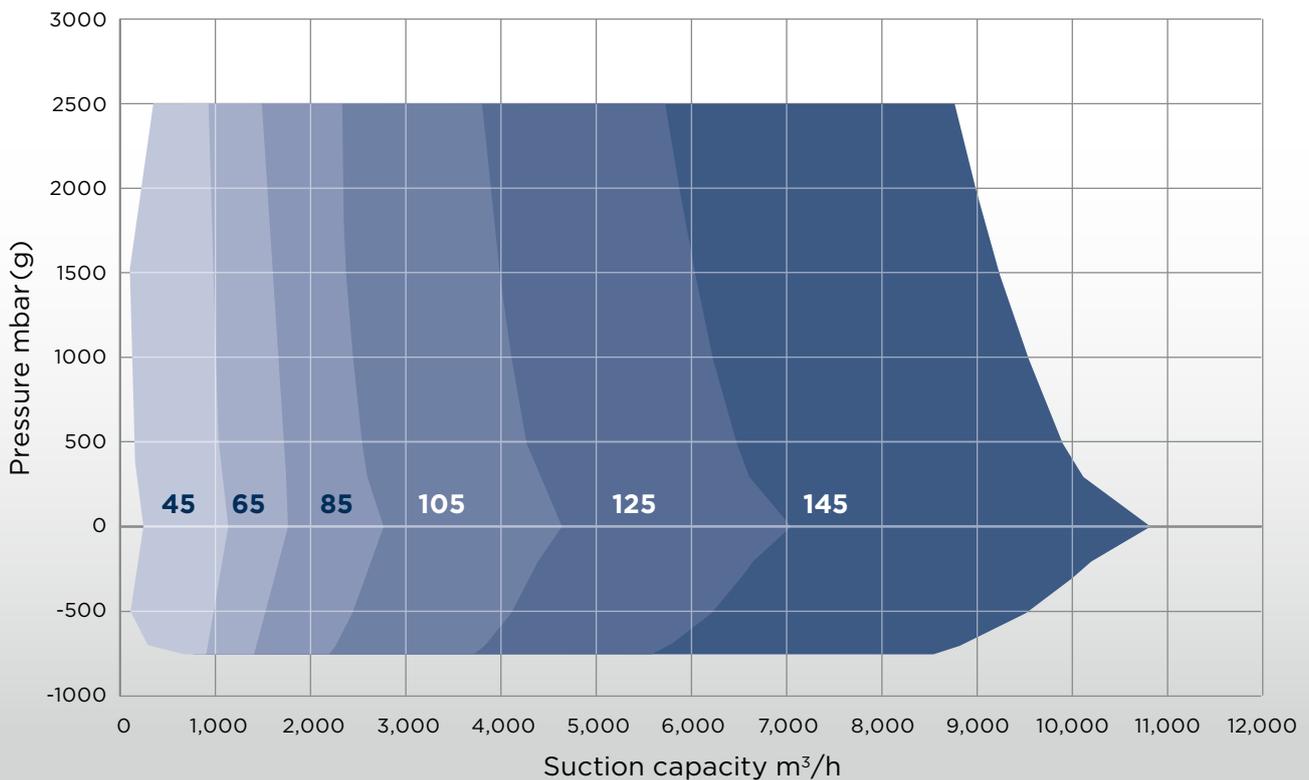
** Weight without motor

Performances

ROBOX screw		Low pressure		Hi pressure		Vacuum	
WS - WL Size		Capacity m ³ /h	Motor** kW	Capacity m ³ /h	Motor** kW	Capacity m ³ /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

Air Map



Gardner Denver



- GARDNER DENVER
Headquarter
- ROBUSCHI Division
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