

Scope of supply



ROBOX
SCREW 
LOW Pressure

ROBOX
SCREW 
HI Pressure

ROBOX SCREW Low pressure
pressure up to 1,000 mbar (g)
and capacity up to 10,500 m³/h

ROBOX SCREW Hi pressure
pressure up to 2,500 mbar (g)
and capacity up to 9,500 m³/h

The efficiency of a compressor with the simplicity of a lobe blower



ROBOX
SCREW
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Hi Pressure

1. RSW - Air end screw compressor

At the core of the system is the RSW compressor. This is the result of thorough market research (in particular in the process and wastewater treatment industries), along with an analysis of the evolving needs of the customer. Using its experience in the low-pressure field, Robuschi developed every element of the patented RSW so that it's purposely optimised to reach pressure values of up to 2.5 bar (g).

Efficient

Robuschi engineers designed the profile to guarantee maximum capacity with the minimum energy consumption.

In addition, the surface treatment of the rotors makes the RSW resistant to oxidation, meaning performance levels are consistently maintained.

Silent

The excellent compression efficiency, guaranteed by the innovative Robuschi rotor profile, means less noise during the compression phase. Together with the low rotor rotation speed (max. 6,000rpm) and the absence of a step-up gear, this means sound emissions are kept to a minimum.



Robust

The rotors are designed with wide-diameter shafts to reduce the deformation caused by internal and external loads, thereby ensuring the compressor can work efficiently in even the harshest conditions.

The bearings have an increased lifespan thanks to the reduced number of revolutions they have to make. The seals on the conveyed gas and lubricating oil are also of the “wear-free” type.

Simple

The RSW features a traditional belt drive instead of a gear overdrive and, for applications with a reduced thermal speed, uses a simplified lubrication system.

2. High-efficiency and high-reliability belt drive

Thanks to the correct tensioning (single-belt) and reduced speed (comparable with that of a lobe blower), which results in reduced maintenance costs. To ensure safety, the device is also fitted with belt cover guard.



3. Motor with self-tensioning system

All ROBOX SCREW units are shipped with the motor mounting system locked, preventing vibration and stresses on bearing and belts during handling/freight. To achieve the correct belt tension, locking plates have to be removed when commissioning the ROBOX SCREW machine.



4. Noise enclosure

The noise enclosure is designed with optimised air passages and sound pressure reduction capacity. Once installed, the enclosure is completely separate from the compressor so there's no transmission of vibrations to its walls. Thanks to the fresh air circulation inside the enclosure the operating temperature remains cool, providing greater efficiency with normal operation. Moreover an electric motor-driven cooling fan is located close to the air end and discharge silencer, which is the warmest area of the enclosure.

In addition, the noise enclosure is equipped with doors and key-lockers for ease of maintenance and to allow the installation of additional units side-by-side.

5. Lubrication system

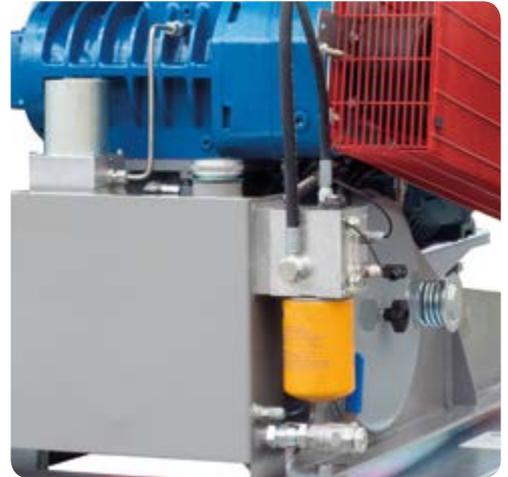
Low pressure

Splash lubrication system - extremely simple and compact, with minimal maintenance (already proven in the ROBOX evolution blower units).



Hi pressure

Forced lubrication system - with the oil pump integrated directly in the compressor, eliminating the need for another electric circuit and therefore reducing energy consumption.



ROBOX
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Low pressure

6. Silencers and base frame

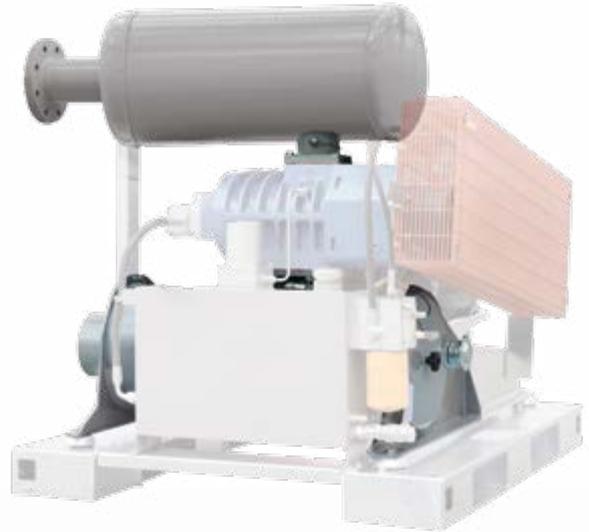
Low pressure

- **Reactive silencer** on the suction side, with a filter integrated into the package frame and a pull out filter cartridge for easy maintenance
- **Reactive/adsorptive** on the discharge side of the compressor in accordance with the Directive 97/23/CE (PED) as in-line accessories, combining the most effective noise reduction with no contact between the air and the sound absorbing material. (Pressure Equipment Directive certification as vessel accessory available as an option).



Hi pressure

- **Reactive inlet and delivery silencers**, to drastically reduce every residual pulsation that spreads through the system pipes (PED certified).



ROBOX
SCREW
Hi pressure

7. Valves

Non-return valve

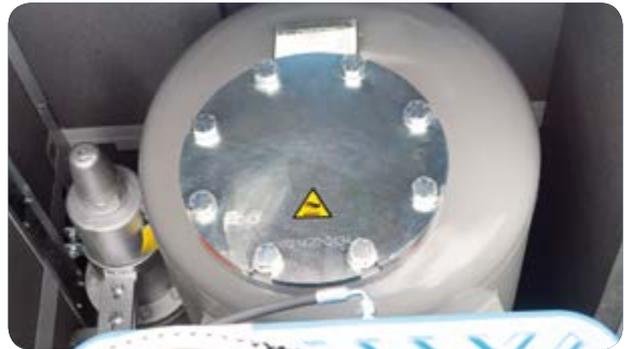
- Heavy-duty, durable double flap: longer life and less wear when in intermittent mode.
- Higher stability when working at low flow rate: the vertical axis pivot allows the flaps to remain open when air is flowing across the valve, even at low capacity. This differs from single flap valves, which, due to the pivot on the horizontal axis and top position, may suffer 'waving' problems.
- Higher efficiency: thanks to the full diameter outlet and laminar flow across the mid shaft, the pressure losses are reduced by 10% - 30% when compared with a single flap valve.

Low pressure



Robuschi VSM relief valve with an automatic actuator for optimum accuracy and reliability, the emergency relief system protects the compressor and its components in case of clogging of discharge piping or accidental pressure spikes in the plant. If the application requires a modulating pressure regulation or by-pass valve, an additional valve can be mounted on the discharge pipe (see options section). This can also act as a start-up device (optional function).

Hi pressure



Mechanical relief valve

Safety valve for the Hi Pressure version that complies with the Pressure Equipment Directive's discharge silencer requirements. With the set point fixed at 3 bar (g), this features a solid casting and a spring loaded shutter system for safe operation.



Low pressure

8. Immediate oil level check

even when the compressor is in operation, thanks to the sight glass at the front of the noise enclosure.



Low pressure - Hi pressure

9. Instrumentation

The ROBOX SCREW is equipped with filter clogging and discharge pressure gauges in order to control the basic parameters and avoid any possible malfunctions.



10. Integrated auxiliary control

Simple connection of the electrical system thanks to the rear auxiliaries' board in ROBOX SCREW versions equipped with a Sentinel control panel.

Options and Accessories

The wide range of options and accessories available for both the Low Pressure and Hi Pressure versions of the ROBOX SCREW means units can be configured to meet the customer's exacting requirements.

Options	Low pressure	Hi pressure
Sentinel 2 with auxiliaries' board	✓	✓
Sentinel PRO with auxiliaries' board	✓	✓
Sentinel 2 with emergency stop kit and auxiliaries' board	✓	✓
Sentinel PRO with emergency stop kit and auxiliaries' board	✓	✓
Oil level sensor	✓	✗
Forced lubrication system	✓	*
Start-up valve with unloading and safety functions (VSM/P NA valve setting)	✓	✗
Kit of sensors for monitoring the suction pressure and discharge temperature	✓	✓
Reactive discharge silencer (PED)	✓	*
Ducted suction (Version/C)	✓	✓
Air-air exchanger	✓	✓
Air-water exchanger	✓	✓
Electric power cabinet with start-up Y/Δ	✓	✓
Electric power cabinet with soft start	✓	✓
Electric power cabinet for VFD drive	✓	✓
Blow-off valve (VBO) for pressure tuning on the process (alternatively, as process protection blow-off)	✓	✗
Energy saving unloading and intermittent mode system (available WS 2, 3, 4 and, upon request, WS 5)	*	✓
ATEX II version for category 3 in zone 2 or 22, with max. permitted temperature T3	✓	✓
Conformity with TR TS (EAC) certification for Russia - Belarus - Kazakhstan.	✓	✓

* Standard ✓ Available as an optional feature ✗ Not available

SENTINEL 2 & SENTINEL PRO

Continuous monitoring of ROBOX SCREW Hi pressure and ROBOX SCREW Low pressure units

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

SENTINEL 2 and SENTINEL PRO are able to manage a variety of operating parameters, with a connection for uploading or downloading the measured parameters along with any possible alarms. Permanent supervision means maintenance work on the compressor is made easier as any issues are indicated on the unit's display, without the need for any engineer intervention.

SENTINEL PRO is configured with an LCD display with remote connection via the MODBUS communication protocol and a GSM device. It also allows for the integrated management of the compressor parameters and the frequency changer (when present).

Main electric motor board panel

for different start-up systems:

- Star/triangle start-up
- Soft/start
- Supply with frequency variation

VSM/NA valve, allowing start-up with no load on delivery.

High-efficiency system for intermittent operation with/without a load – without the need to stop the electric motor for further energy savings, and with an additional no load delivery start-up function.



SENTINEL 2



SENTINEL PRO



Gardner Denver

Your **Ultimate** Source
For Pressure and Vacuum



GARDNER DENVER S.r.l. **Divisione ROBUSCHI**

Manufacturing facilities
Via S. Leonardo, 71/A
43122 Parma - Italy
Phone +39 0521 274911/91
Fax +39 0521 771242
info@robuschi.com

www.robuschi.com

Gardner Denver **Industrials Group**

Head office
222 East Erie Street,
Milwaukee (WI) 53202
Phone +1 414-212-4700

www.gd-industrials.com