

ROBOX
SCREW

*High-efficiency oil-free
Compressor Unit*



ROBOX SCREW: Robuschi's solution for your application



In the industrial sector, **ROBOX SCREW** is mainly used in **pneumatic transport processes, for the transfer of powders or any type of granules (plastic, flours, seeds...)**. **ROBOX SCREW** ensures operation at lower temperatures (20% less temperature compared to other technologies), without danger of deterioration and/or pollution of the transported material (oil free).

The complete Robuschi unit can provide pressures up to 2.5 bar (g), guaranteeing thus the best energy efficiency.



In **waste water treatment plants**, energy consumption accounts for more than 60% of the annual cost. For this reason **ROBOX SCREW** is the best answer to the need of reducing costs, as it allows **savings in excess of 30% compared to other technologies**. Robuschi unit can be the best choice for waste water treatment plants: Robuschi provides the maximum quantity of air with lower energy consumption, thanks to **RSW** internal compression and to the presence of a special silencer without sound-absorbing material, which prevents possible clogging of the ventilation systems. Moreover, thanks to the possibility of working with pressures over 1 bar, **ROBOX screw** can supply sewage collection tanks of considerable heights. This is perfectly compatible with the need for a better use of the urban spaces and with the increasing requests for low acoustic pollution (**ROBOX screw** sound pressure level is < 70 dB(A)).



In the **thermoelectric power stations**, **ROBOX SCREW** works together with traditional technologies in the FGD processes (desulphurisation of exhaust gas). This allows thus energy consumption year's savings of up to 300,000 kWh / for each 250 kw installed engine size.



Efficient: The Robuschi profile of the rotors (patent pending) allows the maximum efficiency at a reduced number of rounds with consequent energy savings.

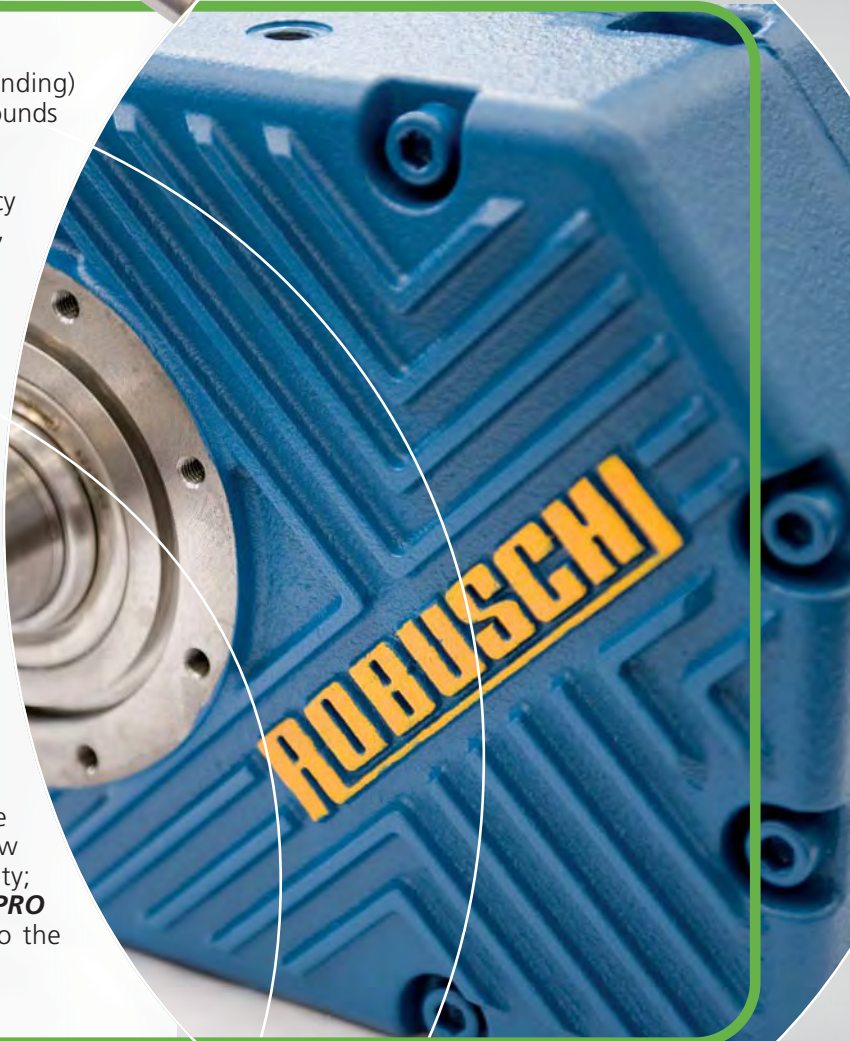
Silent operation: The high internal compression efficiency ensures a low noise emission of the compressor which, thanks to its special silencers and noise enclosure, allows **ROBOX SCREW** to reach a sound pressure level < 70 dB(A).

Simple: The experience acquired in the low-pressure sector, allowed Robuschi to develop **ROBOX SCREW** in an innovative way. This resulted in a considerable reduction in the number of parts of the compressor itself.

Compact: **RSW** construction simplicity and a careful analysis of the layout of **ROBOX SCREW** components, ensure reduced dimensions compared to other standard compressors.

Flexible: The use of a belt drive allows the supply of the correct capacity required by the application. Moreover, it also allows the installation of the motor that is most suitable for the compressor absorbed power with, as a result, an operation at the point of best efficiency.

Reliable: The accurate analysis and the meticulous choice of each components of the compressor, as well as the low operating speed, guarantee **ROBOX SCREW** high reliability; whereas the control panels **SENTINEL 2** or **SENTINEL PRO** ensure the optimal operation of the machine thanks to the constant monitoring of the operating parameters.



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**THE CORE OF THE SYSTEM:
RSW, THE OIL-FREE SCREW COMPRESSOR**

RSW

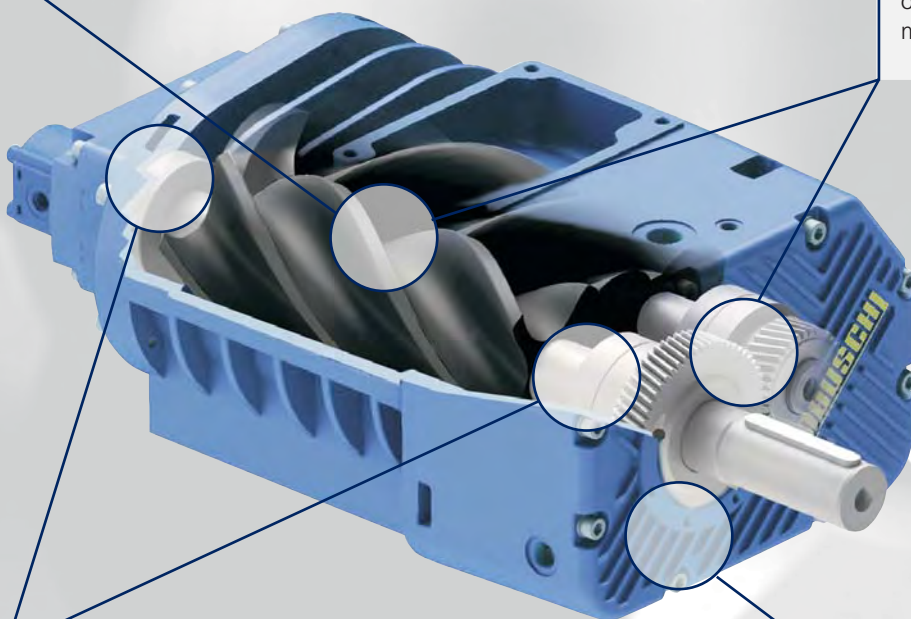
The **RSW** compressor is the combination of a careful and precise analysis of market changes, such as processing and waste water treatment industry, as well as of the clients' constantly evolving needs, and of Robuschi experience in low pressure combined with constant R&D activity.

For these reasons, **RSW** is designed and developed by Robuschi: from the definition of the rotors' profile to the complete development of the compressor, which was expressly optimised to reach pressures of 2.5 bar (g).



Efficient: The Robuschi profile was designed by Robuschi engineers in order to obtain the maximum capacity at a lower energy consumption. Moreover, the rotors' coating makes **RSW** resistant to oxidation and preserves performance over time.

Silent operation: The compression efficiency is ensured by the innovative Robuschi profile of the rotors, and it guarantees a low-noise generation during the compression phase. The compression efficiency combined with the low-speed rotation of the rotors (up to 6000 rpm max) and to the lack of the step-up gear ensure sound emissions at the minimum levels for the category.



Robust: The **rotors**, which are equipped with wide-diameter shafts, reduce deformations caused by internal and external loads. This ensures the correct functioning of the compressor also in the most demanding conditions. The **bearings** last longer thanks to the reduced number of rounds and a high-efficiency belt drive. The **seals** of the conveyed gas and of the lubricating oil are "without wear".

Simple: The design and experimental analysis allowed the absence of the step-up gear and, for applications with reduced thermal conditions, the use of a lubrication system which is simplified compared to the forced-system type.

COMPRESSOR UNIT

ROBOX
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The low-pressure compressor unit, **ROBOX SCREW**, combines unique characteristics of the "oil-free" **RSW** screw compressor, with the consolidated characteristics of **ROBOX** compact units.



Sentinel 2
Electronic Monitoring Unit

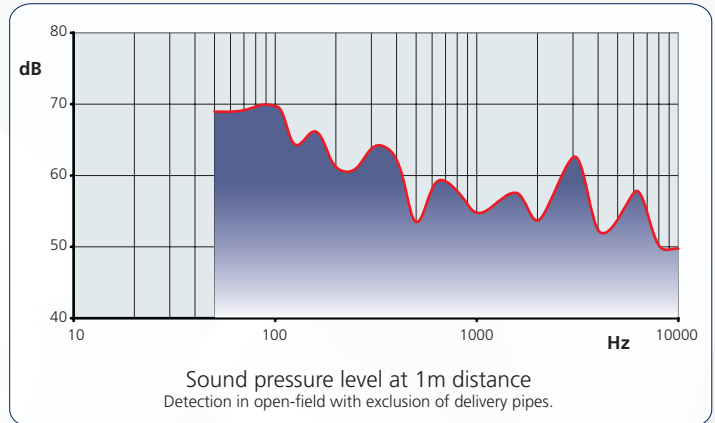


Sentinel 2
Electronic Monitoring Unit

SILENT OPERATION

The **ROBOX SCREW** unit is characterised by an accurate choice of the components, which makes it particularly silent during the operation (sound pressure levels **<70 dB(A)**):

- **The RSW compressor**, which is the core of the unit, works with low-noise emissions in all working conditions, thanks to the compression efficiency, the low speed of the rotors, and to the absence of the step-up gear.
- **Silencers**: The **absorption silencer/filter on the suction inlet** of the compressor reduces noise in the most efficient way. The **reactive discharge silencer, without sound absorbing material**, drastically reduces each residual pulsation, which might propagate to the system's pipes.
- **High-efficiency belt drive with low-sound emission**.
- **The noise enclosure** is designed with optimised air passages and a high capacity to reduce the sound pressure. When the enclosure is installed, it is completely independent of the compressor, therefore there is no transmission of vibrations to the walls of the enclosure itself.



MAXIMUM ENERGY SAVINGS

The innovative and unique **profile of Robuschi's rotors** optimises the ration between capacity and pressure thanks to the maximum performance of the internal compression. This increases thus the efficiency of the **ROBOX SCREW** unit.

The characteristics of **ROBOX SCREW** ensure **high efficiency (>75%)** in a wide range of rotation of the compressor (from 100% to 25%), **by reducing thus the energy consumption** in any working condition.

Moreover, energy savings increase with the use of EFF1 motors and with the new IE3 certified engines.

ROBOX
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MONITORED OPERATION

Constant monitoring with SENTINEL 2: Control panel that guarantees multiple operating parameters of **ROBOX SCREW**: pressure at the inlet and oil pressure sensor, delivery air temperature and oil sensor and oil level and enclosure fan electric control sensor. Thanks to **SENTINEL 2** constant monitoring, the necessary maintenance service operations on the compressor are also easier. Indeed the display periodically signals the maintenance service operations, without the need for a continuous control by the engineers.

COMPACTNESS

ROBOX SCREW innovative design and extremely compact dimensions allow, in the best possible way, the increasing demand for reduced spaces available in the compressors' room.

Moreover, the front-access maintenance makes it possible to install more units one next to each other, reducing further the compressors rooms space need.



EASE OF INSTALLATION AND MAINTENANCE

ROBOX SCREW's key feature is its **ease of installation**, thanks to the effortless handling through the forklift and/or transpallet as well as the ease of electrical connection to the system (rear auxiliary panel - standard version). The **RSW compressor's** main feature is its **constructive simplicity and robustness**, which ensures a longer operating life of the components and, therefore, a considerable reduction of maintenance costs.

ROBOX SCREW's simple layout together with the particular arrangement of its components, make it possible to carry out all operations of ordinary maintenance from the front side:

- immediate check of oil level;
- easy oil change;
- easy replacement of air and oil filters;
- easy adjustment of oil pressure;
- simple replacement of belt drive.



OPTIONALS AND ACCESSORIES

ROBOX SCREW is available even with:

- ATEX certifications
- version for nitrogen conveyance
- vacuum version
- version with **SENTINEL PRO**:

Robuschi has developed an advanced continuous monitoring system (as an alternative to the *SENTINEL 2* standard version), which ensures maximum efficiency and reliability of the **ROBOX SCREW** unit. It can be configured with LCD display, fitted with remote connection to the systems MODBUS, PROFIBUS, GSM, as well as with the possibility of integrated management of the compressor's parameters and, where present, of the frequency inverter.

With its advanced functions, **SENTINEL PRO** highlights and transmits in real-time the unit's performance.

The available accessories are:

- **STARTING VALVES SYSTEM** to reduce the absorption of energy during the starting phase of the electric motor.
- **VALVE SYSTEM FOR VACUUM/LOAD INTERMITTENT OPERATION** of the compressor without need of stopping the electric motor.
- **HEAT EXCHANGER** gas/liquid or gas/air to cool down the gas discharged from the compressor before sending it to the system or to recover the pressure.
- Main **ELECTRIC MOTOR BOARD PANEL** for different starting systems.



DIMENSIONS AND OVERALL SIZE (mm)



At present (April 2010) ROBOX screw 4 – 5 available on request.

ROBOX SCREW 2

ROBOX SCREW 3

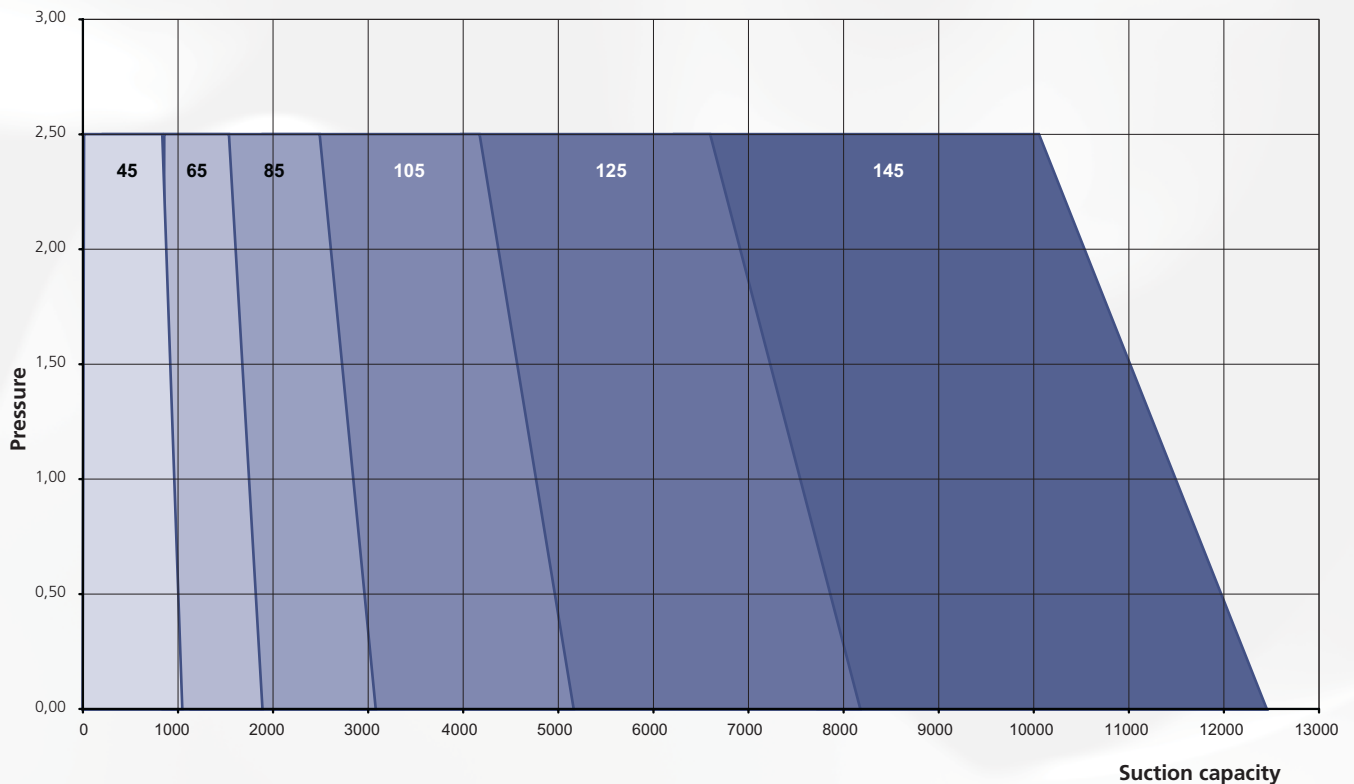
ROBOX SCREW PERFORMANCES

ROBOX SCREW		OPERATION			
		DP = 1 bar		DP = 2,5 bar	
ROBOX SCREW Size	RSW Size	Capacity	Motor	Capacity	Motor
		m ³ /h	kW	m ³ /h	kW
2	45	840	30	770	55
	65	1100	37	960	75
3	65	1680	55	1540	110
	85	2400	75	2200	132
4	85	2700	90	2400	160
	105	4500	132	4200	315
	125	6000	200	6000	*400
5	125	7100	200	6500	*400
	145	10500	315	10000	*600

* Version with direct coupling.



RSW FIELDS OF OPERATION



ROBUSCHI®

G E R M A N Y

Ahnser Strasse 5 - 31675 Bückeburg - Germany
 Tel. +49 5722 2856-0 - Fax +49 5722 2856-99
 E-mail: robuschi@robuschi.de - www.robuschi.de

ROBUSCHI®

D A N M A R K

Fuglebaekvej 3 A, 1 - 2770 Kastrup - Denmark
 Tel. +45 70257800 - Fax +45 70 257900
 E-mail: sales@robuschi.dk - www.robuschi.dk

ROBUSCHI®

F R A N C E

6, rue de la Grande Borne - 77990 Le Mesnil Amelot - France
 Tel. +33 1 60037569 - Fax +33 1 60037577
 E-mail: robuschi.fr@wanadoo.fr - www.robuschi.fr

ROBUSCHI®

B E N E L U X

Kanaaldijk 100 - 6956 AX Spankeren - Netherlands
 Tel. +31 313 41 5570 - Fax +31 313 41 5433
 E-mail: robuschi@robuschi-benelux.nl - www.robuschi-benelux.nl

ROBUSCHI®

U S A I n c .

3801 Beam Road, Suite F - Charlotte, NC 28217
 Tel: 704-424 1018 - Fax: 704-424 1019 - Toll free: 877-424-1020
 E-mail: sales@robuschiusa.com - www.robuschiusa.com

ROBUSCHI®

C H I N A

218 Tianmu Road West - Suit 1208, Building No. 2, Kerry Everbright City - 200070 Shanghai - China
 Tel. +86 21 6317 5461 / +86 21 6317 6461 - Fax +86 21 6317 7312
 E-mail: robuschichina@robuschichina.com - www.robuschichina.com

ROBUSCHI®

d o B R A S I L

Centro Administrativo Rio Negro - Conjuntos 25 e 26 - Edifício Jaçari - Alameda Rio Negro 585
 CEP 06454-000 - Alphaville/Barueri - SP - Brasil
 Tel +55 11 4191-2322 - Fax +55 11 4191-2277
 E-mail: robuschi@robuschi.com.br - www.robuschi.com.br

ROBUSCHI®**ROBUSCHI s.p.A.****Head office and factory**

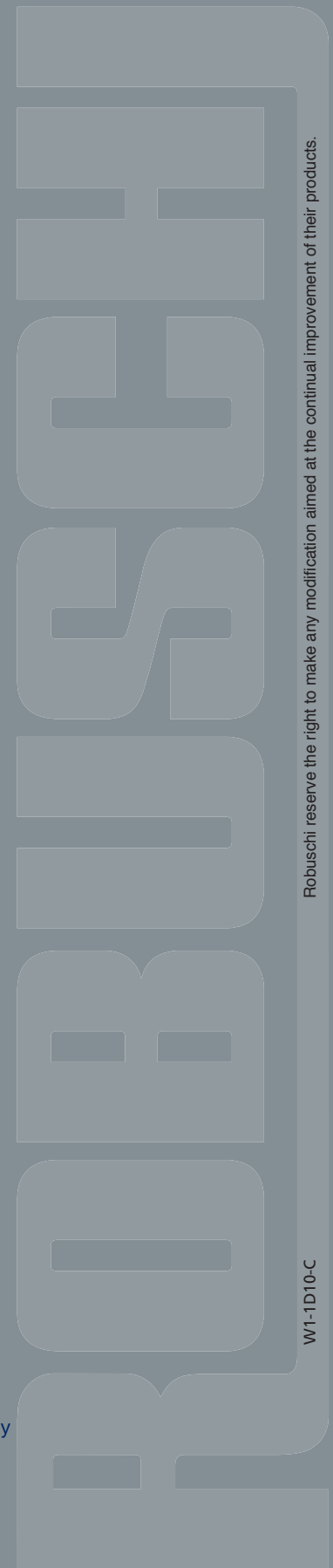
Via S. Leonardo, 71/A - 43122 Parma - Italy
 Tel. +39 0521 274911/91 - Fax +39 0521 771242
 E-mail: robuschi@robuschi.it - www.robuschi.com

FILIALE DI MILANO

Via XXV Aprile, 2 - 20097 S. Donato (Milano) - Italy
 Tel. +39 02 51628065 - Fax +39 02 51620224
 E-mail: robuschimi@robuschi.it

FILIALE DI PADOVA

Piazza Zanellato,5 - 35129 Padova - Italy
 Tel. +39.049.8078260 - Fax +39.049.8078183
 E-mail: robuschipd@robuschi.it

ROBOX
SCREW

Robuschi reserve the right to make any modification aimed at the continual improvement of their products.

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www.robuschi.com