

# ROBUSCH®

by Gardner Denver

## Robox Energy Screw Blower Impact 4.0

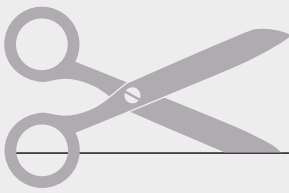
Best in class for  
Wastewater  
Treatment



# *impact4.0*

# 30%

## *efficient*



Cutting operating costs by half in the complex world of a wastewater treatment is achieved by combining the technological advantages of the screw blower with permanent magnet motor, and Robuschi's Smart Process Control program.

Additionally, the small footprint and compact size of the new machine can free up valuable space in the blower/compressor room.

## **Cost reduction through superior pump technology**

Energy savings of up to 30% compared to rotary lobes will substantially reduce the total cost of ownership for your compressor/blower. A permanent magnet motor is at the heart of this game changing technology.



# 30%

## *smart*

### **Cost reduction through Smart Process Control**

Smart Process Control assists the customer in the process optimisation, setting up the blowers, to provide just the right amount of air needed at different steps of a process.

# 30%

## *compact*

### **Reduction in space and footprint**

With its compact layout that reduces space requirements by 30%, the Robox has been designed to fit into even the most challenging conditions. Upgrading to Robox will actually free up valuable space in your plant.



*"The new Robox Energy screw blower will have a substantial impact on your energy bill."*

# impact4.0

## connected **Iconn Smart Flow Management**



WATER 4.0 puts digitisation and automation at the centre of the industry strategy, aimed squarely at creating resource-efficient, flexible and competitive water management.

The new Robox Energy screw blower equipped with iConn module delivers just that. iConn provides plant operators with in-depth and real-time data, essential for an optimised and efficient wastewater treatment operation.

The remote availability of machine operation data saves time by removing the need for on-site supervision, optimises maintenance and parts management, and paves the way for the development of predictive models.

iConn optimises maintenance, maximises blower reliability and enables customers to focus on their core business.



### Benefits of Iconn

- Increased uptime
- Optimised maintenance
- Increased efficiency and plant productivity
- Investment protection
- Extended product life-cycle



**Reduce your  
energy costs**

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# ***unique technology***

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For wastewater treatment plants, energy can account for as much as 30% of the overall operation costs of the facility.

Aeration systems are the largest energy user in wastewater treatment plants (more than 60% of the total electricity cost), so improvements in efficiency can significantly reduce energy costs.

90% of your compressed air costs will be spent on energy, so state-of-the-art aeration equipment can make the difference, not only to reduce your carbon footprint, but by substantially lowering life cycle costs.

## **Choosing the Right Technology**

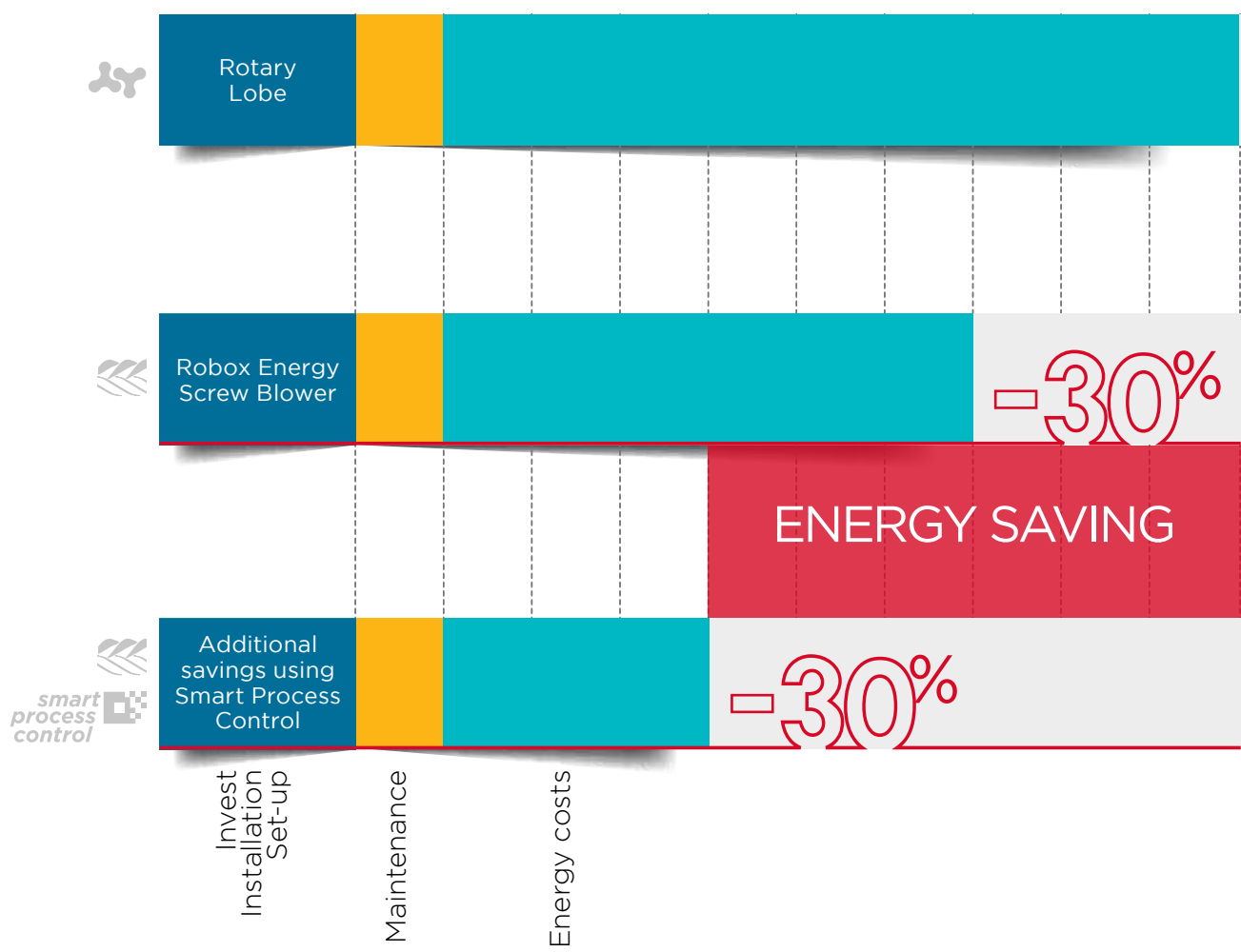
Typically, wastewater plants use rotary lobe, turbo and screw technology equipment for their applications.

Robuschi has taken the route of the enhanced screw blower with permanent magnet motor because of its superior flexibility.

# Comparing total cost of ownership

## cost savings

### Total cost of ownership over 10 Years

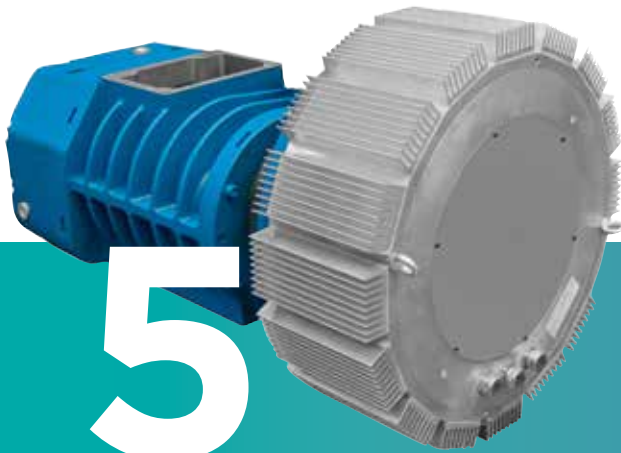
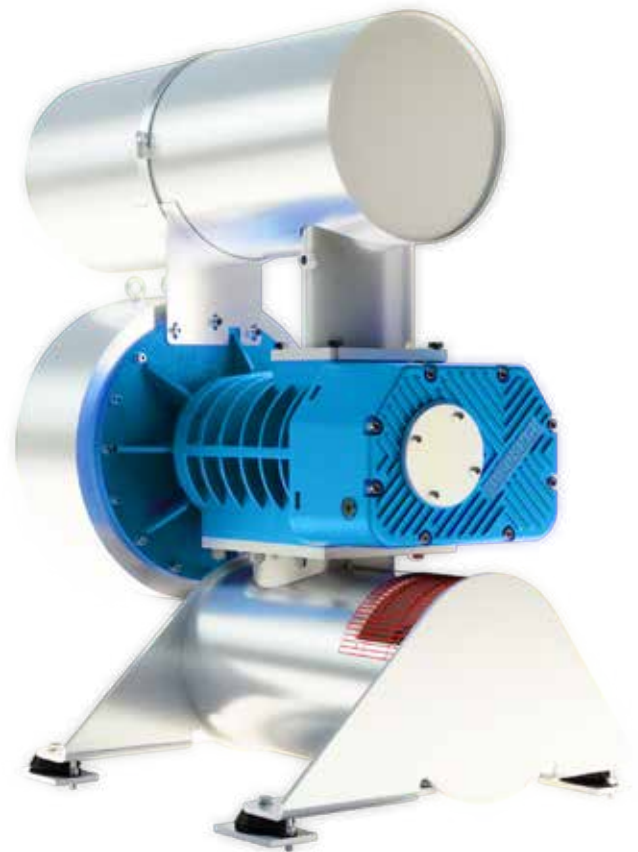


# *superior screw blower*

The maximum output of internal compression in the patented combination of RSW core compressor with a permanent magnet motor fitted directly to the conductor shaft, prevents any potential loss of power coming from the belt drive.

The up and down turn capacity required by wastewater treatment processes can best be handled using the Robox Energy screw blower.

Thanks to the combination of permanent magnetic motor and the integrated frequency converter, it is able to perform at high and constant efficiency even when operating at lower speed. This means that the motor can reach an efficiency level, which surpasses the IE4 standard.



# 5

**Year warranty  
as a standard**

**Permanent magnetic motor**

## Smart and flexible

# control panel

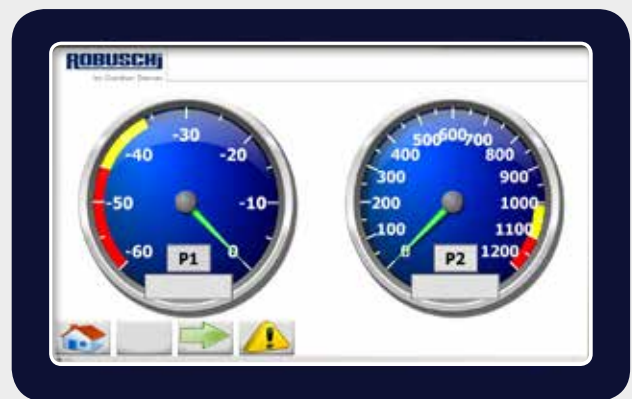
The Robox Energy screw blower is equipped with the latest generation (HMI) “touch screen” control panel. It is user-friendly with an intuitive menu, easy to program thanks to the Windows CE system and can be remotely connected.

Parameter control is straight forward through an ethernet cable or via the internet, which makes it possible to continuously monitor the machine operation from anywhere. Remote diagnostics and predictive maintenance additionally help reduce downtime.

The flexibility and versatility of the new Robox screw blower is masterminded by Robuschi's Smart Process Control tool. It analyses and applies the oxygen data received directly from the process and adjusts the operating parameters accordingly without interrupting the process.

Important energy savings can be expected from this approach, which ensures that only the exact amount of air is supplied at any time.

## Smart Process Control: Intelligence Inside



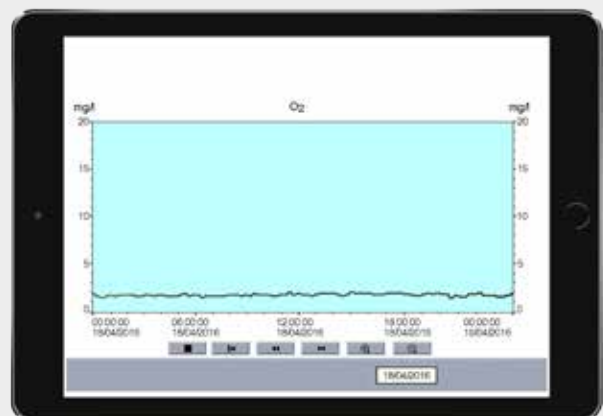
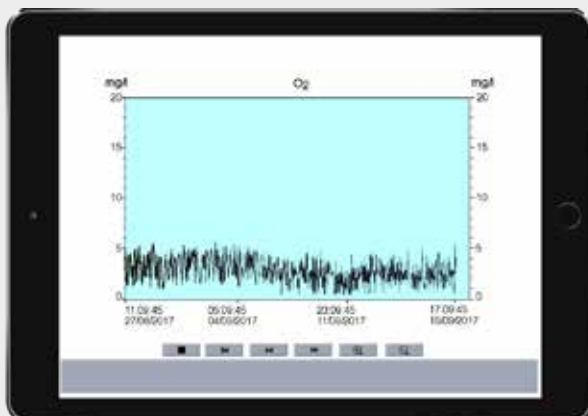
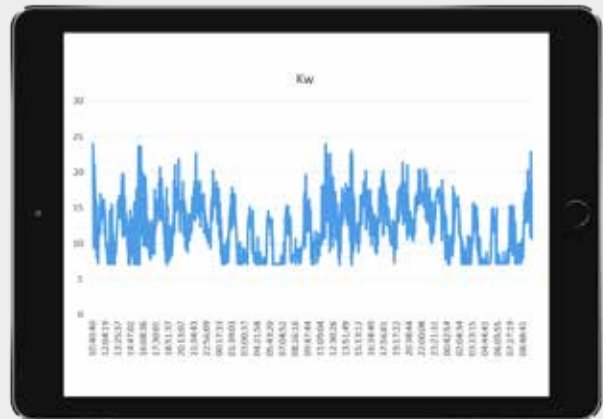
- Optimisation of the oxidative sector
- Aeration system smart management (effective BOD – biological oxygen demand – request)
- Energy savings for lower kW consumption
- Maximum flexibility in every customer's process
- Lower total cost of ownership

## Maximum plant benefit

● Before



● After



# Simple and compact

# *innovative*



Robox Energy, with its innovative compact design, is the best solution when space is at a premium in the compressor room. Compared to a screw package equipped with frequency converter, it needs 30% less space.

The compact layout with permanent magnet motor, including stator, rotor and the direct assembly on the compressor shaft, along with its wear-free design, make the Robox Energy a cost saving, low maintenance screw blower.

Thanks to its power electric cabinet and integrated variable frequency drive, Robox Energy comes ready to be installed. It just needs to be connected to the pipework and electric power, essentially making it “plug & play”!

As the electric cabinet comes equipped with air cooling, it allows reliable and safe operation even in the warmest environment. The electric cabinet has a smart layout with easy access and simple diagnostics.

Additionally, it is possible to install the power electric cabinet supplied on board or separately, which makes it even more flexible. Maintenance costs are at minimum thanks to the small number of machine components (without any transmission belt and motor bearings) and their simple and robust construction.

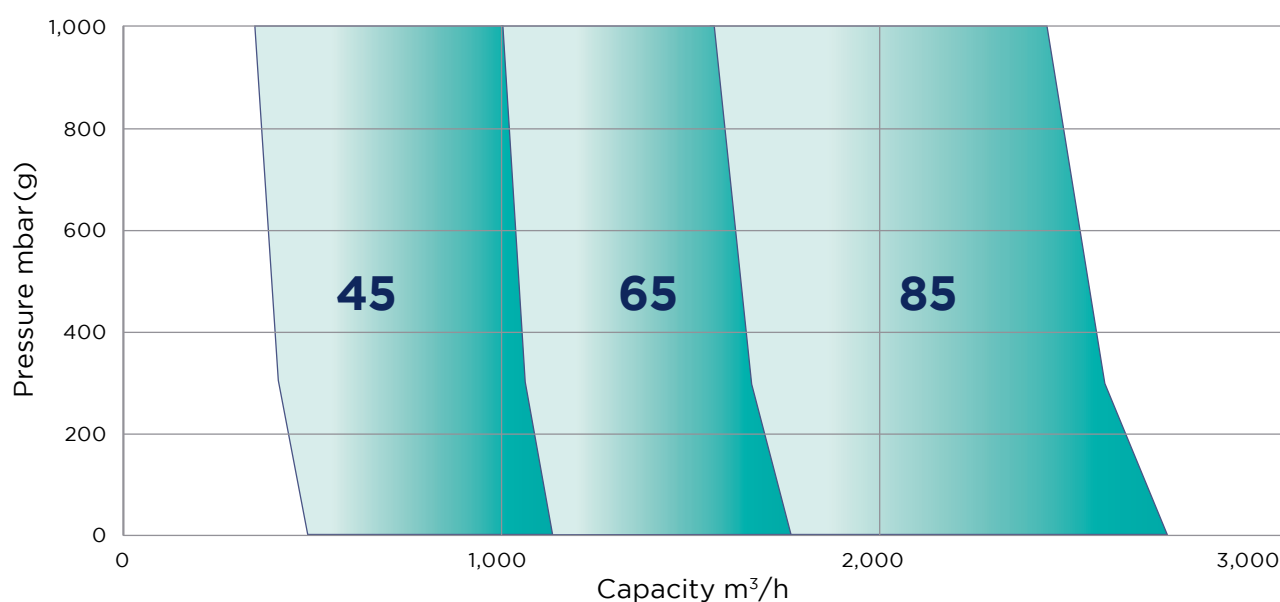
- Easy oil service
- Splash lubrication system is simple and compact, with minimum maintenance
- Main package filter can be replaced without having to open the enclosure



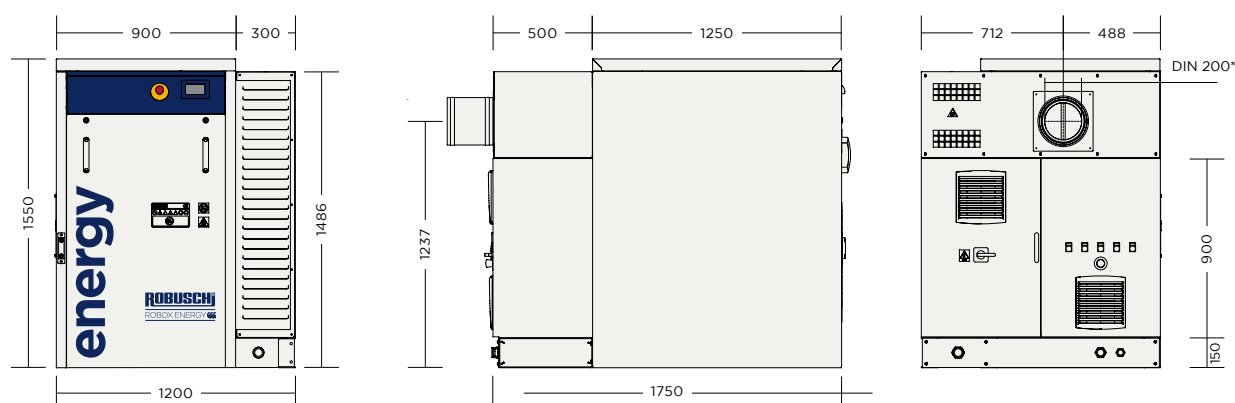
## Performance

| Robox Energy<br>WS/MD Size | Capacity<br>max m <sup>3</sup> /h | Motor max<br>kW |
|----------------------------|-----------------------------------|-----------------|
| <b>45</b>                  | 1,050                             | 37              |
| <b>65</b>                  | 1,680                             | 55              |
| <b>85</b>                  | 2,600                             | 85              |

## Air Map



## Overall Dimensions



\* DN 200 for WS 65 and WS 85  
DN 100 for WS 45

## at work



### Improving air generation for the oxidisation tank in a major wastewater treatment system

**Client:** Ireti

**Location:** North Italy

**Application:** Refurbishment of the Emilia area wastewater treatment system

**Product:** Permanent magnet screw Robox Energy WS 85

**Customer Benefits:** Exceptional flexibility from the WS 85 solution allowed for calibration to specific working conditions and unlike competitors, is able to be switched on and off as required. The Iren PLC also transforms it into a controller that adjusts the process parameters as required. Additionally, the **Robox Energy WS 85** analyses and applies the oxygen data received directly from the process. "We can report that the new logic resulting from the Iren control system has delivered a **30% reduction in the tank's electricity consumption**. Furthermore, by installing the WS 85 we've secured a further **reduction of 20% in air generation and a total energy saving of 50%.**" - Head of Waste Water Treatment in the Emilia area at Ireti, part of the Iren Group

#### Further Advantages:

TEE recognition (energy efficiency or white certificates)



### Robox Energy helps plant to achieve maximum efficiency and excellent energy savings

**Client:** Provincia Autonoma di Trento

**Location:** Dimaro, Italy

**Application:** Oxidation plant for the biological treatment of the public sewerage system

**Product:** Robox Energy WS 65

**Customer Benefits:** One of Robox Energy's most interesting features is its versatility. Its Smart Process Control analyses process data and modifies the machine's operation to match the varying oxygen supply required throughout the day. This feature, made possible by the integrated inverter, prevents the on-off alternation that would decrease plant efficiency. In addition, it prevents peaks in oxygen flow, thus improving the quality of the wastewater treatment. "We've recorded an **efficiency yield variance of up to 25% between the new Robox Energy** and the lobe blower Robox Evolution. However, when compared to the Robox Screw, the difference in efficiency reaches 9%." - Production Warehouse Manager of Provincia Autonoma di Trento wastewater treatment plants

#### Further Advantages:

Simple "plug & play"





## High-quality screw blower solution installed at Degerfors wastewater treatment plant

**Client:** Municipality in Degerfors

**Location:** Degerfors, Sweden

**Application:** Oxidation plant for the biological treatment of the public sewerage system

**Product:** Robox Energy WS 85

**Customer Benefits:** Following the installation, Degerfors WWTP has reduced power consumption from 760 kW to 406 kW per day, resulting in energy savings of around 46 per cent. Tony Kölborg, General Manager for Degerfors WWTP, adds: “We have been very satisfied with the Robox Robuschi Energy screw blower. Following installation in November 2016, test results for the new unit have been extremely impressive, especially when compared to our previous blower set-up. “Energy savings are one of our key targets, so we are very pleased that the **new screw blower has reduced energy costs by 13,000 Euro annually**, and generated energy savings of around **46%**. Thanks to the support from Gardner Denver’s engineers, we have also been able to further optimise our existing processes, which has been a very welcome development.”

### Further Advantages:

Simple “plug & play” installation



## Results exceeded expectations

**Client:** Aquafin NV

**Location:** Sint Truiden, Belgium

**Application:** Oxidation plant for the biological treatment of the public sewerage system

**Product:** Permanent magnet screw – Robox Energy WS 65

**Customer Benefits:** The Robox Energy screw blower has been up and running for two years and during that period the main parameters were monitored. The customer is pleased to confirm that an expected **31% energy saving** was achieved. This excellent result, along with great reliability and easy maintenance, makes Robox Energy the perfect solution for aeration process in high demand wastewater treatment plants. In addition to this, another aspect of the new Robuschi screw blower that has caught the eye of the operators is the simple, “plug and play” installation. It’s a complete machine with a built-in power electric cabinet in the back, and a user-friendly front control panel. “We’re often on the lookout for solutions that are technologically advanced but at the same time simple,” says the plant’s technician, “so that we can work with an intuitive graphic interface and understand straight away which parameters they need to work on.”

### Further Advantages:

Simple “plug & play” installation



## Robox Energy: The screw blower that is a game-changer!



### Energy Efficient

- Up to 30% cut in energy costs
- Government funds available in most EU countries
- Confirmed savings by real customers

### Simple and Compact

- Plug & play
- 30% reduction in footprint and size
- Easy to maintain
- PM-Motor with 5-year warranty

### Smart and Flexible

- Smart Process Control can add additional energy savings of 20 to 30%
- Intelligent connectivity
- Remote web enabled diagnostics

### Future-proofed

- Energy efficiency better than IE4
- Ahead of Eco Design demands
- Water 4.0 and IoT enabled
- Sustainable

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