

## CASE STUDY



# EOSi SCREW VACUUM PUMP AT FLOREN BRICK MANUFACTURER

[edwardsvacuum.com](http://edwardsvacuum.com)

### Belgian bricks manufactured using vacuum for the clay processing

Floren, founded in 1896 and today part of the Michelmers Group, is a Belgian brick manufacturer located in Brecht. They have modernised their production over time with the newest technologies, adhering to very strict manufacturing requirements. As a result, Floren delivers sustainable and qualitative solutions for the construction sector to the market.

They have an eye for their customers' needs and strive for innovative and tailored solutions. Also on an ecological level Floren invests, ensuring the impact of their production processes on the environment is minimised.

Owning their own clay quarries, they have direct access to a qualitative resource allowing them to manufacture a high quality end product with a long life cycle.



### KEY FACTS

Customer	Floren
Location	Brecht, Belgium
Sector	Industrial Vacuum - Brick manufacturing



## A CHANGE FROM LIQUID RING TO OIL-INJECTED SCREW TECHNOLOGY AND WATER COOLED TO AIR COOLED

## 1. Process

After transport of the raw clay to Floren's manufacturing site, it is mixed and kneaded to obtain the optimal plasticity. Next, the mixed clay is moved via a conveyor belt into an extrusion machine to compress it thoroughly. It is at this point, that vacuum comes into play. The compressing machine generates a vacuum which will extract the air and other impurities from the clay which is then moulded into a long string, ready to be cut and heated. During the vacuum process, also water particles will evaporate, drying the clay down to some extent already. After having been moulded and cut, the bricks are dried for three more days to avoid any rupture during the baking process. The latter also lasts three days, in temperatures running up to 1200 degrees. Afterwards, the bricks are ready to be packed and shipped.



Clay moved into the extrusion machine



Compressed string of clay from which air was extracted in the vacuum environment

## 2. Challenge

In the past, Floren was using a liquid ring pump to run its vacuum process to extract air from the clay. A liquid ring pump uses water for cooling, sealing and lubrication of the pump mechanism. In summer time, however, it sometimes proved challenging for Floren to keep its water supply at cold temperatures (20-25 degrees), resulting in two significant downsides:

1. A poor vacuum was established as the vapour pressure is limited by the sealing liquid temperature.
2. Cavitation occurred in the pump itself causing damage to its interior.



Processed bricks ready to be dried and heated



Edwards EOSi oil-injected screw vacuum pump

## 3. Solution &amp; Main Benefits

The Edwards EOSi oil-injected screw vacuum pump is aircooled, completely removing the issues faced with the water temperature. The unit installed was a wet version of the EOSi, which is specifically designed to handle increased water evaporation (as water is also extracted from the clay - apart from the air). Additionally, it is a compact and user-friendly pump, allowing for the desired vacuum pressure to be set. Last but not least, its controller makes it possible to program rotation cycles which ensure automatic start/stop (e.g. as the machine needs some time to reach the required vacuum level, the EOSi starts up automatically in the morning, just in time so daily production can start straight away).

## 4. Voice of the customer

*"We are very pleased with the new EOSi pump as it has been running smoothly since its installation. Especially since we have had a very hot summer this year, the air-cooled set-up saved us some headaches, as the old pump would have surely suffered. The contact and collaboration with Edwards has been very efficient and the commissioning of the machine was a quick fix." - Steven Van Ruijssevelt, Production Manager Floren.*

