

EISENMANN

WE ENVISION SOLUTIONS

COMPACT, SUSTAINABLE, DURABLE

E-OVEN SMART

Efficient drying & ready for heating with
electricity, gas, thermal oil, hydrogen



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EISENMANN



Advanced Technology for
Low-emission Applications
and Sustainability

The Next-Generation Oven

The E-Oven Smart is efficient, cost-effective,
and ideal for the smart paint shop.

State-of-the-art dryers are key to ensuring high-quality paint processes in modern paint shops. Coating quality is not just dependent on the method of application – a key role is played by curing. This is typically highly energy-hungry, but with correspondingly huge potential for savings.

Thanks to a high level of technical expertise and many years of experience in the development of industrial drying plants, Eisenmann is able to continuously improve proven plant technology and develop new concepts.

The future-proof dryer

This long list of innovations now includes the E-Oven Smart. E-Oven Smart offers significant advantages: outstanding energy efficiency, low capital expenditure and excellent coating results – plus it can play a central role in realizing the smart paint shop vision. This solution reflects industry's desire for intelligent manufacturing while fulfilling expectations regarding high product quality, flexibility and efficiency – and delivering cost savings. Combined with the E-Loc Vario or E-Mover conveyor systems, the Shuttle conveyors for dip coating or the E-Cube separation system, an efficient and sustainable overall concept is created for the paint shop of the future.

The E-Oven Smart in detail

The concepts for dryer heating with the E-Oven Smart correspond to the current state of the art. The clean gas from the dryer exhaust air purification is used to heat the dryer fresh air. The combustion air for the burners can be taken directly from the dryer and the combustion gases are supplied to the RNV exhaust air purification together with the dryer exhaust air. The heating units usually used are no longer necessary with the E-Oven Smart, which significantly simplifies the air duct.



Jörg Robbin, Head of Research & Development, Eisenmann GmbH

Our customers are looking for connected, intelligent solutions for the next generation of paint shops. With the E-Oven Smart, users benefit in the short term from lower capital expenditure, and in the longer term from improved energy efficiency and excellent coating quality.



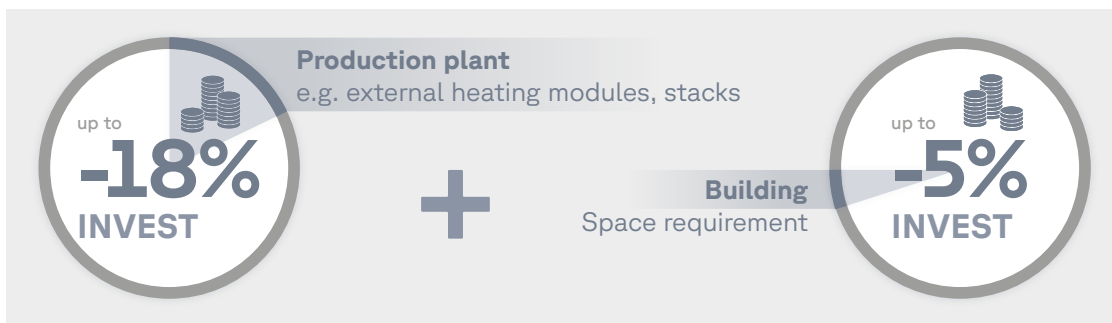
Lower capital expenditure

The E-Oven Smart requires fewer steel structures than comparable conventional designs. This is achieved by integrating the heaters, which were previously mounted externally, in the dryer tunnel. As a result, there is no longer a need for expensive steel structures for worker access, lighting or emergency exits. In consequence, the dryer is more compact and lighter, with a smaller footprint and total volume, and with a lower weight load on the building. A further advantage is that users have greater flexibility in terms of oven layout, for example for maintenance access.



Further savings are the result of less installation work and lower shipping costs as the dryer system can be pre-assembled to a far higher degree.

As the parts for heating and retention zones are identical, fewer spares are required in total. The storage costs are reduced, as are the investments for the dryer. Overall, attractive cost reductions are possible through the use of E-Oven Smart.



A sharp fall in capital expenditure.

Lower energy costs

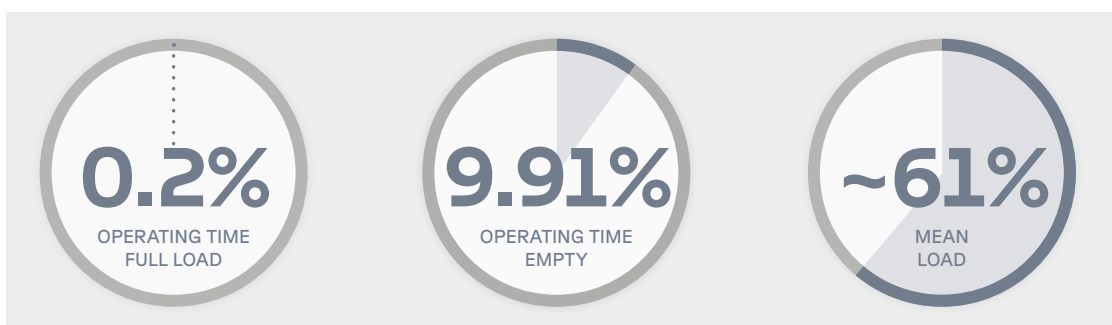
Energy is a valuable commodity – and its consumption by drying systems generates significant costs and emissions. Therefore, the reduction of energy consumption and environmental pollution is particularly important. The Eisenmann engineers have succeeded in making a significant contribution by integrating a heating module.



“The E-Oven Smart is a milestone in car-body drying technology. This new solution enables bodies to be heated more evenly while lowering energy consumption. We can therefore conserve resources and reduce pollutant emissions in a large scale.”

Load-dependent operation

The E-Oven Smart's eco-friendliness is partly attributable to load-dependent operation of the dryers. Typically, dryers only run at full load for 0.2 percent of their operating hours, around 61 percent at medium load, and almost 10 percent at zero load. This prompted Eisenmann engineers to come up with a new approach. In the E-Oven Smart, the amount of waste is reduced depending on the number of carcasses in the oven. car bodies in the oven. To maintain the negative pressure in the dryer, the fresh air supply is also reduced. To maintain constant airlock conditions with regard to the air volume, Umlu from the dryer is added to the fresh air. added to the fresh air. The airlock effect is ensured and the energy input in the fresh air heating system is reduced.

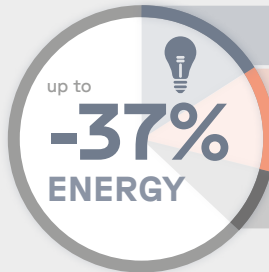


Dryers rarely operate at full load.

Energy efficiency is taken to an entirely new level when the E-Oven Smart from Eisenmann is combined with the modular conveyor system E-Loc Vario or automated guided vehicle E-Mover. A skidless paint shop offers significant potential savings. Conventional skids weigh around 200 kilograms, and have to be heated and cooled along with their loads. Both conveyor systems are able to eliminate this waste at a stroke.

In addition, with modern conveyor technology at low capacity utilisation, the production control system offers the possibility of further optimised dryer operation, for example by forming car bodies in batches. Via the car body-specific recording of quality-relevant process values, travel path and swivel nozzle controls are possible to ensure maximum product quality. With the extensive product portfolio, we implement the individually suitable coating concept for every customer from a single source.

Taken together, these design features generate energy savings of up to 37 percent annually. This total includes 16 percent through the use of preheated combustion air and lower pressure loss, 8 percent through loaddependent operation, and 13 percent through deployment of E-Loc Vario or E-Mover, for a dryer employed for 60 units per hour. Expressed another way, electricity savings achieved by a E-Oven Smart compared to a conventional model are equivalent to the average power consumption of 167 German households, and gas savings equivalent to the demand of 313 households.



16% dryer with integrated heating module

e.g.: preheated combustion air

13% E-Loc Vario

No need for skids

8% load-dependent operation

Reduced air volume

E-Oven Smart users can look forward to lower energy consumption.

Advantages at a glance

- Less energy for heating
- Savings in electrical energy due to reduced pressure losses
- Lower maintenance and cleaning effort/expense
- Lower capital expenditure on building
- Flexible support for smart paint shop vision



More information about E-Oven Smart?

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