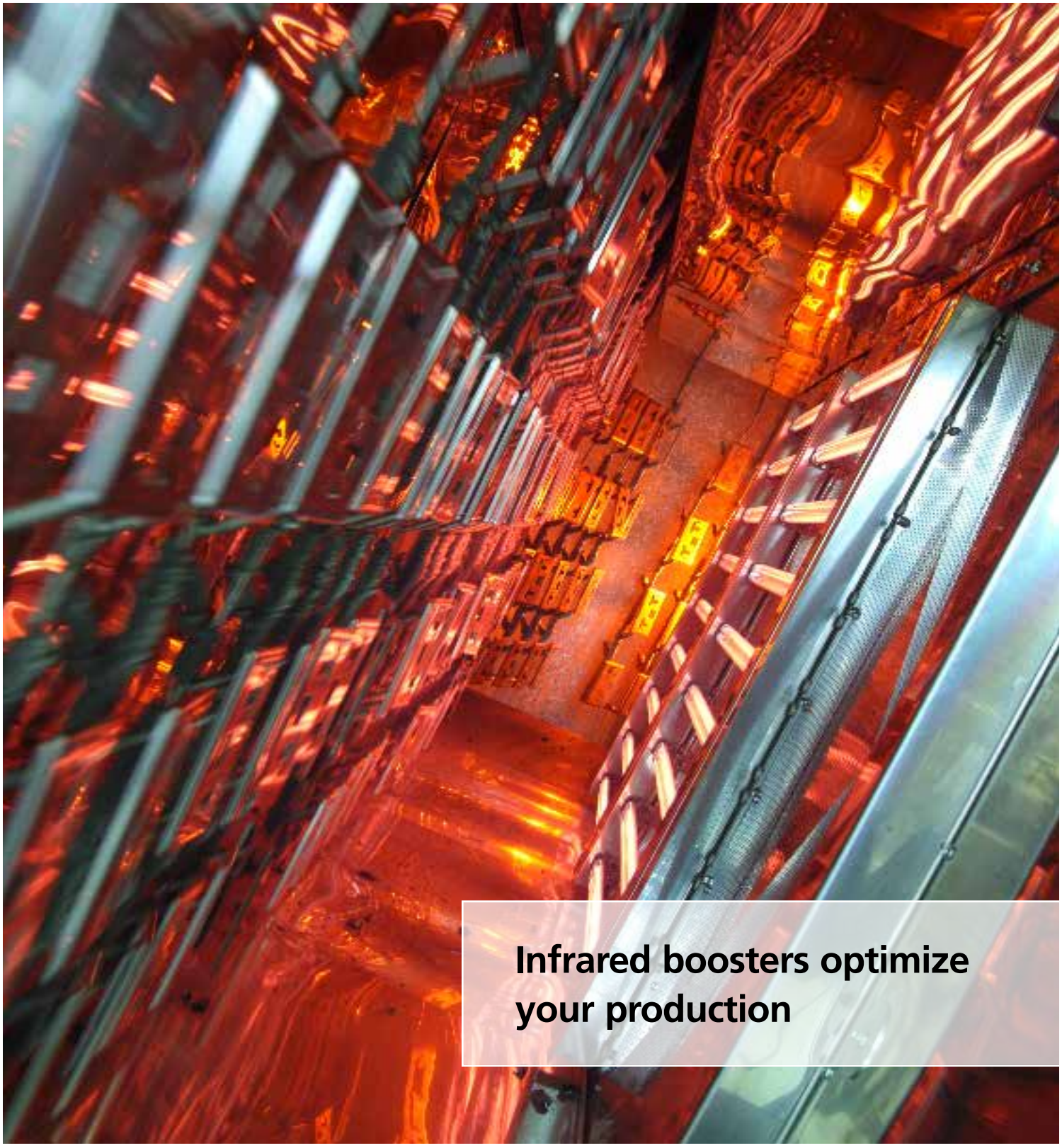


Infrared boosters optimize your production

NobleLight

EXCELITAS TECHNOLOGIES®

Your heat process is too slow?
IR Boosters are the solution!

Infrared Booster

Production bottlenecks often occur as a result of tougher production demands, where the existing drying system can no longer keep pace.
This can often be solved by an infrared booster section, which is positioned in front of the existing drying system.
The booster section rapidly brings the product up to temperature allowing line speeds to be increased accordingly.
For some products this can equate to savings of up to 50% of the time required to dry or cure the coating.

Your advantages:

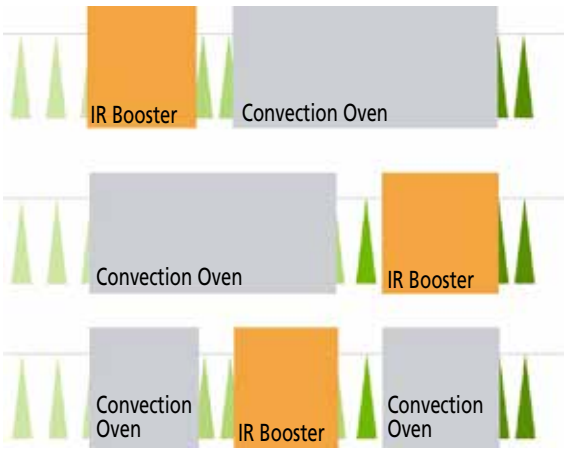
- Saving time by faster heating
- Saving space through shorter drying distances
- Saving energy through fast reaction times

The specific framework conditions of product and process determine the selection of **electric** infrared boosters.
In practice, different combinations are used for boosters.

Next to the classic booster, an infrared module placed in front of another heating module, a booster can also be placed after the existing oven or in between.

Typical Applications:

- Pre-Heating
- Gelling
- Curing
- Drying



Electronics and Plastics - Precisely adjusted heat

If components are made of plastics or contain electronics, it is advantageous to be able to apply heat in a targeted manner, only for a limited time and exactly where it is needed.
Infrared heat transfer is contact-free and can be dosed so that coatings, foils and protective varnishes are realiably heated and dried without damaging temperature-sensitive coatings.
Infrared is ideal for special applications thanks to its flexibility and precision. Infrared symstems are compact, require little space and can therefore be easily integrated into existing production plants. Production processes do not need to be changed and no production plants have to be rebuilt.
Another highlight of infrared heat is its precision. Infrared heat can be adjusted so precisely that coating on the inside of cans can be dried and cured through the casing.

Infrared emitters help speed up components manufacture

An infrared booster placed in front of a hot air oven helps SSK Products Ltd. with the drying of coatings on electrical sockets and switches.

- Efficient drying of coatings on electrical sockets and switches
- Faster drying than the hot air alternative
- Drying process is easy to control
- Space and energy savings
- Infrared system consists of two 18 kW modules
- Each module consists of nine 2 kW medium wave emitters

Infrared emitters provide flexibility and controllability in flooring manufacture

Infrared systems are being used at various points in a vinyl flooring porduction line. This allows the company manufacturing controllability and improves the production flexibility of the line.

- Ensures effective curing of PVC layers
- Removal of moisture from the carrier material
- Quality improvements
- Improving controllability in flooring manufacture
- Medium wave infrared emitters
- Two CIR edge-heating modules containing 24 1 kW emitters and a 27.5 kW module

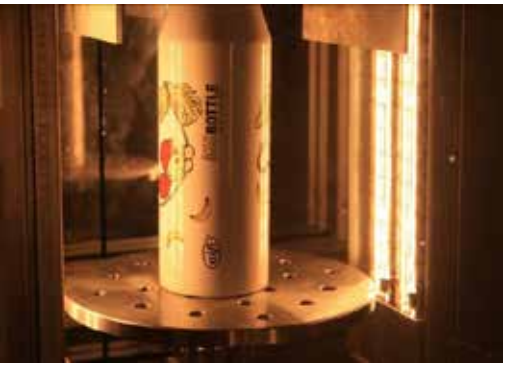
Coatings - IR Booster can both pre-heat and cure

Electrical infrared heat can significantly accelerate the melting and curing of powder coatings. Powder absorbs infrared radiation very well and heats up very quickly. Compared to conventional methods such as convection ovens, the gelling of the powder is considerably accelerated. Without any air movement, potential dust traps are avoided, and the powder cannot be swirled around. This improves the coating quality and increases the throughput speed.
In addition to the classic booster (an infrared module placed in front of another heating module), an infrared booster can also be placed behind the existing oven or in between.

IR Booster for the pre-drying of bumper coatings

Infrared modules with fast response medium-wave emitters improves production and saves space and energy.

- Infrared module for pre-drying before hot air oven
- Response times within seconds
- 19 emitters with 3 kW power each = 57 kW total power
- Arranged in a tunnel
- Controlled by three optical pyrometers



Infrared system cures decorative coatings on insulated containers

Infrared system improves curing time of decorative coatings on insulated containers like drinking bottles or coffee pots.

- Post-curing of paints on insulated containers
- Even heating through rotation
- Quicker response time than with conventional hot air oven
- Fast and efficient heat transfer
- Flexible adaptation to product requirements
- Short-wave twin tube infrared emitter
- Takes about 10 seconds

Powder coating on engine housings

Short-wave infrared emitters help pre-gelling powder coatings on engine housings.

- Masking with stencil for powder recovery
- Highly reactive infrared powder for high quality
- Compact infrared system saves space
- Short-wave infrared emitters with response times of a few seconds
- Rotating holders on conveyor and linear axes for the powder application ensure consistent coating
- 144 kW nominal output and three individually controllable zones

Metal - optimized coatings

Metal conducts heat very well, which can be a problem when drying paint on very heavy metal parts. The heat flows in the inside of the parts and the color on the surface does not dry. For very thin parts, heat radiation penetrates the material very quickly, but hardly heats the coating if the radiation is not absorbed.
Infrared heat can be accurately adjusted to material thickness. The adaptation by wavelength, emitter distance, air flow or suitable reflectors causes a much more efficient use of heat. Thus, infrared is ideally suited for the processing of both thick and thin metal parts. For example, infrared saves time in drying powder coating on thin plates or achieves energy savings in the curing of coatings on solid metal blocks.

Powder coating of motor vehicle suspension springs

Infrared system ensures higher quality in the coating of motor vehicle suspension springs.

- Two-component powder coating
- Space-saving installation
- Pre-heating of the springs to up to 140°C
- No significant changes to existing production line
- Connected to a heat-recovery system
- Short-wave QRC® infrared emitters with nano reflectors
- 4 x 81.45 kW IR modules, 60 emitters each
- Emitters heat the product up to 145°C at 2m/min.

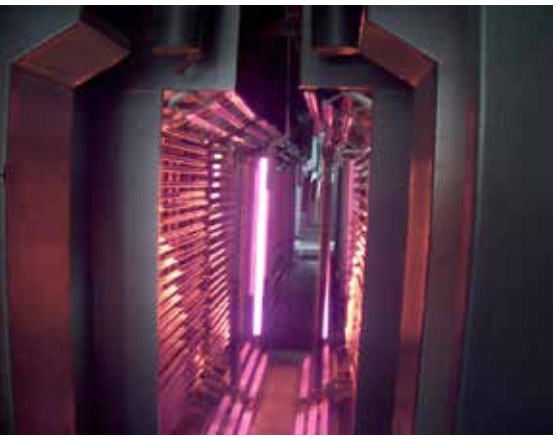
IR booster speeds up manufacture of metal housings

Upstream IR module brings powder coating to the right temperature, thereby increasing production speed.

- Upstream IR booster with short-wave IR emitters
- Additional pre-heating speeds up gelling
- Increase of production throughput speed from 0.8 to 1.2 m/min.
- Uniform heat distribution in the oven
- Fast gelling improves quality of coating

Wood - efficient coatings without overheating

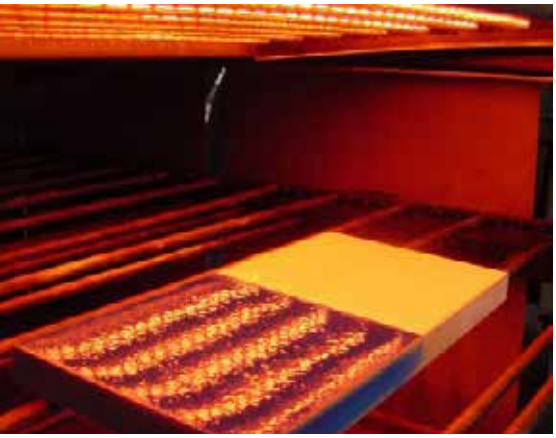
MDF boards are often used as material for tables, cabinets or office furniture. However, the powder coating of these boards poses a challenge to the manufacturers because wood fibers are hardly electrically conductive and are also sensitive to heat.
Infrared ovens pre-heat MDF boards to ensure better adhesion of the powder coating. Powder coating is applied, melted and then hardened. Infrared boosters help to melt the powder coating faster, which leads to an increase in quality. Once an oven reaches its capacity limit, an infrared module can be placed in front of the existing oven – the existing oven is then used for curing. This improves output and efficiency.



Infrared booster optimizes powder coating on MDF

IR booster helps with the coating of MDF boards, which are often used as material for tables, cabinets or office furniture.

- Upstream IR module as booster with medium-wave IR emitters for heating surfaces
- Heating within 30 seconds
- Improved quality due to quick gelling
- Carbon Infrared emitters for heating front and rear edges
- Response times of 1-3 seconds prevent overheating of the material



Electric infrared booster improves productivity

Powder lacquer on MDF board (medium density fibre board) must be gelled very quickly, as it saves time and money if only the lacquer and the surface are heated. The boards are then ready for further processing much more quickly.

- Fast and targeted heating
- Gelling and curing of powder coating
- Only surface of the chip board is heated
- Boards are ready for further processing much more quickly

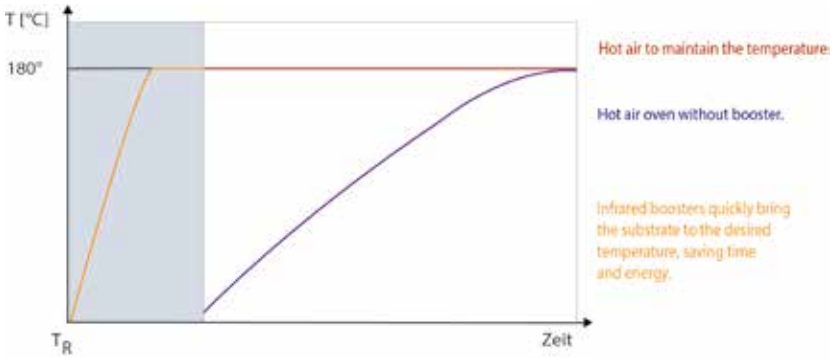
Electric infrared systems ensure efficiency

Many manufacturing processes require heat. It is therefore of utmost importance that the heat process keep up. Noblelight Infrared heating technology from Excelitas offers tailor-made solutions. Electric infrared systems offer advantages, if they match the product and process exactly.
Part of the infrared radiation is absorbed in the material, a part is reflected and the remainder penetrates the materials. Each material has its own absorption spectrum (the area in which the electromagnetic radiation is best absorbed). The heating of the material is much faster and more effective if this area is exactly met.
Electric infrared emitters emit from the short-wave range to the medium wavelengths. Medium-wave radiation tends to heat up the surface of the material, whereas short-wave infrared heat is used when the process is to run very fast or the radiation needs to penetrate deep into the material.

Electric IR booster improves efficiency

Booster ensures significant savings in both time and energy.

- Hot air oven without booster
- An infrared booster quickly brings the product up to temperature
- The existing hot air oven maintains the temperature



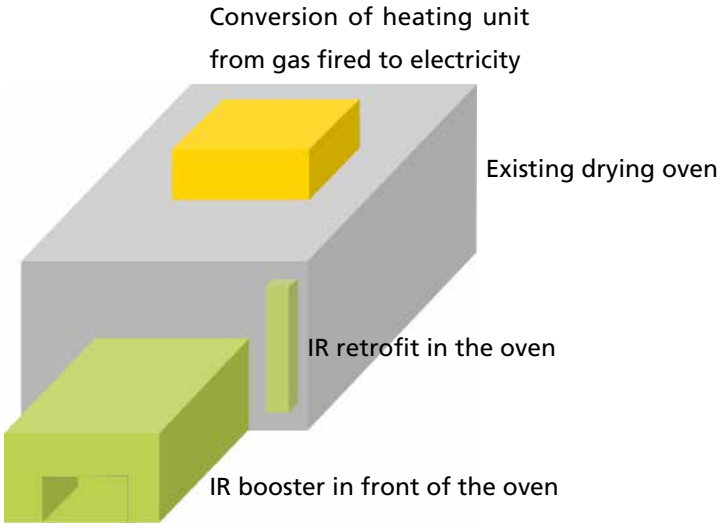
Increase productivity through retrofitting

Infrared systems optimize existing plants.

It is not absolutely necessary to do away with the existing furnace in order zu optimize the production line. Various measures are possible:

- IR Booster in front of the oven
- IR retrofit in the oven
- Conversion of heating unit from gas fired to electricity

Please contact us!



About Excelitas Technologies

Excelitas is a leading provider of advanced, life-enriching technologies that make a difference, serving global market leaders in the life sciences, advanced industrial, next-generation semiconductor, aerospace and defense end markets. Headquartered in Pittsburgh, PA, USA, Excelitas is an essential partner in the design, development and manufacture of photonic technologies, offering leading-edge innovation in sensing, detection, imaging, optics, and specialty illumination for customers worldwide. Excelitas is at the forefront of addressing many of the relevant megatrends impacting the world today, including precision medicine, industrial automation, artificial intelligence, connected devices (IoT) and military modernization.

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