

Laser cleaning

For solid and perforated bake oven belts

IPCO's laser cleaning service provides a quick, efficient and cost-effective solution to the challenge of cleaning bake oven belts.

Faster, safer and more environmentally friendly than traditional cleaning methods that use dry ice, chemicals or detergents, our laser cleaning service takes the hassle out of bake oven belt cleaning, enabling customers to concentrate on their core business.

- Fast, effective and economical.
- Safe, contact free process.
- Entire process managed by IPCO specialist.
- Production can continue on other lines.
- No chemicals, no detergent, no water.

Application

IPCO's laser cleaning service is suitable for solid and perforated steel belts. The service uses a high power laser to remove baking residues from the belt. The laser head is installed above the belt on a manually controlled carriage rail and the beam is focused on an area approximately 70 mm wide.

As the belt travels beneath the laser, carbon deposits are removed and collected by the extraction system. Once the strip has been cleaned along the full length of the belt, the laser head is moved across to the next section.

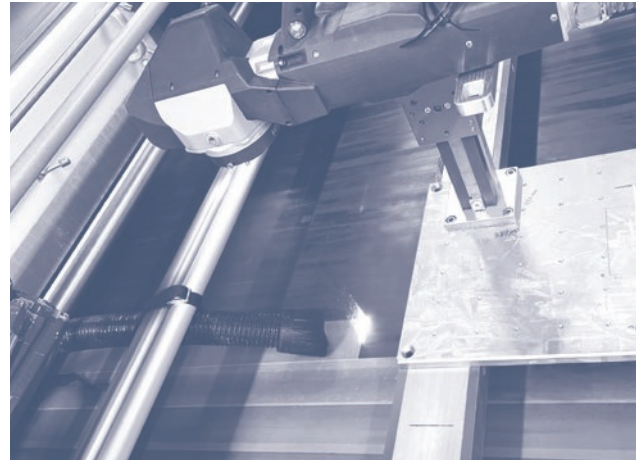
The belt will be noticeably brighter immediately after cleaning but will quickly return to its usual dark colour.

- Cleaning width (approx.): 70 mm (effective 60 mm).
- Speed: up to 4 m/min (depending on level of soiling).
- Coverage: 10-15 m²/hour.

High power industrial laser

The use of a high power laser delivers stable, even cleaning across the full width of the beam (i.e. the Heat Affected Zone), leaving the surface structure of the belt completely unaffected. 'Small' lasers can often require the power to be increased to the maximum level in order to achieve effective cleaning across the full width of the beam. This can result in excess heat being delivered at the centre of the beam, causing damage to the belt surface.

- Stable cleaning across full width of laser beam.
- No need for potentially damaging power 'boost'.
- Treatment leaves surface finish unaffected.
- No impact on material structure.



Key benefits of IPCO's laser cleaning service

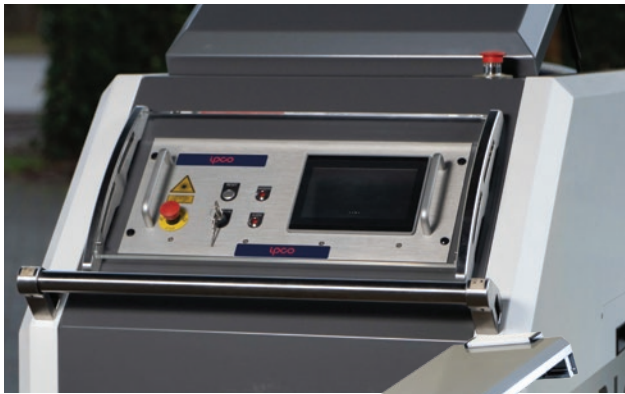
Laser cleaning is significantly faster than other methods, meaning less costly downtime, and is completely contact-free. The process can usually be carried out without disturbing everyday operations, allowing production to continue as normal on adjacent lines (see Customer installation requirements).

Furthermore, the benefits of laser cleaning are immediate. This is a completely dry treatment requiring no water or chemicals, so full production can restart immediately (after any residual debris has been removed from the belt), with no waste batches.

The end product will have enhanced customer appeal – no unwanted residues on the underside – and easier product discharge means less product damage/wastage.

- Faster cleaning – reduces costly downtime.
- Economical – lower cost than other methods.
- Maximum productivity – other ovens can usually remain in operation.
- Contact-free, high power laser – belt structure is unaffected.
- Green – no chemicals, no water, no detergents.
- Immediate benefits – full production can restart straightaway.
- Premium product – cleaner product, easier discharge.





Customer installation requirements

IPCO will supply all equipment necessary to carry out belt cleaning. The only requirements of the customer are as follows:

- Power supply (Europe): 380 V / 50 Hz (2x 5 pin 16 Amp connections).
- Power supply (USA): 415 V / 60 Hz.
- Power consumption: 5000 W.
- Oven speed must be capable of being reduced to 4 m/min or less.
- Oven must be at room temperature before cleaning.

For projects in the USA, customers will also need to provide the following:

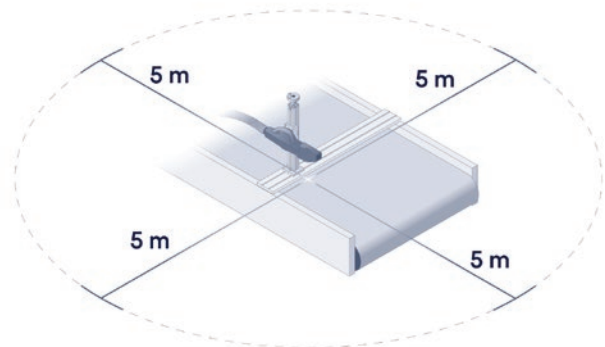
- Compressed dry air (6 bar, 180 l/min).
- Vacuum system for smoke and residues (IPCO can quote for supply).

Laser hazard zone

The safety of all personnel is of paramount importance and the use of high power industrial lasers requires certain precautions to be taken.

Prior to arrival of the IPCO engineer, the customer should establish a clear laser hazard zone. Once cleaning operations are underway, access to this area will be restricted to authorised personnel wearing appropriate laser protective eyewear.

This zone should be no less than 5 m from the laser equipment in any direction, and should be created using protective screens (e.g. sheets of black plastic). IPCO can provide further advice in this respect.



Scope of supply

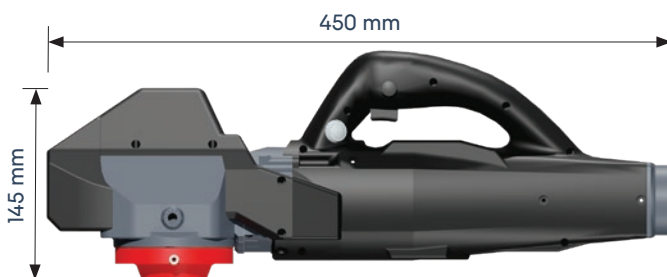
The system consists of a robust, transportable industrial laser unit with high pulse power and is equipped with an external vacuum system to extract residues and fumes.

IPCO's scope of supply includes the following:

- Transportable high power laser equipment.
- Jig, structure or supports + bracket to fix the lens.
- Compressor.*
- Vacuum system*.
- Clamps to fasten the beam/bracket.
- Safety goggles & ear protection.

* These items are currently only available in Europe; for laser cleaning in the USA, they will need to be provided by the customer.

Dimensions



Data given in this document are nominal values and are not guaranteed. Information relating to material, specifications, properties and/or performance is intended as guidance on determining suitability, and may be subject to change without notice.