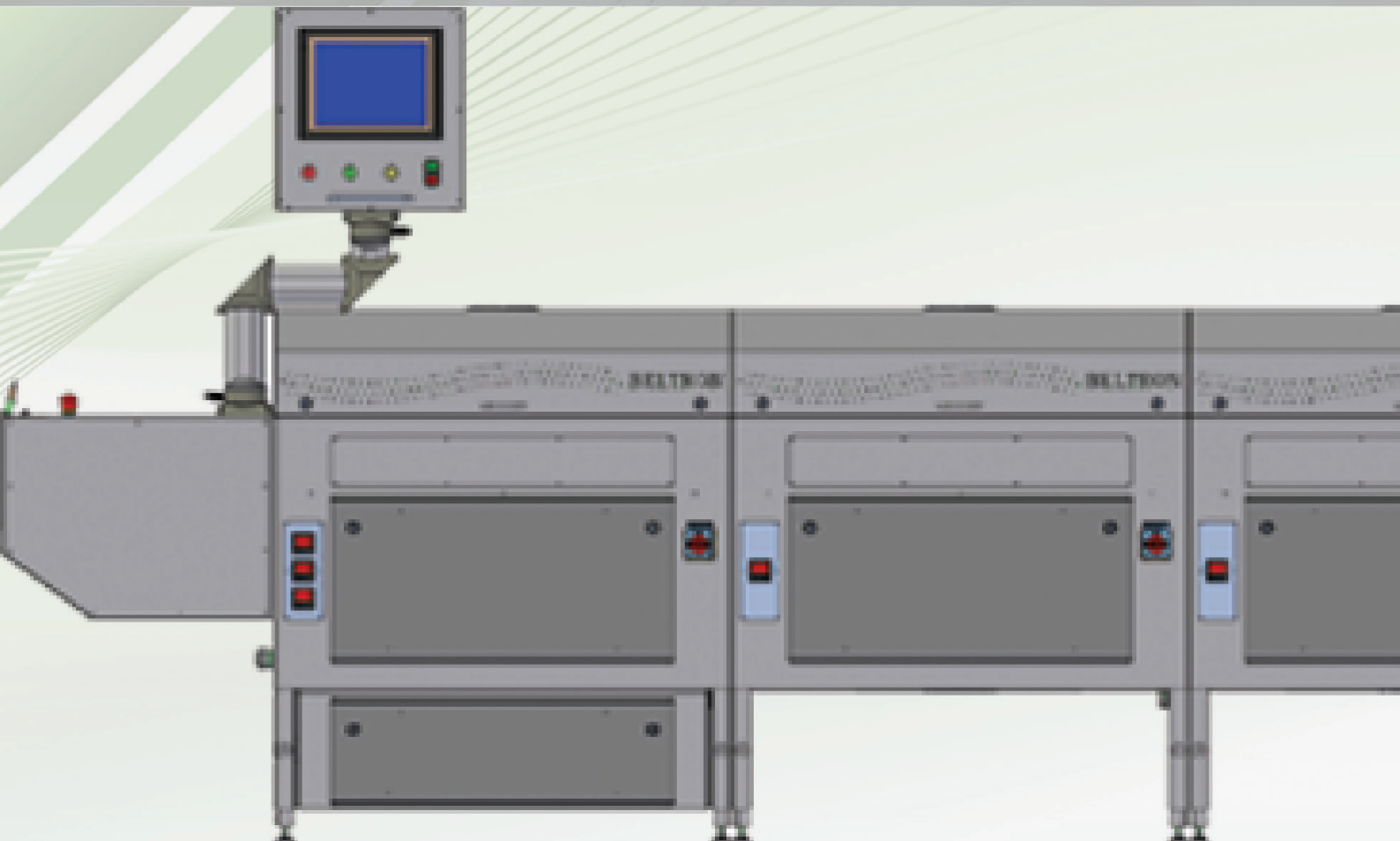




Innovative

uv technology

sustained • efficient and save • for a clean future



Over 50 years - Quality „Made in Germany“

Beltron GmbH

over 50 years Quality „Made in Germany“

BELTRON produces high quality machinery and equipment for many applications and markets. Generally our partners are from the graphic industry as well as from other industrial applications. Besides the printing and reproduction market and the electronic industry, the brand **“BELTRON”** has been approved in many other fields, such as solar industry, nano technology, uv-hardening of glue, medical industry, glass industry, automobile industry, production of furniture or other wood based applications, manufacturing of concrete plates, are just a few examples from **BELTRON**'s manifold partner portfolio.

Beltron GmbH

more than 50 years your partner in UV technology

Which criteria should your new business partner have to become interesting for you?

Besides requirements like quality and reliability, competence, readiness and partnership are the most important features. As many of our business partners confirm, **BELTRON** fulfils these requirements. Of course – our equipment stands in accordance with all main regulations, such as CE, DIN or SMEMA. Over 50 years quality and experience combined with **“Made in Germany”** – which is still **BELTRON**'s policy.

Design and engineering in 3D and most modern CNC and laser production enables us to fulfil all partner specific requirements. Your needs and wishes must not be what we have – our possibilities must be according to your needs. Furthermore **BELTRON** offers his customers a minimized spare parts stock as we have our own spare parts storage. More than 20.000 different articles including UV lamps etc. are available for your requirements. Besides a strong network of local partners, **BELTRON** has business relations to customers all over the world in almost all countries.

Want to try? Your Satisfaction is our target...

Beltrotherm

Predrying after soldermask coating



BELTROTHERM CONTINUOUS BELT DRYER FOR PREDRYING AFTER SOLDERMASK COATING

This unique drying technology allows evaporation and predrying of coated wet lacquers i.e. soldermask, etch resist etc. within 5 to 7 minutes. The surface is pre-dried tack-free and residue-free development after exposure ensured. Depending on the drying equipment the process is running on single or double-sided. The drying process is independent of the type of coating, the evaporation and drying is carried out in the horizontal pre-drying process, quickly and completely.

Coating types:

Screen printing on one or both sides vertically, single-side curtain coating, spray coating on one or both sides, dip coating, roller coating and more.



Belthrotherm

Predrying after soldermask coating

For different PCB thickness ranges and special types temperature profiles - tuned to an optimal drying process - will be created and stored in the PLC. Optimized temperature profiles are recorded and stored in up to 120 programs.

The appropriate drying program is called by touch on the touch screen and changed within minutes. The few minutes changeover usually go into the preparation of the coating line for the new lot.

The operational readiness will be reported by signal to the upstream machine. The touch screen OMRON PLC shows a clear view of the operation condition and is ready for more input.

Technical Information Belthrotherm

- Working widths: 610 mm / 24" or 760 mm / 30"
- Belt speed: adjustable
- Tack drying soldermask: 0,5 - 50,0 m/min.
- Curing soldermask: 0,2 - 2,0 m/min.
- Curing paste: 0,5 - 5,0 m/min.
- Temperature range: RT - 250°C
- Electrical connection: 400 V 3/N/PE 50 Hz
- Connecting power per module: 9,3 kW / 18,6 kW
- Working power per module: 4,6 kW / 9,3 kW
- Supply air, exhaust air per Module 100 - 300 m³/h
- Module length: 1000 mm
- Module width: 1000 mm
- Module height: 1200 mm
- Available modules:
 - tranquilizers module
 - Abdunstmodul
 - heating module
 - cooling module
 - Inlet / outlet, various
 - PLC control: In the mobile console with touch-screen screen

The Thermo-Dryer BELTROTHERM are used successfully in:
printing industry, electronic industry, plastic industry, textile industry, packaging industry,
automotive industry and glass industry.

These are just a few examples from the various partner portfolio of Beltron.

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Beltrotherm

CONTINUOUS BELT DRYER FOR EVAPORATION
AND DRYING AFTER WET LACQUER COATING



BELTROTHERM CONTINUOUS BELT DRYER FOR EVAPORATION AND DRYING AFTER WET LACQUER COATING

All colors, lacquers and products applied by wet coating process are dried in horizontal continuous process single or double-sided.

Type of heat sources, air flow, temperature, evaporation and drying times to be adapted to the requirements. The resulting temperature profiles and belt speed is stored in the PLC - control. For the one-sided process there are flat belt transport systems, for double-sided process V-belt transport systems available.

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Beltrotherm

CONTINUOUS BELT DRYER FOR EVAPORATION AND DRYING AFTER WET LACQUER COATING



Technical Information Beltrotherm

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Beltrotherm

FINAL CURING PHOTO SOLDERMASK AFTER EXPOSURE
AND DEVELOPEMENT WITH UV-BUMP OPERATION FIRST



BELTROTHERM FINAL CURING PHOTO SOLDERMASK AFTER EXPOSURE AND DEVELOPEMENT WITH UV- BUMP OPERATION FIRST

Product description:
Double-sided Final Curing Line for soldermask

Pos 1: Feeder

Pos 2: UV-bump double-sided

Pos 3: BELTROTHERM-dryer double-sided

Pos 4: Stacker



Beltrotherm

FINAL CURING PHOTO SOLDERMASK AFTER EXPOSURE AND DEVELOPEMENT WITH UV-BUMP OPERATION FIRST

The line is working fully automatic after loading in 3-shift operation without supervision.

The length of the BELTROTHERM-dryer is designed according to capacity requirements.

The high-end properties of the solder mask to prevent undercutting in aggressive chemical processes and offer maximum durability in multiple soldering processes.

For different PCB thickness ranges and special types of temperature profiles - tuned to an optimal drying process – are created and stored in the PLC. Optimized temperature profiles are recorded and stored in up to 120 programs.

Technical Information Beltrotherm

- Working widths: 610 mm / 24" or 760 mm / 30"
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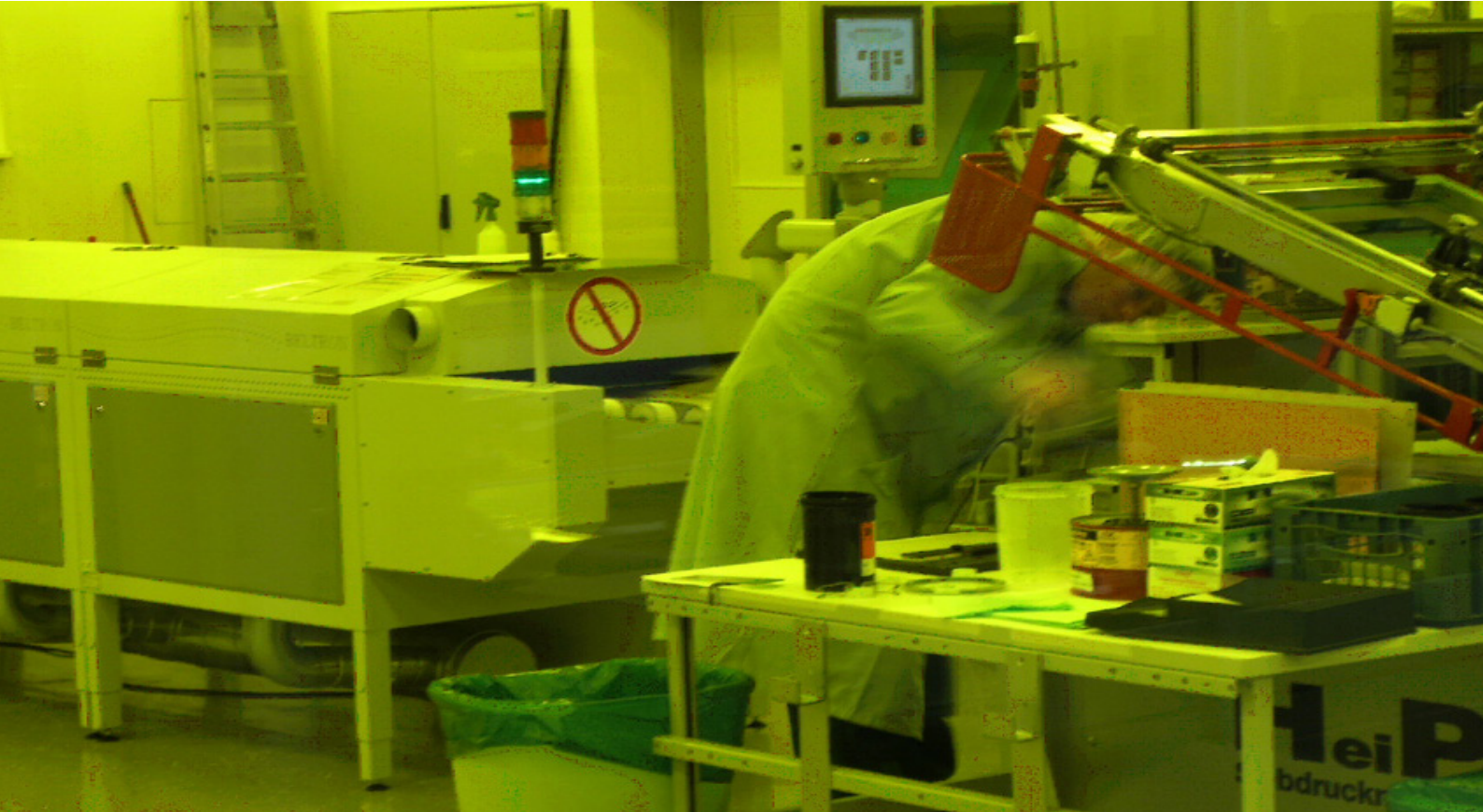
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Beltrotherm

DRYING AFTER FULL SURFACE SCREEN PRINTING
HORIZONTALLY OR VERTICALLY



BELTRO THERM DRYING AFTER FULL SURFACE SCREEN PRINTING HORIZONTALLY OR VERTICALLY

FOR MANY YEARS, PROVEN, UNIVERSALLY APPLICABLE

Full surface screen printing

Horizontal screen printed liquid coatings are manually or automatically fed to the pre-dryer BELTRO THERM. Depending on the required drying program evaporation and drying of the ink is made to the adhesive-free further processing.

After double-sided screen printing the printed circuit board or substrate is transported on V-belt transport contact free and driven both sides at the same time through the evaporation and drying zone and dried very precisely.

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Beltrotherm

DRYING AFTER FULL SURFACE SCREEN PRINTING
HORIZONTALLY OR VERTICALLY



Technical Information Beltrotherm

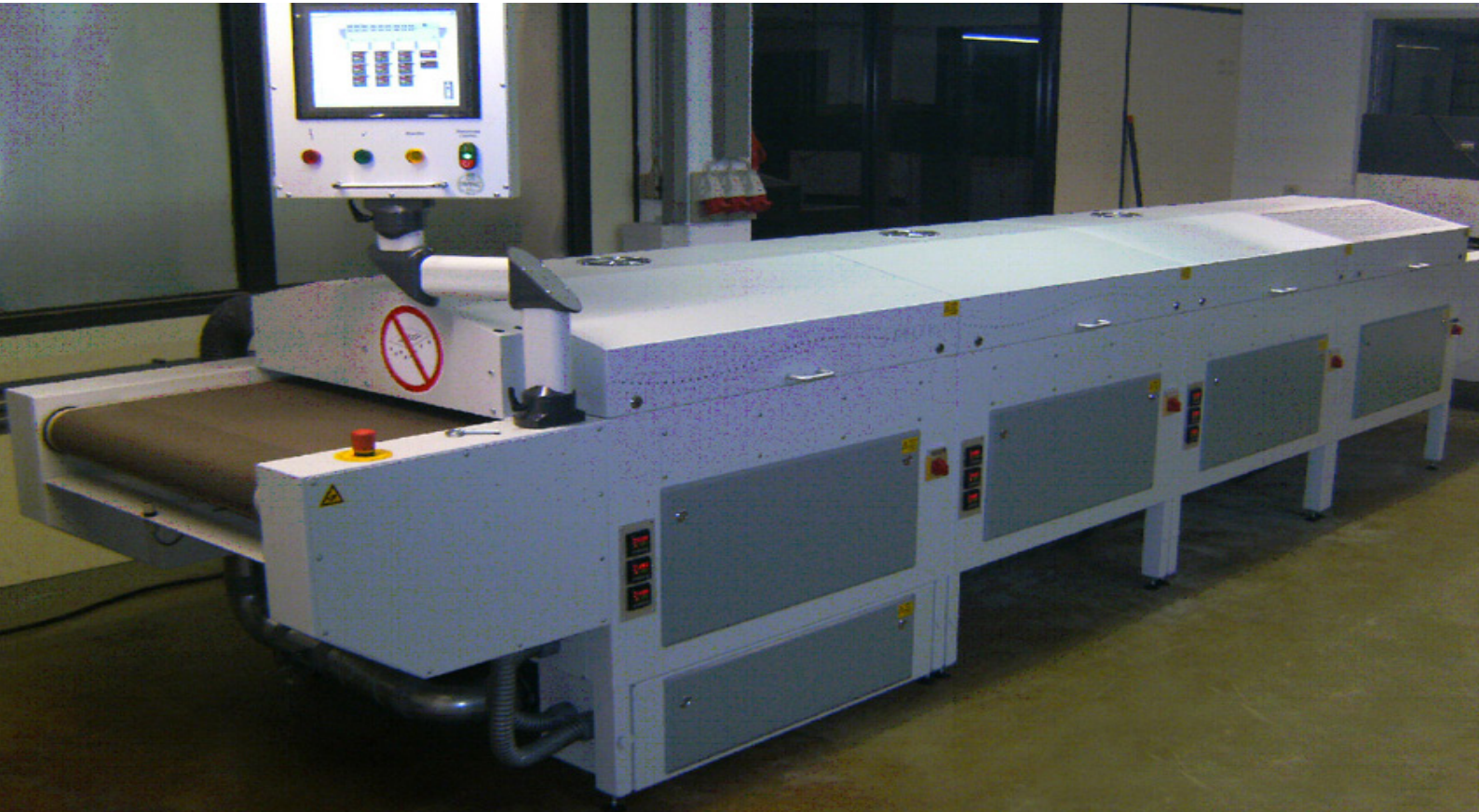
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printing industry, electronic industry, plastic industry, textile industry, packaging industry,
automotive industry and glass industry.

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Beltrotherm

DRYING OF SCREEN PRINTING PRODUCTS
AFTER PARTIAL SCREEN PRINTING



BELTROTHERM DRYING OF SCREEN PRINTING PRODUCTS AFTER PARTIAL SCREEN PRINTING

PERFECT FIT FOR ALL SCREEN PRINTING MACHINES, FLEXIBLE FOR ALL PROCESSES!

Product description:
Partial screen printing is still used widely in the printing of:

- Label colors
- Peelable inks
- Carbon pastes
- Silver pastes
- Via-pastes
- Soldermask partially
- Adhesion promoters
- Heatsinkpaste
- Ceramic Materials

All products are completely dried in a continuous belt dryer BELTROTHERM with the corresponding temperature profiles in process times of 2.5 to 5 minutes.

Beltrotherm

DRYING OF SCREEN PRINTING PRODUCTS AFTER PARTIAL SCREEN PRINTING



Technical Information Beltrotherm

- Working widths: 610 mm / 24" or 760 mm / 30"
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These are just a few examples from the various partner portfolio of Beltron.

Beltrotherm

DRYING OF PRINTED ELECTRONICS AND MEMBRAN SWITCHES



BELTROTERM

PERFECT FIT FOR ALL SCREEN PRINTING MACHINES, FLEXIBLE FOR ALL PROCESSES!

The BELTROTERM continuous belt dryer

particularly suitable for the drying of metal paste and isolation materials used in the production of printed electronics. The long-wave infrared radiation in combination with the convection air heat drying metallic pastes from inside to outside, thereby avoiding skin formation on the surface. Low resistance values of the tracks can be achieved already after one pass. On flat conveyor belt also thin films and substrates are transported safely through the heating zones. Process times of a few minutes secure a cost-effective process.

Beltrotherm

DRYING OF PRINTED ELECTRONICS AND MEMBRAN SWITCHES



Technical Information Beltrotherm

- Working widths: 610 mm / 24" or 760 mm / 30"
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Beltrotherm

Dryer for photovoltaics, thin film production,
hybrid technology



BELTROTHERM

Dryer for photovoltaics, thin film production, hybrid technology

UNIVERSALLY APPLICABLE, FRIENDLY AND ENERGY SAVING!

BELTROTHERM continuous dryer with a flat belt transport.

In photovoltaics, thin film and hybrid technology thermally drying materials are frequently used and dried after coating. The BELTROTHERM continuous dryer with a flat conveyor belt transports and dries the coatings quickly and efficiently. Required temperature profiles and setting data stored in up to 120 programs and available on touch.

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Beltrotherm

Dryer for photovoltaics, thin film production,
hybrid technology



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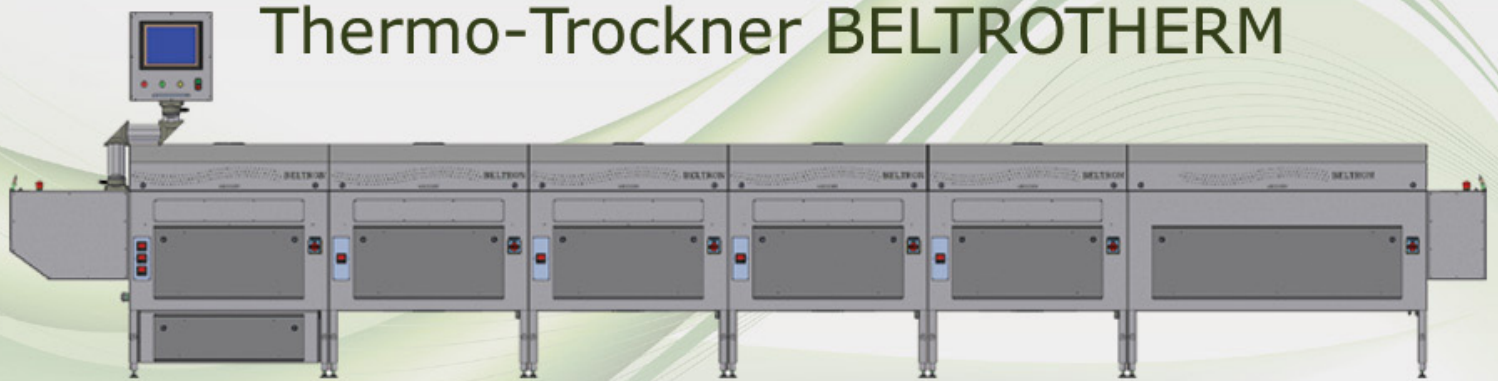


Beltrotherm

Thermal curing equipment



Thermo-Trockner BELTROTHERM



BELTROTHERM

Thermal curing equipment

For the production of PCB's, membran switches, scales, panels by phototechnique or screen printing.

Application:

Predrying and curing of photosensitive inks and soldermasks -single or double sided- on flat or V-belt transport system, curing of conductive carbon, silver, copper inks, two component inks as well as all thermal drying inks.

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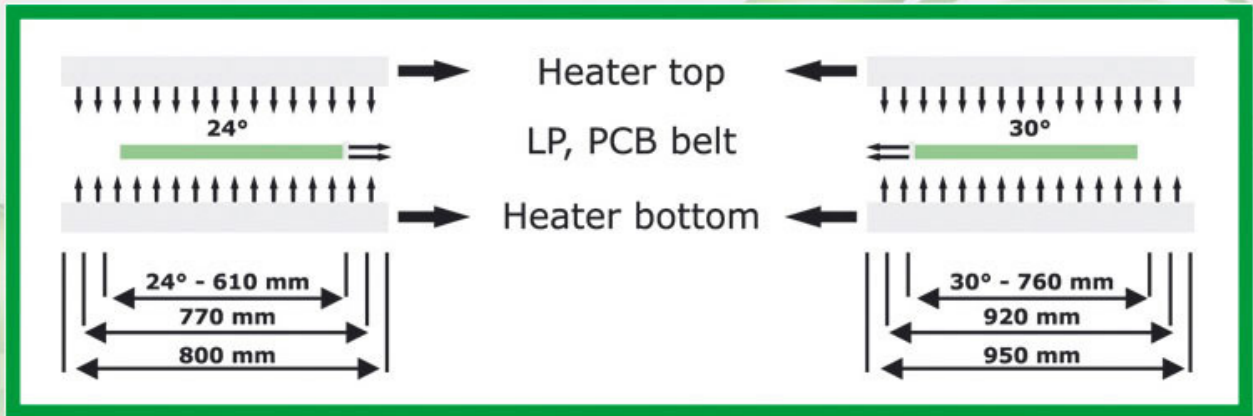


Belthrotherm

The Miracle of fast Curing



Thermo-Dryer BELTROTHERM



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Same IR-radiation and convectional heat from above and/or below to each board due to selected temperature profile.

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Beltrotherm

The Curing System



Thermo-Trockner BELTROTHERM



Application:

Production of PCB's, Flex-Boards, Membran Switches, Graphic and Technical Products i.e. Tack Drying and Final Curing of Photoimageable Soldermask, Curing of Carbon-, Silver-, Copper- and Heatsink-Paste, Curing of Two Pack Inks, Resins, Isolation Materials and all thermal curing materials.

Technology:

Curing is realized by a combination of long wave IR-radiation with circulating hot air. A conveyerised flat belt system moves each board through the temperature profile. The boards are cured double-sided. The curing times could be reduced to about 1/6 of the curing time in a batch oven.

- Final curing of photoimageable soldermask in about 8-10 minutes.
- Tack drying of photoimageable soldermask in about 4-5 minutes.
- Curing of Carbon-, Silver-, Copper-, Heatsink-Paste in about 1-3 minutes.

Control:

A PLC-Control with a Touch Screen Panel controls and monitors all functions. 10 programs could be saved and print function meets te requirement of process control.

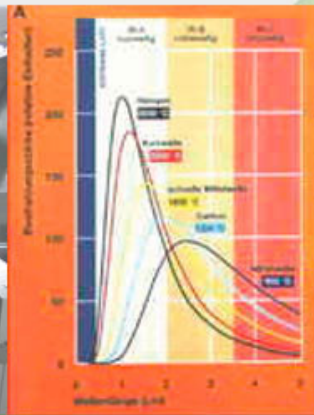
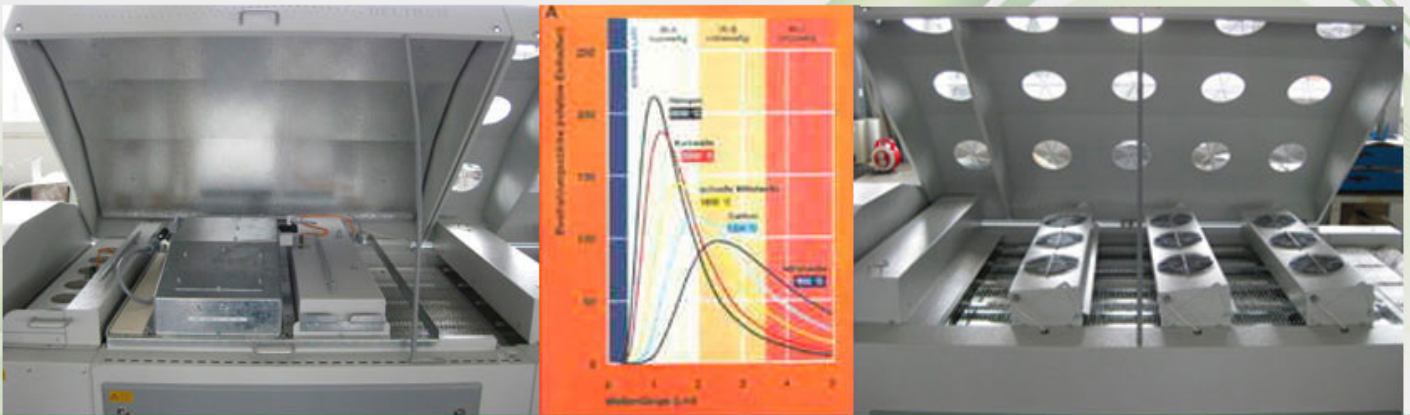


Belthrotherm

IR - spectrum of the ceramic heater



Thermo-Dryer BELTROTHERM



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The ceramic-heaters in the opened curing channel: 3 above and 3 below the belt.

Distribution of a black body to the wave length:

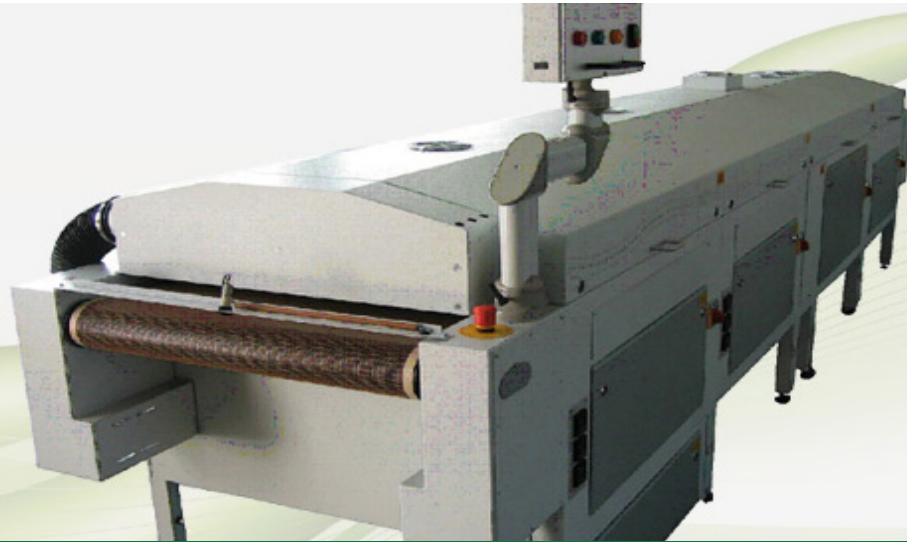
At a temperature of 300° C = 573°K a wave length will be produced of $\lambda_{max} = 2900/573 = 5 \mu m$

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Thermal curing equipment



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