



Electrolux Bitola



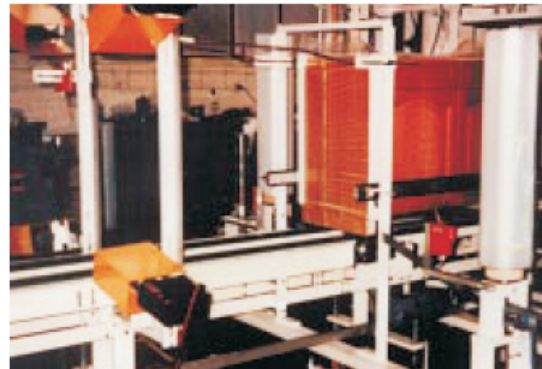
Hotwind S installed in a edge banding machine. These machines, from manual to large computer controlled models, require hot air to activate the hot melt.



Hotwind S with a special reflector on a Tampon printing machine. After printing, the ink is burnt in by means of hot air to prevent smearing.



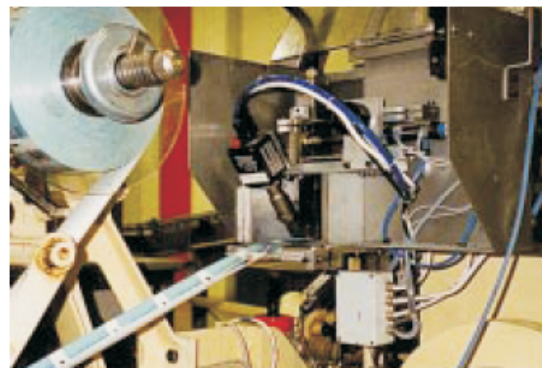
20 Hotwind S in a testing facility for ball bearings. The life of the bearings is tested at a variety of temperatures and rates of revolutions.



Bulky furniture is wrapped in PE film. This is shrunk and welded on top and bottom by means of four Hotwind S blowers.



28 Labo 34 are used to heat up the rivets of plastic interior door pannelling. Subsequently the rivet, heads are formed using a cold punch.



A Heater 700 hot air tool and Robust blower used to dry labels at high throughput speed. Efficient drying operations with a concentrated stream of hot air.

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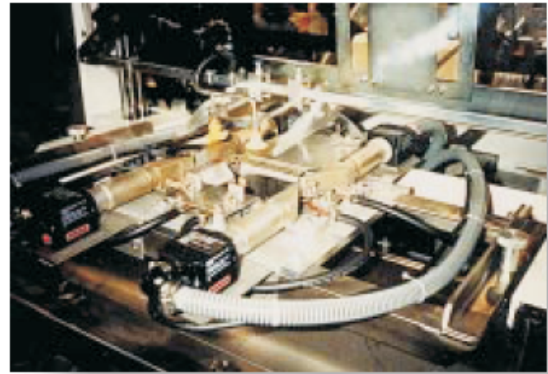


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A Heater 700 hot air tool and Robust blower used to sterilise test needles.



Four Heaters 3000 fitted with special nozzles used to shrink and weld PE packaging film. Two Robust blowers provide the necessary air.



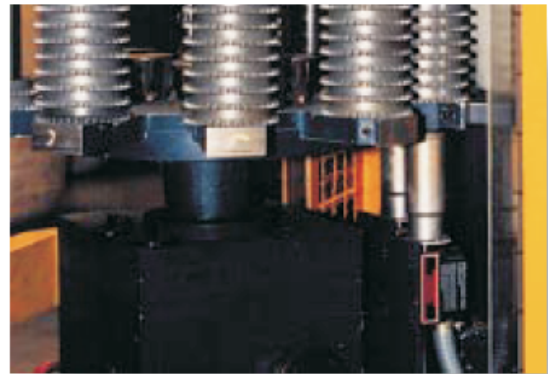
Six Heater 3000 fitted with 70 mm wide slot nozzles built into a plastic welding machine used to weld polyester fleece to EVA foils.



Welding plastic tubes with a Heater 3000 and Robust blower. The ends of tubes for toothpaste, ointment and adhesives are welded with hot air after being filled.



40 Heaters 3000 and 24 Heaters 700 burn marking lines (transverse and longitudinal) in sheets of insulation without using paint.



A Heaters 3000 used to heat crown gears. The revolving table moves the parts through the jet of hot air so that these can subsequently be mounted on shafts with no difficulty.

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Three Hotwind S used on to shrink caps on to bottles. A frequent application for fruit-juice and wine bottles.



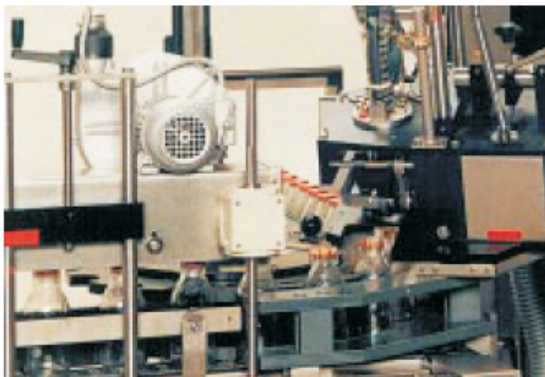
A Hotwind S used for side shrinking of wrapped decorative film.



Hotwind S with push-fit shell reflector, installed in a bottle filling machine used for shrinking caps.



Hot air equipment with two Hotwind S and a Heater 700 used to shrink PE covers on batteries.



Filling machinery with hot air installation for shrinking tampo sleeves on bottle tops.



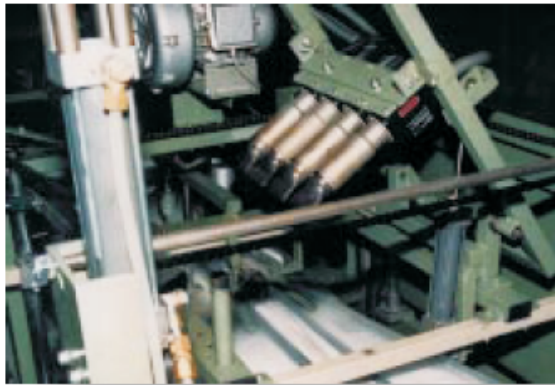
Hot air installations in a shrink tunnel for shrinking and welding film on bulky goods.

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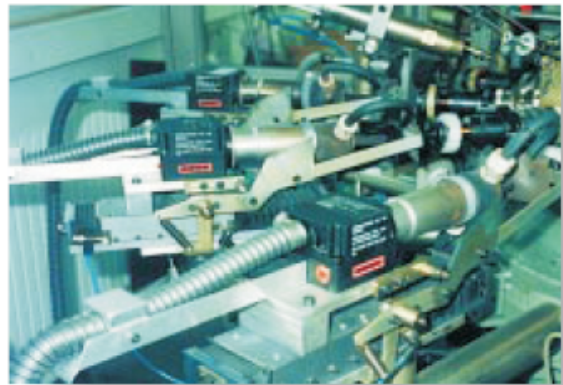
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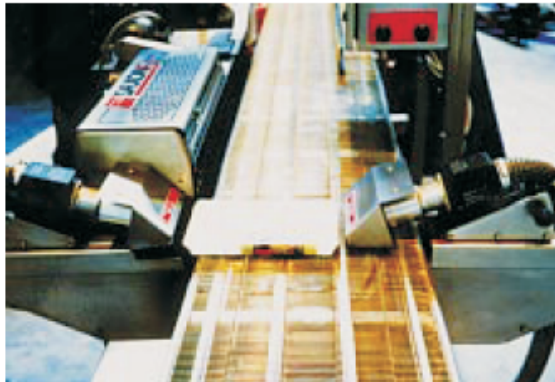
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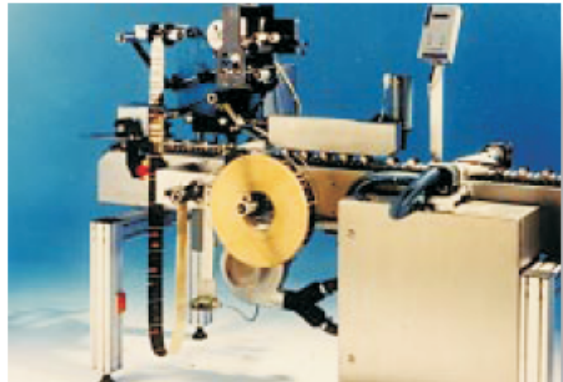
Four Heaters 3000 fitted with a 70 mm wide slot nozzle, built into a packaging machine used for welding polyethylene foil bags. The air is supplied by two Robust blowers.



The coils of transformers and motors are often wound with self-bonding wire. The melting of the wire during winding is achieved by means of a finely concentrated stream of hot air.



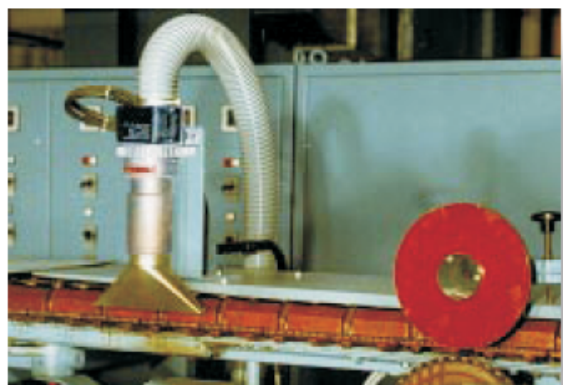
Two Heaters 3300 used for shrinking in the foodstuff sector. Shrinking is carried out in fractions of a second to ensure that the goods are not damaged.



Two Heaters 3300 and a Silence blower used for shrinking covers on batteries, drying labels and sealing at high throughput speed.



A Heater 5000 used to weld an endless PVC hose. The air is supplied by a Robust blower via an air flow off/on switch.



Drying the adhesive used to reinforce the edges of woven material. Even at high throughput speeds the material does not fray.

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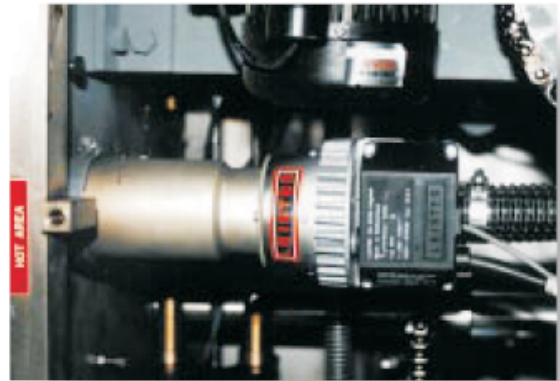


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Five Heaters 5000 used to heat a tubular channel. Coated stranded steel wires are melted together as they are fed through the heated tubing.



A Heater 5000 used to weld PE-coated milk cartons. With hot air, it is possible to weld, dry and sterilise all at the same time.



A Heater 5000 and Robust blower used to warm up PVC tubing. Subsequent shaping to form branches presents no difficulties.



A Heater 5000 and Robust blower provide hot air for a coffee roasting machine. The temperature of the hot air and the roasting time can be set according to the customer's requirements via computer.



Drying and smoothing pills, tablets, sweets and their coatings with several Heaters 5000 and ASO blower. The KSR is used for accurate temperature control.



A Heater 5000 and ASO blower used to heat the ends of fluorescent tubes. This removes the coating before gluing.

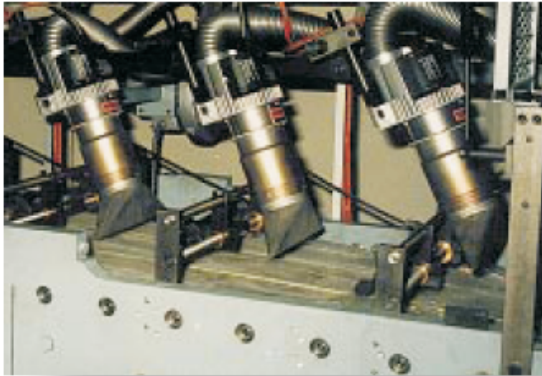
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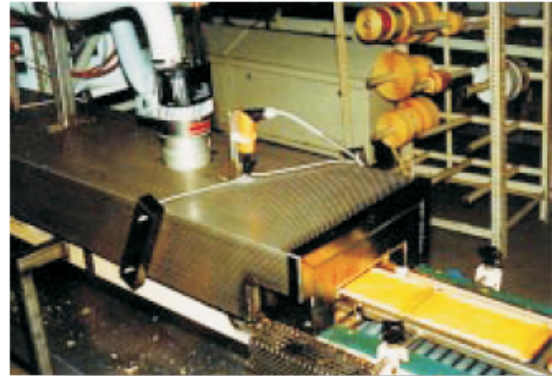


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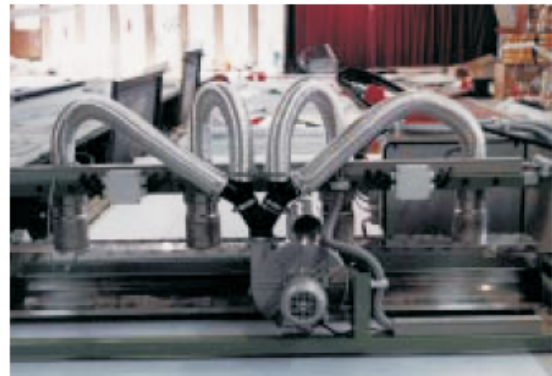
Hot air installation with wide slot nozzles for drying and activating adhesives on envelopes with high throughput speed.



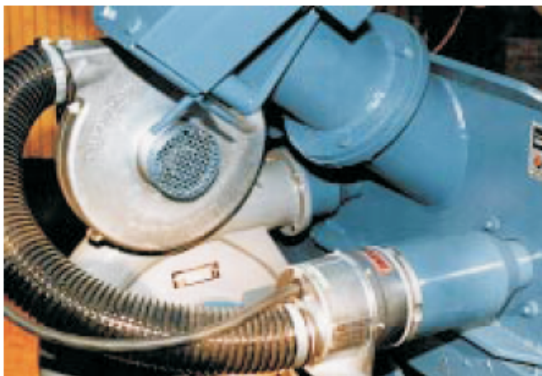
Two Heaters 10000 S used for sterilising bakery products before final packaging.



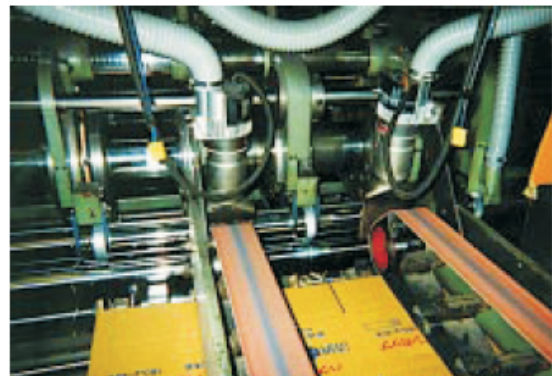
Heating of a shrinking tunnel with two Heaters 10000 S. The Silence medium pressure blower supplies the air.



Drying of inks on textiles. Four Heaters 10000 S and a ASO blower are used for this.



A Heater 10000 S with Silence blower ignites wood chips within seconds in a furnace. Hot air is also ideal for the ignition and smoke-free combustion of coke, coal and oil.



ASO blower and two Heaters 10000 S drying corrugated cardboards after printing to prevent the ink from sticking to the conveyor belts.

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Calculation of hot air installations

Heating capacity [kW]

$$P = 2.2 \cdot 10^{-3} \cdot \dot{V} \cdot (T_z - T_A)$$

P :	Electrical capacity	[kW]
\dot{V} :	Air flow volume	[l/min]
T_z :	Target temperature	[°C]
T_A :	Ambient temperature	[°C]

Example: 1200 l/min. air is to be heated to 600°C
Ambient temperature = 30°C
Required capacity P

$$P = 2.2 \times 10^{-3} \times 1200 \times (600 - 30) = \underline{15 \text{ kW}}$$

Air velocity [m/s]

$$V = \frac{\dot{V}}{F \cdot 3600}$$

V :	Air velocity	[m/s]
\dot{V} :	Air flow volume	[m ³ /h]
F :	Area	[m ²]

Example: Square nozzle outlet
220 × 15 mm
Air flow 60 m³/h
Required air velocity V

$$V = \frac{60}{0.22 \times 0.015 \times 3600} = \underline{5.6 \text{ m/s}}$$

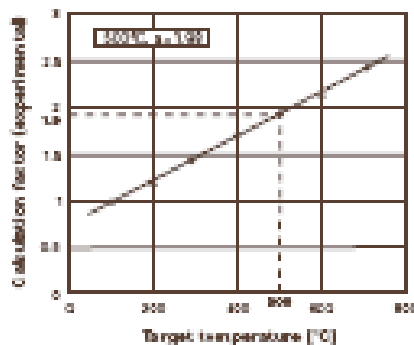
Air expansion in hot state [l/min]

$$\dot{V}_2 = a \cdot \dot{V}_1$$

\dot{V}_2 :	Air flow at desired temperature
\dot{V}_1 :	Air flow at ambient temperature
a :	Calculation factor (see diagram)

Example: Air flow at 20°C = 800 l/min.
Required air flow at 500°C \dot{V}_2
The calculation factor a is derived from the diagram
Target temperature 500°C = 1.98

$$\dot{V}_2 = 1.98 \times 800 = \underline{1584 \text{ l/min.}}$$



Conversion formulae

$$^{\circ}\text{F} = (^{\circ}\text{C} \cdot \frac{9}{5}) + 32 \text{ K}$$

$$^{\circ}\text{C} = (^{\circ}\text{F} - 32 \text{ K}) \cdot \frac{5}{9}$$

$$1 \text{ cft} = - 28 \text{ l}$$

$$1 \text{ PSI} = 6.895 \text{ kPa}$$

$$1 \text{ kPa} = 0.01 \text{ bar} = 10 \text{ mbar} = 100 \text{ mmHg}$$

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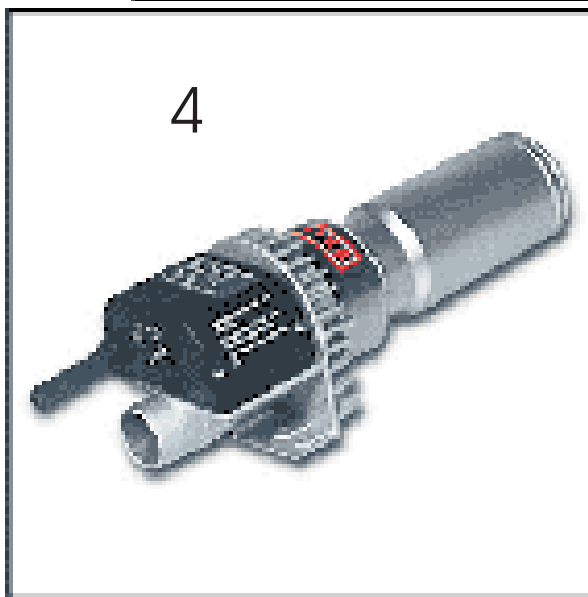
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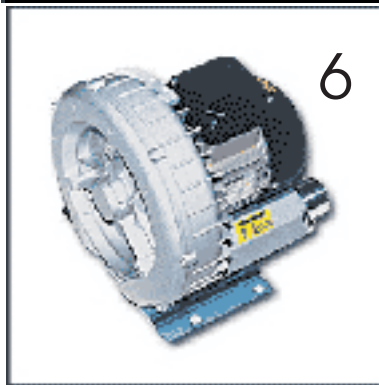
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