CONDENSATION REFLOW OVEN

The reflow technology in the **Condensation Oven** is based on an original international patent. This technology lets us offer an oven combining all the thermal-transfer advantages of condensation with the pass-through, inline processing of convection ovens.

HOW IT WORKS

A condensation oven is hermetically sealed; as it operates, a small quantity of liquid is vaporized inside. The vapor assures both an inerting atmosphere and, through condensation, extremely efficient heat transfer over all components.

After parts are heated, the vapor is removed by negative pressure and then re-condensed. This both protects the environment and reduces consumption of the liquid to a bare minimum.
The negative pressure also guarantees complete and instant drying of parts.

The absence of vapor in the sealed chamber when active cycle is finsished makes it possible to use side doors, for a genuine inline production process.

This efficient system assures perfect soldering and reflowing of alloys at temperatures greater than merely 5 to 10 °C above their melting points.

Thus, the reflowing of lead-free alloys is possible without the risk of overheating the components and without extending the heating cycles used today for classic lead alloys.

In addition, glue can be polymerized in five seconds, and epoxy resins set in less than two minutes.

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INDUSTRIAL FURNACES

3 BATCH OVEN LINES

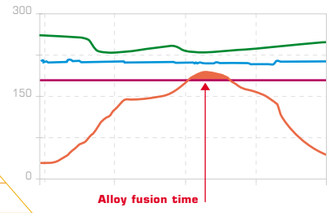
Oven dimensions

Condenso	Length	Width
	2200 mm/86.6”	1520 mm/59.8”

Lay out Dimensions

Condenso	Length	Width	Height
Condenso 38.06	380 mm/15.0”	550 mm/21.7”	60 mm/2.4”
Condenso 38.20	380 mm/15.0”	550 mm/21.7”	200 mm/7.9”
Condenso 53.06	530 mm/20.9”	550 mm/21.7”	60 mm/2.4”
Condenso 53.20	530 mm/20.9”	550 mm/21.7”	200 mm/7.9”

THERMAL PROFILE



Temperature of the part
Floor temperature
Door temperature
Alloy melting point (179° C)

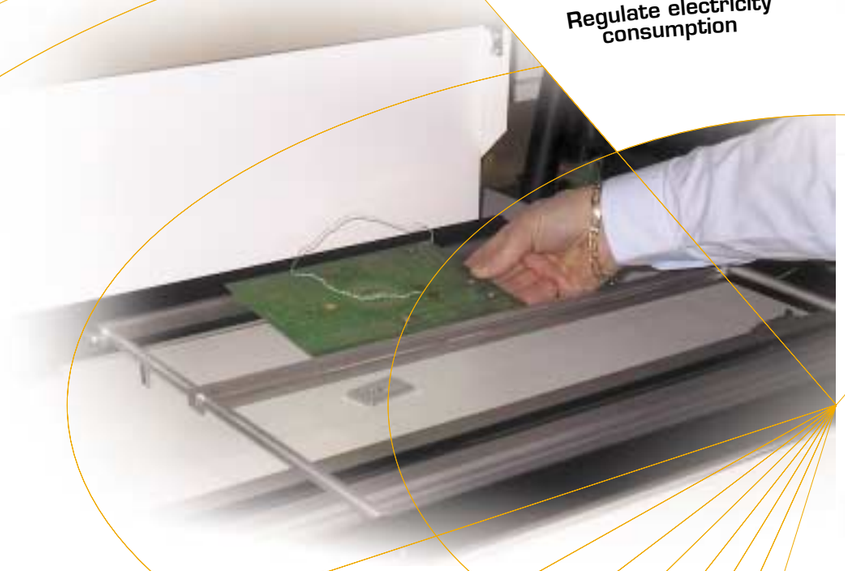
PROFILE USED
Test cycle 3 with preheating

Injection 1:	104	cl
Preheating 1:	140	°C
Condensation 1:	20	sec.
Preheating 2:	148	°C
Injection 2:	112	cl
Soldering:	185	°C
Condensation 2:	15	sec.
Part drying:	11	sec.
Gas extraction:	40	sec.
Cooling:	45	°C

Convection oven to 30 35 kW/h

Batch condensation oven 5 kW/h

Regulate electricity consumption



	Nitrogen consumption	Quality/characteristics of oxygen atmosphere
Traditional forced convection oven under nitrogen (inerting)	25/30m³/h (N^2)	5/10 PPM
Condensation oven	**with out**	**0 PPM**

5 DECISIVE ADVANTAGES

IMMEDIATE INDUSTRIAL USE OF “UNLEADED”– AT A FAST PACE

The condensation oven fully meets the challenges of “unleaded” alloys; the oven assures their complete fusion and soldering with a temperature differential of +5 °C from the melting point.

Reflow of all alloys at melting points up to 242 °C.

Absolute and automatic adherence to the maximum admissible temperature for components through 250 °C.

Immediate and competitive availability of many compatible lead-free alloys.

Soldering in an inert atmosphere – with no need for nitrogen.

Multiple functions, for soldering lead or “unleaded” alloys in the same condensation oven, with no modifications needed.

Rational, INDUSTRIAL use of “unleaded”.

PERFECT TEMPERATURE HOMOGENEITY

This is a key benefit of the process used.

The temperature of the vapor is always exactly equal to the boiling point of the inert liquid at a given pressure.

Thus the temperature is absolutely identical throughout the space filled by the saturated vapor.

This means the fusion time is also identical for all solder points in the same batch, regardless of the thermal mass of the individual components.

LOW OPERATING COSTS

The condensation oven is more economical to buy and use than all other methods of similar capacity.
For example, the purchase price is much lower than that of a typical nitrogen oven, and the condensing oven offers superior performance.
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The vaporization/condensation cycle takes place in a hermetically sealed space, and the fluid is recuperated by condensation.
Thus the consumption of thermal transfer fluid is practically nil.

Reduced electricity consumption (around 5 Kw/H).

Very low maintenance costs.

EASY SET-UP

Quick start up time (< 20 minutes)

Option of multiple passes through the oven without risk to the components.

Search mode for learned profiles, for rapid setup of thermal cycles.

Guaranteed “natural regulation” avoids all risk of overheating.

Rapid in-place drying of the board and components.

PROCESS VIEWING

A porthole and lighted interior permit viewing of the thermal cycle (injection, vapor rising, condensation, preheating, reflow of the alloy, board drying).

Rational, industrial
utilization
of “unleaded”

Aerospace
Aerospatiale
Air France
CRMA
Dassault
Snecma Group (Hispano Suiza, Turboméca, Microturbo, Messier Bugatti, Snecma Service) ...
Nanchang Aircraft (China)
Shenyang Aircraft (China)
...

Automotive - Vehicles
Caterpillar
Daimler Chrysler
FIAT
General Motors (Germany, Turkey, France, Romania, Mexico, Australia, Hungary) ...
Opel
Peugeot Citroen PSA
Renault
Renault Trucks
Saab
Toyota
Volkswagen
...

Equipment suppliers
Delphi
Eaton
Getrag
GKN - Glaenzer Spicer
Hebco Sud
Luk (Germany)
Robert Bosch
SEW Usocome
Shanghai Gear Works
Sofedit - Lebranchu
Valeo
...

Commercial Heat treating shops
Bodycote Hit
Brocard (Switzerland)
DHT (Korea)
Electrothermique
HEF
MTV (USA)
Parker (Japan)
SHU (Germany)
Studer (Switzerland)
Thermicentre
Thermilyon
TTO
TTV
Waltercheid (Germany)
...

Iron and steel industry / Steel-works
Ascometal
Pechiney
Sulzer
Ugine
Vallourec
...

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Fonderies de Mousserolle
Metallogenia
Factories in Morocco, Yugoslavia, Belgium, Russian federation, Tunisia, Chile, Romania, Venezuela, Italy...
SAFE
Setforge
...

Arsenals
Arsenals in Taiwan, Egypt, India, Arabia Saudi, Singapore, Turkey, USA, Venezuela.
Giat Industries
...

Materials
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Aerospatiale
Alsthom
Carbone Industries, SGL Carbon
Carbone Lorraine
C.E.N.
Delachaux
Deutsche Solar
Freiberger Compound Materials
Friedriechsfeld
Mecagis
Montedison
Phillips
Photowatt
Sagem
Schneider
Siemens-KWU
Thomson/Thalès
...

Nuclear power
BNFL (Great Britain)
Cezus
Cogema/SGN
French Nuclear Power Commissariat (Is/Tille, Miramas, Cadarache, Mounts, Pierrelatte, Bruyères-le-Chatel, Saclay, Montrouge)
Enea (Indonesia)
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