THERMO CATALYTIC SYSTEMS LTD.

ATEX Certified

Bruest ATEX Certified Flameless Gas Catalytic Heaters
Gas Saving Industrial Oven Systems

Our long-wave infrared heaters cure most industrial coatings in a fraction of the time and energy cost of a hot air convection oven.

Our flameless gas catalytic heaters are ATEX approved for use in hazardous atmospheres such as paint spray-booths and ovens where solvent fumes may be present.

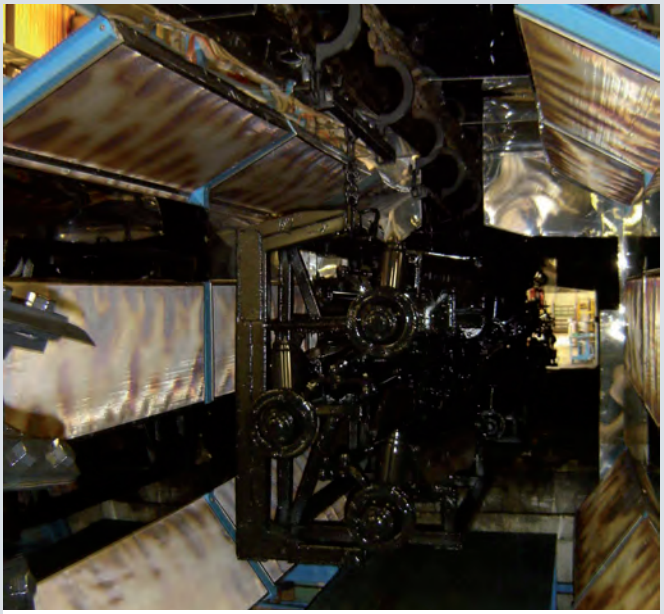
ADVANTAGES

- **REDUCES CARBON EMISSIONS**
- **CE MARKED AND ATEX CERTIFIED**
  for Zone 1 potentially explosive atmospheres
- **NO FIRE RISK**
  even when used with solvent based paints
- **REDUCES ENERGY COSTS BY UPTO 80%**
  Low running costs on natural (mains) gas or Propane (bottled/tank) gas
- **CONCENTRATES THE HEAT ON THE FINISHES**
  being dried, rather than on the substrate
- **CURES IN ONE THIRD OF THE TIME**
  of hot-air ovens
- **FASTER PROCESS TIMES**
  giving improved profitability
- **SHORTER/SMALLER OVENS**
  saves floor space and conveyor requirements.
- **BETTER RESULTS**
  with reduced surface contamination or discolouration.
- **COMBINES RAPID CURING WITH V.O.C. ABATEMENT**
  providing cleaner emissions
- **INTEREST FREE LOANS AVAILABLE FROM THE CARBON TRUST**

Thermo Catalytic Systems Ltd are the U.K. market leader in industrial catalytic heaters and oven systems, having pioneered the use of the technology over the past decade.

T.C.S. Ltd. are European agents for the Bruest catalytic heater manufactured by Catalytic Industrial Systems Inc. in Kansas.

Our systems are ideal for curing a whole spectrum of industrial coatings such as solvent based paint, water based paint and powder coatings.



4-meter ramp oven for curing polyeurethane paint onto agricultural equipment - Increased line speed by one third.

5 metre oven cures water-based paint onto diesel engines in 8 minutes, cut energy consumption by 80%

Oven for curing water-based paints onto plastic bumpers, reduced energy consumption by 40%

ATEX Approved for hazardous areas

Although Bruest heaters run on gas, (be it from cylinders, a tank, or mains) there is no flame whatsoever. Once the heaters have warmed up to reaction temperature using their in-built electrical pre-heat elements, the platinum-based catalyst combusts the gas flamelessly. Bruest heaters will not ignite flammable vapors or liquids such as paint solvent, even though the surface temperature can be over 450 degrees C. The ATEX approval is for Zone 1 and Zone 2 explosive atmospheres.

Heating spray-booths, drying rooms and other hazardous areas

Bruest heaters are ideal for providing safe, reliable and economical heat in hazardous areas such as paint spray-booths, paint stores, F.R.P. workshops and L.P.G. filling stations. They are even used on off-shore gas drilling platforms.

Bruest heater suspended from chains in front of a spray-booth

A Bruest heater (fitted with a reflector) wall-mounted in a flammable material paint store room.

A 12" x 72" Bruest heater mounted on a simple mobile stand in a flammable storage room. Such mobile units are also ideal for paint drying.

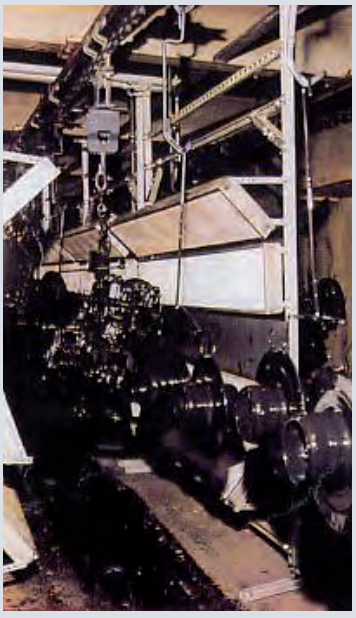
Infrared spot repair

Bruest thermo-catalytic heaters are safer than many types of electric infra-red whose tubes and elements are susceptible to blowing and which can be expensive to replace. Bruest heaters are also more effective than electric infrared as their emission spectrum ideally matches the absorption spectrum of organic coatings. On mains gas, they are of course cheaper to run than electric units.

Bruest heater curing solvent-based paint in an O.E.M. automotive spot-repair spray booth.

Ovens for use with solvent based paint

Unlike flame infrared, Bruest thermo-catalytic heaters can be used inside paint curing booths, ovens and tunnels to directly radiate painted products with no risk of their igniting the explosive vapors evaporating from solvent based paints, without a flash-off period. The ability to directly and immediately radiate painted products means much greater heat transfer efficiency. Catalytic ovens are typically three times as quick as hot air ovens.



Bruest heater fitted inside an oven-curing solvent-based (epoxy) paint onto engines.

Box oven for curing solvent-based paint onto diesel engines. Cut drying time from 5 hours to 35 mins.

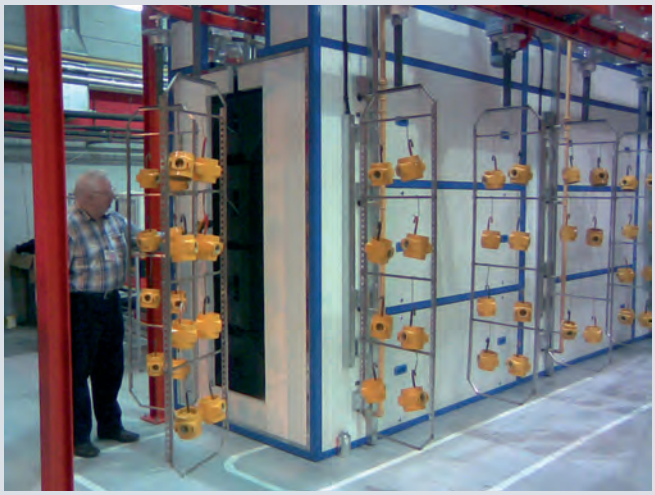
ENERGY-SAVING POWDER COATING OVENS

Our thermocatalytic ovens can flow and cure powder coatings in about a third of the time taken by a hot air oven,often even faster. In a conveyorised process oven, these time savings translate directly into savings in floor space, plant and conveyor requirements. Energy use per product is often a fraction of that required by a hot air convection oven. Products are brought to flow/gel temperature (typically 180 degrees C) very rapidly and without the need for forced air movement thereby minimising powder loss and improving finish quality.

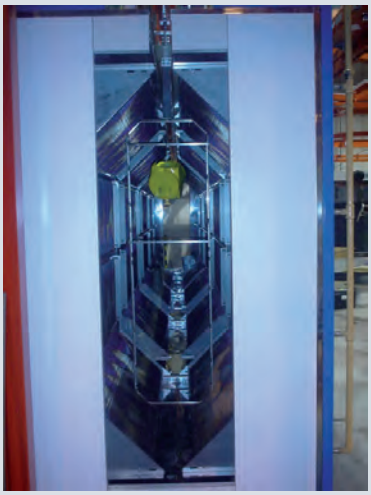
Complete flow and bake ovens

Case History : thermocatalytic oven bakes powder onto aluminium castings in 7 minutes

The thermocatalytic production oven consists of 4 off 2-m sections each containing 8 of the biggest Bruest heaters, making a heat-zone 8 meters long.



The thermocatalytic oven is capable of curing a variety of different colour powders onto a wide range of products from large aluminium cylinders hung individually onto jigs full of smaller parts.



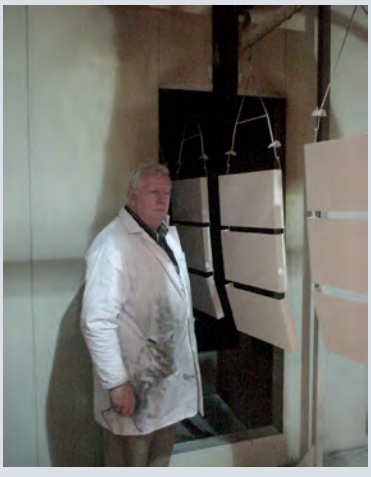
Even the heaviest parts require only 7 minutes.

Ramp ovens for powder flowing/gelling only

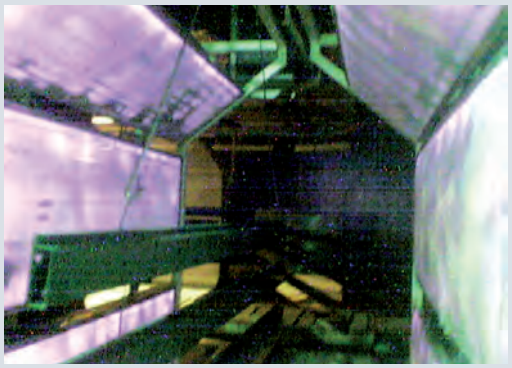
Case History : thermocatalytic oven flows powder in 60 seconds

Where a hot air oven already exists it can be more cost-effective from a capital expenditure perspective to use the thermocatalytic heaters just to “ramp” products up to the desired temperature and then use the existing oven just to hold the products at bake temperature.

The customer powder coats metal enclosures and bakes them in a hot air convection oven. The powder stoving schedule calls for 10 minutes at 180 degrees C. However, the bigger, heavier parts take over 9 minutes just to reach flow temperature (during which powder can get blown or shaken off the product) resulting in a total oven residence time of 19 minutes. The customer wanted to increase line speed from 1.5 meters per minute to 2-meters per minute, but their hot air oven just could not cope by itself.



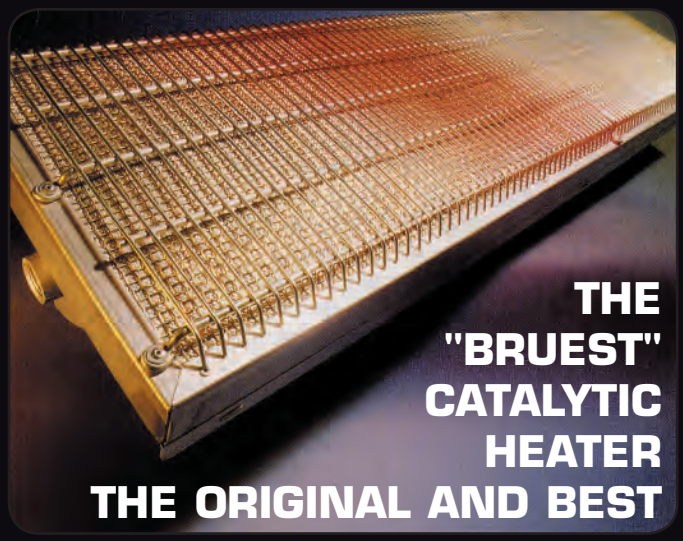
Prior to installation of the ramp oven, even the flat sheet metal products cannot be processed at the desired line speed.



The thermocatalytic ramp oven is positioned immediately at the entrance to the existing hot air oven.

The ramp oven consists of just one 2m section, containing 8 Bruest heaters.

The longwave infrared from the heaters is absorbed rapidly by the powder coating. The 2m long ramp oven flows the powder in 60 seconds, allowing the line speed to be increased by one third, to 2 meters per minute. Finish quality is greatly increased because the powder is already flowed before it enters the convection oven for baking. Additionally, the hot air oven’s burner ,which had been struggling, now uses considerably less gas.



All catalytic heaters produce moisture and heat from the flameless combustion of gas. The Bruest heater's all stainless steel construction protects it from corrosion. The Bruest heater has been in existence for over 40 years and has been fully tested and recommended by British Gas and the Paint Research Association. The Bruest is the only catalytic heater to be promoted by British Gas.

The pedigree of the Bruest catalyst is well established in the U.K. over the past 20 years and is your guarantee of reliability, safety and longevity. We at T.C.S. pioneered the industrial application of catalytic heating in the U.K. We have installed hundreds of catalytic curing systems throughout the U.K and Ireland. We are approved suppliers to Bently Motors, Bae Systems, Corus, Catterpillar and many others.

Awards won by systems using Bruest heaters include: British Gas Energy Management Award 1993, Manweb G.E.M. Award 1995, and BAe Systems Innovation Award 2003.

The Bruest, ATEX approved, CE marked, stainless steel, flameless gas catalytic infrared heater complete with stainless steel "finger-proof" protective face-grill.

The natural gas fuelled ATEX approved Bruest heater is rated at 7,200 Btu/hour per square foot of heater-face making it the hottest ATEX approved catalytic heater in the world and almost twice as powerful as some other ATEX approved models.

The Bruest heater's ATEX approval does not require the heater to be monitored by a gas leak detector.

Bruest heaters are available in a range of sizes and outputs.
Smallest : 6" x 12" (150mm x 305mm) - output 3,600 Btu/hour (1kW)
Largest : 24" x 72" (610mm x 1,830 mm) - output 86,400 Btu/hour (25.33 kW)

SERVICING, REPAIR AND SPARES

Thermo Catalytic Systems Ltd. are the industry experts in industrial catalytic heaters. We have decades of experience in fault-finding and servicing of catalytic ovens.




THERMO CATALYTIC SYSTEMS LTD.

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