



Improved Die Ovens

After a period of upgrading, based on field experience plus computer modeling, the CASTOOL single cell die oven has evolved and improved in a number of ways. Facts reflect the enhanced performance of today's oven.

To Achieve First Billet Extrusion

The aim of all extruders is to get good product from the first push in every run... every time.

The most common reason why this doesn't always happen, is that the first billet is often needed to bring the new die completely and uniformly to operating temperature. This results in scrap, lost production time, and the danger of unnecessary die correction, when the basic problem is usually inconsistent die temperatures.

FACT: With the CASTOOL single cell die oven, good product is as achievable from the first billet as from the last.

The necessary heating time required to bring the die safely and uniformly to the optimum extrusion temperature for the alloy being used, has been estimated. This is primarily based on the mass of the die, its surface area, the thermal conductivity of the H-13 steel that the die is made from, the known heat loss of the oven, and the number of kilowatts of energy being used. In a fraction of the time taken by chest ovens, the die is then individually brought to operating temperature.

To Reduce Surface Defects

Unnecessary surface defects are a common cause of costly scrap.

Surface defects often result when a die is left in an oven at temperature for too long. The die bearings then become over-oxidized.



TC (Twin Cell) Die Oven

FACT: With the CASTOOL die oven, the die is individually heated completely and uniformly to operating temperature so rapidly, that oxidation of the bearings is minimal.

To Have Dies Ready to Run When Needed

Maximum production can only be achieved if the next die is ready to put on the press as soon as the previous run is finished.

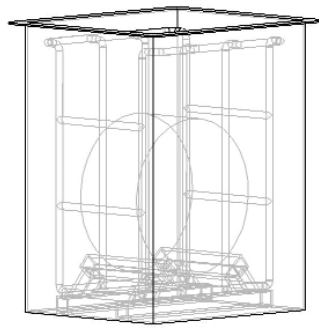
The most usual reason why the next die is not ready is that it is not completely and uniformly at operating temperature when it is needed.

FACT: With the CASTOOL die oven, each die is individually and rapidly heated. Time to temperature has *(over)*

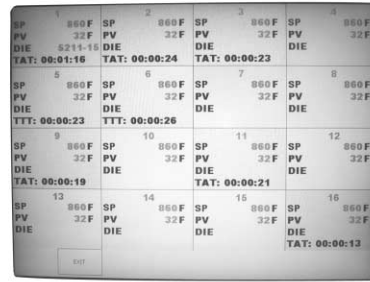
FACTS
CASTOOL TOOLING SOLUTIONS



Input Panel for Single Oven



Cage Cradle



Multi Oven Controller

SP - Set Point
 PV - Process Variable
 Die - Die Number
 TAT - Time at Temperature
 TTT - Time to Temperature

been calculated in advance. From the status indicator light on the oven, the operator can see that the next die is ready go on the press. No time is lost.

About the Oven

The CASTOOL single cell oven will bring an extrusion die completely and uniformly to the required operating temperature in an uncommonly short time. Radiant heat is now generated by six high performance Incolloy sheath heaters. These have a longer operating life than the elements previously used.

Two "K" type thermocouples monitor the temperature in the stainless steel heating chamber, which is designed to reflect the radiant heat to the surface of the die with maximum efficiency. The die cradle has been redesigned in stainless steel to add extra protection for the elements.

The mild steel shell that helps reduce outer temperature, now has a durable powder coating finish, and is lined with high quality rigid ceramic insulation.

The Status Indicator

When the heating cycle starts, a yellow indicator light comes on. The controller shows "Time to Temperature", and begins to count down.

During the heating period, the controller causes the heating elements to transmit as much energy to the die as possible, without exceeding the allowable maximum temperature.

When the controller indicates that the die is uniformly at the desired temperature, the oven temperature is immediately reduced to the target operating temperature, and held there. A green light comes on, and the controller begins to indicate "Time at Temperature."

Multi Oven Controller (NEW)

The new multi oven controller uses Advantech Industrial Automation Components to communicate with the Allen Bradley Controller in each single cell oven. The user interface is an Advantech Touch Screen Industrial PC.

Overheating Prevented

To heat a die rapidly, the surface of the die must be initially heated considerably above the target operating temperature. Care must be taken, however, to avoid exceeding the annealing temperature of the H-13 die steel which is 1085°F (585°C). CASTOOL ensures that overheating is impossible by locating one thermocouple at the hottest point in the oven chamber, close to the heating elements. This is conservatively set well below the H-13 annealing temperature. At the expense of a shorter time to temperature, this safety margin positively protects the die from overheating.

Three Compact Units

Model	Max Die Size	Footprint
C50	14" dia. x 7"	24" W x 27" L
C100	18" dia. x 12"	30" W x 33" L
C200	22" dia. x 12"	30" W x 36" L

(custom sizes also available)

FACTS About CASTOOL DIE OVENS

- No billets wasted and scrap produced bringing die completely to operating temp.
- Dies rapidly heated individually.
- Dies positively protected from overheating.
- Coloured lights indicate heating status of dies.
- Single cell ovens save money.

"CASTOOL MAKES EXTRUSION BETTER"

08/04

Get the FACTS



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