



# FLASHFIRE

FlashFire Dewax can be traced back to the beginning of Investment Casting. But smoke was ever present and in the early 1960's the autoclave solved the problem and became the standard in shell dewax. As shell size increased however, interest in FlashFire Dewax also increased. Then in the early 1990's Rapid Prototyping emerged as a significant new technology and FlashFire became a necessary part of the process. In early 1994 Pacific Kiln introduced the FlashFire Dewax SYSTEM and quickly challenged dewax standards and filled the Rapid Prototyping need. Today this Patented SYSTEM is proving its worth all over the world in the most sophisticated applications.

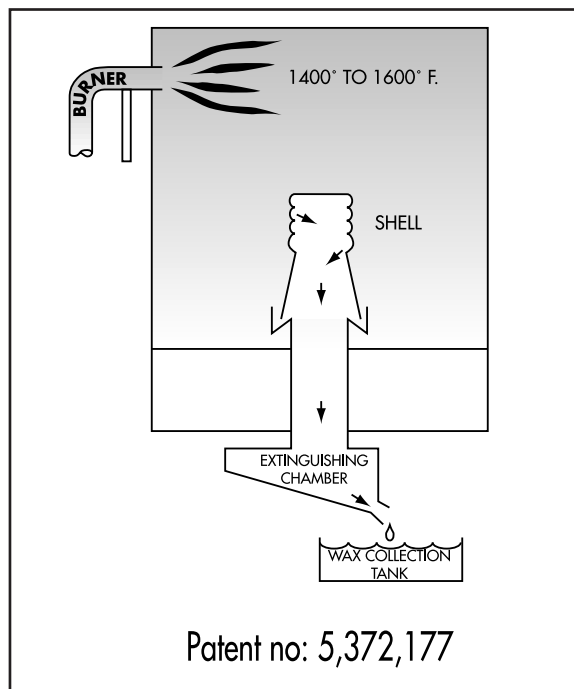
Based on a shuttle car design, the load end of the car is positioned outside the furnace chamber while the other end of the car keeps the hot idling load chamber sealed from outside air.

Shell molds are set in designated cup locations on the load bed. The operator then activates the process-controlled system, which opens the furnace door, pulls the load car into position, and closes the door. Because of the quick sequence, all shells are treated equally.

The 1400°F to 1600°F heat quickly penetrates the ceramic shell and melts the wax pattern from the outside in, eliminating the potential shell cracking from wax expansion. The wax drains through a tube in the floor into an extinguishing/cooling chamber and is allowed to collect in a holding tank.

Wax is normally removed within 10 minutes and complete burnout within 20 minutes. Shells may then be taken to a higher temperature for pouring or removed for inspection and reheat. Since there is no residual wax, reheat furnaces need not have an afterburner.

The downdraft burner system yields an even highly oxidized atmosphere and exhausts into a chimney section that incorporates an afterburner which thermally degrades any hydrocarbon smoke created in the process.



## ADVANTAGES OF FLASHFIRE DEWAX SYSTEM

- Dewax and Burnout are combined into one process.
- All shells are processed identically with perfect repeatability.
- 80-90% of the wax is recovered without moisture.
- Low maintenance needs.
- Meets all environmental requirements.
- Totally automated system means operator safety and accurate, repeatable product processing.
- Can be designed to meet any production need, from single door single load bed, to double door double load bed, to continuous car types.

## Rapid Prototyping

FlashFire is the system that solved pattern removal for the Rapid Prototyping industry. FlashFire burns away the pattern without expansion, eliminating problems with mold cracking while wax runners and sprues are drained and recovered. FlashFire works with all SLA, SLS, FDM, OR LOM Rapid Prototype patterns.

## COST ADVANTAGES OF FLASHFIRE DEWAX SYSTEM

- Energy costs are minimal since the furnace is holding at 1600°F and not cycling into high fire.
  - Can eliminate the burnout furnace and/or reheat furnace.
    - Eliminates the need for afterburners on reheat furnaces.
    - Eliminates the autoclave system.
- The wax does not need to be sent out for reclaim processing.
- Reheat furnaces don't need environmental permit because they are no longer burning out anything.

# DEWAX SYSTEM

## THE FLASHFIRE DEWAX SYSTEM SPECIFICATIONS

Each FlashFire Dewax SYSTEM is engineered specifically to the customers requirements. Shell size, quantity to be processed per day, quantity of wax involved etc. all factor into the design of each SYSTEM.

The FlashFire Dewax SYSTEM utilizes the "NEW GENERATION" furnace specification (See pg. 4 for details). In addition the temperature controller is upgraded to the Multiple Program Temperature Controller to allow a wide selection of process cycles and profiles. Also the Afterburner is engineered specifically to the customer work load and an Afterburner Data Report is included to assist in Air Quality Permit application.

A complete "Installation, Operation & Maintenance" manual is provided which includes electrical schematics for the burner, control and PLC systems, inert gas system, air system, and extinguishing chamber heater system. Also included is a full specification sheet, control fuel train diagram and Afterburner Data Report. Also schematics are included for any options. Constructed to comply with OSHA, NEC & NFPA.

### FUEL REQUIREMENT:

Natural Gas (1,050 BTU/cu.ft.) is standard, 1½" supply line @ 1 PSI. LPG may be used but must be specified at the time of order.

### ELECTRICAL:

230 VAC, 1 ph., 50 AMP dedicated circuit. Please specify other voltage requirements.

### AIR:

1" line supply @ 90 PSI.

### INERT GAS:

Any inert gas (Argon, CO<sub>2</sub>, Nitrogen), ½" line supply @ 40 PSI.

## THE FLASHFIRE DEWAX SYSTEM OPTIONS

TEMPERATURE RECORDERS • OXYGEN ANALYZER

FOOT PEDAL DOOR OPERATOR • FM or IRI SAFETY FUEL TRAIN

CONTROL PANEL COOLER • HIGH LIMIT TEMPERATURE PROTECTION

**To Order:**  
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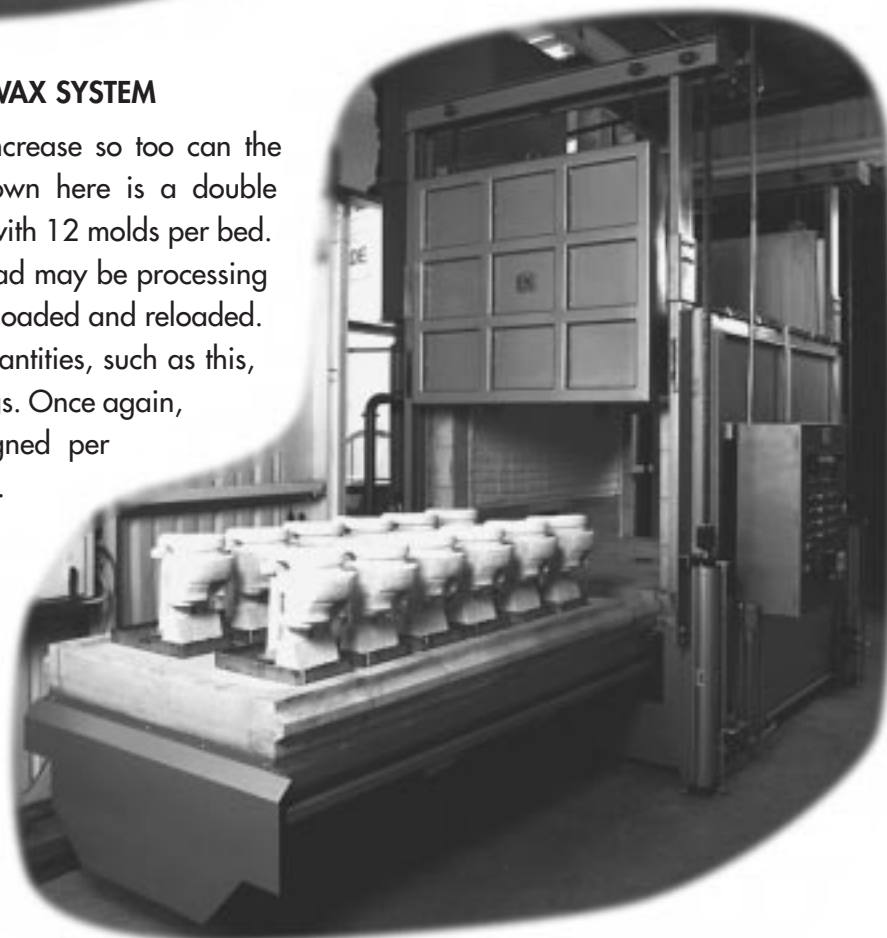
### SINGLE DOOR FLASHFIRE DEWAX SYSTEM

This single load bed, single door FlashFire Dewax SYSTEM is the most economical configuration for the small foundry or Rapid Prototype research laboratories. It can be as small as 36"W x 36"D x 30"H load area and the customer may choose quantity and location of mold drain locations. This model is fully featured and may be fitted with any option.



### DOUBLE DOOR FLASHFIRE DEWAX SYSTEM

As the foundry requirements increase so too can the FlashFire Dewax SYSTEM. Shown here is a double load bed, double door version with 12 molds per bed. The advantage here is that a load may be processing while the load bed outside is unloaded and reloaded. When there are larger mold quantities, such as this, there is considerable time savings. Once again, each SYSTEM is custom designed per customer shell size and quantity.



## CONTINUOUS FLASHFIRE DEWAX SYSTEM

For very large operations with a continuous flow of shells, we are able to engineer SYSTEMS to continuously process shells of any quantity. Shown here is a continuous car SYSTEM which is capable of processing 12 shells every 12 minutes. The furnace holds eight cars and there are four independently controlled temperature zones. This SYSTEM is fully automated so the cars automatically travel around the SYSTEM, all the operator does is load shells and push a button. Shells are retrieved for pouring from a side door at the exit end.

In another version there may be several hot zones and then a cooling tunnel. Then the molds are removed for inspection and reheated for pouring. Again, the beauty of the FlashFire Dewax SYSTEM is that it can be adapted to any production requirement.



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