

INSPIRED INNOVATION

◆ **Despatch Drop Bottom
Solution Heat Treat Furnace**

**The Choice of Aerospace Industry
Component Suppliers and Manufacturers**



MINNEAPOLIS • SHANGHAI • BERLIN • SINGAPORE • HSINCHU • TOKYO



◆ Despatch Solution Heat Treat Systems

Despatch is a proven supplier of Drop Bottom Solution Heat Treat Furnace Systems with over 180 systems designed, installed and certified worldwide over the past 75 years. The Aerospace, Military and Automotive industries rely on Despatch as a low risk supplier of this type of equipment.

Designed for heat treating large and small batches of aluminum parts, from castings to thin wall aerospace components, the systems usually include a bottom-load furnace with glycol and/or water only quench tanks, water rinse tanks, load cars to hold the work rack, and work racks. Despatch offers chiller systems to cool the quenchant solution for customers processing thin walled aerospace components as well as heated quenchant systems for processing thicker walled items such as castings.

These systems eliminate the material handling aspects related to salt bath type solution heat treat systems and allow companies to solution heat treat thin walled aluminum component parts with a quench cycle that is 7 seconds or less.

Typical designs utilize a connected quench tank, rinse tank and load cars that move together on a rail system beneath the furnace assembly. Crane systems can be provided to transfer the parts racks to and from the load/unload area, load car, quench tanks and rinse tank. A load hoist mounted inside the furnace lifts the parts rack up into the furnace, and then lowers the heated parts into the selected quench tank within seven seconds of the end of the heating cycle.

The glycol quench tank uses a heat exchanger/chiller system to control solution temperature. Hot water quench tanks utilized immersion heaters and heat exchangers to control water temperature at the required elevated temperatures. Quench tanks are designed to provide a uniform, “bottom up” solution circulation system for immediate cooling of treated parts. PAG reclamation/separation systems (poly alkylene glycol) can be provided with any Despatch solution heat treat system.

All systems are PLC controlled for semi-automatic or automatic operation and can be tailored for specific customer needs. All systems include the quality built Despatch Age Ovens and are designed for compliance with AMS 2750 and AMS 2770 requirements.



FEATURES:

- ◆ Meets all applicable aerospace and automotive specifications including AMS-2750 and AMS-2770
- ◆ PLC based control system with touch-screen operator interface for simple operation
- ◆ Chartless recording controller for process monitoring
- ◆ Temperature uniformity $\pm 3^{\circ}\text{C}$ ($\pm 5^{\circ}\text{F}$) meets or exceeds process requirements (Furnace Class 1)
- ◆ Fast response electric heating system for quick temperature recovery
- ◆ Water or Glycol quench tank designed to meet maximum quenchant temperature rise
- ◆ Water rinse tanks with agitation
- ◆ Powered load car with quench and rinse tanks attached for automated operation
- ◆ Heat exchangers for quench and rinse tank cooling necessary for high-volume production
- ◆ High velocity vertical down airflow minimizes temperature drop as doors open
- ◆ Pneumatically powered bi-parting doors with clamping air cylinders to tightly seal the doors to the furnace body
- ◆ 18 cm (7 in.) thick multi-layer insulation with alloy mesh screen
- ◆ 315°C to 649°C (600°F to 1200°F) temperature range

OPTIONS

- ◆ Custom sizes and capacities
- ◆ Indirect gas-fired heating systems
- ◆ Stainless steel quench tanks
- ◆ Tank heat exchangers and water chillers
- ◆ Quench tank solution heaters
- ◆ Load basket / rack design and fabrication
- ◆ PAG (poly alkylene glycol) concentration control and recovery systems
- ◆ Complete installation
- ◆ Complete start up service
- ◆ Age ovens



Standard Specifications

- ◆ Temperature range:
Operating = 315°C-538°C
Maximum = 649°C (1200°F)
Uniformity = ± 2.8°C (± 5°F)
- ◆ Unlimited hoist capacity
- ◆ SCR controlled electric coil type heating elements
- ◆ Seven second quench cycle
- ◆ PID control with touch screen and independent hi-limit
- ◆ Chartless recording controller
- ◆ Vertical down airflow with adjustable louvers in supply and return ducts
- ◆ Softwall construction with layered blanket type ceramic insulation, 18cm (7 in) thick
- ◆ 0.48cm (3/16") mild steel shell
- ◆ Pneumatic powered bi-parting doors with clamping cylinders to hold the doors tight to the furnace body
- ◆ Pneumatic/mechanical two point lifting system with load bar
- ◆ Plug type recirculation fan class 732°C rating
- ◆ Stainless steel ductwork

Designed to your specifications

With a large base of installed units in the aerospace field, the performance of Despatch equipment has proven to exceed process requirements for even the most demanding customer needs. As a result of this large installed base, Despatch has the ability to offer previously designed Drop Bottom furnace sizes at reduced cost and shorter lead-times than other suppliers would be able to provide. These previously designed systems have been designed, installed and certified for operation. By utilizing a previously installed system, new customers can be placed at ease, knowing that their purchase is a proven performer and that the risk of non-certification is eliminated.

WIDTH	LENGTH	HEIGHT
122 cm (48 in)	244 cm (96 in)	122 cm (48 in)
122 cm (48 in)	182 cm (72 in)	200 cm (79 in)
152 cm (60 in)	335 cm (132 in)	182 cm (72 in)
274 cm (108 in)	335 cm (132 in)	244 cm (96 in)
122 cm (48 in)	396 cm (156 in)	152 cm (60 in)
182 cm (72 in)	427 cm (168 in)	213 cm (84 in)
152 cm (60 in)	457 cm (180 in)	152 cm (60 in)

Popular previously designed systems work space dimensions.

Other sizes available by custom order.

Furnace work spaces have been designed, installed and certified as large as 54 feet in length, 12 feet in height and 6 feet in width.

Direct gas heating has been utilized for aluminum castings that have secondary machining operations.



Rail systems can be mounted at grade or in a recessed pit which allows for greater visibility to operators.

SERVICE AND TECHNICAL SUPPORT

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