

LINDBERG/MPH

NON-FERROUS MELTING EQUIPMENT



Mission

Our mission is to develop, build, and deliver the best-in-class melting, holding, and handling equipment for non-ferrous alloys.

Quality

At Lindberg/MPH we take great pride in being one of the world's largest manufacturers of non-ferrous molten metal handling products for die casting and foundry applications. We know that experience and commitment are two strengths that have helped us achieve this position, and that will help us maintain and improve upon it in the year to come. Our experienced engineering, research, and manufacturing facilities enable us to respond to virtually any non-ferrous molten metal handling request with speed and efficiency. Our entire staff-management, manufacturing, engineering and design, marketing and sales-realizes that our first commitment is to our customers. That means a single-minded devotion to helping those customers solve their problems and get the job done efficiently and economically. This combination of experience and commitment is evident in everything we do. Whatever your molten metal handling problem or challenge, Lindberg/MPH can deliver the solution you need.

1-Year Warranty

At Lindberg/MPH we stand by the quality and dependability of our equipment. We are proud to offer a 1-year warranty on new equipment purchases. This 1-year warranty covers all materials for all components (less wear items); components covered include, but are not limited to: recirculation, exhaust, & combustion blowers; burner, burner controls, & all gas train components; temperature controllers, high-limit instruments, & recorders; PLC's, HMI touch screens, & related components; disconnect switches; power distribution blocks; terminal blocks; transformers; fuse blocks; selector switches & push buttons; pilot & beacon light assemblies; process & purge timers; SSR & SCR's; contactors; relays; alarm horns; pressure switches; limit switches; vent fans; power supplies; variable frequency drives; etc. as applicable to the equipment quoted; labor is included for defects in workmanship.

Remanufacture and Relines

Times change and your product needs change with them. To help keep products and systems completely up to date, we offer complete rebuilding and relining services - not just for our own products, but for any industrial furnace. Rebuild services include converting furnaces from electric to gas, and vice versa, or from single to dual sources of energy. We offer relining services for a wide variety of equipment. At your plant or in our factory, we'll do the job quickly and efficiently.

Parts and Service

Nothing is more frustrating than having to shut down an entire operation for the need of a part or two. When you order your parts from Lindberg/MPH you always get a quick response and fast turn-around, often within 24 hours. Replacement parts, including heating elements, thermocouples, refractories, control instruments, and more will be sent promptly to minimize equipment downtime.

We offer troubleshooting services, starting with identifying possible areas of concern. Problems in temperature control, or inefficient equipment can create quality problems, and reduce profits. We can help identify the problems and provide appropriate long-term solutions.

Need work done on your existing furnace? Quick response is the key to our service program. Whether you need on-site personnel training after product/system installation, general troubleshooting or perhaps an on-site service call. Our Service department is ready, willing and able to help get your equipment up and running again.

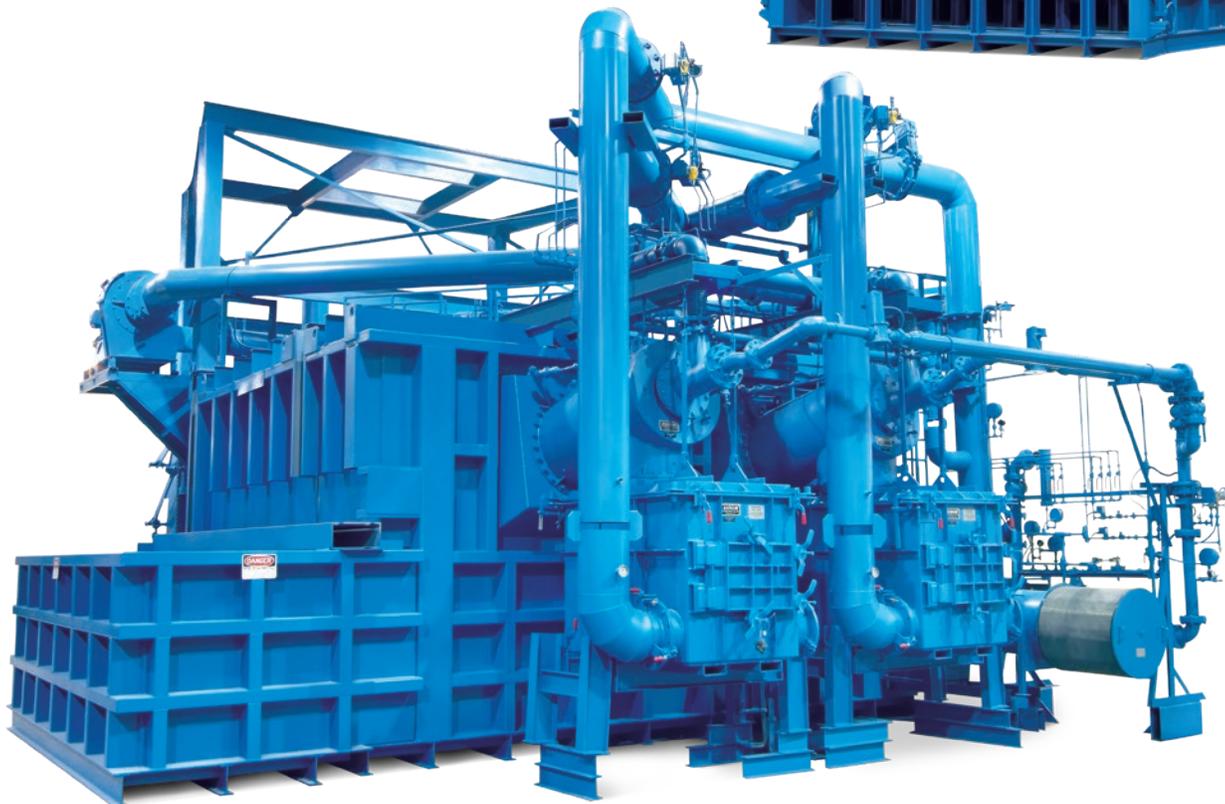


World Class Melting, Holding, and Handling Equipment for Non-Ferrous Alloys

Lindberg/MPH makes a full line of melting, holding, and handling equipment for non-ferrous alloys. We put our vast experience and know-how to work in developing furnace systems to meet our customer's specific needs. Let us know your requirements, and we'll find a way to meet them.

Melting furnaces customized to meet all your requirements and fit within your available floor space.

Lindberg/MPH equipment is of the highest quality. Refusal to compromise means you can count on superior performance. It includes sizing and designing to meet your specific requirements, furnishing equipment arranged in your plant for maximum production efficiency, fast installation, follow-through that ensures proper performance and a full range of spare parts and service. Upgrade your capacity and efficiency with Lindberg/MPH.



ALUMINUM REVERBERATORY MELTING FURNACES

Stack Melter

The Lindberg/MPH Stack Melter combines energy efficiency and low metal loss in the most robust design available to the industry. It is also the easiest to clean with adjacent doors in both the melt and hold zones. No blind spots. Energy consumption as low as 983 BTU/lb. has been recorded.

If you want to cut your fuel bill and metal loss in half, this is the furnace for you!

Features:

- Charging flue stack
- Separate melting and holding chambers
- Individual chamber temperature control
- Melting burner fires only when needed
- Air-operated charge and access doors
- Lift and charge mechanism
- Optional automatic load and unload mechanism
- Optional pressure pour pump
- Designed to accept scrap, sow, or ingot as needed
- Can be engineered with a launder connection
- Optional re-circulating well

Benefits:

- Fast melting
- Energy-efficient
- Fuel usage as low as 1127 BTU/lb. melted
- Low melt loss
- Reduced charging hazards
- Ideal for die, sand, or permanent mold casting applications
- Easy to clean
- Versatile



ALUMINUM REVERBERATORY MELTING FURNACES

Turbo Melter Two-Chamber Dry Hearth Melting and Holding Furnace

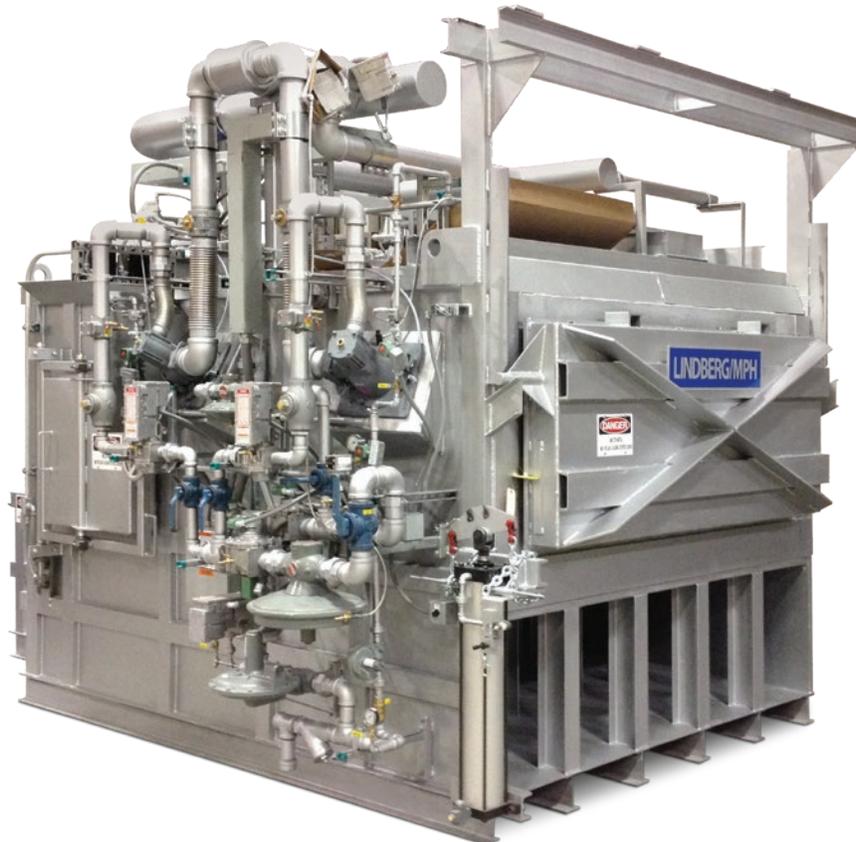
A great choice for melting at the casting station with separate chambers to melt and hold. It takes up a 1/3rd less space without compromising temperature control. The Turbo Melter is custom designed to meet specific customer requirements and can include provisions to treat metal in-line. This furnace allows the caster to introduce good clean metal at temperature to the machine which reduces scrap.

Features:

- Separate melting and holding chambers
- Individual chamber temperature control
- Melting burner fires only when needed
- Proportioning combustion control in holding chamber
- Metal level detector
- Optional Pressure-sensing mechanical flue damper
- Low-cement castable refractory, non-contaminating
- High-thermal release burners
- Air-operator charge door
- Rugged shell construction
- Pre-piped, pre-wired, with refractory installed

Benefits:

- Saves space
- Energy-efficient operation
- Fuel usage as low as 1250 BTU/lb.
- Low metal loss
- Fast melting
- Reduced casting costs
- Uninterrupted casting cycles
- Long refractory life
- Clean filtered metal
- No pot or crucible to replace
- Relatively easy installation
- Ideal for die, sand, or permanent mold casting applications



WET BATH REVERBERATORY FURNACES

Outperformer Central Melting Furnace

The “Outperformer” Aluminum Melting Furnace can reduce energy consumption by over 50% for melting and holding compared to conventional furnace designs. It can melt aluminum for as little as 1,127 BTU/lb and hold for as little as 16 BTU/lb. To meet the needs of small and large producers, the “Outperformer” is available in 2,400-lb to over 100,000-lb capacities.

The use of a curved clamshell-type door and drop arch force hot gasses over the charge area providing faster melting with less bath capacity. This greatly reduces your cost to both melt and hold. Additionally it reduces metal loss, noise, and heat around the furnace.

Features:

- Low heat environment, due to the completely enclosed furnace and careful selection of lining components
- Sidewalls can be easily accessed by opening the charge well covers and through the rear manual access door
- High-alumina refractories, non-wettable to aluminum in the metal contact areas
- Wide turn-down, high thermal release reduces burners flame impingement on surface metal; combustion products channeled across the charge well surface
- Furnaces are pre-piped and pre-wired in the factory prior to shipment, refractory linings are also pre-installed wherever possible
- Shell construction is carbon steel plate welded 100% inside and out
- Upward-rotating covers are constructed of 100% welded steel plate and lined with high quality refractories

Benefits:

- Greater operator comfort and productivity
- Easy cleaning of sidewalls
- Long refractory life
- Minimal melt loss, reduced possibility of oxidation
- Fast melting in proportion to the holding volume
- Relatively quick and easy installation
- Optimal strength is ensured
- Easy and complete access to the furnace chamber for charging and cleaning





ELECTRIVERB FURNACES

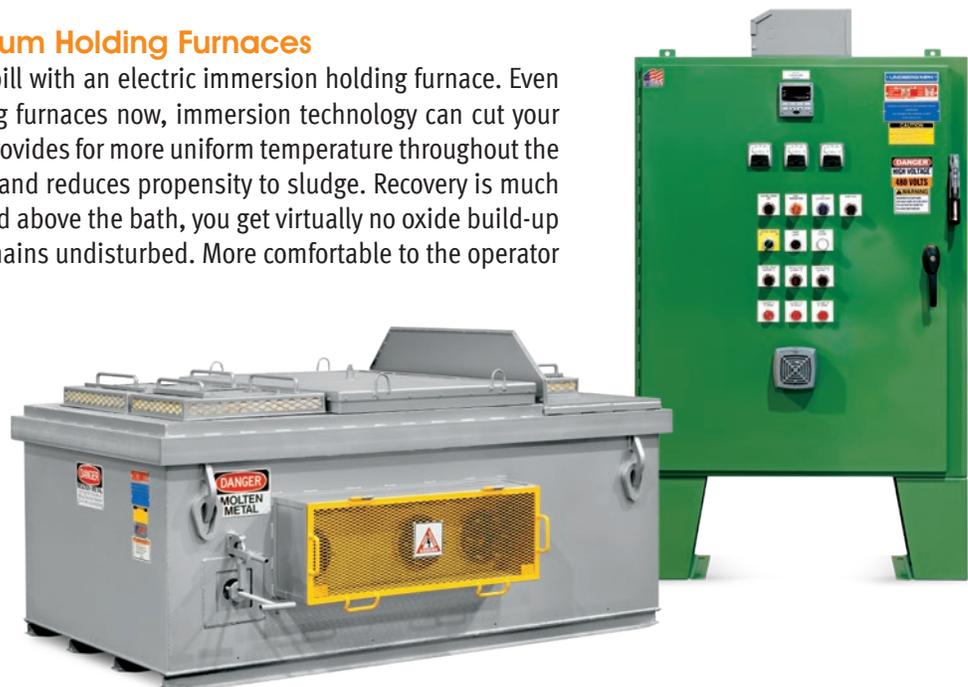
Power consumption is as low as 0.19 kW/lb. of aluminum melted and melt loss is less than 1% with good metal handling practices and a clean furnace. Metal quality is excellent since there are no products of combustion which can be absorbed into the metal. Quiet, clean electric heat results in relatively comfortable working environment.



ALUMINUM HOLDING FURNACES

Electric Immersion Aluminum Holding Furnaces

Make a serious cut in your energy bill with an electric immersion holding furnace. Even if you have efficient electric holding furnaces now, immersion technology can cut your electric consumption by a third. It provides for more uniform temperature throughout the bath which improves metal quality and reduces propensity to sludge. Recovery is much faster. Since there is no heat applied above the bath, you get virtually no oxide build-up at the bath line and the surface remains undisturbed. More comfortable to the operator when cleaning.



ALUMINUM HOLDING FURNACES

Holimesy Low Energy Electric Holding Furnace and Launder System

The Holimesy® low-energy electric holding furnace is the most energy-efficient aluminum holding furnace available and can reduce energy costs up to 80-90%. The totally enclosed design leads to uniform operating temperatures and virtually eliminates oxide formation and sludge. This minimizes maintenance and maintains your metal quality.

The heated launder system shares the same energy efficient special ceramic plate board construction, which has the highest insulating value available, and is non-wetting to aluminum. The result is nearly perfect temperature control at the casting station without the hazards due to manual transfer. A much safer working environment.

Features:

- Totally enclosed unit
- Long-lasting heating elements
- Non-wetting refractory
- Low-temperature furnace shell
- Nickel-chrome type heating elements encased in alloy sheaths
- Mechanical on-off contractor or SCR control with a temperature controller and bath-immersed thermocouple assembly
- Bath area divided into chambers for filling, heating, thermocouple assembly, and ladling
- Nema 12 completely wired and assembled control panel

Benefits:

- Energy-efficient operation
- Low metal loss with minimal oxide build-up
- Maximum metal quality
- Minimal heat and energy loss
- Improved working conditions
- Long refractory life
- Ease of maintenance
- Easy to operate



Gas Fired Aluminum Melting and Holding Furnaces

The 62-GH gas-fired aluminum holding furnace was designed to fill the needs of customers who want a gas-fired holding furnace that fits the footprint of the popular Holimesy® electric holding furnace line but with greater metal temperature recovery capability. A great choice for the higher operating temperatures required in permanent mold and sand casting applications.

ELECTRIC AND GAS FIRED CRUCIBLE AND POT-TYPE MELTING FURNACES FOR ALL NON FERROUS ALLOYS

We melt them all from low temperature zinc alloys to aluminum to high temperature copper and bronze. Both stationary and manual or hydraulic tilt for all available pot and crucible vessels. This provides for automatic temperature control, long pot/crucible life, and easy installation. Gas fired models feature high turn-down ratio, and electric provide long element life through robust rod-overbend elements. They are well insulated to maximize energy efficiency. Available with highly insulated and automated cover removal systems and metal leak detection circuits.

Features:

- Long-flame, nozzle-mix burner
- Self-contained, low pressure combustion air blower
- Interchangeable with crucible or pot
- Flame safety supervision standard
- Simplified operation
- Special sizes available

Benefits:

- Less fuel consumption
- Exceptional thermal efficiency
- Fast, easy installation
- Minimum floor space
- Reduced operator fatigue results from cooler shell and relatively quiet operation
- No energy waste during non-productive hours – can be emptied and turned off
- Less scrap and less melt loss due to minimizing of temperature overshoot



ZINC MELTING FURNACES

We can improve the operation of your die cast plant with the following types of world class zinc melting, holding, and launder equipment available from Lindberg/MPH.

Electric Immersion Melting and Holding Furnaces

Make a serious cut in your energy bill with a furnace that is close to 100% efficient! Available in capacities ranging from 2800-8400 lbs with melt rates from 400-1000 lbs/hr. The specially designed heating elements are tubular type and are mounted in a ceramic block that floats in the bath.

These furnaces are set up with dual operating parameters to allow for automatic restart and slow ramp up after a prolonged power outage. Once the zinc is molten, the controller will automatically switch back to the original operating parameters for normal operation. Design can be customized to fit your casting cell with automated scrap return.



ZINC MELTING FURNACES

Gas Fired Immersion Melting Furnaces for Zinc

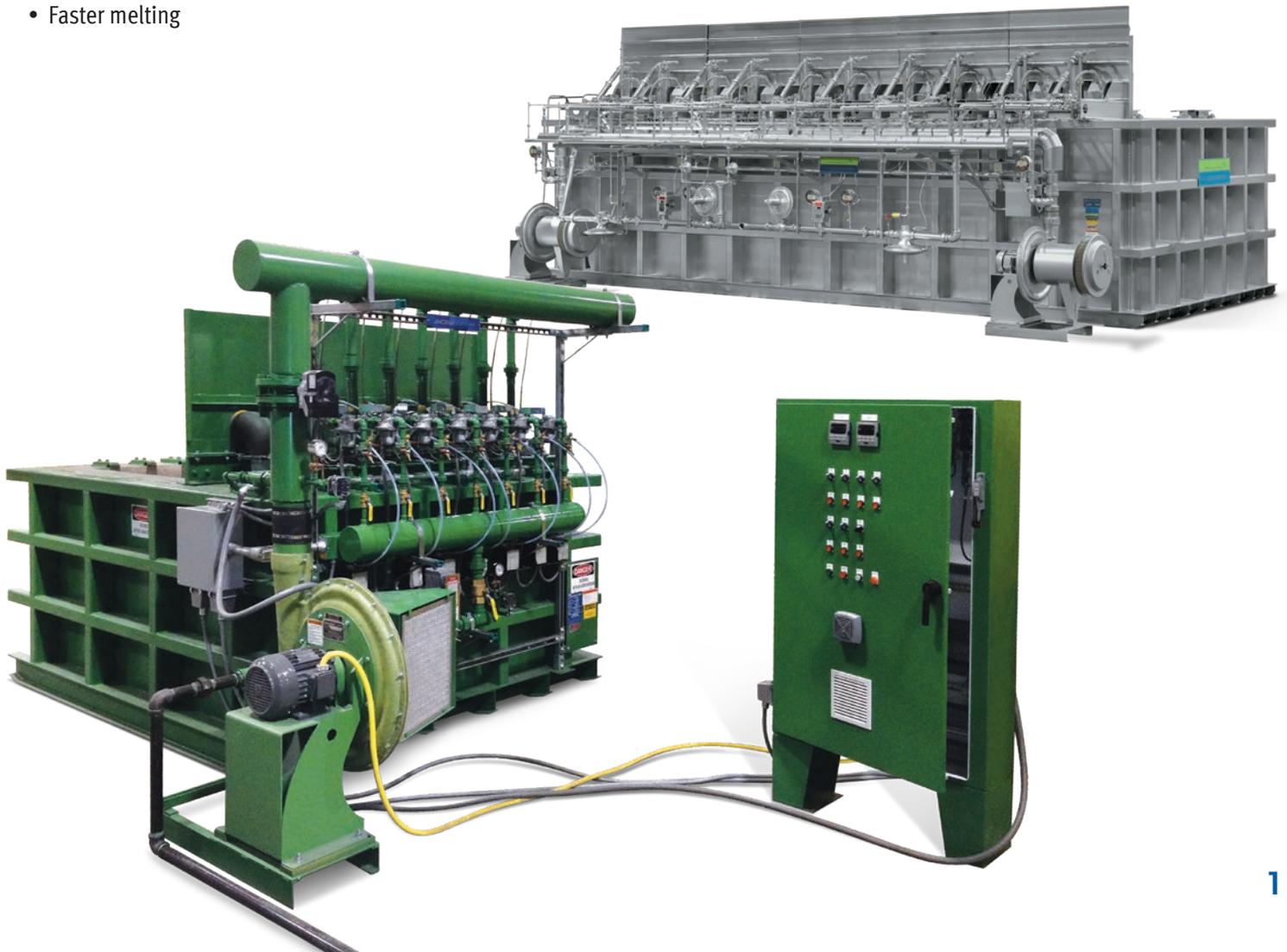
The most productive way to utilize heat is to apply it inside the mass. Fast temperature response, without danger of overrun, provides fast recovery. Accessibility provided by the large surface area makes charging easy. The optional charging cradle allows for the charging of on-spec or master alloy and special high grade sows. Capacity ranges from 13,000 lbs to 373,600 lbs, and melt rates from 2,666 lbs/hr. to 16,250 lbs/hr. The BTUs/lb. to melt is half that of a pot-type furnace at only 250 BTUs/lb. There is no iron pickup because there is no pot, so you maintain alloy integrity. One unit can replace several pot furnaces.

Features:

- Rugged cast refractory lining
- Flame safety supervision standard
- Coated immersion tubes ensure no flame impingement on bath
- Splash guard for combustion equipment protection
- Exhaust deflectors help maintain both surface temperature
- Optional charging cradle
- Ideal for use with launder system
- Faster melting

Benefits:

- Quick recovery
- Closer temperature control
- Increased fuel efficiency
- Simplified charging
- Helps maintain metal alloy consistency
- Increases production floor space when replacing pot furnaces



ZINC MELTING FURNACES

Electrically Heated Zinc Launder System

The most efficient way to move metal and requires little energy. Connected power is 350 watts per foot but only uses about 150 watts per foot. Advantages to your operation include:

- Less metal loss
- Less labor
- Metal level control
- Close temperature control
- Safety
- Extended shot end life
- Reliability and long life

Features:

- Fully-covered, gravity-feed launder system
- Series of custom trough sections form one continuous launder
- Extensive use of ceramic plates and fiber insulation, also available with cast refractory lining
- Control thermocouples located every sixteen feet
- Adjustable supporting legs
- Freeze-off plugs included
- All controls are mounted and wired in a single custom enclosure

Benefits:

- Greater energy efficiency
- Reduced handling costs
- Lower metal losses
- Safer working conditions
- Minimal maintenance costs
- Can be adapted to fit new or existing facilities



Thermal Product Solutions

Lindberg/MPH is owned by Thermal Product Solutions (“TPS”), a leading American manufacturer of custom industrial ovens used for heat treating, finishing, drying, curing, manufacturing automation and process control. TPS is a global leader in thermal processing products and test solutions with brands including Baker Furnace, BlueM, Gruenberg, Tenney, Lindberg, MPH and Wisconsin Oven. For more information on equipment solutions from TPS visit the website at www.thermalproductsolutions.com.



TPS
Lindberg/MPH is a brand of
Thermal Product Solutions, LLC

Lindberg/MPH P.O. Box 131, 3827 Riverside Road Riverside, MI 49084
Phone: (269) 849-2700 • Fax: (269) 849-3021 • lindbergmph@lindbergmph.com

www.lindbergmph.com