

# Dynarad Electric Resistance Melting Furnace

# 500

MS-500 (Stationary) MT-500 (Tilting)

## PERFORMANCE

### PERFORMANCE PROVEN, STATE-OF-THE-ART MELTING FURNACES FROM THE ENGINEERING INNOVATORS AT DYNARAD

Revolutionary individually wired ceramic/metallic heating elements, manufactured with care and precision by Dynarad, have made conventional large element arrays and horizontal rod element designs obsolete. Dynarad elements provide high power density, long life and best up-time reliability. Elements are easily installed and replaced in minutes without removing the crucible.

## PERFORMANCE

Seven different space age lining materials, including the finest ceramic fiber insulation, form Dynarad's innovative computer optimized, multi-layered insulation system, maximizing heat retention like a thermos bottle.

Dynarad furnaces offer the highest energy conversion efficiency and the best up-time reliability in the metal casting industry. Metal loss and dross formation are dramatically reduced and the quiet metal bath stays clean. Elimination of heat stress and noise keeps operators comfortable.

Dynarad furnaces consistently deliver superior performance at the lowest overall operating cost.

## PERFORMANCE SUMMARY

- Melts Aluminum, Magnesium, Zinc and Lead
- 500 lbs/hr Aluminum Melting Rate
- Aluminum Capacity
  - MS-500 - 1,200 lbs.
  - MT-500 - 1,125 lbs.

## FURNACE FEATURES

**RELIABLE** - Superior vertically installed, self-supporting high temperature ceramic/metallic heating elements are independently wired and fused and easily replaced from the top without removing the crucible. They are conservatively rated for long life at maximum output.

**HIGHEST EFFICIENCY** - A multi-layered insulation system comprising seven different computer selected space age lining materials, including the best ceramic fiber insulation, forms Dynarad's "electric thermos bottle." Substantial waste heat is saved to melt more metal and raise efficiency.

**CUTS METAL LOSS** - Dross formation is dramatically reduced because contamination from products of combustion are eliminated and the limited surface area is undisturbed.

**KEEPS METAL CLEAN** - The lack of stirring and agitation keeps the metal clean. The crucible can be equipped with an optional integral baffle, with or without cartridge filter, for even cleaner metal.

**FLEXIBLE** - Because the Dynarad is a crucible furnace, alloys are quickly changed, the furnace is easily emptied, and metal temperatures can be rapidly adjusted. May be used for both melting and holding.

**COMPACT** - Dynarad furnaces pack a lot of melting power per pound of capacity and require much less expensive floor space than reverb or similar type furnaces.

**UNCOMPLICATED** - Dynarad's ceramic/metallic heating elements do not require complex SCR power supplies while insuring 100% power factor. New elements can be matched with older ones without difficulty. No water cooling required.

**PREASSEMBLED** - Just connect the power, install the crucible and you're ready to start melting.



MS-500 with pneumatic hinged cover.

**SPECIFICATIONS**

**POWER RATING - 100 KW**

**POWER INPUT** - Choice of three standard voltage inputs with no transformer required:

- 480 VAC @ 120 amps, 3 phase, 4-wire, 60 Hertz
- 240 VAC @ 240 amps, 3 phase, 3-wire, 60 Hertz
- 208 VAC @ 275 amps, 3 phase, 4-wire, 60 Hertz

Other voltages and 50 Hertz also available.

**POWER FACTOR** - Ideal power factor of 1.0 (100%).

**POWER LEVEL SELECTOR (Optional)** - Choose between three power settings of 32 KW, 58 KW, 80 KW or 100 KW and demand will not exceed setting chosen. Power level may be adjusted to match the needed melt rate so utility demand charges can be effectively reduced when full power not required. Permits instant conversion from melter to holder/superheater and back. Use lowest setting for off-shift holding.

**MELTING EFFICIENCY** - Approx. 0.175 KWHr/lb. for aluminum alloys.

**CONSTRUCTION** - Heavy duty steel frame with removable lightweight furnace cover including quick release swing bolts for easy internal access.

**LINING** - Highly efficient multi-layered insulation system. Seven different lining materials, including several types of ultra low loss ceramic fiber insulation.

**HEATING ELEMENTS** - Independently wired and fused, self-supporting ceramic/metallic elements manufactured by Dynarad. Inserted vertically without removing the crucible. Maintain constant resistance over entire lifetime so complex power supply not required.

**CRUCIBLE** - Uses standard types. Silicon carbide for aluminum, available with optional integral baffle, with or without cartridge filter. Inconel clad mild steel for magnesium.

**TILTING HYDRAULICS (Model MT-500 only)** Includes support stanchions and bearings, hydraulic cylinders, self-contained hydraulic power supply, motor starter and pendant tilting control.

**SPECIFICATIONS**

**CRUCIBLE COVER (Tilting Model)**

Includes standard pneumatic hinged cover with ceramic fiber board lined cover, hinged to clear bath thermocouple, including top mounted air cylinder with hand operated control valve, regulator and flow controls.

**CRUCIBLE COVERS (Stationary Model)**

**Standard Manual Cover** - Lightweight cover lined with ceramic fiber board and backup fiber blanket insulation.

**Optional Pneumatic Hinged Cover** - Ceramic fiber board lined cover, hinged to clear bath thermocouple. Includes top mounted air cylinder with hand operated control valve, regulator and flow controls.

**Optional Pneumatic Split Butterfly Cover** - For use with baffled crucible. Split charging well cover actuated by side mounted pneumatic operator. Manually removed split lid covers dip-out well. Includes hand operated control valve, regulator and flow controls.

**CONTROL PANEL**

**Melt Pyrometer** - Fully time proportioning, 3-mode controller with adjustable proportional band. Operates with Type K thermocouple and suitable protection tube.

**Element Protection Pyrometer** - Limits maximum element temperature. Operates with Type K thermocouple mounted in Inconel protection tube.

**Metering** - Three direct reading ammeters indicate current in each phase.

**Ground Fault Interrupter (GFI)** - Automatically shuts down furnace when low level ground fault is detected.

**Seven Day Timer** - Permits early startup and shutdown on programmed basis.

**Mounting** - Wall or stand mounted next to furnace for easy operator access.

**Dimensions** - Width - 60 inches square  
Height - 45 inches

**Crucible Opening** - 31 inches

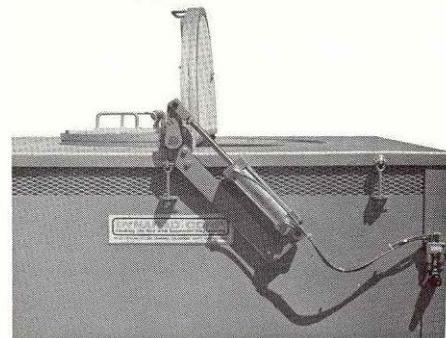
**SHIPPING WEIGHTS**

**Stationary furnace** - Approx. 3,500 lbs.

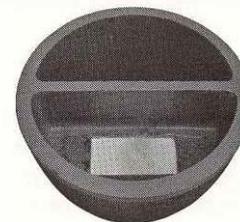
**Tilting furnace** - Approx. 7,000 lbs.

**Control panel** - Approx. 300 lbs.

**SPECIFICATIONS**



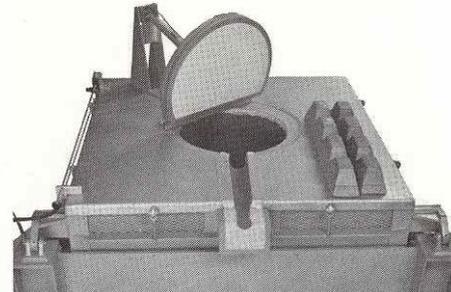
MS-500 with pneumatic split butterfly cover.



MS-500 crucible with integral baffle and exchangeable cartridge filter.



MT-500 Tilter.



MT-500 with pneumatic hinged cover.

**NOMINAL MELTING RATES**

Charge Material	Aluminum	Magnesium	Zinc	Lead
Melting Rate	500 lbs./hr.	450 lbs./hr.	1,700 lbs./hr.	7,000 lbs./hr.
Tapping Temperature	1300°F	1400°F	950°F	750°F
Furnace Capacity	Stationary	1,200 lbs.	3,000 lbs.	5,000 lbs.
	Tilting	1,125 lbs.	1,250 lbs.	2,800 lbs.

DESIGN AND SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE



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