

Quality Based on Advanced Technology

Electromagnetic Induction Heating for Aluminum & Zinc Alloys Melting and Holding Furnace



High Efficiency

Induction heating with electromagnetic stirring, greatly reduces various impurities in the liquid, and the composition is more uniform without bottom fouling.



Energy-saving

Energy saving more than 30% compared with ordinary resistance furnace, and 20% than variable frequency resistance furnace. The melting speed is fast. For example, it takes less than 3 hours if 60KW for 300KG aluminum.



Environmental Protection

No noise or radioactive magnetic field, no temperature radiation. Ensure the health of staff and protect the environment.



No Pollution

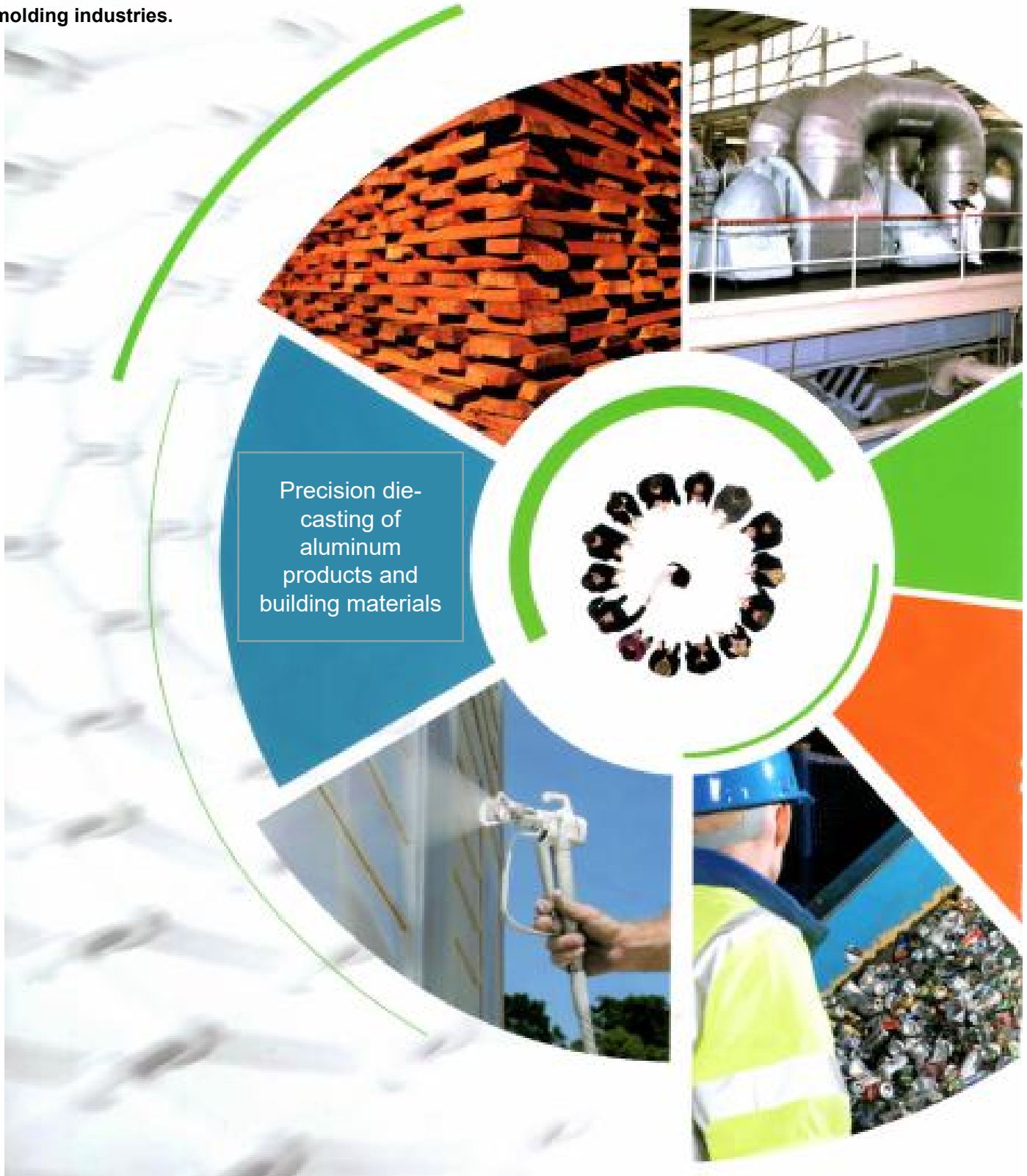
Low frequency magnetic field, using full-bridge series resonance structure, less resonance sub-waves, no pollution to the power grid.

Hitfar has tracked the research and development of aluminum alloy melting and holding furnaces with full digital control technology in the past few years. We also called those furnaces as electromagnetic die-casting aluminum melting furnace, scrap metal electromagnetic melting furnace, electromagnetic casting holding furnace, and electromagnetic induction crucible furnace , which has applied for two utility patents 1:201220708391.9 and 2:201320015956 and invention patent 201210556421.3.



Application Range

“ZG-HITFAR” intelligent control electromagnetic induction heating alloy melting and holding furnace have been widely used in pressure casting, low pressure casting, sand casting and scrap metal recycling and other areas of boiler, wood drying, electroplating, spraying, printing and dyeing, and injection molding industries.



Zinc Alloys Induction Melting Furnace



Induction heating melting furnace is famous in energy saving than other traditional furnace like coal-fired furnace, oil furnace, resistance furnace, gas furnace, and intermediate frequency furnace. It has energy saving, environmental protection, safety, reliability and other advantages. Different from the traditional furnace, the power supply of the induction heating furnace can supply high-frequency alternating current through the induction coil to generate eddy current in the crucible, thereby directly generating heat on the inner wall of the crucible.

1	Rated Input Power	30-40KW
2	Rated Input Voltage	380VAC,50/60Hz
3	Working Frequency	15K~30KHz
4	Input Ampere	45A
5	Maxi. Temperature	< 700℃
6	Melting Ranges	Zinc, Lead, Tin and alloys

Electromagnetic Heating Melting Furnace VS Other Melting Furnaces

Resistance Heat Radiation Furnace	Advantage	No need of fuel, no open flame, easy to control the temperature controller, can be directly connected to the PLC system
	Disadvantage	Low heat conduction efficiency, high power consumption, high operating cost, resistance wire is easy to fuse at high temperature, replacement of resistance wire affects production efficiency
	Economical	The main calculation is based on a 160-ton die-casting machine and a 330KG furnace working for 24 hours.
	Warm up	3 hours
	Full materials	1.5 hours
	Cost	~RMB400 per 24 hours

Fuel Type Furnace	Advantage	Cleaner than traditional fired coal and carbon
	Disadvantage	No temperature control or adjust, and no safety
	Economical	The main calculation is based on a 160-ton die-casting machine and a 330KG furnace working for 24 hours.
	Warm up	3 hours
	Full materials	1.8 hours
	Cost	~RMB500 per 24 hours

Electro- magnetic Induction Heating Furnace	Advantage	Electromagnetic induction heating, smelting very fast, high efficiency of electric heat conversion, temperature controllable and adjustable, no high temperature and pollution of environment.
	Disadvantage	High cost of purchase at the beginning.
	Economical	The main calculation is based on a 160-ton die-casting machine and a 330KG furnace working for 24 hours.
	Warm up	3 hours
	Full materials	1.8 hours
	Cost	~RMB300 per 24 hours (PS. holding 4.5kwh/hour)

Aluminum Alloys Electromagnetic Heating Melting Furnace



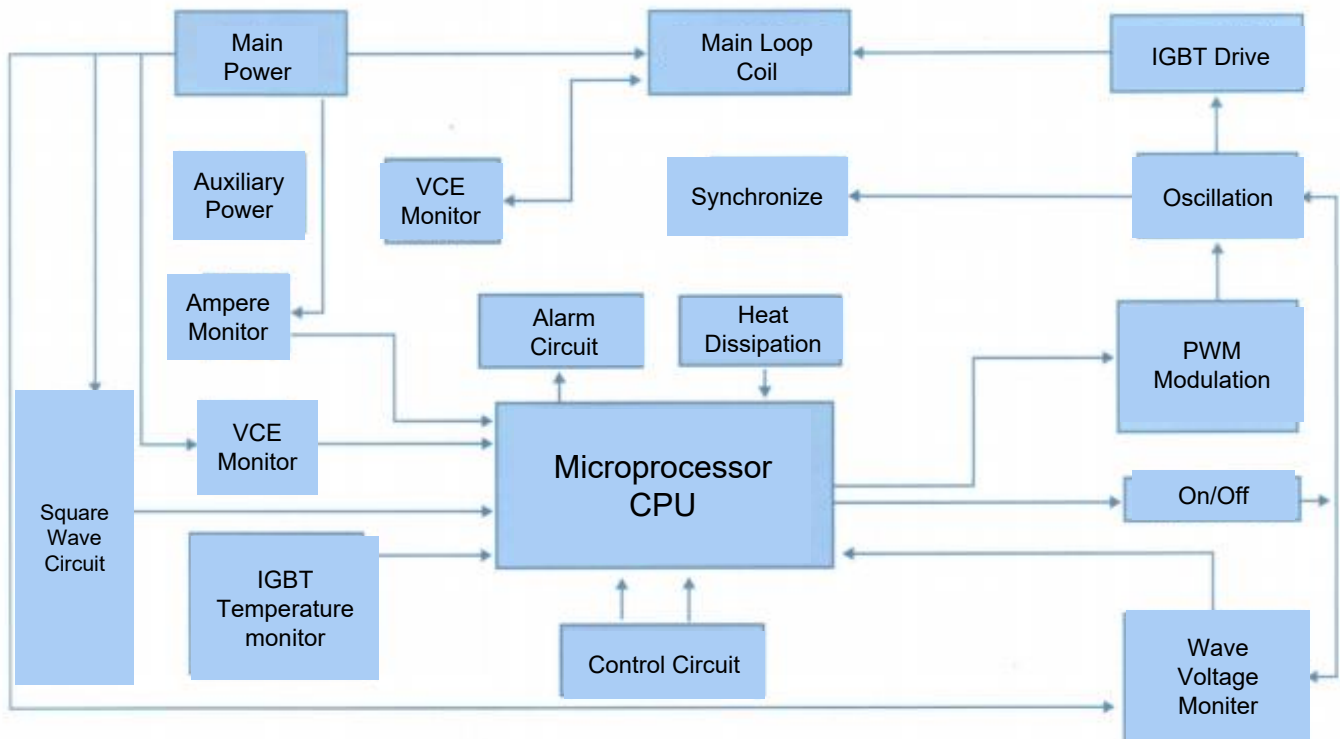
Basic Technical Parameters

1	Model no.	ZG-EHL150	ZG-EHL300	ZG-EHL450	ZG-EHL600
2	Furnace (mm)	φ1000*1000	φ1060*1200	φ1060*1200	φ1060*1200
3	Crucible (mm)	φ460*600	φ610*710	φ710*700	φ780*750
4	Melting Capacity	150KG	300KG	450KG	600KG
5	Working Temperature	20°C-850°C	20°C-850°C	20°C-850°C	20°C-850°C
6	Rated Power	30-40KW	50-60KW	80-100KW	100-120KW
7	Melting Rate	80KG/H	120KG/H	200KG/H	260KG/H
8	Input Power	380V-3P	380V-3P	380V-3P	380V-3P
9	For Casting Machine	180-220T	280-400T	500-630T	800-1000T

Features & Differences Between Smelting Furnaces

1	Heating Type	Power Cost (RMB/KG)	Temperature Holding	Service Life	Environment	Workers	Operation
2	Coal	0.35-0.65	Uncontrolled	2.5 years	High temp.	Many	Complex
3	Diesel	1.20-1.40	Uncontrolled	3 years	High temp.	Many	Complex
4	Gas	0.65-0.80	Uncontrolled	3 years	High temp.	Less	Complex
5	Resistance Wire	0.60-0.85	6kwh/100KG	3 years	Noise	Less	Easy
6	MF	0.70-1.10	Uncontrolled	5-10years	Noise	Less	Complex
7	Inverter	0.45-1.10	Uncontrolled	3 years	Noise	Many	Easy
8	Electro-magnetic Heating	0.36-0.40	2.5kwh/300KG	6-8 years	No noise, no high temperature	Less	Easy

Working Principle of Induction Smelting Furnace



Conclusion of Electromagnetic Induction Smelting Furnace

● Safe and Reliable

Crucible rupture can still be produced continuously within 6 hours.

● Good Quality

Non-contact heating, due to electromagnetic stirring, greatly reduces various impurities in the aluminum liquid, and the composition of the aluminum liquid is more uniform, and there is no phenomenon of bottoming and scaling.

● Less Loss

The aluminum burning loss is less than 0.1%, and the aluminum slag has no fuel gas and no pulverization.

● Good Insulation

Using European heat insulation and British Morgan super-strength non-stick aluminum refractory material, integrated structure strong protective cover, the furnace body can be touched by hand.

● Energy Saving

It saves more than 30% compared to ordinary resistance furnaces, and saves more than 20% of electricity than variable frequency resistance furnaces. The melting is fast, the power is 60KW to melt 300KG aluminum less than 3 hours.

● Temperature Holding

Users do not need to consider cleaning up the molten aluminum when the power is off for 2 to 5 days. Set the temperature to 650 degrees, and the 24-hour heat preservation power consumption is less than 60 degrees, and they can continue to work when the power comes in.

● Temperature Control

The temperature control designed to improve the quality of casting products and control the temperature accurately. It adopts imported non-stick aluminum high temperature resistant casing, which is durable.

● Durable Crucible

The super-strength silicon carbide graphite crucible, which will not cause iron increase, and is easy to replace. Durable time is 6 months, and more than one year if only for holding the temperature after melting.

● Environment Protection

No noise, no radioactive magnetic field and no high temperature radiation. Perfectly protect the health of workers.

● Quality Assurance

Fully digital phase lock, voltage, current and power calculation technology, constant power output, and safety protection such as leakage of aluminum liquid, overflow, and power failure.

● Technical Stability

Inductance identification & PID control technologies, auto-tracking the proper operating frequency. It can work more than 10,000 hrs without failure and failure rate less than 2%.