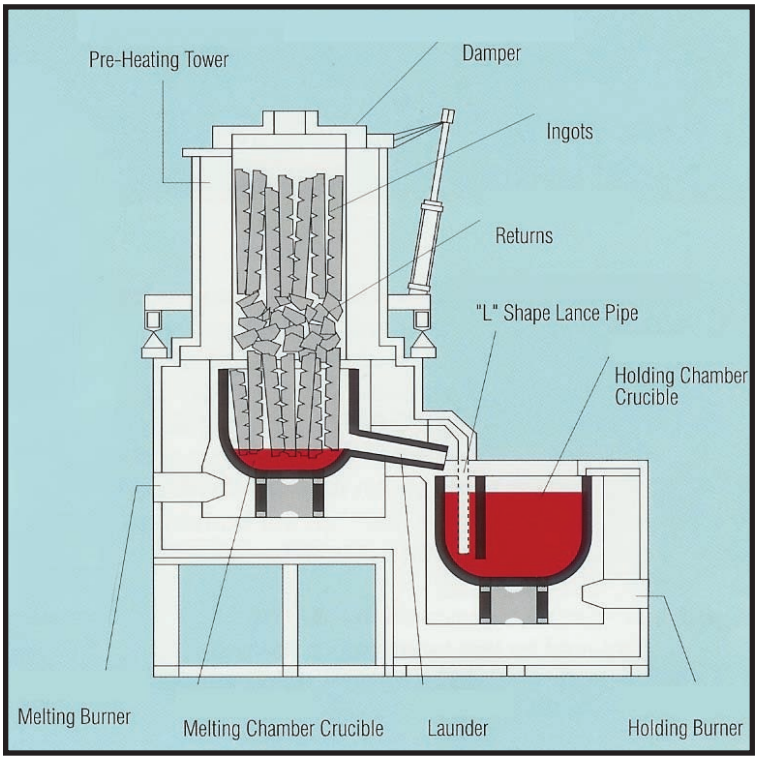
MEL-KEEPER

✓ HIGH PERFORMANCE,CONTINUOUS ALUMINUM MELTING AND HOLDING CRUCIBLE FURNACE

✓ CONSISTS OF A FURNACE BODY, COMBUSTION SAFETY SYSTEM, AUTOMATIC TEMPERATURE CONTROL SYSTEM, MATERIAL CHARGING SYSTEM AND SLIDING TOWER



FURNACE DESCRIPTION

Includes a melting chamber, holding chamber, furnace cover, sliding tower and piping. The furnace shell is made from welded steel plates. The melting and holding chambers are lined with high insulating ceramic fiber materials. Silicon Carbide crucibles are installed in the melting and holding chambers and a launder is used to transport the molten aluminum from the melting chamber crucible to the holding chamber crucible.

Fuel is supplied to the burners and air is mixed at the burners for efficient flame level.

An *optional* skip-hoist automated charging system for aluminum ingots and returns is available.

COMBUSION SAFETY SYSTEM

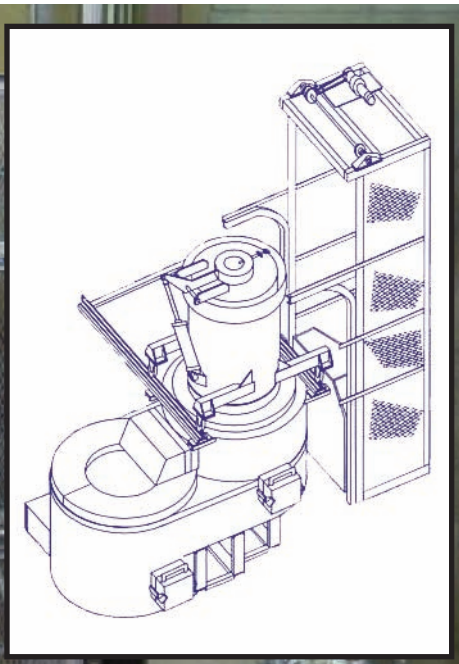
Ultra vision is used to detect the flame and a product relay is used to confirm combustion safety. If abnormal combustion occurs, the electromagnetic valve shuts off the fuel supply.

AUTOMATIC TEMPERATURE CONTROL SYSTEM

The temperature for the melting and holding chambers are controlled separately. The system consists of a thermocontroller, thermocouple and electromagnetic valve. The melting temperature is checked by the thermocouple and the temperature is shown by the thermocontroller. Based on the pre-set temperature requirements, the fuel is increased or decreased.

DIMENSIONS

Model Number	Length	Width	Height of Holding Furnace	Tower Height	Skip-Hoist Height	Holding Crucible (lbs)	Melt Rate (lbs/hour)
MK-100	7'6"	3'11"	3'8"	8'9"	13'3"	660	180-440
MK-200	7'11"	4'5"	3'11"	9'0"	13'6"	990	400-550
MK-300	7'11"	4'5"	4'6"	9'7"	14'1"	1370	550-700
MK-450	8'5"	5'0"	4'10"	10'3"	14'7"	2200	700-1100



Designed and Built by Nippon Crucible Co. LTD, (Tokyo, Japan)

For additional information on Nippon's MelKeeper, please visit:

www.morganmms.com

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MEL-KEEPER

KEY FEATURES

ONE MEL-KEEPER FEEDS ONE DIE CASTING MACHINE

- Gas Fired
- Dual Crucible: 1-for melting, 1-for holding
- **Energy Efficient**

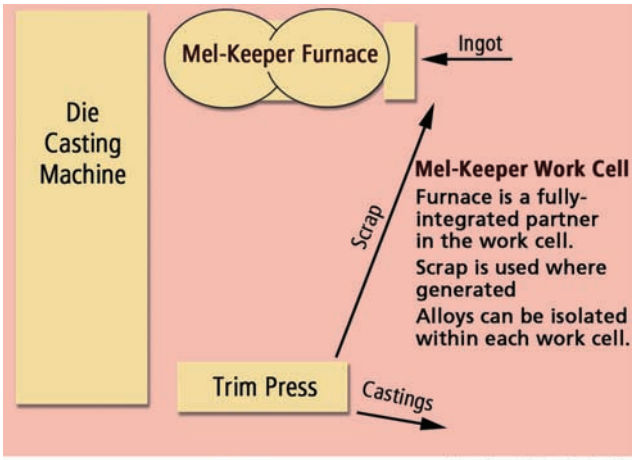
  In a single crucible furnace, heat in the exhaust is lost through the flue. In the Mel-Keeper, the exhaust from the holding chamber is directed into the melting chamber.
- **Reduced Dross**

  Small, enclosed melting area offers little air to mix with molten aluminum. And there is indirect heating through the crucible – no flame impingement in molten metal.
- **Automated Charging**

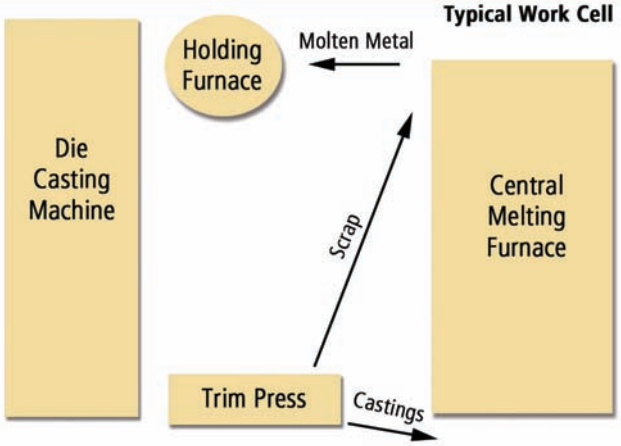
  The pyrometer measures the fluctuation in the exhaust temperature. When the metal is dumped into the tower, the temperature of the exhaust drops. As the metal melts, the temperature of the exhaust increases. When the exhaust temperature rises to 930°F, the controller automatically charges the furnace again.
- **Charging Override**

  If the holding crucible is full, the level sensor overrides a command to charge. Charging begins again when the molten metal drops below the level sensor.
- **Self-Monitoring**

  The pyrometer and the level sensor run the Mel-Keeper. The Mel-Keeper will increase, decrease, or stop the melting of metal as equired by the die-casting machine.



Typical Work Cell



Pyrometer ▲

RECOGNITION AND AWARDS

- May 22, 2003: **ONODA PRIZE** (excellence in the development of die casting technology with viable applications for the industry) awarded by the JAPAN DIE CASTING ASSOCIATION and named for the first president and founder of Tokyo Rika Mfg. Co., Ltd.
- May 30, 2003: **TECHNOLOGY DEVELOPMENT PRIZE** (excellence in development of innovational technology for the foundry industry) awarded by JACT (JAPAN ASSOCIATION OF CASTING TECHNOLOGY).
- May 31, 2003: **TOYOTA PRIZE** (excellence in the development of foundry technology) awarded by the JAPAN FOUNDRY ENGINEERING SOCIETY and which prize is supported by Toyota Motor Corp. and Aisin Seiki Co., Ltd., an automobile parts maker affiliated with Toyota Motor Corp.
- November 14, 2003: Ministry of Economy, Trade & Industry (METI) **SMALL & MEDIUM ENTERPRISE AGENCY DIRECTOR-GENERALS' AWARD** (excellence in technological advances in the materials process industry) awarded by THE MATERIALS PROCESS TECHNOLOGY CENTER (SOKEIZAI CENTER).
- February 6, 2004: **PRIZE OF MINISTRY OF ECONOMY, TRADE & INDUSTRY (METI)** (excellence in technological advances in energy-saving machinery equipment) awarded by THE JAPAN MACHINERY FEDERATION.
- February 28, 2005: **THE YAMAGUCHI INVENTION MERITS PRIZE** (recognition of achievement to promote industrial development technology through an equipment invention) awarded by THE JAPAN SOCIETY FOR THE ADVANCEMENT OF INVENTIONS.

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