PyreTron™ for Non-Ferrous Melting Furnaces

The PyreTron™ combustion system is designed to burn fuel with both air and oxygen to improve flexibility and productivity

Highlights of the PyreTron™ Combustion System

- Direct-fired/well-charged/rotary melter furnaces
- Safe and reliable operation
- 10%-90% O_2 participation
- Round and flat flame design
- From 1.5 to 5 MW nominal power
- Built-in UV detection and pilot burner
- Multiple fuel capabilities
- Air-cooled refractory combustor for upto 3200 °F furnace temperature

Benefits of the PyreTron™ Technology

- Fuel Savings
- Cost optimization
- Increased Furnace Production
- Increased Operational Flexibility

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Benefits of PyreTron™ Combustion Technology

Fuel Savings

- Up to 50%fuel savings for non-ferrous melters
- Eliminates lost heat by nitrogen carried in air
- Reduces excess air/oxygen needed for clean combustion
- Transfers a higher portion of energy to metal
- Achieves a more complete and efficient oil combustion
- Optimizes fuel usage and production, while protecting furnace refractory

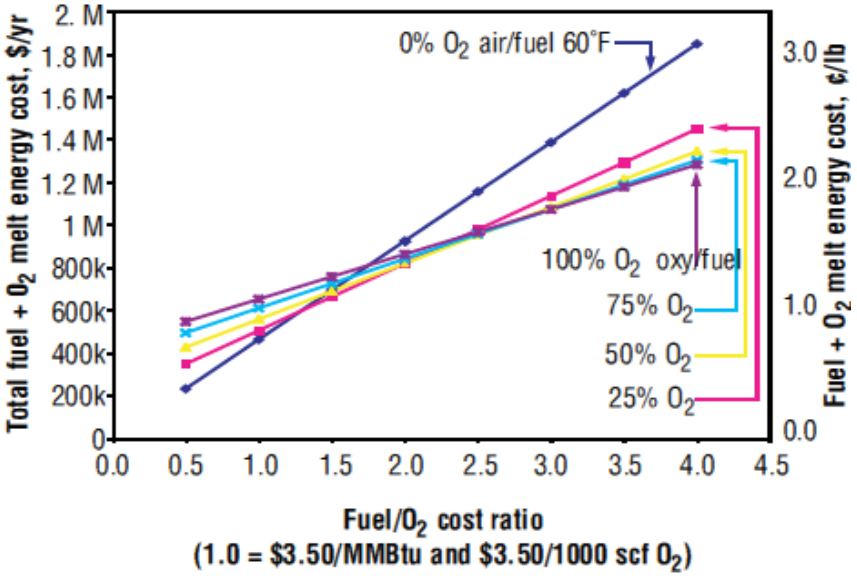
Pyretron™ Energy Savings in Recent Installation
using waste oil

	Before	With Pyretron	Savings
Fuel Used, Btu/lb	Approx. 3000	1570	48%
Oxygen Used, scf/lb	-	0.937	-
Net Energy Cost Savings (a)			36 %

(a) At a cost ratio of 2.6 : 1 of fuel in $/mm Btu : oxygen/Mcf

Cost Optimization

- Allows for flexible operation according to fuel and oxygen costs
- Capital cost reduction of fumes collecting and filtering system
- Lower production cost



Energy cost for a 60 MMlb/yr aluminum reverb melt furnace

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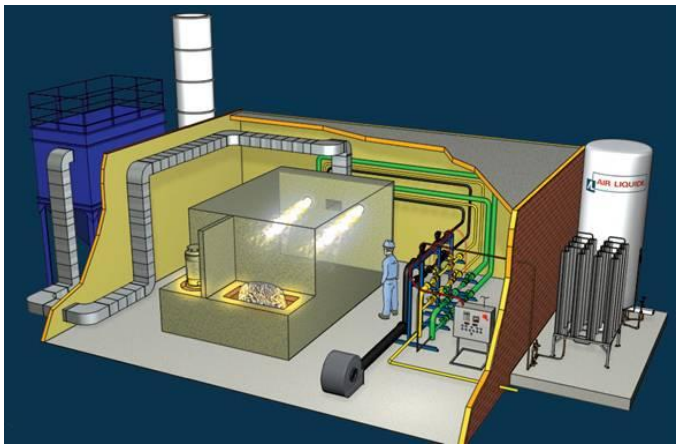
Benefits of PyreTron™ Combustion Technology

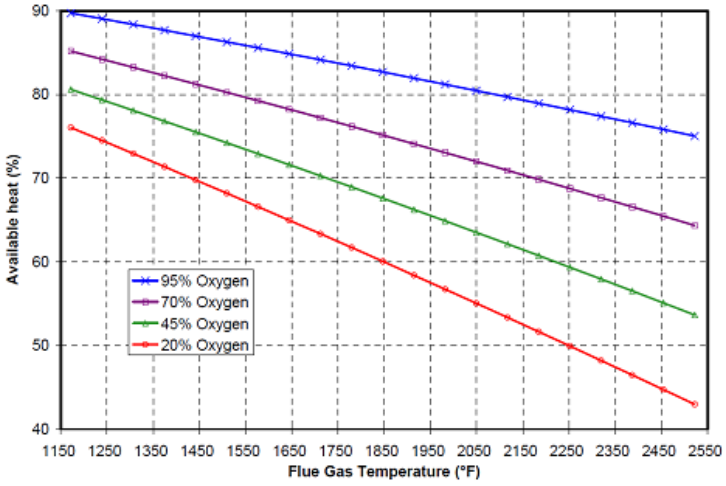
Increased Furnace Production



- Up to 40% melt rate increase for cold air systems
- Up to 20% melt rate increase for hot air systems
- Reduction of hot spots
- No additional metal yield losses
- Lower net production cost per pound of metal produced
- Easily adapts re-using existing systems
- Can be used with pre-heated air

Increased Operational Flexibility

- Based on PLC control and temperature feedback from thermocouples
- Custom heating profile for accurate control of the furnace
- Fuel-rich conditions to reduce oxidation
- Lack of oxygen does not affect production



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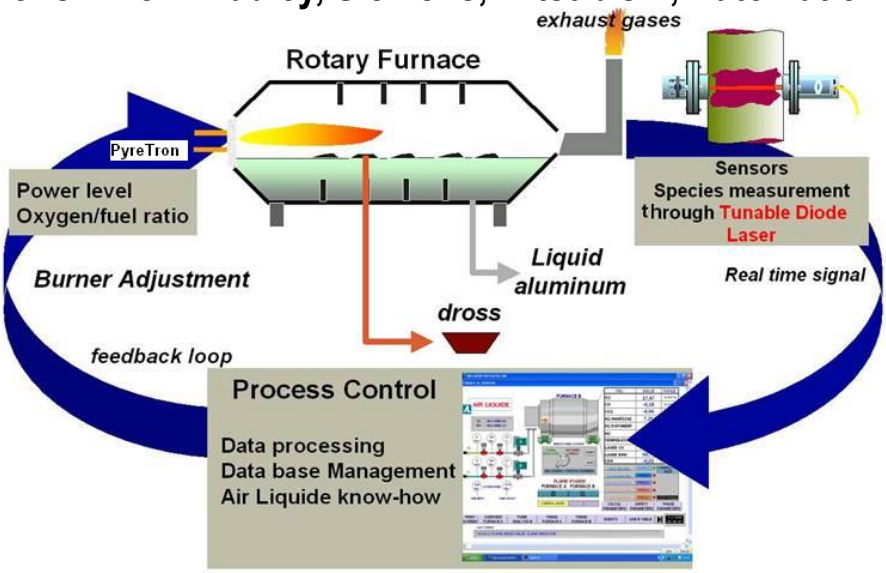
PyreTron™ for Non-Ferrous Melting Furnaces

Gas Control Valve Trains

- O_2 valves trains are specifically designed for safe operation
- Fuel valve trains can be designed for a variety of fuel types
- Includes combustion air spool and blower

PLC Programming and HMI

- Provides precise control of furnace roof and metal bath temperatures
- PLC options: Allen-Bradley, Siemens, Square D, GE, Modicon, Mitsubishi
- HMI options: Allen-Bradley, Siemens, Mitsubishi, Automation Direct



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