

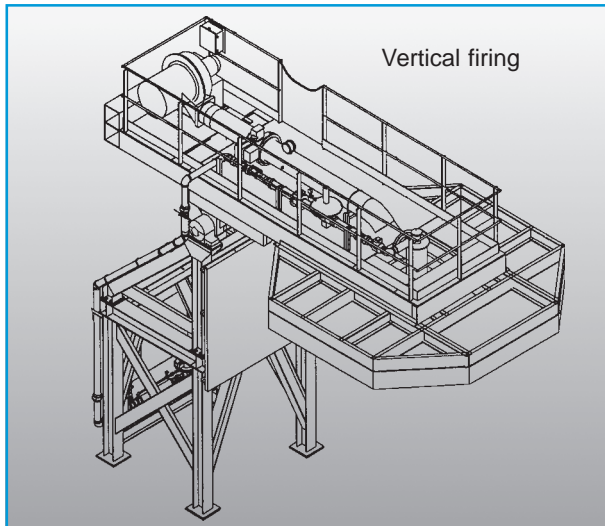


North American Manufacturing Company

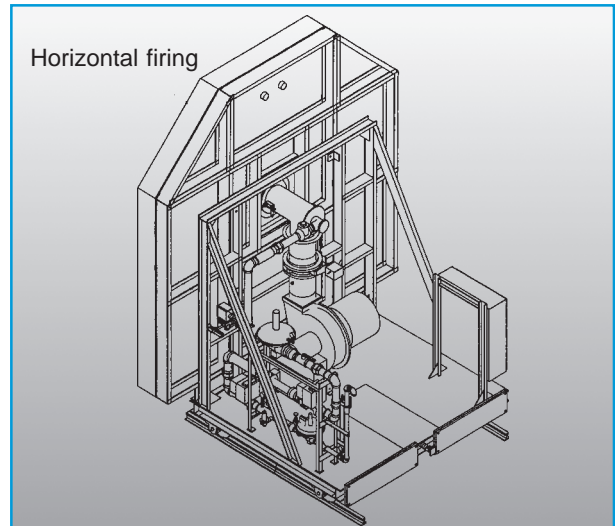
State-of-the-art Ladle Heating increases melt shop productivity

North American's combustion expertise and knowledge of melt shop practices has resulted in leading edge technologies that allow new ladle heating systems to perform as never before. Let us help you reach an improved solution to your ladle heating, curing, or dryout problems.

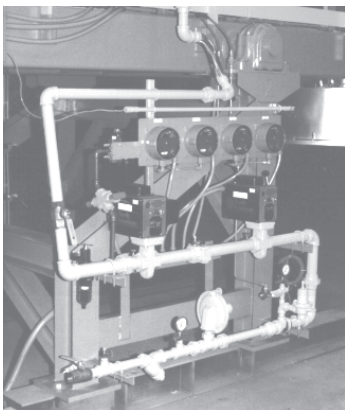
- Improve safety
- Reduce steel heat loss
- Extend refractory life
- Lower tap temperatures
- Reduce electrode loss
- Reduce electric costs
- Increase productivity
- Improve casting quality
- Reduce total EAF costs
- NFPA approved safeguards



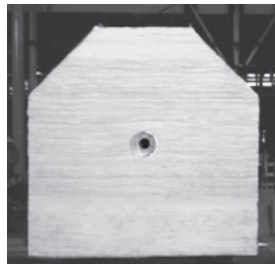
Vertical firing



Horizontal firing



Fuel trains are completely shop assembled, wired to the control panel, and fully tested before shipment. All meet NFPA/FM/IRI requirements.



Ours...
North American firing walls are built with high density ceramic fiber. Walls are monolithic with NO GAPS.



Theirs...
Firing wall "by others" uses 12" x 12" ceramic fiber blocks that shrink, causing gaps that allow deep heat damage.



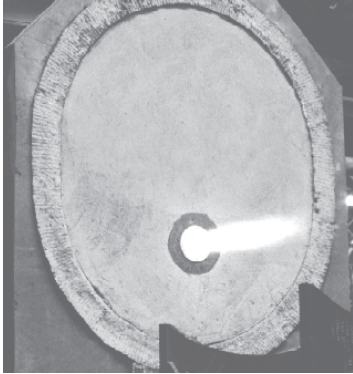
Control panels, simple or sophisticated, always include flame safeguard and combustion safety per NFPA.

**Long Life – Quick Change
Firing Walls and Covers**

The Oxygen Solution for Heating, Drying, and NOx Problems!

With NEW HiRAM® LNI burner technology as an option, our oxygen-fuel systems, with or without blower air, are the most flexible, most reliable, and absolutely lowest NOx. Let North American prepare an objective analytical comparison.

We meet or exceed O₂ and fuel gas code specifications for component cleanliness to enhance safety and quality.



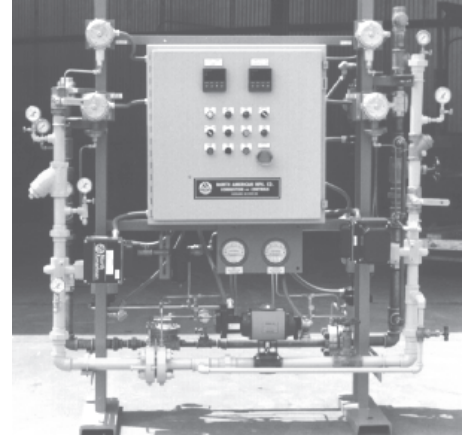
With HiRAM® LNI, the chemistry, configuration, or appearance of a flame can be shaped to suit using simple, reliable controls for ultra low NOx, even on 100% O₂.

Among the benefits:

- heat or dry with the same system
- potential fuel savings up to 50%
- get higher temperatures faster
- elimination of recuperators
- up to 80% lower emission volumes

System features include:

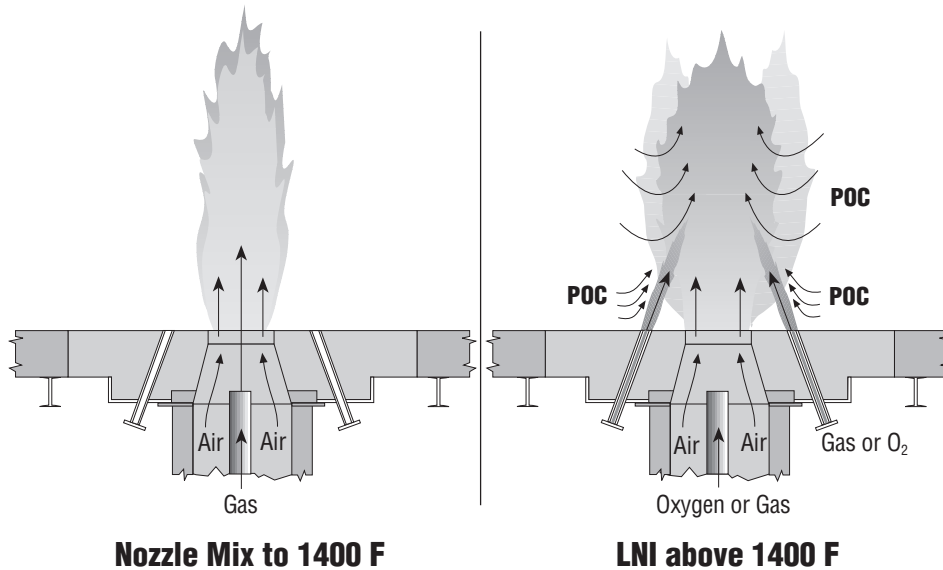
- from 100% oxygen to any combination of air/O₂/fuel
- ultra-clean piping for O₂ flow
- simple burner design
- no cooling water required
- direct spark ignition (no pilot)
- ultraviolet flame scanner
- microprocessor-based controls
- meets NFPA/FM/CGA



Ultra-compact 20,000 scfh oxygen and 10,000 scfh natural gas are ratio controlled through this 6' x 6' x 2' pipe train. Skid includes a flame supervisory panel and programmable temperature controls.

HOW HiRAM® LNI WORKS

Low NOx Injection (LNI) of the fuel, oxygen, and air into the ladle provides the highest potential efficiency and lowest NOx. The LNI system takes advantage of the largest source of "free" flue gas recirculation (FGR) – the ladle itself – to produce uniquely low NOx emissions from high temperature systems.



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