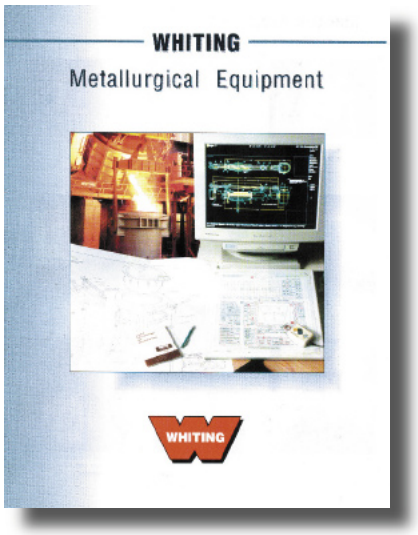
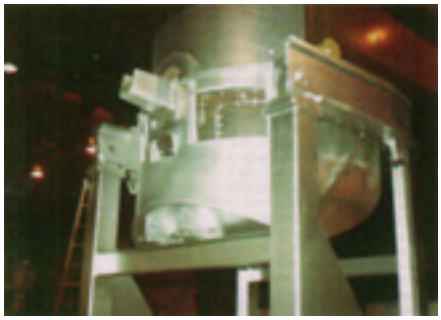
Whiting Equipment Canada Inc.
Metallurgical Equipment



Electric Arc Furnaces

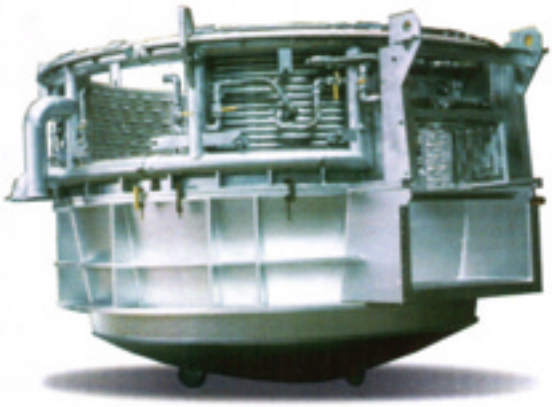


Tilt pouring mineral fusion furnace with a 10-foot inner diameter removable shell for quick product changes - Front view

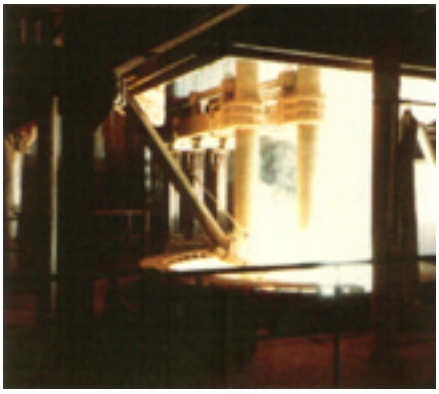
Removable shell mineral fusion furnace base assembly - Rear view

Closely controlled tilt pouring capability of a special application fused block casting mineral furnace

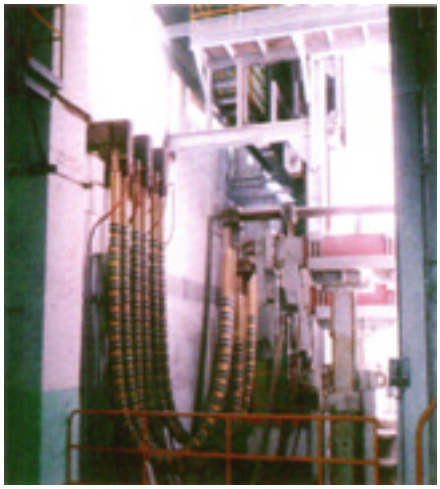
Tilt pouring of molten mineral oxides into a water-cooled mold



15'-4" inside diameter, single split shell with tube type sidewall panels and roof for iron / steel applications



Power-On-Tilt mineral fusion furnace



Secondary circuit, water-cooled cables for large furnaces

"Doghouse" style fume capture system employed on a 20-foot inner shell diameter arc furnace operation

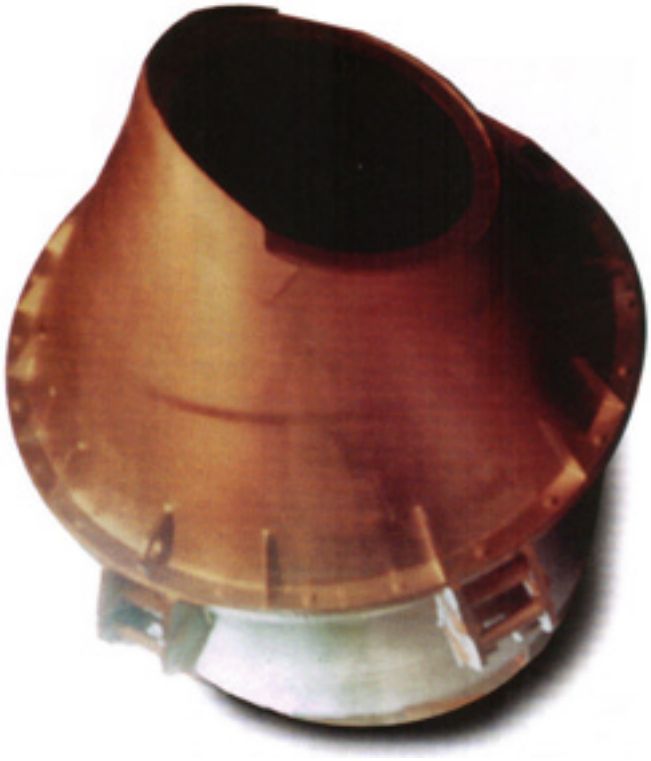
Canopy style fume capture system on a 10-foot inner shell diameter electric arc furnace application

Praxair’s Argon Oxygen Decarburization

(AOD) is the recognised standard for stainless steel refining worldwide. Whether you are producing castings, wrought stainless, low alloy, or specialty steels, AOD provides numerous advantages:

- High Metallic yields
- Flexibility in low cost raw materials selection
- Pinpoint accuracy in achieving desired aim chemistries
- Precise control of carbon to 0.01% and lower
- Rapid desulphurization to less than 0.001%
- Lead removal to less than 0.001%
- Cleaner metal, with low residual oxygen, nitrogen and hydrogen
- Increased production capacity from a relatively small capital investment

Whiting has manufactured over 70% of North America’s operating Praxair licensed AOD’s



50 ton capacity AOD unit capacity blowing a heat of high quality stainless steel mill products

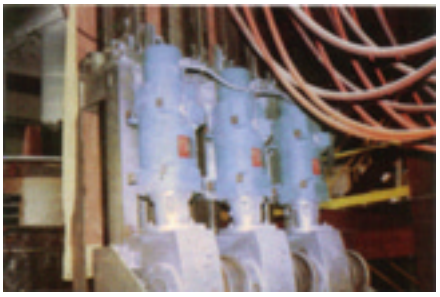
Operating view of AOD used in the production of small stainless steel castings – foundry application

Furnace System Components

Furnace transformer secondary Delta closure assembly, air cooled design

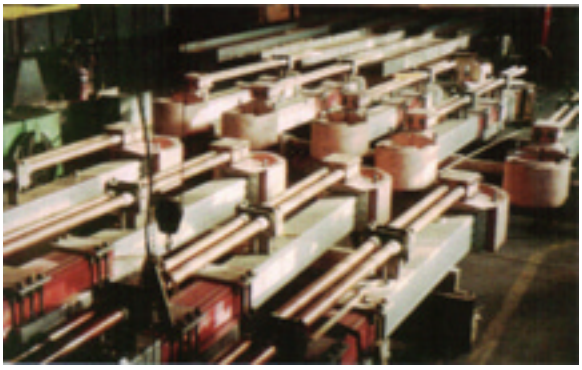
Water cooled electric arc furnace secondary components

"One piece" electrode clamping block design

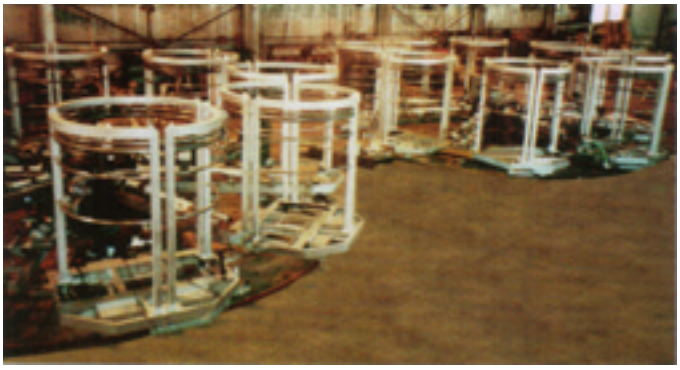


D.C. motor drives - An alternative to a servo valve type electrode mast positioner or as a retro-fit "upgrade" on older equipment.

Special processing applications equipment - water cooled "Higgins" type furnace shell for fused oxides



Electrode arm assemblies



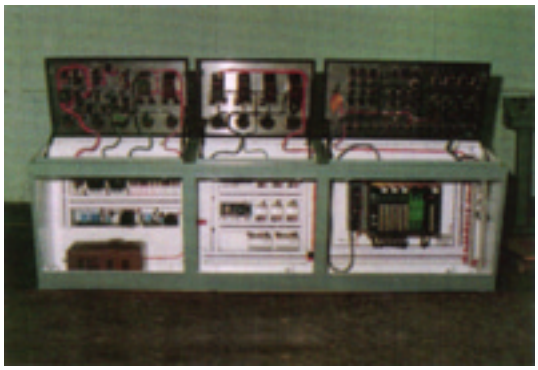
Carousel type, cooling mold handling system for fused oxides, fully automated control

Controls

Custom built, electric arc furnace wallmount operator's control panel. Mineral fusion operation

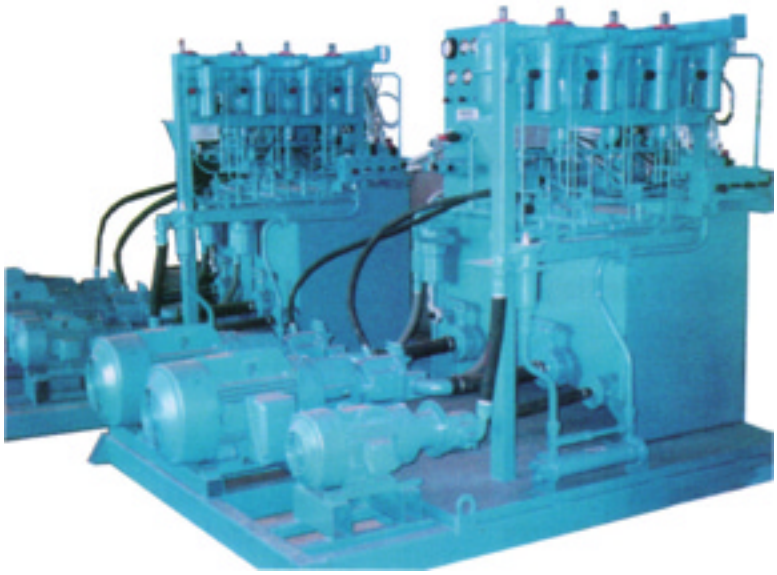
Microprocessor type, electric arc furnace wallmount operator's control panel. Mineral fusion operation

Custom-built, electric arc furnace operator's control console complete with integrated PLC, tilt control pedestal and dead man's switch. Mineral fusion operation



Console on left - with top panels raised for ease of maintenance

Custom built, electric arc furnace operator's control console. Steel scrap melting operation



Hydraulic servo valve electrode regulator system, premounted on a skid ready for installation

The Volta Furnace Master

Furnace control you can count on.

The Volta Furnace Master provides the ultimate in state of the art Electric Arc Furnace control. All types of operations can be optimized quickly and economically.

The Arc Furnace industry relies on automation to maintain consistent product quality in a highly competitive market.

Whiting has over 100 years of experience and over 500 installations to call upon for reference when applying high technology to the melting process industries. New and existing installations can both benefit from the features offered by the Volta Furnace Master.

Features

- PLC's and PC's are used to control all aspects of Electric Arc Furnace (EAF) operations.
- Animated Graphics provide comprehensive operator interface that is easy to use.
- State of the art current or impedance regulation is provided for metal melting or mineral fusion
- Supervisory Control and Data Acquisition (SCADA) system requires only basic computer skills to operate.
- Historical data logged to ASCII file format.
- Modular hardware and software provides the right system for each type of melting operation, from the simplest to the most sophisticated.
- Used in single or multiple furnace shops.

Some of the types of Feed Materials that can be processed are:

Metals Melting
- Steel
- Iron
- Copper
- Nickel
- Ferro Alloys
- Beryllium Copper

Mineral Fusion
- Al_2O
- MgO
- AZS
- ZrO_2▪SiO_2
- $3Al_2O_3$▪$2SiO_2$
- MgO▪Cr_2O_3
- MgO▪Al_2O_3
- Al_2O_3▪ZrO_2
- Slag (Mineral Wool)
- Ceramics Wool

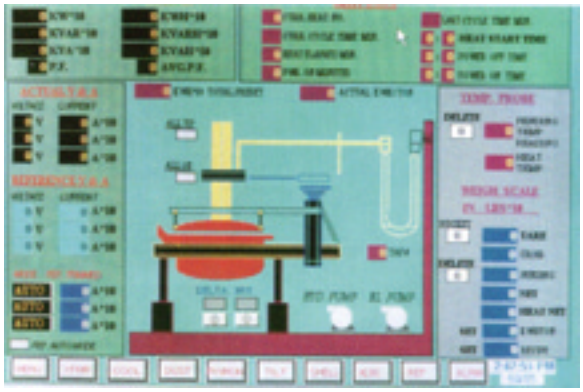
Benefits

Adding real time computer control of your melting process is often the key to staying ahead of your competitors. The new globalization of the market place increases both opportunity and competition.

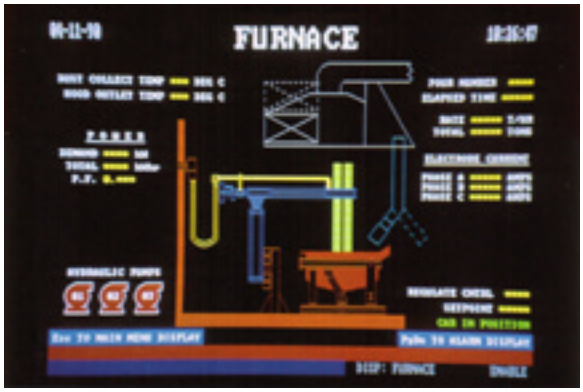
A few of the benefits of The Volta Furnace Master are:

- Melting operations are optimized
- Real time operator assistance throughout the heat.
- Troubleshooting of furnace systems is optimized
- Power consumption of process cycle is minimized.
- Automatic heat reports are easier to obtain, more accurate and more comprehensive.
- Process consistency between heats is maximized
- Process model development available
- Trend analysis utilization

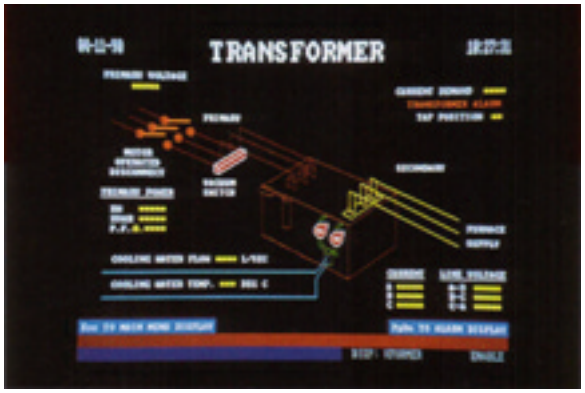
Many software modules available – new software is being developed continuously, contact sales for the latest list.



SCRAP STEEL MELTING APPLICATION OVERVIEW SCREEN

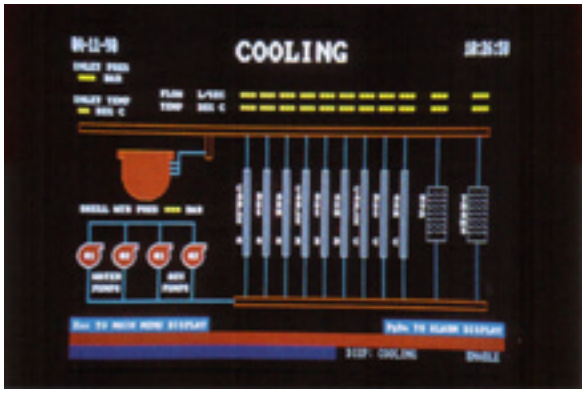


MINERAL FUSION APPLICATION OVERVIEW SCREEN



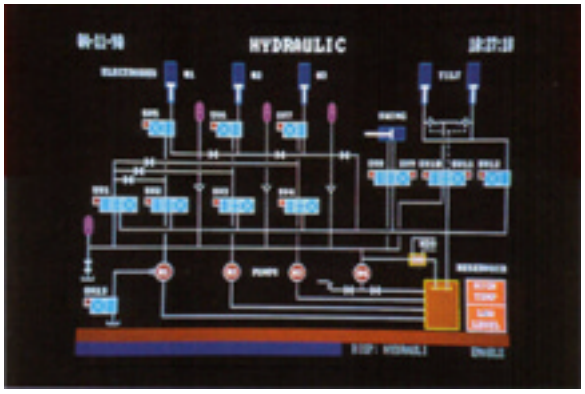
TRANSFORMER STATUS SCREEN

This type of screen is used to display the status of transformer vault equipment position, flow, temperature, electrical and other parameters.



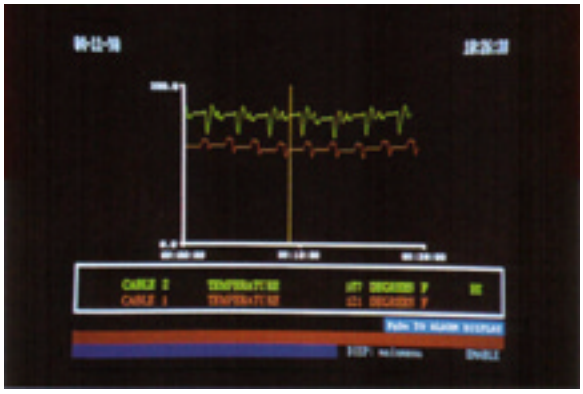
COOLING STATUS SCREEN

This type of screen is used to display the status of the individual circuit elements, the temperatures, the water flows, and other parameters for the cables, shell, roof and other components that need to be kept at a constant temperature.



HYDRAULIC SYSTEM STATUS SCREEN

This type of screen is used to display the status of flows, temperatures, pressures, and position of elements for the hydraulic system, including the emergency raise, and tilting systems.

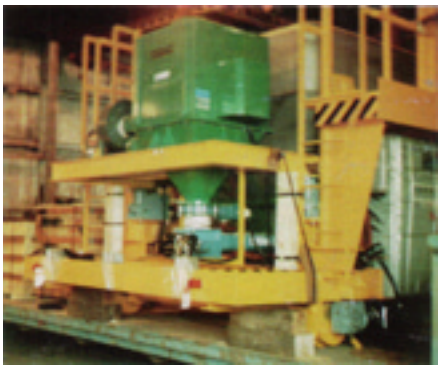


TREND SCREEN

This type of screen is used to plot the values of any variables measured. They can be plotted on a current, or historical basis.

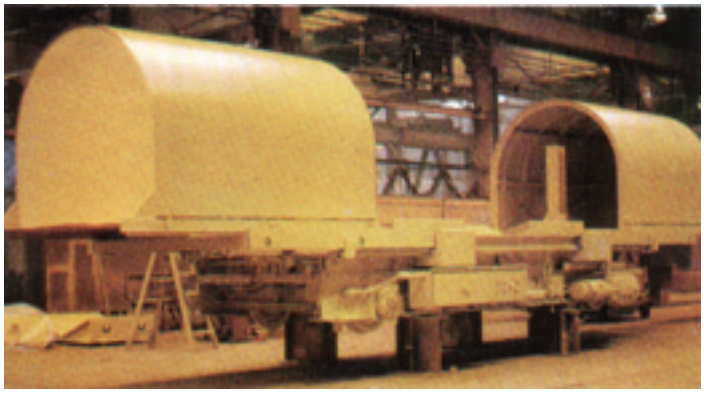
Ladles and Material Handling

"Over the Road" special transport ladle for molten aluminum - on dedicated float



Custom built "weigh scale transfer car" for the completely automated mixing and delivery of steel mill fluxing and molding powers – ready for shipment

85 ton capacity, bottom tapping ladle ingot pouring transfer car with traversing carriage arrangement



70 ton capacity, radio controlled, battery powered, steel coil transfer car with motor operated environmental protection covers

1500 cubic foot capacity, electric arc furnace charging bucket – scrap steel melting application

35 ton, motorized, lip pour crane ladle, with non-detachable bail for iron and steel

Ferro-alloy application lip pouring crane ladle with detachable bail feature

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