

RETECH *SECO/WARWICK*



If you need more information please visit our websites:

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○ [www.secowarwick.com.pl](http://www.secowarwick.com.pl)

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Retech Systems USA

SECO/WARWICK Group Poland

● Retech Systems, USA leading manufacturer of vacuum metallurgical equipment. Offers experience and innovation in engineering and manufacturing of melting furnaces for production of top quality speciality metals. Since 1963 Retech has supplied equipment to North America, Asia and Europe over 360 installations in 16 countries.

● SECO/WARWICK Group Poland - leading manufacturer of industrial heat treating equipment. Offers state-of-the-art custom built or standard vacuum, controlled atmosphere furnaces for heat treatment of metals and alloys, brazing and sintering processes. SECO/WARWICK Group Poland has a track record of over 1000 installations form over 48 countries worldwide.

● In beginning of 2007 SECO/WARWICK and Retech signed cooperation agreement for Sale, Engineering, Manufacture and Service of Retech's products in Europe. This strategic alliance benefits our customers by: metric standards, European parts, CE for European Directives, local sale and after sale service support.



## VACUUM INDUCTION MELTING FURNACES

(Equiax, Directional Solidification, Single Crystal)



### Processing Application:

- Directional solidification / single crystal casting
- Alloy casting
- Electrode Casting

### Advantages:

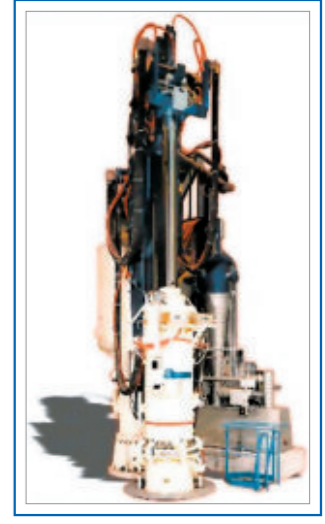
- Combination DS/SC/Equiax equipment offers industry's fastest process conversion.
- Multi-zone mold heaters.
- One- or two-axis precision pouring (auto teach, profile and constant volume).
- Precision temperature measurement (OPTO-TC).
- Closed loop solidification control.
- Door-mounted furnace melt box assemblies.
- Horizontal bar feeder assembly includes X-Y motion control, for simultaneous loading of bars and liners or alternate bar loading via rotation.
- Unmanned startup and/or shutdown of vacuum equipment (Sentry package).
- Video systems provide improved process monitoring and control.

### Processing Applications:

- Ingots: Titanium, Steel, Nickel, Zirconium, Tantalum, Tungsten, Niobium.

### Advantages:

- Furnace design minimizes facility height requirements
- Typical ingot sizes range from 2" to 50" diameter (50 to 1,270 mm).
- Typical power capacities from 500 amps to 50,000 amps.
- Highly accurate weight monitoring system.
- X-Y electrode positioning.
- Fully coaxial power entry available on all Retech VAR melters.
- State-of-the-art controls with sophisticated algorithms and controls capabilities for voltage, drop short and melt rates.
- Comprehensive data acquisition systems for complete melt histories.
- Box column rotation.
- Two- or three-station operation.
- Smooth and accurate ram position control.



## ELECTRON BEAM FURNACES



### Processing Applications:

- Ingots, Slab, Powder Production
- Scrap Consolidation
- Hearth Melting Powder

### Advantages:

- Wide size range; typical 2 1/2" to 36" diameter (60 mm to 900mm) ingots, as well as jumbo slab production.
- Multi-gun power from 80 kW to 5000 kW.
- Systems of single- or multiple-gun design.
- Winbeam® computerized beam controller offers user-friendly furnace automation.
- Accepts a variety of feed material configurations, such as scrap, sponge and bar.
- Offers significant cost savings by eliminating electrode welding and the consumable arc processing.
- Electron beam cold hearth melting proven to eliminate high density and low density inclusions in titanium alloys.

### Processing Applications:

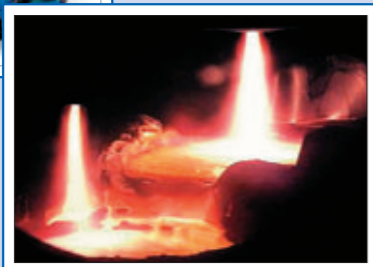
- Battery Alloys
- Magnet materials
- Aerospace materials

### Advantages:

- Laboratory- to production-scale units available.
- Spherical powder 10 microns and larger.
- Thin strip casting capabilities.
- Typical production rates from 1 to 20 pounds per minute (5 to 9 kg).
- Rapid solidification process.



## PLASMA ARC FURNACES



### Processing Applications:

- Ingots, Slab, Powder Production
- Scrap Consolidation
- Hearth Melting Powder

### Advantages:

- Fine-grain ingot microstructure.
- Maintains chemical composition of complex alloys.
- Plasma cold hearth melting proven to eliminate high-density and low density inclusions in titanium alloys.
- WinTorch® computerized torch motion profilers offer user-friendly furnace automation.
- Accepts a variety of feed material configurations, such as scrap, sponge, compacts, bars, and chips.
- Offers significant cost savings by eliminating electrode welding and primary consumable arc processing.
- Torches operable on a variety of gases, including helium, argon, nitrogen and hydrogen.
- Gas recovery and reuse systems with full range of capacities available.
- High throughput refining technology.
- Typical power from 75 kW to 3000 kW.
- Wide product range; typical sizes 2 1/2" to 36" diameter (60 mm to 900 mm) ingot capacities.

### Processing Applications:

- Utilization of: Hazardous Waste, Radioactive Waste

### Advantages:

- Continuous pouring of metal from the reactor vessel without stopping of operations made possible by the patented rotating hearth.
- Patented dual mode torch operates automatically in transferred and non-transferred modes to ensure stable, efficient operation regardless of feed material.
- Waste drums are fed unopened, virtually eliminating direct exposure to personnel to hazardous materials.
- Sorting of combustibles and non-combustibles is not required.
- Reduced characterization, administration and logistic support requirements for radioactive waste treatment.
- Hot slag mold drums are isolated and cooled inside the system before overpacking.
- Control of negative pressure in the system prevents releases into the surrounding environment.



## POWDER PRODUCTION EQUIPMENT

## ENVIRONMENTAL REMEDIATION EQUIPMENT