RETECH
A SECO/WARWICK COMPANY

VACUUM METALLURGICAL EQUIPMENT

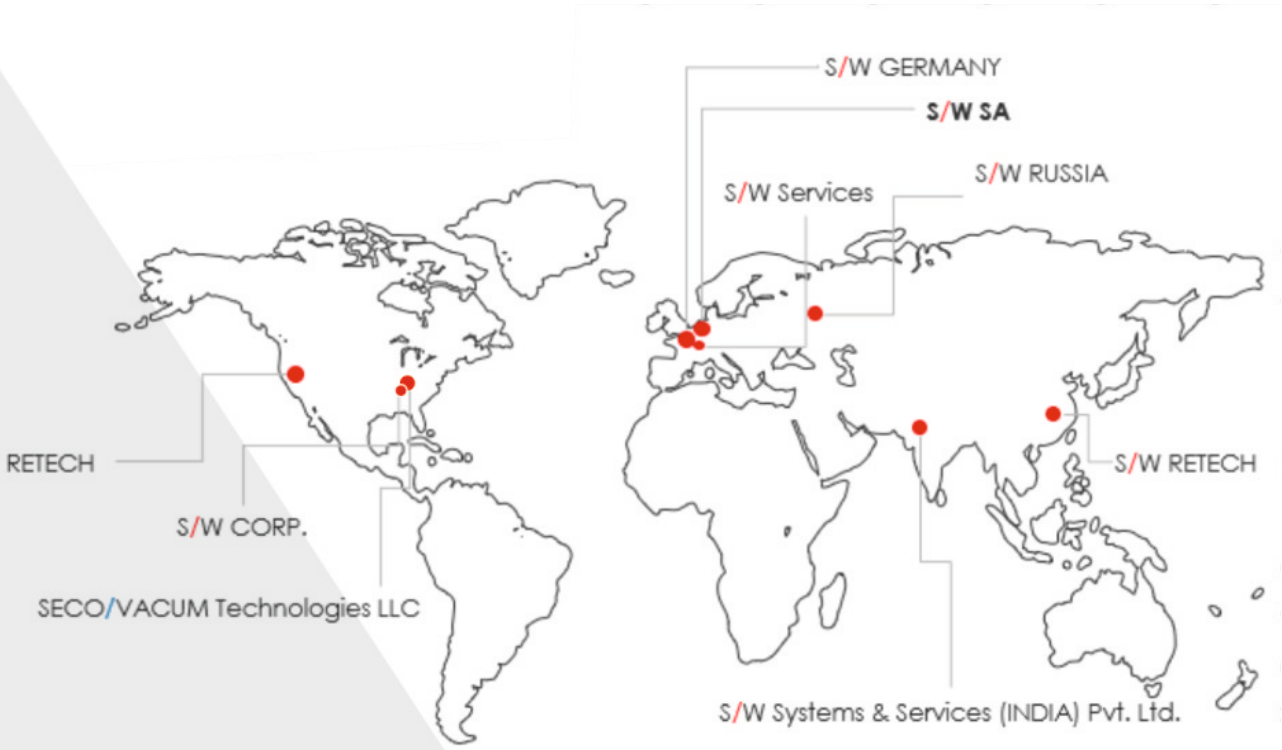
VACUUM METALLURGICAL EQUIPMENT

The SECO/WARWICK is one of the world's leading producers of heat processing furnaces for metals, in terms of sales volume and product range. We are also one of the technological leaders in our field, thanks to a state-of-the-art R&D division equipped with a metallography laboratory.

The business of the SECO/WARWICK includes production of five main product groups: vacuum heat treatment equipment, aluminum heat exchanger brazing systems, aluminum heat treatment systems, atmospheric furnaces and vacuum metallurgy furnaces.

SECO/WARWICK has proven thousand of times its commitment to high quality products provides a superior performance to our customers. We have always placed a great emphasis on the innovation to deliver state of the art equipment and technologies, that surpass its times. Our Global Research and Development Center, equipped with industrial furnaces gives You an edge over the competition delivering new, efficient and environmental friendly technologies.

Our experts are at your disposal to fix the problems you may have with existing process and are ready to set up new technologies at your facility. We are one of very few companies, that can provide our customers with complete range of the heat processing equipment and technologies, as well. With facilities in USA, Europe, India and China we can produce the equipment that meets all local norms and regulations with reduced delivery time and at competitive price. Having the plants in major world industrial hubs, we can follow your global expansion with proven, reliable equipment developed in USA and Europe. Local service and spare parts support will assure smooth operation of the plant giving you peace of mind. According to fast growth of metal heat processing market, SECO/WARWICK, Heat Treatment Equipment supplier and RETECH SYSTEMS LLC, Metallurgical Furnaces manufacturer decided to merge their best practices. This Alliance benefits our Customers with full, complex service in the following fields: new equipment supply, maintenance for currently owned furnaces, unified spare parts availability and united service support for a wide range of Heat Processing Equipment.



VACUUM INDUCTION MELTING FURNACES (VIM)

Processing Application:

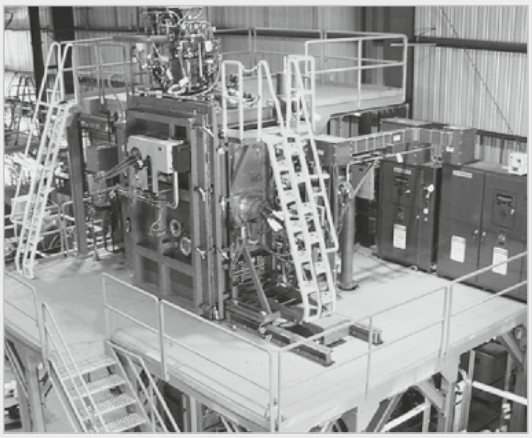
- Equiaxed/Directional Soldification/Single Crystal Casting
- Alloy casting
- Electrode casting

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

RETECH
A SECO/WARWICK COMPANY

VACUUM ARC REMELT FURNACES (VAR)



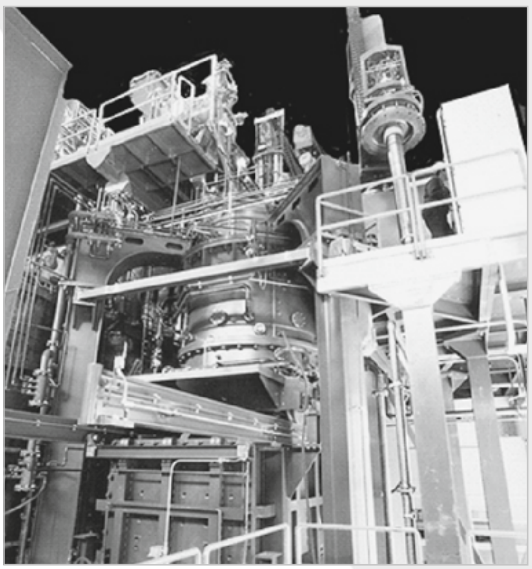
Processing Applications:

- 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, drip short and melt rates
- Comprehensive data acquisition systems for complete melt histories
- Box column rotation
- Self supporting structure does not require connection to building steel
- Smooth and accurate ram position control

POWDER PRODUCTION EQUIPMENT



Processing Applications:

- Battery Alloys
- Magnet materials
- Aerospace material

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

ELECTRON BEAM FURNACES (EB)

Processing Application:

- Ingots, Slab
- Scrap Consolidation Hearth Melting
- Hearth Malting
- Electron Beam Welder

Advantages:

- Includes Von Ardenne Electron Beam Guns
- Wide size range; typical 2-½ inches to 36 inches 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

PLASMA ARC FURNACES (PAM)

Processing Application:

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

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, chips, sponge, compacts and bars
- 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 2-½ inches to 36 inches diameter (60 mm to 900 mm) ingot capacities

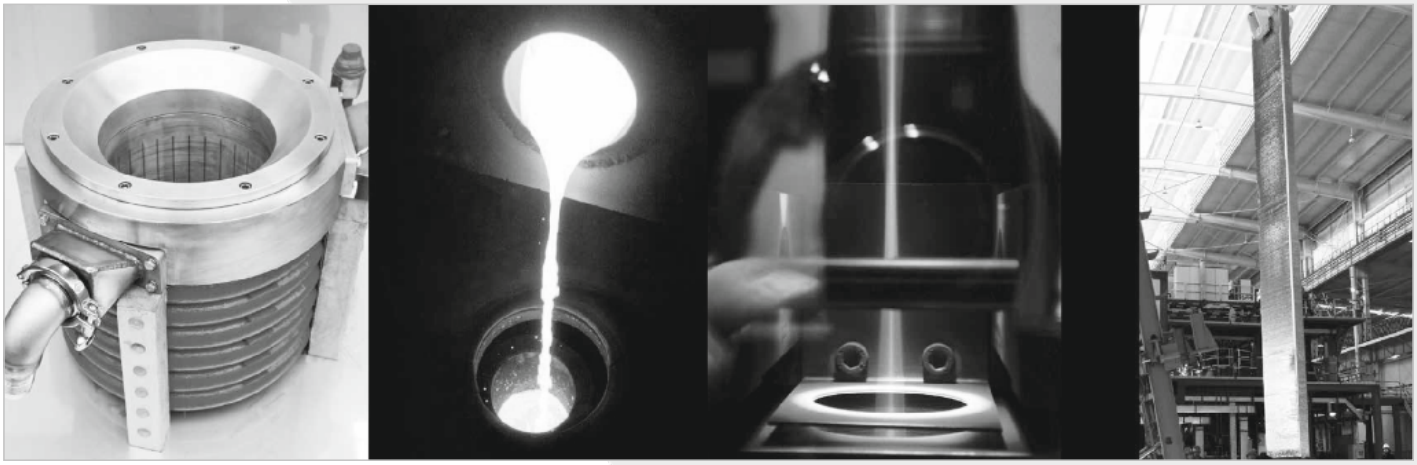
ENVIRONMENTAL REMEDIATION EQUIPMENT

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 of 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 over packing
- Control of negative pressure in the system prevents releases into the surrounding environment



About Retech Systems LLC, a SECO/WARWICK Company

Since 1963, Retech Systems LLC has been a global leader in the supply of vacuum metallurgical processing equipment. As an integral part of SECO/WARWICK Group, the most fully integrated furnace manufacturer in the world, we provide customer access to a wide range of in-house resources, including technology, material and process development. Whether a laboratory scale furnace or complete custom design, identifying customer needs, as well as understanding the importance of producing cost-effective technologies is the foundation upon which Retech is built.

RETECH
A SECO/WARWICK COMPANY

SECO/WARWICK
INVENTION MEETS RELIABILITY