The BHM THERMAL SAND RECLAIMER by EC&S is a fluidized bed type, indirect fired sand reclaimer designed for the express purpose of reclaiming 100% clay-bonded foundry sands, 100% chemically-bonded foundry sands or a random mixture of both. BHM’s world leading experience and success is documented by the unprecedented number of successful operating Thermal Sand Reclaimers on Clay-Bonded Sand, a quantity greater than reported by any other manufacturer in the world. The BHM THERMAL SAND RECLAIMER is reported to be the only thermal sand reclaimer processing 100% clay-bonded sand producing reclaimed sand to a condition comparable to new sand, this product being used 100% in cores with unsurpassed consistency!

Currently, the BHM THERMAL SAND RECLAIMER can be supplied with capacities ranging from 500 lbs./hour to 10 tons/hour. While operating unattended twenty-four (24) hours per day, the ten (10) ton per hour unit can process up to two hundred forty (240) tons per day. Tailoring each BHM THERMAL SAND RECLAIMER to an individual foundry’s needs, assures that the reclaimed sand can be successfully used both in the core room for making cores and as sand addition in the molding system. This can eliminate up to 95% of the new sand requirement as well as 75-80% of the disposal costs normally associated with green sand systems. The proven success of the BHM THERMAL SAND RECLAIMER virtually eliminates all problems with varying acid demand values and AFS Grain Fineness Numbers Variation in these values can create numerous problems related to binder formulation.

The BHM THERMAL SAND RECLAIMER is the only successful fluid bed calciner that is reclaiming feed materials made up 100% from clay bonded foundry system sands. The RECLAIMER produces reclaimed sand suitable for reuse in the core room without dilution; processing feed material on a continuous basis by means of hot air scrubbing and gravity transfer. The BHM THERMAL SAND RECLAIMER operates continuously, unattended, monitored only by a remote station.

The process flow of the BHM THERMAL SAND RECLAIMER is quite simple…..

The pre-processed, spent sand is fed into the surge bin which has a storage capacity of at least two hours operating time. From the surge bin, the material is fed via a variable speed, low speed, feeder into the BHM THERMAL SAND RECLAIMER where the temperature of the calcining fluid bed operates in the range of 1350 to 1650°F., depending upon the characteristics of the foundry’s spent sand. Calcining heat is added via the fossil fuel combustion system as required to supplement the 500°F. secondary air (which has gained its heat via the recuperator located in the exhaust flue) and the heat generated by the combustion of organic materials within the feed material. All supplemental fuel is fired in the fire box just below the calcining chamber, with total combustion of the fossil fuel taking place there. There is no supplemental fuel fired in the bed! This design feature assures a very consistent and even temperature in the calcining bed eliminating hot spots or coking conditions. After the silica leaves the calcining chamber by flowing over a weir, it then travels through the transfer duct by gravity into the precook chamber, where it is cooled with ambient air to a discharge temperature in the range of 700 – 850°F.
The discharge from the precool chamber is connected directly to the front section of the BHM COOLER-SCRUBBER. The BHM COOLER-SCRUBBER has been designed specifically for this high temperature application, offering the foundry efficient sand cooling with integrated post scrubbing. Conditions within the cooler section fluid bed result in rapid and intimate mixing, which in turn produces rapid heat transfer between the cooling coils, fluidizing air and the sand. This externally supplied cooling is needed during the cooling operation to control and maintain the sand discharge temperature to design conditions. These cooling coils furnish indirect cooling. When added to the direct cooling provided by the fluidizing air, the total cooling efficiency is increased. Above the bed of sand is a freeboard space which is kept at a slight negative via the dust collection system. This withdraws the air introduced as fluidizing air, providing additional classification by removing some fines that remain in the sand as it enters the cooler section.

The sand will flow over a weir, entering the pneumatic scrubbing sections of the BHM COOLER-SCRUBBER. The pneumatic scrubbing units provide gentle sand-to-sand attriting action on the sand grains, removing the dead clay and residual organic materials. These clay materials, along with remaining organic materials and fines, are removed via an automatically controlled air curtain producing a final calcined and scrubbed product with properties similar to the properties of new sand. The final calcined, cooled and scrubbed sand flows over a final weir, discharging from the BHM COOLER-SCRUBBER with a temperature in the range of 100° to 120° F., depending upon the ambient and wet bulb temperature for the location of the reclamation operation. The reclaimed sand is now ready for transporting back to the new or reclaimed silo.

The BHM Thermal Sand Reclamation Systems employ the BHM GRAPHICS MONITOR DISPLAY CONTROL SYSTEM, providing unequalled, precise process control assuring continuous consistent calcined sand suitable for reuse. The BHM GRAPHICS MONITOR DISPLAY CONTROL SYSTEM features archiving capability and visual operating displays as well as documenting and profiling trends at all critical process points. Status and alarm screens, plus system self-help diagnostics screens for trouble shooting assistance are part of this latest system; all integral to the Thermal Sand Reclaimer. Additionally, the user friendly BHM GRAPHICS MONITOR DISPLAY CONTROL SYSTEM provides the means to monitor the entire sand reclamation system from a remote location which can include a REMOTE MONITORING STATION miles away from the physical location of the equipment. A station could also be included in the EC&S Office in Birmingham, Alabama, USA. This REMOTE MONITORING STATION can provide continuous monitoring, acting as the Foundry's Operator or merely be used to assist the Foundry in the operation of the BHM THERMAL SAND RELCAIMER (TSR). This may be accomplished via modem and telephone or internet connection. This station would provide service and support as if there were a Service Engineer as a part of the foundry staff on site. Local operator and troubleshooting responsibility can be greatly reduced and the capability to anticipate problems and facilitate corrections is unprecedented.
THE BHM GRAPHICS MONITOR DISPLAY CONTROL SYSTEM includes the following:

**HARDWARE:**

*COLOR GRAPHICS, HIGH RESOLUTION

*PROGRAMMABLE LOGIC CONTROLLER (PLC)

*ACCESS BY REMOTE TELEPHONE

*EXPANSION CAPABILITY

*HIGH SPEED

**SOFTWARE:**

*MODULAR DESIGN

*CO-PROCESSING

*MONITORING

*ARCHIVING

*REPORTING

**BASIC SCREENS OF THE GRAPHICS MONITOR DISPLAY CONTROL SYSTEM INCLUDE:**

**THERMAL RECLAIMER**

**BHM COOLER FOR CHEMICALLY BONDED SAND or**

**BHM COOLER-SCRUBBER FOR CLAY BONDED SAND**

**FABRIC FILTER EMISSION CONTROL SYSTEM**

**PRE-PROCESSING AND SAND HANDLING SYSTEMS**

**POST-PROCESSING AND SAND HANDLING SYSTEMS**

**ALARMS**

**DIAGNOSTIC SYSTEM(S)**

With the precise controls provided by the BHM GRAPHICS MONITOR DISPLAY CONTROL SYSTEM, discharged (reclaimed) sand is of a very high quality, allowing the core process to use all sands, new or reclaimed without concern for inferior sand quality.
The **BHM THERMAL SAND RECLAIMER** by **EC&S** has these unique features:

- EPA Approved Exhaust
- High Thermal Efficiency
- Reclaims 100% Clay Bonded Sands
- Reclaims 100% Chemically Bonded Sands
- Reclaims a Random Mixture of both Sands
- Unsurpassed Consistency of Calcined Product
- Material Transfer is accomplished by Gravity
- Unattended Operation (min. labor hours / ton)
- Absence of "Hot" Moving Parts
- Low Maintenance Costs
- Continuous Processing
- Adjustable Feed Rate
- Unequaled Controls
- Heat Recuperation
- Low Capital Cost

Features of the **BHM COOLER-SCRUBBER** by **EC&S** include:

- Direct Connection to BHM Sand Reclaimer
- Matches Capacity of BHM Sand Reclaimer
- High Scrubbing Efficiency
- High Cooling Efficiency
- Absence of Moving Parts
- Low Energy Consumption
- Continuous Processing
- Unattended Operation
- Low Capital Cost
EC&S provides written guarantees that the **BHM THERMAL SAND RECLAIMER** in coordination with the **BHM COOLER-SCRUBBER** will produce high quality reclaimed sand with these consistent properties:

- **Sand Screen Distribution**
- **Yield (on base silica)**
- **Thermal Efficiency**
- **Ph Stabilization**
- **Acid Demand Value**
- **Loss on Ignition**
- **Rated Capacity**
- **Residual Clay**

EC&S can claim what no other manufacturer can........

**GUARANTEED UNEQUALLED PERFORMANCE**