

Casting & Sand Separation and Cooling

Integrated Solutions

Even though the principles of foundry processes are well known, each case has its own special requirements. Casting shape, grade, weight and production pattern are to be carefully considered with first priority.

Our solutions also integrate the workers, who need an acceptable environment with respect to noise, fresh air and light, and minimized direct involvement. Good material flow and high productivity are real values to operational success. Küttner has helped the most profitable and efficient foundries turn their capital investments into profit by increasing casting throughput, diminishing casting damage, and reducing maintenance cost.

Learn more about Küttner's approach - which not only focuses on single machines, but also on complete integrated solutions.

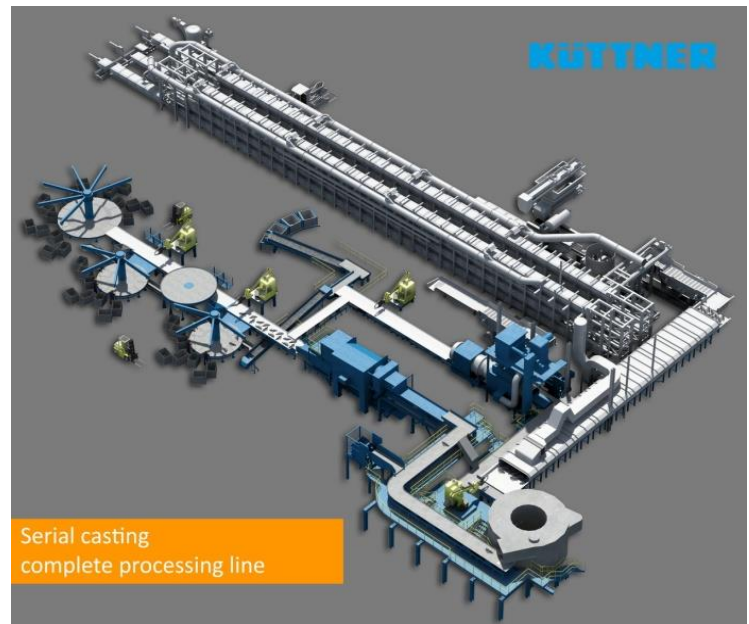
Applications behind automatic molding lines



Modern fast production lines push molds out every 10 - 15 seconds. The first feeder is typically designed to receive the push out impact and to feed the shakeout grids which separate sand from the castings. To adjust the shakeout conditions on the requirements of the actual castings, the intensity of the shakeout is variable. Since the entire program of castings has different weights, modules, dimensions and cycle times the critical pieces must be identified and used to size the castings cooler. To achieve high utilization rates castings are accumulated in the castings cooler.

Typical challenges

- Opening of molds, handling of hot sand, prevention of sand agglomerations
- Handling of vapors and prevention of condensation
- Efficient cooling from shakeout temperature to manual handling temperature below 60°C
- Integration of shot blasting, grinding and painting equipment
- Transport of sand to preparation plant and return of runners to scrap yard
- Inspection and preparation for shipping
- Provide access to maintenance and vehicles



Special challenges

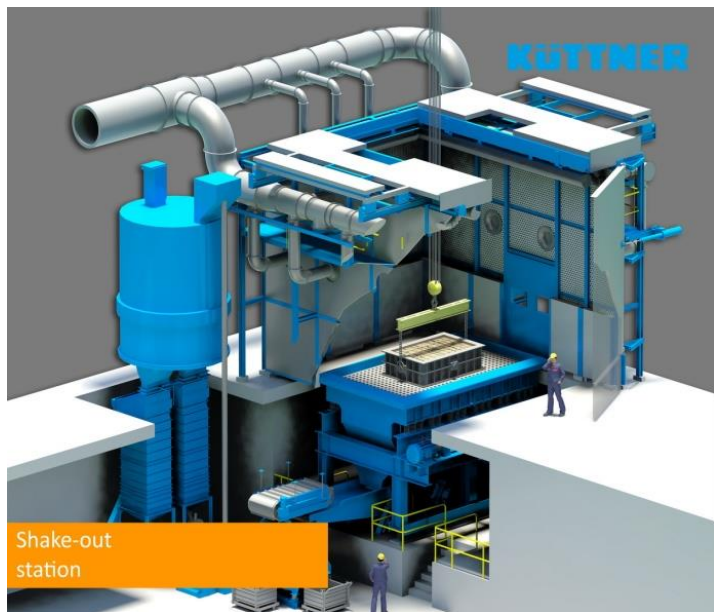
- Take-off of delicate castings like electro motor blocks or turbine blades on suspended conveyors
- Selective shakeout stations for motor blocks to separate core and green sand flows
- Hybrid stations serving parallel molding lines or serving parallel production of different castings

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No Bake Sand Solutions

Applications in no-bake foundries

Larger flasks are handled in no-bake foundries. Küttner takes care of the entire process starting from continuous mixers with capacities of up to 100 tph, cranes for flask handling up to 500 tons, vertical shakeouts and the sand reclamation systems.



Mixers and vibrating compaction tables



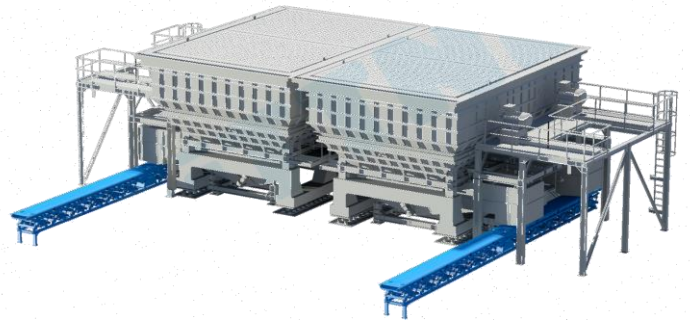
Küttner provides all kinds of continuous mixers for furan, pep-set and alpha-set sand.

For steel foundries using chromite sand as facing layer and silica sand as backup sand, tandem mixers cangoro type are available.

For the filling stations Küttner provides small units which can be integrated in semi automatized molding lines and up to 100m² large vibrating tables with a half flask load of up to 70 tons. All mixers are equipped with special precision pumps for exact and efficient dosing of the binder components.

Heavy duty shake-out

The requirement for extreme large castings (e.g. wind turbines) has increased in the last few years. Küttner provides Twin and Quattro heavy duty shakeout stations with up to 100 m² vibrating grid surface and single deck loads of up to 150t with a long year experienced design.



Special features

- Küttner's heavy duty shakeout decks use exciter drives; which are closed gear units with rotating unbalance weights interconnected by shafts.
- The motor is located outside of the hot sand hopper and is supported on a stationary structure. The connection to the exciters is by cardan shaft.
- All decks are customized design with individual fatigue strength analysis acc. to the rules of the German Research Curatorium of the Mechanical Engineers association.
- The decks are supported via springs on a heavy frame, which acts as a vibration insulating frame. By this arrangement the dynamic loads to the foundation are eliminated to <5%.
- Küttner supplies the shakeout decks including dust and noise protection cabins and mechanical sand reclamation systems.

