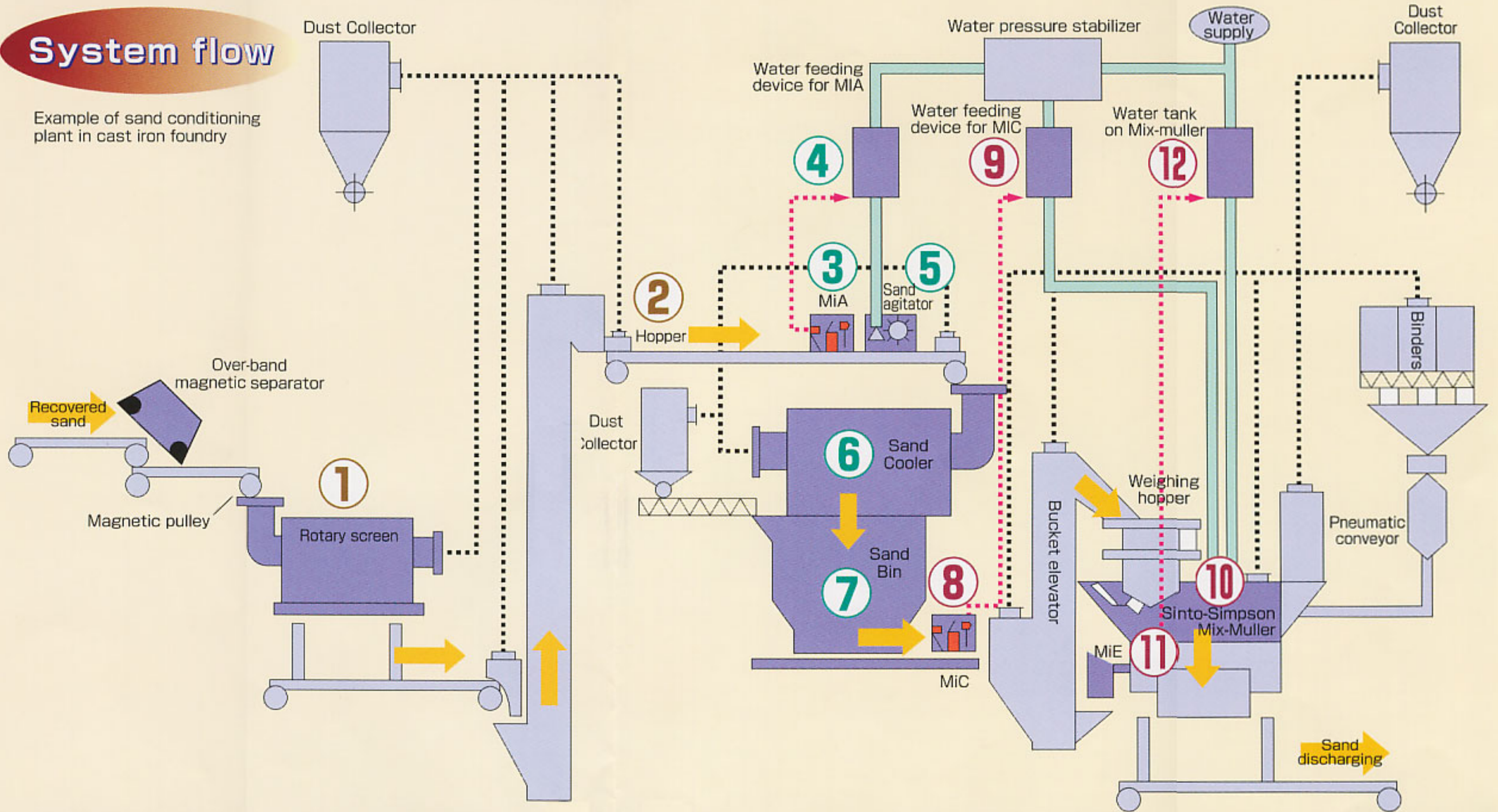


System flow

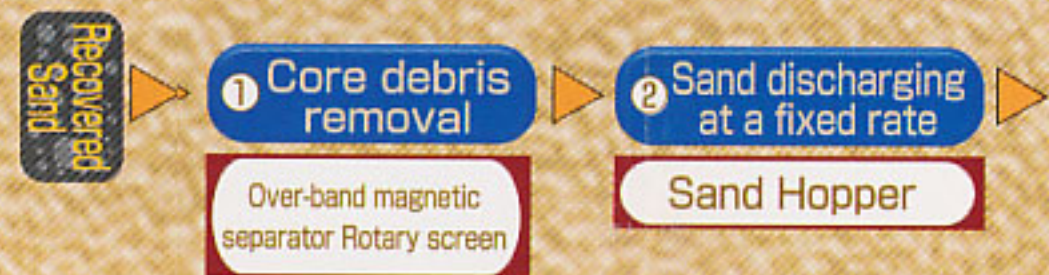
Example of sand conditioning plant in cast iron foundry



Sand Recovery System

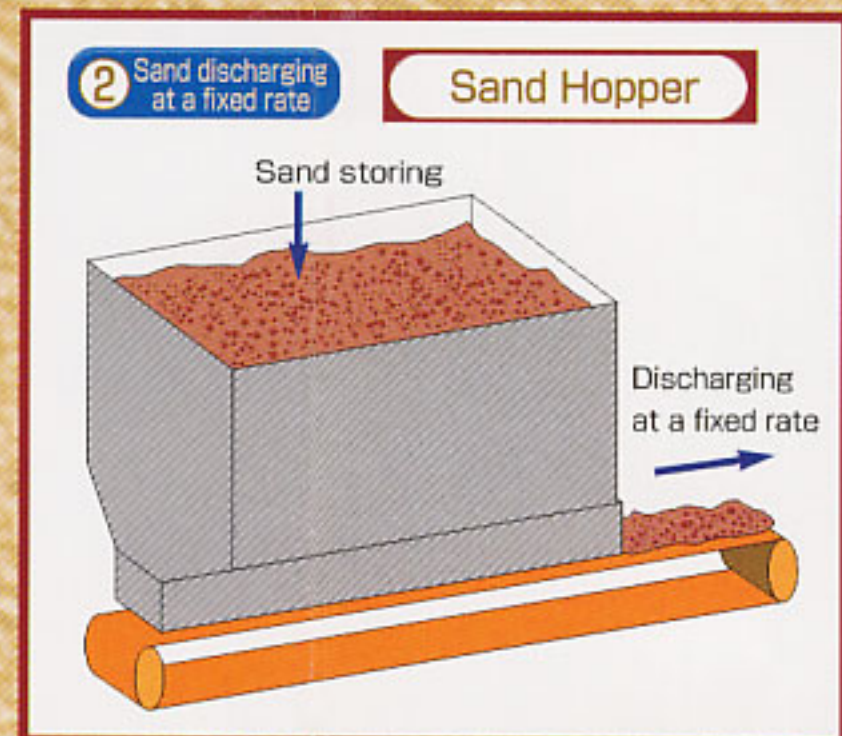
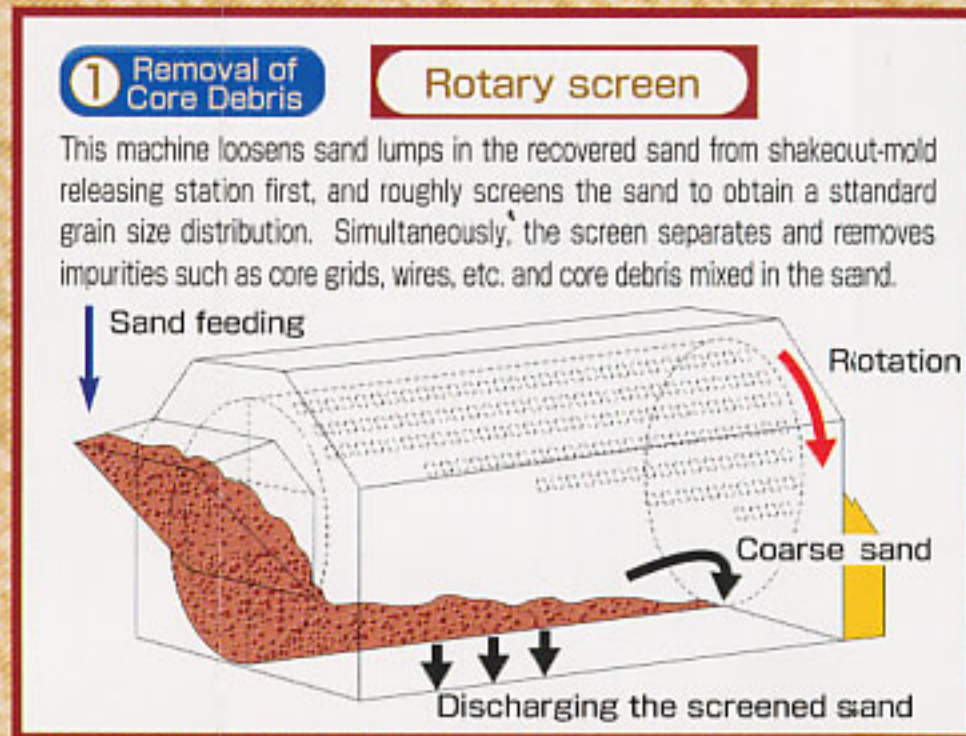
Impurities and various foreign substances mixed in the recovered sand are separated and removed, sand lumps are loosened, and a fixed volume of sand is discharged from sand hopper.

In case the volume of core sand entering to recovered sand varies in a large margin, special designs on sand recovery system and storage method make it possible to regulate and unify the volume of incoming core sand



Features

- Through separation of tramp iron pieces by the combined use of overband type magnetic pulley.
- Double screen system reliably separates sand lumps and core debris.
- A great reduction of fine dust, spill sand and vibration by the application of rotary screen.



Sand Cooling System

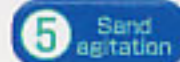
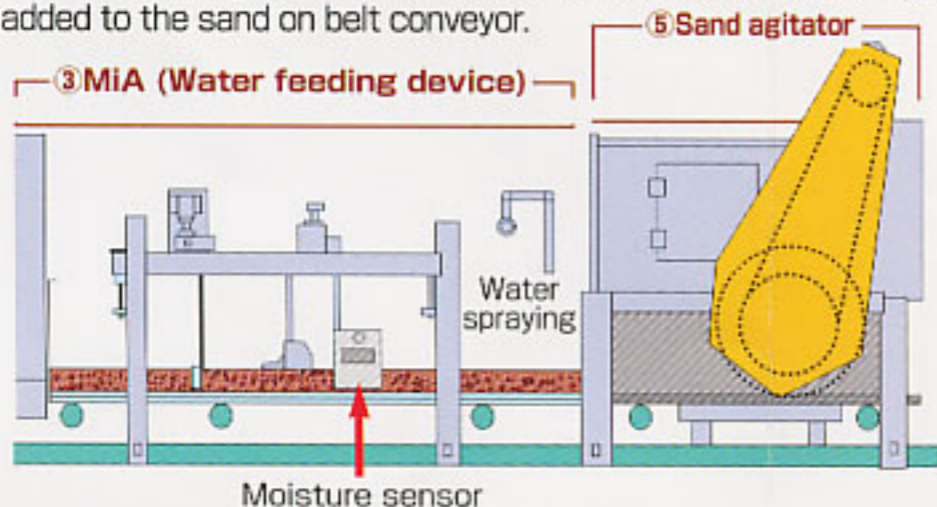
The system measures the temperature and moisture contents of recovered sand and adds cooling water to the sand in proportion to the measured values. During the agitating motion of sand in the rotary drum, the outside air is induced to the drum, and the sand is cooled by removing the vaporized moisture.

Features

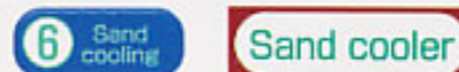
- Sand lumps are loosened, and the sand is cooled uniformly.
- Possible to add optimum volume of water to reach the target moisture.
- Efficient cooling of the sand is performed by the counterflowing of recovered sand and cooling air.
- Rotary drum mechanism minimizes vibration and noise, and facilitates maintenance work.



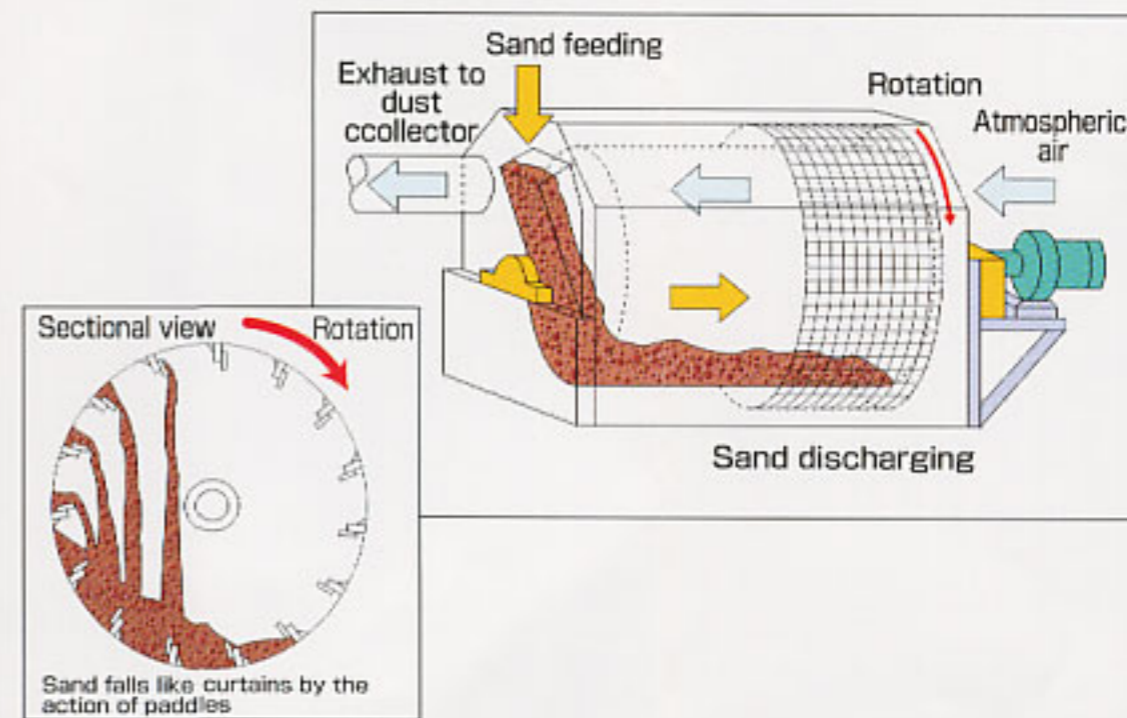
Temperature of sand recovered from mold releasing station is monitored, and the cooling water proportional to the monitored temperature is added to the sand on belt conveyor.



The recovered sand sprayed with water is further stirred to enhance the cooling effect and to prevent sand sticking to feeding chute and to avoid lump formation.



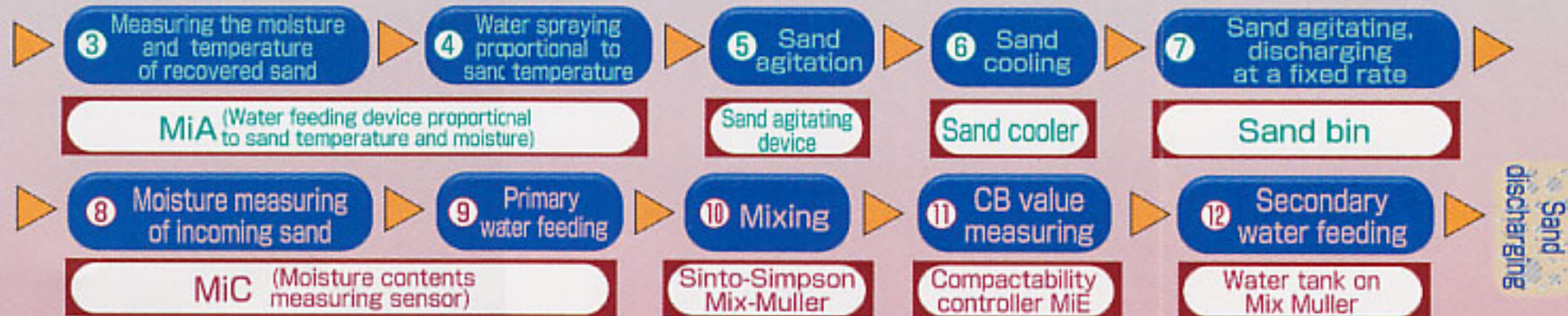
Sand cooler



Moisture Control System

Moisture contents of the sand coming out of the sand cooling system is measured before it enters Mix-Muller to determine the necessary volume of primary water supply. After the primary water feeding is finished, the sand is mixed with binders in Mix-Muller. During the mixing, CB value is measured, and secondary water feeding is performed as occasion demands.

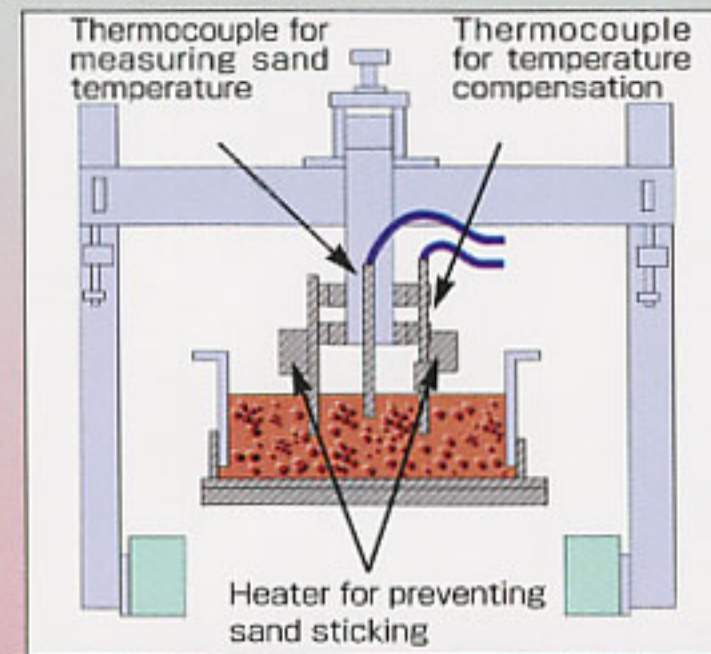
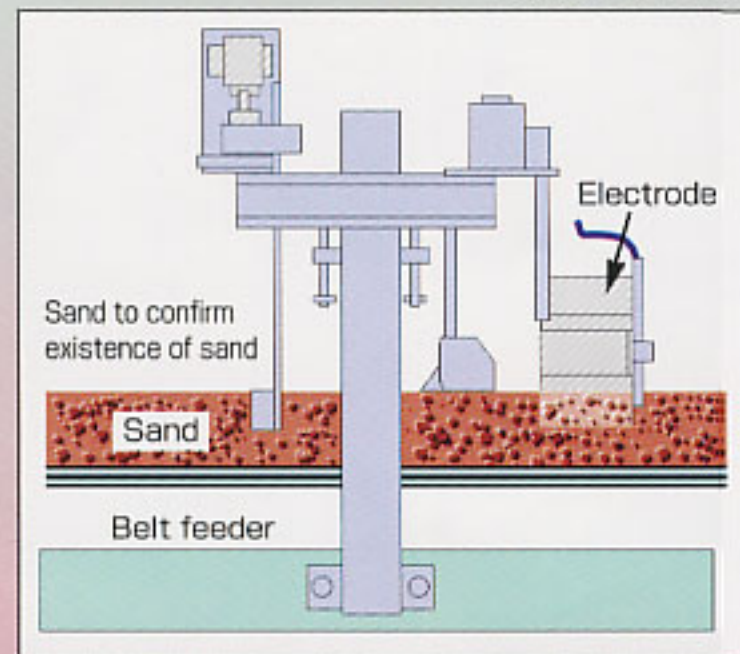
- Features**
- Moisture control is fully automated to materialize labor saving.
 - Sand property is stabilized by the moisture control of a high accuracy and reliability.
 - Sand scaffolding and sticking problem caused by oversupply of water is remarkably reduced.
 - Dust generation in return sand line is minimized.
 - Additional water supply during mixing operation is scarcely needed contributing to the shortening of mixing cycle time.
 - Casting rejects such as drop off etc. due to inferior sand properties are obviously reduced.



8 Moisture measuring of incoming sand

MiC (Moisture contents measuring sensor)

An electrode and a pair of thermocouples inserted in the stream of sand measure the electric conductivity ratio and the temperature of sand. Based on the measured data, the system regulates the water feeding device to control the moisture contents in the sand.



Sand property control system

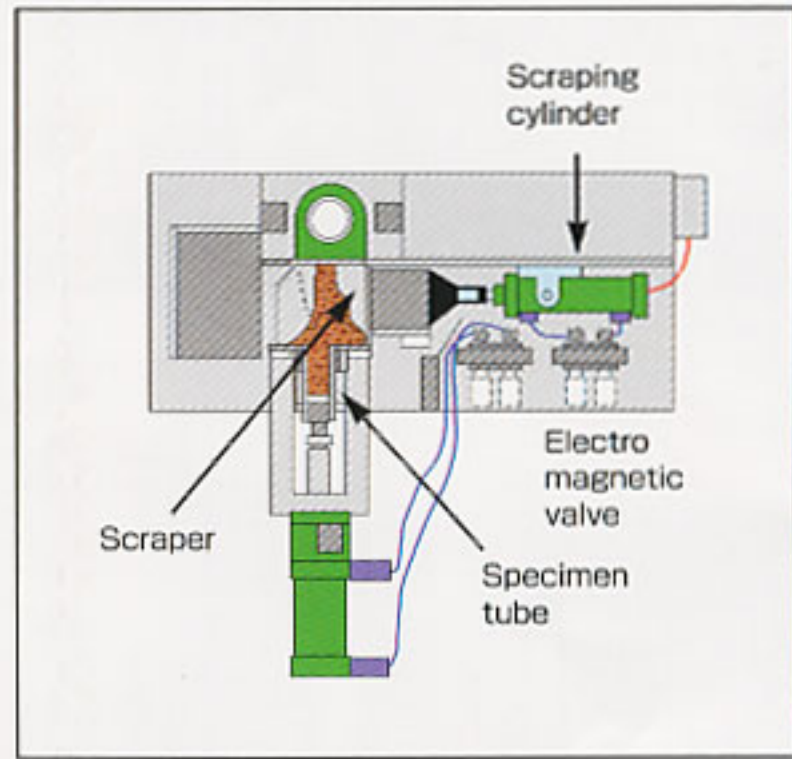
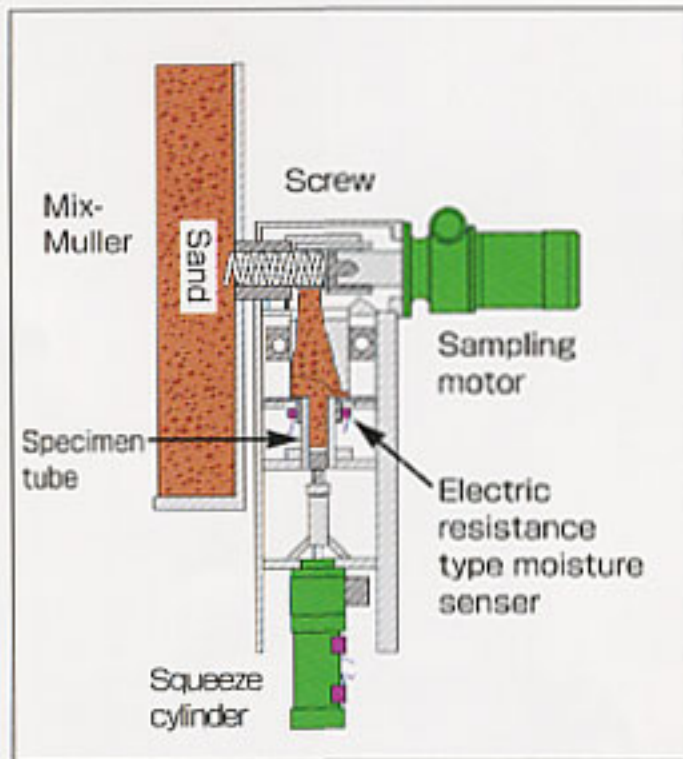
The system measures CB value during sand mixing operation by means of sampling a part of sand in the mixer. Water adding and CB measuring are repeatedly performed until CB value reaches the target, and a mixing cycle is completed.



11 CB value measuring

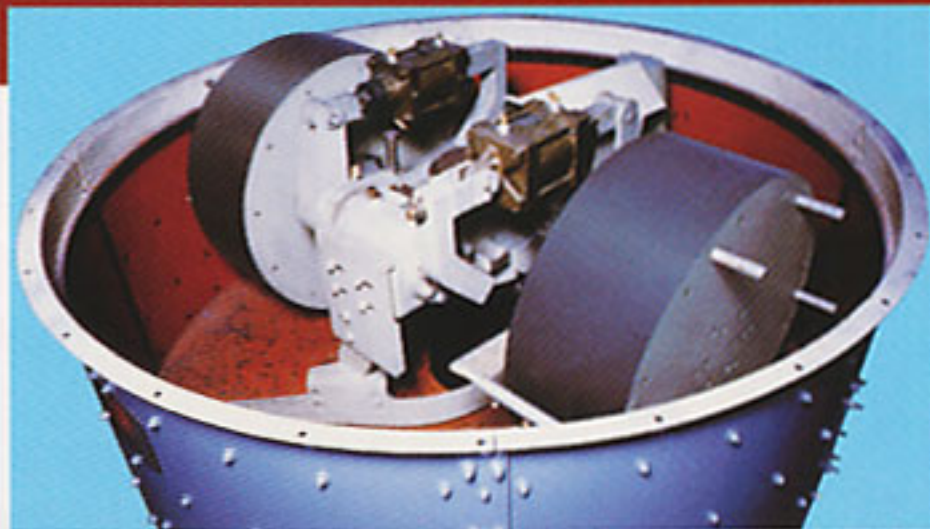
Compactability controller MiE

A part of sand is automatically taken out by a sampling screw and is compacted in a specimen tube. The sample sand in the tube is compressed by a squeeze cylinder for measuring CB value.



Features

- Produces tough, well-bonded, strong molding sand
- Possible to obtain the molding sand to achieve superior mold surface stability and minimum property variations

**Kneading**

Compressive action of pressure loaded muller wheels over the powdery material(sand).

**Smearing**

Shearing and splitting of powdery material(sand) by a smearing action created by the slip of mullers when they travel the mixing path.

**Spatulating**

Powdery material (sand) is rolled and pressed by the sliding action of muller wheels as they are set slightly off the true radius.



What is Mulling?
3 - Principles