Heating / Cooling of Material in the Mixer

- for the refractories industry
- for the carbon industry
- for the preparation of concretes
- for any other applications

The unique working principle

Rotating mixing pan
for material transport

Variable-speed mixing tool,
slow to fast
for mixing

Separation between material
transport and the mixing process
This allows the speed of the mixing tool
(and thus the power input into the mix)
to be varied within wide limits.

Heating of process material:
- The heat applied to the outside of the mixing pan is very quickly transferred to the process material
- Superheated steam fed into the mixing pan in the area of the rotor (e.g. at 300°C) is drawn in and mixed in immediately. This ensures immediate heat transfer to the material without localized heating.
- Degradation of the binder due to localized concentrations of superheated steam, which has been reported on other mixers, is reliably avoided.
- If necessary, the temperature of the mixing process can be set with an accuracy of one degree

Cooling of process material:
- Gaseous, liquid or solid cooling media fed into the mixing pan in the area of the rotor are drawn in and mixed in immediately, which prevents localized heating of the material.
- The susceptibility of machine components to embrittlement by cooling gas, such as liquid nitrogen, which has been reported on other mixers, is eliminated

Heating technologies:
- Electrical hot-air fan (laboratory mixer)
- Infrared radiator (for small mixers)
- Porous burner (for any mixer sizes)
- Inductive heating (for mixers without cleaning doors, material temperature up to 250°C)

Cooling media:
- Cooled water / ice water / chopped ice (e.g. for concrete)
- Dry ice or carbon dioxide snow
- Liquid nitrogen

EIRICH customers report their experience:
- In the case of resin bonded mixes, the first batch can already be used for production by controlling the mixer temperature when work is started
- Cooling refractory concrete mixes at warm ambient temperatures (phase transformation) permits good product properties to be achieved with prefabricated parts

Other options:
Other options are available for special applications. Examples:
- Refractories industry, pitch-bonded mixes, material temperature 180°C: Combination of grain heater and temperature-controlled mixer
- Carbon industry, electrode mixes, material temperature 150° to 170°C: The coke is preheated by means of an electric resistance heater
- Foundries, mold material preparation, cooling of the return molding sand: Combined process vacuum flash cooling / reconditioning

Top-name manufacturers around the world work with EIRICH mixing technology. We would be glad to provide references on request. EIRICH is a research partner for universities. Put us to the test. We would be glad to tell you more.