

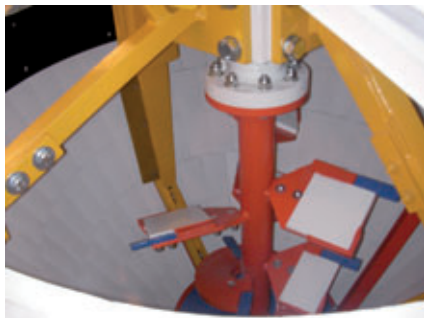
Kniele Baumaschinen GmbH, 88422 Bad Buchau, Germany

# Laboratory mixer for developing special concretes

Developing new technologies for producing concrete elements requires continual internal monitoring in the laboratory of any manufacturer wishing to bring these technologies to perfection. To take an example, there is increasingly greater interest and enthusiasm for ultra-high-class concretes with glass or metal fibres. These high-end concretes permit manufacturers to do justice to the desires of architects and their demands for still more refined shapes. The aspiration is particularly towards shapes with slender wall thicknesses, varied colourings, very high technical demands and, of course, faultless surfaces.



Laboratory cone mixer KKM 100 /150



The mixer's internal workings with exchangeable mixing screw and outer agitator with PU scrapers



Laboratory mixer at TU DARMSTADT

With this in mind and to satisfy customers' requests, Beton Stone Consulting from Etzling in France (the company marketing Kniele's cone mixer in the country) designed a laboratory mixer in cooperation with Kniele Baumaschinen GmbH to live up to their clients' aspirations.

Quite a few laboratories have been equipped with these mixers in France with a view to refining their recipes further. This laboratory apparatus is enjoying increasing popularity in other countries as well. The Technical University Darmstadt, Germany, for example, has been able to demonstrate possibilities for improving concrete quality by optimising mixing techniques with the assistance of a Kniele laboratory mixer. A report on this appeared in CPI 4-2009.

Laboratory mixers are particularly suited for developing the following mixes:

- Dry mixes
- Dry mortar
- Ultra high strength concretes with or without the addition of fibres
- Styrofoam concretes
- Refractory concretes
- Self-compacting concretes
- Aerated concretes,
- etc.

The main advantages of cone mixers are:

- No loss of mixing quality even when mixing extremely small amounts up to ~ 10% of the volume capacity
- Continuously variable adjustment of the inner agitator - allowing each mixing process to be regulated precisely
- The rotational direction of the outer agitator can be reversed
- The agitators can be started even with a full mixing trough
- No problems in cleaning the device simply and rapidly from the outside
- Rapid emptying without segregation

Kniele laboratory compulsory mixers, in the KKM-L cone mixer version, mix in a very intensive and homogeneous way. All types of quality concretes (e.g. self-compacting concretes, lightweight concretes, refractory, liquid adhesives, etc.) can be produced

extremely rapidly in top-class mixing quality. If required, the laboratory mixers can be made of stainless steel; they comply with CE standards and are built in line with EU machinery directives. Well-proven SEW drives are fitted as standard and guarantee long operational lives for the mixers.

## Different versions of the Kniele laboratory cone mixer

### KKM-L 25 basic stationary version

- Bucket 25 l
- Supplied with frequency converter for regulating inner agitator speed
- Outer agitator without frequency converter, change of direction via timer
- Manual locking device
- Maximum particle size: 16 mm

### KKM-L 30 laboratory mixer

- Mixing trough 30 l
- Movable supporting structure with cleaning flap and feed hopper
- Change of direction and speed of outer agitator via frequency converter
- Locking device pneumatically activated
- PLC control unit for regulating mixing time and speed
- Camera
- Ampere meter for inner and outer agitator
- Maximum particle size: 16 mm



Basic stationary version with 25 l bucket



KKM 30 laboratory mixer

**Stationary laboratory machine**

This stationary laboratory and testing plant can be supplied with supporting structures in various sizes and heights according to customer needs. Emptying the mixer is carried out by means of a slide valve with a hydraulic cylinder. Diverse accessories – e.g. Big Bag emptying stations, mobile cement silos, etc.) are available.

Mixer sizes available:

- KKM 100/150 (output approx. 100 litres)



The stationary laboratory and testing plant

- KKM 250/375 (output approx. 250 litres)
- KKM 375/550 (output approx. 375 litres)
- Maximum particle size: 32 mm

**Optional upgrades**

- Ampere meter, fitted to the mixing screw
- Water meter from 0.1 to 0.5 l per impulse
- Microwave sensors for moisture content and concrete temperature
- Camera
- Additive dosing

**Control panel**

In cooperation with Beton Stone Consulting, Bikotronic designed an independent control panel for laboratory mixers which makes the same sort of planning possible as in an industrial concrete plant. All parameters i.e. mixing time, mixing screw speed, recipe, concrete moisture content, temperature, concrete consistency, etc. can be programmed and stored separately. The concrete WIN programme allows all these mixing parameters to be processed using

different forms and statistics. This control panel is also capable of managing admixtures, e.g. the Würschum AC5 additive weighing system can be built in. The independent control panel can also transmit recipe data directly to a concrete plant's control centre.

**Control panel**

- Recipe programming
- Mixing time input
- Water dosing computer
- Concrete WIN processor



Control panel

**FURTHER INFORMATION**



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ZE mixer



KKM mixer



Twin-shaft mixer



Countercurrent mixer

## Our Programme

- KKM cone mixers
- Intensive mixers with one or two mechanical agitators
- Twin-shaft mixers
- Countercurrent mixers
- Mixer for floating screed
- Stationary and mobile mixing plants
- Weighing systems for cement, water, aggregates and additives
- Elevators (bucket hoist or bottom discharge)
- Silos for cement and aggregates
- Conveyors and loading plants
- Accessories



Cement handling facility



Mobile mixing plant








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