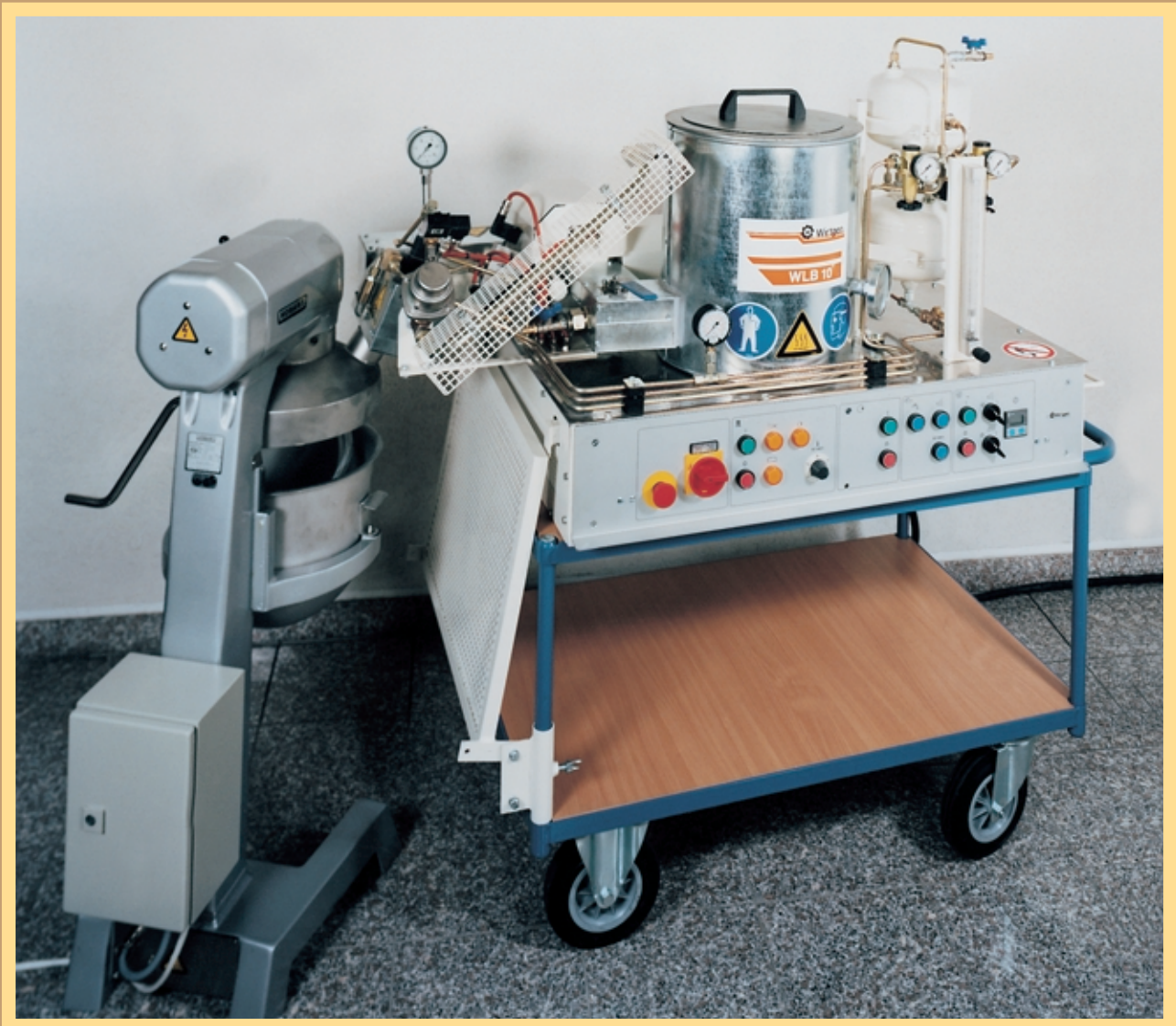


## ***Laboratory-scale foamed bitumen plant WLB 10***



# Cost-efficient production of cold-mix materials with foamed bitumen

## Variety of possible applications for foamed bitumen

High-grade base courses and cold-mix materials can be produced cost-efficiently using foamed bitumen for treating road-building materials.

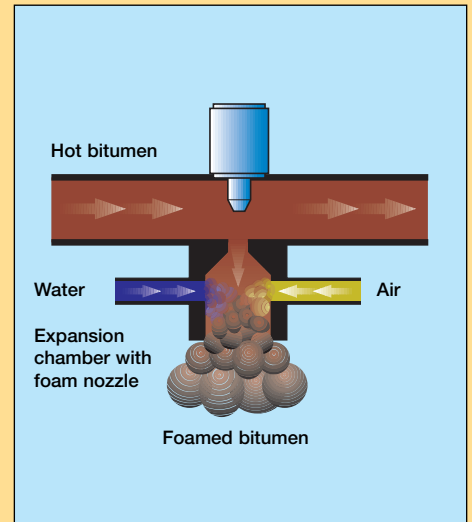
The raw materials can be processed in two ways:

1. For example, by milling up the existing pavement layers and admixing foamed bitumen in-situ using the Wirtgen recycler WR 2500.

2. By producing cold-mix materials by heating reclaimed asphalt or virgin rock fractions with foamed bitumen, for example in the mobile cold recycling mixing plant KMA 150.

Bitumen is available almost everywhere, for it is used throughout the world as a binder for producing asphaltic road pavements.

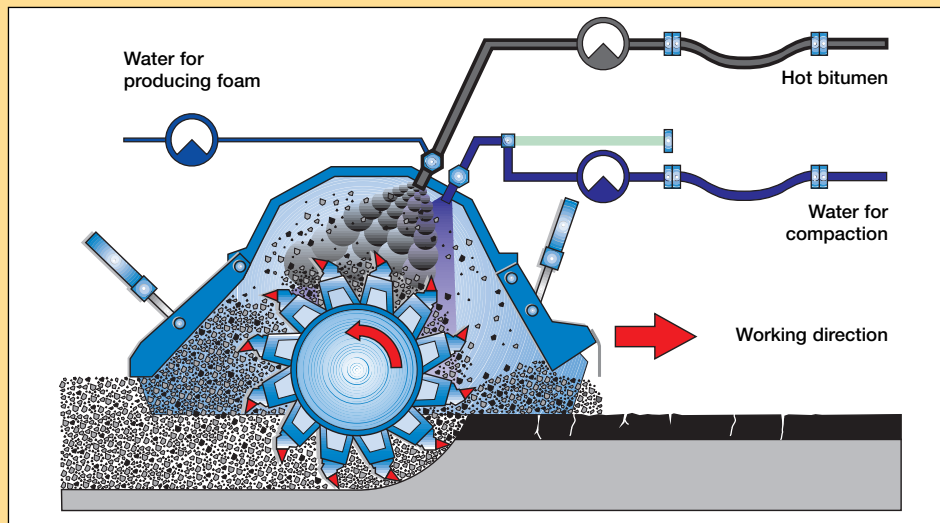
Unlike the case when using bituminous emulsion, additional costs can be saved per tonne of binder added, since it is delivered in its pure form, i.e. without emulsifying agents and water.



Foaming bitumen under controlled conditions in the expansion chamber.

## Basic principle of foaming bitumen

In order to ensure that the bitumen is homogeneously distributed in the mixture of materials to be processed, the bitumen is heated to approx. 180 °C and foamed with the addition of small quantities of water and air. The binder volume increases to roughly twenty times its original volume. Depending on the type of bitumen used, the expansion and half-life of the foam are influenced by adding different amounts of water (1-5% of the amount of bitumen) and possibly air.



Schematic illustration of the process for in-situ recycling with addition of foamed bitumen. Water is added simultaneously to ensure optimum compaction.



WR 2500 recycling a carriageway construction with addition of foamed bitumen.



Vehicles can drive over the surface course bound with foamed bitumen before it is sealed.



Mobile cold recycling mixing plant producing cold-mix materials with foamed bitumen.

# Determining the optimum foamed bitumen properties with the laboratory-scale WLB 10

## Laboratory determination of the properties of foamed bitumen

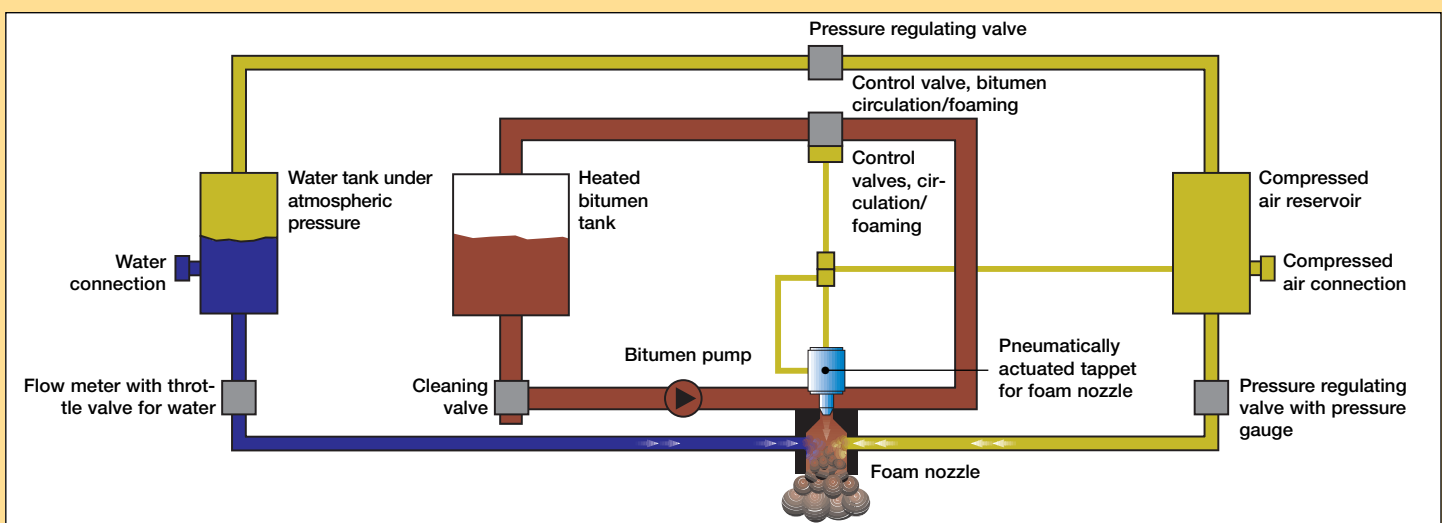
The foaming properties of different bitumen types can be investigated in detail using the laboratory-scale foamed bitumen plant. Corresponding series of tests are carried out at various bitumen temperatures and with different amounts of water and air to determine the optimum properties of foamed bitumen (half-life and expansion).

Mixtures for producing samples can be prepared by injecting the foamed bitumen directly into a laboratory mixer. The properties of the cold mixture are then determined on the basis of these samples. This ensures that the mixture is optimally made up and serves as a specification for the required road works.

The quality of the mixtures to be produced for the various road works can be defined exactly with the aid of these preliminary investigations using the laboratory-scale foamed bitumen plant. In this way, information on the likely material properties, such as the load-bearing capacity, can be obtained before the construction work actually starts.



Practical: the laboratory-scale foamed bitumen plant WLB 10 on a mobile table. The tank for the foamed bitumen is on the left.



Schematic illustration of the laboratory-scale foamed bitumen plant with reservoirs for bitumen, air and water, as well as the expansion chamber.



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