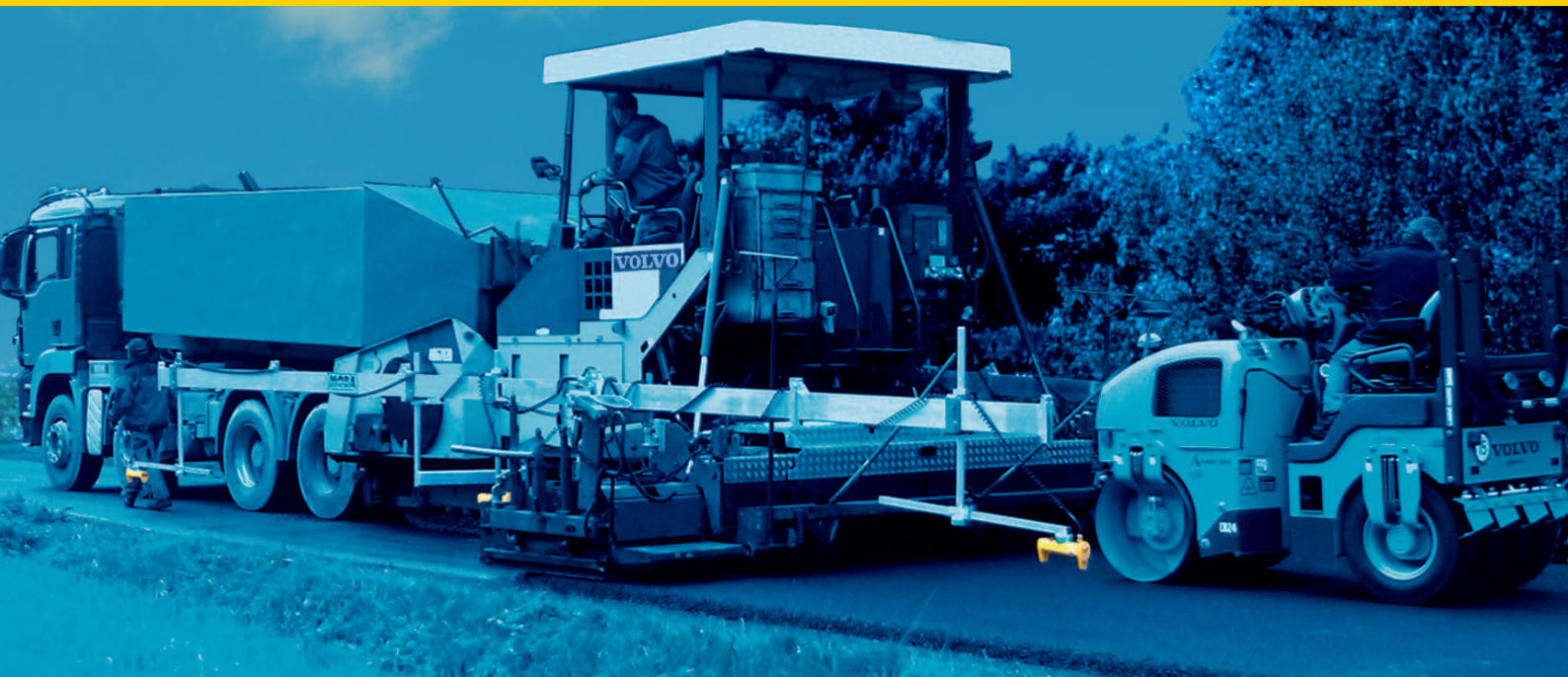


MOBA BIG SONIC-SKI®

**QUALITY SYSTEM CREATES LEVEL ASPHALT**



**MOBA®**  
MOBILE AUTOMATION

# SONIC-SKI® PLUS AND BIG SONIC-SKI® — SHORT AND LONG RANGE AVERAGING

The Big Sonic-Ski® optimises control of slope, grade, smoothness and level during the asphalt laying process, simply and easily. Combining three sets of multi-sensor detectors along the beam detects and smooths-out both large-scale waves and small-scale bumps. Unparalleled sensor coverage provides the most comprehensive averaging in the industry, ensuring excellent layer thickness, smoothness and level results. With the modular support beams averaging lengths up to 13 meters can be set up rapidly and effortlessly. This, coupled to the swivelling front and rear sensor booms plus multiple individual sensor positions plus no more need for levelling wire - allows total flexibility and manoeuvrability of the paver, even in confined twisty urban environments. The Big Sonic-Ski® brings you maximum performance even in the most unforgiving situations.



## Easy installation of the Big Sonic-Ski® system



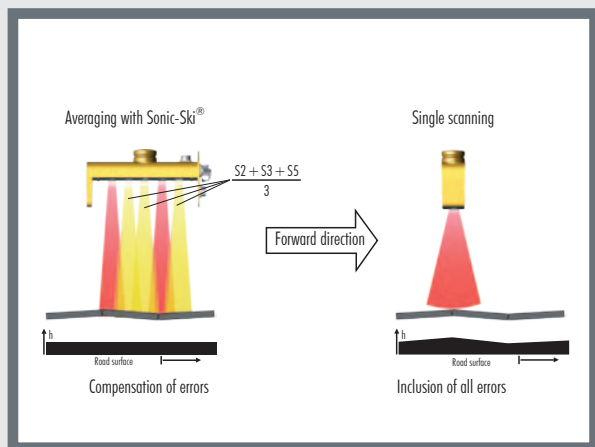
- » Adapts to any machine via easy tow arm clamping system
- » Extends to all required lengths



- » Handy, modular support beam elements
- » Easy mounting and installation of system



- » Sensor clamps swivel and slide to match any street curvature
- » Position anywhere in front of the paver and behind the screed

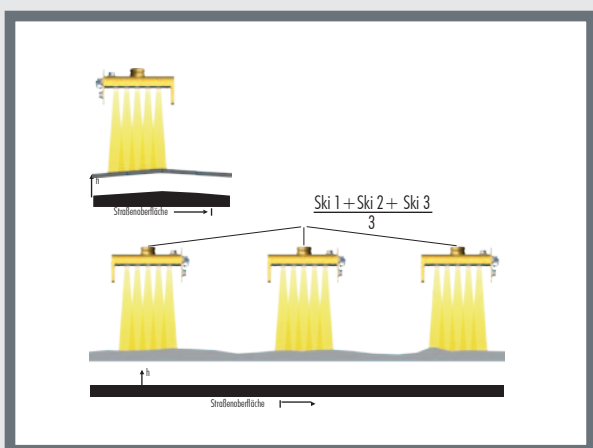


### Sonic-Ski® plus: short-range level averaging via

- » Five contact-free sensors scanning the reference surface
- » Uninterrupted ultrasonic measurements at 11 Hz
- » Averaging of three closest measurements continuously calculates average height
- » Eliminates all minor irregularities from the final result
- » Provides a constant virtual level reference

#### Benefits:

- » Uneven base surface levels are detected and smoothed out
- » Significantly more accurate than a simple single ultrasonic sensor
- » Height sensing accurate to one millimetre
- » Contact-free scanning of the reference surface
- » Continuous real-time temperature compensation

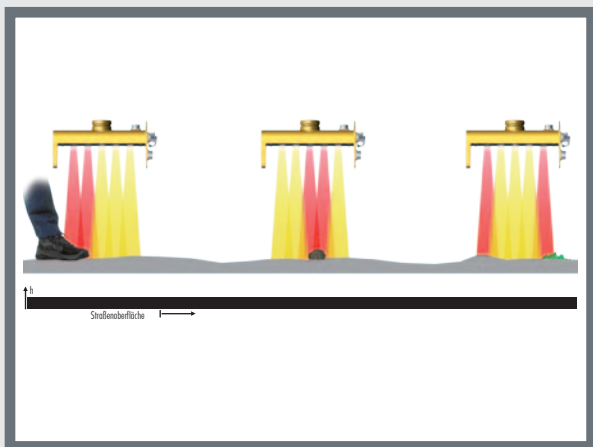


### Big Sonic-Ski®: long-range level averaging via

- » Combines all positive effects of three Sonic-Ski® plus sensors
- » Multiple integrated scanning across the full reference
- » Provides continuous long range virtual level reference
- » Eliminates long wavelength level imperfection

#### Benefits:

- » Operates over extremely long range (up to 13 meters) providing the smoothest possible finish
- » Measurably improved surface flatness
- » No wires to be set up, saving time, material and the need for a surveyor
- » Flexible sensor positioning increases maneuverability
- » Simple mounting and operation
- » Combination of multiple different sensor types possible





# FLAT SURFACE CONSTRUCTION (AIRPORT RUNWAYS):

Quick and efficient high-precision asphalt construction was the requirement for the new runway at Augsburg airport. The contractor used two pavers fitted with MOBA technology. On one side of the first paver a single MOBA Sonic-Ski sensor detected the existing kerbstone edge as a reference, and on the paver's other side a MOBA Big Sonic-Ski® detected a reference surface laid by a grader which had an accuracy of  $\pm 3$  centimetres. The second paver, working offset in echelon with the first, was also equipped with a single MOBA Sonic-Ski and a MOBA Big Sonic-Ski®. The single sensor detected the layer created by the first paver, at the other side the Big Sonic-Ski® sensed the reference surface laid by the grader. By averaging and smoothing out the reference's surface, after paving two asphalt layers, the Big Sonic-Ski® achieved an accuracy of  $\pm 3$  millimetres and improved the overall level of the runway tenfold.



» The surface prepared by a grader showed an accuracy of  $\pm 3$  centimetres



» The result after two layers created with the Big Sonic-Ski®:  
 $\pm 3$  millimetres accuracy



**Advantages of the Big Sonic-Ski®  
when constructing flat surfaces:**

- » No wire reference or setting-out required
- » Measuring effort is minimised
- » Meet very high standards in accuracy, smoothness and level  
when constructing runways
- » Nearly every surface can be used as a reference



# ROAD CONSTRUCTION:

When building paved country roads and lanes pavers are used with a Big Sonic-Ski® on each side. This way, in spite of uneven surfaces, for example, gravel substructures or milled old asphalt layers, very precise results are achieved without having to set out guide wires.



» Constructing a bicycle lane



» The ground surface is detected ultrasonically and an even reference is derived from averaging the measurement values'





» Milled old asphalt layer



» New asphalt layer, constructed using the Big Sonic-Ski®

### **Advantages of the Big Sonic-Ski®**

#### **in road construction:**

- » Milled surface as reference surface possible
- » Old, worn-out asphalt layers as reference surface possible
- » Easy construction over old road coatings
- » No high guide wire required
- » Precise results across differing ground conditions
- » Even long wavelength undulations are smoothed out
- » Unexpected dips caused by imperfect milling are also smoothed out by averaging



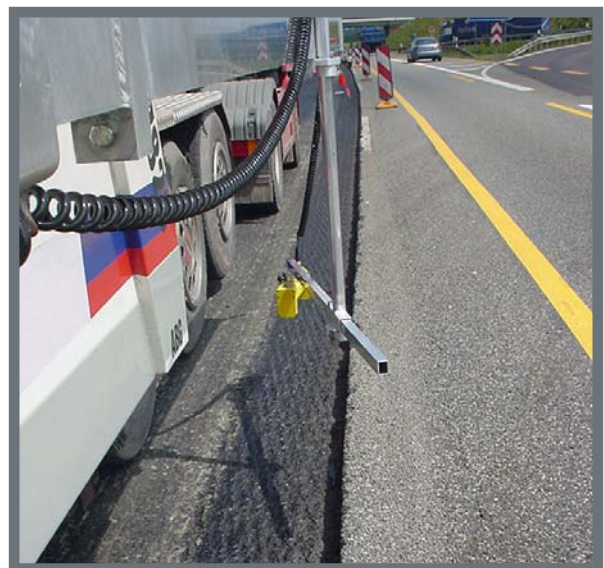


# CONSTRUCTING MOTORWAYS:

When constructing or rehabilitating motorways the contractor uses a MOBA Big Sonic-Ski® either on one or both sides of the paver. For the A4 motorway near Eisenach, for example, the previously milled carriageway is being used on both sides by Big Sonic-Ski® as the reference surface. Over the length of several kilometres a new covering layer has been laid with very high accuracy. During the paving two sensors scanned the milled surface. The third sensor of the Big Sonic-Skis® was positioned behind the paver's screed and used the newly created hot layer as the reference. The now super-smooth laid asphalt surface was detected and included in the permanent calculations to level the ground.

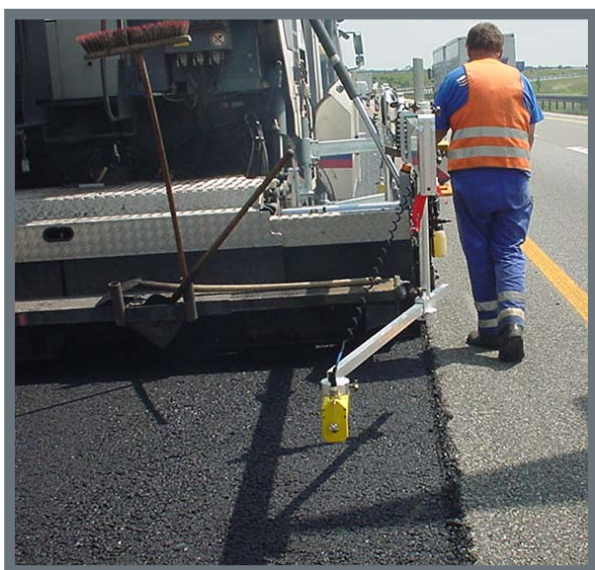


» Detecting over the milled surface



» Due to the sensors' flexible positioning they are also easily used in curves





» A sensor scans the newly created asphalt layer. Even over hot asphalt the sensor works without any problems.

### **Advantages of the Big Sonic-Ski® in motorway construction:**

- » Detecting over hot asphalt
- » Flexible sensor positioning
- » Including the already paved asphalt layer foreven more precise results
- » Quick processing of projects using highly accurate data
- » Unexpected dips caused by imperfect milling are also smoothed out by averaging



# INTERNATIONAL: RECONSTRUCTION AND REHABILITATION IN TURKEY AND CHILE



» Reconstructing an expressway near Konya, Turkey



» Reconstruction and expansion of the Panamericana near Arauco, Chile



# INTERNATIONAL: RECONSTRUCTING A ROUNDABOUT IN VILELSE, ITALY

When constructing a roundabout the Big Sonic-Ski® also provides the ideal technology for level and smooth asphalt paving. For the roundabout in Vilelse, Italy, for example, the paver had to lay a millimetre-accurate wearing course over an unevenly constructed base layer. The Big Sonic-Ski® compensates for all unevenness by averaging the measured values and achieves a very high degree of smoothness.



» Reconstructing a roundabout in Vilelse, Italy

## **Advantages of the Big Sonic-Ski®:**

- » Asphalt paving without guide wires
- » Due to the flexible modular beam system the sensors can be ideally positioned even in curves
- » Any unevenness of the bearing layer is smoothed out
- » Can be used on any paver, anywhere in the world

The MOBA Mobile Automation AG not only sets standards in the field of measurement and control technology for construction machines and in mobile automation, but also provides innovative and individual solutions for the mobile weighing technology and identification systems, for example for the waste management industry.

Founded in 1972 as engineering office the owner-operated company today has nearly 500 employees worldwide and is a system specialist and OEM supplier in great demand. Besides the headquarters in Limburg/Lahn MOBA maintains branch offices in Dresden und Langenlonsheim. With subsidiaries in Europe, USA and Asia as well as an international dealer network MOBA also is represented in all important growth markets of the branches it supplies.



» Headquarters in Limburg

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