

# SONO-WZ

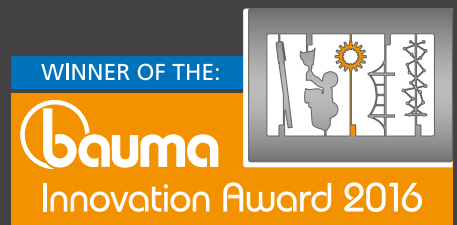
## the Water/Cement Analyzer for Fresh Concrete

**WORLD FIRST**



Based on state-of-the-art TRIME® radar technology it is possible for the first time ever to measure and analyse the water content, quickly, precise and direct on site.

**Simply the better method to measure!**



# THE NEW DIMENSION OF QUALITY CONTROL DIRECTLY ON SITE

## Greater security and preventing expensive damages – with the new water/cement analyzer SONO-WZ

The quality of fresh concrete is crucial for stability and durability of concrete buildings. Of particular importance are the two parameters water content and water/cement ratio in order to achieve the required quality. Up until now, cumbersome and time-consuming samples had to be dried and the water/cement ratio must be determined with material log records.

SONO-WZ can determine the water content, directly on site. A determination of the radar based electrical conductivity  $EC_{TRIME}$  allows an evaluation of the used cement type. Simply place the innovative lance probe inside the fresh concrete and achieve reliable measurement results within 1 to 2 minutes.



### *SONO-WZ CAN BE ADJUSTED TO SPECIAL CONCRETE RECIPES*

*In recent decades concrete types have been optimized with different additives, like self-compacting concrete, fair faced concrete, light-weight concrete, heavy concrete and others. This variety of different concrete types can be covered by SONO-WZ.*

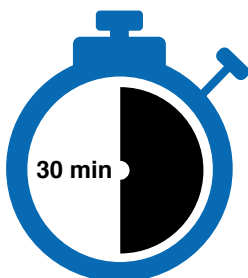
SONO-WZ works with state-of-the-art TRIME® TDR-method (Time-Domain-Reflectometry) based on radar technology. In long-term collaboration with scientific institutions the TRIME® technology was established with scientific discoveries and new, innovative and patented methods. Based on the radar method, SONO-WZ allows an evaluation of the used cement type by detecting the electrical conductivity  $EC_{TRIME}$  which can be interpreted as a raw value for a cement pre-analysis. This new and innovative method is a contribution to a greater security for the control of fresh concrete. With the SONO probe whose measurement field penetrates deep inside the material, plastic and liquid concretes with slump values >30mm can be easily measured. An automatic averaging with 4 to 5 single measurements ensures the of a representative material mix. Due to the structured working method with SONO-WZ, precise and reliable results are displayed within few minutes.

### *EXTREMELY FAST MOISTURE MEASUREMENT IN FRESH CONCRETE*

#### ***Kiln-drying***

Measured material:

**3 kg**



#### **SONO-WZ**

Measured material:

**20 kg**





## AT LAST TO FINISH THE SLOW AND LABORIOUS KILN DRYING!

### The innovative and scientifically established method sets new standards!

- ✓ Precise measurement of water content of fresh concrete mixtures. As user you will obtain not only the percent moisture value, but also the water content in liter per  $m^3$  by considering of the mass density entered by hand inside the SONO-DIS measurement device.
- ✓ Determination of the radar based electrical conductivity  $EC_{TRIME}$  which allows an evaluation of the used cement type. As user you can thus quickly see what is going on concerning the used cement type and if this value corresponds to the expected exposure class.
- ✓ Easy handling: Simply place the innovative lance probe SONO-WZ inside the fresh concrete. After 4 to 5 single measurements with the SONO-DIS device, an automatic averaging ensures precise results within 1 to 2 minutes – directly on site.
- ✓ SONO-WZ is already delivered with a universal calibration which provides reliable results for most used concrete types.
- ✓ Both durable and waterproof construction of SONO-WZ and SONO-DIS ensures safe handling even under difficult environmental conditions.



Concrete-Laboratory certified  
acc. to DIN EN ISO/IEC 17025

“ After more than 150 performed tests we are so convinced of the quality of the SONO-WZ, that we are able to waive additional tests with the kiln-drying procedure in our factory production control system. Therefore, for us this means a considerably simplified work with significant reduction of time. ”

Vladimir Naumann, Head of Test Body,  
mbl Cement and Concrete Laboratory, Germany

### B|A|S Research & Technology

High-qualified research and knowledge institute in the building sector and specialist in the concrete and asphalt sector.

“ With specializing in concrete and with most modern laboratories, we have tested SONO-WZ in various concrete types. Tests were also made at low and high concrete temperatures. To avoid possible errors with kiln-drying, we have produced all mixtures with dry aggregates. We are impressed about the good accordance of the water/cement-values of our concrete recipes which were measured in comparison with the SONO-WZ. ”

Wilko van der Meer, Director,  
BIAIS Research & Technology, Netherland



# Build on technical progress – with SONO-WZ you will save time and money

## So simply and well-structured is the measuring procedure with SONO-WZ

The innovative SONO-DIS measurement device.

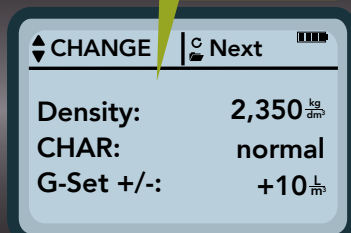
Simple and robust with clearly arranged buttons and easy operation.



### 1. The Settings

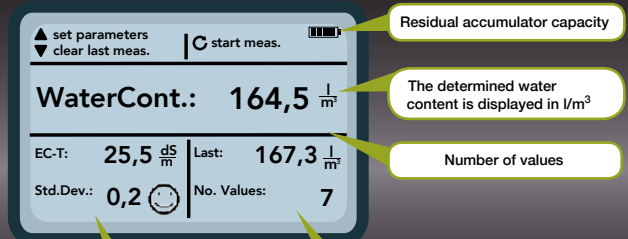
After entering the adjustable parameters, the SONO-DIS can be switched to the measurement mode.

And this is how easy the SONO-DIS can be adjusted to the correct raw density



### 2. The Measurement

Immerse SONO-WZ in the fresh concrete and perform single measurements by pressing the button.



EC-TRIME allows a statement to the type of cement and cement quantity

The specification of the standard deviation makes the measurement more secure

### 3. The Result

Greater security when manufacturing norm-conform concrete.



## TECHNICAL DATA SONO-WZ

<b>SENSOR DESIGN</b>	<b>PROBE DIMENSION</b>
Probe head SONO-WZ: High Grade Steel 1.4301 with ceramic window. SONO-DIS Measurement device: Robust aluminium case.	Sensor: 154 x 60mm (length x width) Suitable for temperatures up to 50°C.
<b>MEASUREMENT RANGE WATER CONTENT</b>	<b>MEASUREMENT RANGE CONDUCTIVITY</b>
The sensor covers water content ranges of different types of concrete with slump values >30mm. Accuracy of up to 1-3 Liter/m <sup>3</sup> is achievable.	The radar-based conductance EC <sub>TRIME</sub> can be measured in a range of 0...50mS/cm, dependent on concrete type or cement type.
<b>POWER SUPPLY</b>	<b>MEASUREMENT FIELD EXPANSION</b>
4.8V-DC, 2000mAh Battery capacity is sufficient for up to 500 measurements per charge.	Approximately 40 - 80 mm, depending on material and moisture.
<b>CALIBRATION</b>	<b>STATISTICAL ANALYSIS</b>
SONO-WZ is already delivered with a universal calibration which provide reliable results for most used concrete types. It is possible to adjust the SONO-DIS with a correction value for measuring special concrete types like fibre concrete.	The SONO-DIS carries out an internal statistical analysis during the single moisture measurements. With and single measurement values an average value and the standard deviation StdDev is calculated and displayed. This ensures a qualitative statement for accuracy and representativity already during the measurement procedure.