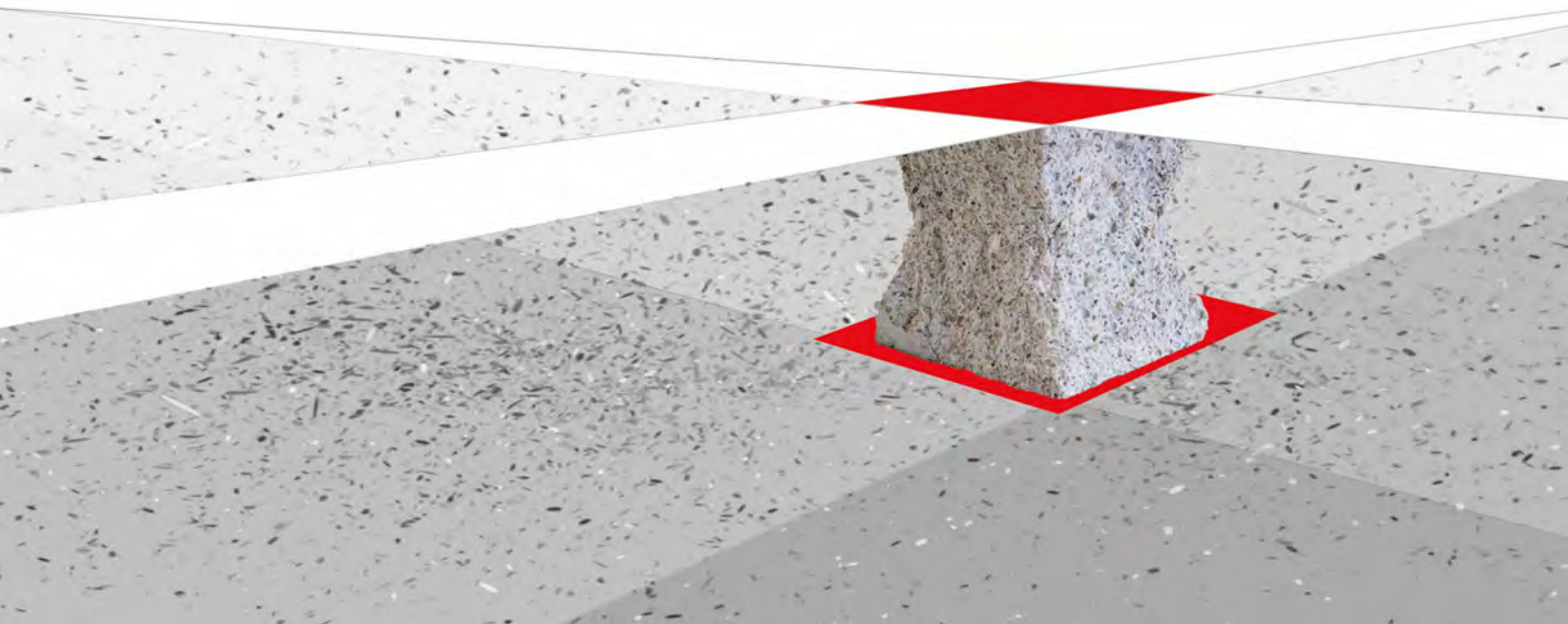


**We are building your success**

Intelligent testing systems  
for high-quality building materials





## Toni Technik

A tradition of quality, experience and competence

Dr. Bodo Richter - Managing Director  
Toni Technik Baustoffprüfsysteme GmbH

Accuracy, precision and reliability have been our main focus in developing, designing, and manufacturing innovative and intelligent testing systems for building materials for more than 140 years.

Our core competence is the automation of standard test procedures which determine the physical properties of these materials. We provide added value to our customers from sample preparation all the way to the determination of specific material properties. Furthermore, our digitally networkable machines and systems eliminate human influence on the application of standard tests.

Years of experience have taught us that each customer's need is unique. Toni Technik machines and services offer highest quality and performance for enhancing our customer's products. The large installation base of machines over many years clearly reflects their exceptional durability.

Our international and qualified network of sales and service partners around the globe ensures a fast and professional response time.

We at Toni Technik value sustainable and fair partnerships with our customers, and other stakeholders. Regular assessments of our suppliers are a prerequisite to maintain our world-renowned quality.

Toni Technik takes pride in helping you meet your material testing challenges every day.

**We are building your success.**



## Our promise

When our customers purchase a Toni Technik testing machine, they receive a product with the highest level of quality and gain a partner with more than 140 years experience in materials and components testing. Our goal is to make sure our customers have the most reliable test results: this is what drives us every day.

# Our history



1876

- Dr. Hermann Seeger founds the "Chemische Laboratorium für Tonindustrie" in Berlin
- Publication of the magazine: "Tonindustrie Zeitung"



- 100 years Tonindustrie newspaper
- First automated mortar mixer

1976

1986

- First automated Vicat instrument
- Member of the ZwickRoell Group



- First digital measuring and control system: ToniTROL

1994

2006

- Integration of Amel Labo SAS in France, a 100 % daughter of Toni Technik



- New location near Berlin (BER) airport

2020



## Our Industries



Cement industry



Mortar & gypsum industry



Construction chemical industry



Precast and concrete manufacturers



Manufactured concrete product



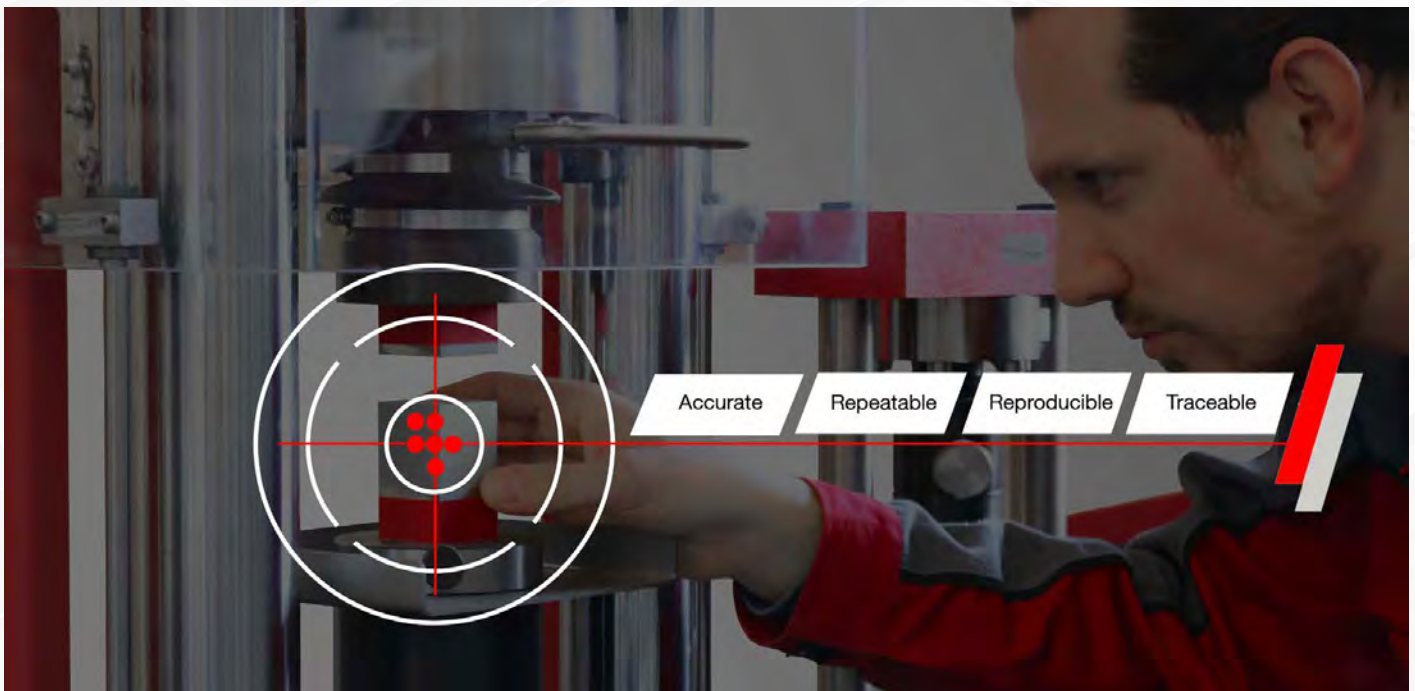
Academia



Standardization institutes



Public and private testing laboratories



## Toni Technik Production

A competent and experienced team of technicians guarantee the high level of quality that our customers expect. We fabricate and assemble our machines and instruments in Germany. Besides our standard product portfolio we offer customized testing solutions.

Toni Technik is certified according to DIN ISO 900:2015 Quality management systems.

All our suppliers are regularly assessed in order to maintain the level of standards in the whole supply chain process.



## New trends in construction industry

Interview with Dr. Robert McCaffrey from Global Cement

**Robert, you are a co-founder of Pro Global Media and for more than 20 years your company, through Global Cement Magazine, has shared valuable information around various industries. Formats like Global Cement are very well known and appreciated in the cement industry. As such, you have a profound know-how of what is going on. What are the main challenges and key trends for the cement industry in this decade?**

*The most prominent topic is of course CO<sub>2</sub>. Heidelberg Cement just recently announced its intention to build the first CO<sub>2</sub> neutral cement plant, in Sweden. This is a really exciting news. However, there are also plenty of smaller opportunities to reduce the specific carbon footprint of cement, such as the use of secondary raw materials and fuels, the substitution of clinker in the cement or finally to minimise the amount of cement consumed in construction overall.*

**What does this mean? Do you expect that cement will disappear as a construction material?**

*Definitely not: the amount of cement is the second largest commodity consumed globally after water. This will not change in the future due to the specific properties of products and applications. But there are great potentials to minimise the carbon footprint of a building by the way that cement is used. Let me give you two examples: cements with very high strength will allow the minimisation of the cement content in the concrete. And secondly, the technology of 3D concrete printing will reduce the amount of concrete needed.*

*Indeed, there is a great potential on the product side as you mentioned.*

**Is there anything that we as ToniTechnik can contribute to the reduction of the emissions generated in a cement plant?**

*The control of the cement process has become more and more automated. Complete kiln lines can already be controlled remotely and are optimised by information technologies such as artificial intelligence. Through these technologies substantial savings in energy consumption are achievable. However, any control system can only be as good as the quality of the available data. Your approach to focus on high accurate testing equipment fits in there very well. However, the generated measurement data must be correlated with the process data. The high amount of data needed for optimisation requires that the lab data will be available in the plant network automatically.*

**Rob, when listening to your regular webcasts, one very important topic in the last 12 months has been the impact of the Coronavirus epidemic. How has it impacted your business model?**

*One of the main changes is that Global Cement's events have become virtual for the duration of the epidemic. Rather than organising a conference in a hotel or business center, we have successfully organized many online conferences with speakers and participants from all over the world. Like us, our clients have become used to the virtual world.*

**Will real-world conferences return?**

*Of course, because we are all humans and real-world personal interaction will remain the most valuable means of communication. Check our website to know where you can meet the global cement community next.*

**Thank you very much, Robert McCaffrey!**



**Magazine  
Directory  
Web & Digital**

**Conferences  
Exhibitions  
Virtual Events**

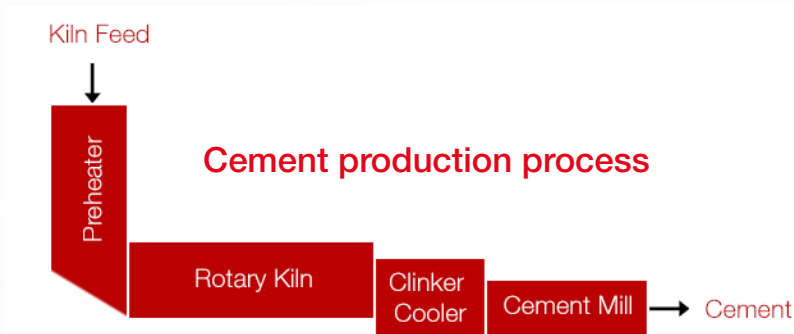








# Quality control of cement



## Main goals of the cement production process:

Enhance cement quality



Minimize energy consumption



Optimize mill output



## ToniPERM

### Tangible benefits from automated testing technologies for quality control

- Manually performed test methods are associated with a high variability of results.
- Automated testing equipment enables the highest level of precision and accuracy in the measuring of physical properties. Reproducibility is improved and deviation is reduced by eliminating possible human influence.
- The use of an automated Blaine device leads to optimized control of mill efficiency and thus to substantial energy savings.



## Industry Diversification

Our **ToniPERM II** is found to be a great fit into other industries:

### Metal industries across the globe

Determination of iron powder fineness plays a key role in the pelletizing process where the fineness value measured in cm<sup>2</sup>/g effects the balling process. The air permeability tester **ToniPERM II** is designed for the determination of the specific surface of powders, especially suitable for the permanent control of manufacturing characteristics in the daily laboratory work.

### Pharmaceutical industry

We stepped into the medical tablet manufacturing industry. The Blaine determination can serve as a quick way of measuring the surface area of the tablet powder. This helps the manufacturers in having a control of characteristics in the daily laboratory work.



# Standard life cycle of a mortar sample

## 1-Mixing



Test Selection - EN

Please choose an EN test procedure

EN 480-1	☰	-	☰	☰	210 s
EN 196-1	☰	-	☰	☰	240 s
EN 196-1 (H2O)	☰	225.0 ml	☰	☰	250 s
EN 196-3	☰	-	☰	☰	0 s

**ToniMIX**



Humidity  
& Water  
Storage



## 3-Sample storage

## 2-Sample compaction



Toni Technik EXECUTE 08/02/16 13:28:11

select amplitude

amplitude set value	amplitude set value
0.0 [mm]	0.75 [mm]
remaining time	time set value
	120 [sec]



**ToniVIB**



**ToniPRAX**



## 4-Strength determination

**LIMS**

Laboratory Information Management System

All our products provide full connectivity to LIMS and this enables the full traceability and documentation of the results. Uni- and bi-directional connection: collecting results from the device and/or sending jobs to the device

VicatDB
testXpert III
ToniLINK
ToniDCA

# New developments for the building materials of the future

3D Concrete printing is a form of additive manufacturing used to fabricate buildings or construction components by continuously extruding concrete and adding in stacked layers. 3D Concrete printing is evolving from a research and development phase to a new streamlined construction methodology due to its substantial reduction in carbon footprint, the flexibility of design and freedom of geometry. It also offers cost effectiveness and speed in construction. For these reasons, it is considered as the future of this industry replacing the conventional practices.

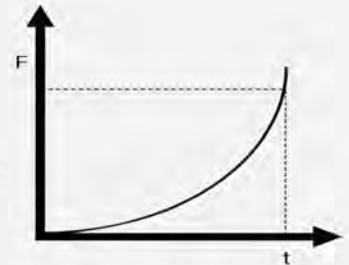


Photo credits: Skyboom, UAE

The speed of the 3D printer is determined by the thickness of the underlying layers.



Force on layer defined by layer height and density.



The outcoming curve can be evaluated to define the right speed of printing.

Based on the *Slow Penetration Sphere* (SPS) method we developed **ToniSET Force** in collaboration with the Technical University of Berlin. It determines the rheological properties like yield stress, viscosity and structural build-up of printable mortars.

## ToniSET Force



Test: KAL			
Max. Force [N]	Max. Stroke [mm]	Meas. Time [hh:mm:ss]	Needle Type
<b>332.7</b>	<b>0.364</b>	<b>00:12:09</b>	<b>FLAT</b>
Material name <b>CEM II A-LL</b>			

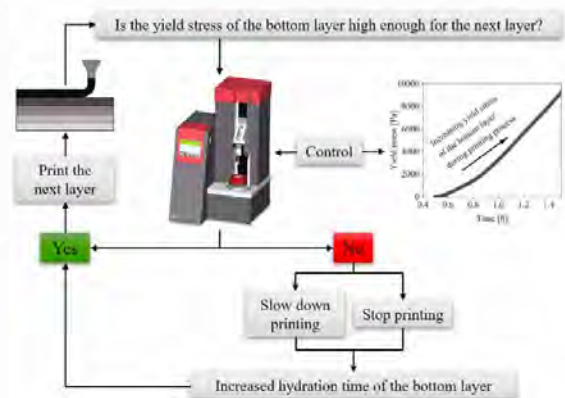


Diagram Credits: Technische Universität Berlin

## KISS® Temperature control totally easy

Bath and circulation thermostats are ideally suited for numerous tasks in the laboratory. They are predestined for sample temperature control and material testing or for external temperature control of measuring instruments and test setups. The units convince with a high temperature constancy and homogeneity.



Inspired by  
**temperature**



www.huber-online.com





# Measuring strength and deformation of concrete



High durability which makes our load frame operational even after long years of use

Highest level of safety during the measurement	Measurement of modulus of elasticity	Highly sensitive fracture detection system	Tough and robust load frames
--	--------------------------------------	--	------------------------------

## Modular system ToniNORM - Highest level of flexibility



With increasing interest and demand for Fiber reinforced concrete (FRC) across the globe due to its advantages and contribution to sustainability, we have also developed special solutions for the deformation-controlled testing of FRC to measure the residual strength and energy absorption.

## testXpert III: Intuitive and workflow-based right from the start

testXpert III is an intuitive and workflow-oriented operating concept for materials testing machines, enabling efficient testing from simple standardized tests to demanding research and development requirements.

testXpert III is the result of over 80 years of experience in materials testing and close cooperation with users from industry and research. Since the introduction of the first version of testXpert in 1995 by ZwickRoell, Toni Technik has been constantly improving its performance for the special demands of building materials tests.



## Special applications



Modulus of  
elasticity



Energy  
absorption



Shear strengths



Steel powder  
compaction



Customized  
applications

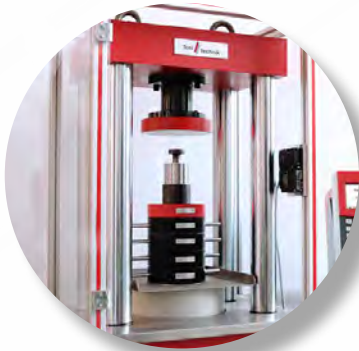
## Success Stories



### Energy absorption of aluminum components

In order to reduce the CO<sub>2</sub>-emission, light-weight construction is gaining importance in the automotive industry.

Aluminum alloys and extruded components with high crash capacity provide new opportunities for this industry. Our automatic servo-hydraulic machines offer sophisticated solutions for the crash test on extruded aluminum profiles.



### Steel powder press

In metallurgy, sintering is the process of blending fine powdered materials, pressing them into a desired shape or form and then heating the compressed material in a controlled atmosphere to bond the material.

Our load frame is specially designed for the metal powder compaction as well as the measurement of uniaxial compressibility.



### Ultra high performance concrete testing

In concrete element testing, compression machines with high forces up to 10 MN and automatically adjustable crossheads are required to accommodate different sample heights.

## Learnings from Covid-19 and digital transformation

Covid-19 and the resulting company shutdowns prompted us to enhance our digital transformation. We enabled remote working as well as remote support of our customers and partners across the globe. We were successful in implementing and embracing new forms of digital business interaction tools. Thereby, we successfully continued communicating with customers and partners.

Considering the difficulties of our partners in direct visits at the customer sites, we became much more active and available through our social media platforms like LinkedIn and YouTube creating marketing materials to help in the product promotions such as hosting webinars and online trainings.

Our service team is always available for online-support and through hotline. We look forward to improving our online competence in the future in order to maintain and extend our support and relationship with the business world.



**PSR** PAULY STEUER-  
UND REGELANLAGEN

PSR Pauly ist Ihr kompetenter Ansprechpartner, wenn es um innovative nachhaltige Produkt- und Systemlösungen für Steuer- und Regelanlagen geht. **Wir sind für Sie da**

• Pauly GmbH & Co. KG • Steuer- und Regelanlagen • 61169 Friedberg •  
• Tel.: 06031-7231-0 • info@pauly-systems.com • www.pauly-systems.com

**HAYER & BOECKER**



DIE DRAHTWEBER

### HAYER PARTICLE ANALYSIS. BENCHMARK FOR PRECISION.



Haver & Boecker provides you intelligent solutions for your analyse of dry bulk materials – from sample dividing through sieve analysis to particle size and shape analysis.

HAYER & BOECKER OHG Particle Analysis

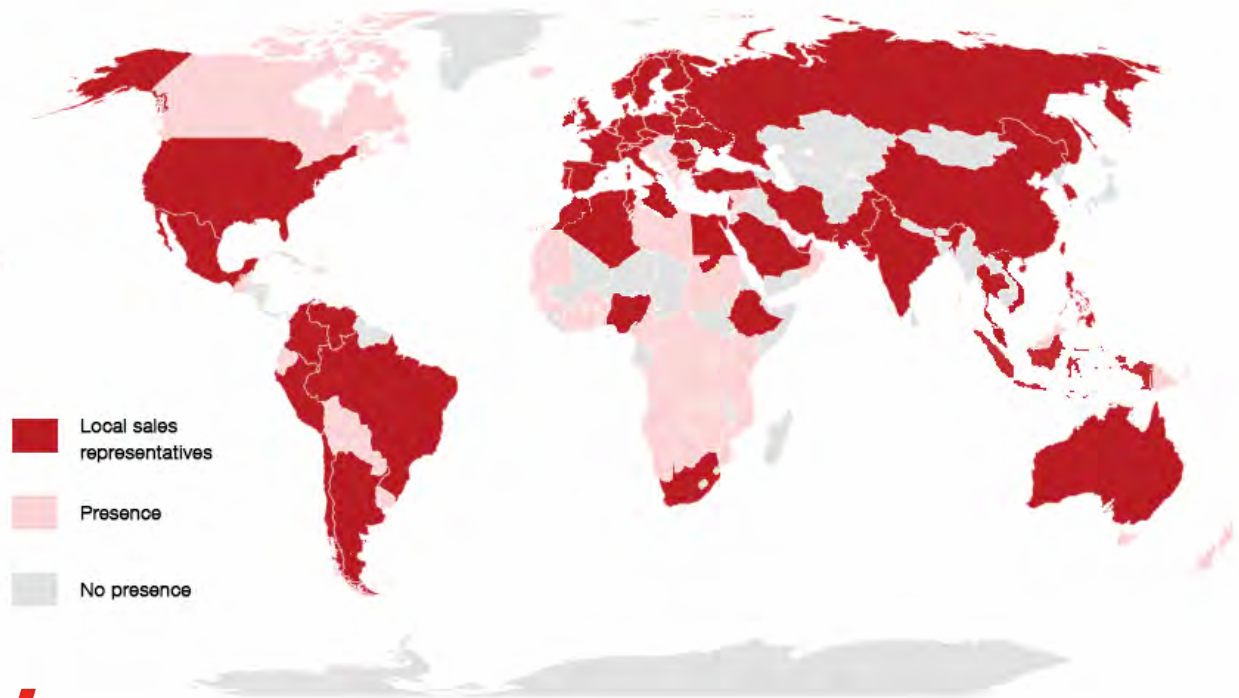
Phone: +49 (0) 25 22-30 363

E-Mail: pa@haverboecker.com

Internet: [www.haverparticleanalysis.com](http://www.haverparticleanalysis.com)

HAYER & BOECKER

## Our Sales Team



To understand our customers, needs, we work with more than 50 regional sales and service partners to ensure customer proximity. Our international and multicultural team is ready to support you.

## We are part of the ZwickRoell group

**ZwickRoell** is a global leader in materials testing and a trusted partner for reliable test results. With a large portfolio of materials testing machines and accessories and software, the ZwickRoell Group offers the right solution for any testing requirement for more than 20 industries.

With over 1,650 employees worldwide, production facilities, subsidiaries and agencies around the world, the ZwickRoell brand is a guarantee of the highest product and service quality.



Zwick / Roell  
Indentec

LATZKE

EMCO-TEST  
WISSEN IST SICHERHEIT

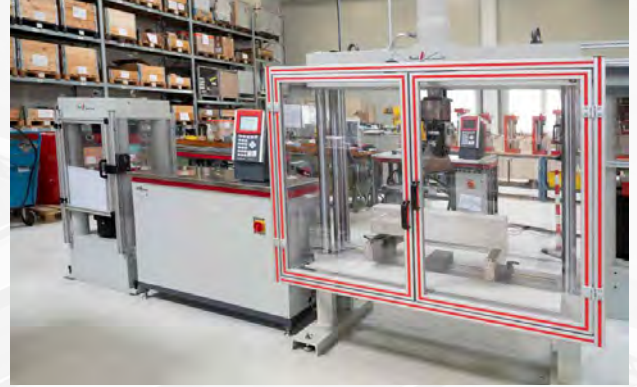
AGMEL LABO

GTM  
DEFINING PRECISION

Zwick / Roell



## Take a look at our premises



**Toni / Technik**

**AMAS**  
CNC-Zerspanungs  
GmbH

**CNC Fertigung für Maschinenbauteile und  
Neufertigung / Reparatur von Sondergetrieben**



- Ahornweg 2
- D-39288 Burg
- Tel.: 0049 (0) 3921 990 441
- Fax : 0049 (0) 3921 990 442
- E-Mail [info@amas-burg.de](mailto:info@amas-burg.de)
- [www.amas-burg.de](http://www.amas-burg.de)

Wir verfügen über einen modernen Maschinenpark und konnten uns mit Hilfe unserer hochqualifizierten Mitarbeiter als Zulieferer für verschiedene Bereiche des Maschinen- und Anlagenbaus etablieren.



**NORMENSAND**  
Made in Germany



**NORMENSAND GmbH**

Hans-Böckler-Straße 20 · 59269 Beckum  
Phone: +49 (0) 2521 828880 · Fax: +49 (0) 2521 8288820  
E-Mail: normensand@zemnet.de · www.normensand.de

## Deutscher CEN-Normsand

- Zertifiziert nach DIN EN 196-1 und ISO 679
- Über 50 Jahre Prüfsand-Produktionserfahrung
- Partner der Zementindustrie und Laboratorien
- Kunden in mehr als 90 Ländern weltweit

## German standard sand

- Conforming to DIN EN 196-1 and ISO 679
- More than 50 years experience in standard sand
- Partner of cement industry and laboratories
- Customers in more than 90 countries worldwide



### ► Environmental Simulation

- Heating und Drying Oven
- Temperature Test Chamber
- Climatic Test Chamber
- Sun Simulation Test Systems
- Corrosion Test Systems
- Freeze-thaw Test Chamber
- Building Material Test Chamber



**WKM**

Whatever you are going to simulate.

We'll project it.

Wärmeprozess- und Klimaprüftechnik Michel GmbH & Co. KG • Im Bulloh 30-32 • 29331 Lachendorf • Phone: +49 51 45 - 28 666 - 10 • www.wkm-michel.de

**Retsch**<sup>®</sup>  
MILLING SIEVING ASSISTING



**OVER 100 YEARS OF INNOVATION**  
**LABORATORY MILLS, CRUSHERS AND SIEVE SHAKERS**



www.retsch.com

part of **VERDER**  
scientific



# Toni / Technik

Alexander-Meißner-Str. 12  
12526 Berlin, Germany

Tel.: +49 (0) 30 464039-0  
Fax: +49 (0) 30 464039-22

info@tonitechnik.com  
www.tonitechnik.com

