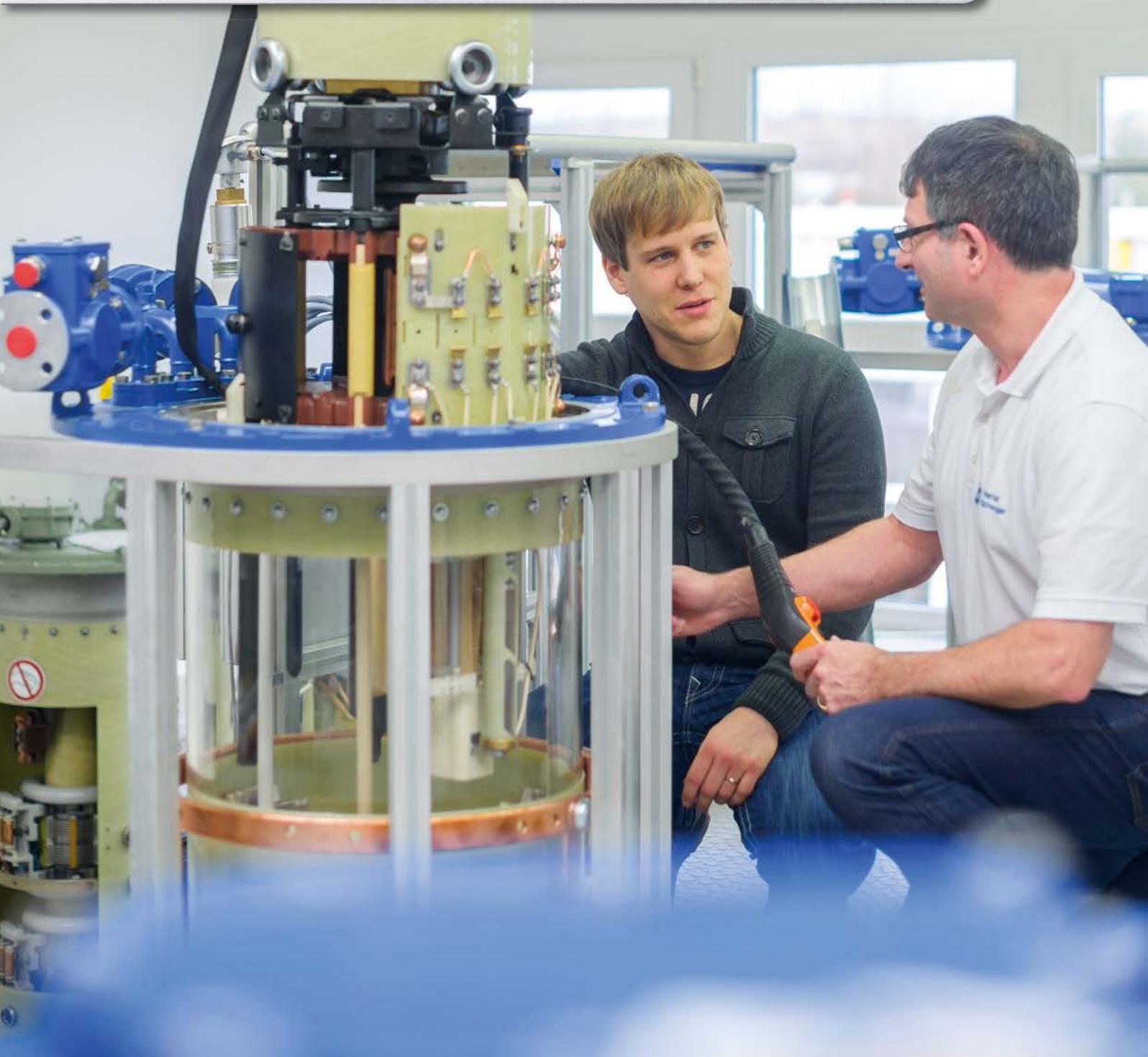




ASSET MANAGEMENT

MR TRAINING CENTER IN REGENSBURG, GERMANY

WWW.REINHAUSEN.COM





Learning from experienced employees

Our trainers offer more than 125 years of combined field experience as service technicians. Along the way, they have mastered every challenge.

OUR ANSWERS TO YOUR QUESTIONS.

At Maschinenfabrik Reinhausen, we are proud of our on-load tap-changers: Our customers can be secure in the knowledge that their devices will function properly for decades. Anyone who still wants to learn more about our tap changers and the associated technology can visit the training center in Regensburg.

Quenching your thirst for knowledge

Reliability is a trademark of MR. Customers can put full trust in our on-load tap-changers without even placing a hand on them. Many customers appreciate this particular aspect of our products.

Other customers want to know as much as possible about "their" on-load tap-changer. They are interested in its inner workings, and want to learn more about the motor-drive unit or learn how the monitoring programs and control systems operate. At our training center in Regensburg, we satisfy this thirst for knowledge.

Here, transformer manufacturers learn more about tap changers and their interplay with transformers. We provide details about installing the on-load tap-changer in the transformer and important aspects to observe when carrying out a transformer test.

Energy suppliers, for example, can focus on maintenance, control systems and monitoring systems for on-load tap-changers during training.

Customized training programs

MR training offerings include hundreds of different training courses. We create a special, customized program for our customers so they can learn by working with the products that they themselves use.

In theoretical and hands-on training sessions, you will learn all about on-load tap-changers and the associated technology. Afterwards, you will realize exactly why you can rely on our products.

Our platform for hands-on work on the on-load tap-changer. Models cased in acrylic glass allow participants to catch a glimpse of the processes inside the tap changer.



HANDS-ON TRAINING IN 700 SQUARE METERS – THE REGENSBURG TRAININGCENTER.

Since 1976, we have been training our own technicians and interested customers here. Here you will find the most state-of-the-art work rooms and a historical collection of functional on-load tap-changers, which is probably the largest in the world.

A training center for high expectations

In addition to our six state-of-the-art training rooms, we have plenty of room for hands-on work. This means that demonstration objects are always close at hand, even in theoretical training sessions. We provide over a hundred on-load tap-changers, on-load tap-changer inserts and extensive measurement and control technology for hands-on training. On our platform for work on the on-load tap-changers, you can catch a glimpse of the processes inside the tap changers. A dedicated training room allows you to work on monitoring and control systems (automation & control).

Our seven trainers were active as service technicians for many years – there is almost no issue regarding on-load tap-changers that they have not solved. The training programs and products for hands-on training are updated continuously.

The path to your training

Our customers usually work together with their contact partner at MR to create a customized training session. A typical training course consists of a well-rounded program over five days. The sessions are taught in German or English; sessions in French, Spanish, Italian or Portuguese are also available on request. The group size is four or five people for hands-on training and a maximum of ten participants for purely theoretical sessions. An introduction to Maschinenfabrik Reinhausen and visits to the plant and the MR test center are a part of each training course. We provide transport between the airport, hotel and training center.

The Regensburg training center offers optimum conditions for teaching the theory behind on-load tap-changers and how to use them.



Theory

- On-load tap-changers and their functional principle
- The interplay between on-load tap-changers and transformers
- On-load tap-changers and motor-drive units
- Monitoring systems and the interpretation of monitoring signals
- Protective systems of the on-load tap-changer
- Functional principle and applications of MESSKO® products

Practice (hands-on training)

- Training in activities such as fault analysis for motor-drive units, the conversion and installation of on-load tap-changers into complete functional models (motor-drive unit, drive shafts, on-load tap-changer, oil compartment and selector) and maintenance
- On-load tap-changer monitoring
- Work with monitoring and control systems
- Work and measurements on the transformer:
 - Interplay between on-load tap-changers and transformers
 - Measurements (e.g. static and dynamic resistance, transmission, vibroacoustics, $\tan\Delta$)
 - Work-safety and environmental factors

Our most popular training package

- General introduction to transformers and on-load tap-changers
- Training with one or two of the most common on-load tap-changer types (M, R, V, VM, VV, VR) with the MA7, 7/8, ED motor-drive units and accessories (drive shafts, protective relay)
- Environmental and work-safety factors when working on large transformers
- Tour of the plant and test center
- Presentations about the company and MR asset management



A glimpse into the inner workings of on-load tap-changers.

Participants receive a certificate for successfully completing the training course.

WHATEVER YOU USE –
WE HAVE IT ON SITE.



In the training center, we have over 300 different products for hands-on training. You will work with the exact device that you yourself use. Is your on-load tap-changer 50 years old? Have the electronic components have been in operation for three decades? No problem. We cherish our history – even in practical applications.

On-load tap-changers

- All MR on-load tap-changers in oil and vacuum technology (OILTAP® and VACUTAP®); some are complete functional models consisting of a motor-drive unit, drive shaft, tap changer and monitoring system
- Earlier models and motor-drive units from other manufacturers (AEG, Siemens, Trafo Union)
- Years of manufacture from 1950 to the present
- The widest selection of motor-drive units
- The widest selection of on-load tap-changer assemblies



Two training transformers

MESSKO® transformer accessories

- Oil-level and temperature displays
- Pressure relief devices
- Dehydrating breathers
- Many additional MESSKO® products



Automation & control

- Voltage regulators
- Monitoring systems
- Hands-on fleet monitoring (monitoring of transformer fleets and field devices for one or more substations or in the energy grid)



Carlos

EMANA EN EN FAMILIA.

لقد سعدت بزيارتي
بالشعب الدرگاني
كانه الا سيقان
رسه ذلك مثل نجبا
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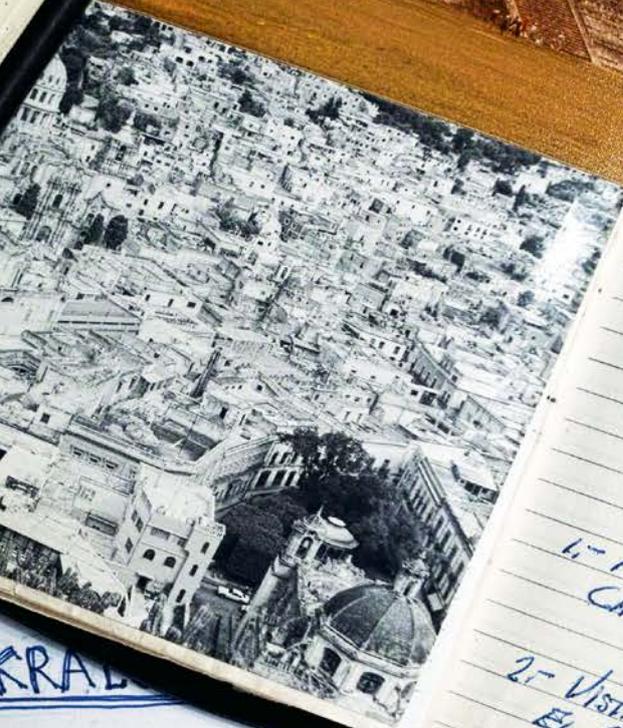
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very much for the training course!

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Y COOPERACION DEL
MASHINENTABIA
CONCRETAMENTE DE
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DR. TAPPER
EL PERSONAL DEL DESPA
DE QUIENES PUEDO DECIR
COOPERACION Y FRANCA AM

SINCERAMENTE DESEO QUE
DE NUESTRO PAIS DESPIERTE
-FUNDO DESEO POR VISITAR
PUO MAS ALCERCA DE LO
MEXICO ES EN EL PRESEN
DE UN HISTORICO PASADO
PLENA EN EL FUTURO. QUE
ALERQUEN MAS NUESTRO PENSA
E ING. GUILLERMO GUA
JEFE DEPTO. SERVICIO
INDUSTRIAS IEM

- 1.- Piramide el Castillo, Cultura Maya Chichen Itza Merida - Yucatan
- 2.- Vista de la ciudad de Guanajuato el Cerro del Pipila Guanajuato, Gto. Mexico.

THANK TO MARKUS FOR
STAYING WITH US WITH YOU
IN OUR HOUSE AND IN
OUR HOUSE IT WAS A
TREASURE

WE MAKE OUR CASE WITH FACTS.

For decades, visitors from around the world have voiced their appreciation for us. Why do they feel like they're in good hands at the Regensburg training center? Because here, they find the optimum conditions for successful learning.



The perfect location for high-quality training

- Large plant rooms for hands-on training sessions
- A platform for optimum work on on-load tap-changers
- Special models offer a glimpse into the processes in the on-load tap-changer
- You can follow technical developments firsthand through our historical collection of functional on-load tap-changers, which is probably the largest in the world
- Six state-of-the-art training rooms
- Your own training room for hands-on work with control and monitoring systems (automation & control)



MR is at home in the world – the world is a guest at MR

- People from over 170 countries have already participated in our training courses
- Our training languages are English and German; French, Spanish, Italian and Portuguese are also available on request
- Day after day, we work with people from all over the world. We are thoroughly familiar with different cultures
- Our trainers have worked all over the world as service technicians. They are familiar with the conditions at various locations



All options for hands-on work

- 115 different on-load tap-changers, 14 of these complete with a motor-drive unit
- 24 different motor and manual drives
- 142 functional models
- Experience history hands on with on-load tap-changer models from the last 65 years
- 9 monitoring devices
- 19 MESSKO® devices
- 23 different training models for automation & control



Always up-to-date

- Our training programs are updated continuously
- All of our newest product models are on-site
- We adapt the training program to your individual needs

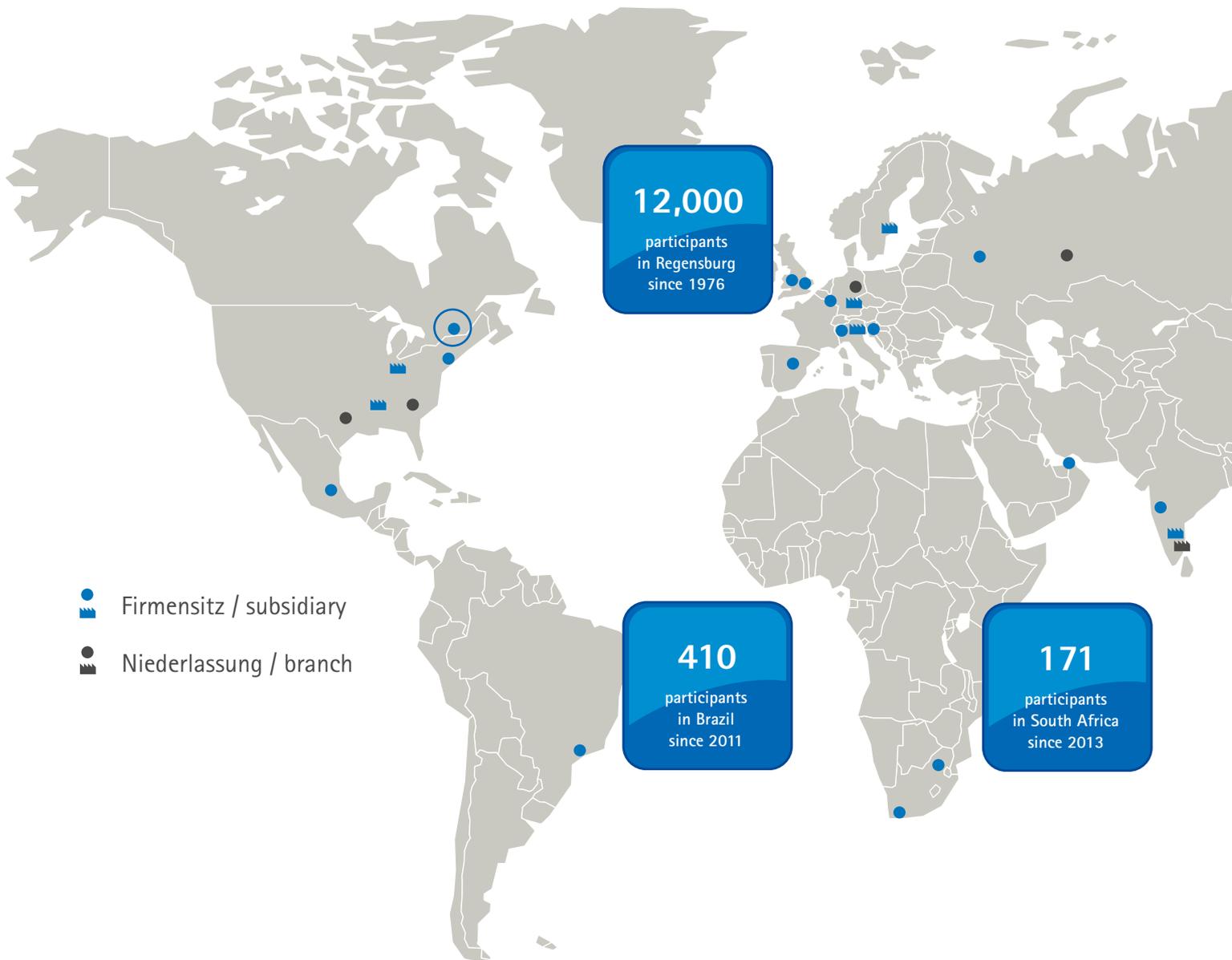


By professionals, for professionals

- Our trainers are professionals: There is practically no challenge regarding on-load tap-changers which they have not already mastered
- Seven trainers, some of whom boast decades of experience as service technicians and in training, provide answers to your questions

AS WORLD MARKET LEADER, WE MAINTAIN A GLOBAL PRESENCE.

Is Regensburg too far away? MR maintains certified training centers on three other continents. These centers maintain close communication with MR headquarters and offer the same standard with respect to quality and trainer experience. The number of available products for hands-on training courses varies. If necessary, we can send trainers to our offices in Canada and Australia on request. On request, we can also carry out a practical on-load tap-changer training using your transformer in the substation.





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THE POWER BEHIND POWER.

