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Partners in Training



TECH CORNER
EVALUATING
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**CORNERSTONES
OF COMPRESSION**
SLIDING VANE MACHINES

Learning the ins and outs

Siemens Energy Offers hands-on training programs

Properly trained operations and maintenance personnel are crucial to safety, efficiency, and production uptime in industrial plants. Many organizations today are challenged to equip their employees with the knowledge and skills needed to get the most out of their equipment assets. This is particularly the case with highly intricate and complex machinery, like compressors and gas and steam turbines. Even when original equipment manufacturers (OEMs) provide specific training on their products, it is often difficult to transfer knowledge from the training setting to the plant.

Closing the knowledge gap

At Siemens Energy, the goal is to close the knowledge/skills gap by offering a unique training experience that is applicable to each of our customer's individual needs and challenges.

The company's two training and competence centers in Houston, Texas, and Duisburg, Germany are among the most advanced rotating equipment training facilities in the world, the company said.

Highlights of industry training opportunities.



Training at the Houston, Texas facility of Siemens Energy.



Training at the Duisburg, Germany facility of Siemens Energy.

PHOTO: SIEMENS ENERGY

They offer a broad range of introductory and advanced educational programs for operators, mechanics, maintenance supervisors, and reliability engineers that work with centrifugal and reciprocating compressors and steam turbines across the Dresser-Rand and Siemens Energy portfolio.

Company instructors have decades of experience training personnel on how to safely operate and maintain our products. Training programs cover topics ranging from equipment basics to plant management, operations and maintenance, control systems, and other disciplines relevant to the entire equipment train/package.

In-person and virtual classroom sessions are available depending on

customer needs and travel restrictions. Many of the programs at the training centers in Houston and Duisburg feature a hands-on portion, where attendees can disassemble, inspect, measure, record, and reassemble equipment just as they would be required to in their plant. With the help of instructors, individuals can learn how to navigate and interpret service manuals to determine procedures, troubleshoot, and even properly torque valves.

The objective is for participants to leave with a deep understanding of the specific model variation they will be working on at their facility, including how to operate the asset safely and efficiently, and perform preventative maintenance.

Instructors can travel to customer sites

EDITOR'S NOTE

Partners In Training showcases colleges, companies and organizations with compressor training programs that participate in our annual COMPRESSORTECH² Sourcing Supplement (CTSS). These programs make the CTSS, the industry's leading reference source for purchasers, packagers and training providers, available as part of their course material.

More information on the companies and colleges mentioned in this issue can be found at ctssnet.net.





if plant personnel are unable to attend scheduled programs at training centers.

Real-world experience

At Siemens' training and competency centers, the company said it aims to create a setting that mimics conditions in the real world, down to the same model of compressor or turbine at the customer's facility. The company can even employ the same software the customer is using to operate the asset.

The Duisburg Training & Competency Center includes:

- 15 different compressors and steam turbines
- Installed 120 MW two-casing steam turbine, gearbox, generator, and auxiliary systems
- Water steam system and test bed for steam turbines
- Installed compressor train with two casings, gearbox, electrical motor, and all auxiliary systems
- Various mechanical and electronic control systems

In partnership with the University Duisburg / Essen, the Duisburg facility offers a master's degree, which covers key competencies, including production management, materials, combustion science, heat and mass transfer, turbomachinery, control theory, advanced engineering, and computer-aided design (CAD).

The Alberto Schirmer Training & Competency Institute in Houston is also

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state-of-the-art, with advanced gas turbine simulator training, which allows trainees to gain valuable experience controlling, recognizing, and interpreting the interactions between the various plant systems in a risk-free environment. Virtual faults can be generated, giving individuals the opportunity to troubleshoot just as they would in a real-world scenario.

Long-term Training Programs (LTPs)

In Duisburg, in addition to the standard programs and classes, we also offer Long-term Training Programs (LTPs). LTP options extend up to five years and can be adjusted at any time, according to equipment and resource requirements. Customers can elect for a standard LTP or for a customizable program, with their choice of individual training topics, content, and delivery approach.

This level of flexibility helps ensure that there are no knowledge/skills gaps and that all equipment operations and maintenance needs are met in the most efficient and cost-effective manner.

Customer training from Baker Hughes

Baker Hughes' FSE Technical Training Academy and Customer Training (CT) develop competency-based learning pathways in all areas of the energy and industrial markets. Both for operators and for our people.

We offer classroom and hands-on training, designed according to customers' needs, and also innovative eLearning modules and Virtual Reality training, which allows participants to be well prepared to complete tasks in a faster and safer manner. Our courses span across key Baker Hughes turbomachinery equipment, such as gas turbines, steam turbines, centrifugal and reciprocating compressors, centrifugal pumps, and control systems, providing solutions that allow participants to operate and maintain the machines at pick performance. Moreover, we offer soft skills courses as well as the AIR Experience, an immersive cultural experience designed to embrace diversity >>

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Hydrogen and carbon capture.

BORSIG compressors for process gases.



Think.
Create.
Change.

Let's get the future started today with our compressors for electrolyser projects, hydrogen, CO₂ and process gases.

→ **reciprocating compressors**

→ **integrally geared centrifugal compressors**

We look forward to welcoming you at our booths: Hydrogen Technology & Carbon Capture Expo Bremen, GASTECH and ADIPEC 2023.

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and inclusion. For more information, visit us at: bakerhughes.com.

Hoerbiger's qualification program

Hoerbiger qualification program enables you to strengthen your IQ as well as to become an expert in your daily work and especially in your industry. Follow your individual qualification path for even more success through professional development.

Our training courses are divided into three levels - from introductory level to expert certification, as we want to ensure that the right training is available for you and your level of knowledge. However, it is also possible to start at the desired level at any time, whereby many training courses also build on each other in terms of content.

For that reason, we offer you a completely modular training catalog, therewith you can successively build up your knowledge and continue educate further to the desired level of qualification. In our "menu", you will find 25 different training modules that you can attend online, as they only take 1.5 hours each. In our "Knowledge Sessions", that take place in person, we have already compiled a comprehensive 2-day seminar for you. Here, you can choose whether you want to start with the basics or directly acquire expert knowledge. But that's not all: In our "Overhaul School", consisting of theory and practice, you implement your received theoretical knowledge directly into practice on our training compressor. The Hoerbiger "Training Academy" offers you the complete package: Starting with the theoretical introductory through to practical exercises, you will become an industry expert in 10 days with a technical diploma.

On this level we provide all the relevant fundamentals to achieve a good technical understanding of reciprocating compressors theory and working principles. This is not just the pure basics, but on this level, we also offer less complex topics. These trainings are highly recommended graduates, and career changer.

If you already have good knowledge and experience in a subject area, our training offering on an advanced level is exactly what you need. In these trainings you can deepen your knowledge about compressors

and expand your professional skills in key areas on a system level. To participate in trainings on this level, you can attend courses from the introductory level in advance.

For the step to be an absolute expert in a specialist area, we recommend this highest qualification level. With the relevant professional experience or participation in training courses of the two previous levels, you will receive comprehensive specialist knowledge at expert level. At the end, a short test is conducted to check your level of knowledge.

Hoerbiger's IQ training

IQ - Industry Qualification is the OEM independent customer training offer that will guide you through a wide range of RECIPs' knowledge. The offering includes webinars held by an on-line instructor as well as in person knowledge sessions on one of our premises globally distributed. Moreover, a 4-DAYS hands-on experience on a 2-cylinders reciprocating compressor is available on one of our training centers in: Wien, Jubail, LaPorte, Singapore & Melbourne. The Training Academy 10 DAYS of theoretical and practical activities will be the perfect scenario to train the most promising rotating equipment engineers offering a path that will start from the basic to the most advanced knowledge about compressor maintenance, reliability and trouble shooting.

EFRC Conference "Challenges in hydrogen compression"

As hydrogen will be a key factor in the energy transition, the compression of hydrogen is a very relevant aspect for the European Forum for Reciprocating Compressors (EFRC). In 2022, the EFRC released a whitepaper "Challenges in hydrogen compression."

For the EFRC Conference this year, the EFRC proposes a training on the same topic. This training will take place on the morning of the opening day of the conference and allows the participants to combine the networking event of the conference and exhibition with a technical training on this relevant topic. During the training, 6 experienced speakers from industry will present various aspects of hydrogen compression.

The training is valuable for both new engineers in the field of reciprocating compressors, as well as for experienced engineers who wish to deepen their understanding on hydrogen compression.

The 13th EFRC Conference will take place in Zagreb, Croatia Sept. 19-21. The conference topic will be energy transition, and in particular the valuable role of the reciprocating compressor in this transition.

Hands-on training opportunities abound throughout the industry.



Waukesha now offers two distinct VHP training paths, an operator and a technician path, with either a Factory Trained or Certified status.



PTC at INNIO Waukesha

The Product Training Center (PTC) at INNIO Waukesha Gas Engines Inc. (Waukesha) is redesigning its curriculum to better prepare operators and technicians for the ever-changing energy landscape. Key updates include the introduction of new VHP operator and technician certification paths that work in tandem with a comprehensive Online Learning Package (OLP) and expanded attendance options for the Gas Engine Technology (GET) course.

Waukesha now offers two distinct VHP training paths, an operator and a technician path, with either a Factory Trained or Certified status. This approach better acknowledges the varying skill levels and expertise within the industry.

The OLP provides access to all eLearning modules required to obtain or maintain Waukesha certification for the VHP, VGF and 275GL+ engines. The digital platform contains informative videos and webinar recordings. Anyone interested in learning about Waukesha's engines can subscribe to the OLP, granting them access to complete the online components of the VHP operator and technician training paths.

Technicians now have three options for completing the GET course: instructor-led training at Waukesha training center facilities, a fully self-paced, web-based course or an online test-out option for experienced operators and technicians. Waukesha's dedication to offering a variety of training options caters to the diverse needs and learning preferences of students,

ensuring a more effective and personalized learning experience.

To learn more about these comprehensive training programs, visit Waukesha's PTC website.

FW Murphy offerings on engine control products

FW Murphy Production Controls offer in-depth training to help users get the most from their engine control products. Custom, on-site training is available as well as a variety of standard topics, including Engine Basics, IntelliSpark Ignition, AFR Operations, EICS Operations, EICS-VHP Operations, Centurion Operations and M-Link Usage.

In-person training includes hands-on learning with small classes. Virtual options also are available.

Stasskol training for spare parts in recip compressors

Stasskol offers specialized training for spare parts in reciprocating compressors. The training includes the basics of sealing technology; all about piston rings and rider bands, piston rod packings, intermediate packings and oil wiper packings; the basics of packing construction; the basics of packing repair; and the selection of ideal material. Stasskol also offers individual training on special topics.

Laschet Consulting training

Laschet Consulting is a German company for engineering services, technical consulting and special customer training specialized in various areas of drive technology.

The training covers the complete range of torsional vibration analysis (TVA), including rotordynamic calculation and evaluation of complete shaft systems in rotating machinery. The training program can be arranged according to the customer's preferences – also online. Furthermore, we offer our annual "International seminar on rotordynamics and fluid-film bearings." Laschet Consulting provides customer support mainly for the European market.

Miba Industrial Bearings

Miba Industrial Bearings offers customized trainings and support for engineers and

maintenance teams at the End User and OE's on the inspection and installation of bearings.

Hydrodynamic bearings are a critical part of every rotating equipment including compressors, gas or steam turbines and generators. Many aspects of babbitted bearings have to be understood to allow a safe and efficient installation. Items to inspect before installations, best practices, hot topics like bearing clearance, and discussing common mistakes are part of our customized service.

The topics in which Miba Industrial Bearings can support its customers are pre-installation inspection, installation, disassembly as well as final inspection or tips for bump or lift checks.

Additionally, we do trainings on bearing design and layout for engineering teams as well as their drivers for bearing performance. One of these include a training for our pedestal or flange housing bearing calculator, which are used in Turbogenerator, hydro turbines, large motors or synchronous condensers. Not to forget to mention that Miba offers trainings for laby seals redesigning and upgrades. This is exclusive to Miba Houston site.

U. of Oklahoma short course

Held annually, the Gas Compressor Short Course offers participants the opportunity to learn current diagnostic and repair techniques on equipment. This year the event is Aug. 29-30 at the Embassy Suites by Hilton in Norman, Ok.

While working in a lab setting, instructors will demonstrate current diagnostic methods and repair techniques on equipment. Each participant will have the opportunity to apply and practice the newly learned skills.

Waukesha Bearings hands-on training

Waukesha Magnetic Bearings provides classroom and hands-on training to support OEM and end user ownership of AMB commissioning and maintenance responsibilities.

All training courses are customized to meet the specific application needs and are conducted by magnetic bearing experts. **CT2**

