



Turbomachinery and Power Station Technology in the Capital Region Berlin-Brandenburg



MAN Diesel & Turbo Refinery Train Package



Power laboratory for gas turbine research at TU Berlin

Companies

ABB Berlin
 Alstom Power
 Aerotest
 AneCom
 Arcus
 atech
 Block Materialprüfungs-
 gesellschaft
 BTB Blockheizkraftwerks-
 Träger- und Betreiber-
 gesellschaft
 CEBra – Centrum für Ener-
 gietechnologie Brandenburg
 DirectPhotonics Industries
 Element Materials
 Technology Berlin
 Enlite
 eta engineering
 Euro-K
 Evonik
 GASAG
 HIGHYAG Lasertechnologie
 Imc Meßsysteme
 Ingenieurgesellschaft
 für Energie- und Kraft-
 werkstechnik (IEK)
 Janke Engineering
 Krauss Aviation
 Technologies
 KSC Kraftwerks-Service
 Cottbus Anlagenbau
 KST TURBINE
 COMPONENTS
 Lufthansa Technik
 MAN Diesel & Turbo
 Metal Improvement
 Company
 MTU Maintenance
 Berlin-Brandenburg
 Rolls-Royce Deutschland
 Siemens
 TAKRAF
 Vattenfall Generation
 Vattenfall Wärme
 VPC

The capital region features a unique agglomeration of important players in the turbomachinery and power station technology fields. It is home to the highest density of turbomachinery manufacturers in Europe and has a long tradition in the sector. The first steam turbines were manufactured at the beginning of the second half of the 19th century here.

Strong industry

Five corporations in the region map the entire value-added chain in the turbomachinery sector, ranging from research and development, production and project planning to installation and MRO (maintenance, repair and overhaul). When it comes to performance and efficiency, the turbines produced in the capital region are some of the best in the world.

The Siemens AG gas turbine plant produces and delivers its state-of-the-art gas turbine series to over 60 countries. The plant possesses one of the most high-performance test fields in the world, which accommodates test runs of up to 330 megawatts. In Ludwigsfelde in Brandenburg, it also operates a burner test center. ALSTOM Power Service GmbH focuses on overhauling turbine and generator compo-



»We are able to find excellent skilled specialists and engineers for our facility easily; Berlin is a magnet for talent and highly qualified people. As one of the world's leading jet engine companies, we also benefit from this.«

Ulrich Wenger
 Head of Engineering & Technology
 Rolls-Royce Deutschland Ltd & Co. KG



Sascha Reinkober
 Head of Central Office
 Fraunhofer Innovation Cluster
 »Life Cycle Engineering for Turbomachines«
 Berlin/Brandenburg

»The extremely high density of turbomachinery manufacturers and suppliers in the Berlin-Brandenburg region of expertise offers an outstanding basis for the collaborative development and implementation of trendsetting technology.«

nents, including the production and delivery of replacement parts and making repairs directly in the power station using mobile processing technology.

The focal areas of MAN Diesel & Turbo SE are geared compressors for air separation, pipeline turbo compressors for gas transport, refinery and carbon sequestration compressors and worldwide after sales service.

MTU Maintenance Berlin-Brandenburg GmbH is the MTU center of expertise for servicing industrial gas turbines. The company's portfolio also includes overhauling and repairing civil thrusters and turboshaft engines.

Rolls-Royce Deutschland develops, produces and maintains civil and military turbine engines at its Dahlewitz location. The facility is also a center of expertise for high-pressure compressors, twin-shaft turbofans and nacelles.

In the power station technology sector, industrial technology users such as Vattenfall and Gasag are the primary players. They are pioneering the field of flexible fossil fuel power stations. Many small and medium-sized technology developers and service providers also offer innovative solutions.



Assembly of a BR 725 engine at Rolls-Royce in Dahlewitz

- Worldwide, one of the leading industrial regions for producing and servicing turbomachinery
- Outstanding prospects and sales potential for innovative, specialized suppliers
- Production of the largest, most powerful gas turbine in the world at this time
- Production of the world's largest geared compressor
- Excellence in balancing and setting extremely quickly turning shafts and impellers
- Innovative solutions and applications for the production, servicing, overhauling and modernization (MRO) in the field of prototypes and component testing (eg gas turbine burner test center / Clean Energy Center Siemens and Mechanical Test Operations Centre of Rolls-Royce)
- High level of expertise in the environmentally compatible optimization of power station technology

Top research

In the HFI-TU Berlin energy laboratory, scientists test and develop innovative combustion technology for the gas turbines of tomorrow. With four atmospheric combustion test benches, they can conduct tests under the conditions that actually exist in gas power stations and aircraft engines. As part of three research projects, new kinds of systems are tested with the goal of significantly increasing gas turbine technology's level of effectiveness. And as part of a Collaborative Research Center project, engineers are examining the use of Otto cycle combustion in gas turbines. The »Greenest« European Research Council (ERC) project involves ultra wet combustion. As part of an ERC proof-of-concept project, researchers are examining the combustion of biogas and hydrogen with pure oxygen. In addition, the department offers extensive opportunities for the thermo-acoustical examination of gas turbine burners.

The Brandenburg University of Technology Cottbus-Senftenberg combines numerous departments that deal with power plant technology including the Faculty of Mechanical Engineering, Electrical Engineering and Industrial Engineering with the Center for Energy Technology and the fields of energy conversion, energy supply, engineering / power electronics and power distribution / high voltage engineering. At the Institute of Power Engineering researchers are both working to optimize conventional power station technology to increase its efficiency and developing concepts for meeting the challenge of renewable energies. The focal areas include combustion technology, modeling power stations and power station components, fluidized bed drying with superheated steam under pressure (D)DWT, using biomass for energy, surplus energy storage and generating



Sebastian Kießling
CEO
Euro-K GmbH

»Berlin-Brandenburg offers us ideal partnership opportunities for developing our micro gas turbine technology, which features a combination of low-emission combustion, maximum energy efficiency, high system effectiveness, a long service life and low maintenance costs.«

hydrogen. The »Heat from Regional Biomass« project is researching the options for using regional biomass that is otherwise not being used and developing related technologies. It comprises the complete value-added chain from cultivation to recycling the ash.

Close partnership between industry and research

In the Fraunhofer Innovation Cluster »Life Cycle Engineering for Turbomachines« six research institutes have banded together with 26 partners from industry. They are focusing on an integrated view of materials and technologies for turbomachinery in the aviation and energy sectors. Their goal is to transfer the concept of life cycle engineering to turbomachinery by providing innovative, energy-efficient and resource-conserving technologies for the entire product life cycle. An essential component of this concept, MRO, is one of the focal areas of the research work.

Research

- BAM Federal Institute for Materials Research and Testing
- Berlin School of Economics and Law
- Beuth University of Applied Sciences Berlin
- Brandenburg University of Applied Sciences
- Brandenburg University of Technology Cottbus-Senftenberg
- Aerodynamics and Fluid Mechanics
- Power Plant Technology
- Engineering Mechanics and Vehicle Dynamics
- Combustion Engines and Aircraft Propulsion
- CEBra – Centrum für Energietechnologie Brandenburg e.V.
- Fraunhofer Innovation Cluster MRO in Energy and Transport
- Fraunhofer Institute for Production Systems and Design Technology
- Fraunhofer Institute for Reliability and Microintegration
- Freie Universität Berlin
- German Aerospace Center (DLR)
- Hochschule für Technik und Wirtschaft Berlin
- Technische Universität Berlin
- Institute of Aeronautics and Astronautics
- Institute for Machine Tools and Factory Management
- Institute of Fluid Dynamics and Technical Acoustics
- Technical University of Applied Sciences Wildau
- Weierstrass Institute for Applied Analysis and Stochastics
- Zuse Institute Berlin (ZIB)

Our aim: your success!

Berlin and Brandenburg support the focal area Turbomachinery and Power Station Technology with an economic policy developed across state borders in the Energy technology cluster. The cluster is managed under the aegis of the Brandenburg Economic Development Board (ZAB) and Berlin Partner for Business and Technology.

Our aim is to provide comprehensive support to companies and scientific institutions interested in inward investment or further development in the capital region.

We are ready to assist you with:

- Finding a site
- Funding and financing
- Technology transfer
- Finding contacts and co-operation partners
- Cooperating in networks
- Recruiting personnel
- Developing international markets

Reach out and contact us!

www.energy-bb.com

PHOTOS: Cover: www.siemens.com/presse. Inside: MAN Diesel & Turbo SE, Berlin Partner/Wüstenhagen, Rolls-Royce Germany
DESIGN: Büro Watkinson, Berlin. PRINT: LASERLINE, Berlin

© October 2015



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Publisher: Berlin Partner for Business and Technology in cooperation with Brandenburg Economic Development Board (ZAB), commissioned by the Berlin State Senate Department for Economics, Technology and Research and the Brandenburg State Ministry for Economic Affairs and Energy. Funded by the State of Berlin and the State of Brandenburg as well as the Investitionsbank Berlin, cofunded by the European Union – European Regional Development Fund.