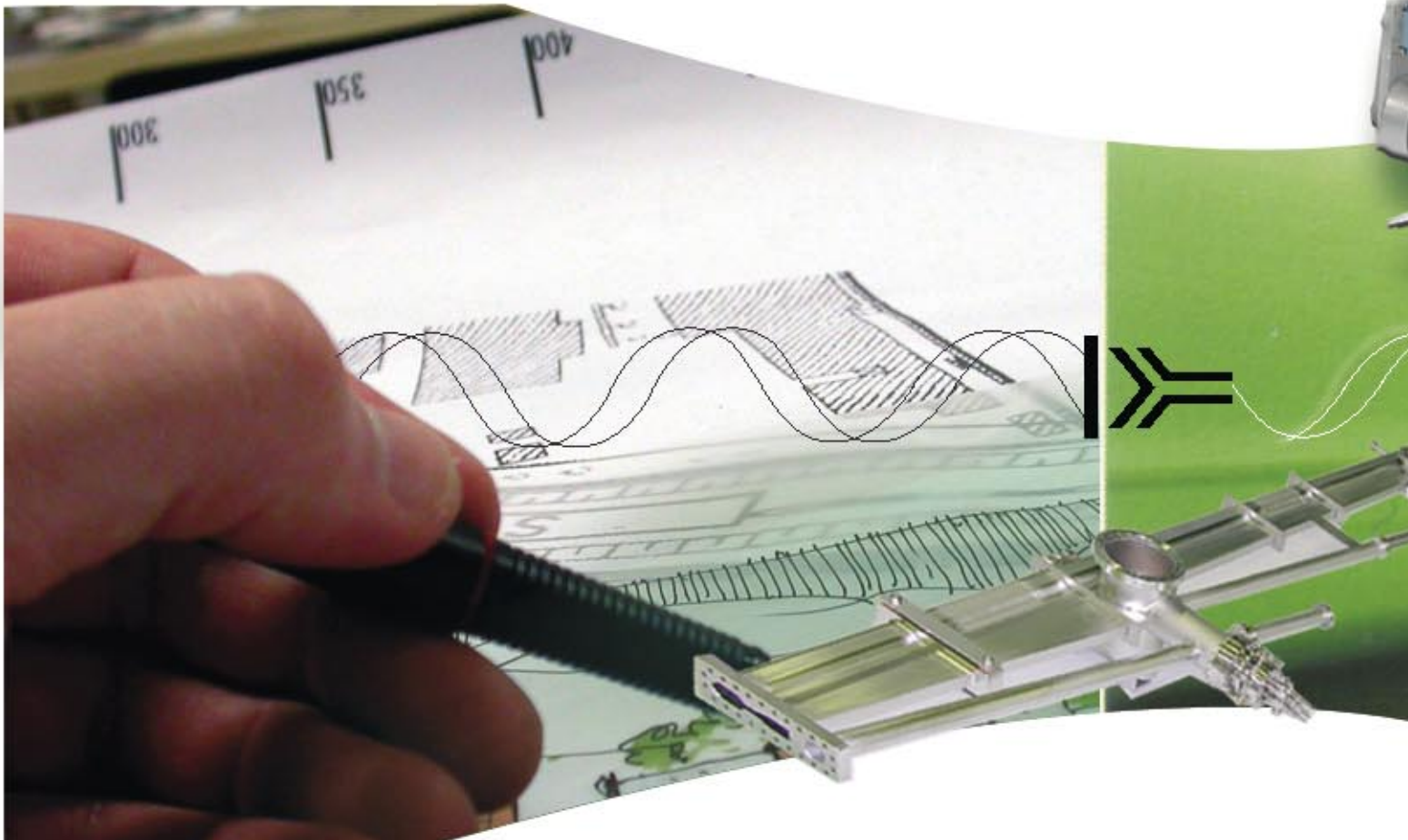




**FMB FEINWERK-
UND MESSTECHNIK**





> FMB – EXPERTS IN VACUUM AND BEAMLINE TECHNOLOGY



Since it was founded in 1990, FMB Feinwerk- und Messtechnik GmbH has developed into a successful system provider for equipment used for conducting research with synchrotron radiation. More than 50 employees are highly skilled with the knowledge required for dealing with vacuum and beamline technology.

Our engineers and technicians are always setting themselves new challenges, and go right to the limits of the technically feasible. Getting internationally-respected experts actively and heavily involved in the development and testing of our products ensures that the latest scientific findings are available and also that there is a good understanding of the needs of our customers.

We provide professional management for the entire development, engineering, production, testing and installation – all from one single source.

Analyses and physical calculations such as optical ray tracing, strength and thermal load calculations, made using the latest computer science, form the basis of innovative and reliable products.

Production is done at our own location or at reliable cooperation partners with constant supervision by the responsible FMB project manager. Turning, milling, drilling and grinding are all done both on conventional machines and also on CNC machine tools. Different welding methods, such as MAG, TIG or microplasma welding, can also be used whenever necessary. Electron beam and laser welding are done by experienced partners.





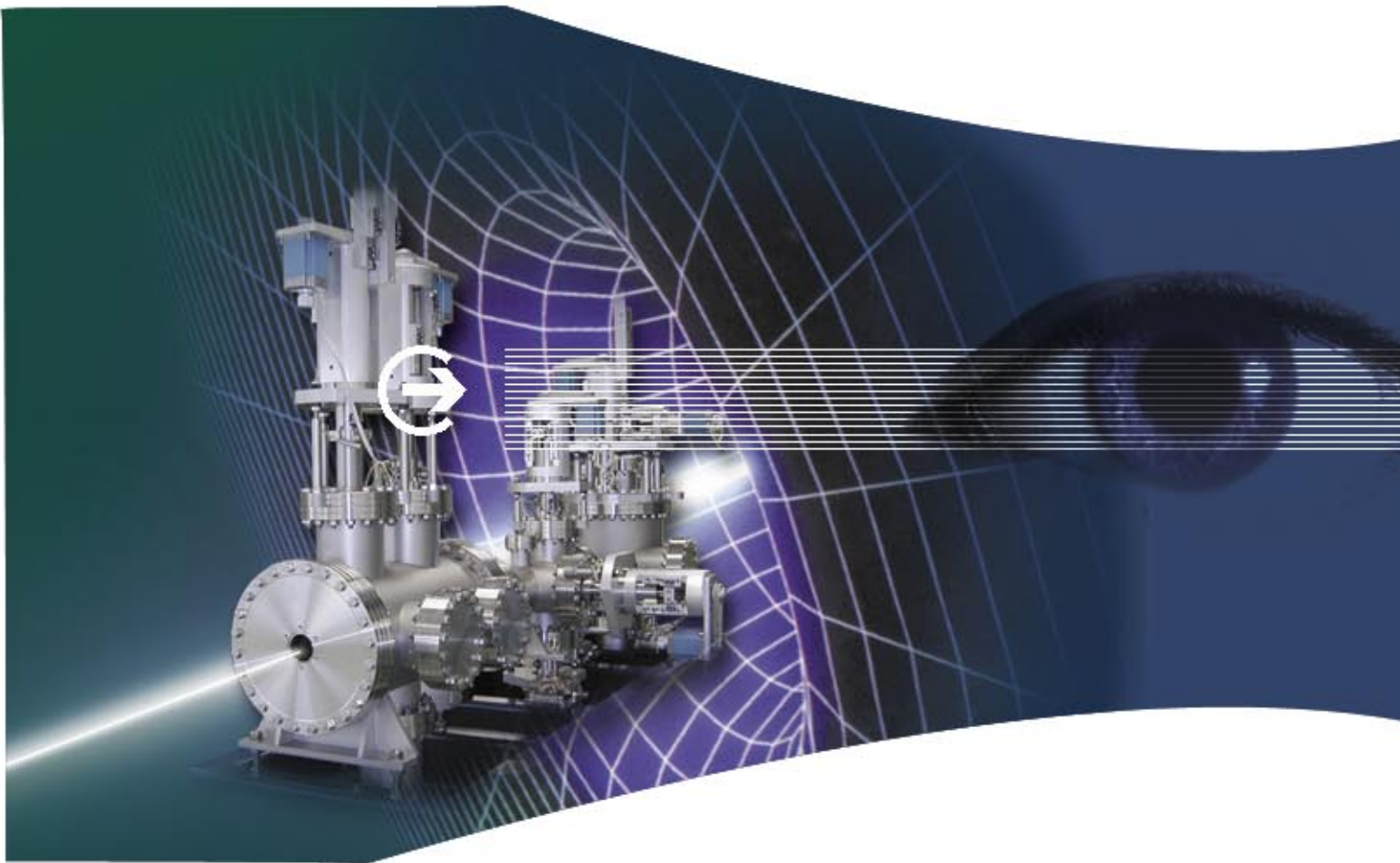
High-quality soldering work is done in our own clean high-vacuum furnace. FMB can also offer the right quality when soldering different materials and combinations of high-grade steel, copper, Glidcop or ceramic.

All production parts are cleaned vacuum-proof. The corresponding laboratories are equipped with water demineralisation plants, ultrasound baths and circulating air drying ovens. Components up to four and a half metres in length can be cleaned in these.

FMB ensures its equipment meets the high requirements in terms of cleanness and purity by conducting assembly in separate, low-particle-count or clean rooms.

FMB also offers installation and commissioning of equipment in close cooperation with our customers, of course. The transfer of knowledge and training of your staff by FMB ensure optimal use of the equipment and also ensure that your application targets are reached.





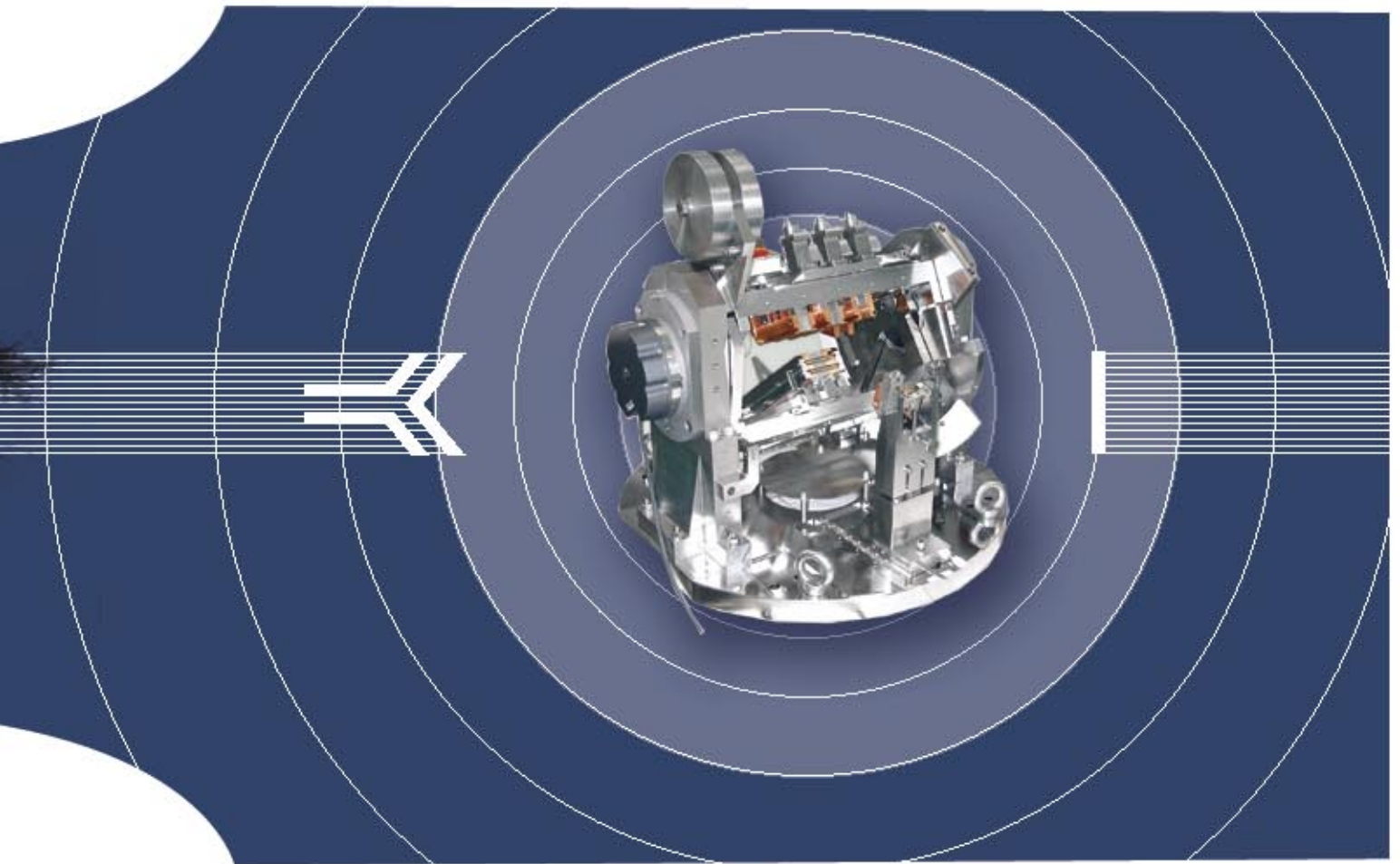
> FMB – PRODUCTS FOR YOUR SUCCESS



The offer

- » Extensive customer service even during the preparation phase of projects
- » Integration of external scientists, experts and consultants
- » Development, engineering, manufacture and testing
- » Installation, testing and commissioning at the customer's location
- » Training and transfer of know-how
- » Flexible service





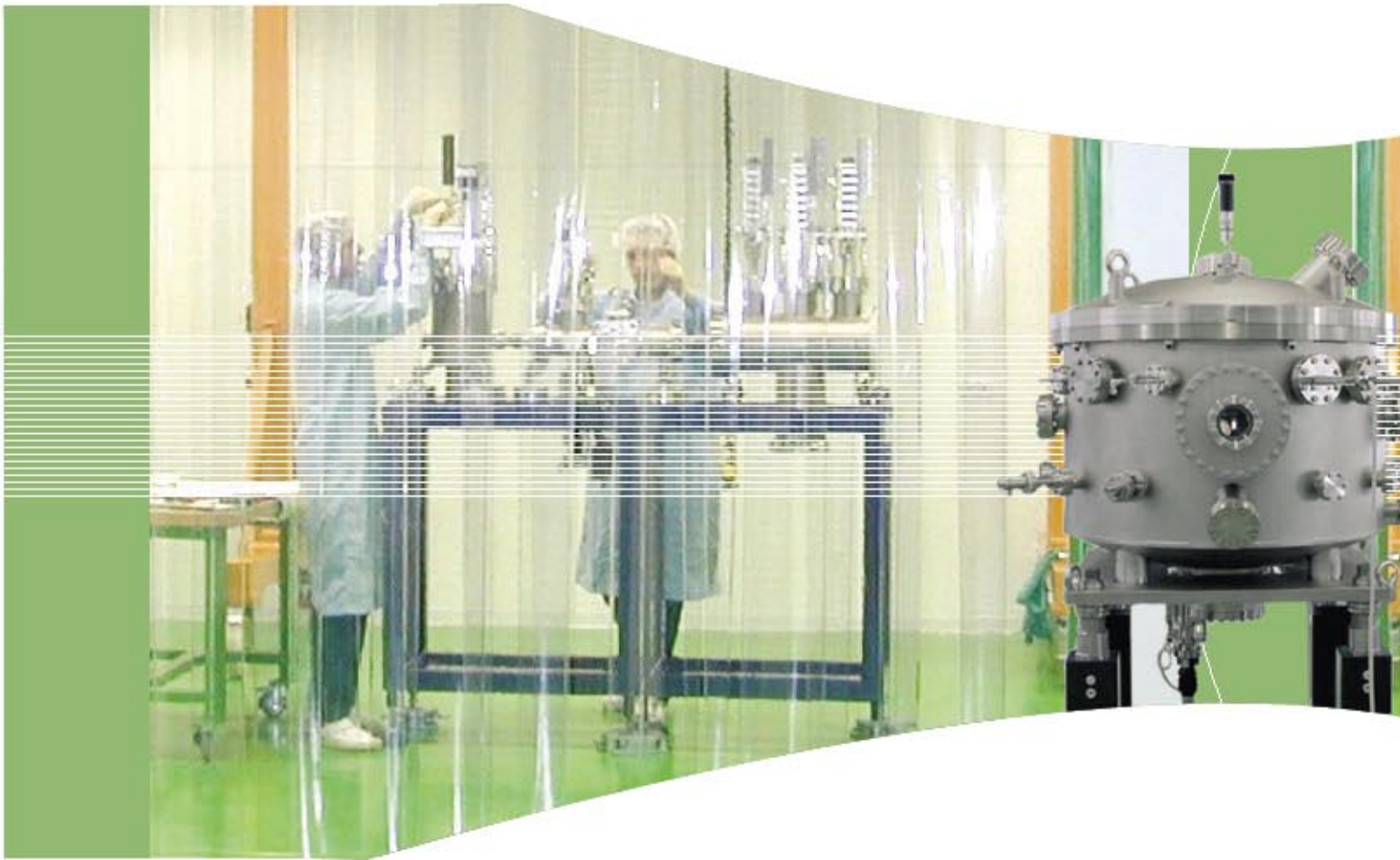
The products

- » Ultra-high vacuum systems and components
 - Storage ring vacuum chambers for installation in dipole, quadrupole, sextupole magnets and insertion devices made of high-grade steel, copper and aluminium
 - Radiation absorbers
 - Tapers
 - Vacuum chambers for industrial and experimental applications

- » Front Ends und Beamlines
 - Double crystal monochromators
 - Grating monochromators
 - Mirror systems
 - Beamline diagnostics
 - Aperture and slit systems
 - Filtering systems
 - Bremsstrahlung shutters
 - Photon shutters
 - Delay lines

- » Systems and components for research and industry developed according to customer requirements





> FMB – QUALITY WITHOUT COMPROMISING

Quality Management



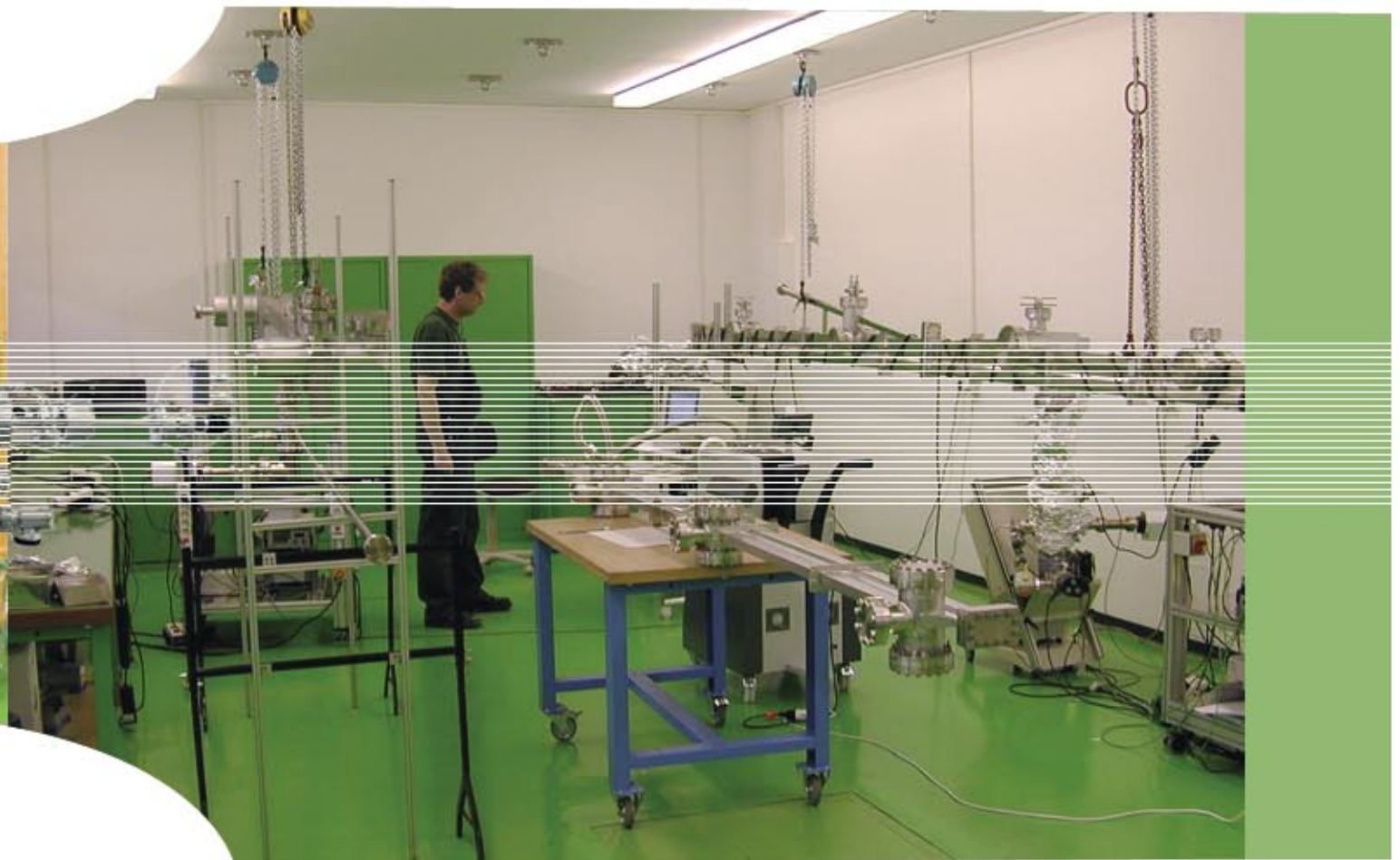
The quality requirements of our customers enjoy the highest priority in our quality assurance system.

FMB quality management has been tested and certified in accordance with DIN ISO 9001 and 9001-2000 every year since 1997. Quality-related processes, activities and specifications are described in detail in the FMB quality management manual for customers and employees.

Our products and measuring equipment are monitored and tested both by our own quality assurance department and also by independent external organisations.

Measurement, inspection, testing and calibration data is documented clearly and made available for our customers.





Measuring – Checking – Testing

FMB uses the latest test engineering and air-conditioned measurement labs to accurately conduct the following:

- Metric surveying using stationary and mobile 3D coordinate measurement equipment
- Verification of the residual magnetic permeability using Foerster probes and low-mu indicators
- Vacuum testing including baking, leakage tests, determination of the specific desorption rate and of the residual gas mass spectrum
- Pressure tests
- Functional tests
- Visual inspection of internal, difficult-to-access component surfaces using a video-endoscope





> FMB – FIRST CHOICE THROUGHOUT THE WORLD

Project and Company References

**Berliner Elektronenspeicherring-Gesellschaft für
Synchrotronstrahlung mbH BESSY, Berlin**

Mirror Chambers
Infrared Front Ends
Beam Position Monitor Station
Vacuum Chambers for BESSY II Storage Ring
VUV Polarimeter Experimental Station

Forschungszentrum Karlsruhe

Vacuum System for ANKA Storage Ring
Beam Line Diagnostics for ANKA Storage Ring
Front End for Beam Lines
Complete Hard-X-Ray-Beam Line (SUL)

**National University of Singapore
(Republic of Singapore)**

Beam Line Components
Complete Beam Lines (SINS, ISMI)

Centre for Advanced Technology (India)

Double Crystal Monochromator for INDUS

Paul Scherrer Institut (Schweiz)

Vacuum System for Swiss Light Source Storage Ring
Front End Components
Beam Line Components

University of Saskatchewan (Kanada)

Vacuum System for Canadian Light Source Storage Ring

Deutsches Elektronen-Synchrotron DESY, Hamburg

Apertures
Vacuum Components

Australian Synchrotron Project (Australien)

Vacuum System for the Storage Ring



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