



research  
instruments



# Solutions Manufacturing Performance

[www.research-instruments.de](http://www.research-instruments.de)



## Benefit from our manufacturing competence

### Engineering

The services we offer, include comprehensive engineering support, design, project planning, construction, production, assembly, delivery and, if required, commissioning and training. More than >100 physicists, design engineers, technicians and project engineers out of our staff of >300 provide professional solutions.

Our core competence in the field of customized product design is based on decades of experience from numerous projects for leading research institutions and industrial market leaders. We use state-of-the-art software systems for product design, FEM simulations and CAM programming. We partner-up with our customers and meet their needs with best-in-class reliability and efficiency.

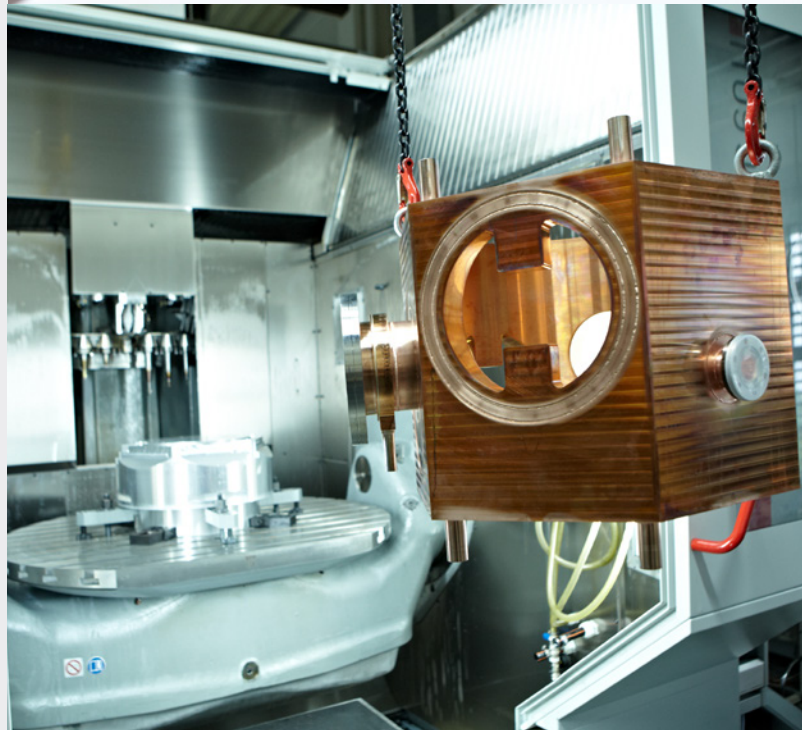
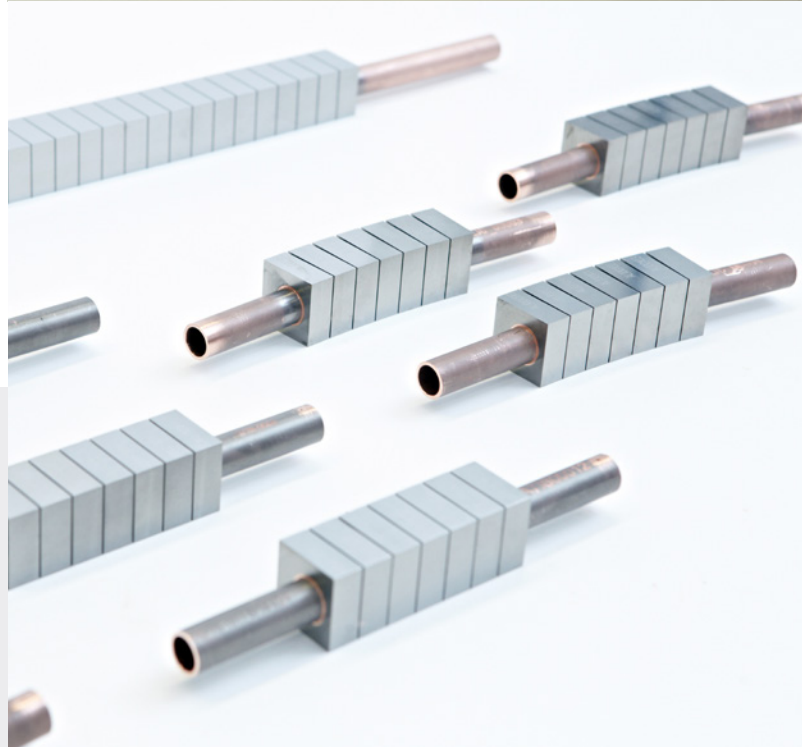
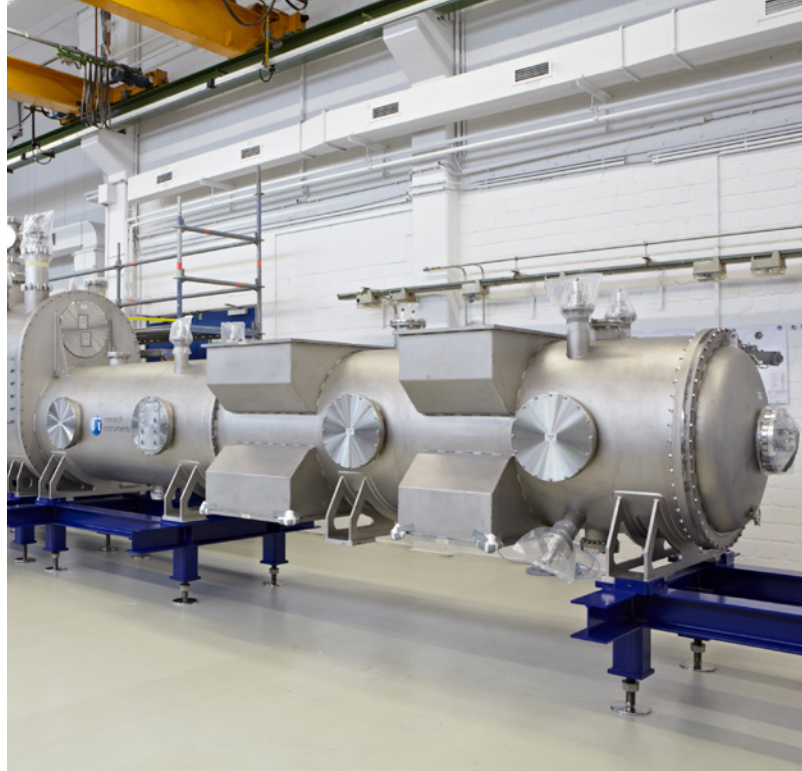
We can take your project from conception to completion to make the highest performing and reliable product.

### CNC-milling

Our latest technology CNC milling machines and fully air-conditioned production facilities enable us to machine components to  $\mu\text{m}$ -precision. We are specialized in the machining of copper, high-grade stainless steels, molybdenum, Inconel, niobium, titanium, aluminum alloys, and other special materials.

Our special competence is in processing and highly complex and high-precision workpieces before or after forming, joining or other machining steps. Whether you need manufacturing of prototypes or volume production, our production staff works efficiently, if required, in more than one shift per day.

All our CNC Milling machines are exceptionally well maintained by our suppliers and by our in-house technician team to ensure optimum performance.

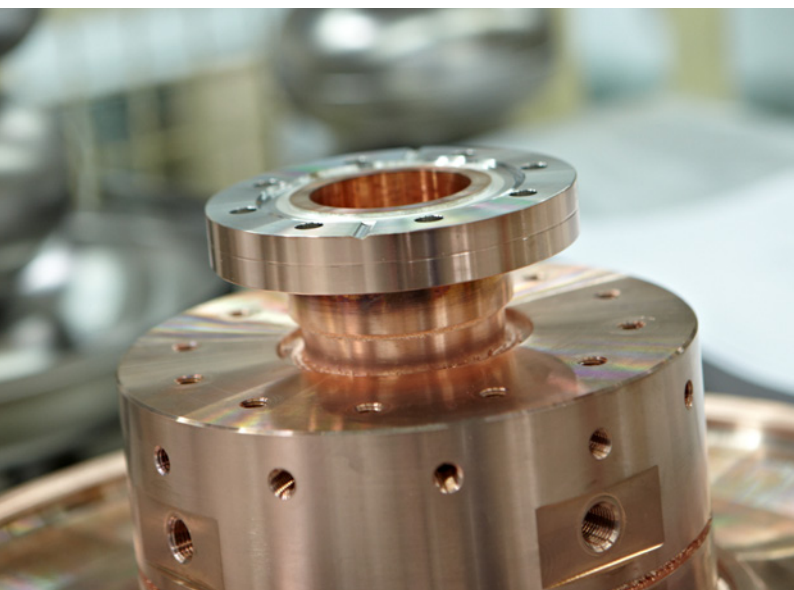


## We provide solutions with optimized value for money

### CNC-turning

Many of our customers ask for high precision turned parts made of high quality materials. With our modern turning machines we have the means for manufacturing all types of turned parts. As examples for our CNC turning skills we mention diamond tool finishing with a maximum roughness of Ra 0.1  $\mu\text{m}$ , or dimensional shaping with  $\mu\text{m}$  position tolerances. Our machines are equipped with multiple drive tools for combining turning and milling processes. Random sample measurements are done on a special CMM machine in our turning workshop.

In addition, we machine numerous special materials for specific applications, e.g. niobium, titanium, molybdenum, copper, a wide range of aluminum alloys, and high grade stainless steels.



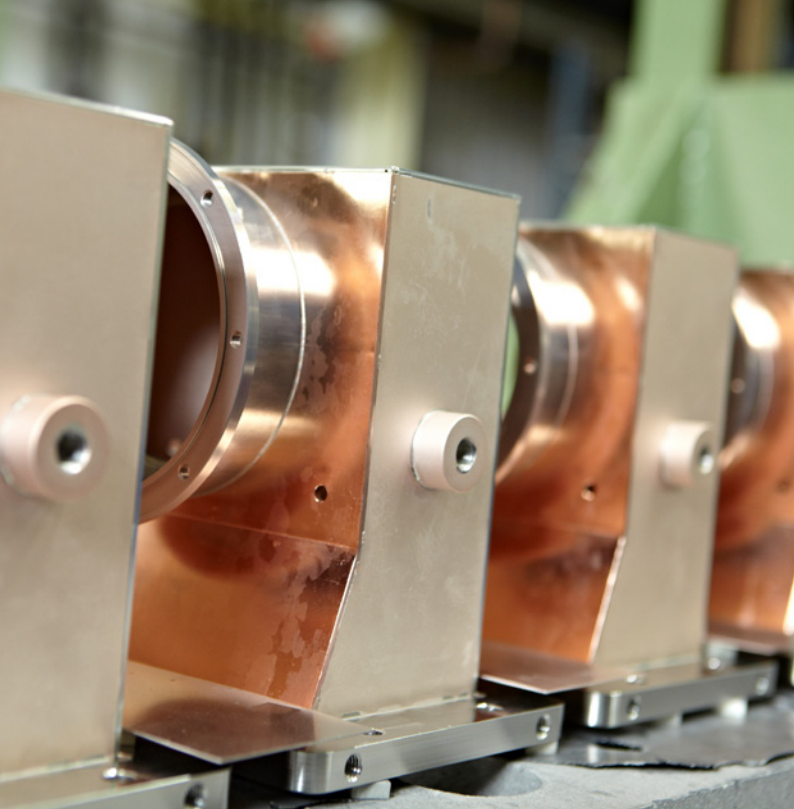
## Welding

We are specialized in precision joining of different materials with high demands on quality, precision and leak tightness. In fact, this is our daily business.

We have the equipment for applying most advanced joining techniques like electron-beam welding, laser welding, orbital welding or TIG and MIG/ MAG welding. Our welding experts are experienced and certified by the Technical Control Board (TÜV).

We routinely join various materials like stainless steel, aluminum, titanium, Zircaloy, molybdenum, tungsten, tantalum, niobium etc. Our qualified welding engineers use state of the art welding processes mainly for UHV/ XHV and Cryo- and RF technology components. Our welding engineers are happy to assist you with optimizing your welding job.





## Your partner for advanced and complex projects

### Brazing

We are leading experts in the field of vacuum brazing, vacuum annealing and manual soldering. We master brazing of complex UHV structures and different materials with high precision. This includes brazing of material combinations like copper-ceramic or stainless steel-copper. In our largest vacuum oven we braze components up to a size of Ø 1.5 m x 3 m at temperatures up to 1200° C.

We offer our expertise in the field of customized ovens and vacuum systems for special applications. You will find our brazing products in almost all renowned research institutes.

Our expertise in metallurgical and vacuum processing allows us to provide you with the best design, alloy selection and fixture options for your advanced brazing application.



### Quality assurance

Our well trained staff uses state-of-the-art quality standards in order to guarantee our customers the highest possible level of quality. We own four ZEISS measurement machines, FARO arms, Leica laser trackers, several leak testing units, pressure test units, RGA equipment, particle counter, endoscopes, which are operated by our certified staff.

Among our QA certificates you find DIN EN ISO 9001:2015, pressure vessel guideline DIN EN ISO 3834-2 to KTA (nuclear) 3201.3, 3211.3 and 1408.3.

In order to maintain our very high level of customer satisfaction we continuously analyze key parameters and identify potential improvements of our processes.





## Our technology enables your success

### Surface technology

Many applications within e.g. semiconductor technology and lithography, call for extremely clean parts and a particle-free cleanroom environment for assembly. In order to make sure that we can meet our customer requirements for near perfect surfaces we apply processes like fine grinding, glass-bead blasting, electro polishing, pickling or several coating processes, which you find at our premises.

For particle free assembly we use processes like ultrasonic cleaning, high-pressure rinsing, vacuum drying, baking out, etc. Through our intense collaboration with renowned research institutes, we set new standards in surface technology.



### Cleanroom Services

We mount complex subassemblies, modules and systems in our highly advanced and fully air-conditioned cleanrooms up to ISO Class 4. In addition to assembly and packaging processes, our services continue with particle counting, cleaning processes, visual inspections and helium leak testing in our cleanrooms. In order to satisfy our customers' high expectations in research, healthcare, energy and industry, we constantly monitor the particle counts and quality of our cleanrooms. All cleanroom process steps are conducted exclusively by our qualified and skilled staff.

### Assembly and more

RI has a long term experience in the assembly of mechatronic, pneumatic and highly complex mechanical systems. We offer the full range beginning with electrical wiring, commissioning, software-development, etc. Moving beyond „Build-to-print“ jobs, many of our assembly work is done on in-house developments.

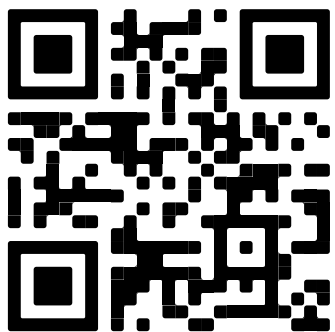


## We have a proven record of success

We positioned ourselves strategically in the following technology areas:

- Semiconductor industry
- Science
- Healthcare
- Energy

Many of the world's leading technology companies and research institutes already trust in our production capabilities. Contact us, our staff is happy to tell you more about our solutions, manufacturing skills and our many references of success through performance.



## Teamwork makes the dream work.

Let's team up and see how our  
experts can support your cause.

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