



## Vacuum chambers and special components



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# Vacuum chambers and special components

Vacuum applications, particularly in the high technology sector, have special requirements for the used components. Materials must be selected and treated considering low outgassing and low gas permeation. Joints, such as welds must be vacuum-tight and free of gas occlusions.

VACOM provides the solution for your vacuum application. From a simple cylindrical chamber to the elaborate production of highly complex vacuum chambers, we will meet the requirements. In our 5000 sqm manufacturing and technology center with 800 sqm clean room facilities, we will custom-build your vacuum components. With our wide-range experience in developing and designing customized vacuum chambers and special components, we are your partner in vacuum technology.

## Development and construction

**Our knowledge and experience – Your benefit during the conception stage already.**

- Vacuum-suitable construction that meets your requirements
- Selection of suitable materials
- Optimization by finite element analysis
- Alignment of ports to defined focus points
- CAD models for efficient system planning



## Mechanical production

**Our machine shop is configured for cutting vacuum-suitable materials exclusively.**

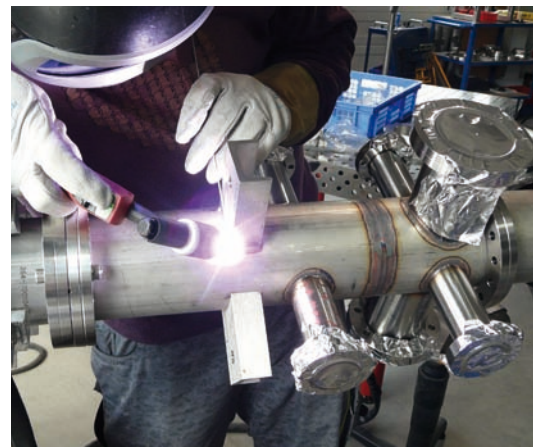
- High in-house production depth and efficient logistics guarantee the compliance with individual customer requirements
- Several kinds of on-stock construction elements allow short production times
- Direct milling of CF knife edges and sealing surfaces on chamber walls
- Prepared for economical individual and series production



## Joining Technologies

**We guarantee 100 % leak-free vacuum components.**

- Certified welding shop according to DIN EN ISO 3834-2
- Welding with micro-plasma-, laser- and TIG
- Level B welding according to DIN EN ISO 5817
- Welding in clean room class ISO 7
- Vacuum-tight joining of stainless steel and aluminum components

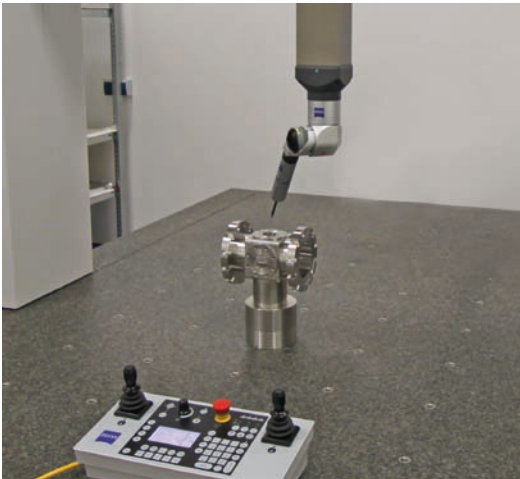




## Surface treatment and final refinement

**Standardized processes for reliable and well-defined component properties.**

- Glass bead blasting: for an outside satin finish and to reduce the gas permeation inside
- Electropolishing minimizes effective surface
- Low hydrogen annealing to reduce outgassing in vacuum operations



## Quality assurance

**Independent supervision of the entire production and internal goods flow.**

- Modern test equipment for monitoring technical specifications
- 3D-coordinate-measuring-machine for geometric dimensional accuracy
- Helium leak tests for guaranteed leak tightness
- Selfe developed RGA-tools allow quantitative residual gas analysis
- Particle measurement to indicate clean-room-suitability
- Leak test protocol and material certificates available



## Ultrafine cleaning with residual contamination analysis

	Purity Class S	Purity Class 1	Purity Class 2	Purity Class 3	Purity Class 4
<b>Characteristics</b>	free of oil and grease	clean-room suitable	low particle generation	low outgassing and low particle generation	suitable for EUV
<b>Total outgassing rate [mbar x l / (s x cm<sup>2</sup>)]</b>	<4E-9	<4E-9	<2E-9	<4E-10	<4E-10
<b>of which hydrocarbons [mbar x l / (s x cm<sup>2</sup>)]</b>	<1E-9	<1E-9	<5E-12	<4E-12	<4E-12

You will find more details on our data sheet for ultrafine cleaning.

## Manufacturing examples

(components with higher dimensions need separate feasibility check)

**Spherical chambers up to DN630**



**Cylindrical Chambers up to DN800**



**Rectangular chambers up to 1200 mm x 700 mm x 600 mm**





## Precision & Purity

UHV ■ XHV ■ UCV

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