

Special Vacuum Components and Chambers

Custom Vacuum Components

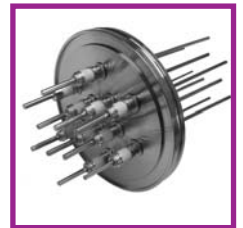


2

Vacuum Chambers



Welding of Electrical and
Fibre Optic Feedthroughs



Custom Vacuum Components

Material Selection	Page 2-3
Drawing Service	Page 2-3
Precision Turning and Milling	Page 2-3
Testing of Mechanical Parameters	Page 2-4
Welding	Page 2-4
Surface Treatment and Quality Control	Page 2-4

Vacuum Chambers	Page 2-5
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Welding of Feedthroughs	Page 2-5
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Special Vacuum Components - Examples	Page 2-6
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Custom Vacuum Components



In addition to a wide variety of standard components, we also manufacture assemblies to customers' own specifications. We are responsible for the whole fabrication process, starting with the specification of the materials, drawing, machining and welding of the components and finishing with the surface treatment, UHV compatible cleaning processes and quality control.

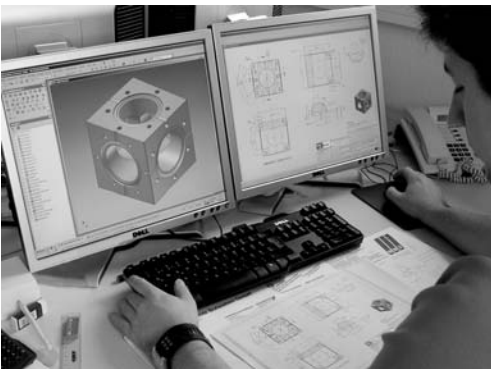
Material Selection



We manufacture components according to your specifications of the following types of stainless steel: 1.4301 (304), 1.4404 / 1.4435 (316L) and we are also specialised in processing ESR high-grade steel 1.4429 (316LN).

The high-grade steel 316LN ESR is necessary for various applications in ultra high vacuum, the material being characterised by its high temperature resistance, hardness, mechanical strength and its low permeability.

Drawing Service



Working from your sketches and layouts we are able to provide detailed production drawings with modern CAD programmes. Based on our experience we check the feasibility of the product while taking the cost-efficiency of the manufacturing into account. We also work from digital drafts such as 2D CAD (DWG, DXF) or 3D CAD data (e. g. Inventor or Pro-Engineer formats, SAT, IGES, or STEP) and convert other file formats. Taking all available manufacturing techniques into consideration we then optimise your drafts in cooperation with you. The approved drawing is then the basis for our fabrication.

Precision Turning and Milling



The components are manufactured according to your specification with the highest precision possible. Special components are manufactured on latest CNC lathes with one or two shafts, feed tubes as well as three-axle and five-axle CNC milling automats. Tight tolerances ($\geq IT5$) and high surface qualities ($Ra \geq 0.8$) are precisely observed during the manufacturing process.

Custom Vacuum Components

Testing of Mechanical Parameters

2



We run detailed quality tests for every production lot using a Carl Zeiss coordinate-reading system ScanMax, a measuring microscope, a three-point bore gauge, a roundness gauge for example.

Welding

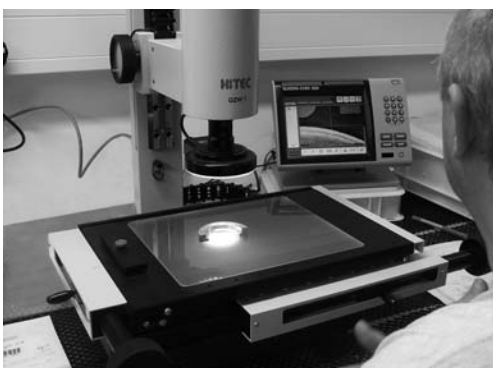


Different welding techniques are used depending on the materials and customers' requirements:

- WIG welding
- Orbital welding
- Plasma welding
- Laser welding

Our welding shop holds certificates of the German Welding Society DVS.

Surface Treatment and Quality Control



All special components undergo continuous quality checks during the manufacturing process. Surface finishing is applied to both the inside and outside of the object according to customer requirements. The following surface finishing processes are available:

- Mechanical and chemical untreated turning surface
- Mechanical polish
- Glass bead blasting
- Electropolishing

Please find detailed information concerning equipment and technologies for product finishing, which has to be specified according to the application, as well as for the final quality check in chapter 18 "Service for Vacuum Technology".

Material and test certificates, individual laser marking or labelling can always be provided.

The organisation and documentation of the manufacturing process is based on the quality standard DIN EN ISO 9001:2000.

Vacuum Chambers



Chambers for high and ultra high vacuum are part of the customised components supplied by VACOM. These chambers are made of high-grade steel such as 1.4301 (304), 1.4307 (304L) and 1.4435 (316L). If especially low permeability and low rates of outgassing are required it is possible to equip the chambers with 316LN ESR flanges.

We supply cylindrical or spherical chambers up to 1500 mm in diameter and 2500 mm in height as well as rectangular chambers up to maximum dimensions of 2000 x 1000 x 1000 mm. The chambers are manufactured on precision CNC machines and, if needed, can be baked out and delivered with the corresponding test certificates and residual gas spectra.

2

Welding of Electrical and Fibre Optic Feedthroughs



We are specialised in welding electrical and fibre optic feedthroughs into flanges where the positioning and allocation of the feedthroughs will be executed exactly to your requirements. To ensure this we provide a CAD drawing for your approval before starting manufacture.

Clean Room Compatible Packaging



We are able to provide clean room compatible packaging according to ISO class 7 for standard and special components

In addition the components can be packed in gas-tight foil:

- With nitrogen purging
- Evacuated
- Nitrogen-flooded

Special Vacuum Components - Examples

2

