

## Services



FCT Ingenieurkeramik GmbH represents 25 years of experience in the field of processing, fabrication and materials technology for high performance ceramics and composite materials.

### Services for Ceramics, Composites and Powder Metals

With our sophisticated and specialized equipment, according to the newest state of technology, we are able to produce components, starting with corresponding powders of a very broad range of ceramic, metal and composite materials. To do this we use different shaping technologies like cold isostatic and uniaxial pressing or slip casting, extrusion and injection moulding with or without subsequent green machining, sintering or hot pressing under vacuum, inert gas and gas pressure or uniaxial load.

The fired parts can be machined to very narrow tolerances and surface finish with diamond tools.

### Compaction

With our cold isostatic and uniaxial presses we densify any powder to your desired shape of preform or near net shape part. Also rather large parts up to 900 mm in diameter and 2500 mm in length cause no problems.

### Sintering

At temperatures up to 2300°C, in inert atmosphere, under vacuum, or at elevated pressure, we can sinter almost every ceramic or composite material.

We are however specialized on nonoxide ceramics like SiC and Si<sub>3</sub>N<sub>4</sub> based materials.

### Hot pressing

Powders which are hard to densify are hot pressed in our specific equipment under inert gas vacuum and with an uniaxial pressure up to 50 MPa.

- Sputter targets for different wear resistant and functional coatings can be produced economically in high numbers and quality
- Composite materials and wear parts with high strength and fracture toughness can be fully densified for tailoring materials
- materials for cutting tool tips can be hot pressed to highest performance
- hard and superhard materials can be densified without binder phase





With our twin hot press we can economically do high volume production of

- sputter targets
- cutting tool plates and
- composite parts



We also do continuously sintering with our continuous sintering furnace for

- vacuum
- inert gas
- gas pressure up to 1 MPa
- temperatures up to 2300°C

Coldisostatic pressing CIP	D up to 900 mm, length up to 2400 mm, pressure up to 150 MPa D up to 120 mm, length up to 500 mm, pressure up to 300 MPa
Hot pressing	D up to 380 mm, press load 2500 kN, Tmax 2300 °C
Vacuum, inert gas, uniaxial loading	D up to 270 mm, press load 1000 kN, Tmax 2300 °C
Sintering in batch furnaces	D up to 610 mm, height 1500 mm, pmax 1,0 MPa, Tmax 2200 °C
Vacuum, inert gas, gas pressure	D up to 800 mm, height 1200 mm, pmax 0,1 MPa, Tmax 2400 °C
Continuous sintering	W 250 x H 150 x D 370 mm, pmax 1,0 MPa, T max 2300 °C
Debinding	D up to 600 mm length up to 1500 mm, Tmax 850 °C, inert gas D up to 600 mm length up to 1500 mm, Tmax 650 °C, air
Materials and powders	Density, bending strength, microstructure, grain size, specific surface
Consulting and R+D	Ceramic processing, component design, joining technology, application engineering, equipment configuration