

Services

FCT Ingenieurkeramik represents more than 30 years experience in ceramic engineering and the production of high-performance materials and composites.

Services for Ceramics, Composites and Powder Metallurgy

With our sophisticated and specialized equipment 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, hot isostatic pressing or sintering under vacuum, inert gas and gas pressure or hot pressing under 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 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 2400 °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 silicon carbide and silicon nitride based materials.

Hot Pressing, Hot Isostatic Pressing

Powders which are hard to densify are hot pressed in our specific equipment under inert gas or vacuum with uniaxial pressure up to 50 MPa. Alternatively, we can compact components in our HIP facility.

- sputter targets for thin-film application
- composite materials and wear parts with high strength and fracture toughness
- materials for cutting tool tips can be hot pressed to highest performance
- hard and superhard materials can be densified without binder phase

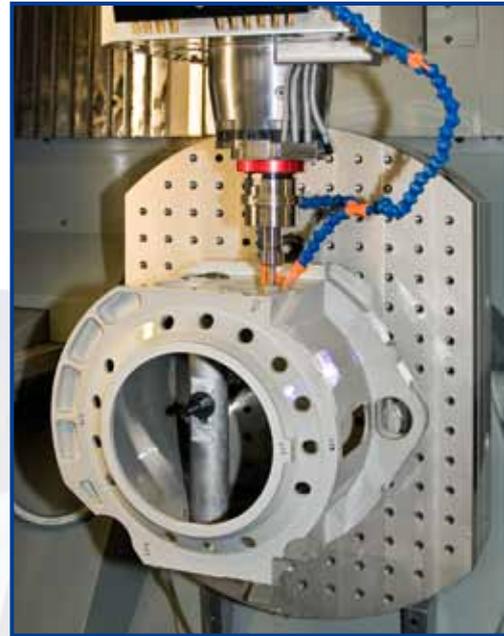


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Hot Isostatic Press (HIP)



Ultrasonic-Supported 5-Axis-Milling Machine for high precision geometries

powder processing	fluid bed granulator with max. 25 kg/h evaporation capacity
cold-isostatic pressing (CIP)	Ø up to 900 mm, length up to 2400 mm, pressure up to 150 MPa Ø up to 150 mm, length up to 500 mm, pressure up to 300 MPa
die pressing	up to 60 tons or 1600 tons load
hot pressing	Ø up to 380 mm, press load 2500 kN, Tmax 2300 °C
vacuum, inert gas, uniaxial load	Ø up to 270 mm, press load 1000 kN, Tmax 2300 °C
sintering	Ø up to 610 mm, height 1500 mm, pmax 1,0 MPa, Tmax 2200 °C
vacuum/inert gas/gas pressure	Ø up to 800 mm, height 1200 mm, pmax 0,1 MPa, Tmax 2400 °C
hot-isostatic pressing (HIP)	Ø up to 250 mm, height 680 mm, pmax 200 MPa, Tmax 1850 °C
debinding and pyrolysis	Ø up to 600 mm length up to 1500 mm, Tmax 850 °C, inert gas Ø up to 600 mm length up to 1500 mm, Tmax 650 °C, air
materials characterisation	density, bending strength, microstructure, grain size, specific surface
grinding technology	conventional or NC-controlled grinding machines, double disc grinding and lapping machine, long stroke honing machine, ultrasonic-supported 5-axis-milling machine