



## Application Fields of Ceramic Materials

# Electrical Engineering, Energy Solutions, Sensor Technologies and Analytics



Advanced ceramic components are an essential part in many processes related to energy production, transformation and storage. Many problems in electrical engineering, sensor technology and analytics would persist without advanced ceramics. The diversity of applications in these fields led to the development of special ceramic materials with specific attributes.

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## Electrical Engineering

Particular requirements in the density of applied ceramic materials are prerequisite for insulating and vacuum keeping properties of components for electrical components.

### Examples:

- Isolators
- Feedthroughs
- High voltage switches
- X-ray tubes



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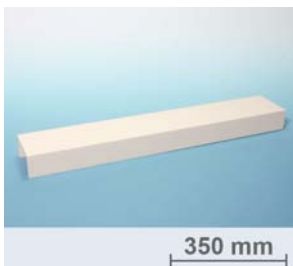
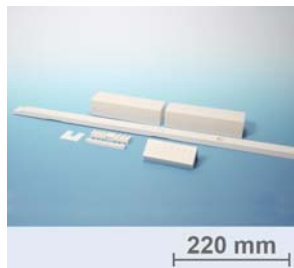


## Energy Solutions

Advanced ceramics are successfully applied in modern energy production, energy transmitting and energy storage technologies.

### Examples:

- Separators in accumulators
- Fuel cell components
- Electrolysis equipment
- Components for solar cell production



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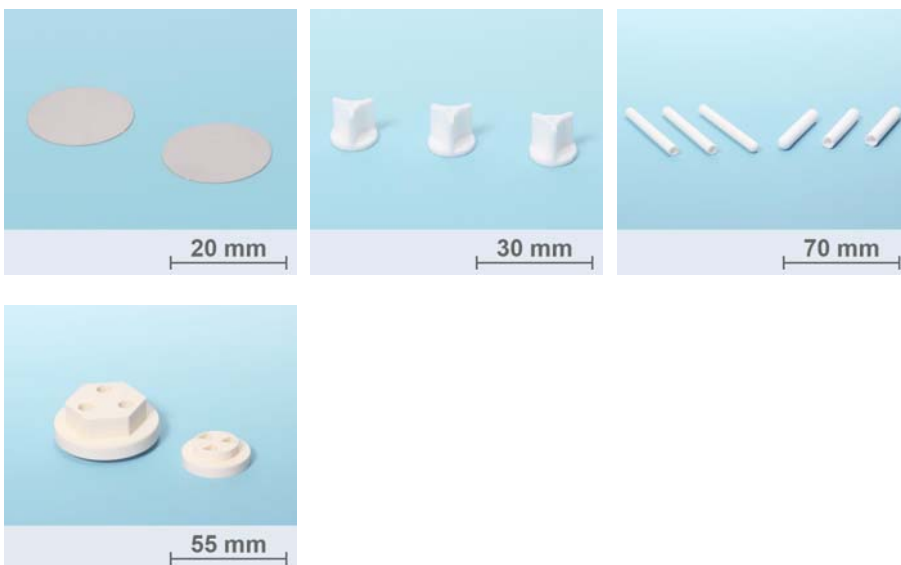
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## Sensor Technologies

Advanced ceramics provide a variety of properties – high Young's modulus, specific ion conductivity, defined porosity e. g. – for enabling sensor technologies.

### Examples:

- Thermocouple protection tubes
- Membranes in pressure gages
- Components for flow meters
- Oxygen partial pressure sensors
- Parts for breathing air monitoring devices



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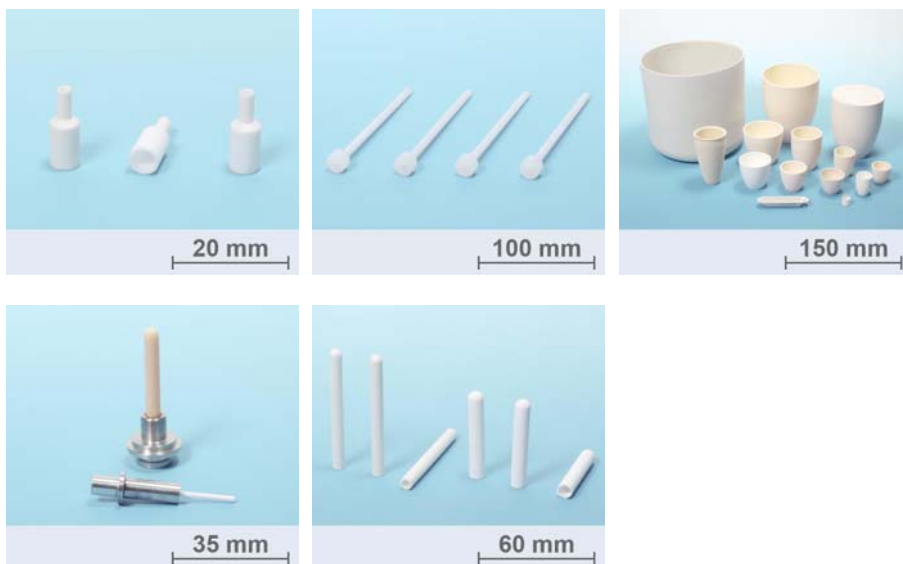
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## Analytics

Analytical equipment often require components from advanced ceramic materials for best results. Applications range from contamination minimized sample preparation to uncompromised nuclear magnetic resonance spectra acquisition.

### Examples:

- Sample containers for microwave digestion
- Pistons for HPLC pumps
- High temperature crucibles for thermogravimetry
- High pressure resistant precision tubes for nuclear magnetic resonance spectroscopy



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