ALUMINA
X-RAY SYSTEMS

ALUMINA
SYSTEMS
A Brlliant Idea behind Every Product

METALLIZED CERAMICS AND CERAMIC-METAL COMPOSITE COMPONENTS FOR X-RAY TECHNOLOGY

We have been producing metal-ceramic composite components for X-ray technology for more than 50 years.
All of our X-ray technology components show excellent electrical and mechanical properties. Through innovative approaches, we create new solutions together with our customers. True to our motto: „A brilliant idea behind every product“.

CERAMIC-METAL COMPOSITE COMPONENTS FOR X-RAY TECHNOLOGY

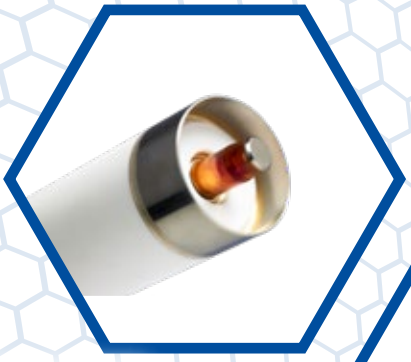
Vacuum isolators are used in vacuum technology when electrical insulation is required in conjunction with vacuum tightness. The aluminum oxide ceramic has the main task of electronic insulation. Alumina Systems GmbH manufactures such insulating tubes made of aluminum oxide for high-voltage applications in vacuum up to and over 150kV. Again, our customers benefit from our many years of experience in the design and manufacture of such composite components, as well as the material qualities produced in-house in the Al_2O_3 ceramics 96% and 99.8% range. Both materials are qualified by many customers alone.

Our vacuum insulators made of aluminum oxide ceramics

In addition to the standard range, you will also find customer-specific solutions in the field of vacuum isolators at Alumina Systems GmbH. Here we make an active contribution to the quality and performance of our customers' products.

Technical data of our vacuum isolators Al_2O_3

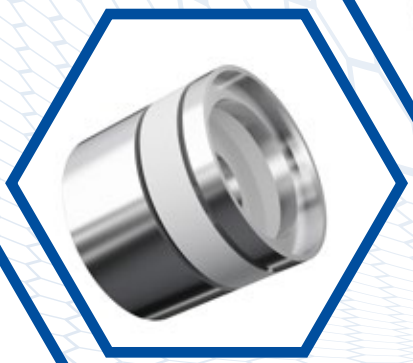
- Vacuum tightness up to 10^{-9} mbar L/s
- Insulation resistance > 10^{9} Ω, tested at 5 kV DC
- Versions: weldable, with CF flanges, with KF flanges
- Flange size up to CF DN160 as standard
- Other versions on request



WE PRODUCE
X-RAY ANODES FOR EVERYONE
WAVELENGTHS AND
REQUIREMENTS.

X-RAY CONNECTOR
FOR 325KV

FILAMENT HOLDER FOR
X-RAY TUBES AND
MASS SPECTROMETRY



SINGLE AND MULTIPLE
PENETRATIONS
FOR MEDICAL
X-RAY TECHNOLOGY

VACUUM ISOLATORS
FOR X-RAY MACHINES

METALLIZED CERAMICS AND CERAMIC-METAL COMPOSITE COMPONENTS FOR THE X-RAY TECHNOLOGY:

Metal-ceramic components have several key advantages over other materials such as plastic or glass. In contrast to plastic composite parts, ceramic-metal composite parts are suitable for ultra-high vacuum (helium leak rate 10^{-8} mbar L/s). On request, high-vacuum connections up to a helium leak rate of 10^{-11} mbar L/s can also be made. In contrast to plastics, ceramics are not subject to degradation by X-rays. Compared to glass, aluminum oxide shows higher mechanical stability and higher dielectric strength. Our products are therefore ideally suited for use in X-ray technology.

When it comes to the tailor-made development of customer-specific solutions, we not only rely on our many years of experience. The finite element method (FEM) enables us to carry out a numerical component design in advance of the construction for X-ray technology. The FEM takes into account the special material properties of ceramic materials. The soldering process itself is simulated as a stress (="composite stresses") and – if necessary – external stresses such as temperature changes or mechanical loads are applied. Using this special FEM, our products are engineered for superior durability and reliability, and are able to meet the unique demands placed on them in harsh, high-voltage environments.

To avoid accumulations of electrical charges on ceramic surfaces in vacuum at high voltage, we use a self-developed coating.

With our technical know-how, we are able to develop customer-specific solutions for the most complex requirements in X-ray technology.

In our Alumina X-Ray Systems product family, for example, we produce:

- Detectors for digital and conventional X-ray systems in medical technology.
- Components for X-ray scanners in security technology
- Solutions for photomultiplier tubes, microwave and traveling wave tubes
- Components for high-frequency applications in radio technology
- Filament holder for X-ray tubes

We look forward to working with you.

OUR EXPERTS – ALWAYS THERE FOR YOU!

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