

The ULTRAMIC® ceramic heaters from Watlow® are designed for thermal applications where the high performance of an advanced ceramic heater is required to ensure optimal effectiveness of the equipment and process.

ULTRAMIC ceramic heaters are constructed of aluminum nitride (AlN) and incorporate a thermally matched proprietary heating element that provides maximum performance in challenging applications. AlN is especially suitable for applications requiring a clean, non-contaminating heat source.

Additionally, the excellent geometric stability ensures consistent part-to-part thermal contact during heating cycles. Watlow AlN ceramic heater can operate up to 400°C or 600°C (752°F or 1112°F) depending on lead construction with an ultra-fast ramp rate of up to 150°C (270°F) per second depending on the application, heater design and process parameters.

In addition to excellent thermal characteristics, ULTRAMIC ceramic heater have high electrical isolation and typically provides superior chemical resistance as compared to traditional metal heaters.

The life expectancy of a Watlow Ultramic heater can vary, but they are known for their durability and long lifespan. While there isn't a specific, universally stated lifespan, they are generally designed for robust, long-term use in demanding industrial applications. Factors like operating conditions, maintenance, and specific application will influence how long an Ultramic heater lasts.

Durability and Longevity:

Ultramic heaters are built with durable materials like ceramic and metal components, designed to withstand high temperatures and harsh environments. This inherent robustness contributes to their long service life compared to some other heater types.

Application Dependent:

The specific application and operating conditions of the heater play a significant role in determining its lifespan. Factors like temperature cycling, exposure to corrosive materials, and the frequency of use will all impact how long the heater lasts.

Maintenance:

Regular maintenance, such as cleaning and inspection, can help extend the life of an Ultramic heater. Addressing any potential issues early can prevent more significant problems down the line.

Industry Standards:

Watlow is a reputable manufacturer with a focus on quality and reliability. Their products, including Ultramic heaters, are generally designed to meet or exceed industry standards for performance and longevity.

Watlow ULTRAMIC heaters, being constructed of aluminum nitride (AlN), possess inherent resistance to vibration due to their robust construction and excellent geometric stability. This stability ensures consistent thermal contact during heating cycles, even in environments with vibration.

Material:

The use of aluminum nitride (AlN) provides high thermal conductivity and mechanical strength, making ULTRAMIC heaters durable and capable of withstanding vibrations.

Geometric Stability:

The heater's design is engineered for consistent part-to-part thermal contact, even under vibration, ensuring efficient and reliable heat transfer.

Thermal Management:

The heater's design allows for ultra-fast ramp rates, potentially exceeding 150°C (270°F) per second, depending on the application and process parameters, which contributes to the overall system's resilience to vibration.

Mounting Considerations:

When mounting ULTRAMIC heaters, attention should be paid to factors like mating part materials, flatness, surface finish, and coefficient of thermal expansion to minimize stress and ensure optimal performance in vibrating environments.

See Sensemaster web Information on Mounting Instructions:

<https://sensemaster.co.uk/wp-content/uploads/2024/02/ULTRAMIC-mounting-manual.pdf>

Adhesive Selection:

When using adhesives for mounting, it's crucial to choose a high-temperature, electrically insulating adhesive that can withstand the specific application's temperature and vibration levels.

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In essence, the ULTRAMIC heater's robust construction, excellent geometric stability, and appropriate mounting practices contribute to its resistance to vibration and ensure reliable performance in challenging applications.