

VACUUM BAKE-OUT

A superior vacuum bake-out process within laboratory, research, and development operations

Application

With many laboratory or research & development tests, it is critical that materials are free of gases, water vapor, and other contaminants. A vacuum bake-out is a process used to remove such contaminants. Applying surface heat (normally up to 392 °F (200°C)) is required to successfully complete a vacuum bake-out process. The removal of impurities allows vacuum-baked components to be used in ultra-high vacuum or ultra-high purity systems without fear of contamination. Heat is used to help release impurities and other contaminants, from components in a closed system (vacuum chamber), while a vacuum pump removes those impurities.

Solution

Custom cloth heating jackets are ideal heaters for vacuum bake-out applications. They fit around the outside of vacuum chambers to provide the necessary heat. Vacuum chambers come in many different sizes and shapes, often with complex shapes and multiple exterior surface obstructions. Custom cloth heating jackets can be designed and manufactured to fit almost any size and configuration, ensuring intimate surface contact for consistent heat across the entire heated area. The built-in insulation maximizes efficiency, and reduces heat loss, allowing them to safely operate at several hundred degrees at very tight tolerances. High-temperature Samox[®] or PTFE cloth construction provides extreme durability and long service life under high temperature uses. The heating element is BriskHeat's patented multi-stranded heating element. Several closure options are available to suit your needs such as hook-and-loop closure (pictured), lace and boot hooks, lace and grommets, or belts with D-Rings, making them easy to install and easy to remove.

Further customization of cloth heating jacket includes:

- Redundant circuits to act as back up if the primary element fails
- Non-ferrous components for research and experimentation that include magnetic fields
- View ports to observe the chamber's interior during an experiment

A total solution for using cloth heating jackets includes choosing the right temperature control system. SDX, LYNX[®], or the MPC2 Multipoint Temperature Control Panel are designed to provide control needed for vacuum bake-out. The amperage load, heater configuration, and environment will determine the best solution for your application.



Additional Uses

Apart from vacuum bake out, cloth heating jackets are also superb heaters for research projects involving systems with complex structures. Custom heaters can be made to fit all sizes and shapes of equipment such as tanks, pipes/tubes, joints, valves, and much more.

Additional Product

For laboratory or R&D experiments necessitating high wattage and very high temperatures, Mineral Insulated (MI) is recommended. MI cable is semi-rigid and electrically insulated using Magnesium Oxide (mineral) to ensure safe electrical insulation with maximum thermal transfer. MI cable has maximum exposure temperature of 1,832°F (1,000°C) and a 76.2 W/ft (250 W/m) watt density.

Products

Cloth Heating Jackets
LYNX Temperature Control
System

Mineral Insulating Cable
MPC2 PID Control Panel

Types of Users

Lab Managers
Process Engineers

Scientists
Project Managers

Industries

Analytical Instrumentation/
Laboratory

High Vacuum
Manufacturing