MOD-TRONIC Instruments Limited Reinforces Commitment to Advanced Thermal Solutions with Polyimide Flexible Heater Technology

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MOD-TRONIC Instruments Limited, a leading provider of precision heating products and temperature control solutions, today emphasizes its ongoing dedication to delivering superior thermal management systems through its advanced polyimide flexible heater technology. Known for its expertise in innovative heating elements, the company highlights the benefits and applications of its polyimide flexible heater from Mod-tronic, a key component engineered for high-performance environments with stringent space and weight constraints.

Polyimide flexible heaters, also known interchangeably as Kapton? heaters, utilize thin, semitransparent polyimide film coupled with etched-foil resistance elements to create a heating solution that balances excellent thermal transfer with exceptional design versatility. MOD-TRONIC's polyamide flexible heaters lead in the industry for environments demanding uniform, reliable heat where conventional resistive heaters fall short, especially under vacuum, exposure to oils, chemicals, or challenging mechanical conditions.

The lightweight nature of these heaters translates directly to lower thermal mass, which in turn enables rapid

thermal response and precise temperature control. This advantage is critical for applications where swift heat-up and cool-down cycles are necessary to maintain operational efficiency or prevent damage to sensitive components. Moreover, MOD-TRONIC?s heaters offer near unlimited custom X-Y geometry configurations, allowing them to be tailored exactly where heat is required, therefore optimizing energy consumption and reducing overall operating costs.

MOD-TRONIC Instruments Limited has engineered the polyimide flexible heater from Mod-tronic with several customizable options to meet diverse customer needs. The integration of surface mount technology (SMT) components, flexible leads, and specialized connectors provides a turnkey solution that drastically cuts down on assembly time while boosting production throughput. These options make the heaters particularly attractive to industries where time to market and reliable performance are paramount.

Meeting rigorous safety and quality standards, MOD-TRONIC?s polyimide heaters come with UL and TUV component recognition, certifying their compliance with essential electrical and thermal safety regulations. Additionally, the heaters feature unique qualities such as high chemical resistance to acids and solvents, and in certain custom configurations, radiation resistance up to 106 rads. This makes them suitable for a broad spectrum of environments, ranging from industrial manufacturing floors to aerospace applications.

The aerospace industry, in particular, benefits significantly from these heaters, as the polyimide flexible heater from Mod-tronic has been built to comply with NASA-RP-1061 specifications for vacuum operation. Further endorsements from NASA-approved materials protocols (S-311-P-079) solidify MOD-TRONIC?s position as a trusted supplier for satellite component warmers and other space-bound equipment requiring reliable temperature maintenance in the harsh conditions of outer space.

Industries such as medical diagnostics also rely heavily on MOD-TRONIC?s solutions. Medical instruments and analyzers demand precise temperature control to ensure accuracy and reliability in patient testing and sample analysis. The flexibility and uniform heating offered by MOD-TRONIC?s polyimide heaters help stabilize sensitive optoelectronic components and maintain critical warmth, enabling these devices to function flawlessly in various clinical and laboratory conditions.

Additional applications include protecting aircraft electronics and mechanical devices against cold temperatures at high altitudes, stabilizing integrated circuits during testing or simulation, and facilitating cold-weather operation of outdoor electronics like card readers, LCD screens, and ruggedized laptops. The diverse utility across these fields underscores the heater?s adaptability and MOD-TRONIC?s commitment to evolving alongside industrial needs.

Mounting methods for these heaters are equally varied, providing options such as #12 pressure sensitive adhesive (PSA) with aluminum backing, acrylic PSA with or without additional aluminum support, #15 epoxy

adhesive, BM3 shrink band, stretch tape, and mechanical clamping systems. This range of mounting solutions allows engineers and technicians to incorporate the heaters seamlessly into their designs with confidence in durability and reliability.

The polyimide flexible heater from Mod-tronic is available in sizes up to 22 inches by 72 inches, accommodating a wide range of equipment sizes and configurations. Resistance values can be tailored up to 1500 ohms per square inch, enabling precise thermal tuning. Adhesive layers such as WA, ULA, or FEP, recognized for UL compliance, ensure secure application and environmental protection.

Steven Ruple, President of MOD-TRONIC Instruments Limited, noted, ?Our flexible heaters represent the pinnacle of thin-film heating technology. We understand the critical nature of delivering tailored thermal management solutions that stand up to the most demanding industrial, aerospace, and medical applications. With ongoing innovation and customer-focused customization, MOD-TRONIC continues to provide products that enhance system performance and reliability worldwide.?

The company also offers optional built-in temperature sensors and the potential to integrate surface-mount connectors, heat sinks, and even integral controllers into the heater assembly. Such versatility creates fully functional modules that streamline system-level integration and optimize performance without the need for extensive external components.

The combination of ultra-thin construction, comprehensive customization, and robust safety certifications makes MOD-TRONIC Instruments Limited?s polyimide flexible heaters well-suited for cutting-edge technological environments. Whether enhancing satellite systems with temperature stability or safeguarding medical analyzers against thermal inconsistencies, the company?s advanced heating products continue to set industry benchmarks.

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MOD-TRONIC Instruments Limited

MOD-TRONIC is a distributor of fourteen high-quality manufacturers of industrial Sensors, Transducers, Heaters,

Controls, and Instrumentation. We are very proud to say that the majority of the products we sell are made in the USA.

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