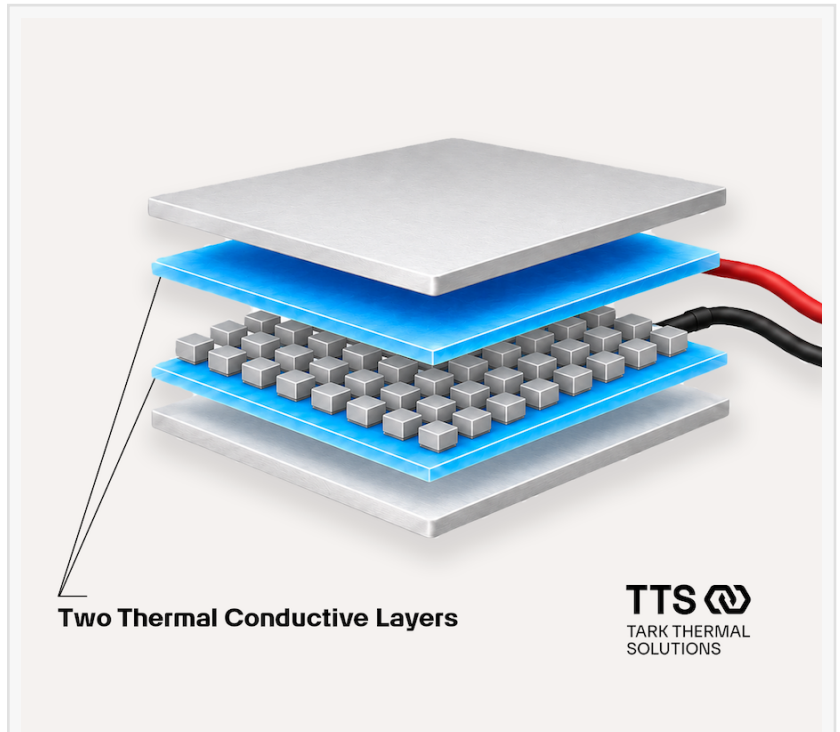


Tark Thermal Solutions Launches PCX-DG Series Cooler With Dual Compliant Bonding for Maximum Test System Reliability

Engineered for extreme power-cycling applications to withstand 200,000+ rapid heating/cooling cycles ...

ROSENHEIM, GERMANY, October 13, 2026 /EINPresswire.com/ -- [Tark Thermal Solutions](#), the global leader in thermal management solutions, today announced the [PowerCycling PCX-DG Series](#), a new family of thermoelectric coolers engineered for higher current draw and high heat flux density applications like end-of-line (EOL) optical transceiver test heads, semiconductor test sockets and other systems exposed to frequent, rapid temperature reversals.

The [PCX-DG Series](#) extends Tark Thermal Solutions' PowerCycling PCX platform with compliant, thermally conductive bonding layers at both ceramic-side interfaces of the thermoelectric module. The dual-interface construction is designed to absorb more of the differential expansion and contraction generated during power cycling, reducing the mechanical stress transferred through the cooler as it repeatedly moves between heating and cooling operation.



PCX-DG Series TEC

TTS 
**TARK THERMAL
SOLUTIONS**

The PCX-DG Series inherits the enhanced module construction and next-generation thermoelectric materials of the broader PowerCycling PCX line, which has already been qualified



Test-sockets are one of the harshest operating conditions for thermoelectric coolers. A thermally conductive soft layer added to the hot and cold sides achieves significant improvements in TEC life.”

*Andrew Dereka,
Thermoelectrics Product
Director, Tark Thermal
Solutions*

against rigorous thermal cycling standards in molecular diagnostics and point-of-care testing. Tark Thermal Solutions extends the same reliability engineering to optical transceiver EOL test systems. By reducing the risk of premature TEC failure, the PCX-DG Series is designed to lower total cost of ownership for optical transceiver test-system OEMs and contract houses.

Test heads used in end-of-line (EOL) testing of pluggable optical transceivers including QSFP-DD, OSFP, and CFP2 modules, subject TECs to some of the harshest duty cycles in the industry. A typical test cycles each module through cold, ambient, and hot temperatures to verify laser wavelength stability, bit-error-rate, optical power, and extinction ratio, all while the TEC actively removes several watts of continuous heat from a powered module.

Semiconductor burn-in and final test presents a comparably demanding environment. As test-socket form factor and cooling capacity (Q_c) increase, it becomes harder for a TEC to survive the cycling. In both applications, the rapid, repeated transitions between hot and cold setpoints across wide temperature swings make conventional solder-bonded TECs vulnerable to cracking, delamination, and bowing. The repeated thermal expansion and contraction, often hundreds of thousands of times over a TEC's service life, stresses and fatigues the rigid solder joints between the ceramic substrate and copper interconnects.

Key PCX-DG Capabilities

Hitting and holding the thermal cycling reliability, cycle after cycle, is part of what stresses the thermoelectric cooler and drives the fatigue/delamination problem. By using a compliant thermally conductive bond layer at both the hot and cold interfaces, the TEC can flex slightly with each thermal test cycle instead of transmitting full stress into brittle solder joints. This results in the following benefits:

- **Power-cycling reliability:** Tark's PCX-DG Series is validated in semiconductor test applications to withstand 200,000+ power cycles, without performance degradation depending on the form factor.
- **Dual compliant interfaces (Fast Ramp Rate):** Flexible, thermally conductive bonding layers on both ceramic sides are designed to reduce the stress generated by coefficient-of-thermal-expansion mismatch during repeated heating and cooling cycles.
- **Wide temperature range:** The new PCX-DG models are rated for a maximum operating temperature of 120°C, supporting applications that operate across a broad temperature window.

- **Precise solid-state control:** The PCX-DG Series retains the solid-state operation and next-generation thermoelectric materials of the broader PCX family, which TTS developed for applications requiring high frequency cycling, fast temperature changes, and precise control.
- **Multiple form factors:** The series is offered in multiple footprints to support different thermal-head, heat-load, socket, and packaging requirements. Current product listings include PCX-DG variants intended specifically for harsh cycling environments and high heat-flux densities.
- **Lower Cost of Ownership:** A cracked or delaminated TEC in a test application causes non-uniform temperature control across the device under test (DUT). This can invalidate test results or damage expensive semiconductors under test. The PCX-DG's increased mechanical durability directly protects test yield and equipment uptime.

Supporting Equipment Uptime and Test Throughput

Temperature-control instability in a semiconductor test socket can interrupt a test sequence, produce temperature gradients across the DUT, require retesting, or take a test site out of production. By reducing thermomechanical stress inside the TEC, PCX-DG is designed to extend maintenance intervals and improve the availability of thermal test hardware.

“Thermal cycling in test-socket applications is one of the harshest operating conditions we have encountered for thermoelectric coolers because it repeatedly stresses the TEC through rapid heating and cooling cycles. By applying a thermally conductive soft layer to both the hot and cold sides, we have achieved significant improvements in TEC life, particularly in high-heat-pumping applications that draw high current. This is the most reliable TEC solution Tark Thermal Solutions offers for demanding thermal-cycling applications.”

– Andrew Dereka, Thermoelectrics Product Director, Tark Thermal Solutions

The PCX-DG Series is available in various package configurations. Product specifications, distributor inventory, technical-support requests, and quotation options are available through Tark Thermal Solutions and its authorized distributor network.

About Tark Thermal Solutions

Tark Thermal Solutions designs, develops, and manufactures active thermal management solutions for demanding applications across global medical, industrial, transportation, telecommunications and data center markets. We manufacture one of the most diverse product portfolios in the industry, ranging from thermoelectric coolers and assemblies to temperature controllers, specialty pumps and liquid cooling systems. With unmatched thermal management expertise, our engineers use advanced thermal modeling and management techniques to solve complex heat and temperature control problems. By offering a broad range of design, prototyping and in-house testing capabilities, we partner closely with our customers across the entire product development lifecycle to reduce risk and accelerate time-to-market. Our global design, manufacturing and support resources help customers shorten their product design cycle, maximize productivity, uptime, performance, and product quality. Tark Thermal Solutions

is the optimum choice for standard or custom thermal solutions.

Florian Haessler

Tark Thermal Solutions

florian.haessler@tark-solutions.com

Visit us on social media:

[LinkedIn](#)

[Facebook](#)

[YouTube](#)

[Other](#)

This press release can be viewed online at: <https://www.einpresswire.com/article/949186051>

EIN Presswire's priority is source transparency. We do not allow opaque clients, and our editors try to be careful about weeding out false and misleading content. As a user, if you see something we have missed, please do bring it to our attention. Your help is welcome. EIN Presswire, Everyone's Internet News Presswire™, tries to define some of the boundaries that are reasonable in today's world. Please see our Editorial Guidelines for more information.

© 1995-2026 Newsmatics Inc. All Right Reserved.