



ADVANCED EQUIPMENT FOR CRITICAL ENGINEERING DECISIONS

Thermal Characterization · Thermal Validation
Vacuum Soldering · Pressure Sintering

Ahmarix Company Portfolio | 2026



01

ABOUT AHMARIX

A U.S. PARTNER FOR SPECIALIZED EUROPEAN
ENGINEERING

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WHO IS AHMARIX?

Ahmarix is a U.S.-based distributor and application partner for selected European high-technology equipment manufacturers, serving semiconductor and advanced-electronics customers.

HEADQUARTERS

Tucson, Arizona

ROLE

Official U.S. distributor and application partner

TECHNOLOGY PARTNERS

Nanotest · budatec — Berlin, Germany

MARKETS

Semiconductor, AI/HPC, power electronics, automotive, aerospace, research



ABOUT AHMARIX

A U.S. partner for specialized European engineering

We support customers throughout the full equipment journey — from application evaluation and technical coordination to commercial processing, delivery and implementation. By combining local U.S. support with access to specialized European technologies, Ahmarix makes advanced equipment easier to evaluate, purchase and deploy.

2

selected
technology
partners

7+

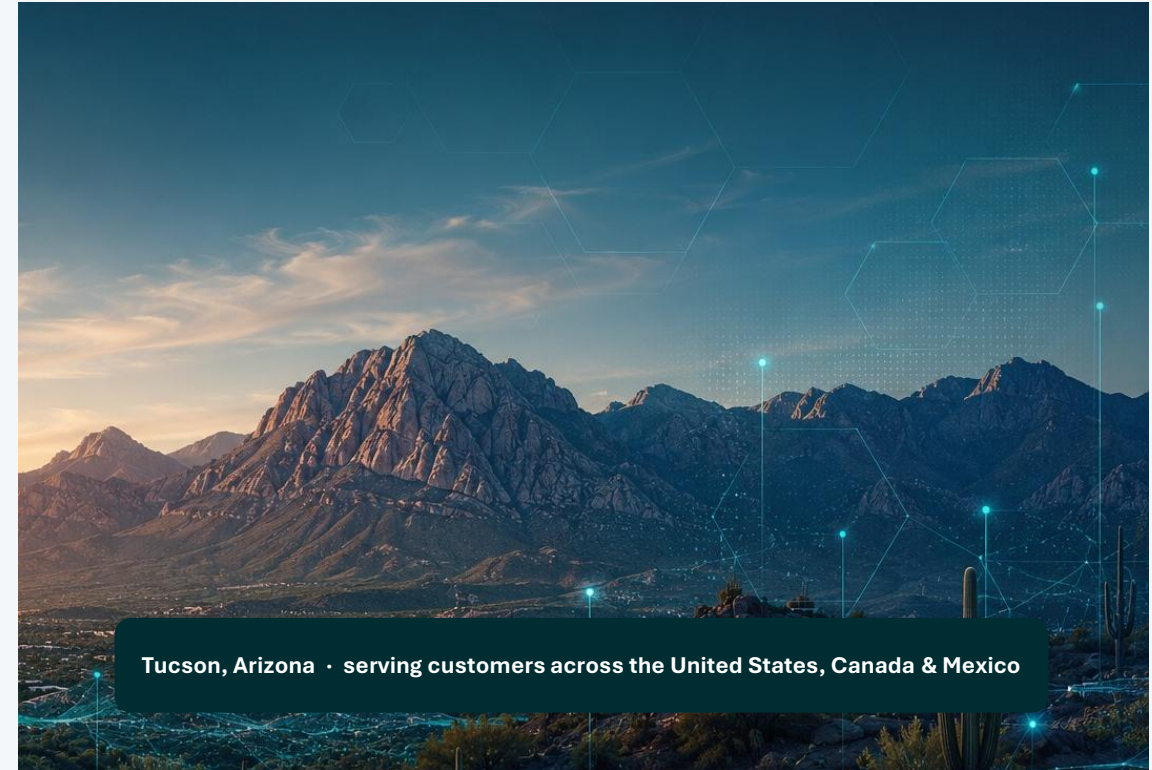
featured
equipment
platforms

6

engineering
decision areas

U.S.

local application
support

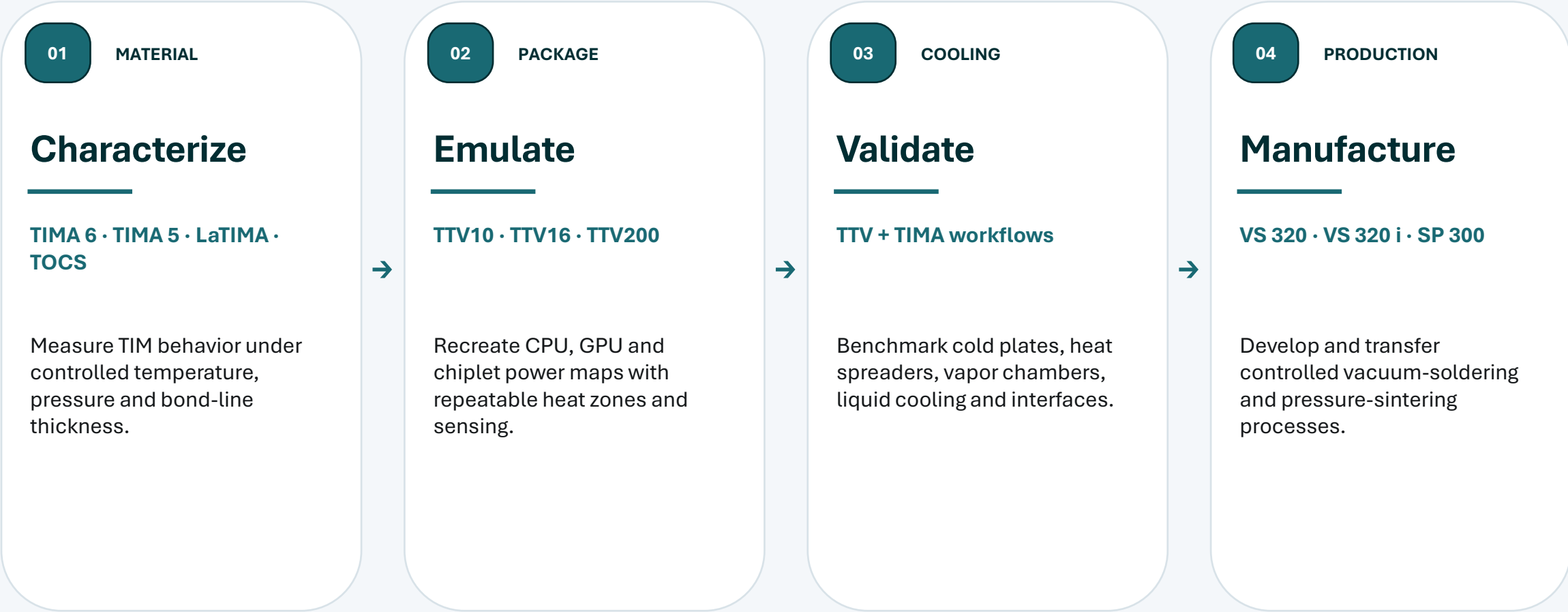


LOCAL ROLE

- Application-led system qualification
- Direct coordination with manufacturer engineering
- Import, site-readiness and implementation planning
- Training and lifecycle communication

One connected value chain from material to production

Characterize the thermal path, emulate realistic loads, validate cooling, then manufacture reliable joints.



The portfolio is organized around the engineering decision—not the equipment category alone.

HOW WE WORK

6

A clear path from requirement to result

01

DEFINE

Application discovery

- Samples, materials and package architecture
- Power levels / target process / standards
- Success criteria and acceptance outputs

02

CONFIGURE

Technical concept

- System options and accessories
- Utilities, automation and safety
- Measurement outputs and custom requirements

03

IMPLEMENT

Project execution

- Quotation and manufacturer clarification
- Import, logistics and installation planning
- Commissioning and acceptance coordination

04

SUPPORT

Training & lifecycle

- Operator / engineer training
- Troubleshooting and service coordination
- Maintenance, calibration and future expansion

INDUSTRIES SERVED

7

Where performance depends on heat and joining quality

1

SEMICONDUCTORS &
ADVANCED PACKAGING

2

AI, HPC & DATA CENTERS

3

OSAT, EMS & CONTRACT
MANUFACTURING

4

AUTOMOTIVE & ELECTRIC
VEHICLES

5

AEROSPACE & DEFENSE

6

TIM, ADHESIVE &
CHEMICAL MATERIALS

7

POWER ELECTRONICS &
WIDE-BANDGAP

8

CLOUD INFRASTRUCTURE
& SERVER OEMS

9

INDUSTRIAL
ELECTRONICS &
AUTOMATION

10

LED & OPTOELECTRONICS

11

ENERGY, RENEWABLES &
STORAGE

12

UNIVERSITIES &
RESEARCH INSTITUTES

The same physics appears across materials, packages, cooling systems and electronics manufacturing.

COMMON CHALLENGES · interfaces · hotspots · cooling · solder voids · die attach · process transfer

02



NANOTEST

NANOTEST

THERMAL CHARACTERIZATION & THERMAL TEST VEHICLES

Berliner Nanotest und Design GmbH, Berlin Germany

German engineering for material-level measurement, CPU/GPU thermal emulation and thermography-based failure-analysis expertise.

nanotest.eu

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Nanotest: deep thermal-management expertise from Berlin

NANOTEST

Founded in 2004 by scientists and engineers with roots in the Fraunhofer Micro Materials Center, Nanotest has grown from material characterization into specialized thermal-management systems and services.

Today the company operates from Berlin with laboratory, production and office facilities and supports industrial and academic customers worldwide.

2004

founded

Berlin

engineering & production

ISO 9001

certified processes

TIMA · TTV

core platforms

01

Thermal Interface Material Analyzers

Controlled steady-state measurement of interface performance and material behavior.

02

Thermal Test Vehicles

Calibrated thermal twins for CPU, GPU and chiplet power distributions.

03

Failure-analysis expertise

Thermography-based methods and custom analysis capability within the manufacturer portfolio.

Portfolio logic: material characterization → package emulation → cooling validation.

From material properties to package-level validation

THERMAL CHARACTERIZATION

TIMA 6

Measure complete thermal-interface behavior instead of relying on a single datasheet conductivity number.



- Pressure
- Temperature
- BLT
- Aging
- Cycling

[Explore TIMA 6 →](#)

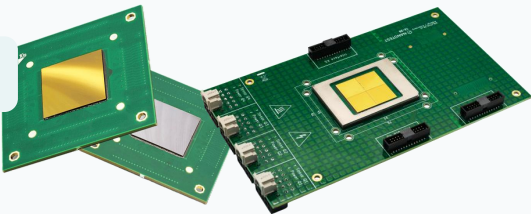
THERMAL TEST VEHICLES

TTV family

Reproduce controlled spatial power maps and temperature gradients for cooling, package and chiplet validation.



- CPU
- GPU
- Chiplets
- Cooling
- Reliability



[Explore TTVs →](#)

THERMAL INTERFACE MATERIAL ANALYZER



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TIMA 6 — application-relevant TIM characterization

A controlled steady-state platform for understanding how pressure, temperature, bond-line thickness and aging change the complete thermal path.

10–200 °C

sample temperature

900 N

continuous force

1,000 N

short-term force

0.4 mm²K/W

thermal-resistance resolution

MEASUREMENT & OUTPUTS

- Steady-state thermal-resistance measurement aligned with ASTM D5470-17
- Outputs: effective thermal resistance/conductivity, bulk conductivity, interface resistance and bond-line thickness
- Samples up to 38.1 mm diameter; ±3% precision under specified conditions



[Product page TIMA6 →](#)

Turn interface uncertainty into a controlled test plan

01 Pressure sweep

Quantify sensitivity to clamping force and contact conditions.

02 Temperature sweep

Track performance across the real application temperature window.

03 BLT sweep

Separate bulk contribution from interface effects and optimize thickness.

04 Cycling & aging

Observe burn-in, pump-out and thermo-mechanical reliability behavior.

MATERIAL CLASSES

Greases / gels

Gap pads / fillers

Phase-change

Adhesives / underfill

Mold compounds

Liquid metals

Extended workflows can also include TTV10-based application testing and package-warpage investigations.

EVIDENCE DELIVERED

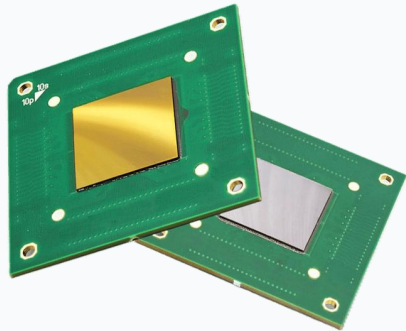
- ✓ Thermal resistance
- ✓ Effective conductivity
- ✓ Bulk conductivity
- ✓ Interface resistance
- ✓ Bond-line thickness

Result: data that supports material selection, supplier comparison and design limits.

THERMAL TEST VEHICLES

Choose the thermal twin that matches package scale

TTV10



2,000 W

max package power

4 + 6

heater zones

16 + 4

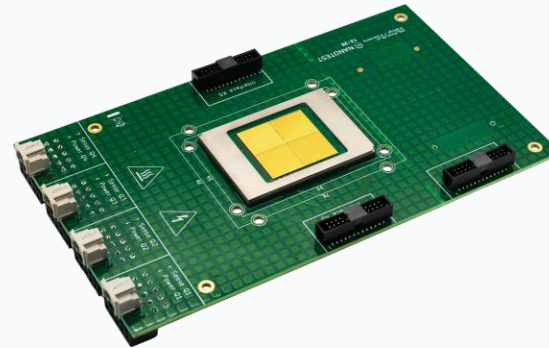
temperature sensors

60 × 60 mm

platform / active scale

General package studies, hotspots and compact cooling

TTV16



5,000 W

max package power

24

heater zones

56 RTDs

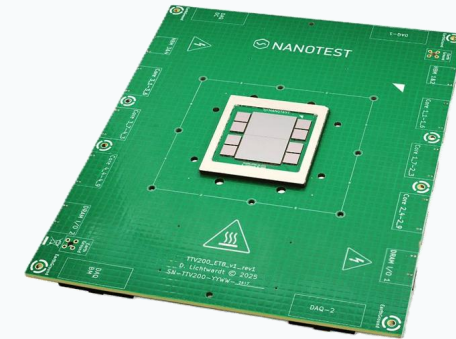
temperature sensors

40 × 40 mm

platform / active scale

CPU / chiplet architectures and high-power cooling

TTV200



7,400 W

max package power

24 / 48

heater zones

104 + 8

temperature sensors

52.5 × 50 mm

platform / active scale

GPU / AI accelerator and HPC-class thermal validation

GPU-CLASS THERMAL TEST VEHICLE

TTV200 — reproduce multi-die accelerator heat loads



A high-end thermal emulation platform built around a multi-die chiplet architecture. It creates repeatable GPU-like hotspots and spatial load patterns without depending on functional silicon.

7,400 W maximum package power	6.5 W/mm² power density
24 / 48 standard / custom heater zones	104 + 8 on-die + package sensors
125 °C maximum operating temperature	52.5 × 50 mm multi-die active area

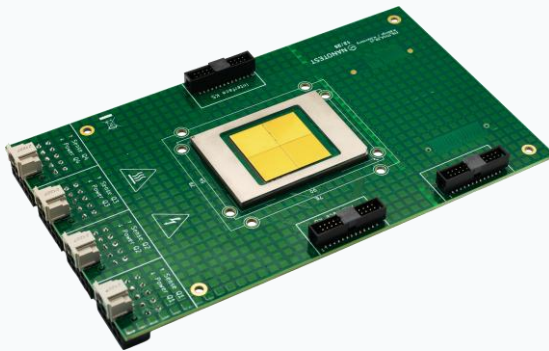
APPLICATION FIT GPU / AI accelerator cooling · cold plates · direct-to-chip liquid cooling · vapor chambers · hotspot interaction · TIM1/TIM2 · chiplet reliability

[Product page TTV200 →](#)

TTV16 + TTV10 — controlled thermal loads

TTV16

CPU / chiplet platform



40 × 40 mm monolithic or four-die chiplet format with 24 independently controllable heater zones and 56 on-die four-wire RTDs.

5,000 W

maximum package power

3.2 W/mm²

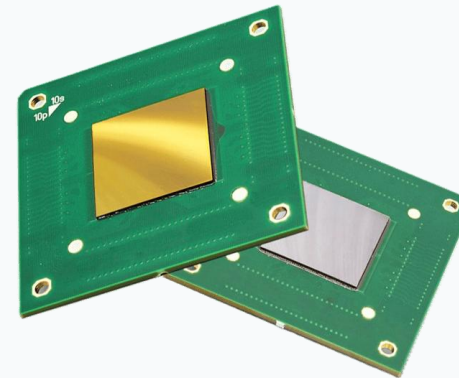
power density

Best fit: CPU thermal architecture, chiplet gradients, liquid/air cooling, power cycling and package-stack qualification.

[Product page TTV16 →](#)

TTV10

Compact package platform



60 × 60 mm package with four main heater zones, six hotspots, 16 RTDs and four backside NTC sensors.

2,000 W

theoretical package power

10 W/mm²

hotspot power density

Best fit: general package studies, hotspot/spreading tests, compact cold plates, TIM investigations and automated thermal profiles.

[Product page TTV10 →](#)

03

budatec®

Equipment for semiconductor and photovoltaic industries

BUDATEC

VACUUM SOLDERING & PRESSURE SINTERING

Budatec GmbH, Berlin Germany

Configurable process systems for void-reduced joining, automated inline production and hydraulic-free pressure sintering.

[budatec.de](https://www.budatec.de)

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budatec: controlled joining processes from R&D to production

budatec

budatec was founded in 2009 by a team with roots in semiconductor automation and vacuum-soldering technology reaching back to the early 1990s.

The Berlin portfolio spans vacuum soldering, inline equipment, pressure sintering and application-specific tooling for process development and production.

2009

company founded

100+

vacuum-system milestone

ISO 9001

certified since 2016

VS · SP

core platforms

01

Vacuum soldering

Programmable thermal, vacuum and atmosphere control for void-reduced joints.

02

Inline automation

Automated carrier handling and flexible production-line integration.

03

Pressure sintering

Servo-electric force control for clean, repeatable silver-sintering processes.

Common options include controlled atmospheres, vacuum technology, plasma pre-cleaning, automation and custom tooling.

VACUUM SOLDERING SYSTEM

VS 320 — flexible process development and production

A 320 × 320 mm process platform for developing and reproducing void-reduced soldering under controlled vacuum, atmosphere and thermal conditions.

320 × 320 mm

heating plate

Up to 100% H₂

configurable hydrogen option

HCOOH

formic-acid atmosphere option

Plasma

microwave pre-cleaning option

APPLICATION FIT

- Power-module and substrate soldering
- Void-reduced die attach and baseplate bonding
- DBC / AMB process development
- Fluxless or reduced-oxide joining
- Pilot production and medium-to-large batches



[Product page VS320 →](#)

Atmosphere, vacuum, cooling, gas and handling options are configured to the application.

budatec[®]
Equipment for semiconductor and photovoltaic industries

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INLINE VACUUM SOLDERING

VS 320i — transfer a qualified process into scalable production



VS 320 i extends the VS 320 process platform with autonomous product-carrier loading and unloading for stable, repeatable line integration.

Inline-ready

flexible line integration

Automated

carrier loading & unloading

VS 320

process options retained

Scalable

series-production focus

WHERE IT CREATES VALUE

- Automated power-module manufacturing
- MES- or line-controlled production environments
- Reduced manual handling and operator dependence
- Scale-up from qualified VS 320 recipes

[Product page VS320i →](#)

PRESSURE SINTERING

SP 300 — servo-electric force control without hydraulics

A fully automatic sintering press for large-area pressure-assisted joining. Servo-electric actuation and load-cell feedback provide fast closed-loop control for production environments.

300 kN

maximum adjustable force

220 × 180 mm

maximum process area

Servo-electric

closed-loop force generation

Hydraulic-free

clean production concept

APPLICATION FIT

- Pressure-assisted silver sintering
- High-reliability die attach for power semiconductors
- Large-area module and substrate joining
- Process transfer from development to automated production



[Product page SP300 →](#)

04

BEYOND EQUIPMENT

APPLICATION ENGINEERING, CONSULTING AND SUPPORT

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Six engineering decisions supported by the portfolio

01 Select & qualify TIMs

TIMA 6

Compare materials across pressure, temperature, BLT and reliability conditions.

02 Validate CPU / GPU cooling

TTV10 · TTV16 · TTV200

Benchmark cold plates, vapor chambers, liquid cooling and heat spreaders.

03 Understand chiplet hotspots

TTV16 · TTV200

Quantify local gradients, thermal coupling and cooling asymmetry.

04 Reduce solder voids

VS 320 · VS 320 i

Control thermal cycle, vacuum and atmosphere for repeatable soldering.

05 Stabilize sintering

SP 300

Apply precise pressure and atmosphere without hydraulic leakage risk.

06 Implement with less risk

Ahmarix support

Coordinate system selection, site readiness, commissioning and lifecycle support.

Start with the engineering question. Ahmarix maps the objective to the correct platform, configuration and project scope.

Technical support starts before the purchase

01

Equipment selection & application consulting

Define objectives, compare platforms, review samples/fixtures and build a technically complete system scope.

02

Site readiness & implementation

Plan power, cooling water, gases, ventilation, floor space, network, safety and acceptance.

03

Thermal management consulting

Design TIM test matrices, pressure/BLT/temperature plans, TTV power maps and reliability concepts.

04

Process development support

Coordinate vacuum-soldering or sintering trials, atmosphere/profile definition, tooling and production transfer.

05

Training & commissioning

Support setup, operator/engineer training, method definition, software use and acceptance documentation.

06

Lifecycle & service coordination

U.S. point of contact for troubleshooting, spare parts, calibration, preventive maintenance and manufacturer escalation.

Consulting can be scoped as a standalone technical service or integrated into an equipment project.

One local partner. Direct access to specialized engineering.

01 Application-first selection

Start from the material, package, cooling concept or manufacturing process—not a generic product list.

02 Direct manufacturer coordination

Custom configurations and technical risks can be discussed with the engineers who design the systems.

03 Local U.S. implementation

Site readiness, logistics, commissioning, training and ongoing support are coordinated closer to the customer.

04 Connected technical + commercial interface

One point of contact keeps requirements, quotations, implementation details and lifecycle communication aligned.

Bring the application—not only the equipment name. We will help define the right system and next steps.



LET'S DEFINE THE RIGHT TEST OR PROCESS SYSTEM.

SHARE YOUR APPLICATION, SAMPLE, PACKAGE OR PRODUCTION REQUIREMENT.
AHMARIX WILL TRANSLATE IT INTO A PRACTICAL SYSTEM CONCEPT AND
IMPLEMENTATION PATH.

ahmarix.us

Thermal characterization · Thermal validation · Electronics manufacturing

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Tucson, Arizona

Serving customers across the United States

