



INDUSTRY BRIEF

Heat Treatment

Furnace control and records that stand up to every customer audit.

 MATRIX

What matters most

Pyrometry compliance

Instruments, thermocouples and control loops must pass calibration, system accuracy tests and temperature uniformity surveys. Well-designed control and recording make those tests easier to pass and to prove.

Records that pass audit

Every load needs a complete, tamper-evident record of time, temperature and atmosphere, linked to the parts and recipe used, and ready to show a customer or Nadcap auditor.

Furnace safety

Burners, fuel trains, vacuum systems and flammable or toxic atmospheres need purge, flame and interlock protection that is designed and proven to the level your risk assessment demands.

Repeatable, controlled cycles

Operators should be able to load a recipe and trust it. Controlled recipe management, clear displays and alarms on any deviation keep every cycle the same, shift after shift.

The standards that shape your project

Standard	What it covers
AMS2750	SAE aerospace pyrometry specification: sensors, instruments, calibration, accuracy tests and uniformity surveys.
AIAG CQI-9	Heat Treat System Assessment, used by automotive customers to audit heat treaters.
Nadcap heat treating (AC7102)	Audit criteria for Nadcap heat treating accreditation, required by many aerospace customers.
BS EN 746-1, BS EN ISO 13577-2 and -4	Safety of industrial furnaces: general requirements, combustion and fuel handling, and protective systems.
BS EN 60204-1	Safety of machinery: electrical equipment of machines, including stopping and emergency stop.
BS EN ISO 13849-1	Design of the safety-related parts of machine control systems, rated by performance level (PL).

The standards listed are those most often relevant to control-system work in this sector. Which apply to your project, and how, is agreed with you at specification stage.

From specification to long-term support



Furnace downtime is lost production, and changes to controls can trigger new surveys and tests. We plan upgrades around your schedule, prove recipes and logic against a simulation before site, and schedule commissioning around the tests needed to requalify each furnace. You get the design, code and documentation to run and maintain the system yourselves.

Systems we engineer

- Vacuum furnaces
- Atmosphere and sealed-quench furnaces
- Tempering, annealing and ageing ovens
- Burner management and combustion control
- Recipe management and load traceability
- Temperature recording and pyrometry data

PROJECT EXPERIENCE

Vacuum furnace

Matrix delivered the control system for a vacuum furnace. Vacuum furnaces combine pumping, heating and cooling in one tightly sequenced cycle, and their control must give repeatable results and a clear record of every load.

The evidence you receive at handover

✓ Functional design specification

✓ I/O list and cause-and-effect

✓ Alarm list and HMI interface

✓ FAT and SAT records

✓ As-built drawings and source code

✓ Method statements for common faults

Why customers choose us

Standards first

An ISO 9001 certified quality system, designing to the standards your sector demands, plus any you specify.

You own the system

Clear structure, open interfaces and complete documentation, so you can support it yourself or with any vendor.

Tested before site

Control code is version-controlled and tested against a simulated plant before factory and site acceptance.

Multi-vendor

Siemens, Rockwell, ABB, Schneider, Mitsubishi, Beckhoff, Emerson, Honeywell and GE platforms.

In it for the long term

For us a project is not finished until the control system is decommissioned. 24/7 support is available under a support agreement.

OUR PROMISE

Standards-led, fully documented control systems that you own and can support.

GET IN TOUCH

Talk to us about your project

enquiries@matrixsystems.co.uk

0121 240 7454

www.matrixsystems.co.uk

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