

## 9. PROJECT EXECUTION & LONG-TERM SUPPORT

### THERMACH PROVIDES:

- Application review and concept development
- Complete system design and documentation
- Factory Acceptance Testing (FAT)
- Installation, commissioning, and training
- Ongoing service and technical support

This Technical Data Sheet describes typical AT-3200 Turnkey System capabilities. Final configuration and specifications are defined during application review and proposal development.

### SYSTEM COMPONENTS

- 1 3200 Console
- 2 Arc Starter, Plasma System
- 3 Power Supply
- 4 Heat Exchanger
- 5 Powder Feeder
- 6 SG-100 Plasma Torch

### CUSTOM TURNKEY ADDITIONS

Booth, Dust Collector, Robot, Turn Table or Part Manipulation, Dust Hood, Safety Interface



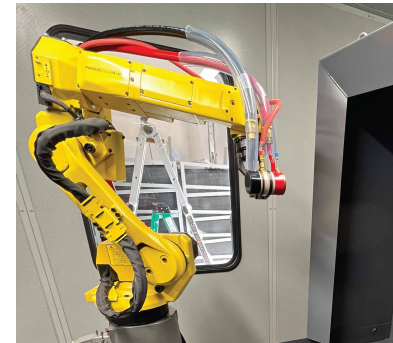
# AT-3200 Turnkey Thermal Spray System



## Why Thermach?

We take pride in not only the quality of our product, but the service we provide after the equipment is installed; we'll pick up the phone! Because we design and manufacture our thermal spray equipment, we are uniquely positioned to integrate our systems into customers specific applications.

Thermach is the predominant industry option for custom thermal spray solutions. Why? Simple. We're not your competitor. Your other options are competitors. They coat, we don't. We only supply thermal spray equipment and parts. Proceed with confidence working with our team to create a custom system that meets your exacting specs.



**THERMACH CUSTOM TURNKEY SOLUTIONS DELIVER INTEGRATION OF ALL COMPONENTS AND SAFETY CIRCUITS FOR ONE SEAMLESS CONTROL.**



We not only manufacture high quality thermal spray equipment and spare parts, we also design and develop full turnkey solutions.

Explore our comprehensive turnkey solutions, designed to meet the unique needs of your industry and application. From noise enclosures to robotic manipulation and efficient dust collection, we will work with you to develop a solution that is crafted to your specific application. Our automated solutions integrate seamlessly, boosting productivity and safety on your production floor.

### Applications & Industries

We have experience installing thermal spray equipment in a variety of industries, including aerospace, medical, oil & gas and power generation to name a few. Whether looking to replace an aging line, add more capacity or just bringing thermal spray in for the first time, we can help.

Easy online quote requests at [www.thermach.com](http://www.thermach.com).  
Call (920) 779-4299. Email [sales@thermach.com](mailto:sales@thermach.com).

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Your **coating partner**,  
not your competitor.



Manufacturer of Equipment & Parts  
for the Thermal Spray Industry.

# AT-3200 TURNKEY SYSTEM TECHNICAL CAPABILITIES & DESIGN STANDARDS

## 1. SYSTEM OVERVIEW & INTENDED USE

The AT-3200 Turnkey System is a fully integrated, PLC-controlled thermal spray cell designed for automated, recipe-driven production environments requiring high repeatability, process monitoring, and advanced safety integration.

The system combines Thermach thermal spray equipment with robotics, part manipulation, enclosures, dust collection, controls, and safety into a single, coordinated solution with one point of responsibility.

### TYPICAL APPLICATIONS

- Automated production coating
- Multi-part, multi-recipe environments
- High-repeatability coating operations
- Facilities requiring integrated safety & data visibility

### INDUSTRIES SERVED

- Aerospace
- Power generation
- Oil & gas
- Medical
- General industrial manufacturing

## 2. PROCESS & PERFORMANCE ENVELOPE - Application dependent, ranges shown are typical

### SUPPORTED SPRAY PROCESSES

- Atmospheric Plasma Spray (APS)

### TYPICAL MATERIALS

- Oxides
- Carbides
- Metals and alloys
- Application-specific powders

### PERFORMANCE CHARACTERISTICS

- Coating thickness: application dependent
- Deposition rates: material and process dependent
- Duty cycle: designed for production environments
- Repeatability: driven by robotic motion and recipe control

*Final performance is dependent on material selection, torch configuration, and application parameters.*

## 3. MECHANICAL & MOTION CONFIGURATION

### ROBOTIC

- 6-axis industrial robot (standard)
- Optional 7th-axis linear track
- Floor, wall, ceiling, or gantry mounting options

### TORCH & HOSE MANAGEMENT

- Engineered torch mounting
- Cable and hose dress packages
- Collision avoidance & motion envelope definition

### PART MANIPULATION

- Rotary positioners
- Servo-driven manipulators
- Custom fixtures and part handling solutions

### MULTI-AXIS COORDINATION

- Synchronized robot and part motion
- Support for complex coating paths and geometries

## 4. CONTROLS & AUTOMATION

### CONTROLS PLATFORM

- Allen-Bradley PLC-based control system
- Industrial HMI for operator interface

### AUTOMATION FEATURES

- Recipe-based operation
- Parameter setup and adjustment
- Integrated system sequencing
- Alarm and fault handling

### DATA & MONITORING

- Parameter monitoring
- Alarm logging
- Optional interfaces to customer data systems

### SYSTEM INTEGRATION

- Robot controller interface
- Thermal spray power supply integration
- Dust collection system interface
- Safety system integration

## 5. INTEGRATED SAFETY & PROCESS CONTROL

### SAFETY ARCHITECTURE

- Safety controlled through Allen-Bradley PLC (AT-3200 platform)
- One integrated safety system governing entire cell
- Safety circuits from all subsystems tied together into a unified architecture

### STANDARD SAFETY FEATURES

- Non-contact door interlocks
- Emergency stops as determined by cell design and risk assessment
- Hydrogen detection in booth (when hydrogen is used as a process gas)

### PROCESS CONTROL & INTERLOCKS

- Dust collector interlocked with spray process
- Pyrometer integration (optional)
- Process parameter monitoring
- System alarms and fault notifications

### INTEGRATED SUBSYSTEMS

- Robotics
- Dust collection
- Part manipulation
- Enclosures and access doors
- Thermal spray equipment

### OPTIONAL SAFETY & MONITORING

*Not all features are applicable to every system*

- Dust collection airflow switches
- Vibration sensors
- Flame detection
- Oxygen detection

### SAFETY COMMUNICATION

- Hardwired safety circuits
- CIP Safety over Ethernet/IP (application dependent)

## 6. ENCLOSURES, DUST COLLECTION & ENVIRONMENTAL CONTROLS

### ENCLOSURES

- Full spray booths
- Partial or modular enclosures
- Retrofit enclosures for existing lines

### DUST COLLECTION

- Dedicated or centralized dust collection systems
- Hood and duct design optimized for overspray capture
- Filter monitoring and maintenance access

### NOISE CONTROL

- Acoustic attenuation designed to support OSHA noise exposure limits
- Integrated lighting and viewing windows

## 7. UTILITIES, FOOTPRINT & INSTALLATION ASSUMPTIONS

### UTILITIES (TYPICAL)

- Electrical power sized per system configuration
- Compressed air for spray and control functions
- Process gases as required by application
- Cooling water or chiller interface (if applicable)

### FOOTPRINT

- Cell size dependent on:
  - Robot reach
  - Part size
  - Enclosure configuration
  - Material handling requirements

### INSTALLATION

- Thermach provides system integration, installation support, and commissioning
- Customer-provided utilities and site preparation required unless otherwise specified

## 8. COMMERCIAL & PROJECT ASSUMPTIONS

### INCLUDED

- Integrated turnkey system design
- Controls and safety integration
- Factory acceptance testing (FAT)
- Installation, commissioning, and operator training

### APPLICATION DEPENDENT

- Final performance metrics
- Cycle time
- Coating rates
- Monitoring and automation level

**STANDARDS REFERENCED:** OSHA, NFPA, ANSI/RIA, Applicable ISO standards