

Manufacturing & Industrial Systems Services Brochure

1. Overview — Weld • Automate • Maintain

The Manufacturing & Industrial Systems (Welding, Automation) practice delivers certified welding, fabrication, automation, robotics, maintenance & reliability for heavy industry, energy and infrastructure.

Work is delivered via 1:50 pods — each led by a certified Manufacturing & Industrial Team Leader — so clients engage a managed capability, not a loose collection of trades.

2. Core Service Pillars

The practice is organised around six service pillars:

- 1) Welding & Fabrication
- 2) Automation, PLC & SCADA
- 3) Industrial Robotics & Mechatronics
- 4) Maintenance & Reliability
- 5) Industrial Electronics & Drives
- 6) Smart Factory & IIoT

Each pillar is backed by specific certifications, procedures, safety systems and documentation packs.

3. Welding & Fabrication Services

Processes covered:

- SMAW (Shielded Metal Arc Welding)
- GMAW / GMAW-S / GMAW-P (MIG, short-circuit, pulsed)
- FCAW (flux-cored, gas-shielded & self-shielded)
- GTAW (TIG)
- SAW (Submerged Arc Welding)
- Brazing and braze welding
- Oxy-fuel welding and cutting
- Carbon arc gouging & back-gouging

Applications:

- Structural steel fabrication and erection
- Piping systems and process spools
- Tanks, pressure parts and boilers (with code-qualified partners)
- Heavy equipment, shipyard and rail repairs

Every weld package is aligned with WPS/PQR, inspection plans and NDT coordination.

4. Automation, PLC & SCADA

Automation services include:

- PLC programming (Siemens, Rockwell, Schneider, Mitsubishi and others)
- SCADA configuration (Ignition, Wonderware, WinCC, etc.)
- Field integration with sensors, VFDs, MCCs and safety systems
- Control narratives, interlocks, alarm management and sequence logic

Engagements range from panel upgrades and PLC migrations to full plant automation projects and commissioning.

5. Industrial Robotics & Mechatronics

Robotics services include:

- Robotic welding cells for production and repair
- Material handling, palletizing, packaging, cutting and painting cells
- EOAT and fixture concepts for flexible manufacturing
- Safety guarding, risk assessments and robot standards alignment

Mechatronics support includes motion control, servo systems and integrated drives across production lines.

6. Maintenance & Reliability Engineering

Maintenance & reliability services include:

- Preventive and predictive maintenance programs
- Vibration, thermography and oil analysis coordination
- Root cause analysis, FMEA/FMECA and reliability studies
- Shutdown and turnaround planning, scheduling and execution support

KPIs such as MTBF, MTTR, availability and OEE are tracked and reported to client management.

7. Smart Factory & IIoT

Smart factory services include:

- OEE dashboards and production monitoring
- IIoT sensor networks across machines, lines and utilities
- Energy and compressed air performance tracking
- Digital twin concepts for production, layout and maintenance planning

These capabilities connect shop-floor data to decision-makers and support Industry 4.0 journeys.

8. Safety, Codes & Compliance

Safety is treated as a core service, not an afterthought.

The Manufacturing & Industrial Systems practice aligns with:

- AWS, ASME and EN welding codes (via qualified partners)
- IEC and NFPA standards for electrical and automation systems
- OSHA and NEBOSH-aligned safety practices
- ISO and SMRP-aligned maintenance and reliability standards

Clients benefit from structured permit-to-work systems, lock-out/tag-out practices, job safety analysis, toolbox talks and full documentation.

9. 1:50 Pod & Leadership Model

Each engagement is delivered by a 1:50 pod:

- 1 Manufacturing & Industrial Team Leader
- Welding & fabrication pod
- Automation & controls pod
- Robotics & mechatronics pod
- Maintenance & reliability pod
- Safety & compliance pod

The Team Leader is trained under the Investor Education and HEXAD mentoring framework to combine technical competence, safety culture and financial stewardship.

10. Engagement Models

Clients can work with BTH Manufacturing & Industrial Systems through several engagement models:

1) Project-Based Engagements

- Shutdowns and turnarounds
- Line upgrades and modernisation
- New plant or unit commissioning

2) Managed Services

- Long-term plant support contracts
- Reliability programs
- Automation and controls lifecycle support

3) Capacity Augmentation

- Additional pods for peak workloads
- Rapid deployment for critical timelines

Each engagement is supported by SLAs, KPIs, documentation packs and financial models consistent with the Finance Pack.

11. Calls to Action

For industrial clients:

- Request an industrial engagement and scope workshop.
- Ask for the Manufacturing & Industrial Finance Pack and Services Brochure.

For potential 1:50 leaders:

- Apply to become a Manufacturing & Industrial Team Leader.
- Begin the certification pathway towards welding, automation, maintenance and safety leadership.

This brochure summarises the services and positioning of the Manufacturing & Industrial Systems practice. It is designed to accompany the web page and the Finance Pack when presenting to board-level, plant-level and investor audiences.