

AUTOMOTIVE WELDING & PRODUCTION EQUIPMENT

BIW lines, fixtures, robot lines & SPMs.

Designed, manufactured and commissioned in-house — from a single welding fixture to a complete body shop.



03

BIW Welding Lines

Underbody · framing · side body · closures · respot

04

Fixtures

Welding · checking · assembly · positioners

05

Robotic Lines & Cells

Arc & spot welding · handling · sealing

06

Special Purpose Machines

Welding · assembly · testing · machining SPMs

■ (01) WHO WE ARE

SAAR Systems designs, builds and commissions welding lines, fixtures, robotic cells and special purpose machines for automotive and engineering manufacturers — under one roof, from concept to start of production.

■ (02) IN-HOUSE CAPABILITY

ONE TEAM · ONE POINT OF RESPONSIBILITY

01

Design & simulation

- 3D design & 2D detailing
- RPS / datum schemes & GD&T
- Robot reach & cycle-time simulation
- Offline robot programming

02

Manufacture

- Precision machining
- Weld-structure fabrication
- Fixture assembly & fitting
- CMM verification

03

Controls

- PLC & HMI programming
- Robot programming
- Safety circuits & interlocks
- Electrical panels & wiring

04

Commissioning

- Try-out & buy-off at our plant
- Installation at your plant
- SOP support & operator training
- Spares & after-sales service

■ (03) INDUSTRIES WE SERVE

Passenger cars

Two-wheelers

Tractors & farm equipment

Commercial vehicles

Earth-moving & construction equipment

Tier-1 & Tier-2 auto components

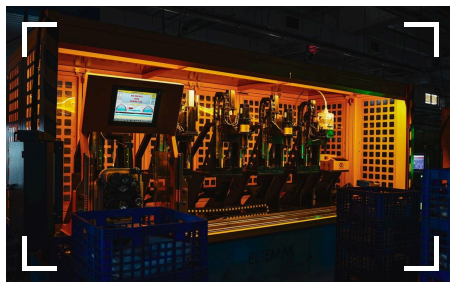
Railways

General engineering

■ (04) OUR CLIENTS

23 MANUFACTURERS



■ IN THIS CATALOGUE

03

BIW Welding Lines

04

Fixtures

05

Robotic Lines &
Cells

06

Special Purpose
Machines

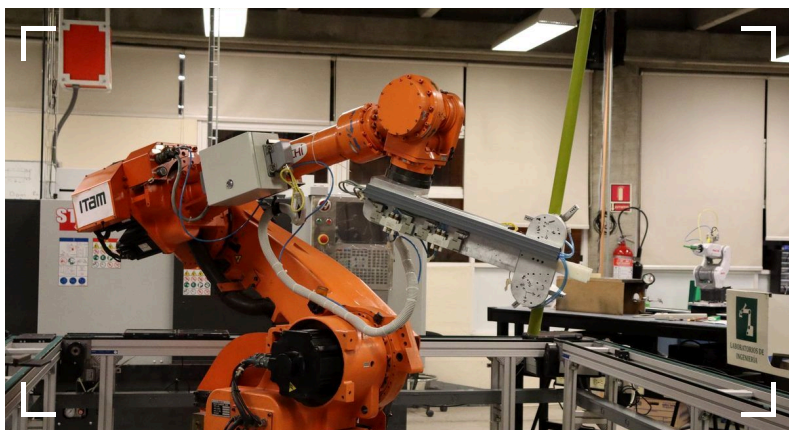
07

Execution & smart
factory

(01) PRODUCT LINE • BIW

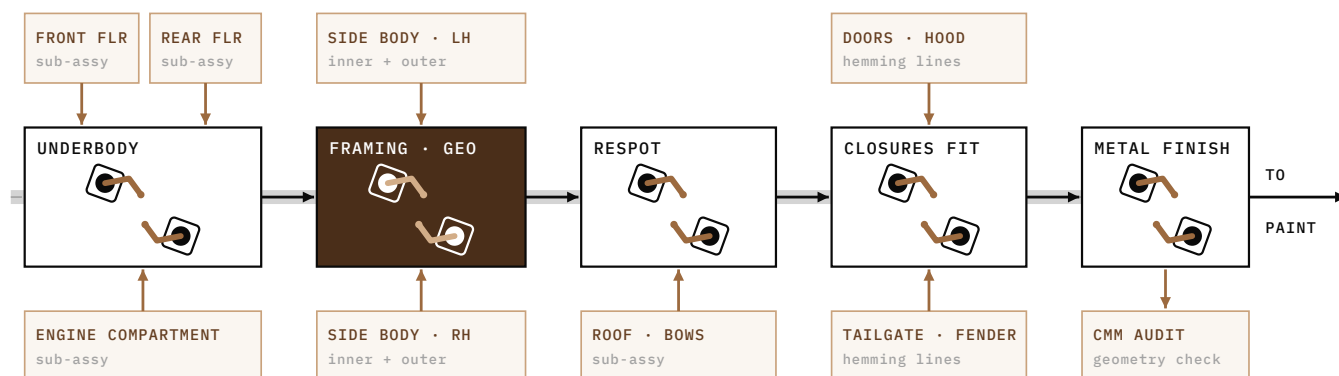
Body-in-White welding lines.

Complete body-shop lines and individual stations for car, commercial-vehicle and tractor bodies — manual, semi-automatic or fully robotic, engineered around your model mix, volume and plant layout.



(02) TYPICAL BODY-SHOP FLOW

LAYOUT ENGINEERED PER MODEL & VOLUME



Scope of supply

- Underbody & floor lines
- Side-body inner / outer
- Main framing & geo stations
- Respot lines
- Closures — doors, hood, tailgate
- Sub-assemblies — members, pillars, brackets

Processes

- Resistance spot welding
- MIG / MAG & CO₂ welding
- Projection & stud welding
- Roller & table-top hemming
- Sealing & adhesive dispensing
- Clinching & riveting

Line features

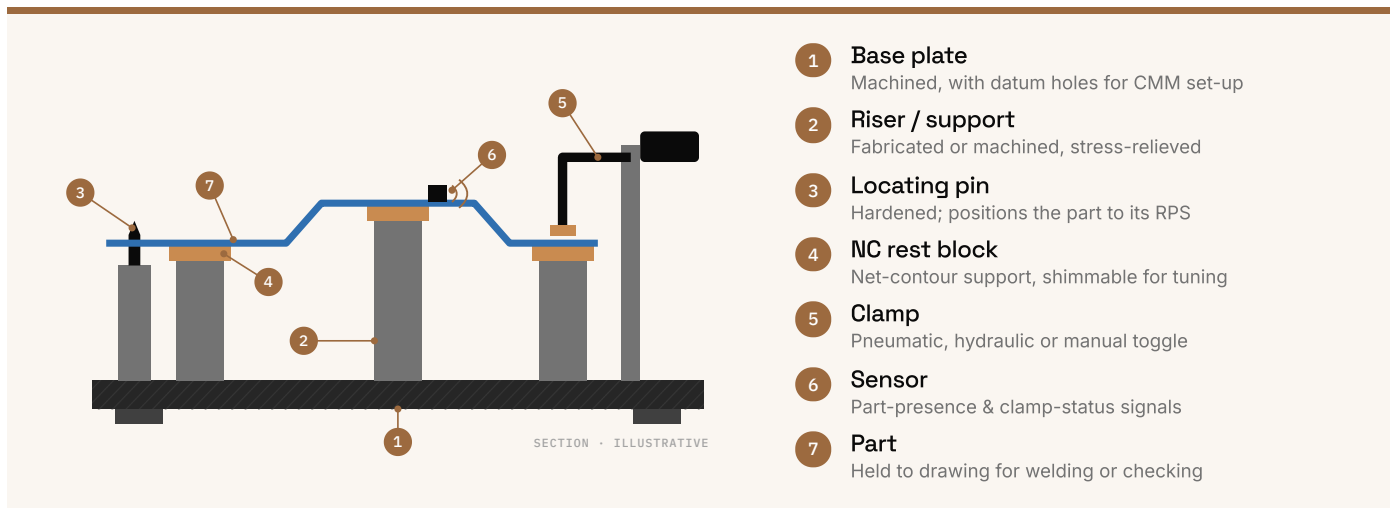
- Servo or pneumatic weld guns
- Quick-change tooling for model mix
- Lift-and-carry, shuttle or skid transfer
- Part-presence & clamp sensing
- Weld-count & parameter monitoring
- CMM-verified geometry

CONFIGURATION	LOADING	WELDING	TRANSFER	BEST FOR
Manual	Operator	Suspended spot guns	Manual / trolley	Low volume, frequent changes
Semi-automatic	Operator	Robots + manual respot	Shuttle / conveyor	Medium volume, mixed models
Fully robotic	Robot / automatic	Robots with servo guns	Lift-and-carry / skid	High volume, repeatable geometry

(01) PRODUCT LINE • FIXTURES

Welding, checking & assembly fixtures.

Fixtures that hold your part to its datum scheme shot after shot — designed to your GD&T, built in-house and verified on a CMM before they leave our plant.



(02) FIXTURE TYPES

01 Robotic spot welding fixtures Gun-access studied in simulation; pneumatic clamping with sensors.	02 MIG / robotic arc welding fixtures Spatter-protected, heat-tolerant locators for repeatable seams.	03 Manual welding fixtures Ergonomic toggle clamping for low-volume and sub-assembly work.
04 Checking fixtures & gauges Go / no-go, flush & gap, and hole-position checks at the line.	05 Assembly & machining fixtures Hydraulic and pneumatic work-holding for assembly and machining.	06 Positioners & turntables Rotary, tilting and trunnion positioners for best weld position.



DELIVERED WITH EVERY FIXTURE

3D model & 2D drawings

Detailed, with GD&T and BOM

CMM report

Locators and rests measured to datum

Circuit diagrams

Pneumatic / hydraulic & sensor wiring

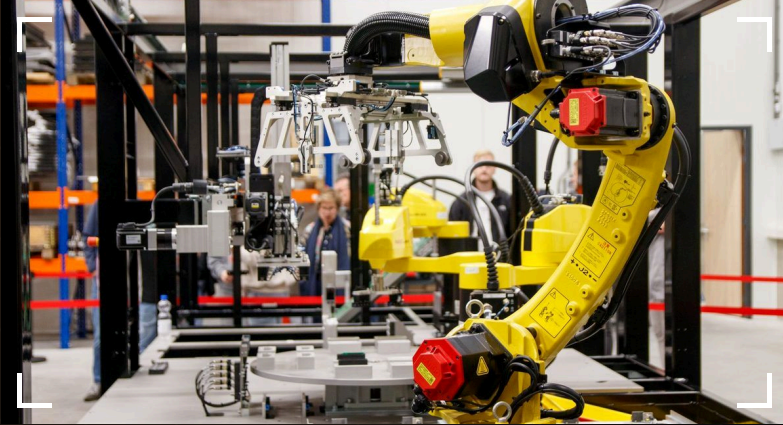
Spares & manual

Wear-part list and maintenance guide

(01) PRODUCT LINE · ROBOTICS

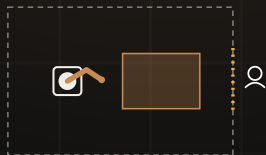
Robotic welding lines & cells.

Turnkey robot cells and multi-robot lines — robot, positioner, fixture, controls and guarding integrated, simulated and proven before installation.



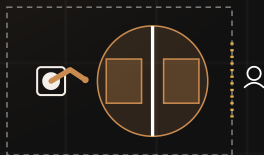
(02) CELL LAYOUTS

TOP VIEW · ILLUSTRATIVE



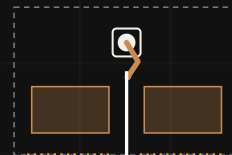
Single-station cell

Compact cell for one fixture — load, weld, unload.



Turntable cell

Operator loads one side while the robot welds the other.



Twin-station cell

Two fixtures, one robot; a screen separates the stations.



Multi-robot line

Robots share a conveyor or transfer for high volume.

Applications

- Robotic MIG / MAG welding
- Sealing & adhesive dispensing
- Palletising & part transfer
- Robotic spot welding
- Material handling & machine tending
- Vision-guided pick & place

Integration & safety

- Multi-brand robot integration
- Offline simulation & cycle-time study
- Weld-parameter monitoring
- PLC / HMI line control
- Fencing, light curtains & area scanners
- Quick-change tooling for model mix

(03) EVERY CELL INCLUDES

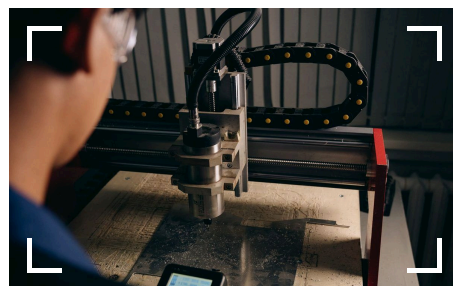
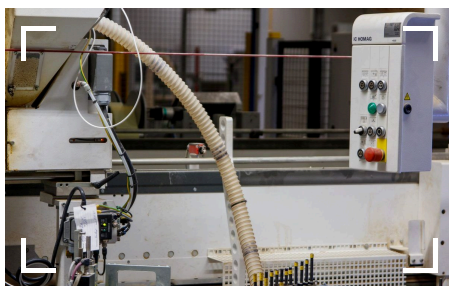
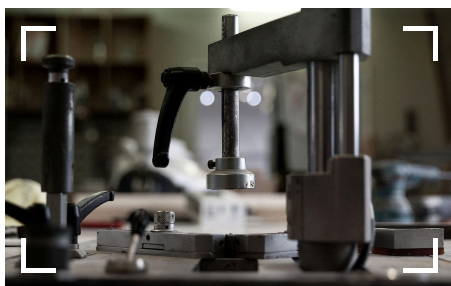
TURNKEY SCOPE

- | | | | | | |
|---|--|---|---|--|---|
| 01
Robot & controller
Sized to reach, payload & cycle | 02
Positioner
Turntable, trunnion or tilt-rotate | 03
Fixtures
Designed & built in-house | 04
Process package
Welding power source, torch or gun | 05
Guarding & safety
Fencing, curtains, interlocks | 06
Controls
PLC, HMI & line integration |
|---|--|---|---|--|---|

01) PRODUCT LINE • SPM

Special purpose machines.

Dedicated machines built around one part and one process — when a standard machine is too slow, too manual or not repeatable enough.



02) MACHINE FAMILIES

01 Welding SPMs ■ Circular & longitudinal seam ■ Projection & stud welding ■ Multi-gun spot welding	02 Assembly SPMs ■ Press-fit, bush & bearing pressing ■ Riveting & clinching ■ Screw-driving & nut-running	03 Testing SPMs ■ Air-decay leak testing ■ Functional & endurance testing ■ Load & torque testing
04 Machining SPMs ■ Multi-spindle drilling ■ Tapping & reaming ■ Facing & chamfering	05 Marking & traceability ■ Dot-peen & laser marking ■ QR / DataMatrix codes ■ Part-data logging	06 Inspection gauges ■ Poka-yoke stations ■ Probe & LVDT gauging ■ Go / no-go checking

03) DRIVE OPTIONS

DRIVE	STRENGTHS	TYPICAL USE
Pneumatic	Simple, fast, low cost	Clamping, light pressing, handling
Hydraulic	High force in a compact package	Press-fitting, forming, heavy clamping
Servo-electric	Programmable force & position, data logging	Precision pressing, traceable assembly

04) HOW AN SPM IS SPECIFIED



TO QUOTE AN SPM, WE NEED

Part data

Drawing or 3D model, material & tolerances

Volume & cycle time

Annual volume, shifts and target cycle

Process norms

Weld, force, torque or leak specifications

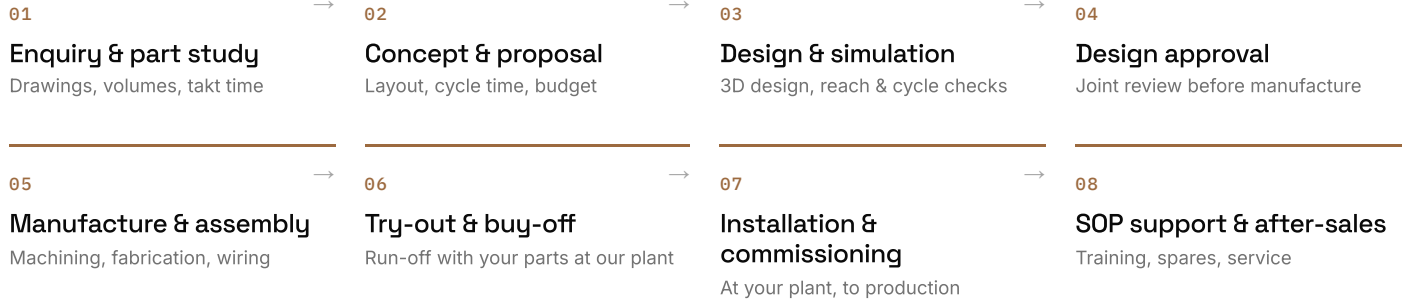
Plant utilities

Power, air, space & traceability needs

■ (01) HOW WE DELIVER

Concept to start of production.

One team carries your project from the first drawing review to stable production — with a run-off at our plant before anything ships.

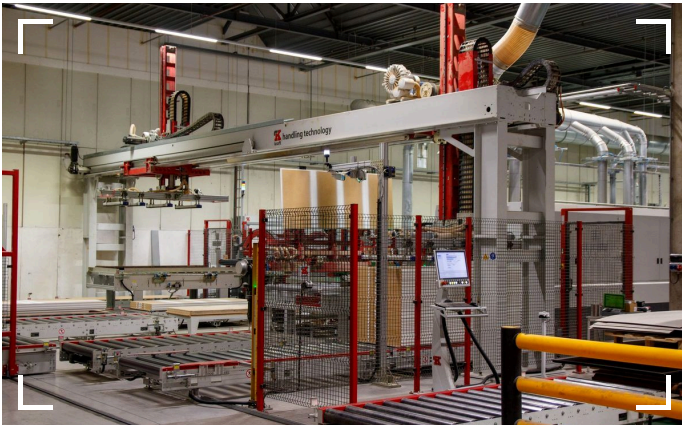


Quality built in

- Design reviews at concept & detail stage
- CMM inspection of fixtures & gauges
- Run-off with production parts before dispatch
- Documentation — drawings, manuals, spares

After-sales

- Spares & wear parts
- Breakdown & preventive maintenance
- New-model tooling & line modifications
- Retrofits & refurbishment of existing lines



■ SMART-FACTORY ADD-ONS

Available on any line we build — or added to existing equipment.



IoT

Machine connectivity, OEE, downtime & energy dashboards



AI

Defect classification and anomaly detection on line data



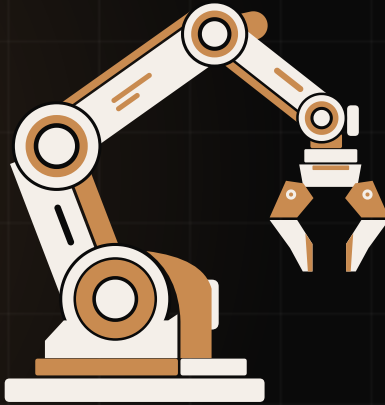
Python

Custom software, data logging, reports & PLC / robot interfaces



Computer Vision

Weld, sealant, dimension & angle inspection



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next line.

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Fixtures

Robotic Lines & Cells

Special Purpose Machines