



Industrial automation is a set of systems where production tasks, usually carried out by people, are extended to a set of technological elements such as mechanical, electro-mechanical, fluid elements, etc. All of them controlled and operated by a system called Programmable Logic Controller, finally characterizing the result by the following advantages:

- Optimization of working time.
- Elimination of repetitive tasks.
- Process simplification.
- Security increase.
- Elimination of human error.
- Efficiency of the production process increase.
- Anticipation of production failures.

Here at INGEROBOT we are specialists in automation, hereunder we are going to show you how we do it.





- 01 Our Company
- 02 Capabilities
- 03 Business Services
- 04 Projects
- 05 Customers
- 06 Contact Information



01 Our Company

Since 2011 our company has provided a full Custom Engineering Service in Automation and Robotics. During these years we have developed a wide variety of solutions and services in several industrial sectors. One of our specialties is the development and implementation of automatic welding systems, both by spot resistance and by arc welding, as well as tools for handling of product.

INGEROBOT distinguishes itself in the industry for its high-quality products and personalized solutions with the guarantee of a company supported by its founders and employees with a long and proven experience in the development of turnkey solutions in the field of automation and robotics.

02 Capabilities

Our facilities are located in Madrid, in a relevant industrial zone south of the city and with access to excellent communications. It is a 300 m² industrial warehouse equipped with industrial means for assembly, adjustment and repair of machinery. In its offices are our Management, Administration and Technical Offices as well as an electronics and programming development area.

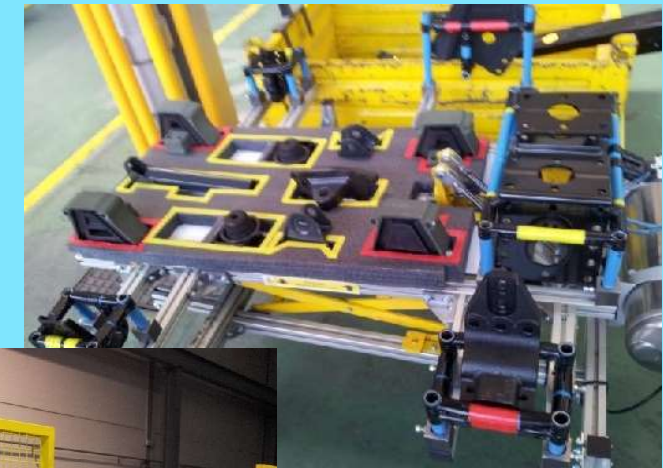
We are characterized by our competition network , based on close collaboration with our panel of consolidated and highly capable contributor pane. This allows us to optimize our services, focusing on the areas in which we have specialization and on the monitoring and management of collaborative tasks.



03 Business Services

It is also remarkable our Retrofitting Service for existing machinery and robotic cells at multiple levels: Electronic, mechanical and electrical, with the following advantages:

- Eliminate down time and production losses.
- Easily expandable.
- Better product quality improving productivity.
- Wide range spare parts warranty.
- Quick return on investment.
- Increase in productivity.
- Adaptation according to Regulations.



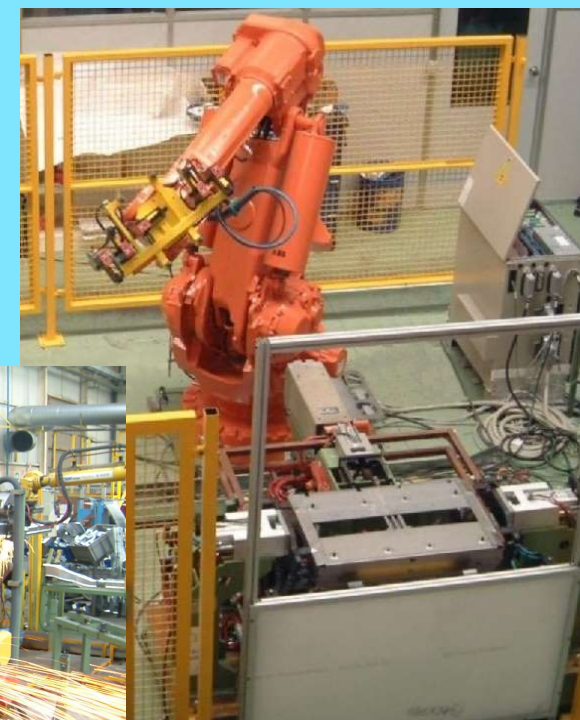


03

Business Services

Likewise, our large experience in production and industrial robotics applications allows us to offer a complete analysis for the optimization of processes already established or to be established, specifically adapted to the customer needs, which may include:

- Adequate characterization of the current process as a starting point.
- Preliminary analysis.
- Time Keeping, videos.
- Reports with establishment of improvement actions.
- Optimization of trajectories, through its programming and elimination of disposables.
- Sequence improvements and their relationships with existing items, such as grippers, claws, clamps.
- Welding parameter improvements.



04

Projects: Special Machines

Design, manufacture and integration of silent block workbenches in exhaust pipes:

- Assurance of the structural performance of base supports, in terms of bending.
- Assurance of Product geometry considering the RPS.
- Implementation of "mistake-proof" by Poka Yoke systems.
- Lubrication systems for automatic insertion.
- Simultaneous verification of insertion depth.
- Electronic system for production sequence in terms of traceability purposes.

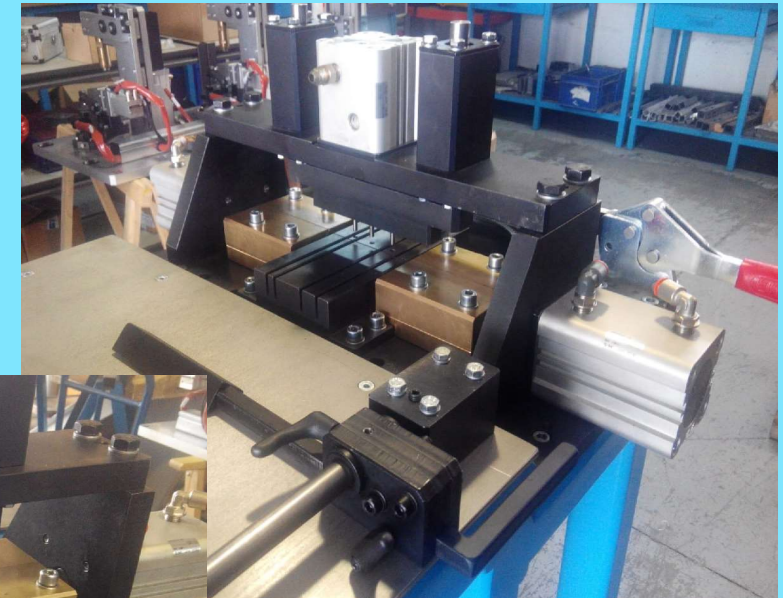


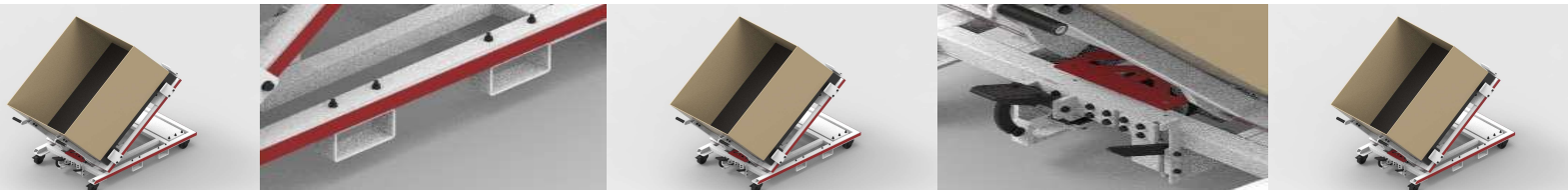
04

Projects: Special Machines

Design, manufacture and commissioning of a semi-automatic die cutter, for profile cutting and perforation punching:

- It performs the simultaneous cutting of the length of the profile and the punching of the coordinating flanges between the previous ones.
- Regulations to adapt to different lengths and perforations depending on the model.
- Product finder in treated steel to minimize wear and increase durability.



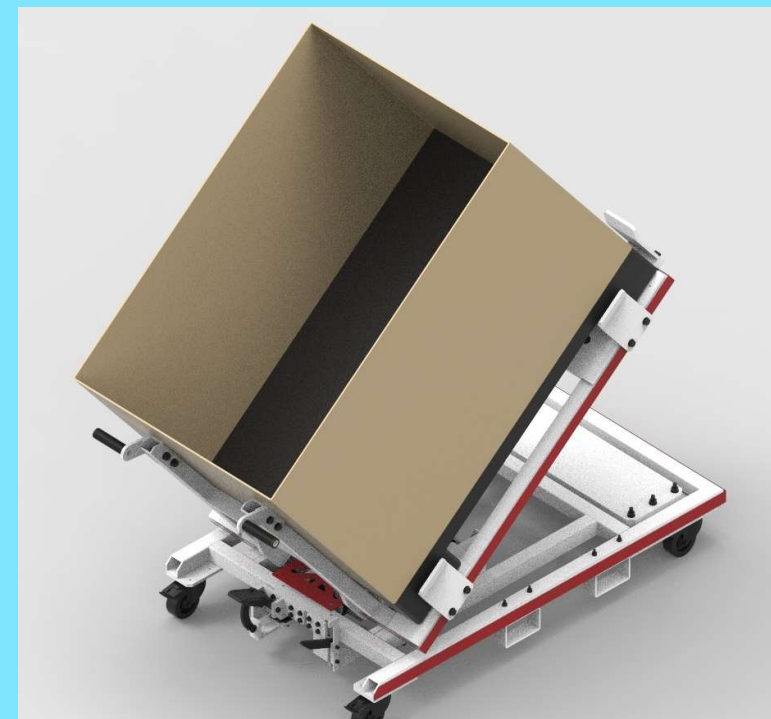


04

Projects: Handling Devices

Supply of tipping device of product pieces, for manufacturing lines, assembly and welding processes. They are characterized by allowing the container to be turned at the desired inclination up to a maximum of 45°. There are several versions, depending on load capacity (Max: 500kg.) and different drive systems: Manual or hydraulic with switchboard control unit.

- Electro welded steel frame.
- Its exclusive tilting system allows it to stop at the desired inclination, allowing the operator to collect the product comfortably and safely.
- Wide range of load.
- Rotation on demand from 0° to 45°.
- Manual operation or with hydraulic control unit.
- Movable and manipulable by forklift truck.
- Multiple applications.



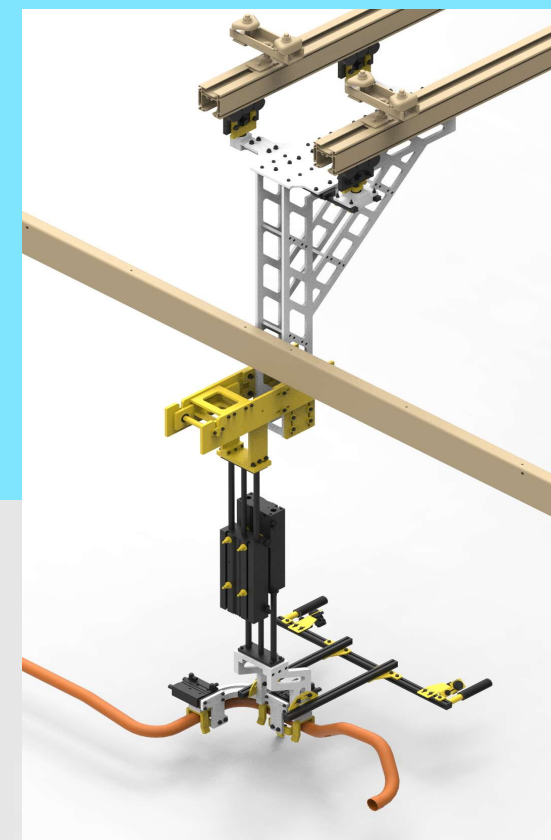
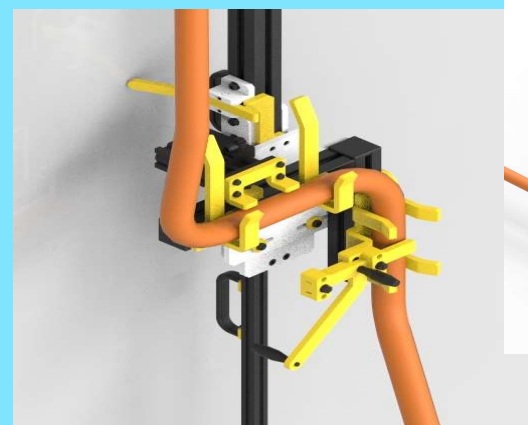


04

Projects: Means of Handling

Supply of manipulator with loading and unloading functions for product parts, for its use in product loading/unloading operations on tooling, containers and any possible need for handling in manufacturing lines, assembly and welding processes of large volume components. They are distinguished by allowing the safe product grip and facilitating the necessary maneuvers to be carried out through the pneumatic actuators incorporated. They are available on demand and according to performances to be defined:

- Mountable on pedestal or air conveyor.
- Weightless Manipulator or not, on request.
- Bimanual pushbutton panel for maneuver control, with the possibility of operating auxiliary actuators to complete the gripping operation.
- They allow the operator to collect the product in a safe way and minimize the effort.





04

Projects: Auxiliary Means

Design, manufacture and supply of auxiliary means for production. Customized or general, we adapt to your specific needs, made of steel tube or extruded aluminum profiles, in case of requirement for its final use and upon request, we can carry out its FEM analysis to ensure structural behavior.

- General and specific workbenches.
- Supports.
- Benches.
- Motorized swivel workbenches for manual welding jobs.
- Diabase benches.
- Lifting structures.

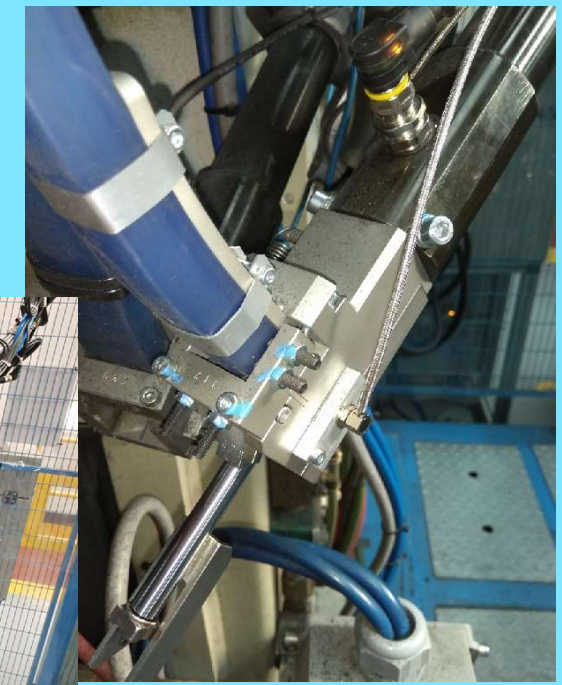




04 Projects: Spot Resistance Welding Machines

Design, manufacture and integration of automatic systems for loading nuts in the press:

- M6 square nuts Shuttle system.
- Multi-axis adjustment with mechanical interlocks.
- Preceding vibration tank for shuttle feeding.
- Electronic integration for two working modes: Semi-automatic operation with manual loading of the product part in the press and automatic mode with product loading by robot manipulator.



04 Projects: Spot Resistance Welding Stations

Design, manufacture and commissioning of a workbench, for the welding of stud bolts on a set of support brackets in galvanized sheet:

- Semi-automatic operation.
- Position assurance of the receiving piece by interchangeable nests.
- Implementation of Pokayoke-type "mistake-proof".
- Detection of presence to determine the hand and length of the bracket.
- Manual welding gun on movable balancing system.
- Verification of presence of welded stud bolt.
- Reference engraving system for traceability control.

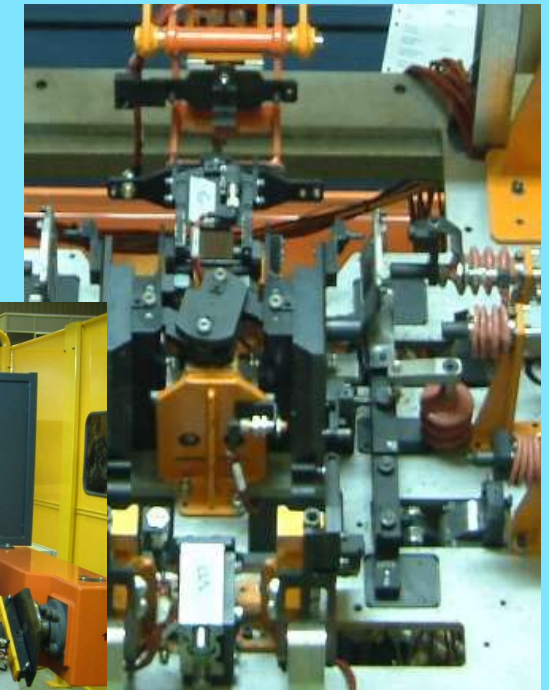
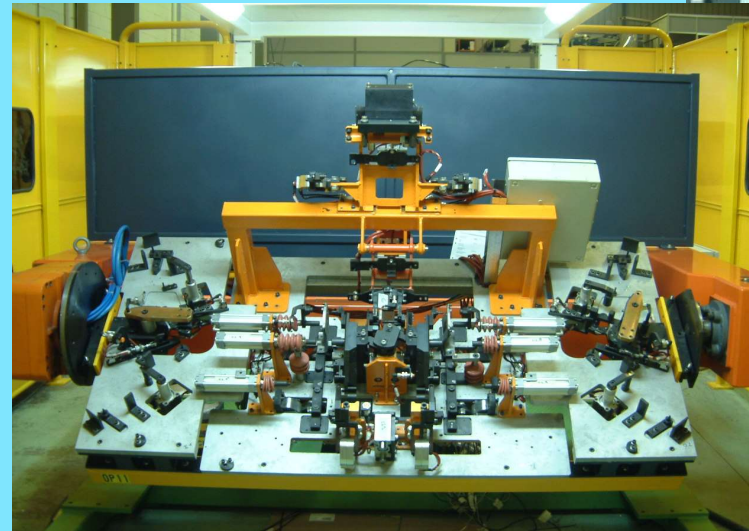


04

Projects: Arc Welding Cells

Design, manufacture, assembly and programming of a complete welding cell for automotive components:

- Design of geometry tools for positioning product components.
- Base plate with the incorporation of quick anchoring systems to the swivel table.
- Quick connect coupling systems for electrical installations, automaton inputs/outputs and fluids.
- Fixing and Ejection systems for Pneumatic products.
- Product presence detection and state of clamps and actuators.
- Fronius Arc welding system.
- Programming of Siemens PLC and FANUC robot.



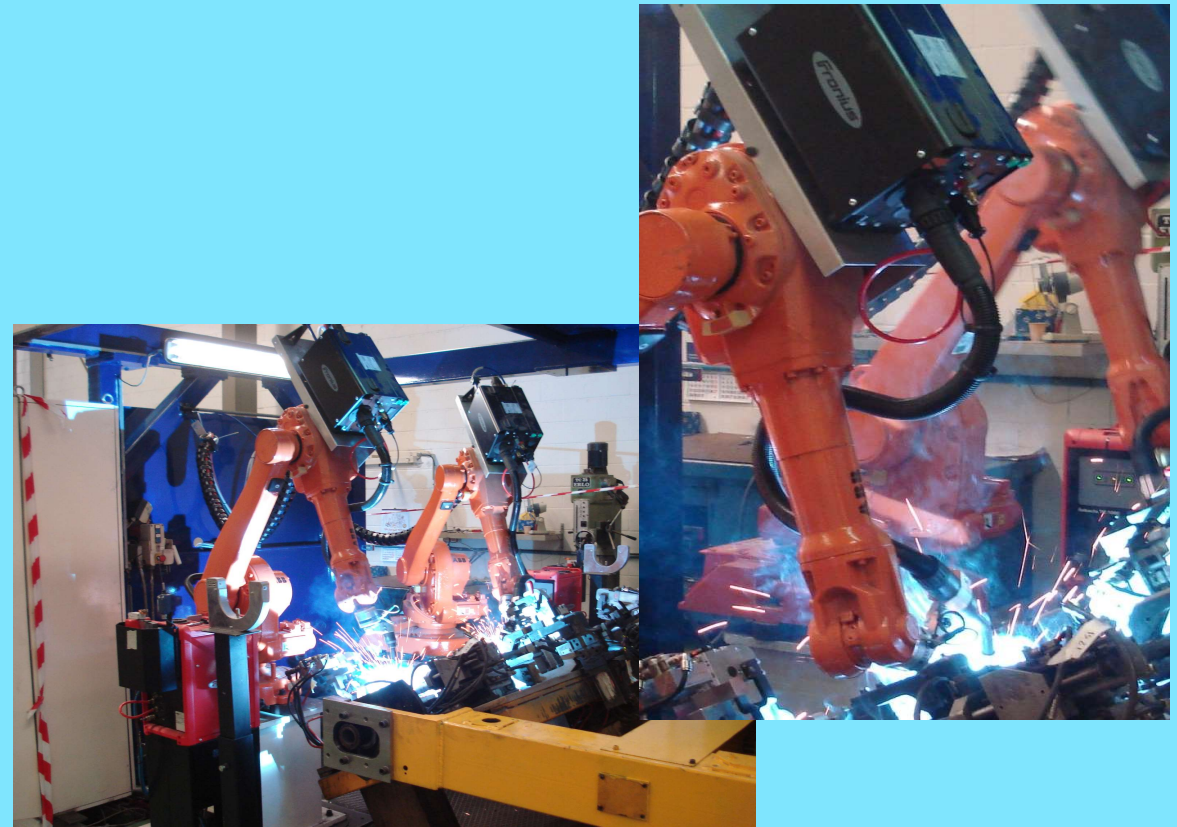
SERVICES INTRODUCTION 2023

04

Projects: Arc Welding Cells

Design, manufacture, assembly and programming of a complete welding cell for automotive components:

- Design of geometry tools for positioning product components.
- Base plate with the incorporation of quick anchoring systems to the rotary / swivel table.
- Quick connect coupling systems for electrical installations, automaton inputs/outputs and fluids.
- Fixing and Ejection systems for Pneumatic products.
- Product presence detection and state of clamps and actuators.
- Fronius Arc welding system.
- Programming of Siemens PLC and 2 ABB robots.





04

Projects: Process Automation

Execution of full automation project of the marking process for 4 types of aluminum bushings, performing the same simultaneously in 6 units by using hydraulic impact markers:

- Belt conveyor lines, motorized roller tracks and flat top chain conveyors in the pulverized dispatch area.
- Previous pneumatic diverter systems, for selection of the type of bushing based on the diameter.
- Interchangeable lower cutting mats strips for impact.
- Vision system for marking verification.
- Diverter system for wrong parts.
- Double stacking system for product (36 Units) and separators in shipping container by using vacuum technique.

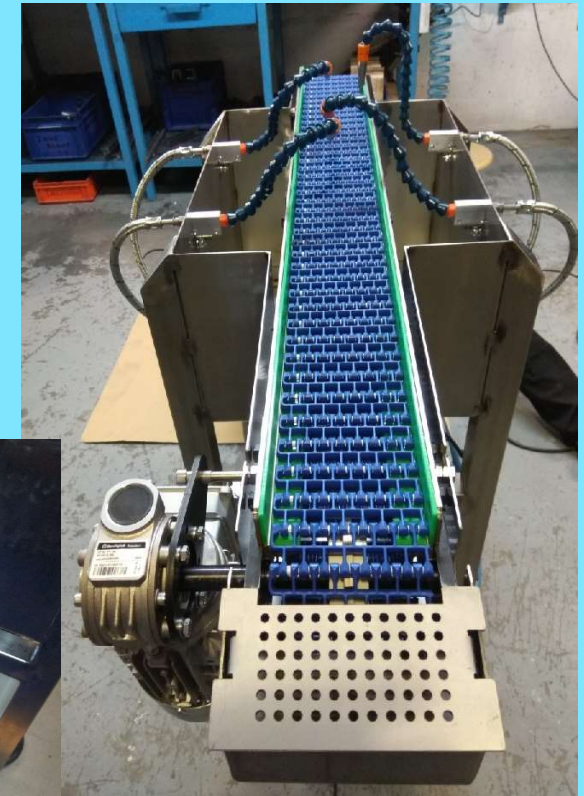


04

Projects: Process Automation

Execution of full automation project of the oil spraying process for 4 types of aluminum bushings:

- Specific flat top chain conveyor for application.
- Speed shifter integrated with the previous marking line.
- Spray booth with electronic flow control.
- Oil drive pump and tank with lubricant replacement alarm.
- Drainage area with excess collection by enveloping fairing.



04 Projects: Robotics

Design, manufacture and integration of exchanger, for quick change of robot claws:

- Implementation of the supporting structure of the Robot cell.
- Inclusion of electrical and pneumatic installations.
- Selection, by optimization of industrial Robot trajectories.
- Implantation of racks, claw registration nests and zero reference point.
- 6 Claws of specific geometry, for the capture of 6 types of product part.
- Power grid and connection of pneumatic and electrical installations.
- Perimeter fencing and secured access with certificate.
- Lighting partitions.
- Automaton programming and robot trajectories.



04

Projects: Programming: Robots, PLC´s

We are also experts in configuration, programming and management of Robots of the main brands:

- ABB.
- Motoman.
- Fanuc.
- Kuka.
- Omron.

Programming of automata where a specific control of the production processes is required and of the different welding controls existing in the market too:

- Siemens.
- Telemecanique.
- Omron.
- Allen Bradley

Implementation of Scada Systems, for the supervision and acquisition of data in production processes.

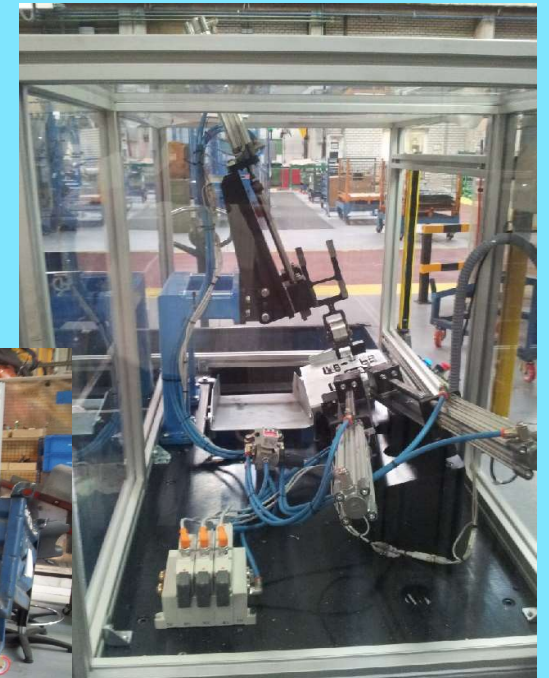


04

Projects: Automatic Test Benches for Verification

Design, manufacture and commissioning of automatic test benches for verification of nuts welded in a welding press. 100% production verification:

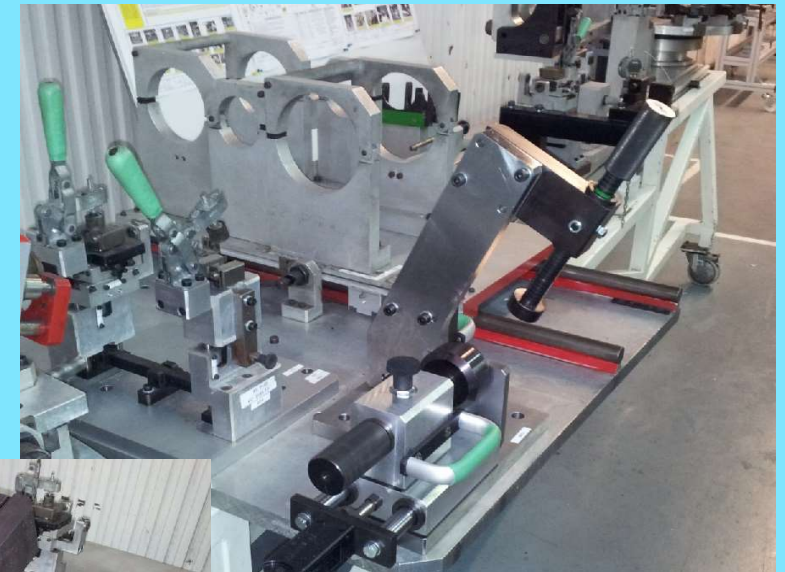
- Product piece registration cradles, to ensure its position and detection of the hand in question.
- Ability to perform the check of the opposite hand.
- Verification by pneumatic operation of the presence of nuts in specific locations, correct orientation and Pull-Off test for validation of the welding process.
- Electronic barriers to allow the operator safe access to the component loading/unloading area.



04 Projects: Test Benches for Verification

Design, manufacture and commissioning of a geometry test bench verification of a complete welded assembly in the exhaust pipe. Verification according to average production:

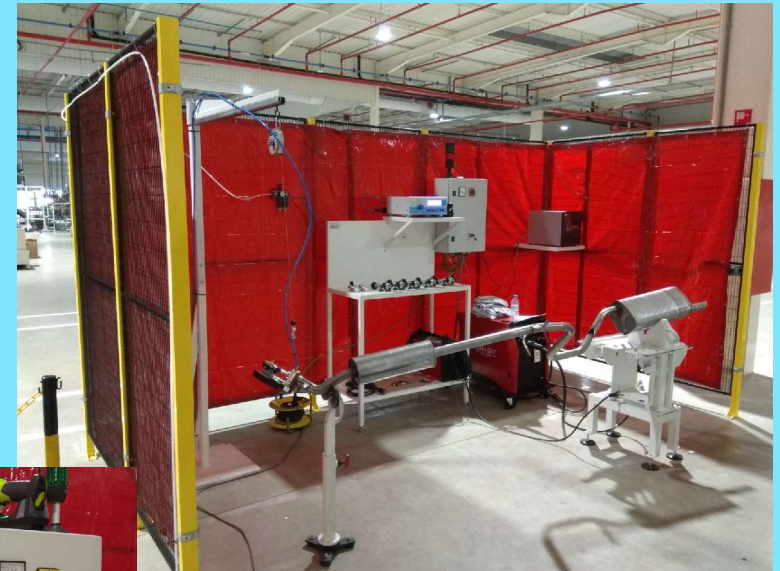
- Steel tube frame mechanically welded and stabilized prior to machining.
- Elements and support posts for product geometry registration in high-capacity duralumin.
- Edge finders and sliding elements for coordination on product in high hardness steel.
- Product RPS positions in a deviation range of $\pm 0.05\text{mm}$.
- Manual clamps to ensure the capture of the product part.
- Commissioning and final calibration by measurement in a three-dimensional machine done in an external laboratory.

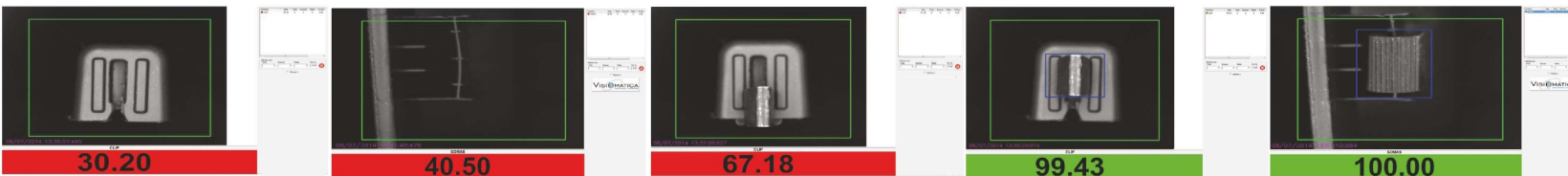


04 Projects: Leak Test Benches

Design, manufacture and commissioning of exhaust pipe welding rework bench:

- Sliding and adaptable support structures to the geometries of the different models.
- Bearings incorporated in the support areas to facilitate positioning, partial rotation of sets and improve accessibility.
- Once the repair is done, it is validated by means of a leak test, sealing the end of the assembly with specific tools and pressurizing the inside.
- After the leak test and in the event of a satisfactory result, the product is marked with a printed conformity label and transferred to the shipping container.



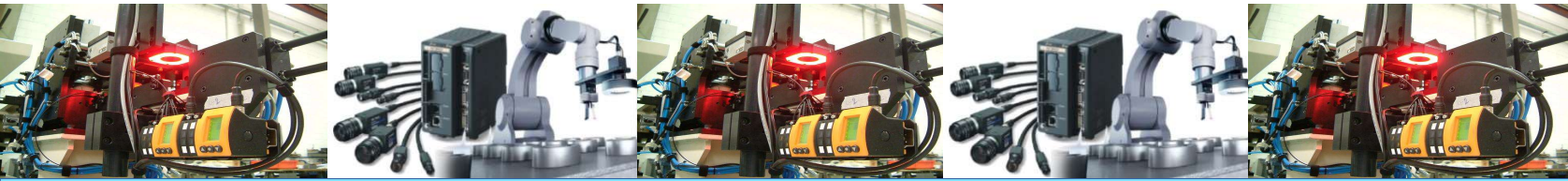


04 Projects: Artificial Vision

Design, manufacture and commissioning of the verification bench for presence of staples on the dashboard:

- The vision system mounted on the robot's crankpin makes a trajectory along the back side of the board.
- The images are captured without stopping it. After post-processing, the system offers information on the presence and percentage of the possible deviation in each place.
- After inspection, it is determined the acceptability of the piece or its transfer to the rework area.
- The system includes a barcode marking system for traceability of the process.
- It allows the implementation of improvements in previous assembly positions and processes.



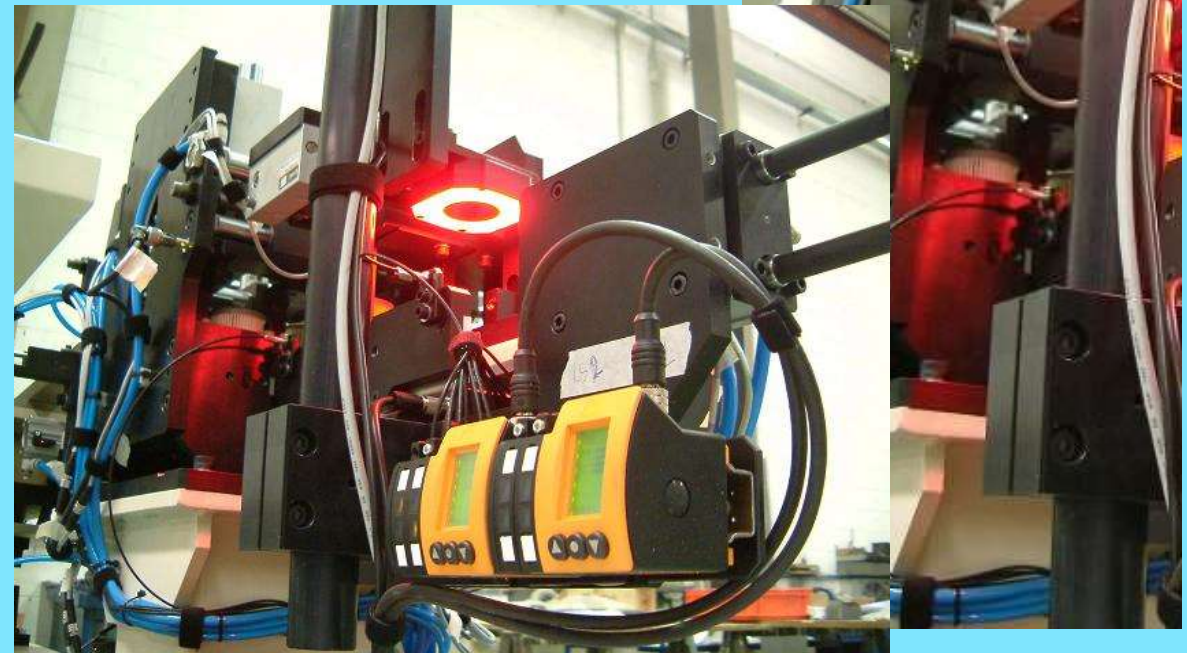


04

Projects: Artificial Vision

Design, manufacture and integration into the existing machine production line for checking the internal filament in fuel filters:

- Diverter elements, for product entry from the band line to the accumulation area.
- Step-by-step pneumatic system for entering parts into the inspection nest.
- Artificial vision system, for image capture.
- Upper and lower lighting systems, for maximum contrast.
- Post-processing of the image, depending on the result, performance of the extractor of defective part to the container on the side.
- Final accumulator and Cartesian mechanical hand, for parts collection and relocation in curing oven.
- 100% production control.

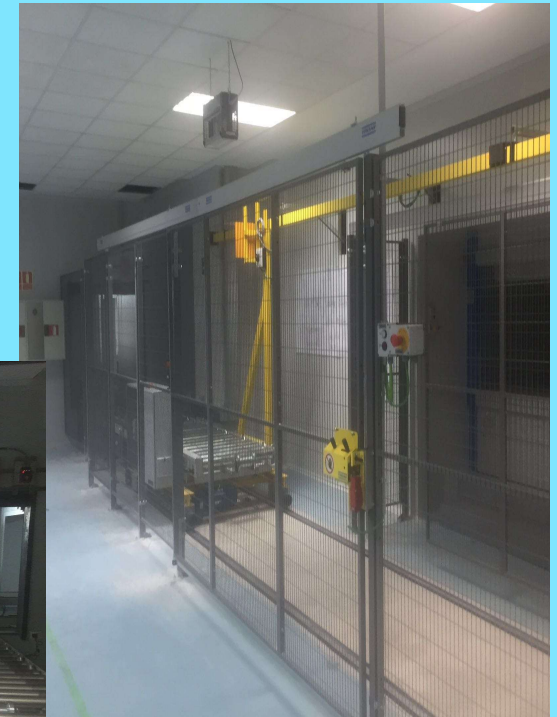
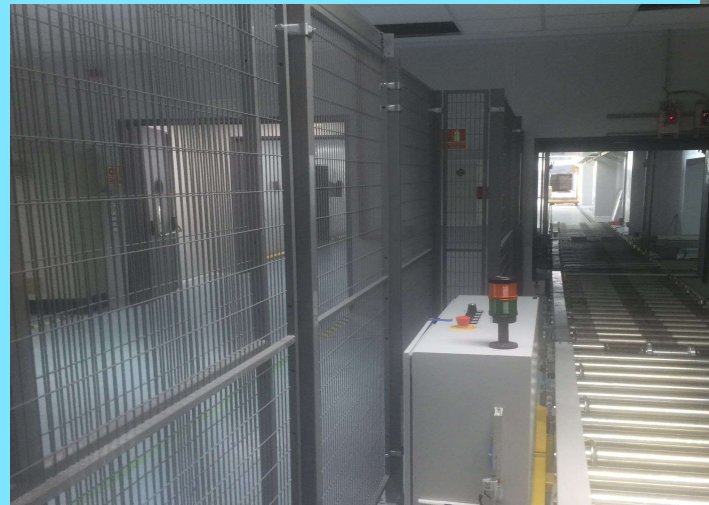


04

Projects: Security Mesh Enclosures

We design and install cages for the protection of both, people and equipment, adapting to the needs of the installation, including the design and execution of electrical installations, their integration with existing machines and the programming of automata if necessary. In all types of industrial facilities and issuing certificates:

- Robotic cells.
- Machinery islands.
- Isolated machines/tools.
- Production/storage areas regardless of their dimensions.
- Retrofit of existing enclosures, due to adaptations to applicable regulations.

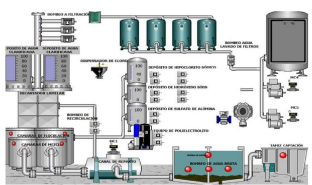


04 Projects: Automation in Water Treatment Plant I

Design and manufacture of electrical panels for a Water Treatment Plant in Equatorial Guinea:

- Installation of Siemens automats and their programming, for the control of wastewater drive and recirculation systems, for the different phases of the potabilization process.
- Commissioning.
- Implementation of a SCADA system for local and remote monitoring of all phases of the process: collection, roughing, de-sanding and pre-decantation, coagulation and flocculation, decantation, filtration, chlorination and storage.





04 Projects: Automation in Water Treatment Plant II

Design and manufacture of electrical panels for a Water Treatment Plant in Equatorial Guinea:

- Installation of Siemens automatons and their programming, for the control of filtering systems.
- Incorporation of solenoid valves in the sludge recirculation system.
- Commissioning.
- Implementation of a SCADA system for local and remote monitoring of all phases of the process: collection, roughing, de-sanding and pre-decantation, coagulation and flocculation, decantation, filtration, chlorination and storage.



FORVIA

Gestamp

faurecia



Industrias Huerta
Round and flat wire parts technologies

ingeRobot
Ingenios Robotizados y Automatización, S.L.

05 Customers

We work with several of the most important manufacturers, first level suppliers and auxiliary industry in the Automotive sector.

Our accumulated experience has allowed us to transfer our knowledge to other sectors such as Food, Construction, Renewable Energies or Pharmaceuticals, collaborating with Engineering Consultants, R+D+i Centers and Laboratories.

And additionally to all kind of companies regardless of their volume, which require efficient solutions in the field of mechanical design, machinery manufacturing, robotic applications and industrial production.

 **Smurfit Kappa**

ABENGOA

PSA
GROUPE

uc3m | Universidad
Carlos III
de Madrid

TROAX

 **verallia**

SERVICES INTRODUCTION **2023**



Estampaciones: Steel Perfection





06

Contact Information

For more detailed information or solutions for your automation, tooling and machinery processes, we will be happy to assist you:

Phone number: +34 916 22 86 66

Cell number: +34 674 51 89 90

ingerobot@ingerobot.com
<https://www.ingerobot.com>

Ingenios Robotizados y Automatización, S.L.
C/ Bascuñuelos, 11 - Nave 13
28021 Madrid.
Spain

