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Automation

● **WELDING**

- MANUAL JIGS AND FIXTURES
- ROBOTIZED CELLS (SPOT WELDING & MIG/MAG WELDING)
- SPECIAL MACHINES FOR PROJECTION WELDING

● **SPECIAL PURPOSE MACHINES**

- AUTOMATIC TAPPING MACHINE
- SPECIAL MACHINES FOR TESTING AND SET-UP
- HYDRAULIC PRESSES
- SHEET PALLET PACKAGER
- AUTOMATIC LINES FOR SHEET METAL WORKING OF HOUSEHOLD APPLIANCES

● **HANDLING**

- CONVEYORS AND MANIPULATION SYSTEMS

● **ASSEMBLY**

- ASSEMBLY FACILITIES
- ASSEMBLY FIXTURES

● WELDING

- Spot welding – medium frequency & 50 Hz frequency
- Projection welding
- Arc welding (MIG-MAG)

● MATERIAL

- Standard (DC04, DC 05)
- High strenght (S355, S420)
- Ultra high strenght (DP600, DP800)
- Warm pressing (Fe 1500 Hot Riv)
- **thickness:** from 0,7 to 3 mm

● COMPONENTS

- Robotics: Kuka, Comau, Kawasaki (upon request other brands)
- Elektronics: Siemens, Omron, Telemecanique
- Welding: Aro, Gem, Fronius

● STRUCTURE

- Structure in welded iron carpentry
- Active parts in steel
- Treatments: zinc-coating (galvanized) and/or copper plated
- Test and certification with measuring machine Sharp & Dea
- Equipped with sensors detecting presence of the part

PROJECTION WELDING

ENGINE SUPPORT BRACKET

Area	Projection welding
Industry	Automotive
Productivity	5 couples/minute
Lead-time	4 months

APPLICATION

Projection welding of stamped parts

SOLUTION

Automatic machine with rotating table and automatic load of the plate to be welded with a vibrator.

The welding is executed with fixed welding cylinders, which are equipped with copper electrodes of our manufacture.

The bracket is manually loaded from the operator, who starts the cycle. The process is completely automatic and ends with the unload of the finished part or removal of non conformal part.

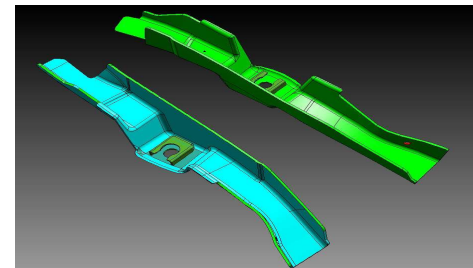
Additional options:

- Marking at the end of the cycle
- Production statistics

RESULT

- High productivity
- Welding resistance until 130 N/mt

V1



OPEL



DAMPER BRACKET

Category	Projection welding
Industry	Automotive
Productivity	4 pcs/minute
Lead-time	8 months

APPLICATION

Projection welding of stamped parts

SOLUTION

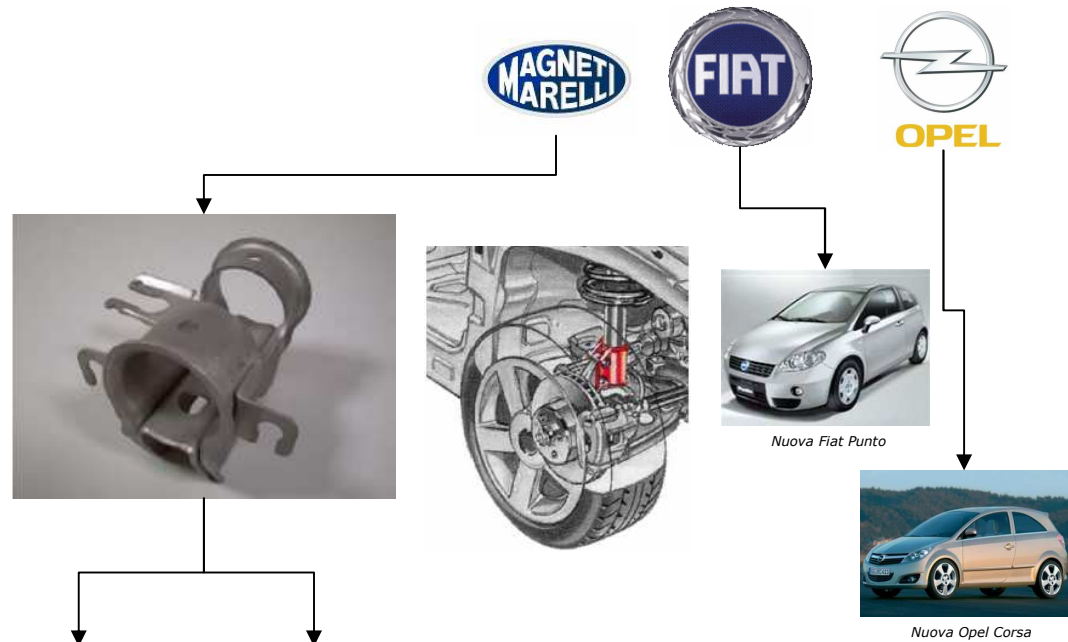
The equipment is completely automatic: it welds 4 components and calibrates the finished part.

The heart of the tool is a linear transfer where the bigger piece receives the smaller pieces to be welded from vibrators and where it stays for being calibrated.

The calibration is made by means of a knee pad with a thrust of about 20 tons

RESULT

- High productivity
- Piece in tolerance after welding - no need of re-work
- High flexibility: production of 12 different models is possible



SPOT RESISTANCE WELDING

METALLIC SHELVES

Area	Spot welding
Industry	Furniture
Productivity	4 shelves/minute
Lead-time	5 months

APPLICATION

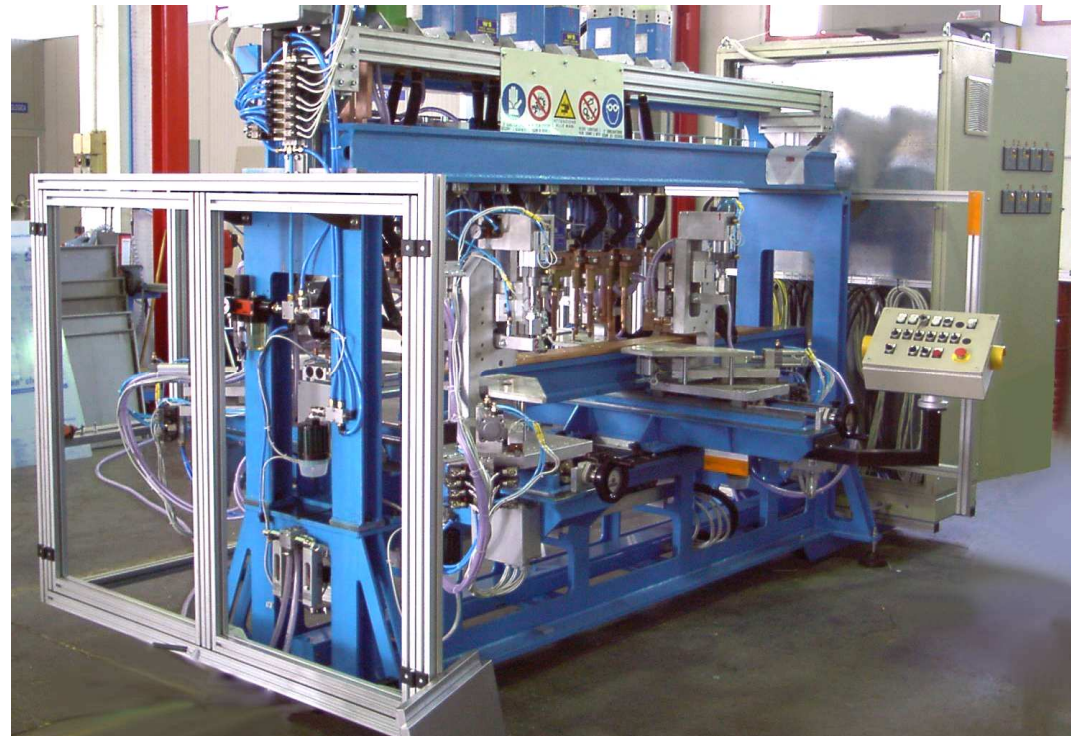
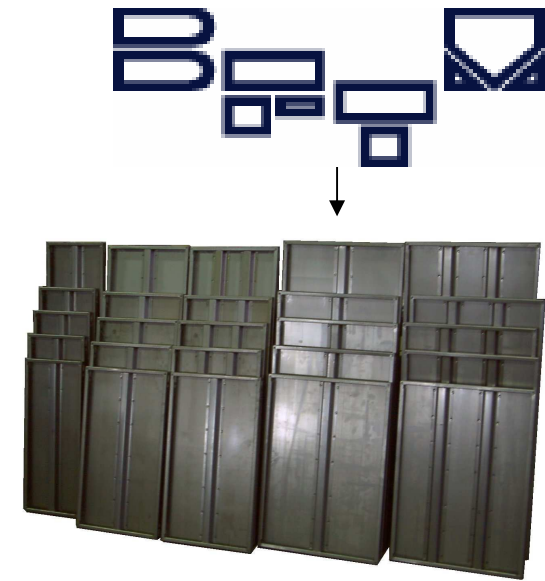
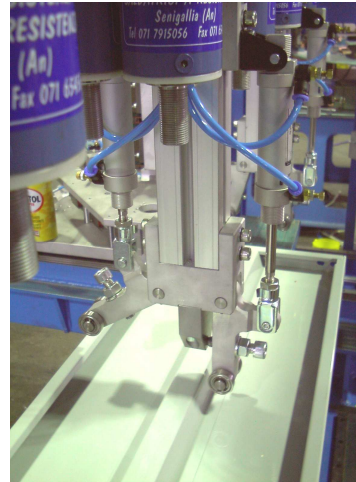
Spot welding of stamped parts

SOLUTION

Welding of corners and reinforcing ribs.
The tool is automatic – the loading/unloading is manual – can produce 20 different models.

RESULT

- Huge increase of productivity
- Control over the welding currents
- Possibility of working with 2 operators or alternatively with one robot for loading/unloading



OVEN VENT CHANNEL

Category	Spot welding
Industry	Home appliances
Productivity	2 pieces/minute
Lead-time	4 months

APPLICATION

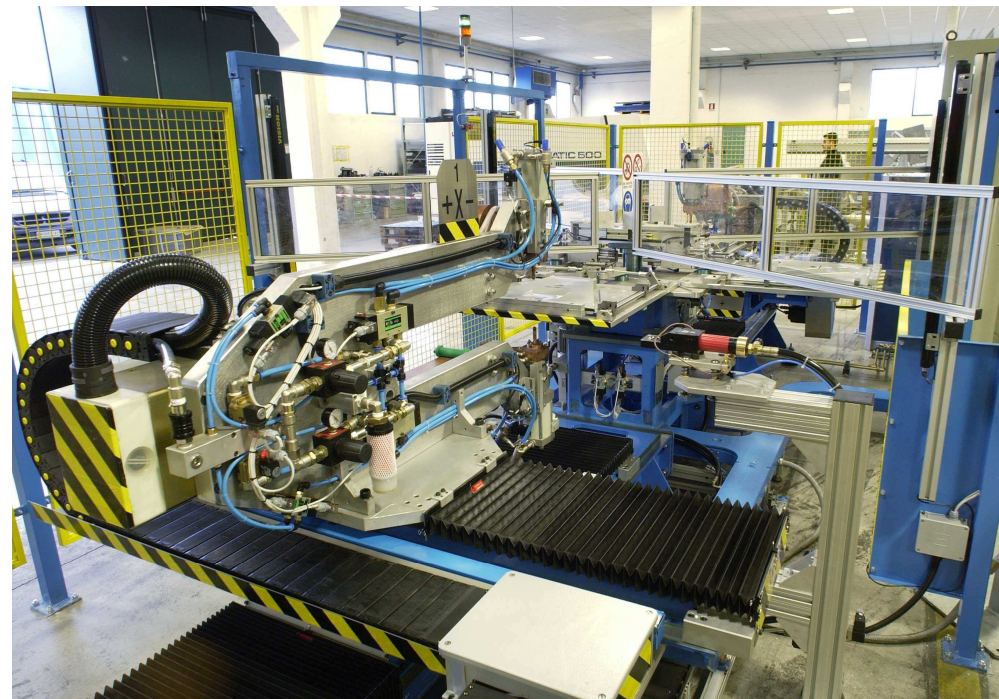
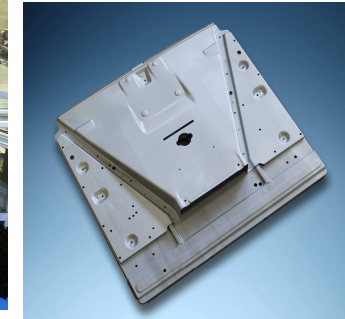
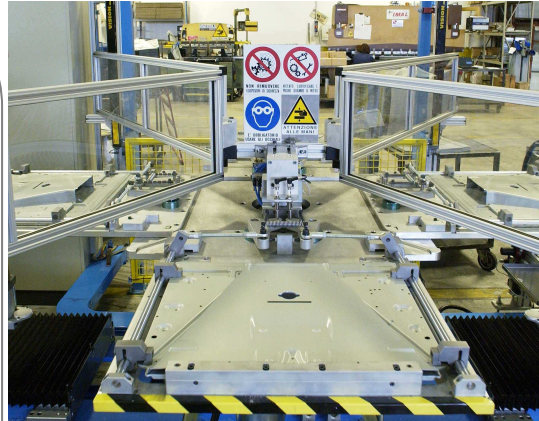
Spot welding of stamped parts

SOLUTION

Automatic dressing of electrodes.
Control over the welding currents.
20 welding points every 2 pieces/minute.
It works automatically but loading/unloading
are manual.
Possibility of welding on 3 different height
levels.

RESULT

- User-friendly tool
- Uniformity of finished product
- Possibility of working with 1 or 2 operators
or integrating one robot for increasing
production
- Reduction in scrap



EXTRACTION HOOD

Area	Spot welding
Industry	Home appliances
Cycle	25 seconds
Lead-time	4 months

APPLICATION

Spot welding of stamped parts

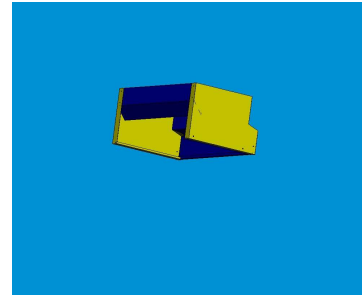
SOLUTION

An automatic system of jigs holds in position the 3 parts composing the hood, while a series of welding cylinders executes the welding spots.

The jig is versatile and/or rapidly exchangeable so as to produce different types of products.

RESULT

- User-friendliness
- Better aesthetical quality of welding spots
- Increase of productivity
- Uniformity of finished product
- Possibility of working with 1 or 2 operators
- Reduction of scrap



DOOR PILLAR

Area	Spot welding
Industry	Automotive
Cycle	70 seconds
Lead-time	6 months

APPLICATION

Spot welding of stamped parts

SOLUTION

The pillar of USIBOR is made in 4 steps, 3 of them require a jig. The jigs are mounted on a 2-station-rotating table. The welding process employs 3 robots: 2 robots hold a welding clamp and execute the welding points with the pillar on the jig. The third robot has a gripper and finishes the welding with the free standing part by means of a welding machine on the floor.

The unload is automatic: the third robot deploys the finished part on the conveyor. The load is made by an operator.

RESULT

- Increase of productivity
- Reduction of manpower



Alfa Mi.to





PILLAR

Area	Spot welding
Industry	Automotive
Cycle	115 sec
Lead-time	6 months

APPLICATION

Spotwelding of 3 stamped parts

SOLUTION

manual loading of the parts. Unloading of the assembled product by robot on the conveyor

3 spot welding robots

1 Handling robot

3 clamps medium frequency

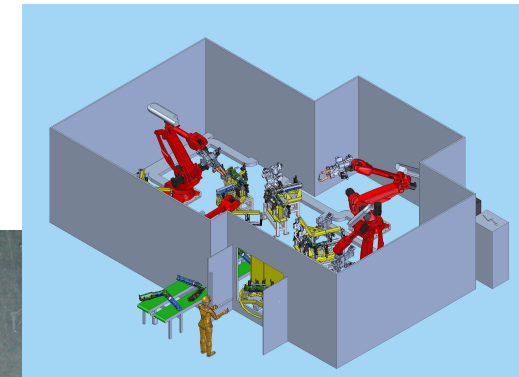
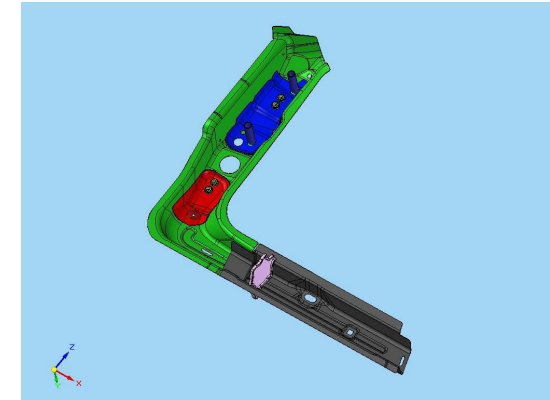
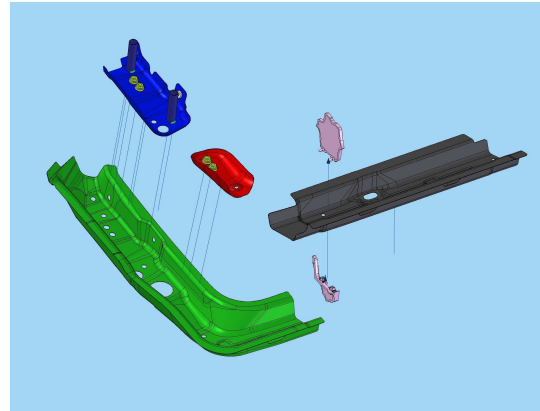
6 fixtures

1 rotating table

closed cabin of sound absorbing panels

RESULT

- Increase of productivity
- Reduction of manpower





Cross bar

Robot-aided multiple welding cell:

- spot welding
- MIG welding
- projection welding of bolts & nuts

Cycle: 123 sec.

Lead-time: 7 Monate

APPLICATION

Welding of 5 stamped parts of FEE 340 F zinc-coated/20 micron/2 sides

SOLUTION

Working process:

loading of parts → table rotates → spot welding on 4 stations → MIG welding → projection welding of nuts&bolts by handling robot and fix welding machines

2 spot welding robots

1 Robot for MIG welding and moving to fix welding machines

2 welding clamps

1 torch

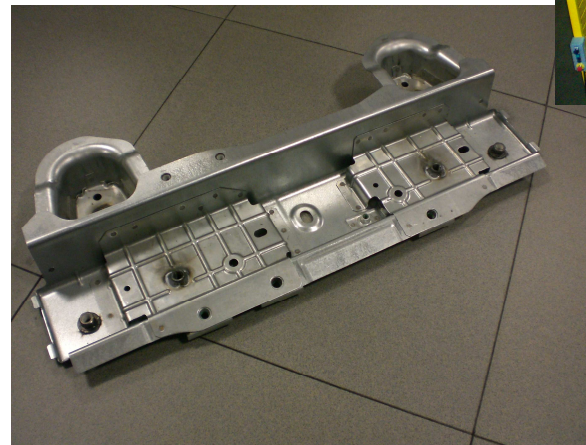
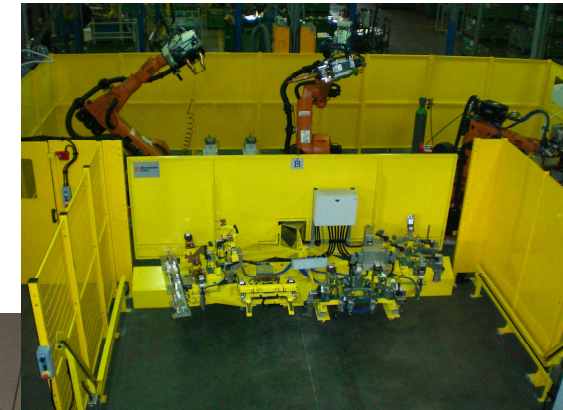
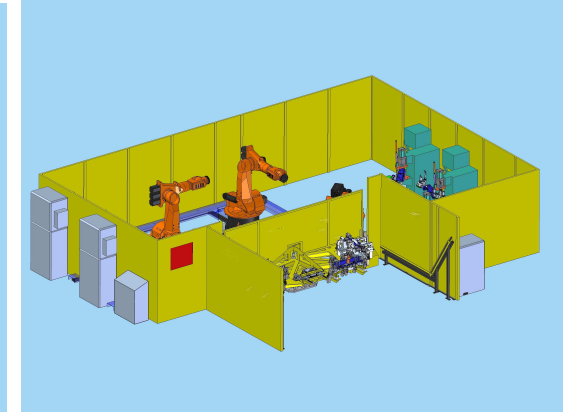
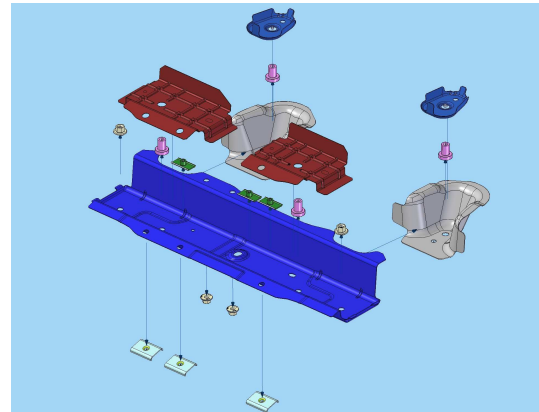
5 + 5 fixtures

1 rotating table

3 fix welding machines

Cabin of metal panels - height 1,8 mt

no roof



CHASSIS RAFTER

Area	Spot welding
Industry	Automotive
Cycle	60 seconds
Lead-time	5 months

APPLICATION

Spot welding of stamped parts

SOLUTION

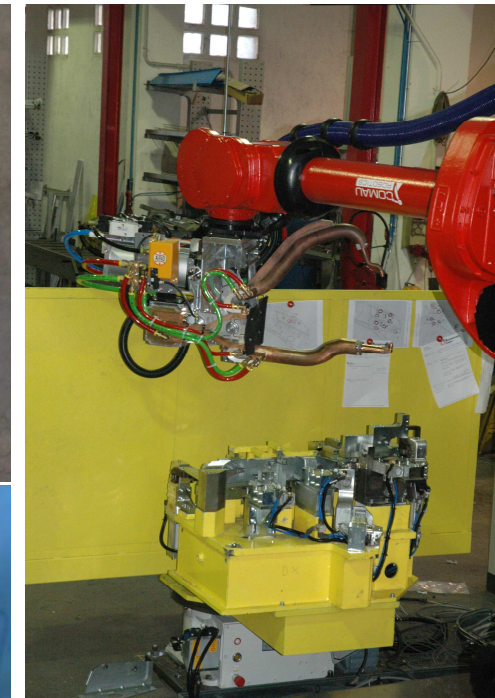
The part is made in 2 steps. The first one needs one rotating jig with two positions. The spot welding is made by 2 robots: One robot holds the welding clamp and welds the part staying on the jig. The second robot holds a gripper and finishes the welding process on the free-standing part by means of a welding machine on the floor. The upload is automatic: the third robot deploys the finished part on the conveyor. Before uploading, the second robot screws one M6 nut by capacitive discharge welding. The load is done manually by one operator.

RESULT

- Increase of productivity
- Reduction of manpower



Alfa Mi.to



ARC WELDING

SUSPENSION PART

Area	Arc welding
Industry	Automotive
Cycle	70 seconds
Lead-time	6 months

APPLICATION

MIG welding of stamped parts

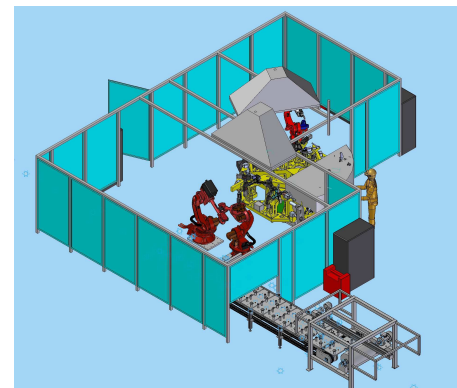
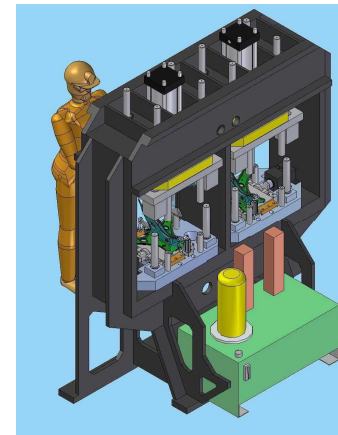
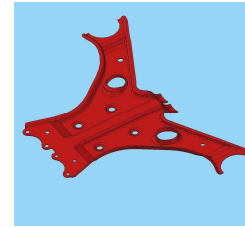
SOLUTION

The red component is:

- 1°) stamped with 5 manual dies
 - 2°) bended with a special hydraulic press
 - 3°) MIG-welded on a 4-robot-isle (welding of the two blue pieces and the red bushes).
- A pallet line executes the cooling.
Marking and cleaning of the component at the end of the process.

REUSLT

- reduction in scrap
- it was avoided to split the production cycle under different suppliers, thus simplifying the management to the client.



Tiberina Group



Fiat Fiorino



WELDING JIGS

CESAB

Area	Welding jigs
Industry	Automotive
Lead time	6 months

APPLICATION

MIG arc welding

SOLUTION

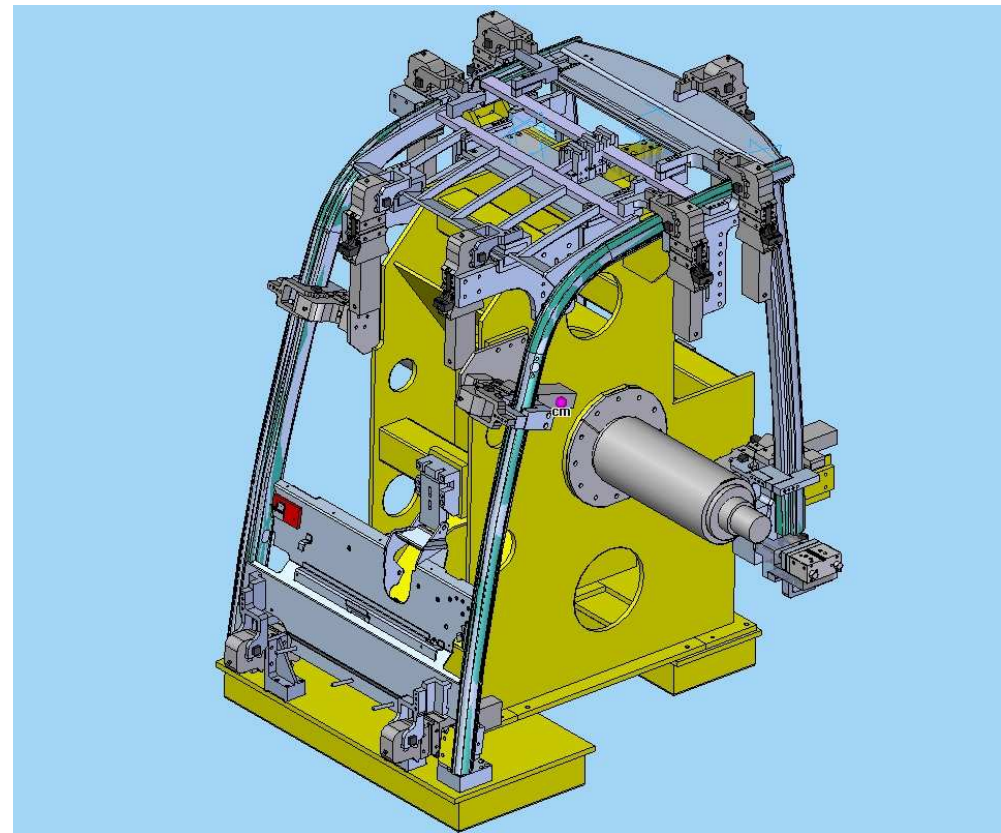
The process was divided into 5 steps. For each step we made a versatile jig, depending on the single product specification.

The jigs have been designed so as to be inserted on automatic isles, where welding robots execute the necessary work.

All references are adjustable for compensating possible shrinkages due to the welding.

RESULT

- 5 jigs for 15 different models
- The subdivision of the process into sub-processes has improved the quality control of the product



CHASSIS - MASERATI

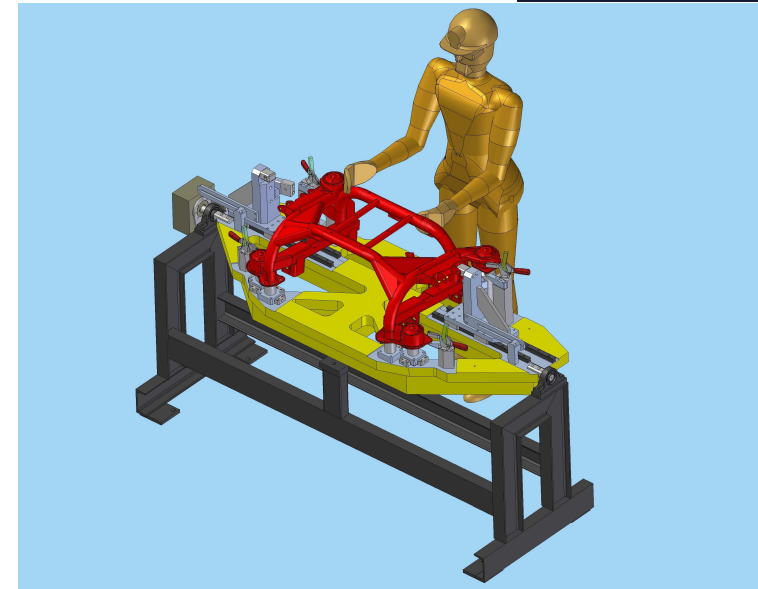
Area	Welding jigs
Industry	Automotive
Lead Time	3 months

APPLICATION
MIG arc welding

SOLUTION
Because of the low production we made a welding jig with movements and lockings manually driven.

The jig is mounted on a rotating axis capable to execute all the weldings horizontally.

RESULT
Such a system enabled to manufacture a robust, low-cost and functional tool



JIGS FOR KITCHEN HOODS

Area	TIG Welding jigs
Industry	Home appliances
Lead time	2 months

APPLICATION

TIG welding

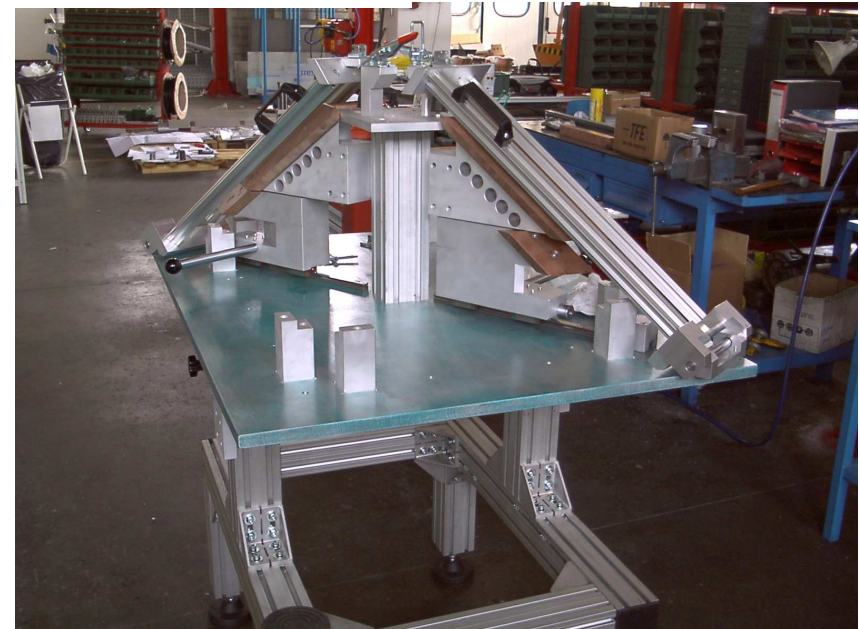
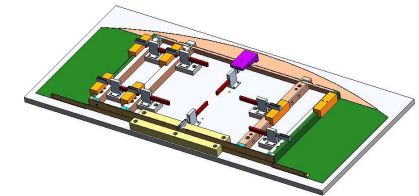
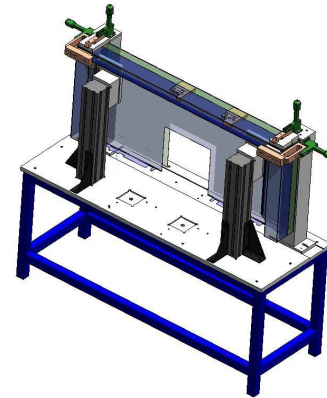
SOLUTION

Because of the low production we made a welding jig with movements and lockings manually driven.

Thanks to the contrasts in hard copper, the jig enables to weld without welding material.

RESULT

Such a system enabled to manufacture a robust, low-cost and functional tool



JIG FOR SEAT STRUCTURE

Area	Welding jig
Industry	Automotive
Lead time	2 months

APPLICATION

Robotized MIG welding

SOLUTION

Because of the low production we made a welding jig with movements and lockings manually driven.

The jig is fixed on a motorized basement and enables the robot to weld horizontally.

RESULT

Such a system enabled to manufacture a robust, low-cost and functional tool



SPECIAL PRESSES

KITCHEN HOOD

Area	Special presses
Industry	Home appliances
Productivity	3 hoods/minute
Lead-time	4 months

APPLICATION

Holes on control panel

SOLUTION

By means of oleopneumatic cylinders the press makes the holes for buttons of the control panel

RESULT

The press, in place of a mould, enables a more flexible production.

In fact, by cutting the hood corners, the welding phase on the corner was eliminated, thus the quality improved and the scrap diminished.



KITCHEN HOOD

Area	Special presses
Industry	Home appliances
Productivity	4 hoods/minute
Lead-time	2 months

APPLICATION

Cutting of hood corners

SOLUTION

The press is actuated by means of hydraulic cylinders and removes, by CAM cutting, the excess material coming from the drawing operation

RESULT

The hood's corners are made by drawing instead by welding.

Without the press it wouldn't have been possible to cut the excess material coming from the drawing operation



ASSEMBLY

SEAT WINDER – LONG VEHICLE

Area	Assembly
Industry	Automotive
Productivity	4 pieces/minute
Lead time	4 months

APPLICATION

Assembly, greasing and testing

SOLUTION

Manual assembly line + automatic greasing and testing stations.

The final test of the piece is 100% dimensional and functional (levers drive and force control).

Automatic discharge of non-conformal pieces.

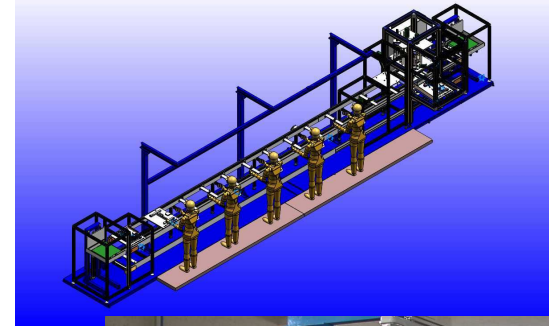
Ergonomic assembly workstation.

Marking for traceability

Possibility of issuing production statistics

RESULT

- Increase of productivity
- Reduction of manpower



HANDLING EQUIPMENTS

STACKER UNIT

Area	Handling
Industry	Furniture
Productivity	22 pieces/minute
Lead time	3 months

APPLICATION

Automatic pallettizer at press bottom

SOLUTION

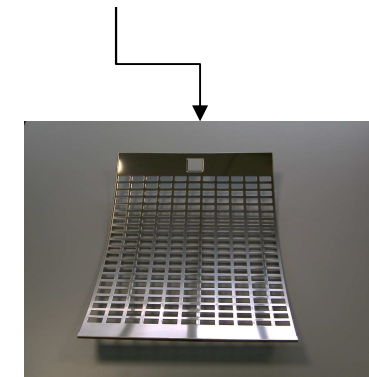
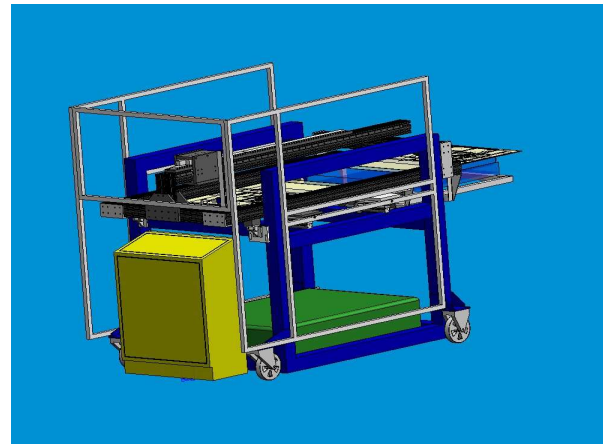
By means of a magnetic band the stamped part is extracted from the press and put on a pallet. The pallet is kept at the same height by a scissor lift.

The management software is completely interfaced with the press' software so as to synchronize both machines.

Once the pallet is fully stacked, the press stops automatically.

RESULT

Suppression of the personnel in charge with unloading from the press and reduction of press down times



MANIPULATOR ARM

Area	Handling
Industry	Automotive
Lead Time	1 month

APPLICATION

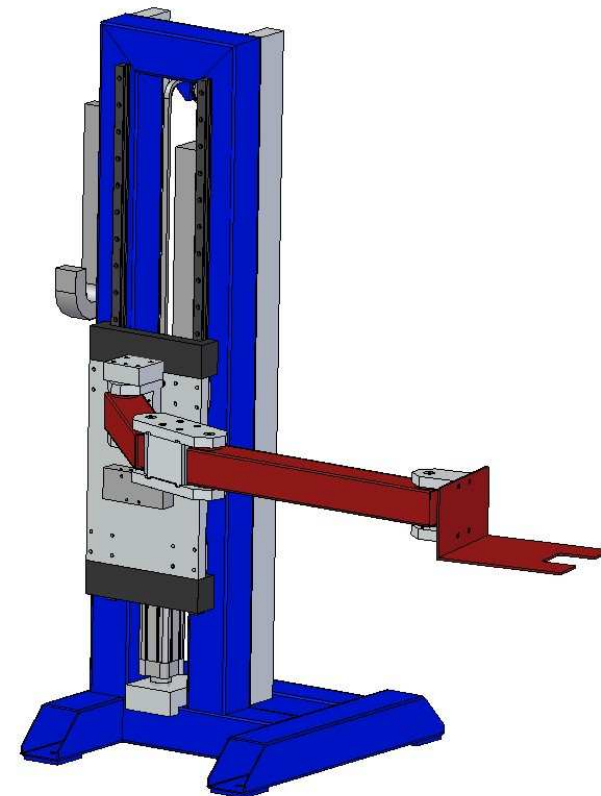
Handling

SOLUTION

The manipulator arm enables to load a raw component on a working station in full security. It is made of structural steelwork and equipped with pivoting wheels to ease mobility.

RESULT

Quick and safe tooling of the working station



OTHER APPLICATIONS

BOX FOR HOOD FAN ENGINE

Area

Industry

Productivity

Lead time

Other applications

Home appliances

1 piece/28 sec

3 months

APPLICATION

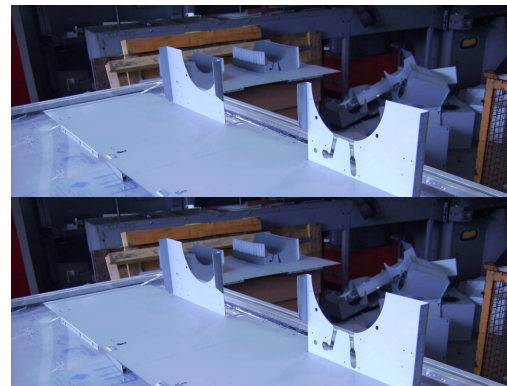
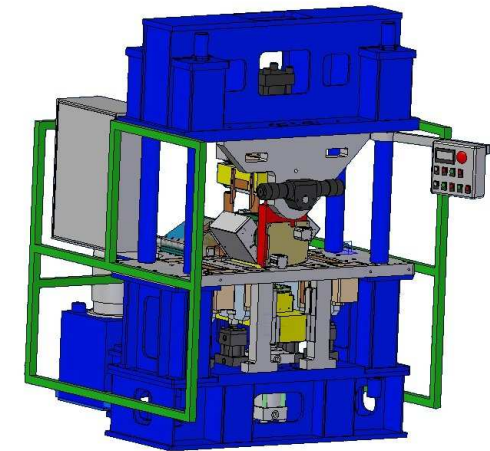
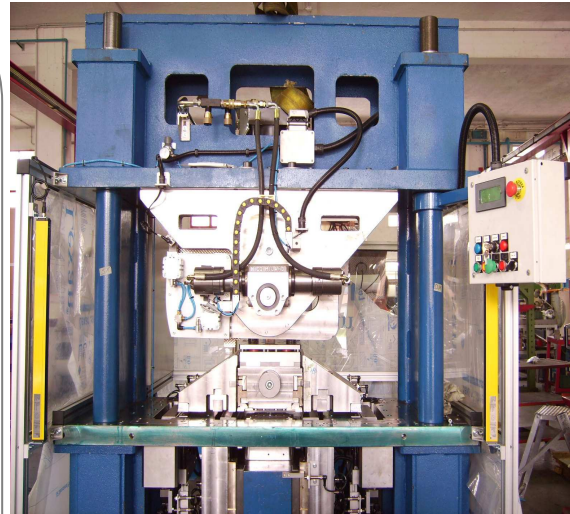
Bending and toxing

SOLUTION

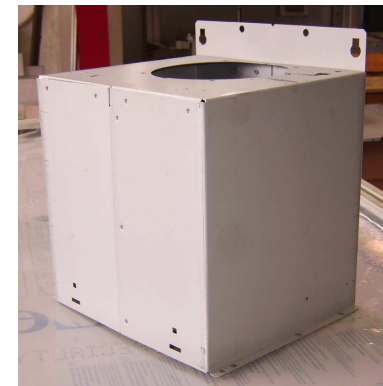
The tool, after the manual load of the blank sheet and cycle start, automatically executes 4 bends forming the box and then toxes 11 junction points.

RESULT

- Suppression of welding points and their consequent problems.
- The tox point is resistant to the vibrations and does not affect the surface treatment of the sheet metal.



foglio pretranciato



box motore finito

PRESSURE TEST MACHINE

Area	Other applications
Industry	Home appliances
Productivity	0,8 pieces/minute
Lead time	2 months

APPLICATION

Automatic station for dimensional and functional test

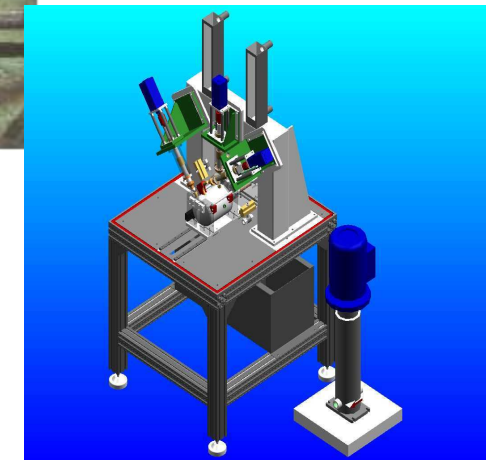
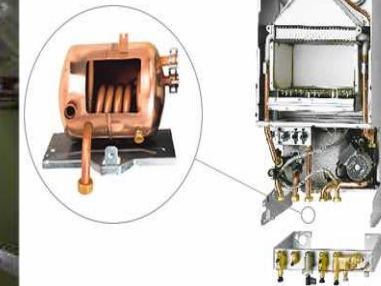
SOLUTION

With high-pressurized water the tool tests the seal of the welding points on copper tanks, the dimensions and executes cyclically the charge/discharge pressure test (fatigue test). The tool has been manufactured with high-quality components able to stand 16 bar pressure.

Filling and emptying are completely automatic. Analogical transducers signal micro-leakages that are not to be seen with naked eye and verify the main quotes with decimillimetre precision.

RESULT

The simultaneous execution of combined tests has reduced the production time.



HANGING RAIL

Area	Other applications
Industry	Furniture
Productivity	30 meters/minute
Lead time	4 months

APPLICATION

Automatic production and palletizing line

SOLUTION

Fully automatic equipment. It produces, packs and palletizes the rail.

The operator's presence is necessary only for changing the coil, removing the fully stacked pallet and selecting the rail type to be produced (length and type of packaging).

Optional production of different lengths (from 1000 mm to 3000 mm).

RESULT

Increase of productivity and suppression of manpower.

