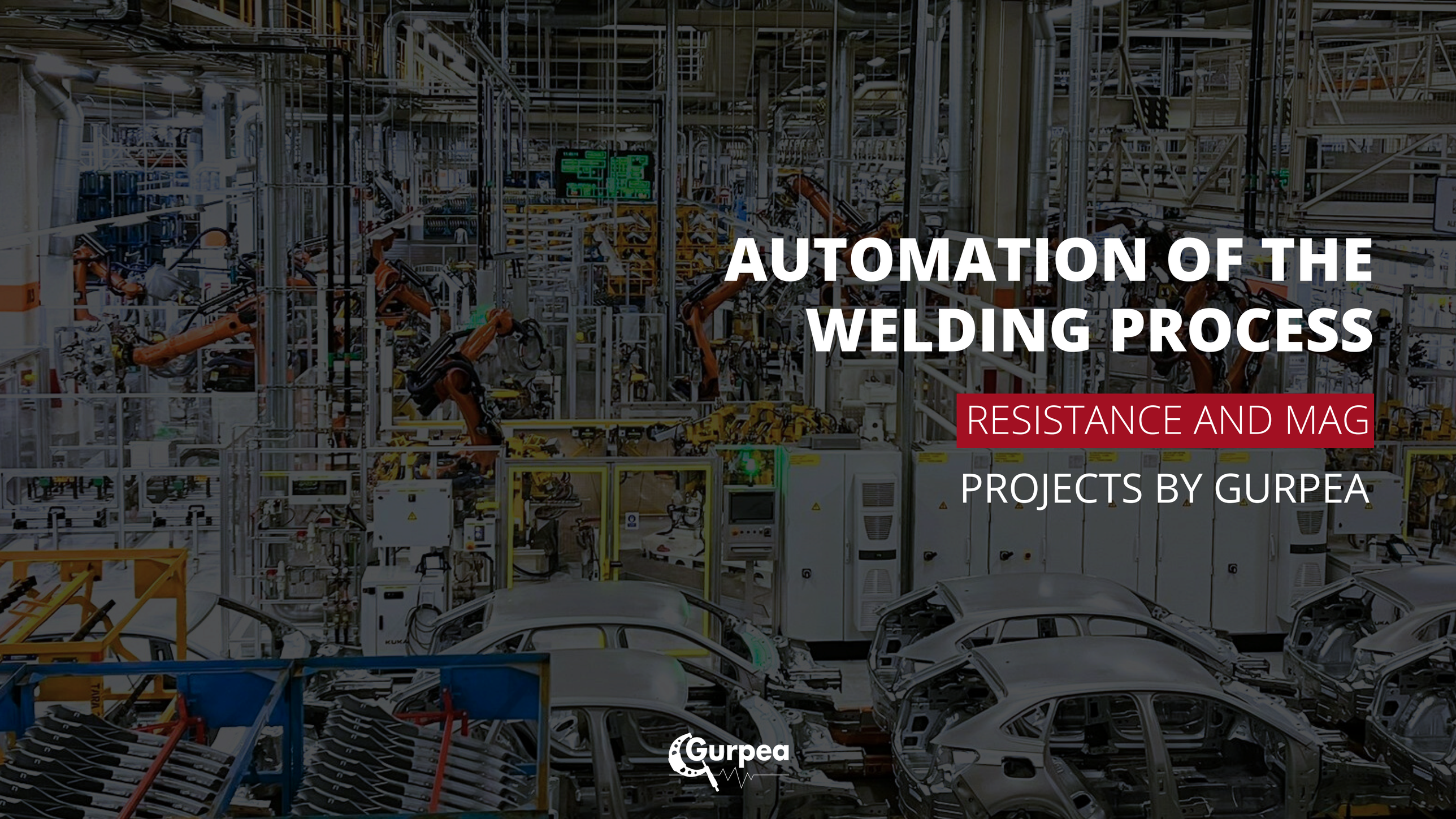

AUTOMATION OF THE WELDING PROCESS

RESISTANCE AND MAG

PROJECTS BY GURPEA

Gurpea

AUTOMATION OF THE WELDING PROCESS RESISTANCE AND MAG

INTRODUCTION

Industrial welding represents a pivotal operation within the manufacturing sector, particularly in industries such as automotive, infrastructure construction, electronics, and aerospace component production. Currently, numerous companies are adopting the automation of welding processes to enhance precision, increase production speed, and elevate overall product quality.

Automated welding systems empower organizations to enhance efficiency and productivity, while simultaneously minimizing human error and bolstering workplace safety.

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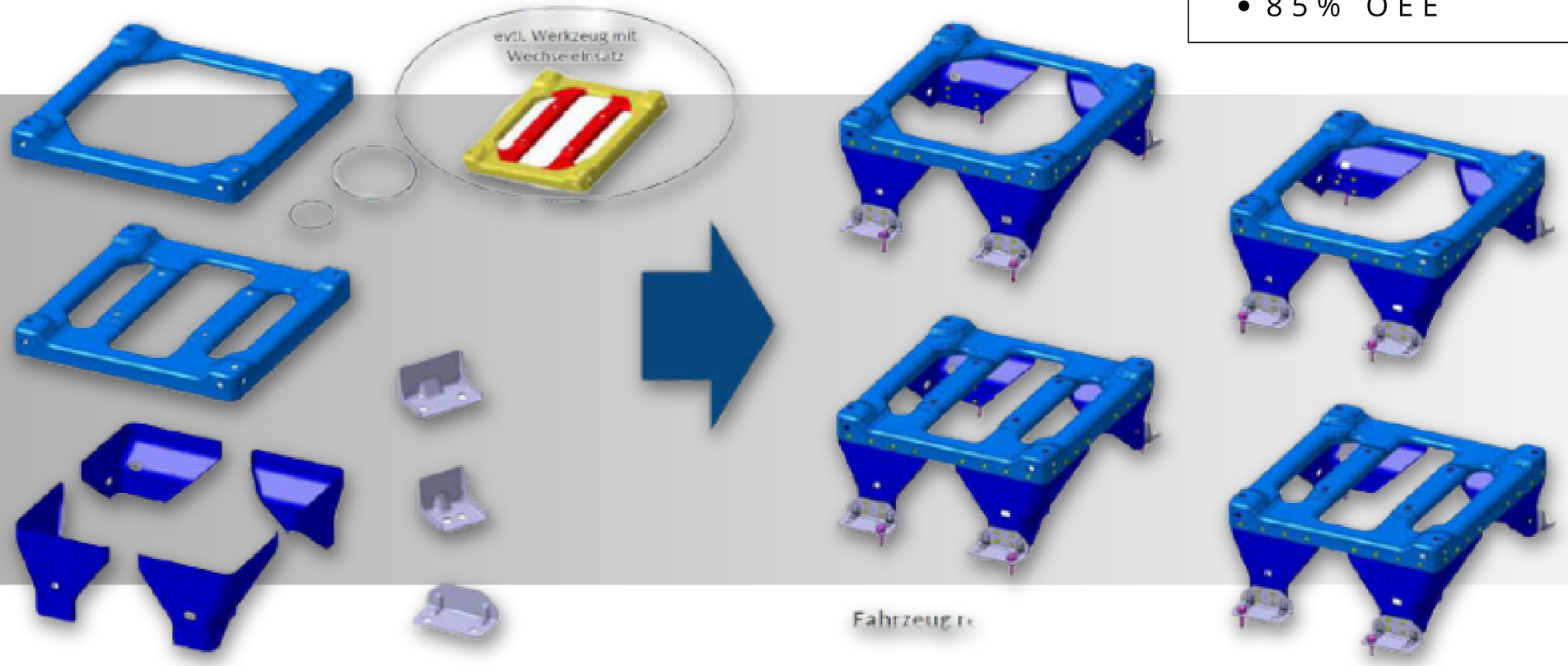
AUTOMATION OF THE WELDING PROCESS RESISTANCE AND MAG

INDEX

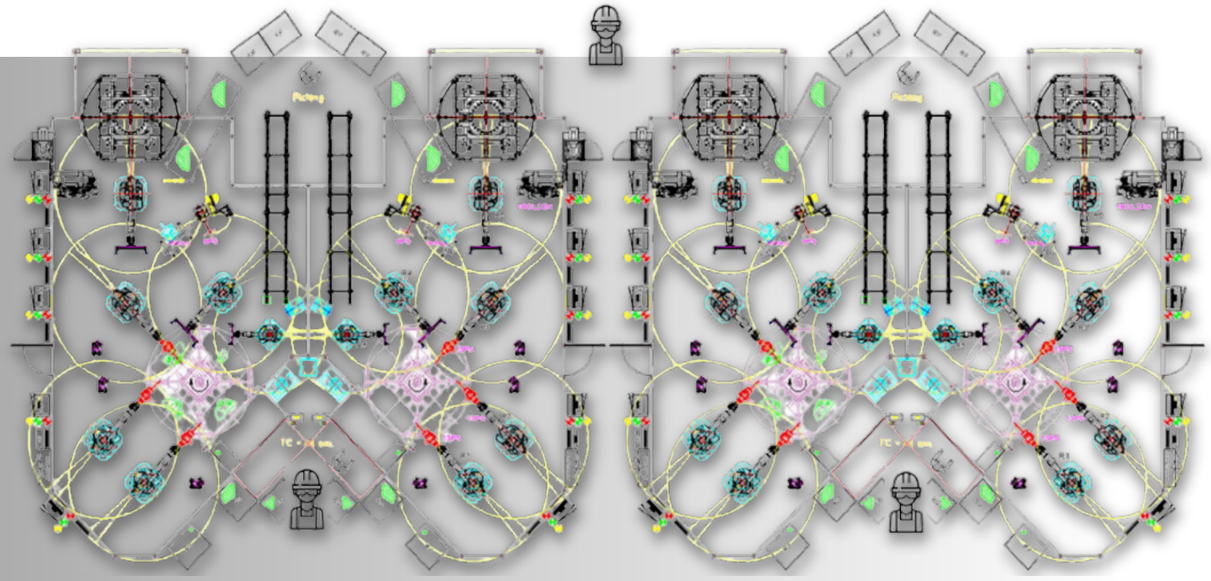
1 CHASSIS SEATING

TECHNICAL SPECIFICATIONS:

- 80 SECONDS/PIECE
- 85% OEE



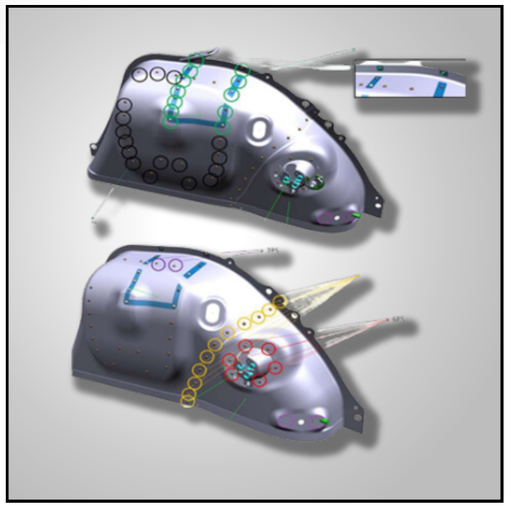
2 WHEEL ARCH

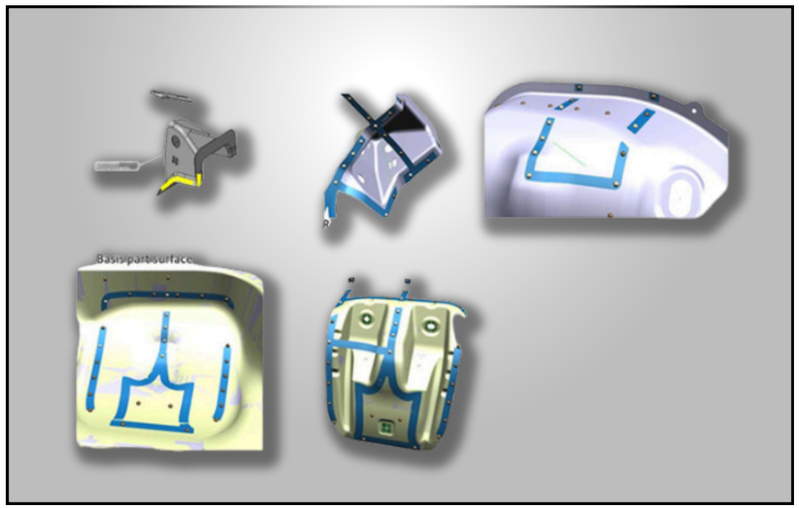


Installation configuration.

TECHNICAL SPECIFICATIONS:

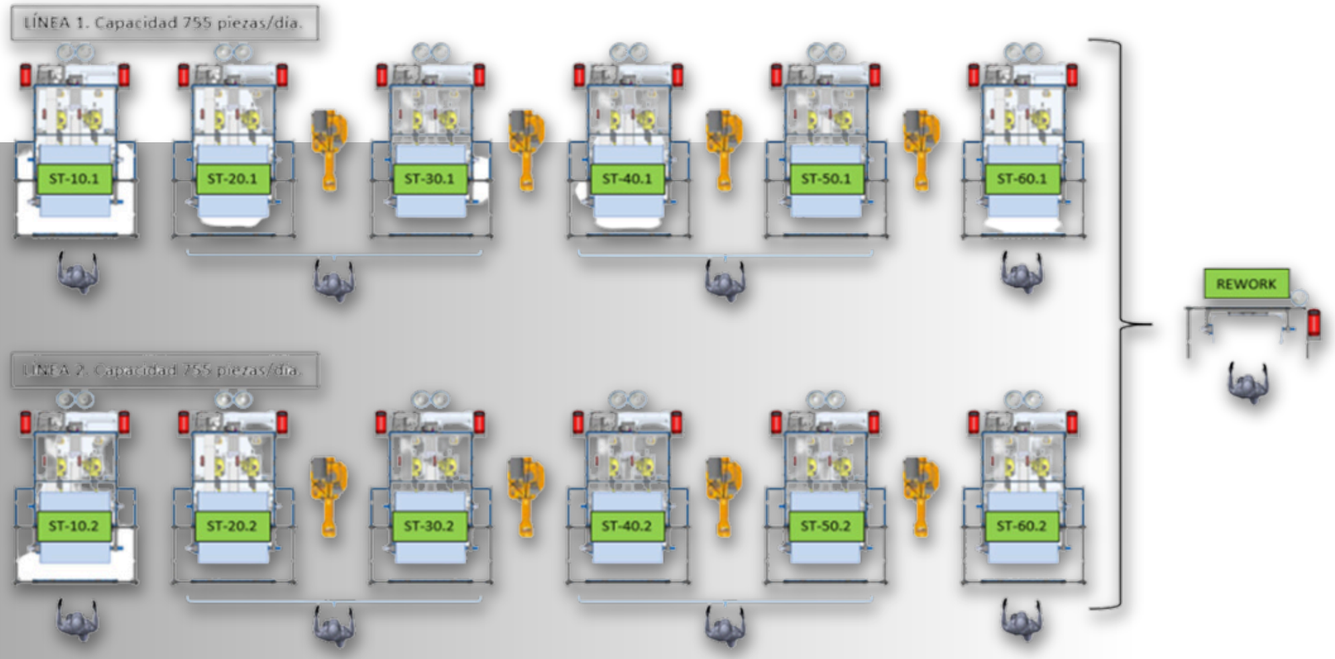
- 44 SECONDS/PIECE
- 85% OEE





3 COCKPIT FRAME

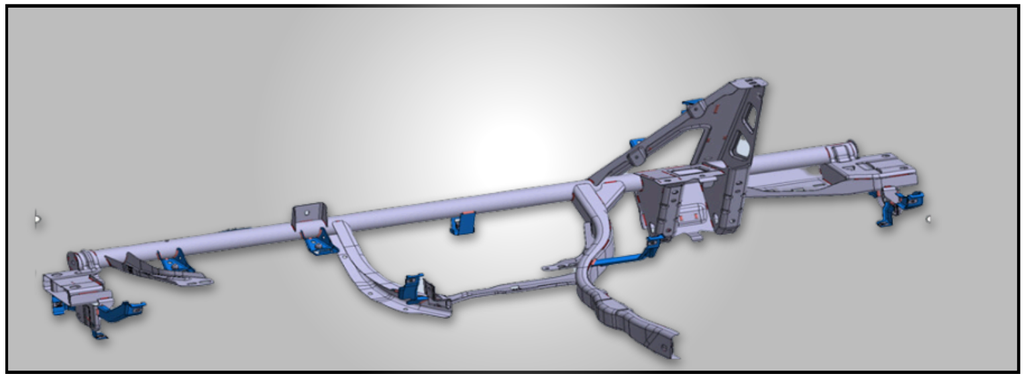
COCKPIT FRAME

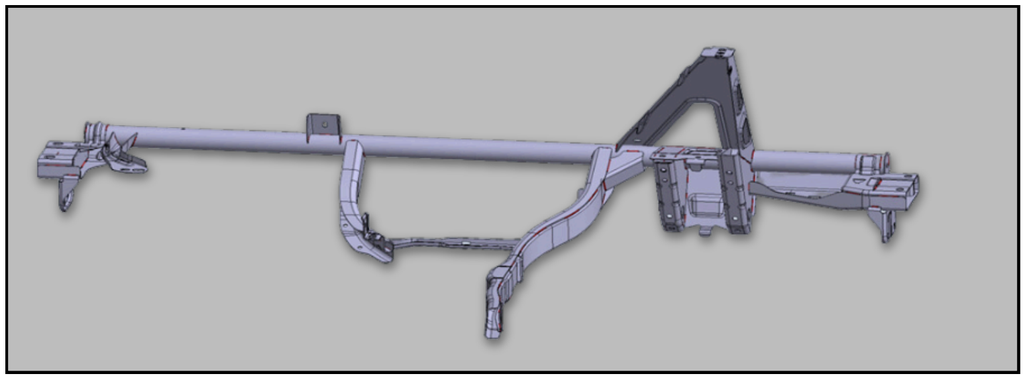


Installation configuration

TECHNICAL SPECIFICATIONS:

- 48 SECONDS/PIECE
- 85% OEE





4 WELDING INSTALLATION SUSPENSION VS20

- Complete chassis welding line, incorporating various welding technologies, including clamps and bead techniques.
- The process is segmented into distinct cells, each equipped with UGI tools oriented 180º both horizontally and vertically.
- Tools are updated automatically.

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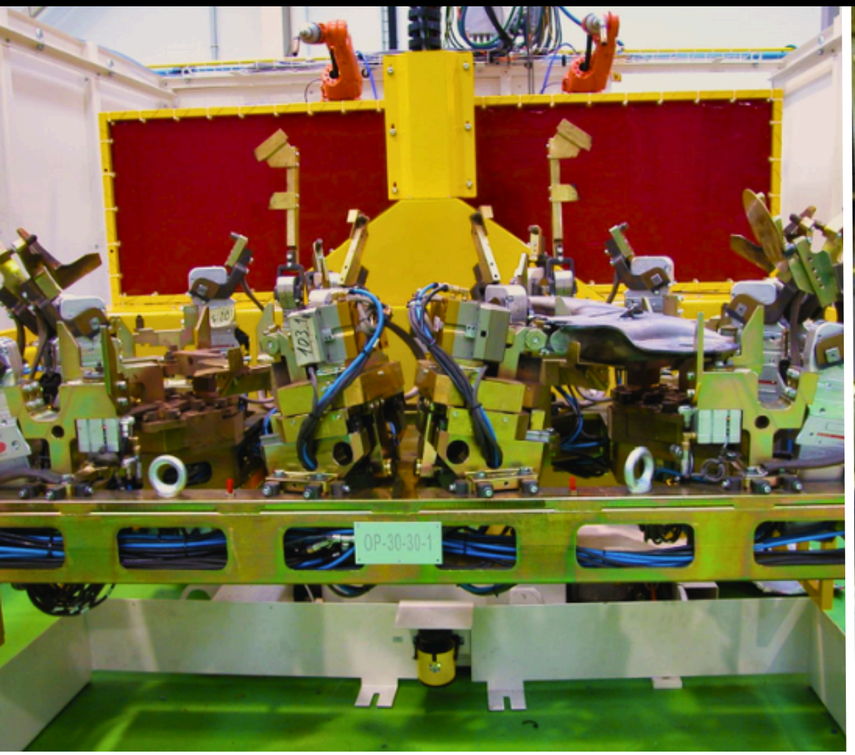
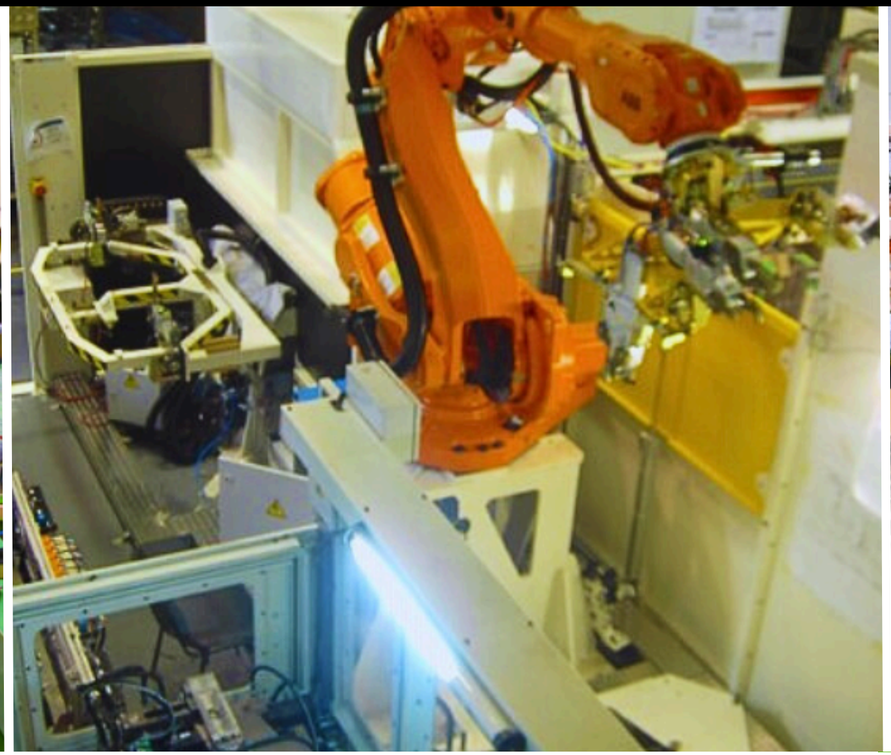
WELDING INSTALLATION SUSPENSION VS20



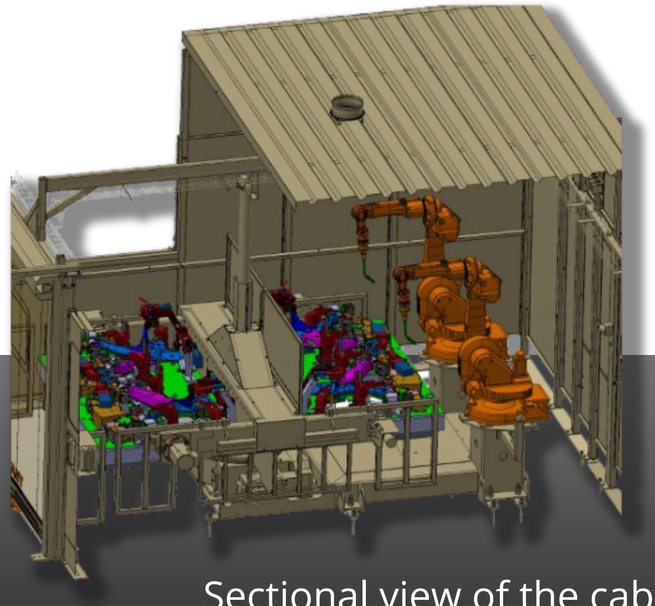


TECHNICAL SPECIFICATIONS

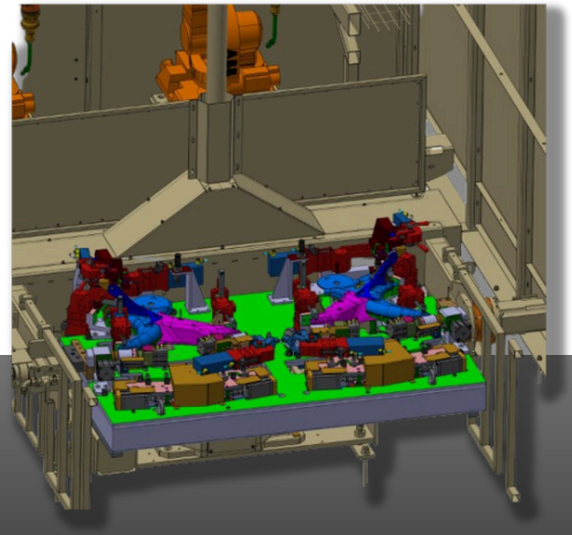
- Complete cell featuring five welding cabins.
- Each cabin is equipped with two MAG welding robots.
- Two tools per cabin, a turning table, and tool tables synchronized with robots.
- Loading and unloading with a robot occurs when the piece increases in size. Initially, this task is performed by the operators.
- The left and right arms are simultaneously welded.
- Cycle time: 140 seconds for both left and right arms
- Robot welding on fixtures.
- MAG nozzle cleaning apparatus.
- Revised position.
- Gauge verification of accurate dimensions.
- Machine for drilling holes after the piece has been welded.
- Automated evacuation.

TECHNICAL ILLUSTRATIONS

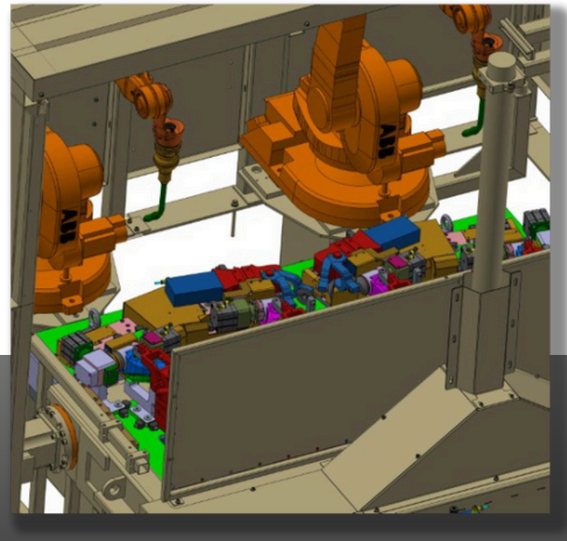
Installation configuration.



Sectional view of the cabin featuring tools and robots.



Loading area equipment.



Robots and tools for the welding area.

WELDING INSTALLATION SUSPENSION VS20

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5 WELDING INSTALLATION OF A04 AND A07 STRIPS **RESISTANCE AND MAGNETISM**

- Welding the joint of the side member to a reference point on the vehicle necessitates exceptional precision, ensuring that tension in the weld is minimized through the synchronized operation of the robots.

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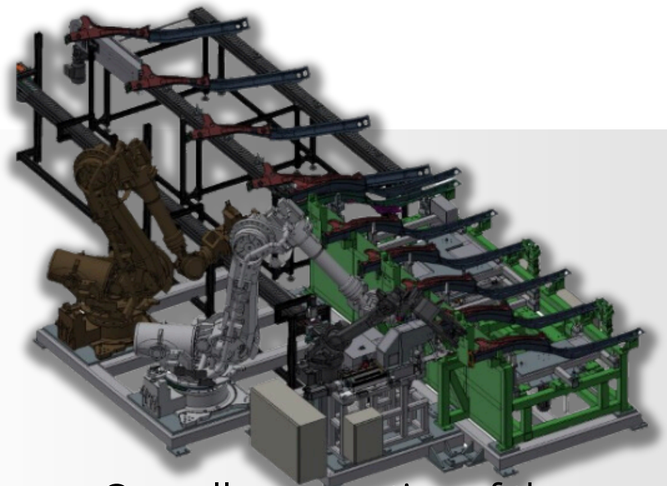
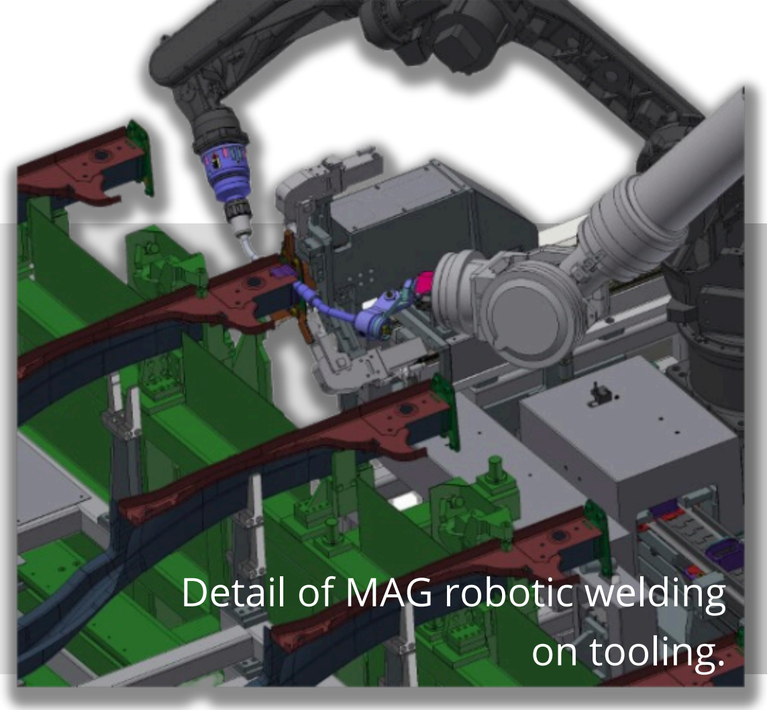
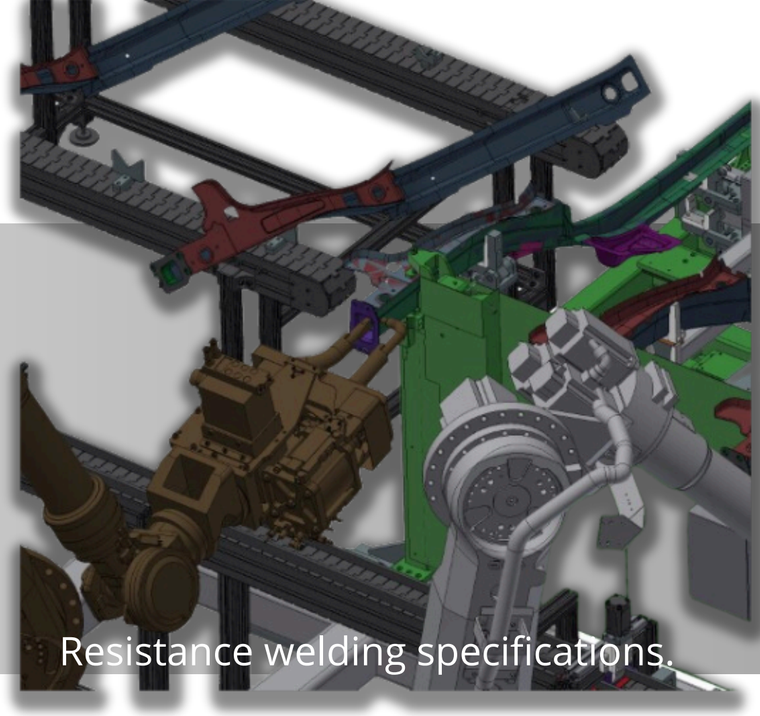


Overall perspective of the installation.



Detail of MAG robotic welding on tooling.



Resistance welding specifications.

TECHNICAL SPECIFICATIONS IMAGES

- Two symmetrical installations: the right crossbar and the left crossbar.
- Cycle time: 34.5 seconds.
- Connected to an existing line on the client.
- Robot welding on fixtures.
- MAG seam welding with two robots operating simultaneously.
- MAG nozzle cleaning apparatus.
- Resistance welding utilizing a robot-mounted clamp.
- Loading the beam using a robot.
- Automatic loading of the component to be welded.
- Automated evacuation.

INSTALLATION OF WELDING FOR A04 AND A07 LENGTHS RESISTANCE AND MAG

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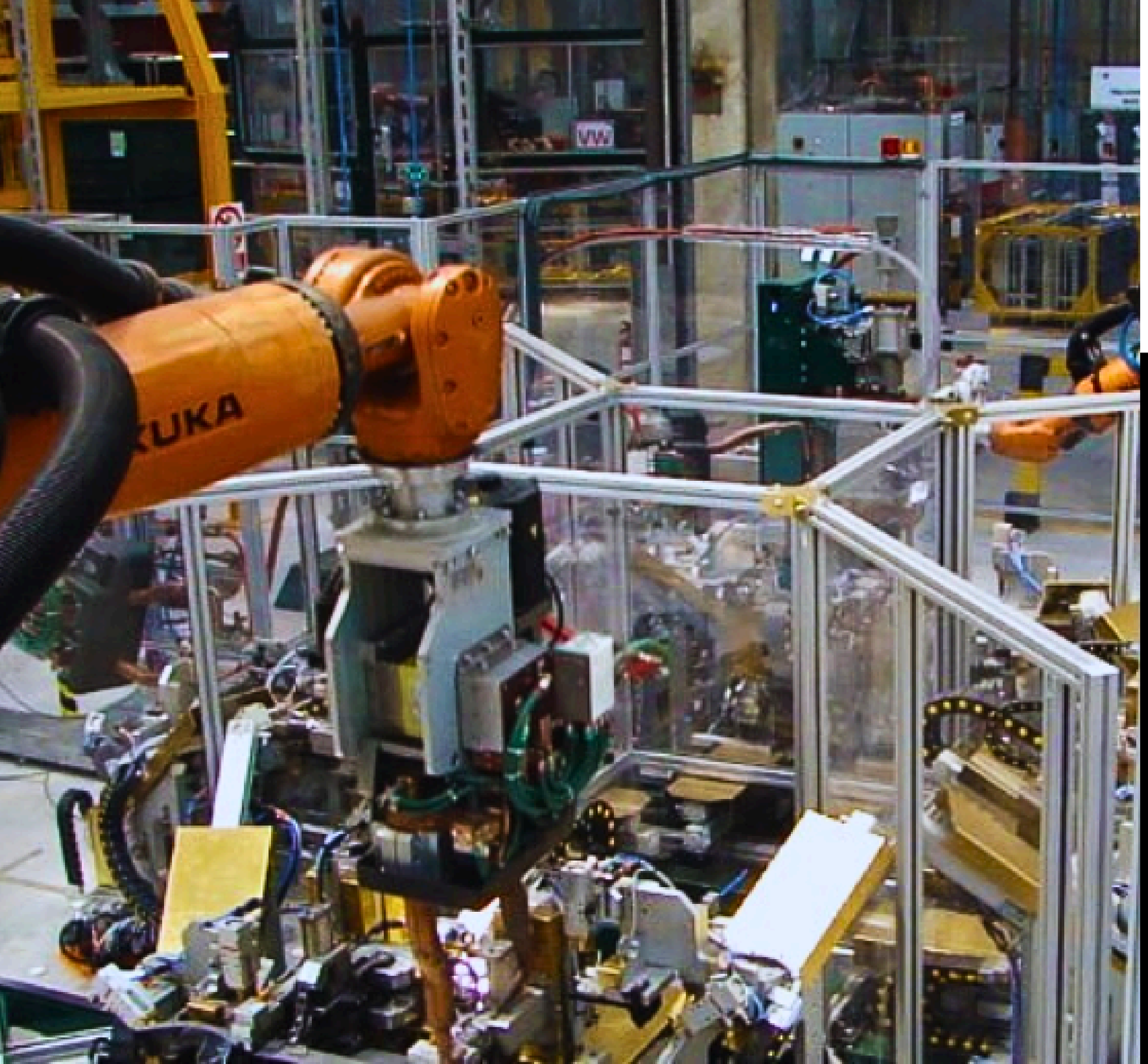

6

WELDING ASSEMBLY **BY RESILIENCE** CROSSBEAM

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TECHNICAL SPECIFICATIONS

- Manufacturing of seven-piece variants.
- Cycle time ranges from 45 to 58 seconds, depending on the variant.
- Application of adhesive by a robot on the component prior to welding.
- Nut welding.
- Robot welding on fixtures.
- Fixed clamp welding.
- OK part identification and automated removal.

INSTALLATION OF RESISTANCE WELDING CROSSBEAM

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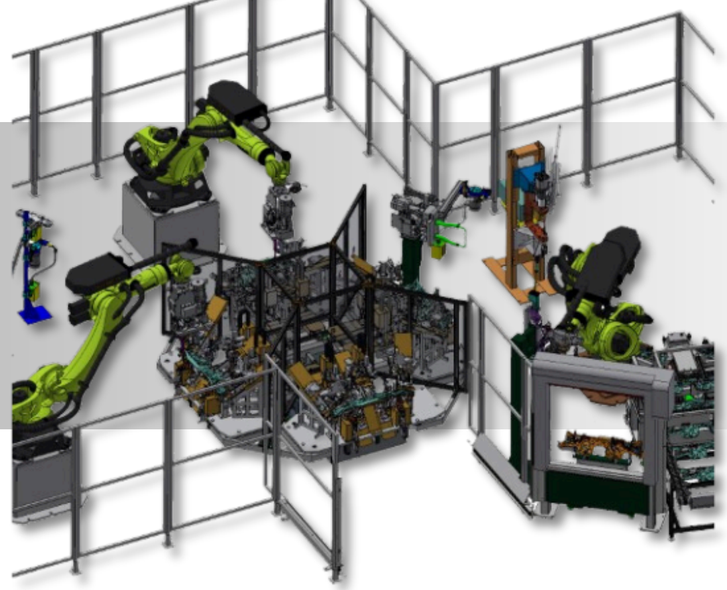
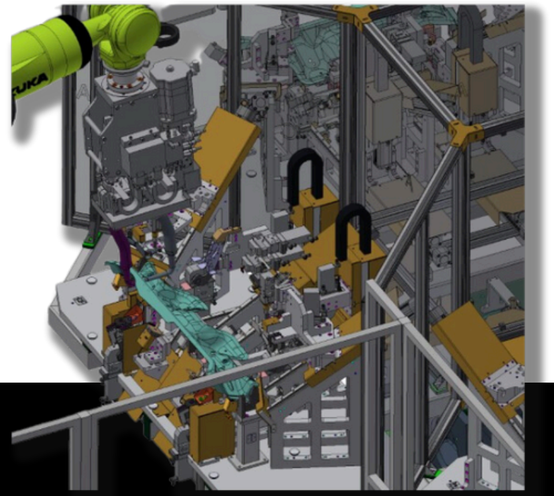
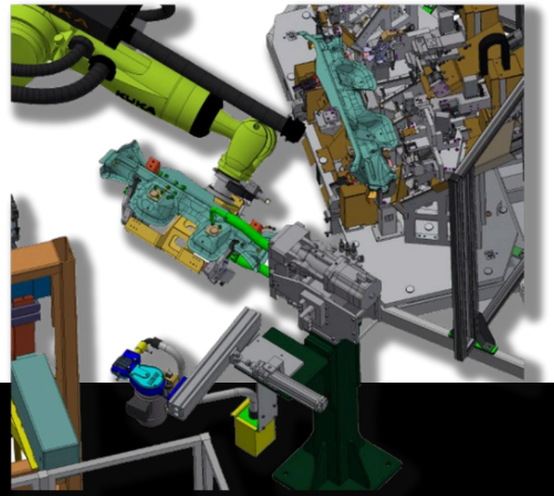
TECHNICAL ILLUSTRATIONS

Installation Overview.

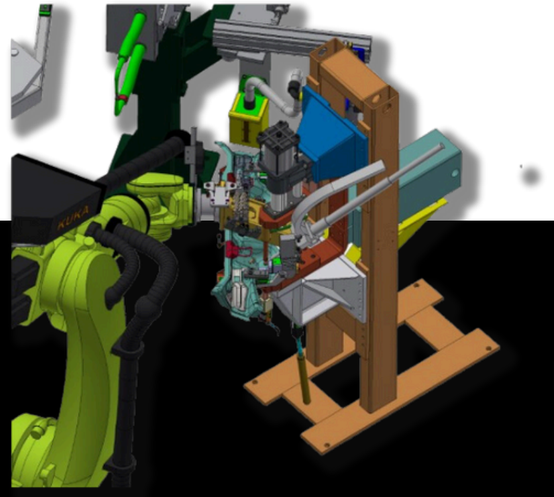




Detail of robotic welding on tooling.



Detail of welding on the stationary clamp.



Detail of nut welding in a press equipped with an automatic feeder.

INSTALLATION OF RESISTANCE WELDING CROSSBEAM

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7

WELDING INSTALLATION OF STRINGERS AND SUPPORTS **BY POINTS & MAG**

CUSTOMER

KWD AUTOMOTIVE

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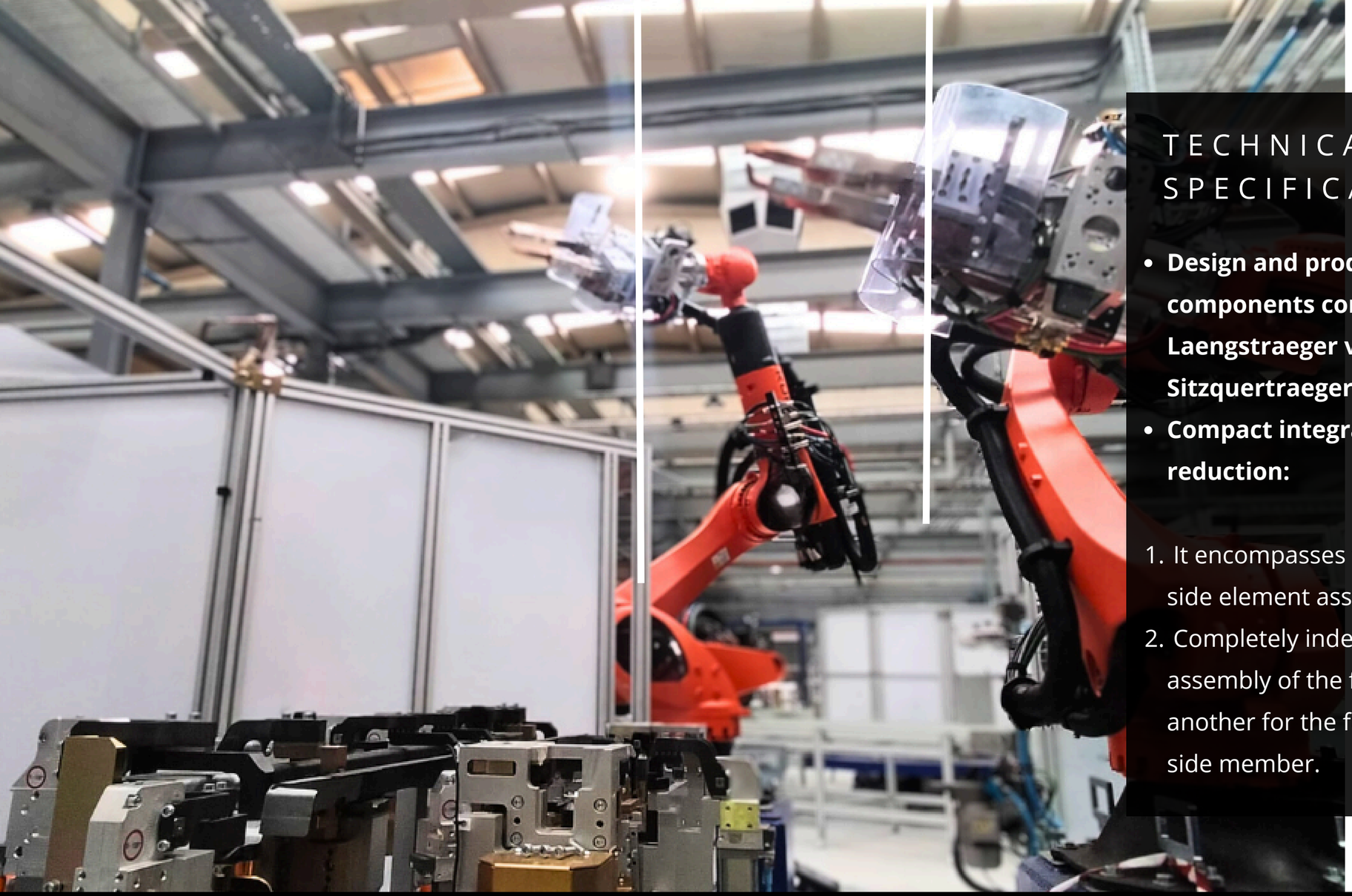

TECHNICAL SPECIFICATIONS

- **Design and production of a single-cell line for welding the components comprising the Front Side Member (SGR Laengstraeger vorn) and the Rear Seat Crossmember (SGR Sitzquertraeger hinten).**
- **Compact integration, design modification, and cycle time reduction:**

1. It encompasses the two components that constitute the front side element assembly.
2. Completely independent cells are established, one for the full assembly of the front section of the left side member and another for the full assembly of the front section of the right side member.

WELDING INSTALLATION OF STRINGERS AND SUPPORTS **BY POINTS AND MAG**

KWD AUTOMOTIVE

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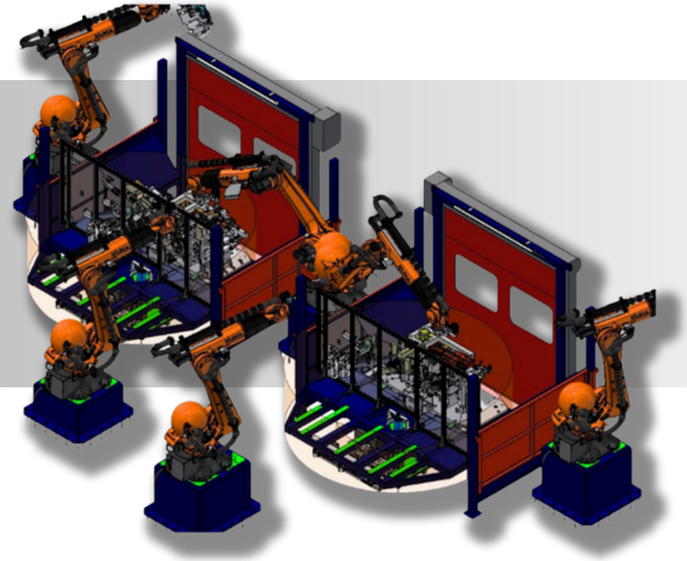
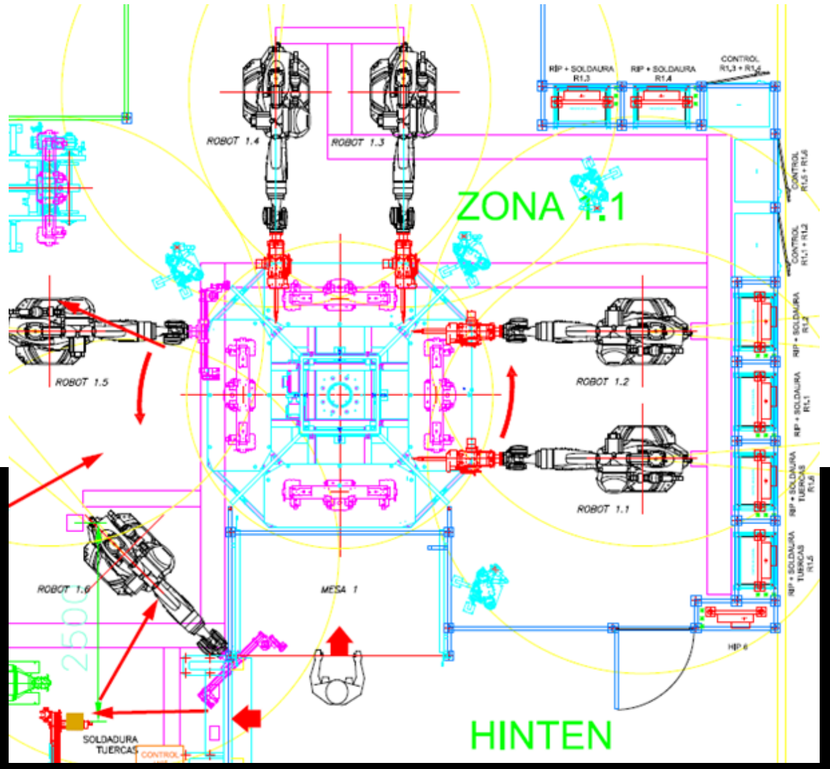
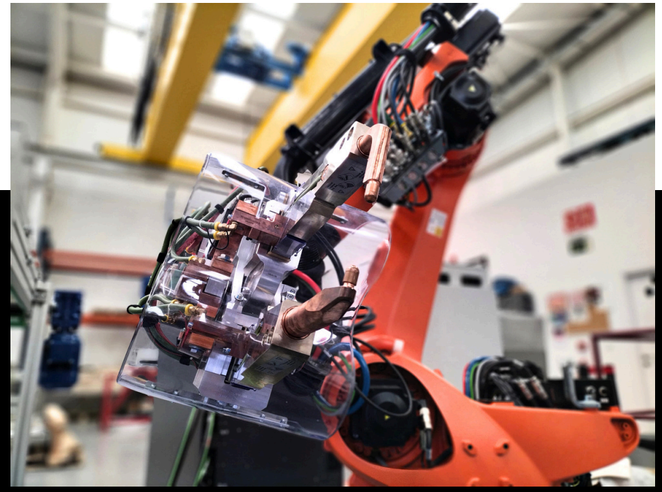
TECHNICAL ILLUSTRATIONS

UGIs cell and robots for exchange and welding.





Detail of the layout area.
Total of the two installations:
55x51m2



73 handling and welding robots

WELDING INSTALLATION OF STRINGERS AND SUPPORTS **BY POINTS AND MAG**

KWD AUTOMOTIVE

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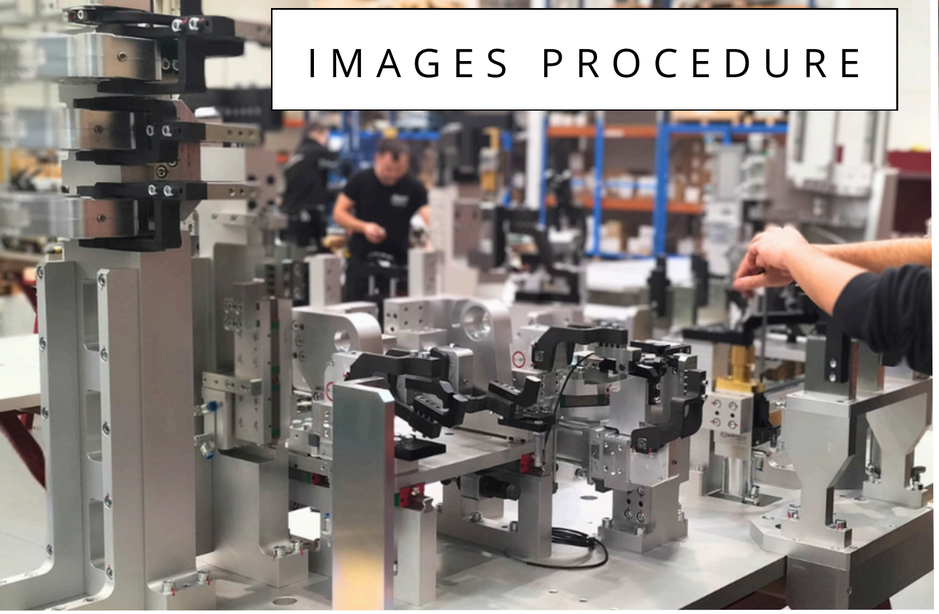
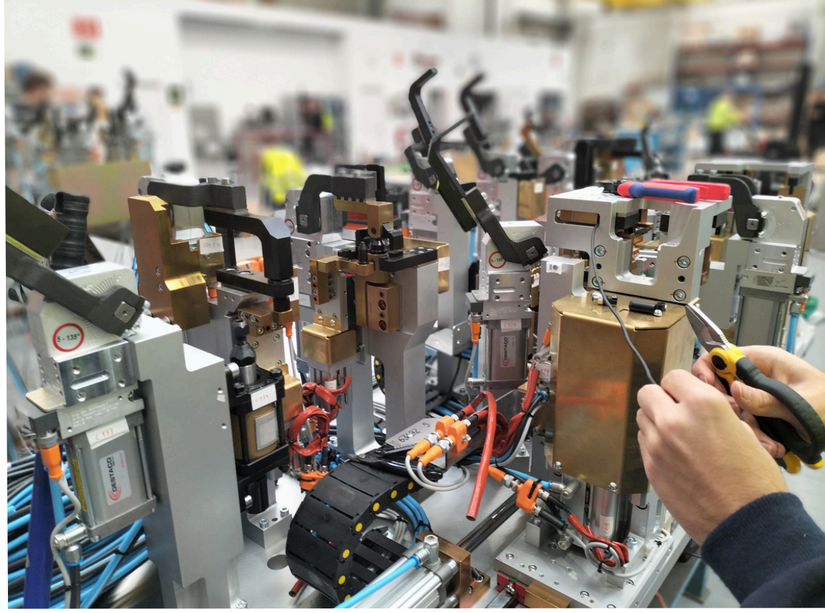
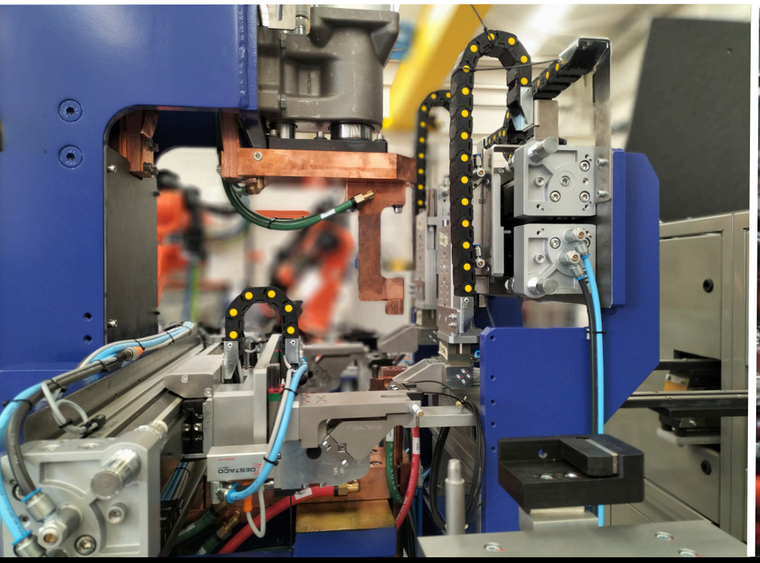
IMAGES PROCEDURE







WELDING INSTALLATION OF STRINGERS AND SUPPORTS **BY POINTS AND MAG**

KWD AUTOMOTIVE

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