

FAMA®

# Automation

#shaping  
transformation.



# Delivers reliability, quality, and trust across a range of industries.

Vitro was founded in 1909 and operates four business units that produce high-quality, innovative products and solutions that exceed our customers' expectations: Glass Containers (Cosmetic and Pharmaceutical), Architectural Glass, Automotive Glass, and Diverse Industries (Machinery & Equipment, Automation, Metal mechanics and Chemicals).

Our business units serve various markets and industries, from food and beverages to automobiles to commercial construction. Further, our commitment to sustainability in our operations, manufacturing processes, and product applications enables our customers and us to meet increasingly demanding environmental responsibility and performance goals.



# FAMA<sup>®</sup>: a Vitro<sup>®</sup> subsidiary

FAMA<sup>®</sup>, born in 1943 as Vitro's subsidiary for in-house machinery manufacturing has a proven track record of creating forward and innovative industrial technology.

Nowadays, we have increased our products and services to the market, in order to provide solutions for diverse industries.

Supporting by 80 years of experience manufacturing high-technology specialized machines and with eyes set on the future, we have extended to other industries besides Vitro to integrate projects that require a high technological capacity and infrastructure.



We at FAMA® transform the productivity of our customers to outstanding levels by gathering state-of-the-art technology and a highly committed workforce that allows us to form strategic alliances to provide integral solutions for diverse industries.



# Competitive Advantages

## Infrastructure

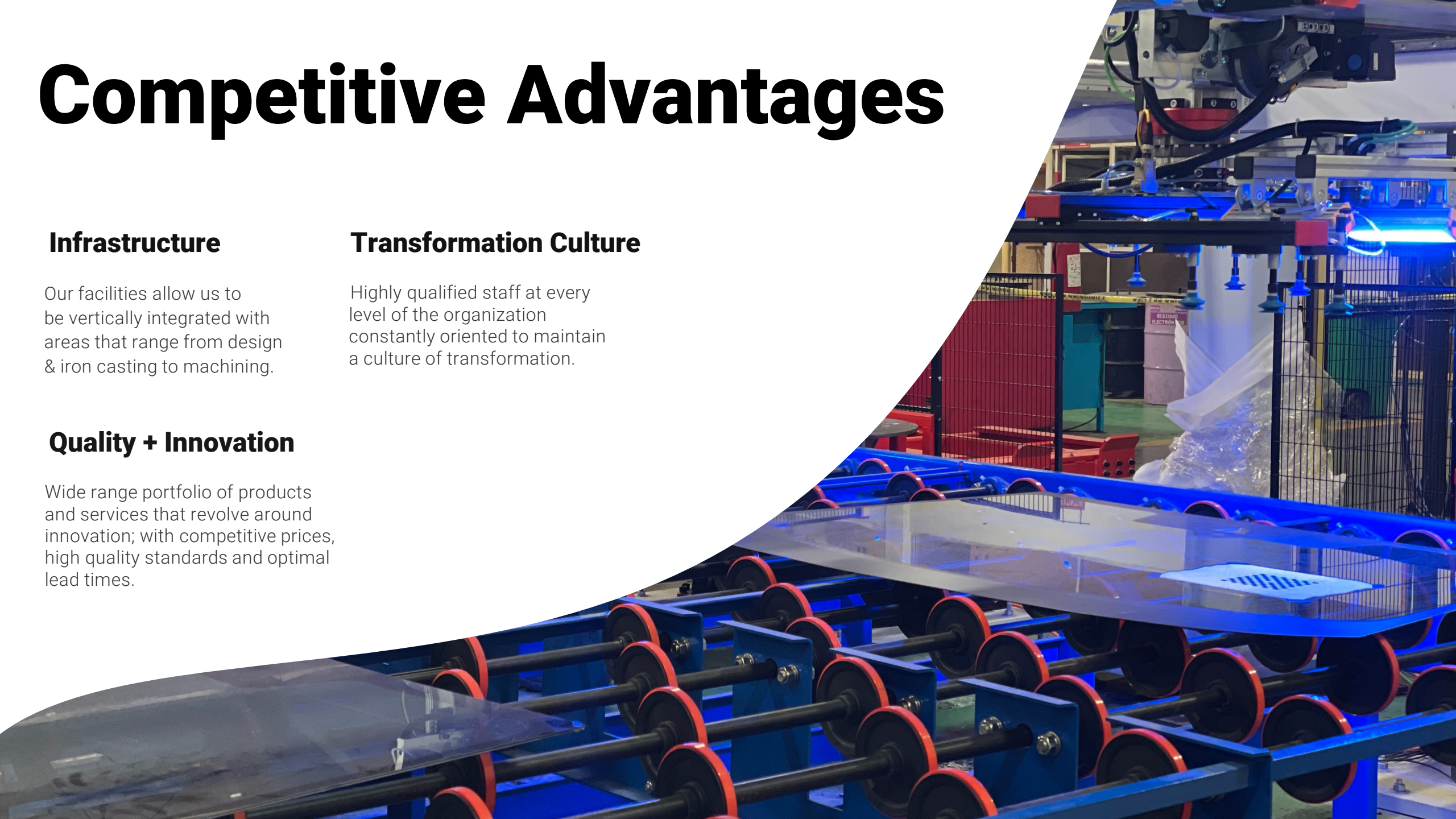
Our facilities allow us to be vertically integrated with areas that range from design & iron casting to machining.

## Transformation Culture

Highly qualified staff at every level of the organization constantly oriented to maintain a culture of transformation.

## Quality + Innovation

Wide range portfolio of products and services that revolve around innovation; with competitive prices, high quality standards and optimal lead times.





# Shaping Transformation



1909

Vitro starts operations.



1943

FAMA® is born as the 'technological arm' of Vitro to provide machinery and equipment for the affiliate companies.



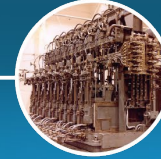
1944

The first foundry was built using a cupola furnace.



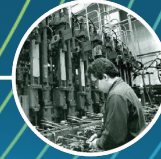
1946

The first two-section IS machine is produced to create new and more efficient machinery for the glass industry.



1950

Mold and machinery exports begin.



1970

Fabricación de Máquinas S.A. starts international operations.



1980

FAMA® joins the globalization process by becoming an exporting company.



2015

FAMA® expands its products and services globally, offering integral solutions for the glass industry.



2017

We expand our product and service portfolio into the market to offer integrated automation solutions in diverse industries.



2018

With 75 years of experience and the sight set on the future, FAMA® reaches out to other industries in the manufacturing sector.



2021

FAMA® expands its automation capabilities with the acquisition of Grupo Gersa Monterrey.



2023

FAMA® keeps growing and being a strategic partner offering machinery and services for the glass industry, metalworking and automation solutions.

# FAMA's Leadership Team



**Juan Farías**  
Managing Director



**Roberto Delgado**  
Comptroller



**Lorena Casiano**  
Marketing Coordinator



**Victor Garcia**  
HHRR Manager



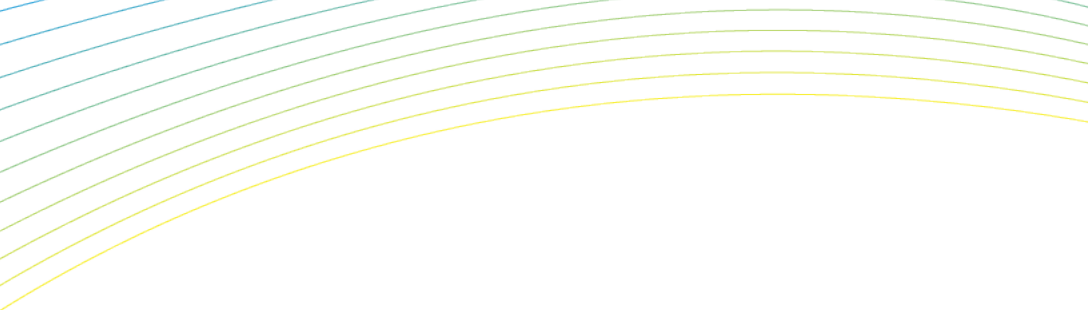
**Armando Solis**  
Supplier Manager



**Francisco Sada**  
Strategic Planning



**Alfonso Garcia**  
Machinery Operations  
Manager

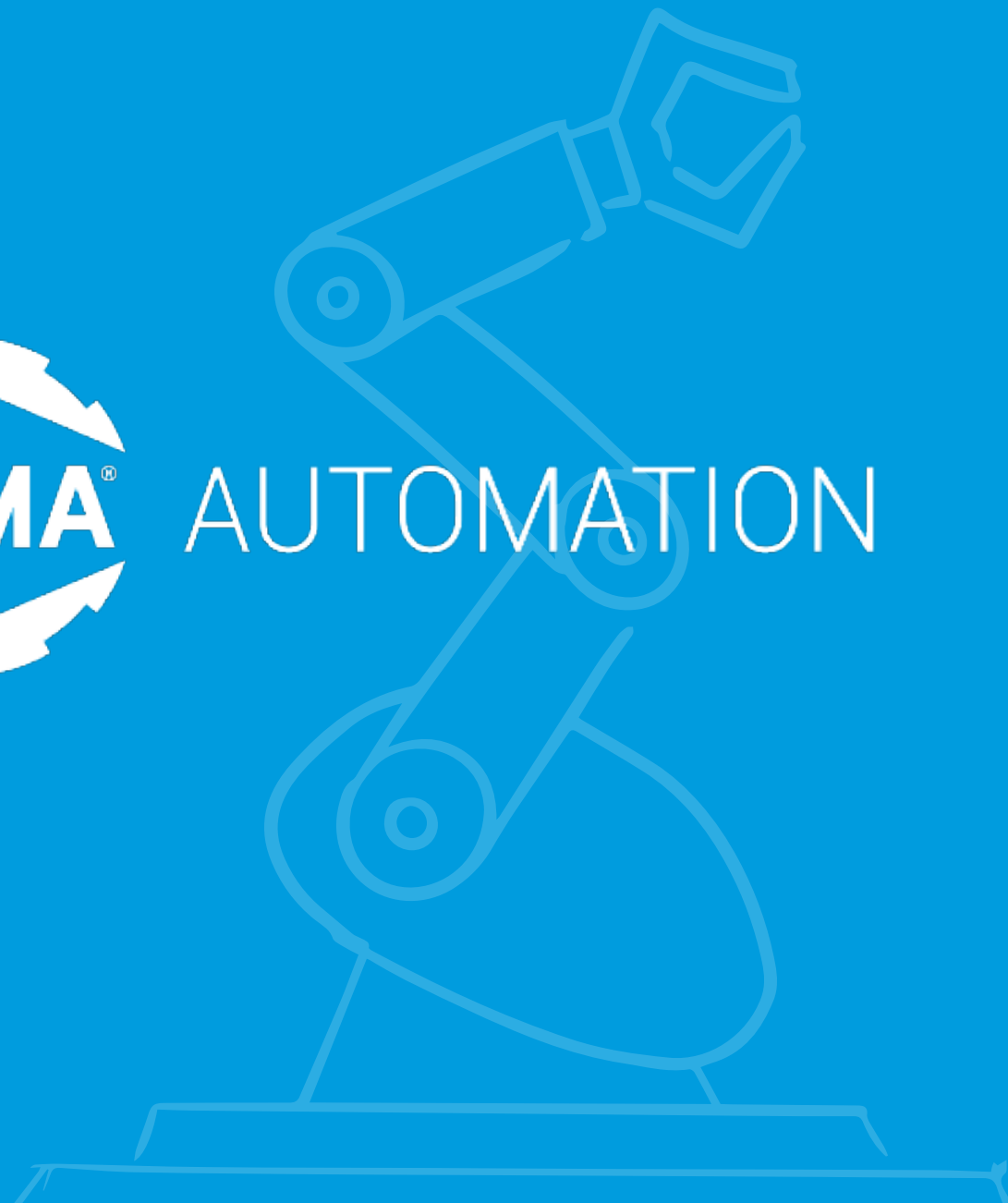


We offer control and automation solutions in turnkey projects, precision manufacturing and the development of specialized applications for the industry.

Our main objective is to satisfy the particular needs of our customers; therefore, we have highly trained personnel, software, and design tools that keep us at the edge, along with high-level equipment and infrastructure.



AUTOMATION

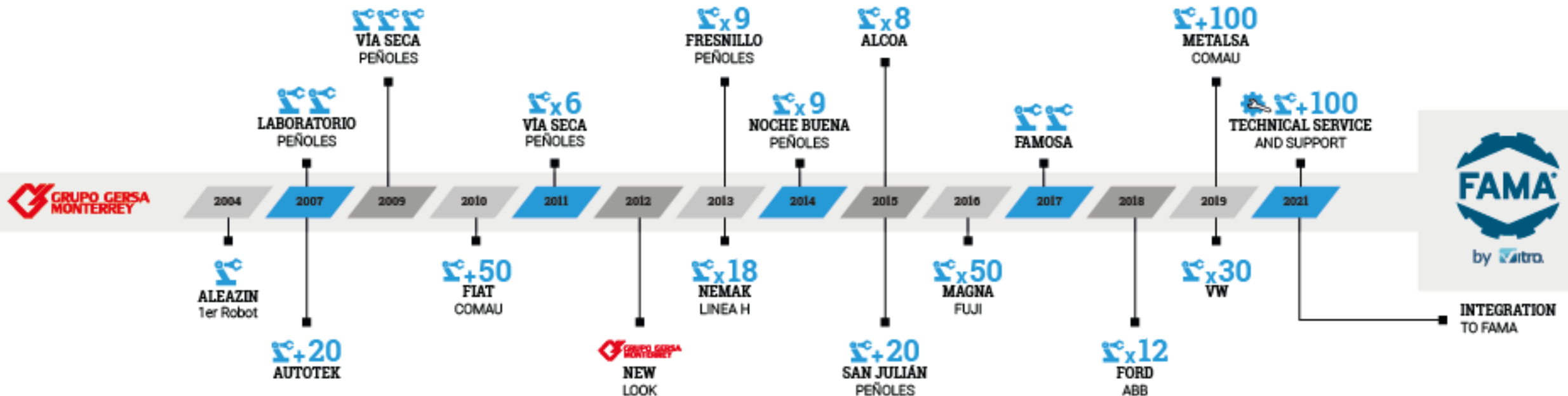




# FAMA expands its automation capabilities

Looking to the future, FAMA acquires Grupo Gersa Monterrey, a company with 18 years of experience and more than 450 projects focused on automation solutions. A consolidated company with a strong customer portfolio that supports its professional management, thanks to people with high skills, tools, and technology.

With the acquisition of Grupo Gersa Monterrey, FAMA seeks to consolidate itself in the market as a strategic partner in Industry 4.0 by becoming a larger company with the full support of Vitro.



# Our Capabilities

From our plant located in Monterrey, Mexico, we provide essential tools for various industries.

- Total assembly area: **10,000 m<sup>2</sup>**
- Large parts handle up to **50 tons.**
- Total size for machining centers: **15,000 m<sup>2</sup>**
- We count with **24** CNC machines and **25** conventional machines
- Thermal treatment equipment
- Metalling area for the PTA process
- Skilled experts in mechanical, hydraulic, pneumatic and electronic projects
- Capacity to integrate manufacturing cells for an automation process



# Management systems & certifications



# Main suppliers and integrated brands



## Robotics

**ABB**

**FANUC**  
Robotics

**OMRON**

**YASKAWA**

**KUKA**

## Automation

**AB** *Allen-Bradley*

**COGNEX**

**RA** *Rockwell Automation*

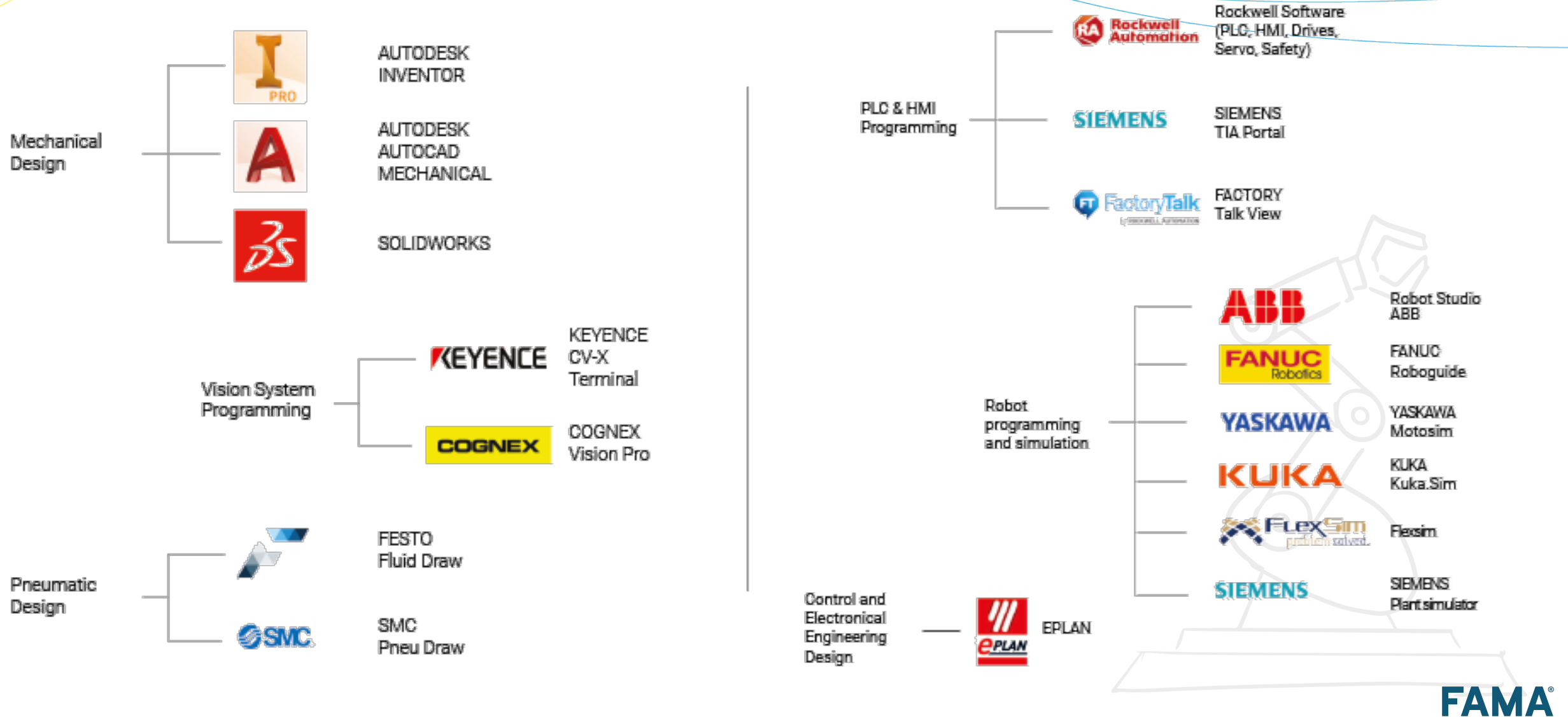
**KEYENCE**

**SIEMENS**

**FESTO**

**FAMA**

# Software



# Integrated Solutions

Specialized automation solutions

## Engineering

- System Layout
- Process List
- List of operations
- Equipment List
- Simulations
- Mechanical Design
- Controls design

## Construction

- Welding
- Machining
- Assembly
- Interconnection of systems

## Integration

- Validation at our facilities
- FAT acceptance tests

## Site services

- Installation
- Revalidation
- SAT Acceptance Testing
- PPAP support
- Acceleration ramp support
- Production support

## Spare parts & Maintenance

- Documentation
- Remote support
- Spare parts
- Support and maintenance policies
- Small projects & improvements

# Capabilities

## Material management

- Loading / unloading racks
- Conveyors
- Transfers
- Storage
- Identification and traceability
- Packaging
- Palletizing / depalletizing
- Intralogistics

## Machine service

- Feeding
- Download
- Dosing
- Inspection

## Metal mechanical processes

- Welding
- Material removal
- Foundry

## Component assembly processes

- Assembly lines and cells
- Individual component assembly stations
- Adhesive application
- Testing and inspection
- Traceability
- Andon

## Special processes integration

- Dedicated power supply systems
- Washers
- Process equipment
- Heat or cooling tunnels
- Presses
- Screwdrivers



# Services

**01**  
Training

**02**  
WeCare

**03**  
Retrofit

**04**  
Spare Parts

**05**  
Installations &  
Commissioning

**06**  
Maintenance  
services



# Our strategic partners

Automation solutions in diverse industries.

## Subsidiaries

- VAU
- VAQ
- ENV
- DIV



## Mobility industry

- OEM
- T1



## Original Equipment Manufacturer

- Machinery
- Global integrators
- Digital Solutions



## Consumer goods

- Food
- Electronics
- Household equipment & appliances



## Mining and Metallurgy

- Precious metals



# Intralogistic

## Autonomous material transportation

Our Cell Alignment Positioning System (CAPS) uses markers to more effectively align robots at goals for better drop-offs and pick-ups.

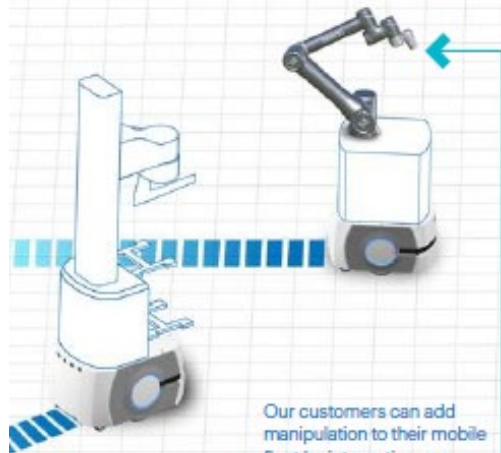
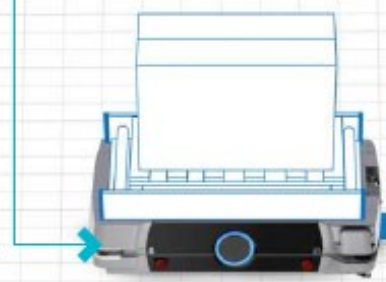
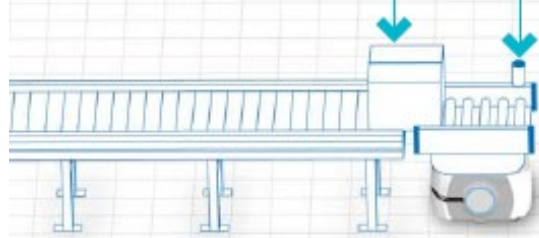
Our patented Acuity Drive generates navigation markers from ceiling lights and objects to help identify positions of the robots, no matter how frequently the environment on the floor changes.

OMRON Fleet Analytics Engine stores fleet data and allows you to replay fleet activities.

OMRON Fleet Manager coordinates mobile robots and provides traceability, job allocation, and traffic control across the entire fleet. A second Fleet Manager can also provide backup functionality.

With a payload of 1500 kg, the HD-1500 is designed to transport heavy duty payloads.

OMRON Fleet Simulator easily simulates fleets of robots so you can fine-tune your fleet before deployment.



With payloads of 60, 90, and 250 kg, the LD is the industry standard for Autonomous Mobile Robots (AMRs).

Our customers can add manipulation to their mobile fleet by integrating our LDs with our OMRON™ Collaborative Robots.

Our PC- and tablet-based software interface helps you manage your fleet.

Enhanced security allows safe and easy integration into IT systems, including MES and WRP systems.





# Machine service

- Feeding
- Download
- Dosing
- Inspection



# Component assembly processes

- Assembly lines and cells
- Individual component assembly stations
- Adhesive application
- Testing and inspection
- Traceability
- Andon

# Industry 4.0 development



# Customer service



## 01 Remote Support

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- Operation monitoring
- Fault diagnosis
- Programming changes
- Software updates
- Trends and statistical analysis
- Security monitoring (users)
- Event log notifications



## 02 Maintenance Policy

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- Predictive maintenance
- Preventive maintenance
- Spare parts



## 03 Technical Support Services

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- Programming
- Electronic diagnosis & control equipment
- Mechanical equipment diagnosis
- Attention to emergencies
- Robot development, programming, configuration, and installation
- On-site support
- Personnel training

# R&D / New Product Development

We develop projects and products that fulfill all FAMA's needs for the different business units.

## Automation

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- Specialized automation consulting
- New technologies and product development
- Customized solutions evaluated and formulated
- Productivity problem-solving proposals
- Competitive advantage development



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# **Our Experience**



# Product Packaging Systems

- Mobile option
- Pallet or unit delivery
- Manual and automatic unloading
- Distributor/product selector
- Packaging handling of different types of packaging pre-formed:
  - Cardboard box
  - Thermoformed plastics
  - Divided tray
- Packaging capacity up to 500 pcs x min.



# Palletizing Systems

- Mobile option
- Pallet or unit delivery
- Manual and automatic unloading
- Distributor/product sorter
- Handling of different types of pre-formed packaging:
  - Cardboard box
  - Thermoformed plastics
  - Divided tray
- Packing capacity up to 500 pcs x min.

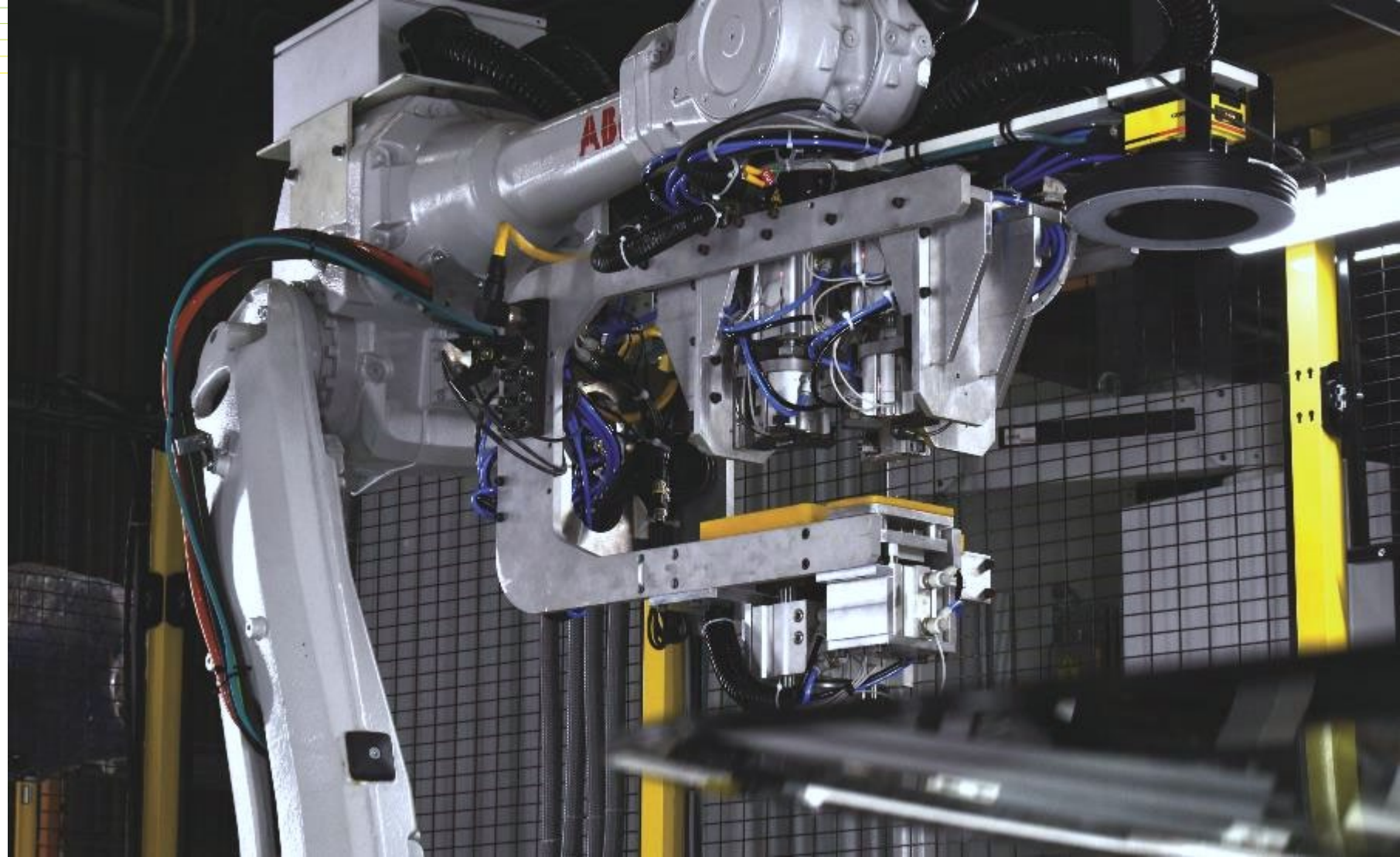




- Handling of jumbo windshield glass
- Rack feeding up to 7 ton
- Simultaneous in-line loading and cutting
- Product output to conveyor or rack
- Compact and adaptable design

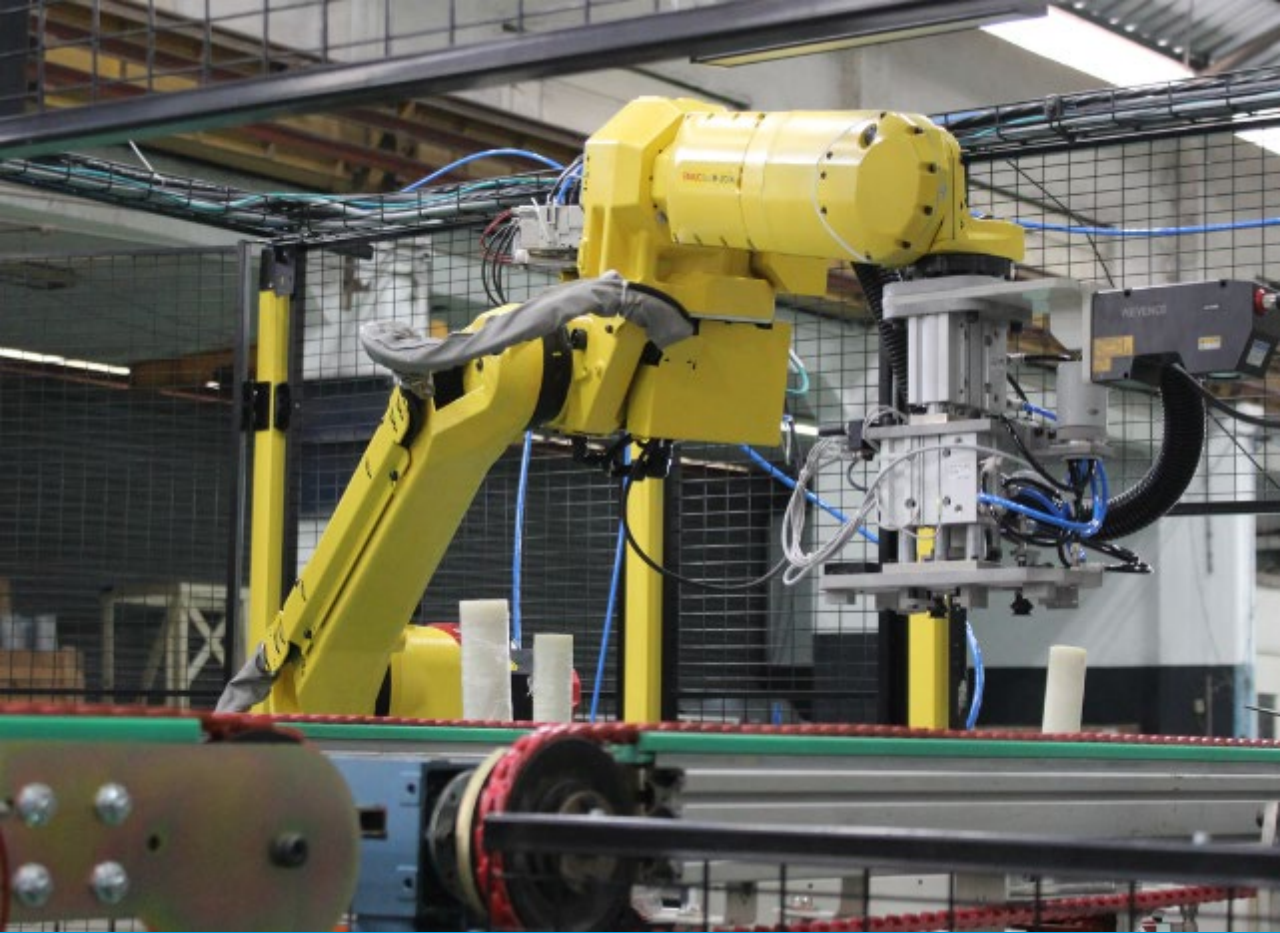
# Glass Cutting Cell

- Product cutting
- Seal and glue applications
- Product-adaptive tooling technology
- Quality testing



# Special Process Cells

# Bonding Component Cell



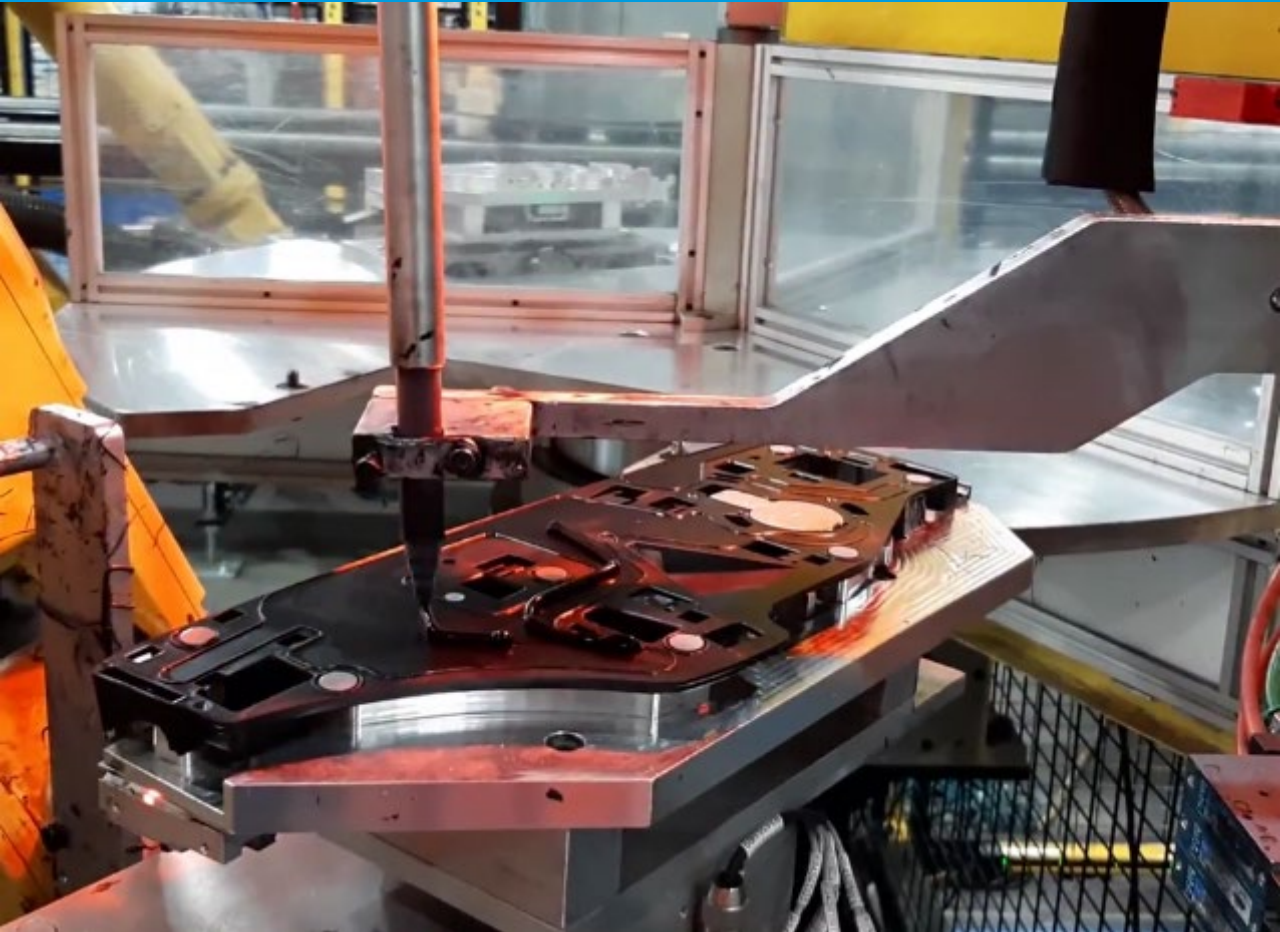
- Feed buffer handling
- Application of component with controlled force
- Handling of solid and liquid glue at different temperatures
- Controlled glue application
- Glue application inspection system
- A 3-dimensional position inspection system
- Gluing accuracy down to 0.2 mm
- Compact and adaptable design
- Mobile option

# Assembly Lines

- Bracket
  - Pin
  - Foam & lace
  - Primer application
  - Holder application
  - Inspection stations
  - Electrical
  - Dimensional
  - Screen printing, primer, and glue
  - QR code reading and legal seal
  - Thermal
  - Rejection system
  - Integration to MES systems



# Seal and Glue Applications



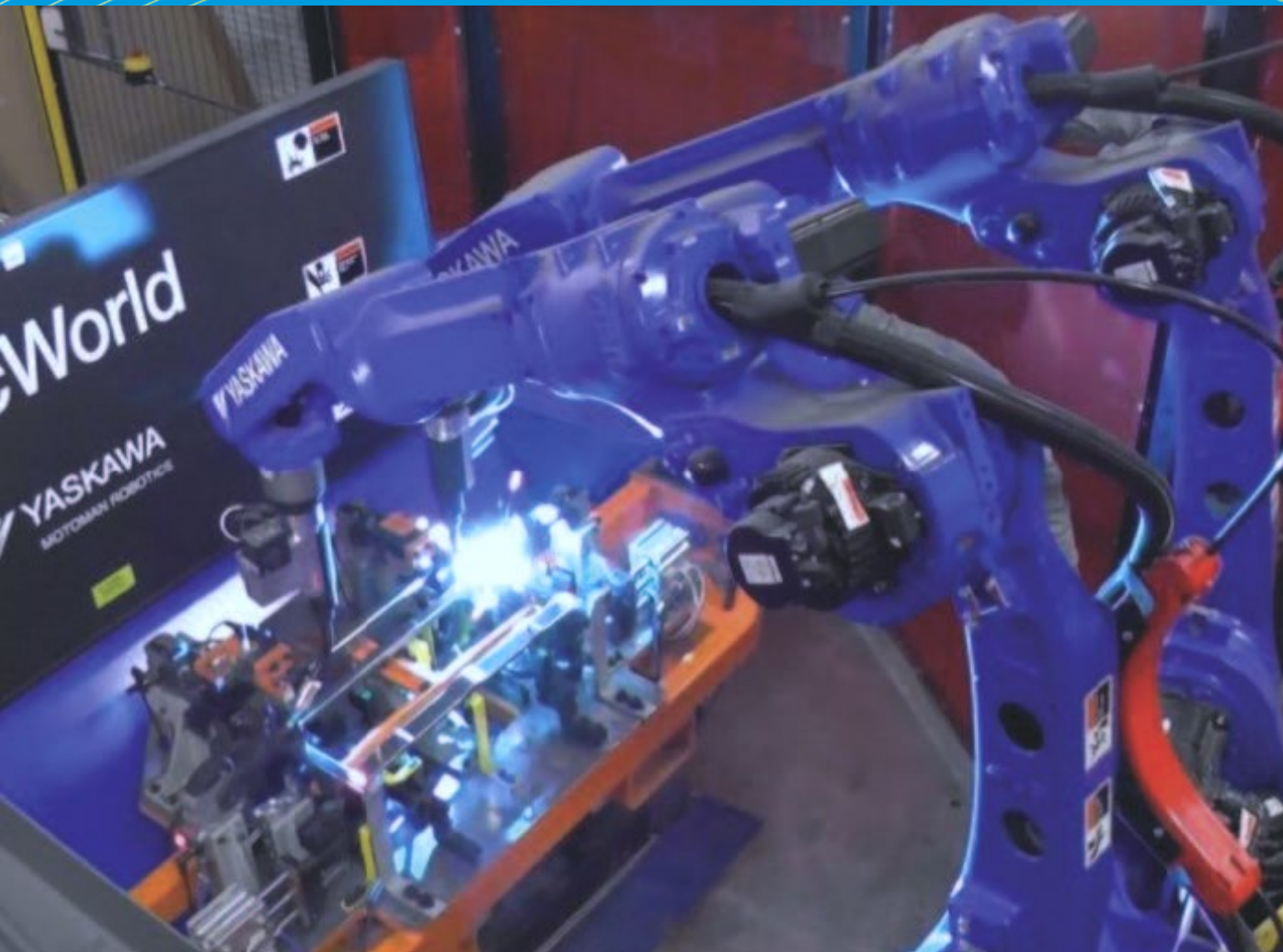
- Fixed or mobile applicator system
- High application speeds
- High application accuracy
- Dispenser with volume control and storage reservoir
- Static vision inspection of routes and beads
- Dynamic laser inspection of routing and bead dimensions
- Manual or automatic feeding of components

# Automatic Primer Applicator

- The versatility of clear & black primer application
- Inspection and correction of application
- Defined and characterized patterns
- High speed, excellent performance
- Automatic applicator changeover







# Welding Cells

- Robotic welding cells for:
  - MIG
  - SPOT

# Material handling



# Automated mining laboratories

- Sampling, crushing and pulverizing cell mines



# Ingot palletizing



# Assembly line



## ▪ Prolec Transformers

### ▪ The challenge

Improve takt time in electric transformers assembly line  
Real time OEE measurement and online reporting to management  
Delivery date related to a scheduled plant breakdown.

### ▪ The team

Automation departments: commercial, project management, engineering, manufacturing, assembly/installation, and administration.

### ▪ The value

Assembly process was changed from isolated stations to continuous assembly line, takt time objective was achieved  
Planned installation date was met OEE measurement and reports are still useful to improve takt time.

# Assembly Station

- **Magna Mirror Gen 7**

- **The challenge**

Delivery on time and quality requirements through a 3rd party supplier turnkey scope as a new strategy of FAMA Automation

- **The team**

Automation departments: commercial, project management.

- **The value**

Reduce execution risks and keep customer trust and satisfaction in FAMA. (On going project)





by  Vitro.

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[Quality Policy](#)

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