Contents

I. Machinery and Equipment 06
   Processes 07
   Mechanical design 07
   Reverse engineering 07
   Machinery 07
   Specialized machinery 07

II. Engineering Services 08
   Melting furnaces 09
   Process engineering 10
   Float bath (Tin bath) 11
   Annealing furnaces 11
   Control and automation systems for batch houses, melters, tin baths and lehrs 11
   Systems design and equipment installation on cutting lines and cullet handling 12
   Systems design and equipment machinery installation 12
   Process auditing 13
   Technical assistance 14
   EPCM and PCM 15
   Project management 15

III. Automation 16
Architectural and Automotive Glass

We at FAMA® bring together best-in-class technology and a highly committed workforce that allows us to form strategic partnerships to transform our customers’ productivity into utmost levels.

We generate process and furnace solutions that improve the flat glass production and handling by developing: specialized engineering, equipment manufacturing, turnkey projects, and technical services.

Products and services
01. Machinery and Equipment
02. Engineering Services
03. Automation
Equipment:

- 30-Ton bridge crane
- Forklift
- Press
- Micro-wire welding machines
- Electrode welding machines
- Cutting equipment
- Plasma cutting equipment

Resources:

- Welding: micro-wire, oxyacetylene, argon, coated electrode, etc.
- Applications in stainless steel, cast iron, carbon steel, alloys, etc.
- Manpower capacity: 4,416 hours/month
01. Machinery and Equipment

We provide equipment, specialized machinery and the required structures for manipulating, handling and bending flat glass. We also provide engineering, design, fabrication and repair services for flat glass equipment.
Processes

- Cast iron parts foundry
- Models design foundry
- Part machining (CNC)
- 3D part scanner
- Specialized welding processes
- Tightness metal parts testing

Mechanical design

- Structural design
- Tooling design
- Special machinery design
- Tooling design for specialized processes
- Components design

Reverse engineering

- Design starting from a product to determine its components

Machinery

- Sub-assembly machines
- Conveyors
- Tooling
- Stackers
- Packers
- Aligners

Specialized machinery

- Engineering development
- Design and manufacture according to specifications
Engineering Services

Our staff is highly qualified to support glass plant construction projects, plant maintenance and fabrication of flat glass furnaces. In addition, we provide process engineering and auditing, technical assistance, and training services. All of these to help our clients achieve operation optimization goals and improvement of production processes.
Melting furnaces

We offer glass melting furnaces to meet any load requirement, which include the best burner technologies for radiant flame melting. We choose carefully the array of refractory materials to maintain the long durability of the tank.

Side Port

- For high loads of up to 1,000 Ton/day
- Permits an accurate temperature control by incorporating heat energy in a well-distributed way
- Allows longer time melted glass residence for a better melting intensity and glass quality

Oxy Fuel

- Melting through the use of oxygen
- The best alternative regarding air emissions and space restrictions

Turnkey Projects

Glass plants design, engineering and construction.  
Furnace repair

Design and construction for major and minor furnaces repairs.
Process engineering

- Batch house
- Melting furnaces
- Tin bath
- Annealing furnaces
- Automation and control

- Instrumentation
- Cutting lines and cullet handling
- Off line cutting
- Final product

Engineering disciplines

- Refractories
- Civil and construction
- Structural
- Mechanical
- Electrical
- Automation and control
- Utilities (compressed air, water, steam, natural gas, fuel oil, diesel, LP gas, oxygen, etc.)

Engineering services

- Conceptual engineering
- Layouts
- Basic and detail engineering
- Documentation
- Installation and supervision
- Startup and commissioning
- Training
- Technical support
Float bath (Tin bath)

We have vast experience in designing and integrating float bath processes (tin bath) and annealing.

Annealing furnaces

Control and automation systems for batch houses, melters, tin baths and lehrs.

We design and integrate process control systems for furnaces, tin baths, lehrs and raw materials.
Systems design and equipment installation on cutting lines and cullet handling

We develop and design systems to integrate the best equipment and machinery technologies in the market to meet our customers’ needs for cutting lines, cullet handling and off line cutting.

Systems design and equipment machinery installation

Our staff is qualified to design and install systems supporting the balance of glass production.

- Raw materials
- Peripheral equipment installation
- Air systems (high and low pressure), gas and water systems for the plant's processing services
Process auditing

Batch house operation and glass composition
- Raw material handling
- Weighting, mixing and distributing
- Operation parameters
- Process and equipment maintenance
- Working disciplines

Glass thermal conditioning

Endoscopy
Regenerators and melters

Melting furnace operation
- Raw material feed and combustion
- Electric boosting & bubblers
- Operational parameters
- Process and equipment conditions
- Work disciplines

Thermography
Regenerators, melters, tin baths and lehrs
Technical assistance

Glass technology

- Glass composition - raw material mix
- Raw material physical & chemical properties
- Glass physical & chemical properties
- Refining, REDOX, glass color
- Running glass color changes
- Laboratory testing

Melting furnace

- Air–Gas & Oxy Fuel operation
- Combustion
- Raw material feeding
- Electric boosting operation
- Heating-up & Cooling-down

Instrumentation and control of raw materials and furnaces
EPCM and PCM
Engineering, Procurement, Construction Management

- Budget management and control
- Supervision of civil work, mechanical and electrical installations and plant utilities (air, water, gas, etc.)

Project management

- On-site work manager
- Program control
- Budget control
- Order generation
- Purchases and contracts
03.

Automation

We use computer systems to generate automation solutions that can be applied to various industries. We combine software applications and instrumentation to control operations in industrial processes.

Products and Services

01.

Robot cell manufacturing and installation

ROBOT CELL SIMULATION

- Scope analysis
- Maximum load
- Cycle times
- Process sequences
- Robot cells updates

02.

Robot tooling design and manufacturing

ROBOT INTEGRATION INTO PROCESS LINE

- Robot integration into existing processes
- Robot maintenance and update/upgrade
- Toolings design and manufacturing for robots

03.

PLC and HMI programming and updating

CONTROL ENGINEERING

- Sequence control
- Temperature control

04.

Vision systems

Integration of vision systems into robot cells

05.

On-site support

- Trained staff
- Availability to work for projects in Mexico and USA
- Constant training
Software

Mechanical design:
AUTODESK INVENTOR
AUTODESK AUTOCAD MECHANICAL

Pneumatic design:
FLUID DRAW BY FESTO
PNEU DRAW BY SMC

Control and electrical engineering design:
EPLAN RELEASE

Robot programming and simulation:
ROBOT STUDIO

PLC programming:
RSLogix
Studio 5000

HMI programming:
Factory Talk View
As a subsidiary of Vitro®, the leading glass manufacturing Company in North America and one of the top companies in the world, FAMA is backed by more than 100 years of experience in the industry.