



PERFORMANCES DRIVING to the FUTURE

when excellence is needed
for Automotive Glass Makers

Silk screen printing machines and
lines engineered and designed for
Automotive Glass Makers

CUGHER

www.cugher.com
info@cugher.com

WHO
WE ARE

PERFORMANCES
DRIVING to the
FUTURE

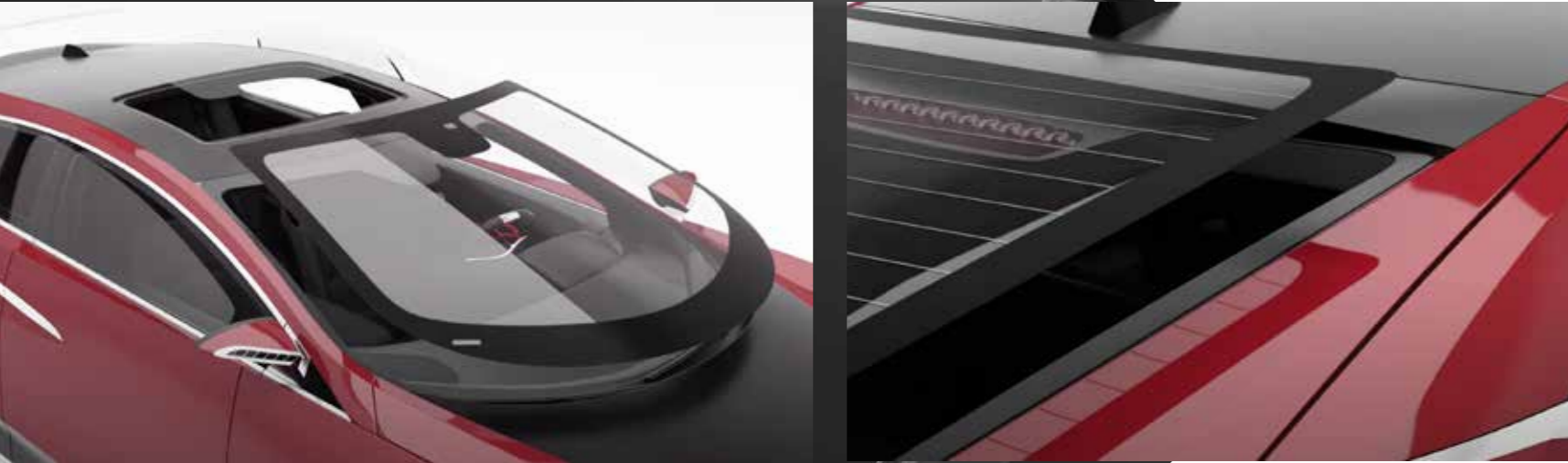
With Cugher
we've been looking to the future since 1967.

Cugher systems were among the first in the world to automate the flat glass screen printing process.

That's why choosing **Cugher machinery or equipment means having foresight**: because the ongoing research driving every project enables the company to develop and implement **cutting-edge solutions designed to endure over time**.

Automotive | Home appliance | Building & Interior Design | Solar





Protagonists of the sector

Since its foundation, Cugher has dedicated resources and energies in studying the flat glass screen printing process, and over the years it has acquired the necessary knowledge to design and produce **complex, fully automatic and synchronized screen-printing lines**, ensuring a fast, precise, and repeatable result.

- These solutions find perfect application in the production of automotive glass: windshields, windows, side windows, and sunroofs; an industry that requires standard characteristics and high volumes. The automotive sector soon becomes the company's core business, and Cugher's engineering leaves its mark in the production facilities of the largest international automotive glass groups, such as AGP, Siseam, Saint Gobain, AGC, and many others.



PERFORMANCES
DRIVING to the
FUTURE

1967 2000 2005 2012 2021



CUGHER
FOUNDATION

**Screen printing
Technology**

FOCUS
ON FLAT GLASS

**New Business
Strategy**

AUTOMOTIVE
CORE BUSINESS

**Industrial automated
plants international
presence**

ALBAMACHINERY
FOUNDATION

**Production
site**

GLOBAL
RECOGNIZED PRESENCE

**Customized solution
R&D and Innovation**

A customized method for complex projects

Cugher knows well that each manufacturer has different needs related to the size and shape of the glass, the available space in the factory, the type of printing, or productivity. For these reasons, Cugher establishes a consultative approach with its clients, working alongside them to identify the best solution.

Each project is unique, highly customized according to individual requirements.

Cugher's relationship with the client begins from the initial stages of the identification of the specification, continues with discussion and elaboration of the final layout, persists during the installation of the line, and extends to support during production start. Cugher's assistance continues over time through dedicated after-sales support and scheduled maintenance, **always ensuring the maximum efficiency of the machinery.**

THE CUGHER METHOD





Experts in automotive glass printing

For every type of automotive glass, tempered or laminated, Cugher has developed **the most reliable and long-lasting screen-printing technology.**

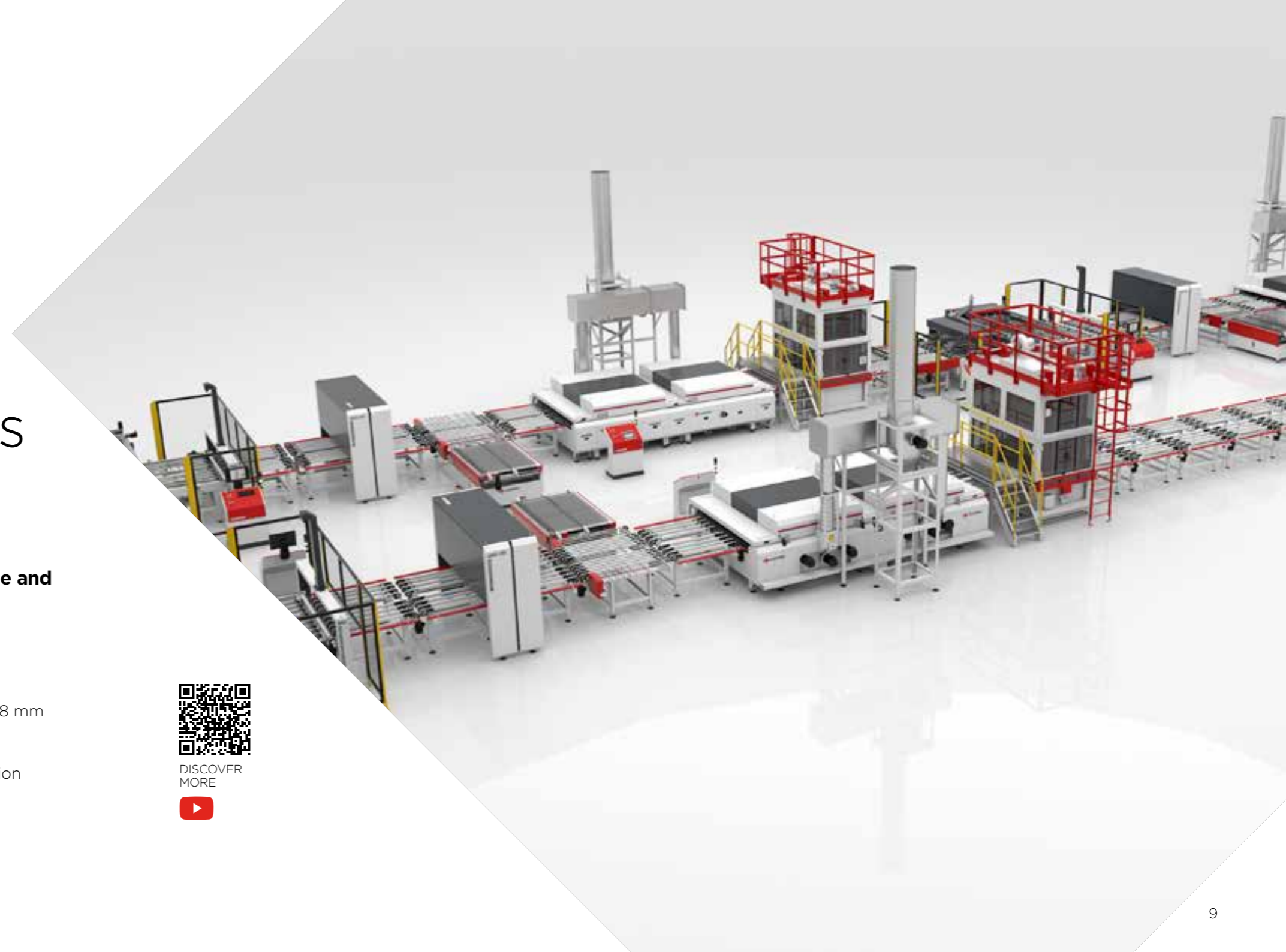
SCREEN-PRINTING LINES
AUTOMOTIVE CUGHER

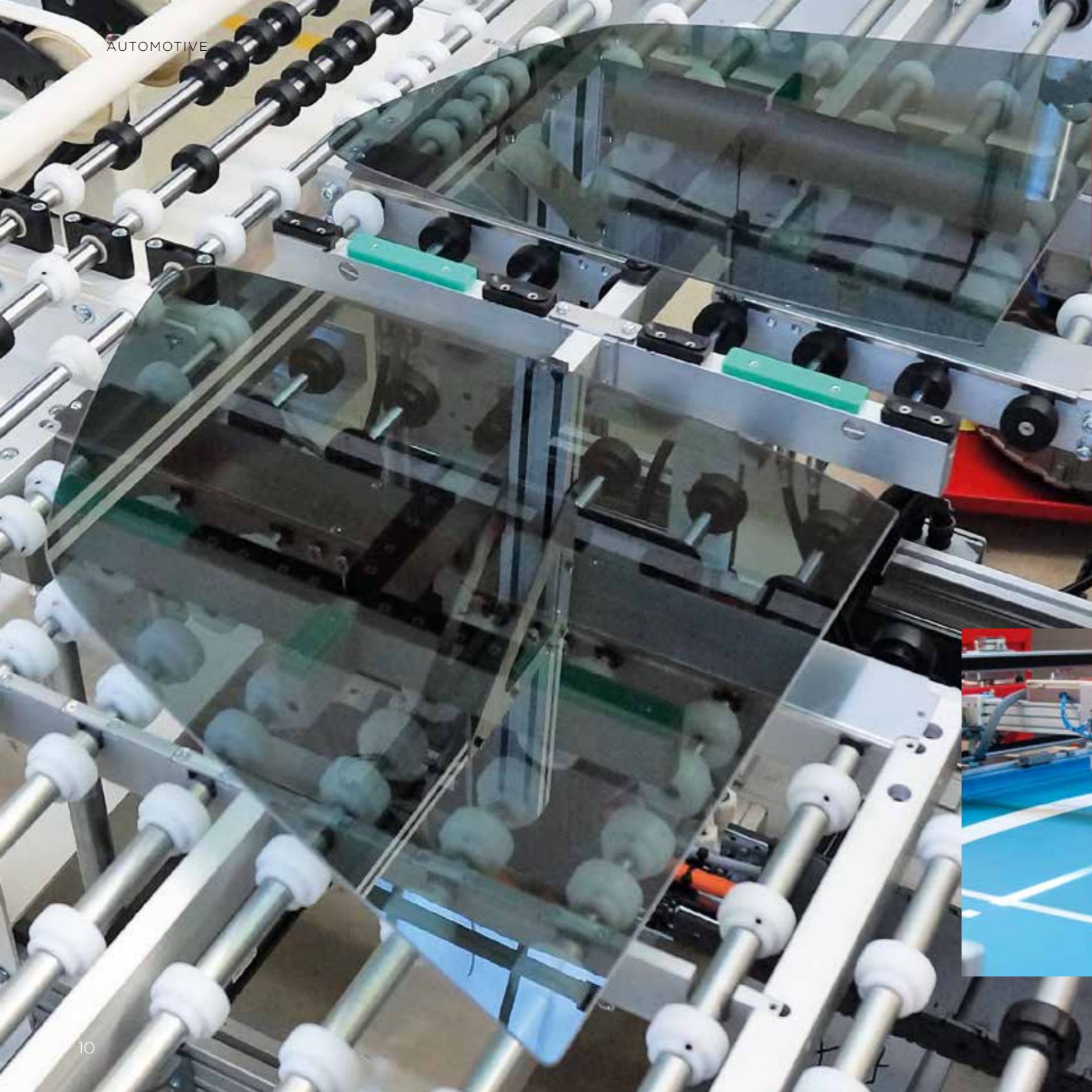


- Perfect image definition
- Print repeatability +/- 0,08 mm
- Ink thickness uniformity
- High productivity
- Line control and automation



DISCOVER
MORE





Cugher Automotive

The special design of each line allows a **quick and controlled process**, by making sure that each piece of machinery is designed to ensure the precise processing and **careful handling of the glass**, to avoid defects and waste.

THE RIGHT EXPERTISE
FOR EVERY NEED



- Centering of highly asymmetric glass
- Quick set-up and format change (<5 min)
- Very fast cycle times (6 to 15 sec)
- Integrated Software
- Easy maintenance and safety
- Print up to the edge
- Automatic control systems
- Industry 4.0



There is no standard solution, the engineering is flexible to adapt each machine to the specific production needs: Customization is in **Cugher's DNA**.

The high potential for customization is applied both in the mechanical and electrical hardware, as well as in the software that coordinates the entire line.

All you need

Screen printing machines are the leading product of Cugher and are accompanied by a wide range of machinery for glass control, drying, and handling, which give the entire line the efficiency of the result.

- Cugher offers **turnkey plants**, perfectly automatic and synchronized with all the surrounding elements thanks to the in-house developed software; Cugher is also able to provide **stand-alone machines** to be integrated into the line or used as a single machine.



PRODUCT RANGE



- Screen printing machines
- IR and UV ovens
- Handling systems
- Vision systems

AUTOMOTIVE
GAMMA CUGHER

Screen-printing machines

J series

The J series is a **fully automatic screen-printing machine capable of processing medium and large-sized glass**, even drilled,

- Up to sizes of 2500x4000 mm

The glass enters the machine from the first conveyor through a motorized belt transport, which lowers directly onto the printing plane to allow for glass centering through adjustable pins. When the printing process is complete, the belts rise again to allow the movement of the glass towards the last conveyor.

G series

The automatic screen-printing machine G series is highly versatile, capable of processing strongly asymmetric glass.

- Single large (rear windows and windshields) or small double (side windows) by ensuring a rapid cycle time

Speed performance is achieved through a linear guide transport (shuttle) equipped with two independent supports (cruises) with cups that engage the glass in the inlet conveyor where it is accurately centered by a multi-axial system, then transporting the glass quickly and precisely into the printing plane.

AUTOMOTIVE
GAMMA CUGHER



Screen-printing machines

Flexy series

As the name suggests, this machine is characterized by high printing flexibility; it allows for the processing of one or more glasses simultaneously, handling small and large batches with very different characteristics. It is designed to be stand-alone, with manual loading and unloading.

- For any type of glass with a maximum size of 1300×2000 mm and a minimum of 200×200 mm

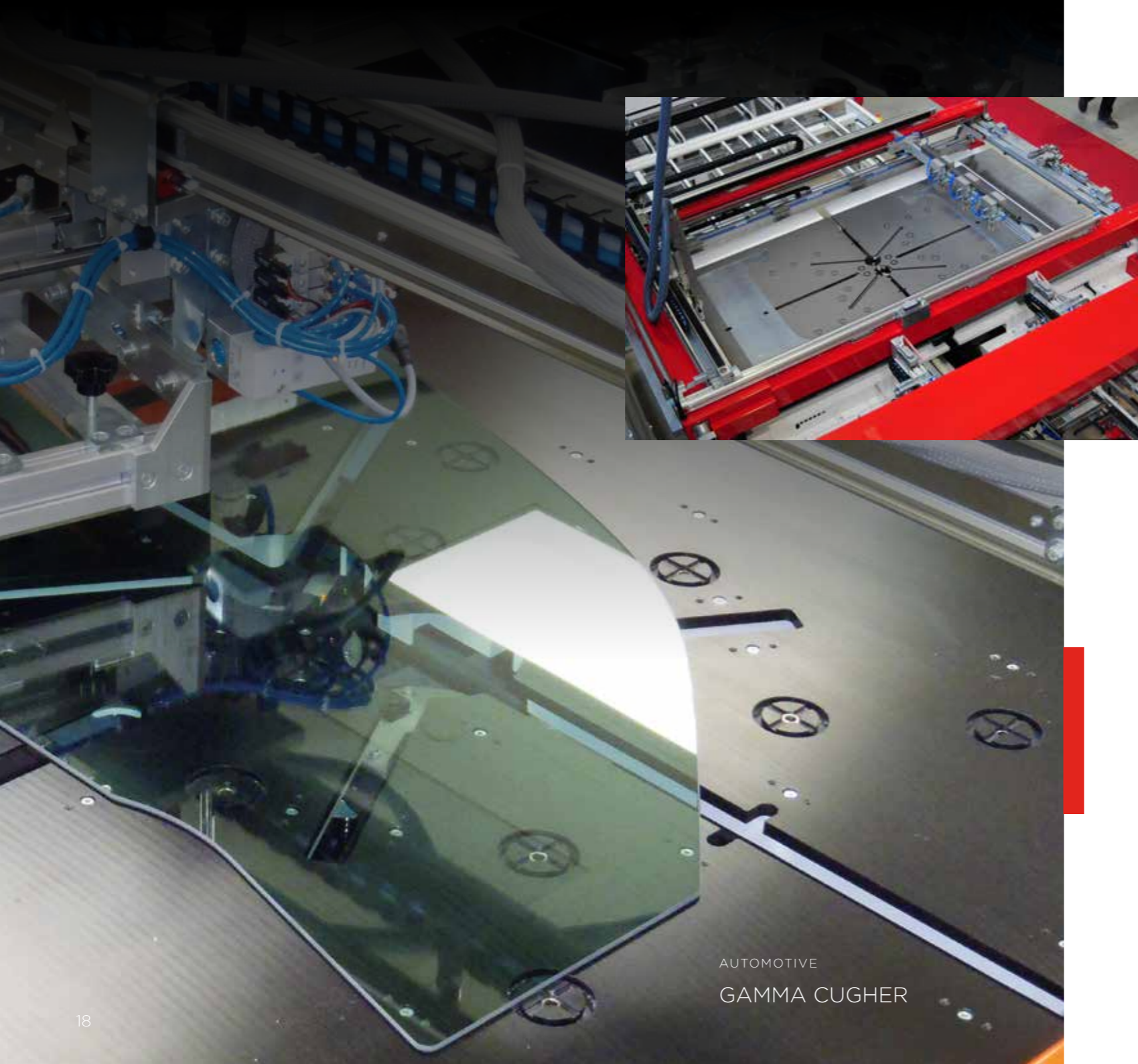
Glass positioning is greatly facilitated by a steel magnetic table equipped with a suction system that floats the sheets before anchoring them to the plane.

The machine can be integrated with an innovative vision system to aid glass-frame alignment.



Logo Print Station

For logo prints, Cugher has designed a system consisting of a conveyor and a printing head that work simultaneously to **center and print the logo on the underlying glass in a single pass**. The system is independent and is equipped with its own PLC to control all parameters.



Cugher screen printing **advantages**

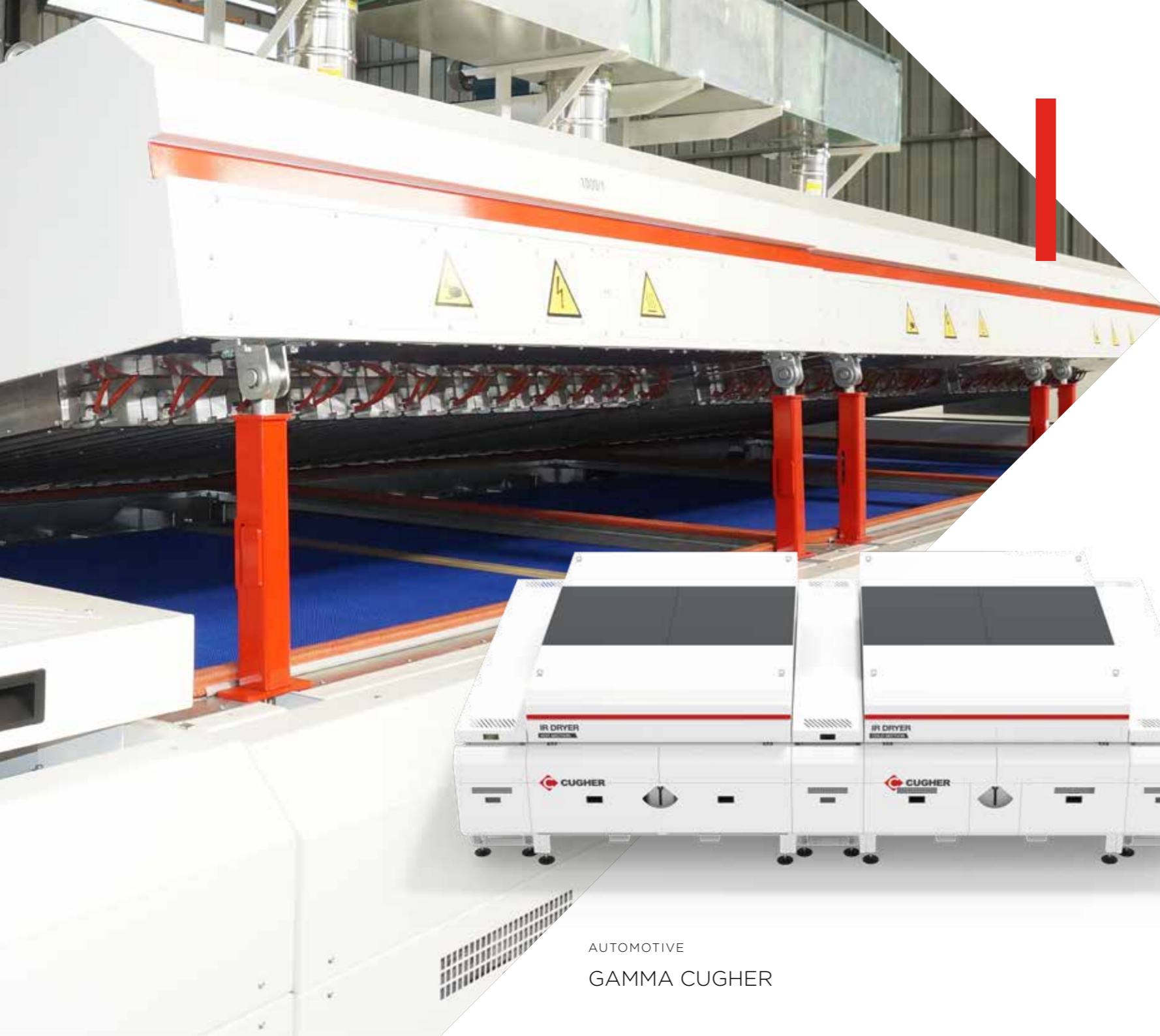


- Rotation of the print carriage for quick change and cleaning of squeegee and scraper
- Pneumatic locking of squeegee scraper
- Pneumatic frame locking with extraction for cleaning without loss of registration
- Motorized automatic peel off
- Digital proportional valves
- Motorized frame movements
- Anti-drip system
- Automatic system for frame registration
- Parameter adjustment from operator panel
- Simple maintenance

ACCESORIES

- **Edge to Edge System:** This technology comes up when printing up to the edge of the glass is required. The structure, which can be a nozzle or a suction blade, moves quickly in sequence with the printing motion, removing excess ink from the frame to prevent unwanted dripping on the glass edge.
- **Logo Printing Head:** Installed directly on the printing machine, precisely above the print carriage, it allows the machinery to be used for logo printing as well.
- **Broken Edge Control Unit:** The conveyor of the printing machine can be equipped with a control system that identifies broken glass to halt the machinery and prevent serious damage to the frame.
- **Automatic Ink distributor:** A special wand is installed on the printing machine to dose and distribute ink automatically on the frame without the need to interrupt the printing process to add it manually.

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Dryers

For screen printing and digital printing

Cugher dryers are designed to achieve the best energy standards and are integrated, in line with printing machines, for ink drying. Dryers allows **identifying the correct configuration of hot and cold modules** for each plant and obtaining different temperatures for each module to ensure higher productivity.

IR

- IR technology combines the action of infrared lamps with air knives to distribute heat and achieve rapid ink drying.
- Air recirculation can be set according to the ink thickness, along with the temperature of each module and the speed of the conveyor belt or rollers.
- Cugher ovens allow drying inks with thicknesses of 20/30 μm , typical of screen printing, but also thicknesses of 60-100 μm , common in digital printing, meeting the production targets of each customer.

UV

UV technology dryers for ink polymerization are equipped with **anti-reflection screens** positioned at the entrance and exit of the dryer to protect operators from UV radiation. The digital control system of the lamps **allows saving energy and increasing machinery productivity.**

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Combined IR and UV Dryer

There are combined IR and UV solutions where each system can be activated separately. These dryers consist of 3 sections: the first IR with hot modules, the second UV, and the third IR with cold modules. When using the UV mode, the first and third sections act as conveyors, while when the IR mode is active, the second section serves as a transporter.



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- Smoke extration
- Option to replace fans during production
- Fan rotation control kit
- Dryer opening on two or four columns

Industrial robots

Specialization in industrial automation has led Cugher to develop turnkey solutions and/or integrate automated robotic solutions, to increase efficiency and reduce process costs of each plant. The company employs anthropomorphic robots with up to 6 axes, allowing great flexibility in operations, by studying and designing the manipulation tool placed at the end of the robotic arm and all surrounding handling based on the operation required by the specifications of the production line.



There are two families of solutions that Cugher implements in its projects:

- **Robotic islands for material handling:** set of machines, organized within an automatic workspace, which include robot manipulators controlled automatically for loading/unloading and palletizing, ensuring the continuity of operations.
- **Coupling the robot system with vision systems:** the robot collaborates with the vision system, which sends real-time information to make different adjustments each time and ensure a constant quality standard.

Cugher
dryer
advantages

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BELT AND ROLLER CONVEYOR



ROTATING TABLE

Handling systems

A wide range of handling systems allows glass transport in all directions and its storage within the facility. .

- The machinery is perfectly synchronized with the line productivity, and the glass movement occurs through a minimal contact surface, while ensuring maximum adhesion. The special design of the machinery guarantees safety and minimal maintenance.



SHARPENING MACHINE



VERTICAL INSPECTION



OPENABLE BRIDGE



WASHER EMPTYING UNIT



LOAD AND UNLOAD CONVEYOR



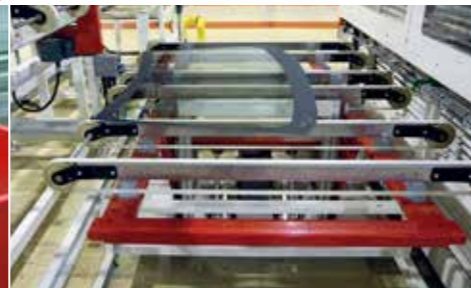
DIVERTER



ACCUMULATOR



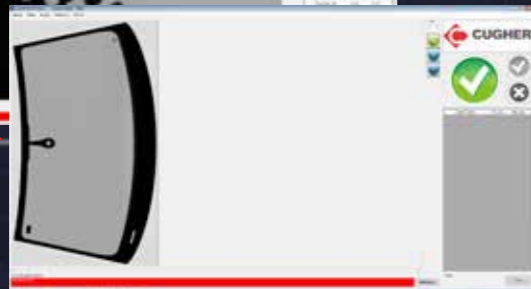
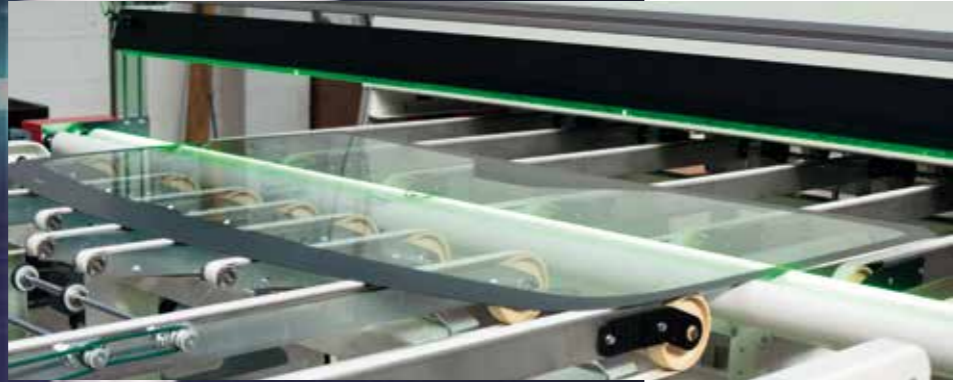
SCRAP BIN



ELEVATOR

ACCESSORIES

- **Cover:** transparent plexiglass covering the machinery to prevent dust or other particles contamination during glass handling
- **Pressurization Kit:** applied on top of the accumulators and equipped with a HEPA filter, it maintains higher pressure compared to the external one, hindering the entry of dust that could contaminate the glass



Vision systems

Glass Quality Control

- Installed after washing, **it checks for any glass defects such as scratches**, breakages, air bubbles, or water drops, following the sensitivity levels required by production, which can be set upstream on different areas of the glass.

Printing Quality Control

- Following printing, the system recognizes any imperfections by referencing predefined parameters and tracking defects directly on the glass's video image. **The system allows for automatic correction of the frame position if errors are derived from it, without interrupting production.**



Automatic Frame Adjustment

- The screen frame is autonomously positioned using cameras and servomotors installed beneath the printing table, **drastically reducing format changeover times** to simply inserting the frame quickly.

Frame Breakage Detection

The system, positioned immediately after printing, **checks for the presence of ink smudges on the underside of the glass** due to frame breakage as it passes over a white roller equipped with cameras.

AUTOMOTIVE
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The software ensures the outcome

Cugher's plant software programming is done in-house to **ensure the correct configuration of the line** according to each specification and to always be competent and available for any future needs.

- The machinery within the line is perfectly synchronized and integrated with any third-party machines, allowing for a **fully automatic and controlled system**.
- Cugher is capable of perfectly responding to the demands of Industry 4.0, for interconnected production and real-time data exchange with other information systems, making the line highly flexible and increasing productivity.

Advantages of the cugher automatic line

- Operator panel for each process phase
- Line supervisor for real-time control of the entire system
- Order Manager: Interface between the customer's management information system and the screen-printing line
- Recipe saving
- Glass tracking along the line
- Hardware for remote connection and control
- Error diagnosis



Always there with **HELP DESK**

Cugher's after-sales support service is designed to ensure continuous presence of experts and **timely specialized interventions** in case of any unforeseen circumstances. Cugher is aware that attending to the customer's needs throughout the machine's durability is the key to a lasting trust relationship.

**Yes,
we help!**



Fast and punctual **support**

- Dedicated team of experts
- Ticketing system to track all requests
- Direct line from Monday to Saturday, 7.00 - 24.00
- On-site assistance if necessary
- Custom service contracts for every need

We'll fix it fast

helpdesk@cugher.com



Request your specialized consultation from Cugher for your **Automotive line!**

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We believe that
**TOGETHER WE CAN MAKE THE
DIFFERENCE FOR THE ENVIRONMENT!**

