# Glass Technologies

Equipment and complete plants for GLASS INDUSTRY

IOCCO®

www.ioccogroup.com

# Experience, tradition and passion: these values guarantee our quality

## a company specialising in the technological processes of glass production

**IOCCO drives state of art technology**

The mission to deliver the best solution to the Customers starts from collecting their needs, then designing machines and successfully performing implementations. The entire IOCCO team is used to accept the most demanding challenges for turning them into the most efficient solutions for both costs and performances.

Thanks to our pluriannual experience in the advanced glass industry and our expert engineers and specialists, the range of solutions offered by IOCCO is very large and covers all Customer's needs, from the simplest machinery to the most complex production lines for Float, Flat and Home appliance glass plants.

IMQ CERTIFIED
QUALITY MANAGEMENT SYSTEM ISO 9001:2015

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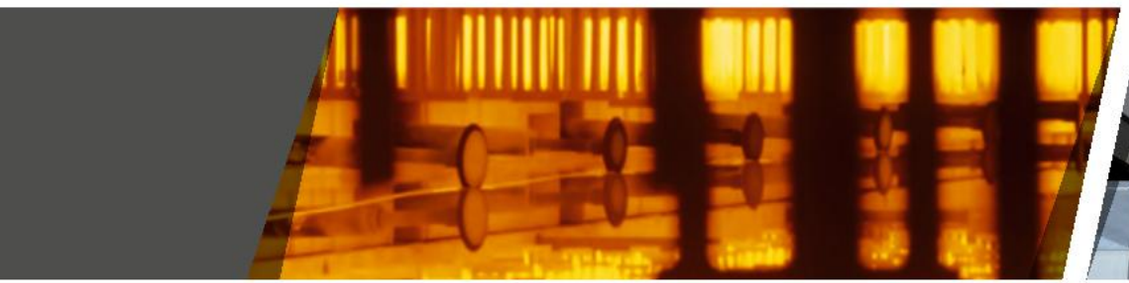
# a Competent Partner in the glass industry

## Equipment and complete plants for GLASS INDUSTRY

### Products and Solutions



Equipment and machines for FLOAT GLASS INDUSTRY


**-Float furnace**

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-Automatic storage system page 6
-End caps packing area page 7

Equipment and complete lines for ARCHITECTURAL and APPLIANCE


**-Architectural and Appliance**

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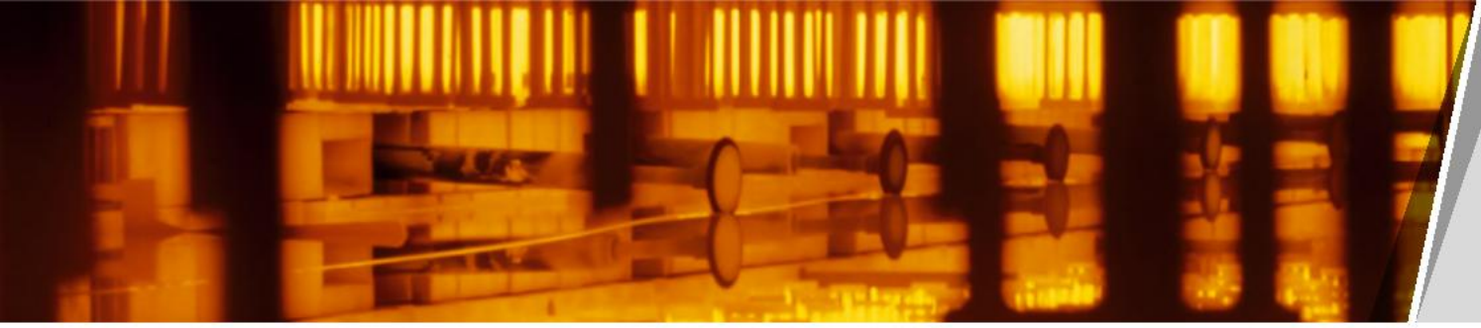


# Float bath furnaces

## where glass originates from

Float process is the consolidated technique to produce glass from the specific combination of raw materials such as soda and ash with recycled glass (cullet), melted into the furnace at approximately 1500°C. The molten glass coming out of the furnace is then delivered smoothly and continuously to the float bath, where tin allows the uniform thickness of the glass ribbon, making it solid. While moving smoothly on rolling conveyors the glass ribbon is further cooled through the annealing lehr, allowing the perfect flatness and solidity.Finally glass is cut into jumbo size sheets, before being stacked for transportation or other production phases.
There are various inspections on glass addressed to ensure the best optical quality in each phase of the process.
Originally the glass produced was 6mm thick, but now it is possible to vary the thickness of glass from 0,4 mm to 25 mm, modulating the speed of glass exiting the bath.

### -Ancillary Equipment in hot zone

Tweel

Carriages for Exit Cooler

Top Rolls

Barrage

Stirrer

Fence and Pusher

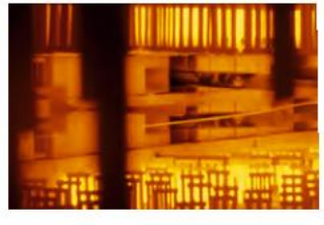
Fixed & mobile Periscopes

Cooler

Side sealing

Waste cooler

Carriages for Head Cooler



Safety barrier, Carbon flag, Tin cooler

# Float cutting line

## machines and equipment for cold repair

-Cold end

Breakout

Powder application

Unloading machines

Package

Conveyors

Insertion of spacers

Crusher & Scraps treatment

Crusher

Cutting-off edge

On-line machine to remove
Top-Tin & Oxide deposits

# Automatic storage system and end caps packing area

The purpose of this system is to manage automatically the naked packs of sheets glass, deposited on stillages, coming from Float cutting line to facilitate the operators making the wooden caps and to deposit the pack into the racks ready for shipping
The system is composed of the following ITEMS:

**Item 1) End Caps assembly machines"tilting tables"**
**Item 2) Storage system**
**Item 3) Loading Crane**

**+100%** **increasing your business**

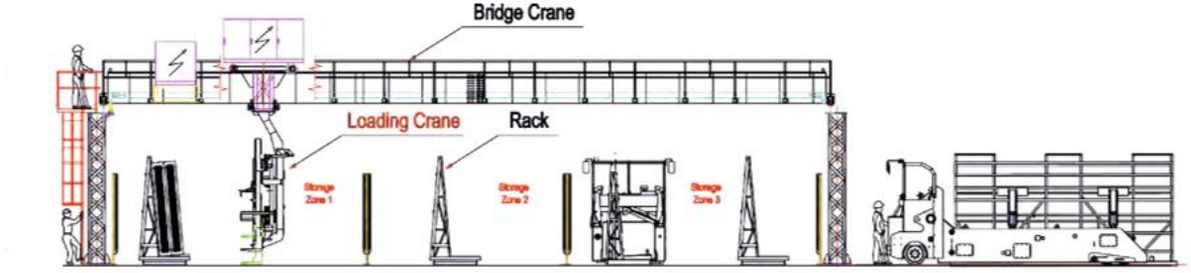
- Standard production detected on plant by our main customers: 300 Tons in 24 hours of production
- Production with storage system solution to manage glass packs: 600 Tons in 24 hours of production

**0%** **accident risks of employees**

- Management and handling in complete safety area thanks to complete absence of worker

**-50%** **decreasing your production costs**

- Production workers storage system solution to manage glass packs: No. 3 production workers to process 200 tons




*storage system*

# End Caps Assembly machines“Tilting table”

The purpose of this item is to get the naked packs of sheets glass in vertical position, to tilt them in horizontal position and to facilitate the operators making the wooden caps pack.

After that glass packing has been done, it’s taken from crane or multidirectional sideloaders vehicle and deposited on the stillages in storage area.

The END CAPS area is composed of tilter unit .

The machines to be supplied shall be designed and manufactured to obtain the semi-automatic tipping of glass packs from sub-vertical to horizontal position.

The structure is composed of electrically welded steel profiles, properly sized to support loads.

Two linear actuators controlled by electric CA motors, allow arm tipping.

Two further linear actuators, controlled by electric CA motors rotate the supporting heels to put them in operational conditions.

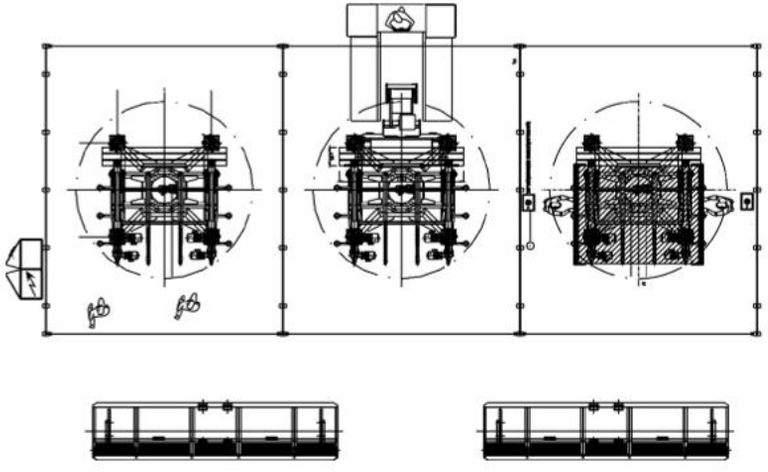
The base planes are all coated with adiprene to allow correct contact with the glass.

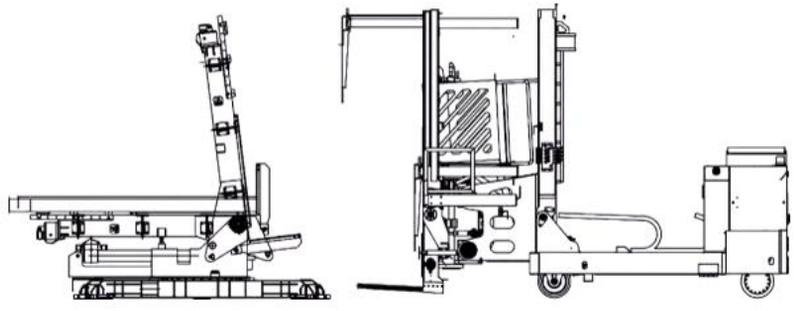
An hydraulic fall arrest system stops the machine in position to carry out its maintenance and prevent possible unespected incidents.

*tilting table*

*end caps*

*wifi touch panel*



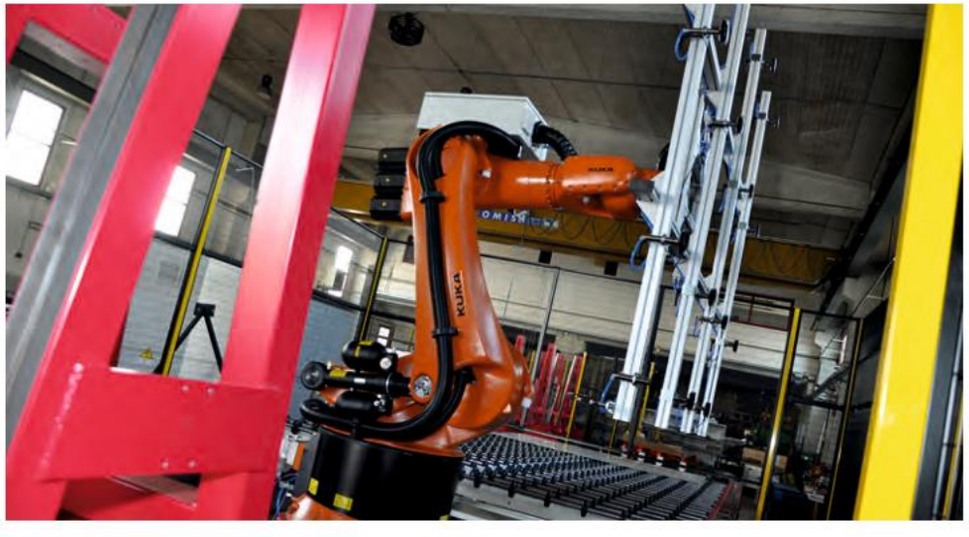


# ARCHITECTURAL and APPLIANCE

## complete lines for flat glas

The use of glass in architecture has broadened over the last years, as well as the requirements in glass processing, quality features and sophistications. We are specialized in processing lines & machines, Architectural & appliance glass.

Our product offer ranges from the single machine up to complete lines in turnkey solution.



Cutting and breaking

Acid etching

Glass tempering

Packaging

Mirror safe

Handling for processing

# stand alone machines

Loading and Unloading

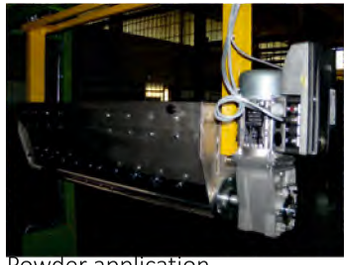
Automatic storing

Packing

Polishing

Loading stands

Sorting


Powder application

Spacers application

Conveyors

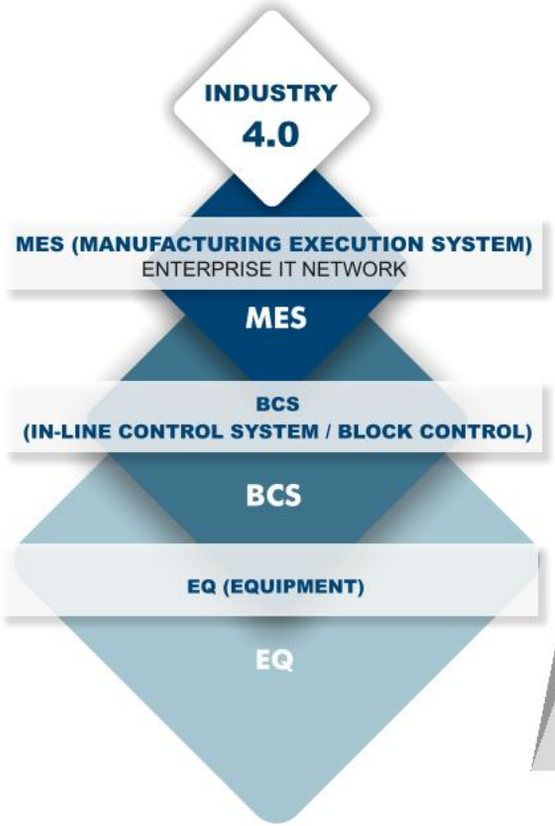
Line stackers

Powder removing

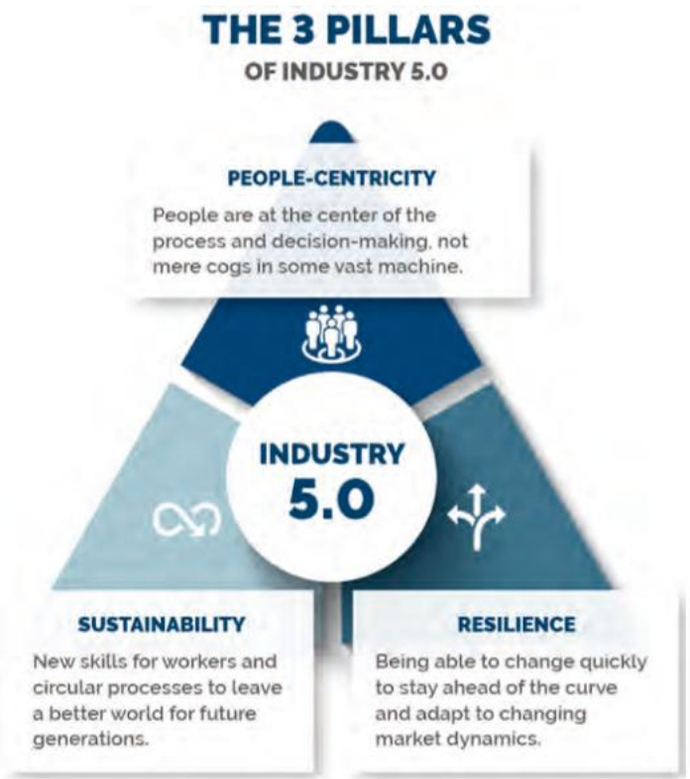
Scraps treatment

# Integration and interaction between systems, the basis for industry 4.0

Good process control is the basis for quality and competitiveness in global markets.Fundamental is the acquisition and correct processing of data at all levels of the company.
IOCCO's TEAM has developed skills and capabilities in the use and application of sensors for the eleboration and extraction of fundamental data in plant management.
The IOCCO management software is developed to a well-established standard that allows only the data necessary for further processing to be transferred to subsequent levels.
On complex plants, (e.g. de-airing) the IOCCO team has developed a digital twin that is continuously running within the supervision systems, which allows, thanks to an artificial intelligence module, to intervene in the presence of any anomalies.
Agreements with major manufacturers of automation systems allow us to be continuously informed and updated on all the latest market innovations in terms of sensors and actuators as well as PLCs, robots, vision, human-machine interfaces (HMIs) and PC-based systems.The good practice of collaboration (open innovation) with research centres and R&D companies is also well established.



# People centricity, sustainability and resilience the pillars of industry 5.0




Skills transfer is the basis for human involvement in defining and understanding technological processes.For this reason, IOCCO has always organised highly professional training courses at the request of customers, tailor-made to the technological and production requirements of the systems purchased.In addition, it develops usable man-machine interfaces at several levels as well as supporting workers in all decision-making phases of setup.Digital twins embedded in artificial intelligence-based software guide operators through the most complex stages of production processes by reacting to any plant anomalies. These software tools, capable of understanding anomalies and able to simulate new production setups, allow plants greater production resilience. IOCCO's engineering development model is based on reducing waste and environmental damage, optimising energy management and increasing the efficiency of production processes.

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# Production continuity, capacity, quality and competitiveness over time are secrets of our customers

AFTER SALES SERVICE

We also follow the customer at the end of the supply by offering qualified after-sales services, indispensable especially in the early stages of using the more complex installations in which operators must master the system.

We can provide constant monitoring and a remote assistance service, with immediate interventions via VPN connection for rapid diagnosis and resolution of any problems.

TRAINING

We provide training to customers' staff in order to complete all phase of testing.
This phase is carried out directly by our specialists and customized with the aim of making customer staff as independent as possible not only in the management of the system but also in the diagnostic capacity and recovery of any anomalies.

After-Sales Service

- Spare parts supply
- Theoretical and practical professional training
- Remote assistance in a customized solution
- Preventive, ordinary and extraordinary maintenance
- System upgrade

**preferential remote connection**

TeamViewer

TeamViewer Assist AR

SIEMENS
SINEMA Remote Connect

# Our contacts

| | | |
|---|---|---|
| Pescara | (PSR) | km 78 - *Miles 39* |
| Roma | (FCO)-(CIA) | km 293 - *Miles 182* |
| Bari | (BRI) | km 242 - *Miles 150* |

IOCCO srl
headquarter
Via Del Progresso,1- 66051 Cupello (Chieti) Italy

Cupello Plant
Via Enrico Mattei, 32 - 66051 Cupello (Chieti) Italy

Vasto Plant
Viale Unione Europea, 36 - 66054 Vasto (Chieti) Italy

Tel.+39.0873318330 +39.0873318331

**Product information**: sales@ioccogroup.com

**Customer care**: service@ioccogroup.com

**Administration**: finance@ioccogroup.com

**H&R**: job@ioccogroup.com

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