



**falornitech**  
glass industries experience

**COMPANY OVERVIEW**

# COMPANY OVERVIEW



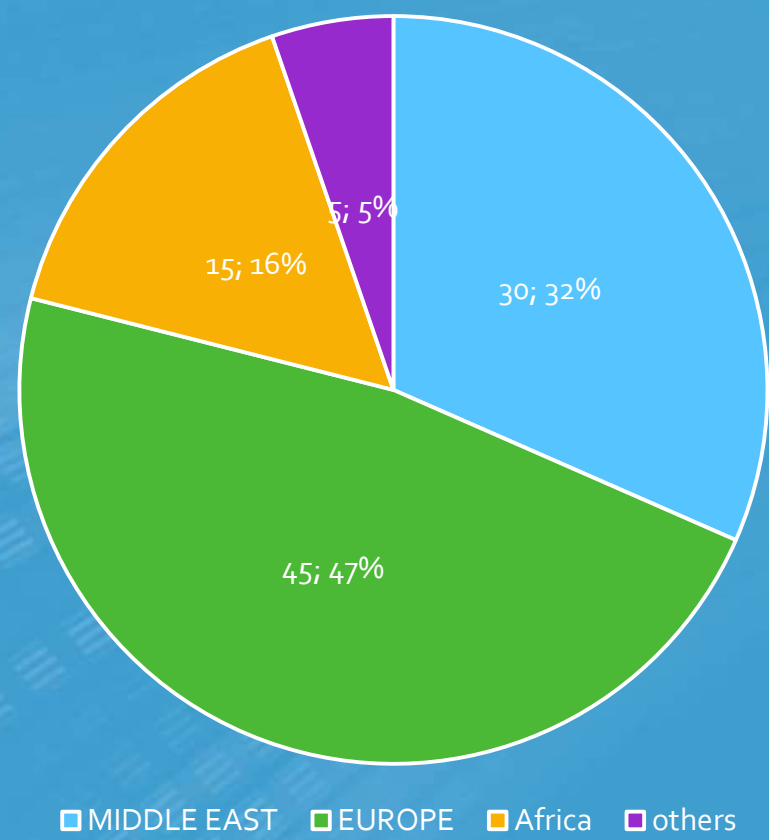
**BUILDING YOUR FUTURE  
IS OUR FUTURE**

**FALORNI TECH IS  
THE RIGHT CHOICE  
IN THE GLASS INDUSTRY**

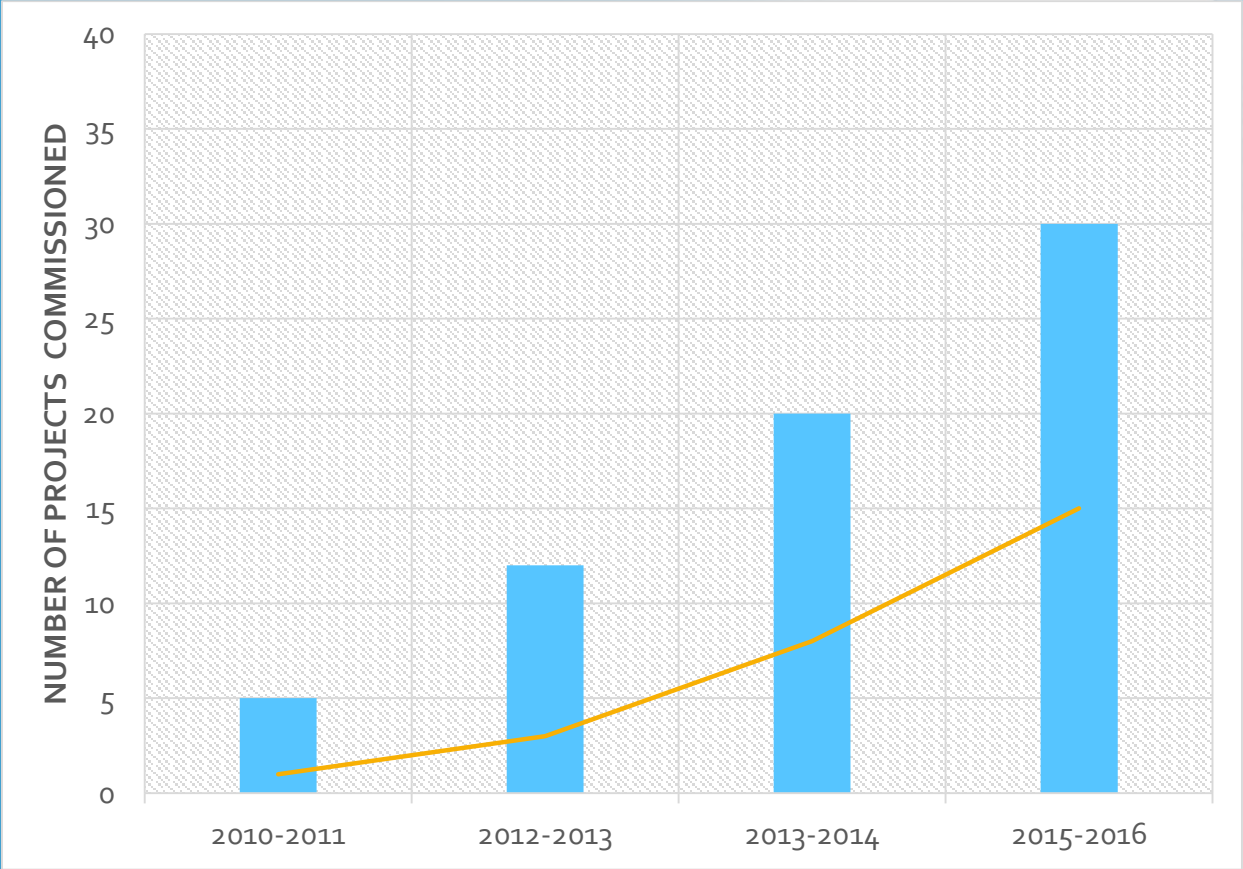
Falorni Gianfranco Srl company was established in 1958 by Gianfranco Falorni, who began his business as a representative of refractory materials for the glass industry. The first division was *Falorni Glass Furnaces* specialized in the manufacturing of continuous and discontinuous furnaces with pre-heated air/natural gas and with oxygen/natural gas, for the production of soda-lime glass, lead crystal, borosilicate and special glass. Thanks to its deep knowledge and enthusiasm for the glass making, before long Falorni Glass Furnaces became a symbol of reliability, safeness and durability. After building more of 250 furnaces all over the world with a capacity up to 300 tons. In 2015 was officially launched the new division *Falorni TECH* to supply engineering, solutions & turn-key plant to the glass industry.



# FALORNI TECH WORLD PRESENCE



# FALORNI TECH ANNUAL GLASS CONTAINER PROJECTS TABLE





**SERVICES**



## ☐ Glass engineering

Full engineering service to study and to define the solutions corresponding to the specific needs of every single Customer with 2D and 3D layouting.

## ☐ Project management & consultancy

☐ Full service for furnace installation, start up, preheating.

☐ Furnace rebuilding, renovating service, oxy conversion, refurbishment of existing batch plants.

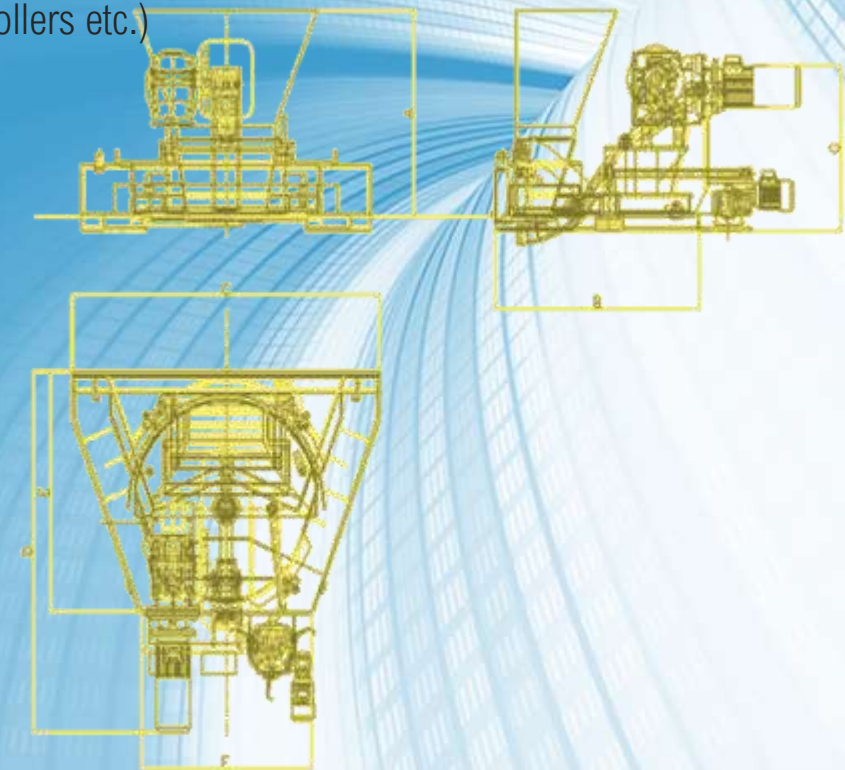
☐ **Workshop** (we produce ourselves equipment as furnaces, heat recuperators, batch charging, furnaces controllers etc.)

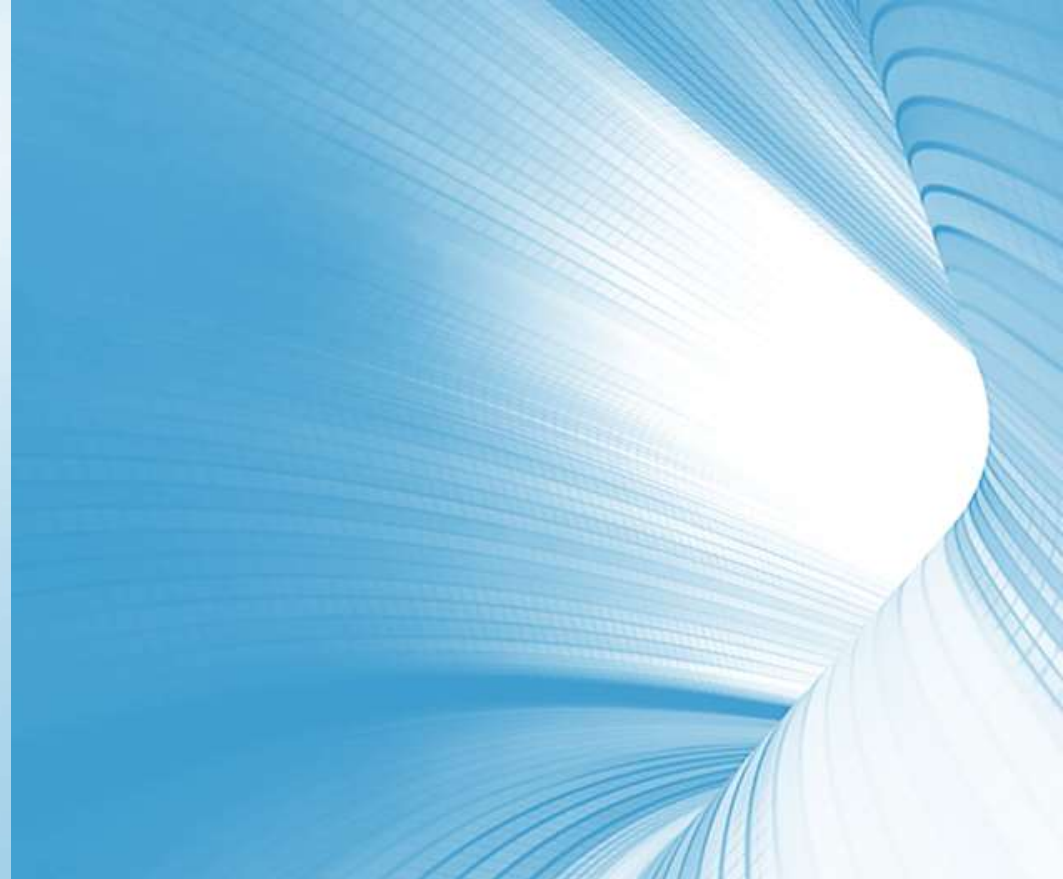
☐ Glass defects analysis, batching analysis, raw materials analysis.

## ☐ Technical assistance

- Assistance to the analysis of the composition
- Assistance to the definition of the recipe
- Supervision of the construction of refractory materials
- Supervision of the mechanical engineering and plant engineering
- Supervision for preheating and at start up
- Training on the field
- Production support

☐ After-sale long term support





**SOLUTIONS**



# TURN-KEY GLASS PLANT PROJECT

We are 100% responsible for the project.

We have all the elements needed to ensure its projects are successful, including an experienced, dedicated team that places the client's interests first.

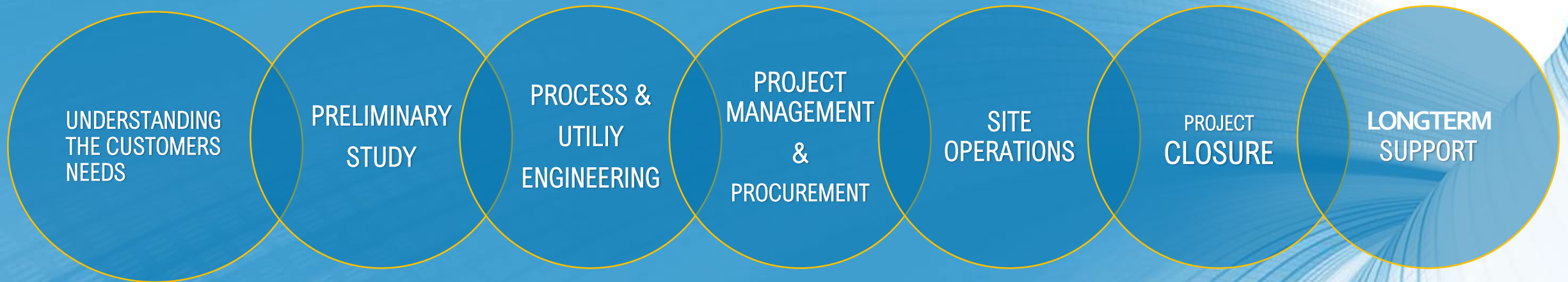
The careful selection and management of technical partners, compliance with the highest quality standards, the experience and the know-how acquired, the careful, constant and flexible project management activities that Falorni Tech gives in every project, to ensure customer various benefits:

- Less risk of delays in the execution of the project
- Lower technical risks in the selection and installation of technologies
- Less waste of time in the management of the different suppliers
- Reduction of internal staff to devote to the project
- Greater guarantee of the overall quality of the project.

## SERVICES SUPPLIED FOR TURN-KEY GLASS PLANT

- Preliminary study
- Preliminary analysis of raw materials and glass compositions
- Batch analysis
- Plant conception
- Batch and furnace design
- Design of the technological process line
- Integration of all auxiliary technologies for the plant operation
- Procurement of material
- Installation
- Start-up and commissioning
- Technical assistance & After sales assistance

# TURN-KEY GLASS PLANT: THE STEPS



All evaluations are carried out utilizing the environmental parameters available from the Customer, gathered from the field and from our historical background.

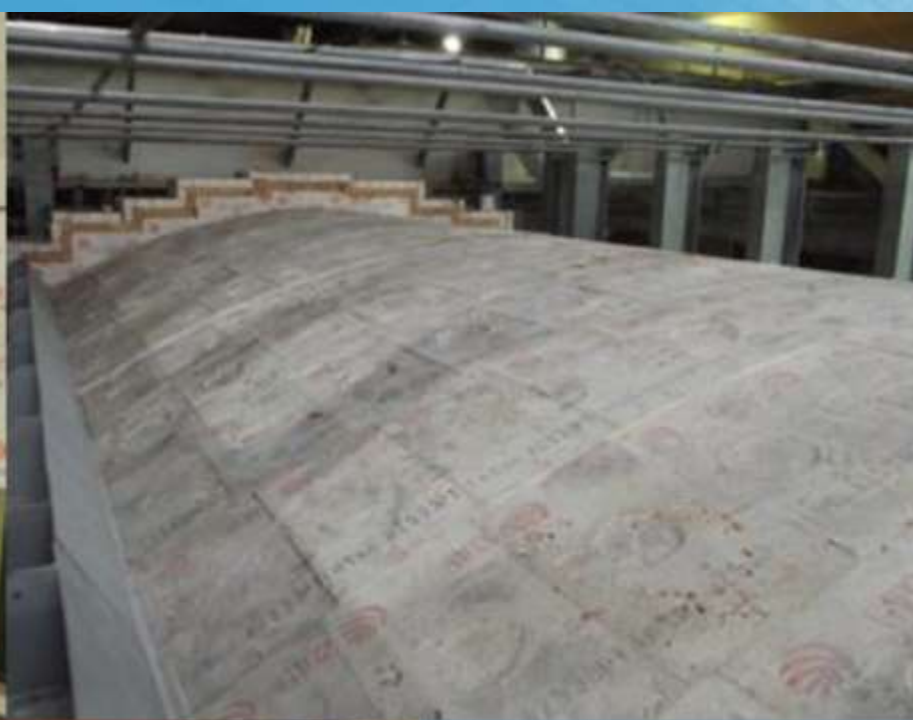
A comparison among alternative technologies is carried out in order to find out the technical solution more suitable to attain the project target both from practical and economic point of view. With the aim to reveal all the positive and negative issues of the investment, no matter it is a green field project, a partial rebuilding or the expansion project of an existing plant.



# GLASS MELTING FURNACES





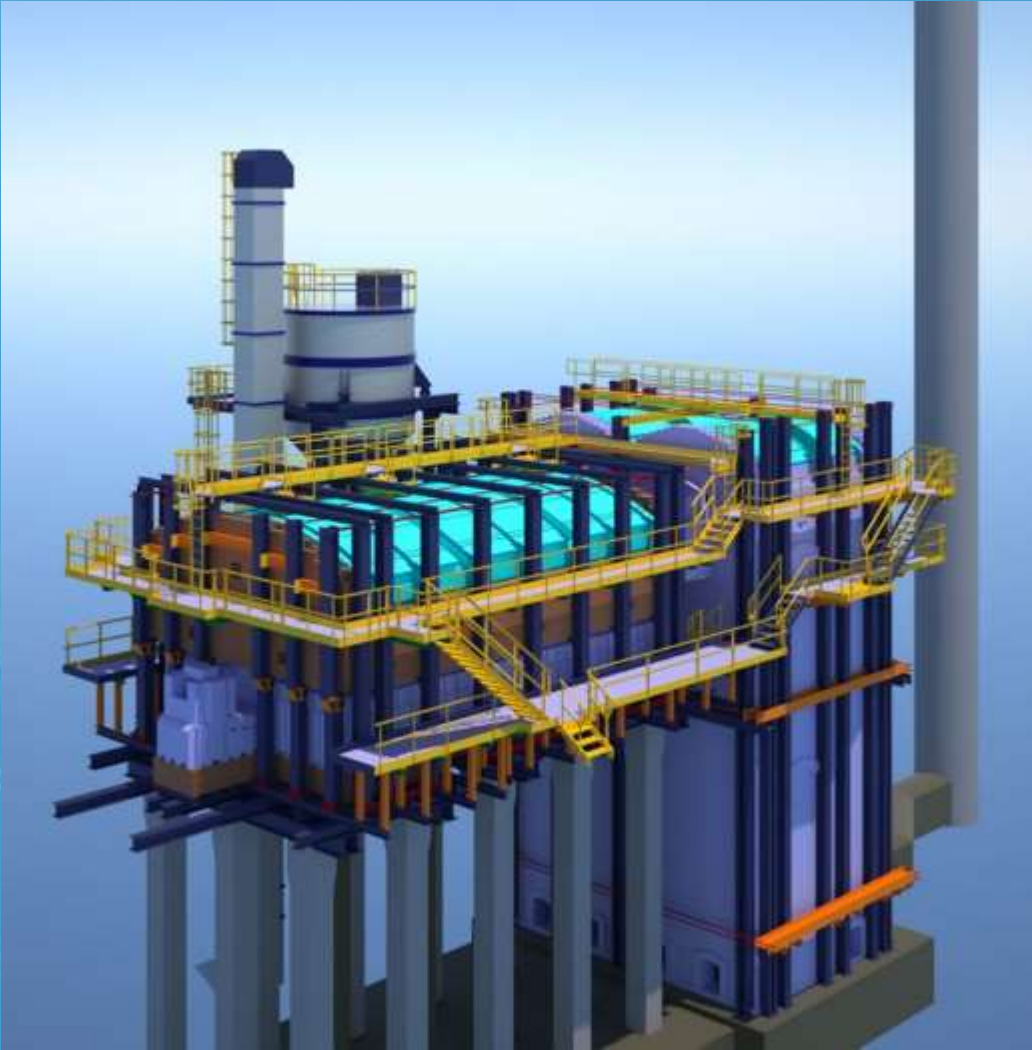


# GLASS MELTING FURNACES





# REGENERATIVE FURNACE



The main features of regenerative furnace are:

- ❑ Low energy consumption
- ❑ Low emissions
- ❑ High specific pull (tpd/m<sup>2</sup>)
- ❑ Reliable technology
- ❑ Good flexibility to pull variation
- ❑ Easy operation
- ❑ Extended lifetime

*Type of glass:*

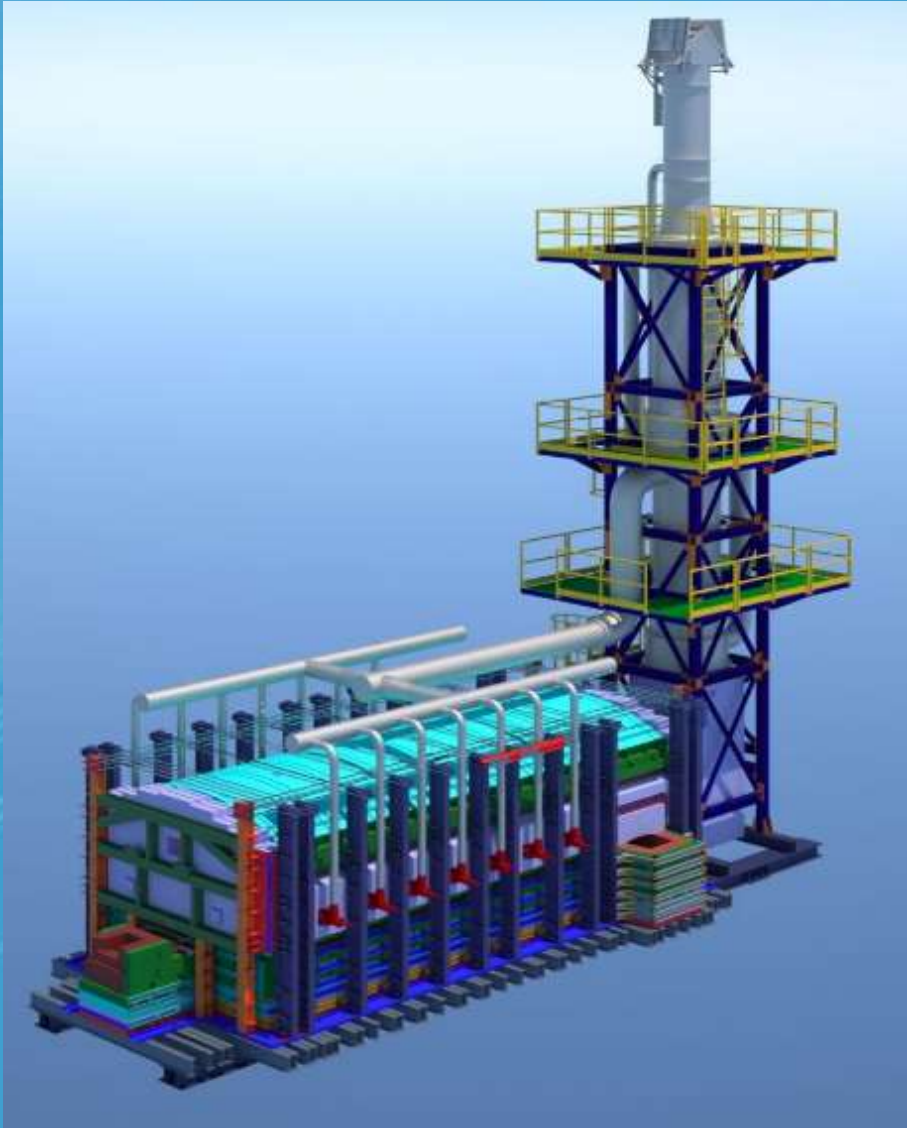
- ❑ Soda-lime
- ❑ Crystalline
- ❑ Light borosilicate

*Fields of application:*

- container glass
- tableware
- Kitchenware
- pharmaceutical

*The end port regenerative furnace is the most popular furnace in production of tableware and container glass.*

# RECUPERATIVE FURNACE



*The recuperative melting furnace is a sophisticated apparatus which requires a relatively low budget compared with a regenerative furnace of same size.*

The main features of a recuperative furnace are:

- Suitable for small medium size production (from 10 up 100 tpd)
- Low investment in infrastructures
- Low emissions
- Reliable technology
- Excellent flexibility to pull variation
- Easy operation
- Extended lifetime

*Type of glass:*

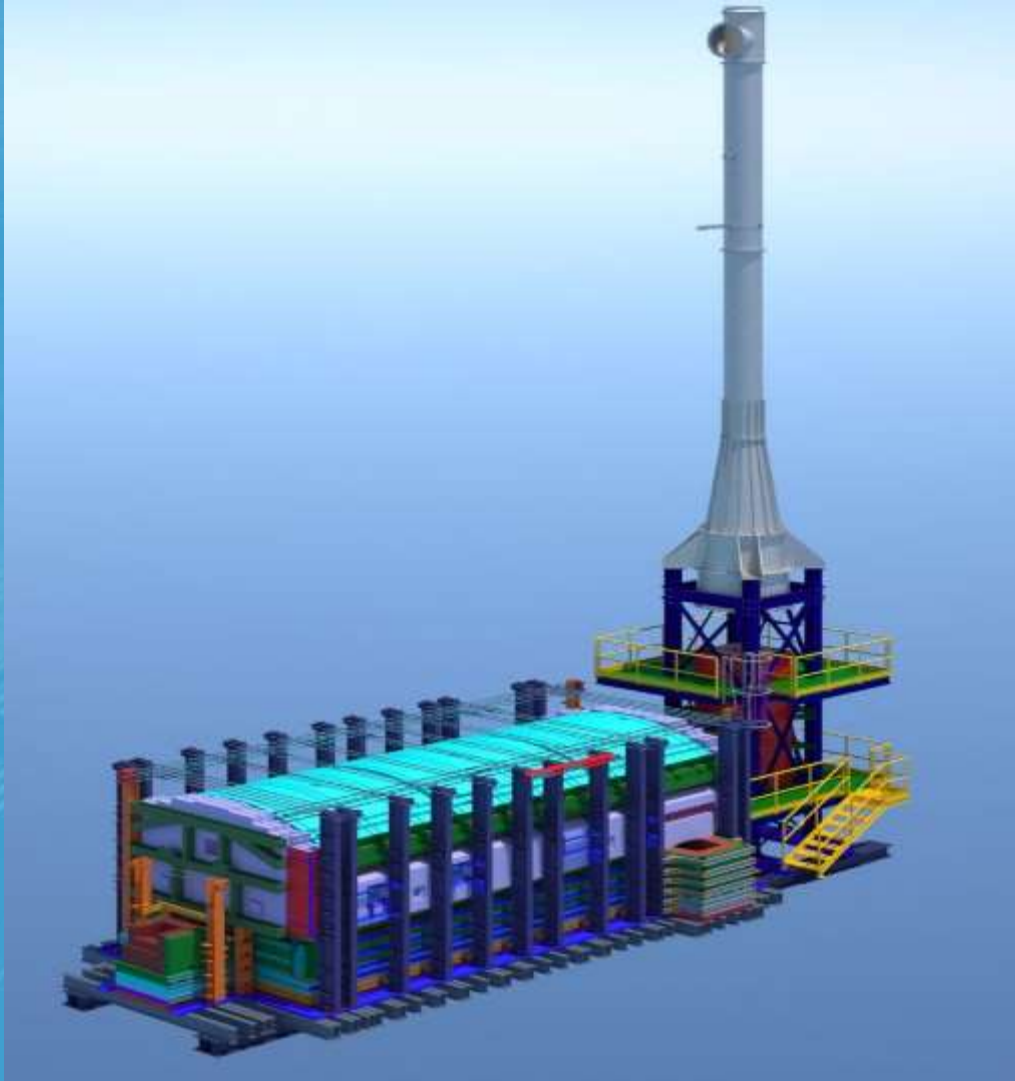
- Soda-lime
- Crystalline
- Light borosilicate
- Sodium silicate

*Fields of application:*

- container glass
- tableware
- Kitchenware
- pharmaceutical



# OXY FUEL FURNACE



*The level of consumption of Oxy-Fuel furnace can be up to 25-30% lower than a regenerative furnace and up to 40-50% than a recuperative furnace (depending on size, cullet content, kind of glass, etc.).*

The main features of an Oxy Fuel furnace are:

- ❑ Suitable for any range of production (from 10 up 200 tpd)
- ❑ Low investment in infrastructures
- ❑ Extremely low emissions
- ❑ Low volume of exhaust gases
- ❑ Reliable technology
- ❑ Excellent flexibility to pull variation
- ❑ Easy operation
- ❑ Extended lifetime

*Type of glass:*

- ❑ Soda-lime
- ❑ Crystalline
- ❑ Light borosilicate
- ❑ Sodium silicate

*Fields of application:*

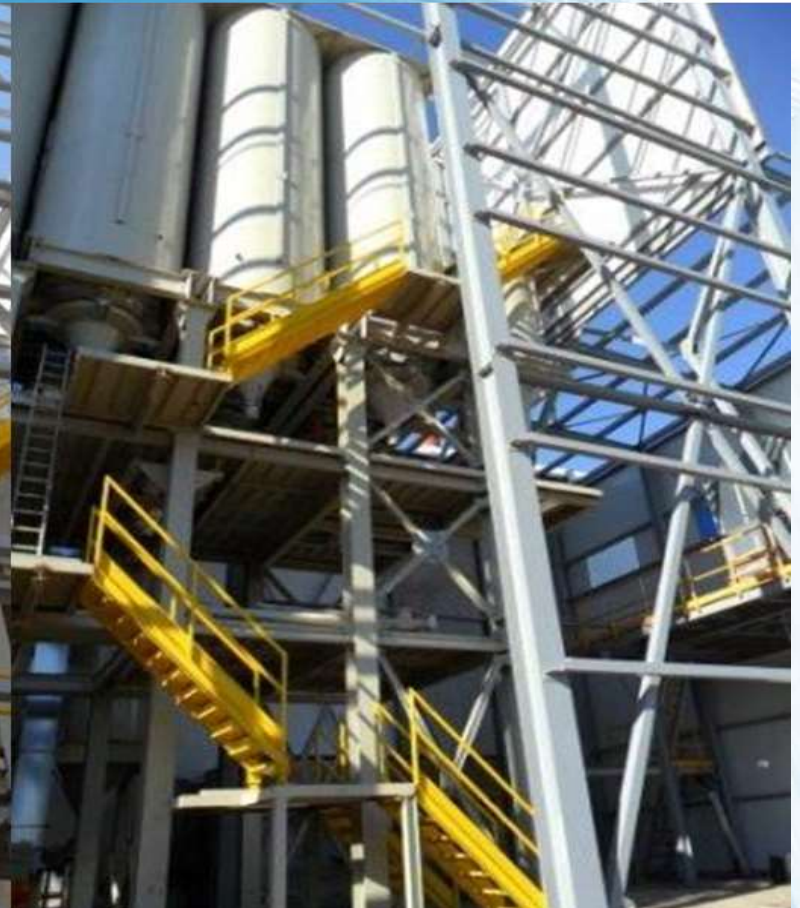
- container glass and tablewar
- Pharmaceutical
- Glasswool and glass fiber



# BATCH PLANTS

*Falorni Tech designs and constructs batch plants starting from the awareness that to produce glass is a special process with special needs and often different from other industrial fields. We design in-line or vertical batch plant layouts with all related accessory parts (internal cullet treatment plants, cullet preheating systems, external cullet treatment plants, etc.).*

*The use of 3D design tool provides us with the immediate overview of the entire plant showing clear guidelines of the design path. This means a shorter engineering time better focused on the essence of the project.*





# CONDITIONING FOREHEARTH

*Our flex-cond system fits the production needs with incomparable capability to set and maintain stable and high performance thermal conditions of the glass:*

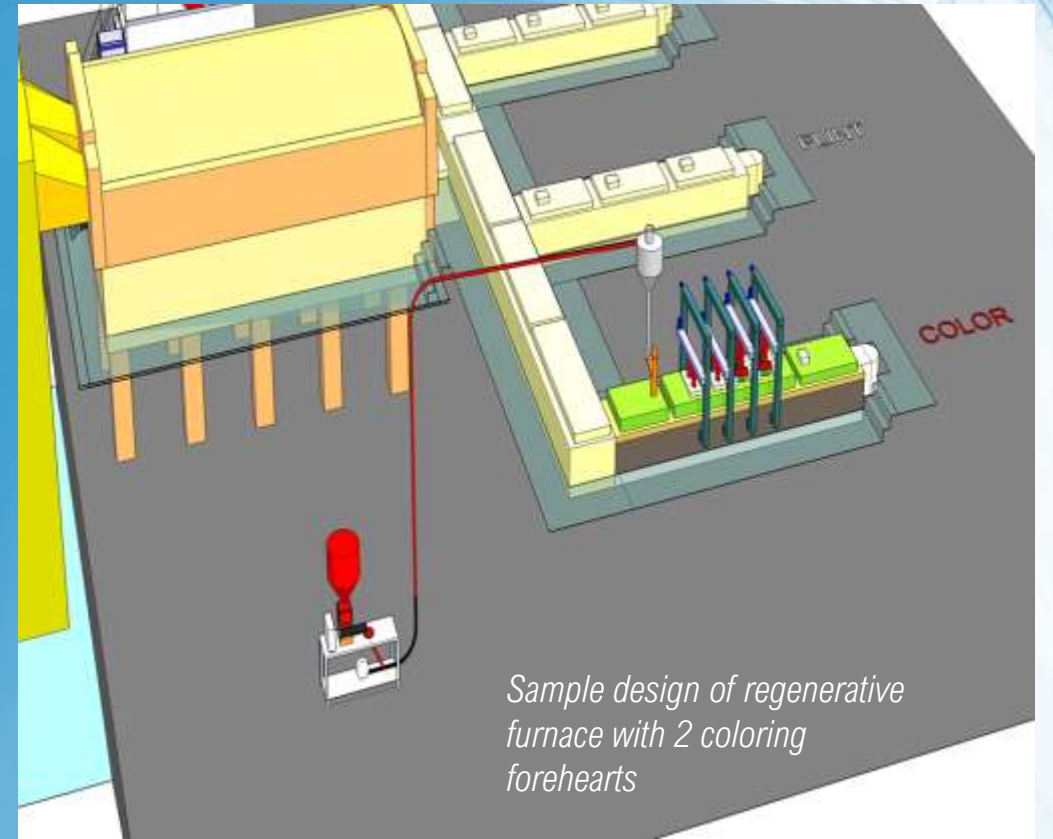
- *Heat the channel sides without any cooling*
- *Heat the channel sides with direct cooling in the midline*
- *Heat the channel sides with indirect cooling in the midline*
- *Heat the channel middle without any cooling*





# COLORING FOREHEARTHS

*Falorni TECH have developed a complete family of coloring forehearth FCF SERIES with the aim to respond at the best to all demands from the field. The FCF Series forehearth is available in different sizes and pull: coloring the glass has never been so easy. It is available a complete family of coloring forehearth FCF SERIES with the aim to respond at the best to all demands from the glass factory.*



*Sample design of regenerative furnace with 2 coloring forehearts*



# HEAT RECUPERATORS

*The recuperators can be divided in different kinds in function of their constructive technology (double shell and tube bundle) and in function of the range of hot air temperature. The hot air temperature starts from 500°C of a double shell type up to 700°C of the tube bundle. Combinations of tube bundle and double shell type can recover up to a temperature of 850°C.*





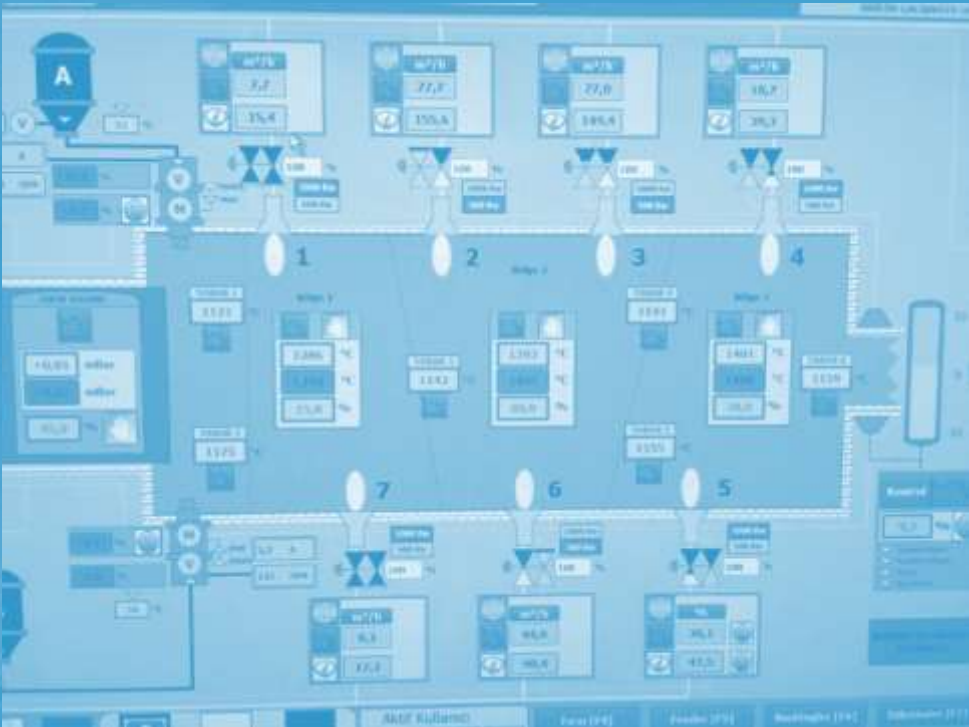
# COMBUSTION SYSTEMS

*for working end and forehearts*





# FURNACE CONTROLLERS



*FALORNI TECH control systems are completely tailored to furnace and process characteristics and to all peripheral components of the furnace and are available in different configuration in function of Customer's specification*

# BURNERS



*FALORNI TECH has the right burner for each furnace and for each glass melting process. Our burners are designed in full integration with the combustion system and the furnace geometry. All our burners can fire varied types of fuel depending on availability (NG, LPG, Propane, HFO, LFO). Our family includes also Oxy-fuel burners*

# BATCH CHARGERS

*We have three families of batch chargers each developed for a specific job.*

- ❑ Screw type for continuous furnace of small capacity with flexible pull
- ❑ Oscillating tray type for small and medium capacity furnaces
- ❑ Oscillating scoop type for medium up to big capacity furnaces





# FURNACE ANCILLARY EQUIPMENT

- ❑ Electric Boosting systems for melting
- ❑ Forehearth boosters
- ❑ Tailored design of furnaces and accessories
- ❑ Cullet preheating systems
- ❑ Integrated CCTV systems
- ❑ Low NOx solutions
- ❑ AIR/GAS reversal systems
- ❑ Pressure control systems
- ❑ Stirring systems
- ❑ Bubbling system

# CUSTOMER CARE

*In addition to the normal planning and technical services provided, Falorni Tech has created for glass manufacturers a new tailored counseling service that can assist them in better manage their facilities and their production processes or to find answers to problems and critical issues. After a series of plant inspections and careful analysis of production parameters and its life cycle, our specialists will be able to suggest such measures, improvements, modernization, helpful to make in relation to the client's objectives.*

THE QUESTIONS ARE MORE  
IMPORTANT THAN THE  
ANSWERS



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