

PLANTS FOR CHEMICAL INDUSTRY

SINCE 1948

B.I.I.C. BIANCHI S.p.A. – Via Dante 73 – 20863 Concorezzo (MB) – Italy
tel. +39 039 6040220 / 648192 / 648193
www.biicbianchi.com – biicbianchi@biicbianchi.com

B.I.I.C. BIANCHI S.p.A. is a company established in **1948** in Concorezzo (MB), Italy.

The main purpose of our company is to project and manufacture chemical plants mainly concerned with:

- the chemical industry in general
- pharmaceutical and resin production industry in particular
- food industry
- adhesives and glues industry
- cosmetic, perfume and essences extraction industry

We design and construct complete plants for:

- organic synthesis (polymerizations, pharmaceuticals)
- distillation and rectification
- concentration
- heat exchanging
- extraction
- fermentation
- dissolution
- filtration
- pilot plants
- pollution control
- safety systems
- process control and automation

The design of our equipment is made according to **PED, ATEX, MACHINE** and other applicable directives and codes.

The construction materials are: Stainless steels - Hastelloy - Incoloy - Monel - Titanium - SAF 2205, SMO 254 and all other corrosion resistant alloys.

More in detail, we mainly produce the following plants:

- **organic synthesis**, low and high temperature (up to 350 °C) for organic intermediates (fine chemicals, pharmaceutical bulks), for synthetic resins (alkyd, epossidic, melaminic, polyester, polyurethane, acrylic etc.)
- **distillation and rectification** with packed columns, plate columns with bells, functioning in pressure or under vacuum
- **concentration** with vessels heated with steam or diathermic oil, falling film concentrators, thin layer concentrators

- **heat exchanging** with shell and pipes exchangers, U tubes exchangers, double plate exchangers, double pipe exchangers, tube coils, condensers, evaporators
- **extraction** with agitated vessels completed with condensers, phase and azeotropic separators
- **fermentation** for antibiotics production (tetracycline, erythromycin, penicillin, etc.) complete with fermenters and filtering plants, extraction, salts preparation and final sterilisation
- **dissolution** with vessels with external jacket or half pipe coil jacket, special design agitation, with stepless speed variation
- **filtration** with horizontal plates filters, agitated pressure filters with removable filtering plate, agitated drying filters with flat plate, bell filters with hydraulic elevator, Büchner type filters
- **pilot plants** reproducing exactly the industrial ones
- **pollution control** as blow down systems, scrubbers for gaseous effluents, traps for sublimates or for low boiling point components operated with liquid nitrogen
- **safety systems** like jacketed safety valves, special heated vent valves, oxygen analysers sets for hazardous and explosion-proof areas
- **computerised and pneumatic control systems** for all the described plants

All our equipment is pre-assembled and tested in our workshop before shipping.

During 70 years of history, B.I.I.C. Bianchi S.p.A. contributed to the construction of numerous factories of chemicals and, in particular, of polymerization plants.

More than 500 customers all-over the world have bought their plants from B.I.I.C. Bianchi. We hereby report the main ones concerning in particular the resins and polymerization plants:

BASF - Italy



IVM Group - Italy



Dyo - Turkey



Sayer Lack - Mexico



Sherwin Williams - Italy



CNOOC - China



Euroresin - Spain



Huntsman - Italy



Ece Boya - Turkey



ENAP - Algeria



Reichhold - France



Synthomer - Italy



Syntech - China



Dai Nippon - Austria



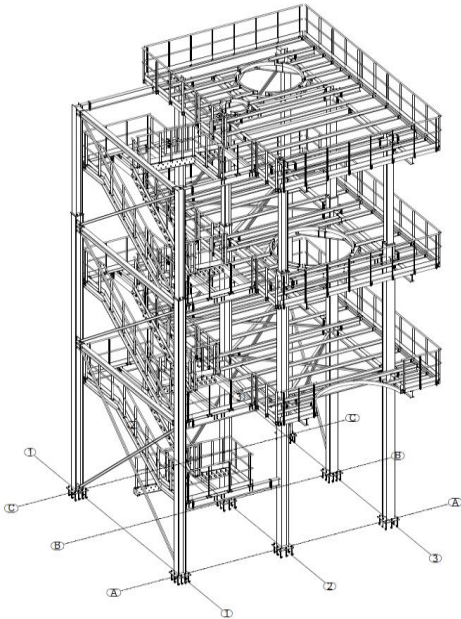
ATLAS - Morocco



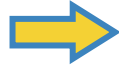
Emver - Dubai



B.I.I.C. Bianchi, thanks to its longstanding experience, is capable of providing turn-key plants, and if requested can supply full project management and engineering, from the beginning of the factory design studio to the very end of the first resin production.



Design of the steel structure



Supply of the steel structure and installation supervision



Machinery installation supervision



Final start-up and commissioning

Filtering units produced by B.I.I.C. Bianchi are composed as follows:

- **Horizontal plates filters**
- **Agitated Nutsche filters** with removable filtering plate
- **Agitated drying filters** with flat plate
- **Bell filters** with hydraulic elevator
- **Büchner filters**



Filtration unit on skid

Filters are suitable to filter turbid and murky liquids of any origin, from resins (polyesters, alkyds, polyurethanes, epossidic, acrylic etc.) to pharmaceutical or biological products, and are suitable to be used filtration aids such as diatomaceous earth or activated carbon. Filtering medium can consist of filtering papers and cardboards (with various thickness and porosity available) or can also be made of synthetic fabric such as polyethylene, non-woven fabric or other type according to specific customers's need. The stainless-steel execution makes B.I.I.C. Bianchi filters very durable and almost maintenance-free. Here below some examples of realized filters:



Plate filter with trolley, valves and pump



Plate filter in Hastelloy



Plate filter with Teflon plates



Plate filter with elevator



Agitated Nutsche filter with auto-closing system



Büchner filter



Agitated drying filter



Agitated Nutsche filter with elevator

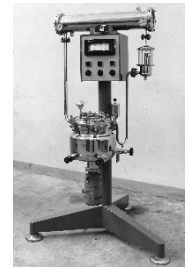
Pilot plants complete with instrumentation and accessories for fine chemicals synthesis and pharmaceutical synthesis and processes are designed and built entirely in our factory. The following are the most common characteristics:

Design temperature: from - 90 °C to + 350 °C

Internal design pressure: up to 100 barg + full vacuum

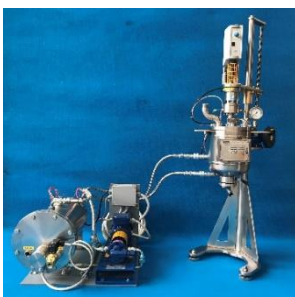
Construction materials: Stainless Steel AISI 316, SAF 2205, Hastelloy Alloy B3, C-2000, C-276 and other corrosion resistant alloys.

Volume: from 1 liter to 1 m³



Standard execution: reactor, distillation column, condenser, phase separator, thinning tank, raw material dosing system, thermoregulation system, vacuum system, electronic or pneumatic instrumentation, electric power board, safety system. Special execution according to specific process and upon customer's request can be designed and realized.

All the units are pre-tested in our factory and delivered, where possible, completely pre-assembled.



B.I.I.C. Bianchi can realize complete studies and production of rectifying columns and distillation plants:

- Packed columns
- Tray and bubble tray columns
- Thin film evaporators
- Falling film concentrators

Design temperature: from $-90\text{ }^{\circ}\text{C}$ to $250\text{ }^{\circ}\text{C}$

Internal design pressure: up to 20 barg + full vacuum

Construction materials: Stainless Steel AISI 316, SAF 2205, Hastelloy, Alloy B3, C-2000, C-276 and other corrosion resistant alloys.

Packing and type: Fractionating, stripping, S.S. Pall's rings or Rashig filled type, tray and bubble tray columns.

Special execution: with reboiler or dehydrator

Reflux control: by gravity or through a pump

Diameter and height: according to design

Instrumentation: electronic or pneumatic complete distillation control

Complete pre-assembled or skid mounted groups.

On demand B.I.I.C. Bianchi can realize projects and offers according to the specific customer's request.



Fermenters designed and build by B.I.I.C. Bianchi are designed with the main and most common following characteristics:

Design temperature: from $-20\text{ }^{\circ}\text{C}$ to $160\text{ }^{\circ}\text{C}$

Internal design pressure: up to 20 Barg + full vacuum.

Half pipe coil jacket design pressure: up to 20 barg, for steam or diathermic oil

Construction materials: Stainless Steel AISI 316, SAF 2205, Hastelloy, Alloy B3, C-2000, C-276 and other corrosion resistant alloys.

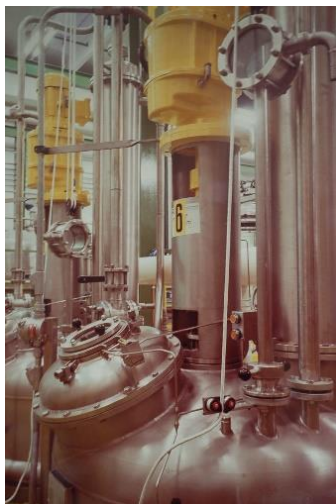
Volume: **from 10 litres to 150 m³**

Agitation type: air lift, hydraulic, inverter controlled or direct

Blades type: anchor, impeller, propeller and combined types

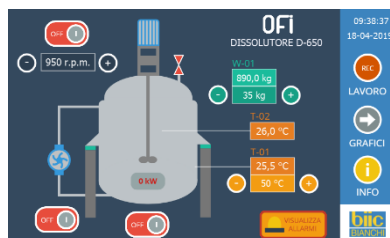
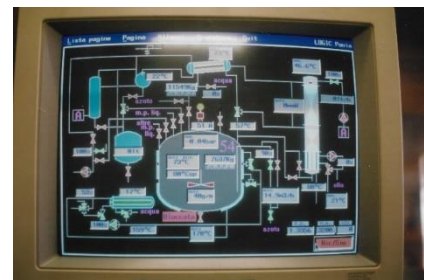
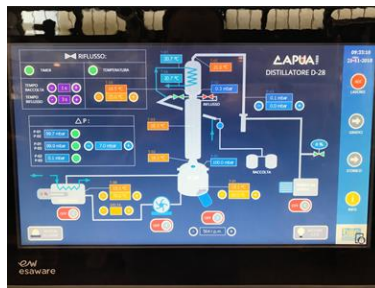
Standard execution: magnetic drive, mechanical seal with or without foot bearing, manhole, N₂ sparger, O₂ and CO₂ analyzer, poppet valve, etc.

Fermenters can be realized with complete instrumentation for the control of temperature, pressure, pH, REDOX, pO₂, pCO₂ and other relevant parameters, selected on specific customer's request.



Every plant built from B.I.I.C. Bianchi can be equipped with instrumentation, electric power board and automation. According to our customer's request we provide turn-key solutions for every type of machinery, from stand-alone machinery such as filters or pilot plants to entire factory process control automation.

In 70 years of history, technologies used to achieve a proper process control range from simple and easy to use pneumatic logic and pneumatic instrumentation (valves, recorders, regulators, temperature and pressure probes etc.) to the most recent and preferred PLC based system, with brands such as Siemens, Allen Bradley, Schneider Electric, Omron, ABB or almost any other possible one, selected together with our customers.



Upon customers' specific needs and processes, B.I.I.C. Bianchi can build complete plants, incorporated on a skid together with the control and monitoring systems, such as electric power boards, PLC and electric or pneumatic instrumentation.

Where a complete plant is not needed, is also possible to manufacture and deliver single parts such as reactors, condensers, agitators, scrubbers, tanks, heating and cooling units, vacuum groups etc. Here below some examples:



Hydro Thermal Carbonization pilot plant on skid



Bio-polymer production skid



Jet Loop reaction unit



PFA lined cartridge filters



Heat exchangers



Vacuum group with boosters



Reactor