

SINTACLOR® "SKID"

pre-assembled in the factory



*An optimized solution
for the synthesis
of hydrochloric acid*

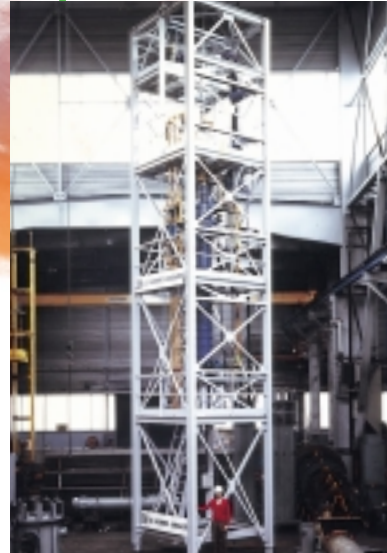
Skid-mounted SINTACLOR®

An optimized solution for the synthesis of hydrochloric acid

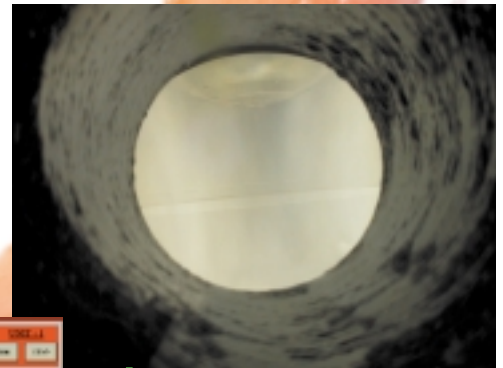
Design



Pre-assembly
in factory



Installation



Control and security



Operation

CARBONE LORRAINE is recognized as being the leader in the synthesis of hydrochloric acid, and has installed more than 400 graphite units throughout the world. Its product range includes complete integrated systems : *CARBONE LORRAINE provides you with a turnkey solution including the selection of instruments and pipes, and the design of a structure or control system.*

Design: well-tested experience at your service

Due to its control of 3D CAD techniques, CARBONE LORRAINE can offer you views of your future turnkey factory at the beginning of your new project.

You will have all information you need to define your site layout and to plan connections of supply and output pipes for your skid well before the unit is delivered, by the supply of a complete set of engineering documents (particularly foundation drawings and unit layout drawings).

In the meantime, we will make the structure and its staircases, size the graphite units and the valves, choose the best materials, define the diameters of site instruments and pipes, and also design the control system; in short, our specialists will do the complete design.

Pre-assembly in factory: assurance of a high quality assembly

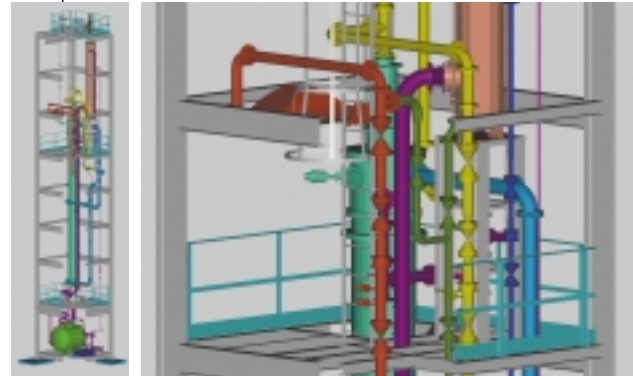
SINTACLOR® skid units are designed to minimize assembly times and errors on site.

The synthesis unit, the tail tower, pipes and all control and safety devices are assembled in a steel frame so that the assembly can be transported horizontally. The pipes and valves between the burner and the connections at the boundary of the unit are also assembled. The wiring for all instruments inside the structure and for its lighting is also assembled.

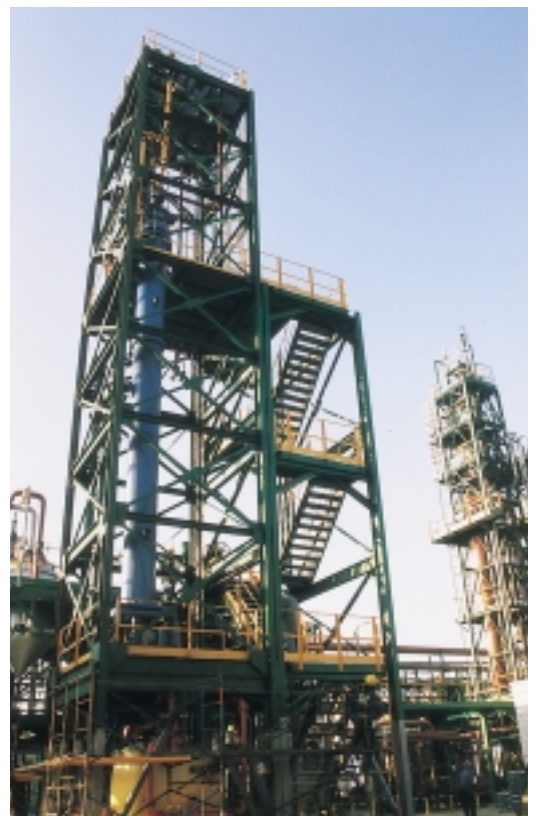
Finally, electrical circuits are verified and a systematic hydraulic test is carried out on all graphite vessels, in order to guarantee that the installation is operating correctly. Furthermore, a complete quality plan including inspections by third parties during the design and manufacturing phases may be provided as an option.

Since the core of the system is composed of graphite vessels (synthesis unit and tower), our specialists take special care with the quality of the materials used. Therefore GRAPHILOR 3 impregnated graphite and ARMYLOR PTFE coated pipes are also used regularly due to their unequalled quality particularly suitable for this type of system.

CARBONE LORRAINE offers a higher quality product, as a result of its control of the HCl synthesis process and its design and manufacturing methods that have been ISO 9001 certified by TÜV.



3D views: general layout and operational floor



"SKID" SINTACLOR®

Installation: "All ready to start!"

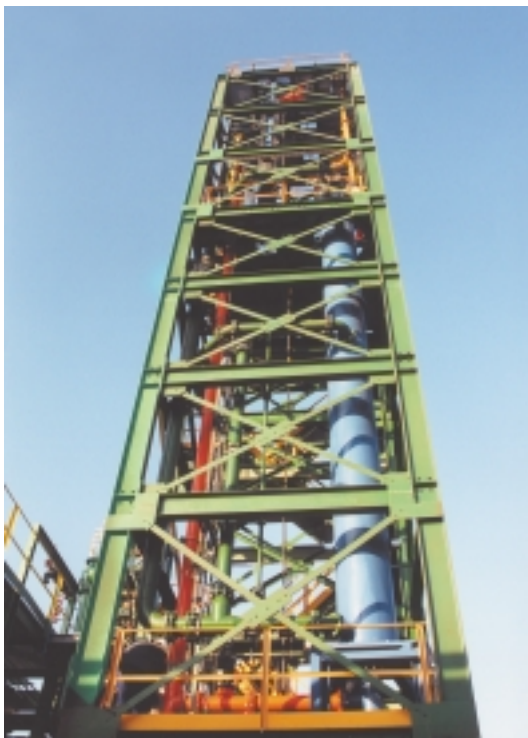
The skid will be delivered to your factory door about 6 months after you make your order. It is delivered on three trucks; one transports the stairs, the second the upper part of the skid and the third transports the lower part with the pumps and the tank. Everything is transported horizontally.

Everything possible has been done to reduce installation times; each element on the skid is fitted with lifting rings to facilitate handling and placement on concrete pads previously made for this purpose (you will need two cranes). A CARBONE LORRAINE specialist will also work with you to supervise operations.

Once the skid has been bolted onto its support, all that is necessary is to connect the pipes and electrical cables to the terminal block at the battery limit (the control cabinet located in the room and delivered separately must also be connected).



Transport



Placement of a 50 t/d 100% HCl skid

The synthesis unit is ready to start up after a few safety checks!

Control and safety

CARBONE LORRAINE also includes an automatic system on the skid to control the installation that can perform the following functions (depending on the model):

■ Put the installation into a **safe condition** by stopping combustion followed by a general nitrogen purge in case of failures such as:

- Low cooling water flow
- Low absorption water flow
- Flame extinguished
- Rupture of the safety disk
- Insufficient instrument air pressure
- Cut off of the electrical power supply
- Acid level too high in the transfer tank

■ **Automatic ignition** of the flame with the furnace closed. An automatic burner (called the pilot burner) fixed to the combustion chamber and without any moving mechanical parts is used for this operation.

■ **Automatic remote startup** from the control room.

■ **Control of production** and the main parameters - hydrogen flows, hydrogen/chlorine ratio (excess) and absorption water flow.

The solutions proposed by CARBONE LORRAINE are as varied as your needs:

- **Version 1** (or C7012 safety controller)
Relay version for putting the installation into a safe condition after a failure
- **Version 2** (PLC and regulators)
Put in safe condition + automatic ignition + production control
- **Version 3** (PLC and regulators)
Put in safe condition + automatic ignition + remote startup + production control



Supervision screen



Electrical cabinet

"SKID" SINTACLOR®

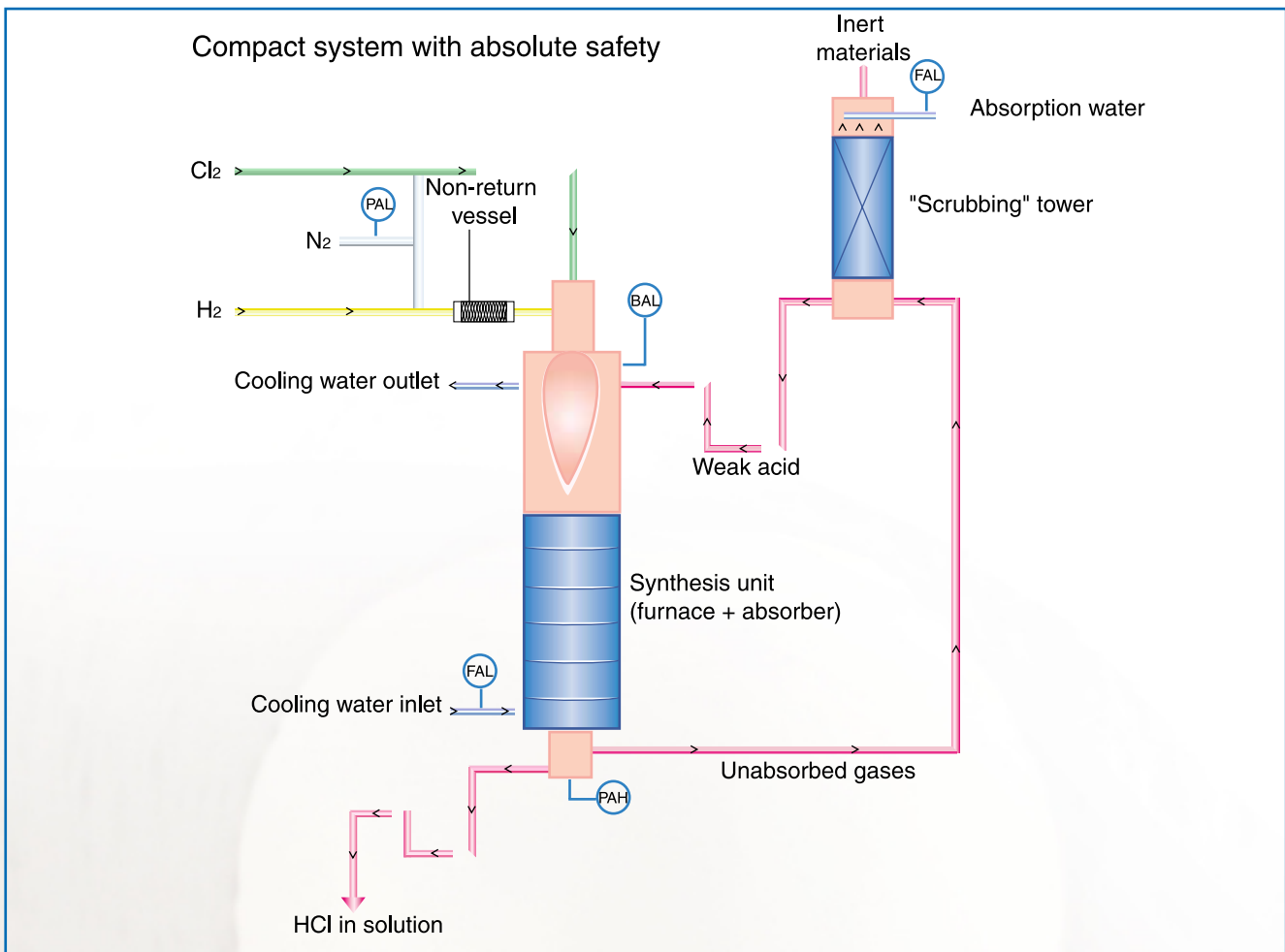
Operation:

Pure acid and clean effluents



HCl Flame

The capacity of your skid can vary from 2 to 150 t/d (100% HCl synthesized with the burner) and it can produce an acid solution at between 30 and 37% (by weight) by the complete combustion of chlorine gas in hydrogen according to the following exothermic reaction:

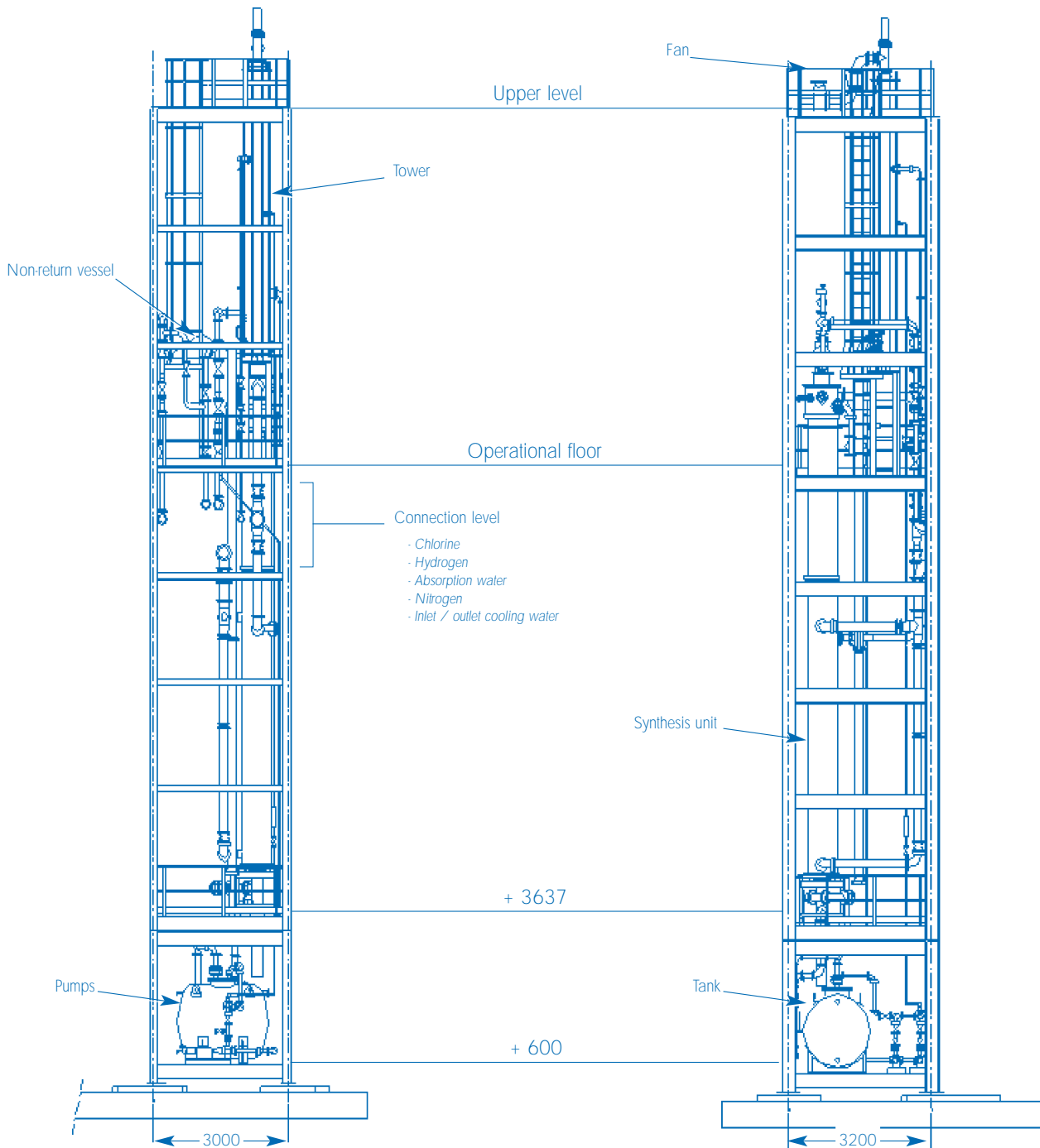


Typical flow sheet for a SINTACLOR® unit

Due to the unique and optimum design of its boiler near the high point, the CARBONE LORRAINE synthesis unit guarantees complete combustion of chlorine with a minimum hydrogen excess (typically 5% more than the stoichiometric quantity). This remarkable efficiency guarantees an exceptional quality acid solution and gaseous effluents that respect the strictest environmental criteria.

CARBONE LORRAINE "SKID" SINTACLOR®

Unequaled compactness



These dimensions are satisfactory for units capable of producing between 2 and 450 t/d of 33% acid in solution.

SOME PROJECTS . . .

ERKIMIA, Spain - CAFFARO, Italy - PANAFRICAN PAPERMILLS, Kenya - PRITT, Kenya
QUIMIGAS, Spain - BIP ENGINEERING, France - BIPC, Iran, etc.

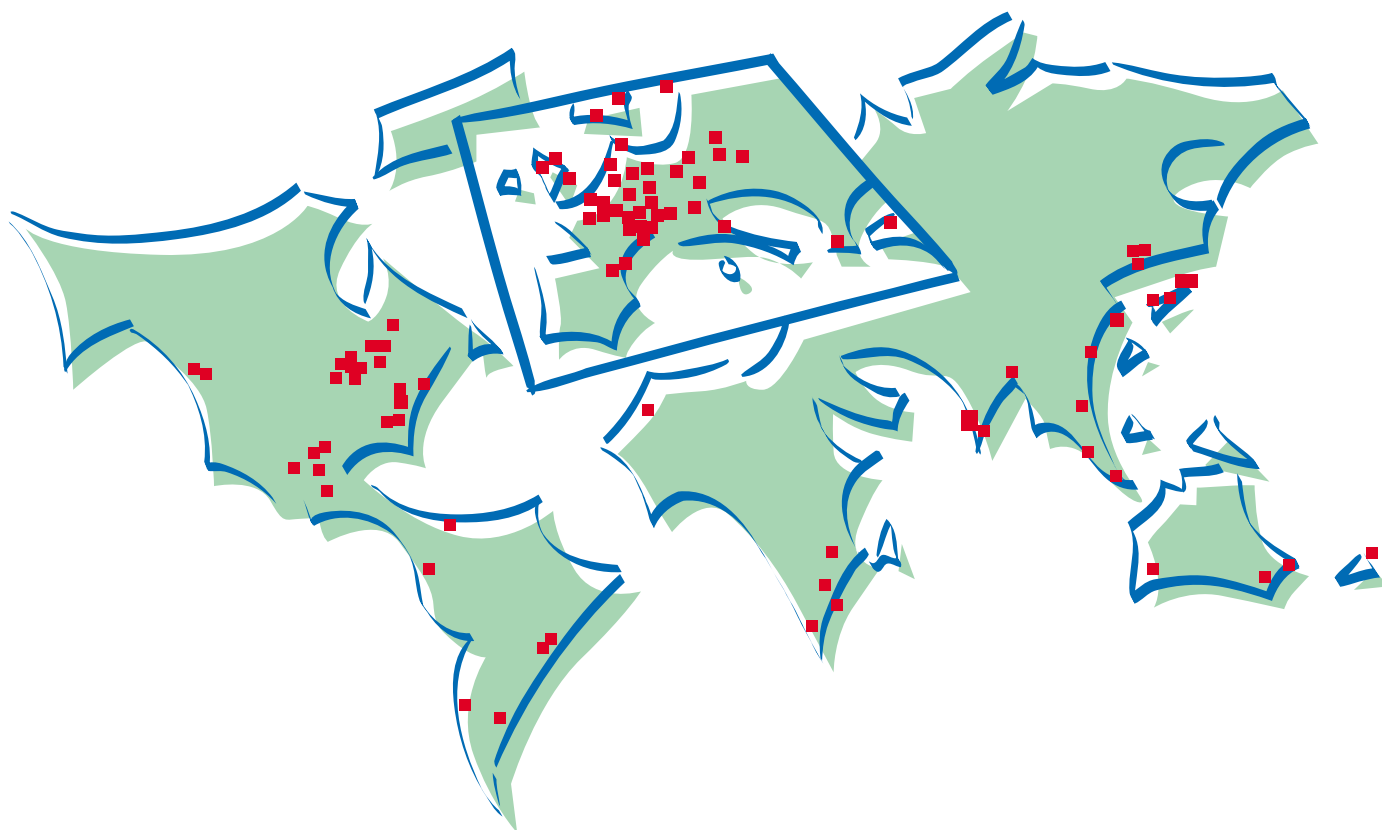
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WORLDWIDE SPECIALIST in industrial components

Since its founding in 1892, CARBONE LORRAINE has built an international reputation by creating subsidiaries on all continents. Today with industrial and commercial plants located in more than 30 countries, agencies and representatives in more

than 70 countries and 250 commercial contacts throughout the world, CARBONE LORRAINE offers its customers worldwide reliable, high technology products and the service of its experienced technicians.

A global player



RCS Nanterre B 572 060 333

HEAD OFFICE : Immeuble La Fayette - La Défense 5
TSA 38001
F - 92919 PARIS LA DÉFENSE CEDEX - FRANCE

LE CARBONE-LORRAINE
Chemical Equipment Division
B.P. 1
F-54530 PAGNY-SUR-MOSELLE
FRANCE

Tel. : +33 (0) 3 83 81 60 81
Fax : +33 (0) 3 83 81 50 75

www.CHEM.CARBONELORRAINE.com
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