

Modularization in the Filtration and Flotation Solutions

40 years' experience in the solid-liquid and oil-water separation for a new packaged and modularized turnkey approach

Davide Cadonici

Marketing & Sales Manager, Tecniplant



2014 is a very important year for Tecniplant. This is the year in which Tecniplant as an important player in the filtration for the solid-liquid separation and in the flotation for the oil-water separation is celebrating 40 years of business.

Continuous innovations and quick transformation

have been themes through Tecniplant's history, which the Company traces to the 1974s with the installation of the first filtration unit for the separation of a pharmaceutical product. Tecniplant built its reputation primarily designing and manufacturing mainly special machinery for the mining, tunnel building and road work applications.

Over the years, the Company has grown increasing expertise in filtration and flotation technologies attaining an important and stable position in the international market becoming a reliable supplier in the solid-liquid separation and in the oil-water separation for all the most important operators in the engineering and construction and treatment industry sectors.

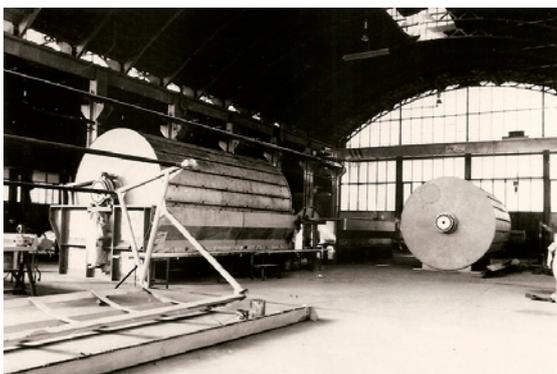
Combining a lot of experiences and capabilities across

all the industries and business functions and extensive research on the world's most successful Companies, Tecniplant cooperates with customers helping them to find a tailored, best and most performing results in the filtration and flotation solutions.

Today Tecniplant, starting from these stable bases, is studying a new strong and effective approach to the market proposing and supplying the best packaged and skid mounted filtration and flotation separations able to compact and to optimize all the required processes.

A key feature for the filtration or the flotation turnkey plants is the capability to offer an easy way to transport, install and commission the system and to operate it during the service life, with consequent savings both on the Capex and Opex costs.

To guarantee the best solution for the client, a specific effort is done to optimize the general arrangement of the package, in order to develop, a more compact and efficient solution, which combines simplicity during the delivery phase and high reliability and efficiency during the operating life. The main criteria for the development of this type of plant is to provide an integrated package, completed and commissioned as much as possible at Tecniplant workshop, thus minimizing the on-site work. This principle enhances the reliability of the



1975, rotary drum vacuum filter



2014, oil water separation skid unit

system, reduces the interface problems both during engineering and fabrication stages and reduces the commissioning and hook up schedule.

The objectives of a good optimization have been identified as follows:

- to split the package into a minimum number of self-supporting skids, in order to reduce interface elements and integration work;
- to maintain the dimensions of the skids within the limits compatible with a road transportation;
- to commission and test the complete plant at the Tecniplant workshop, to reduce the risk of malfunctioning at site and the consequent need of onerous replacement of items;
- to group the items requiring people intervention or special interfaces (e.g. motorized pumps, valves) in a dedicated area, to facilitate power supply, inspection and maintenance activities;
- to concentrate the active part of the plants (valves, instruments etc.) in an area easily accessible, to reduce the number and extensions of ladders, walkways etc. and the associated spaces.

The achievement of the above targets provide remarkable benefits to the client, which may be synthesized as follows:

- savings in the area occupied by the new plant;
- reduced foundation works (slabs, plinths etc.);
- reduced weight of the system;
- prompt availability of the plant after delivery;
- lower risks of malfunctioning during tests and start-up;
- lower risk of interface failures (e.g. fluid losses) during service;
- easy access to the critical equipment.

From the construction point of view the proposed solution allows to obtain:

- lower weight of the structural components;
- lower impact of the construction tolerances (minor number of interfaces);
- minimization of the lifting points (not requiring special welding and NDT procedures) and of the lifting appliances (shackles, slings, spreader bars etc.) with corresponding cost savings;
- lower quantity of spare parts for commissioning and testing at site;
- lower packing and transportation costs;
- minimum need of specialized technicians at site for integration and commissioning work.

Davide Cadonici has a degree in Physics at Università degli Studi di Milano. Davide joined Tecniplant in 2003 as Project Manager for the filtration and flotation solutions and over the years he has covered positions of increasing responsibilities reaching the current role as



Marketing & Sales Manager of the Company up to increase and develop the oil-water and solid-liquid separation business focusing his attention to the turnkey plant for the best optimization in terms of performances and results in the oil & gas, power, chemical, pharmaceutical and mining applications.

To pursue the above goals, Tecniplant splits into different independent skids, which will be separately transported and installed and then connected both at the structural and piping / electric level. Normally all the pumps are concentrated on a single skid, to reduce the electric / instruments cable length, to facilitate intervention on them and to facilitate the possible erection of eventual protective canopy.

Further benefits descend in the detailed design phase from an optimization of the tank size and configuration (e.g. by nozzles positions by shifting the manhole position on top of the tank or on the same side of the main nozzles).

The skids are provided with independent drip pans, to contain possible fluid losses and to convoy to drain lines. The different skids are joined together at the base level.

The system are fully integrated at workshop and tested (hydraulic test, pumps functionality checks, valve tests etc.); then they are disconnected by unscrew the bolts and disconnecting the piping interface flanges before packing and transport.

The electric cables, interconnecting the skids, will be disconnected from junction boxes, and temporarily stored on the bigger skid during transportation.

Tecniplant is more and more a customized problem solving company in the filtration and flotation international business.