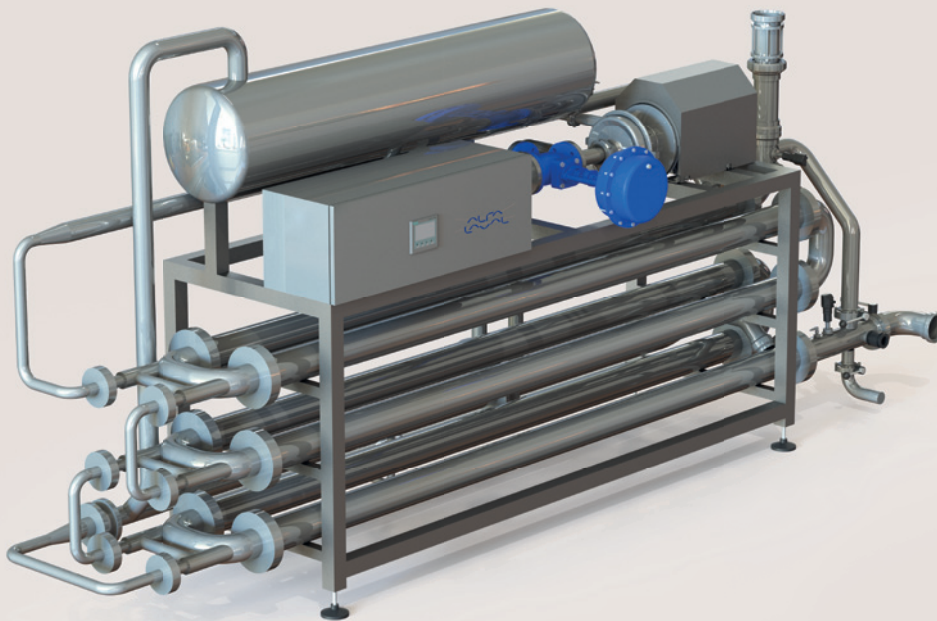




Thermal Conditioning Module – the right solution for controlling temperature in virgin olive oil extraction

Flash thermal conditioning of olive paste during the olive oil extraction process



The Alfa Laval Thermal Conditioning Module is a smart way to ensure accurate control of olive paste with higher final olive oil quality

The Alfa Laval Thermal Conditioning Module for olive oil is a smart, effective way to ensure accurate control of the temperature of olive paste, resulting in olive oil of better final quality.

The Thermal Conditioning Module was developed specifically for olive paste preparation and oil extraction, which are crucial steps in determining the quality and quantity of the oil obtained. It is a highly effective alternative to using traditional malaxers before separation by centrifugation, and can also be integrated into such solutions, as best suited to each individual plant set-up.

Traditional malaxers carry out simultaneous gradual heating, holding and mixing of the olive paste before it moves on for centrifugation. However, such traditional malaxing equipment is extremely inefficient in terms of heating performance.

Alfa Laval Thermal Conditioning Module temperature control system installed just after the crusher or de-stoner uses a revolutionary technical concept to achieve exactly the right

temperature. This means olive oil producers finally have an accurate tool for determining the desired temperature of olive paste, independent of climate, crushing systems and process time. This then enables olive oil producers to achieve significantly better control of the process, and thus to improve the quality of the oil.

Thanks to instantaneous heating or cooling, enzyme activity can be controlled so that it releases the maximum quantity and quality of extra virgin olive oil.

Application

The Alfa Laval Thermal Conditioning Module is ideal for all types of olive oil production – batch as well as continuous – and can easily be incorporated into new oil mills, where it ensures high capacity with a relatively small footprint.

It is also ideal for retrofitting into existing extraction lines, requiring only simple modifications of existing installations.

Design features

Designed for installation in the olive oil extraction process between the crusher and a holding/mixing tank, the pre-assembled Thermal Conditioning Module only requires an inlet connection for the paste from the crusher pump and an outlet connection to the mixing tank. The module is equipped with a hot or cold water storage tank and recirculation pump, making it easy to connect to any existing sources of hot or cold water present in the mill. A full wiring and control panel equipped with an easy-to-use touch screen is included.

Benefits of the Alfa Laval Thermal Conditioning Module

- Higher olive oil quality in terms of phenol content and volatile compounds, which are responsible for taste, health and sensory quality as well as oxidative stability
- Innovative paste conditioning method, with instant heat transfer and absolute temperature control
- Fast enzyme activation, due to simultaneous paste heating, reduces mixing time before decanter extraction by up to 50% compared to a traditional malaxer
- Control of enzyme activity by cooling paste temperature in accordance with climate conditions
- No heating system needed during mixing, resulting in a simpler, cheaper installation
- Fastest process extraction, with less space needed because the mixing/malaxing volume is reduced
- Special design able to minimize the amount of olive paste in the piping during batch process extraction.

How it works

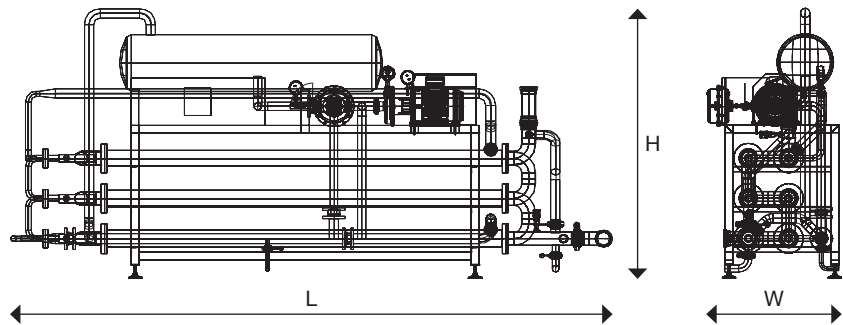
Olive oil paste coming from the crusher is pumped into the Thermal Conditioning Module, which utilizes flash thermal conditioning to instantaneously raise the paste to the temperature required to initiate the enzyme activity necessary for oil extraction.

The conditioned paste is pumped directly from the Thermal Conditioning Module to a separate tank or a malaxer, where the mixing and final oil extraction take place with a short holding time before separation and clarification. Better control of the enzymatic activity provides significant benefits in terms of olive oil quality.

An automatic system, which can be adjusted according to requirements, controls the paste temperature at the outlet of the Thermal Conditioning Module set-up. A PID-driven modulating three-way valve adjusts the recirculation of hot/cold water in accordance with the energy needed.

Standard equipment

- Pre-assembled Thermal Conditioning Module
- Temperature control system
- Hot/cold water recirculation pump
- Control panel with touch screen.



Specifications

Thermal Conditioning Module

Shipping data

	Small Module	Medium Module	Large Module
Tare weight (kg/lbs)	850/1,874	950/2,090	1,050/2,310
Weight with full load (kg/lbs) (fruit and water)	1,050/2,310	1,150/2,330	1,250/2,750

Technical Specification

Viscosity Maximum cPs (20°C, 100s-1)	900	900	900
Density (kg/m ³)	1,200	1,200	1,200
Inlet temperature (°C)	18–25	18–25	18–25
Temperature variation (°C heating/°C cooling)	15/10	15/10	15/10
Maximum pressure drop (bar)	6–8	8–10	10–12
Installed power (kW)	2.2	5.5	5.5

Dimensions

Length (L) (mm/inches)	4500/177	4500/177	4500/177
Width (W) (mm/inches)	877/35	877/35	877/35
Height (H) (mm/inches)	1600/63	2018/79	2018/79

Alfa Laval reserves the right to change specifications without prior notification.

How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com