The AlfaOliver 500 is a compact, continuous olive oil extraction line that builds upon Alfa Laval's long experience in this specialist field. It gives lower-volume producers access to the high performance and reliability of industrial-scale plants, while enabling them to customize the process to obtain the olive oil quality they desire.

**Application**
The AlfaOliver 500 is a complete olive oil extraction plant for dealing with inputs of up to 500 kg/hour of olives. This particularly compact unit is designed for completely continuous operation – providing industrial-scale reliability and performance for production in relatively small volumes.

**Design, features and benefits**
The plant consists of three main sections:
- Washing
- Paste preparation
- Malaxing and separation

The washing and paste preparation sections are supplied in component form, while the malaxing and separation section is skid-mounted, pre-piped and pre-wired. The compact, self-contained design and skid-mounting make installation straightforward and fast.

A complete AlfaOliver 500 plant requires no more than 35 m² and it is equipped with its own hot water production system.
Working principles

Cleaning and washing section
The washing section is designed for efficient cleaning of the olives while safeguarding fruit integrity. It is manufactured completely in stainless steel and includes a reception hopper, washing system and olive transport together with an independent control panel.

The olives enter the reception hopper and are transported upwards by a belt conveyor. At the top of the belt conveyor, an exhaust fan sucks away the leaves and light material, after which the olives drop into a hydraulic jet hopper. The olives are transported from the hopper by a jet of water to a vibrating screen mounted on top of the water reservoir of the washing machine. The vibrating screen separates the water and remaining leaves and also contains a fresh water shower that provides the olives with a final rinse. The olives then fall into an intermediate hopper.

Paste preparation section
The paste preparation section can be configured in three ways:
- Hammer crusher: Most typical and most robust crusher
- Disc crusher kit, allowing conversion back and forth between a hammer crusher and a disc crusher. The disc crusher ensures minimal risk of paste overheating and production of green, spicy oil
- Combined disc crusher and depitter, ensuring unbroken stones and the production of harmonic oil with high resistance to oxidation.

Olivés in the intermediate hopper after the washing section are fed to the chosen paste preparation system by means of a screw-type elevator.

In case of a hammer crusher, the olives are fed into the zone where rotating hammers equipped with wear-resistant plates crush the olives against a stationary grid, which determines the thickness of the paste.

In a disc crusher, the olives are fed between two toothed discs, one stationary and one rotating. These discs tear the olives apart.

In a combined disc crusher and depitter, the olives are fed into a chamber equipped with bores, where the pit is separated from the pulp.

In all cases, the pulp falls into a hopper below, from where it is pumped to the malaxer.
Malaxing and 2-phase separation section
The malaxing and separation section is made up of three steps:
• Malaxing to release the oil from the paste
• Separation in a horizontal decanter centrifuge to recover the oil from the paste
• Separation in a vertical centrifuge to clarify the oil.

The malaxer of the AlfaOliver 500 is one vessel, split internally into two compartments. Each half of the malaxer vessel has an independent jacket to enable the producer to control heating of the paste in each section.

The vessel is, in effect, two malaxers, thus allowing truly continuous operation. Paste is heated to the desired temperature under continuous agitation and held for the desired amount of time. Once the paste is ready, it is pumped to the horizontal decanter centrifuge.

The malaxer can be configured in two ways:
• Standard version with cover and grated inspection windows
• Hermetic version with sealed cover and injection of inert gas (optional).

The paste is pumped from the malaxer to the horizontal decanter centrifuge where the paste is separated into two phases by the centrifugal force. The oil is recovered from one end of the machine and the water and solids are recovered together from the opposite end. The recovered oil passes through a filtration screen before being pumped to the vertical centrifugal separator for final clarification.

The vertical centrifuge clarifies the oil by reducing the water and solids content in the oil still further. The unit used on the AlfaOliver 500 is a self-cleaning type. Instead of stopping the machine very frequently for manual cleaning, the operator can initiate a sequence to automatically discharge the solids from the bowl of the separator.

The olive oil producer can handle water and solids discharge as desired, or a small tank and pump can be supplied to discharge these flows to another location.

How it works
Two water tanks equipped with electrical heaters producing hot water for heating of paste in the malaxer and for process water. One is dedicated to heat the water in the malaxer, the other to heat the process water. The temperature control of malaxing water and of process water is independent.
### Technical specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Nominal power kW (Hp)</th>
<th>Dimensions mm (inches) L x W x H</th>
<th>Weight kg (lbs)</th>
<th>Water consumption liter/h (gallons/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AlfaOliver 500 – main skid with malaxer</td>
<td>24.5 (32.85)</td>
<td>3,000 x 2,693 x 1,930 (118.11 x 106.02 x 75.98)</td>
<td>3,670 (8,090)</td>
<td>170 (44.91)</td>
</tr>
<tr>
<td>Hammer or Disc crusher with support and pump</td>
<td>7.5 (10.05)</td>
<td>1,073 x 1,502 x 1,919 (42.24 x 59.13 x 75.55)</td>
<td>250</td>
<td>-</td>
</tr>
<tr>
<td>Disc crusher and depitter with pump</td>
<td>7.5 (10.05)</td>
<td>600 x 1,858 x 500 (23.62 x 73.15 x 19.69)</td>
<td>500</td>
<td>-</td>
</tr>
<tr>
<td>Washing section - with olive feed hopper, washed olives</td>
<td>3.26 (4.37)</td>
<td>5,933 x 1,600 x 2,775 (233.58 x 62.99 x 109.25)</td>
<td>800</td>
<td>67 (17.7) *</td>
</tr>
<tr>
<td>hopper and screw conveyor</td>
<td></td>
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</tbody>
</table>

* If one change of water tank per 24 hours

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Please note that the Alfa Oliver 500 main skid dimensions are fixed. The other items can be arranged in various ways as required by the building in question.

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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](http://www.alfalaval.com).