

The Alfa Laval Olive Crusher range

Olive paste preparation for olive oil extraction plants



Introduction

The crusher breaks the olives into small pieces, so the oil is easily released once inside the malaxer.

This also makes it easier to recover more oil in a horizontal decanter centrifuge.

Alfa Laval supplies a range of specific kinds of equipment that are specially designed and configured for crushing olives:

- Hammer crusher (30 hp, 50 hp, 60 hp, 75 hp)
- Disc crusher (30 hp)
- Double-edged crusher (30 hp)

Application

Crushing is one of the most important steps in determining the quantity as well as the quality of oil obtained from an olive oil extraction line. The way the crushing is carried out has a big effect on the quantity of oil released, the taste of the oil and the oxidative stability of the oil.

Benefits of using a hammer crusher

- Robustness and reliability
- High throughput
- Easy to adjust, simply by changing grid size
- Spare parts are cheap

Benefits of using a disc crusher

- Ideal for producing green, spicy olive oil
- Easy to adjust disc spacing
- Continuous throughput
- Much less risk of paste overheating

Benefits of using a double-edged crusher

- Enhances the aromatic fraction of the oil
- Enhances the green colour of the oil
- Double-stage cutting helps prevent overheating
- Double adjustment helps ensure highest performance

Working principle

Hammer crusher: Olives are fed into the crusher through a short screw conveyor. This leads the olives into the zone where rotating hammers fitted with wear-resistant metal plates crush the olives against a stationary grid.

The diameter of the holes in the grid determines the thickness of the paste, and different grid sizes can be used.

After passing through the grid, the resulting paste is transported to the malaxing section either through a hopper or via a pump.

Disc crusher: Olives are fed into the crusher through a short screw conveyor that leaves the olives between two toothed discs – one stationary and one rotating.

These discs tear the olives apart, and the resulting paste is transported to the malaxing section either through a hopper or via a pump.

Double-edged crusher: Olives are fed into the crusher through a short screw conveyor that leaves the fruit between two toothed discs – one stationary and one rotating.

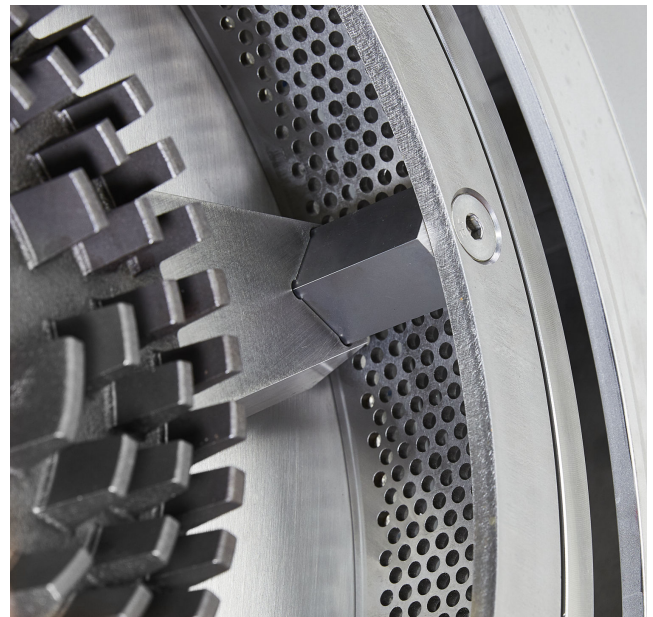
These discs tear the olives apart, and the resulting pre-crushed paste is then conveyed into a zone where rotating 45° cutting elements finish the paste against a rotating grid. The diameter of the holes in the grid determines the thickness of the paste, and different grid sizes can be used.

After passing through the rotating grid, the resulting paste is transported to the malaxing section, either through a hopper or via a pump. A series of rotating pop-up cleaning nozzles installed on the frame makes sure the crusher always gets washed effectively.

A double-edged crusher is specially designed to produce premium quality olive oil at the same time as providing exceptionally high yield.

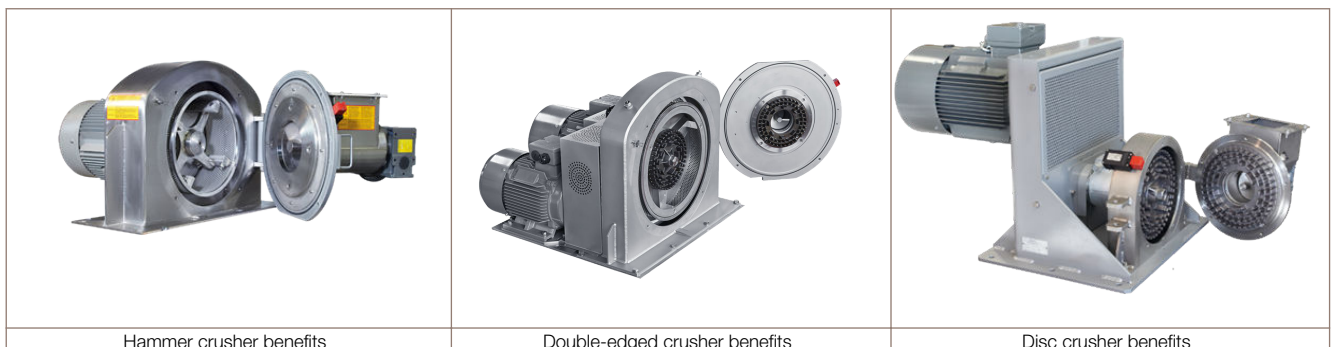
The double cutting effect, combined with the rotating grid ensures intensive cutting with maximum extraction of the important aroma compounds, using only a minimum of energy.

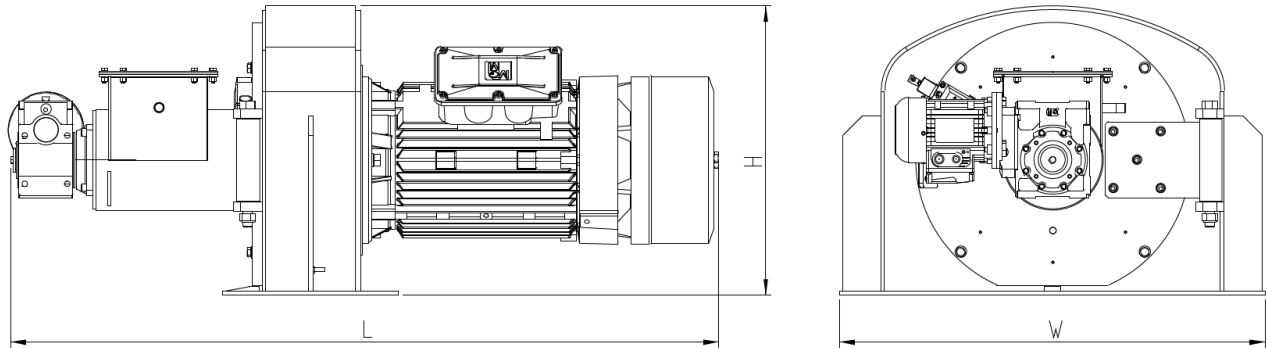
Using less energy to crush the olives also makes sure overheating is kept to a minimum, which in turn helps reduce any oxidation of the paste and the final oil. This helps maintain product quality as well as shelf life.



The cutting elements and the rotating grid in a double-edged crusher

Olive Oil Crushers





Technical data for hammer crusher

Designation	Type 30	Type 50	Type 60	Type 75
Maximum weight	415 Kg / 915 lbs	470 Kg / 1.036 lbs	647 Kg / 1.426 lbs	854 Kg / 1.883 lbs
Main drive size	22.4 kW / 30 hp	30.0 kW / 40 hp	44,7 kW / 60 hp	60.0 kW / 75 hp
Sound pressure level	88.0 dB	61.1 dB	90.9 dB	92.3 dB
Speed	2,800 rpm	2.800 rpm	3.000 rpm	1.500 rpm
Length (L)	1.351 mm / 53.2 inches	1.400 mm / 55.1 inches	1.469 mm / 57.8 inches	1681 mm / 66.2 inches
Width (W)	900 mm / 35.4 inches	900 mm / 35.4 inches	720 mm / 28.4 inches	870 mm / 43.3 inches
Height (H)	457 mm / 18.0 inches	280 mm / 11.0 inches	462 mm / 18.2 inches	538 mm / 21.2 inches

Technical data for Disc Crusher

Maximum weight	380 Kg / 838 lbs
Main drive size	22.4 kW / 30 hp
Sound pressure level	85.1 dB
Speed	1.400 rpm
Length (L)	5076 mm / 200 inches
Width (W)	1190 mm / 47 inches
Height (H)	1534 mm / 61 inches

Technical data for Double-edge crusher

Maximum weight	659 Kg / 1452.85 lbs
Main drive size	22.4 kW / 30 hp
Secondary drive size	4 kW / 5.4 hp
Sound pressure level	101 dB
Speed cutting elements	2.000 rpm
Speed rotating grid	400 rpm
Length (L)	1.414 mm / 55.7 inches
Width (W)	908 mm / 35.7 inches
Height (H)	908 mm / 35.7 inches

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