

Alfa Laval Fats and oils vacuum dryer

Removal of residual moisture from oils and fats

Introduction

The enzymatic degradation of oils and fats is closely related to undesirable levels of moisture, and the resulting water activity. Even tiny amounts of moisture affect product quality and appearance. If there is even as little as 0.5% moisture present, the oil or fat product quickly loses clarity and becomes opaque. This is why deep dehydration is an important precautionary measure for the particularly sensitive oils and fats that feature in the production of foodstuffs.

The Alfa Laval fats and oils vacuum dryer is designed to continuously remove residual moisture from processed oils and fats of virtually all kinds. Reducing the water content from 0.5% to as low as 0.1% plays a big role in improving fat and oil quality, resulting in better revenue along with a better market reputation.

Application

- Fish and seafood processing
- Meat and poultry processing.

Benefits

- Greater clarity of oils and fats
- Better product quality, resulting in longer shelf life and revenue margins
- Fully compliant with EU as well as US foodstuff regulations
- Compact, “plug & play” unit that is easy to install and bring on line quickly.

Design

This compact fats and oils vacuum dryer is available in three different standard sizes, each delivered as a complete, integrated unit, ready to be connected. It consists of:

- A pre-heater that uses steam or hot water to heat the fat and oil to the optimal stripping temperature, using a plate heat exchanger
- A vacuum vessel, in which the fat and oil is expanded under carefully controlled vacuum conditions to strip out any undesirable moisture that might be present
- A liquid ring vacuum pump with internal cooling loop to minimize water consumption, that maintains the vacuum in the dryer unit
- A centrifugal pump, featuring a frequency drive, to discharge the fat and oil from the dryer and pump it further in the process



- A control panel featuring PLC with a touch-screen user interface
- All necessary valves and instruments

The compact, integrated design of the vacuum dryer makes it easier to install even in restricted spaces.

Options

- Three different vacuum dryers are available as standard, with throughputs of 1000 kg/hour (2200 lbs/hour) and 5000 kg/hour (11000 lbs/hour) and 8000 kg/hour (17500 lbs/hour).
- Siemens or Allen-Bradley control system.

Technical data

Lipids processing capacity	Up to 1000 kg/hour (2200 lbs/hour)	Up to 4500 kg/hour (10000 lbs/hour)	Up to 8000 kg/hour (17500 lbs/hour)
Moisture reduction	From 0.5% to 0.1%	From 0.5% to 0.1%	From 0.5% to 0.1%
Fat and oil removal capacity	4 kg/hour (8,8 lbs/hour)	20 kg/hour (44 lbs/hour)	32 kg/hour (70 lbs/hour)
Steam consumption. Steam pressure at 6 barg (87 psig) and feed at 70°C (158 °F)	23 kg/hour (51 lbs/hour)	117 kg/h (258 lbs/hour)	187 kg/h (412 lbs/hour)
Sealing water consumption (for liquid ring pump)	150 kg/h (331 lbs/hour)	290 kg/h (639 lbs/hour)	290 kg/h (639 lbs/hour)
Installed power	4.1 kW	9.4 kW	9.4 kW
Power consumption	3 kW	6.3 kW	7 kW
Dimensions			
Height	3131 mm (123 in)	3871 mm (152 in)	4854 mm (191 in)
Length	2130 mm (84 in)	3040 mm (120 in)	2900 mm (114 in)
Width	1200 mm (47 in)	1706 mm (67 in)	1748 mm (69 in)

Indicative figures

Dimensional drawing

Approximate dimensions in mm (in).

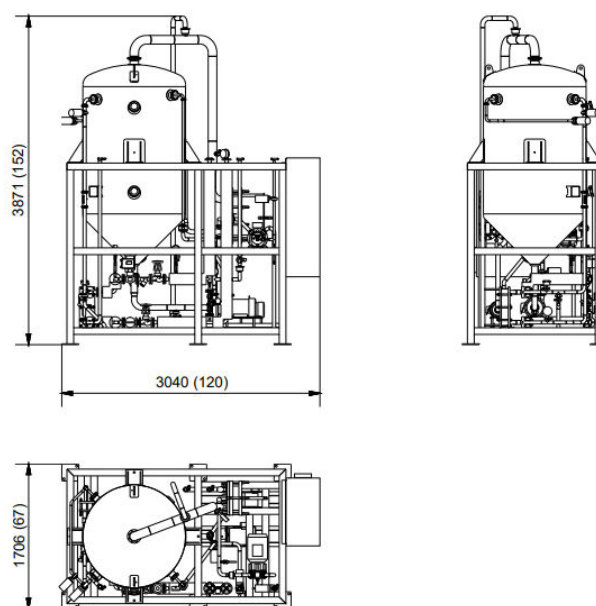


Figure 1. Capacity up to 5000 kg/hour (11000 lbs/hour)

Certification

- CE marking in accordance with EU Directive 2006/42/EC
- Compliance with these specific EU Directives:
 - EN 1935/2004 on materials and articles intended to come in contact with food
 - EN 2023/2006 Good Manufacturing Practice for materials and articles intended to come in contact with food
 - EN 10/2011 Plastic materials and articles intended to come in contact with food.

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