Scrubber

For deodorization and physical refining of fats and oils

Application

This highly efficient, structured packed column is designed to condense and recover free fatty acids (FFA) and other volatiles from the deodorization process and to prevent carry-over of these materials to the vacuum system. The scrubber is a part of the Alfa Laval SoftColumn™ deodorizing concept, but can also be offered as a retrofit component for other deodorizers – irrespective of make.

Operating principles

Cooled fatty acid distillate is pumped to a gravity distributor or spray nozzles located on top of structured packing. The distillate flows down the structured packing as a thin layer. At the same time, distillate vapours from the deodorizing column travel in a counter-current flow to the cooled distillate. In this manner, vapours from the stripping section of the deodorizing column are condensed and collected for further cooling, recirculation and draining. A wire-mesh demister is located at the top of the scrubber to prevent remaining small fatty matter droplets from entering the vacuum system.

Design features

The Alfa Laval Scrubber is based on structured packing technology, which uses a high surface area to improve contact between the vapours and the condensate, thus increasing the condensation efficiency.

Due to the efficiency of the structured packing, the required recirculation flow rate is very much reduced. This packing is self-cleaning due to the turbulent flow.

The scrubber is designed for low velocities at the vapour inlet and outlet nozzles, reducing entrainment.

The vapours inlet nozzle is specially designed and positioned to allow even distribution of the vapours across the entire cross-section of the bottom of the packing, so all the packing surface is used for condensation.

The condensate distributor on top of the structured packing guarantees an even distribution over the entire cross-section of the packing, so all the packing surface are wetted and used for condensation.

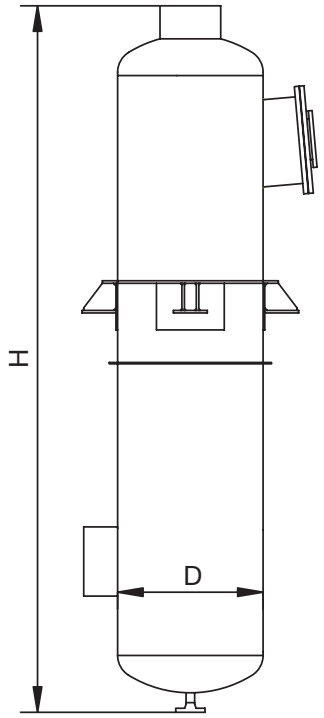
Installed scrubber

The demister is assembled before the vapour outlet nozzle to the vacuum system in a zone of low velocity. This ensures that most of the small droplets are retained.

There is a side-mounted manhole with illuminated sight glass to allow visual inspection of the distributor operation and performance of the scrubber, as well as easy access for maintenance of the distributor, packing and demister. The manhole and sight glasses are sealed with double O-rings to assure hermetic sealing. The system as a whole is designed for a low overall pressure drop.

Technical specifications
Capacity: for deodorization and physical refining plants of up to 1500 tons/day (Higher capacities available)
Pressure drop: <0.7 mbar
Efficiency: 99.5%
Material
Shell: AISI 304
Packing/demister: AISI 316

Options:
Version for integrated scrubber on top of the deodorizer



Dimensions and weights, approximate:

D, mm	(inches)	Height, mm	(inches)	Net weight, kg	(lb)
850	(33)	5000	(197)	700	(1550)
1000	(39)	5000	(197)	825	(1825)
1200	(47)	5000	(197)	1000	(2200)
1450	(57)	5000	(197)	1200	(2650)
1600	(63)	5000	(197)	1325	(2925)
1850	(73)	5000	(197)	1525	(3350)
2000	(79)	5000	(197)	2200	(4850)
2100	(83)	5000	(197)	2300	(5075)
2300	(90)	5000	(197)	2525	(5575)
2500	(98)	5000	(197)	2750	(6050)
2800	(110)	5000	(197)	3075	(6775)
3200	(126)	5000	(197)	3500	(7725)
3400	(134)	5000	(197)	3725	(8200)

How to contact Alfa Laval
Contact details for all countries are continually updated on our website. Please visit www.alfalaval.com to access the information.