DRY CONDENSING

Making vapor removal economical and less complicated.

Engineering for a better world.

GEA.com

LEAN, GREEN AND COOL.

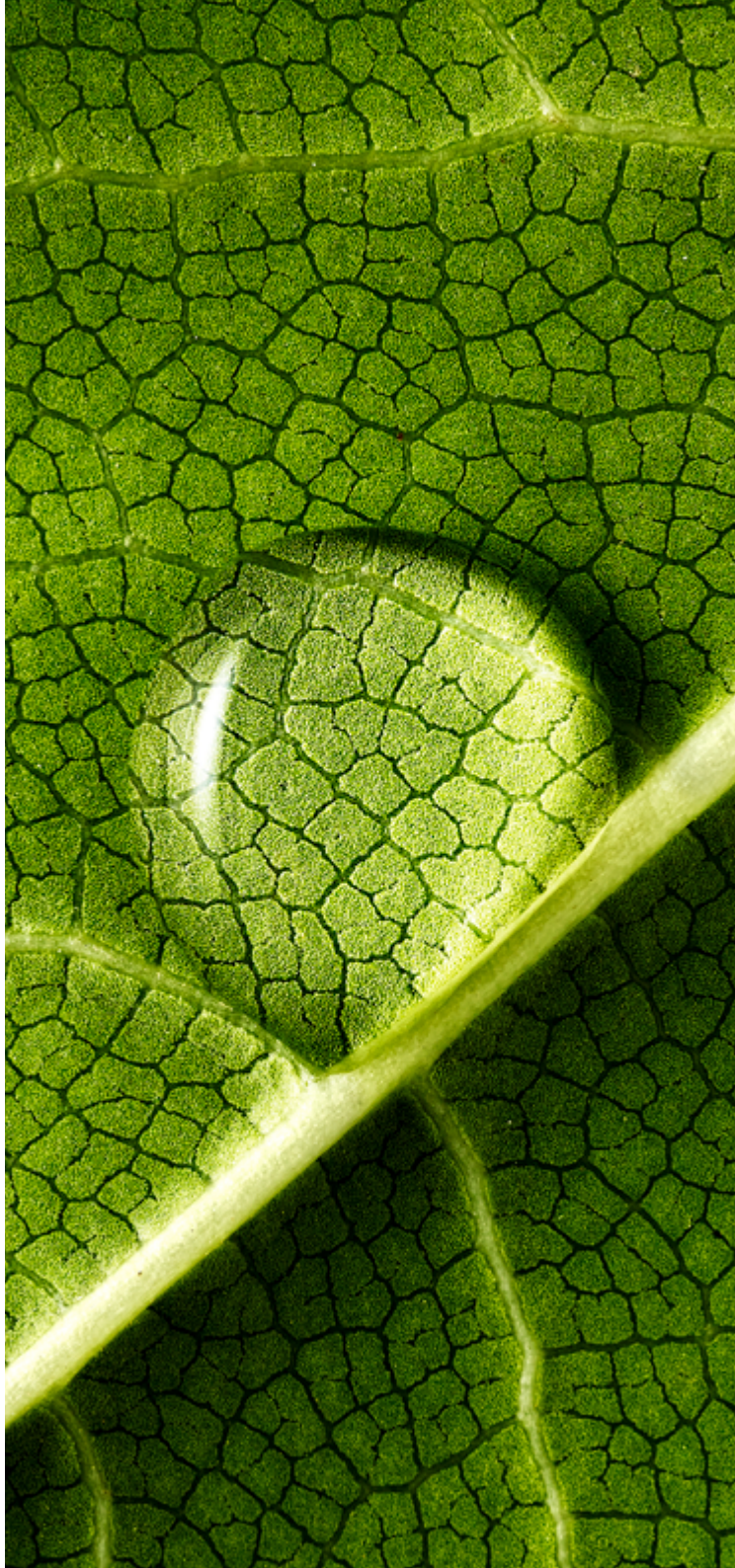
Dry condensing (DC) provides a simple, environmentally friendly, cost-effective and low-temperature (approximately -30 °C) way to remove the process vapor used for edible oil deodorization.

Conventional “wet” vacuum systems use steam ejectors to boost the pressure to a range in which the steam can be condensed in a heat exchanger. By contrast, DC is a cryogenically driven vacuum system that condenses the water vapor directly into ice, eliminating the liquid phase. Compelled by ever-increasing effluent treatment and energy costs, refineries all over the world are discovering the benefits of implementing a DC system in new facilities or to retrofit old vacuum plant.

GEA has half a century’s experience with DC technology and has successfully completed more than 60 major installations during the past two decades.

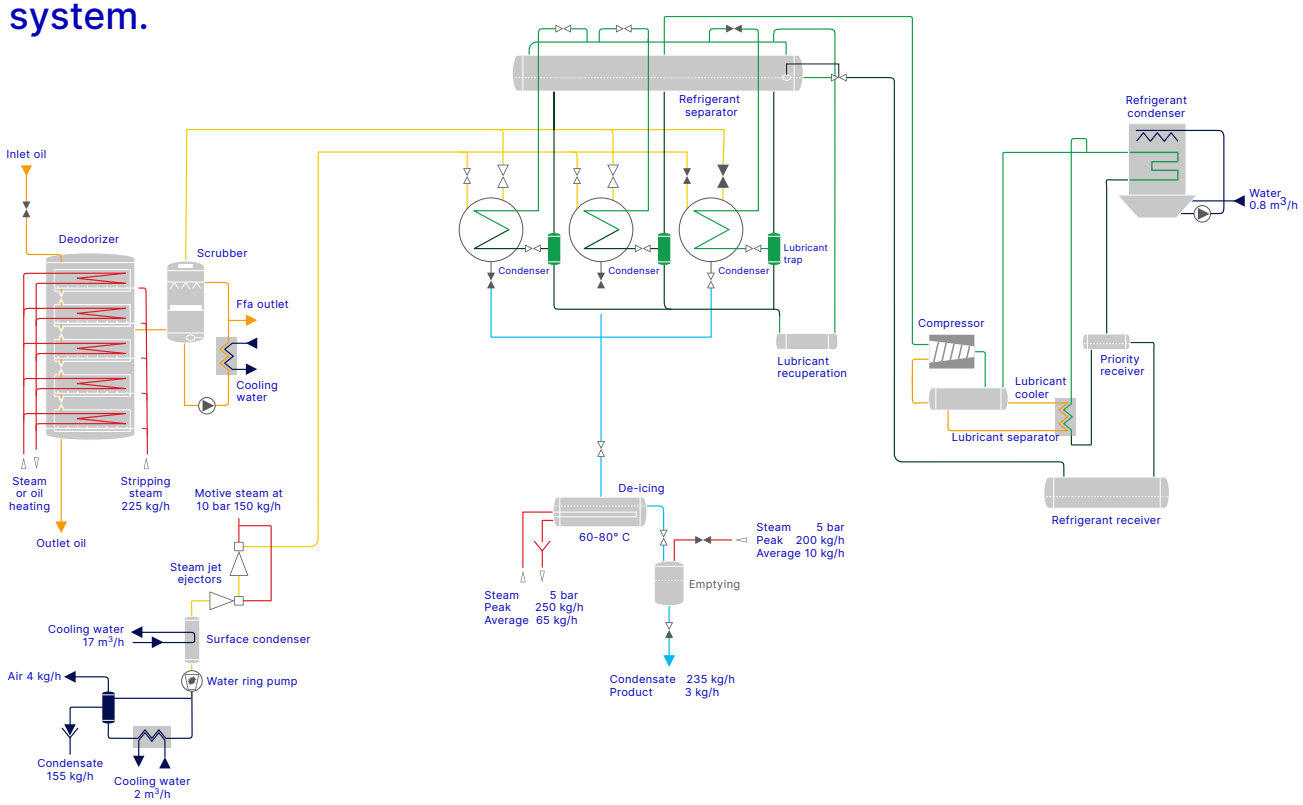
Key Benefits

- **Less pollution:** Compared with conventional “wet” vacuum systems, which produce large volumes of condensed water, it’s much easier to separate stripped-out pollutants from the relatively small volumes (approximately one tenth of traditional techniques) expelled by a DC system.
- **Reduced water and energy costs**: A DC system uses just 0.1% of the water and only approximately 10% of the energy consumed by conventional “wet” condensing systems.
- **Cost-effective:** The return-on-investment period for most DC installations is approximately 3 years.

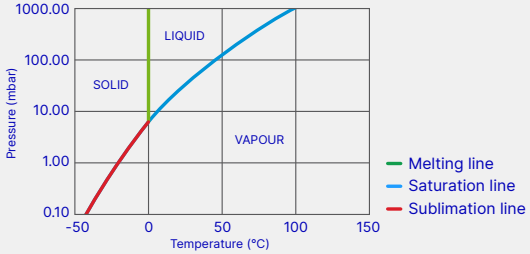


EXAMPLE OF A DRY CONDENSING SYSTEM.

An alternative vacuum system.



There can only be two phases, vapour and ice, in condensation at a pressure below a water vapour pressure of 6 mbar (the Triple Point). Vapour is therefore condensed directly into ice (as de-sublimation). We call it “dry” condensing as opposed to “wet” condensing into water.



NUMEROUS APPLICATIONS

- Edible oil deodorization
- Fatty acid distillation
- Fatty acid fractionation
- Glycerine distillation
- Water sublimation (freeze drying)
- Water removal under vacuum (<6mbar)

Engineering for a better world.

GEA.com

GEA Wiegand
Am Hardtwald 1
76275 Ettlingen, Germany

Tel +49 7243 705-0

gea.com/dry-condensing-vacuum-systems

BTC0112-EN0325 Published on 12/14/2018 Subject to modifications.