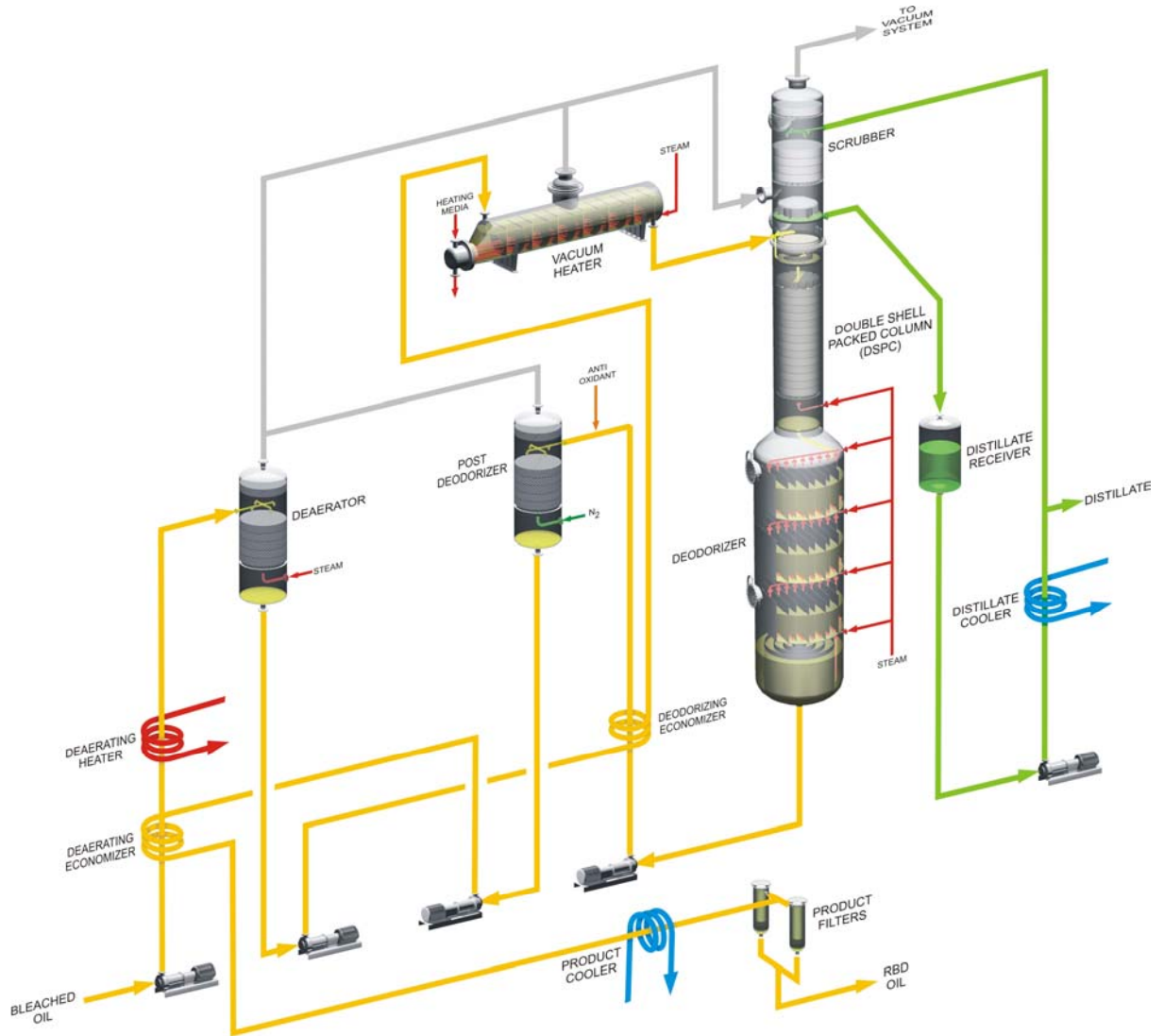




# The "High Efficiency" Deodorizing System

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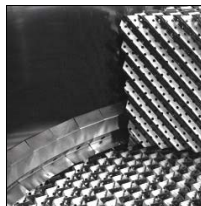


**Packed Column technology saves energy and optimizes process control**

**"Post Deodorizing" maximizes heat recovery while ensuring high oil quality**

### Features and Advantages

- Separate stripping steam and vapor outlet for Deodorizer allows use of a more effective Packed Column, while maintaining same pressure in Deodorizer
- Double Shell Packed Column minimizes heat loss and guards against air exposure to packing
- Pre-cooling in high efficiency economizer before final stripping under vacuum in Post Deodorizer maximizes heat recovery
- Deaerator with packing for maximum air removal before high temperature heating in Vacuum Economizer
- Vacuum Heater flashes free fatty acids as oil temperature increases, eliminating need to over heat oil prior to entering packed column



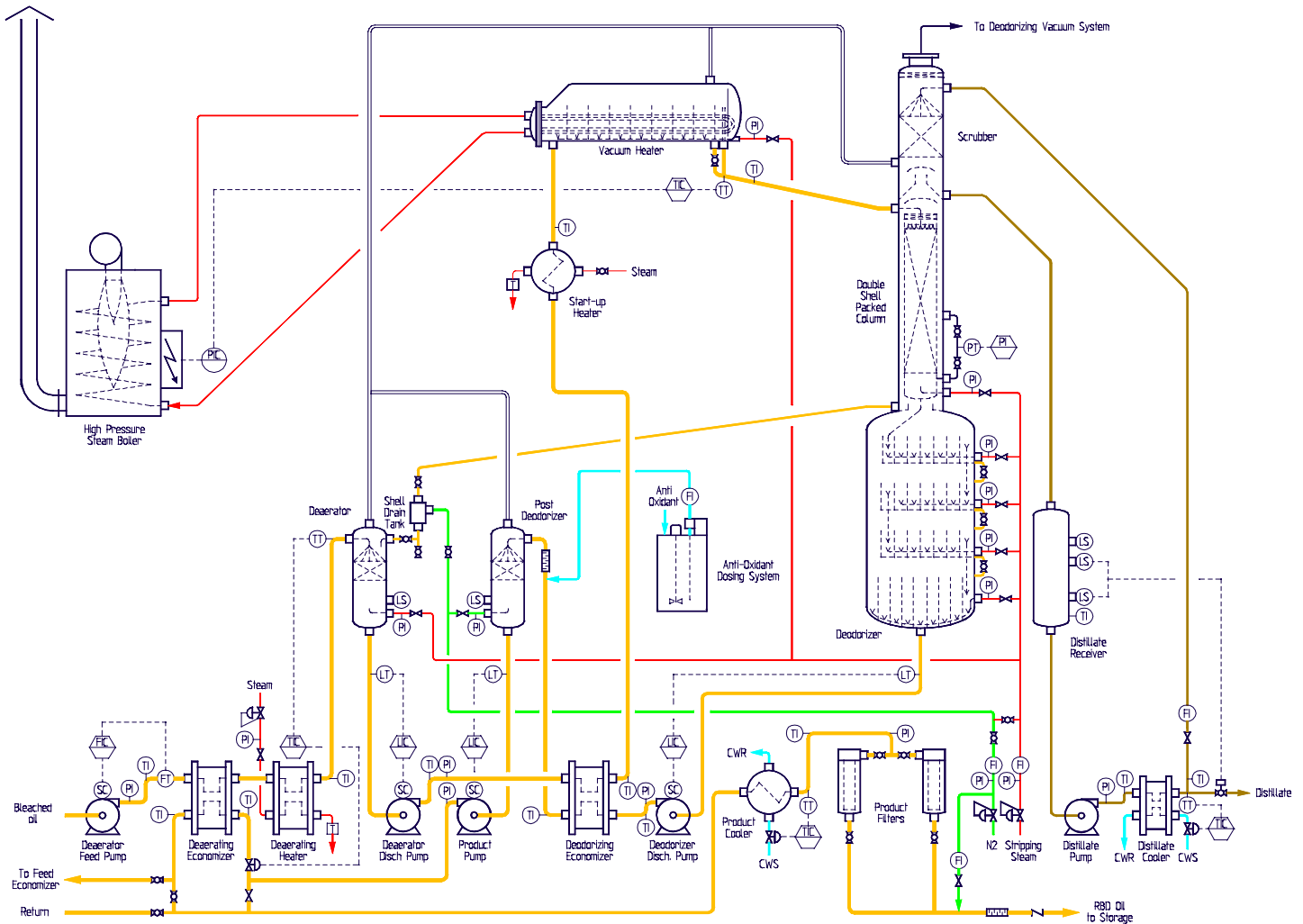
**Crown Iron Works Company**

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# The "High Efficiency" Deodorizing System



The incoming oil is pre-heated by deodorized oil in the Deaerating Economizer before entering the packed column type Deaerator. The deaerated oil is further heated by hot deodorized oil in the Deodorizing Economizer and finally by high-pressure steam under vacuum and steam agitation in the Vacuum Heater. Some of the free fatty acids are flashed off in the heater as the oil temperature increases.

The fully heated oil enters the Double Shell Packed Column (DSPC) where it is distributed into thin film layers as it flows down through the structured packing. The oil is intensively agitated by steam rising counter currently from the bottom of the column. As a result, free fatty acids and other volatile impurities in the oil are evaporated and removed with the steam. The stripped oil drains into the Deodorizer where it flows through a series of vertically stacked compartments (trays) agitated by steam.

The prolonged thermal action (heat bleaching) breaks down color bodies thereby lightening the oil's color. Also, the amount of free fatty acids is reduced to an absolute minimum. The retention time in the Deodorizer is adjustable.

The heat bleached oil is pre-cooled in the Deodorizing Economizer and then mixed with anti-oxidant before entering the packed column type Post Deodorizer. Residual flavor altering compounds and water from the anti-oxidant solution are vaporized and removed. The oil is cooled to storage temperature in the Deaerating Economizer and Product Cooler and then sent to storage via one of the alternating Product Filters.

Fatty acids and other materials evaporated from the oil are condensed by contact with recycled and cooled distillate in the Scrubber and collected in the Distillate Receiver.

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