



AIRSIDE REVAMP—REFINERY CASE STUDY

# KEROSENE PRODUCT COOLER REVAMP



In 2019, Kelvion Thermal Services completed an airside revamp of a Kerosene Product Cooler in the Crude Distillation Plant of a UK refinery. The Kerosene Product Cooler had a higher than design outlet temperature, this is due to the old, fouled and inefficient equipment.

The actual performance was measured and the following was observed by Kelvion :

- Airflow was found to at 88% of design,
- The bundles were externally fouled,
- Outlet Temperature was 52.7°C,

Kelvion completed the installation and upgrade of the Kerosene Product Cooler with the following parts:

- ◆ Complete high efficiency fan,
- ◆ New transmission and belt tensioning device,
- ◆ New fan shaft with top and bottom bearings,
- ◆ New 15kW motor,

The client had a very short install window that had to be respected to avoid production losses.

### Results :

New site measurements were taken after the start up of the upgraded equipment. This showed that the airflow had increased by 41.5% and the outlet temperature had dropped by 6°C (from 52.7°C to 46.7°C). Bundles were still fouled and need to be cleaned.

The site's process team were pleased that the short install was respected and that the outlet temperature was reduced to their required run-down temperature.

	Before revamp	After revamp
Heat Duty	10.6 MW	11.3 MW
Airflow	44.0 m³/s	62.3 m³/s
Inlet temperature	138.4 °C	138.4 °C
Outlet temperature	52.7 °C	46.7 °C