MERUS POWER

Active Harmonic Filter

Cancelling harmonic current distortion helps set new standard for UK food production

Challenge

Sweet bakery manufacturer Rich Products UK decided to consolidate its production from 4 different locations to a single newly built state-of-the-art manufacturing facility. Built on a 15-Acre site, the new manufacturing facility sized is equal to 11 football pitches. Fully automated food production processes at the new facility demanded enhanced reliability and availability in order to meet growing customer demands for quality and on-time delivery.

Due to the presence of a majority of non-linear loads at the site in the form of AC drives, SMPS and UPS, the harmonic current distortion was expected to be significantly high. Ensuring best-in-class reliability of highly critical process remained a challenge with such extreme harmonic distortions. Therefore, the design consulting firm specified active harmonic filters in the project.

Solution

Merus Power's local partner Power Capacitors Ltd proposed Merus™ A2-series Active Harmonic Filters to the customer on two different locations at the factory. Merus™ A2-series Active Harmonic Filters successfully complied with the stringent product technical specifications. Initial sizing of the active harmonic filters was done based on the current loads at the factory however, the consultants also wanted to have contingency for a future increase. Therefore, the active harmonic filter solutions were re-sized to make them a future-proof solution.

Factory-tested Merus™ A2-series Active Harmonic Filters were shipped on time in IP20 format and were integrated into IP54 cabinets in the UK by Power Capacitors Ltd. Installation was made in closed-loop connection while selectable mode was chosen to mitigate the specific harmonic frequencies having the most disruptive effects.

Result

Measurements done before commissioning the active filters on both supplies showed that Current Harmonic Distortions (THDi%) were over 43% while harmonic currents were in excess of 400Amps. These values clearly exceed the limits recommended in G5/4 and are detrimental to the reliable operations of critical processes.

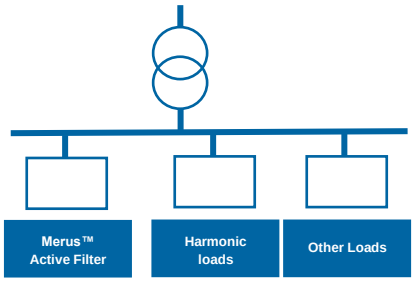
Successful compliance with G5/4 was achieved on both supplies. Post commissioning measurements proved that both THDi% as well THDv% went down to meet the limits specified in G5/4. After commissioning, THDi% values come down to be under 8% while THDv% around 1.2%.

Application:
Food and Beverages

Location:
Andover/United Kingdom

Power quality issues:
- High harmonic current distortion

Merus™ Solution:
- Merus™ A2-series Active Harmonic Filters



Customer Benefits:

- Reliable operation of critical processes
- Longer equipment lifetime and low maintenance cost
- Successful compliance

Merus Power Plc

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