



# Reducing operating costs of a food & beverage plant by filtering harmonic distortions

## Challenge

Sostem plant was experiencing frequent electronic card failures, cables and transformers were heating up excessively, along with nuisance tripping. These were among the problems reported by the plant manager. Merus Power's local partner in Tunisia, Capcondo, was approached to identify the source of these issues and to propose a reliable solution.

It was identified that most of these challenges were caused by harmonic distortions, with large AC fed compressors as the main source. A following power quality audit showed that the Total Current & Voltage Harmonic Distortions (THD%) were reaching up to 31% & 9.4%. According to the global power quality standards and recommendations, these values were exceeding the allowable limits of reliable and safe operation of electric equipment.

## Solution

Based on the power quality report and keeping in mind the acceptable limits for the harmonic distortions for the end customer, the required harmonic compensation capacity was decided. As this was a manufacturing facility with mainly 3-phase loads, a 3-phase 3-wire Merus™ Active Harmonic Filter was proposed.

Filter was shipped on time. Installation and commissioning were taken care of by Capcondo, Merus Power's authorized partner in Tunisia. As the power quality report suggested, the main harmonics at the plant were low-order harmonics: 5th, 7th, 11th and 13th, thus selectable harmonic filtering mode was chosen, and Merus™ Active Harmonic Filter was configured to cancel the low order harmonics.

## Result

According to the post commissioning report, total current harmonic distortions were reduced from 31% down to customer's desired limit of the customer, which was under 8%. Similarly, total voltage harmonic distortions were also brought down from 9.4% to around 4%, ensuring compliance with global standards and recommendations. Power factor at the plant was also improved from 0.92 to 0.99.

Improved sinusoidal waveform and overall quality helped to extend the lifetime of the electrical and electronic equipment and restored their reliable operation.



**Application:**  
Food & Beverage,  
Compressor fed with AC drives

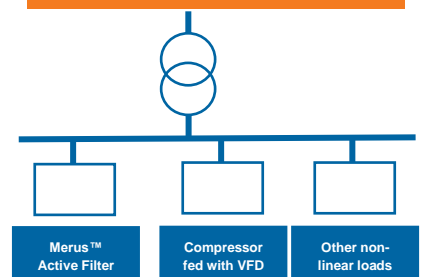
**Location:**  
Tunis/Tunisia

**Power quality issues:**

- High harmonic distortion

**Merus™ Solution:**

- Merus™ Active Harmonic Filters



### Customer Benefits:

- Reduced maintenance costs and down time
- Energy saving
- Higher productivity
- Long lifetime of plant
- Compliance with harmonic distortion standards & recommendations