

Modernization of an ageing SVC system reduced flicker and added compensation capacity

Challenge

Milcon Burapa steel mill was planning to expand their production capacity by upgrading the EAF and secure the operation of an ageing SVC system. Milcon needed to keep power factor and flicker within limits set by utility and minimize voltage unbalance and THD.

The SVC was originally designed with an option for an extension of 20 MVar by adding a 5th harmonic filter. The extension was now implemented with the related control & protection system modification that was required in order to utilize the increased dynamic compensation capacity.

Solution

Merus Power offering included an upgraded control and protection system (C&P) and 5th harmonic filter. With Merus™ solution the customer could achieve guaranteed higher performance, and easy operation. Milcon was convinced of the advantages and chose Merus Power as a supplier.

Upgraded C&P system was designed according to updated plan configuration, and in the core of it is high performance DSP / FPGA board. The control algorithms have been fine-tuned over the years of R&D to optimize flicker mitigation with fast variable loads, especially electric arc furnaces.

Result

Merus Power installed 5th harmonic filter and the C&P system during a shutdown, as planned. The furnace was upgraded at the same time, which minimized the possibility of any delays.

After installation, the system was commissioned and energized, and detailed power quality measurements were made to find out the end results. The measurements showed that the total furnace power was increased significantly by 63% and compensation capacity by 24%. Flicker reduction was also 25% better than estimated.

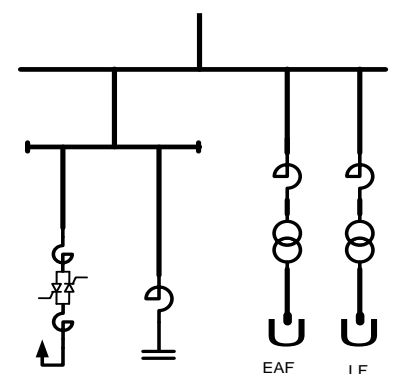


Application:
Steel factory, EAF

Location:
Burapa, Thailand

Power quality issues:
Voltage unbalance and THD

Merus™ Solution:
Upgraded control and protection system (C&P) and 5th harmonic filter.



Customer Benefits:

- Increased production
- Decreased flicker
- Higher SVC capacity
- Flawless commissioning
- Easy system operation
- Faster payback time