



Better Welding Quality without Flicker and Load Unbalance

Success Case – Meka Pro

www.meruspower.com

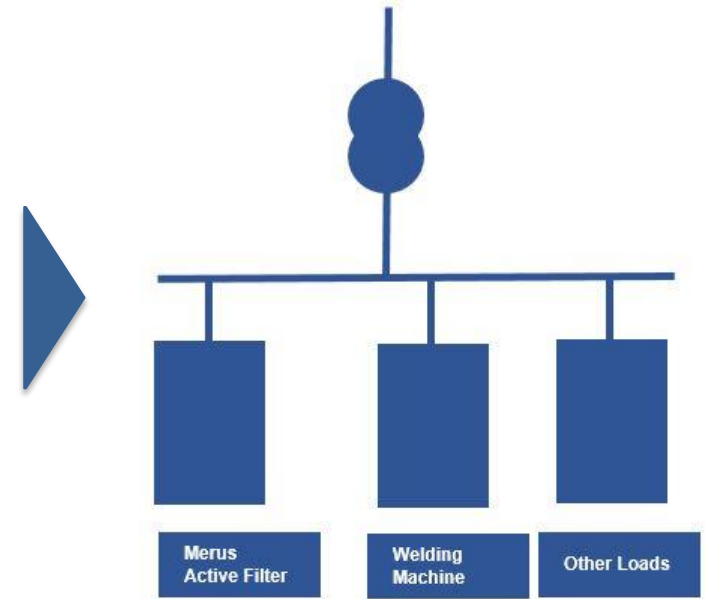


- **Meka Pro is a leading Finnish manufacturer of high quality and competitive cable support systems for the various construction projects.**
- **With production facilities in Finland and Russia, Meka Pro is a key supplier to the Baltic countries and Russia.**
- **The company's Rumeka plant in St. Petersburg produces cable support systems out of hot-dip galvanized sheet steel to Russian customers.**



- The customer Rumeka plant in St. Petersburg has one welding process in the factory, which is fed by the switchgear.
- The welding machine is connected between two phases.
- The demand for higher current for a short period of time caused power quality challenges and flicker effect .
- A detailed power quality analysis not only confirmed high flicker values but also revealed load unbalance.
- As the distribution board was also supplying other customers in the industrial area, other plants were affected by flicker as well.

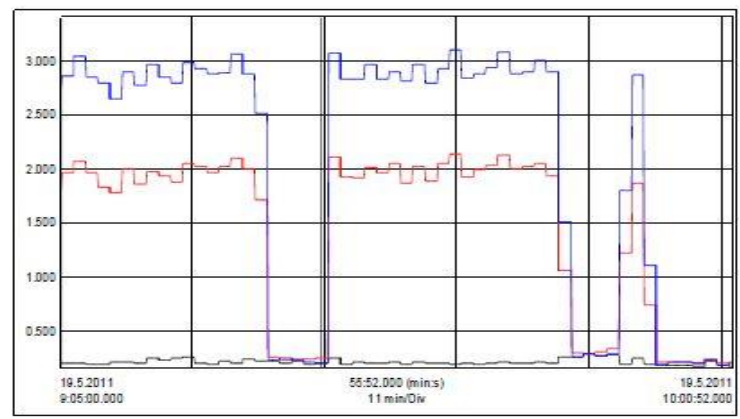
- Merus Active filters were installed parallel to the load to be compensated which is welding machine in this case.
- Dynamic and fast fundamental reactive power compensation guaranteed the flicker mitigation.



Flicker Mitigation and Load Balancing

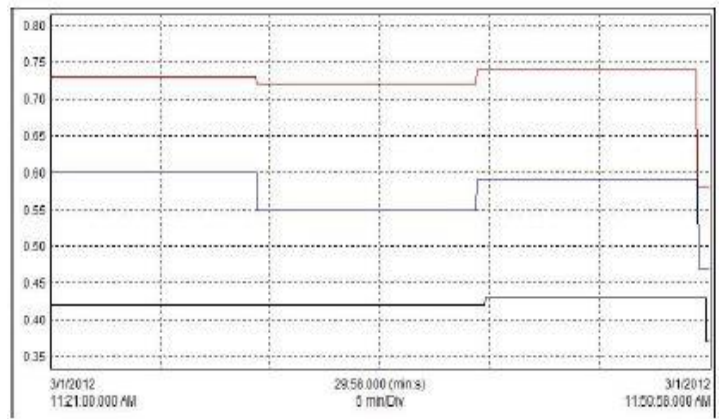


Without Merus Active Filter

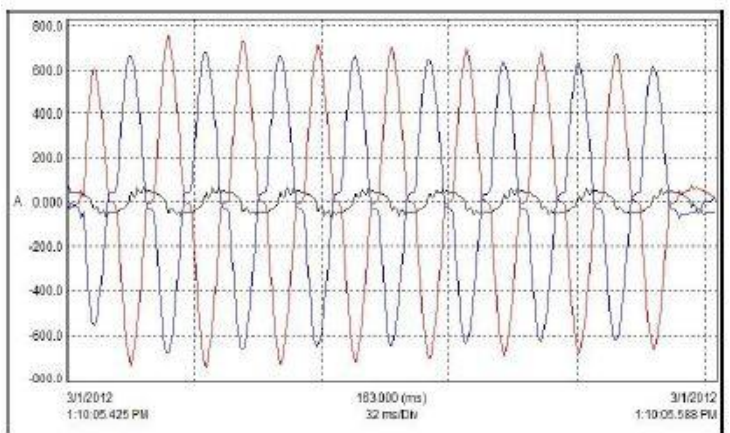


Flicker L1=0.29, L2=2.14, L3=3.1

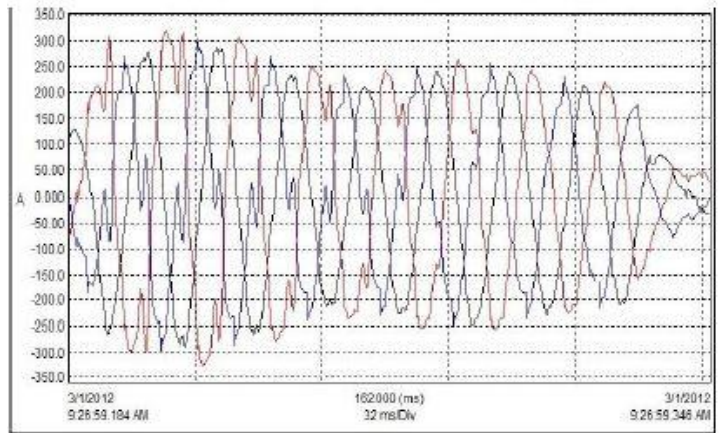
With Merus Active Filter



L1=0.43, L2=0.74, L3=0.59



Load Balancing L1=70.5A, L2=735.6A, L3=837.3A

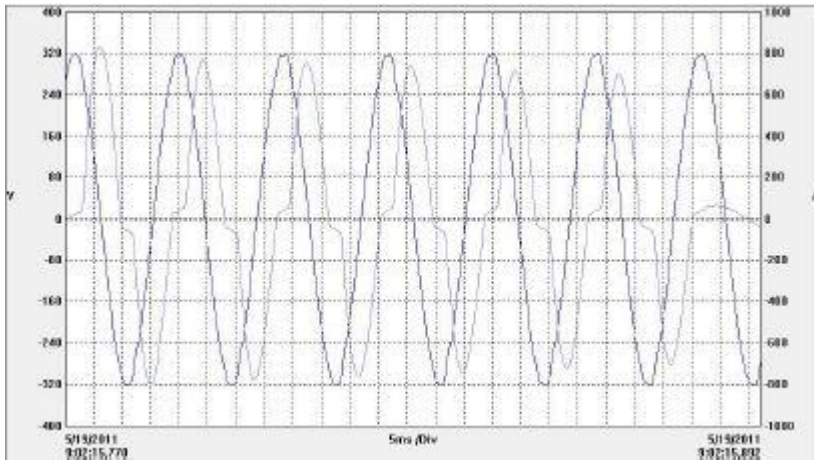


L1=286.2A, L2=319.7A, L3=303.9A

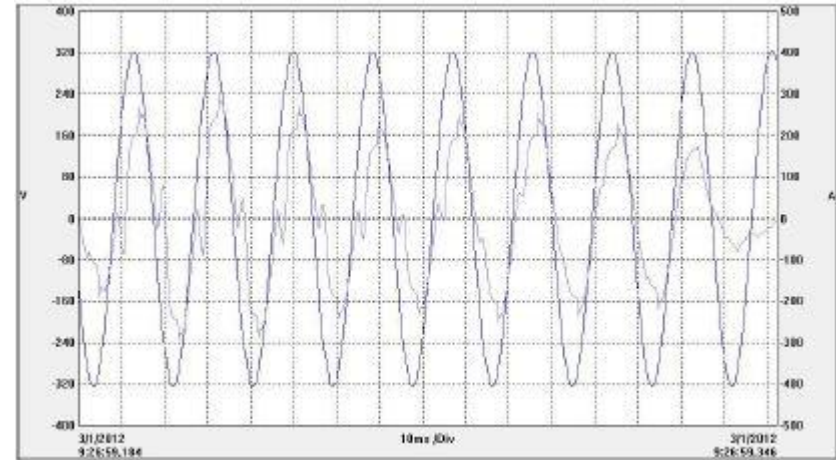
Reduction in Phase Shift between and Line Voltage and Current



Without Merus Active Filter



With Merus Active Filter



Summary

- Welding operation caused flicker and load unbalance to the customer.
- Merus A-series active harmonic filters were selected due to their fast response and effective performance.
- After Merus active filters, the flicker value were very low and compliant to all power quality standards.

	L1	L2	L3
Without Merus Active Filter	0.29	2.14	3.1
With Merus Active Filtr	0.43	0.74	0.59

- Load unbalanced in the three phase system was also effectively addressed after installing Merus active filters.

	L1	L2	L3
Without Merus Active Filter	70.5A	735.6A	837.3A
With Merus Active Filtr	286.2A	319.7A	303.9A



- **Increased production capacity and revenue with reduced welding cycle**

- **Greater control over welding quality due to reduction in inrush currents**

- **No more hassles**

Voltage stabilization makes the plant operations smooth without any need of further adjustments of electric parameters on other welding machines

- **Reduced machine break downs and maintenance costs**

- **Longer service life of sensitive components**