



APPLICATION EXAMPLE

ECOsine™ Active
Increased reliability in the
paper industry

 **SCHAFFNER**
energy efficiency and reliability

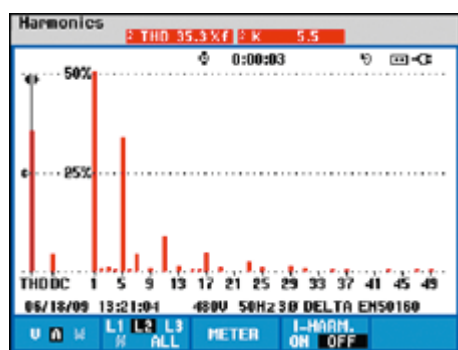
ECOsine™ Active – Increased reliability in the paper industry

Improving system reliability step by step

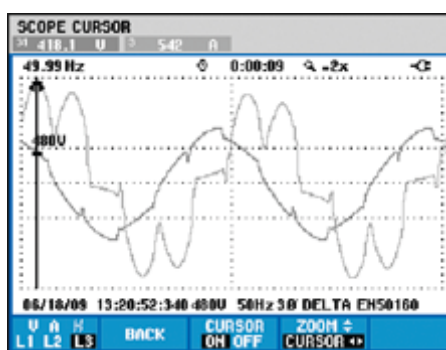
Nowadays, the paper and pulp industry is interlinking intelligent hi-tech machines to highly efficient production lines. Higher power DC and AC motor drives perform the automation tasks. Every kind of interference that negatively affects the reliability and safety of the installation may lead to production downtime and consequently to significant financial losses.

Paper mill for the production of corrugated raw paper

AC and DC motor drives are so called non-linear loads as they draw a non sinusoidal current from the grid. Resulting harmonics of current and voltage can interfere with the operation of nearby consumers and overload the electrical infrastructure. In this particular application, the load cycles of the drives often caused interruptions in the production process because of disturbances coupling into the fieldbus system.



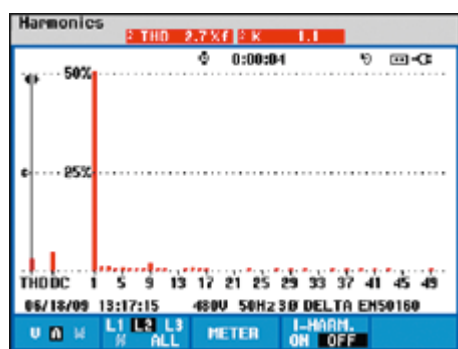
Harmonic current spectrum without filter. THID: 35.3%



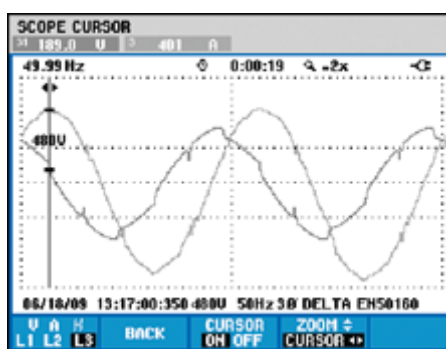
Current and voltage waveform without filter.

ECOsine™ Active – stepwise less disturbances

Active harmonic filters from Schaffner with a total compensation current of 150A solve these particular problems. In order to ensure maximum availability, three FN 5420-50-480-3 filters were installed in parallel and operated with a 480/525V matching transformer. The incremental connection of the filters leads to a clear and verifiable reduction of Power Quality related interruptions. The compensation of this relatively small part of the entire installation already resulted in a reduction of the voltage distortion THVD of 1.3 percentage points.

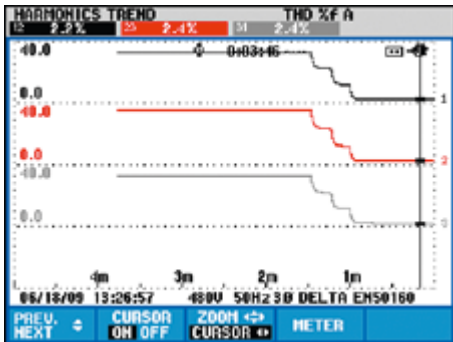


Harmonic current spectrum with filter. THID: 2.7%



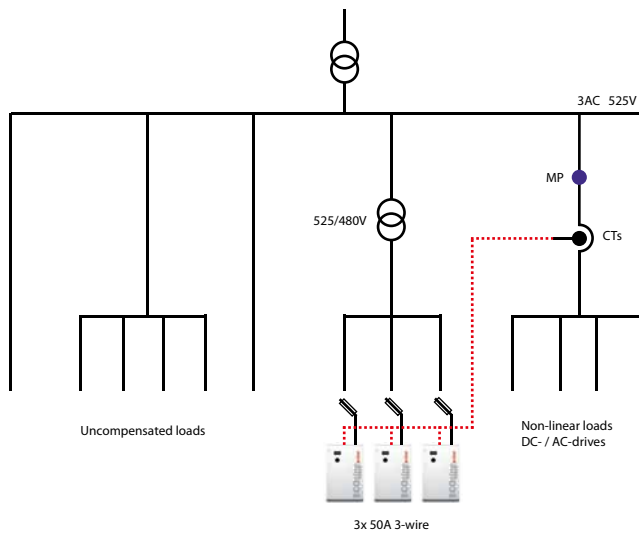
Current and voltage waveform with filter.

The paralleling of 3 filters ensures maximum availability and redundancy and allows selecting the desired degree of harmonics compensation. The effect of the active filters when connected incrementally is visible in the following screen shot.



Level of THID during the incremental connection of 3 ECOSine™ Active filters.

The dynamic compensation of the noise source with Schaffner ECOSine™ Active harmonic filters eliminates all issues with the equipment and the fieldbus system. The reliable operation of the paper mill is therefore guaranteed.



Block diagram of the installation with 3x ECOSine™ Active FN 3420-50-480-3.



Headquarters

Schaffner EMV AG
4542 Luterbach
Switzerland
T +41 32 681 66 26
F +41 32 681 66 41
sales@schaffner.com
www.schaffner.com

China

Schaffner EMC Ltd. Shanghai
T +86 21 6813 9855
cschina@schaffner.com

Finland

Schaffner Oy
T +358 19 357 271
finlandsales@schaffner.com

France

Schaffner EMC S.A.S.
T +33 1 34 34 30 60
francesales@schaffner.com

Germany

Schaffner EMV GmbH
T +49 721 56910
germanysales@schaffner.com

Schaffner Jacke GmbH

T +49 2951 6001 0
buerensales@schaffner.com

Schaffner Jacke GmbH

Nuertingen Branch
T +49 7022 21789 0
nuertingensales@schaffner.com

Italy

Schaffner EMC S.r.l.
T +39 02 66 04 30 45
italysales@schaffner.com

Japan

Schaffner EMC K.K.
T +81 3 5712 3650
japansales@schaffner.com

Singapore

Schaffner EMC Pte Ltd.
T +65 6377 3283
singaporesales@schaffner.com

Spain

Schaffner EMC España
T +34 618 176 133
spainsales@schaffner.com

Sweden

Schaffner EMC AB
T +46 8 5792 1121
swedensales@schaffner.com

Switzerland

Schaffner EMV AG
T +41 32 681 66 26
sales@schaffner.ch

Taiwan

Schaffner EMV Ltd.
T +886 2 87525050
taiwansales@schaffner.com

Thailand

Schaffner EMC Co. Ltd.
T +66 53 58 11 04
thailandsales@schaffner.com

UK

Schaffner Ltd.
T +44 118 9770070
uksales@schaffner.com

USA

Schaffner EMC Inc.
T +1 732 225 9533
Toll free 1 800 367 5566
usasales@schaffner.com

To find your local partner within Schaffner's global network, please go to

www.schaffner.com

© 2009 Schaffner EMC.
Specifications are subject to change without notice. The latest version of the data sheets can be obtained from the website. All trademarks recognized.

Schaffner is an ISO-registered company. Its products are designed and manufactured under the strict quality and environmental requirements of the ISO 9001 and ISO 14001 standards.

This document has been carefully checked. However, Schaffner does not assume any liability for errors or inaccuracies.