



**CASE STORY: ALUMINIUM RECYCLING FACILITY**

# High THDv causing frequent malfunctions and damage at aluminium recycling facility



**LOCAL PARTNER**

Olympic Power Quality



**INDUSTRY**

Aluminium recycling



**LOCATION**

Oinofyta Viotias, Greece

## BACKGROUND

EP.AL.ME. operates in industrial production, processing and trading of metals, mostly aluminium alloys and derivative products, and is the largest independent producer of processed aluminium in Greece. Their facility is an aluminium recycling unit in which the circular economy is fully implemented. It is the largest secondary billet manufacturer in Greece (2021 production >37,000 t/y) and consumes 20 times less energy than is needed for primary aluminium production. For years, the company had been experiencing severe power quality problems at the facility including frequent malfunction and damage to VFDs, production stops, and damaged capacitors on a weekly basis. In the summer of 2022, the entire capacitor bank exploded and was put out of order.



## CHALLENGE

The problem EP.AL.ME. was experiencing was high THDv (>9%) due to VFDs and arc furnaces – a typical high voltage harmonics case. As the capacitor bank had no reactors, it was consequently sensitive to harmonics. The customer knew there was a need for Power Factor Correction, but was unaware of how harmonics were contributing to the problems. Comsys's partner in the region, Olympic Power Quality, performed several Power Quality measurements and held presentations for the customer on harmonics and their effect on the facility's electrical installation.





## SOLUTION

Olympic's recommendation was to use Comsys' Active Dynamic Filter technology to resolve the harmonics issues. There was also a requirement for a PFC solution, but the customer preferred to use a 300 kVAR capacitor bank instead of a larger ADF. Olympic therefore installed an ADF P100 – 150 A with Sensorless Control and suggested that the customer also equip its new capacitor bank with reactors.

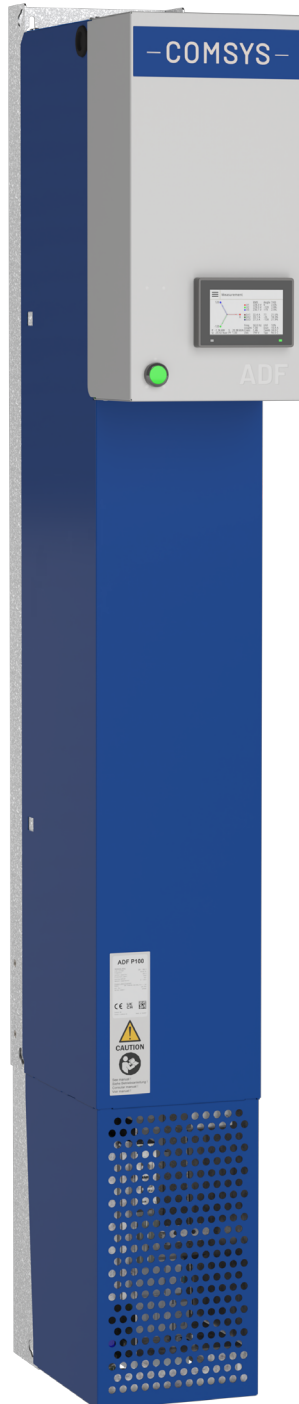
## RESULT








Based on the investigation by Olympic and on Comsys' good reputation as a Swedish innovator with references from similar industries including Sandvik as well as other prominent customers such as BMW, Mercedes, Gazprom and more, EP.AL. ME. had complete confidence in a solution from Comsys. Immediately upon commissioning of the ADF P100, THDv at the facility was reduced to about 4%. In addition, so far everything has been running smoothly without any of the earlier types of malfunctions, alarms, or adverse effects to other equipment such as VFDs or capacitors.





**PRODUCT USED IN THIS CASE**  
**ADF P100**



-  **HARMONIC ELIMINATION**
-  **DYNAMIC VAR COMPENSATION**
-  **LOAD BALANCING**
-  **MODULAR & SCALABLE DESIGN**
-  **LOW RESPONSE TIME**
-  **208-415V NOMINAL VOLTAGE**
-  **SEVERAL ADF P100S CAN BE COMBINED FOR HIGHER POWER**