

## Coatings for Process Components

# Severe damage by pitting corrosion: Electric motor was efficiently restored with ARC- and Ceramic-Polymer-Systems

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 The Greek company "Hellenic Petroleum" owns a plant for polypropylene in Thessaloniki. Here, a medium voltage motor for pumps of cooling water circulation was effectively restored. The motor has been in use since 2000. It showed severe erosion and pitting corrosion damages at the impeller housing and connection box. The repair coating ARC 858(E) of our parent company A. W. Chesterton together with Ceramic-Polymer coating systems enables an efficient renewal and fast restart of the electric motor (type ATEX).



### Our coatings fulfill highest protection requirements

#### ISO 12944-2, C5-I:

Very high atmospheric corrosiveness at industrial areas with high humidity and an aggressive environment

#### Resistance to chemical contents of the cooling water:

Sulfuric acid, sodium hypochlorite, NALCO (special chemical for cooling water conditioning e. g. zinc chloride, phosphoric acid, methanol, formaldehyde)

The company is located in Greece very close to the sea. The constantly moist, salt-laden air and the evaporation of cooling water with the contained chemicals cause heavy corrosion damages on the motor frame. Thus, protection systems against the aggressive environmental conditions were significant for this project.

Especially for process components such as pumps, machine elements and motors the premium coatings of the Chesterton series "ARC Efficiency & Protective Coatings" are qualified for the effective re-building of erosion-damaged parts. Therefore, together with the high-performance Ceramic-Polymer coatings optimum protection against corrosion and erosion is achieved!

### Protection concept for aggressive industrial environments

**803(E):** Cleaning solution for removal of old coating

**ARC 858(E):** Ceramic reinforced 2-component thick film epoxy compound to protect metal surfaces subjected to erosion, corrosion and chemical attack

**CERAMIC-POLYMER STP-EP-HV:** 2-component ceramic composite epoxy coating providing outstanding corrosion and abrasion protection for aggressive environments

**PROGUARD 169(37):** UV-resistant 2-component polyurethane top coat with long-term stability



Previous condition: The whole motor showed corrosion damages. On connection box and impeller housing severe pitting corrosion occurred. 4 motors in total are installed in this plant, the first has now been renovated with our systems.



Prior to the coating the surfaces were cleaned with **803(E)**, afterwards sand blasted according to purity level SA3 and an average surface roughness of 75 µm.



**ARC 858(E)**, a ceramic reinforced thick-film coating system especially for erosion-prone areas, was used for the smoothing and filling of the damaged surfaces. The curing time was 20 hours at 15 °C.



Before the protective coating was applied the surface was again sandblasted. The repaired areas were roughened by sweeping. The application of **CERAMIC-POLYMER STP-EP-HV** was conducted in 2 steps: pre-coating of edges, ventilation screens and blades was passed with brush or roller to increase the total layer thickness in these sensible zones. Following, the coating was applied by airless spraying with a thickness of 350 µm. The curing time was also 20 hours at a room temperature of 20 °C.



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A. W. Chesterton Company and  
Ceramic Polymer GmbH in Greece:

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**Our Products:**

- 803(E)
- ARC 858(E)
- Ceramic-Polymer STP-EP-HV
- Proguard 169(37)



The top coat **PROGUARD 169(37)** was also applied on edges by brush, then sprayed wet-on-wet by airless in 2 layers with a total DFT of 80 µm.

**Feedback from our customer:**

"I would like to thank Mr. Vlachos, for supervising the whole process, guiding contractor's personnel during all steps of repair. He personally took responsibility of all difficult tasks and successfully solved all tricky steps of the process. The process was clear, following the instructions of Chesterton. We are going to apply the same protection products to three more motors, with the same damage."

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**Do you need comprehensive protection against corrosion and erosion for machine parts and process elements?**

**Our corrosion protection experts are certified coating inspectors – they assist you competently and focused!**