Case Study

AHLSTAR APP Pump with Dynamic Seal, the Perfect Solution for the Zinc Industry

Project Highlights
In the zinc manufacturing process, many pumps are used for zinc electrolyte pumping and neutral solutions pumping. These are the main applications in the zinc manufacturing process. Zinc electrolyte is a corrosive liquid with up to 200 g/l of \( \text{H}_2\text{SO}_4 \). It is also quite hot, so the material selection is important. Another liquid type - neutral solution - is also corrosive and can crystallize, too.

The Challenge
Because of high importance and constant operation, the customer requires reliability, low maintenance and robust design from the pumps. The customer was looking for a pump that can meet all these requirements. Earlier, the customer used to have locally made pumps, but for more than 10 years AHLSTAR APP process pumps have served well and the customer is satisfied.

The Solution
AHLSTAR APP process pumps in super duplex 4T material with the Dynamic Seal were tried in this application. The customer is satisfied with the Dynamic Seal, because the use of water for sealing is forbidden, since no water should go into the process. The Dynamic Seal is reliable and practically maintenance free. This solution is cost effective, the wetted parts of the pump last for many years, and corrosion is very low. The static seal requires changing after some time, but it is quite cheap and not difficult to replace.

Customer Benefits
The customer is very satisfied with the pump material and Dynamic Seal. The customer has tried different materials in this application, but 4T showed the best results. Spare parts are not needed because the rate of corrosion is low.

Pump Data
- **Pump**: AHLSTAR APP42-150, Dynamic Seal, ser. no 100086925
- **Material**: 4T
- **Capacity**: 400 m³/h
- **Head**: 22 m
- **Speed**: 1450 rpm
- **Motor power**: 55 kW

Process Data
- **Zinc electrolyte or neutral solutions \( \text{H}_2\text{SO}_4 \)**: 170 g/l (or neutral solution with \( \text{pH}=4\))
- **Temperature**: 60 °C max
- **\( \gamma \)**: 1400 kg/m³
- **Solids**: 1 g/l
- **Solids size**: 100 mkm

The Sulzer Difference
The combination of correct material selection and seal selection gave a perfect result and a satisfied customer. These pumps have been in operation for more than 10 years. The customer has bought many pumps with the same seal type and same material for a similar application.

Contact
merja.parssinen@sulzer.com
www.sulzer.com

Applicable Markets
Base Metals

Applicable Products
AHLSTAR Pumps

A10081 en (5.2013), Copyright © Sulzer Pumps
This study is a general product presentation. It does not provide a warranty or guarantee of any kind. Please, contact us for a description of the warranties and guarantees offered with our products. Directions for use and safety will be given separately. All information herein is subject to change without notice.