

## Bachelor thesis

# Cavitation erosion behavior of stainless steel and brass alloys in water with different amounts of dissolved oxygen

### Introduction

Cavitation is the formation and collapse of bubbles inside a fluid due to pressure changes. Cavitation could be destructive and cause erosion if happens near the surface of solid materials. Any change in the fluid conditions (e.g., temperature, pressure, surface tension, viscosity) can alter the rate of cavitation erosion. It is also reported that an increase in the dissolved gas in water results in an increase in the bubble nucleation rate. This means that cavitation occurs more easily in water with higher oxygen concentrations. Therefore, lowering the dissolved oxygen content of water will properly reduce the rate of erosion damage on the surface of components.

### Aims

- ✓ Effect of dissolved oxygen level in water on the cavitation erosion damage
- ✓ Comparing the cavitation erosion behavior of two technical alloys in water containing oxygen scavenger

### The work

1. Literature review
2. Sample preparation and materials characterization
3. Ultrasonic cavitation erosion tests in distilled water and distilled water + oxygen scavenger
4. Surface and subsurface studies (SEM and confocal light microscopy)
5. Evaluation and interpretation of the results, writing the thesis.

### Your profile

- ✓ You are interested in research and experimental works.
- ✓ You have an interest in materials science (metals).
- ✓ you are completing your bachelor's degree in material science, engineering, or natural science.

