

## Reveal TAP

# Freeboard measurement

## Description

Determining the freeboard height is important in the metal industry as it helps operators to monitor and control the surface level of molten metal or slag in the vessel. Maintaining the appropriate freeboard height is important for several reasons such as safety, process control, and quality control.

There are various methods for evaluating freeboard height. Sapotech has developed a specialized solution named Reveal TAP for freeboard measurement. This application, as its name suggests, is designed for the specific purpose of determining freeboard height by incorporating infrared cameras and an advanced freeboard detection algorithm for accurate measurements.

## Application

Conventional approaches to determine freeboard height, such as visual observation, prove challenging in factory conditions. Fumes and gases produced during the process block visibility, while extreme temperatures pose a risk to operators. Reveal TAP for freeboard measurement utilizes thermal cameras capable of seeing through heavy smoke and gases, allowing for accurate imaging each time.

The system automatically detects the start of the tapping, while intelligent algorithms monitor the freeboard height. Operators can simultaneously observe the process through the system's live feed. An alert is triggered by the system once the desired freeboard height is achieved.

The user interface enables the review of previous recordings and the monitoring of the freeboard measurement through the live feed.

## Benefits

### 1. Enhanced safety

Improved monitoring and control of freeboard height contribute to a safer working environment by minimizing the risk of accidents associated with overfilling ladles.

### 2. Operational efficiency and process optimization

System optimizes ladle filling, reducing inefficiencies related to both under- and overfilling, increased operational efficiency and productivity. Optimizing ladle filling contributes to better control over downstream processing stages and overall steel/metal production efficiency.

### 3. Equipment protection

Helps prevent equipment damage caused by overfilling the ladles, minimizing downtime and maintenance costs.

### 4. Quality control

Maintaining precise ensures the consistency and quality of the molten metal, positively impacting the final product's quality.

### 5. Remote monitoring

Users can observe the ladle filling process in real-time through live stream, allowing for remote monitoring and timely decision-making.

### 6. Easy to install

Straightforward installation in different locations. Easy to customize to meet the specific needs of customers.