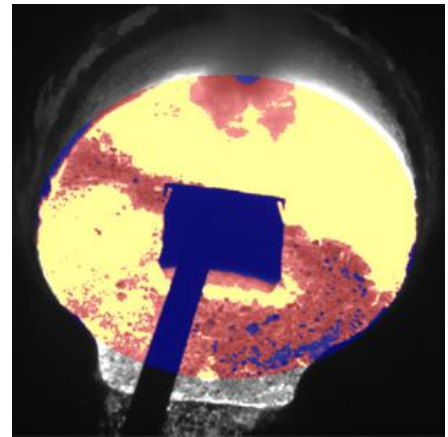


Ladle Skimming Monitoring

VISIR-LadleDeslag infrared monitoring and evaluation of your deslagging process helps you get in control of your operations and minimise slag carry over.



The VISIR-LadleDeslag system is designed to monitor ladle deslagging operations in order to quantify the percentage of the slag covered area. Thus, deslagging rake operators using the VISIR-LadleDeslag system can produce slag free ladles consistently and therefore minimal slag carry-over between the different onward processing steps is obtained.

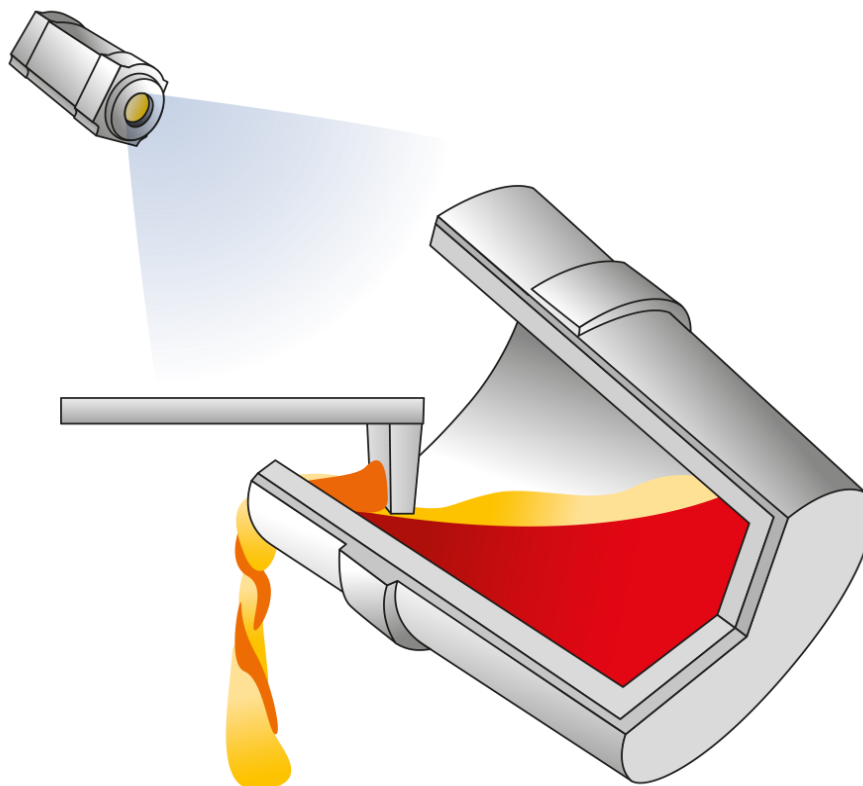
VISIR-LadleDeslag uses thermal cameras and vision technology in order to monitor the deslagging operations in real time.

By using VISIR-LadleDeslag you will be able to better control sulphur amounts and re-oxidation during ladle treatment.

By narrowing down the process variations and ensuring that the deslagging process is more

consistent, you remove the unknowns and associated quality variations. Uneven deslagging processes are well known to create process differences leading to variations in the quality of the final product.

The VISIR-LadleDeslag system automatically track and store vital information for each heat, and make sure your quality assurance program is met every time.



Agellis follows a policy of continual improvement of design and we must therefore reserve the right to supply equipment differing in detail from that described herein.

Key Features

Carry-over slag control

Processing of image data performed in order to estimate remaining amount of slag.

Measurement and image analysis

Thermal camera vision module for evaluation of the fraction of slag covering the steel surface.

Process stability

Sufficient and consistent slag removal – every time. No more unexpected process variations.

Increased product quality

Decreased re-oxidation from slag carry-over eliminates non-metallic inclusion formation during ladle operations.

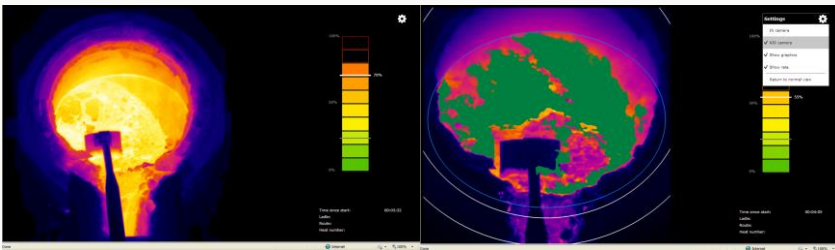
Operator support

VISIR-LadleDeslag guides your operator in order to obtain consistent handling.

Production follow-up

Full traceability for production follow-up, data mining and report generation purposes.

User Friendly Interface



VISIR-LadleDeslag automatically presents the operator with a clear view of the operation. The slag free areas are coloured in green and the slag covered areas are coloured in red, yellow and purple depending on slag amount/severity. This shows the operator very clearly where the slag is to be removed. A clear indicator on the right shows the ladle surface percentage still covered by slag. A settable threshold is visible to the operator as the target to reach for every heat. Once the target is reached a traffic light changes to green and the ladle is good to go.

Principles of Operation

Technical Overview

VISIR-LadleDeslag is based on the thermal imaging technique, using infrared cameras to feed data to the system software analysis. A Windows based server hosts the VISIR-LadleDeslag analysis models, vision system and databases. The server communicates with plant systems (Level 1/2/3), operator clients, and peripherals using TCP/IP and industry-standard protocols for data exchange.

The VISIR-LadleDeslag technological package is built as a web-application for easy installation and maintenance. The user has access to the system by using the standard web-browser and a local Ethernet – no client installation required.

A typical VISIR-LadleDeslag set-up consists of one or several operator panels controlled by using a touch screen client mounted at the work station pulpit or on the shop floor.



Thermal cameras

VISIR-LadleDeslag uses Thermovision thermal cameras from Flir Systems, the world's leading supplier of infrared imaging equipment. The Thermovision A-series cameras are designed for continuous 24/7 operation and is a highly accurate temperature measurement system, offering tens of thousands of individual measurement points per image.

Technical Information

Thermal camera

Type: Flir system A-series

Resolution: 640 x 480 pixels

Thermal sensitivity: 70 mK at 30°C

Temperature range: -20°C up to +2000°C

Detector type: Focal Plane Array (FPA), uncooled microbolometer

Spectral range: 7.5 to 13 µm

Near-infrared camera

Type: Basler Ace-series

Resolution: High density resolution



Camera protection housing

Type: Different options depending on local condition

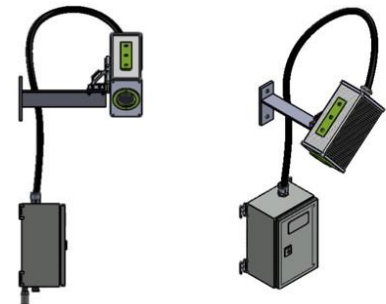
IP Rating: 67 and above

Others

A number of standard lenses are available to adapt to different measurement scenarios.

NIR (Near Infra-Red) cameras are used to enhance the vision quality and overlay the image analysis.

Typical VISIR protective housing solution:



Agellis follows a policy of continual improvement of design and we must therefore reserve the right to supply equipment differing in detail from that described herein.

AGELLIS Group AB

Tellusgatan 15
224 57 Lund
Sweden

Phone: +46 (0)46-10 13 60
Fax: +46 (0)46-10 13 61
Email: info@agellis.com
www.agellis.com

Your local representative: