AUTOMATION AND DIGITALIZATION

SAFER OPERATION IN THE SMELT SPOUT AREA

SMART SMELT SPOUT ROBOT

ANDRITZ

Increase safety by up to 92% in the smelt spout area

The smelt spout area of a recovery boiler is one of the most dangerous places to work in a modern kraft pulp mill. However, regular tasks need to be carried out for efficient and smooth operation of the boiler. Smelt can cause several issues in the spout area as it tends to coagulate and plug the spouts. Spouts need regular cleaning.

In most cases, this operation is carried out manually by the operators with long steel rods to remove solidified smelt. Splashing smelt and a hot environment makes the spout area a hazardous place to work in.

Experts in ANDRITZ Automation and Digitalization have come up with a safer and smarter solution - the smelt spout robot - that enables essential work and maintenance to be performed by increasing safety by 92% in the smelt spout area compared to a robot-free smelt spout area.

ONE ROBOT CLEANS UP TO THREE SMELT SPOUTS AND SAMPLES THE SMELT REDUCTION AND SMELT FLOW

The Smart Smelt Spout Robot cleans up to three smelt spouts. ANDRITZ experts deliver the robot to customer's layout and prepare the robot fully for smooth delivery, installation and start-up.

The robot does not only improve safety in the area but can lead to chemical savings and increase cost efficiency by sampling the smelt reduction online. Sampling station is placed in the robot's working area and is connected to the Advanced Visual Analysis environment.

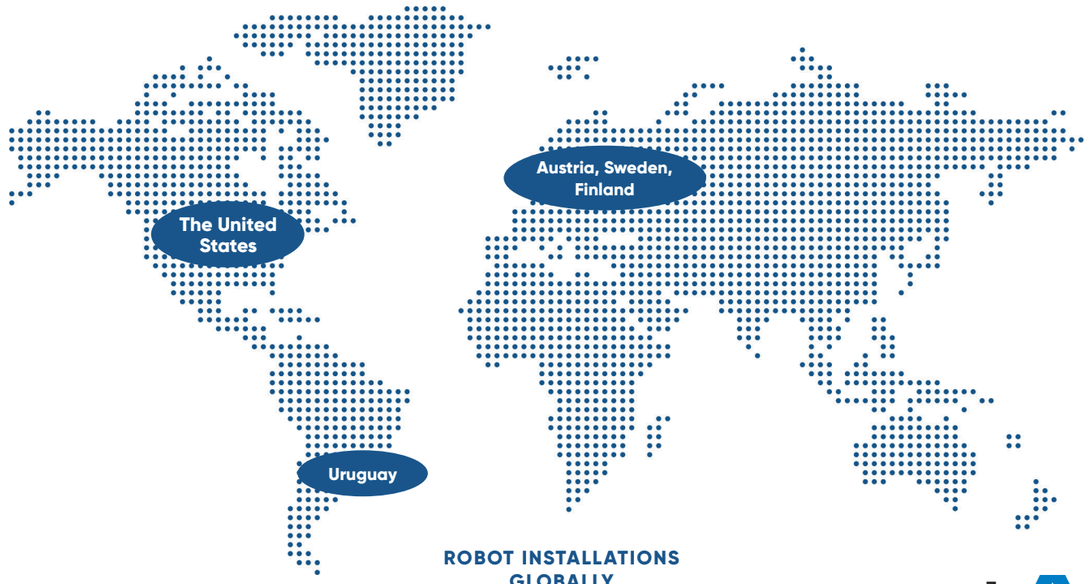
Smelt Flow analysis provides the operator insights of the velocity, volume, output width, dirt index, smelt flash and warnings of the smelt flow for better availability, cost efficiency and safety in the smelt spout area.

MULTI-ROBOT SYSTEM FOR LARGER RECOVERY BOILERS

As the global recovery boiler capacity evolves, there is an increasing need for larger smelt spout areas. Whereas safety awareness gains ground, multi-robot systems are an excellent choice for maximizing safety and performance for larger number of smelt spouts.

LIFECYCLE SERVICES FOR FULL SUPPORT

Lifecycle services with spare and wear parts as an optionality supports customers with reliability and availability targets. ANDRITZ experts provide full support throughout the entire product lifecycle.



ROBOT INSTALLATIONS GLOBALLY

Impact on recovery boiler availability and reliability

Configurable robots increase availability and reliability. Every robot is pre-tested and installed even to challenging layouts.

In the high-stakes environment of pulp mills and recovery boilers, maintaining reliability and availability are critical targets, especially in the smelt spout areas. Continuous spout cleaning is essential to prevent blockages and ensure uninterrupted operations. Here, robots have emerged as invaluable assets, adept at undertaking regular, repetitive cleaning tasks with precision and consistency. By delegating such tasks to robots, mills can significantly enhance recovery boiler reliability and availability, while also minimizing risks associated with manual interventions in these high-temperature and high-pressure environments.

SAFETY AWARENESS IS PARAMOUNT IN MODERN PULP AND PAPER INDUSTRY

In the modern pulp and paper industry, safety awareness is paramount, particularly in areas like the smelt spout area in recovery boilers. Due to the inherent risks associated with managing the flow of smelt, workers are often exposed to dangerous situations. To mitigate these risks and avoid accidents, robotic systems have been increasingly employed to replace human intervention in the most hazardous areas of a pulp mill. These robots not only reduce the risk to human life and well-being but also enhance recovery boiler availability and operational stability.

MULTI-ROBOT SYSTEM FOR MORE SPOUTS

Number of spouts	1-3	4-6	7-9	10-12	13-15	16-18	19-21
Number of robots	1	2	3	4	5	6	7

TOUCH PANEL IS INTUITIVE TO OPERATE

INTUITIVE HUMAN-MACHINE INTERFACE

- Robot itself can be operated by a touch panel located outside of the safety fence
- Easy adjustment of spout location
- Adjustable cleaning interval
- Tool wearing indication

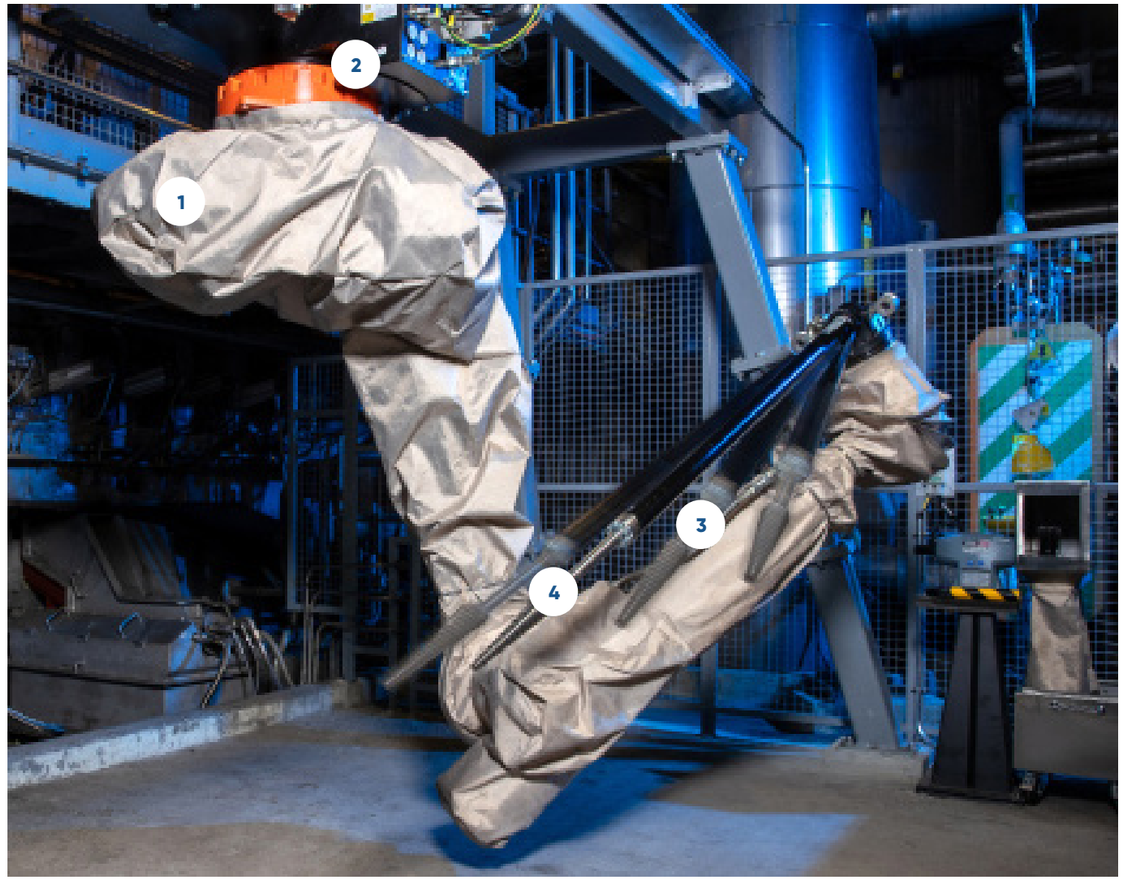
CUSTOMER REFERENCE FROM NORTH AMERICA

- Customer recognized the inherent safety risk of their process and turned to ANDRITZ for an engineered solution
- Smelt Spout Robot increased the safety of smelt spout area
- Installation took place during a routine outage of the recovery boiler with successful results

Even in a modern kraft pulp mill, some continuous processes still require regular human intervention. Around the black liquor recovery boiler, such work can be physically demanding and can carry inherent risks.

Read the full story!

SMELT SPOUT ROBOT COMPONENTS



1 Protective suit 2 Strong support construction 3 Reduction sampling 4 Durable cleaning tool

READ THE FULL STORY FROM MONDI, AUSTRIA

Safety fencing protects the robot and operators working in the smelt spout area

WHAT IS YOUR CHALLENGE?

ANDRITZ Pulp & Paper provides sustainable technology, automation, and service solutions for the production of all types of pulp, paper, board and tissue. The technologies and services focus on increased production efficiency, lower overall operating costs as well as innovative decarbonization strategies and autonomous plant operation.

The product portfolio also includes boilers for power generation, flue gas cleaning systems, various nonwoven technologies, and panelboard (MDF) production systems. With waste-to-value recycling, shredding and energy solutions, waste and by-product streams from production are converted into valuable secondary raw materials as well as into sustainable resources for energy generation. State-of-the-art IIoT technologies as part of Metris digitalization solutions complete the comprehensive product offering.

EUROPE
ANDRITZ Oy
p: +358 20 450 5555
recoveryboilers@andritz.com

NORTH AMERICA
ANDRITZ Inc.
p: +1 770 640 2500

SOUTH AMERICA
ANDRITZ Brazil Ltda.
p: +55 41 2103 7601

ANDRITZ.COM