



EDGEMON

HIGH STRIP EDGE QUALITY THROUGH AUTOMATIC INSPECTION

High precision trimming is essential for producing high quality strip. The condition of the knife and detection of knife breakouts are two of the most important factors for trimming. With the help of the Long Term Viewer software relationships between quality and process can be identified easily and improvements made.

YOUR CHALLENGE

In order to maintain high product quality and plant availability, the trimming shear must be set up in a proper way. By reducing the time required for inspection of the edges (prior to and after trimming), plant availability can be extended.

The early detection of defects results in less scrap and less damage to rollers. Being able to predict lifetime helps optimize and reduce operator maintenance efforts.

Without an automatic inline inspection it is nearly impossible to obtain a complete overview of what exactly happens during the cutting process of the strip edge. Changed or modified knife settings have an enormous impact on the edge quality.

A simultaneous inspection of both sides of the strip as well as a reduction of knife-parameter optimization-time would increase total plant efficiency.

Today strip edge inspection is done by the operator. So, the strip accuracy depends highly on operator experience, additionally manual strip inspection is dangerous as the operator needs to get very close to the strip.

Stopping the line for inspection influences productivity and increases the risk of additional defects on the knife and the strip.

Operator inspection is subjective and only enables a reaction to any current quality issues. It does not allow systematic identification of the relationship between trimming quality and product or process parameters (e.g. thickness, steel grade, plant speed...). Sustainable process improvement is therefore difficult and lengthy.

OUR SOLUTION

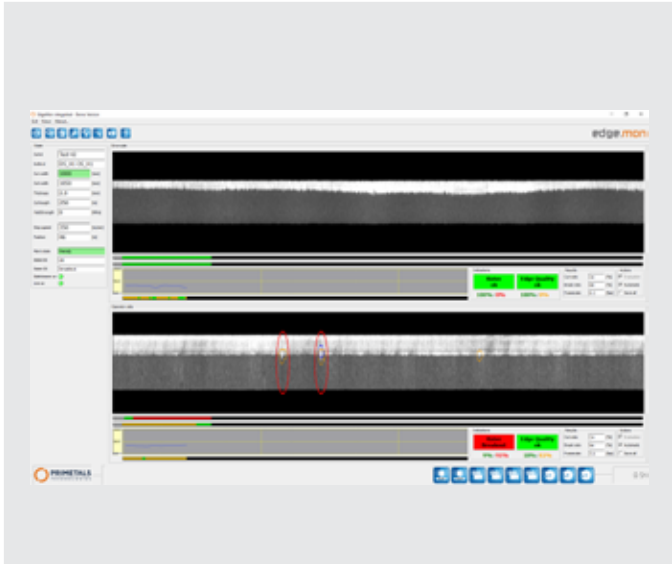
EdgeMon enables the simultaneous inspection of the trimming process for both sides of the strip at full plant speed. Magnified images are visualized, knife breakouts are detected automatically and warnings are issued in the event of worsening edge quality. Cut-break ratio and burr are measured and enables operators to make decisions on knife changes, knife set-up or quality clearance of the coil.

For quality and / or process engineers the inspection results and images are stored for a minimum of 1 year. With the help of the Long Term Viewer software the data can be screened, relationships between side trimming quality and product parameters can be identified and based on this the side trimming process can be improved sustainably.

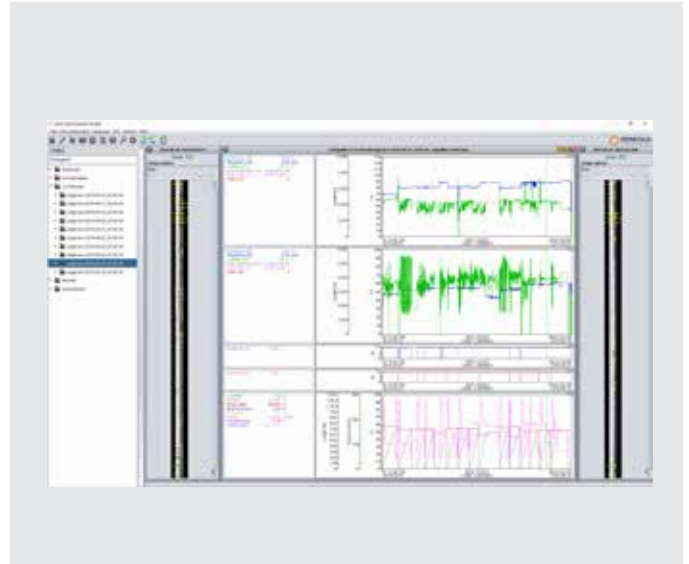
EdgeMon is suitable for pickling lines and finishing lines - all plants equipped with side trimmers. EdgeMon is available as a stand-alone system as well as integrated into existing or new side trimmers.



EdgeMon-integrated: Integration to side trimmers



Operator HMI



Long Term Viewer software for easy data screening

INSPECTION TASKS

EdgeMon has been developed for the visualization and the evaluation of strip edge quality. Knife breakouts are detected and the general quality of the side trimming process is evaluated. Burr and cut ratio are measured by the tool, and warnings and alarms are issued automatically.

The system collects images from the strip irrespective of the strip speed. This feature allows the current condition of the knife to be displayed and recorded.

Thanks to the image processing algorithm, the images can be inspected and evaluated with respect to strip edge quality. Based on this evaluation, decisions can be made regarding knife changes in case of breakouts or knife setting adjustments.

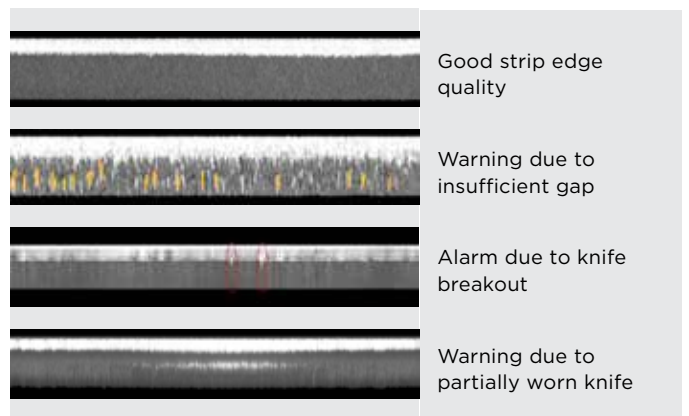
In order to improve the side trimming process sustainably the stored data can be screened with the help of the Long Term Viewer software. By identifying relationships between trimming quality related to product and process parameters quality or process engineers can easily determine improvement steps for the side trimming process.

FEATURES

- 0.3 – 7.5 mm strip thickness
- Up to 750 m/min strip speed
- Safe working distance up to 800 mm
- Synchronization with knife circumference
- Automatic knife breakouts detection
- Cut ratio calculation
- Measurement of burr

ADVANTAGES OF EDGEMON

- Avoids strip breakage due to knife breakouts
- Increases efficiency of the plant through the simultaneous inspection of both sides at full speed
- Reduce maintenance costs
- Save setup time and tool costs
- Reduce reclamation costs



Example of different strip edge situations



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