

Schaeffler Global Technology Solutions

Steel and non-ferrous metals

Aleris Aluminium Koblenz GmbH, Germany

Condition Monitoring with the FAG DTECT X1 in a Rolling Mill

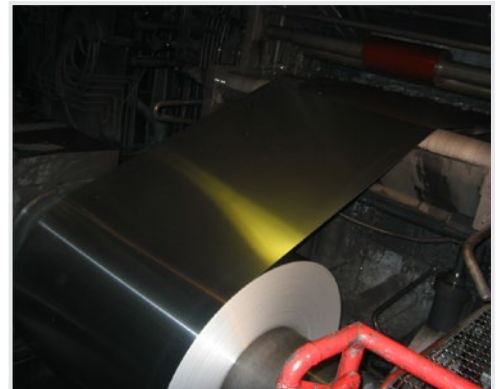
The name of Aleris Aluminium Koblenz GmbH stands for one of the world's leading manufacturers of high-quality rolled aluminum products. Since production began in Koblenz in 1964 the company has been providing a specialized range of products manufactured to high quality standards.

Challenge for Schaeffler

In a rolling mill there is a hazard of rolling stand fires due to hot running and loss of quality in the rolled product due to roller bearing defects on the bridge rollers. In order to offset this risk the customer was looking for an opportunity to counteract the risk of failure. Schaeffler therefore was asked to monitor the critical machine components with the aid of vibration diagnosis.

Schaeffler Solution

Schaeffler monitors the bridge rollers on the Sexto rolling stand, the mill pinion gears and the deflector and flatness monitoring roller using two FAG DTECT X1 systems and a total of 16 sensors. Evaluation of the data takes place in the Schaeffler Online Monitoring Center in Herzogenrath, and the customer receives a monthly report on the condition of the monitored machines. Irregularities are immediately evaluated by Schaeffler diagnosis experts and the customer is notified. The Schaeffler diagnosis guarantee ensures that the customer has a minimum warning time of four weeks before failure.



Technical Information about the Plant

Stand:

72" 6-High cold-rolling stand for aluminum

Model year:

1991

Manufacturer:

MDS

Width of strip:

800 – 1 650 mm

Thickness of strip:

0,2 – 8,5 mm

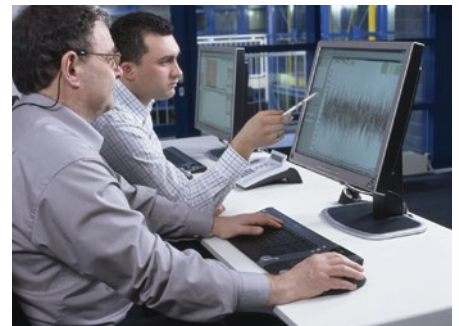




Vibration diagnosis with FAG DTECT X1s (follow-up product of FAG DTECT X1)



Schaeffler experts support installation of the measuring system



Service experts analyse data at Online Monitoring Center

Customer Benefit

Beginning damages to machines were determined in a total of four cases. Thanks to the timely damage detection maintenance measures can be properly planned and unplanned machine stoppages are avoided. The increased security provides enhanced protection against fires from overheated roller bearings. In addition, chatter marks on the rolled products are avoided.

Concrete cost savings after introducing condition-based maintenance

Short repair times and material savings (roller bearings):	€ 30 000/p.a.
Avoiding chatter marks:	€ 120 000/p.a.
Avoiding stand fires:	€ 50 000/p.a.
Total cost saving:	€ 200 000 €/p.a.

What's special

Due to the great success and the customer's satisfaction with the online monitoring system Aleris has extended the original temporary contract with Schaeffler indefinitely. This application can be transferred to all bridle rollers and cold rolling stands in the aluminum industry.

Technical information about the Solution

Monitoring system:

2 x 8 channel FAG DTECT X1

Monitored components:

Pedestal bearing of the bridle, deflector and flatness monitoring rollers (14 bearings), 12 bearings and 4 gears in the mill pinion gears

Sensors:

- ICP acceleration sensor (AS) for 5 bridle rollers with 2 bearings each (10 pcs.)
- ICP AS for deflector roller input (2 pcs.)
- ICP AS for flatness monitoring roller (2 pcs.)
- ICP AS for mill pinion gears (2 pcs.)

Signal filter:

TP3 module due to large speed monitoring range

Housing:

IP 66

Communication:

Link to Schaeffler Online Monitoring Center by means of 2 GSM modems (wireless)

Additional signals:

Strip speed (conversion to roller and gear speed), motor current (load)