

Q&A Railway webinar – 11 November 2020

EXTENDING MAINTENANCE INTERVALS WITH CONFIDENCE

- Can you share a case study?

Yes, case studies will be shared in the next two webinars.

- What will be your strategies about the introduction of IoT in bearing predictive maintenance?

This is already a reality as we have already many thousand of railway bearings connected to the cloud. We are moreover running several lab tests, on top of the active field installations, with the target to predict with even higher confidence the performance of wheelset bearings. I will be happy to discuss more, please write me at maurizio.giovannelli@skf.com

- How many km do the bearings usually begin to show their problems?

It depends on the application - this has to be evaluated case by case.

- With the wireless sensors can you confirm a) battery life, connection range to hub, b) is it possible for data to be retained by local operator?

Data collected by the sensors are always available to the local operator. The battery life depends on the type of application and utilization of the sensors - has to be analyzed case by case. Moreover, we are continuously improving the wireless sensors thanks to our remote software upgrades.

- What confidence interval do you work with when you develop your predictive models? How do you ensure the safety and validation of the change?

On top of the current active installations, we are also conducting since many years several lab tests: our main target is to be able to alert the operator at least 3 months in advance so they can better plan the maintenance activities.

- When using a (online) monitoring system to change bearing maintenance intervals, what is the required safety integrity level (SIL) of the monitoring system?

As a bearing manufacturer we are responsible to define the Maintenance Interval of the bearings and we can advise the operators if there are the conditions to extend it or not also thanks to the use of the monitoring system AND take responsibility for it (our sensors however are not to be considered as a SIL system).

- How have you been able to manage the safety validation from the change in maintenance strategy from time based maintenance to predictive maintenance?

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- Organizational question about condition monitoring. In CIS countries (Russia, Kazakhstan, etc.) there is requirement to have measurement and control tools registered in state registry of control tools. Is any of existing bearing condition monitoring tools included in Russia/Kazakhstan registry? And also does the same rule exist in Europe?

We do have Condition Monitoring systems currently installed in Russia. Please contact me at maurizio.giovannelli@skf.com for further details.

- What is the reliability of the vibration sensors? Does the sensors reduce the bogie/train reliability?

The sensors are fully developed and tested for Railway applications and therefore normally require a very fast approval from the Railway authorities. The sensors do not negatively interfere with the bogie/train reliability, rather the opposite, helping the operators to detect issues in advance.

- Rail operators often don't want data measured on their vehicles to exit the company; is this requirement compatible with the service offered by SKF?

Yes, this is a trend that we also see in the market, specifically in some countries. At the moment we are using an SKF cloud based solution but we are evaluating alternatives. If there is a real business case we would be happy to analyze it.

- Could you describe the typical amount of work & tools needed for a condition monitoring campaign in a fleet? Need the condition monitoring be for each and every bearing?

It depends on the fleet size and on the type of CoMo solution adopted. With SKF Insight sensors you can install the sensor on the axlebox in less than 2 minutes. About the need to equip the full fleet it depends on the operator needs first (Maintenance interval extension? Avoid unplanned stops?)... and on a preliminary assessment as well, to be done together.

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- How have you been able to balance the operational demand of the train from the operator vs alerts / warnings from the condition monitoring system?

This is one of the ultimate goal of the business transformation and in the current installation of our CoMo systems we are effectively helping the operators to reach this target and help them to select the trains to operate based on their conditions. Key is to avoid false alarms and for this reason we have developed specific Railway algorithms that are now implemented in our Condition Monitoring systems.

- Does the condition monitoring maintenance make sense if the wheel life cannot be extended?

This has to be evaluated case by case. It very much depends on the operator main need: maintenance interval extension or avoid unplanned stops by detecting early faults?

- Here in India, the rejection rate of CTRBs during refurbishment by SKF is more than 10%. What is the rejection rate in other Railway Systems and also provide the solution to SKF India team to minimize the rejection of CTRBs during refurbishment.

I suggest to directly get in touch with your SKF contact in India - we will address the topic from there.

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