Add peace of mind with predictive failure detection to prevent a sudden manufacturing line stop
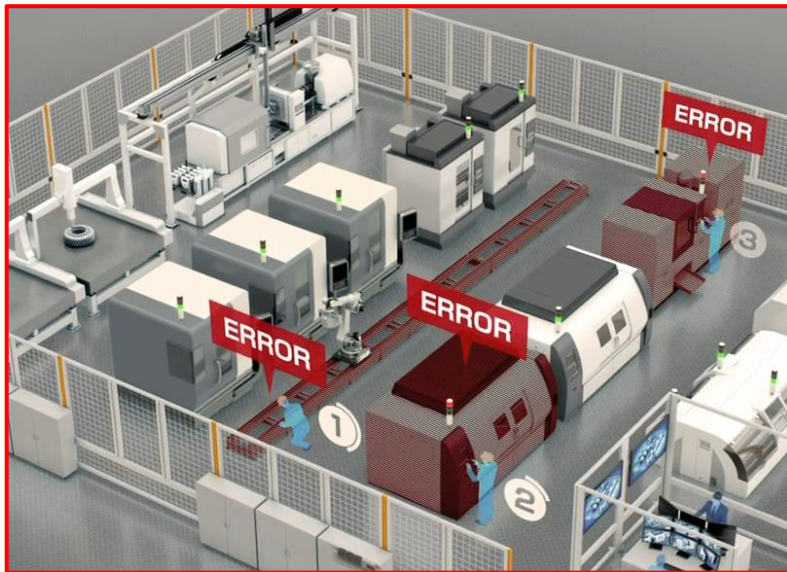
Unplanned maintenance!

Solution
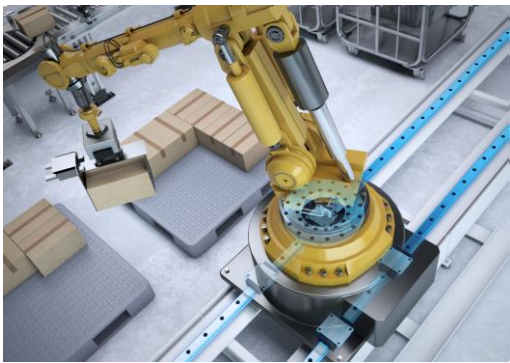
LM Guide

THK

Challenges in the manufacturing Line

● In a Tire Manufacturing Line (Automotive Industry)

- Linear components (LM Guide, Ball Screw, Actuators) suddenly fail due to a harsh environment.

- The sudden stop of a machine or a process results in a critical impact by stopping the whole manufacturing line.

● In a Long Process Transferring Robot

- Jointed LM Guides are used in a long process transferring lines.

- If an unexpected problem occurs with the LM guides, it will take long time to refit the jointed LM rails.

- During this non-planned long maintenance period, this process can not be used.

● In a Food Manufacturing Process (Food Industry)

- Linear components are moving above a food manufacturing process.

- Complete wash downs are common in the food industry but it also has the potential to wash out the lubricant from the linear components.

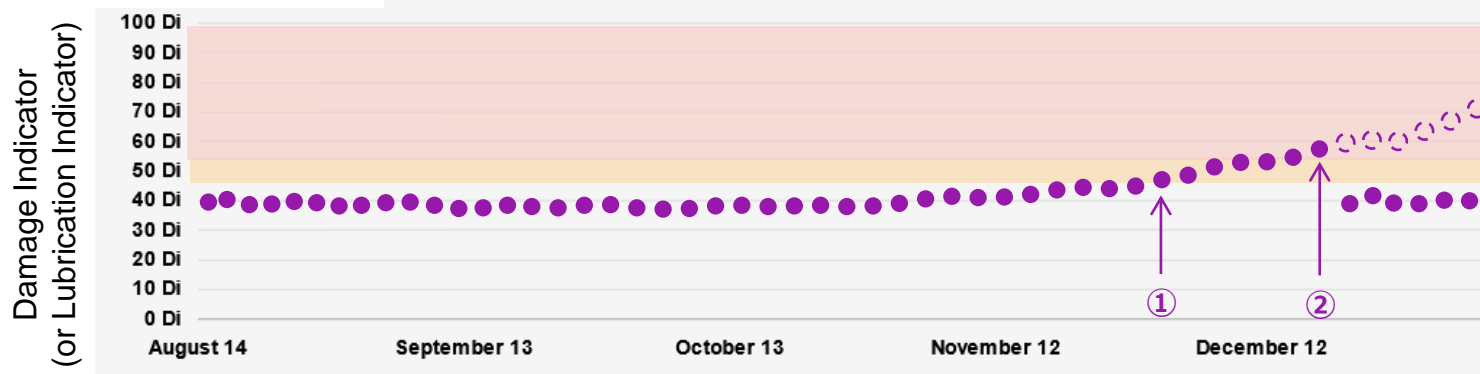- Mechanical component damage may result in small metal particle contamination of the food.

Predictive Maintenance for key components to minimize "down time of the manufacturing line" ?

A Manager of the manufacturing line

Solution : Visualize Lubrication & Damage

Trend graphs

Legend: OOT val. | Warning value

Y-axis: Damage Indicator (or Lubrication Indicator) — 0 Di, 10 Di, 20 Di, 30 Di, 40 Di, 50 Di, 60 Di, 70 Di, 80 Di, 90 Di, 100 Di

X-axis: August 14, September 13, October 13, November 12, December 12

① ②

Maintenance log

① November

No changes | No problem | LM guide replac... | No comment | Details | No action — **LM Guide stock has been checked.** (for next replacement)

② December

Out of tolerance | Machine stop | LM guide replac... | No comment | Details | **LM Guide replacement Finish in ONLY 2 hours**
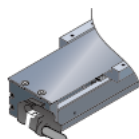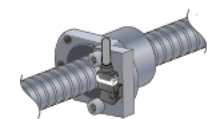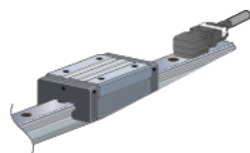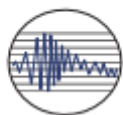
👍 **Minimize the down time of the complete manufacturing line.**

By OMNI edge for Linear Components

Basic	GOLD
On-premise	**THK Cloud**

Basic: Vibration data → Values indicating damage / Values indicating lubrication → OR
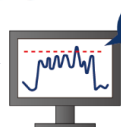
GOLD: Latest Analysis ADV — Secure transmission
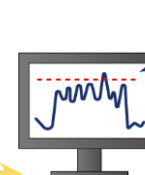
Specification & Service Plan

★PLC ★IPC

★DC24V supply
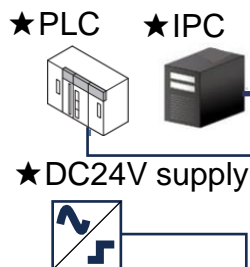
1. LM Guide** 2. Ball Screw** 3. Actuator**

Vibration Sensor

32
12.5
15
Magnet
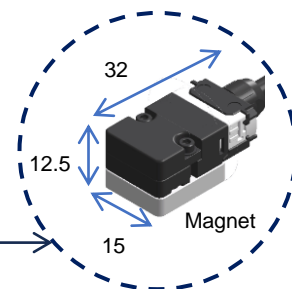
Basic

Hardware (1 SET)
- 1 Amplifier
- 3 Vibration Sensors
- 3 Extension cables

Amplifier

*USB memory
* Only for D4

Extension Cable
5 / 10 / 15 / 20m

Input	Voltage	DC24V
	Current	Max. 0.9A
	Sensor channel	Max. 3 ch
	Trigger	DI0 - DI3 (Max. DC30V)
Feature value identification (Analysis)		Di : Damage indicator
		Li : Lubrication indicator
Output	Communication	**DF** (Connect to THK Cloud)
		D4 : FTP *Store in USB ★Export to IPC (FTP server)
EU Declaration		CE / EMC (2014/30/EU)

GOLD

THK Cloud Service
- 1x Router + SIM card
- Visualization
- E-mail notification
- Advice
- ADV

Router

Input	Voltage	DC24V		
	Current	Max. 0.2A		
Country	GL1	Austria	Germany	Romania
		Belgium	Hungary	Spain
		Bulgaria	Ireland	Sweden
		Croatia	Italy	Turkey
		Denmark	Netherlands	United Kingdom
		France	Poland	
	GL3	Czech Republic	Norway	Slovenia
		Finland	Portugal	Switzerland
		Lithuania	Slovakia	
EU Declaration		CE / RD (2014/53/EU)		

★ Equipment shall be prepared by users.
** Component driving conditions shall be checked.

Model Number Coding

TSS-A3-DF-123-CS05-CS05-CS05-GL1

Amplifier Communication
DF : THK cloud
    BASIC + GOLD plan
D4 : on-premise
    BASIC plan

Monitor Components
1 : Linear Bearing
2 : Ball Screw
3 : Actuator
N : Not connected

Cable Length
05 : 5m
10 : 10m
15 : 15m
20 : 20m
N : Not connected

Router country
GL1 : for DF
GL3 : See table above.
N : for D4

THK GmbH
Europe Headquarters
Kaiserswerther Straße 115
D-40880 Ratingen
Phone +49-2102-7425-555
info.ehq@thk.eu
www.thk.com

- Europe Headquarters   Phone: +49-2102-7425-555
- Düsseldorf Office   Phone: +49-2102-7425-0
- Stuttgart Office   Phone: +49-7141-4988-500
- U.K. Office   Phone: +44-1384-471550
- Italy Office   Phone: +39-02-9901-1801
- Sweden Office   Phone: +46-8-445-7630
- Austria Office   Phone: +43-7229-51400
- Spain Office   Phone: +34-93-652-5740
- Turkey Office   Phone: +90-216-362-4050
- Prague Office   Phone: +420-2-41025-100
- Moscow Office   Phone: +7-495-649-80-47
  THK Europe B.V.
- Eindhoven Office   Phone: +31-40-290-9500
  THK France S.A.S.
- Paris Office   Phone: +33-1-7425-3800