Customer Success Stories

We pioneer motion

Anomalies diagnosed in real time

Monitoring solution detected several failures in only five months

The Korean power plant Incheon Total Energy Company (INTECO) - like other plant operators - has the problem of adequately monitoring its plants in pandemic times. Lack of personnel due to sick leave or restricted plant access for few employees motivated the power plant company to think about new digital monitoring solutions. The choice was OPTIME. This wireless condition monitoring solution also made it possible to monitor the difficult-to-access machines more reliably in the future. This decision quickly paid off:

In only five months OPTIME prevented six unplanned potential failures.

Customer benefits

- Quick and easy installation of OPTIME components.
- Data is easy to read and understand – no expert knowledge required.
- Optimized planning of maintenance measures and other activities.
- Improved safety for employees – wireless sensors eliminate the need to access hard-to-reach machinery.
- Comprehensive understanding of the plant.

INTECO

Customer
Incheon Total Energy Company, Republic Korea
Sector
Power Plant
Application
Motors, gearboxes, pumps
Solution
Condition Monitoring

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What drives our customer ...

Incheon Total Energy Company, Republic of Korea

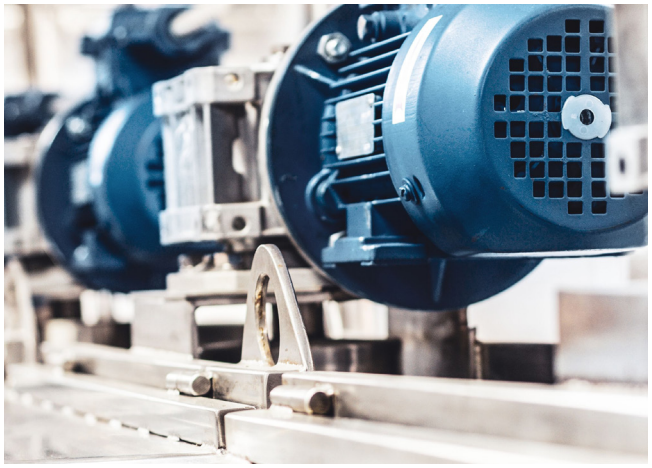
Challenge

INTECO is a combined heat and power plant located in Songdo that supplies heating, cooling and electricity. To ensure permanent power supply, all machines and aggregates of the plants have to work smoothly.
If maintenance cannot be carried out in the right way, the worst-case scenario is an unplanned shutdown. Previously, these tasks were carried out properly by maintenance staff and plant employees, both on machines that were difficult to access and on critical units such as motors, pumps and gearboxes. However, the pandemic caused bottlenecks in maintenance work due to sick leave.

Due to Covid-19, we have a lot of cases of illness. This has turned the routine maintenance of the plant into a real challenge. Our biggest concern: an unplanned shutdown that could last for a long period of time,

said Kim Pilkyu, maintenance engineer at INTECO.

Therefore, the maintenance department was looking for a solution that would provide early insight into the condition of the machines and could be accessed in digital form by the maintenance personnel. INTECO approached Schaeffler with this request.



Technical information on the units

Motors	
Speed	1175 rpm to 3561 rpm
Capacity	3 kw to 99 kw
Pumps	
Speed	1740 rpm to 1775
Capacity	3 kw to 30 kw
Gearboxes	
Speed	1770 rpm
Capacity	99 kW

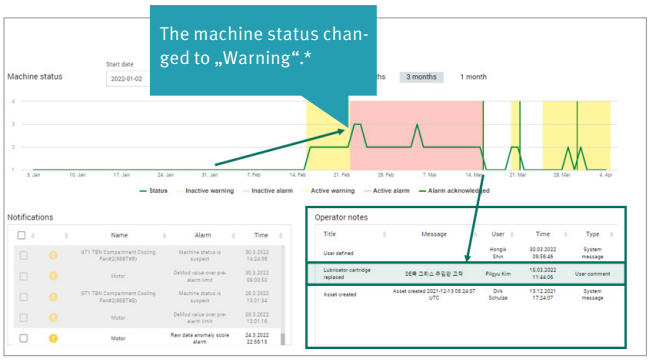
What Schaeffler has to offer ...

Solution

The experts at Schaeffler recommended their award-winning OPTIME condition monitoring solution. This scalable system consists of wireless sensors, a cellular gateway and digital services that are based on proprietary Schaeffler algorithms.

Shortly after installing a total of 66 sensors on motors, pumps and fans and eight gateways, a change in machine status was displayed on the OPTIME app. The warning level 3* had been generated.

INTECO inspected the machine and found that a grease line was blocked. The problem was fixed immediately. Other minor and major errors occurred, which were detected and corrected thanks to OPTIME.



Customer view: the OPTIME dashboard shows two separate instances where there was a change in the machine's status.

***Warning level**

1. = Normal
2. = Suspect
3. = Warning
4. = Severe

The OPTIME sensor on the motor of a cooling fan detected the changed machine status.

What's special

The power plant operator would not have detected the faults without OPTIME. This is because the lubricators currently in use do not have a digital service. Therefore, INTECO will replace the current lubricators with the lubricator OPTIME C1 at the end of the year. OPTIME C1 uses the same intelligent technology as OPTIME.

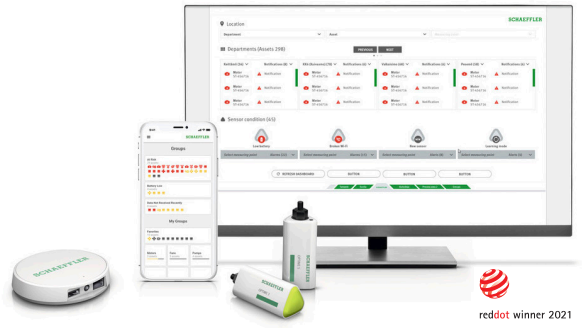
We would prefer to replace our current lubricators with OPTIME C1 lubricators right away, but OPTIME C1 will not be available in Korea until the end of the year,

regrets Kim Pilkyu, maintenance engineer at INTECO.

What Schaeffler has to offer …

How OPTIME works

OPTIME’s sensors monitor the machinery and equipment at the customer’s site. The gateway receives the data from the sensors and transfers it to the Schaeffler cloud. OPTIME automatically detects problems, issues the appropriate alarms, and provides information about the possible cause of the problem. Expert condition monitoring on the part of the customer is not required, since this knowledge is already fully integrated into OPTIME in the form of Schaeffler know-how. OPTIME essentially provides customers with an expert analysis that has been integrated into the Digital Services.



Schaeffler OPTIME wins the Red Dot Award 2021 in two categories

OPTIME sensor specifications

Vibration bandwidth	OPTIME-5: 2 Hz – 5 kHz
Calculated parameters	7
Sensor commissioning	NFC (Near Field Communication)
Communication	Wirepas Mesh (2.4GHz ISM Band)
Measurement cycle	Parameters: every 4 h Time waveform: every 24 h

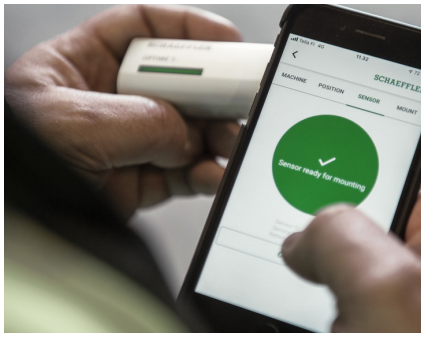
>66

Schaeffler OPTIME sensors and eight gateways are installed in the power plant

7

selected parameters based on Schaeffler’s decades of bearing expertise and condition monitoring know-how

OPTIME is quickly and easily installed.



OPTIME sensor is provisioned.

OPTIME mounted on a vertically running electric motor.

What our customer saves ...

INTECO, with the help of OPTIME, has found several faults on their machine that can lead to minor or major maintenance work.

A minor maintenance can cost 4,500 euros per day and a major maintenance 37,000 euros per day.

4 minor faults and 2 major faults were found, so the total saving through OPTIME is about 92T Euro in only five months.

Remark: Not all failures necessarily lead to production losses and the amount calculated is the maximum amount of potential production loss.

4 minor maintenance works (per day, per maintenance: € 4,500)	€ 18,000
2 major maintenance works (per day, per maintenance: : € 37,000)	€ 74,000

~ € 92,000

saved in five months

What our customer says ...

Once the OPTIME solution has been installed, it is easy to check the machine condition for anomalies in real time, especially for motors installed in confined and hard-to-reach spaces. In this way, bearing damage can be prevented.

We are already looking forward to OPTIME C1 being available in Korea in the near future. Together with other condition monitoring solutions from Schaeffler, a holistic view of the plant is possible.

Kim Pilkyu
Maintenance engineer at INTECO

Customer

INTECO strives to provide better quality energy to a wider area by generating electricity through a combined heat and power plant with high energy use efficiency and expanding the supply of regional heating and cooling from Songdo International City to the original downtown area of Incheon. The power plant can simultaneously produce 206MW of electricity and 170Gcal/h of heat.

Why Schaeffler?

– Technical expertise
– Friendly and knowledgeable customer service
– Quick and easy installation

Why this specific solution?

– Precise machine condition data
– Easy, intuitive operation
– Automated learning mode

Success Story 0185, 2022/04, Contact: optime@schaeffler.com, Phone +49 2407914966