

Case Study Schickert GmbH & Co. KG / Schaeffler KG

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Mobile and Damage Preventing Special Cleaning Method for Plant and Equipment Maintenance at the INA Plant in Höchststadt

Categories

1. Industrial cleaning
2. Special techniques in technical cleaning
3. Plant and machine-cleaning equipment

Market Sector

Engineering

Brief Description

- Substitution of cold cleaners and chemical solvents for cleaning of machines and equipment employing the low-pressure hot cleaning technology.
- Schickert's industrial cleaning machines used at the INA Schaeffler Plant in Höchststadt enables the internal maintenance unit to clean machines and equipment likewise either on site or at a washing station.

Task

Manufacture and delivery of low-pressure hot cleaning machines to INA Schaeffler's maintenance department as a substitute for conventional industrial cleaning methods using chemical solvents or cold cleaners for cleaning either on site or for use at a central washing station.

Preparation

INA, a division of Schaeffler KG, produces ball bearings in the Höchststadt plant for use in wind mills and machine tools. Production comprises the actual machining using about 150 machine tools, assembly in the factory and a repair unit for damaged ball bearings. Höchststadt's maintenance department typically services and repairs machines, conducts emergency and preventive maintenance for machines and equipment. Therefore they required adequate cleaning appliances for careful elimination of dirt and smudge attached to their machines and equipment.

Implementation

*Wanting to substitute methods using chemical solvents or cold cleaners for cleaning INA at the same time sought to enhance ease of use and flexibility thus introducing an universal method to solve all relevant cleaning tasks through one solution. INA decided to use the low-pressure hot cleaning method offered by **Schickert GmbH & Co. KG**:*

Production-wise the INA plant in Höchststadt generates oil, grease, and dried lubricant deposits, which need to be disposed of. INA Schaeffler's maintenance unit spokesman Bernhard Ehrbar explains: "We were determined to stop using cold cleaners and other chemical solvents, as these were no longer permitted for use, were expensive, and were hazardous to employee's health and the environment."

The high cleaning performance of the Schickert equipment is attained by hot water at 95 °C combined with an adjustable pressure from 3 to 8 bar. Oil, grease, and other deposits are released easily and the dirt is completely removed from machinery parts, assemblies, engines and tools without having to use chemical solvents. Even the most thick smudge can be removed by adding a highly effective water-solvent, environmentally safe, and even anti-corrosive cleansing accelerator, simply by shifting a lever. All of Schickert's cleaning machines are fitted with a stable dike featuring a three-partite splashguard including a steel grating, and can thus be used as a mobile "washing tray". Water levels under the steel grating are regulated automatically to keep the same water level during operations. Turnings, chips, and other heavy particles sink to the bottom of the cleaning vat, while oily residues and

smudge remain at the top. The slop in between is collected in the dike and then cleaned by automatically pumping the slop through a three-stage filtration system, after which it enters the main storage tank fully purified.

The cleaning vat has a load bearing capacity of 80 kg; it is therefore possible to place parts to be cleaned directly on the cleaning tray, and disassemble them during the cleaning process. „We have acquired a cleaning technique with which we can clean equipment either in the maintenance workshop or service our machines on site. It plays to our needs that the low pressure never damages the machines and that we can now access even the most inaccessible parts inside and outside of the machine using a long pipe. Water consumption of only 2 litres per minute and the option to employ cooling lubricants for cleaning purposes ensures that the machines' cooling lubricant balance is not affected in a negative way,“ says Ehrbar.



Another way of using Schickert's cleaning machines is to employ them at a central cleaning station for the cleaning of large equipment such as chip conveyors. "Before, we had to use a high-pressure cleaning unit, which had to be heated and used enormous amounts of water, which again had to be separated according to each different cooling lubricant being flushed. Therefore, the cleaning machine took a lot of maintenance time and was prone to go broke", adds Ehrbar. "Work for my staff was difficult due to splash water and spin drift. Certain parts were even totally inaccessible for us. We couldn't clean certain motors and sensors for fear of damaging them." A modified version of Schickert's low-pressure hot cleaning equipment is used as a substitute today. It doesn't feature a water tank, but is connected to the public water supply. Using a somewhat higher water pressure than other Schickert machines it attains about 12 bar. Ehrbar's final comment: „This performance is absolutely what we needed for our application. Additionally, we benefit from the fact that the flow-heater no longer uses diesel oil but electricity. Exhaust gas emission controls and refilling with diesel oil is a thing of the past."

Customer's Benefit

- Improvement of process quality and economics.
- Universal application modes for different fields of use.
- High mobility through independent water and energy supply.
- Powerful reduction of maintenance cycles and repairs for cleaning equipment.
- Environmentally friendly and cost-reducing low-pressure hot cleaning technology enables high cleaning performance without use of chemical solvents.
- Enhanced health care at the workplace through chemical-free cleaning.
- User-friendly technology, e.g. by safe handling of anti-corrosive cleansing accelerators simply by shifting a lever.

Ordering Party

Schaeffler KG, founded in 1965 in Bülh, features renown brands like INA, FAG, and LuK. The Schaeffler Group's INA and FAG brands stand for the development and manufacture of high-quality rolling bearings, plain bearings, linear guidance systems, and engine components for mechanical engineering, aerospace and the automotive industry worldwide. With a broad range of products, which is among the most comprehensive in the rolling bearing industry, Schaeffler Group supplies products for applications in around 60 industrial sectors and numerous automotive applications with approximately 40,000 volume produced catalogue products. In addition, they develop with their customers a wide variety of special solutions with which complex tasks involving bearings can be managed reliably and economically. With 60.000 employees the Schaeffler Group in 2005 posted world-wide sales of € 8 billion.

Internet: <http://www.ina.de>

Contractor

Schickert GmbH & Co. KG offers special cleaning technologies and machines for different applications in car and truck workshops and also in the general industry, employing a chemical-free method for safely cleaning plants and equipment and by collecting residues during the process.

Internet: <http://www.schickert.com>

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Maintain 2006

The 2nd International Trade Fair for Industrial Maintenance will be staged from October 17th to 19th, 2006 at the M,O,C, trade fair centre in Munich. As MAINTAIN is the only specialized international trade fair for industrial maintenance in the world, it gives visitors a look at the latest trends in all sectors and furnishes them with information about state-of-the-art solutions that can be used to repair, maintain, inspect and improve their production facilities. For decision-makers and experts, that makes it the most important business gathering that deals with all aspects of industrial maintenance. Special fora on maintenance as a core factor for production and up-to-date information on MAINTAIN's web pages add to the event itself.

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