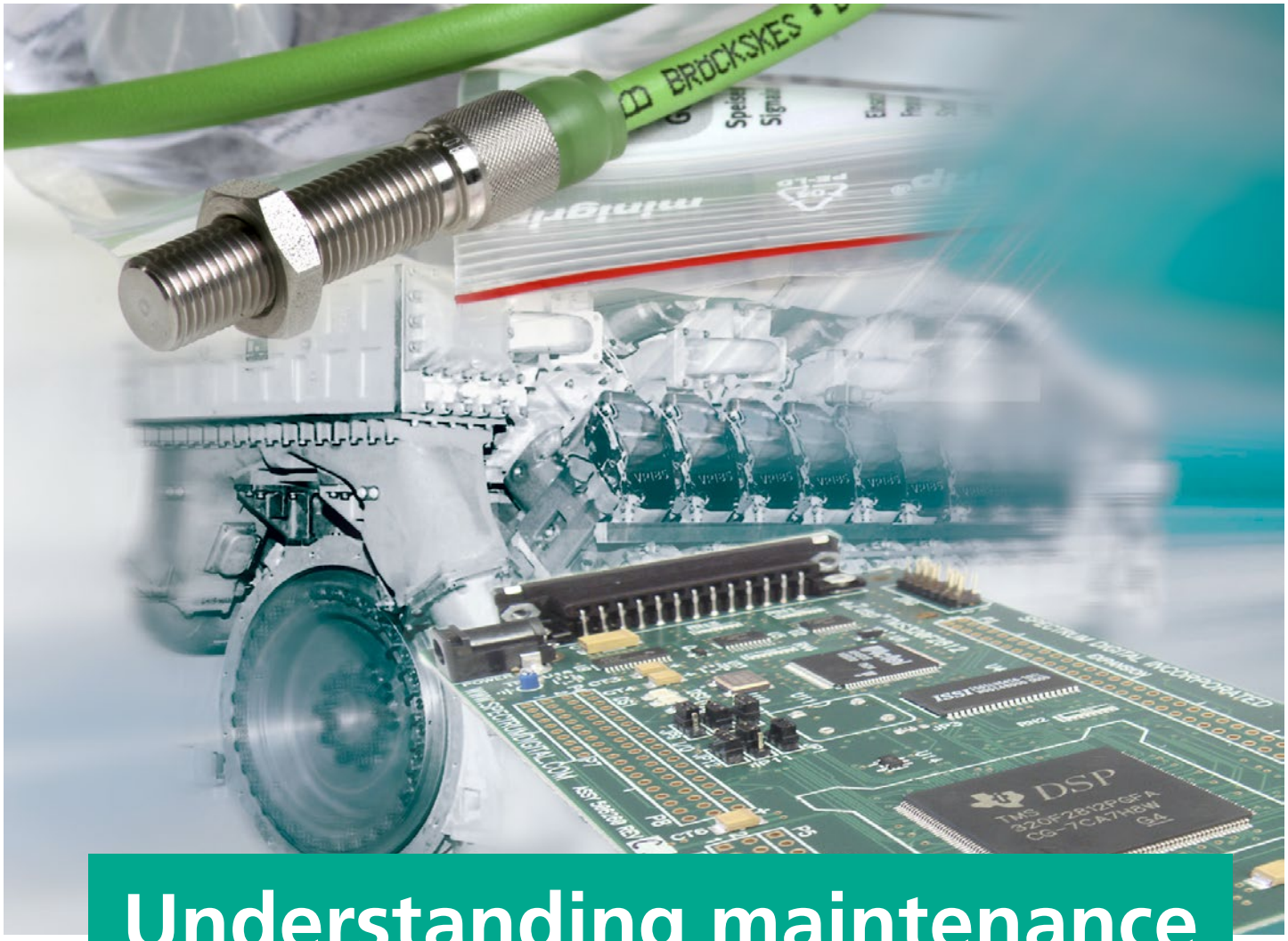


Understanding maintenance

The MDS4500 Diesel Engine Diagnostic System from Jaquet

Unprecedented accuracy in the monitoring of diesel engines and early detailed insight into all possible malfunctions. That's what the MDS4500 Diagnostic System from Jaquet offers users. Istec International supplies this unique system exclusively for the Benelux, including training and support. The result is more efficient and effective maintenance, while the cost of replacement and repair is seen to decrease significantly. This innovative solution is suitable for all large diesel engines, such as ships' engines, hospital emergency power supplies, diesel locomotives and stationary diesels.

The benefits of the MDS4500 Diagnostic System:

- Unprecedented accuracy in the monitoring of diesel engines;
- Early detailed insight into all possible malfunctions;
- Significantly less damage from wear and tear;
- Information about malfunctions, excessive fuel consumption, injection problems or low pressure can be linked to specific cylinders;
- Hefty savings on maintenance costs through targeted maintenance;
- More efficient fuel consumption and a significant reduction in the number of maintenance hours;
- Easy to use;
- Easy installation.

IC istec International

‘Rising costs are not normal’

“Everyone seems to consider it normal that the cost of ownership of diesel engines, e.g. in fuel consumption, increases over time. But it’s certainly not normal,” says Dé Verschuren, Director of Istec International. “For example, if an injector malfunctions it often goes unnoticed because the diesel engine’s own system ensures that the power output is maintained. But fuel consumption increases significantly, as does the wear and tear. With the new MDS4500 Diagnostic System, users are given direct insight into the status of the engine.”

Maintenance on diesel engines e.g. in shipping is frequently inefficient. Based on overall experience statistics, engines are routinely overhauled and parts such as injectors replaced preventatively. But in some cases it is not necessary to carry out this maintenance on the engine, and in others the maintenance is actually too late because a lot of unnecessary internal damage has already occurred due to failed parts.

Accurate and early detection

Verschuren: “It is much more efficient and cost effective to instantly see if a failure is imminent. By accurate and early detection of problems you can carry out targeted maintenance. This saves on maintenance costs, prevents damage in engines that have extra wear and tear or even malfunction and the additional costs in the event of complete breakdown.”

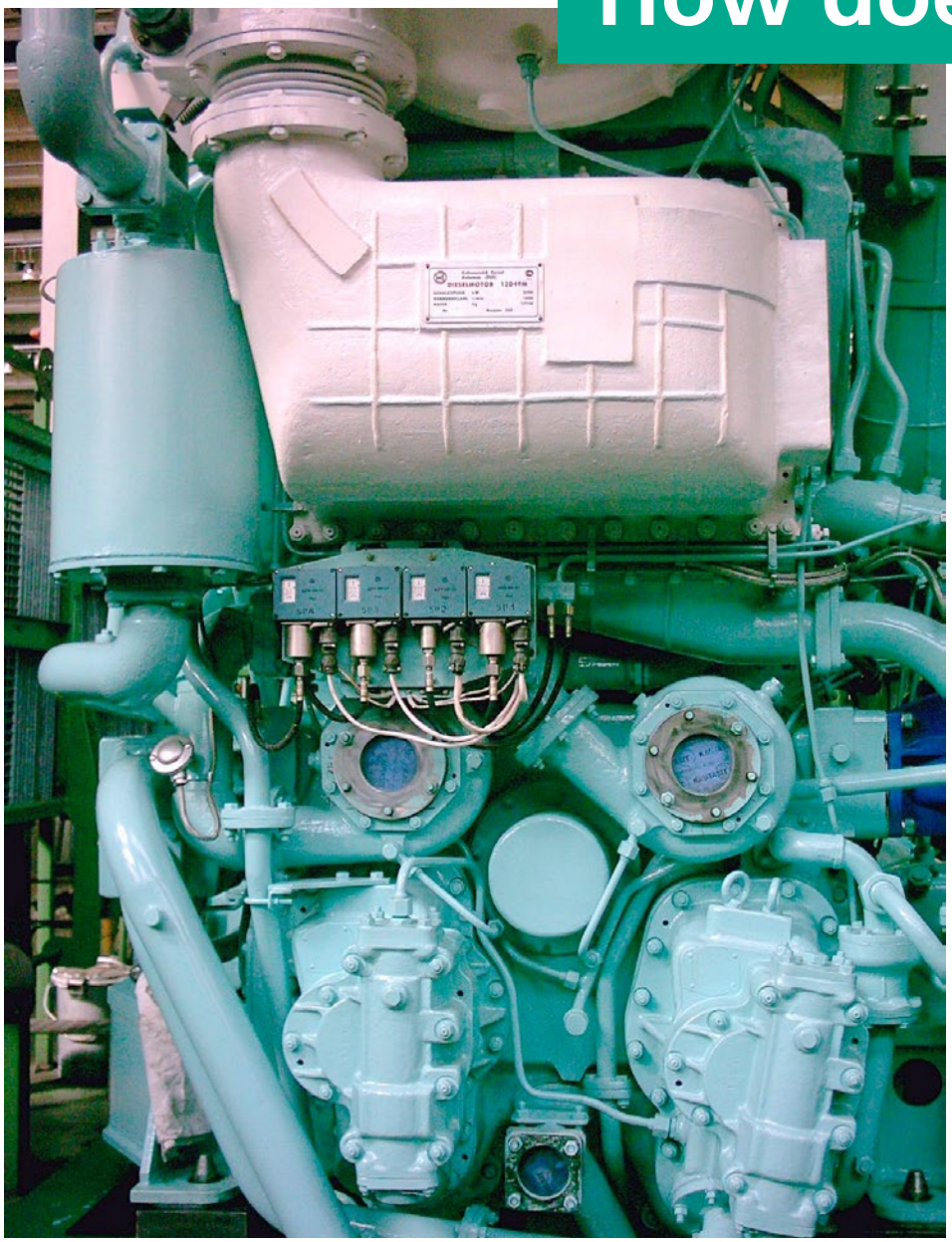
The MDS4500 goes further than existing engine diagnostic systems. In order to achieve this, the Swiss company Jaquet, active for over fifty years in the production of speed sensors, carried out an eight year research and development program. The systems of various major users of diesel engines were intensively tested and with success: during one of the tests, a major European railway company ignored an early warning which within a short time resulted in engine failure, preventing the train from running independently.

Advanced technology, but easy to use

During a demonstration of the new system from Jaquet, Verschuren experienced for himself how advanced the diagnostic software is. An anecdote: “We were allowed to cause a malfunction in the demonstration machine ourselves, which would then be visible in the system. Without the Jaquet people noticing, I introduced two different malfunctions. They were confused at first, but soon saw from the measurement results that there were two malfunctions and they could see precisely what I had changed on the engine.”

Despite the complex scientific research program and the advanced software that was written for the diagnostic system, it is easy to use. The measurement results are presented in an easy to read chart, from which the status of the diesel engine can be read at once.

How does it work?



The scientific theory behind the MDS4500 Diagnostic System has been around for a while. The speed at which the crankshaft rotates in a diesel engine is not constant, but continuously shows small deviations due to factors such as compression, combustion and internal friction. When the rotational speed of the crankshaft and any deviations can be measured accurately this provides valuable information about the status of the diesel engine. With the MDS4500, Jaquet has succeeded in measuring these parameters and analyzing the resulting data in such a way that the software can indicate, up to the level of pistons and cylinders, where abnormalities and malfunctions are occurring.

The MDS4500 Diagnostic System has three elements:

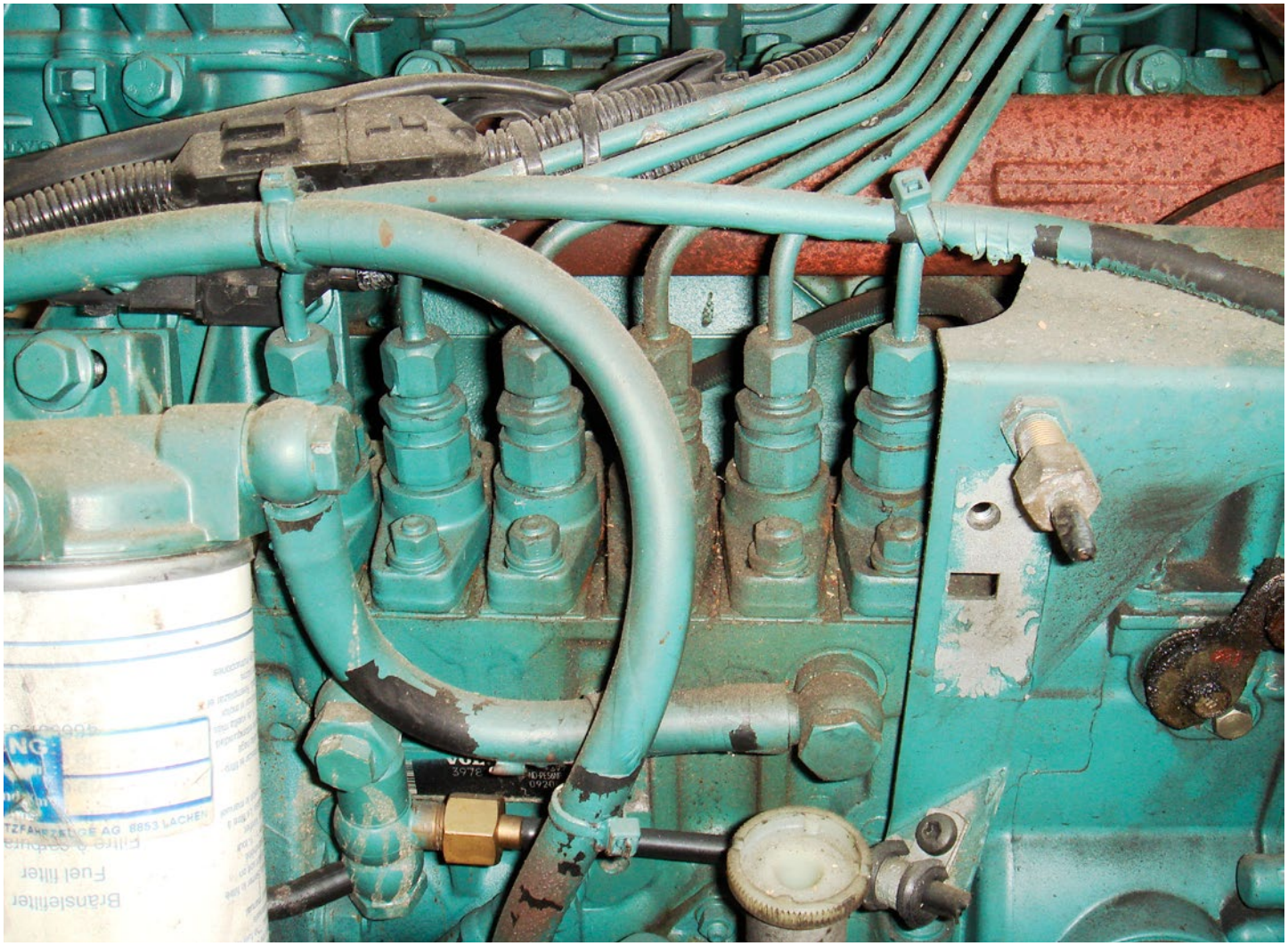
- Pole bands or gears (in many cases, the gears already present are used, this is much easier and less expensive for the implementation) for axles of different diameters with which the rotation speed of the axles can be measured;
- Speed sensors with which the rotational speed can be measured without vibration interference and at a high frequency;
- analysis software that can be delivered in a pre-programmed diagnostic unit, or as a package that can run on a standard Windows PC

The output of the system provides among other things more information that can be linked to specific cylinders, such as break-downs, excessive fuel consumption, injection problems or loss of compression. It also measures the delivered torsion and power per cylinder and indicates when significant variations occur in the internal friction. This can be the forerunner to a large-scale malfunction and possible significant damage.

The test results show that use of the MDS4500 diagnostic system can have significant benefits. At a major railway company it turned out that savings of fifty percent was achieved on preventive maintenance, since half of all injectors that would normally be replaced by default still functioned.

In addition, the system also provides early signals when there is a threat of major damage. With an immediate small repair, a malfunction of the whole machine can be prevented, as well as any additional damage caused by such a malfunction.

The most important saving of the MDS4500 Diagnostic System appears to be in the more efficient consumption of fuel and a significant decrease in maintenance hours, since intervention is now only required when there really is something amiss and you know in advance where the problem lies. Since this happens in the early stages, there is no unnecessary excessive use of fuel.



Istec International is the exclusive supplier of the Jaquet MDS4500 Diagnostic System for diesel engines in the Benelux. Istec supplies not only the hardware and software but can undertake installation, give advice on use and train staff how to use the equipment.

The Diagnostic System is supplied in three versions. Besides the standard version, an embedded measuring system has been developed that can be mounted on the engine. For a quick diagnosis and maintenance en route, a mobile version is also available. For this mobile version sensors must be fitted on all engines you wish to observe.

About Istec International

For 35 years, Istec International BV has been a household name in measurement and control technology and provides a wide range of solutions from renowned brands such as Jaquet, Meggitt, Fuji, Fischer, Metrix, SWR, and APM. Istec is involved in commissioning, service and condition monitoring at many power plants and CHP plants. The high tech workshop features an up-to-date range of measurement, test and calibration equipment.

Istec international is ISO 9001/VCA certified, and has offices in the Netherlands and Belgium. Istec employs three consultants who are certified at ISO 18436 Vibration Analysis Level 3. All service staff has the VCA-VOL certificate, the instrumentation specialists have also received various product training and are NEN 31240 VOP certified.

If you would like more information, or a demonstration of the MDS4500 Diagnostic System, please contact:

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