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SpindleShield™ – Avoiding spindle damage and downtimes



Thanks to the patented SpindleShield™ technology in combination with Pop-Off™ and AutoSense™ rotating unions, this system is able to avoid damage to the spindle and downtimes of the machining centre and to simultaneously increase the productivity. If Coolant leaks occur which are not due to normal operation, the system will alert the machine operator.

The SpindleShield™ technology can be retrofitted to all processing centres.

Usual leakage monitoring only checks for the existence of liquid in the area of the drain lines. To make this work, the system must be able to distinguish between “real leakage” and “function-inherent” leakage. So error messages are pre-programmed no matter whether an opening or permanently closed technology is concerned. However, as mechanical seal faces always require a small quantity of “leakage” as lubrication – which increases the service life – this concept results in ambiguous operating conditions.

SpindleShield™, however, checks the occurring leakage which has entered the bearings of the rotating union; meaning that they are continuously monitored as a load bearing element of the machine part.

SpindleShield™ “knows” e.g. that minor or major leakage quantities directly at the sealing surfaces at Pop-Off™ or AutoSense™ rotating unions are normal while repeatedly occurring Coolant leakage in the area of the bearings may damage them and is thus definitely a warning signal. This is important as leakage entering the spindle through the bearings of the rotating union can cause considerable damage to the spindle bearings and the electric motor.

Apart from issuing the warning message, SpindleShield™ is able to communicate with the machine control via i/o board and trigger program steps/macros, such as stop Coolant supply, stop spindle or call the maintenance engineer.

In addition, the circuit set-up also allows for the identification of damage at the sensor lines and the processing and notification of this information.

Machine downtime, spindle damage and the consequences may quickly add up to considerable costs. Investing in the SpindleShield™ technology helps to reduce these costs to a minimum!

Legend picture 1:

- 1) Major or minor leakage at this point is ok, particularly with Pop-Off™ or AutoSense™ rotating unions.
- 2) Minor one-time leakage at this point may still be ok. Major or repeated leakage, however, will damage the bearings of the rotating union.
- 3) At this place, even minor leakage may damage the spindle.