



Health Index – the smart analysis tool for monitoring the gearbox condition

November 12, 2024

What is the real state of health of my gearboxes? Is everything running “as smooth as clockwork”, or is it starting to show signs of wear – leading to a higher risk of failure? WITTENSTEIN alpha’s Health Index, which the company will be presenting at SPS 2024 (Hall 4, Stand 221), delivers answers to questions like these. This smart analysis tool records and checks functionally and load-relevant data of drive trains in the application – enabling critical operating states and associated failure risks to be detected in good time and reducing the likelihood of uncontrolled outages. The gearbox condition at any given time can be visualized using a traffic light integrated in the HMI and a suitable course of action recommended.

WITTENSTEIN SE develops products, systems and solutions for highly dynamic motion, maximum-precise positioning and smart networking for mechatronic and cybertronic drive technology.



The analysis tool forms part of WITTENSTEIN alpha’s cynapse® Analyze portfolio of Smart Services and will in future be offered for all of the company’s gearboxes with cynapse® functionality – that is integrated sensors, logic and an IO-Link data interface.

WITTENSTEIN gearbox with cynapse® functionality

Gearbox operating behavior digitally analyzed

The idea behind the Health Index is to detect changes that are liable to impair proper functioning of the drive train as early as possible. The tool does this by analyzing, on the one hand, data collected by means of cynapse® and, on the other, operating data on torques and speeds. No programming effort is involved for machine manufacturers using the Health Index – not even for interpreting the data gathered. The Health Index draws for this purpose on the knowledge gained from more than 40 years of gearbox development at WITTENSTEIN alpha plus various computational models built from this expertise. Partial damage incurred by key gearbox components can now be identified more easily. The Health Index instantly visualizes all interpretable findings using a digital traffic light: green = shows no anomalies, yellow = changes identified and servicing recommended, red = risk of unplanned outages, gearbox needs replacing. Potential failure risks can be detected early in this way, maintenance assignment and services planning optimized in terms of scope and timing, spare parts or replacement gearboxes procured in good time and unscheduled machine downtime avoided. All of this promises substantial cost benefits and savings.

WITTENSTEIN SE

Walter-Wittenstein-Str. 1
97999 Igersheim · Germany

Contact: Sabine Maier
Trade Press Officer |
Deputy Press Officer
Phone +49 7931 493-10399
Email sabine.maier@wittenstein.de
www.wittenstein.de

Who benefits from the Health Index?

The Health Index brings advantages and customer benefits not only for machine manufacturers and OEMs but also for machine operators and end users. It helps machine manufacturers and OEMs pursuing a digitalization strategy for their machinery and products to establish new, digital-based service and business models that add value to their machines and support their differentiation in the market. Manufacturers who already deploy condition monitoring systems in their digitalized machines likewise profit from using the smart analysis tool – because a smart gearbox knows its condition and reports any anomalies found.

Last but not least, the Health Index can provide pointers to how the machine is actually operated in practice; after all, drive trains are often exposed to different loads in reality than the ones they were originally designed for. The smart analysis tool can thus help to prevent consequential damage caused by excessive loading.

The Health Index is moreover of interest to operators of machines or plants with highly specific requirements. They tend to prioritize aspects such as monitoring gearboxes operating at the limits of their capacity, avoiding unplanned outages, increasing availability and safeguarding critical axes and production components. All of this adds up to a significantly lower total cost of ownership (TCO) for customers.

Smart Services: Routing, visualizing and analyzing data

WITTENSTEIN alpha's customer-focused restructuring of its entire range of services also included the functional realignment of Smart Services in 2024. "cynapse® Connect" enables integration and routing of data. "cynapse® Monitor", the second – and more advanced – Smart Service, offers a simple way to visualize and evaluate operating data, including setting limit values and outputting alarms if these values are exceeded. The third Smart Service – "cynapse® Analyze" – blends smart algorithms with WITTENSTEIN alpha's core expertise in gearbox technology to create smart analysis tools like the Health Index. These "cynapse® Analyze" tools allow data from the drive train to be analyzed in real time. In other words, potential problems can be identified before they have a chance to lead to unplanned outages. This Smart Service is being

WITTENSTEIN SE

Walter-Wittenstein-Str. 1
97999 Igersheim · Germany

Contact: Sabine Maier
Trade Press Officer |
Deputy Press Officer
Phone +49 7931 493-10399
Email sabine.maier@wittenstein.de
www.wittenstein.de

continuously evolved and enhanced with new analysis tools to ensure timely access to the latest features and insights.

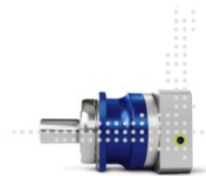
Pictures (source: WITTENSTEIN SE):



01-wittenstein-getriebe-cynapse-analyze: The third Smart Service – “cynapse® Analyze” – blends smart algorithms with WITTENSTEIN alpha’s core expertise in gearbox technology to create smart analysis tools like the Health Index.



02-wittenstein-cynapse-health-index: cynapse® Analyze with Health Index: smart gearbox monitoring prevents unplanned outages, giving rise to substantial cost benefits and savings.



03-wittenstein-getriebe-smart-services: WITTENSTEIN gearbox with cynapse® functionality

WITTENSTEIN SE

Walter-Wittenstein-Str. 1
97999 Igersheim · Germany

Contact: Sabine Maier
Trade Press Officer |
Deputy Press Officer
Phone +49 7931 493-10399
Email sabine.maier@wittenstein.de
www.wittenstein.de

Texts and photographs in printable quality can be downloaded from <https://www.wittenstein.de/en-en/company/press/>

WITTENSTEIN – one with the future

With around 2800 employees worldwide and sales of €498 million in 2023/24, WITTENSTEIN SE enjoys an impeccable reputation for innovation, precision and excellence in the field of cybertronic motion – not just in Germany but internationally. The group possesses exceptional expertise for the mastery and further development of all technologies relevant to mechatronic drives and comprises six innovative Strategic Business Divisions. We develop, produce and sell products such as high-precision servo drives and linear systems, servo systems and motors as well as cybertronic drive systems for many areas of application including machine and plant construction, aerospace or oil and gas exploration. Nanotechnology and software components round off the portfolio. With 25 sites in more than 45 countries, the WITTENSTEIN group (www.wittenstein.de) is represented in all major technology and sales markets.

WITTENSTEIN SE

Walter-Wittenstein-Str. 1
97999 Igersheim · Germany

Contact: Sabine Maier
Trade Press Officer |
Deputy Press Officer
Phone +49 7931 493-10399
Email sabine.maier@wittenstein.de
www.wittenstein.de