

POWER SPINDLE INNOVATION: THE NEW "ISPINDLE" BY HITECO

Hiteco is the new reference companies for the design and production of power spindles for machine tools dedicated to the wood, plastics, light alloys and composite materials industries. Thanks to a team of specialists with over thirty years of experience, Hiteco offers one of the widest ranges of solution of the whole industry: a power from 3 up to 30 kW, rotating speed ranging from 1,000 to 40,000 rpm, Iso and Hsk automatic or manual tool holders, air or liquid cooling systems, housing case or cylindrical body mounting options: a solution for any requirement!

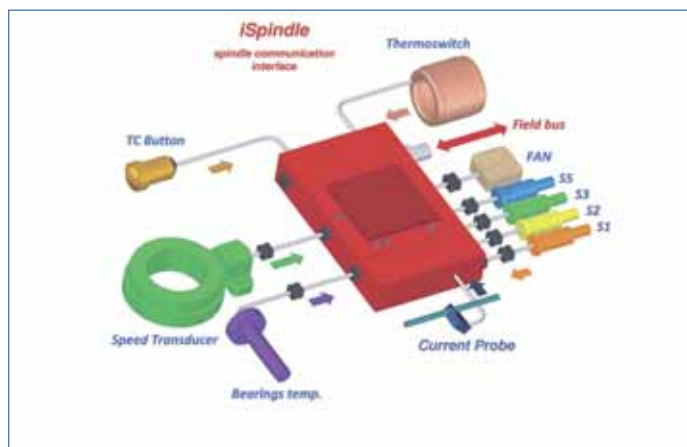
The company founded in 2008 is growing at significant pace in countries such as Turkey, China, the United States, strongly interested in investing in high-performance and reliable products that feature high technology and innovation levels.

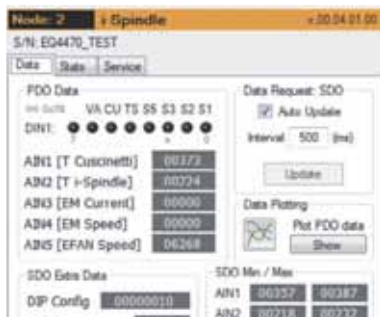
The **power spindle** is a very important component in every machine tool, the linking element between machine and tool, the "hand" that guides the drill or the cutter on the material to be processed. And, at the same time, it is the element that "feels" what is happening with the processed material, recording – for example – the need for a higher effort... An effective industrial process, whatever it is, requires the knowledge and the best possible management of information. A principle that Hiteco has applied to the power spindles series "**Powertech**

300" and "**400**", "multipurpose" versions which, in the wood industry, can be used in the processing of solid wood as well as nesting operations. The power spindle features a miniaturized electronic control unit – a board called "**iSpindle**" – which receives all inputs from sensors integrated in the power spindle and sends them to the machine tool control and management systems.

These signs, and their processing, are thus available – through the machine tool itself and remote assistance systems – for the company technical office or Hiteco itself.

"It is thus possible to monitor all the main operating parameters of the power spindle in real time and with the highest accuracy through the processing of a dedicated software solution installed in the machine or in a simple Pc", said Filippo Fabbri, the engineer of Hiteco technical office. "This means to keep important values constantly under control – such as higher consumption of electric power, motor and/or bearings temperature increases – which can offer important information. iSpindle ensures very accurate diagnostics which allows users to see all operating parameters in "live mode" in order to optimize the production process of the machine integrating the power spindle, regardless of the type (not only standard working centers thus). A strongly innovative solution, with information trans-





parency and data sharing capacity that is unparalleled compared to other products available in today's market".

This is the real benefit that "iSpindle" offers to the user: a powerful analysis tool to produce better, to ensure that the power

spindle – and thus the machine tool – works in the best possible way. By leveraging the electronic potential of the board, it is possible to obtain higher productivity and better finishing results, together with a constant check of operating conditions, so as to avoid breaks and increase life. It is possible, for example, to monitor the real rotating speed of the shaft to understand the real cutting speed and, thus, to decrease or increase the feed speed, obtaining **energy consumption savings**.

"iSpindle" constantly monitors many data: from logic sensors of tool clamping units to shaft rotating speed, from the amount of absorbed power to motor or bearing temperatures, the feeding unit of the button of the tool changer on-board the power spindle and much more.

"Another feature of great interest – says engineer **Luciano Valentini** – is the opportunity to display the trend of different parameters, so that the user can monitor the operating conditions with an extremely understandable method, acting as required to improve the process. An example: the control of the bearing temperature allows the user to avoid overheating; thus it means to use the machine at the highest speed without stressing the spindle and

Above: two pictures giving an idea of how easy is the access to information thanks to "iSpindle".

increasing its operating life. Downtime is also significantly reduced because the opportunity to monitor operations allows user to act before problems arrive, also through standard maintenance operations instead of repairing solutions".

If a tool loses its sharpening performance or a cutting edge breaks down, if exaggerated speeds are achieved, if chip removal is excessive, the power spindle notices a change in working conditions: the operator reads the new data and immediately acts to solve the problem.

"iSpindle" will be available in markets all over the world starting from next October; an innovation that Hiteco will offer to all machine manufacturers, also in other industries besides wood and wood-based products.

It is important to notice that the "iSpindle" board is integrated on power spindles series "Powertech 300" and "400", "basic" solutions, suitable for most of the industrial usage, for a wide number of users.

"We have thought about "iSpindle" also considering the higher and higher use of power spindles in brand new markets basically, and thus, where it is easier they are used in an improper way", added Filippo Fabbri. "Our control unit makes them easier to use: it checks that all sensors are correctly connected, power valves are fed, and feeding units are suitably programmed. "iSpindle" allows our user to check that everything is correct and connected through data and information which – thanks to remote assistance of the machine tool itself – can be shared with Hiteco headquarters, allowing our technicians to control the operating parameters of the power spindle and to provide customers with instructions to leverage the power spindle at its best, so as to extend its life".

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