

SERMEC

CUSTOMER EXPERIENCES



The key to the highest productivity.

Located in the municipality of Maia (Portugal), Sermec Group machines parts with a high added value for the energy and steelmaking sectors, cement plants and refineries, among others.

Sermec Group has decided to expand its machine pool with a multitasking SORALUCE FS 10000 machine for the gearbox and axes refurbishment for the wind energy sector.

This is a multitasking solution, a fully versatile solution aimed at maximizing productivity, with the ability to perform milling, boring, turning and gear hobbing operations on a single machine for multiple components of different shapes and sizes efficiently and accurately.

The machine allows Sermec to achieve the highest profitability parameters in the machining of large format parts and those with great technical complexity, making it possible to machine different shapes and sizes.

This is a highly capable machine, both in terms of part size and the type of operations which can be performed. With a longitudinal travel of 10,000 mm, a



“One of the advantages is the **simplicity of the cycles**, they’re really intuitive”.

“The **new hobbing technology** for large format machinery is a differential advantage that opens up new market possibilities to us”.

Carlos Pereira

CEO
Sermec

vertical one of 3,600 mm and a cross one of 1,600 mm, the machine is equipped with Heidenhain servomotors and linear scales along the three axes and is highly dynamic with speeds of up to 35,000 mm/min. It has a flexible working area on a floor plate of 11,000 x 2,500 x 300 mm with a Ø 2,000 mm table for working both horizontally and vertically (4th axis). The table has capacity for parts of up to 12 Tn horizontally and for parts of 5 Tn vertically, with a tailstock and a steady rest for parts of Ø 1,100 mm, equipped with a Heidenhain encoder of 18,000 pulses.

In order to perform the different multitasking operations, it has high-performance heads which are designed and manufactured by Soraluce and are extremely accurate with high power and torque levels.

On one side, the stepless universal head, designed for the machining of complex surfaces and capable of achieving highly accurate positioning with an indexing capability of $0.001^\circ \times 0.001^\circ$, provides a high chip removal capacity with a power of 46 kW, 1,530 Nm and 6,000 rpm. On the other, the fixed horizontal head, 600 mm in length and Ø 195 mm with 46 kW, 1,750 Nm and 4,000 rpm. The machine also includes a boring and facing head for large format parts. It achieves a high degree of automation, with an automatic head and tool changing system with storage for up to 60 tools and full visibility of said storage, protection against chips and cooling, as well as a sliding window to facilitate the loading and unloading of tools.

The machine includes a Heidenhain direct motor of 43 kW and 900 Nm nominal. It is water-cooled, guaranteeing high levels of accuracy and efficiency

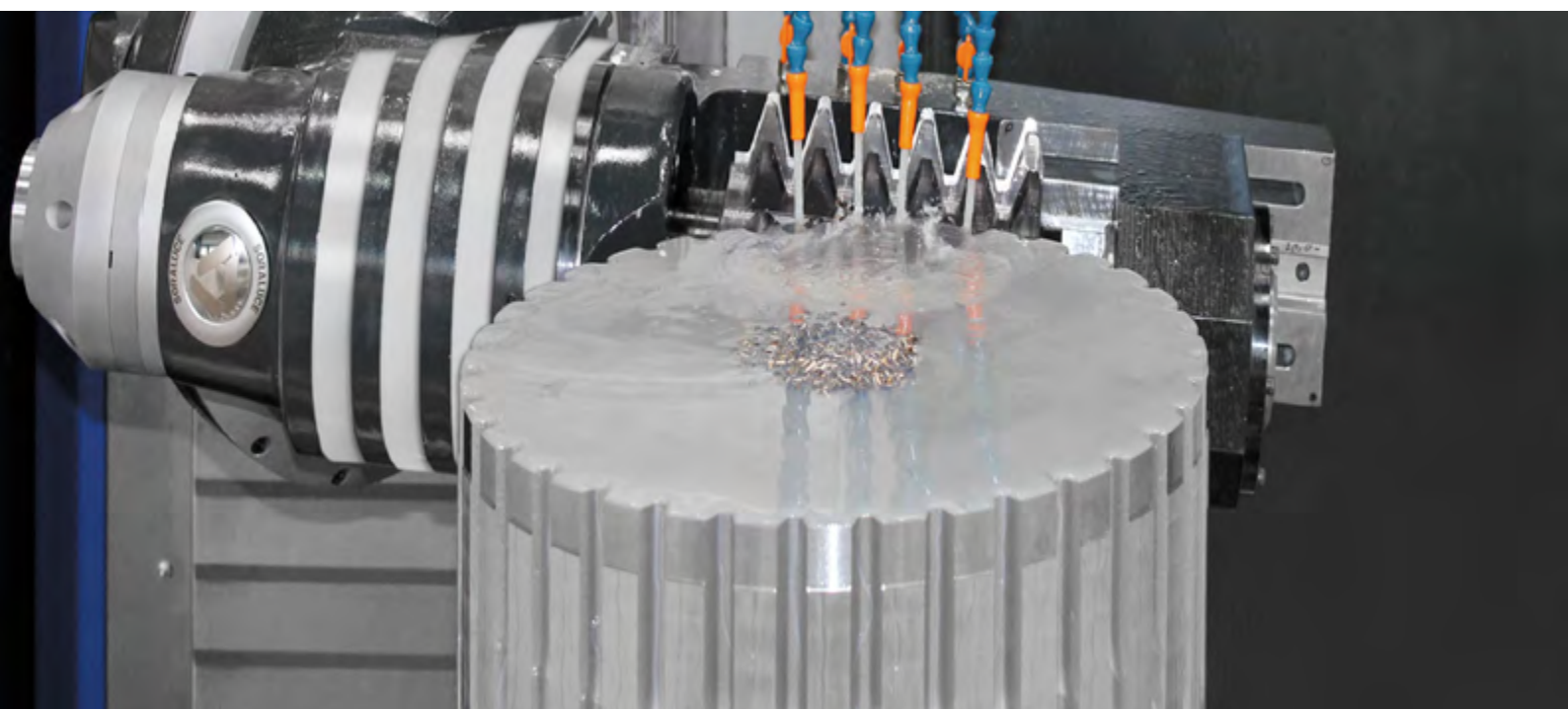
with low heat and noise generation and minimal maintenance.

The operator's cabin is fully carinated and includes the CNC panel for gentle movements. It enables perfect visibility of the machining area.

In general, these are highly configurable machines, which can be used to work on one or several areas, be it to maximise productivity, to minimise stoppages while the part is positioned or to increase the versatility and flexibility of the machine.

Applied technology

Soraluce has been a pioneer in the use of linear guiding systems and has applied all of its knowledge combining guiding technology with passive damping systems, with the inclusion of damping pads as well as active systems, such as the DAS® (Patented) system, exclusive to Soraluce. This results in incredibly accurate machines which are highly dynamic, stable during machining and reliable in terms of availability. All of these Soraluce technologies come together in the new HEIDENHAIN TNC 640 control, a multitasking control prepared for milling, turning and gear hobbing projects, where Soraluce mixes its know-how in terms of technology, developments, solutions and applications, providing the user with reliable and accurate control of the machining process.



A great numeric control, more features

Subsequently, Soraluze has applied the features provided by Software-8 of the Heidenhain 640 control to manage the boring heads. Thanks to these new possibilities, Soraluze has been able to develop, together with Heidenhain, simplified handling for the user, applying a constant cutting speed to facing operations, including the possibility of creating cones, threads and any other operation that can be carried out with this type of head, all integrated into a user-friendly interface.

Another of the advantages provided by the Heidenhain 640 control in this project is the possibility of machining gears. In this case, Soraluze has developed

a specific head in order to work with large format hobbing tools that, together with the 880 gear hobbing cycle using the Hobbing methodology included in the TNC-640 from Heidenhain, allows gears to be hobbled. Programming is simplified thanks to the cycle developed by Heidenhain, resulting in a great added value for the end user. The cycle provides the optimum synchronisation of the rotary axes together with the linear axes of the machine in order to complete the operation.

