

Transformer core stacking automation for smart manufacturing in the digitalisation era



GEORG, the world's leading German manufacturer of transformer production equipment, developed a portfolio of autostack solutions for automatic core stacking of distribution and power transformers

GEORG's solutions for offline stacking include both automatic core stacking and in-line stacking solutions that further include automatic coil loading, cutting, stacking, and final assembling

As the world's leading manufacturer for transformer production equipment, GEORG benefits from a several decades of market experience, having successfully completed over 1,000 projects in the transformer industry.

The portfolio of autostack solutions developed by GEORG is the widest available on the market, as today it is possible to automatically stack everything from small **distribution transformers of only around 100 kVA** up to large **5-limb power transformers of over 100 MVA**.



GEORG autostack 1000, driven by Güdel, currently under production (offline core stacking solution for transformer cores up to 5 limbs with yoke length up to 9 m)

GEORG autostack 1000, driven by Güdel, is an offline core stacking solution for transformer cores up to 5 limbs with yoke length up to 9 m

The development of high-precision and efficient solutions for core stacking enables covering all the necessities in the business of transformers. This can be done by applying **offline stacking solutions**, which are mainly considered in the transition to automatic stacking for all those companies already having efficient core cutting lines in production, but also being open to the opportunity of adding automatic stacking solutions to the existing process. Another one is applying **inline stacking solutions** that include automatic coil loading, cutting, stacking, and final assembling.

Today, transformer manufacturers and service centres can choose between the systems of different degrees of automation with all the equipment having one thing in common: the supply of complete, integrated solutions down to

autonomous, driver-less transport platforms for internal work logistics.

The GEORG autostack solutions are individually designed to be integrated into our customers' production surroundings considering available space and the existing equipment such as core stacking tables.

A key value for customers of automatic core stacking solutions is the consistency in quality. The automatic system will always ensure the same high-performance quality level, with much less dependence on personnel availability and worker skills. Automatic assembly systems already in operation at our customers' have shown a reduction in core losses compared with manual stacking, greatly reducing the energy consumption for users.



When it comes to efficient and precision stacking, only experience and innovativeness combined can ensure the best and reliable results

In order to achieve the task of precision stacking at its best, which is a very important challenge of automatic core stacking process, the autostack systems are produced by the German company **Heinrich Georg GmbH Maschinenfabrik**, a proven worldwide transformer-core expert, in cooperation with **Güdel Group AG** from Switzerland, a company with excellence in automated motion solutions in different applications.

A skilled team of several experienced engineers is dedicated to this project and has been jointly cooperating since 2017.

“One key of our success is a great dedication of all people involved to create a lasting benefit for our customers.” (Marc Stefan Debus, Sales Manager for transformer lines and Key Account Manager for autostack technology)



GEORG autostack 400, driven by Güdel (offline core stacking solution for distribution transformer cores)

Offline system of autostack technology

The newly developed GEORG autostack 400, driven by Güdel is an offline system for automatic stacking of distribution transformer cores. This highly automated system interfaces with GEORG core cutting lines and features an integrated data-management system. The direct data transfer between the cutting line and the robot makes the time-consuming manual process superfluous. Thanks to this data link, the new system can easily be integrated into the digital network of the production plant.

The GEORG autostack 400 system is designed to work in combination with GEORG core-stacking tables using pre-stack platforms on which the stacks of previously cut core laminations are located. The laminations are picked up by the handling systems with grippers according to the required stacking sequence, and are stacked on the automatic stacking station. The design allows moving the table with the finished stacked core (in the horizontal position) out of the unit and moving the second table in.

GEORG autostack 400, driven by Güdel, is an offline system for the automatic stacking of distribution transformer cores

This reduces the non-productive time and allows customers to finalise the core (including secure tilting into vertical position) outside the autostack stacking unit.



Features:

- Processing of complete and half logs
- Production of flat yokes
- All types of step lap
- Utilisation of existing core stacking tables
- Interface to GEORG core cutting lines
- Data management for core production

Benefits:

- More profit
 - Labour cost savings
 - Reduced mechanical stress
 - Reduced transformer losses

- Better quality
 - High accurate stacking
 - Repeatable stacking quality
 - Adjustable gaps

We will be very pleased to organise any demonstration and test on the proven solutions.

A further step in improving the overall efficiency of core process, which is an important part of transformer manufacturing

We live in the times of Industry 4.0 and smart manufacturing where everything is connected, where competitiveness is becoming more aggressive than ever, and with customisation of your transformer being an important distinguishing factor. Selecting equipment most adapted to your needs will be of great importance in terms of total productivity, which will



Utilising of GEORG's solutions will ensure several benefits of your production line such as the reduction of labour cost while increasing the quality of the transformer manufacturing



not only rely on the top speed, but will include the set-up time as well as down time aiming to minimise personnel intervention, and material handling and movement.

With Heinrich Georg GmbH Maschinenfabrik being in the transformer market for over 70 years, and feeling the responsibility for our product as a capital equipment of high durability in years to come, we support your economic success through our vision into the future, despite the rapidly changing market environment.

About Heinrich GEORG GmbH Maschinenfabrik

GEORG is a worldwide, well-reputed partner for reliable and powerful high-tech engineering and process optimisation solutions. The company's cutting-edge finishing lines and machine tools as well as production lines, machines, and equipment for the transformer industry, have been in operation in numerous renowned companies around the world.

With its encompassing product and service offers and its worldwide network of sales and service branches, the family-owned company, which employs almost 500 people and is now in its third generation, caters to markets as challenging as energy, mobility, and industrial.

For more information please visit georg.com

About Güdel Group AG

The Güdel Group is a manufacturer of high-precision machine components and provider of intelligent automation solutions. Its spectrum of products ranges from linear guideways, racks, pinions, and drives right through to linear axes, and gantry robots. Güdel assembles its products into systems with a high degree of control intelligence and complete plant installations, which can be used in the automotive, tire, metal, rail, intra-logistics, pharmaceutical, renewable energy, wood, aerospace industries, and many more.

Güdel's technology is characterised by its innovation, quality, and modularity. The Güdel Group AG has a workforce of approximately 1,100 employees in over 20 locations worldwide. The Group has been owned by the same family since its foundation more than 60 years ago. The Güdel Group has its headquarters in Switzerland.

For more information please visit gudel.com



GEORG autostack 400, driven by Güdel (offline core stacking solution for distribution transformer cores)

Contact:

Heinrich GEORG GmbH Maschinenfabrik

Sales transformer lines
 Langenauer Straße 12
 D-57223 Kreuztal/Germany
 Fon: +49.2732.779-539
 Fax: +49.2732.779-39171
www.georg.com
 Email: sales.trafo@georg.com

Smart manufacturing solutions for transformers are developed in cooperation of Heinrich GEORG GmbH Maschinenfabrik and Güdel Group AG – the Swiss manufacturer of high-precision automation solutions

