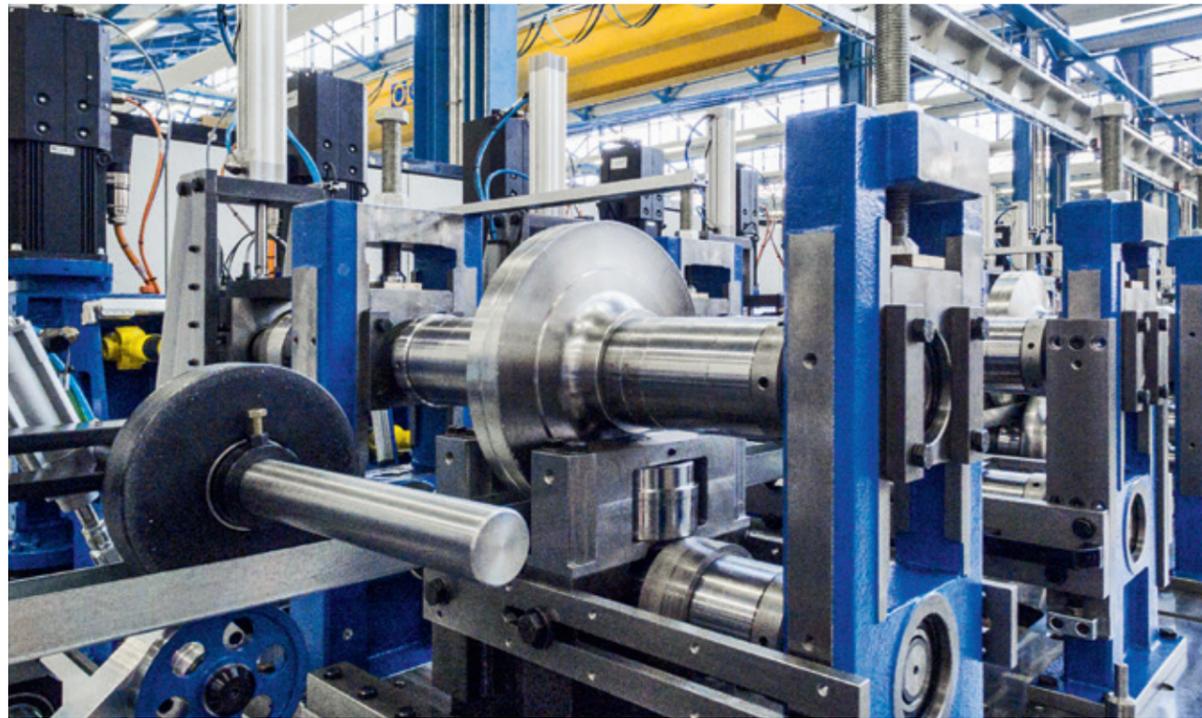


Gasparini S.p.A. raises the versatility standards of profiling systems, with the aid of Bosch Rexroth

A new line for profiling laminated sheet metal, combining quality and reliability with high levels of productivity, efficiency and flexibility. This was the challenge for Gasparini S.p.A., a leading company in the field of sheet metal deformation since 1952.



The new production line, 65 m long and 6 m wide, able to work from 2 to 40 m of sheet metal per minute and produce metal profiles with a 500 mm development, measuring 300 x 100 mm and 5 mm thick, is now ready to leave the new plant in Mirano (in the province of Venice) and be installed at the premises of the customer – a German firm specializing in the subcontracting of profiling and requiring a system with exceptional production versatility features.

A challenge taken up by Gasparini S.p.A., that has always stood out for its production philosophy hinging on the creation of one-off systems for its customers, to meet

specific and often out-of-the-ordinary needs. This is also the basis for the collaboration with Bosch Rexroth (begun in the sphere of hydraulics and linear actuators in the early 2000s), which has recently seen the adoption of electric drive and control solutions.

The punching, profiling and cutting line project required drive and control systems for the various work phases, so the contribution of Bosch Rexroth was important during the development stage when defining the control system architecture. The Bosch Rexroth application team, specialized in metal forming, sustained the Gasparini engineering

for the sizing of the electric drive systems and the choice of motion controls with special functions for resolving the many technical needs of a complex profiling line.

Thanks to this winning partnership, customer satisfaction was guaranteed by a line designed to supply a versatile system able to produce a vast array of profiles whilst minimizing production costs and investments in equipment. The line is made up of processes necessary for obtaining highly differentiated end products and ensures optimum automation, optimum quality standards, and optimum production performance.

The system combines a number of particular features relating primarily to the management of the coils, especially the loading cradle with precision tilter for facilitating the machining of high-resistance steel, the automatic belt joint system for coil changes with minimum operator intervention, and the high-performance and high-precision electronic feed unit with the latest control system.

The following punching system, consisting of three electrically activated hydraulic presses with a force of 80 tons, combines the strength and versatility of the hydraulic press with the versatility of an electric press. This combination meets the varying requirements of the profiles to be produced as, in this process phase too, there is the possibility to optimize punching times with different borings and steps.

The heart of the plant is the profiling system with its automatic equipment unit change. The profiling system offers adjustment of the upper and lower shafts and an independent drive system for each profiling machine axis. It uses Bosch Rexroth's MLC65 motion control – a system that, thanks to the use of the Sercos® real-time automation bus, can manage electric shafts, electronic cams and independent positionings for up to 64 axes. This means the rotation speed of each step is optimized to suit the needs of the process and the equipment. A control on each single step guarantees top production and qualitative efficiency for each different profile created, as the speeds can be parameterized on the basis of the profile geometries. Within the profiling system, it's possible to assemble flexible moulders, traditional moulders with various diameters, start-stop moulds and mobile shearing units to extend the range of possible machining operations.

The mobile cutting system is installed downstream from the profile. It can be fitted with a disc saw and a cutting mould with or without off-cuts. During flying cuts, carriage movement is managed by a special function integrated

in the Rexroth IndraDrive electric drive. The IndraMotion for metal-forming packages combines the flying shear process (a ready-to-use solution, the result of over 30 years of Rexroth application experience in sheet metal machining). The line is completed with the automatic unloading system for profiles up to 12 m long, allowing the creation of a buffer that improves efficiency during pack handling operations.

In short, the line permits a wide range of production possibilities with the integration of different machining processes. In addition, its design allows considerable scope for future developments in terms of the products that can be created and the machining operations requested. Compared with traditional plants, it brings together smart management systems in every area, and hence avoids any prevailing operations that affect the functioning of the others.

With its significant know-how and innovation potential, Gasparini has been able to provide a tailor-made system able to resize according to the needs of the purchaser and the applications it will be used for. This is one of the company's characteristic traits, based on a "tailored" concept of the plant in which the design begins from the specific needs of the customer, and the task of the technical office (with a staff of 40 design and engineering specialists) is to produce a made-to-measure system where up to 80% of the design is personalized.

Gasparini's strength lies in its ability to act as a real partner for the customer, working together to examine the best solution for the specific requirements. A fundamental aspect of this process is the technical office, in charge of designing focused, innovative solutions. Today, the plants created by Gasparini S.p.A. are used by more than 1,500 companies throughout the world, belonging to a variety of sectors and with a multitude of needs and critical issues. Furthermore, the company – with its 110 employees – displays a strong leaning towards exports, with 90% of its turnover produced abroad (50% of this outside Europe), in stark contrast with the situation just five years ago, when half the company's turnover came from within Italy.

Gasparini is an active player on the foreign scene, taking part in 18 trade fairs and operating a sales/production branch in Brazil as well as sales offices in China, France and the USA. Together with its partners, it's a continually growing business that is looking optimistically to the future, focusing on innovation to be one step ahead of its customers wishes.