

COMPANY PROFILE ///

TAV VACUUM FURNACES SPA

CUSTOMIZATION, TECHNOLOGY, AND QUALITY

A cart bottom furnace, model H15. It is used for component brazing in the aviation sector.
(Courtesy: TAV VACUUM FURNACES)

TAV VACUUM FURNACES designs and manufactures top-quality vacuum furnaces for a wide range of industries and applications worldwide.

By **KENNETH CARTER**, Thermal Processing editor

TAV VACUUM FURNACES is an Italian company founded in 1984 by Giuseppe Tonini and a group of entrepreneurs active in the field of heat treatment. The strong entrepreneurial spirit, engineering skills, and hard work has led TAV VACUUM FURNACES to be one of the players in the production of high-quality vacuum furnaces.

“Our company has an established presence in the European market and, in the past decades, we were grown our presence in Chinese, North American, and Asia Pacific market,” said Guido Locatelli, general manager of TAV VACUUM FURNACES. “Throughout the years, we have developed a deep understanding of customer’s needs and how to best cater to them with quality service.”

TAV’s vacuum furnaces are used in a wide range of heat treatments for different materials such as steels, alloys, superalloys, advanced ceramic, for hardening, solubilization, annealing, brazing, and sintering. They are mainly applied in the following sectors: production of heat exchangers, aviation/aerospace, automotive, IGT (industrial gas turbine), additive manufacturing, commercial heat treatment, and the component sintering industry (medical, precision mechanics, optics, fashion).

“Flexibility, technology, and quality are the core values of our company,” Locatelli said.

FLEXIBILITY

The company’s customers recognize TAV VACUUM FURNACES as a proven and reliable solution provider in vacuum technology, according to Locatelli.

“Our extensive vacuum furnace line is proof of our flexibility,” he said.

TAV VACUUM FURNACES designs and manufactures vacuum furnaces with different configurations, range of temperatures, and working pressure. Horizontal vacuum furnaces with a hinged door, horizontal vacuum furnaces with a cart bottom door, and vertical vacuum furnaces with a top or bottom load are all part of TAV’s portfolio.

The company’s furnaces can work in a wide range of temperatures up to 2,800°C, and with pressure from the Ultra High Vacuum, it can be used in nuclear and research laboratories up to 150 bars for hot isostatic pressure applications.

“All our products could be highly customized in order to meet customer needs and achieve the best integration in their production plants and processes,” Locatelli said.

TECHNOLOGY

Through its large team of experienced mechanical and automation

engineers and supported by the most advanced software and instrumentation, TAV VACUUM FURNACES provides timely and qualified solutions to its customers, according to Locatelli.

“TAV VACUUM FURNACES has heavily invested in our R&D department in the last two years,” he said. “Through collaboration with universities and research centers, our R&D department is implementing and validating new processes and technologies that will be implemented in our products.”

The department is focused on following and supporting its customers from the beginning, according to Locatelli. Customers can benefit from a close and strong collaboration. Heat treatment, for



A vapor-phase aluminizing furnace, model TPA 72-78. (Courtesy: TAV VACUUM FURNACES)

sample, metallurgical analyses, and hardness tests can be performed in TAV’s R&D department to help customers proof, fine-tune, and validate their processes.

QUALITY

“TAV is strongly committed to quality in his widest meaning,” Locatelli said. “A big effort was spent in the past years in developing a very strong quality department.”

TAV’s quality department supervises all activities from the acquisition of materials to the fine-tuning of its products with a view to a global quality concept.

“All our furnaces are fully tested in our company by quality team engineers before they’re accepted and delivered to our customers,” Locatelli said. “The quality department supervises all commissioning and testing at the customer’s premises in order to guarantee the best



A semi-continuous furnace, model TBHA 45-180-365. It is used for aluminum brazing of components in the aviation sector. (Courtesy: TAV VACUUM FURNACES)

results and performances.”

TAV’s structure is so strongly committed to quality that the service department is under the umbrella of quality, too, according to Locatelli. Service and after sales job are performed through a network of companies: FURNACARE Inc. for the North American market and TAVENGINEERING for the rest of the world.

“Service and manufacturing require different attitudes,” Locatelli

tions already making waves. One of those, according to Locatelli, is additive manufacturing.

“There are some new processes that are coming with additive manufacturing, like binder jetting, that will for sure grow the market in the future,” he said. “There will be a lot of requests and demand for furnaces for that kind of process. Most of the parts obtain with AM process needs to be heat treated, especially with binder jetting. This technology will move the AM parts to large volume production, whereas laser sintering now is focused on smaller volumes.”

Locatelli said TAV plans to keep a sharp eye on the future as it looks to keep growing.

A vacuum furnace is the safer and more environmentally friendly heat-treatment process, and Locatelli expects this market will continue to grow.

“The increased attention to environmental and safety issues will lead to a greater demand for vacuum furnaces in the future,” he said. “Producers of vacuum furnaces are constantly looking for better performance of their products in order to replace the use of traditional heat treatments such as quenching in oil or salt baths.”

Using environmentally sustainable equipment is an important mission for

TAV in that many industries, including automotive, are looking to manufacture parts without any potentially hazardous implications, according to Locatelli.

“The vacuum heat-treatment process is surely a sustainable technology,” he said. “And TAV is working to develop high-performance furnaces to replace traditional heat treatment.”

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The laboratory at TAV VACUUM FURNACES' R&D department. (Courtesy: TAV VACUUM FURNACES)

said. “Service jobs must be fast and effective while manufacturing requires stringent planning and a deep understanding of the problems.”

LOOKING TO THE FUTURE

As the heat-treat industry has evolved, TAV VACUUM FURNACES has continued to evolve with it.

The continued growth of the industry has TAV looking to the future at how established technology can be used with new innova-



A vertical bottom load furnace, model TPVH - SE 230-300 all metal. It is used to treat turbines blades in the aviation sector.
(Courtesy: TAV VACUUM FURNACES)