Founded in Brussels in 1937 and based in Louvain-la-Neuve since the 1990s, JEMA combines more than 80 years of expertise in magnetic products (transformers, inductances) for railways and telecoms, 45 years in particle accelerators and 10 years in energy transition.

With a turnover that has more than doubled in a few years and an orderbook that has multiplied by 6, JEMA has seen its workforce grow from around 30 people in 2019 to 70 people in Louvain-la-Neuve, not forgetting its more than 25 employees in Alsace (Haguenau) adding more expertise and innovation in power supplies as well as RF solid-state amplifiers.

In order to support this growth, JEMA has extended its facilities, with a tripled production and test capacity in Louvain-la-Neuve that has been inaugurated in 2025, to support more and larger projects, including full size container applications. All systems are indeed assembled and fully tested in JEMA's facilities, to improve the global quality delivered, and reduce potential risks and time losses on customer premises.

The extended JEMA facility, in Louvain-la-Neuve (Belgium) has been inaugurated in 2025 and provides a superior capacity for manufacturing and testing of all customers' equipment. © Schmitt-GlobalView

It's a cascade of good news for this specialist in power electronics and DC converters. JEMA's expertise is based on respect for customer requirements (its power supplies are custom-designed to specifically fit with the demanding specifications of customers), the high precision and stability of its products dedicated to particle accelerators, and its ultra-fast high-power (high current, high voltage) management and control solutions for the industrial energy transition. For all applications, high efficiency is also critical for customers.

A portion of JEMA's team, with the larger system (container at the back) and the smallest (CIME module at the front) during the celebration of the 2000th module! © JEMA Belgium

The technologies offered by JEMA cover high-performance AC/DC converters: precision, stability, power (current & voltage), control speed, efficiency, etc. They are aimed at two main markets. The first is **particle accelerators** for medical applications (cancer treatment or detection, medical products sterilization) or advanced research (major international “big science” research centers). The second global market is the **energy transition**, with applications in the electrification of industrial processes (plasma torches, plasma furnaces and other electrical heating systems), energy storage (industrial batteries and industrial chargers), hydrogen production (electrolysers and pyrolysis), DC microgrids, high current / high voltage dedicated industrial processes (manufacturing of permanent magnets, e-kerosene manufacturing or other specific applications), etc.

In addition to the power systems themselves, JEMA is also extending its proposal to customers through containerized solutions, to reduce and limit the impact on industrial sites and operations, as well as simplify interfaces on existing facilities. These “plug & play” tailor-made solutions have a lot of added value for industrial customers, specifically for high power applications.

Another extension of JEMA competencies covers long-term services: remote monitoring, preventive maintenance, regular reviews and continuous improvement suggestions, etc. This supports very demanding customers, for which uptime, reliability and long-term operations are paramount.

In this growth change, JEMA is fully supported by the CE+T Group, and other “sister” companies. As a group, the idea is to keep getting the best of both worlds: more support and means through larger size organization, as well as agility and flexibility to move fast and support customers in their very specific needs and requirements. Through various synergies, companies of the CE+T Group are adding values to one another when need arises and when it makes sense for the customers and projects.

Full size containers are now part of the portfolio of the systems JEMA can provide to its customers, to maximize value & quality, and minimize site operations perturbations during installation and startup. © JEMA Belgium

R&D is naturally at the heart of JEMA Belgium's activities. A large portion of its staff are power electronics engineers and technicians, in charge of designing systems and supporting their production, testing, installation and long-term services all along systems' life.

In addition to the specific needs of its customers, JEMA is looking for specific solutions to facilitate the energy transition in terms of interactions with public networks. Major industrial projects are likely to cause major disruption (in addition to the huge demand for reinforcement of these networks). The company is therefore endeavoring to design topologies that will cause as little disruption as possible, and that are best adapted so as not to slow down this transition.

Applications in high-temperature furnaces (plasma furnace, plasma torch). © JEMA Belgium

Other research projects include specific cooling techniques for high power electronics. With the increased power density required for high power applications, dedicated cooling is often required, generally handled by water cooling. But high purity water in industrial environments can be problematic for a project, so JEMA is developing with partners closed loop systems for these specific power electronic topologies.

Finally, digital applications, including automatic test benches, remote monitoring for distance services and support, or additional embedded tools within JEMA control systems are also in the research portfolio, once again with different partners to gather expertise around JEMA's customer's needs.

As well as working with the aerospace industry (by supplying test benches to simulate, validate and test the batteries that activate the electric actuators) and train industry (with industrial test benches for production and maintenance activities of major train systems manufacturers), JEMA continues to strengthen its in-house skills through training and to push the envelope of technologies and topologies further. As part of this, the company is taking part in R&D projects with universities (UCLouvain, UMONS, ULiege) and other companies (Engie Laborelec, Calyos, CE+T) to limit yield losses, reduce the impact on networks for high-power systems (industrial electrification projects and hydrogen production), encourage the digitalization and industrialization of processes, etc.

JEMA's new container. © JEMA Belgium

These projects offer a wealth of development opportunities for JEMA, which sees its future in both particle accelerators for the medical and research sector and energy transition in the broadest sense.

Finally, and in parallel to the benefits of all these innovation projects for JEMA and its customers, it also feeds employees bringing new, exciting and demanding activities, fueling learnings and growth on exciting developments. In addition, all activities are in positive field on the societal aspects fueling even further motivation and purpose for all.

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