

# Big interview



Mark Simms talks to **Vito Cataldo**, general manager of linear motion specialist Servomech

In 1987, Vito Cataldo was a man with an idea. With a wealth of engineering experience behind him in the field of power transmission and gearboxes, he conceived a vastly improved range of electric linear actuators that would also be able to perform with servo motors as servo mechanisms. Off the back of some encouraging market research and his own beliefs on how the market for linear motion technology would develop, Cataldo took the plunge, and in 1989 Servomech was born. Now, 22 years on and still at the helm of the company he founded – and with an undiminished passion for engineering design – he looks back with some satisfaction and says: “I was right.”

Servomech is the classic example of a company that thrives through innovative design and through investment in the technologies needed to bring those innovative ideas to market. Walking around the factory in Italy, located just outside the historic university city of Bologna, you see first hand the commitment to investment in the breadth and quality of the machine tools on the plant floor, and in the state-of-the-art 3D CAD systems used for product design. And if you want further evidence of success, Cataldo can show you a second factory that now houses a spin-off company manufacturing smaller electromechanical linear actuators with linear motors, and Servomech has acquired additional land to boost its production capability. In addition, in the last month, a Servomech branch has opened in the US, based in Houston, Texas, with its own warehouse and facilities for final assembly to support the local market.

So how did it all begin? “I looked at the screw actuators that were available in the late 1980s, and they seemed very primitive to me,” Cataldo explains. “The companies making them had no expertise in gears, and the efficiencies were very low. With my experience in gears, I could see a way to improve the product to deliver much higher efficiency, reduced backlash and greater precision. Also, no one seemed to have a properly integrated range of products – just a lot of one-offs developed for specific applications that they had combined to call a range. I could see a market for a genuine range of products that would meet a broader spread of application requirements.”

Cataldo could see a path to an improved product, then. What he did not know, however, was the potential of the market for linear actuators. “I commissioned research into the size of the electro-mechanical linear actuation market, the fields of application, the available products and the companies supplying them,” he says. And the results proved fascinating. The market was not huge, but it was a good niche market, and a growing market. It was also concentrated in the Northern European countries. “I had to ask myself why this should be,” says Cataldo, “and I noted two factors. Interestingly, the first related to environmental conditions. The prevalent actuation technologies at the time were hydraulic and pneumatic, but these suffer in colder climates. So it was clear that engineers were looking for an electromechanical alternative, and a market for these products was beginning to develop. The second was my belief that the northern European countries

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were more developed industrially than in the south. Their breadth of knowledge and expertise was far stronger.” As a result, Cataldo fixed his ambitions on the export market, expecting that in the first ten years or so exports would account for 90% of the business, but that the domestic market would steadily grow as the southern European countries developed their industrial bases. And the market has grown almost exactly in line with his expectations. “In 1990 I exhibited one of our first linear actuators at a trade fair in Germany. I had just three competitors. Today we have over 70 competitors, and that number is growing as the market continues to expand. In addition, our market split today is around 65% export, 35% domestic.” In all his predictions, then, Cataldo was entirely correct.

## In-house production

One of the keys to Servomech’s success now as then is that it undertakes all production in-house. “Not having to rely on outside suppliers has always given us flexibility, and meant that we could assure quality,” says Cataldo. “Flexibility at the outset was important because, in a newly emerging market you cannot anticipate the requirements of that market – you have to be able to develop new products that meet market needs as they evolve. We knew we would have to be market oriented. Internal production also helped us to protect our innovative ideas. And it allowed us to offer a wide range of options for size, speed, stroke length and motor rating, making it easier for engineers to move from older fluid power actuators to this new concept. But all of this was based around a minimum number of parts, and with plenty of standardisation so that we could meet customer requirements with just a small amount of customisation, meaning reduced lead times.”

The same philosophy continues to today, and Servomech continues to differentiate its products in terms of efficiency, low backlash and high precision. “We can claim around 30% better efficiency than our nearest competitor,” says Cataldo. “That means that for the same performance we could use a smaller motor, and ensure less wear and longer lifetimes.”

Today the Servomech range of products includes electromechanical linear actuators in acme or ball screw versions for loads up to 150kN, mechanical screw jacks (acme versions) for loads up to 1000kN, mechanical screw jacks (high performance ball screw versions) for loads up to 350kN, and machined ball screw shafts with nuts. “We are still the only company manufacturing all of these in house,” says Cataldo. “We don’t buy ball screws for example from other companies. This way, we can always innovate – reducing weight, improving performance and lowering costs.” A particularly interesting innovation is the latest range of ball screw mechanical jacks, as Cataldo explains: “There are not many ball screw versions out there, and usually they are constructed by buying in a ball screw and then adding a gearbox. But that’s not a particularly elegant solution: it’s typically quite heavy and doesn’t give you the performance you might expect. What we have done is to develop a properly integrated solution. Features include a twin lubrication system, and the high degree of integration means higher efficiency, increased stiffness and fewer components. All of this translates into significant weight reductions, better performance, higher efficiency and lower cost.”

With sales growing both domestically and abroad, planning permission to almost double the production area, and two successful spin off companies, Cataldo is committed to maintaining his ethos of investment and innovation. And who know what new products may be on the horizon.

**Servomech electromechanical actuators are available in the UK through the Techdrives arm of Lenze. More info at [www.techdrives.co.uk](http://www.techdrives.co.uk)**