TAKING THE LEAP

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ISMR SAYS:

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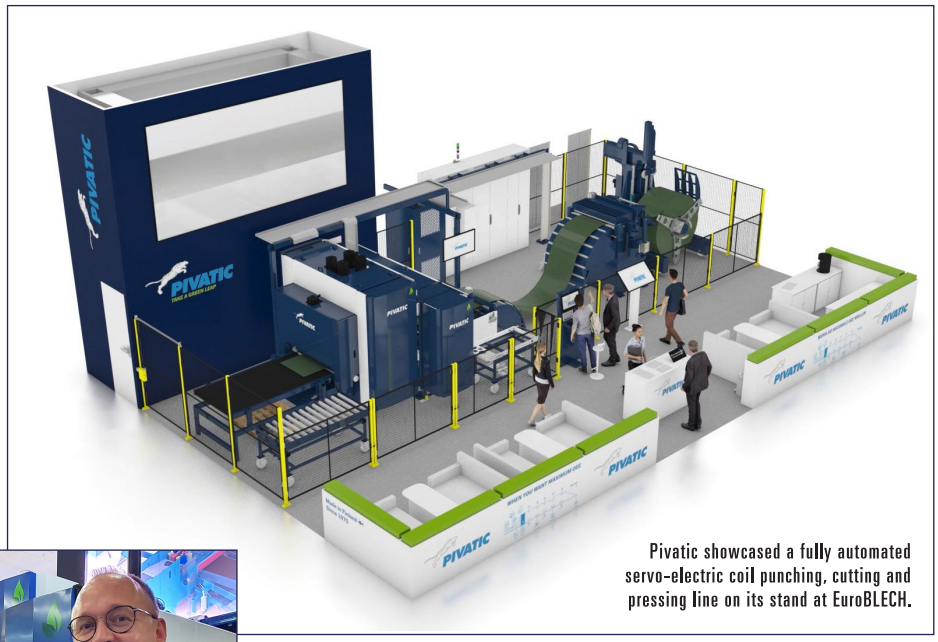

Pivatic showcased a fully automated servo-electric coil punching, cutting and pressing line on its stand at EuroBLECH.

Pivatic Oy designs, manufactures and markets punching, cutting and bending equipment and lines for the thin sheet-metal manufacturing industry. The Finnish specialist tailors its lines to produce parts for OEMS in various industry sectors from metal furniture; white goods and electrical enclosures to HVAC equipment and industrial construction. The lines include automated punch and bend from coil or blank stock production systems for high-volume producers of precision sheet-metal components.

Founded in 1975, with production facilities and headquarters in Hyvinkää, Finland, it has a wide sales and partner network around the globe of more than 30 representatives. The customisation of hundreds of lines installed worldwide has been a key pillar of Pivatic's success. It is a member of The Ursviken Group, a global provider of high-end solutions for sheet-metal manufacturers which provides a worldwide business network for production, sales and services.

Jan Tapanainen, CEO, Pivatic Oy (right) and Mika Virtanen, CTO, Pivatic Oy.

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Sustainable productivity

"At this year's EuroBLECH sheet-metal exhibition, we are encouraging visitors to 'take a leap' in productivity with automated Pivatic fabrication lines," Jan Tapanainen, Pivatic's CEO, told *ISMR*. "Our vision is to be a trusted partner for highly automated, productive and efficient sheet-metal fabrication solutions (incorporating punching, bending and shearing machines). We have a stand here with lots of machine demonstrations and are looking to develop new leads and catch up with our

customers at this important exhibition," he added.

Pivatic showcased a fully automated servo-electric coil punching, cutting and pressing line on its stand. Servo technology is also designed to lower maintenance costs and noise levels.

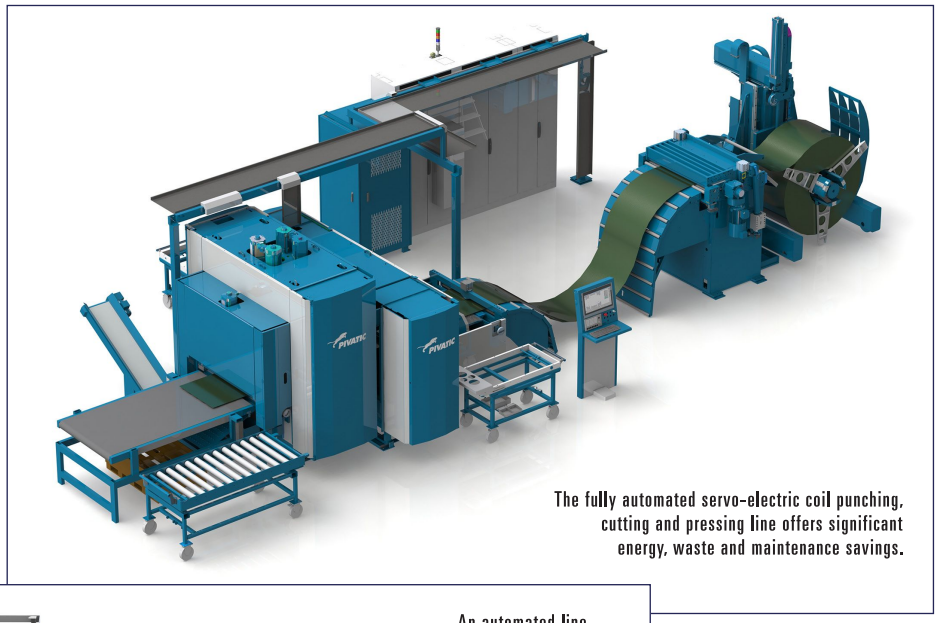
"Highly indexable Thick Turret punching, combined with a separate cutting station and a press tool station with 1200kN punching force, enables jobs (such as hole group, embossing, corner notching and trimming) to be flexibly produced," explained Jan Tapanainen. "Energy consumption for the full line is between 12-18kWh, depending upon the use of the large press which is 60-70% less compared to traditional systems. This supports our low-energy product solutions towards global sustainable development. Energy consumption really matters, as do reduced waste levels. Customers want to use every metre of the coil material nowadays to be as efficient as possible."

The line has been bought by a German manufacturer who was due to take delivery of it after the exhibition with two coil cars, a turning drum and a stacking device.

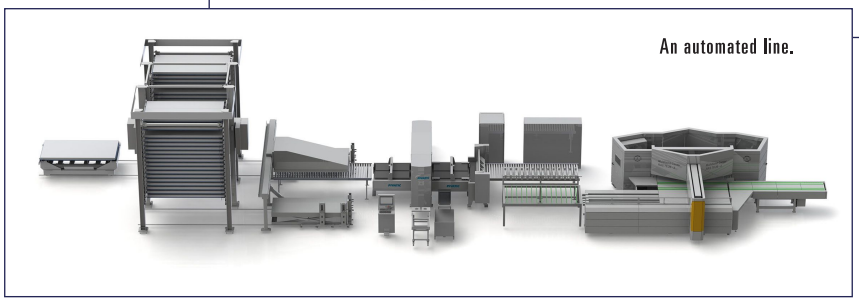
The electric PCC-e punching centres utilise servo technology for significant energy savings. Both force and stroke of a plate ram, driven by a linear motor, can be CNC-controlled. That means rapid punching with less energy consumption. Pivatic punching lines reclaim the braking energy of the servo motors in punching stations and presses and re-use it in the process.

"The electro-servo, coil-punching line here at EuroBLECH is fully servo-electric, connected to a 30-ton press and a 120-ton electric press and electric shear. We are bringing a 'green' theme to the show, encouraging visitors to turn over a new green 'leaf', as this line offers very low energy consumption (60-70% energy savings compare to many conventional technologies, which mean yearly savings of up to €40-50k, at current electricity prices, in three-shift operations). As energy prices spiral and are expected to remain high for the next few years, we see a lot of energy-saving potential here," outlined Pivatic CTO, Mika Virtanen.

"In terms of sustainable materials, we are also using SSAB sustainably produced GreenCoat coil materials with our electric punching machines. Our lines can last 30-35 years with modernisations and upgrades. That lifecycle is better than most. We are continuously working on systems using less oil, lower energy consumption and intelligent electric drives to bring value to the customer," he added.



The fully automated servo-electric coil punching, cutting and pressing line offers significant energy, waste and maintenance savings.



An automated line.

The automation factor

The shortage of skilled workers and operators in global markets is hitting hard in many countries, so technology providers such as Pivatic have to fill these gaps with its equipment. Software and automation are key parts of this equation.

"Measurement and monitoring technologies, plus machine feedback, are now part of the environment in which we operate. This year, we added robots and automated systems to our portfolio. This means that we can offer customers secondary processes in the line such as joining; bending; assembly; stacking; packing; automatic quality measurements and part handling etc. We use different brands of robots for this," confirmed Jan Tapanainen.

Pivatic has employed robots in its lines to move parts and further processes such as welding or sorting, but now they are increasingly used in the systems themselves to handle material flows. Robot integration has become a widely used option in full process system implementation. For example, with

PivaPunch and PivaBend

Pivatic's PivaPunch punching machines utilise direct material flow to maximise efficiency and offer a variety of options for production.

"They are best suited for product families and symmetrical parts with batch sizes ranging from one to several thousand. A single batch can be produced in as little as a couple of hours," explained Pivatic.

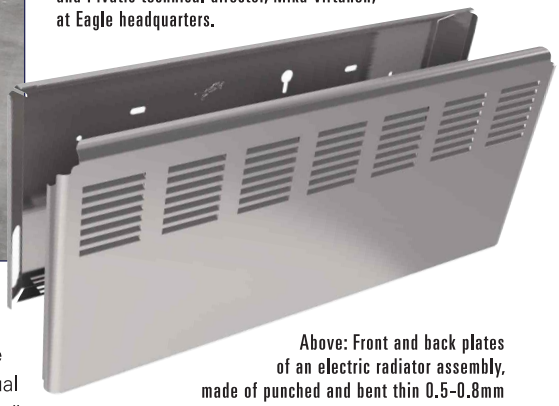
PivaBend bending machines are equipped for profile, panel or casing-type parts. They are suitable for product families that require fast cycle times. The parts are pre-programmed and tested via Factory Acceptance Tests. A typical bending line has a wing-former for each side of the part. Utilising this technology as part of a continuous process, said Pivatic, results in low cycle times.

"PivaPunch and PivaBend can be combined to make your products complete in one run as well as save space and reduce labour costs. Integrating separate modules and other production equipment (such as press brakes, perforating presses or panel benders) makes it possible to gain more efficiency and flexibility," added Pivatic.

The Pivabend bending line.

Pivatic line incorporating a Remmert Tower storage system and an RAS panel bender.


Above (from left to right): Eagle commercial director, Bartosz Krzewina; Eagle CEO Marcin Ejma; Pivatic CEO, Jan Tapanainen, and Pivatic technical director, Mika Virtanen, at Eagle headquarters.


Above: Front and back plates of an electric radiator assembly, made of punched and bent thin 0.5-0.8mm pre-painted mild steel on a Pivatic line.

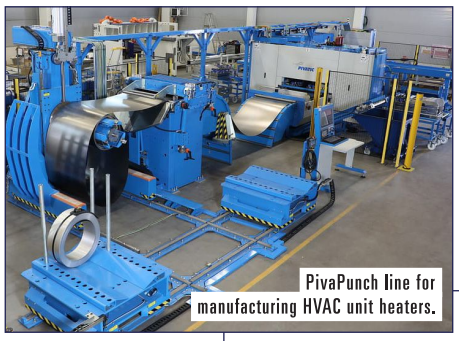
the help of robots, it is possible to implement various part-handling operations, increasing the flexibility of the lines and expanding line assembly possibilities. Robots are also a solution for combining different functions.

Automated lines also offer better cycle times, shorter set-up times and parts that can be run in a single pass; all of which are good for productivity levels.

"This year, we have delivered some really interesting projects with full automation. Our customers are looking for more long-term solutions, so they want good-quality equipment that is long-lasting and productive. They tend to be OEMs with their own production plants, making their own products, and with their own engineering facilities. Many of them are repeat customers. Once they buy a line from us, they tend to come back and buy new lines from us. We pursue an active collaborative partnership policy with our customers," explained Mika Virtunen.

Strategic and technical vision

During the EuroBLECH exhibition, Pivatic announced the news that it had deepened its collaboration in coil-fed fibre laser-cutting solutions with Polish laser-cutting and automation specialist, Eagle.


PivaPunch line for manufacturing HVAC unit heaters.

"We have been cooperating with Eagle over the past two years to develop more efficient coil-fed cutting solutions, but 2022 has marked a real milestone. Earlier this year, we delivered the first of these game-changing systems and have another delivery lined up for Europe," Tapanainen told *ISMR*.

"Coil-fed laser systems offer rapid payback for customers looking for ultra-fast sheet-metal cutting. By using coils instead of blanks and integrating advanced material handling automation, this solution makes the absolute most out of metal, reducing waste and manual handling of parts and skeletons to a minimum," he added.

Pivatic can select applications on its lines that may be better suited to either fibre laser cutting or punching and shearing.

Mika Virtanen also confirmed that Pivatic plans to continue expanding electric drive applications in its systems.

"We will continue producing electric drive technology and are, in fact, expanding this to our bending technology. We aim to redevelop our existing electric bending technologies and launch some new electric bending machines," he told *ISMR*.

He also confirmed that Pivatic is strengthening its presence in German-speaking markets and markets in mid-Europe next year. Europe is Pivatic's largest market, followed by North America and Asia. It is looking for new distributors worldwide.

"The North American and mid-European markets are our most important markets. BRIC markets have been the most challenging for us this year, for obvious reasons," he stated. "We have still been able to operate in a challenging environment with supply-chain issues affecting deliveries of parts and components. Despite this, our turnover will be higher this year than last year," he added.

He is more cautious about market prospects for next year in Europe and Asia but cites a more optimistic mood and order levels in U.S. markets.

"The Asian, and particularly Chinese, market is still a bit of a question mark with COVID-19 travel restrictions etc. However, we still see pockets of growth in different parts of the world. We need to be conservative in our forecast as we do not know how the energy crisis will affect our customers, especially those in Europe," he explained.

Virtanen also emphasised the importance of partnerships in Pivatic's business, whether with customers, suppliers or system partners.

"We work with different partners to integrate various technologies on our lines for customers. We can supply larger turnkey lines to customers by doing this. We use a system of preferred partners, which we recommend to customers. For example, we cooperate with RAS on bending lines and Remmert on storage equipment for our lines," Virtanen concluded. ■

https://pivatic.com/en/


PivaSystem line for manufacturing electrical enclosures.