Embracing digital transformation at HLT

Automated bending – more choices

“Buying time” with the Electra fiber laser

“A full grip on bending”

MICHAEL KUIPERS, KUIPERS CNC-BLECHTECHNIK
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**Editorial Note:** Let us know what you think of this issue of Discovery. Share your thoughts at marketing@lvd.be or connect with us on social media. For information about products you see in this issue or to find your local LVD contact, head to www.lvdgroup.com.

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“With the CADMAN suite we work more efficiently and have fewer remnants.”
Dear reader,

Today’s fabrication environment demands more. LVD delivers: more powerful, more capable machines and more automation choices.

In this Discovery, we introduce EMS, a U.S. manufacturer using an ultra-high-speed Electra fiber laser to cut up to five times faster in copper. Also, Shapes Metalworks, handling large-scale fabrication efficiently with a large-bed Phoenix fiber laser and automated material handling system. KUIPERS takes automation to the maximum with a customised robot solution for its Easy-Form press brakes.

We give you 50% more press brake tooling storage with the new ToolCell XT, the Extended Tool Magazine (ETM) able to hold 40 additional punching tools, and Dyna-Cell, the new high-speed automated electric press brake.

We’re all about helping you work better, deliver faster and gain market share by keeping your production flexible. Keep reading to learn more!

Carl Dewulf  
President & Managing Director

“I see copper as an investment that differentiates EMS. The same holds true for my investment in fiber laser.”

“Mexico’s manufacturing is expanding. We’re working with companies who want higher-end technology.”
Attracting highly qualified employees is of paramount importance for an innovation-driven enterprise like LVD. The HR departments in both Belgium and Slovakia mobilise all their efforts and explore various channels of recruitment: social media, an international LinkedIn job site, employer branding initiatives, job fairs and press coverage. The HR team introduced VR goggles to create a unique candidate experience. Candidates virtually meet LVD employees that soon may become their colleagues.

New Customer Service Director

Sara Cavazzini has been appointed Customer Service Director for LVD Group. Having spent four years as the Service Manager for LVD Italy, Sara comes to the role with a solid background in customer support. Her service and support philosophy is centered on a hands-on, teamwork-oriented approach. Congratulations Sara!

Advancing XXL bending

Earlier this year, we demonstrated custom-built Synchro-Form press brakes to fabricators with XXL applications. The audience learned first-hand why Synchro-Form is the choice for applications in aerospace, transportation and construction. If you have an XXL bending project, we want to hear from you at marketing@lvd.be.
LVD Company nv has been named a Best Managed Company, among seven privately-owned Belgium companies in the first-ever Belgian edition organised by Deloitte Private and Econopolis.

The designation recognises companies who demonstrate they have the strategic capabilities to innovate systematically, implement high-performing processes to manage opportunities and overcome risks.Winning firms also focus on talent and leadership development, and have a proven track record of sustainable growth. The Best Managed Companies program aims to become an international stamp of quality and excellence.

We’ve broadened our global reach with the opening of Experience (XP) Centers in Malaysia and Mexico and the expansion of our manufacturing capacity.

LVD XP Centers offer an impressive home for our latest products and processes and a place to connect with customers and industry partners.

Our LVD facility in Slovakia has increased by 50 percent and invested in new large-capacity gantry and milling equipment. The expansion will give us the muscle to more efficiently produce and deliver to a diverse global customer base.
By fully automating its bending operation, KUIPERS CNC-Blechtechnik is able to reap maximum benefits. Result: The automated production of formed parts that can’t be manufactured using standard bending cells.

“Customers who want to manufacture very specific parts in an automated production process are in good hands with us,” says Michael Kuipers, Managing Director of KUIPERS CNC-Blechtechnik GmbH & Co. KG in Meppen, presenting the highly productive and automated bending cell developed by LVD/Starmatik.

The system not only manufactures parts using two robots, but also self-loads and efficiently processes several orders without manual intervention. In contrast to standardised automation solutions, the installation offers its users flexibility in programming, and thus also enables the automated production of parts that cannot be manufactured on standard systems.

“In order to do this, one must operate the system to the maximum,” says Michael Kuipers, “and that’s where the wheat is separated from the chaff.”

In the prime segment
Numbers alone make it clear that, figuratively speaking, KUIPERS belongs to the category of “wheat” in the sheet metalworking business: The 300 employees, 20,000 m² of production area and 40,000 ton of material processed per year speak for themselves. Fourteen laser cutting systems, one punch/laser combo and one CNC punch press are used in the 2D-cutting area alone. Add to that 19 press brakes, four roll-bending machines, as well as folding technology. In addition, the extensive production facility includes deburring and straightening technology, hydraulic forming presses, milling and turning centers, as well as assembly and welding technology.

The spectrum of services ranges from 2D-cutting, to bent parts to mounted or welded assemblies. “We serve the complete process chain of sheet metal. The only thing that we still have to buy is the paint,” explains Kuipers. For organisational purposes, KUIPERS has implemented many projects which now fall under the term Industry 4.0. They include an ERP system for one of the largest automated high-bay warehouses with a capacity of 4,560 tons, as well as pocket PCs, which automatically inform the forklift driver which material must be prepared for each
machine, when the operator registers
the respective order at the machine.

Michael Kuipers has been managing
the nearly 100-year-old company
since 2017. The 37-year-old
Managing Director is familiar with
every aspect of the sheet metal
technology. As a child he learned the
basic skills of sheet metalworking
from his grandfather. As the
fourth generation, he will guide the
company through the era of digitally
networked production.

Not least because of tool compatibility,
the bending technology of KUIPERS
has relied until now on the machines
of a single manufacturer. However,
when it came to replacing two older
bending cells, Michael Kuipers had
the opportunity to see an LVD system
in action and found it fascinating.

From the very moment of the
resulting order, "LVD has made it
very clear that they were willing to
go a different way with us, in terms
of automation." Other providers were
not willing to go beyond the scope
of the standard solutions of their
modular systems. "LVD has shown
great flexibility for discussions on
interfaces and adjustments."

This resulted in a bending cell,
with an LVD press brake of
135 ton pressing force at the core. At
Starmatik in Italy it was equipped
with the corresponding automation
technology, and also tested with
customer parts. This bending cell
consists of a tooling stadium and a
robot placed in front of the press brake.

The first installation functioned so
well that KUIPERS quickly decided
to order a second one. "We designed
the second system, from the ground
up, for high productivity of smaller
parts." Therefore, the bending cell
was equipped with a fast hydraulic
LVD press brake, as well as with two
movable Fanuc robots. The first robot
feeds the parts from the material
supply, and pre-centers the blanks.

The second robot handles the parts
during the bending process on the
press brake and stores and stacks the
manufactured parts.

The bending cell automatically sets
up the press brake tools and the robot
grippers. For this purpose, more than
80 m of tools are provided within
the bending cell. Four stations with
flexible configuration are provided for
the material supply. Upon discharge,
the parts can be placed on a conveyor
belt or stacked on pallets. The system
has a robust zero-point centering over
an inclined plane. In addition, there
is a gripper station that can be moved
in front of the beam, as conceived by
KUIPERS, meaning that, so far, it has
not been implemented on any other
system.

The press brake includes LVD’s
Easy-Form® Laser adaptive bending
system, which performs angle
measurement and correction in real
time thus ensuring high-quality
bent parts.
“LVD has made it very clear that they were willing to go a different way with us, in terms of automation.”

**Flexibility in programming**

“We can program the systems freely and influence the movements within the area. Additionally, the system was adapted to the limited space. These are options that a modular system doesn't offer. The robot cells are tailored precisely to meet our requirements,” says Karsten Hanenkamp, Operations Manager at KUIPERS.

The system is programmed externally by the Starmatik software, which synchronises with the LVD control unit and software. The programmer sees the complete cell with all the components and parts, as he/she would see it on the machine, and programs entirely in the 3D-area. Algorithms that automatically generate the bending and movement sequences are stored in the Starmatik software, as nowadays is the case with many providers. “These algorithms work quite well,” says Kuipers. “However, LVD and Starmatik have enabled us the flexibility to intervene in these movement sequences individually.

“Our employees have acquired the appropriate know-how that is relevant not only to the bending process, but also to the gripper technology, as well as the feed and discharge of components.” The gripper technology does not have simple suction arms, but special gripper systems, which are adapted to certain components. Thus, for example, parts with extremely short legs can be reliably gripped and held. KUIPERS designs, configures and builds these gripper solutions itself, both with vacuum and magnet technology.

Hanenkamp illustrates the advantages based on numbers. “At that time, we requested a portfolio of 20 parts from various providers. With the standardised modular systems, no more than 50 percent of the components could be manufactured in an automated manner. LVD/Starmatik has provided us with the right solutions, so that we can now manufacture 15 parts out of the total of 20 parts, automatically.”

Today, complex interlaced parts with a high number of bends are run through the bending cell, in the case of which each bend must be processed very precisely. Due to a quick feed and discharge of the parts, the second robot can also manufacture parts with a few bends
in cycle times that can keep pace with the ones in manual operation. This is also due to the precision of the press brake, which delivers precise results using the real-time Easy-Form® Laser adaptive bending system. The LVD press brake is already very accurate even without this adaptive bending system. This is due in particular to the tailormade crowning system of the machine.

**Universal system**
This is a universal system, “which has reserve capacity to realise complex part requirements,” says Kuipers. The system features automatic tool and gripper change throughout and the software also leaves room for adaptations. “We are very pleased with the installation and we are excited about the next one,” Kuipers concludes.

© Blech, Volker Albrecht
**Fast and cost-efficient cell production**

LVD introduces Dyna-Cell; a compact manufacturing cell that produces small-to-medium-sized parts in a fast and cost-efficient manner with top precision. The cell combines LVD’s proven electric-drive Dyna-Press Pro press brake and a lightweight Kuka robot to offer maximum productivity in a small footprint of 5 m x 5 m.

Dyna-Press 40/15 Pro is designed to efficiently bend small parts at high bending speeds up to 25 mm per second. The press brake has 40 tons of bending force and 1500 mm working length. A five-axis backgauge provides consistent repeatability and accuracy.

**Special-design gripper**

The robot features a unique gripper designed and patented by LVD for the Dyna-Cell. The gripper fits part sizes from 25 mm x 100 mm up to 300 mm x 400 mm. Its compact size allows it to easily handle small parts and go between tool stations.

Users can make bends on three different sides of a part without regripping. Gripper suction cups are controlled via offline software and activated according to part size. Because one gripper fits all applications, production is continuous and uninterrupted.

**Hours of unmanned production**

Dyna-Cell incorporates a stacking area with space to load and unload several pallets. Finished parts are offloaded by the robot on to the appropriate pallet. When bending a large volume of small parts, no operator intervention is required for up to eight hours.

10 minutes CAM – 10 minutes set-up

10 minutes for CAM generation of the bending and robot program and 10 minutes for set-up and first part generation. Even with parts positioned and manipulated by the robot, Dyna-Cell minimises the time from “art” to part. When batch sizes are too small to benefit from robot automation, the robot can be placed in “park” position and the press brake can be used in standalone mode.
“Fast and cost-efficient cell production with Dyna-Cell”

Key features

- high-speed automated bending
- fully integrated with LVD’s CADMAN® software suite
- 10-10 rule for fast programming of part and robot
- smart gripper that fits all part sizes from 25 x 100 mm to 300 x 400 mm
- can be used as a standalone press brake
- 15” Touch-B touch screen control
- compact footprint: 5 x 5 m
Because of its employee-centric efforts and forward-thinking strategies, the Dutch company 24/7TailorSteel, grew its profits by 45% last year, no small feat for a fabricator that employs 250 people in three plants.
**Extensive automation**

One of the first things visitors notice when entering 24/7TailorSteel are the huge indoor potted trees living happily amongst automated lasers with pick-and-place robots adjacent to LVD ToolCell automatic-tool-change press brakes.

In this world, machine speed really matters, as does everything in between, from automated order entry to automated guided vehicles (AGVs) that take orders from one operation to the next. They allow operators to focus on the value-added cutting and bending tasks that 24/7TailorSteel’s customers rely on.

To bend steel, stainless steel and aluminium sheet material, the company invested in twelve ToolCells, eight in the Netherlands and four in the German plant, that run around the clock. Keeping with the theme of automation, the ToolCells feature an automatic tool changing system. The operator scans a job into the control, and the ToolCell takes over, swapping out punches and dies as the material is staged for bending. Following a 3D bending simulation on the controller, the operator bends the job. LVD’s integrated Easy-Form® Laser in-process angle monitoring system ensures the first bend is accurate every time. 24/7TailorSteel also benefits from LVD’s CADMAN-B software, which automatically calculates bending solutions and stores them in the CADMAN database to which all LVD press brakes are connected.

“Delivery performance trumps price, always,” founder Carel van Sorgen explains. “I created Sophia to give customers a platform where they could create their draft and, in a minute, get a quote. Because Sophia can be linked into a customer’s ERP system, everything else is done for you.”

**New challenges**

The company pulls out all the stops to keep workers happy, healthy and secure. “There is definitely a healthy way of working,” van Sorgen says. “Our people are important to us and that’s part of the reason why we get new people. Last year, we hired 65.”

The company is setting its sights on expanding into new markets. “By 2020, we want to double our turnover,” he continues. “And it’s only the beginning. We’re happy with those goals, but on the other hand, it’s a big challenge to grow while also maintaining your quality because at this point, only the best will do. You can promise a lot, but you have to make it true.”

© The FABRICATOR
The High North appeals to the imagination: green valleys, magnificent fjords and glaciers, expansive forests and crystal-clear lakes. Astoundingly beautiful Scandinavia, that for many people is synonymous with peace and space, is Thomas Jonassen’s sphere of action. The big Norwegian with an equally big smile is celebrating his 25th anniversary at LVD this year and represents our company in this unique area with passion.

A single team for three countries

My parents were distributors of metalworking machinery in Norway and as a youngster I often joined them on visits to their customers during school holidays. In 1978 their company became a branch of LVD. After completing my studies in civil engineering in 1993 I joined the business. I took care of the administrative and bookkeeping duties, while my brother Johnny concentrated on service and maintenance. In 2010 I took over the management of LVD Norway and LVD-Pullmax in Sweden.

Last year I was appointed director of the new subsidiary LVD Scandinavia AS, which was founded to better serve Norway, Sweden and Denmark. The three countries are very similar with regard to language and culture. Thanks to our large, strong Scandinavian sales and service team we are prominently present at the local level and can easily adapt our services where necessary.

Answering calls

Companies know that we have the best technology on board, but good service is equally important. Scandinavia is not big; we have to take care of what we have. Generating new leads means continuing to communicate, for which you need to be constantly accessible. If someone
“Scandinavia is not big; we have to take care of what we have.”

who is genuinely interested can’t find you, this is a missed opportunity. I consider it a point of honor to answer every call.

I also demand that my employees always answer their phones and mails. We have a rule that we should help the customer within 24 hours. This commitment comes with a certain freedom. It doesn’t really matter to me where my people work as long as they are available during working hours.

I also give them the opportunity to work from home as long as it doesn’t affect our customers. Why shouldn’t they, if this is technically possible? This flexibility prevents them from losing precious hours in a traffic jam and allows them to create a better balance between work and family life.

**Always on my toes**

I still take care of a large portion of the bookkeeping and ordering process, in addition to which I handle customer follow-up and want to be available to my team. We have to understand that we are all in the same boat and will only make progress if we join forces. This is, of course, my greatest challenge: getting everyone to pull together.

Everyone is entitled to his own vision and good ideas, as long as they are shared.

What makes me genuinely happy is my great team, the LVD solutions in which I have every confidence and the responsibility and trust I am given from LVD. And then there is that ecstatic feeling when a customer calls me and says “I would like to buy one of your machines.” He is so convinced and full of confidence that he doesn’t want to wait for the quotation. There are many customers like this, who love LVD and our products.

Ever since LVD Scandinavia was founded I have been traveling more and more in order to keep everything running smoothly. I spend a lot of time on my work, but that’s just who I am. I am not easily satisfied and always think I could have done better.

I have to learn to derive satisfaction from the results we have achieved, but I’m always on my toes. The minute I close a deal I start looking forward to the next order. Things just can’t move fast enough for me.

You’re asking if I ride reindeer in my leisure time? (He guffaws) No, the smell alone is enough to put anyone off! You would be surprised to find out how calm I can be, just letting go of all my cares and enjoying the simple things in life, like spending time with my friends and family.
**Automation and Industry 4.0 are the future for many industries, something that Belgium-based Hayen Laser Technology knows only too well. Manager Maurice Hayen is ahead of the curve, “Having the full CADMAN® suite has helped us to increase returns considerably”.

Automated production
HTL primarily operates in laser and waterjet cutting, bending, welding and finishing. The extensive range of machinery includes three Easy-Form press brakes, an Electra fiber laser with Flexible Automation (FA-L), a water-jet cutting machine, a robotised welder, and a spray booth. The CADMAN suite has increased returns by:

- creating accurate cost estimates quickly
- increasing efficiency and saving material by bundling jobs
- detecting errors and reproducing parts rapidly
- carrying out recalculations based on actual production times

“We installed the CADMAN suite in March last year,” explains Maurice. “Automation of the work preparation process as well as nesting in 2D and creating bending programs for 3D pieces has significantly reduced stress on the shop floor, and flow and throughput times have really improved.”

“Our ERP system communicates with CADMAN-SDI, which imports drawing formats and feeds the data back into the ERP system to help calculate costs. ERP then automatically gives us an accurate quotation, based on the actual cutting times of the machine.”

Preliminary calculation and recalculation
The times forwarded by the machine for quotations are estimates based on past jobs. “The software also records the actual production times, so the setup time as well as the production time, taking into account any downtime. I can then use this information to carry out recalculations,” says Maurice.

“The longer you work with the system, the smarter it becomes,” explains Patrick Peel, LVD’s sales representative. “Having the estimated production times on the control allows the operators to determine for themselves what other work they might be able to do in between the various jobs.”
**Bundling jobs**

CADMAN-JOB has made organising production much easier than before. Maurice explains: "In the past, production used to be order-driven, but production is now driven by the materials and sheet thickness. We now work more efficiently and we have fewer remnants. Pieces for which we don't need a full sheet are saved until last."

"The program is generated and automatically set in the job list for the operator."

"With CADMAN-JOB you can run through the status of every order", says Patrick. "The delivery date for the piece in both its 2D form and 3D form is, of course, top priority. The production operator can filter data in various ways in order to bundle jobs."

**Sorting and validating**

After cutting, the pieces are moved to the machine table or unloading pallet for sorting. LVD has provided a sorting function for this operation, which is controlled from a tablet, the Touch-i4. The tablet provides information on the various production orders in the nesting, i.e., the number of pieces, the position in the nesting, and the following operation.

"As the sorting operator is the first to ‘touch’ the pieces, he is required to validate them too, and to indicate how many are available," explains Maurice. "Suppose that there are 10 pieces of a certain model, and that one of those pieces is somehow faulty. The operator can control this piece from the tablet. It’s then taken back into CADMAN-JOB in real time to be remade."

"The same tablet can also be used to assign the pieces to a location or carrier during the sorting process. This allows us to integrate external operations in our software, such as tapping, brushing and spraying", explains Patrick.

**Foreign machines**

The CADMAN software does not only generate programs for LVD machines, but also machines made by other manufacturers. The ‘foreign machines’ for which CADMAN can prepare cutting operations can be integrated in CADMAN-JOB.

The forwarding of the programs to the machines brings significant advantages. Once the nestings on the ‘foreign’ water-jet cutting machine have been cut, these sorting jobs are readied on the Touch-i4. "That’s right," says Patrick, "the difference is that the LVD machines feed back their status and all production information directly to the database via the machine control. But when you’re working with ‘foreign machines’ or older LVD machines without control, the operator has to send the stop signal."

**Automating digital processes**

Software is, therefore, becoming increasingly important, but what comes next? Maurice: "Connect everything to our stock. When we receive an order, I’d like to use the LVD software to see an overview of what is needed and what orders I need to place with my supplier. And then afterwards, I'd like to be able to see what material was actually used.

"We also want to improve the customer portal. Customers themselves will be responsible for the quality of the drawing, which will help to bring production costs down. Customers will be able to upload drawings through the portal, then they’ll get a quotation by e-mail a few minutes later. It’s a win for us and the customer, who would otherwise have to start working on his quotations after finishing a day’s work", explains Maurice.

"After machine automation comes computerisation. Digital communication first, then automation of the digital processes. This is the challenge for many companies," concludes Patrick.
Italy
Metalstar 2000, owner of the Futura Woodmac brand of woodworking machinery, serves woodworking applications around the world with top-quality, 100% made in Italy equipment. All components for its machines are manufactured inhouse, ensuring high production control and competitive prices. At work in its CNC shop are a Phoenix FL-6020 with 6 kW fiber laser and two Easy-Form 9-axis press brakes in 220- and 320-ton capacities.

France
Versatile production equipment keeps subcontractor Clairalu competitive. Active in construction and industry, specialising in façade linings and the manufacture of metal doors and windows, Clairalu uses a Phoenix FL-4020 with 6 kW fiber laser and 10-pallet Compact Tower along with two Easy-Form press brakes and a Strippit M-1525 heavy-duty punch press.

Brazil
Kepler Weber S.A. is mainly focused on the production of grain storage systems. Through its subsidiaries, the company is involved in the development, manufacture and distribution of equipment for grain storage and conservation worldwide. A NexGen retrofit transformed its PPEB press brake with a modern Touch-B control, making the machine significantly more capable and productive.
Switzerland

Robotec AB has expanded to offer a range of sheet metalworking services, including tube forming and pipe bending. This growing family-owned business uses two ToolCells to keep tool change time to an absolute minimum and ensure first time part accuracy with the built-in Easy-Form® Laser real-time angle correction technology.

Sweden

Founded as a welding company, Robotec AB has expanded to offer a range of sheet metalworking services, including tube forming and pipe bending. This growing family-owned business uses two ToolCells to keep tool change time to an absolute minimum and ensure first time part accuracy with the built-in Easy-Form® Laser real-time angle correction technology.

Korea

Junjin CSM Co., Ltd. designs, manufactures and distributes construction and special purpose machinery. This heavy-duty equipment includes telescopic and articulating booms. Junjin uses a custom-built PPEB-H 1600-ton 12-meter press brake to bend the booms in various sizes from high-strength materials.

India

Mega Andalan Kalasan (MAK) started with a vision to build a better hospital bed – durable, efficient and affordable. Today, the company offers a complete line of hospital equipment both for domestic and overseas markets. To manufacture its high-quality products efficiently and with quick delivery, the company uses the latest technology, including a Lynx FL 3 kW fiber laser.

Austria

As one of Europe’s largest full-service providers of commercial utility vehicles, the Schwarzmüller Group produces more than 8,900 vehicles every year. For this, the company relies on several heavy-duty PPEB press brakes and the CADMAN® software suite. A recent NexGen retrofit has increased the productivity of its LVD press brakes.

Australia

One of Australia’s leading manufacturers and suppliers of metal products, laser cutting, robotic welding, springs and wire products, National Industries Pty Ltd, uses LVD equipment to produce an exceptionally diverse range of products. An LVD Strippit PX-1530 punch press with Flexible Automation (FA-P) system, Dyna-Press 24/12 Plus, and another LVD laser make all the difference for National Industries Pty.
Automation options can ease the challenges faced by manufacturers including high versatility and small volumes. ETM, LVD’s Extended Tool Magazine, is a key option if you process a high mix on the Strippit PX punch press.

Fast and flexible
The Strippit PX punch press series offers the capacity to process even complex, three-dimensional parts. It provides 20 indexable tool stations in a circular tool magazine and also accepts indexable multi-tools.

To increase warehouse capacity and further improve automation, ETM, the Extended Tool Magazine, is an option to consider. This external magazine houses 40 additional punch/die combinations in a wheel configuration for easy access and good visibility.

It allows you to produce a greater variety of parts in the most efficient way:
- ETM can be loaded and unloaded while the machine is punching. Tool change is efficiently handled by a small manipulator positioned between the machine and ETM.
- ETM includes tool life monitoring by recording the number of hits for each tool. This feature allows the operator to monitor when it is time to sharpen the tool.
- ETM can be used with LVD’s Flexible Automation (FA-P), an advanced load/unload and part picking and stacking system, and Compact-Tower (CT-P), a tower for load/unload and storage of raw materials and finished parts.

“ETM makes production more flexible.”
**Flexible workload**

The Touch-P control is the link between the operator, the PX punch press and ETM. It monitors job lists as defined by the operator: punch programs, job quantity, materials and thicknesses.

With 40 additional tools, you have the flexibility to extend the punch programs and the job lists. As ETM changes the tools automatically, you can focus on lead times when defining the job sequence. You don’t need to bundle jobs with the same material type or plate thickness.

**The Touch-P control**

- monitors what tools are to be used in the upcoming program and will preload them from ETM into the machine magazine, thereby eliminating downtime for tool changes.
- allows you to define and manage the materials and tools you use. The control holds an extensive database of materials, punch and die combinations and tooling parameters, tailored to the user.
- keeps track of the location and relocation of the tools, so you can always check where they are.
- monitors the die clearance, which is the space between punch and die where the punch enters the die opening. When the material thickness changes, ETM will automatically change upper and lower tools.

**ETM technical specifications**

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**NIBES EXPERIENCE**

Swedish company NIBE delivers worldwide solutions for indoor climate and comfort, as well as components for both residential and commercial use.

They have five LVD punch presses all equipped with ETM. They run their machines in 3 shifts with one shift unmanned.

Production Manager Henrik Broström: "The big advantage of ETM is that it allows fast setup and enables smaller batches with shorter delivery times. The sheet thicknesses we work with usually vary between 0.7 and 3.0 mm. ETM provides the ability to run the machine unmanned even with a very flexible workload. Moreover, the production process is more secure, as the operator cannot use the wrong punch-die combo. Each punch press operates 6500-7000 hours/year which is considered top score."
Entrepreneurial spirit
Sandra Torres is comfortable in the manufacturing environment. Her involvement started young as her father owned a sheet metalworking company and Sandra grew up in the business. She went on to earn a degree in Electro Mechanical Engineering as well as an MBA and began her career as a sales representative and, later, manager for a mold manufacturer. Ready for a bigger challenge, she decided to open her own workshop – a plastic injection molding facility.

Problems are opportunities
The decision proved to be life-changing. Working 24 hours a day, six days a week, supported by her family, Sandra learned every aspect of running a workshop. Sometimes the lessons were hard.

“Every day was different and brought its own challenge. I had to deal with business providers, suppliers, customers, government agencies – finding the work, delivering the jobs, chasing the payments, and making many decisions – sometimes with unexpected results.

“It could be frustrating, but I was always learning. I gained a lot of invaluable experience.”

One key thing Sandra learned was not to accept “no” as the first answer. “You have to find another way to make it work. In my business, I was always re-engineering processes. Problems are opportunities to show what you’re capable of.”

In five years, Sandra grew her business to a staff of nine working three shifts a day. But, she realized that working in a factory 24/7 was not a long-term calling or a sustainable effort.

A UNIQUE PERSPECTIVE
So, in 2008 she closed the business, took some time off to refocus, and started on a new path as a sales engineer in the metalworking industry. Metals became her expertise. She joined LVD Strippit Mexico in 2017.

**Solution architect**

The experience of running a manufacturing firm gave Sandra a special perspective on the customer and problem-solving skills she could put to use in sales. "Having had my own business, I understand what customers face. I understand their world and their problems. My focus is always to give the customer a solution. They have a need and I have to fulfill that need in the best way."

Finding that solution involves listening, empathizing and having a strategy. It’s more than just providing the right product; it’s about adding value and building a long-term relationship, being there even when there is no project.

"Customers have many options. Having a high-quality product is not enough. There are a lot of other variables like financing, technical support, spare parts, tooling. That’s why the day-to-day relationship is so important."

**Earned respect**

In her dealings with customers, Sandra has learned that no matter your position or gender, you earn your respect. "When you are professional, you are treated as an equal. The sensitivity that I have as a woman is an added advantage. It makes it easier to build a relationship."

**Shared mission**

The LVD Strippit Mexico office in Querétaro is the newest LVD subsidiary. With a growing sales and service team, it’s building a new history for LVD in Mexico, re-establishing relationships with existing customers and reaching out to new ones. "Mexico is growing; its manufacturing is expanding. We’re working with companies who want higher-end technology."

Recent installations for the ToolCell and Phoenix fiber laser prove this out. With every sales inquiry, installation or after-sale need, Sandra and her team are united in their efforts to satisfy the customer. With the help of the larger LVD team, they get the job done.

**Family first**

After hours, Sandra enjoys spending time with her husband and her dog, a German Shepard. Passionate about dogs, she trained her own dog for search and rescue.

She and her husband are avid cyclists – in fact, that’s how they met. They also enjoy mountaineering in their beloved Mexican Volcanos. "These activities keep me motivated. I love the mobility cycling gives me. I feel completely free." Family is foremost: "My husband, father, mother and sister are my backup. Spending time with them is very important to me."

Sandra’s father is still in the metalworking business. "He keeps on working hard with enthusiasm. He has been a very good example for me."
The machine-shop heartland of America starts in Chicago and its suburbs. Here, mostly family-owned fabricators stamp, punch, bend, drill, tap and cut the metal components that feed U.S. industry.

“There are thousands of shops that fabricate sheet metal steel and aluminium. I wanted a highly specialised niche, so I focused on copper bus bar”, says Tim Ellison, President of EMS Industrial & Service Co. “Other companies won’t inventory copper, but I see it as an investment that differentiates EMS. The same holds true for my investment in fiber laser. It helps us go the extra mile to provide customers with superior speed, quality and service.”

Tim explains that until he took the reins in 1993, EMS “made money by accident” because the company had little business structure or direction.

With the telecom and internet industries just taking off, the young Tim’s vision to focus on copper bus bar coincided perfectly with growing market demand.

**Cutting copper**

While Ellison worked 24/7 to meet customer needs, cutting speed remained a bottleneck. Fortunately, Joe Dalo, LVD Strippit’s sales representative, knocked on EMS’ door in January 2014.

“I knew that fiber laser technology could help EMS achieve greater productivity,” says Joe. “I explained that, unlike a CO₂ laser, fiber laser could cut highly reflective material like copper. Fiber laser eliminates mirrors and optics. It better withstands a manufacturing environment and eliminates the maintenance hassles associated with CO₂, making it well suited for a 20- to 25-person shop such as EMS.”

His interest peaked, Tim visited LVD’s U.S. headquarters for a product demonstration. “After seeing the Electra cut copper, I couldn’t believe such cutting speeds were possible”, he says. While he immediately bought into fiber laser technology, Tim wanted to perform his own research as to the best technology providers. After months of research, he made his purchase decision.

“Comparing others to LVD, I realised LVD made a far superior machine,” says Tim. “For a lot of the other manufacturers, it looks as if they took their CO₂ platform and threw a fiber laser on it. LVD actually started from the ground up, building a true fiber laser system that could handle the high cutting speeds possible with fiber laser technology.”
Purpose built

Most large machines are inherently unstable, which means that they shake at very low frequencies. These machines are particularly difficult to stabilise sufficiently to achieve commercial production rates.

“The primary challenge associated with ultra-high-speed cutting is having a machine construction with the rigidity and stiffness capable of moving the gantry at high acceleration even while cutting”, says Stefan Colle, laser product manager, LVD. “To overcome this, we designed Electra fiber lasers with a welded steel monoframe construction that provides exceptional stiffness and weighs a massive 15 tons.”

“Moving from the Electra 4 kW to the 8 kW provided a massive increase in speed. It’s like buying time.”

As a result, the Electra can not only accelerate fast to move from one point to the next, but can (unlike most fiber lasers) keep an acceleration of 2g or 20 m/sec “during cutting” resulting in shorter production times for the part without losing accuracy. It can cut a 50 mm circle with a tolerance of ± 0.017 mm. The first Electra could cut 600 holes per minute on 20-gauge mild steel. Comparatively, CO₂ laser systems can cut 150 to 200 holes per minute. “To achieve the full potential of high-dynamic acceleration, Electra fiber lasers also feature a lightweight yet rigid cast aluminium gantry controlled by specially tuned servo drives”, says Stefan. “Some competitors may have comparable gantry speeds, but they cannot accelerate as quickly. Electra delivers a distinct productivity advantage.”

Made for each other

With the technology a perfect fit, EMS purchased the first 4 kW Electra in North America in September 2015. “The speed of fiber laser will open your eyes. It is so much faster than a typical waterjet to do special contour cuttings, and the cut quality is very good,” says Tim. “Moving to fiber laser increased my capacity, so now I have more machine time that I can sell.”

However, if a 4 kW laser was eye-opening, the cutting speeds from an 8 kW laser are mind-blowing. A self-confessed “equipment junkie” who wants the highest production equipment possible, Tim attended the FABTECH 2017 show in November and purchased the Electra FL 8 kW. For the second time, EMS owned the first-of-its-kind fiber laser in North America.

Speed and focus

Moving from the Electra FL 4 kW to the 8 kW provided a massive increase in speed. It’s like buying time”, says Tim. He estimates that, on average, “the 8 kW laser cuts three times faster on thinner material. On thicker material, some of the parts are up to five times faster.”

The Electra FL-3015 8 kW doesn’t just feature a new, more powerful IPG YLS resonator. Its new cutting head incorporates ‘zoom focus,’ a technology that adjusts the focal diameter of the beam from 120 to 320 µm and enables independent setting of focus diameter.

“We live in a microwave society. It’s just been faster, faster, faster in terms of delivery times over the last 10 years”, says Tim. “To retain our leadership position, we continuously reinvest in our business. When customers come to EMS and see technology like the Electra 8 kW fiber laser, they know we’re the right partner to help them bring their products to market faster.”

EMS continues to invest in the speed of fiber laser technology. The company recently placed an order for their next Electra machine, due to be installed in January 2019.
EXTENDED BENEFITS

With 50% more tool capacity, ToolCell XT is the answer to an increased demand for versatile production of small batches, in different material types and with increased part complexity.

With ToolCell LVD brought a high-level automated tool changing press brake to the market. The demand for taller tools to bend parts with higher flanges led to the next evolution, ToolCell Plus. Our latest advancement is ToolCell XT, short for Extended.

Loyal to the ToolCell concept, all tools are held within the machine’s footprint: three complete rows of punches and seven complete rows of dies, each row containing twelve toolboxes equally spread along the entire length of the machine.

ToolCell XT lets you tackle an even wider range of parts, split up tooling by material type, switch between stainless steel and mild steel. This press brake is sure to maximise your productivity.

“ToolCell XT lets you tackle an even wider range of parts.”
“ToolCell XT provides 50% more tooling storage and will soon offer even greater flexibility with additional options.”

Key features

- 50% more tools
- Optimised tool change path
- Extra toolboxes integrated on both sides of the machine
- Top cover plate protects machine components from pollutants
- Reduced changeover times
- Precise, automated tool positioning
- LVD Easy-Form® Laser adaptive bending system
- Fully integrated with LVD’s CADMAN® software suite
- Equipped with Lazer Safe safety system
- Available in 135 ton/4 meter, soon to be offered in 220 ton and higher tonnages
South West Flanders is a Belgian region often described as 'Texas of Flanders', owing to its industrial prosperity. It is home to many machine-building and metalworking companies, such as Shapes Metalworks, just a stone's throw from the LVD headquarters.

Supply reliability paramount
Shapes Metalworks is a dynamic sheet metal subcontractor, led by Dirk Haerinck and Fritz Walcarius. "In a capital-intensive industry, you have to have the courage to invest if you want to grow with the market," explains Dirk.

"Customers from Flanders sometimes had to go to the Netherlands or to Germany for larger sheet metal jobs so in 2014 we decided to invest in a PPEB-H 1000-ton 8-meter press brake and an Impuls 12-meter CO₂ laser. The supply of lasers over 3 meters used to be pretty limited in our region."

In recent years, the number of customers using large sheets has risen and the geographic range has also increased. This was why last year Shapes acquired an Easy-Form 220/50 press brake with a Starmatik bending robot.

"A major project from one of our customers meant that we had a large volume to handle. If we were to serve our other customers just as quickly, we needed to expand in laser cutting as well, as the Impuls was working three shifts from day one."

"Companies who were once looking to the Eastern bloc for sheet metal work are gradually coming back. Fast delivery times, smaller volumes, and lower inventories have become increasingly more important than price alone. Customers are looking to us for our flexibility, reliability of delivery, and quality."

When cutting speed matters
"We've had the 6 kW Phoenix FL-6020 fiber laser cutting machine with automated loading/unloading unit since the beginning of the year. The machine has really bowled us over with its speed, dynamics, and fantastic cutting quality. The finish has improved tremendously, even on sheets up to 25 mm, and the automatic loading/unloading takes less than 90 seconds. All of this allows us to produce at a much
higher speed! Commercially, it’s the best decision we could have made,” says Fritz Walcarius.

“The Phoenix cuts sheets of 6 by 2 meters, and if speed is a factor in the pricing, there couldn’t be a better machine. The loading/unloading system also helps to speed up the throughput of a large series of pieces. The Impuls is used for piece production and for sheets in excess of 6 meters. We use a roller bridge for loading and unloading.”

“All of our operators had previously worked with the Impuls, so we didn’t have any delays in getting the Phoenix up and running as the two share the same control and software. It was mostly about adjusting to the automated loading/unloading system.”

What the future holds
“We’re always looking for new ways to optimise throughput. The machines need to be well organised, but so too does the periphery,” explains Fritz. “We plan to introduce more automation for efficient supply of sheets and sorting the cut pieces.

We’re always looking to the next stage, as this helps to keep us alert and competitive.”
KAWASAKI HEAVY INDUSTRIES
Kawasaki Heavy Industries (KHI), Japan, is a diversified, global company. Active in a wide range of markets from transportation equipment and industrial goods to aerospace, KHI delivers such world-renowned products as Kawasaki motorcycles and Shinkansen and New York subway cars.

KHI’s aerospace division works closely with aviation industry giant Boeing to develop and manufacture components for the Boeing 767, 777, 787 and the new 777X. The 777X will be the largest and most efficient twin-engine jet in the world, unmatched in every aspect of performance. Due for release in 2020.

The company invested in a custom-built 1000-ton Synchro-Form press brake that will be used to produce large panels for the fuselages of commercial aircraft. Forming such XXL parts to a desired contour is a challenging task and one that will be significantly simplified with this one-of-a-kind technology that only LVD offers.
DISCOVER LVD
Agility, innovation & teamwork

At LVD we live and breathe sheet metalworking. It’s our passion! Every day we challenge convention to deliver innovative industry-leading sheet metalworking machines and software solutions. Of course, all driven by Industry 4.0 principles! Our agility and teamwork result in consistently strong customer support. Anytime. Anywhere.

We help you bring bare metal to life: lvdgroup.com.