

Express

PATENTED PLAYERS:

Laser cutting inspires an innovative approach to shot peening

HANDS-OFF SUCCESS:

Micro Metals lifts the burden with automation

OFFSET PRINTING

To augment his digital printing and signage company, Fernando R. Vargas Garcia found his way into high quality manufacturing.



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Abatement Technologies
clears the air with quality
fabrication.

*Peening Technologies
fabricates fixtures for shot
peening as well as parts
for its automated
equipment with its
TruLaser 1030.*

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When Fernando R. Vargas Garcia started Precision en Cortes Lasser he knew little about fabrication except to place his trust in technology that would make him competitive.



Smart manufacturing is our business



As your business partner, we see it as our duty to always strive to make you more competitive in this dynamic and ever-changing marketplace. During my travels across North America, numerous metal fabrication owners and managers have shared the secrets of their success with me. A common theme I hear is their need to serve customers with speed, flexibility, reliability and low cost, as lot sizes become smaller and part variation increases –and they must manage these conflicting goals without increasing overhead. Impressive steps have already been made in part quality, process reliability and cycle times with the latest machine generations, but to position our customers to remain competitive in today's global marketplace, we must look at the untapped potential in the pre- and post machine processes. That is where Industry 4.0 comes in.

The next evolutionary step is smart manufacturing, or Industry 4.0. This is based on integrating information, machines and processes. Anticipating this development, TRUMPF has adjusted its focus to support the entire sheet metal processing chain. With enhanced intuitive programming options such as TruTops Boost, there are far fewer “clicks” and significant programming time reductions, up to 90%, according to initial feedback from our customers. Manufacturers who link machines through TruTops Fab reduce throughput time, buffer stocks and wasted time searching for orders. To go one step further and integrate internal processes with the outside world, TRUMPF founded AXOOM, a browser-based digital business platform that spans the value chain and provides the framework to keep all constituents aligned and on the same page. Developments such as these eliminate non-value added time and enable our customers to focus on their core competences in fabrication and assembly.

TRUMPF brings this all together in our new technology center, currently under construction in the suburbs of Chicago. Smart manufacturing is the way of the future because its intent is to enable single piece flow at mass production costs. Pretty aspirational? It certainly is. And TRUMPF is developing the pieces to realize this vision.



A handwritten signature in black ink that reads "Peter Hoecklin". The signature is fluid and cursive, with the first name and last name clearly distinguishable.

Peter Hoecklin,
President and CEO

PANORAMA

There are 26 miles of lakefront that Chicago calls its own.

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“The new Technology Center will be the industry-leading facility with a strong focus on the entire order processing - integrating automation, material and information flow with machine tools.”



A NEW CENTER FOR SMART TECHNOLOGY

TRUMPF innovations span over six decades and have enabled the company to grow to more than 50 locations and 10,000 employees worldwide. TRUMPF is in the process of expanding once again, with a new location in a northwestern suburb of Chicago, IL. In October 2015, TRUMPF purchased five acres of land adjacent to Interstate Highway 90 in Hoffman Estates and broke ground shortly after. Located within one of the core zones of the sheet metal business in North America, this site will serve as the future home of the

TRUMPF Technology Center and the center of excellence for Industry 4.0.

The new Technology Center will be the industry-leading facility with a strong focus on the entire order processing - integrating automation, material and information flow with machine tools. It will also feature TRUMPF's latest technologies designed to benefit manufacturers and the next generation of manufacturing engineers. The state-of-the-art facility will combine an innovative software and automation center with research

and development, driving towards optimizing the entire manufacturing process chain and the customer's overall precision sheet metal production capabilities.

The TRUMPF Technology Center will be approximately 50,000 square feet. Visitors will include those from North America, Europe and Asia for system and machine demonstrations and to observe and be part of live, flexible sheet metal production with highly-automated machine tools, lasers and processes. The Center is scheduled to open Summer 2017.



THE WINDY CITY

1885

The year the world's first steel-framed skyscraper, the Home Insurance Company, was built. Chicago continues to have one of the most compelling skylines in the world.

48 million

The estimated number of people who visit Chicago annually.

1910

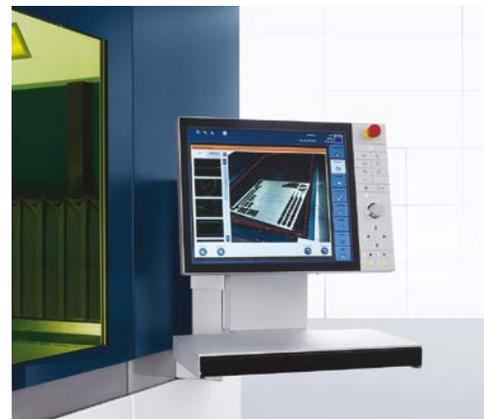
The Ward Baking Company made history when the first completely automatic bread baking factory opened in Chicago. Neither the dough nor the bread touched human hands until it exited at the wrapping machine.

SUPERIOR BENDING

TRUMPF's new TruBend Series 5000 is more productive and user friendly than ever before. Its Servo Drive 4-cylinder drive technology is highly dynamic, extremely quiet in operation, and delivers significantly more productivity than a conventional drive. The machine also features two innovative angle measuring systems. The established ACB (Automatically Controlled Bending) system takes measurements through sensors integrated into the upper tool, while the new ACB Laser system measures the bending angle by projecting a laser line onto the sheet. It measures the angle with a camera for maximum precision and is compatible with any tooling. The entire bending process is facilitated by the new Touchpoint TruBend control concept. This intuitive interface features exceptionally realistic 3D visualization and a multi-touch screen which responds to touch even through work gloves. The new MobileControl Pro can be positioned conveniently along the press beam so the operator can complete the bending process without having to revisit the control. This 3.5 inch color display enables

operators to input all necessary information for bending, switch between bending steps, or to correct the angle and axis positions while standing directly at the machine.

An array of new features makes the new TruBend Series 5000 more productive than ever before.

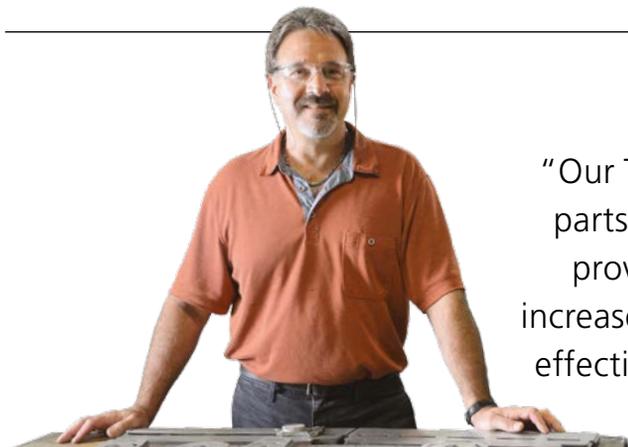


DROP&CUT

With TRUMPF's Drop&Cut feature, available for machines of the TruLaser Series 3000 and 5000, operators can easily and conveniently make use of remnant sheets to save material and time in post-production. A camera projects a live image of the machine's interior at the control which enables the operator to place a new programmed contour to any desired location using the mouse or the touch control of the machine. Using the live image, the operator can easily rotate, move, duplicate or delete the part for maximum material utilization and process reliability. Once pleased with its placement, the operator simply starts production.

Jeff Cartier, JE Monahan Fabrications, Queensbury, NY.

"Our TruLaser 2030 fiber enabled us to produce higher quality parts with greater efficiency for our own manufacturing and provided the added ability to offer custom laser cutting to increase our revenues. With it we created a better and more cost effective product and remain competitive in today's economy."



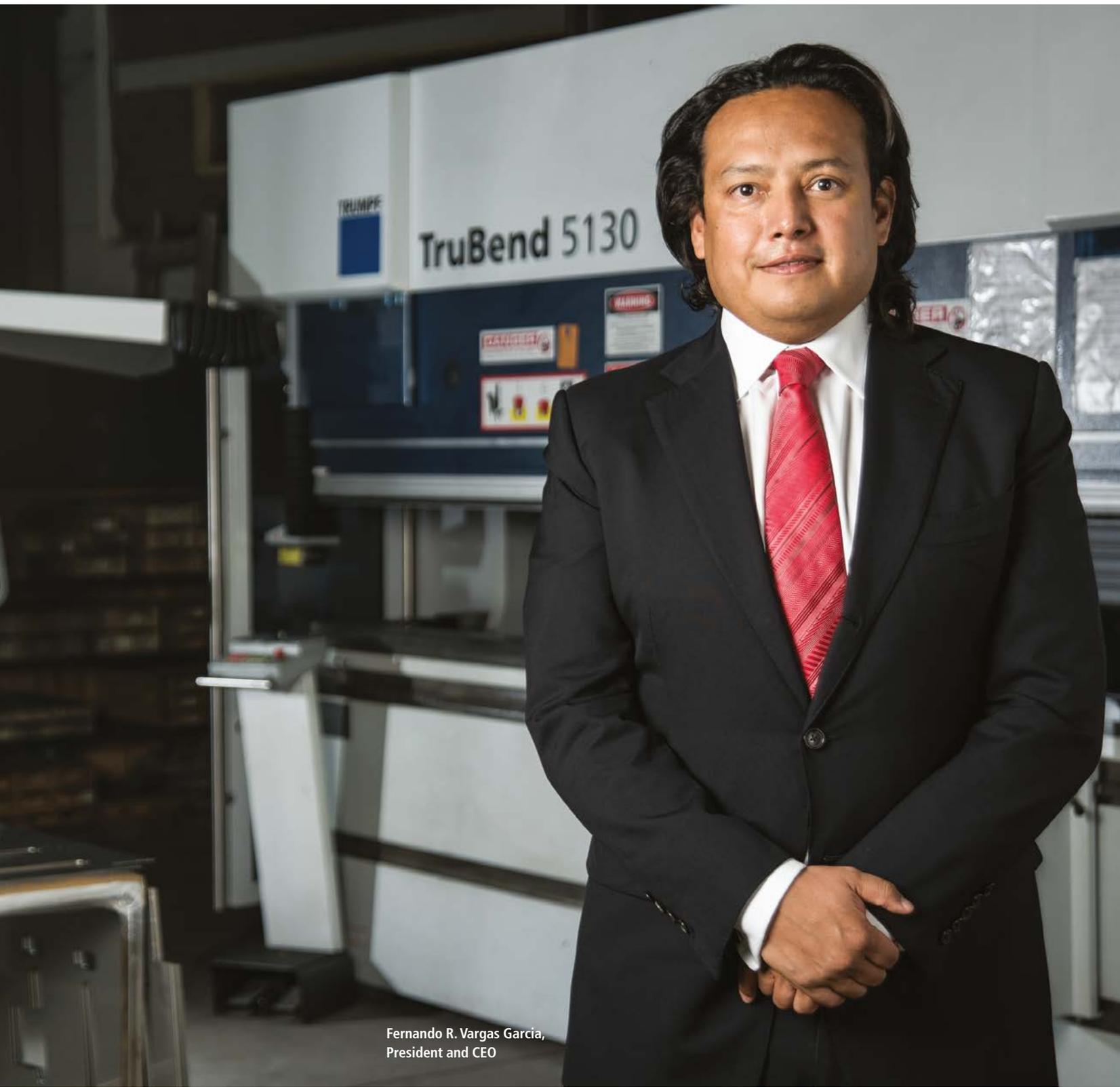
Printing a future in metal fabrication

When Fernando R. Vargas Garcia started Precision en Cortes Lasser, S.A. de C.V. (PCL), he was simply looking for a way to diversify his existing business – a large format digital printing and signage company.

Within four years, and with no previous experience in fabrication, PCL has become a robust and emergent young job shop aptly supplying high quality parts and assemblies. Always striving to be a pioneer in industry and looking for innovation, Fernando R. Vargas was the first to bring a UV flat bed printer into Mexico twelve years ago. With the addition of fabric printing and production of large format printing and displays, his printing company soon trickled into many different sectors. Vargas remembers, “We found a niche fabricating and installing billboards, media fences and other outdoor media, and eventually won a contract to produce and sell media on the first electric suburban train in Mexico.” For this project, they also needed to supply furnishings for the station. Vargas saw an opportunity. “We decided it was better to produce everything ourselves because in this industry, the cost of production is very expensive.” In fact, Vargas remembers the down payment would have been 68% of the value of the finished work. Instead, he decided to diversify and start producing lightboxes, switchboards, and related goods in-house to make the signage company stronger.

FROM PRINTERS TO FABRICATION To begin, Vargas set out to build a job shop capable of cutting any type of material. He bought a water jet, TruLaser 3030 laser cutting machine, and a router, as well as a TruBend 5130 press brake and a new printer with LED curing technology for printing films, plastics, and metal sheets. MIG, TIG and eventually robotic welding were added as well as powder coat paint, which enabled this new entity, PCL, to really start to capture different markets.





Fernando R. Vargas García,
President and CEO



In just four years, PCL built a repertoire of high-precision machinery.

“Our work is diverse and that is why we are so excited to bring our new TruLaser 3030 fiber with RotoLas into the company”

*Fernando R. Vargas Garcia,
Precision en Cortes Lasser*

While fabricating components to support the printing business, the managing director of PCL, used his prior experience in the automotive industry to appeal to suppliers. He explains, “We experienced considerable growth in the high precision market – mainly automotive Tier 1 and Tier 2 suppliers – by focusing on their need for just-in-time fabrication and tight tolerances.” PCL attracts more than just automotive customers, however the company now supplies a range of industries and most recently started to manufacture metal fixtures – a lower precision, but big volume market.

“We process plenty of thin sheet metal but also up to one inch mild steel, and unique materials such as acrylics and special plastics,” he explains. “Our work is diverse and that is why we are so excited to bring our new TruLaser 3030 fiber with RotoLas into the company. It offers us additional flexibility and versatility—pricewise and in our delivery times – as well as the ability to cut highly reflective materials and tubes.” The company also plans to add laser welding to its list of services in the future.

When asked about the difficulties in transiting to a new industry, Vargas simply

laughs, “I learned my lesson - I won’t do it again!” Jokes aside, Vargas is serious about the challenges of entering into a new frontier. “We were fortunate the printing business was already established because it is very difficult to enter the fabrication market for someone who knows nothing. It was a very high risk and at times, it made us want to cry,” Vargas reveals. Although business started slow, PCL has now grown into a space where jobs come to it.

BUILDING STRENGTH Recognizing the competition for basic cutting or welding services was high, PCL built a repertoire

of high-precision machinery and skillfully integrated services to take on bigger segments of a client’s process. Vargas readily admits he knew nothing about fabricating equipment before taking on this endeavor, but he knew to place his trust in the technology and his team that would enable his company to be competitive.

“When I came to TRUMPF for the first time four years ago, I noticed how TRUMPF helped the younger generation get into the market. Not everyone is willing to take that risk and I respected that,” says Vargas. “TRUMPF is also a brand that sees Mexico as a partner and the presence in Monterrey was important, especially from a service perspective.” He continues, “In addition, TRUMPF is the only machine tool supplier to produce all of its own critical components. While others may think this makes a machine more expensive, in the long run, it is worth it.” As an added bonus, Burillo explains, “The TRUMPF brand is also extremely user friendly.”

Most importantly, Vargas understands his clients rely their own jobs on PCL and he takes this responsibility very seriously. “Reliability is very important. This was most evident as we



approached potential customers in the high-precision industry but all our customers feel more comfortable partnering with us once they see we have invested in TRUMPF equipment because they know they will get quality in return," he explains.

A CONSISTENT APPROACH Although PCL supplies high-precision work to well-known end users, the company prides itself in handling any business that comes its way. "We are open to all volumes of work and treat all customers – small, medium or big – the same way. We welcome anyone with a need for cutting, bending, welding, painting or any combination of our services." Simply put, if Vargas and his team are equipped to do the job, they will. PCL even offers 24-hour service. "We stay very flexible so we are able to open up very quickly for third shift production. We understand that the market needs service, quality, and personal attention and we like to provide this for all our customers," asserts Vargas.

Exceptional service also extends to product development as PCL's engineering department frequently works with customers to overcome

"Our customers look to us as a resource to help close the gap between what they want and what is possible in production."

*Fernando R. Vargas Garcia,
Precision en Cortes Lasser*

their design challenges. "Our customers look to us as a resource to help close the gap between what they want and what is possible in production." Vargas continues, "And we are always learning new techniques in metals and plastics."

BRINGING BACK MANUFACTURING

Being able to deliver high quality parts with very little lead time at competitive rates has enabled PCL to bring manufacturing jobs that went to China back to Mexico. While working with new quality certifications, the company has been able to compete with the

European and Chinese markets by increasing its efficiency. Vargas notes, "We are more competitive, pricewise, for export which is a segment that is growing for us every year. With free trade agreements and the global world in which we live, our international customers have found Mexico to be a more attractive source for quality manufacturing." Through hard work, PCL has won many international projects – a sign that Vargas and his crew are doing things the right way. □

➤ **PLEASE DIRECT YOUR QUESTIONS TO:**
Laser: Mark.Bronski@us.trumpf.com
Press brake: Tom.Bailey@us.trumpf.com

PRECISION ACROSS BORDERS

WHO: Precision en Cortes Lasser, S.A. de C.V., Mexico City, Mexico. Founded in 2011. www.precisioncut.com.mx

WHAT: Supplier of sheet metal components

HOW: TruLaser 3030, TruBend 5130, TruLaser 3030 fiber with RotoLas

Thomas Beach, President
of Peening Technologies





Taking a shot at laser cutting

Peening Technologies in East Hartford, CT has reason to celebrate. Not only is this family company preparing for its 50th anniversary, it also just received its first patent. We sat down with company president Thomas Beach and his brother, vice president Walter Beach, to learn more about this small business with a big presence in the shot peening industry.

Can you provide a short history of your company?

Thomas: Our father founded the shot peening job shop segment of our company in 1966. Eventually, customers expressed an interest in buying the equipment we had designed so rather than lose business, we began to offer machines as well. While the job shop is still the larger segment of our business, both aspects have grown steadily over the years. We have grown to workforce of approximately eighty employees, including our facility near Atlanta, GA. We established an operation there in 2003 at the request of a local customer who required job shop services in the South.

How is shot peening used across various industries?

Thomas: Shot peening is a finishing process used to make critical components stronger as well as to extend the life of less critical parts. Since it is relatively inexpensive compared to the cost of replacement or repair, it is an attractive

solution for many industries. We commonly see aerospace, automotive, or power generation applications but also medical implants— for the patient, a longer-lasting implant is a real advantage. Other manufacturers are drawn to shot peening for reasons that have nothing to do with fatigue life. For example, shot peening is used to facilitate coating adhesion, such as nickel plating, or to produce a controlled and uniform look for architectural railings.

Walter: As technology advances, we see growing use in the automotive and aerospace sectors especially. In the past, it was simply understood that shot peening had a beneficial effect on materials. With computers, we are able to quantify this impact much more precisely. This enables engineers to work with thinner or different materials. This is a major attraction for automotive manufactures, for example, on a quest for lightweight designs. In addition, the parts are even less susceptible to fatigue failure.

Peening Technologies is unique in offering shot peening job shop services as well as automated equipment for purchase.



What makes Peening Technologies unique?

Thomas: We make sophisticated automated equipment for shot peening and also supply shot peening as a job shop service. Our competitors typically do not offer both. Understanding both the machine and the process gives us a unique understanding of our customers' needs and has enabled us to become a leader in shot peening technology and automation. When people think of shot peening, we want them to think of us.

Walter: We also understand the numerous approvals and quality requirements that go along with shot peening. In addition to our FAA and EASA approvals, we are proud to be the first shot peening facility to earn Nadcap accreditation. From the specifications for the media we use, to testing processes and quality control, there is a lot to know and this is often a barrier to entry for others.

How has technology impacted growth of your business?

Thomas: Quality requirements in the industry became much more stringent just as shot peening technology began to evolve. For a small company, I think we have done well to take advantage of technologies as they become available. One of the most influential was the early adoption of 3D CAD modeling software. At the time it was an expensive proposition but it really paid dividends.

Walter: We initially invested in 3D software in 2000 as a means to transition the customer's 3D models into 2D process sheets. Although we took to the software pretty quickly, it took time for the new programming capabilities to change our process. Eventually we transformed what was once a crude process into something much more specific and refined.

Can you tell us more about the process of shot peening?

Walter: Shot peening is a surface enhancement process that works through the controlled application of media, usually steel, ceramics or glass. As the media strikes the metal part it creates a compressed layer in the material called a compressive stress. The compressive stress layer slows crack initiation or propagation through the part. While manufacturers typically only require this in key areas of the component, often the entire part or assembly is exposed to the media simply because it is faster and less costly than trying to protect it. At Peening Technologies, we process parts that range from those small enough to fit in your hand to parts that weigh thousands of pounds. Regardless of the size, a fixture must be developed to hold the part during processing. And that's where our patent comes in. (For more information about the shot peening process visit our friends at www.shotpeener.com)

Your patent is titled: "Apparatus and Method for Quantifying Metal Surface Treatment". Can you describe it?

Thomas: In shot peening, every fixture is attached to industry-mandated Almen holders. What most people don't realize is that designing these fixtures is very labor intensive. On rare occasion, we might acquire a scrap part in advance, but typically we had to wait for the customer to send the part and then machine a solution. Simulations were either extremely crude or so over the top that no one could justify paying for them. We developed a way to use 3D software to generate a highly accurate simulation of the part with the holders. This method became our patent.

Why was this new method so important to your business?

Walter: The method enabled us to fabricate our tooling ahead of time and it is accurate to within a few thousandths of an inch. Although there is certain testing required once the part is in hand, we are able to get to that point much faster while significantly reducing our costs.

Thomas: We developed the process out of necessity, really. The industry has an increasing need for shot peening and we take on increasingly complex work. We were struggling to find a way to shorten our development time. And we found one.

What led you to patent this process?

Thomas: It was actually a customer who encouraged us to seek out a patent. Shortly after we installed the TruLaser 1030, he was visiting our facility to witness and approve our process. He told us nobody else was doing anything like it and we should probably patent it. We thought he was most likely right and started the process. It took just over three years and was officially granted on June 23, 2015.

Why was the addition of the TruLaser 1030 so important to your process?

Thomas: While we don't run the laser every day, it has become a crucial and integral part of our process. When we purchased the TruLaser 1030 in 2012, it significantly changed the way we looked at fixtures. In the past, we would job shop the fabrication out. We have good vendors, but at such a low quantity our jobs could end up on the backburner. The nature of our business, however, is speed so we felt compelled to bring



Automated equipment is designed and built by the experts at Peening Technologies.

this step in-house. We originally looked to invest in a plasma cutting machine but after visiting TRUMPF, we realized all the additional benefits a laser cutting system could afford. We could cut faster and more accurately as well as design parts in new ways and with difficult contours. The laser machine enabled us to be much more efficient and creative.

Walter: With the addition of the TruLaser, fixtures were no longer an expensive proposition. We have thousands of parts and fixtures in our database. Unavoidably, they are subject to wear due to the nature of the process. The new fixtures are so fast and easy to reproduce that we no longer need to keep fixtures in stock. This saves space and makes it easier to get exactly what you need, when you need it.

Thomas: The TruLaser 1030 also enabled us to manufacture parts for our shot peening equipment in-house. It takes approximately three months to design the enclosures, motion units, and media delivery in a way that will suit the customer's manufacturing needs and the environment where the machine will be placed. While we still machine parts, when we can cut parts for the robotic units and the enclosure with the TruLaser 1030, the entire assembly becomes more economical to produce and we are able to pass these savings on to the customer.

Everything seems to be going so well at Peening Technologies. What is the most challenging part of your business?

Thomas: Since shot peening is often applied to high dollar parts, even a small job for us is often a big concern for the customer. We frequently provide additional support long after the part or equipment has been delivered. This takes time and resources, but we understand how important it is to make sure everything is precisely right in processing. With such a large customer base this is both a blessing and a curse, but also a responsibility we take on willingly. □

➤ **PLEASE DIRECT YOUR QUESTIONS TO:**
Laser: Mark.Bronski@us.trumpf.com

PATENTED SUCCESS

WHO: Peening Technologies, East Hartford, CT. Founded 1966. www.peentech.com

WHAT: Specialists in all aspects of shot peening, including shot peening processing for a range of customers and production of automated shot peening equipment.

HOW: TruLaser 1030

Steel to field

Spudnik Equipment digs deep and delivers

Idaho is the potato capital of the world so it is only fitting that Spudnik Equipment Company LLC, a manufacturer of machinery used to plant, cultivate, harvest and store potatoes, also calls Idaho its home. Sitting among 300,000 acres of potato farmland, design engineers at the company's headquarters in Blackfoot, ID are surrounded by opportunity for inspiration. When manufacturing seventy different types of potato equipment and a handful of options for sugar beet farmers, there is also plenty of steel among the potatoes. Spudnik Equipment processes steel parts up to one inch thick, although most are between 16 gauge and 3/8 inch. Much of this material is cut by the company's TruLaser 3060, and with the addition of a new TruLaser 2030 fiber in March, laser cutting is positioned to become an even larger part of production. "For high precision parts, our engineers design parts to run on the TruLaser 3060. Over the years we have learned that if we plan well and implement the laser we



can avoid secondary steps, such as machining,” CEO Rainer Borgmann explains. Spudnik Equipment also bends every part with one of its four TRUMPF press brakes. While the company’s three young TruBend 5320 press brakes are the primary workhorses of the shop, Borgmann keeps a twelve-year-old TRUMPF press brake around “just in case.” “When we purchased the new TruBend 5320s three years ago, we decided identical machines would give us the greatest flexibility in production,” explains Borgmann. “We wanted to be able to form any part, at any time, without restriction, and it makes sense from a tooling perspective too.” This philosophy has served Spudnik Equipment well. Now with 250 employees at its facility in Blackfoot, three sales and service centers divided between Idaho and Maine, and sales across the United States, Canada and across the world, Spudnik is giving potato and sugar beet farmers exactly what they need to keep food on the table. □

www.spudnik.com



Growth in the air

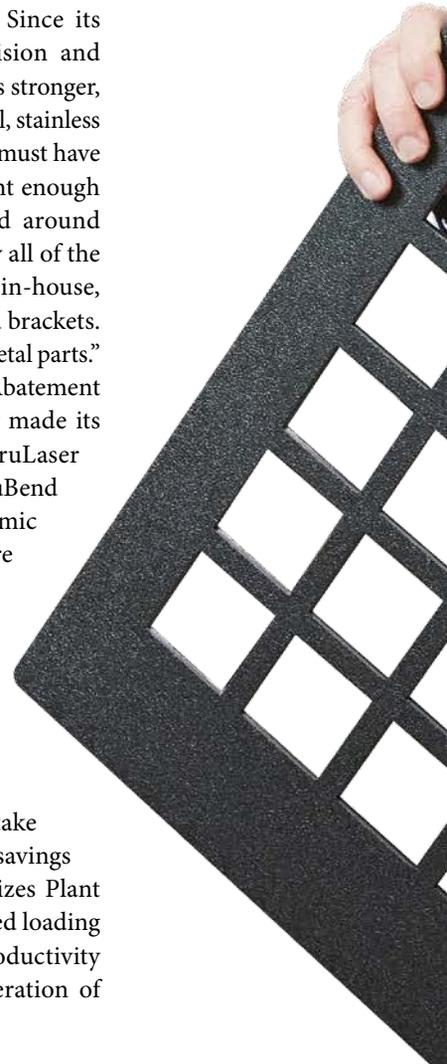
New capabilities help Abatement Technologies quickly meet a growing need for high-quality air filtration products.

Not far from the rushing waters of Niagara Falls, the Peace Bridge spans one of the busiest border crossings between the United States and Canada. The bridge connects Buffalo, New York with Fort Erie, Ontario, home of Abatement Technologies Ltd. The company's location a block from the bridge ensures rapid transportation of the air filtration products it manufactures for the Canadian healthcare, restoration, and duct cleaning markets, and for its sister company in Suwanee, Georgia. Turnaround is fast. Abatement Technologies ships 98% of its orders within twenty-four hours.

Abatement's customers depend on its indoor air quality products, which filter out harmful particulates, bioaerosols and volatile organic compounds, to perform perfectly during emergencies, as well as in more routine applications. Abatement's equipment was used for post-9/11 cleanup and proved effective during the SARS and Ebola outbreaks. "We can provide environmental safety solutions during such crises," says Abatement Technologies Chief Operating Officer Andrew Harber, whose father co-founded Abatement Technologies to meet the needs of the asbestos abatement industry in 1985. "But our focus is on the regular healthcare and construction jobs that need our products to begin safely. Our equipment is usually the first on a job site and the last to leave."

CATALYST FOR SUCCESS Since its products often require both precision and portability, Abatement primarily uses stronger, thinner gage material: galvanized steel, stainless steel, and aluminum. "Our products must have great structural integrity and be light enough to move in and out of trucks and around sites," Harber says. "We make nearly all of the sheet metal parts for our products in-house, everything down to the washers and brackets. One product has 110 different sheet metal parts." To accurately produce these parts, Abatement counts on TRUMPF. The company made its initial purchases – an automated TruLaser 2030 laser cutting machine and a TruBend 3066 press brake – during the economic downturn in 2010. "Our sales were down 20% and it was a scary time to be making a large-scale, high-tech investment," he explains. "But when you don't have the best equipment, you're competing against it."

The TruLaser 2030, with its automated load and unload, didn't take long to demonstrate its value. "The savings were absolutely dramatic," emphasizes Plant Manager Randy Robson, "We reduced loading times by 80% and doubled our productivity through unattended lights-out operation of



“When you don’t have the best equipment, you’re competing against it.”

*Andrew Harber,
Abatement Technologies Limited*



**Andrew Harber, Chief
Operating Officer,
Abatement Technologies**

PUNCHING

the laser. The TruBend was a game changer for us too. Once we saw the benefits of offline parts programming and the press brake's speed, quick tooling changes, and built-in safety features, there was no going back." The purchase of three additional press brakes further increased Abatement's ability to quickly produce precise parts. According to Harber, "repeatable part accuracy is vital to creating the tight tolerances, fit-ups and seals that our customers require."

BREAKTHROUGH PUNCHING Rapid precision was definitely on Robson's mind after witnessing TRUMPF punching technology in action at a Toronto tradeshow. The company considered the pros and cons of updating its turret punches, but chose to buy a TruPunch 2000 with SheetMaster Compact in July 2015. "The math was easy," says Robson. "The speed of the TRUMPF machine just blew us away. A job that used to take an hour and a half is now done in just a half-hour. With its capabilities and automatic load and unload features, the TruPunch has virtually replaced three turret punches. Being able to punch a part correctly the first time was nothing short of a breakthrough."

Thanks to its 360° rotation of every tool and forming capabilities, the TruPunch has proven uniquely qualified to produce parts such as Abatement's exhaust grills for cabinet filtration units. "Making parts like these, ones with lots of holes or louvers, wouldn't be as productive on another machine," Robson stresses. "The presser foot technology has eliminated sheet swelling too." Robson is a big fan of the precision punch tool technology and forming options. "Tooling setup is a lot quicker and we can eliminate subsequent operations done on another machine," he describes. "The ability to easily handle complex forming – louvers, ribbing, tapping, threading, scribing and offset roll forming – on the punch, has taken us to another whole level. It allows us to approach design differently and improve manufacturing downstream."



Plant Manager Randy Robson (L) and Chief Operating Officer Andrew Harber

QUALITY SUPPLIED The fabricating machines fit well with Abatement's lean manufacturing efforts. Harber appreciates the role TRUMPF technology, service and support plays in the company's ability to lower setup time, decrease batch sizes, and increase customer responsiveness. "We don't have a lot of work in process or built-up inventories, so if there's an issue with a machine, it is imperative we get back online as soon as possible," says Harber. "We've been tremendously happy with the quality of the machines and support of TRUMPF as a partner."

As awareness of indoor air quality issues increases, Abatement Technologies continues to expand its market. The growing company knows it can depend on its production capabilities and supplier relationship. Says Harber, "As we look at future purchases, it becomes a question of what model, not what brand, of equipment to look into. TRUMPF machinery gives us the confidence to go abroad and compete in the global marketplace." □

PLEASE DIRECT YOUR QUESTIONS TO:

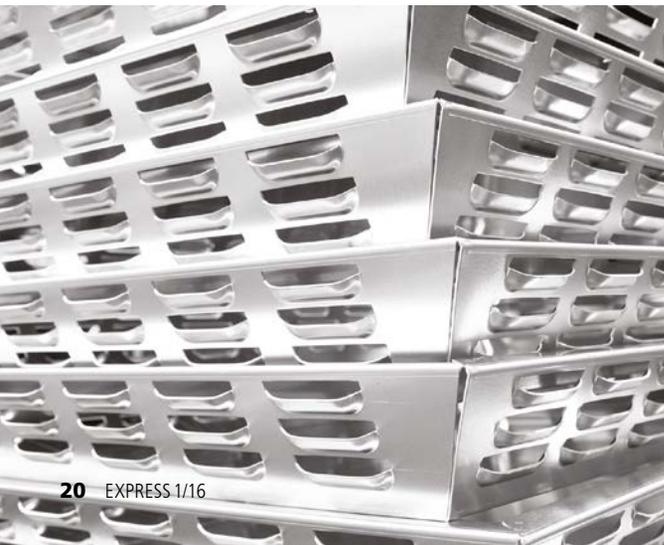
Laser: Mark.Bronski@us.trumpf.com
Punch: Brian.Welz@us.trumpf.com
Press brake: Tom.Bailey@us.trumpf.com

RELIABLY FAST PROVIDERS

WHO: Abatement Technologies Limited, Fort Erie, Ontario, Canada. Founded 1985. www.abatement.com

WHAT: Manufacturer of high-quality air filtration equipment for the healthcare, restoration, and duct cleaning markets.

HOW: TruPunch 2000 with SheetMaster Compact, TruLaser 2030, TruBend 3066, TruBend 3120, two TruBend 7036



TRUMPF TECHNICAL SERVICE

ALWAYS ADVANCING



Jim Rogowski,
*Vice President
Technical Service*

Providing great customer service is our renewed mission in North America, and we begin with this message to you. It is only through a series of positive interactions that trust and confidence is built, and we do not take this lightly. We have nearly 7,000 machines installed and running in North America with new technologies continually on the horizon. TRUMPF moves forward on a schedule that our competitors cannot, yet when it comes to technical service, spare parts and our training, our employees must be in a position to provide excellent support for all machines – old and new. This is TRUMPF.

Innovation in technical service requires us to tear down old processes and rebuild with newer methods that work with faster and more accurate technologies for a higher level of service. It is our ambition to solve any issue your TRUMPF machine may have through phone support or internet connection first. This is why we started a new technical service and spare parts hotline that is toll free and easy to remember.

1-(844) TRUMPF1 allows you to connect with us 24 hours a day, 364 days each year. Once in contact, your case is managed by a technical individual that retains

ownership of the problem until it is solved. We have implemented many new tools and processes which include IBM Watson for documentation searches, multi-tasking while diagnosing issues and working on a spare parts, properly preparing the right technician with the case history using smart devices, and making it a priority to fix the machine on the first try.

Enabling our customers to better understand and maintain their machines is also our priority. This year we will introduce new training classes that will allow you to get the most from your machines while minimizing downtime. We are confident you will benefit from this and we want to increase transparency on how we have performed technically for you. We will share our customized performance report cards with you upon request and are always looking to service you even better in the future.

Advancements in these areas, and many others, have already drastically reduced the response time needed to address and resolve a technical problem, and we continue to work on ways to better service you and your shop. My pledge to you is to Always Advance.



Roger Michaud,
*Technical Support
Manager*

▶▶ **TRUMPF TECHNICAL SUPPORT LINE**

TRUMPF Inc. processes 2,000 phone calls and 450 new cases each week through our technical support line. In 2015, we implemented changes so we can now resolve 80% of all customer issues in a single phone call— and that number continues to grow as we further improve our processes and procedures. As a call is received it is prioritized to ensure urgent issues receive immediate attention. For less urgent matters, our support line technicians respond within two hours and provide full support as we help you progress towards a solution.

Every case now receives a dedicated TRUMPF case owner who stays with the issue from start to finish. With strong knowledge of your issue and what has been done to resolve it, your case owner is more efficient and better equipped to service your need. He or she helps the scheduler find the best service technician if an on-site visit is needed, and makes sure this service technician is fully prepared before he or she arrives. This case owner serves as your single point of contact for any questions and provides final review of error descriptions once a solution has been implemented. The case is closed only when your dedicated case owner is 100% confident the issue has been resolved.

TRUMPF has also committed to implementing the latest technologies to increase communication, provide

faster resolutions, and ultimately provide the best service experience of any machine tool manufacturer. We already offer the Visual Online Support (VOS) app for our latest machines so you can exchange live text, images, audio and video with our technical service team. Our new service app, currently in the test stages, will enable you to easily make a request and track it, as well as place a call to our technical service support line if any questions arise. We are also working to empower field technicians to diagnose and resolve technical and mechanical issues with remote assistance using smart glasses. With new technologies, the possibilities are endless!



▶▶ **TRUMPF TECHNICAL SERVICE TECHNICIANS**

During the past year our service department has worked to identify waste, improve procedures and provide a higher first time fix (FTF) rate than ever before. We do this all while keeping you, our customer, in mind. If a field service engineer is required for on-site repair your dedicated case owner, assigned by our technical support line, will provide the scheduler with all necessary information. This includes the status of spare parts that might be required, the estimated length of mission and the difficulty level of the repair. This helps the scheduler to assign the right field service engineer for the job. Once assigned, the technician receives an alert to immediately arrange his or her travel. Each technician is equipped with an iPhone to be certain all important information or documentation is received in real time. The result has been a 50% improvement in our technician's response time to your machine. In addition, our FTF rate is at 74% and continues to improve.

TRUMPF also strives for the highest standards in

technical ability, communication and professionalism of our service staff. Since top quality service has to be built, all our field service technicians follow a training matrix to guarantee they are equipped with a high level of technical competency. Additionally, each member of our service department makes a personal commitment to our guiding principles and standards for customer contact set forth by our Code of Conduct.

To be sure our recent changes are benefiting customers we have established the Customer Survey to evaluate your overall satisfaction. In addition, we hired an independent research firm to conduct Tech Surveys. Drawing from a sample of our repair missions, this firm contacts the customer to review the field technician's performance, technical competency, work ethic, and overall value. These anonymous results are discussed with the technician to foster further growth and development. We encourage you to provide feedback on your service experience. We are here and willing to listen.



Robert Leahy,
*Regional Service
Manager*



Nichole Coggshall,
Spare Parts Manager



Alexander Kunz,
Group Manager TruServices

▶▶ TRUMPF GENUINE SPARE PARTS

The need for spare parts is inevitable in sheet metal fabrication, and obtaining them should be simple, fast and headache-free. Based on data provided by service technicians and customers, we began an initiative last September to improve TRUMPF's spare parts availability across North America and our accessibility over the phone. Through this initiative, we have raised our answered call rate to 95% and reduced our average wait time to just 3 ½ minutes. This is a 56% improvement in just six months, and we are still working to improve. In addition, the TRUMPF support line is now a "one stop shop" for spare parts and technical support so you receive all the support you need in a single call.

We also evaluated our spare parts inventory and processes. We changed the way we run our MRP system, became more efficient in processing requests and conducted an in-depth analysis of our 18,000 part numbers to make sure the parts you need are ready to ship. Using data on the part's life cycle, consistency of consumption, value and the volume at which they move, we adjusted our approach and recently launched an innovative new stocking strategy. Our next step is to implement a new order management tool and use the latest technologies to better track incoming orders, avoid duplications, and capture data to further improve our response time.

For all your spare parts and consumables, we encourage you to take advantage of our free e-shop. A quick registration provides you with 24/7 access to your customized profile where you can access your machines with spare part numbers and part availability in real-time. Pricing is also customized and ground shipping is always free when using the e-shop. We are confident our changes will improve your spare parts experience and we are excited for what's to come.



▶▶ TRUMPF SERVICE AGREEMENTS

Everyone wants peace of mind regarding spare parts and repair service, and our new service agreements provide it. They enable you to run your equipment most efficiently with lower costs, optimized uptime and a higher resale value long term. The key is preventive maintenance, combined with various discounts, credits and other benefits.

While TRUMPF works intently on integrating all business processes (Industry 4.0), Service invests in developing remote services to minimize the need for onsite repair. When a technician is needed, remote services also help us to analyze the problem more completely before we send out support. This is why we always include 24/7 phone support and state-of-the-art remote diagnostics, such as Visual Online Support (VOS) in our service agreements. TRUMPF is also investing in preventive maintenance solutions because we know that the better your equipment is maintained, the better it works for you. Our statistics prove that machines maintained by TRUMPF certified technicians run more smoothly and for longer. Whether it is a TRUMPF technician or your own maintenance team trained by TRUMPF, let us help you accomplish this.

In the end, our service agreements are designed to save you time and money. With four different service agreement options, TRUMPF offers the right choice for every customer and every individual machine. Especially for machines older than ten years, our entry level BASIC plan, covering 24/7 phone support and discounts on consumables and tooling is a great solution. Regardless of age, most machines benefit from our STANDARD plan which includes regular preventive maintenance and discounts on spare parts, consumables and tooling. We can help you analyze your machines' history regarding repairs and parts consumption to help you decide if an additional labor allowance (PREMIUM plan) or even a part allowance of up to \$50,000 per year (PREMIUM PLUS plan) is the right choice. Call me for an assessment of your shop and learn your savings potential.

▶▶ TRUMPF CANADA

With fifteen field service engineers located throughout Canada, we are able to serve you quickly and efficiently. We have technicians fluent in French and English as well as four in-house engineers located in the Greater Toronto area who are available to assist you over the phone. In addition, we stock the majority of the spare parts needed by customers directly in Canada so you receive them as quickly as possible. As part of the service team, TRUMPF Canada is also making improvements to enhance communication, standardize processes and keep our team educated on the latest technologies. We are committed to providing you with the best customer service experience possible.

Contact TRUMPF Canada at:

Phone: 1-800-306-1077

Email: service@ca.trumpf.com



Michael Otterbein,
Service Manager

▶▶ TRUMPF INC.

Contact TRUMPF Inc. at:

Phone: 1-844-TRUMPF1

e-shop: www.us.mytrumpf.com

service@us.trumpf.com

spareparts@us.trumpf.com

▶▶ TRUMPF MEXICO

In 2015, our service department completed approximately 3,000 hours of technical training in Germany and the United States in order to increase our technical capacity on current and upcoming technologies. This was a 76% increase compared to 2014. We also doubled our in-house support so we are better equipped to diagnose and repair problems through our phone support line. In the field, we increased the number of technicians by 10% within the last year and provided them with a more extensive training program. We also updated our service contracts to provide you with better options for you to best maintain your machines and keep them in great condition for years to come. Our spare parts department is available 24/7 so you are never without our support when you need it.

Contact TRUMPF Mexico at:

Service: servicio@mx.trumpf.com , Phone: (81) 81312121

Spare parts: spareparts@mx.trumpf.com , Phone: (81) 81312120
24/7 hotline: (81) 21505992



Emmanuel Villanueva,
Service Manager

The Harmony of Interaction

Visitors to H. P. Kaysser are immediately drawn to the stainless steel sculpture at its entrance. Called "The Harmony of Interaction", it symbolizes the company's approach to business.

At H. P. Kaysser's factory in Leutenbach, Germany, just 12 miles from TRUMPF's headquarters in Stuttgart, 360 employees work together in 14 specialized teams to provide all of the services involved in the sheet metal process chain. They manufacture everything from small but highly complex components to turnkey assemblies weighing several tons. "Versatility is one of our characteristics," says owner Thomas Kaysser, "but the pre-requisite for our ability to offer so much, is consistency in daily business transactions, coupled with unity among our employees."

The success story began 67 years ago when, out of pure necessity, trained mechanic and metal cutter Hans-Paul Kaysser built a cooking range for his mother using old drums. He also realized: You can make anything out of sheet metal. He founded H. P. Kaysser and soon became the "Sheet Metal Emperor" of Stuttgart. "It was during this period that my father met Christian Trumpf and formed a relationship between the two companies which has lasted to the present day," recalls his son, Thomas Kaysser, who took over H. P. Kaysser after his father's unexpected death in 1981.

A PASSION FOR THE NEW AND THE COURAGE TO DO THE UNUSUAL "I love sheet metal because it reinvents itself to keep pace with the times," explains Kaysser. "I'm interested in what will be happening tomorrow and the day after, how society will change, and how we can be involved in these developments," he says. "Major expansions in our growth always occurred when we were the first to try something out. Sometimes we stumbled when doing so, but the bottom line is that our pioneering spirit has always paid off."

To work profitably despite the diversity of the services offered, Kaysser implements unusual methods and new ideas that benefit the system as a whole. To fulfill its personnel needs, he founded a "learning factory" where apprentices learn unique skills such as laser welding – a technology Kaysser has been enthusiastic about right from its start due to its beauty and precision. He also encourages cross-training and flexibility among his employees. "That way, if there is a lot of work to be done in the tube processing section, for example, someone from the flat-bed laser cutting department can help out." And when it's not possible to make straight substitutions, there is still complete cooperation from within – a clear indication why the stainless sculpture at the company's entrance, designed by Thomas Kaysser himself, is more than just a beautiful work of art.

(1) Thomas Kaysser's pioneering spirit and approach to cross-training employees in areas such as (2) tube manufacturing (3) fixture construction for laser welding and (4) automated bending has enabled the company to stay flexible, grow and expand.



LEARN MORE AT: WWW.MASTERSOFSHEETMETAL.COM

The peaks of production

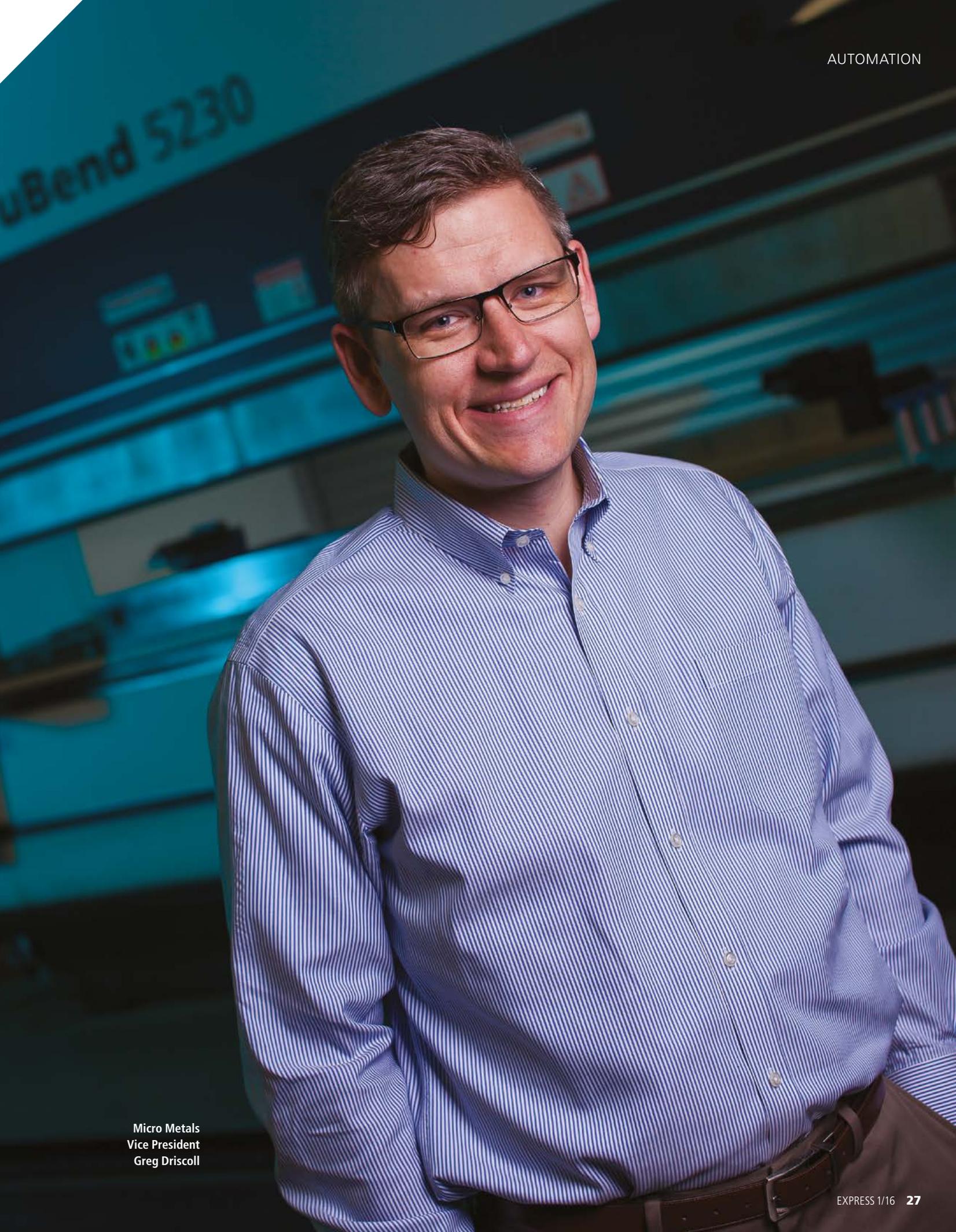
Micro Metals makes smart use of automation to keep production running at its best and parts flowing out the door.

At the base of Pikes Peak and the majestic Rocky Mountains, a job shop called Micro Metals Inc. established its foothold more than forty years ago. Although vice president Greg Driscoll was not around in those early years, he did grow up alongside this Colorado-based shop. “My father, Ken Driscoll, was recruited as general manager in 1981. The company was losing money and they looked to my father to help turn it around,” explains Driscoll. A year later, Ken was invited to invest. As fate would have it, he was a 10% shareholder for just 21 days before the original owner died unexpectedly leaving Ken to take over as majority owner of the business. From here, Ken Driscoll began to steadily grow the business with a new partner. Greg Driscoll grew up around the shop

but officially joined his father in business in 2000, and for the next seven years held a series of roles before becoming vice president.

A SECURE ASSEMBLY The Driscolls do well to keep Micro Metals diversified in the industries it supplies. The company most often manufactures parts and assemblies for industrial HVAC, air conditioning, medical, railway and defense use, and it is certified by the American Petroleum Institute (API) to supply the oil and gas industry as well. The energy industry has been a growing source of income in recent years as new developments in solar and wind power come into focus nationwide. Micro Metals’ expertise, however, is in service and quality it supplies at a production level. “While we





Micro Metals
Vice President
Greg Driscoll

help our customers with any need, the production level is where we thrive,” Driscoll explains. In addition, the company also maintains its own product line of secure mail solutions, sold under the dVault® brand. “We helped to develop the product prior to manufacturing it, and eventually bought the company. It is a nice subset of our business,” says Driscoll.

BIGGER IN BENDING As Driscoll is well aware, such a strong customer base comes with its challenges. One struggle is in finding qualified operators for the numerous press brakes that line the shop floor. This problem has been amplified in recent years by an uptick in larger part forming which require an additional set of hands to maneuver safely. Since quality and productivity always diminish over the course of a shift, even with a highly

accurate press brake, Micro Metals knew it needed something more consistent. “On paper we couldn’t justify an automated system, but it made sense from a human commodity side,” he recalls. Driscoll saw the technology as an asset for his employees as well. “I believe in and want the technologies that will make our employees’ jobs easier and better.” In the end, the company decided to invest in a TruBend 5230 with BendMaster 150 and Driscoll and his crew quickly found ways to keep it busy. “Any part that would require two people was automatically programmed for the automated bending

cell and we filled any additional time with longer production runs.” The system is now maxed out and running around the clock, which has Driscoll thinking about adding a second system. Not only is Micro Metals able to run more parts with less effort, the automated bending cell also generates higher level employees. This is a true benefit to Driscoll. “We work individuals through the system so they continue to develop, and as a result, we have been able to grow a more technical staff,” he says.

KEEPING UP WITH THE SPEED OF LIGHT

Automating the company’s new laser cutting machine also turned out to be an easy decision. With a TruLaser 3030 and two TruLaser 3050s already installed in the shop, Micro Metals is no stranger to laser cutting, but it was starting to become less competitive with pricing. “Our TruLaser machines are workhorses and always provide high quality results, but we

knew we had to invest in fiber technology because that’s the way the industry is going,” Driscoll explains.

When setting out to purchase a solid-state laser cutting machine Driscoll did not expect to buy the most powerful system on the market. “We thought a 5kW laser might be the right fit but then we realized the volume of work the 8kW laser is able to process and just how fast it is. We put the pen to paper and the difference was substantial.” The company decided on the TruLaser 5030 fiber with an 8kW TruDisk laser and purchased a LiftMaster Compact and STOPA storage system for maximum productivity. “It was a no brainer to go with the best available and the LiftMaster Compact is essential because you just can’t load material fast enough without it. We already knew we liked the TRUMPF brand and quality, and TRUMPF is the only machine tool manufacturer with an 8kW laser. I was very confident in the decision.”

This system could not have come at a better time. Customers are constantly pushing Micro Metals to maintain greater inventories and part numbers – a fact Driscoll substantiates as he references a company that has steadily increased its part numbers from 150 to 750 over the course of just a few years. “Our customers need us to support greater diversification of parts and increase in changeover, and with a 141,000 square foot facility, we were running around a lot.” Driscoll asserts. Now they let the machines do heavy lifting while they focus on other tasks. When it comes to recognizing the impact automation has on his shop, Greg Driscoll puts it simply: “Automation just makes something really good even better!” □

▶ PLEASE DIRECT YOUR QUESTIONS TO:

Automation: Tobias.Reuther@us.trumpf.com
Laser: Mark.Bronski@us.trumpf.com
Press brake: Tom.Bailey@us.trumpf.com

ATTENTIVE IN AUTOMATION

WHO: Micro Metals, Inc., Colorado Springs, CO. Founded in 1972. www.micrometalsinc.com

WHAT: A family owned full-service provider of custom sheet metal fabrication and manufacturing.

HOW: TruLaser 3030, two TruLaser 3050 with STOPA storage system, TruLaser 5030 fiber with LiftMaster Compact and STOPA storage system, TruBend 5230 with BendMaster 150, and two TrumaBend V230.

“Automation just makes something really good even better!”

*Greg Driscoll,
Micro Metals, Inc.*





*"It is about the making,
not about the having."*

Michael Bell

Forged by tradition

Michael Bell grew up with an interest in martial arts and samurai movies but never expected to find his passion as a master Japanese sword craftsman. That happened a bit by accident.

“I always enjoyed working with my hands. I became a guitar builder and a musician, and along the way managed to make a few scabbards and wooden handles for old sword blades I had acquired,” explains Michael Bell, master swordsmith and chief instructor at Dragonfly Forge. Life changed, however, in 1970 when a gentleman at a Renaissance faire encouraged Bell to show his handmade swords to Mr. Nakajima, an old Japanese sword craftsman living in Oakland, CA. “Mr. Nakajima was very generous in his critique,” Bell recalls with a slight chuckle. “I convinced him to take me on as an apprentice and it changed my trajectory. I fell in love with the craft.”

Unlike many swordsmiths who specialize in just one of the traditional Japanese skills, Mr. Nakajima was a unique mentor in that he had been trained in all four. Under his direction Bell learned to use a hammer to forge the metal, grind and polish the blade, and to make the habaki (mount) and the saya (scabbard or sheath). After five years, Bell had the skills but not the cliental to open his own business. He eventually opened a successful cutlery shop in San Francisco but sold it several years later on a quest to establish his own forge. He and his wife, Anna, ultimately purchased a 27-acre parcel of land overlooking Coquille Valley in southern Oregon. Here they lived off-the-grid and built Dragonfly Forge while raising their son, Gabriel. “I had a pretty unique childhood. I was in the shop all the time, making things with my hands. I was surrounded by it,” explains Gabriel.

Although he fell in love with Japanese sword making on his own accord, Gabriel was hesitant to make it his profession. “Many see it as a romantic career, but there are a lot of sacrifices and financial struggles too. As a child, I saw both sides.” Only after earning a degree in International Studies with a minor in Japanese did he decide to join his father. “I realized what really makes me happy is the tactile interaction with materials, and I saw how things could be done more efficiently in the new generation,”

he explains. With Gabriel onboard, the Forge reorganized and established the Tomboyama Nihonto Tanren Dojo (Dragonfly Mountain Japanese Sword Forging School).

FUNCTION VS. BEAUTY While Dragonfly Forge swords are exquisite, they are real swords first and foremost. “There is a tremendous amount of beauty and art in Japanese swords but the functional element of a blade is our primary concern,” asserts Michael Bell. The ultimate goal is “no bend, no break” and Dragonfly Forge uses forged-welded cable for its superior strength. They also make and use traditional Japanese sword steel called tamahagane, which means “jewel blade metal” in Japanese. Aesthetics are a secondary focus. The grain, color, and variations of the steel give the blade its interest while heat treating the edge of the sword creates a striking contrast between the hard and soft steel. When polished, the swords structure becomes visible.

When able to create freely, Bell always looks to conquer a new challenge. “The bigger the challenge, the more I enjoy it,” he says. While it often takes several attempts to grasp a new pattern or style, each failure is a welcomed addition to his “bone pile” of rejects. In fact Bell tells his students, “If you don’t have a bone pile, you aren’t trying hard enough,” and adamantly asserts, “There are going to be failures along with successes –and all have a lesson in them.” His students also learn not to become attached to results but rather to be involved in the process. As Bell also imparts, “It is about the making, not about the having.”

While forging the metal is Bell’s passion, he unequivocally enjoys learning from his students that circulate through the Dragonfly Forge. “I’ve met some absolutely fascinating people – a chemistry professor, an architect from Greece, engineers from Germany – most are established with graduate degrees,” and like Michael and Gabriel, “All have a certain love for the craft.” □

<http://dragonflyforge.com/>

TELL US, MR. BELL...

...What does it take to become a master swordsmith?

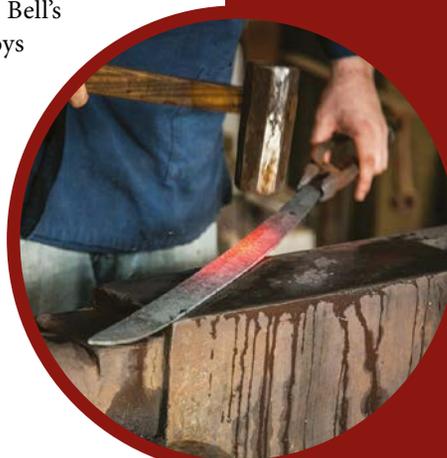
It takes years to become a master and even then, it is a matter of senses. In Japan, it is determined by annual competitions, but it is more difficult here. It took quite some time for me to be comfortable calling myself a master even though others recognized me as one.

...When it comes to making swords, which do you prefer: broad aptitude or specialized skill?

A specialist adds an element of quality and detail that a generalist cannot. I would love to focus my attention on forging the blade. It’s the heart of the sword, and to me, the most challenging and interesting part.

...Why the name, “Dragonfly Mountain Japanese Sword Forging School”?

Dragonflies show up a great deal in Japanese art and folklore. They also happen to frequent the Coquille Valley, so the name was a perfect fit! They are nearly impossible to catch with a butterfly net, by the way, but I often sit on my porch and watch them!



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Magazine for Sheet
Metal Processing



A VISION OF THE SMART FACTORY

The factory of today will transform as smarter operations and new software solutions enable you to integrate on all levels, connecting equipment, technologies and processes to each other. TRUMPF is leading the way and offering the following solutions today to begin transforming your factory for tomorrow.

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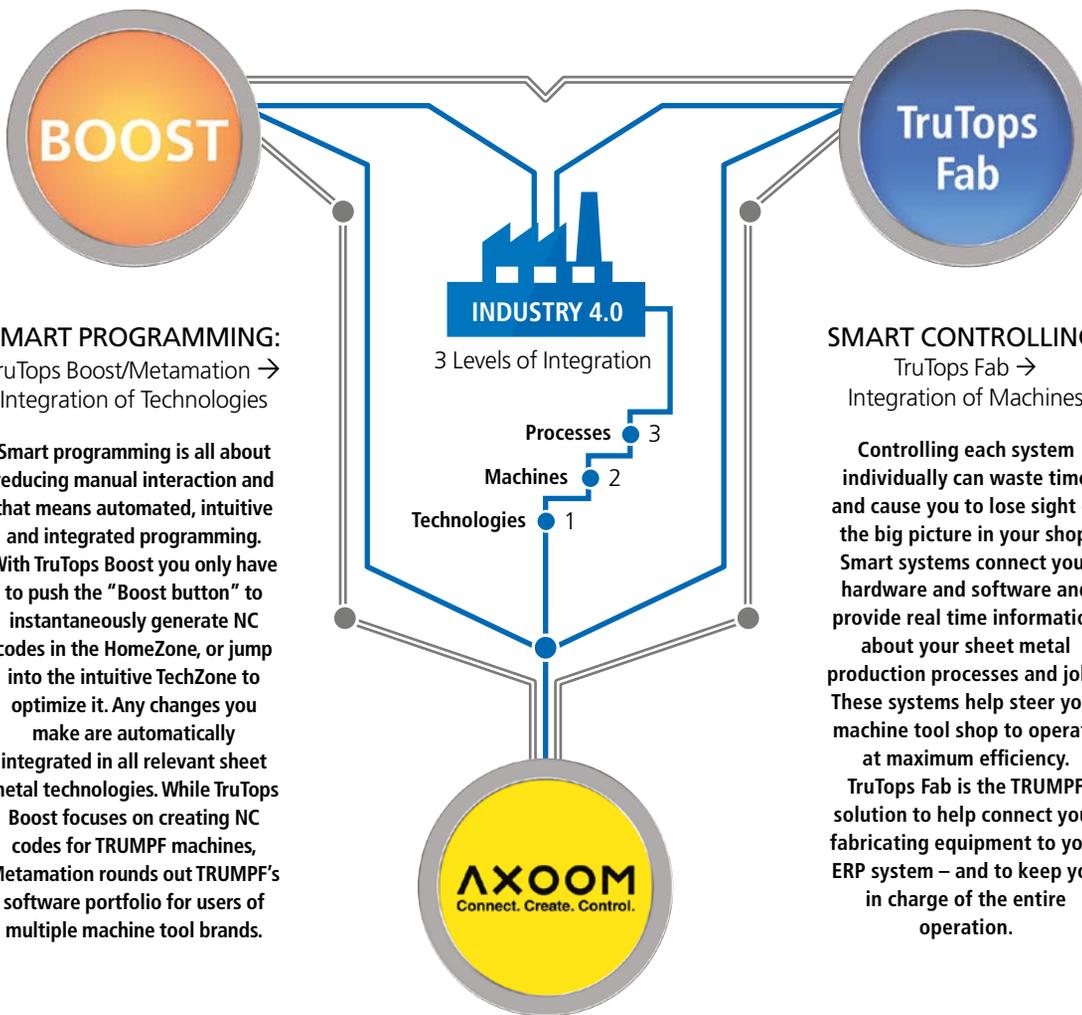
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SMART PROGRAMMING:
TruTops Boost/Metamation →
Integration of Technologies

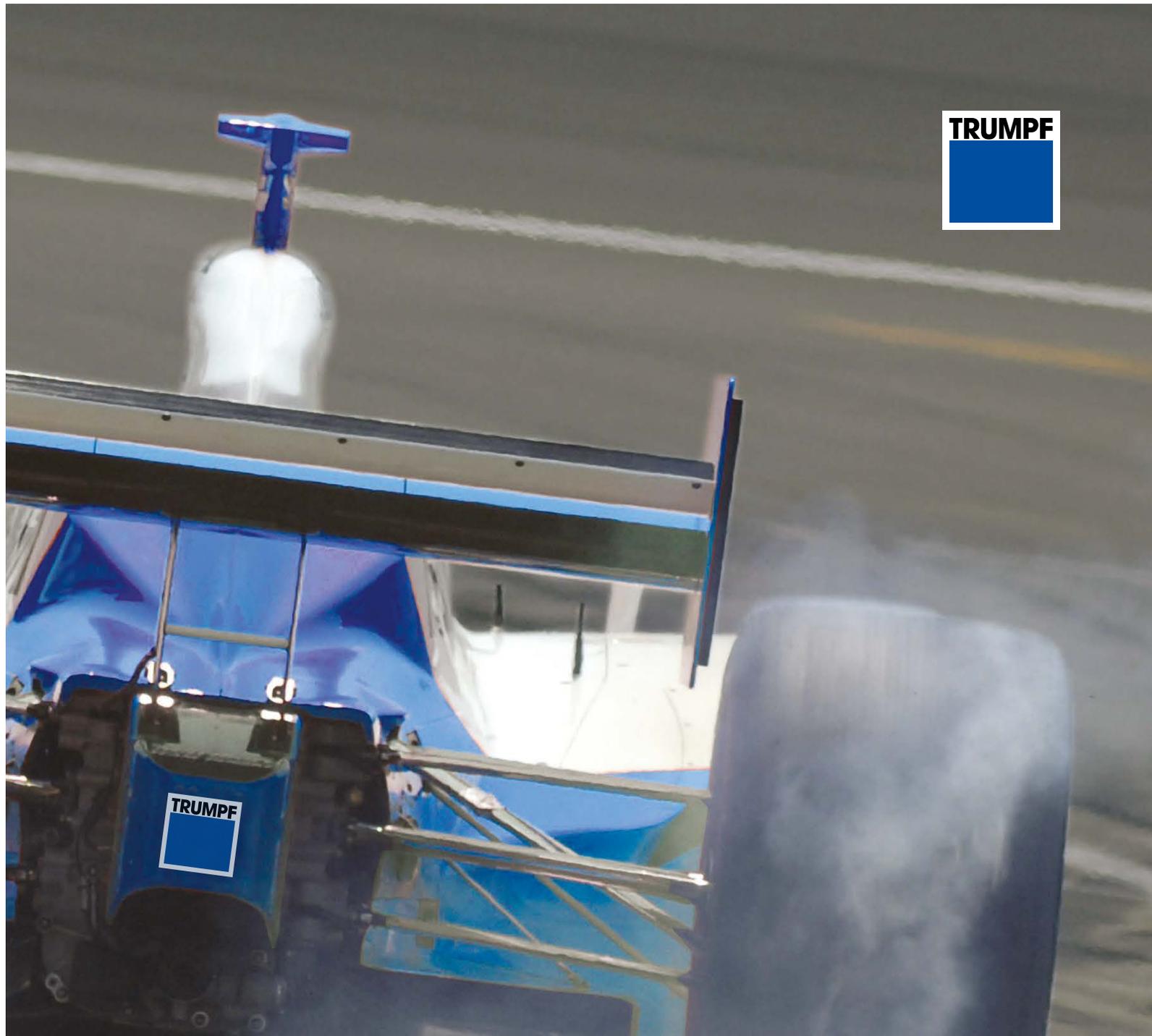
Smart programming is all about reducing manual interaction and that means automated, intuitive and integrated programming. With TruTops Boost you only have to push the "Boost button" to instantaneously generate NC codes in the HomeZone, or jump into the intuitive TechZone to optimize it. Any changes you make are automatically integrated in all relevant sheet metal technologies. While TruTops Boost focuses on creating NC codes for TRUMPF machines, Metamation rounds out TRUMPF's software portfolio for users of multiple machine tool brands.

SMART CONTROLLING:
TruTops Fab →
Integration of Machines

Controlling each system individually can waste time and cause you to lose sight of the big picture in your shop. Smart systems connect your hardware and software and provide real time information about your sheet metal production processes and jobs. These systems help steer your machine tool shop to operate at maximum efficiency. TruTops Fab is the TRUMPF solution to help connect your fabricating equipment to your ERP system – and to keep you in charge of the entire operation.

SMART INTEGRATION:
AXOOM → Integration of Processes and the Outside World

On the ultimate integration level, AXOOM connects standard sheet metal production processes with all supporting processes. Founded by TRUMPF, this browser-based digital business platform spans the value chain. It connects with the world outside your shop and provides solutions anywhere you need them, from any smart device. AXOOM is an open platform available to all companies, their logistics and service providers, and our mutual partners. Components across different manufacturers are networked within the value chain so they can work together intelligently. AXOOM paves the way to Industry 4.0 and is now available for preview. www.axoom.com

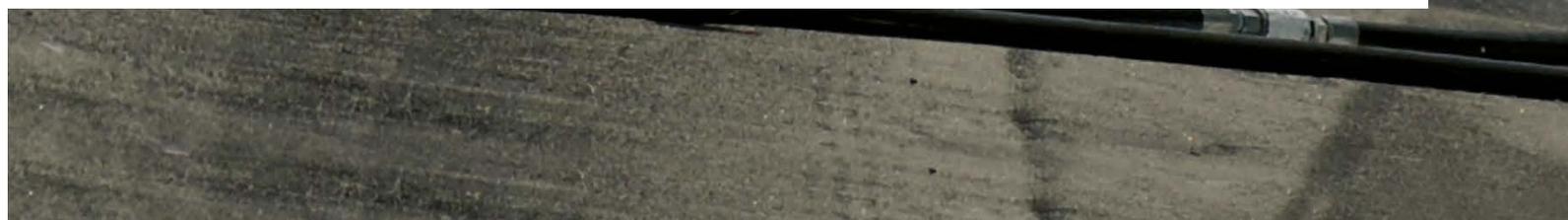


Leaving turrets laps behind

Races are won and lost in the pits. It's the same in production. The faster you are back up and running between jobs, the more parts you can produce. TRUMPF punching machines set up an order of magnitude faster than turret machines, giving you more hours of production per shift. And, with the increased rigidity and capabilities of the TRUMPF punching head you can tackle jobs simply not possible with turrets.

So if you are in it to win it, take a look at TRUMPF and see how you can put a lap on your competition.

www.us.trumpf.com





Peterbilt

TRUMPF

ROLLING DOWN THE HIGHWAY. Cruising down the highway, it's easy to become enamored by the power and performance of heavy duty big rigs as they pass you by. These customizable rigs take on a personality of their own as they accelerate down the open road; sun glistening from their stainless steel facades. Heavy truck manufacturers rely on Dieter's

Metal Fabricating in Cambridge, Ontario to design and manufacture the stainless steel parts and accessories that give their big rigs an even bigger persona. With help from its TRUMPF punching machine, Dieter's forms the stylistic and functional components that bring each elegant giant to life. www.dietersaccessories.com/

