

# TRUe

THE MAGAZINE FOR SHEET METAL EXPERTS

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Embracing Change:

Adapting business to meet  
the needs of customers

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A History of Perseverance:  
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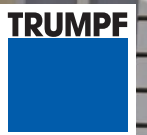
A vision for America

## 04 The Future


Anyone Can Fly:

Taking taxi transportation  
to new heights

**50**  
50 YEARS OF  
DEDICATION TO  
OUR CUSTOMERS  
IN AMERICA





A wide-angle landscape photograph of a mountain valley. In the foreground, a rocky, light-colored ridge slopes down towards the right. Two small figures of people are visible on the ridge, looking out over the valley. The valley floor is a mix of brownish-green fields and a winding river. In the distance, a small town or village is nestled in the valley. The background is dominated by high, jagged mountain peaks, some with patches of snow or light-colored rock, under a clear blue sky. The overall scene conveys a sense of vastness and wilderness.

**Perseverance** can define many different situations in life. **It is what drove** the pioneers to venture forth during the Great Westward Expansion in hopes for a new life. The **enthusiasm** and excitement of discovering new land and settling there motivated the pioneers **to persevere through the vast wilderness**, unaware of what the journey ahead would bring. ■













An aerial photograph of the Golden Gate Bridge in San Francisco, California, taken during the "golden hour" of sunset. The bridge's iconic orange-red towers and suspension cables are silhouetted against a sky transitioning from deep blue to a warm, golden glow. The bridge spans across the blue waters of the Golden Gate Strait, with the city of San Francisco and the Marin Peninsula visible in the background. The text is overlaid on the upper portion of the image.

**Without perseverance** it's thought that many historic monuments of mankind like the Pyramids in Egypt, the Eiffel Tower, or even the Golden Gate Bridge would not have come to life. In the process of constructing and building these **remarkable masterpieces**, those involved had to be open-minded, eager, and enthusiastic to keep projects of this size going. Moving forward after days, weeks and even months of work, **more than anything** the undertakings required a tremendous amount of will power and **perseverance**. ■



A photograph of a paved road at sunset or sunrise. The sky is a clear, deep blue, and the sun is low on the horizon, casting a warm, golden glow over the scene. In the background, there are dark silhouettes of trees and a small white building. A few people can be seen walking on the road in the distance. The road in the foreground has a distinct wavy crack running across it.

Martin Luther King Jr. demonstrated **ceaseless effort** during the American Civil Rights Movement. As an activist, he **never gave up** in the fight for equality. On August 28, 1963, 200,000 people gathered for the historic March on Washington where Dr. King delivered his famous 'I Have a Dream' speech – which emphasized his hope for equality. His tremendous **perseverance** changed the lives of the African American people and led him to win the Nobel Peace Prize for combating racial inequality through nonviolent resistance. ■





I HAVE A DREAM  
MARTIN LUTHER KING, JR.  
THE MARCH ON WASHINGTON  
FOR JOBS AND FREEDOM  
AUGUST 28, 1963







Fifty years of history does not only mean fifty years in business. Rather it stands for a history built from **customer relationships, hardworking employees, and perseverance** throughout the past five decades. Moving ahead, we look forward to building upon our **history by way of innovation and dedication** to our precision sheet metal fabrication customers.



While each year that passes signifies another chapter in the history of TRUMPF Inc., this year in particular marks a significant milestone. We celebrate the 50<sup>th</sup> anniversary of the foundation of our subsidiary, 50 years of TRUMPF in America, 50 years of innovation, and 50 years of dedication to our customers. With so many reasons to look ahead at what our future holds, this anniversary also reminds us to look back on where we began.

With a vision for better serving customers in America, a rented building in an industrial park in Farmington, Connecticut, and just three employees, TRUMPF Inc. was founded in July of 1969. Starting with the small production of punching tools, we set out to expand our manufacturing capabilities within the American market with the production of the TRUMATIC 180 punching machine. In the years to follow, TRUMPF Inc. continued to make history – whether it was the shipment of the 500<sup>th</sup> machine in 1988, the founding of an R+D department in Farmington, the opening of our laser diode production and development location in Cranbury, New Jersey or the opening of the Smart Factory in Chicago, each event has helped to shape the company today.

Perhaps one of the most pivotal steps in the company's history was in 1985 - the introduction of our lasers. Using the laser as a tool has enabled customers to expand their day to day sheet metal fabrication capabilities. The evolution of the laser has led us to explore new paths, such as the world of additive manufacturing. As the challenges facing our customers evolve, TRUMPF will also continue to evolve to provide industry leading technology solutions to keep them a step ahead.

As we carry on in 2019, I look forward to celebrating the past 50 years of new beginnings, continued growth, and dedication to our North American customers – and look ahead to a successful future.

A handwritten signature in black ink that reads "Peter Hoecklin". The signature is fluid and cursive, with a prominent flourish at the end.

PETER HOECKLIN, PRESIDENT & CEO



TRU<sup>®</sup>

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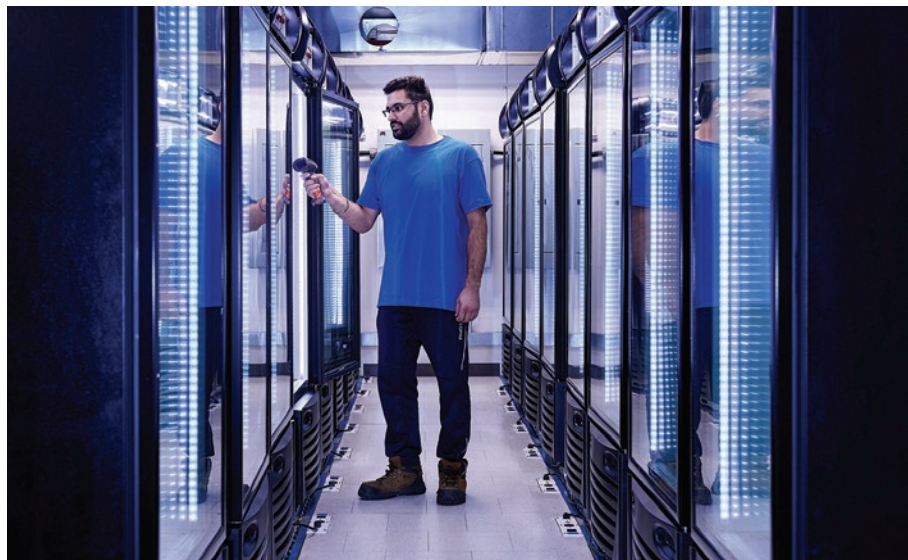
## ... in Georgetown

Julian Attree recognized an opportunity and took it - resulting in a completely new line of business that his company is known for today

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## ... in Bensalem

As a family-owned company for more than fifty years, General Metal has persevered through hard times to remain committed to their vision of the future

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## ... in Farmington

A vision for business within the American market is reflected upon as TRUMPF Inc. celebrates fifty years of dedication to its customers

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## ... the future

The German company Volocopter, is currently working to develop an air taxi service that allows people to fly at the touch of a button

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**01**

CANADA

*Meeting the needs of customers in Georgetown*

# EMBRACING CHANGE

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The small-town charm of Georgetown, Ontario can be experienced through its art, culture, and various celebrations throughout the year. Dating back, farm land covered the area before it was transformed into a prosperous industrial town.

Today, not too far from where the first mills operated by hydroelectric power were used in

North America, Minus Forty Technologies Corporation has become part of Georgetown's history by overcoming and embracing change.









**TruPunch 5000:** Used for the in-house production of Minus Forty refrigerated merchandisers



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“Once we bought brand new TRUMPF equipment, it **enabled us to grow.** Producing in-house **gave us a competitive advantage.**”  
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The ability to adapt plays a vital role in a company’s success. A few years after founding Illuminated Advertising Display Corp. in 1990, now known as Minus Forty Technologies Corp., the company decided to adapt their production of illuminated point-of-purchase display signs into the manufacturing of refrigerated merchandisers. The concept of helping their customers to sell more of their own products remained the same, but the way of doing it was a significant business pivot that underpins the success of the company today.

### **A conscious decision**

At the time, Illuminated Advertising Display Corp. was producing custom illuminated signs for Kraft Foods, Adidas, Bacardi, and other leading consumer packaged goods companies. One customer then acquired the rights for Häagen-Dazs in Canada, which led to something that soon shifted Illuminated Advertising Display Corp.’s entire focus as a company. It was the opportunity to manufacture refrigerator merchandisers for the customer’s retail partners. “We began designing a chest freezer along with illuminated displays to go on the cabinet, developed a prototype, and the company loved it”, says Founder and CEO, Julian Attree. “From there it was basically how many can you make, and as many as we could produce, they would take.” As Minus Forty continued manufacturing these merchandisers, the demand and opportunity continued to grow. “This began to consume most of the company’s focus and resources” explains Attree. “That’s when we consciously made the decision to transition our focus solely on helping our customers sell more through our evolving refrigeration technology.”



## Refinement and growth

After a few years of experience within the refrigerated merchandiser industry, Minus Forty continued to refine their products to provide a more advanced commercial solution. Customer demand continued to grow, and it was at this time in 1997 when the company purchased and moved to a 40,000 square foot manufacturing facility in Georgetown, Ontario. With the expanded facility, came greater opportunity including the addition of an in-house Engineering Department providing the company with research and development resources for constant innovation. The new location in Georgetown also presented the company with the opportunity for a sheet metal fabrication department of their own. "The work was previously subcontracted, but with the move, the time was right", shares Attree. Soon after an expansion in 2000, TRUMPF equipment was introduced to Minus Forty's manufacturing operations. The first purchase was a TRUMATIC 2020, superseded today by the TruPunch 2000. "Prior we had purchased used equipment, but timing is everything and once we bought brand new TRUMPF equipment, it enabled us to grow. Producing in-house gave us a competitive advantage and it was also part of what enabled us to continue to be successful."

The company's growing customer base made for different product needs. "To be successful we had to be focused on the needs and expectations of our customers", comments Attree. In 2006, the product launch of their upright merchandiser began. A year later, now renamed and operating as Minus Forty Technologies Corporation, Minus Forty branded upright glass door refrigerated display merchandisers and manufacturing of these new models began. To further enhance the manufacturing process the company also invested in an a second TRUMATIC 2020 with a SheetMaster Compact, a TruPunch 5000, and a TruBend 7036.



## Rebuilding through perseverance

Business remained steady for Minus Forty, especially after one of their largest customers was purchased by one of the world's largest food and beverage companies. The company remained in growth mode for the next four to five years. "We were doing everything we could to service them and meet their needs while also developing the next generation of products for them. They really were our only customer" explains Attree. It was at around five years that Minus Forty was faced with the unfortunate, although not unexpected news. Their customer decided to cut back on orders, leaving Minus Forty in a very vulnerable position. "It's business 101, you never want to have all of your eggs in one basket. We knew at the time that client concentration was a big threat but there wasn't a lot that we could do about it. At that point we were just doing our best to be able to meet their needs", Attree states.

Revenues for Minus Forty dropped drastically, but it didn't come as a surprise. "We were hoping that before something like that happened we would have the opportunity to bring on some other customers" adds Attree. That's exactly what they set out to do. "We started to develop new customers but we weren't where we wanted to be which posed for a tough time. However, it also gave us the ability to focus attention on evolving our business to the next level and expanding our customer base."





## A vision for the company

After facing a financial downturn, Minus Forty persevered and refused to let the set-back define them. Rather, they turned a difficult situation into an opportunity to enhance the company and advance its products. "Our customers have products that will spoil, so it is important that we build extremely reliable equipment that also meets their needs size wise", Attree explains. In order to meet each customers' needs, Minus Forty offers a wide range of products. "We have customers who order a product that works for them about 90% of the time but then they have a retailer that might require a smaller or narrower unit, so that's why we have a variety of sizes to make sure that we have a solution that will enable our customers to offer what they need to support their customers."

When manufacturing for customers each year, Minus Forty aims to maintain between 10% to 15% growth, allowing significant growth without putting too much stress on their employees. "Our employees are also key to our success, so it's important that we are meeting their needs and creating an environment for them to be successful" Attree comments. "We want to make this a team and place they want to be a part of."

From a company that began with just three employees Minus Forty has grown into a team of over 150. With additional land at the current location, the company is set to expand for the third time this spring, expanding the facility to 150,000 square feet. Following the expansion of the facility, Minus Forty plans to invest in a second TruPunch 5000 equipped with a SheetMaster Compact and STOPA storage system. "We don't take anything day by day. We are very strategic with our planning. The vision for our company is to deliver a compelling value proposition to our customers by helping them sell more product through the best refrigerated merchandiser available. We will also continue to identify markets where we can expand", says Attree. "Part of our culture is being able to identify how the market is changing and being able to change with it."

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**"Our employees are also key to our success, so it's important that we are meeting their needs and creating an environment for them to be successful"**

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**Minus Forty Employees** are a key factor in the company's success





*In Brief*

# Minus Forty Technologies Corp. Machine Portfolio

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## **TruPunch 2000**

The compact TruPunch 2000 punching machine has the speed, precision and flexibility to process a wide range of parts. The machine's unique punching head and tool cartridges expedite setup and reduce downtime between runs. Optional automation can be added.



## **TruPunch 5000**

The TruPunch 5000 sets new standards for productivity. It produces a wide range of parts quickly, with flexibility, and maximum precision and process reliability. Individual automation solutions maximize the throughput, particularly during multiple-shift operation.



## **TruBend 7036**

The TruBend Series 7000, with its high speeds and acceleration values, ensure outstanding productivity. The press brake provides the optimal conditions for large press forces at a high working speed.

## **The customer**

### **Minus Forty Technologies Corp.**

Julian Attree, President & CEO  
30 Armstrong Ave. Georgetown,  
ON Canada L7G 4R9

Phone: 1-905-702-1441

[www.minusforty.com](http://www.minusforty.com)

- TruBend 7036
- TruPunch 5000
- TruPunch 2000 w/ SheetMaster Compact



*Moving towards the future in Bensalem*

# A HISTORY OF PERSEVERANCE

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The Philadelphia area is rich with stories of determined and diligent individuals. The city gave birth to both the U.S. Declaration of Independence and the U.S. Marine Corps, a military branch known for its tenacity. According to local lore, Philadelphia's favorite founding father, Benjamin Franklin, may have conducted his famous kite flying electricity experiment just north of the city, in a field in Bensalem. Bensalem is also home to General Metal Company, a family-owned job shop with its own history of trials and hard-won successes.



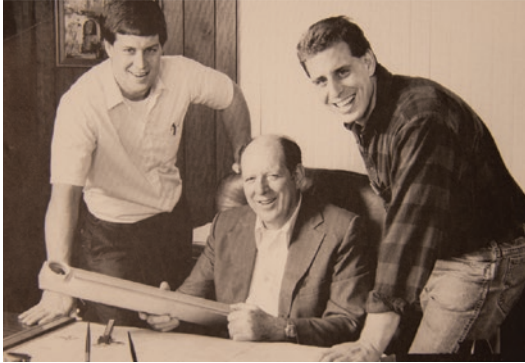


General Retail Company, Inc.  
PERSONAL FASHIONS

General Retail Company, Inc.  
PERSONAL FASHIONS



**Lower energy consumption** with the TruLaser 3030 fiber drives down company costs



Over more than 50 years in business, General Metal has witnessed and persevered through many economic ups and downs - 2008, however, was nearly a different story and the worst financial crisis since the Great Depression hit the company hard. "Almost everyone stopped ordering and our business decreased by half," explains John S. Tuszl, Vice President of General Metal Company, Inc. "In November 2008, we had forty employees, and by spring we were down to eighteen."

## Game changer

Long hours of hard work and dedication carried the company through this difficult period. "We became a much smaller company," Tuszl relates, "and everyone pulled together." Tuszl's father, John M. Tuszl Jr., a Marine Corps veteran who started the company in 1966, instilled a sense of loyalty, commitment, and tireless work ethic into his family and company. Tuszl adds, "My father took pride in offering top quality products and service at competitive prices. That's still our market strength and why we usually win the order."

Emerging from the downturn, the company's business began to increase. However, its reduced staff and aging equipment, paired with growing repair and maintenance bills, hampered the recovery. Worse still, a leaky roof prevented the purchase of new equipment.

After repairing the 25,000 sq. ft. facility's roof, the company looked for new technology to expand capacity without increasing headcount. After reading about fiber lasers, Tuszl decided to conduct time studies with different manufacturers to see which could best cut the hole-intensive thin-gauge parts which are the company's specialty. "Ultimately, we chose TRUMPF, and it was a good move," says Tuszl. "The new machine was almost five times more productive than our old CO<sub>2</sub> laser in roughly the same footprint. It was a game changer. It really furthered our growth."

.....  
**"The new machine was almost five times more productive than our old CO<sub>2</sub> laser in roughly the same footprint. It was a game changer."**  
 .....







## Profitability and persistence

Certainly, the new technology's energy savings, productivity, and reliability positively affected General Metal's ability to persevere in the face of challenges. "Better energy efficiency and lower cost per part meant we could stay profitable despite the investment," explains Tuszl, noting the machine's lower electrical consumption translates into a cheaper energy bill and reduced operating costs. "With our old lasers, we were paying for 2,000 watts of continuous power, but the fiber laser's on/off switch means I only pay for wattage when the beam is on."

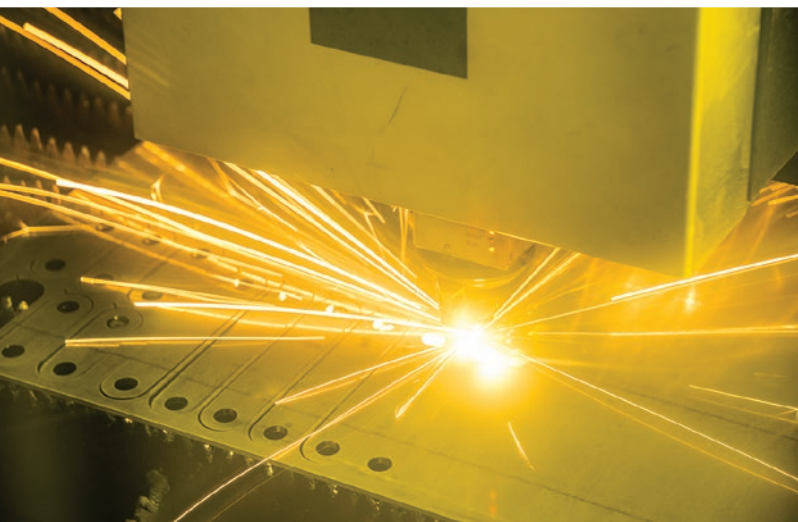
Automation also aids the company's profitability. A LiftMaster Compact and PartMaster connected to the TruLaser 3030 fiber ensure that the company keeps pace with its productivity. "The fiber laser is so fast that the machine might have been waiting for us to remove parts if we didn't have automation," Tuszl says. "We knew automation would help us produce more parts faster."

As a job shop with a reputation for excellent service, General Metal had worried about the fiber laser's reliability. "When switching to TRUMPF, service was our biggest concern, but it turned out to be completely unfounded," Tuszl emphasizes. "The equipment is extremely reliable and customer service is very helpful and responsive if there is ever an issue."

## A productive brake

In 2015, another potential setback loomed as OSHA instituted new safety regulations. To improve safety, General Metal added light curtains to its older press brakes. These light curtains made the press brakes safer, but considerably less productive. "It was apparent that we needed to update our bending equipment to boost productivity," says Tuszl. The company then purchased a TruBend 7036 press brake, which could accommodate most of their smaller parts. Later, they added two more TRUMPF press brakes, a TruBend 5130 and TruBend 5085, for additional capacity.

Perhaps the biggest fan of the new press brake was Tuszl's father. "He started the company with one room and a press brake. His brother-in-law had a shop down the street where he would cut the metal and then carry it down the road for my dad to bend," says Tuszl. "As the business grew, he transitioned into the office, but always loved running the press brakes. I even have a video of him in his eighties bending parts on the TruBend 7036."





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“The ever-evolving industry in our area means that our customer work is constantly changing, **but I believe my father’s legacy**, -- our work ethic, dedication, and desire to reduce costs, -- **will always remain.**”

.....



## Anniversary and loss

By 2016, steady work matched the company’s growing capacity, and business was booming. “We celebrated the company’s 50<sup>th</sup> anniversary and everything was going great,” describes Tuszl. “And then, soon after Christmas, my father passed away.” The loss was deeply felt, but just as it had done in previous challenging times, the company came together as a family and resumed doing their best work possible.

“My father never really retired,” Tuszl explains, “but toward the end, his main role was just estimating new jobs. It was a time-consuming task, but one in which he excelled. I’d been estimating repeat jobs but started doing new jobs after he passed. That was really the main thing that changed. I think the continuity helped us carry on.” Tuszl’s father, who was 83 when he died, had already handed over company leadership responsibilities to his children. Eldest son Michael is President, John is Vice President, and daughter Susan Knecht is HR and Office Manager. Today, Susan’s husband, daughter, and son-in-law also work for the family business.

## Designs for the future

General Metal’s deep institutional knowledge and experience continue to benefit its customers and company. “My father always said not to look at a job and quote it as it is, but instead look at how to produce it most cost-effectively,” Tuszl says. “We have the necessary expertise and equipment to make more efficient designs and this is an advantage we can pass along to customers through process improvements.”

Looking to the future, Tuszl envisions new technology continuing to support the company’s goal of improving revenue without increasing headcount. As skilled shop workers retire, Tuszl foresees automation’s role increasing, with more employees moving into the office to design and program jobs. No matter what the economy brings, Tuszl is confident his company can succeed. “The ever-evolving industry in our area means that our customer work is constantly changing, but I believe my father’s legacy, -- our work ethic, dedication, and desire to reduce costs, -- will always remain.”





*In Brief*

# General Metal Company Machine Portfolio



## TruLaser 3030 Fiber

The TruLaser 3030 fiber enables flexible, productive and profitable laser cutting. An energy-efficient 4kW TruDisk laser reliably produces fast, high-quality cuts with excellent performance. Optional automation can be added.



## TruBend 7036

The TruBend Series 7000, with its high speeds and acceleration values, ensure outstanding productivity. The press brake provides the optimal conditions for large press forces at a high working speed.



## TruBend 5085 and 5130

The TruBend Series 5000 press brakes are capable of highly productive and precise bending. Innovative programming, tool setup design, and other features offer the flexibility needed for diverse part production.



## TruPunch 2000

The compact TruPunch 2000 punching machine has the speed, precision and flexibility to process a wide range of parts. The machine's unique punching head and tool cartridges expedite setup and reduce downtime between runs. Optional automation can be added.

## The customer

### General Metal Company, Inc.

John S. Tuszl, Vice President  
1286 Adams Rd., Bensalem, PA 19020

Phone: 1-215-638-3242  
[www.generalmetal.com](http://www.generalmetal.com)

- TruLaser 3030 Fiber
- TruBend 5085 & 5130
- TruBend 7036
- TruPunch 2000



To extend your application spectrum,  
**TRUMPF offers other suitable product  
enhancements** for every machine.



**03**

CONNECTICUT

*Perseverance in Farmington*

# REACH FURTHER, GET CLOSER

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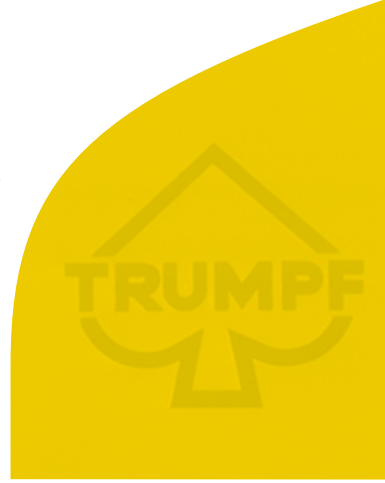
Home to inventors and companies such as Eli Whitney, Samuel Colt, Stanley Black and Decker, and United Technologies, Connecticut is no stranger to the world of manufacturing. Fifty years ago, in an innovative industrial park in Farmington, TRUMPF Inc. opened its doors to American customers.



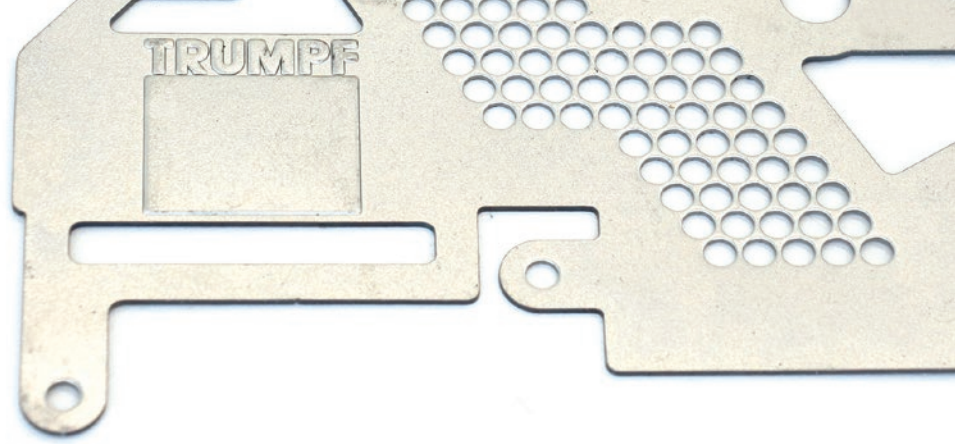




# TRUMPF







# 1969

## A sure move

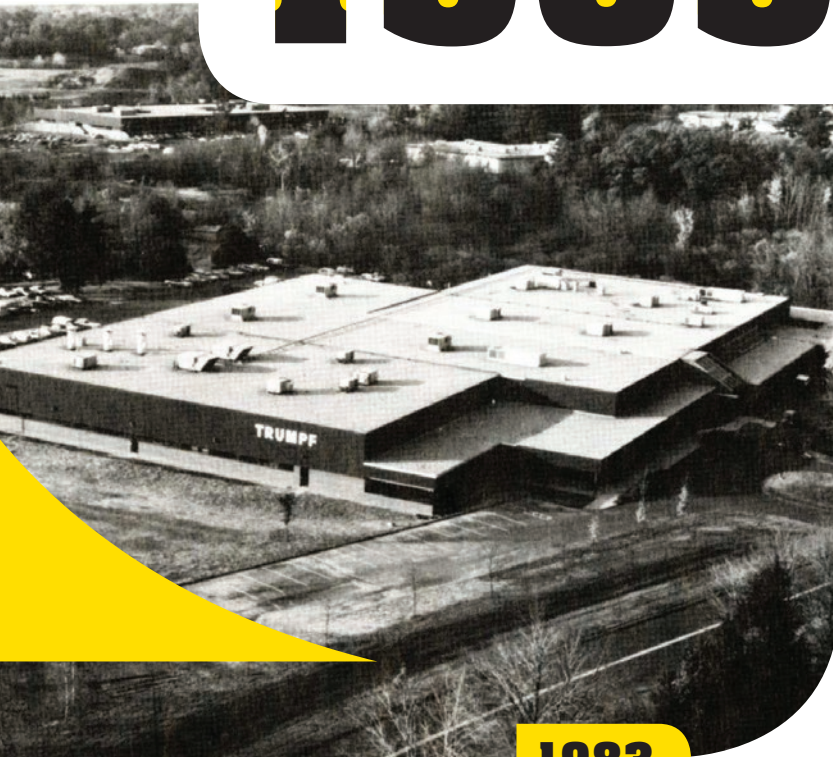
In the spring of 1968, Professor Leibinger was on a mission. He was in search of a good location to form a new company in America. TRUMPF was booming in Europe and he was convinced the Americans could also benefit from TRUMPF technology.

On a Sunday afternoon drive with a close friend through the backroads of Connecticut, Professor Leibinger came across an industrial park near the Farmington River that had received awards for the way it combined industry and landscape – after seeing this, his decision was made. Shortly thereafter, TRUMPF in the United States was established. Fifty years later, the Farmington location is still going strong for TRUMPF.

## A strong foothold in manufacturing

Unfamiliarity with the culture and building a reputation from the ground up are difficult challenges for companies entering a new country. TRUMPF needed to immerse the company into the mentality and culture of America. The competition was fierce and TRUMPF was a newcomer, but just as today, it was the company's technology and people which set it apart. At that time, turret style punching machines prevailed until TRUMPF produced a C-frame punching machine that grew in popularity. The machine offered many advantages to customers. The tooling side of business made a big impact as well, as TRUMPF offered full 360-degree capability for tool rotation, making their tools much more versatile and easier to set-up than those of the competition.

TRUMPF began manufacturing in the USA on a small scale with the production of punching tools. Years later in 1980, TRUMPF produced the first combination punch laser in the United States. Now, with a new-found reputation in America combined with its international reputation, TRUMPF continued to grow around the country. The company's increasing production needs resulted in an expansion at the Farmington headquarters in 1983. By 1988, TRUMPF celebrated the shipment of its 500<sup>th</sup> machine, a TRUMATIC 240, and introduced TRUMPF's first U.S.-manufactured laser into the market. This made way for TRUMPF laser equipment in the United States, leading to the development of the TRUMATIC L 2503 in 1991; the company's first American developed and produced flatbed laser machine.



## 1983

An increase in production results in the expansion of TRUMPF's location in Farmington. Five years later the 500<sup>th</sup> machine is produced.



## 1988




**1991**

The TRUMATIC L 2503 was the first American developed and produced flatbed laser machine in the United States.

## Getting even closer to customers

As innovation within the company and demand for equipment remained high, TRUMPF saw an opportunity to expand operations. In 1995 TRUMPF's laser technology division was established in Plymouth, Michigan. The new division enabled the company to enter into new markets – automotive being the biggest at the time. Just before the new century, Peter Leibinger moved to Farmington from Rockford, Illinois and soon after became CEO. His entrepreneurial spirit and confidence in America played a pivotal role in the company's history. During his tenure, TRUMPF acquired Princeton Lightwave in Cranbury, New Jersey and began the development of high-power laser diodes. Today, this TRUMPF location remains the primary source of diode production for TruDisk lasers worldwide.

With expansions in the United States came even closer relationships with the company's Sales Representatives located near TRUMPF customers all across the country. Additionally, TRUMPF took its commitment even further in 2007 establishing its fabrication facility in Monterrey, Mexico which was then followed by the establishment of the company's Canadian sales and service operations close to Toronto in 2008.

2017 marked the opening of TRUMPF's Smart Factory near Chicago. The automatized and digitized factory is a showcase for the future of manufacturing, not only in the US but throughout the world. It features TRUMPF's latest technology and is a symbol for the company's commitment to the digital transformation of manufacturing. The Smart Factory is just the latest of many testaments to the continuous growth of TRUMPF in America. Today, just as it was fifty years ago, innovation remains on the forefront of the company's commitment to fresh ideas which add value.

The Smart Factory near Chicago showcases the future of manufacturing.



**1995**

In 1995 Plymouth, Michigan became home to the laser technology division in the United States. Automotive remains an important market for TRUMPF.


**2002**

The company's laser diode production facility in Cranbury, New Jersey.

# 2019



04

FUTURE

# ANYONE CAN FLY

VOLOCO





**Flying cars** used to be the exclusive domain of science fiction films. But soon they might become reality. Alongside Uber Elevate and Lilium, aviation start-up **Volocopter** from the German city of Bruchsal has been busy working on plans to make **air travel accessible to everyone**. Volocopter envisions an autonomous air taxi that will take up to two passengers from A to B, relieving pressure on congested roads.





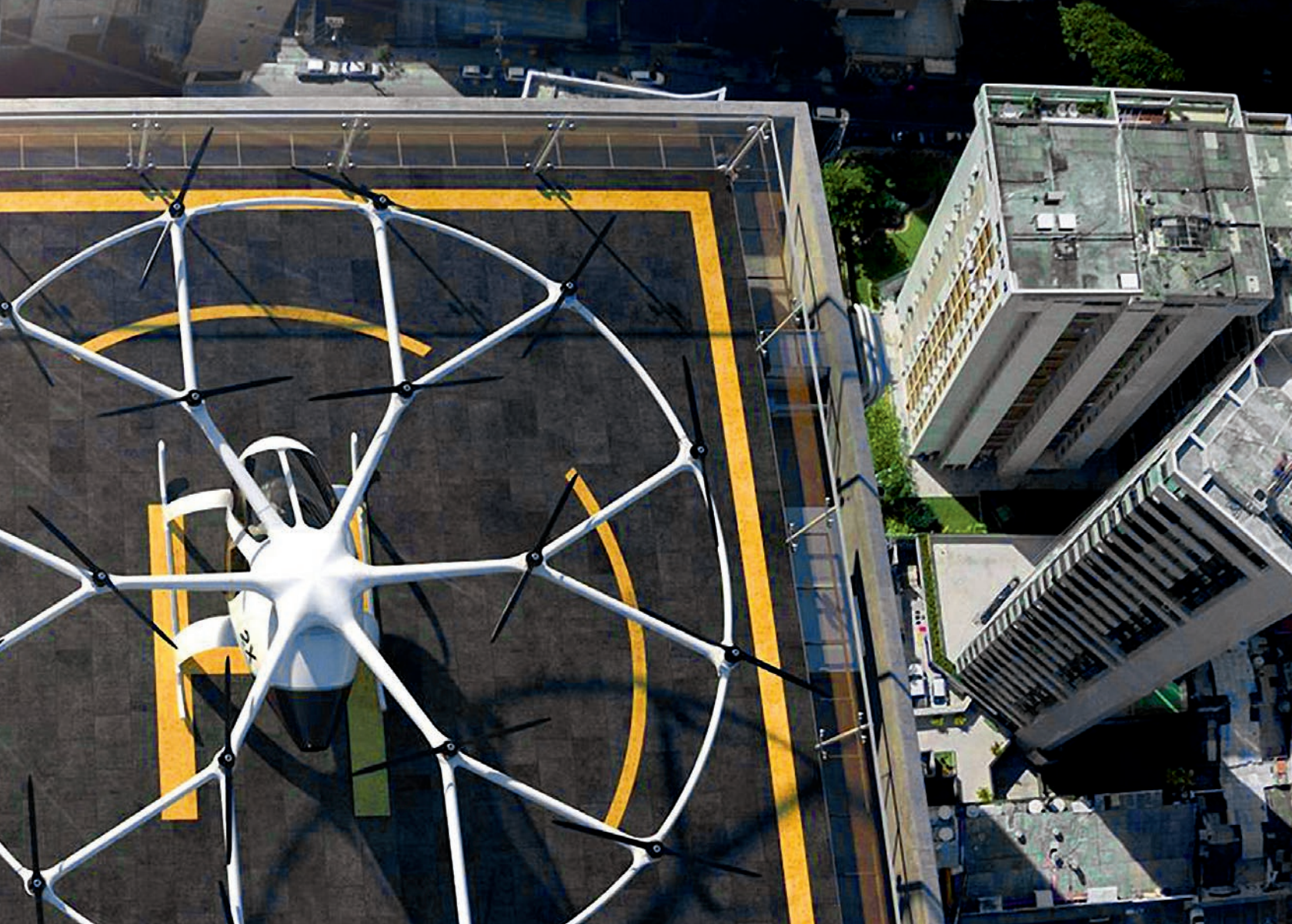
**The dream of flying is as old as mankind itself, and airplanes have long since become an everyday mode of transportation. Yet when it comes to getting around in our day-to-day lives, Volocopter may be on the verge of opening up some entirely new possibilities. Anyone who has travelled through a big city during rush hour knows just how revolutionary a new means of transportation could be. Volocopter has already received the backing of big-name companies such as Intel and Daimler for its plans to develop an alternative to conventional vehicles.**

### **Flying for everyone, on any occasion, anytime**

For the first time in human history, more people live in cities than in rural areas. There is a growing feeling that transportation is reaching the limits of its capacity in the world's major population centers. Demand is soaring for new and sustainable mobility concepts such as Elon Musk's Hyperloop maglev train and connected, self-driving vehicles. The hope is that these new

modes of transportation could make travel in urban areas less stressful once again. The air taxi company Volocopter aims to offer a product that will reduce the effects of urbanization on traffic. This ambition has transformed the company into one of mobility experts' greatest hopes. Volocopter's self-declared goal is to enable "flying for everyone, on any occasion, anytime". To achieve this, company founders Stephan Wolf and Alexander Zosel and their team have been working since 2011 on a project to research and design a fully electrical multicopter – in other words an aerial vehicle that uses multiple fixed-pitch rotors to provide lift. In 2013, the company set a European record by raising 1.2 million euros through crowdfunding. In 2016, the air taxi was granted a provisional license for a manned, fully electrical multicopter by the German Ministry of Transport. This cast Germany in a pioneering role as the first country to issue this type of flight permit. In fall 2017, the company embarked on a five-year test program in Dubai to trial the autonomous air taxi as a means of public transportation. "I expect to see the first commercial demonstration flights in two to three years," says Alexander Zosel.





**Lunch break in the sky:** Volocopter could soon make that a reality.

## Flying at the touch of a button

The idea is that people will use an app to book their flight – say from an airport to a trade fair site – and pay for it using their smartphone. The journey will cost slightly more than a standard taxi, but will be significantly quicker. The passenger will be picked up by an autonomous Volocopter 2X, a multicopter with 18 quiet electric rotors that allow for zero emission travel. The company guarantees that the multicopter will offer the highest degree of stability and safety in the air. Even if a rotor fails, the other rotors can easily compensate for it, and the same applies to the propellers, electric motors and battery packs, all of which offer multiple redundancy in the event of failure. The aerial vehicle also features cutting-edge assistance systems and well over 100 microprocessors. In areas in which autonomous flying is not possible, the multicopter can be controlled using a joystick by any occupant who has completed a short training session.

So with Volocopter on the horizon, perhaps flying cars will turn out to be more than just a pipedream after all.



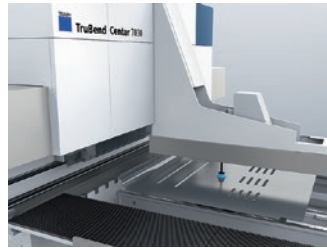


*Interesting. Worthwhile. Surprising.*



## 10 kW laser power

The new TruLaser Series 5000 is now available with a 10 kW laser, the TruDisk 10001. This laser increases sheet throughput significantly in fusion cutting of medium thickness sheets, and it also works extremely fast with flame cutting thanks to BrightLine fiber. The new generation of Series 5000 machines offers a considerably more dynamic experience than previous models and TruLaser Series 3000 machines, especially when it comes to complex contours and thin sheets. It also offers a wealth of new features that make the machine even easier to use. These include an automatic nozzle changer which the operator can set up while the machine is in operation. This solid-state laser machine also comes with a six-meter long working area for the very first time.



## A new generation

TRUMPF is happy to announce the next generation of the TruBend Center 7030 panel bending machine. TRUMPF is releasing a new on-demand servo drive system that increases machine productivity by 25 percent and reduces the power consumption by 40 percent. The ToolMaster has also been thoroughly optimized to coincide with TRUMPF's new generation of machines, paving the way for reductions in set-up time of up to 70 percent. The new TruBend Center 7030 is available with optional automatic loading and unloading unit. This boosts productivity even further by allowing parts to be prepared for loading and unloading while the TruBend Center 7030 is in operation.



## Reengineered from the ground up

TruLaser Series 1000 machines now share a common architecture with other TRUMPF lasers and can be automated with a wide range of material handling and storage solutions. The TruLaser Series 1000 autonomously handles more operator processes to reduce part costs. Equipped with a robust laser source from TRUMPF and proven functions such as collision protection, the machine reliably processes various material types and thicknesses with a single cutting unit. The intuitive control interface reduces operator training time. Beyond that, protective glass monitoring and BrightLine fiber technology, previously unavailable on the TruLaser Series 1000, have now been added to further optimize cutting processes and boost machine productivity.



## Nibbling for fiber composite material

TRUMPF's FCN 250, now available in the NAFTA market, is the world's first nibbler for cutting fiber composite materials. The tool can be rotated 360° on the spot allowing you to process three-dimensional work pieces and inaccessible areas, while having a clear view of the cutting line. Using the nibbling process to separate fiber composite materials does not require any protective equipment in most cases as the FCN 250 produces minimal to no dust when cutting. This tool can cut thermosetting plastics, thermoplastic polymers, carbon-fiber, fiber glass and even aramid fiber.





### Expanded training course portfolio

TRUMPF is working diligently to expand its online portfolio for operator and programming training courses. With new advancements in virtual classrooms, participants take the training over a video call with a TRUMPF certified instructor. This results in the same attention and feel they would receive if they came to our Training Center. Additionally, we offer self-paced online courses in which students can access their training anytime and anywhere. TRUMPF instructors developed these modules for machinery and software to fit into any schedule. With the newest addition of our TruLaser 3030 fiber and 5030 fiber operator courses, customers now have access to our most popular courses without having to travel to our training centers.



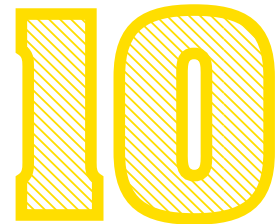
### Follow our journey

Help us take our followers on a journey as we continue to celebrate 50 years of dedication to our customers! Have a photo or story as a customer of TRUMPF Inc. throughout the years? Submit it to be shared via our social media platforms. For additional information and submissions, please contact [info@us.trumpf.com](mailto:info@us.trumpf.com).



### Growing in the west

TRUMPF will strengthen its presence on the West Coast with the opening of a 20,000 sq. ft. facility in Costa Mesa, California this year. With this step, TRUMPF will be even closer to its customers in the West. The facility will offer operator and programming training, machine demonstrations, and technology seminars. When visiting the new facility, guests will experience TRUMPF's latest technology advancements and Industry 4.0 solutions for sheet metal fabrication. A 13,000 sq. ft. showroom will be equipped with six TRUMPF machines and a 650 sq. ft. training room will be dedicated to optimizing customers' knowledge and skillset on TRUMPF equipment and TruTops software.



### TRUMPF Canada celebrates 10 years

This year, TRUMPF Canada will recognize its 10<sup>th</sup> anniversary. Although TRUMPF has been present in Canada for 22 years, the official establishment was founded 10 years ago and began with just 11 employees - Today the company has grown to 46 employees! The subsidiary will host an Open House this spring where employees will celebrate with customers, staff and families.

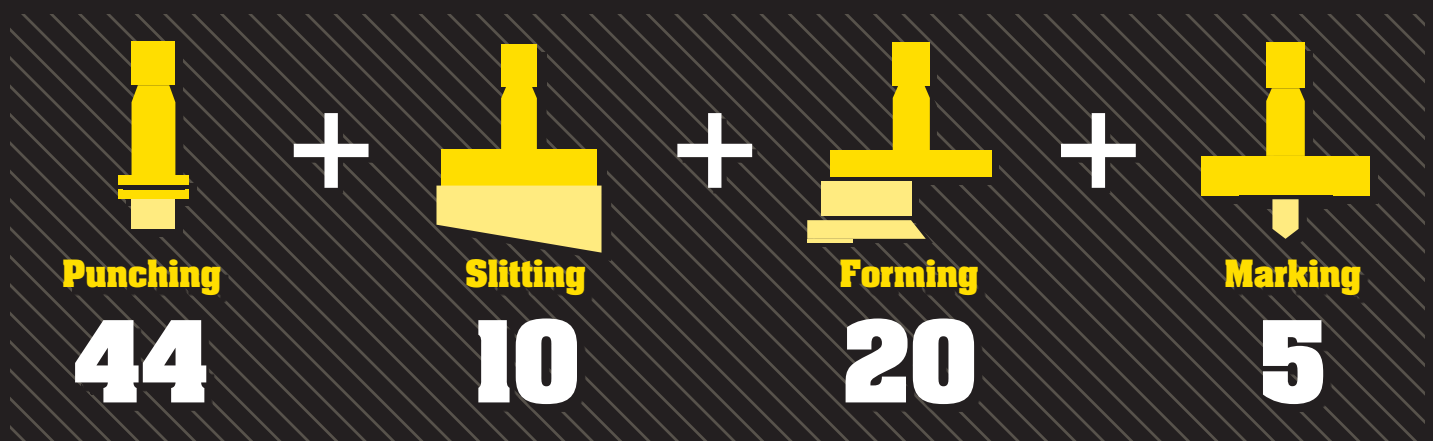


*Aha!*

# PUNCHING TECHNOLOGY: FROM PUNCH TO MACHINE

Punching machines are all-around talents, capable of much more than just making holes in metal sheets. These machines are instead flexible production partners that work quickly and efficiently. Punching has advanced tremendously over time. The simple geometric

shapes of the technology's infancy gave rise to today's sophisticated machines, which can process many different materials to create a nearly infinite array of shapes. The infographic explores the most exciting and fascinating facts of punching technology today.



## Punch whatever you like

TRUMPF machines can be used to punch, slit, form and mark – providing operators with range and flexibility. More specifically, there are 44 different standard geometries that can be punched. In addition, users can choose from 10 separating and 20 forming applications. Marking tools integrated into TRUMPF machines can add lettering or logos.

## TRUMPF customers can choose from 79 different applications

The Classic system's round punch offers



**142,840**  
options

## Anything is possible

Diameters, angles of shear, and coatings: The Classic system's round punch alone offers 142,840 configuration options. This ensures suitable solutions for all customers and all requirements

## The clock is ticking

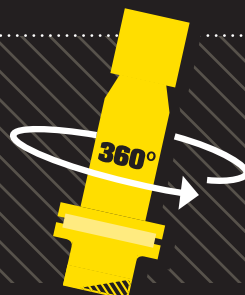
The TruPunch 5000 is the world's fastest punching machine. Thanks to its powerful hydraulic drive, this machine completes as many as 1,600 punching strokes per minute.



**1,600**  
strokes per minute

**60**  
seconds

360° tool rotation: A punching head can rotate any tool to any angular position – regardless of tool shape, size or position in the magazine.

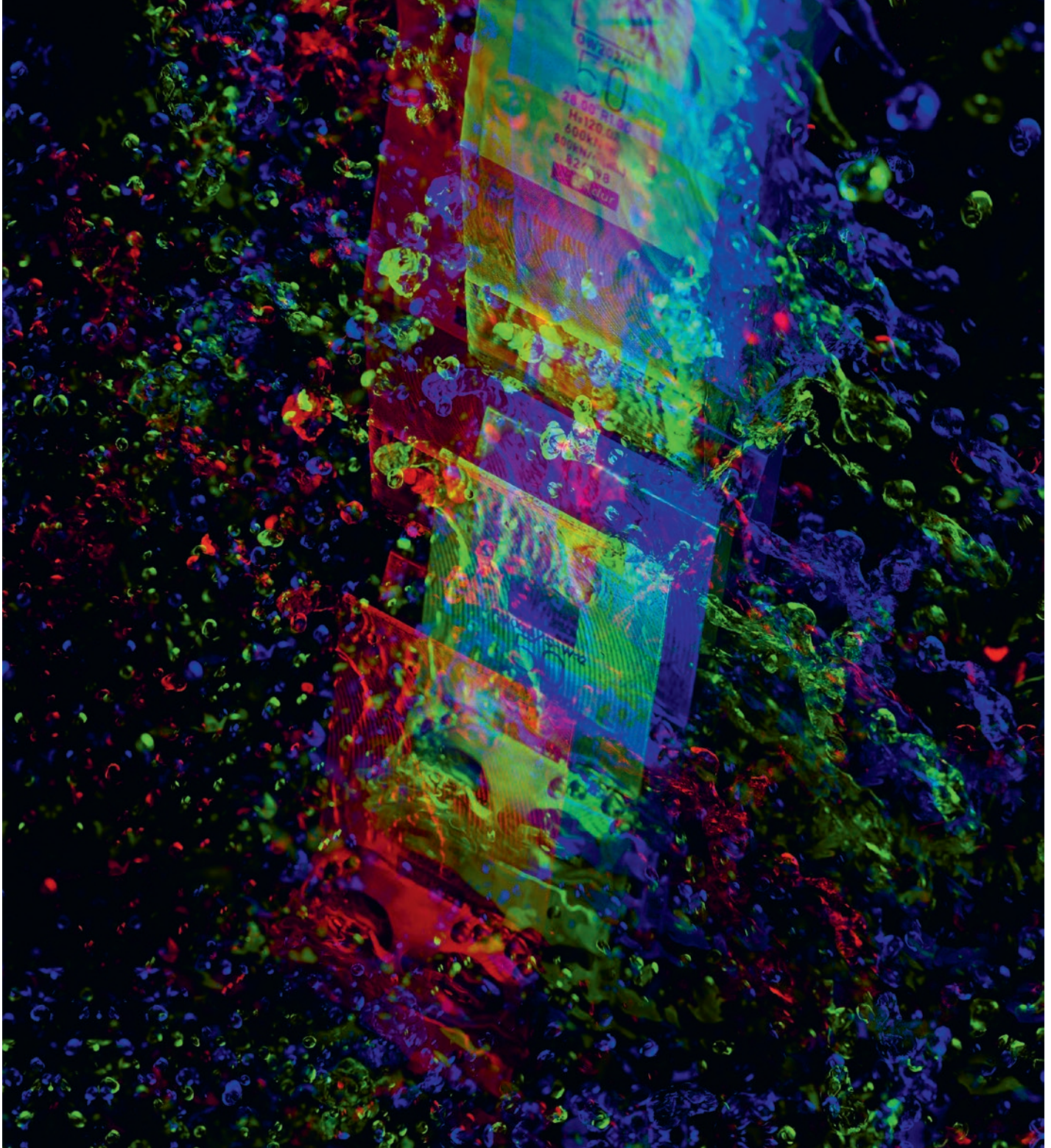


Beveled punching surfaces minimize sheet distortion and reduce punching noise by as much as 50 percent.



# pARTgallery

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**Technology transformed into art.** Presenting parts in a new light is something we do in every issue of TRUe. This picture shows **upper and lower tools for shaping sheet metal** as you've never seen them before. Photographer Victor Jon Goicoechea Dacal has taken these TRUMPF bending tools out of their familiar environment and given them a whole new context.



# PERSEVERANCE

On October 27th, 1787 newspapers in New York City started publishing mysterious essays on the subject of representative democracy. No one was sure who the authors were, but their purpose was clear: convince skeptical New Yorkers to support a federal government where power was shared between states and a central government, and to ratify the new American Constitution and a new system of self-government.

Only six weeks earlier, delegates gathered in Philadelphia, debated, and eventually voted to approve a document which was drafted over many months. Before this document could become the new law of the United States, it faced one more hurdle – Each of the 13 original states would hold ratifying conventions to either accept or reject the Constitution.

As the essays, which eventually totaled 85, started to flood the New York City streets, it was obvious that these were no ordinary writings written by ordinary authors. Quite to the contrary, these essays which became known as the Federalist Papers, were written by three extraordinary Americans – one of whom was a New Yorker named Alexander Hamilton.

Hamilton is one of what some historians call the Fabulous Five – Washington, Adams, Jefferson, Madison and Hamilton. Each of these men shared a devotion to creating a new United States government based upon liberty and a principle of shared power between the states and the Federal Government and each of its three branches – the Executive, Legislative, and Judicial. They did not agree on all matters, in fact they were at times very contentious with one another. Nevertheless, they worked tirelessly and relentlessly on the monumental matter before them and they succeeded to form a more perfect union.

What motivated a man like Alexander Hamilton to leave such a lasting impact on humanity? Where did he come from and how did he develop such an extraordinary intellect? The answer to that is played out each night in a theater on Broadway. The musical tale of Hamilton, written by Lin-Manuel Miranda and based upon Ron Chernow's biography, captures the essence of Hamilton's personality – perseverance and determination. It is a musical to see because it renews our faith in the value of hard-work and sheer genius.

*Burke Doar*

# DETERMINATION





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## TRUe #04

## IMPRINT

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**Publisher**

**TRUMPF Inc.**  
111 Hyde Road  
Farmington, CT. 06032  
**WWW.TRUMPF.COM**

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**Concept and Design**

**BrandsOnSpeed GmbH**

**Design and Production**

**SwiftCricket Marketing**

**Printing and Assembly**

Paladin Commercial Printers, LLC

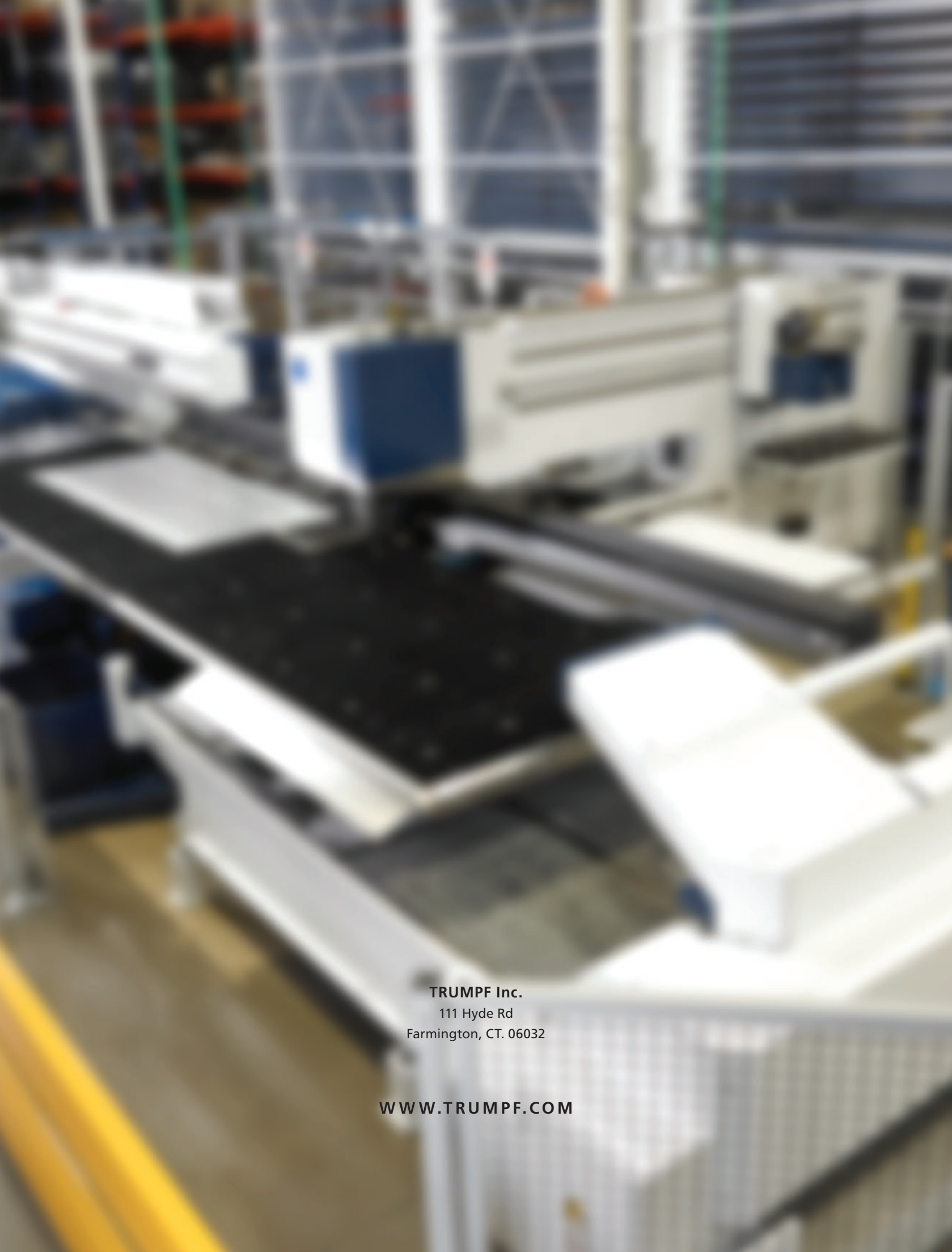
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