

# TRUf

THE MAGAZINE FOR SHEET METAL EXPERTS

08# 2022 PARTNERSHIPS

## 01 Wisconsin

On the Double:

Contract manufacturer grows exponentially with help from friends

## 02 Florida

Whatever It Takes:

Two brothers elevate family roofing business to new heights

## 08# 2022 PARTNERSHIPS

## 03 Connecticut

Partners in Finance:

TRUMPF Finance helps make production dreams a reality

## 04 Massachusetts

Rising to the Challenge:

Investing in battery recycling for a greener future



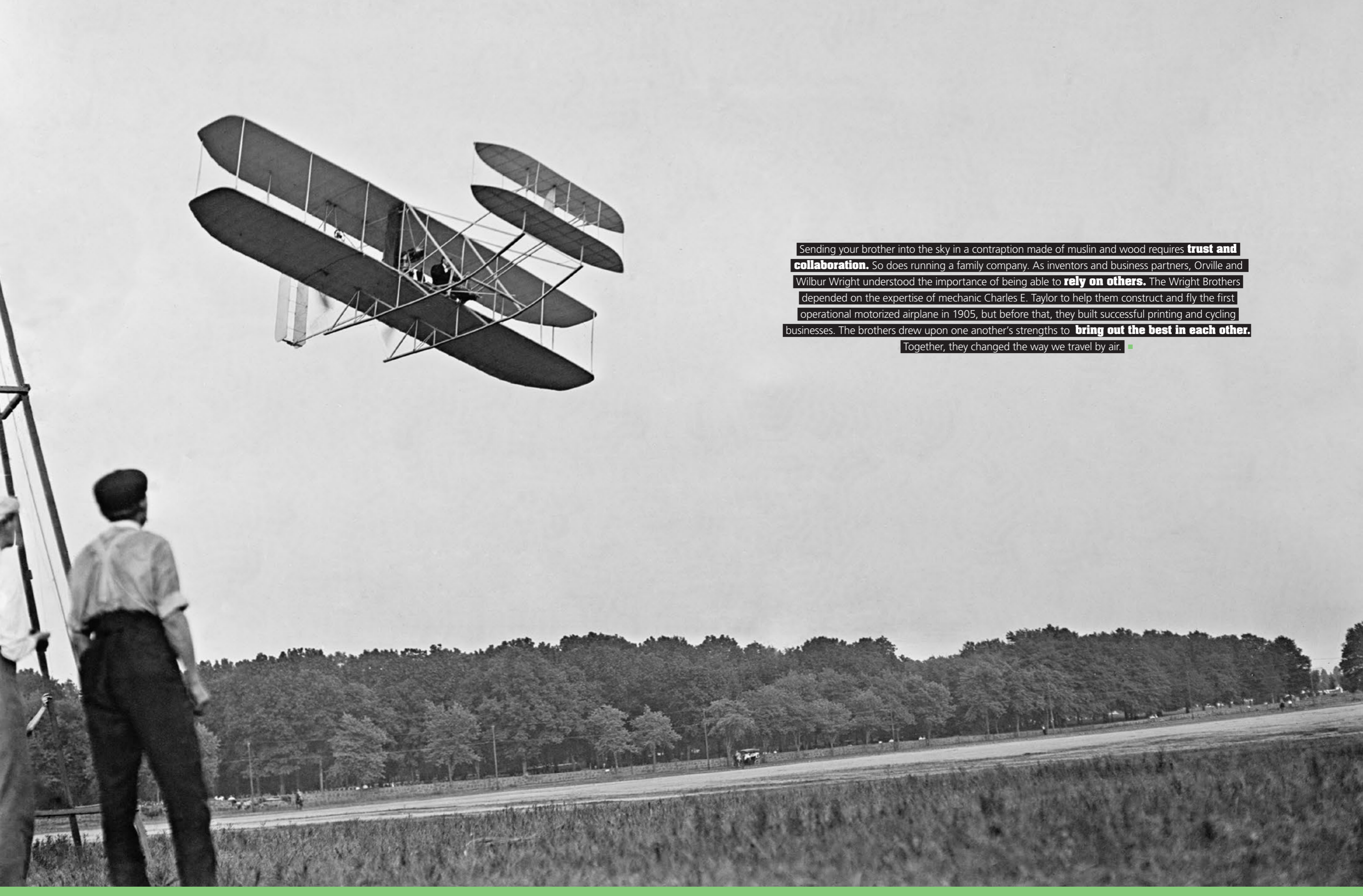
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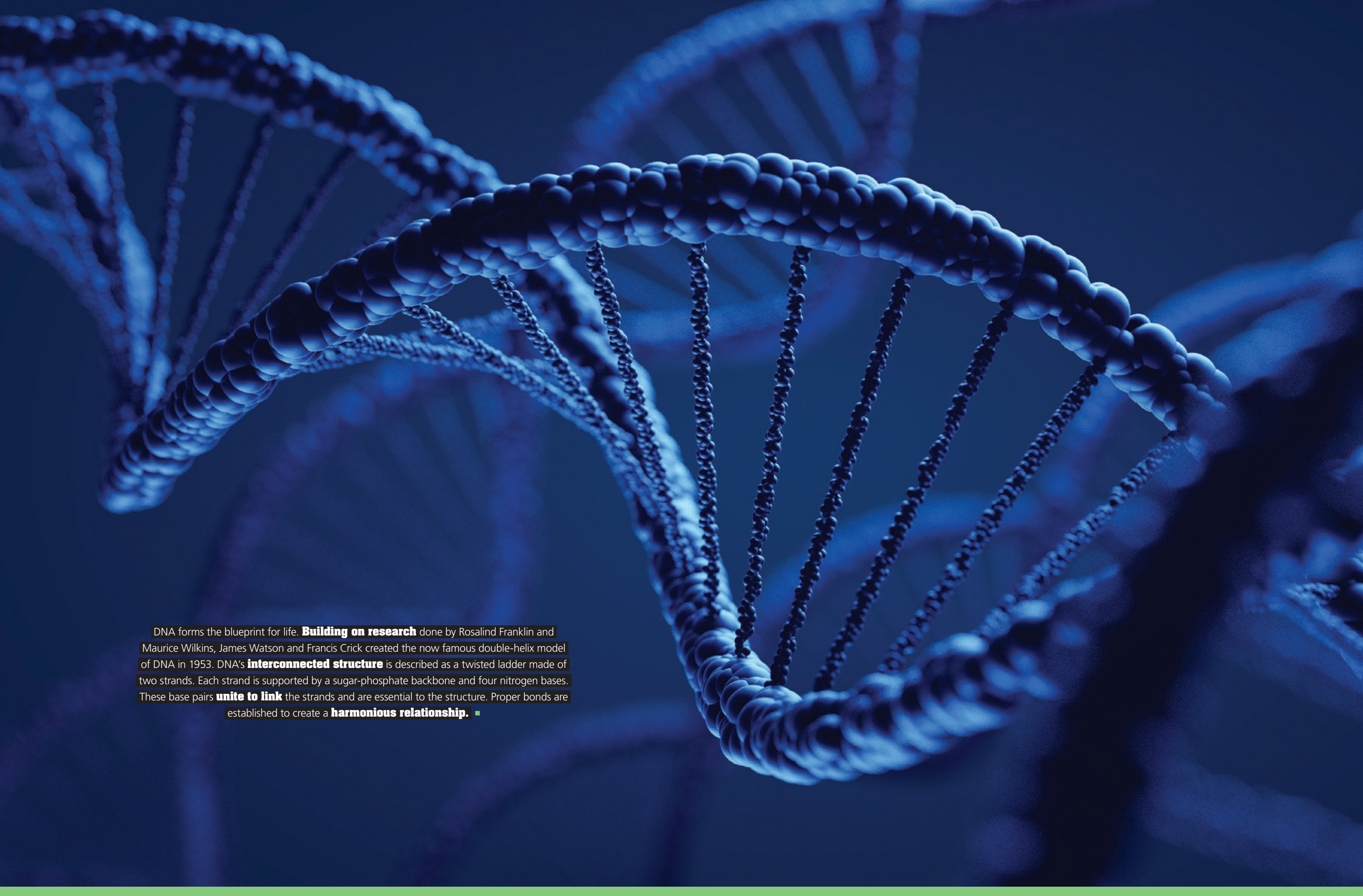
The **perfect deal**: Anemones use their venomous tentacles to protect clownfish from predators. In return, the fish keep the anemones' tentacles clean and wiggle around to replenish their host's oxygen supply when levels in the water fall too low. The symbiotic relationship between these two sea creatures is more than a partnership: it is a marriage of convenience that is **vital to their survival**. Times of crisis are often when many entrepreneurs realize how much they depend on their partners. ■





Sending your brother into the sky in a contraption made of muslin and wood requires **trust and collaboration**. So does running a family company. As inventors and business partners, Orville and Wilbur Wright understood the importance of being able to **rely on others**. The Wright Brothers depended on the expertise of mechanic Charles E. Taylor to help them construct and fly the first operational motorized airplane in 1905, but before that, they built successful printing and cycling businesses. The brothers drew upon one another's strengths to **bring out the best in each other**. Together, they changed the way we travel by air. ■





DNA forms the blueprint for life. **Building on research** done by Rosalind Franklin and Maurice Wilkins, James Watson and Francis Crick created the now famous double-helix model of DNA in 1953. DNA's **interconnected structure** is described as a twisted ladder made of two strands. Each strand is supported by a sugar-phosphate backbone and four nitrogen bases. These base pairs **unite to link** the strands and are essential to the structure. Proper bonds are established to create a **harmonious relationship**. ■





## EDITORIAL

At TRUMPF, we strive to be a trusted partner and **build strong relationships** with a variety of organizations to **assist our customers** in transforming their manufacturing **plans into reality.**



In this issue of TRUe, my first as president and CEO of TRUMPF in North America, we explore the effect of different relationships on business success. Throughout my tenure at TRUMPF, I have witnessed what can be accomplished when people work together to achieve a common goal. In my new role, I look forward to learning more about you, our customers in the United States, Canada and Mexico, and finding ways we can better partner to meet those shared business objectives.

The current issue highlights two customers who demonstrate how the relationships formed at their companies supported their success. At both companies, collaboration with TRUMPF helped the businesses to grow to the next level. In our first story, we see Wisconsin-based Dane Manufacturing repeatedly multiply its production capability, floorspace, and business revenue over its twenty-year relationship with TRUMPF. The mid-sized contract manufacturer shares its plans to develop the next phase of its dramatic growth curve. In Florida, we learn about two brothers and owners of Industrial Sheet Metal and how their partnerships have helped transform their small family roofing business into a more fast-growing, self-sufficient fabrication shop.

As a former chief financial officer, I have witnessed first-hand the value created by strategic relationships with strong and knowledgeable financial partners. In an interview with Mike Morissette, he shares some advice for how customers can work with TRUMPF Finance to expand their companies and maintain a technological advantage.

New partners can help us create a better future. Toward the end of the magazine, we talk about how startup company, Ascend Elements, hopes to build North America's largest battery recycling facility, with investments from TRUMPF Venture and others, to recover battery-grade lithium, cobalt and nickel needed for electric cars.

We have also introduced a new column called Smart Savings. We hope this column will inspire you to find new ways to work with TRUMPF to optimize your sheet metal designs and increase your production efficiency. At TRUMPF, we strive to be a trusted partner and build strong relationships with a variety of organizations to assist our customers in transforming their manufacturing plans into reality.

LUTZ LABISCH, PRESIDENT & CEO



TRU<sup>e</sup>

Table of contents

#08/2022

# PARTNERSHIPS ...

## ... in Waunakee

CEO Troy Berg discusses how relationships formed over the last twenty years have shaped the continuous growth of Dane Manufacturing.

Page 12

01



## ... in Farmington

An interview with Mike Morissette from TRUMPF Finance reveals the clear – as well as the not-as-obvious – benefits of working with the right financial partners.

Page 24

03



## ... in Hialeah

Russell Murton, co-owner of Industrial Sheet Metal, explains how he and his brother have worked hard to bring the family business to new heights.

Page 18

02



## ... future

With an eye toward sustainability, TRUMPF Venture is investing in a company that aims to revolutionize the future of e-mobility and make the future of car batteries greener.

Page 28

04

|   |    |
|---|----|
| Editorial .....   | 08 |
| <b>01 Dane Manufacturing in Waunakee, Wisconsin</b> .....                 | 12 |
| <b>02 Industrial Sheet Metal in Hialeah, Florida</b> .....                | 18 |
| <b>03 TRUMPF Finance in Farmington, Connecticut</b> .....                 | 24 |
| <b>04 Future: Rising to the Challenge of Electric Car Batteries</b> ..... | 28 |
| Check it out: Next level laser cutting .....                              | 30 |
| Shortcuts BIZ + TECH .....  | 32 |
| SmartSavings .....  | 34 |
| pARTgallery .....   | 35 |
| Column .....  | 36 |





01

WISCONSIN

*Smart partnerships lead to rapid,  
exponential growth in Waunakee*

## ON THE DOUBLE

A good fishing buddy can be as tough to find as the right fishing spot or rod. Not that any of that has ever been a problem for Troy Berg, CEO of Dane Manufacturing in Waunakee, Wisconsin, situated just north of the state capital of Madison in an area home to nearly 70 lakes and ponds. After 105 years in business, Berg's company has the right partners, location and equipment it needs to successfully grow and stay on the list of America's biggest fabricators.





## Partners from the start

Today, Dane Manufacturing is located in the Wisconsin town of Waunakee, named a “fair and pleasant valley” by the Ho-Chunk Native Americans who originally hunted and fished the region. But the company was still six miles to the north, in the village of Dane, when its partnership with TRUMPF began more than two decades ago. It was shortly after 9/11 when Troy Berg attended the 2001 FABTECH show in Chicago and discovered TRUMPF equipment. Berg had just purchased Dane Manufacturing with its ten employees and little over \$1 million in sales from the widowed half of a husband-and-wife team, and he was looking to expand into fabrication. Little did Berg realize then how his relationship with TRUMPF – and his business – would dramatically expand in the years ahead.



Dane Manufacturing  
CEO Troy Berg

## Glimpse of the future

A prophetic trip to Germany in 2002 set the course of Dane’s future. While on a technology tour, Berg observed a mid-sized job shop with about seventeen TRUMPF machines. The people on the tour were peppering the shop’s general manager with questions until, as Berg remembers, “He says ‘Okay, enough questions about all this nonsense. Listen. We only buy TRUMPF machine tools and TRUMPF tooling, and we only use TRUMPF software. If I ever have trouble, I make one phone call - to TRUMPF.’ We didn’t even own a TRUMPF machine yet, but I never forgot that. And now, it is the same at Dane.”

It has been twenty years since the company purchased its first TRUMPF machine, but that punching machine still runs busily in the shop. And, as predicted on the German tour, Dane’s initial machine purchase soon led to the need for a second. Berg bought a Tru-Punch 5000 less than two years later. “We’ve done that repeatedly with TRUMPF,” emphasizes Berg. “We buy a machine, fill it with work, and six months to a year later, we get another.” Today, Dane owns fourteen TRUMPF machine tools – a total of five punching machines, six press brakes, a tube laser cutting machine, and two TruLaser 3030s with automation.



“We call them the X factors - **exceptional things** - that make us unique and **provide us with a competitive advantage.**”

## Advantages of excellence

New machinery does more than increase capacity. Berg says that TRUMPF machines and automation create Dane’s “X” factors. “We call them the X factors - exceptional things - that make us unique and provide us with a competitive advantage,” Berg explains. “From these X factors, we generate the advantage of speed and excellence.” For example, Berg points out that Dane was one of the first customers to have an automated punching machine with SheetMaster and the first automated fiber laser cutting machine in the area. Specifically, he credits the automation for the advantage it gave Dane to be able to run overnight and take on larger contracts at prices lower than competitors.

“It’s all about excellence,” Berg asserts. “You have to build an excellent environment for employees to want to perform excellent work and create excellent parts for customers. As we have grown, this excellence has created momentum.” Berg emphasizes the vital role his talented and hardworking team plays in generating the company’s velocity. And he is grateful for a lakeside birthday party discussion that led to his friend, Mike Lisle, joining the company as chief operating officer in 2015 and becoming president in 2018.

## Betting on growth

Another X factor that Berg insists enables Dane’s growth and success is the financing it receives through TRUMPF. “TRUMPF Finance is a big part of the success story here,” emphasizes Berg. “That financing really means that TRUMPF is my partner - they are sharing the risk at Dane. Our growth would have been capped by other finance companies’ desire to share that risk. Without TRUMPF and TRUMPF Finance, we would not be the 25th largest fabricator in America.”

Over the years, Dane Manufacturing has doubled in size multiple times, acquired South Carolina-based Dantherm Cooling, and achieved more than \$30 million in sales. In parallel with the expanding business came new punching, bending and laser cutting machines. The company built one addition after another at the Wisconsin facility to keep pace with the growth and house all the new machines. “It was like passing through the seven layers of Dane,” laughs Berg.



## Room to flow

Available space became a serious concern. Customers wanted Dane to handle increased work, but crowded conditions made them question the company’s capacity for it. TRUMPF Regional Sales Manager Craig Summers visited the facility and offered Berg some constructive criticism. “Craig, who’s a good friend, said, ‘Troy, you may not want to hear this,’” remembers Berg, “then he gently proceeded, ‘but your plant is backward. You have your TRUMPF machines in the space with the shorter roofs because that’s where you added on. You need to move them to the end with the taller roofs so your process can flow more openly.’ And I said, you’re right, we do!”

For inspiration, Berg recalled his second technology tour in 2012. “We visited these beautiful German and Austrian facilities, and I was awed by the automation that occurred in the ten years since my first trip,” he recalls. “The shops were bigger, more mature, and they were scaling up. Looking at the centrally located storage systems, I thought, ‘Man, what TRUMPF is doing here is unbelievable! This is where we need to go!’” Berg anticipated that finding enough labor would continue to be a challenge and that automation was the way to improve his efficiency.





### Paint a new picture

To address customers' painting needs and increase end-to-end capabilities, Dane also decided to invest in a powder coat business. Berg had plans to buy a local paint company and was en route to Canada for a fishing trip with his best friend of 35 years when the deal fell through. His fishing buddies asked about his plan B and soon Berg made a call to his trusted plant manager. Not long after, Dane purchased a powder coating line, but Berg wondered where to fit the new paint system.

The solution to the crowding issue was found just down the road. "I used to drive by this factory all the time and dream about owning the building," Berg says. "I knew it would solve all of my space challenges." Berg met the person representing the trust which owned the building, and a friendship ensued. Over time, the two negotiated a three-part real estate transaction that would result in a new Dane facility with multiple buildings on fifty acres in a scenic industrial park and half a million square feet of space.

### Working smarter

With more than 500,000 square feet to work with, there was finally room for Berg to design the automated manufacturing he envisioned. According to the plan developed with a TRUMPF Smart Factory consultant, a 9-by-2 STOPA tower system will feed the punching and laser machines, and 12 to 18 months after that is installed, Dane will add two automated bending cells downstream - one with a TRUMPF panel bending machine and the other with a robotic bending cell (likely a TruBend Cell 5000) attached to the STOPA. "We've been planning this system with TRUMPF for what seems like forever," says Berg.



Automation creates another advantage, or Dane X factor, that is consistent with the company's stewardship and relationship with employees. Any shopfloor apprehension about automated machines dissipates with Berg's assurances that, "no Dane employee has ever lost a job due to automation. We need automation to stay competitive and grow even more," he points out. "We do not make our money breaking the backs of our people. We improve our productivity using the brains of our people."

### Forward, together

As he considers his next steps, again Berg looks to Germany. He plans to continue to grow Dane Manufacturing using the successful model of the "Mittelstand," privately-owned and community-minded mid-sized German companies. With some assistance from TRUMPF, of course. "TRUMPF and TRUMPF Finance enabled our growth from a tiny acorn into a mighty oak," sums up Berg. "Without TRUMPF's trust in our company and faith in our ability to pay it back, there is no way we would own fourteen TRUMPF machines. It all works together, but without those machine tools, we wouldn't get anything done."

# In Brief Dane Manufacturing Machine Portfolio



### TruBend 5130

The TruBend Series 5000 press brakes are capable of highly productive and precise bending. The fast, user-friendly and ergonomic press brakes offer innovative programming, tool setup design, and other features for flexible part production.



### 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



### TruLaser 3030 fiber

The TruLaser 3030 fiber uses TruDisk laser technology to reliably and quickly achieve high-quality cuts in thick and thin material. In addition to excellent part quality, the high-performance machine facilitates seamless part removal and better material utilization. The machine is compatible with a wide variety of options for automated loading and unloading of parts.



### TruLaser Tube 7000 fiber

The TruLaser Tube 7000 fiber achieves record speeds in laser cutting tubes and profiles with a diameter of up to 10 in. and wall thicknesses of up to 0.4 in. for mild steel. This flexible high-end machine expertly handles a wide range of parts and laser tube cutting applications.

### The customer

#### Dane Manufacturing

Troy Berg, CEO  
600 Marshall Dr., Waunakee WI, 53597

#### Dantherm Cooling

675 Springfield Drive,  
Spartanburg, SC 29303

Phone: 608-849-5921  
[www.danemfg.com](http://www.danemfg.com)

- TruLaser 3030 fiber
- TruBend 5320
- TruLaser Tube7000 fiber
- TruBend 5130
- TruBend 7050
- TruPunch 5000
- TruBend 7036
- TruPunch 2020



02

FLORIDA

*Hard work and family values transform  
sheet metal shop in Hialeah*

# WHATEVER IT TAKES

It is hard to find a more driven duo than Russell Murton and Diego Idarraga, co-owners of Industrial Sheet Metal in Hialeah, Florida. The brothers grew up working side-by-side in their father and grandfather's sheet metal shop manually producing parts for the metal roofing industry. With this foundation, a few calculated risks, and relentless dedication to doing things right, they transformed their business into one of the most highly regarded sheet metal fabrication shops in south Florida.







.....  
**“If we’re going to do this, let’s do this right,”** and that was really the best thing that ever happened.”  
 .....



### Ready to run

With TRUMPF experts just a phone call away, Industrial Sheet Metal had the confidence to jump into new business and new industries very quickly. “I can probably list fifty different industries that we serve at this time, and we did not actively seek out new business,” says Murton. “There are not a lot of industrial fabricators in Florida, and we are unique in capabilities that are far more advanced than our competitors.”

Through word-of-mouth, new business flowed in. Projects include simulation cabins rail operators, architectural installations for local restaurants, and test stands for the aviation industry. Sheets of stainless steel, copper, brass, aluminum, galvanized steel, and titanium now fly through the manufacturing floor. “We even pushed the limitations of the TruLaser 1030 fiber and cut ¼ inch brass,” Murton admits with a laugh.

### Family traits

The skill of working with sheet metal became ingrained in Russell Murton and Diego Idarraga at an early age. “Our family has been working sheet metal for about 45 years, and so that is where Diego and I got our start,” explains Murton. The brothers made manual layouts using markers and scribes and cut all the products by hand. “It was great because we learned a trade, but we knew the only way to take our business to the next level – to really grow exponentially – was to upgrade our technology and services,” says Murton.

The pursuit of a laser cutting system that would help them build that growth led Murton and Idarraga from Miami to Chicago to attend FABTECH 2013. The exhibition floor presented a vast array of options. “We saw a lot of good brands and were very close to buying a smaller, less expensive laser system,” recalls Murton, “but then we spent time with TRUMPF and decided, ‘no, if we’re going to do this, let’s do this right,’ and that was really the best thing that ever happened.”

The brothers left the trade show without a laser system, but with plans to visit TRUMPF in Connecticut where they committed to the TruLaser 1030 fiber and the TRUMPF brand. It was easily their largest investment in capital equipment to date, but they were convinced it was the right choice. Murton stresses, “We are very confident in our decisions – that’s a trait we both have – but we knew we’d make it work, no matter what, for ourselves and our employees.”

### Building up business

Recognizing the machine’s potential, Murton and Idarraga were eager to get started and their background in sheet metal proved to be an asset. “The transition was easy. We knew the geometry behind the parts and TruTops made it simple to program,” explains Murton. “Our comfort with TruTops then gave us confidence to add other machines so quickly.” This included a TruBend 5170, TruBend 7050, and TruMatic 1000 fiber with SheetMaster Compact.

“The TruMatic with automation has been a game-changer,” Murton reveals. “Before, we would stay up all night producing parts, but now we set the machine and go home while it does the work for us.” Murton adds that the machine yields much higher part quality and unmatched repeatability as well.

“We also found comfort in knowing we have TRUMPF’s local support to back us for all of it – the laser, the machine, the automation and the programming,” Murton says. This was a selling point for the owners when buying the TruLaser 1030 fiber, and a point they stress to others looking to buy a laser cutting machine. Expanding so quickly was not without challenges but Murton and Idarraga wouldn’t change a thing. “It has been a journey, but it completely transformed what we do and opened up so many doors for our company,” reflects Murton. “The sky is the limit now.”

.....  
**“It has been a journey, but it completely transformed what we do and opened up so many doors for our company.”**  
 .....



### Reaching higher

Roofing work still accounts for roughly thirty percent of Industrial Sheet Metal’s business but even that business has changed. “Before the TRUMPF equipment our parts were very rugged. The new edges are clean, and the machines enable us to do so much more now that we have changed the product; and in a way, we’ve actually changed the industry,” Murton explains. With a reputation for this level of craftsmanship, Industrial Sheet Metal has become a premier supplier on a short list for some of the largest roofers in south Florida.

Murton and Idarraga are now focused on the next step toward their goal of creating a strong, reputable company that is more self-sufficient. From a capital equipment standpoint, that means investing in a TruLaser Tube. Murton asserts, “Based on the volume we outsource, we can afford it, and it will bring us closer to our goal of being more self-sufficient while expanding our capabilities.”

The only problem is that Industrial Sheet Metal has no place to put new machinery. The company already bought both buildings adjacent to the original factory, but those are now full. “We are in a centralized location in Miami, but geographically, we are far from the next state and that can cost us business,” Murton reveals. With this in mind, Murton and Idarraga have eyes set on expanding to central Florida. Meanwhile, they are focused on improving the back-end processes to strengthen the company from within.





### More than a job

In all aspects, the unwavering commitment Murton and Idarraga have to each other, their business, and their customers is evident. “We have grown our business to another level and that also dramatically impacted our outreach,” Murton continues. “There are probably sixty or seventy customers around us that fifty percent of their business relies on us. We recognize this responsibility and dedicate our efforts to help almost everyone.”

While Murton admits the company’s willingness to take on less lucrative projects can be a downfall, knowing people rely on them outweighs the monetary gain. “We get phone calls every day saying, ‘you’re the only ones who can do this project,’ and you cannot put a price tag on that intrinsic feeling,” Murton confides.

“We have **grown our business** to another level and that also **dramatically impacted** our outreach.”

Treating everyone like family comes naturally to the brothers; and it inspires them. “Diego and I run the business, but its more than just a partnership, we’re friends. My sister and father work alongside us too,” he continues. “Being able to do what you love, with the people you love, can truly motivate you beyond just making money. It drives us to work hard to make a great company; for our employees, for us, and for our customers.”



# In Brief Industrial Sheet Metal Machine Portfolio



### TruLaser 1030 fiber

Known for its low investment and operating costs, the compact TruLaser 1030 fiber is a highly productive machine that is also simple to operate. Excellent cut quality is ensured by the versatile TruDisk solid-state laser which is capable of processing even highly reflective materials with ease.



### TruBend 5170

With speed and precision, the highly productive TruBend 5170 can easily bend parts up to 174 inches long. The precise angle measuring system (ACB) ensures parts are precise and 187 tons of press force bends parts with ease. Its ergonomic controls add comfort to the operator experience.



### TruMatic 1000 fiber with SheetMaster Compact

The TruMatic 1000 fiber with SheetMaster Compact is a space-saving, entry-level solution for automated punch-laser processing with a solid-state laser. The SheetMaster Compact loads and unloads parts and skeletons reliably and efficiently for increased production.



### TruBend 7050

The electric TruBend 7050 is a highly productive solution for bending small and medium sized parts. The press brake features a press force of 55 tons and can bend parts up to 60 inches long with remarkable precision.

### The customer

**Industrial Sheet Metal**  
Russell Murton, owner  
Diego Idarraga, owner  
625 W 27th St Hialeah, FL 33010  
Phone: 305-885-5980  
[www.industrialsheetmetal.com](http://www.industrialsheetmetal.com)

- TruLaser 1030 fiber
- TruMatic 1000 fiber with SheetMaster Compact
- TruBend 5170
- TruBend 7050



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





*Helping customers with financial solutions that are as tailored to their needs as their TRUMPF machine.*

## PARTNERS IN FINANCE

For more than a decade, **TRUMPF Finance has helped customers** in North America finance their equipment purchases and transform their fabricating dreams into reality. In this interview, TRUMPF Finance Manager Mike Morissette explains how TRUMPF helps customers to **finance innovative new machinery** and stay at the forefront of technology.

*How has TRUMPF Finance changed the process of buying TRUMPF machinery?*

Twelve years ago, we introduced TRUMPF Finance to provide U.S. and Canadian customers with more customized financing options from a company that truly grasps the nuances of the industry. Before that, we sometimes saw customers go through the entire process of choosing the right equipment only to arrive at the purchase stage without any contacts or knowledge of how to pay for it. Now, with TRUMPF Finance, the process is seamless and creates a much better environment for customers. It provides customers with the opportunity to deal with just one company for everything they need – from the equipment to software to financing. TRUMPF understands the timelines and other factors that are key to the process.

*At what stage does TRUMPF Finance usually get involved?*

Our team can assist customers any time during the purchase process. Customers often learn about TRUMPF Finance in the initial stages by talking to their sales representative or reaching out to us directly. Our involvement can take place at any point – we can be part of a technology demonstration meeting, the equipment evaluation process, or once the purchase decision is made. Typically, the earlier we get involved, the better. For example, we can help customers analyze the cost-benefit ratio or monthly cost of different machine options before any final decisions are made.

*How does the team's understanding of finance and fabricating machinery affect the process?*

TRUMPF Finance is comprised of myself and three other representatives located in different regions. Together, we bring more than 100 years of manufacturing and finance experience to the table. This background makes it easy for us to understand what impact a new machine will have on a customer's business and how it will

help grow revenue. It all really comes down to understanding the impact a piece of equipment could have on a business from a cash flow perspective and a revenue perspective.

*Why would a customer choose TRUMPF Finance over their local bank or another lender?*

Well, we are just better people. Seriously though, as a machine builder, we know the industry and equipment better than anybody. A customer's local bank and cash are our biggest competitors, but many local banks have no idea of the value of a laser machine, or a punch or a press brake for that matter. Nor do they understand the value it brings to a particular business and the positive impact it will have on revenue. I think that understanding – of the true worth of the equipment, what the equipment is going to do and bring to the company – really makes a difference. Another advantage we have is flexibility. For example, we can work with a customer looking for a mid-term upgrade to the equipment. This is one of the situations in which we might be able to work with customers to do something another lender might not.

.....  
"It all really comes down to **understanding the impact** a piece of equipment could have on a business."  
.....



**But what if they have a really good long-term relationship with the local bank?**

Your local bank has a specified lending capacity, that is, a certain amount of money they are willing to lend you, right? By using TRUMPF Finance, you do not deplete that available borrowing, bank line of credit, or lending base. You can leave it in place for other non-TRUMPF related expenses, like building expansions or acquiring another business. Your borrowing capacity remains in place when you use us as the financing source for your TRUMPF equipment purchase.

Also, it can be good not to keep all your proverbial eggs in the same basket. It is wise to avoid becoming too tightly connected with one lender. From a business perspective, you don't want your bank to make decisions for you, mandating what you can and cannot borrow. Our goal is not to tell you how to run your business. We rely on the equipment as collateral. Our aim is to have you come back, buy more equipment, and finance it with us.

**What financing options are the most popular with TRUMPF customers?**

Generally speaking, we offer two types of leases: capital leases and operating leases. A capital lease gives you the tax benefits associated with owning a piece of equipment. Machines are depreciable assets, and a capital lease allows for all the depreciation that you would get with that. We also offer operating leases. With an operating lease, you do not own the equipment, but it does give you the advantage of managing technical changes to your equipment over time. In the end, a company's chief financial officer or accountant should also provide input as to which lease type makes the most sense for their business.

TRUMPF Finance Manager Mike Morissette can help customers to analyze the cost-benefit ratio of different machine options.



“You don't want your bank to **make decisions** for you, mandating what you can and cannot borrow. Our goal is not to tell you how to **run your business.**”

TRUMPF Finance can assist in any stage of the buying process – technology demonstration, equipment evaluation, or even after the purchase decision is made.



**How does an operating lease help customers manage technical changes?**

Last year, TRUMPF invested more than \$430 million in R&D. That means TRUMPF is continuously developing new equipment and techniques. If you have an operating lease, you can take advantage of those technology updates. It's like leasing a car. Every five years you come back to TRUMPF, you look at the technology and if a newer machine makes more sense, you return the first machine to TRUMPF and upgrade to something newer or faster. Operating leases also include service agreements for the term of the lease.

**What are some of the advantages of a capital lease?**

With a capital lease, we can delay payments. Delayed payments allow you to get the equipment and move past the learning curve so you can start generating revenue with the equipment - before you need to start making payments. It gives you one less thing to worry about. You don't have to stress about a machine payment hitting before you even figure out how to run the equipment effectively. It gives customers a bit of breathing room. Beyond delayed payments, there are other structures that we can do with a capital lease such as balloon or seasonal payments.

“Delayed payments allow you to get the equipment and **move past the learning curve** so you can start **generating revenue** with the equipment - before you need to start making payments.”

The North American TRUMPF Finance team (pictured from left to right), Nick Frederick, Mike Morissette, Don Kochan, and Rob Knowles.



**What are some of the other costs that customers might not think about, for example warranty or tooling, that TRUMPF Finance can assist with?**

We can offer warranty and preventive maintenance (PM) for the term of the lease. A typical term is five years, and we can include PM service agreements for that period of time. We can also help minimize other out-of-pocket costs. For example, we offer tooling credits that allow the customer to work off a preset credit within the tooling department so that they can order new tools needed for production. We can include spare parts and software too. We just can't include financing for the electrical, air, power, or concrete flooring.

**What option are customers surprised to learn about?**

The operating lease. And the capability that an operating lease gives them to upgrade technology to keep them current and competitive. I think that turns people's heads. The idea of not waiting ten years for a new piece of equipment – and avoiding ending up potentially three generations behind in technology – is appealing to customers right now. Just look at what TRUMPF is doing with laser power, and Power by the Hour. It is amazing to look at where we were and where we are going with power and efficiency!

**For more information on TRUMPF Finance, call 860-255-6036 or email [leasing@us.trumpf.com](mailto:leasing@us.trumpf.com)**



# RISING TO THE CHALLENGE

Investing in battery recycling for a greener future

**Electric vehicles were designed as part of a solution to the climate crisis, but the batteries that power them may be more harmful to the environment than people realize. Fortunately, recycling these batteries can make a big difference. Ascend Elements, a start-up company formerly known as Battery Resourcers, is able to recover almost all the materials contained in battery cells. The company's technology not only helps to regain valuable raw materials, but it also makes electric car batteries cheaper.**

It may be bright turquoise, but the roller belt conveyor with a plastic cover seems unlikely to impress a casual observer. It stands on the dusty cement floor, backed by a collection of hoses, cylinders and shiny insulated pipes reaching toward the ceiling. Yet the managing director of TRUMPF Venture GmbH, Dieter Kraft – normally a calm and levelheaded kind of person – can't hold back his enthusiasm for this seemingly unremarkable system. The system belongs to Ascend Elements, based in Worcester, Massachusetts, which has developed technology that can recover 98 percent of the metals used in battery cells. Compared to the process of producing a new battery with virgin metals, this solution slashes costs by half, reduces emissions by 20 percent, and cuts energy consumption by 13 percent. But that's only the start: the company is continuing to optimize its recycling process and has already demonstrated its ability to reduce CO<sub>2</sub> emissions by a staggering 90 percent. "Amazing! How cool is that?!" Kraft says with a broad smile.



Michael O'Kronley,  
CEO of Battery  
Resourcers

## Battery problems

The potential is huge, because despite all the talk of an e-mobility future, batteries represent a growing problem – and not just due to their range limitations. By 2020, more than ten million electric cars were on the world's roads, a trend that shows no sign of slowing. This means an equally dramatic rise in the number of batteries that must be taken back by manufacturers and recycled. To complicate matters, experts have long warned of shortages of raw materials such as lithium. Nickel, manganese and cobalt are equally expensive to extract and often have a questionable environmental footprint.

## Sustainable use of scarce resources

This is where the Ascend Elements team comes in. Dr. Yan Wang, an electrochemist and the company's chief scientist, is the principal inventor of the new recycling technology. His method transforms spent batteries into new cathode active materials. It eliminates the need to mechanically crush battery cells and separate them into their individual chemical components – and it keeps far more of these scarce resources available in the circular economy.

So far, so good – but what does this have to do with TRUMPF? TRUMPF machines and systems cut the sheet-metal components used in battery housings, while TRUMPF lasers are used to weld battery cells, electronic contacts, and electric motors. "We want to reinforce our commitment to e-mobility by building on the momentum we already deliver through our high-tech laser systems," says Kraft, who is confident that TRUMPF can help Ascend Elements to make their production process even more sustainable.

## A tradition of investment

Venture capital and acquisitions are a key part of TRUMPF's innovative strength. Former TRUMPF CEO Berthold Leibinger always said that calculated risk was one of the secrets of his success. The key is to get the right balance. "We maintain a good mix of our own innovations and investments," Kraft explains. "TRUMPF innovations are a source of pride and motivation for us all, and that's how it should be. But, at the same time, we should be open to the valuable skills and capabilities of innovative individuals outside the company." Kraft emphasizes that this is not about trying to steer the company in a particular direction. "Our interest lies in what we can learn from start-ups like Ascend Elements."

This also applies in reverse: "We see it as positive and important to have reliable investors," says Michael O'Kronley, CEO of Ascend Elements. In addition to TRUMPF, other industry giants that have invested in the start-up include Jaguar, TDK, Doral Energy, Hitachi, and Land Rover, as well as private universities such as Worcester Polytechnic Institute. "Our investors give us useful advice and guidance. They each have their own way of helping us grow," says O'Kronley.



Dieter Kraft, Managing Director TRUMPF Venture GmbH

"We want to reinforce our commitment to **e-mobility** by building on the momentum we already deliver through our **high-tech production systems.**"

## Not just about money

In 2021, Ascend Elements raised \$90 million. In January, the company changed its name from Battery Resourcers to Ascend Elements to better reflect their mission to elevate the value of elements in the lithium-ion battery supply chain. The company also announced plans to open a 154,000-square-foot lithium-ion battery recycling facility in Covington, Georgia. Expected to be fully operational in August 2022, the facility will be North America's largest battery recycling facility and have the capacity to process 30,000 metric tons of discarded lithium-ion batteries and scrap per year – returning battery grade lithium, cobalt and nickel back into the battery supply chain. The company currently has 75 employees and hopes to increase this figure to 150 by the end of the year. But money and skilled workers are only part of the equation. "Obviously, we need a certain amount of funding to expand our production capacity. But our investors also have useful connections in sectors such as the automotive industry, and that's hugely important to us, too," says O'Kronley.

TRUMPF Venture injected two million euros into the second funding round. "We deliberately opted for a minority stake. We're not trying to take on a managerial role, because we think that should stay with the existing management team – and we don't want to put all our eggs in one basket," says Kraft. O'Kronley appreciates the stability and caution that comes with TRUMPF being a family-owned company. "We have similar values and having TRUMPF on board puts a firm focus on sustainability," he says. As, of course, does the whole concept of battery recycling – a concept that Ascend Elements hopes will revolutionize the future of e-mobility and take it to a higher level.

Ascend Elements' system is designed to recover 98% of metals from battery cells





Check it out!

## NEXT LEVEL LASER CUTTING

In a competitive market, it is important to respond flexibly to changing requirements and adapt your production facilities as needed. TRUMPF machines are designed to be upgradable, so you can add new features to tackle new tasks. Here we present eight product enhancements that can be easily added to existing machines and take your laser cutting to the next level.

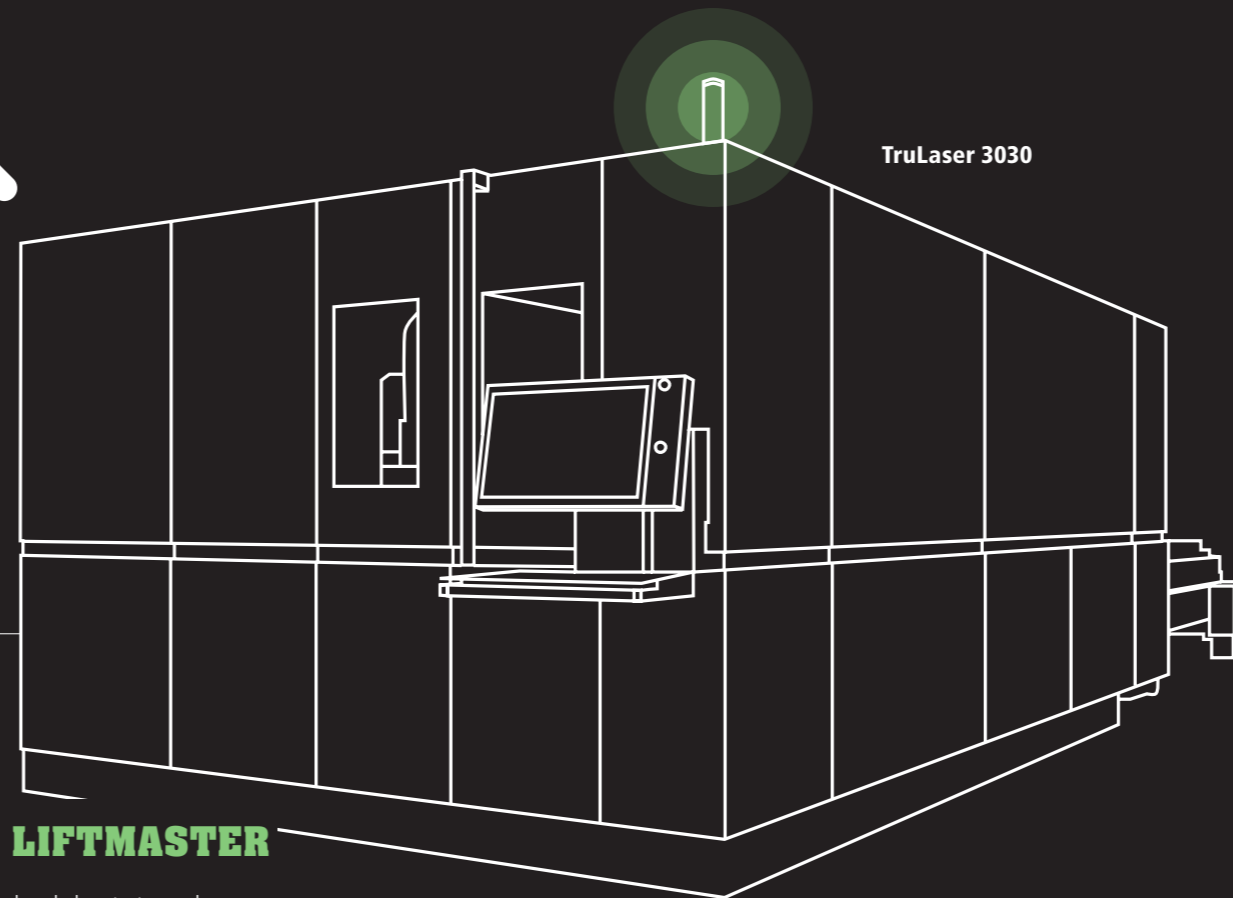
### DROP & CUT

**Drop&Cut** captures an image of the scrap skeleton inside the machine and **transmits** it to the control panel. This helps operators lay out part geometries on the remaining metal and keep waste to a minimum.



### TRUTOPS MONITOR

See what jobs are active, the state of production, and the status of your machine via TruTops Monitor. This software upgrade can be added at any time to provide you with **total transparency** into your current production state.

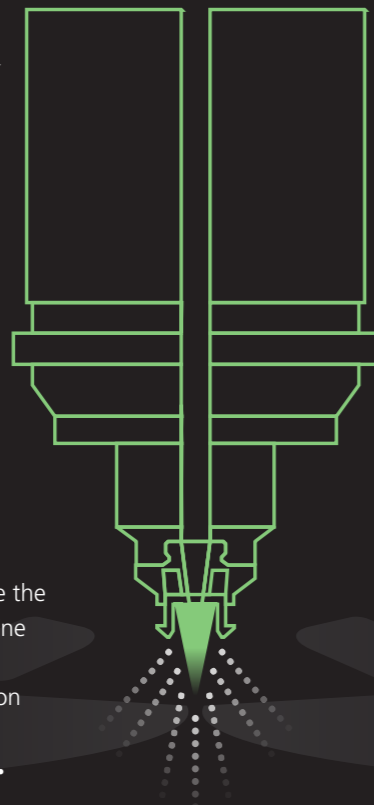


TruLaser 3030

25%

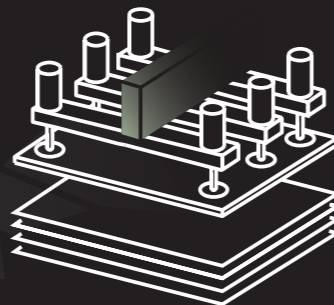
### COOLLINE

Things can get hot at the cutting interface when processing thicker metal. To prevent these high temperatures causing problems, operators increase the distance between parts during nesting. The CoolLine nozzle solves this problem by spraying water onto the workpiece around the laser beam and relying on vaporization to cool the metal. This makes nesting simpler and reduces scrap by **up to 25 percent**.



### LIFTMASTER

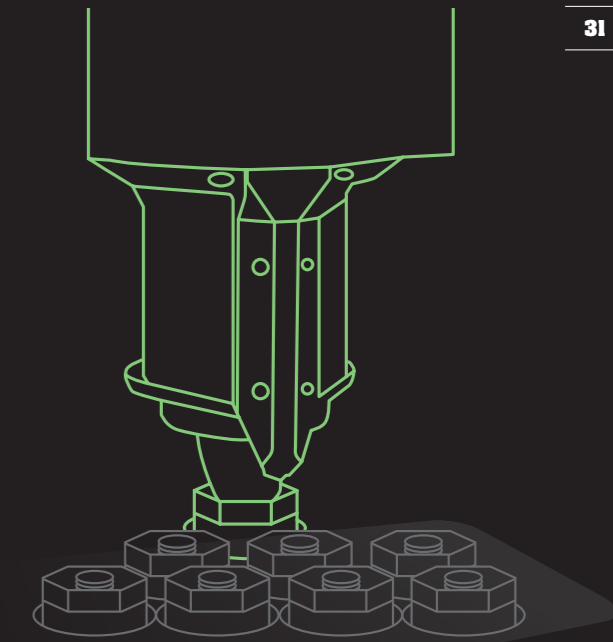
Automatically load and unload sheets to make your laser cutting process easier. **Material handling systems**, such as a LiftMaster Compact and LiftMaster Linear, can be added to any of the TruLaser 1000, 3000 and 5000 series machines.



### SMART COLLISION PREVENTION

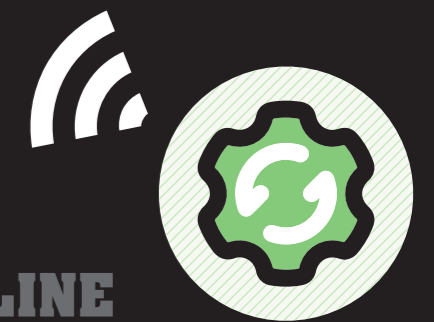


If a part tilts during laser cutting, it may end up colliding with the cutting head. Smart Collision Prevention **takes tilting into account** in its calculations and guides the laser around any potential hazards to avoid collisions.



### NOZZLE CHANGER

When a nozzle becomes too worn or the laser is ready to process a new job, the nozzle changer **automatically** replaces the nozzle without requiring user intervention.



### ONLINE UPDATE MANAGER

With a simple click, the Online Update Manager can keep you current with the latest cutting technology. When activated, this function checks your machine's software to ensure it has the newest cutting **technology tables** or **security updates** and automatically carries out any necessary updates.

### BUILT-IN CAMERA

A **camera** inside the machine saves valuable time by showing operators an overview of the process on a screen or tablet. That allows them to respond quickly to any problems even when they are not right next to the machine.







*Interesting. Worthwhile. Surprising.*



### Fast, high-quality 2D laser processing

The compact laser cutting machines of the TruLaser 1000 series are well-known for TRUMPF quality and expertise with low investment and operation costs. The latest addition, the TruLaser 1030 fiber, offers even more productivity, process stability, and cost-effectiveness. New features include the Highspeed Eco function, which increases the machine's feed rate by up to 70 percent while reducing gas consumption by around 60 percent, and CoolLine technology, which ensures optimum cooling during the cutting process and facilitates intricate cuts in thick material. Power By the Hour is another option that makes it possible to upgrade the machine's laser power to 6kW when needed. The TruLaser 1030 fiber presents an unmatched value for cutting thin to thick materials with high accuracy, quality and speed.



### Green light for better bends

Are your press brake operators bending parts the wrong way? The Part Indicator option, available on TruBend 5000 series press brakes, assists operators in positioning and bending parts correctly. The Part Indicator shows operators an image representing how the flat part should be placed against the backstop. If the part is placed against the backstop in an incorrect orientation, the machine control shows a red image and alerts the operator. When placed properly, the part shows up on the machine control as a green image and the operator can bend it confidently and correctly.



### Adding tabs, not frustration

With TRUMPF's new nanojoint technology you can add all the tabs you like, frustration-free! TRUMPF uses its exclusive TruControl technology to ramp the laser power in milliseconds, leaving only the smallest of tabs behind. A tiny bit of material – the nanojoint – remains on the bottom of the part, leading to simple and easy extraction from the nest. A nanojoint provides all the benefits of a tabbed nest (e.g., narrower web widths, less scrap, no collisions) reducing the time, and frustration, traditionally spent getting parts out of the sheet with less rework to remove the tab itself. Nanojoints make it quicker and easier for workers to break parts out of the nest. Nanojoint technology is available on the TruLaser 5000 fiber series of laser cutting machines.



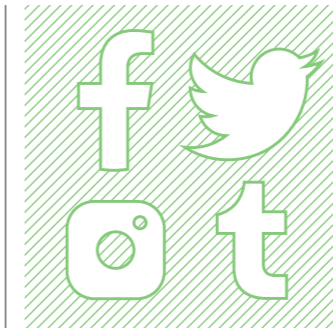
### Reduce your part costs with MultiBend

The expense of secondary processing can be reduced, or eliminated, by using TRUMPF's MultiBend tool to create small bends on TruPunch and TruMatic machines. Different bending heights and lengths can be produced in just one stroke. Flange lengths of half an inch to an inch tall can be created in widths up to three and a half inches. It is easy to program single degree increments up to 90 degrees. As long as the height from the sheet is less than an inch, longer flange lengths are possible with reduced angles. The MultiBend tool can be used to bend material up to eighty thousandths of an inch thick. Creating bends as part of the punch or punch-laser operation reduces the need for additional processing and helps to reduce the overall cost per part.



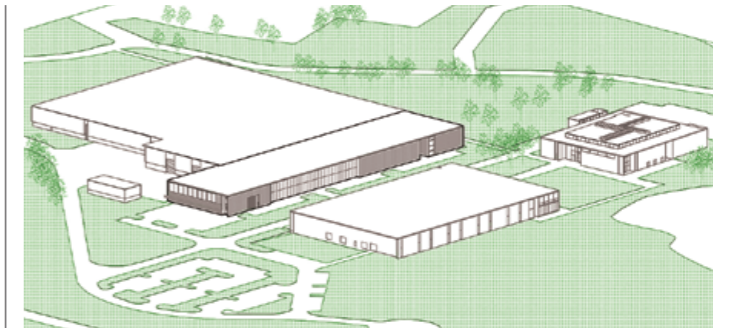
### TruTools – Closer than ever

TRUMPF power tools are increasingly finding their way into shops that use other TRUMPF manufacturing technology. For example, more laser cutting machine owners are using the TruTool slat cleaner to improve their machine's efficiency and productivity. The slat cleaner can improve the life of slats by up to 4x. It also results in increased cost savings on downstream activities since a cleaner bed will reduce spatter on the underside of the parts. Considering the high cost of steel, a slat cleaner can show a return on investment in as little as three months. The TruTools online dealer locator has been updated to include four times as many locations. With dealers in more than 130 locations, customers can now find more TruTools support near them.



### Stay in the know with #TRUMPF

Have you heard that TRUMPF Slitting Shears can be used to remove parts tabbed in by the MultiShear tool on a punching machine? Did you know a TruPunch 5000 can punch 1,600 holes in just under a minute? Have you seen how fast the TruLaser 3030 can cut 0.625 inch mild steel using CoolLine? When you follow TRUMPF Inc. on social media, you keep up to date with all the latest facts, tips and tricks. Stay in the know of all things TRUMPF with #ToolingTuesday, #ThrowbackThursday, #FactFriday and more. Be sure to follow us on LinkedIn, Facebook, Instagram, YouTube, and TikTok!



### TRUMPF to expand production building in Farmington

TRUMPF has announced plans to add on to its main production building in Farmington, Connecticut. The building was severely damaged in last September's tragic plane crash. The 45,000 square-foot addition will expand the building on the eastern side closest to the Customer Technology Center and the Laser Innovation and Technical Excellence buildings. The addition will increase production space and employ Smart Factory features to showcase the US-based manufacturing of the TruLaser, TruPunch and TruMatic machines, as well as the latest Industry 4.0 techniques. Construction will begin in the next few months and is expected to be complete by early 2023.

"We look forward to this expansion project which will improve the space for our local sheet metal fabrication and assembly of our machines and ultimately enhance the customer experience," said TRUMPF Inc. President and CEO Lutz Labisch.





## SMART SAVINGS: WITH TRUMPF PART OPTIMIZATION

“Less is more” would be a great motto for the philosophy behind TRUMPF part optimization. Through part-design workshops and consulting, TRUMPF teaches users how to get the best out of their machines and parts to make their production more efficient and cost-effective. The ultimate goal is more quality at less cost.

In this series, TRUe will be highlighting various parts to show how this process works and what design principles users should focus on.

**This issue:**

### Replacing semi-finished parts with sheet metal

Manufacturers and fabricators are resourceful and will utilize whatever materials and tools they have available to solve a problem. Usually this means saw cutting, drilling and welding prefabricated angle iron into a more complex structure to create a viable product. For some low volume parts, this is entirely adequate. Although once production ramps up, these production methods are left in the dust by modern sheet metal processing techniques.

Take the hanger bracket, for example. This unit was intended to hold a roller and tray for paper processing. The original design is functional and robust, yet requires multiple steps to process, and weighs a significant amount. The welding process requires an expensive fixture which can easily create a bottleneck, hindering production. If sheet metal is used as a replacement, the part can be redesigned to eliminate welding, reduce weight, and drop costs significantly, all while maintaining the functionality of the original product. By implementing TRUMPF laser cutting and bending technology, a truly out-of-the-box solution can be achieved that maximizes the potential of sheet metal.



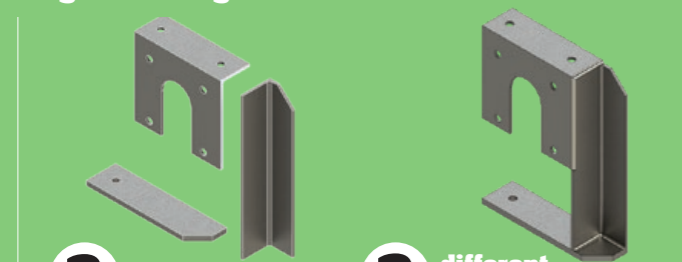
**Taylor Wright**  
Mechanical Project Engineer  
& Smart Part Consultant

Through the Smart Factory Consulting project, Taylor Wright advises customers about how best to design parts for manufacturing. Smart Part Consulting consists of reviewing parts and assemblies at

the customer's site and teaching their team how to optimize sheet metal designs for production using their equipment. Wright also teaches a three-day course called Sheet Metal Design offered at the TRUMPF training facilities in Farmington, Connecticut and Santa Clara, California. Customers can sign up using the training portal or by calling 860-255-6068.

Better fabricated part  
**74%**  
cost saving


#### Original Design



**3** parts      **3** different stock materials

Manufacturing methods used:  
Saw cutting, milling, drilling, welding, grinding  
Cost: \$49.50      Weight: 4.08 lb

#### Sheet Metal Design



**1** part      **4** bends

Manufacturing methods used:  
Laser cutting, bending  
Cost: \$12.80      Weight: 2.29 lb (43% lighter)



**Technology transformed into art.** Presenting parts in a new light is something we do in every issue of TRUe. This picture shows a **square punching die** as you've never seen it before. By taking this TRUMPF punching tool component out of its familiar environment, photographer Marian Mok helps us see it from an entirely new perspective.





In lieu of the usual closing editorial by TRUMPF Inc. Executive Vice President Burke Doar, we wanted to take a moment to commemorate the lives lost, and the lives changed, on the morning of September 2, 2021, when a plane crashed into our production building in Farmington, Connecticut. Our thoughts are with the loved ones of the souls aboard the plane, as well as with our employees who were injured and affected by the accident.



## TRUe #08

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