

PURCHASING'S GATEWAY TO NEW SOURCES

No. 276

FREE SUBSCRIPTION

THE Gateway MAGAZINE

KEEPING PURCHASING DECISION MAKERS INFORMED

25,000+ readers read THE GATEWAY in over 7,500 companies

June 2022



PRECISION METAL COMPONENTS
& ASSEMBLIES

SEE PAGE 3

A technical diagram of a forging press, showing various components and their arrangement in a dark, industrial setting.

**Forging Press To
Reduce Costs**

SEE PAGE 13

BE SURE TO SHARE YOUR STORIES: WWW.THEGATEWAYMAG.COM

COVER PHOTO : **AJAX ERIE** | Euclid, OH

CONTENTS

JUNE 2022 | ISSUE 276

INDUSTRY INSIGHTS

03 Hobson Motzer

13 Forging Press To Reduce Costs

INDUSTRY NEWS

22 Regional Press

Summer is nearly here. Warm temps, longer days, BBQs on the weekend, and, with any luck, some vacation time to do nothing but float down a river (or whatever it is you prefer to do during the summer months.

In this month's edition of the Gateway, we have a story which describes how Pennsylvania-based machine shop FPD Company worked with Erie Press Systems to design a customized, high-speed hydraulic press capable of producing 3,000 tons at a fully controlled, programmable speed and load profile through full travel. It's a tale outlining how savvy machine shops are adding advanced forging equipment to create precision titanium components in volume, while lowering costs by as much as 50%, which we thought could be of interest to our community.

Our second feature is a piece from Hobson & Motzer who put their thoughts to paper regarding supply chain shortages and the idea of reshoring, which is a topic we've spent a good deal of time covering over the last handful of years here. It's nice to have a loyal advertiser share their own sentiments on the matter and offer up a checklist to consider when considering your own relationships with the manufacturing landscape.

If you've got a story you'd like to share, we'd love to field it. Send us anything you've got, and we'd be happy to consider it for publication in the pages of this magazine. If you have an idea you'd like to check in with us first before dedicating time to it, by all means, reach out to chris@thegatewaymag.com and he'll set you straight on whether or not it's something we'd be interested in running. That said, he's interested in just about anything, so don't be shy!

Enjoy the warmth (and get those ACs tuned up...)!

All our best,



THE
Gateway
MAGAZINE

PUBLICATION MANAGER

Matthias Roberge

EDITORIAL DIRECTOR

Chris Hislop

ART DIRECTOR

Adam Kaufmann

SOCIAL MEDIA

Jen Rivera Bell

ADVERTISING INQUIRIES

(877) 463-4020

info@thegatewaymag.com

Hours: 9am-5pm Mon-Fri

MAILING ADDRESS

PO Box 70

Portsmouth, NH

03802

FOR FREE SUBSCRIPTIONS

www.thegatewaymag.com

CHANGE OF ADDRESS:

In ordering a change of address, give both the old and new addresses. Allow two months for change to become effective. The publisher will attempt to handle unsolicited articles with care, but magazine assumes no responsibility for them.



EXPERIENCE THE UGM DIFFERENCE

SINCE 1954, UNITED GEAR & MACHINE HAS BEEN USING INDUSTRY LEADING MACHINERY AND TOOLING TO MANUFACTURE PRECISION SPLINES AND GEARS FOR THE SPACE, DEFENSE AND AEROSPACE INDUSTRIES.

- ⚙️ OVER 40 GEAR SHAPING AND HOBBING MACHINES
- ⚙️ WE OFFER CNC GEAR GRINDING
- ⚙️ WE CUT SPUR GEARS, INTERNAL & EXTERNAL SPLINES, WORMS, WORM GEARS, CROWNS, HELICAL GEARS, RACKS, TIMING BELTS AND BLIND KEYWAYS
- ⚙️ ON SITE BROACHING FACILITY FOR INTERNAL SPLINES, SERRATIONS AND KEYWAYS
- ⚙️ INDUSTRY LEADING INSPECTION EQUIPMENT WITH 2 CMM GEAR ANALYZERS
- ⚙️ IN HOUSE TOOL ROOM TO PRODUCE FIXTURES AND SUPPORT FOR GEAR SHOP
- ⚙️ LARGE ENOUGH TO MEET TECHNICAL DEMANDS, SMALL ENOUGH TO ADAPT TO IMMEDIATE NEEDS



1087 EAST STREET SOUTH, SUFFIELD, CT 06078 | WWW.UNITEDGEARCT.COM | 860.623.6618 | SALES@UNITEDGEARCT.COM



Get Accurate Measurements & Thermal Stability with Solid Granite



B/X-ACT offers manual and DCC CMM models with touch probe tools and optional video edge detection. They are **affordable, compact, and traditionally built** with sturdy granite cross beams, rams and tables. All come with user-friendly Heidenhain IK-5000 Quadra-Check® metrology software for defining and storing routine measurements, modifying requirements, and recalling exact specifications for repeat production runs. Simply program once, then just Walk-up And Measure (WAM).

Call us to learn more
413-786-4662



www.ablemts.com

HEAT TREATING



- VACUUM
- INTEGRAL QUENCH
- CONTINUOUS BELT
- NITRIDING
- STRESS RELIEVING
- ANNEALING

Pick up and Delivery Available

Certified By General Dynamics for AMS 2759

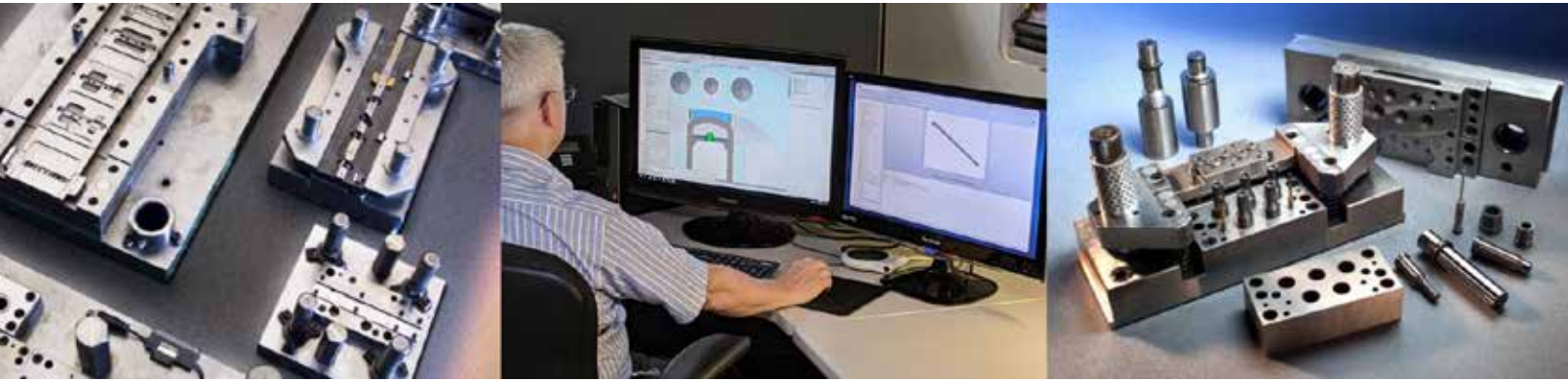
| | |
|------------------------|--------------------------|
| Aluminum Heat Treating | Long Vertical Capability |
| Sandblasting | Parts Cleaning |
| Brazing | Straightening |

COUNTY HEAT TREAT

32 Howe Avenue | Millbury, MA 01527
Tel: (508) 865-5885 Fax: (508) 865-4033
Website: www.countyheattreat.com

ISO 9001: 2008 CERTIFIED

Centrally Located in New England. 2 miles from MA Pike, Exit 10A
24 Hour Service and weekends if Needed.



IT'S NOT ONLY TIMELY, IT'S COSTLY IF YOU DON'T



PRECISION METAL COMPONENTS
& ASSEMBLIES



Hobson & Motzer's Reshoring Checklist for Manufacturers

Our friends at Hobson & Motzer wrote up the following article which falls closely in line with the supply chain and collective reshoring topic we've been covering for the last couple of years. We'd like to extend our gratitude to Hobson & Motzer and hope that you enjoy the piece. To view the article at its original source, follow the link at the end of this feature.

It's easy to write about reshoring in the middle of a global pandemic—it's topical and speaks to the sanctity of our nation's supply of critical goods that can and should absolutely be made here so we can effectively deal with any situation within our own borders. But there is a much larger conversation that has been under discussion—and in action—for some time now.

Over the past several years a fair number of goods, previously sourced offshore, have made their way back into U.S. manufacturing companies. This has been a growing trend in the U.S. as an increasing number of OEMs are looking at the math and recognizing that it doesn't quite deliver the value that it used to. Whether finished goods, sub-assemblies, or component parts, U.S. manufacturers have enjoyed a boost from reshoring in recent years.

Sourcing organizations have become very effective at building sophisticated supply chains that deal with variables like cultural challenges, currency fluctuations, long lead times, and more predictable interruptions, such as Chinese New Year. Less

predictable and packing more of an impact, however, are geopolitical influences, such as tariffs and trade wars and natural disasters. These not only impact trade, but they can also be devastating events that cause supply interruptions, shortages, and stock-outs that really get the meter running on the cost side.

Hard Lessons Learned

Some might say it's timely—and some—not timely enough. The COVID-19 pandemic is teaching us many hard lessons. Not the least of which is the importance of a stronger domestic manufacturing base, particularly when it comes to sourcing critical goods and components. The United States has an incredible manufacturing base full of talent, technology, and ingenuity. This has been evidenced by the manufacturing community's response to the need for critical medical equipment—ventilators, masks, and other PPE—much of which is sourced offshore, is unavailable, or is stuck in stalled supply chains.

As the country and the world works through—and begins to heal from—COVID-19, many are predicting that U.S. companies will take a harder look at their supply chains. It isn't solely about the logistics of moving goods through the supply chain in a timely fashion, but they should challenge the math that moved production offshore in the first place and give even deeper consideration for goods and components deemed critical to the ability to respond to domestic needs in a crisis.

Total Landed Cost

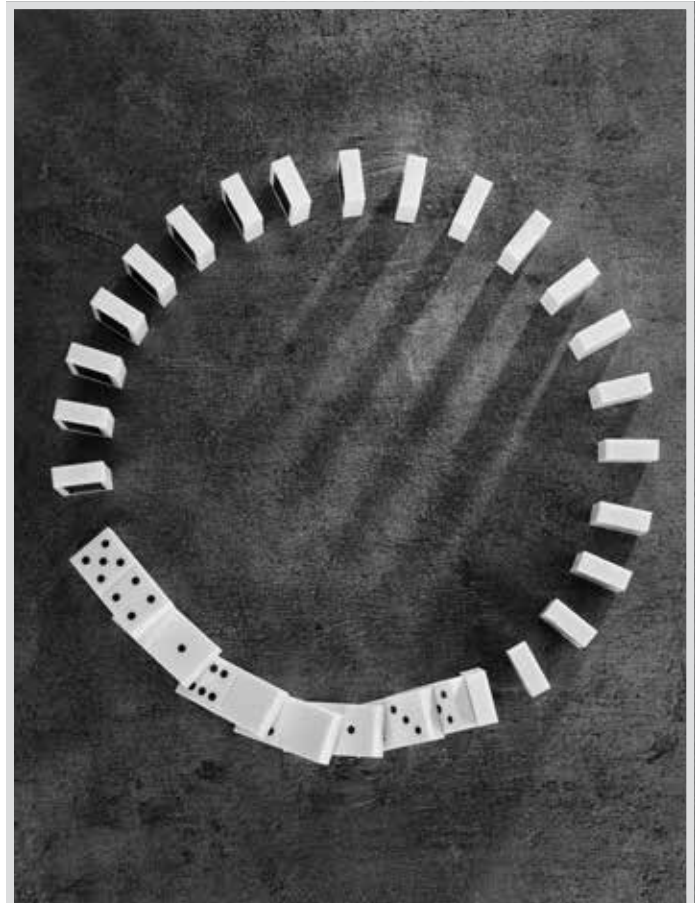
The longstanding benchmark for evaluating the benefit of an offshore supply chain is the “total landed cost.” Simply put it's the sum of all costs associated with making and delivering products to the point where they produce revenue. The underpinning of the shift back to U.S. manufacturers in recent years has been a closer examination of that math, and increasingly, the risks associated with offshore supply.

More than ever, the reshoring “trend” is a flashing neon sign that says U.S. manufacturers are open for business. When you factor in the everyday challenges

of an offshore supply chain, and the resources to maintain it, and worse, the cost of interruption—it raises more than an eyebrow. It, in fact, raises your total cost—and exponentially.

Let's look at this in real-time circumstance. In the case of component-level items, stopped production due to a supply delay on a critical part to arrive causes productivity losses that cannot be recouped; they cause delays in delivering your products to market, and drive customers to your competitors. The next step is for companies to pull out all the stops to avoid a stock-out: dedicated land transport, express shipment, airfreight, etc.

The domino effect escalates time, resources, and, yup, costs. One of the unspoken consequences is the liability your company faces with the loss in confidence and trust your customers have in your ability to deliver, which can erode your relationship. Yet another intangible and potentially devastating cost.



Reshoring Checklist

Here's a quick rundown of the variables that should be part of your company's reshoring assessment. Topping the list is revisiting the math, with a number of angles—internal and external—to explore. Then you need to apply due diligence to vetting U.S. manufacturers on a number of items.

Research and Evaluate U.S. Manufacturers on:

- **Quality**
- **Cost**
- **Service Level**
- **Technology**
- **Talent**
- **Innovation**
- **Infrastructure**
- **Automation**
- **QMS/Standards**
- **Engineering**
- **Vertical Integration**
- **Market Proximity**
- **Stability**
- **Ease of Doing Business**



PRECISION METAL COMPONENTS
& ASSEMBLIES

Historic Juncture

It's not an overstatement to say that we're living through a historic time in our history. One that is having profound effect on all aspects of our lives. U.S. manufacturers—who are usually well-removed from the average consumer's mindset—find themselves front and center, at an intersection with a stalled global supply chain and everyday Americans who are deeply concerned with having access to products that will help keep themselves and their loved ones safe, healthy, and happy. It is overlap never seen in modern times. Prior to the current global upheaval of our lives, we went about our days not giving a second thought to the ease at which we can purchase items to make our lives easier or seek the services that keep us healthy. Consumers are more aware than ever of the connection between the everyday goods that provide them convenience, lifestyle freedom, and optimal health.

As manufacturers, we have a responsibility to our own companies, employees, supply chain partners—and ultimately, everyday consumers—to reassess how to mitigate the risks associated with unforeseeable circumstances that threaten to interrupt production. As such, many companies are thinking about reshoring manufacturing. We've compiled a Reshoring Checklist to help you wade through the variables that influence reshoring. Deeper exploration of these elements should be part of your company's reshoring assessment. We also provide a section that discusses a next-steps strategy once you've satisfied your checklist and scrutinized your manufacturing partner options.



Hobson & Motzer is a vertically integrated manufacturer of precision metal components and assemblies serving the needs of the medical device market and other advanced industries. We operate two manufacturing plants with primary operations—and headquarters—centrally located in Durham, CT; our Advanced Manufacturing Center is just a few miles away in Wallingford, CT.

Contact Information:

*Hobson & Motzer
30 Airline Drive
Durham, CT 06422*

*62 Barnes Industrial Park North
Wallingford, CT 06492*

*Phone: **800-476-5111***

Web: www.hobsonmotzer.com

This article was republished with permission from Hobson & Motzer. For more, and to read the original article at its source, visit: www.marketing.hobsonmotzer.com/blog/reshoring-checklist-for-manufacturers-safety-concerns, and prioritize the prevention of counterfeit parts.

Quality Turned Machined Parts
New Hampshire Machine Products, Inc.

- QUICK TURNAROUND ON QUOTES
- JOBS PRICED COMPETITIVELY
- BROAD RANGE OF MATERIALS



QUALITY TO CLOSE TOLERANCES: Utilizing single spindle automatic screw machines from 1/32" through 2" capacity, as well as CNC equipment.

SUPPORTED BY: A broad range of secondary capabilities to include drilling, threading, tapping, milling and slotting.

AUDIT INTENSIVE: Complete internal tracking of all orders start to finish.

PROCESS CONTROLLED: Includes raw material traceability.

QUALITY: Quality assurance programs performed to MIL-STD-105D.

PRODUCTION RUNS: From 50 to 100,000 pieces.

CALL OR FAX US REGARDING YOUR SCREW MACHINE REQUIREMENTS AND WE GUARANTEE YOU A QUICK, COURTEOUS AND INTELLIGENT RESPONSE.

NEW HAMPSHIRE MACHINE PRODUCTS, INC.



CUST. TEL. 1-800-639-9404
Reg. Tel: 603-772-4404 Fax: (603) 772-6043
10 KINGSTON RD.— P.O. BOX 975
Exeter, NH 03833
www.newhampshiremachineproducts.com

E-Mail: barbara@newhampshiremachineproducts.com

HAVE A STORY IDEA? LIKE WHAT YOU'RE READING?

We would like to hear it.

*Contact us to give us your input or feedback.
We're always looking for new stories to discuss.*

chris@thegatewaymag.com or Call: (877) 463-4020

CONSUMABLE SUPPLIES

Highest Quality. Competitive Prices.

SMS carries a large selection of metallurgical supplies for your in-house lab needs. We cover all of your sample preparation requirements and are *happy to provide samples to evaluate.*

- Grinding Papers
- Polishing Cloths
- Diamond Suspension
- Diamond Paste
- Hot Mount Powders
- Mounting Clips
- Mold Cups
- Saw Blades
- Cold Mount Epoxies
- And so much more...



**Sturbridge
Metallurgical
Services, Inc.**

**SHOP
ONLINE**

www.smslabs.com
1-866-340-5288

JCB



Performance Machine, LLC

(603) 415-0110 Concord, NH

PRECISION MULTI-AXIS MACHINING

Specializing in Mill/Turn Machining of
Stainless Steel and Non-Ferrous metals:

**316L • 304L • Nitronic 50/60
17-4 H1150 • HH1150 • H900**



www.jcbperformance.com

Metal Stampings

Double Action Deep Drawing

Washers • Discs • Rings
UP TO 80" Diameter
500 TON CAPACITY

Stampings to 3/4" thick
Short or long runs
Wire EDM



Tool & Die Makers
Quick Turn Around
CAD/CAM Design

Peter Forg Mfg. Co.

130 YEARS OLD AND GROWING

888-625-4577 Fax 617-625-0331
50 PARK ST. PO Box 433 SOMERVILLE, MA 02143
www.peterforg.com

HEAT TREATING

Vacuum High Pressure Quench
Non - Ferrous Heat Treat
Austempering
Marquenching
Carburizing
Nitrogen Tempering
Solution Heat Treating
Water Quenching

MATERIALS
High Speed Steels
Alloy Steels
Tool Steels
Stainless Steel
Aluminum
Plastics



HARDLINE
HEAT TREATING, INC.

OTHER SERVICES

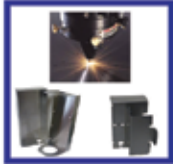
- Bright Hardening
- Cryogenics to -300°F
- Glass Bead Blast
- Grit Blast Clean
- Plastics Thermal Treatment
- Precipitation Hardening
- Anneal & Normalization
- Metallography
- Stress Relieving

Consistent On Time Delivery
Pickup & Delivery Available
Member MTI / ASM

134 Ashland Ave. Southbridge, MA 01550
www.hardlineheattreating.com
Tel: (508) 764-6669 Fax: (508) 764-6654



Your Project: From Prototype to Production



Solutions & Services

Precision Sheet Metal Fabrication

Capacity: 1/4" Mild & Stainless Steel, Aluminum, Lexan & More!

Our 70+ yrs. Engineering experience
3D Design Assistance
Shearing, Laser Cutting, CNC Axis
Bending, Welding, Assembling

Prompt Attention & **ON TIME** Delivery



7 BROOKFIELD STREET
Worcester, MA 01605
SALES@HOWARDPRODUCTS.BIZ
508-757-2440
www.Howardproducts.biz



SCAN ME



VACUUM AND ATMOSPHERE HEAT TREATING + BLACK OXIDING

PROCESSES

- ◆ Hardening
- ◆ Tempering
- ◆ Annealing
- ◆ Carburizing
- ◆ Carbo-nitriding
- ◆ Normalizing
- ◆ Stress Relieving
- ◆ Precipitation HT
- Commercial Black Oxide
- ISO 9001 and AS 9100



**Nadcap
Certified**

**Federal
Firearms
License**

MATERIALS

- ◆ Tool Steels
- ◆ Stainless Steels
- ◆ High Speed Steels
- ◆ Alloy Steels
- ◆ Carbon Steels
- ◆ Super Alloys
- ◆ Non-Ferrous
- ◆ PH Steels



Tel: 860-523-9090
Fax: 860-236-8052

565 Cedar Street
Newington, CT 06111

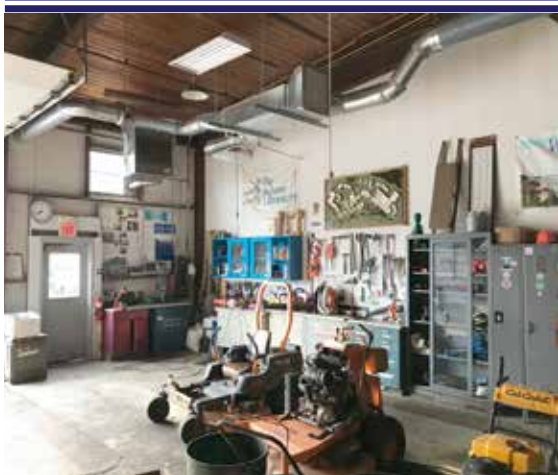
Andy@sousacorp.com
www.sousacorp.com

FRESH CLEAN AIR EXPERTS

FRESH AIR IS NEEDED IN ALL SHOPS EMPLOYEES NEED FRESH AIR

EXHAUST THE MACHINE SHOP ODORS WHILE SAVING ENERGY

AIR TO AIR HEAT EXCHANGERS TO VENTILATE YOUR AIR CONDITIONED SHOP

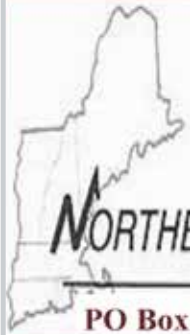


800 622 8078



www.ventusa.com

Wire & Sinker EDM Services



- ✦ 5 Axis Wire EDM
- ✦ Orbiting Sinker EDM

Tel: 207-743-7273

Fax: 207-743-7269

NORTHEAST TOOL & DIE CO., Inc.



- ✦ Metal Stampings
- ✦ Precision Machining
- ✦ Prototypes
- ✦ Fixture Tooling
- ✦ Compound Dies
- ✦ Progressive Dies
- ✦ Secondary Dies
- ✦ Injection Molds

Quality Tooling Solutions since 1992

PO Box 28

16 Aldrich Ave.

Norway, ME 04268

www.northeasttool.com



PLASTIC DESIGN INC

Specializing in plastic fabrication & plastic components

- Corrosion Resistant Products
- Biomedical Research Products
- Laboratory/Clean Room Products
- Wet Process Equipment
- Custom Design and Fabrication
- Engineering & Installation Assistance
- Mass Production
- Direct & Wholesale Sales
- Raw Materials Sales
- Stainless Steel Products



CUSTOM
DESIGN AND
FABRICATION
OF PLASTIC
PRODUCTS

ISO 9001: 2015 Certified

North Chelmsford, MA

978.251.4830

www.plasticdesigninc.com



TRACEY

GEAR & PRECISION SHAFT

ISO 9001 CERTIFIED

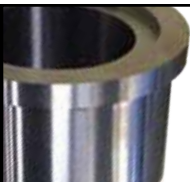
Custom Gears
Thread Grinding
& Precision Shafts

Serving New England
since 1945

740 York Avenue
Tel: 800-774-GEAR

Pawtucket, RI 02861
www.traceygear.com

sales@traceygear.com



**BAY STATE
MACHINE**
GRINDING & HONING



GRINDING & HONING SPECIALIST

- ID-20" Swing
- OD-84" Long
- Surface Grinding 24"x60"
- CNC Cylindrical

ID & OD GRINDING
HONING
SURFACE GRINDING
CNC CYLINDRICAL

Top Quality • Any Quantity • Pickup & Delivery • Same Day Quotes

Plainfield, CT tel: 860-230-0054 baystatemachine@hotmail.com

ELECTROPOLISHING SERVICES

- ⊖ New England's Largest Electropolisher
- ⊖ ISO 9001 & 13485 Certified
- ⊖ 12 Electropolishing Lines
- ⊖ Precision Rates of Removal (.0001")
- ⊖ Small & Large Parts
- ⊖ Custom Packaging Services
- ⊖ Expedited Service Available



New England Electropolishing
 800-672-6616
www.neelectropolishing.com
sales@neelectropolishing.com



RIGGING & FABRICATION



INDUSTRIAL TRANSFER &
 STORAGE INC.

- Lifting Capacity Over 100,000 lbs
- Servicing New England, The U.S., & Internationally
- New 10 x 12 CNC Plasma Table
- Specialists in Plant Relocation & Strategic Machine Moves

Successfully Moving Industry Since 1984

508-765-9178

Southbridge, MA • www.industrialtransfer.com

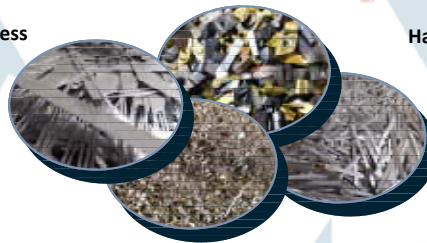
- Tungsten Carbide
- EDM Wire
- Inconel
- Titanium
- Ferrous
- Nonferrous

Specializing in Recycling Industrial Scrap

HARDING METALS, INC

Creating recycling solutions for any type of business

- Utilizing our easy to deal with staff
- With our clean and uniform equipment



Handling all types of metals, in any form

- From mild steel to high-temp aerospace alloys
- Chips, punchings, turnings, borings, skeletons, inserts, bits. **You produce it; we handle it.**

Call or email us about Recycling and Reconditioning your Cutting Fluids

1-800-370-JUNK (5865)

42 Harding Dr. Northwood, NH 03261

info@hardingmetals.com

www.hardingmetals.com

Big enough to get things done, small enough to do them efficiently.



CONNECTICUT TOOLING & MACHINING ASSOCIATION

Dee Babkirk, CTMA Executive Director
For more info contact: director@ct-ntma.org
Learn more at: www.ct-ntma.org

The Executive Suites
440 North Main Street
Bristol, CT 06010

P: 860.604.8963 F: 860.254.7191



CENTERLESS GRINDING & THREAD ROLLING

25 Rosenthal Street ■ East Hartford, CT 06108
phone: (860) 289-2987 ■ fax: (860) 289-3142
web: www.unitedcgtr.com
e-mail: njgoulet@unitedcgtr.com



Precision Metal Stamping
Precision Assembly

CNC Machining
Secondary Operations

*The best place to start your
precision metal part*



Phone: 860-349-1756 | www.hobsonmotzer.com

SHARPLES

STEEL RULE DIES

- Serving Manufacturers since 1967
- Anvil Plates - Stainless and Hard Ground Steel
- Lasercut Dieboards and Die Bases
- CNC Bending of All Heights of Steel Rule
- Waterjet Cut Ejection
- Custom Perforation



**CREATIVE.
INTRICATE.
EXCEPTIONAL.**

CALL 508-695-5656 OR VISIT SHARPLESDIE.COM



LASER CUTTING SERVICES

36 6th Rd. Woburn, MA 01801

Plate, Sheet, Pipe & Tube



SHEET & PLATE CUTTING

Carbon Steel up to .875"
Stainless Steel up to .50"
Aluminum up to .375"
Brass & other Alloys

TUBE & PIPE CUTTING

3/4" up to 8.625" Diameter
Up to 6" Rectangular & Square
Square to Round Transitions
Elbows
Coping & Mitering



Welding, machining and full metal fabrication services available.

617-479-7374 www.quality-laser.com

Email: info@quality-laser.com



NORTHEAST 3D
ne3d.net SOLUTIONS

3D PRINTING & SCANNING SERVICES

3D Printing Services

- Rapid Prototyping Parts
- Parts for End Use
- Workholding for Machining
- Machinery & Wear Parts
- Lost Wax Models
- Corrosion Upgrades
- 3D Part Modeling
- Reverse Engineering
- Engineering Support

3D Scanning Services

- Product/Tool Inspection
- Tool and Die duplication
- Spare part development
- Scan to CAD Comparison
- Product Development
- Replication/Reproduction
- Quality Assurance/Control
- Visualization/Animation
- Sculpture and Art



Northeast 3D 156 Wall St. Springfield VT 05156 Tel (802)698-3764

**SEEING YOUR
COMPETITOR'S ADS
IN THE GATEWAY?**

THE
Gateway
MAGAZINE

**So are your
clients and
prospective
buyers.**

INFO@THEGATEWAYMAG.COM
OR (877) 463-4020

GET STARTED

WHERE QUALITY COUNTS

CNC Machining

Prototype & Production Quantities
Let us put our engineering and machining talents to work for you!

Precision Milling

- AutoCAD Design
- Master CAM Machine

Precision Turning

- Design Capability
- Quick turnaround

Personalized Service

Now offering LASER PART MARKING

Using our new
TRUMF VMC1 LASER MARKING MACHINE

We offer one-stop shopping where we will handle your complete job. So whether heat treated, plated or painted we can supply to your requirements the way you want it.

**ISO 9001:2000
SAE AS9100**

R & S REDCO, INC

106 Finnell Drive, Ste 24 Weymouth, MA 02188
Tel: 781-331-4300 Fax: 781-331-4800
www.rsredco.com Email: sales@rsredco.com

Teflon™ coatings

Improve part performance
with unique properties of Teflon™ coatings!

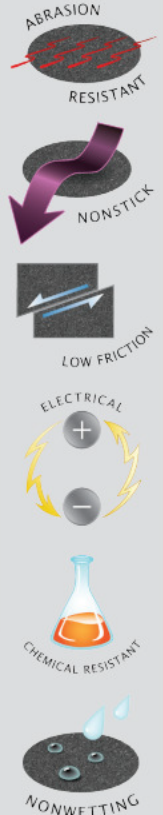
Coatings can be applied to:

- metals
- elastomers
- ceramics
- composites
- rubber
- glass



As a licensed industrial applicator, Donwell...

- provides custom coating services to your specifications.
- coats both small and large parts to close tolerances in quantities from 1 to 1,000,000.
- has over 50 years of high-performance coating application expertise.



DONWELL COMPANY

1-800-864-2702
www.donwell.com

For FREE Coating Sample



Use of the Teflon™ mark requires a direct trademark license. Customers and distributors of Donwell can only resell LICENSEE's product as licensed with the Teflon™ mark.



MACHINE SHOP UTILIZES FORGING PRESS TO REDUCE COSTS OF TITANIUM PARTS

Savvy machine shops are adding advanced forging equipment to create precision titanium components at a lower cost, in volume

To produce complex titanium parts more cost-effectively, machine shops are increasingly incorporating advanced forging equipment to complement their existing CNC capabilities to create near-net-shaped parts that only require minimal machining. In some cases, the forging process is so precise that no additional machining is required.

There are significant advantages to include forging in a machine shop's repertoire. With recent advances in the controls and automation of hydraulic forging presses, precision titanium parts can be forged to extremely tight tolerances, and at relatively high volume. Forging also significantly lowers titanium input costs by as much as 50%.

To forge titanium to precise specifications, however, machine shops require the right equipment with exceedingly tight control of the production parameters. Fortunately, advances in hydraulic press design, controls, and automation are helping to optimize component quality, production, and price.

To cost-effectively produce large, complex titanium parts, Pennsylvania-based FPD Company, a machine shop that produces aerospace and medical components, decided to invest in a unique new custom press capable of greater control with higher tonnage.

“We wanted to increase our forged parts envelope, and that required a larger press with more sophisticated controls for the titanium parts. We already had a 2,500-ton press, which is relatively small for titanium. At the same time, we needed to improve control, quality, and cycle times.”

- Jeff Speicher, General Manager of FPD

To achieve its production goals, FPD partnered with Erie Press Systems, a manufacturer of mechanical forge presses and individually engineered hydraulic presses since 1895 that is now part of the largest forging equipment supplier in North America: Ajax-CECO-Erie Press.

Although Erie Press designed, engineered, and built the system, FPD provided significant input on the design requirements. The result was a customized high-speed hydraulic press capable of producing 3,000 tons at a fully controlled, programmable speed and load profile through full travel.

“The custom press, along with our engineering and tooling, allows us to hold extremely tight tolerances consistently when creating titanium parts for the aerospace and medical device industries. With the right equipment, the forgings are extremely consistent, and we can produce near-net shapes that require minimal to no machining. If a part needs additional machining for holes, bores, and other secondary features, we can do that as well,” explains Speicher, adding that FPD provides extensive 5-axis CNC machining services on site.



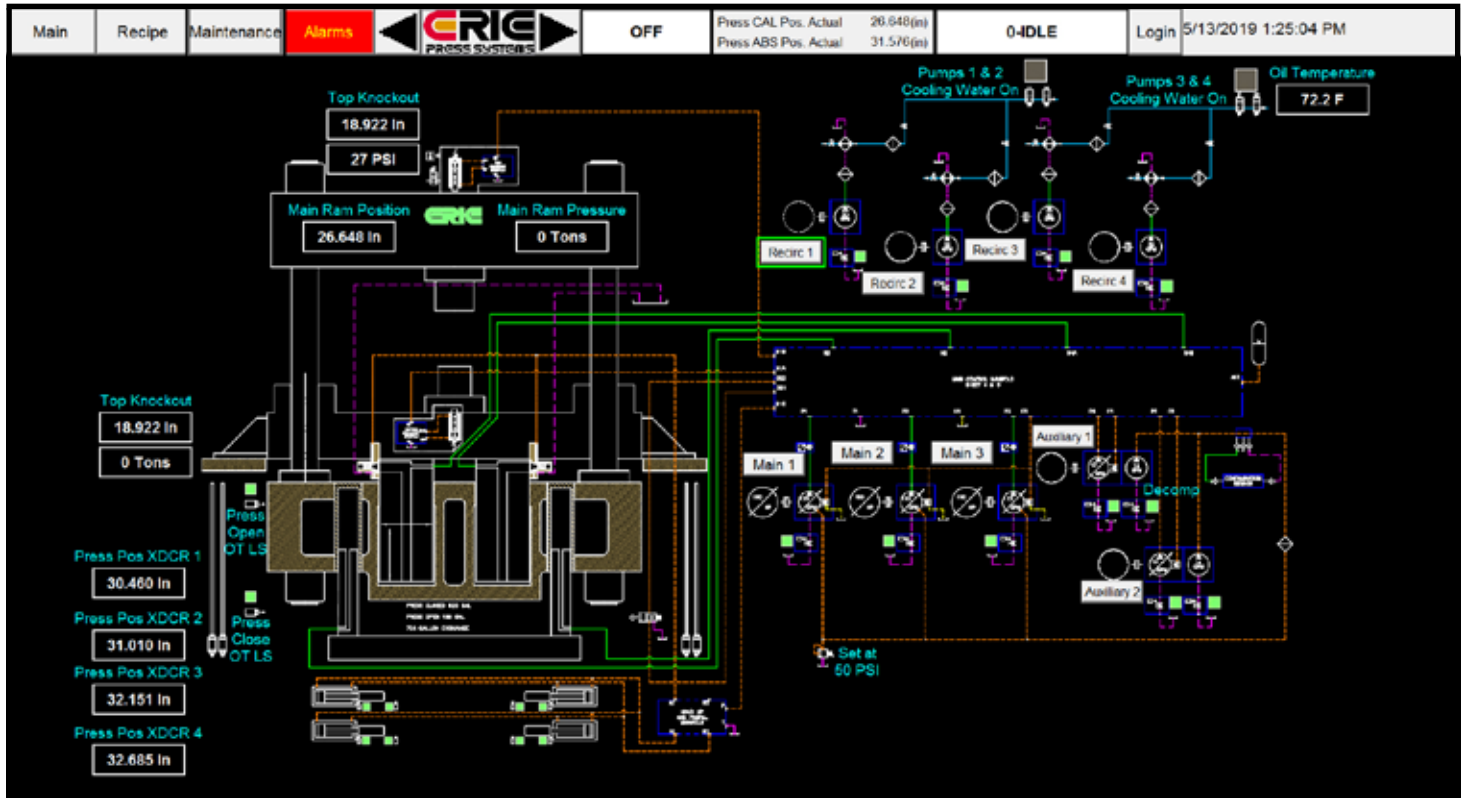
Precise Control of Forge Stroke, Force

According to Speicher, the Erie Press forging equipment is designed with a unique servo hydraulic system that allows greater control of the forging stroke and applied force. The press control modulates the servo proportional accumulator discharge valves to maintain the programmed velocity regardless of the load, ensuring consistent forging performance. This arrangement provides flexibility to forge parts across a wide velocity range not possible with a mechanically adjusted accumulator discharge rate configuration.

For some part geometries, the deformation rate of the titanium may require variable velocity profiles throughout the forming process. Altering the deformation rate enables FPD to achieve improved die life while creating greater detail by filling the die cavity webs and corners later in the stroke. According to Speicher, the servo-hydraulic system allows extremely high resolution in defining those parameters. Furthermore, the press position controller publishes (to FPD’s plant server) a high-speed plot or digital signature corresponding with each part’s forging cycle for historical records and reference.

FPD can also control the press to strike the part at a specific force or to a pre-defined tonnage limit. In addition, the press can stroke to a programmed position within a positional accuracy of less than .01”.

Erie Press’s Human-Machine Interface (HMI) allows operators to see how the press functions and anticipate how it should be performing. This is accomplished with dynamic animated models and schematics, live trending, and diagrams.



The HMI is a software application that graphically presents information to operators about the state of various processes in a format that looks like the actual machine or display panel. The information can be accessed locally (at the machine) or remotely (within the plant or offsite) via PC, laptop, or smartphone.

“Erie Press incorporated a very user-friendly, graphics-based HMI into the design that can walk even someone unfamiliar with the forging process through it step by step,” says Speicher, adding that the forging press manufacturer’s HMI system is a virtual “digital twin” of the actual machine as it functions.

“The press has sensors that monitor the ram position, pump output, valve positions, etc. and all these parameters are monitored in a digital representation of the press. With the HMI, the operator sees how the machine is performing in real-time,” adds Speicher.

The HMI also helps operators monitor what is happening with enough insight to successfully troubleshoot and promptly get the equipment back online when required. For example, operators can

quickly “drill down” from a top-level animated schematic to review the performance of specific components, such as valves and pumps, and locate information on part numbers and wiring schemes. Up-to-date PDF technical documents and the schematics of each component on the machine are also searchable and can be quickly displayed as needed.

The Erie Press forging equipment incorporates automation that enables the operator to change-out hot dies in less than ten minutes. A forging change-over is completely hands-off, requiring only



inputs to the HMI. Titanium billet and workpieces are pre-heated in an electric furnace, while the tooling is pre-heated offline. The operator, working behind an interlock gate system for safety, uses a joystick to transfer the tooling into the press, which is hydraulically clamped into place. A barcode is scanned on the production router, which calls up a part-specific forging program in the controller.

FPD worked with Erie Press to incorporate safety features such as preventing the program from executing if the bar codes of the toolsets and parts do not match the router, and a safety stroke the operator must execute before proceeding to automatic mode.

“Because we produce a lot of short runs, we can set up multiple times a day and this gives us tremendous production capacity,” says Speicher.

Extending Longevity, Lowering Cost

Controlling stroke speed has also helped to prolong tool life.

“With the hydraulic servo control, the operator can vary the press’s stroke speed with far more control, which prolongs tool life. According to our internal statistics, the new press has extended tool life by about 50%,” says Speicher.

There are also significant cost savings versus the conventional machining approach. “Depending on the part geometry, we can normally reduce unit price in the 30% to 50% range over a hog-out part [machined from bar, plate, or billet]. That is due to using less input material – and titanium is very expensive,” explains Speicher.

For machine shops, adding advanced forging of titanium parts to their existing machining capability can not only help to improve production speed and control but also significantly lower input costs – all which boosts the bottom line.



Further Information

Please visit the Ajax-CECO-Erie Press website at www.AjaxErie.com or e-mail them at info-sales@AjaxErie.com. Or, if you prefer, call 814-455-3941. Also, visit the FPD Company website at www.fpdcompany.com or contact Jeff Speicher, Mike McAllister, or Dan Gordon for inquiries at 724-731-2137

**FABRICATION & MACHINING
FOR ALL INDUSTRIES**

| | |
|--|---|
| CNC Milling/Turning VMC: 40” x 120” HMC: 78” x 118” Turning: 16” x 24” cc | Manual Milling/Turning Vertical Milling: 40” x 250” Horizontal Milling: 72” x 72” Turning: 48” x 240” cc |
|--|---|

AWS Certified Welders • ISO 9000 Compliant



**Innovative
MACHINE • INC.**

**40 Snow Road • Winchester, NH 03470
Tel: 603-239-8082**

**Contact: Terry Haskins
www.innovative-machine.com
tmhaskins@innovative-machine.com**

ABLE Air

Air Compressor Sales and Service

Serving
Vermont,
New Hampshire
and Maine

www.ableairne.com



- We service ALL Brands of compressed air equipment
- Compressors, vacuum pumps, air dryers, blowers...etc.
- 24-hour emergency service
- Air piping design and installation
- Flow and KW metering

- Reliable
- Energy Efficient
- Fixed speed from 3 hp to 605 hp
- Direct coupled one-to-one drive compressors
- Variable speed drive compressors from 10 hp to 350 hp
- German engineering at its finest!
- Rotary screw compressors for every budget!



KAESER
COMPRESSORS
Built for a lifetime.

New England's Original Dealer and Still the Best Place to Buy Your New Kaeser

For prompt, professional service, call: 1-800-462-0228

Serving New England For Over 50 Years

pc PAUWAY CORP. Accredited Nadcap™
THINK OF THE FINISH BEFORE YOU START!

Aerospace & Defense Painting • C.A.R.C. Coating Specialists
Dry Film Lube & Teflon Coatings • Industrial Painting
EMI/RFI Shielding • Powder Coating • Silk Screening
Pad Printing • Laser Marking & Engraving • Contract Manufacturing
Assembly • Custom Packaging • Stripping & Sandblasting

866-247-4062 **AS9100 & ISO 9001 Certified**
63 North Cherry Street **www.pauwaycorp.com**
Wallingford, CT 06492

PENGUIN AIR **CNC Lathe Work**
Fitchburg MA - In business since 1995

- CNC Lathe
- HAAS ST-15 Lathe
- 3 Fadal Mills
- Manual Lathe & Milling
- Surface Grinding chuck size 6x18

VETERAN OWNED BUSINESS

Contact **Richard Arnold** **978-400-1234**
Penguinair2017@gmail.com

ISO: 9001:15 **Howard Products Inc.** *Solutions & Services*
Precision Sheet Metal Fabrication

"Precision Contract Fabricating"

Precision Sheet Metal Fabrication
Capacity: 1/4" Mild & Stainless Steel, Aluminum, Lexan & More!
Our 70+ yrs. Engineering experience
3D Design Assistance
Shearing, Laser Cutting, CNC Axis Bending, Welding, Assembling
Prompt Attention & **ON TIME** Delivery

LC-1212αII **QWADP**

Supply Chain Issues?
Planning is the key to our success.

7 BROOKFIELD STREET
Worcester, MA 01605
SALES@HOWARDPRODUCTS.BIZ
508-757-2440
www.Howardproducts.biz

SUMMER VENTILATION

Fresh Air is needed in all facilities

Employees need **FRESH AIR**

BRING THE OUTSIDE...INSIDE



800 622 8078



www.ventusa.com



EXTREME HEAT TREATING
FOR EXTRAORDINARY RESULTS

MuShield®

AS:9100D | ISO 9001:2015 Certified | ITAR Registered Company

MuShield has a longstanding history of in-house heat treating using our hydrogen furnace and state of the art vacuum furnace. We apply specialized heat treating cycles to every project on our production floor.



For Orders and Pricing:
Contact MuShield today for more information

[888.669.3549]

The Mushield Company, 9 Ricker Avenue, Londonderry, NH 03053 | Toll Free: 888.669.3539 | info@MuShield.com
MuShield.com | MuMetal.com | HydroformingManufacturing.com | CryoPermShielding.com



HIGH PERFORMANCE ALLOY SPECIALIST



**NICKEL
COBALT
STAINLESS STEEL
ALUMINUM ALLOY
ALUMINUM EXTRUSIONS**

**WATERJET CUTTING
EDM CUTTING
MILLING & TURNING
SAWING
SHEARING**



- Near Net Shape Cutting
- Laser Quality Inspection
- Finish Machining

11 Britton Drive Bloomfield, CT 06002
Tel: 860-882-0019 or 800-214-0475
Fax: 860-882-0967
sales@aalloys.com www.aalloys.com



**ISO 9001:2000
AS 9100B Certified
P&W LCS APPROVED**

Bodycote

- Specialists in the thermal processing of components used in aerospace & defense industries
- Maintains major accreditations (ISO 9001:2000, AS 9100, Nadcap) and approvals from prime aerospace manufacturers and their supply chains



Call 860.225.7691 or visit www.bodycote.com for more information

BERLIN Connecticut SOUTH WINDSOR Connecticut IPSWICH Massachusetts WORCESTER Massachusetts LACONIA New Hampshire CINCINNATI Ohio

Processes

- Carburizing
- Electron beam welding
- Ferritic nitro carburizing
- Honeycomb brazing
- Induction treating
- Lindure®
- Nitriding
- Pit nitriding
- Vacuum heat treating & brazing

Materials

- Aluminum
- High temp alloys
- Tool steels

THE
Gateway
MAGAZINE

ENJOYED THIS
MONTH'S FEATURES?

Read these and many more
on our website!

WWW.THEGATEWAYMAG.COM

GO NOW!

From start to finish,
prototype to progressive...



**WE ARE YOUR
ONE STOP SHOP!**



**WIRE EDM
PRECISION TOOL & DIE
CNC MILLING
METAL STAMPING**

**11 Center Street
Raymond, NH 03077
(603) 895-1200
info@shookustools.com**

TDF Metal Finishing, Inc.
7 & 9 Electronics Ave Danvers, MA 01923

PROCESS

- ▶ Anodizing, Black, Clear, Red, Blue, Gold, Green
- ▶ Anodize, Hard
- ▶ Black Ebonal
- ▶ Black Oxide
- ▶ Black Passivate
- ▶ Brass
- ▶ Bright & Matte Tin
- ▶ Bright Dip
- ▶ Bright Nickel
- ▶ Cadmium
- ▶ Caustic Etching
- ▶ Chemical Film
- ▶ Copper
- ▶ Electroless Nickel
- ▶ Electropolish
- ▶ Gold
- ▶ Passivate
- ▶ Phosphate
- ▶ Pickling
- ▶ Rhodium
- ▶ Silver
- ▶ Zinc

SERVICES

- Clean Room Finishing
- Sandblasting
- Baking—High Temperature
- Salt Spray Corrosion Testing
- X-ray Florescence Thickness
- Vapor Blasting
- Buffing
- ROHS COMPLIANT CHEMICAL FILM
- ROHS COMPLIANT ZINC
- Environmentally Responsible
- High Tech Waste Management
- Quick Turnaround
- Sample Pieces

ISO 9001:2008, 8251QM8001, 11 May 2013

Tel: 978-223-4292 Fax: 978-223-4297
Web: www.tdfmetalfinishing.com Email: info@tdfmetalfinishing.com

ACCURATE METAL SALES & FABRICATION
A Division of Industrial Transfer & Storage, Inc.

Mild Steel
Stainless Steel
Aluminum
Hot Rolled • Cold Rolled
Abrasion Resistant

Sheared • Plasma Cut
Bent • Rolled • Saw Cut
Punched • Drilled
Welded • Fabricated

Where Service is Stronger Than Steel

Open M-F
7a-5p
508-765-4929

In House Design Services • Mig & Stick Welding • AWS D1.1
www accuratemetalsales.com
Southbridge, MA

We Armor Your Assets

MuShield®

AS:9100D | ISO 9001:2015 Certified | ITAR Registered Company

For over sixty years, The MuShield Company has been a worldwide industry leader as a manufacturer of custom magnetic shields and precision sheet metal fabrication.



ITAR-Registered Manufacturer



For Orders and Pricing:
Contact MuShield today for more information

[888.669.3549]

The Mushield Company, 9 Ricker Avenue, Londonderry, NH 03053 | Toll Free: 888.669.3539 | info@MuShield.com
MuShield.com | MuMetal.com | HydroformingManufacturing.com | CryoPermShielding.com



GRIP IT & RIP IT!

We're showcasing our IG customers ALL YEAR LONG!

@Jason_Chiple
Machinist/
Chisel Machining



Scan to SEE definition of Carrier Workholding, Optimizing Real Estate, & WINNING!



Free Design Consults
MiteeBite.com 800-543-3580

RIGGING AND HEAVY HAULING

- ◆ 70 Years Experience
- ◆ Forklift Capacity to 60,000 lbs
- ◆ Machinery Moving
- ◆ Mill-Wright Services
- ◆ Domestic & Export Crating
- ◆ Inside Storage / Warehousing



Tel. (603) - 623.1533

RIGGERS

lpcote.com

2022 INTERNATIONAL HONOR AWARDS

SME, the professional association connecting manufacturing professionals, academia and communities from all disciplines, has announced its 2022 International Honor Award recipients. These seven leaders, from industry and academia, are recognized for their contributions in the areas of manufacturing technologies, processes, technical writing, education, research and management, and service to SME.

For over six decades, SME's International Honor Awards have identified professionals whose bodies of work have led to critical breakthroughs and advancements in manufacturing technologies, processes and education as well as honored members for their volunteerism. This year's select awardees' involvement with SME dates back to 1980, showing the consistent dedicated role SME plays within manufacturing.

"I'm proud to acknowledge that all the recipients of this year's International Honors Awards are active members of our organization," said Bob Willig, executive director and CEO of SME. "These diverse leaders come from a variety of industries and backgrounds; each will continue to push the boundaries of what's possible in manufacturing."

About SME

SME believes in the power of technology and the innovation of people to advance our nation and solve the world's greatest problems. For 90 years, SME has led the manufacturing ecosystem to elevate manufacturers, academia, professionals, and the communities in which they operate. We help build the bridge from today to the future by developing the next generation of manufacturing talent and informing industry on technology advances that can propel their operations into excellence. Learn more at sme.org.

2022 International Honor Awards

- *Eli Whitney Productivity Award — Jay Lee, PhD, FSME, Foxconn Technology Group, Mason, Ohio*
- *Joseph A. Siegel Service Award — Vesna Cota, VMMI, Markham, Ontario*
- *SME Albert M. Sargent Progress Award — Yuebin Guo, PhD, FSME, Rutgers University-New Brunswick, Piscataway, New Jersey*
- *Donald C. Burnham Manufacturing Management Award — Lisa Strama, The National Center for Manufacturing Sciences, Ann Arbor, Michigan*
- *SME Education Award — David E. Hardt, PhD, FSME, Massachusetts Institute of Technology, Cambridge, Massachusetts*
- *SME Frederick W. Taylor Research Medal — I.S. Jawahir, PhD, FSME, University of Kentucky, Lexington, Kentucky*
- *SME Gold Medal — A. Erman Tekkaya, Prof. Dr.-Ing. Dr.-Ing. E. h., Technische Universität Dortmund, Dortmund, Germany*

GOT PRESS? GET THE WORD OUT.

Make sure we're on your press outlet hit list. Advertisers in the Gateway have access to promote news and events right here to YOUR target market.

chris@thegatewaymag.com or [Submit at thegatewaymag.com](http://thegatewaymag.com)



**Spur & Worm Gears
Internal / External Splines
Broaching, Hobbing, Shaping**



JoVal Machine Company, Inc.

515 Main Street Yalesville, CT 06492
Tel (203) 284-0082 Fax (203) 284-9605
www.jovalmachine.com



*PRECISION MACHINING
- SINCE 1963 -*

**- Precision Machining -
- Toolmaking -
- Jig Grinding Service -
CLASSIC JIG GRINDING**

jiggrind@snet.net
classicjiggrinding.com
Ph (860) 870-4900
Fax (860)870-1900



Contract and prototype manufacturing of precision screw machined parts for volume production

217 Harrison Rd.
Bridgton, ME 04009

www.merrimackmfg.com

207-647-3566
info@merrimackmfg.com

MINI-BROACH MACHINE CO., INC.

Contract Broaching Services, Broaches, Tooling, Broach Sharpening, & Broaching Machines, with over 45 years experience.

info@Minibroach.com
Tel: (978) 386-7959
Fax: (978) 386-7123



Rush Broaching Services Available!



(860) 928-7965

(860) 928-7965
Fax (860) 928-1408

10 Senexet Road • Putnam, Connecticut • 06260

Plating of Hard Chrome, Electroless Nickel, Mass Finishing Media, Equipment and Supplies
Mass Finishing, Tumbling & Deburring
Web Page: www.nationalchromium.com



**Fast Hole, Wire and Sinker EDM
Precision Tools, Dies, Jigs and Fixtures**

Border Tool and Die,

DBA Bengtson Tool and Die



240 Gale Street Canaan, VT 05903
T: 802-266-9666 F: 802-266-9667

richard.btd@gmail.com

Federal Firearms Lic
6-06-009-07-7G-03042



**YOUR ONE STOP SHOP
FOR ALL YOUR PART MARKING NEEDS**

203-265-9366 | sales@ctlaserengraving.com
www.ctlaserengraving.com

DYNAMIC BALANCING



Industrial, Medical & Commercial applications from one piece to large production runs.

**Pump Impellers - Fan Wheels - Prototype Development
Gears - Motor Armatures - Sheaves and Pulleys -
Flywheels - Couplings - Much More**

**8 Donnelly Road, PO Box 303 Spencer, MA 01562
www.ne-spintech.com**

Tel: 508-885-5300 Fax: 508-635-6831

Companies that use
WD-40....

Du-Lite's RG-55 cost less, last longer and protects parts from corrosion for up to 18 months when stored indoors.

ASK FOR FREE SAMPLES
CALL 860-347-2505

OR EMAIL: dulite@sbcglobal.net
WWW.DU-LITE.COM

**WANTED OLD
GAS FORK LIFTS**



**We Buy Old Forklifts for
Parts. Gas or Electric,
Large or Small,
Running or Not.**

**We pay reasonable prices.
Call Walt 860-508-9164
Will Pick Up and Pay Cash**

Also Electric Forklift Batteries Wanted

**WANTED OLD
ELECTRIC
FORK LIFTS**

**Wanted Used Electric Forklifts,
running or not.**

**Also looking for LARGE
Used Batteries good or bad.
Must be reasonable, we pick
up and pay cash.**



Call Walt: 860-508-9164



MANUFACTURING **BOLD** MARKETING SUCCESS

10+ Years of Results Driven Sales Leads and Acquisitions

We're defined by who we are. Hardworking. Experts in both traditional and digital worlds. Lovers of great creative. Our workboots are never clean. Let's push the bounds of manufacturing and keep the shop floor bustling with innovation.

603.436.2065



BOLDWERKS.COM



871 Islington Street | Suite L5 | Portsmouth, NH 03801

HAVE YOU SEEN OUR ONLINE DIRECTORY?

Signup for the Gateway Magazine newsletter and don't forget to share your showcase piece!





PROMOTE YOUR COMPANY IN THE GATEWAY MAGAZINE

25,000+ readers read THE GATEWAY in over 7,500 companies

info@thegatewaymag.com or call: (877) 463-4020

LOOKING TO HAVE A FEATURE DONE ON YOUR COMPANY?
*We would like to hear it. Contact us to give us your input or feedback.
We're always looking for new stories to discuss.*

chris@thegatewaymag.com or Call: (877) 463-4020

THE
Gateway
MAGAZINE

