

NOVEMBER 2023

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THE NED INNOVATION AWARDS ISSUE

Bonus Issue

PRODUCTS FOR INDUSTRY

# NED

NEW EQUIPMENT DIGEST®

**FORGING**

2023/2024  
Buyers Guide

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MEET THE 2023

NED

NEW EQUIPMENT DIGEST®

INNOVATION

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Turn Your Tablet into a Leak  
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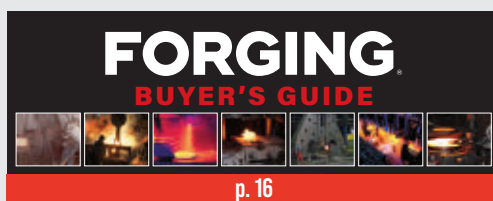
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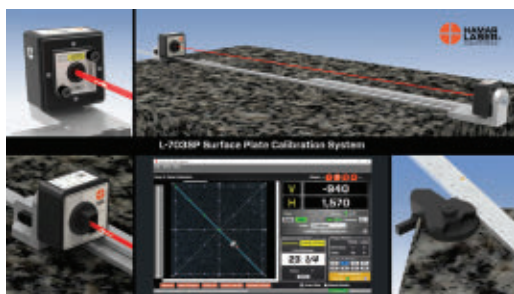
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## Laser Alignment Surface Plate Calibration System

The **L-703SP Surface Plate Calibration System** is a compact geometry laser-based calibration system that's highly repeatable, offers high resolution and accuracy, easy setup and training, and fast data collection. The system measures surface vertical and horizontal straightness, axis vertical and horizontal straightness, and guideway vertical and horizontal straightness.

**Hamar Laser Instruments, Inc.**

More online: [newequipment.com/21275745](http://newequipment.com/21275745)



## Unbeatable Traction



The **Invader Mid Vent** is a shoe featuring a ReViveTech Engineered Comfort footbed, a 100% recycled Lining with an NXT footbed cover, a resilient EVA midsole, a nylon shank, a composite toe, and an industrial-grade rubber outsole. The design also features an aggressive lug pattern that provides unbeatable traction inspired by the CAT machine.

**Caterpillar, Inc.**

More online: [newequipment.com/21275300](http://newequipment.com/21275300)

## Pole Mount for Vision Applications



Featuring 2 stainless-steel ribbon clips and a dovetail profile, the **new mounting fixture for vision applications** fits pole diameters up to 4.5 in. (115 mm). It provides a convenient and secure way to attach camera enclosures with dovetail profiles on poles, pipes, and trusses with differently shaped cross sections.

**autoVimation**

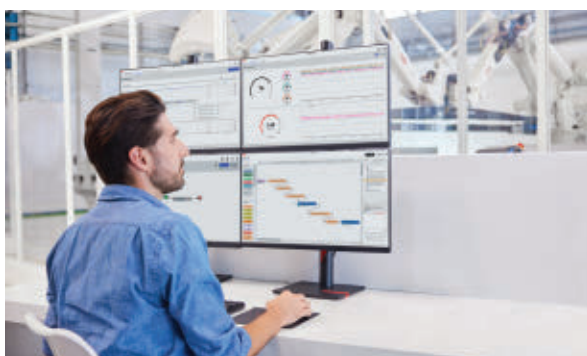
More online: [newequipment.com/21276450](http://newequipment.com/21276450)

## Platform Unlocks Potential of Factory Data

The modular **OptiFact software platform** streamlines data collection, visualization, and analysis in automated production facilities. The platform enables users to collect, manage, and analyze data from hundreds of factory devices to determine KPIs including cycle time and OEE. By speeding up diagnostics and decision making, OptiFact increases the production line uptime with less engineering effort, ensuring production can keep pace with customer demand.

**ABB Robotics**

More online: [newequipment.com/21276467](http://newequipment.com/21276467)



## Noise-Canceling Communication Headsets

The **NC-520XP hearing protection headsets** deliver top-notch acoustic protection and communication solutions in challenging, hazardous conditions. With dual Bluetooth, users can connect two Bluetooth devices simultaneously—in most cases a radio and a mobile phone—for hands-free communication and to listen to radio transmissions while still being reachable.

**Savox Communications, Inc.**

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## Economical Bypass Solution for HVAC

**PowerGate "E"** (E for Economy) is a standard bypass solution for commercial HVAC applications that require limited options and have tight budgets. Designed for customers with limited technical requirements and tight budgets, PowerGate E comes with a NEMA 1 enclosure and uses Mitsubishi's FR-F800 VFD. Features include a 2-contractor bypass system, 5% impedance AC line reactor, HOA Keypad, Alpha Controller, load abnormality detection, and RS485 BACnet MS/TP and Modbus RTU communication.

**Mitsubishi Electric Automation, Inc.**

More online: [newequipment.com/21276142](http://newequipment.com/21276142)



## Software Captures Legacy Data for IIoT Applications

*remains invisible to existing machines on the network*

The **netFIELD App EtherCAT Tap software application** enables manufacturers to passively extract process data from existing machines on EtherCAT networks without impacting operations and equipment controls. The application is compatible with any EtherCAT network, achieves success without interference to existing network or PLC controls, and can be set up within minutes. This containerized software is easy to deploy, manage, and includes a built-in, feature-rich configuration app that is accessible via web browser. No additional software tools are required for deployment.

**Hilscher North America, Inc.**



More online: [newequipment.com/21275452](http://newequipment.com/21275452)

## Fume Hood for Fabricators

*is available in free-standing and ceiling-mounted configurations*

Designed for robotic or manual welding applications, the **Torit Fume Hood** provides fabricators with additional fume extraction capabilities. The hood's low profile allows for a more flexible installation than traditional canopy-style hoods. When paired with the optional weld curtains, it can be sized to reduce airflow requirements, lowering the cost of a dust collection system. It can be integrated with existing systems or paired with a Donaldson cartridge collector for enhanced filtration.

**Donaldson Company, Inc.**



More online: [newequipment.com/21276471](http://newequipment.com/21276471)

## Reliable Fiber Consistency Measurement Tool

*delivers high sensitivity while cutting maintenance effort*

The **Valmet Rotating Consistency Measurement (Valmet Rotary)** for pulp and paper producers offers easy maintenance and highly accurate fiber consistency measurement for critical applications. The sensor can be installed to pipe sections where other shear force sensors cannot work. The strong motor ensures trouble-free startup and reliable mixing in unfavorable process conditions. The Valmet Link user interface provides a flexible platform with secure remote connection possibilities.

**Valmet**



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## Remote-Controlled Electric Tugger

*provides a compact vehicle that handles extreme weight*

Featuring a load-moving weight capacity of 154,000 lb. (70,000 kg) and patented MultiLink technology, the remote-controlled **PS7000+ electric tugger** is designed to enable a single operator to safely move large loads. With MultiLink technology—a patented system that allows multiple tuggers to work together with a single operator—the weight capacity is increased, meaning the PS7000+ can take on the most extreme movements of heavy-wheeled loads.

**MasterMover**



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# NED INNOVATION AWARDS

## Announcing the 2023 Winners!

NEW EQUIPMENT DIGEST®

By Laura Davis

**W**e are excited to officially announce the 2023 NED Innovation Award winners!

In many circles, “innovation” has been reduced practically to a cliché. Every new product and every new solution coming out in industrial and commercial markets alike abuse the term, promising disruption and change and, worse still, “disruptive change” wherever they go.

But innovation is something that we still take seriously at NED.

For the past 85 years, New Equipment Digest has been bringing the world information about not just the best equipment from the best suppliers, but also the newest, freshest designed equipment makers have developed to produce ever stronger, smarter, and more efficient tools for the manufacturers who depend on them. This process is really what is at the heart of NED and exactly what we look for as we curate material for every new issue—its innovation in its purest, most material form.

The tools, components, equipment, and solutions published in NED represent real advancements for the industry. They represent real creativity, real risks, and real R&D power that puts engineering to the test.

In this respect, every issue of NED and every new day's posts on *Directory*. *NewEquipment.com* is a celebration of the most innovative products on the market.

But we like to take things even further than that.

Seven years ago, we launched the NED innovation Awards—an annual contest that digs through the thousands of innovative new products we published over the course of 12 months to determine those few that best represent the potential in the market. Products that fundamentally change their markets, crush limitations of their product class and redefine design possibilities. In other words, products that provide real potential for disruptive change.

But we decided to make some changes: Instead of us picking out what we feel is worthy of the innovation title, we turned it to you, the manufacturers, to tell us what you feel is deserving of that name.

I feel that's truly important; Letting our vast network of committed workers and experts out in the field rank their picks as not just the best examples of innovation, but those with the most potential for practical implementation of them.

If you're interested in learning about all the finalists for this year, you will be able to read about them on *NewEquipment.com* where we will be celebrating the winners and finalists alike.

So, thank you for aiding us in this effort, and with that, it is now our pleasure to introduce you to the 2023 NED Innovation Awards winners.



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## AUTOMATION

**WINNER:** MOBILE INDUSTRIAL ROBOTS, INC.  
(MIR): MIR INSIGHTS



To optimize fleets of AMRs, **MiR Insights** is a cloud-based application that provides precise and actionable data on the fleet's performance and how they interact with their physical environment, enabling fleet owners to improve performance and uptime to achieve a faster return on investment.

It answers questions such as:

- What was the overall mission effectiveness of the robot fleet this week?
- Do we have any specific areas in our production where our robots encounter recurring challenges?
- How have the changes we implemented on the factory floor last month impacted robot throughput?

Data dashboards monitor key performance indicators such as distance driven, completed missions, and robot utilization rate. Heat maps track robot activity over time and physical locations and visualize areas with poor Wi-Fi coverage and potential robot traffic bottlenecks.

MiR Insights is hosted on Microsoft Azure and is used in connection with MiR Fleet, MiR's fleet management software. MiR Insights reads data from MiR Fleet but does not interfere with fleet operations or individual robot control, or adjust fleet settings. The data interface is very flexible with options for data visualization as well as an API to port raw data for use in external systems.

## CONTROLS & INSTRUMENTATION

**WINNER:** HONEYWELL SMART THERMAL ENERGY SOLUTIONS: NEXT GENERATION CELLULAR MODULE (NXCM)

The **Next Generation Cellular Module (NXCM)** enables Advanced Metering Infrastructure (AMI), a solution that upgrades legacy gas and water meters into smart meters without requiring additional infrastructure. Meters can be wirelessly connected through existing public cellular networks, enhancing monitoring, safety, and analytics capabilities.

The NXCM helps gather data from gas and water meters, improving efficiency, reducing costs, and providing accurate usage information. By retrofitting existing meters with the NXCM, users can leverage smart meter technology without custom infrastructure installation and maintenance costs.



It also streamlines the meter reading process by offering automatic readings through Honeywell's Connexo Meter Data Collection system, minimizing labor and potential errors.

Providing 24 hourly readings per day with built-in data redundancy, it alerts for tampering and theft prevention over a 20-year

battery life in its default configuration, with customizable reading and transmission schedules—enabling faster and more accurate billing and reducing disputes over consumption data.

The NXCM is a flexible and scalable solution with secure data transmission using advanced authentication methods and AES-128 encryption that meets metering and data management regulatory requirements. The module is designed for easy installation and seamless integration with most industrial gas and water meters on the market, ensuring a smooth transition to smart meter technology.

## ELECTRICAL & ELECTRONICS

**WINNER:** POWR2: POWERBANK MAX

Revolutionizing the industrial energy storage space, the **POWRBANK MAX**, a 500 kVA+ solution, meets extended use cases for high-capacity equipment. The power capability of POWRBANK MAX has accelerated the transition to sustainable energy by helping cut CO<sub>2</sub> emissions, reduce dependency on diesel, and improve energy efficiency. POWRBANK significantly reduces generator run time, offsets CO<sub>2</sub> emissions, and eliminates unnecessary noise.

The POWRBANK MAX is a rental-ready, emission-free, silent power solution. Designed with the construction and rental industries in mind, the POWRBANK MAX handles temporary-power applications including, but not limited to, tower cranes, large pumps, and hoists.

Previous POWRBANK models handled the low load periods, while the generator handled the load spikes. The POWRBANK MAX can handle both the peak load as well as the low load. The power generator is only used to recharge the battery.

Available sizes are 250 and 500 kW. Depending on the size of the POWRBANK and the generator, a full charge can be reached in 1 hour. That means, when power is required 24 hours a day, generator runtime is shortened from 24 hours down to just 1 h/day.



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### RACO MA-Series

The modular design of RACO ACME and Ballscrew Electric Actuators allow for a variety of design configurations while offering a Linear Thrust range from 70lbs to 225,000lbs, Linear Rod Speeds from 0.2"/sec to 30"/sec and Linear Travel (stroke) up to 20 ft.

### RACO LM-Series

The RACO LM-Series is designed for high speeds and long travel (stroke) with capabilities that are frequently found in today's automation processes. The LM can be used as a single axis system or can be combined to form a multiple axis system.



### RACO Rotary-Series

The Rotary Actuator is designed to automate the operation of valves, gates, dampers, louvers and other positioning applications requiring partial or multi-turn rotational movement.



## RACO International, LP

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## COVER STORY

# NED INNOVATION NEW EQUIPMENT DIGEST AWARDS

## FACILITY OPERATIONS

### WINNER: TRANE: ASCEND AIR-TO-WATER HEAT PUMP, MODEL ACX

The first packaged, non-modular, air-to-water heat pump in North America, the **Ascend Air-to-Water Heat Pump Model ACX** combines chiller and heat pump technology to both heat and cool a building using electricity. It helps facility operators meet current HVAC regulations, attain certifications, and achieve a net-zero energy building with its all-electric functionality.

In cooling mode, it moves heat from the inside of the building to the outside of the building. In heating mode, a reversing valve changes the energy flow to bring heat from the outside of the building to the inside. The heat pump moves heat using a compressor rather than simply generating heat, making the heat pumps up to 3x more energy-efficient than other forms of electric heating.

The heating efficiency exceeds ASHRAE standard 90.1-2019: 2.77 COP and the cooling requirement 9.215 EER. It's available in ranges from 140 to 230 tons for cooling and 1,500 to 2,500 MBh for heating.

Other energy-efficient features include:

- Variable-speed fans, intermediate discharge valves on the compressor, and a braze plate heat exchanger enhance efficiency.
- Dual expansion valves optimize efficiency: One for heating mode and one for cooling mode to improve system reliability.
- The heat pump generates hot water temperatures up to 140°F (60°C). It can also operate in heating mode down to ambient temperatures as cold as 0°F (-18°C).
- The Symbio 800 unit controller responds to building conditions to maintain efficient chiller plant operations.
- A scroll compressor makes electrification more affordable and practical without compromising efficiency or sound.



## MACHINE TOOLS & METALWORKING

### WINNER: SANDVIK COROMANT: COROPLEX YT

**CoroPlex YT twin-tool** was created to support a new turning method: Y-axis turning. This method enables simultaneous 3-axis turning in which the tool rotates around its own center. The insert is positioned for machining in the Y-Z plane and the milling spindle axis interpolates during turning. As a result, a complex shape or a pocket can be machined with a single tool.

The ability to machine several features with a single tool reduces cycle time, and no tool changes are required which minimizes the risk of "blend points" or irregularities between adjacent machined surfaces. The main cutting forces are directed into the machine spindle, thus improving stability and reducing the risk of vibration. A constant entering angle drastically improves chip control and makes it easier to avoid chip jamming.

CoroPlex YT twin-tool features CoroTurn TR profiling inserts and CoroTurn 107 round inserts with rail interface, which can be used for components with pockets and cavities. The Y-axis turning method is suitable for all materials and requires a multi-task machine with options to allow interpolation of the milling spindle axis during turning. The CoroPlex YT twin-tool can also be used in "static mode" with a locked spindle for flexible 2-axis turning with fast insert indexing.



HYDRAULICS & PNEUMATICS

WINNER: GEFRAN, INC.: LINEAR TWIIST

Improving machine designs and performance, TWIIST is a contactless linear position transducer in the Hall effect category that processes position data along with other process variables such as temperature, velocity, acceleration, and tilt angle due to its unique helical magnetoelectronic design.

TWIIST's compact, air-tight design has a steel barrel with a diameter of 5/8 in. (16 mm), and it comes with a choice of two types of connection points, ball joints for swivel connections, and rod ends with eyes for pivot connections. Available in full-scale (FS) strokes from 2 to 35 in.

(50 to 900 mm) , it has a typical linearity of 0.15% FS and a typical repeatability of 0.05% FS. It can operate in a temperature range from -40 to 185°F (-40 to 85°C). With an IP67 environmental protection rating, it offers complete protection against dust and airborne particles, as well as protection against water and other liquids when submerged up to 39 in. (1 m) deep.

TWIIST provides hydraulic and pneumatic cylinder feedback control, bending rolls parallelism control in metalworking machines, control of abrasive wheel positioning in marble and stone processing machines, and mechanical dancer position control feedback in packaging and labeling machines.

Currently, there are 3 models in the TWIIST product line: The LM-L (IO-Link), LM-C (CANopen), and LS-A. The LM-L (IO-Link) and LM-C (CANopen) transmit measurements digitally up to 1,000x/s. The LS-A has a mono-variable analog output (current, voltage, or ratiometric), as well as the redundant ratiometric version to support safety applications.

The TWIIST lends itself to an unlimited number of applications for mobile and industrial hydraulic systems. For example, when steering a vehicle using spatial inclination and acceleration, the TWIIST verifies, at each millisecond, if the ground is stable under the construction equipment and can alert the operator if there's a danger of unstable ground. All of this is directly on the steering axis, without any mechanical interference, or worse, mechanical play.

This transducer allows engineers to measure with just a single device as well as the ability to correlate the evolution of measurements over time. Depending on the machine, the application, and the goals of the engineer, the TWIIST can enable self-diagnosis, self-correction, and machine learning, including predictive maintenance.

This patented technology results from a decade-long partnership between Gefran's internal R&D department and the University of Brescia's engineering department in Brescia, Italy.



CONTAINER DUMPERS  
WHEN DURABILITY MATTERS



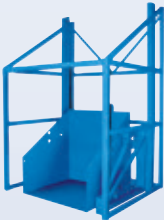
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5 Year - 1,000,000 Cycle Warranty  
22 Cycles/Hour - 3 Shifts/Day  
\*\*\* Quick Reverse - Load Shuffle



HIGH PERFORMANCE  
DUMPERS

180 Degree Dump Rotation  
5 Year - 500,000 Cycle Warranty  
11 Cycles/Hour - 3 Shifts/Day



HIGH REACH  
DUMPERS

135 Degree Dump Rotation  
5 Year - 250,000 Cycle Warranty  
72" to 120" Dump Heights



HEAVY DUTY  
DUMPERS

135 Degree Dump Rotation  
5 Year - 250,000 Cycle Warranty  
10 Cycles/Hour - 2 Shifts/Day



STANDARD  
DUMPERS

125 Degree Dump Rotation  
10 Year - 250,000 Cycle Warranty  
6 Cycles/Hour - 1 Shift/Day

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# NED INNOVATION AWARDS

NEW EQUIPMENT DIGEST

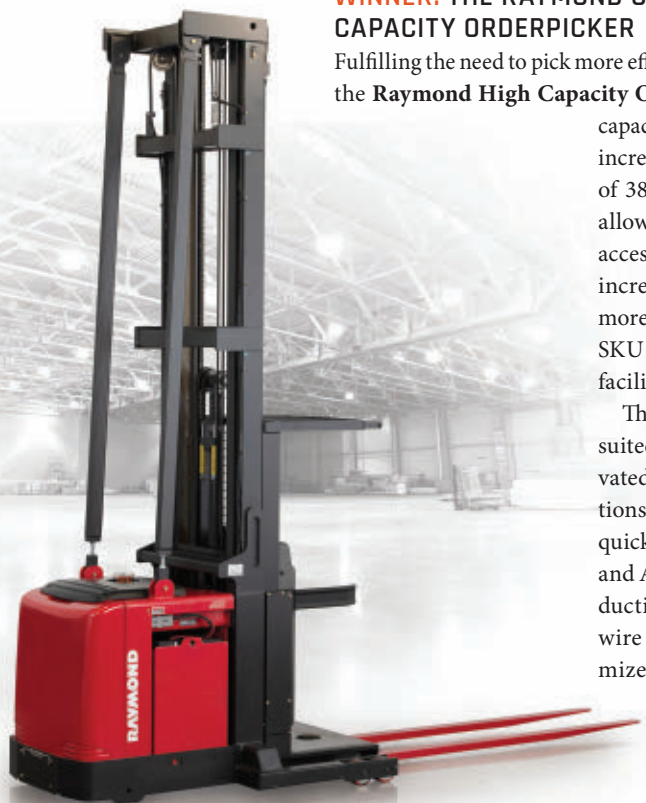
## MATERIAL HANDLING & PACKAGING

### WINNER: THE RAYMOND CORPORATION: HIGH CAPACITY ORDERPICKER

Fulfilling the need to pick more efficiently at increased heights, the **Raymond High Capacity Orderpicker** boosts storage

capacity as e-commerce demands increase. With an elevated height of 38 ft (11.5 m), the lift trucks allow for increased rack storage access to 11% more pick slots and increased storage capacity for more usable space and improved SKU count without increasing a facility's overall footprint.

The 5600 stock picker is best suited for high throughput, elevated height, and 36V applications. The ACR System provides quick acceleration and AC Drive and AC Lift. Boost operator productivity with the intelliguide wire guidance system to minimize steering requirements in aisles, and the intellispeed system to optimize travel speeds at height.



## MOTION CONTROL

### WINNER: ROCKWELL AUTOMATION, INC.: ALLEN-BRADLEY POWERFLEX 6000T MEDIUM-VOLTAGE AC DRIVE

The **Allen-Bradley PowerFlex 6000T Medium-Voltage AC Drive** accepts up to 13.8 kV primary voltage in a best-in-class footprint that is only 7.5 to 10 ft wide (2 to 3 m). For greater output frequency range, the PowerFlex 6000T variable frequency drive range now goes up to 120 Hz to meet the needs of high-speed industrial applications including turbines, compressors, and pumps.

The motor controller also offers the new RealSine solution. The option helps reduce input harmonics to lower levels than the industry standard. Ranging from 3 to 4.16 kV with high voltage input built in. Plus, high-voltage feeds can be directly connected to the drive from the main distribution line without additional step-down transformer or substation equipment, reducing costs.

The design offers up to 30% improvement in total harmonic current distortion at the drive's primary side. By reducing harmonic distortion, the VFD improves system efficiency, reduces energy costs, and minimizes power distribution issues on the factory floor.

The compact A-Frame design is ideal for new and retrofit industrial applications in IEC markets where industrial space is a premium. The PowerFlex 6000T drive features TotalFORCE technology.

With real-time operational intelligence, this smart industrial control system:

- Monitors system performance.
- Delivers faster commissioning with adaptive control.
- Saves energy with economizer mode.
- Reduces downtime and repair costs with predictive maintenance alerts.
- Makes it easy to start up and troubleshoot all drives on the common control platform.

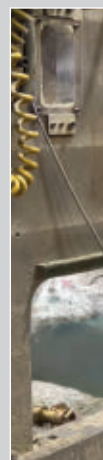


## PROCESS EQUIPMENT

### WINNER: EXAIR: TURBOBLAST SAFETY AIR GUN

A dynamic air gun capable of producing up to 23 lb. (10 kg) of force with the simple press of a button trigger, the **TurboBlast Safety Air Gun** is an ideal solution for blowoff applications requiring maximum force. Applications include removing stubborn or heavy debris like slag and flash, part drying or cooling from a distance, and heavy-duty cleanup in busy facilities.

It features a cast aluminum handle with a rugged elastomer grip that's comfortable, UV-resistant, chemical-resistant, and insulated from heat or cold. The light touch activation trigger creates a powerful blast of air and also includes a "Dead Man's" grip that turns air off if the air gun is dropped. All models include an integrated nozzle

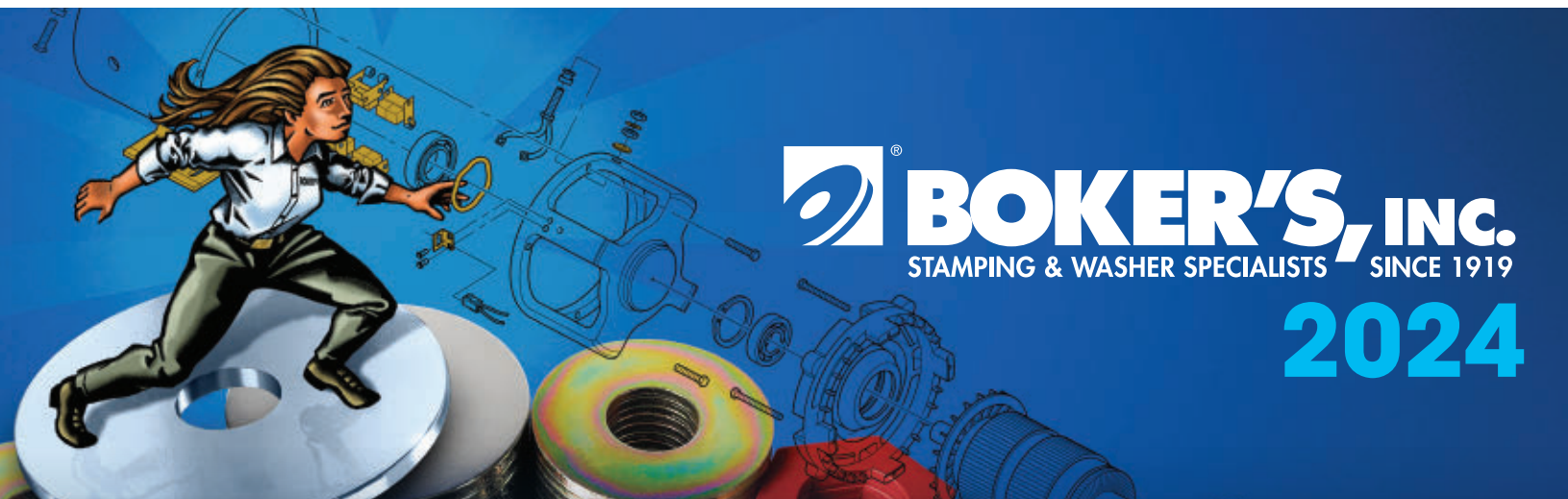


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**2024**

**JANUARY**

WK	SUN	MON	TUE	WED	THU	FRI	SAT
1		1	2	3	4	5	6
2	7	8	9	10	11	12	13
3	14	15	16	17	18	19	20
4	21	22	23	24	25	26	27
5	28	29	30	31			

**FEBRUARY**

WK	SUN	MON	TUE	WED	THU	FRI	SAT
5					1	2	3
6	4	5	6	7	8	9	10
7	11	12	13	14	15	16	17
8	18	19	20	21	22	23	24
9	25	26	27	28	29		

**MARCH**

WK	SUN	MON	TUE	WED	THU	FRI	SAT
9						1	2
10	3	4	5	6	7	8	9
11	10	11	12	13	14	15	16
12	17	18	19	20	21	22	23
13	24/31	25	26	27	28	29	30

**APRIL**

WK	SUN	MON	TUE	WED	THU	FRI	SAT
14		1	2	3	4	5	6
15	7	8	9	10	11	12	13
16	14	15	16	17	18	19	20
17	21	22	23	24	25	26	27
18	28	29	30				

**MAY**

WK	SUN	MON	TUE	WED	THU	FRI	SAT
18			1	2	3	4	
19	5	6	7	8	9	10	11
20	12	13	14	15	16	17	18
21	19	20	21	22	23	24	25
22	26	27	28	29	30	31	

**JUNE**

WK	SUN	MON	TUE	WED	THU	FRI	SAT
22							1
23	2	3	4	5	6	7	8
24	9	10	11	12	13	14	15
25	16	17	18	19	20	21	22
26	23/30	24	25	26	27	28	29

**JULY**

WK	SUN	MON	TUE	WED	THU	FRI	SAT
27		1	2	3	4	5	6
28	7	8	9	10	11	12	13
29	14	15	16	17	18	19	20
30	21	22	23	24	25	26	27
31	28	29	30	31			

**AUGUST**

WK	SUN	MON	TUE	WED	THU	FRI	SAT
31					1	2	3
32	4	5	6	7	8	9	10
33	11	12	13	14	15	16	17
34	18	19	20	21	22	23	24
35	25	26	27	28	29	30	31

**SEPTEMBER**

WK	SUN	MON	TUE	WED	THU	FRI	SAT
36	1	2	3	4	5	6	7
37	8	9	10	11	12	13	14
38	15	16	17	18	19	20	21
39	22	23	24	25	26	27	28
40	29	30					

**OCTOBER**

WK	SUN	MON	TUE	WED	THU	FRI	SAT
40			1	2	3	4	5
41	6	7	8	9	10	11	12
42	13	14	15	16	17	18	19
43	20	21	22	23	24	25	26
44	27	28	29	30	31		

**NOVEMBER**

WK	SUN	MON	TUE	WED	THU	FRI	SAT
44						1	2
45	3	4	5	6	7	8	9
46	10	11	12	13	14	15	16
47	17	18	19	20	21	22	23
48	24	25	26	27	28	29	30

**DECEMBER**

WK	SUN	MON	TUE	WED	THU	FRI	SAT
49	1	2	3	4	5	6	7
50	8	9	10	11	12	13	14
51	15	16	17	18	19	20	21
52	22	23	24	25	26	27	28
53	29	30	31				

**2025 JANUARY 2025**

WK	SUN	MON	TUE	WED	THU	FRI	SAT
1				1	2	3	4
2	5	6	7	8	9	10	11
3	12	13	14	15	16	17	18
4	19	20	21	22	23	24	25
5	26	27	28	29	30	31	

**2025 FEBRUARY 2025**

WK	SUN	MON	TUE	WED	THU	FRI	SAT
5							1
6	2	3	4	5	6	7	8
7	9	10	11	12	13	14	15
8	16	17	18	19	20	21	22
9	23	24	25	26	27	28	

**2025 MARCH 2025**

WK	SUN	MON	TUE	WED	THU	FRI	SAT
9							1
10	2	3	4	5	6	7	8
11	9	10	11	12	13	14	15
12	16	17	18	19	20	21	22
13	23/30	24/31	25	26	27	28	29

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SINCE 1919



	DECIMALS	MILLIMETERS
$\frac{1}{64}$	0.015625	— 0.397
$\frac{1}{32}$	.03125	— 0.794
$\frac{3}{64}$	.046875	— 1.191
$\frac{1}{16}$	.0625	— 1.588
$\frac{5}{64}$	.078125	— 1.984
$\frac{3}{32}$	.09375	— 2.381
$\frac{7}{64}$	.109375	— 2.778
$\frac{1}{8}$	.1250	— 3.175
$\frac{9}{64}$	.140625	— 3.572
$\frac{5}{32}$	.15625	— 3.969
$\frac{11}{64}$	.171875	— 4.366
$\frac{3}{16}$	.1875	— 4.763
$\frac{13}{64}$	.203125	— 5.159
$\frac{7}{32}$	.21875	— 5.556
$\frac{15}{64}$	.234375	— 5.953
$\frac{1}{4}$	.2500	— 6.350
$\frac{17}{64}$	.265625	— 6.747
$\frac{9}{32}$	.28125	— 7.144
$\frac{19}{64}$	.296875	— 7.541
$\frac{5}{16}$	.3125	— 7.938
$\frac{21}{64}$	.328125	— 8.334
$\frac{11}{32}$	.34375	— 8.731
$\frac{23}{64}$	.359375	— 9.128
$\frac{3}{8}$	.3750	— 9.525
$\frac{25}{64}$	.390625	— 9.922
$\frac{13}{32}$	.40625	— 10.319
$\frac{27}{64}$	.421875	— 10.716
$\frac{7}{16}$	.4375	— 11.113
$\frac{29}{64}$	.453125	— 11.509
$\frac{15}{32}$	.46875	— 11.906
$\frac{31}{64}$	.484375	— 12.303
$\frac{1}{2}$	.5000	— 12.700

1 mm = .03937"

	DECIMALS	MILLIMETERS
$\frac{33}{64}$	0.515625	— 13.097
$\frac{17}{32}$	.53125	— 13.494
$\frac{35}{64}$	.546875	— 13.891
$\frac{9}{16}$	.5625	— 14.288
$\frac{37}{64}$	.578125	— 14.684
$\frac{19}{32}$	.59375	— 15.081
$\frac{39}{64}$	.609375	— 15.478
$\frac{5}{8}$	.6250	— 15.875
$\frac{41}{64}$	.640625	— 16.272
$\frac{21}{32}$	.65625	— 16.669
$\frac{43}{64}$	.671875	— 17.066
$\frac{11}{16}$	.6875	— 17.463
$\frac{45}{64}$	.703125	— 17.859
$\frac{23}{32}$	.71875	— 18.256
$\frac{47}{64}$	.734375	— 18.653
$\frac{3}{4}$	.7500	— 19.050
$\frac{49}{64}$	.765625	— 19.447
$\frac{25}{32}$	.78125	— 19.844
$\frac{51}{64}$	.796875	— 20.241
$\frac{13}{16}$	.8125	— 20.638
$\frac{53}{64}$	.828125	— 21.034
$\frac{27}{32}$	.84375	— 21.431
$\frac{55}{64}$	.859375	— 21.828
$\frac{7}{8}$	.8750	— 22.225
$\frac{57}{64}$	.890625	— 22.622
$\frac{29}{32}$	.90625	— 23.019
$\frac{59}{64}$	.921875	— 23.416
$\frac{15}{16}$	.9375	— 23.813
$\frac{61}{64}$	.953125	— 24.209
$\frac{31}{32}$	.96875	— 24.606
$\frac{63}{64}$	.984375	— 25.003
<b>1</b>	<b>1.000</b>	<b>— 25.400</b>

.001" = .0254 mm

MM	INCHES	MM	INCHES
.1	— .0039	46	— 1.8110
.2	— .0079	47	— 1.8504
.3	— .0118	48	— 1.8898
.4	— .0157	49	— 1.9291
.5	— .0197	50	— 1.9685
.6	— .0236	51	— 2.0079
.7	— .0276	52	— 2.0472
.8	— .0315	53	— 2.0866
.9	— .0354	54	— 2.1260
1	— .0394	55	— 2.1654
2	— .0787	56	— 2.2047
3	— .1181	57	— 2.2441
4	— .1575	58	— 2.2835
5	— .1969	59	— 2.3228
6	— .2362	60	— 2.3622
7	— .2756	61	— 2.4016
8	— .3150	62	— 2.4409
9	— .3543	63	— 2.4803
10	— .3937	64	— 2.5197
11	— .4331	65	— 2.5591
12	— .4724	66	— 2.5984
13	— .5118	67	— 2.6378
14	— .5512	68	— 2.6772
15	— .5906	69	— 2.7165
16	— .6299	70	— 2.7559
17	— .6693	71	— 2.7953
18	— .7087	72	— 2.8346
19	— .7480	73	— 2.8740
20	— .7874	74	— 2.9134
21	— .8268	75	— 2.9528
22	— .8661	76	— 2.9921
23	— .9055	77	— 3.0315
24	— .9449	78	— 3.0709
25	— .9843	79	— 3.1102
26	— 1.0236	80	— 3.1496
27	— 1.0630	81	— 3.1890
28	— 1.1024	82	— 3.2283
29	— 1.1417	83	— 3.2677
30	— 1.1811	84	— 3.3071
31	— 1.2205	85	— 3.3465
32	— 1.2598	86	— 3.3858
33	— 1.2992	87	— 3.4252
34	— 1.3386	88	— 3.4646
35	— 1.3780	89	— 3.5039
36	— 1.4173	90	— 3.5433
37	— 1.4567	91	— 3.5827
38	— 1.4961	92	— 3.6220
39	— 1.5354	93	— 3.6614
40	— 1.5748	94	— 3.7008
41	— 1.6142	95	— 3.7402
42	— 1.6535	96	— 3.7795
43	— 1.6929	97	— 3.8189
44	— 1.7323	98	— 3.8583
45	— 1.7717	99	— 3.8976
		100	— 3.9370



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SAFETY

WINNER: STUDSON: SHK-1 FULL-BRIM SAFETY HELMET

The **SHK-1 Full-Brim safety helmet** is designed to prevent traumatic brain injuries in construction and related industries, featuring technologies to absorb impacts from fall-related injuries on any job site. It's the only full-brim safety helmet that complies with American National Standards Institute (ANSI) Z89.1 Type I and II safety standards, meaning it's designed to reduce force as a result of impacts to the front, back, sides, and the top of the head.

The helmet is an extension of the SHK-1 safety helmet, providing the industry with the safest helmet style yet, to better protect workers from the elements, now offering more shade from the sun and redirecting rainfall away from the face and neck.

Inside the safety helmet, Koroyd welded tube polymer is used for absorbing impact. It's 48% more effective than traditional EPS foam as it prevents energy rebound while offering greater stability. The Koroyd material also improves heat dissipation and venting via its cellular-structure design in comparison to EPS foam, helping combat heat stress.

The embedded twICEme technology digitally integrates a wearer's vital health data within the helmet. In the event of an emergency, that data is accessible via a smartphone NFC chip reader viewable through an SMS text message or the twICEme app for iOS or Android devices.



SOFTWARE & COMPUTERS

WINNER: PAESSLER AG: PRTG OPC UA SERVER

The **PRTG OPC UA Server** is designed for customers in the industrial sector—specifically teams in operational technology (OT)—who wish to receive valuable information from both IT and OT monitoring displayed in their supervisory and control systems (such as SCADA, MES, DCS, and others).

Together with PRTG, the OPC UA Server allows OT admins and plant operators to monitor their infrastructures through their supervisory and control system architecture. The Server expands PRTG's field of application by bringing a comprehensive overview of various IT and OT elements into OPC UA-capable

systems. Further benefits are central alerting via existing alert chains, enrichment of quality control data with data from IT/OT components, as well as interactive alarm handling between IT and OT personnel.

Initially, this product will operate exclusively with Paessler PRTG Network Monitor with active maintenance and its coverage will be extended to Paessler PRTG Hosted Monitor and Paessler PRTG Enterprise Monitor soon. As the requirements in the OT world are diverse, PRTG OPC UA Server comes in 3 feature-based pricing tiers in the form of subscription-based models.



guard for safety. Models are available with an adjustable gate valve to control blowing force on the fly or without the gate valve. The TurboBlast is available in multiple different flow rates and extensions up to 6 ft (2 m) long to provide ease of reaching into difficult-to-reach areas.

All EXAIR Safety Air Guns are CE compliant and meet OSHA standards.

TOOLS

WINNER: WRIGHT TOOL: WRIGHTSQUARE

The patented **WrightSquare** (US 10442059 B2) design provides 10x more contact area on the square end of the socket than conventional designs, allowing the corners to have the smallest cross-sectional area of contact.

Conventional designs can load too close to corners, provide less contact area, more stress, and are more likely to fracture at a corner. By relocating load and stress away from the corners, it enhances performance and increases socket life.

The optimized flat contact areas relocate force from the drive square corners, as well as optimize the longevity of the male drive square, whether on a ratchet, attachment or impact gun. Premium Wright alloy steel increases strength, and precision broaching gives users the most consistent quality and tolerance levels achievable.

The tool uses WrightDrive 2.0 technology on the square end of the socket where it attaches to the ratchet, attachment or impact gun. The WrightSquare gives users a noticeable performance enhancement by providing more contact, torque, and longevity on the square end of the socket. **NED**



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FROM THE COVER

### Free Light Curtain Distance Calculator

*helps users pick the right light curtain for every application*

The **Safety Distance Calculator** is a free, browser-based tool that lets users calculate safety distances for all common safety light curtains.

The digital tool uses the values entered to determine the necessary safety distance and suggest the appropriate light curtain in each case. Users can choose from the product range of safety light curtains such as the PSENopt or PSENopt II from Pilz. Additional information is provided such as calculating the minimum distance and vertical protected fields (perpendicular approach) for finger, hand, and body protection.

Based on the required safety level, users receive a product suggestion for their respective application, designed in accordance with ISO 13849 or IEC 62061.

The tool can be accessed online at the Pilz website.

**Pilz Automation Safety LP**

More online: [newequipment.com/21276366](http://newequipment.com/21276366)



### Combo Shrink & Seal System

*works with 150 gauge polyolefin and 100 gauge PVC*

The **250C Combo L-Bar Sealer and Tunnel Combination Shrink System** com-

combines an L-bar sealer with a shrink tunnel in one compact unit featuring a motorized closing seal bar arm that improves ergonomics and output. The power take-away conveyor quickly transitions product from the sealer to the tunnel. The high flow digitally controlled 6,000-W tunnel effectively shrink wraps a range of products at a rate of up to 12 packs/min and features Pinwheel perforator wheels for faster air escape.

**PAC Machinery**

More online: [newequipment.com/21276270](http://newequipment.com/21276270)



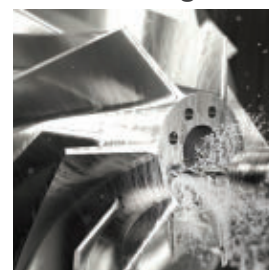
### Carbide Drill for HRSA Materials and Short Hole Drilling

*lowers cutting forces and improves chip control*

A solid carbide drill optimized for drilling in nickel-based heat-resistant super alloy (HRSA) materials, the **Coro-Drill 860 with -SD geometry** offers a consistent and predictable tool life with high hole integrity. The unique grade, S2BM, combines a fine-grained cemented carbide substrate, a multilayer PVD coating, and a post-treatment, delivering maximum tool life.

**Sandvik Coromant**

More online: [newequipment.com/21275370](http://newequipment.com/21275370)



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# FORGING®



## 2023/2024 Buyers Guide

A comprehensive guide to the products,  
supplies, and services that every  
metal-forming operation needs



Large-Format  
Metal 3DP—and  
other forging news  
p. 12



Specialty  
Steel Forger  
Gains Power  
Reliability  
p. 13



ATI  
Streamlines  
Process  
Engineering  
p. 14

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## ATI Establishing Large-Format AM Business

**A**TI Inc., the parent company of ATI Forged Products, has a contract from Bechtel Plant Machinery Inc., to establish a plant for large-format additive manufacturing near Fort Lauderdale, Fla. The new plant will develop and manufacture advanced nuclear propulsion systems for U.S. Navy nuclear-powered submarines, including vessels that are in production and those in development.

Earlier this year, Bechtel issued a similar contract to Sintavia LLC – a manufacturer of power and thermal management systems.

### FORGING NEWS IN BRIEF

■ **RN GUPTA & CO. LTD.** ordered a Schuler 30,000-metric ton counterblow hammer line for its plant in Ludhiana, India, where it will forge flanges with diameters up to 1,000 mm.

■ **CANTON DROP FORGE**, a ParkOhio subsidiary, completed installing a 50,000-lbs forging hammer—an \$18.5-million capital investment that allows production of larger steel components for aerospace, U.S. military, rail, commercial aerospace, and oil-and-gas buyers.



A counterblow hammer press. [Schuler photo]

■ **CAN-ENG FURNACES INTL. LTD.** has a contract from an unnamed, North Carolina manufacturer to supply a roller-hearth annealing line for steel impression-die forgings. The system will be capable of both iso-thermal annealing and normalizing, with a high-temperature atmosphere furnace, a separate low-temperature roller-hearth furnace, automatic bin dump and loading system, integrated tray/basket return system, and Level II automation technology. Installation will begin in Q2 2024.

■ **FARINA PRESSE** drew an order from Indian manufacturer Happy Forgings Ltd. to supply a 6,000-mt mechanical forging press to produce crankshafts for medium-duty commercial vehicles.

■ **FIA PROMOTES TWO EXECs**—The Forging Industry Association elevated two officers to new positions: Andrew Zielinski was promoted from finance director to chief financial officer for FIA; and Angela Gibian, former director of Marketing & Events was promoted to deputy chief executive, and will retain her role as executive director of the Forging Foundation (FIERF).

■ **NEW CFO AT SHEFFIELD FORGEMASTERS**—Amy Grey has been appointed the new chief finance officer and director of Sheffield Forgemasters, the engineering group and manufacturer of open-die forgings and steel castings in Sheffield, England. Grey had been serving as finance director and interim CFO of the group since April. She is qualified accountant with 21 years' professional experience, including 10 years of executive level service.

Grey joined Sheffield Forgemasters in May 2022 as Finance Director but has operated as interim CFO since April 2023 and is a UK qualified accountant (CIMA) with 21 years' experience including 10 years at executive team level.

The +200-year-old manufacturing business has been a U.K. Ministry of Defence holding since 2021.

Neither ATI nor Bechtel revealed the terms of the new contract. The Florida operation will come on line in 2024.

ATI Additive Manufacturing Products will be a vertically integrated operation that includes large-format metal additive manufacturing, heat treating, machining, and inspection – and in the future will include assembly of finished components. According to ATI, it will draw expertise from ATI Forged Products and ATI Specialty Materials, and expand the group's capabilities for aerospace and defense manufacturing into additive manufacturing.

Kim Fields, ATI president and COO said: "Our customers increasingly require more robust and versatile materials and components, produced in an ecologically sustainable manner. This facility will deliver both." It is projected to come online in mid-2024.

"Within one facility, we're combining the latest additive and advanced manufacturing technologies and ATI's novel powder alloys. We bring decades of experience delivering solutions that power and protect. We're well-positioned to deliver the next generation of manufactured components," said Fields.

"Additive manufacturing offers tremendous advantages to our program, including accelerating ship construction, improving operational readiness, reducing costs, and an increase in warfighting capability," said Barb Staniscia, president/general manager of BPML. "Metal additive manufacturing is driving necessary improvements in lead time, design, and performance for the U.S. Navy."



Bechtel Plant Machinery is developing operations to produce additive manufactured components for U.S. Navy nuclear-powered submarine programs. [Business Wire photo]

## Czech Forger Orders 2nd Line

**S**trojmetal contracted Schuler subsidiary Farina Presse to supply a 5,000-mt forging press for its Bruntál, Czech Republic, plant, following the installation and start-up of a similar press last year. The current installation is a 2,500-mt Farina machine, and produces aluminum chassis parts.

"This order is the result of a partnership and trusting cooperation with Strojmetal, as established during the exemplary project handling for the first line, and underlines our position as market leader for aluminum forging lines in a rapidly growing market," stated Schuler managing director Frank Klingemann, who heads the Industry Division at Schuler.

Schuler's Farina subsidiary has been building scotch yoke presses since 2005, which unlike conventional forging presses do not require connecting rods. The closed-body machine also offers high rigidity, and the raised guides allow high off-center forces during forging.



The first Schuler Farina scotch-yoke press has been operating at Strojmetal in Bruntál since 2022. [Schuler photo]

## Open-Die Press Construction Starts at SFIL

**D**emolition started in September at Sheffield Forgemasters International as the U.K. manufacturer started its project for a new, 13,000-metric ton press, which will be the largest open-die forging line in the U.K. SFIL demolished parts of two building that will be replaced by a new, 12,700-sq.m structure that will house the new press.

"It has taken two years of planning and enabling works to bring us to this milestone, where we start to expose the footprint for our new forging line," Steve Marshall, manufacturing transformation director said. "Much of the structure earmarked for demolition has been out of use for some time. We have created a secure partitioning wall which fully isolates working parts of the site from the controlled, piecemeal demolition process."

The multi-million pounds project will continue over the next two years.



Sheffield Forgemasters is building a new, 13,000-metric ton heavy forging press at its plant in Sheffield, England. [SFIL photo]

# Specialty Steel Forger Gains Reliability, Cost Savings

by Robert Brooks

There are many reasons for manufacturing business success. One of the oldest-established open-die forging operations in North America stays that way in part because of its technology choices. Finkl Steel – which has operated in Chicago since 1879 and also has plants in Detroit, Houston, and Sorel, Quebec – processes more than 200,000 tons of mold, die, and tooling steel annually. Most of its products are open-die forgings in various shapes and weights, but Finkl is also a reliable producer of ingots, bars, and billets that other forgers, rollers, or processors will shape into any number of products.

All of Finkl's products are specialty steels – and so vacuum processing is a critical part of its production program. Once steel has been produced in a furnace and alloyed in a ladle, placing the molten metal under a controlled atmosphere ("remelting") helps to manage the tendency for critical alloys to segregate during solidification. Vacuum treatment helps to ensure that ingots formed from the steel are properly composed prior to mechanical deformation in the forging process.

For Finkl Steel, vacuum arc furnace processes are critical to producing forgings and forging-grade ingots, but circuit breakers used to manage the vacuum process at the Sorel plant in Quebec had been a steady concern, requiring disruptive quarterly maintenance cycles and annual reconditioning, which slowed production and tied up resources.

"With the breakers being such a vital part of their production process, (they) needed something ultra reliable and consistent, because they previously required a minimum of two spare breakers on hand all the time, just to ensure constant operation of the factory," according to field-service engineer Keven Ouellet, with ABB Electrification Service Canada.

Recently, Finkl resolved its maintenance and production issues by adopting an ABB VD4-AF1 vacuum arc furnace circuit breaker.

When two of their four circuit breakers reached the end of their service life, it made financial sense to upgrade the electrical cabinet with a single, specialized VD4-AF1 arc furnace breaker, one that offers greater longevity, reduces maintenance costs, and introduces some technological benefits.



Finkl Steel has been in operation since 1879, producing tooling steel and open-die forgings. [ABB photo]

Finkl Steel—which has been operating since 1879—processes more than 200,000 tons of mold, die, and tooling steel annually, mostly open-die forgings but also ingots, bars, and billets that others will roll or shape into any number of products.

[ABB photo]



Vacuum processing is critical to producing specialty steel ingots for forging by helping to ensure that the steel solidifies properly, without alloy segregation that would undermine the mechanical reliability of forgings. [ABB photo]

In reducing the number of circuit breakers required, Sorel also significantly reduced its waste footprint.

"It's been a very sound investment, as a year-in no one has touched it," commented Phillipe Tremblay, project engineer. "The ABB VD4-AF1 is capable of 150,000 operations and as we'll probably have it for at least 10 years, that equates to a decade of no maintenance. Before that it was continuous inspections, repairs, rebuilds and all the associated breakages, part costs and hours of downtime."

Tremblay continued: "This new breaker also brings smart technological advancements, as by synchronizing the opening of the poles it ensures that overvoltage is eliminated when it closes. This is also 'mission critical' for us, as overvoltage

can damage transformers and other important electrical equipment on the line."

According to ABB, the VD4-AF1 is the first medium-voltage circuit breaker with servomotors, which allows the operators to achieve precise drive control and eliminates the need for inrush-limiting reactors and resistances for applications up to 38 kV. That will lead to cost and space savings, according to the supplier.

The new circuit breaker also brings 24/7 predictive health indication and accurate synchronization with network voltage, to control accuracy and precision of the electrical current passing through the furnace, while reducing the risk of component failure and enhancing safety.

"The VD4-AF1 proved to be a timely and targeted solution to Finkl's particular problems and certainly succeeded in making all-important maintenance time and costs negligible," recalled ABB's Keven Ouellet.

He also pointed out that the VD4-AF1 circuit breaker is an all-in-one component, meaning equipment previously required to resolve the challenges of operating in a steel melt shop is no longer needed, and that results in significant capital-expenditure savings in plants that usually suffer from heavy equipment costs.

"Additionally," he noted, "the transient recovery voltage (TRV) is greatly reduced via the TRV measurement element present in the installation. It's so gratifying to work with a device where you have a real technical advantage over the competition."

The project has been part of the Sorel plant becoming the first Finkl Steel operation to become fully electrified, which is a goal for all of Finkl's plants as they strive to achieve zero greenhouse gas emissions. 🐦

# Moving Beyond Uptime

by Cory Carpenter

As a producer of high-performance materials and solutions for aerospace, defense, and other industrial markets, ATI looks at every angle to keep their competitive edge. When ATI's Forged Products business unit — which includes machining complex aerospace components like rotating disks for jet engines — needed a machine-monitoring platform to improve productivity, they sought unique benefits beyond the norm.

ATI explored several machine-monitoring solutions to track and optimize productivity across three locations in Wisconsin, Connecticut, and Poland. During a visit to Sandvik Coromant's training center in Mebane, N.C., for a demo of the Machining Insights machine-monitoring capabilities, ATI engineers discovered an opportunity that went beyond just maintaining uptime.

"When we saw how Sandvik Coromant was using Machining Insights in their own facility, we had ideas on how we could use it for more than just monitoring our machines for operations," said Dino Tomasetti, machining methods and technology engineer for ATI Forged Products. "We also saw it as a tool for engineering."

After the demo, ATI opted to transition from their existing monitoring solution, which provided limited data, to the comprehensive Machining Insights platform that they could use for a wide range of applications across their locations.

## MANUAL DATA COLLECTION AND UNAVAILABLE MACHINE TOOLS

ATI operates 20 CNC machines across multiple locations and works with a range of high-performance materials — including



Machining Insights from Sandvik Coromant lets operations monitor any connected machine remotely, from any location, in real time, to reduce time and cost significantly compared to manual monitoring processes.

titanium, nickel-based alloys, and other heat-resistant super alloys (HRSAs) — to create complex parts for jet engines. The abrasiveness and stresses of these specialized materials create a range of machining challenges that can lead to unwanted downtime or damaged parts. Tools wear down more quickly, so processes need to be very stable to avoid tool breakage that could damage a part. In this environment, tracking machine uptime and performance to avoid such failures is essential to keep ahead of such disruptions.

ATI first implemented a basic machine-monitoring software about 10 years ago to eliminate time-consuming and unreliable, paper-based reporting on machining times. But

that solution proved to be less than perfect, as it involved a lot of manual processes, and the data wasn't especially helpful in determining what may be causing downtime.

"We were automatically collecting uptime, but we weren't really collecting our downtime, which is a very important piece of the puzzle," Tomasetti said. "So, for about three hours a day, every single day, I would check each machine and collect non-running time, talking to operators to put together a picture of how the machines were performing."

Another problem they faced, as many aerospace manufacturers do, was tool life. When you're dealing with complicated parts and difficult materials like HRSAs, tools and inserts can wear down extremely fast. Even though ATI employed a redundant tooling strategy to avoid downtime, they were still getting no-tool-available alarms.

"When that happens, the machine stops making chips," Tomasetti said. "And when we're not making chips, we're not producing parts."

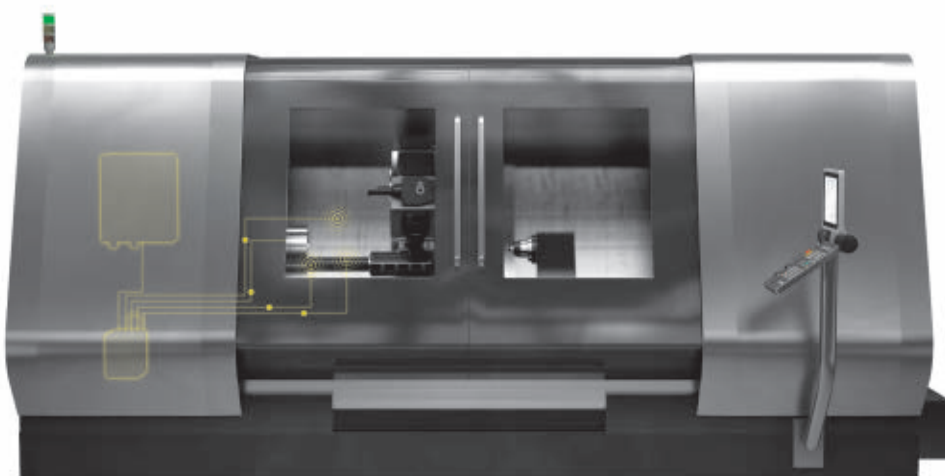
## DATA-DRIVEN MACHINING

ATI turned to metal-cutting expert Sandvik Coromant for a more robust machine-monitoring solution that would eliminate the manual data collection and improve tool utilization. Sandvik Coromant's Machining Insights software had a number of features that attracted ATI. It gave them the ability to remotely gather a broad range of data sets in real time so they could track things like loads on the motor, alarms, tool availability and more from anywhere.

Machining Insights also gave them the ability to set custom rules to automate analysis for value-added machining. For example, if ATI runs its feed rate override at less than 80 percent, they can set a rule that counts it as downtime because it doesn't meet their standard of productivity, even though the machine is technically cutting chips. That was important to ATI, Tomasetti said, because they wanted to eliminate all the "noise" and get reliable data that wouldn't require constant double-checking.

Images courtesy of Sandvik Coromant

ATI was able to quickly implement Machining Insights and begin collecting data with the help of Sandvik Coromant. Now they're using Machining Insights daily, to monitor all their machines.



CoroPlus® Machining Insights from Sandvik Coromant is a manufacturing data analytics platform that gives operators, engineers, and plant managers access to real-time machining insight from machine and tool data across an entire operation.

When ATI implemented Machining Insights, they started on a small scale: two machines to prove out the software and establish benchmarks for value-add time and non-value-add time. Once their rule parameters delivered the data they were looking for, they expanded the solution to their other machines, both new and old, across all operations, including in Poland.

“Implementation was fairly easy,” Tomasetti recalled. “Sandvik came on-site, we connected it and within a couple of hours we were collecting data. Now we’re looking at the data as a daily tool rather than something we react to weekly or monthly. We’ve learned to use it proactively, which is how we make it a robust monitoring solution.”

## DOING MORE WITH MACHINING INSIGHTS

Since implementing Machining Insights, ATI has realized significant benefits, including unique advantages that go beyond the usual machine monitoring solution. Now their feed-rate overrides rarely drop below 100 percent, and they’ve



ATI Forged Products machines complex aerospace components, like rotating disks for jet engines, and it needed a machine-monitoring solution to minimize downtime and maximize productivity.

seen a clear difference in their flow of inventory as they produce more parts more quickly. They’ve also improved tool availability by tracking tool data and reconfiguring magazines to optimize tool set-ups on each machine. That results in higher overall capacity and throughput.

But where Tomasetti, an engineer, has found the most unexpected value from Machining Insights is through proving-out processes to machine new parts and stabilizing processes for existing parts. Now, he’s able to develop new machining methods for new parts remotely by tracking the paths and cutting forces in real time. The data is accurate enough that he can determine on the spot what needs to change to improve the process.

This has resulted in big improvements for new product set-up. Now, what used to take a week of on-location engineering time and nearly half a dozen test parts can be accomplished in one or two days with just one or two parts. This has made ATI’s operation much nimbler, Tomasetti said, and it frees up his time to handle other engineering tasks.

## FORWARD-THINKING PARTNERSHIP

Part of what makes Machining Insights so successful for ATI is the level of partnership they have with Sandvik Coromant. From planning and implementation to support and R&D, Sandvik Coromant works closely with ATI to make sure they’re getting the most from their machine-monitoring solution.

“They’ve been there every step of the way,” Tomasetti said. “They’re very responsive to our requests, and we still have frequent meetings with them just to make sure everything is in working order. We’re also considering adding more data collection capabilities so we can get data right from the cutting tool.”



This would allow ATI to compare optimal cutting conditions and predict tool failures, especially with new aerospace materials for which cutting data is not yet available.

Tomasetti foresees the Machining Insights data being useful for R&D, too.

ATI was already working closely with Sandvik Coromant’s engineers on machining R&D projects and experimental tests at the Sandvik Coromant Center. As a production shop, it’s challenging for ATI to conduct on-site tests, so having access to a capable test facility is beneficial. And with new data on cutting interfaces pulled from Machining Insights, Tomasetti thinks they’ll be able to streamline tests and arrive at optimal cutting solutions more quickly.

“I think it has a big possibility to take us toward Industry 4.0 solutions,” Tomasetti said. “Machine monitoring is how we take technology to the next level. I’ve seen it go from paper to basic monitoring, to what we’re doing now with Sandvik Coromant. Who knows what’s next.”

**Cory Carpenter is a Digital Enablement Specialist with Sandvik Coromant, in Mebane, N.C.**



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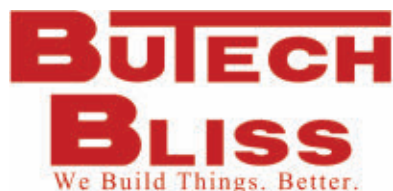
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## FROM THE COVER

### Smart Ultrasonic Leak Detector

*tracks and resolves leaks quickly and accurately*

A smart ultrasonic sensor that transforms your phone or tablet into a visual ultrasonic leak detector in compressed air, gas, and vacuum systems, the **OLI** gives you all the features and tools you need to help you develop an in-house leak management program. Calculate Flow, energy loss, and financial and environmental impacts in real time. Get the best value, portability, connectivity, and versatility in this next-generation ultrasonic leak detector. Anywhere in the compressed air lifecycle, from installation and audit to maintenance and service, this detector has everything you need to track and resolve leaks quickly and accurately.



Integrated with the Leak Management app, microphones, and visual leak identification enable rapid leak detection, while leak records help provide a backbone of leak lifecycle management.

**Prosaris**

More online: [newequipment.com/21275876](http://newequipment.com/21275876)

### Programmable Timer Relays

*provide 10,000+ hours of programmable time delay*

The **ProSense T30R series of rugged timer relays** features a high 30A SPDT output contact that controls loads without requiring a separate contactor. These single-function timer relays are available in on-delay, off-delay, fleeting, and cyclic mode timing options and offer an easy-to-use rotary switch adjustment with timing ranges of up to 10 hours.



**AutomationDirect**

More online: [newequipment.com/21276051](http://newequipment.com/21276051)

### Portable Surface Roughness Measuring Instrument

*offers Bluetooth reporting and printing*

The **MarSurf M 410 portable surface measurement instrument** uses a skidless probe system for use in both laboratory and production environments that makes recording and evaluating measurement data easy, precise, and versatile. It provides high precision and accuracy for surface roughness measurements on small and large workpieces and features a large, high-resolution touchscreen. The device employs the stylus method to enable high-precision testing of roughness, waviness, and primary parameters, ensuring unparalleled accuracy.



**Mahr, Inc.**

More online: [newequipment.com/21275905](http://newequipment.com/21275905)

### Power Shelf Conserves Energy for Servers

*provides 48/50V DC output voltage to reduce electricity distribution losses*

**Open Rack version 3 (ORV3) 1 OU 18 kW power shelves** are high-efficiency 6-slot-chassis power shelves designed to enable substantial energy savings in AI servers. They include Delta's 3kW PSUs which have over 97.5% peak efficiency and integrate the power management controller (PMC), with industry-leading PoE function, to enable smart power management in AI data centers.



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**Finish Thompson, Inc.**

More online:  
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### Screw Pump for Engine Lubrication

*offers constant flow and low pulsation*

The **NOTOS 3NS three screw pumps** provide self-priming and a small footprint with continuous delivery and low pulsation to ensure minimal turbulence and gentle product handling. The pumps have one drive screw, transferring torque through a hydrodynamic film to the two rotating intermeshing-driven screws. They can handle flows up to 1,760 gpm (400 m³/h); pressure up to 2,300 psi (160 bar); temperature up to 570°F (300°C); and viscosity from 1.5 to 15,000 centistokes.



**NETZSCH Pumps USA**

More online:  
[newequipment.com/21276275](http://newequipment.com/21276275)

## FROM THE COVER

### Direct Drive Milling Series

*provides pre-set parameters and real-time process feedback*

A line of milling solutions tailored to meet the distinct demands of the wind energy sector and process industry offers advanced capabilities for longitudinal, circumferential, and edge beveling. Including **PEMA LM, PEMA CM, and PEMA EB**, the product family incorporates a Direct Drive spindle technology.

The LM milling machine for longitudinal milling enables pre-programmable milling cycles for different thicknesses as well as integrated rollers for workpiece rotation. Capable of milling to depths of 5.5 in. (140 mm), the PEMA CM for circumferential milling and PEMA LM for longitudinal milling are suitable for preparing narrow gap grooves.

The EB edge beveling system offers plate edge milling and preparation, automatic milling cycles, high monitoring precision, and a plate edge scanning function for milling path alignment.

All 3 machines feature Direct Drive spindle technology, driven by servos and devoid of backlash, offering less vibration and more lifetime for milling inserts.

**Pemamek Ltd.**

[More online: newequipment.com/21276459](https://www.newequipment.com/21276459)



### Bell-Type Suction Cups

*Hold fast*

*hold flat, convex or angular-shaped sheet metal*

With **CTC high-performance bell-type suction cups**, manufacturers can now have the best of both flat and bellows suction cups to enhance sheet handling tasks. The series has a large deflection capability, adapting easily to gripping flat, convex or angular sheet metal. Their anti-slip cleats make it easy to move heavy, oily sheets quickly and efficiently, while the central stops ensure thin sheets are gripped tightly without deforming them.

**Coval**

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### Shopfloor Management Solution Prevents Downtime

*shows current production at a glance*

The latest application in the Digital Suite, **Shopfloor Operations Management (SOM)** automatically retrieves relevant data from system controllers and processes them, together with other performance indicators into a clear form. SOM shows at a glance the current situation in production and reveals any potential problems early. The performance indicators can be compared with past shifts and orders to optimize processes in the future.

**Schuler, Inc.**

[More online: newequipment.com/21275707](https://www.newequipment.com/21275707)



### Biodegradable Drilling Oil

*better protects hot equipment with its high viscosity*

**Bio-Fleet Rock Drill 40**, a biodegradable lubricant for the protection of rock drills, jackhammers, and other pneumatic equipment, better protects hot equipment with its higher viscosity index. Unlike petroleum-based products, this ISO 40 weight formula will not pollute the air, water, soil or work environment should a spill or leak occur. It's ideal for a wide range of drilling applications including water and monitoring well drilling, soil nailing, geothermal, blast hole drilling, mineral exploration, quarry drilling, civil engineering and construction projects, solar installations, anchoring, and more.

**Renewable Lubricants, Inc.**

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### Universal Machine Vise

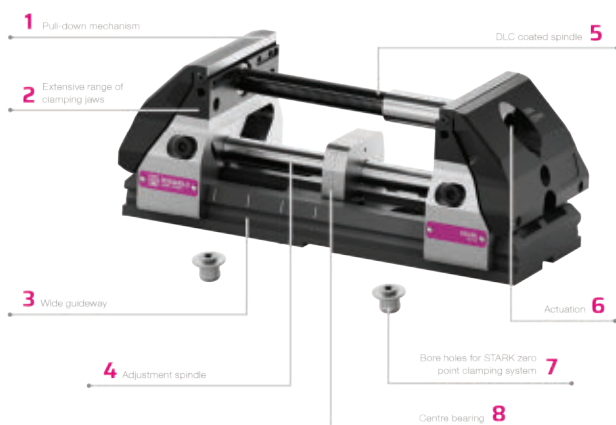
*offers an extended jaw opening of up to 24 in. (600 mm)*

The **Hilma.UC 125 machine vise** streamlines setup for different workpieces while reducing the need for multiple clamping devices across a wide range of clamping tasks. The "UC" in the clamping system's name stands for Universal Clamp, as this vise can be easily

adapted to accommodate a wide variety of workpiece geometries in just a few simple steps. Workpieces are securely clamped with a tension spindle, generating a tensile force of 52 kN, all while a center bearing ensures precise and centered alignment with repetitive accuracy.

**Carr Lane Roemheld Mfg. Co.**

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**Avantra**



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### Turflow Heat Exchanger

*accommodates both current and counter-concurrent flow path*



The **Turflow heat exchanger** is a high-efficiency, heat transfer product solution that manages the heating and cooling of fluids including process water. The design consists of straight corrugated tubes within a shell and encourages turbulent flow, resulting in high-efficiency heat transfer for customers in all industries including food, beverage, and sanitary process industries.

**Spirax Sarco**

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### Safe-Stop Conveyor Controller

*shuts down rotating equipment before damage occurs*



The **Mag-Neat-O** motion controller magnetically couples to the end shaft of a tail pulley and indicates when a conveyor belt has slowed or quit moving altogether. The pulse output of the Mag-Neat-O can be wired into a PLC or DCS to easily determine under speed, overspeed or zero speed of the conveyor. This compact design will fit in most places on a conveyor system.

**Conveyor Components Company**

More online:  
[newequipment.com/21272021](https://newequipment.com/21272021)

## X-Ray Scanner for Raw Food Inspection

*creates homogeneous product flow without peak or empty stretches*

An X-ray scanner system designed for inspecting food ingredients and raw materials such as cereals, rice, legumes, coffee, and sugar, the **XR Bulk** uses a novel vertical piping system with gravitational fall to inspect a wide range of contaminants in a contained, smooth product flow. The system sits vertically to accommodate production lines, with product entering through a steel infeed pipe at the top. Following the inspection, the product exits from an outfeed pipe at the unit's bottom. All product is contained inside the pipe and inspection chamber.

**Antares Vision Group**



**More online:**

[newequipment.com/21275365](http://newequipment.com/21275365)

## Digital Valve Controller

*alerts personnel to developing problems*



The **Fisher FIELDVUE DVC7K Digital Valve Controller** features embedded computing and analytics that convert raw data into actionable information locally with Bluetooth capability. This means maintenance personnel can receive the data via their phone, tablet or computer wirelessly without having to be in a control room at the plant location. Digital valve controllers are available as accessories for control and on-off valves to provide local analysis of valve data, digital communications with host systems, and other features.

**Emerson Electric Co.**

**More online:**

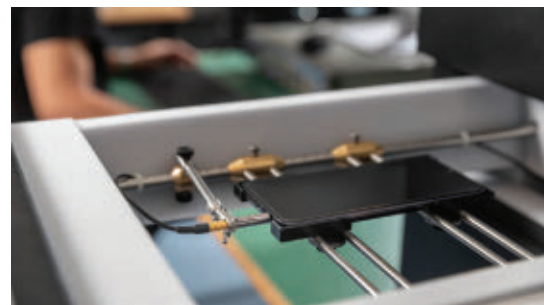
[newequipment.com/21275298](http://newequipment.com/21275298)

## Advanced Production Line Microphone

*reduces sensitivity variation making compensation unnecessary*

The **EQ 40PM-1 microphone with EQset technology** allows users to conduct advanced testing of high-frequency content and accurate testing of louder products. The microphone's stability helps reduce measurement uncertainty and limits the risk of false passes and false failures on the production line. EQset technology simplifies microphone setup, monitoring, and replacement. It also eliminates correction when setting up new production lines or replacing microphones on existing lines.

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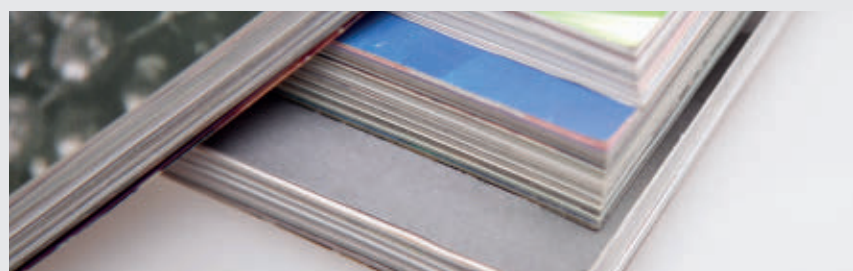


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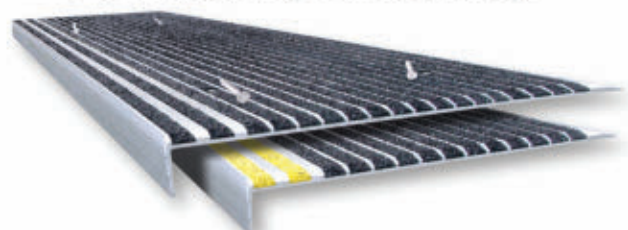
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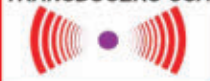


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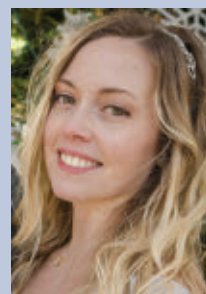
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### FROM THE EDITOR

## Congratulations and Happy Holidays!

I can't believe that it's already nearing the end of 2023 and we're getting ready to dive back into discussing the predictions for what 2024 will bring in the industry. A lot has happened this year—humanoid robots are officially entering the market, ChatGPT churned up an AI frenzy everywhere, ultrasound technologies have made some big developments, and data has taken a front-row seat.



I'm sure there's still more to happen before the year comes to a close and I can't wait to see where 2024 takes us.

But before we get there, we really need to talk about our wonderful winners for the 2023 NED Innovation Awards! I want to give a big congratulations to the finalists and the winners—we had so many great entries that they all deserve praise. Each of these products and solutions were made for a reason; companies aren't out there making anything for the heck of it and I'm constantly amazed at what engineers and designers can develop.

All winners are featured in our cover story starting on page 4. Additionally, you can visit [newequipment.com/21277052](http://newequipment.com/21277052) to see all finalists in each category in our featured gallery.

I'd like to call out all the applicants and thank them for their participation in this year's awards:

- Air Technical Industries, Inc.
- Eartec Co., Inc.
- Engineered Hardware, LLC
- Etch
- EXAIR
- FOX IV Technologies, Inc.
- Gefran, Inc.
- Honeywell
- Ingersoll Rand
- Kafko International
- Legrand
- Mobile Industrial Robots (MiR)
- OPEX Corporation
- OTTO Motors
- Paessler AG
- Phoenix Contact
- Pleora Technologies
- POWR2
- The Raymond Corporation
- Rockwell Automation, Inc.
- Sandvik Coromant
- Schneider Electric
- Studson
- Swagelok Company
- Trane
- Trystar
- Vaask
- Wright Tool

If your company is developing a new product, solution, tool, platform, etc., that you think is changing the game, think about entering it in the 2024 awards. We will open entries in March which will run through June and any product can be entered as long as it's related to manufacturing and was or will be released to the market between October 1st, 2023 through December 31st, 2024. You can find the official rules and requirements on our site.

Congratulations to our finalists and winners again and a big thank you to all of our readers. Thanks for a great year and I hope you all have a wonderful holiday season.

— Laura Davis, Editor-in-Chief

# Have You Heard What's New in Ultrasound?

By Sheila Kennedy, CMRP

**ULTRASOUND TECHNOLOGIES ARE PROLIFERATING IN MORE AND** different applications. Whether detecting early signs of equipment failure or asset flaws, or refining measurement accuracy or cleaning effectiveness, ultrasound solutions are becoming increasingly indispensable.

## Focused Tools

Ultrasonic sensors and transducers serve many purposes. An example is **MassaSonic Gizmo**, a wireless level measurement sensor from **Massa Products Corp.** Current models connect via Wi-Fi networks and cellular capabilities will be rolling out in the near future. A long-range (LoRa) radio communication version is next.

The future of electroacoustics is to think of the technology differently, suggests President/CEO and CIO Dawn Stancavish at Massa Products Corp. “What you see with off-the-shelf products is only one small example of how the technology is able to be applied. Sensors that harness sound are able to be designed across the frequency spectrum, and different designs can be created to operate in different applications with the specific sensing requirements in mind.”

To reduce compressed air consumption, the new **Model 9207 Ultrasonic Leak Detector (ULD)** from **EXAIR** can detect leaks up to 20 feet (6 meters) away. The handheld device converts the ultrasonic signature produced by compressed air leaks to an audible frequency, alerting the user via a tone emitted to included earbuds, and displaying an LED light confirming the leak location. Sensitivity adjustments and attachments help to filter out background noise.

“Quickly and easily detecting leaks is a critical step in compressed air system maintenance and auditing,” observes Lee Evans, special projects engineer at EXAIR. The ULD readout is simple and straightforward, and the device is easy to use and tough enough for industrial plants, he adds.



The **Krautkrämer USM 100 Pro** from **Waygate Technologies**.  
Waygate Technologies

The **Krautkrämer USM 100 Pro** from **Waygate Technologies**, a Baker Hughes business, is a recent upgrade to the company's flagship portable ultrasonic flaw detector. The Pro edition is “the first portable conventional flaw detector in the industry that can perform B/C scans, which allow operators to visualize larger amounts of data and identify multiple defects in an object, in a single, comprehensive image,” says Appu Gopakumar, senior product manager for UT devices at Waygate Technologies.

In addition, its new app allows operators to create more detailed inspection reports and enhance the traceability of inspection data by adding contextual information like pictures of the inspected part, its geolocation, part annotations, and comments. “These features not only save time during inspections and the creation of reports but provide a more detailed view of the asset condition and its inspection history,” Gopakumar explains.

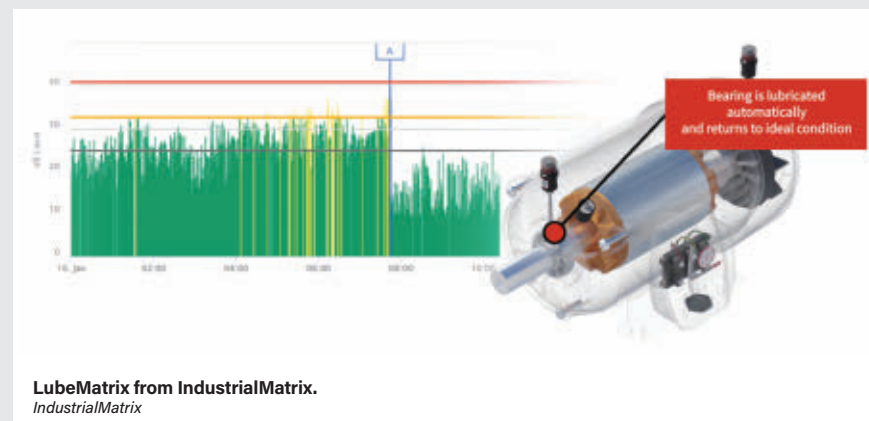
The new **FSZ S-Flow** from **Fuji Electric** is an integral ultrasonic flow meter designed to measure the flow rate of liquids in small pipes, from 8A to 32A in size. It is clamped onto existing pipes inside machines while the fluid is still flowing. No grease, pipe modifications, or sensor distance adjustments are required, and signal cable wiring is eliminated because the detector and flow transmitter are integrated into a single structure.

Compatible with a wide variety of pipe materials and fluids, the FSZ S-Flow measures flow rates using the transit-time measuring method, which eliminates dead zones, and shows the results in an LED display. An optional temperature detector is available for simultaneous flow and temperature measurement.

## Broader Solutions

Ultrasound technology is also found in multifunctional systems. The recently “re-imagined” **Ultraprobe 15,000 condition monitoring system** from **UE Systems** analyzes plant equipment such as bearings, steam traps, and electrical systems for conditions such as degradation, leaks, and lubrication needs. The handheld all-in-one ultrasonic instrument facilitates condition inspection, data collection, and analysis.

Blair Fraser, VP of global business development at UE Systems, says of this release: “Our most advanced processor and next-generation camera meet Wi-Fi technology, transforming data collection and onboard analysis. After more than 10 years, it was time to redefine this instrument.”



**LubeMatrix** from **IndustrialMatrix**.  
IndustrialMatrix

**LubeMatrix** from **IndustrialMatrix** is an autonomous condition-based monitoring and lubrication solution for bearings. Ultrasound sensors measure decibel levels in real time to trend-bearing health. Detected issues generate alerts and are analyzed in cloud-based software, where a Lube Logic algorithm determines when and how much lubricant is needed. The lubricant is dispensed accordingly via an automated lubrication system.

Because the IIoT technology monitors friction levels within rotating machinery and seamlessly interfaces with an integrated autoluber, it “empowers the machinery to initiate self-repairs in response to its real-time condition assessment through ultrasound,” explains Steven Pamensky, founder and CEO of IndustrialMatrix. “In essence, LubeMatrix enables a self-sustaining maintenance cycle for these machines, optimizing their performance and longevity through condition-based lubrication.”

Ultrasonic washing and rinsing are among the capabilities of the **Ransohoff RBS Modular System** from **Cleaning Technologies Group**, a parts washer system for high-volume applications. Ultrasonic cleaning uses high-frequency sound waves to agitate the liquid, forming cavitation or bubbles that scrub surface contaminants off immersed, challenging parts. A complete system may include wash, rinse, ultrasonic wash, ultrasonic rinse, heated blow-off, and vacuum drying. The automated immersion cleaning system can be expanded as needed. **NED**

**Technology Toolbox** is a monthly feature by Sheila Kennedy, CMRP, that appears in our sister publication Plant Services. Email [sheila@addcomm.com](mailto:sheila@addcomm.com) with products for consideration. The full Tech Toolbox library is available at: [www.plantservices.com/voices/technology-toolbox](http://www.plantservices.com/voices/technology-toolbox).

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