2021 IDEA! AWARDS WINNERS

BOB VAVRA | Senior Content Director

AT A TIME when manufacturers are looking for innovative ways to improve productivity and better manage costs, the 2021 IDEA! Awards provided a variety of great new solutions to review.

The IDEA! Awards, presented by *Machine Design* and *Hydraulics & Pneumatics*, offered engineers from all over the world a chance to review the latest product advancement. They also got to vote on those products they felt best fulfilled the promise of greater operational effectiveness.

Gold, Silver and Bronze winners have been selected in six categories:

- **Automation & Software**
- **Fluid Power**
- **Machines & Components**
- **Motion Control**
- **Motors & Drives**
- **Sensors**

The Branson GMX-20DP ultrasonic metal welder from Emerson received the Big IDEA! Award, presented to the product that received the highest number of votes from all product categories. The formal announcement of the awards was made Nov. 10 at the 2021 IDEA! Conference, part of the Manufacturing & Technology Conference in Cleveland. The announcement also was made simultaneously at *machinedesign.com* and *hydraulicspneumatics.com*. 🆔

BIG IDEA | MACHINES & COMPONENTS

GMX-20DP Ultrasonic Metal Welder

The Branson GMX-20DP ultrasonic metal welder joins thin, fragile nonferrous foils and films (approx. 5-10 μm) in assemblies of 100-plus layers using higher downforce and lower weld energy (weld amplitude). Its unique "direct press" actuator delivers direct vertical downforce on parts (unlike typical cantilever-type actuators) for more consistent, yet gentle joining of more "energy dense" many-layered battery structures, while virtually eliminating the film/foil tearing and cracking that compromises battery assembly quality. The Branson GMX-20DP welder directly enables the development of lighter, more "energy-dense" battery cells and packs, capable of delivering more watt-hours of energy per unit of battery weight.

Emerson
www.emerson.com

BIG IDEA!

Branson GMX-20DP Ultrasonic Metal Welder
Emerson

AUTOMATION & SOFTWARE

GOLD: Studio 5000 Design Software
Rockwell Automation

SILVER: Sitara AM2x MCU
Texas Instruments

BRONZE: OPTIME
Schaeffler Group USA Inc.

FLUID POWER

GOLD: SLV20 load-sensing proportional directional valve
Eaton

SILVER: MXT-XTP Hydraulic hose
The Gates Corporation

BRONZE: Cartridge Flow Transmitter (CFT)
DGD Fluid Power

MACHINES & COMPONENTS

GOLD: har-modular
HARTING

SILVER: Antimicrobial Food Grade Type LAFG
Electri-Flex Company

BRONZE: Four Outlet Gen4 Power Supply
EXAIR Corporation

MOTION CONTROL

GOLD: PGVA Pressure Vacuum Box
Festo

SILVER: SmartStage XY
Dover Motion

BRONZE: Electrak LL Electric Actuator
Thomson Industries, Inc.

MOTORS & DRIVES

GOLD: Hägglunds Atom
Bosch Rexroth

SILVER: Twin Multi-Drive
One Motion

BRONZE: DS2020 Digital Servo Drive
Moog Inc.

SENSORS

GOLD: AWR Antenna on Package Sensor
Texas Instruments

SILVER: Cordis Electronic Flow Controllers
Clippard

BRONZE: SBV-01
INXPECT

BRONZE: Tag-It Program
Regal Beloit

GOLD | AUTOMATION & SOFTWARE

Studio 5000 Design Software

Two new additions to the Studio 5000 design software allow for industrial engineers to design machines and processes more efficiently. The Simulation Interface tool transforms how users design, test, validate and commission systems using digital engineering. The tool connects a system's controller to advanced simulation and modeling tools. Users can then simulate how products or processes with dynamic properties will behave in production. The Application Code Manager (ACM) tool allows users to automatically generate documentation for projects after creating a template and placeholders for data. The ACM also allows users to import information from architect tools, which reduces rework.

Rockwell Automation
www.rockwellautomation.com

SILVER | AUTOMATION & SOFTWARE

Sitara AM2x MCU

The Sitara AM2x microcontroller portfolio combines processor-level performance with MCU design simplicity to enable real-time control, networking and analytics applications at the edge. The portfolio enables 10 times the computing capability of traditional, flash-based MCUs. The Sitara AM243x device features up to four Arm Cortex-R5F cores running up to 800 MHz each, with integrated real-time control and industrial communications to simplify factory automation. Integrated stacks support common industrial protocols and gigabit Ethernet with TSN. The on-chip security features help engineers meet encryption requirements, while functional safety mechanisms and collateral can help achieve up to SIL 3 for industrial systems.

Texas Instruments
www.TI.com

New MCUs enable real-time control and communication with 10x processing performance

TEXAS INSTRUMENTS

BRONZE | AUTOMATION & SOFTWARE

OPTIME

OPTIME is an affordable and easily scalable condition monitoring system that consists of wireless, battery-powered vibration sensors, a cellular gateway and an app to visualize the resulting data. OPTIME provides 15,000 unique measurements per sensor per year to deliver advance warning of potential damage to machines such as electric motors, fans and pumps. OPTIME's sensors, which install in just minutes, can be put into operation without any prior condition monitoring expertise. OPTIME captures six different vibration measurements plus temperature at preset intervals, thereby adding value to the customer by providing timely information on machine condition status to avoid unplanned outages.

Schaeffler Group USA Inc.
www.schaeffer.us

GOLD | FLUID POWER

SLV20 Load-Sensing Proportional Directional Valve

Eaton's SLV20 load-sensing proportional valve is a priority flow-sharing solution for mini and micro machinery. Utilizing screw-in cartridge valves in aluminum sections, the SLV20 offers greater versatility and serviceability than cast iron valves, plus significant weight and space savings. A patent-pending multi-function logic element enables flow sharing and flow prioritization in the same valve bank, a feature previously available only on heavy traditional valves. Individual sections can be produced with additional functions, such as counterbalance valves, replacing remotely mounted ancillary valves. By reducing machine weight and providing flexible flow-control options, the SLV20 can increase efficiency, load-carrying capability and battery life.

Eaton
www.eaton.com

SILVER | FLUID POWER

MXT-XTP Hydraulic Hose

MXT-XTP is a hydraulic hose that combines patented wire braid technology that makes it lighter weight and more flexible while maintaining 600,000 impulse cycle performance, which is three times the industry standard. The abrasion and ozone resistance XtraTuff cover provides additional protection for the hose to stand up to the toughest of applications. Ozone is everywhere and impacting hose performance, so having a robust cover material to prevent hose breakdown and keep machine uptime high is of great benefit. MXT-XTP joins the Gates lineup of other industry leading products that include MXG4K-XTP and Multi Master GMV.

The Gates Corporation
www.gates.com

BRONZE | FLUID POWER

Cartridge Flow Transmitter (CFT)

DGD Fluid Power enters the hydraulic market with the CFT (Cartridge Flow Transmitter) with multiple output options provides a convenient digital solution to measure flows in hydraulic systems. The flow transmitter can be easily installed anywhere in the hydraulic circuit for continuous monitoring of all critical hydraulic functions, e.g., component performance, diagnostics, closed loop control and data acquisition for predictive maintenance and remote troubleshooting. Future models to be released include pressure and temperature sensors, combined with the CFT in a cartridge valve format.

DGD Fluid Power
www.dgdfluidpower.com

GOLD | MACHINES & COMPONENTS

har-modular

HARTING's har-modular series offers a unique and flexible solution for the connection of PCBs. A modular concept, based on the time-tested and reliable DIN 41 612 connector family, this product allows engineers to develop custom connectors using off-the-shelf components. In this way, customization can be achieved without the normal barriers of long lead times and development costs. This revolutionary PCB connector system offers over a billion combination possibilities for data, signal and power. It is configurable online and can be ordered in quantities of 1.

HARTING
www.harting.com

SILVER | MACHINES & COMPONENTS

Antimicrobial Food Grade Type LAFG

Type LAFG is a UL listed, CSA certified "Heavy-Duty," flexible liquid-tight steel conduit that is now antimicrobial. It is designed to safety route electrical wiring through modern food processing plants, while safeguarding foreign material contamination, and inhibiting bacteria growth. The flexible PVC jacketing contains an antimicrobial biocide additive, inhibiting bacteria growth and reducing commonly known food processing microbes in a 24-hour period. The blue jacketing color does not occur naturally in the food chain, making plastic contamination in the product stream easy to spot. The increased high/low working temperature are critical for installations near heat-producing equipment and hot washdowns.

Electri-Flex Company
www.electriflex.com

BRONZE | MACHINES & COMPONENTS

Four Outlet Gen4 Power Supply

EXAIR's Gen4 Four Outlet Selectable Voltage Power Supply allows the choice of input voltages of 115 VAC or 230 VAC. Four 5kV stainless steel output connectors can energize four static eliminators at once. They are UL component recognized, CE and RoHS compliant. They feature an electromagnetically-shielded modular power supply cable which eases routing and connections. An integrated fuse on the primary protects against voltage spikes. The lighted power switch indicates operation and is field replaceable. The Gen4 Power Supply is housed in a durable metal enclosure (6 in. L x 4.0 in. W x 4.4 in. H) that is ideal for rugged, industrial environments.

EXAIR Corporation
www.exair.com

GOLD | MOTION CONTROL

PGVA Pressure Vacuum Box

The Festo PGVA pressure vacuum box provides an all-in-one solution for generating regulated, filtered air for pressure and vacuum-controlled liquid dispensing systems. This innovative compact solution is installed on or inside an instrument to supply compressed air and vacuum for liquid handling. This is useful for laboratory automation solutions when compressed air is not available. For easy operation, PGVA can be controlled from any RS232, USB or Ethernet port. It features a compressor, proportional pressure/vacuum control, air filter, silencer, pressure/vacuum reservoirs, pressure sensor, switching valves, 24V power supply, digital outlet for valve actuation, and all within an 8 in. x 3 in. x 8 in. housing.

Festo
www.festo.com

SILVER | MOTION CONTROL

SmartStage XY

The SmartStage Linear is the first of its kind high performance stage where the motion controller, drive circuit and encoder are all built-in, reducing the overall motion footprint within the instrument. By embedding multiple cables and external electronics, the control is seamless and performance-optimized for low noise.

- Takes up 75% less space
- Built-in controller, 3 phase servo drive, 5 nm resolution
- Flexible communication supports RS-232, RS-485 and CAN
- Cables reduced from 4 to 1
- Reduces complexity, product development time and overall system cost
- Improves instrument's throughput with high-speed linear motor
- 50-200 mm travel available, stackable for XY

Dover Motion
www.dovermotion.com

BRONZE | MOTION CONTROL

Electrak LL Electric Actuator

Thomson Electrak LL actuators give linear motion designers new capabilities to deploy intelligent electric products for long-life operations in challenging environments. A brushless motor design enables up to 100% duty cycle and ten-fold increase over standard travel distance. High ingress protection and wide temperature ratings maximize reliability in harsh environments. Designers can now leverage smart actuators in applications that previously required more complex and expensive configurations, such as battery-powered mobile devices and machines. The Electrak LL is ideal for lifting and positioning in mobile equipment; pantographs; door, hatch and valve control; pick, place and sort; material handling; and conveyor control.

Thomson Industries, Inc.
www.thompsonlinear.com

GOLD | MOTORS & DRIVES

Hägglunds Atom

The Hägglunds Atom from Bosch Rexroth is one of the fastest, most power-dense hydraulic motors in its class. A revamped version of the Hägglunds CAb, Bosch Rexroth's smallest Hägglunds motor, this radial piston motor supplies maximum torque of up to 13.6 kNm and a specific torque of 40 Nm/bar. With full torque at speeds up to 400 rpm, its maximum power of 394 kW substantially outstrips motors of similar size. Hägglunds Atom is ideal for mobile, marine and recycling applications.
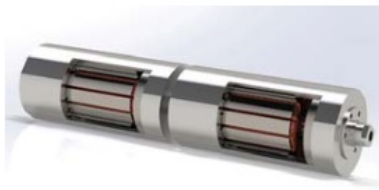
Bosch Rexroth
www.BoschRexroth.com

SILVER | MOTORS & DRIVES

Twin Multi-Drive

The Twin Multi-Drive by One Motion is a revolutionary design that allows for independent control of two rollers on a single shaft, with precise registration and speed ranging from up to 500 RPM. Motion is created by directly driving the outer rotating shell using magnetic force. The gearless, magnetic direct drive design is hygienic, reliable and highly efficient. The Twin offers a high-performance solution for numerous applications such as product merge, skew correction and more.

One Motion
www.onemotion.info

BRONZE | MOTORS & DRIVES

DS2020 Digital Servo Drive

Moog's DS2020 drive with Combitronic capability satisfies customers who need larger, high torque motors, while leveraging the advantages of SmartMotor technology. The DS2020 expands Moog's standard drive's capabilities by allowing it to act as a follower device on the Combitronic network, which means the drive can be controlled by any Moog SmartMotor on that network. The DS2020 works seamlessly in SmartMotor-based machines and applications, while supporting the SMI software and AniBasic programming language to configure and program the entire system.

Moog Inc.
www.moog.com

GOLD | SENSORS

AWR Antenna on Package Sensor

TI's family of pin-to-pin compatible 77GHz/60GHz single-chip radar sensors with integrated antenna-on -package (AOP) for near-field and in-cabin automotive applications are 25% smaller than non-AOP devices. Sensors can be added to space-constrained areas such as door handles and headlights for smart door openers and parking sensors and the vehicle pillars and overhead console to enable child-presence detection, seat belt reminders and gesture recognition.

Texas Instruments
www.TI.com

BRONZE | SENSORS

SBV-01

The SBV-01 is the first world safety motion device for industrial applications based on radar technology certified SIL2 PLd. It consists of a controller and from one to six sensors that monitor operator body presence both in access and in restart prevention, and even when the operator is standing still. Volumetric 3D detection and increased robustness allows for outdoor and harsh environment use.

INXPECT
www.inxpect.com

BRONZE | SENSORS

Tag-It Program

The Regal Tag-It program powered by Perceptiv intelligence is an asset management platform with functionality that enables users to view details on mechanical and electrical assets in operation and reduce redundant or obsolete inventory. Perceptiv wireless monitoring can also be added to watch critical assets at all times. A push of a button shows the equipment health, allowing users to be proactive with maintenance and replacements.

Regal Beloit
RegalBeloit.com

SILVER | SENSORS

Cordis Electronic Flow Controllers

Clippard's new compact Cordis Flow Controller utilizes an extremely fast-reacting mems technology sensor upstream of Clippard's proportional electronic valve. Adding an optional DR-2 precision regulator for accurate and precise pressure control makes for a very small, compact package by eliminating the need for an external regulated supply. <50 ms response time, ≤25 mV resolution and IP65 housed. It features:

- Compact size and weight
- <50 ms response time
- Multiple low flow ranges
- ≤14 in. H_2O pressure drop

Clippard
www.clippard.com