



Manufacturing & Materials Spotlight

tools of the trade

Rotary oven

Grieve offers No. 815, a 500°F (260°C) electric rotary hearth oven with work-space dimensions of 76 x 76 x 24 in (1930 x 1930 x 610 mm). The 72-in (1830-mm) diameter rotary hearth is constructed from angle rings with slots to hold the workpieces on edge while processing and is driven by a 0.25 hp (0.186 kW) motor through a gear reducer with torque-limiting device that indexes one position each time the loading door is opened and closed. Two 2000-ft³/min (56,635-L/min), 2-hp (1.5-kW) recirculating blowers provide a vertical downward airflow over the workload. Features include special safety equipment for handling flammable solvents, including a manual reset excess temperature controller, separate heating element control contactors, a 325 ft³/min (9200 L/min) powered exhauster, and a purge timer.



Polyurethane coating

Chemthane 3600 aliphatic, spray-in-mold polyurethane coating from **Chemline** has been specifically formulated to withstand constant UV exposure and is suitable for consistent use in seating, door panels, crash pads, and similar applications. A 100% solid, two-component coating, Chemthane is designed to improve color retention and resistance to mar and abrasion. The product performs as a spray-in-mold coating for high-volume production applications necessitating quick mold cycle times. Once sprayed into a mold, the coating cures to the touch within 5 min and can accept an injection or pour foam within the same time frame. When the part is demolded, Chemthane 3600 reproduces the look and feel of the leather or vinyl. Offered in customized colors, the coating features 250% elongation. Recommended thickness is 0.01 to 0.05 in (0.25 to 1.25 mm).



Ball-style hone

When it comes to the cleaning, surfacing, de-burring, and edge-blending of critical metal surfaces, one of the most useful and efficient tools available is the ball-style hone, according to



Brush Research Manufacturing. The company's products can be used for anything from prepping combustion cylinders to deglazing brake drums. Used throughout industry where metal machining is involved, the ball-style hone uses a specialized abrasive that is recognizable by the usually small, abrasive globules mounted to nylon filaments. A precision-quality ball-style hone can not only de-burr bored metal, but can easily remove even microscopic metal shards and fragments.

Laser alignment

Pinpoint Laser Systems' 2D Microgage laser alignment tool is suitable for precision measuring, machine alignment, calibration, and other harsh industrial applications. The compact 2D Microgage combines a laser transmitter with a receiver and large LCD digital display and is accurate to 0.0001 in



(0.00254 mm). Roll and web lines, CNC cutting and milling equipment, lathes, stamping presses, injection-molding machines, extrusion systems, and other production equipment are checked and aligned to improve operating efficiency and reduce downtime. Other features include an operating distance of 100 ft (30.5 m), use of battery power, and machined components of solid aluminum with a hard anodized coating for wear resistance. A serial and USB interface connect to a laptop or PC and link to spreadsheets for plotting and analyzing data.

Noise reduction

Adchem's foam bonding adhesive tapes for sound attenuation and vibration damping are suited for applications in the off-highway industry. The company's foam bonding solutions can be adhered to a variety of natural and synthetic materials. The viscoelastic properties of Adchem's adhesive tapes are designed to create structural-borne wave interference and refraction when placed between two sheets of material. This composite exhibits less vibration, reducing the amount of sound energy that is generated.





Electric primer pump

The 700 Series integrated fuel filter/water separator with two-stage filtration and re-priming system from **Parker Hannifin/Racor Division** comes in three flow rates—790R with 90 gal/min (340 L/min), 760R with 60 gal/min (227 L/min), and 745R with 45 gal/min (170 L/min). The electric primer pump allows the system to be primed with the push of a button. Three models fit the needs of most diesel engine applications, including off-highway equipment. All filter materials and seals are compatible with ultra-low-sulfur diesel fuel and B2 to B20 biodiesel. Features include Aquabloc II media, which allows greater surface area exposure for fuel filtration and increased dirt hold capacity, clear bowl so water and particles can be detected, water in fuel sensor, and vacuum gauges to signal service.



Aluminum pistons

A cooled aluminum ring carrier piston from **Mahle** was developed for the heavy-duty range of commercial vehicle diesel engines with peak cylinder pressure of 200 bar (2900 psi). Features in-

clude use of high-temperature-resistant aluminum alloy and a cooled ring carrier to further extend service life and lower the bowl edge temperature by up to 30°C (54°F). Other benefits include improved oil consumption, blow-by, and appearance of the pistons as well as production-tolerant dimensions.



Pressure switches

Field-proven **Ashcroft** pressure and temperature switches meet the requirements of most industrial applications and are offered in various sizes and configurations. Switches can be provided with watertight and explosion-proof housings, adjustable dead-band, dual set points, stainless-steel housings, and a digital display. Temperature switches are available in ranges from -40 to +750°F (-40 to +400°C) with a choice of stem lengths, while pressure switches are offered from 0.4 to 5000 psi (0.03 to 345 bar), accommodating up to 1500 psi (100 bar) static pressure. Pressure switches can be configured for specialized installations.



Data loggers

Dickson Compliance-Max calibrations, combined with a Buddy System signup in the Dickson Calibration Club, enables off-highway engineers using data loggers or chart recorders to ensure that temperature, humidity, or pressure conditions remain in

acceptable ranges. The combination validates instruments' original operating specifications and ensures standard operating procedures. The Calibration Club is an automatic calibration reminder service to keep data loggers and chart recorders operating at original specifications. Compliance-Max calibrations include both before and after data, and Buddy System enrollees can include a co-worker for backup calibration reminders in anticipation of changing job roles, off-site assignments, and vacations.

Integrated motor control

Sevcon offers a compact, fully integrated fly-by-wire electronic controller, brushless dc motor, and two-stage planetary gearbox that can open and close hoppers, valves, and other equipment; steer automated guided vehicle systems, fork trucks, and powerboats; and raise and lower devices. The electronic motor con-



trol servo system for battery-powered equipment is capable of being mounted in any orientation, covers operating voltages from 24 to 48 V dc, provides 35 to 235 N·m (25 to 175 lb-ft) peak torque, uses CAN open communications protocol, and measures 7.3 x 3.2 x 5.4 in (185 x 81 x 137 mm).

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