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Coatings brochure

A six-page brochure from **Bosch Rexroth's** Industrial Hydraulics division provides information on the full range of Ceramax Engineered Coatings (CEC), which have been applied to more than 14,000 hydraulic cylinders in operation. The brochure describes the CEC application processes that allow for fine-tuning of layers to specific application demands. A graphic describing these applications as well as a list of the coatings' features and a table that identifies specific characteristics of ceramic- and metal-matrix-based coatings are included.



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Conveyor oven

Grieve Corp.'s No 810 500°F (260°C) gas-heated, two-zone belt conveyor oven is used for curing aluminum pistons. Workspace dimensions inside the unit



measure 42 x 15 in (1067 x 381 mm). Workloads travel atop a carbon steel flat wire conveyor belt through an open loading zone, insulated heat zone, unheated vestibule, another insulated heat zone, open zone, cooling zone, and open unloading zone. The heating zones contain 350,000 btu/h modulating natural gas burners. The unit also features doors at both ends of the workspace to contain heat, pushbutton electric ignition for ease of operation, and a recording thermometer.

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Threaded studs

SpinTite Type AES blind threaded studs from **Atlas Engineering** provide strong external threads for attaching components where only one side of a workpiece is accessible. The studs can be



used as an alternative to tapped holes, weld nuts, rivets, and self-drilling or tapping screws. They can also be used as locating elements when joining two components. SpinTite studs are suited for metal components as thin as 0.02 in (0.5 mm) and eliminate the need for additional hardware beyond a mating nut for final component assembly. They are offered in thread sizes #6-32 through 3/8-16 and in lengths from 0.500 to 1.088 in (12.7 to 27.6 mm).

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Gundrill system

TechniDrill Systems, Inc.'s Model 100CR gundrill system uses counter-rotation of the workpiece and the cutting tool to attain an accuracy of



0.005 in (0.127 mm) runout in 40-in (1016-mm) depth. Laser alignment allows the system to work within close tolerances. The 100CR offers drilling ranges from 0.125 to 1.0 in (3.175 to

25.4 mm) in diameter with drilling depths up to 48 in (1219 mm). The system is also equipped with programmable controls and a coolant system with 5 µm filtration.

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Holder system

Hirschmann Engineering USA, Inc. has integrated the Minifix P-Holder system to 3R and Erowa, eliminating the need for adapters. Minifix holders allow small to medium sized electrodes to be



held accurately. Four x, y, and z references allow 90° indexing of the electrodes, while a lock of moving parts allows ±0.0001 in on/off accuracy of the electrode. Pre-formed copper blanks attach directly to the holders and are available in a variety of sizes, square or round; the holders themselves are offered in two lengths—2.3 and 5.3 in (58 and 134 mm)—for each tooling system. Graphite electrodes can also be machined to mount directly to the holders.

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Impact wrench

ATP, a division of Hy-Tech Machine, Inc., offers the ATP1578LT-TH heavy-duty 1.5-in square drive impact wrench.



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The wrench incorporates a ball and cam type clutch, which converts air motor torque into powerful rotary impacts. The design offers improved durability and is suited for soft joint applications in the construction and other industries.

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Sealing solutions

Parker Hannifin's Seal Group has released "Sealing Solutions for Communications Equipment" (TSD 5425), a brochure that presents Parker's



sealing materials and designs for reducing the manufacturing costs of cabinets and enclosures. The literature compares the mechanical properties of seals made from silicone, EPDM, and other materials and explains the benefits of self-retained or "friction-fit" seal designs. It also describes Parker's dual seal design for applications in which equipment must be sealed from environmental conditions and shielded against electromagnetic interference. A special section defines the UL-listed material typically encountered in cabinet sealing applications and contains information about seals that have been formulated to resist ozone, fungus, or chemicals.

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Machining lubricant

Coolube 2210EP from Unist, Inc. is an environmentally acceptable vegetable-based lubricant for use in near-dry machining applications. A pressure additive provides improved performance

on all ferrous metals, and the product is suited for heavy-duty cutting operations on all CNC, automatic screw, drilling, tapping, milling, turning, and hard turning machines. Coolube 2210EP will cut a wide range of materials including stainless steels, low-carbon steels, tool steels, and other ferrous metals.



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Conveyor-belt fasteners

Flexco's rubber-topped version of its bolt solid plate conveyor-belt fastener, 190VP, improves longevity, speeds installation, and reduces noise with its

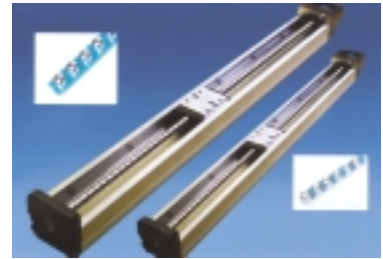


heavy-duty belt splicing method, according to the company. The fastener combines six steel top-plate fastener segments under a vulcanized-on rubber topcover for installation as a single piece and shields top plates from abrasive loads when used in countersink installation. The cover's working temperature range is -40 to +180°F (-40 to +82°C), and its flexibility between plates allows the splice to conform to belt troughing angles. The 190VP bolt solid plate fasteners are intended for conveyor belts ranging from 5/16- to 9/16-in (8- to 14-mm) thick with mechanical fastener ratings up to 330 psi (2275 kPa), running on conveyors with pulley diameters no smaller than 18 in (457 mm).

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High-speed actuator

THK's high-speed Type SKR actuator features caged technology, which isolates each of the load-carrying recirculating elements in their LM guides in an individual cage or pocket.



The cage prevents ball-to-ball contact and the associated friction and acts as a reservoir for lubricants, eliminating the need for an external lubricating system. Benefits include improved speed and accuracy of motion, decreased noise levels, maintenance-free operation, and reduced sources of contamination. Type SKR is available in outer rail lengths from 150 to 740 mm (6 to 29 in) and stroke ranges of 55 to 608.6 mm (2 to 24 in).

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Abrasive wheels

A full line of Type 1 cotton reinforced abrasive grinding wheels is available from Rex-Cut Products, Inc.



The wheels are made from non-woven cotton fabric with aluminum oxide and silicon carbide abrasives that are laminated, pressed, and bonded together. Constantly revealing fresh abrasives to provide a constant cut rate with smooth, controlled operation, they can grind, debur, edge-break, and finish in one-step without changing a part's geometry. The wheels are available in 1 to 4 in (25 to 100 mm) diameter sizes from 1/32 to 1 in

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(0.8 to 25 mm) thick and are suited for use on stainless steel, tool steels, and exotic alloys.

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Rugged welder

The **Lincoln Electric Co.**'s Vantage 500 welder is suited for demanding construction, rental fleet, or repair applications. Features



include a standard stainless steel roof and side panels for protection, simple controls to minimize training time, and Chopper technology, which offer improved dc arc welding performance. Vantage 500 offers multi-process capabilities, including stick, TIG, MIG, flux-cored, and gouging. The machine provides 500 A of welding power at 100% duty cycle rated at 104°F (40°C). The welder is capable of producing up to 12,000 W of ac generator power, and a downhill pipe mode with active arc force control allows the arc to be adjusted for a softer or more forceful digging arc. Two engine choices are available—44-hp (33-kW) air-cooled three-cylinder **Deutz F3L912** or 56-hp (42-kW) water-cooled four-cylinder **Cummins B3.3**.

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Portable flowmeter

The KEM HFM-201 heat flowmeter from **Kyoto Electronics**, manufactured by **CSC Scientific Co., Inc.**, accurately determines heat flow in areas such as industrial furnaces and manufacturing plants. The lightweight, portable unit can run off battery power



for 80 continuous hours and can be plugged into an ac adapter for longer use. Both heat-flow level and temperature can be switched and shown on display, making it possible to evaluate and manage thermal insulation, energy control, and the in/out balance of heat flow. Data memory can save 20 groups of files totaling 100 sets of data in storage; an optional printer is available.

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Robotic system

The six-axis Atlas robotic assembly system from **Atlas Engineering** will install SpinTite, MaxTite, and PlusTite blind threaded rivets. The system can reduce installed fastener costs, increase quality



installations, improve job productivity, and reduce floor-space requirements, according to the company. Designed for "blind" attachment applications such as hydroformed tubing where only one side of a workpiece is accessible for fastener installation and final component assembly, the fasteners can be specified for panels as thin as 0.020 in (0.51 mm). The workpiece can remain stationary while the robot performs installations; other operations can be simultaneously performed. The robotic assembly system can be located anywhere on a shop floor.

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Fiber laser

A commercial-grade ytterbium fiber laser from **IPG Photonics Corp.** is capable of achieving 300 W of low-noise single-mode output power, a 50%

increase over the single-mode output from IPG's production fiber lasers. The ytterbium fiber lasers, however, maintain the same performance, including beam quality, low noise, high-speed modulation by diode current up to 30 kHz, and single-mode fiber delivery up to 20 m. Operating at an emissions wavelength of 1.08 μm, the lasers feature either air or water cooling and offer users long diode life and maintenance-free operation. The product line includes randomly and linearly polarized CW ytterbium lasers with single-mode output from 1 to 300 W and multimode output up to 10 kW.

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Plate cutting system

Schuler Inc.'s stand-alone 6535-5A Pedalis laser system will cut and bevel heavy plate/sheet material sized to 11 x



21 ft (3.4 x 6.4 m). The five axes of motion permit processing parts at up to 90°; bevel cuts up to 45° are possible when cutting to within 1 in (25 mm) of the plate edge. The system features a low-profile design of the over and under pallet exchange table to facilitate easy loading and unloading of heavy plates and an automatic exhaust and scrap removal system positioned in a pit below the pallet and synchronized with the y-axis to follow the bridge during cutting.

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High-speed assembly

Velomat assembly machines from **ITI Automation** can assemble up to 120 parts per minute with “limitless” configuration possibilities via patented pre-engineered “motion modules.” The machines feature synchronized high-speed motions, heavy load-carrying capacity with long adjustable strokes, and improved accuracy and flexibility. Equipment manufacturers and end users can build a custom high-speed assembly machine simply by determining the number of workstations required and selecting the appropriate pick-and-place motions required to do the job from a comprehensive array of motion modules.

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Mobile fastening

The Mobile Fastening System II from **SPX GSE tech-motive tool** is a portable fastening and torque/angle auditing assistant that can be used in the assembly



plant or testing laboratory. The system aids in joint analysis and trouble-shooting, prototype component building and testing, and production line repair. It includes a four-wheel cart, personal computer loaded with a fastening program, monitor, keyboard and cover, printer, controllers, and compartments and hangers for fastening tools and cables.

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Laser cutting

TRUMPF Inc.’s Sprint Axis motion technology allows the laser machine to achieve rapid acceleration rates that improve laser-cutting productivity. The

Sprint Axis is integrated into the firm’s compact 4- x 8-ft (1.2- x 2.4-m) TC L 2530 Plus laser-cutting machine. The unit boasts acceleration rates of up to 1 *g* (390 in/s²) and demonstrates productivity increases of up to 40%. Software included in the easy-to-use control automatically evaluates the geometry of each part and determines the most efficient way to process the job.

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Horizontal machining

Cincinnati Machine’s MEGA-150 horizontal machining center provides reduc-



tions in non-cut times, efficient removal of large chip volumes, and large job processing capability. It is standard with x-y-z travels of 57.0 x 43.3 x 49.8 in (1450 x 1100 x 1265 mm) and can machine parts 51.2 in (1300 mm) in diameter and 59 in (1500 mm) high. Wait times are reduced via a 0.9-s tool-to-tool interchange time and tool queuing, and an 8.0-s pallet exchange time.

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Grinding machine

Schautt Mikrosa BWF’s Zeus S CNC universal grinding machine is available from **United Grinding Technologies**. The machine is designed for volume production of round and non-round shaft parts including camshafts, crankshafts, and gearshafts, as well as electric motor armatures, steering



assembly parts, eccentric shafts, tool-holding fixtures, pump shafts, axle components, turbo rotors, and others. With a working range of 300 mm (11.8 in) between centers and a center height of 175 mm (6.9 in), the machine handles workpieces weighing up to 10 kg (22 lb). A polymer Granitan machine bed provides optimum vibration damping. A constant circumferential grinding wheel speed of up to 120 m/s (390 ft/s) enables short grinding times, long-lasting tool life, and optimum grinding performance.

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Rapid prototyping

A new method for rapid manufacturing of nylon prototypes and parts, along with a new RTV silicone rubber for



molds and two new PA-6-type nylons, has been introduced by **MCP Systems** and its North American distributor, the RenShape Solutions Tooling Group of **Vantico A&T US Inc.** The new process uses a specially designed MCP/04 vacuum casting machine, which can produce production-quality nylon parts in just six minutes. It is well suited for producing complex, thin-walled prototypes able to withstand exposure to heat, chemicals, and abrasion.

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