



## High-friction coatings

EKagrip nickel diamond coatings from **ESK Ceramics**, a **Ceradyne** company, are designed for use at joints in powertrain, transmission, suspension, and drive applications. Consisting of an electroless nickel matrix in which specified quantities of diamond particles of defined size are co-deposited, these coatings can be applied either to the joint components directly or to thin foils or shims for installation in the joint. EKagrip friction coatings can transmit up to three times as much load as conventional systems with no need to modify the joint design. Unaffected by typical in-engine environments, the coatings can be reused.



## Joint sealants

BETAGUARD sealants are a line of body, trim, and paint shop sealers from **Dow Automotive** used to eliminate water, noise, dust, and fumes from entering body joints and the passenger compartment of heavy-duty vehicles. These sealants also protect weld points and specific parts from corrosion and chipping. Body shop sealers bond to oily metal, withstand all stages of the electrocoating (E-coat) process, and are heat cured in the E-coat oven. Paint shop sealers bond to E-coat, are compatible with paint systems, cure in paint ovens, and promote a quality finish.



## Acrylic adhesive

**Henkel's** line of seven structural acrylic adhesives offers durable bonds for a variety of metals. Two-part Loctite Speedbonder structural adhesives bond aluminum, steel, and galvanized metals to a variety of substrates including plastics and composites, lessening the need for mechanical fasteners. The H4720 Speedbonder adhesive improves environmental resistance on a range of metals, while H8000 adheres fixtures in 10 to 15 min and improves impact and peel strength on aluminum surfaces. For high-strength steel bonding, the H8500 offers a short open time; H8510 features an extended open time for parts alignment. The H8600 adhesive is formulated for long-term bond strength on galvanized steel and bonds to many other metals exposed to environmental extremes. Two general-purpose adhesive formulations are available, with 35 to 40 min of open time for part adjustment or a short open time of just 10 min for general metal bonding.



## Finishing station

**Hautau** offers a double-end finishing station suitable for use in the continuous production of conveyor rollers, electric motor housings, starters, and pumps. Cut-to-length tubes are continuously fed into the station via a chain conveyor, while a 60-hp (45-kW) electric motor powers hydraulic motors that drive two boring heads



to simultaneously bore both ends of the tube up to a depth of 3 in (76 mm). The process also faces and bevels both ends. The system can handle tubes up to 7 in (178 mm), with a wall thickness of 0.3 in (8 mm) and range of 7 to 90 in (178 to 2286 mm). Designed for high-production continuous processing, the loading system can accept primary and secondary lengths and separates the secondary length for future batch processing.

## Universal oven

Model AF-1000 from **Grieve** is a 24 x 36 x 24-in (610 x 915 x 610-mm), 1000°F (538°C) high-temperature universal oven with a 0.75-hp (0.56-kW) recirculating blower to provide front-to-back horizontal airflow and surround the workload. Used to clean and heat treat fuel nozzles, the AF-1000 offers 24-kW (32-hp) power installed in tubular heating elements. Other features include 8-in (203-mm) insulated walls, an aluminized steel interior and exterior, and inner and outer door gaskets sealed against the front face of the oven. The unit accommodates up to seven shelves on 3-in (76-mm) centers, and standard equipment includes a digital indicating temperature controller, manual reset excess temperature controller with heating element control contactors, a recirculating blower airflow safety switch, and a top-mounted control panel to minimize floor space.





### Direct data-bus

**Maxima Technologies'** direct data-bus instruments (DDBI) provide a direct connection to an **SAE J1939/CAN** bus without a separate instrument controller. Fully sealed to at least 6 psi (0.4 bar) and designed for heavy-duty applications, the DDBI provide LED backlighting and lighted pointers. Anti-fog coated gauges feature integral LED warning indicators, while tachometers and speedometers display diagnostic information and process inputs for non-bus functions such as fuel level. Units are protected electrically from over-voltage, reverse polarity, load dump, and transients and feature an operating temperature range of -40 to +85°C (-40 to +185°F).



### Wheel-end system

The Spicer LMS hub system from **Dana's** Commercial Vehicle Systems Group is available for drive and trailer axles that require a long-life, low-maintenance wheel end that is designed to maintain load ratings with wide-based tire applications. The new system offers reduced weight, improved fuel efficiency, and application flexibility, claims Dana. Compatible with standard track axle configurations, the LMS wide-based hub system is available on Dana's Spicer 23,000- and 40,000-lb (10,433- and 18,144-kg) drive axles and P-spindle 71.5- and 77.5-in (1816- and 1969-mm) track trailer axles, and is approved for use with 2-in offset wheels.



### Seat support

The elastomeric vibration control (EVC) cushion support system available from **Seats** provides more vibration absorption than standard seating, according to the company. With this system, the seat cushion rests on an EVC cushion sling that is made from a trampoline-type material as opposed to being attached to a wooden board or metal pan. The sling smoothes out the bumps from the ride as well as reduces road vibration, fatigue, and tailbone pressure. The EVC cushion support system is featured in the company's Legacy series seats.

tem via custom extensions, and assigning verification blocks to test signals.



### System integration

SmartCraft from **MotoTron** is CAN-based networking and system integration for the marine and recreational vehicle industry. It combines electronic propulsion and drive-by-wire technology with formerly independent boat systems into a managed, integrated vessel system. The products are integrated both with SmartCraft technology and with each other therefore delivering more information and control to boaters. Requiring little or no user interaction, SmartCraft systems deploy when they should and as designed.

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### Modeling software

Simulink Verification and Validation from **The Mathworks** enables users to develop requirements-based designs and test cases mapped to requirements and measure test coverage. By linking requirements to design and test cases and performing coverage analysis at the model level, the user can expose design flaws, inadequate requirements, incomplete tests, and unnecessary design constructs early in the development process. It allows users to trace requirement documents to design models, component tests, and generated code. Users can also verify designs and tests through model coverage and modeling standards checking. Key features include bidirectional linking of requirements with Simulink and Stateflow, linking to any document type or requirements management sys-



### Power distribution

**Arens Controls** offers a line of power distribution modules (PDMs) created for flexibility in the design of onboard electrical systems in marine, RV, and medium- and heavy-duty truck applications. The PDMs feature improved integration for adding electrically driven components and accessories or aftermarket equipment to the vehicle design. A plug configuration reduces errors resulting from incorrect connections during routine service. Rated up to 200 A, the unit can accommodate multiple I/O configurations, can be integrated with the vehicle's CAN technology, and is available with power management capability. Other benefits include simplified troubleshooting of the electrical system.