MACHINE DESIGN

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Periodicals
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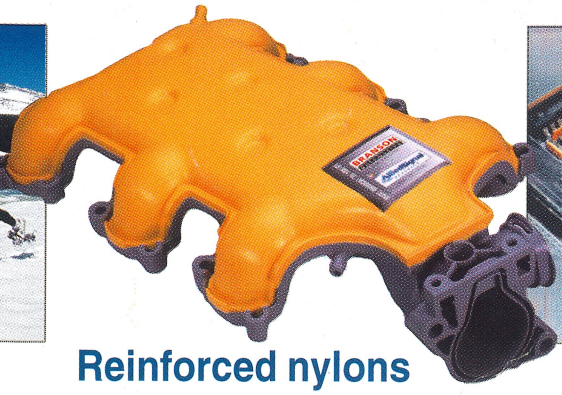
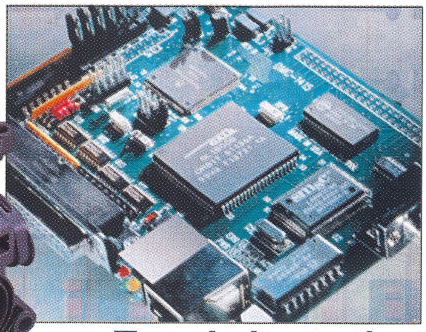
Molding colors that match, page 58



Reinforced nylons stick to their knit lines, page 67



Trends in motion control, page 77

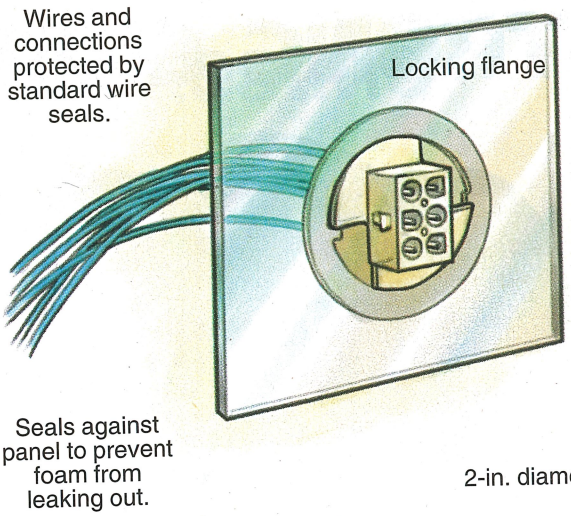
Concept cars designed for excitement, page 40

ENGINEERING DESIGN ■ REINFORCED NYLON ■ MOTION CONTROL REFERENCE GUIDE ■ CONCEPT CARS

Electrical fastener seals in insulation

When appliance makers inject high-pressure insulation into the walls of a refrigerator, the foam expands into every nook and cranny. Naturally, cutouts where wires pass through panels offer a perfect escape route. To prevent such seepage, designers at Tyco Electronics, Harrisburg, Pa., added partial flanges to its Universal Mate-n-lok connector to create a twist-and-lock device. When locked in place, it creates a splashproof, insulation-tight seal. Standard wire-entry seals and a connector-interface seal stop foam insulation from penetrating the connector.

Tyco claims the new connector has a lower overall cost, is easier to install, and eliminates the adhesive-backed gasket on other fasteners that prevent insulation from leaking. The fastener works on panels between 0.30 to 0.90 in. thick, and is also suited for HVAC equipment and watercraft application exposed to splashing fluids. The connectors are available in several colors, as well as 6, 9, and 12-wire versions.

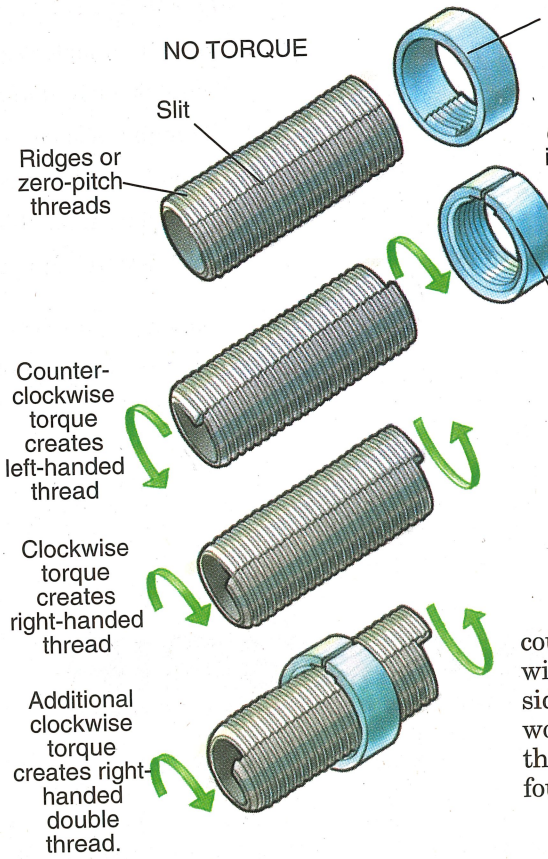


Circle 402

Twist turns cylinder into variable-pitch screw

Amir Ziv-av, an inventor with Ziv-Av Engineering Ltd., Or-Yehuda, Israel, had developed a bidirectional (right or left-handed threads), variable-pitch screw with applications in mechanical and mechatronic devices. The design starts with a thin-walled, flexible cylinder with "zero-pitch" threads. The threads basically form ridges around the cylinder. A longitudinal slit along the cylinder's entire length lets users apply a slight torque that realigns the ridges into right or left-handed threads, depending on the direction of the torque. Additional torque changes the thread from a single to a double.

The screw can be used with a locking nut that has teeth spanning a small arc on one side of the nut. This prevents the pitch from changing while the teeth of the nut lie across the slit in the screw cylinder. Alternatively, a nut with a slit similar to the cylinder's and with ridges or threads lining the hole can be used to lock the screw in place.



Possible applications for the variable-pitch screw include use as a bidirectional motion screw driven by a unidirectional power source such as a water or wind-driven turbine, or in a reversible screw conveyor in which the rotating screw is inserted inside a cylinder. It could also be used as a cable guide in winches to feed cable from side to side onto a spool. Such a device would cause less wear and be simpler than "moving-window" mechanisms found on conventional winches.

Circle 404