



## Chicago White Metal Casting

High-Tech Al, Mg and Zn Die Casting  
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New Tektronix® NetTek™ Analyzer: offers latest optical technology, shielded interior, shock-proof exterior

## High-tech CWM Mag Die Casting plus Overmolding Makes a Breakthrough Case



With introduction of its new handheld NetTek™ Analyzer for next-generation fiber optic cable testing, Tektronix engineers have unveiled a major breakthrough in housing design for portable electronic instruments.

The latest in optical technology to monitor the integrity of internet cabling installations is housed in a precision magnesium die cast case married to an elastomer overmold.

### An Optimized, Robust Package

The application of soft-touch elastomer overmolding to a geometrically complex hot-

chamber Mg die cast housing is believed to be a production first, offering unique benefits to the end user. At virtually the weight of molded plastic, it provides impact strength and dent resistance superior to plastic. According to Jim McGrath, senior M.E. and project leader of the team responsible for the modular enclosure, magnesium beat out engineering thermoplastics on four crucial counts. First, it provided ruggedness for the combined unit to survive a battery of tough physical tests, including a 48-inch drop to concrete. "Many of the plastics traditionally used for such housings would just disintegrate," he states. Second, Mg's added torsional rigidity protects the unit's glass touchscreen display.

Third, Mg also did a better job meeting thermal requirements calling for each module to dissipate 6 watts per module. "That would have been a stretch for most plastics," he says, noting Mg easily handles 8 watts with good internal heat sinking to the outer case.

Finally, magnesium provided built-in EMI/RFI shielding integrity without the need for expensive coatings or gasketing materials, as would be required for a plastic design.

### Innovation with a Cost-Saving Bonus

McGrath points out that the project was driven by functionality rather than cost, "but we also wound up with a more cost-effective case." Part consolidation and process simplification made possible with the Mg and overmolded unit offered up to a 20% cost saving over a comparable plastic design, despite the cost of separate casting and molding tooling.

Intricate features are designed into the die cast housing components, and the overmold

allowed integration of many additional cost-saving details such as weather seals, living door hinges, bumpers and other mechanical support features, and even contributed to better heat dissipation. Over-molding offered greatly enhanced grip and feel, plus electrical insulation—protecting the user from hazardous external voltages.

### High-Tech Casting & CNC Production

Chicago White Metal die casting production and CNC machining produced the case modules to exacting dimensions required for consistent over-molding processing. The rear case is cast with 45 tiny "gripper" teeth and 55 holes, 39 to size and the balance tapped. Fifteen holes serve as molding shut-offs, with machined surfaces parallel to 0.002 in.

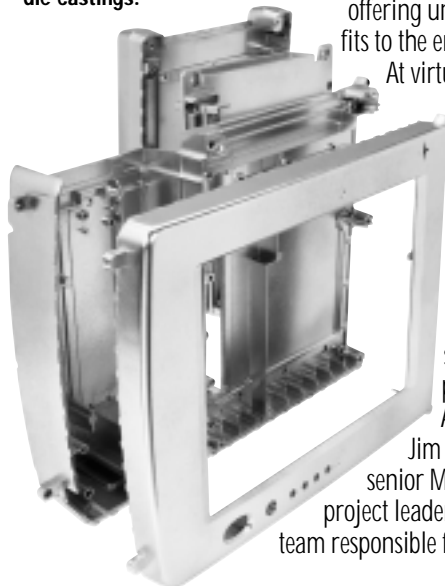


Tiny "gripper" teeth on case halves hold elastomer in precise position.

"The NetTek team set out to create a superior instrument package," McGrath says. "It took two years of development, but we did it."

Visit [www.tektronix.com](http://www.tektronix.com) for information on the NetTek analyzer. For more information on CWM high-tech die casting, contact your CWM Sales-Engineer Representative, or visit the CWM website at: [www.cwmdiecast.com](http://www.cwmdiecast.com) ■

Basic 9 x 12 x 3 in. NetTek case consists of 4 high-precision AZ91D Mg alloy hot-chamber die castings.



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