

38th Annual  Awards

R&D 100 Awards Winners Reveal 21st Century Technologies

This year's winning products are more intelligent, environmentally safer, and more cost-effective than their competitors, giving you a look at the continuing technological improvements in our world.

The 2000 R&D 100 Awards marks the 38th consecutive year that the editors of R&D Magazine and a select group of technology specialists have chosen the top 100 products introduced into the marketplace

over the past year. R&D 100 winning products are chosen for their "technological significance" over competing products and technologies.

Mechanical

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Sonic Drill Could Go Into Space

A drill now exists that requires no sharpening, has no drill chatter, and can be safely guided by hand. The **Ultrasonic/Sonic Driller/Corer** (USDC) created by a research team at Cybersonics, Erie, Pa., and the Jet Propulsion Laboratory, Pasadena, Calif., has only two moving parts with no gears or motors. Piezoelectric materials change shape under the application of an electrical field, providing the necessary actuation capability. The unit weighs about 0.7 kg and can drill

12-mm holes in granite without significant weight on the drilling bit, using less than 10 W of power. Comparable rotary drills require 20 to 30 times the force and more than three times the power of the USDC. It is being considered for the 2003 mission to Mars and for use on balloons on Venus. It can also be used as a minimally invasive surgical instrument and for restoring fluid flow to implanted brain shunts.

www.cybersonicsinc.com

