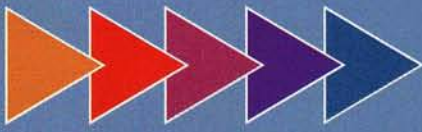


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INJECTION



Molding

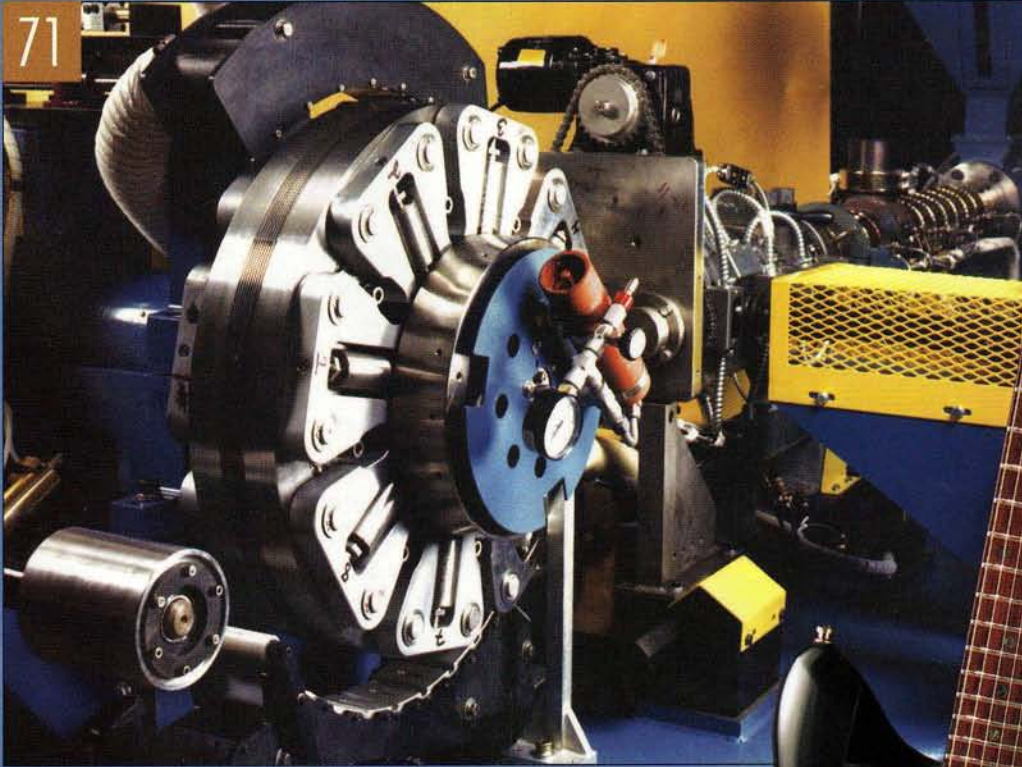
FOR INJECTION MOLDING PROFESSIONALS

Multiplant communication, p. 19

November
2005

CONTINUOUS INJECTION MOLDING?

This is an injection mold and it makes Velcro—really



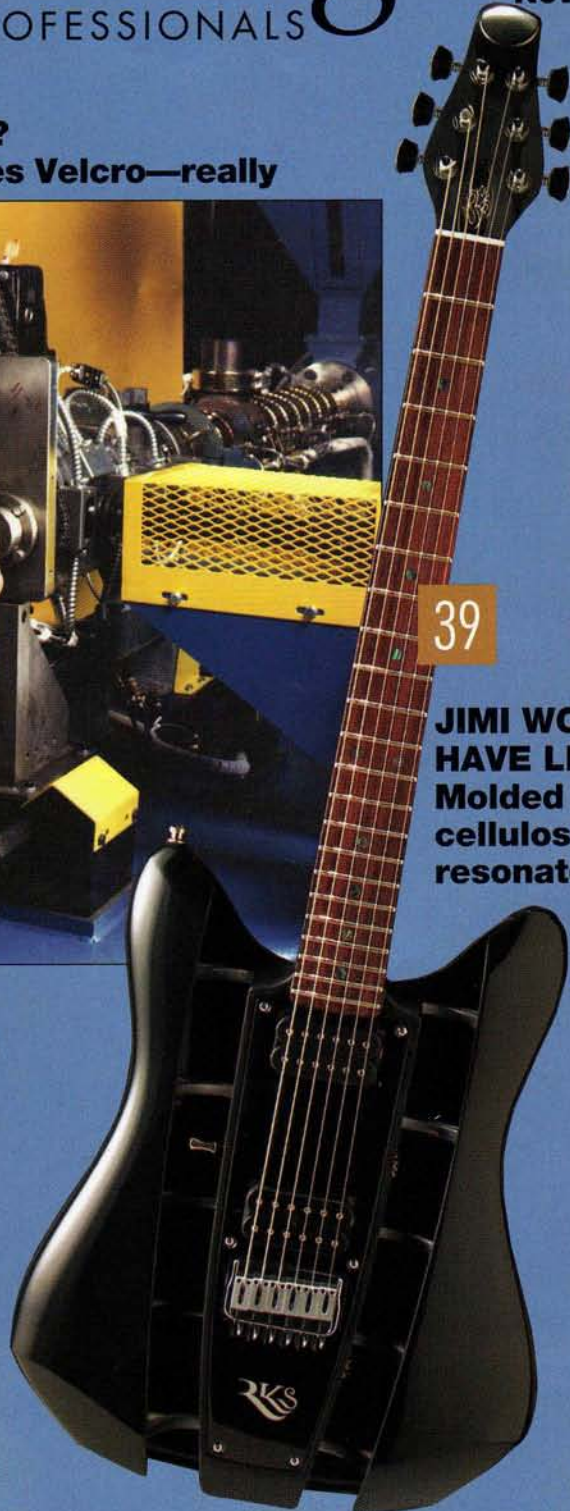
71

HOLDING ON TO MOLDBAKING

Automated electrodes offer an edge



55



39

JIMI WOULD
HAVE LIKED IT
Molded
cellulosics
resonate

immnet.com

NEW PRODUCTS

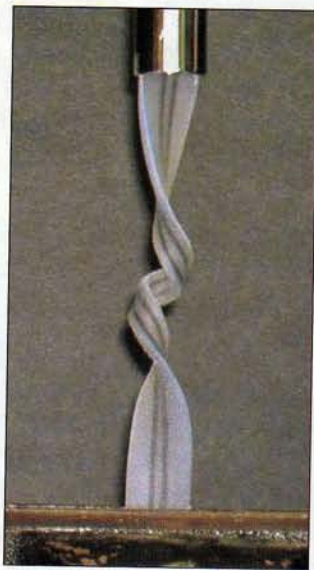
New RP for stronger parts fast

One of the most common problems with rapid prototyped parts involves their use in real—not virtual—testing for fit and finish. While progress has been made in making RP materials more durable, there are still projects in which the only way to get a testable part is to produce a low-volume run via aluminum or RP tooling.

Manufacturing By Design Inc. (MBD), a new company started by its president Earl Dunlap (founder of Catalyst PDG), recently unveiled three patented secondary technologies aimed at boosting the impact strength of RP parts. While these are currently available, software to make the engineering aspect of this process easier and faster should be available by mid-2006. Note that all current processes have a 24-hour turnaround time.

First up: Nano technology is applied to prototyping in the RP Tempering process. According to Dunlap, the tempering process can be performed on any RP part produced by any method. MBD engineers spherical shapes into the part design without changing it. Dunlap says stresses within the walls of the RP part can be redirected or controlled to achieve the results needed, and the design time is minimal. Once the design is complete, the part can be made by anyone before being shipped back to MBD for tempering.

In the tempering



Tensile bars treated with Hybrid-Temp Rx are twisted in a torsion test. On the left is a bar produced via SLA, while the other is an SLS part. Flexibility can be improved by 300% regardless of the method used to produce the RP part, according to data published by MBD.

process, the spheres are filled via syringe or a pressured injection device with a patented compound, producing a nano-scale chemical reaction. Tiny nano-sized strands create branches extending from

parts," Dunlap says.

RP Tempering will reportedly strengthen:

- Screw bosses on a prototype part for a life cycle of 100 repetitions.
- Ribs and rib intersections.
- Snap and latch features for

'This process was not developed to COMPETE WITH commercial prototype systems.'

the internal spheres to increase strength and flexibility. The patented compound dries within 2 hours so that tempered parts can be shipped out the same day.

"This process was not developed to compete with commercial prototype systems, but to work in parallel to enhance prototype

a life cycle of 25 repetitions.

In addition, says Dunlap, large tempered prototype parts pass UPS and FedEx drop test specifications 93% of the time because impact strength can be increased by a factor of 13 and flexibility by a factor of three.

A corollary product

from MBD, Proto-Plasma Rx, is a secondary chemical compound applied to the interior, exterior, or both sides of a prototype part via spray and film vacuum process. It dries within minutes over most of the part and can be applied in thicknesses of .003-.010 inch. The paintable compound film feels and reacts like synthetic latex, and a catalytic reaction chemically bonds it to the RP part. The film is available in clear, blue, red, black, yellow, and white.

Finally, both of the above technologies are combined to form Hybrid-Temp Rx, which reportedly increases screw boss life cycle to 200 repetitions, snap and latch features to 100 repetitions, and the ability of large parts to pass drop-test specs 99% of the time.

MBD has generated extensive data from developmental research to prove the effectiveness of these techniques. For instance, the Hybrid-Temp Rx process used on DSM Somos Watershed material improves impact strength more than 300%. The same process elevates tensile strength in 3D Systems' DuraForm GF material by more than 5%. Finally, the RP Tempering process more than triples the number of rotations (torque) for both RP materials.—MM

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