

CUTTING TOOL ENGINEERING®

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staying sharp

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On the Web at www.ctemag.com

A guide to what's new on CTEPlus :

 **Interactive Reports**

To access interactive reports on CTEPlus, visit the slide show on our home page at www.ctemag.com, then click on the report you wish to view. Or use the "News & Events" drop-down menu and click on "Interactive Reports" to browse through all of our presentations.

For a closer look at micro electrical discharge milling, for instance, check out our 3-minute video report with Graham Ruck, sales/applications manager for Leer Technologies Inc. Ruck reviews the newest features of the Sarix-200 3-D multi-axis microEDM milling machine.

 **CTE Community**

Cutting Tool Engineering Editor Alan Richter used his CTEPlus blog to find out your thoughts about saving fuel by reducing vehicle weight, which happens to be the subject of his "Smart Weighting" feature article in September. Visit the CTEPlus home page at www.ctemag.com, use the "News & Events" drop-down menu and select "CTE Community" to browse all of our editorial blogs.

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IS #90

productive times

Honing tool ensures quiet brakes

A few years ago, when officials at machinery manufacturer Miller Industrial Products, Jackson, Mich., received an order to make brake drums for Cadillac stretch limousines, they knew they faced some unique challenges. The limos are the heavyweights of passenger cars and require the support of much beefier axles that conventional vehicles.

"These stretch limos were not only much larger than standard

models in overall size, but also featured bullet-proof windows and doors plus a heavy-duty undercarriage," said Bill Miller, owner of Miller Industrial Products. "Therefore, the brake system required the size of brake drums used on trucks. But at the same time, since these were ultraluxury vehicles, the brakes had to be quiet—and that was a new challenge."

Years ago, drum-brake systems typically featured asbestos-lined shoes, which were quiet. But since the ban on asbestos, new brakes—whether drum or disc styles—tend to be noisy if the hard metal finishes are not perfectly smooth. "Any irregularities in the surface of the drums would cause a squeal, hum or slapping noise that was unacceptable to the OEM," said Miller.

What was needed, he continued, was a unique honing process to give the brake drums an ultrasmooth finish.

Miller turned to Brush Research Manufacturing Co., Los Angeles, maker of power brushes, hones and other finishing tools. He soon learned about the company's Flex-Hone ball-style honing tool to impart smooth finishes.

"We looked at this honing tool and developed a special process to machine the brake drums and then hone them in such a way that they were completely silent," said Miller.

The ball-style hone is recognizable by the abrasive globules, sometimes called "dingle berries," mounted to nylon filaments. The tool not only deburrs bored metal but can remove microscopic metal shards and fragments.

Brush Research Manufacturing also makes a line of the ball-type hones for use on brake rotors, the Flex-Hone for Rotors, which also can be used on flywheels to remove torn, cut and folded metal fragments.

Miller said due to machining, slight flaws and resulting

END USER: Miller Industrial Products
(517) 783-2756
www.bullardcity.com

CHALLENGE: Find a way to make quiet brake systems for Cadillac stretch limousines.

SOLUTION: Ball-style honing tools.

SOLUTION PROVIDER: Brush Research Manufacturing Co.
(323) 261-2193
www.brushresearch.com
IS# 302



Brush Research Manufacturing

The ball-style hone for brake system rotors delivers an ultrasmooth, nondirectional finish to eliminate noise and extend brake life.

noise are almost unavoidable when making rotors unless the correct finishing techniques are used. "When you turn a piece of metal on a lathe, you always create a 'tool lead' groove in the metal," he explained. "That is because you are cutting it with a single-point tool, and as the parts revolve and the tool feeds in the metal, it leaves a slight groove in the product you're working on. Many brake specialists have found that this groove creates noise unless it is polished off by honing. You can try slowing the speed down and accelerating the rpm, and that may min-

imize the tool lead. But unless you eliminate the groove and create a surface that is very smooth and nondirectional, you are still likely to get noise ... [and] brake wear-life may be lessened."

Miller said the ball-style hone has helped increase business since the initial Cadillac limo order. "We are in a very competitive industry and it's always a 9-1-1 turnaround. ... So we've used the BRM tool and even developed new models with their engineers to modify and streamlines processes that have really impressed our customers, and have led to new ones."

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