

Quality Times



with Meister Abrasives

Fall 2008

Presented By

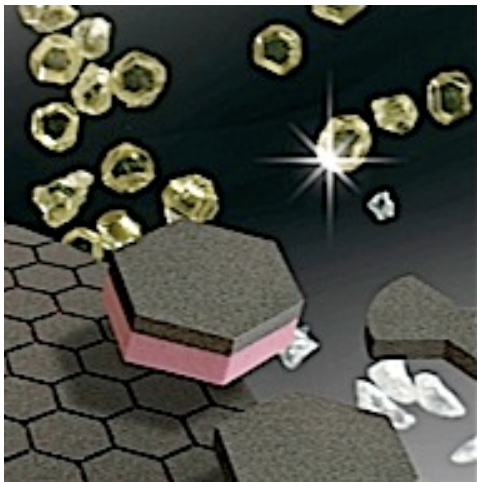


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Super Sized: Among the first shipments of hDD dressers is one of the largest Meister has ever manufactured

Meister Abrasives Points: Consistency and mirror-image manufacturing.

New Abrasives Technologies For Prototype Diesel Components

With the cost of fuel so high, engine manufacturers are undertaking aggressive R&D programs to improve engine efficiency and fuel economy, particularly in the diesel marketplace. Meister Abrasives is deeply involved in some of these.

Bruce Northrup, General Manager of Meister Abrasives USA said, "New fuel systems such as High Pressure Common Rail are more compact and operate at increasingly higher pressures, requiring components to be ground to increasingly tighter tolerances."

He continued, "We are applying our new HPB (High Performance Bond) wheel and hDD (hybrid Diamond Dressing) technologies to help them do just that."

So Meister is very busy developing new wheel and dresser combinations that mesh with these manufacturers prototyping efforts to produce the energy efficient engines of the future.



- Component: Lash Adjuster Body
- Material: steel
- Hardness: 58-60 HRc
- Grinding Operation: bore grind
- Machine: Voumard
- Wheel: Ø10mm shank mounted-- 1
- Dresser: Ø15mm cup-- 2

Quality By Every Measure

Lash adjuster quality and manufacturing performance dramatically improved using advanced grinding and dressing technologies.

A tier one automotive components supplier needed to improve its internal grinding process for manufacturing valve lash adjusters (aka hydraulic lifters). A major problem was that the bore of this long cylindrical part was a blind hole, which made it very difficult to deliver a significant amount of coolant into the cavity.

The customer replaced its standard vitrified CBN wheel with Meister Abrasives' highly porous and free-cutting HPB (High Performance Bond) product. Cycle times were reduced from 18 to 14 seconds and bore straightness was from $< 5\mu\text{m}$ to $< 2.5\mu\text{m}$. Dressing intervals were extended from 35 to 50 cycles and wheel life increased from nearly 8,000 to more than 11,000 parts.

Those were substantial results; however, there was even more that Meister technology could bring to the table. Productivity was also being lost because the metal bonded dressing cup had to be sent to the tool room for reconditioning every week. So the metal bond dresser was replaced by an advanced Meister Abrasives hDD (hybrid Diamond Dresser) cup. This technology, as advertised, is self-sharpening, so it never required reconditioning. However, that was not the only improvement to the process.

Cycle time was reduced by another 1.5 seconds, bore straightness improved by an additional 40%, and the company was able to manufacture an additional 1600 parts before a wheel change was required. The latter result was because the hDD cup removed 12.5% less material with every dressing cycle. What's more, the life of the dressing tool was nearly double.

Bottom line: If you have a difficult grinding operation and you are looking to improve performance and/or part quality— lets talk



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RESULTS:

	ORIGINAL SETUP	STEP-1: Implementation of Meister HPB Vit Bonding Technology	STEP-2: Implementation of Meister hDD Hybrid Dresser Technology
Product	Wheel spec: standard vitrified CBN Dresser spec: Sintered Metal Bond	Spec: Meister HPB Vit CBN CB22-230-R-9-185-175-V55-P7I-31	Spec: Meister hDD D1-80-R-0-1150-150-H40-80
Cycle Time	18 sec	14 sec	12.5 sec
Geometry (bore straightness)	$< 5\mu\text{m}$	$< 2.5\mu\text{m}$	$< 1.5\mu\text{m}$
Dress Amount	$8\mu\text{m}$	$8\mu\text{m}$	$7\mu\text{m}$
Dressing Interval	35	50	50
Conditioning interval of dresser	weekly	weekly	Never (self sharpening)
Wheel Life	7,875 parts	11,250 parts	12,850 parts
Dresser Life	45 days	50 days	90 days

hDD In The News

Revolutionary Dressing Technology:

With our new hDD dressing tools, grinding wheels perform better and the dressing tools never need conditioning.

Trade magazines take first look at Meister's new Hybrid Diamond Dressing technology

As reported in the spring issue of Quality Times, Meister Abrasives, USA unveiled its new hDD Hybrid Diamond Dressing Technology via a well-attended web conference. Results from the trades supports our view that this was, indeed, newsworthy information.

Here's how that "first look" translated into coverage to date.



- [The Grinding Journal](#)
- [Finer Points](#)
- [Abrasives Market](#)
- [American Machinist](#)
- [China Hardware Tools](#)
- [Industrial Product News Online](#)
- [Modern Application news](#)
- [Manufacturingtalk](#)
- [Medical Product Manufacturing News](#)
- [ThomasNet](#)

For more information about Meister Abrasives' new hDD Dressing Tools and other new products-- [Click Here](#)



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Meister Abrasives Points

Consistency-- Just What the Doctor Ordered

Our customers take consistency very seriously. So we go to great lengths to assure that our products are consistent from wheel to wheel and lot to lot. Even this may not be enough for some of our customers.

Recently Meister Abrasives USA passed one of the most stringent wheel evaluations we have ever encountered. It was for a medical part manufacturing process. In addition to evaluating our wheels on the manufacturing equipment, the customer also verified internal dimensions of products by X-raying them.

We are happy to report that Meister was given the order-- not for 5 or 10 wheels-- but for enough to last the next 10 years of manufacturing. Now the customer can be 100% sure that the properties of their wheels will not change.

With customers like these, we have no intention of letting up on our efforts to continuously improve on our manufacturing consistency.

Mirror Image Manufacturing

Andy Miller, Vice President of Meister Abrasive USA recalls the effort it took in 1994 to create abrasive product manufacturing processes in the United States that would exactly duplicate our long-established ones in Europe.

“For example, we changed the coils in our kilns about five times to make sure we were getting our firing cycle right. We had to be sure that the bond structures produced in the USA were exactly the same as what they did in Switzerland.”

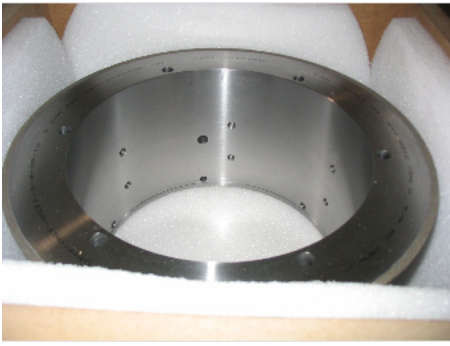
“When we thought we had it right, instead of testing the product in the USA, we sent it back to some of our European customers to test the American-made

product against the Swiss version in identical manufacturing environments. That way, we knew for sure our US and Swiss manufacturing processes were mirror images of each other.”

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Meister Abrasives USA
Make A Quality Decision
United States of America



Super Sized: Meister USA ships one of its largest (ø300 mm) hDD (hybrid Diamond Dressing) Tools.

Made In USA

To insure timely deliveries, nearly all Meister USA products are made to exacting international corporate standards at our state-of-the-art plant in North Kingstown, RI.



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