HOT Glue the New Sealing Wax?

By Wayne R Meulendyk

The sealing wax in thread ring gauges is a mess to dig out and cumbersome to reinstall. I have a solution. But before I go there, let me clarify for those who don't use sealing wax every day.

I am talking about the sealing wax found in the locking mechanism of the adjustable style thread ring gauges. The sealing wax needs to be dug out before the gauge can be adjusted, and needs to be replaced after the gauge has been adjusted. While the gauge will work just fine without the sealing wax installed, the wax is recommended to avoid any tampering with your adjustment. Tampering—whether innocent, accidental, or malicious—will invalidate your calibration efforts.

Sealing the locking mechanism has customarily has been done with sealing wax. It is color coordinated in green for *GO*, and red for *NOGO*, ring gauges. To apply the sealing wax, it needs to be heated to melting point, which can be accomplished using a pin torch or a soldering iron. The wax is dripped onto the top of the locking mechanism, filling the hole. The sealing wax is soft; therefore, a unique stamp or mark can be made in the wax as a tamper notification.

Now for the solution previously mentioned. Some gauge makers are now using hot glue as an alternative to sealing wax.

The advantages are several:

1. The hot glue is easier to apply because it is contained in a hot glue gun, thus no open flame and no dripping into a hole.
2. Hot glue is less expensive and is readily available in colors at any craft store.
3. The hot glue guns are inexpensive.
4. Hot glue, while still difficult to remove, is easier to remove from the gauge than sealing wax. Hot glue comes out cleaner and with less digging.

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multiple passes in order once again, to keep burning to a minimum. It can take from 30 seconds to a full two minutes to make a pass and more time equals more money. But thread grinding is definitely the road to take if you can afford it because it gives you greater accuracy, less metallurgical disintegration, and better run-out and flank angles. In fact, the process is almost mandated when assembling parts with very long threaded areas."

The application of some form of coolant inevitably accompanies a thread-grinding operation, Drake adds. Very often the coolant preferred is light oil, mainly because lubricity is so vital to the process. Filtering, too, is extremely important, in order that the cutting area be kept clear of chips. Chilling is often employed as well in order to stave off potentially damaging effects occurring as a result of intense heat generation.

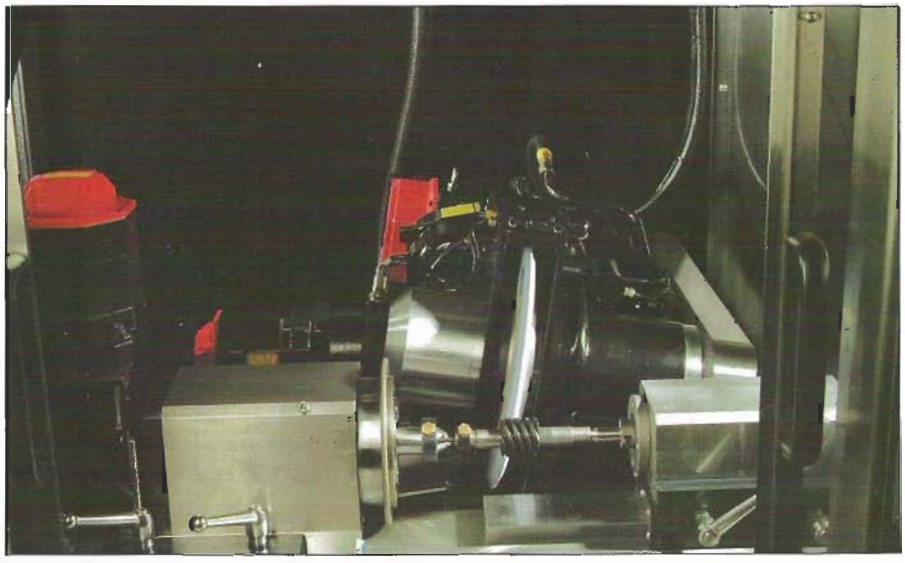
"Thread grinding is no *falling-off-a-log process,*" Drake continues. "Rather, it's a delicate procedure requiring the combined efforts of a good grinding machine, a filtration system, a chiller, and a coolant. That might seem like a lot of stuff for a single job unless you bear in mind the fact that thread grinding isn't just one job, but several, each a component of a multifaceted and very delicate operation."

Tweaks, Refinements, Advances

Thread grinding has been around for a long time and according to experts, has not moved far forward technologically since the advent of CNC. There have been some refinements to the process, however. Some thread grinding solutions now come equipped with linear motors which are faster, more accurate, and longer-lived than their most recent ancestors (ball-screw machines) because there are no moving parts. Also vanishing are gear drives, replaced by far more efficient gearless torque motors. Glass linear scales have appeared on the scene as well. Brain to linear motor brawn, they enhance thread-grinding motion systems with greater accuracy, stiffness, and responsiveness.

Of all these developments, the most important in terms of production cost reduction has probably been the debut of CBN cutting wheels. Known also as "super-abrasive" grinding wheels, diamond-based CBNs were originally developed to cut tungsten, and other grind-resistant materials. Not long ago, CBN took a great leap forward thanks to the development of new bond formations such as vitreous and single-electroplated matrices. The introduction of super-abrasive wheels into automated CNC grinding systems (and with that the development of perfected coolant delivery systems appropriate for work in the automotive, aerospace, and bearing industries) has pushed CBN and thread grinding further still.

"The impregnated material on a CBN wheel is very hard, and not easily broken-down," says Scott Walker,



A Drake linear motor thread grinder. Photo courtesy of Drake Manufacturing.