

# Behind the Scenes

## with Kurt Hertzog



## Veritas Tools

When you think of Lee Valley Tools, you often think of Veritas Tools as well. Folks know that somehow they are linked, but many don't understand the connection between the two. Lee Valley Tools, with its origin back in 1976, ran into supply chain issues early in its history. When a contract manufacturing operation that had been making several of their products became available, it was decided to try to acquire the company. With the requirements of insurance and tax law in Canada, it made the creation of a separate company necessary; hence, Veritas Tools ([www.veritastools.com](http://www.veritastools.com)) was created. With roots in Latin meaning "truth," what better name for a precision tool manufacturer. (You can read the Behind the Scenes article on Lee Valley Tools in *Woodturning Design* #37, June 2012, or at [www.kurthertzog.com/articles/wtd37behindthescenes12red.pdf](http://www.kurthertzog.com/articles/wtd37behindthescenes12red.pdf).)

Though they are two separate companies, as an outsider, you'd be hard pressed to see much of a distinction. The Lee Valley and Veritas companies are located side by side on Morrison Drive in Ottawa, Canada (see Fig. 1). Lee Valley is the marketing company and Veritas manufactures some of the products that Lee Valley sells. There are several advantages to this arrangement (beyond the insurance and tax requirements); for example, other retailers interested in marketing Veritas products can do so without the entanglements and confusion of having a Lee Valley logo on the packaging. Another advantage is that Veritas can focus exclusively on the manufacturing of products, while Lee Valley remains the designer and does marketing for those products (see Figs. 2 and 3).

Veritas has about 150 employees working in six facilities in Ottawa. They do no casting or chemical processes, such as painting, plating, or chemical milling. Their forte is milling, machining, and assembly, and they are proud of the fact that virtually everything used in a Veritas product is sourced in Canada or the United States, and only once in a great while something may come from Mexico. In order to carry the Veritas name, it must be made in North America, innovative in some way (not a copy or reproduction), and available for distribution through the Lee Valley dealer network (see Figs. 4 and 5).

Where do the ideas come from? The folks at Lee Valley use a host of inspiration for their designs. They have an extensive tool "library" that is actually an antique tool

collection of over 10,000 items—which really numbers 50,000 to 60,000 when you consider the individual tools in various sets—and to that, they add another thousand or two items each year (see Fig. 6). The ideas are often a new and improved version of a tool from long ago that is no longer available. Other ideas come from their customers who request solutions to their woodworking problems. Good ideas come from a host of sources and they pride themselves on listening to the customer (see Fig. 7).

For the most part, the Veritas product line of woodworking tools is a low-volume operation—a high-volume sales item for them runs in the one to two thousand pieces a year. With fifteen Lee Valley retail stores across Canada and the mail-order/Internet sales worldwide, that puts a premium on flexible manufacturing (see Fig. 8). Having to amortize tooling on the basis of hundreds or thousands of pieces (far fewer if a left-handed model is necessary), makes manufacturing engineering skills key and the lot sizes in production runs are always a balance between demand, setup time, and throughput (see Fig. 9). Their manufacturing complexes feature the latest in technology and include rapid prototyping, CNC lathes and mills, precision grinding and lapping, coordinate measuring machines, laser marking, and more (see Figs. 10 through 15). The only difference is that tooling needs to be flexible enough to run many products, sometimes simultaneously, and it isn't uncommon to see a tombstone running with different part numbers on each face depending on demand and whether the tool magazine capacity can accommodate the tasks. Even with all the automation, the operators still have a large part in the process; whether a job setter or an assembly operator, there are many hands that will touch the product before it goes into the box (see Fig. 16).

When you get a Lee Valley catalog or visit their website, perhaps you'll have a slightly different perspective when you see the Veritas name on the various product offerings. Usually one of the first things you'll see when you enter any of the Lee Valley stores is a Veritas display (see Fig. 17). The Lee Valley Company manufactures 25% of the products they sell. With their expertise of marketing and design, along with the Veritas expertise in manufacturing, you can see why it works so well.



Fig. 1. The Lee Valley and Veritas buildings occupy a substantial portion of Morrison Drive in Ottawa. Here, one of the manufacturing buildings is immediately adjacent to the flagship Lee Valley store.



Fig. 4. As soon as you walk into the main Veritas building, there is no doubt about their mission. Display cases adorn the entire complex with current and coming products that they make.



Fig. 2. You can get a good indication of the interest in hand tools just by looking at part of one wall in President Robin Lee's office. An avid tool collector, Robin plays a very hands-on role in the tool design and review process.



Fig. 5. In the entry corridor behind some of the plants is one of the Veritas carving benches. We are told that the inspiration for that bench and the mechanics came from a coroner's examination table.



Fig. 3. In nearly every part of the Lee Valley headquarters, there is evidence of the Veritas products. This is only one of the many display cases, with this one focusing on hand planes.



Fig. 6. With a tool library of many thousands of antique tools, the Lee Valley and Veritas folks have a wealth of past products from which to learn. They look to improve their functionality or modernize the manufacture and materials or both.



Fig. 7. This is just one small corner of the test and evaluation lab. Here the old and the new are exercised to see how well they did and how well the new can do. Ideas are developed to potentially take shape as a product offering.



Fig. 8. With successful products selling in the one to two thousand per year range, the key to Veritas manufacturing is flexibility. CNC equipment, whether lathes, mills, or others, makes low-number manufacturing runs practical.



Fig. 9. Manufacturing precision parts requires careful handling. Because of the varying sizes, shapes, and fragility, material handling can range from food service carts to egg cartons.



Fig. 10. CNC machining centers using tool magazines and tombstones make mixed-lots of work possible. The various manufacturing runs can vary from a few to hundreds, but it is always still a modest number compared to high-volume operations.



Fig. 11. Though modest in size, the Veritas manufacturing uses the latest gear and methods. Here the tool room has the different machining center tool holders already set for various machining jobs.



Fig. 12. Quality control is no less important when manufacturing smaller quantities. Coordinate measuring equipment is just one of the tools used in the Veritas quality process.

Fig. 13. Veritas is always running many part numbers simultaneously through the shop. Material handling and staging is always a challenge in any manufacturing operation. Even with high tech, there are still some manual drill presses in the shop.



Fig. 16. In spite of all the computers, it's the human touch that does the final assembly, adjustment, and buy-off of all products. The final acceptance is not only dimensional and functional, but also visual. Marks that can't be measured can be reason for rejection.



Fig. 14. How flat is flat? Precision grinding and lapping is of great importance to any cutting tool. Here the plane irons are undergoing their lapping operation for flatness.



Fig. 15. With all the various part numbers that need to be permanently indicated on the predominately metal parts, a marking laser is the only way to go. The logo and part number are inscribed and also the day/date code of manufacture.



Fig. 17. The displays within the Lee Valley stores, while dependent on the floor plan, are all very similar. There are always prominent displays of the various Veritas tools.



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