where mind meets motor

NOVA Case Study

A Re-Imagination of the American Workshop

Woodworking Machine Tools Entering the 21st Century with Striatech Intuitive Systems

Every passionate woodworker will agree that there is nothing more alleviating than stepping into your workshop to create something with your own hands and creativity. But who doesn't know the frustration of setting up and adjusting your workspace and machines repeatedly? Some machines make it feel like your shop is working against you instead of for you! The quality of your workshop very much depends on the capabilities of your machines! For a long time, attempts to improve the overall capabilities of woodworking machines always ended in superficial exterior adjustments. Never had there been an incentive to change machines from within their most rudimentary core component: their motor!

Could a motor really be more than just the power train? "Absolutely!" decided Teknatool Inc., a family-owned Kiwi (New Zealand) woodworking equipment manufacturer and exporter at the beginning of the new millennium. After equipping their traditional lathe technology with a micro-computer controlled switched reluctance motor system Teknatool's team of engineers was blown away by the transformation of their lathes. A motor that senses-, thinks and powers had never entered the realm of workshops and could really change the picture of what machines in this environment should be capable of. With the invention of this smart motor system, they would re-define the American workshop! And they started by creating the world's first smart drill press!

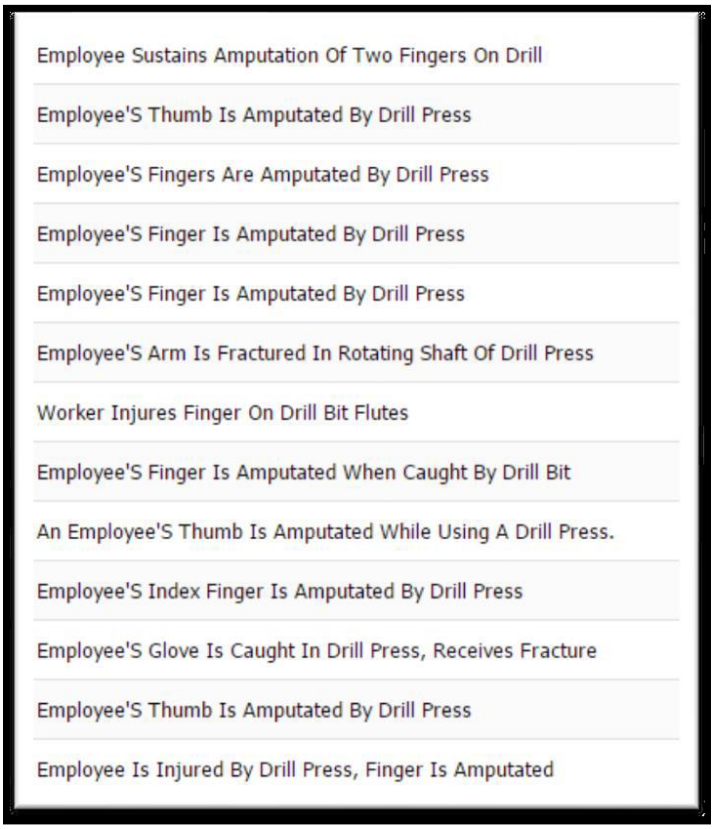
The Challenge

Traditional drill press technology required a great deal of work to ascertain enough power to complete a job. This has resulted in major issues with safety, reliability, and efficiency.

Society is fairly well-equipped with technology that keeps them safer and tools that help them save time. However, the world of power tools lags dramatically behind other industries in terms of technological breakthroughs.
This can be seen in the hundreds of catastrophic injuries sustained as documented by the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA). A query for "drill press" under their incident file search shows more than 130 cases with various injuries, including amputated fingers, fractures, and lacerations.

Evidence of Safety Issues in Traditional Drill Presses

This is just a sample of the documented incidents involving drill presses that are not equipped with Striatech motor systems and safety features. OSHA provides a full report on these types of injuries as they happen in the workplace, and most pertain to either belt changes or loss of control of the machine. OSHA does not consider the number of trips to the Emergency Department taken by woodworking and metalworking hobbyists. As non-professionals, the incidence of injuries is anecdotally high.



Apart from the safety issues, traditional drill press systems require the management of belts that help the operation of the device in terms of speed modification. This is a major time loss for those who are trying to find the right speed for their drilling. These belt adjustments, even for the most experienced operator, can slow a project dramatically.

The Innovation

It was high time for workshops to enter the smart age! By implementing the Striatech motor system into a thoughtfully designed standing drill press, Teknatool under their brand NOVA created a tool that is revolutionizing workshops across the world. This tool is branded as the NOVA DVR Voyager.

The NOVA DVR Voyager Drill Press, equipped with the unique Striatech direct drive technology, is a high-end product, sold at a price point that amateur wood workers can afford. It works incredibly smooth with no pulleys or belts that could cause vibration.

When applied to the drill press, the Striatech system gives the user important built-in safety features, including a highly visible emergency stop button, load sensing capabilities that allow the motor to adjust appropriately, slow start speeds to help the operator ease into the workpiece, and more.
The Striatech System can act as a stepper motor and allows for electronic braking, which, should the user apply the stop button, will shut down the motor completely.

These key features aid in limiting and preventing injuries that are common in a more traditional drill press.
Along with these safety features, numerous convenience features complete this next-generation drill press. With the variable speed motor, the user can easily adjust speed through the digital interface. The user can also take advantage of speed settings and utilize the speed recommendations offered based on the bit and the material being drilled. There are no belts to change – speed adjustments are instantaneous. Since the release of the NOVA DVR Voyager Striatech has released several firmware upgrades that can easily be loaded onto the drill press via a USB port.

The NOVA DVR™ series are the only smart machines on the market, the ONLY machines to feature intelligent Adaptive Control™ software that automatically adjusts to produce optimum conditions for the user's specific projects. The success, that the integration of Striatech Motor Systems has brought to the NOVA brand, has triggered further projects with the goal of bringing intelligence, efficiency, and intuition to workshops on a global scale.

User Experience

Voyager owner Sean Murray posted to NOVA's Facebook page with the following:
"I have used it for many applications from high-speed polishing steel with a sanding mop to drilling and tapping 5mm holes in 1/4" plate steel so cool to watch this tool cut threads in steel. Next week I will have a bunch of wood tap handles to do where I'll drill a 1\2" hole followed up with a brass insert, I played around setting this job up a couple of weeks ago the user set depth setting was very helpful for screwing in the brass inserts to the correct depth. Another job that I do requires a 2" hole almost 6" deep in end grain wood and the Voyager handles it like a champ amazing how it just applies more torque to maintain the bit speed as I applied pressure to the handle. I bought this drill press to replace my Powermatic 2800b and the Voyager wins hands down in every department I would have just broken bits if I tried tapping steel with the 2800b, not to mention the belts slipping if I needed any sort of torque with a bigger bit. I bet this motor would be nice in a table saw!"

