

SB25PT-05 The world's first Battery Powered Speed Fastening Tool

(Rivetwise goes behind the scenes) Q&A with Tim Cumersdale -
Senior Design Engineer at STANLEY®

Brand new this year, the SB25PT-05 Battery Powered Speed Fastening Tool from STANLEY® Engineered Fastening is the first battery-powered tool for speed riveting to market. As STANLEY® Engineered Fastening Premium Partners and as a distributor at the forefront of technology we wanted to take a closer look behind the scenes and spoke to Tim Cumersdale - Senior Design Engineer at STANLEY® about the process of developing this new tool.

Name: Tim Cumersdale

Job Title: Senior Design Engineer

Role Summary: Lead Engineering activities for New Product Introduction, maintaining a portfolio of blind rivet tools and a specialist in battery powered tooling.

What career path did you take to reach your current position? I graduated with a bachelor's degree in Motorsport Engineering and Design at Swansea Metropolitan University in 2010, which is a passion of mine. I then started my career as a Technical Engineer, learning the fundamentals from inspiring and highly experienced engineers as well as building up my skill set by integrating theory into practice for a global machine tool business. I then moved on into manufacturing engineering and combined with special applications for a small family run business, leading the change in documentation and best practices as well as designing complete force and torque measurement solutions, to suit end user requirements. I then joined STANLEY® in 2016 where I have extended my engineering skillsets to design, innovate and support new product development and assist teams globally in the release of new products.

What is your favourite thing about working for STANLEY®?

The best thing about STANLEY® is their drive for innovation as well as investment in their employees to support professional growth and development. They have also provided me with the opportunity to pursue studies towards my MBA qualification.



Tim Cumersdale has been with STANLEY® Engineered Fastening for 5 years

The new SB25PT-05



How did STANLEY® come up with the idea of the battery powered speed riveter?

Avdel® first produced speed rivets and the associated tools to assemble Spitfire and Blenheim Bomber fuselages, the first all-metal fuselages used in the aviation industry. The company was founded in 1936 and Avdel® or Aviation Developments as it was known invented the speed rivet (Chobert) so pioneered tooling to place speed rivets. Avdel® is now part of the STANLEY® Engineered Fastening family of brands so it was appropriate that we produced the first of its kind to market, the speed rivet battery tool.



STANLEY
Assembly Technologies

Studies into battery speed riveting originally took place in 2008, when opportunities were identified during early developments of the now known PB2500 blind rivet power tool. Unfortunately, due to patent restrictions of the time, there wasn't a design available that could be feasible, or cost effective in bringing the battery speed rivet tool to market.

Customers look for numerous features including but not limited to speed, repeatability, ease of use, portability and serviceability. While the 753 series of the tool are an excellent offering (look at all the clones available in the market to prove this is the case), the tool suffers from manoeuvrability difficulties, with its need to be attached to a costly compressed air supply as well as a challenge of reducing downtime for maintenance on often fast moving production lines. The speed rivet battery tool is the first of its kind, battery powered tool which can run with little to no downtime on the production line thanks to its wealth of features.



"Customers look for numerous features such as speed, repeatability, ease of use, portability & serviceability."

What happened next to develop the idea?

We revived the project years later, where I came up with numerous but unique concepts that could be used to create the new speed rivet battery tool. We scored each concept using a Pugh Matrix system for features such as speed, reliability, and cost efficiency against the benchmark – the 753 tool as no other battery speed rivet tool existed. The chosen concept then initiated the development of the tool specification master document, drafted by the wider team to ensure full validity and feasibility in the solution.

We use a six-sigma process, using milestones and gateways to develop and track the project. At each milestone, a huge amount of testing and documentation is conducted. The testing required is a result of the outcomes of the design FMEA (Failure mode and element analysis) document where each tool failure is scored, the desire being to eliminate and reduce any risk to user safety as well as maintaining a robust design. If the score is higher than the agreed minimum value, then we validate the design through its most appropriate test. If component or system failure occurs during the validation process, then we stop testing, improve the design and restart the revised design afresh. As a result of all the bespoke engineered designed verification processes, all our major components have a minimum life-cycle of one million cycles.

Verification testing for the speed rivet battery tool, meant that the chosen initial concept went through numerous iterations to arrive at the product ready for field trials, where we presented to a small select group of external users to test the product in their working environments. From this, we then incorporated suggested changes prior to the full product launch.

There are some extremely innovative features contained within the speed rivet battery tool, and for this reason we have chosen to protect the complete design, so the tool is not subjected to imitation by competitors.



Where do you think speed riveting & battery powered rivet tools are heading in the future?



The world has become hugely connected and as a result of this, two new factors now play a role in technology. These are Industry 4.0, a gateway to connectivity in the workplace, the other is big data where seemingly useless data can be mined to understand behaviour and identify patterns through continued use of products. There is a huge opportunity to impact speed and break stem blind rivet tooling and I believe through this connectivity to the workplace, both ideas will contribute to create the more complete solution for end users. Both are short term future solutions and a step in the right direction for the consumer, but I truly do believe battery power is just the steppingstone into the long-term future where we could see Hydrogen fuel cell powered tooling and move away from using the limited global supply of rare-earth metals.

"The SB25PT-05 offers many benefits to our customers. Its cordless design enhances operator mobility and improves accessibility to narrow spaces due to the long barrel design. Suitable for applications used in electrical cabinets, commercial lighting, domestic appliances and ground transportation, this tool will deliver a permanent and vibration-resistant solution when used with Avdel® Speed Fasteners. This complete solution along with technical advice on application requirements is available through Rivetwise".

Sean Keeley
Managing Director - Rivetwise



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