

Keeping up with the big boys: Shield Batteries

In this second article in a series, Mike McDonagh finds out what characteristics small independent battery manufacturers have which enable them to survive, and even flourish, against the odds.



Since the early 1990s, American companies have come to dominate battery manufacturing in Europe. This has been realised by buying up almost all of the indigenous European manufacturers. As a result, the manufacturing landscape has now polarised to two dominant American giants—Exide and EnerSys.

Their sheer size provides many advantages, including those of purchasing power, economy of scale, market presence and product development. What's more, these companies have their own lead recycling plants, providing cheap lead which seriously cuts their material costs. With low material costs and expansive R&D facilities, they have the choice of providing low margin, high-volume business with brutally low prices, or high end, high tech alternatives with a price tag to match. On the surface,



this appears to be the complete package, able to wipe the floor with any competitor without similar resources. ***So how does a smaller company manage to survive, let alone flourish in the face of such overwhelming dominance?***

In the Spring edition we saw a small family-owned business in India which had moderate success in manufacturing and selling batteries. They were unable to purchase equipment which suited their budget and manufacturing requirements, so their solution was to make their own machines. This worked so well that they decided to sell battery manufacturing machinery as well as batteries. Their battery manufacturing then became a pilot scale plant and R&D facility for their equipment development.

Shield Batteries in Bishops Stortford, is a family owned company in the UK. As with the previous business, the conventional wisdom of being small, being

flexible and nimble is not the dominant factor in its success story. Instead of competing, it has developed a strategy of working in collaboration with multinationals. The collaboration with the advantages of the large company and those of the small company provides a unique combination of flexibility, service and product availability for customers.

To gain an insight into how this might work, I spoke to Neil Butterfield and John Perry, the managing and technical directors respectively of Shield Batteries. Butterfield, who is 48 years old, started in his father's company in 1988. Before that he attended college obtaining a B-Tec National diploma in business studies followed by a brief period working in the automotive industry. During his time at Shield, Butterfield has learned the business from the bottom up. He has worked with the production team and then onto commercial sales, in addition to working alongside his father, John Perry, and other partners, giving him a

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good technical and commercial grounding in the business before taking over the reins as managing director in 1995.

With John Perry, his route to becoming technical director was far from conventional. Perry started his career at a local car repair shop in 1965, as an apprentice auto mechanic. He joined Shield in 1969 as a group burner on the assembly line, then moved onto plate production. He gradually worked through the ranks to become general manager and then technical director with knowledge firmly embedded in hands-on experience. Perry has been a respected figure in the battery industry for 45 years.

Shield was founded in 1910 in London and run for the last 107 years by four generations. The company initially produced accumulator type batteries in glass jars. The next few decades saw progression to the production of hard-rubber batteries and more recently, more modern specialist types. In the 1960s the company moved its production facility to Bishop's Stortford, where the headquarters and one of their manufacturing plants are located today. Over the years, the product and manufacturing processes at Shield have changed and modified in line with their business principle and changing market requirements. Today Shield is the last remaining independent UK specialist manufacturer of lead-acid batteries, which also sells and distributes batteries sourced from a small number of selected partner companies

around the world.

The company was initially a manufacturer of starter batteries for vehicles. Now the operation extends to many market sectors including renewable energy and Industrial battery applications. The growth curve has been steepest over the last 20 years since Butterfield took over. The company has increased its turnover from £300,000 (\$386,000) and 5 people in 1995 to almost £10 million and 48 people in 2016 under Butterfield's leadership— a huge increase in productivity.

Some of this was organic, opening up new markets within the core business. The rest has come from acquisition, obtaining companies in Leicester, Manchester and Leigh-on-Sea as well as opening battery centres in Poole and Yeovil. In the case of these acquisitions, their individual turnovers were more than tripled after being bought by Shield, in one instance growing from under £200,000 (\$257,000) to more than £1m (\$1.2m) in a few years.

In January 2012, the



company opened a new distribution centre in Stansted, Essex and this year acquired SECUK to further extend its stationary

market presence. Shield is now regarded as a solution company capable of providing technical and service support across a range of industry sectors.

Shield's USP is to be adaptable, able to respond to the changes in individual market sectors to support their customers. This is attributed to the strength and experience of their management team and their ethics of quality and customer care. To support this, Shield has had ISO9001, ISO14001 and OHSAS18001 accreditation for many years and earlier this year upgraded to the latest ISO9001:2015 standard, which puts them amongst the first in the battery industry to achieve this accreditation. However, as most of us from a manufacturing background are aware, gaining these accreditations does not mean you give customer satisfaction.

Shield recognises this and one year ago when they launched an online sales portal, they also joined Feefo, an online rating company which provides independent customer reviews and awards stars according to the universal 5-star rating method seen on many websites. The reason was to get feedback to improve customer care. In the first year of being in the scheme, Shield won a Feefo 5-star customer services award.

According to MD Butterfield: "Over the years, Shield has



continued to grow despite losing market share to competitors. Shield has always followed the quality line which has placed it in a good position and has enabled it to build on its core business.”

However, it's more than just focusing on quality which gives a successful outcome. You need to be able to act and have the knowhow to make it work. With more than 100 Years of manufacturing experience, the company has a wealth of knowledge and expertise to call on in most situations, and in this company, it is Butterfield who must provide the vision, backed up by the expertise and knowhow of technical director Perry. This is supported by an experienced and professional team which has taken many years to assemble and develop.

The modus operandi seems quite simple but effective: Butterfield goes out and gets the business, Perry makes sure that the application is understood and that the product they supply has the right characteristics and quality to properly do the job. Easy to say but not so easy to execute. In the first case, you need to understand the market that you are selling to and then be sure that you have the products that will be competitive in that application. According to Perry: “All products manufactured or sourced undergo a stringent technical verification process. This provides the sales team with the assurance that the Shield product range are quality batteries and technically correct. This provides the confidence



John Perry

for our customers to use us as a single, one-stop source for all their battery requirements.”

For example there have been contracts where neither the customer or the battery supplier were aware of the application requirements. In one case of traffic signaling equipment used for roadworks, the client had regular failures with serious consequences for road safety and had little support from their battery supplier. Shield spent a lot of time observing the lights in several locations. Using this data, it ran simulations

on their Digatron equipment to understand the energy balance, discharge rates, times and recharge requirements. A battery type and charging programme was then specified and tested on a real system for several weeks to ensure it worked. From this a charger and battery type were specified and sourced from one of their global partners.

If you want to grow, you need to have the right products and the right quality which are fit for purpose. Unfortunately, the larger companies seem to have all the aces in terms of cost, product development, backup service etc. ***So how can a company like Shield win tenders or contracts with this level of competition?*** The answer is startlingly simple: you team up with larger companies who have the resources and products that you don't have. In this type of partnership, ensuring staff training is essential, this is why Shield has regular exchanges with their partners. Over the last two years, Shield arranged multiple staff visits to Duracell international, Energys in the UK and in France. This ensures that



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both partners have a thorough grounding in the products and procedures of their partners.

Butterfield said: “The company’s manufacturing activities are still very much at the centre of what we do today. When you combine this with quality products that are sourced from a strong partner network it gives the company a unique position in the market. Shield is well equipped with its vast range of products and its technical capabilities; therefore, it can service contracts both large and small across a multitude of industry sectors.”

In one case, a £2m (\$2.5m) contract for replacement batteries in a UPS application required four different battery types. By taking field measurements, it was found that the contract could be satisfied using a Shield manufactured product and the rest could be sourced from partners which resulted in a lower tender bid. This, plus the demonstration of application understanding, was sufficient to win the contract.

In order to differentiate themselves from non-manufacturing battery suppliers, the company provides a manufacturing service for many niche market sectors such as rail companies, classic bikes, cars, trains and aeroplanes. However, there is the question of how these benefits are realised from the customer’s point of view. The aspects of flexibility and

individual care are associated with smaller companies, However, this can only be realised if the equipment and processes are properly designed. According to Perry: “The design of our production line allows flexibility without expensive tool change downtimes, enabling shorter lead times for the more bespoke products.

“The flexibility is obtained in several ways, the first stage is the design of the plates and the stock levels. The plate designs are optimised to fit as many of our manufactured battery range as possible. Keeping a large stock of plates cuts out 5 days of plate production. The plates are mostly dry charged removing the formation process and saving more than a day.”

The tooling used for assembling batteries is bespoke and designed for fast changeover times. There are hand-operated burning jigs which have a single clamping system allowing the strap/plate combs for different battery types to be removed



and replaced in a couple of minutes.

The strap/plate combs are not conventional. They have moveable stops to vary the strap length (plate

group size) on the same tool, enabling a change of group size in seconds.

Similarly, the lid sealing process has an own-designed fast release clamping system for changing the lid heat sealing tools for specific battery types.

After acid filling the programmable Digatron formation and test equipment has stored, optimised programmes to reduce the operator time as well as the formation and recharge time.

This allows a very fast turn-around. It is possible that a customer can order almost any battery type, however obscure, and have next day shipment.

Shield does seem to provide a unique service and unique products in and among the mainstream. As the only independent manufacturer left in the UK, they can take on work that larger companies would not deem economically viable. For example, Shield provides solutions for many rail companies and are happy

to provide one-off bespoke solutions for owners of classic bikes, cars, trains and aeroplanes. There is the question of how these benefits are realised from the customer’s point of view. Again, in the words of the MD Butterfield:



“Things that spring to mind are manufacturing 10 battery systems a month for TFL, manufacturing one specialist battery for a vintage Russian aircraft. Wooden box batteries for rail enthusiasts. One-off batteries produced regularly for vintage cars— sometimes using the original boxes with manufacturers’ (Ford etc) logos embossed on the side of boxes. Putting specialist modern batteries into a hard-rubber box. We’ve delivered batteries to locations for critical power applications in the middle of the night and even on Christmas Eve at very short notice... something that larger companies just can’t do.”

These are examples of the benefits of a small company, but small one-offs and niche markets will not provide the turnover you need for stability in the rough seas of commerce.

How do you get the market penetration and volume needed for growth and stability? What about the changing market scene, the new advanced products which require many millions of dollars to install and manufacture in a factory? This is where having a partnership with larger multinationals can help. The R&D, the product range and the volumes required to meet contract requirements and changing market requirements can be covered by the larger companies. Expansion into new markets often requires new technology and the ability to export which, depending on the market sector, could mean providing an after sales service in remote far-flung locations.



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Butterfield sums up Shield’s approach to new technology and the implications for his company: “Due to our partnerships with large multinationals, new technology is not a problem. We have seen AGM & Gel batteries come into our ranges over the past couple of decades and we are now seeing that happen with some projects that we are currently working on using LifePo₄ technology.”

This innovative step of combining forces with the much larger competition to provide the combined advantages of large

multinationals and the benefits of small flexible manufacture is this key to growth. A combination of own manufacture for specialist applications and a product range and backup service from large multinational partners who will always be abreast of the latest product developments. For Shield, it is a combination of satisfying niche markets from their own production facility, plus having access to the massive resources of the multinationals to obtain large tender business in global markets, which has been the key to their success. ☺