

Engineering concepts right through to production

Case Study: Baby Bassinette (2009)



Introduction

It's always interesting to see the ideas new parents come up with when they have children. Sometimes they find clever solutions to every day childcare challenges, and sometimes they discover new market opportunities like the founders of Mamas & Papas did. Shaun Milburn, an engineer from Nottinghamshire, was looking for a modern alternative to the Moses basket when his second son was born a few years ago. Surprisingly, the only one he could find was the traditional woven wicker style he knew from old, lined with dated Victorian frilled bedding inside. So Shaun's dream of a contemporary carry cot inspired him to create his own sleek and innovative product that 21st century parents would find desirable. Whilst not a product designer, he used his computer aided design (CAD) skills to develop the concept for *Babycotpod* - a luxury modern plastic bassinette offering a unique sleeping environment for newborn babies.

Shaun's concept design had little detail or accuracy, but it did show the style and key features he wanted to include. The main cot body (or bassinette) was an organic capsule shape, hooded, with two grab handles, a retractable carry handle, removable perforated base, full padded lining, and all supported on a folding plastic trestle frame. It was a great concept showing real style and versatility - but Shaun knew he needed external assistance to take the design forward. He discussed the project with a number of product design consultancies, but chose us on our consumer sector experience and our deep Chinese manufacturing knowledge. The project was self-funded.

Brief

Usually we're tasked with conceiving concepts for our projects, so having a customer come to us with such a set direction was interesting. In fact the brief Shaun gave us was demanding, for whilst his concept was great, it was far from easy to manufacture. He wanted the capsule shaped plastic bassinette to look pure, smooth and very high gloss - with no joins to ruin the appearance. We explained the challenges and cost to achieve this, but he didn't want to compromise. The rest of the brief was more straightforward: designing the hooded and non-hooded cot structure for moulding, grip handles, retractable and locking carry handle mechanism, removable cotton covered foam padding pieces, and the folding frame. And in addition to maintaining the highest finish and structural integrity, it needed to meet the strict safety requirements of BSEN1466. It was set to be a challenge, but our team has the diverse creative and technical skills it needed.

Activity

For this project we assigned a smaller team than normal: 1 industrial designer, 1 mechanical engineer and 1 project manager. With the client bringing the concept, it was a more technical task than a creative one. Firstly we contacted a number of safety test-houses to discuss what standards best applied, and it was confirmed that BSEN1466 was correct. We spent a lot of time understanding the requirements in this document, and it soon became clear that many areas of the client's idea needed adjusting in order to comply. Our main focus was maintaining the look of the original design, so we had to make changes very sensitively. We re-created the bassinette structure from scratch, adding strengthening ribs, reinforcement plates and other internal features needed to mount handles and so on. Keeping it as

one structure (as Shaun wanted) made it a large and complex part to mould, so close communication with our moulding partner ensured it was as production-friendly as possible. We engineered a nice clutch mechanism for the carry handle to latch up or down, and it was quite complex meeting the cost and usability issues within such tight space. Looking at Shaun's design for the folding frame, it was agreed that this needed nicer styling before working in the detail. Every aspect of our work centred on the safety needs: avoiding finger traps, softening edges, specifying safe materials, ensuring stability and structural integrity.

Our customer never gave us any cost targets to achieve, but knew it would be a premium product even when made in China as planned. Using the final approved designs we developed, Shaun asked us to identify 3 good manufacturers with the ability to mould something like this, and conduct a thorough supplier audit. Two of our senior staff travelled from Beijing to visit these companies in southern China, discussing the design details in confidence and inspecting their facilities. They were also asked to quote. We then submitted our reports and full pricing information for Shaun to consider. He was happy with the manufacturing costs, but was surprised at the level of tooling and freight import costs. We explained that the size and complexity of his items was causing this, as predicted from the start. This needed to be resolved, so he conceded in agreeing to a) split the bassinette in half for easier moulding and cheaper shipping, and b) design a nice maple wood folding frame to remove the mould tooling cost. Keeping faithful to his design and meeting the standard, once again proved a big challenge - but the job got done to everyone's satisfaction.

Results

PER Design successfully completed this 2 part project within the client's time-frame, giving him enough time to secure a design registration. We were lucky to have a customer that was totally dedicated to the project, alert to every detail and also responsive to our technical input. Had we been tasked with originating the concepts, we would probably have dismissed the kind of challenging design Shaun brought to us. But it was the product he envisioned, so our task was to make it a reality in the most feasible way possible.

For someone from a technical background, Shaun has shown amazing entrepreneurial energy in the way he's used this design to generate publicity. His product has been widely trailed in magazines, blogs, online forums, and he's already exhibited at 2 major UK baby shows - making influential friends along the way. In July 2009 he was among 3 shortlisted for the BPA (Baby Products Association) Concept & Innovation Awards, but sadly didn't win. Since then he's attracted a commercial director, and together they've secured the funding to tool up for production. They'll work direct with their Chinese suppliers, but have expressed a desire to retain our services for ongoing advice and design input as their business moves forward.

Here's what our customer had to say about working with PER Design:

"In 2008 we had nothing more than a concept model for our Cascara baby cot, and a vision of how we wanted our product to appear. Our design team were not specialized in plastics engineering so we didn't feel confident enough to take the concept forward alone. We began our search for a reputable product design service company.

PER Design were able to offer a full design service package complete with manufacturing and mould tool quotations. All of this was controlled by their western office director and product designer Matthew Link. Matthew is based here in the UK offering that all important point of contact for UK clients working on GMT.

10 months later, having worked closely with PER Design, sometimes even on a day to day basis as Matthew always ensured that *all* design features were being fulfilled; we had our finished detail design and route to manufacture, ready to go to mass production.

In our experience design and development is never a smooth process, especially when you need to consider manufacturing in another country, however PER Design ensured this process was as smooth as possible."

**Shaun Milburn
Director and co-founder
Babycotpod Limited**

For more information please call **Matthew Link** on +44 (0)1565 757810 or email info@perdesignuk.com