

The EDGE

Technical Moulding, Intelligent Polymer Selection and Lean Supply Chain Solutions

Enclosure manufacturer switches from metal to plastic panels to improve performance and reduce costs

A leading supplier of cabinets used in power distribution, climate control and IT infrastructure used painted metal enclosures but wanted to explore other material options.



Plastic injection moulding was identified as a great alternative because it could create and replicate a panel in one process. Whereas in metal, the manufacturing process required each panel to be formed, drilled and then painted.

The plastic panels needed to match the strength, colour and durability of the metal panels.

Colour accuracy was a key criteria because the plastic panels needed to compliment the existing product range. This meant the visual appearance of the finished enclosures needed to match both the colour and the texture of the metal panels previously produced, as well as the current ranges.

Careful polymer selection resulted in strong, colour matched panels – ready to go!

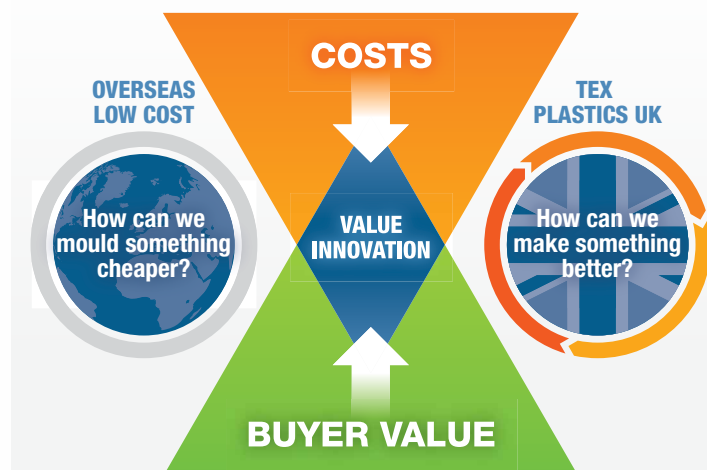
The new plastic panels reduced inventory and lead-times whilst increasing durability – because if a panel was accidentally scratched, it was virtually undetectable as the plastic was the same colour all the way through. The panels are supplied complete, as no additional processes are required except assembly.

A low cost manufacturing country resulted in near disastrous consequences

To reduce manufacturing costs an OEM moved their plastic moulding overseas. But design issues and inconsistent quality resulted in leaks from ill-fitting parts which meant 3 years into the anticipated 10 year life cycle of the product, the manufacturing was pulled back to the UK.

Innovation = improved processes, reduced inventory plus a 22% reduction in assembly time

Tex Plastics developed innovative seal designs to overcome the leak issues using a technical 'over moulding' technique combined with innovative foam sealing technology. This combination had the added benefit, that the design incorporated 'one time' fixings and used technical polymers which added to the strength of the unit. This in turn resulted in a significant reduction in handling, thus cutting labour costs and making assembly times quicker. In addition, the redesign reduced the inventory of 'bought out parts' for the new product when compared against the design it was replacing.



Coloured moulded parts reduces costs for white goods manufacturer



White goods are now available in brilliantly bright cheering shades to make kitchen appliances add to the rooms overall appearance and aesthetics. But this change in the fashion of kitchen appliances resulted in additional finishing options, which had cost implications on a number of processes.

Painting plastic components added a level of cost, plus other issues like scratching

White goods get used regularly and typically have a long product life, which means they encounter wear. If a plastic component is painted, this wear may impact on the finish, with scratches revealing the white plastic for example. Given the person who wants a coloured kitchen appliance is focused as much on the look as its functionality – this is a problem.

Exact colour matching, combined with efficient moulding colour change processes

Tex Plastics realised this issue was a potential problem for their clients and developed an exact colour matching formula. They combined this with a moulding process, which enabled colour changes. This meant production volumes could be quoted with variable colour ways. This combination delivered a better finished product, which was moulded in the exact colour required, at a unit cost which was less than taking a white product and painting it.



Reduced weight, increases efficiency and power to weight ratio of motorcycle

When the leading British motorcycle manufacturer needed to reduce the weight of its motorcycles to increase efficiency – it challenged the Tex Plastics engineering team to replace as many metal parts with the most relevant super high-grade, high-performance technical polymers as they could.



Could plastic really out-perform aluminium or steel parts?

Replacing aluminium or steel parts with plastic meant strength, heat and performance needed to be factored in. The lifespan of the product within this premium British brand, meant that testing and durability trials were essential. Thankfully the team at Tex Plastics are all well versed in the range of technical polymers capable of replacing metal, whilst matching or exceeding the specific components physical, aesthetic and performance requirements.

The savings were more than efficient – there were real cost benefits too!

This change in thinking enabled the manufacturer to move away from the traditional ways of using high value aluminum panels and using “super high-grade, high-performance technical polymer” components in multiple areas. Matching the physical qualities of strength, durability, heat resistance – and at the same time providing the aesthetic qualities a market leading luxury brand with global sales demands.

Quality crisis threatens brand, switching plastic moulders avoids disaster

If you've spent more than a century building a solid global brand, the last thing you need is inconsistent quality from a key supplier. It's difficult to quantify the possible impact of this on a single product line, but when there are over twenty different tooling devices and 100's of different products – the consequences of not acting quickly could have been disastrous for the brand.



When a situation arises, you need to have an idea of who and where you can go

With a reputation for quality and a pragmatic approach to challenges presented (as well as two financially independent operations) Tex Plastics were invited by the manufacturer to help solve their quality issues. This involved keeping the production requirements fulfilled whilst dozens of plastic injection mould tools were transferred.

The manufacturer had a smooth, fast transition and production line was unaffected

Tex Plastics prioritised the most important components – so they could be moulded first, this ensured production was unaffected. The client visited Tex Plastics during the tool transfer process and attended the tool trials. This meant they were able to “sign off” first off samples, allowing the moulding to continue straight away with the important production run.

Liquid foam gasket seal on 3D plastic components with zero failure rate

If your product needs an air or water tight seal, insulation to prevent vibration or contain acoustic noise – this technology will transform the way you think about doing it.



A robotic liquid foaming process bonds the seal directly to the plastic component

Tex Plastics investment in a 6 axis robot has transformed the engineering processes and revolutionised plastic component design thinking. The robot displaces liquid foam to a pre-programmed track or profile which rapidly cures to form a closed cell gasket. It speeds up the sealing process as it can be robotically applied as an expanding foam to any 3D plastic component. This makes it reliable and the rapid cross-linking curing delivers a 100% reliable soft foamed gasket seal bonded directly to the plastic component.

The tightest tolerances of seal can be achieved through dynamic programming

The foam sealing system mechanically converts the sealant by taking measured quantities of material and compressed air. The mixture is homogenised and through shear force is converted to a uniform foam structure. By varying the ratio of material to air allows a wide range of foam softness to be created.

Injection moulded aircraft seats

Traditionally aircraft seating is produced by vacuum forming plastic, GRP layup or a combination of the two. The latest variants of seating components needed to have more fittings; a better cosmetic finish; be stronger and more durable – whilst remaining lightweight.



Fit first time, with no need for fine tuning before installation

Using vacuum formed or GRP panels for the seating had to factor in a degree of tolerance, as these processes are not as exacting as injection moulding.

Flame retardant, colour matched plastic was a mandatory specification for the seating panels

Working within the aerospace sector means weight and safety are always bed fellows. The need to colour match and produce a high specification cosmetic finish which could sustain heavy usage simply made the brief more interesting. The engineering and design team at Tex came up with an injection moulding process to deliver a finished component with every quality specified by the aerospace company. What's more with some of the new polymers having the strength qualities of metal at a fraction of the costs, the battle to keep the weight down didn't compromise safety.

In-house Injection Moulding facility closed down so business can focus on growth



Control is vital in business, which is why many businesses have in-house injection moulding facilities. The challenge comes when this isn't your core focus, how do you know you are doing what's best for the business?

The hidden benefit of outsourcing is the depth and breadth of experience you can access

Which is why a leading manufacturer of energy efficient lighting for commercial and industrial applications – now outsources all of it's

injection moulding to Tex Plastics. Releasing valuable space to focus on electronics and assembly. Whether it's troubleshooting, designing out possible issues or just a fresh approach. You will have a better product because the whole engineering process is reviewed and challenged and, wherever possible, the component being moulded is innovated and improved as a result.

Robotic assembly reduces a two-man operation to 15 seconds of automation

When a white goods manufacturer wanted to review production costs, Tex Plastics opted to invest in robotic automation of key assembly lines to achieve the saving required.

The appliance top frame took 5 minutes (and two people) to assemble by hand

The large appliance top frame was an awkward component due to its size, and what needed to happen next. The frame needed expanding, so the fixing clips were wide enough apart to allow the laminate finished worktop to

'drop' into place. Then it was released, causing it to spring back clamping the laminated top within the plastic frame assembly.

A win-win proposal meant lower cost assembly, more flexible delivery and a longer contract

Tex Plastics approached the client and put a proposal together which resulted in a lower unit cost per finished appliance top, delivered more flexibility in the delivery scheduling and resulted in a longer term contract and relationship.



3D Printer investment saves on tooling costs and speeds up the development process

The dual head, large bed, RepRap X400 gives an astonishing 1ft cubed print volume. It's multi-material capability includes a variable contact pressure for soft materials – enabling rapid prototyping and intricate models with a layer height of 100 micron.



Advanced DD3 dual extruder

2 colour printing and variable contact pressure for soft materials is possible due to the advanced DD3 dual extruder developed by German RepRap. This means printing in two materials, two colours or with water-soluble support material such as PVA for PLA or HIPS for ABS parts is possible. The extruder can be heated to 290°C, and create high definition prints that are smooth-to-the-touch and don't require finishing.

Find out how much you could be saving...



The Free Audit will provide you with a 'no-obligation' 360 analysis of your product and supply chain.

TEX pursues optimum streamlining throughout the entire manufacturing process by eliminating non-value added services and enhancing your manufacturing process. This will be under a Non Disclosure Agreement so that you can be assured of complete confidentiality.



Call us with your component needs and we will provide a rapid estimate of what we feel your product could be produced for. If you decide this is of interest then we will proceed to produce a Quick Quote, which will provide you with a binding contracted production price for a set period.



DESIGN TO MOULDING

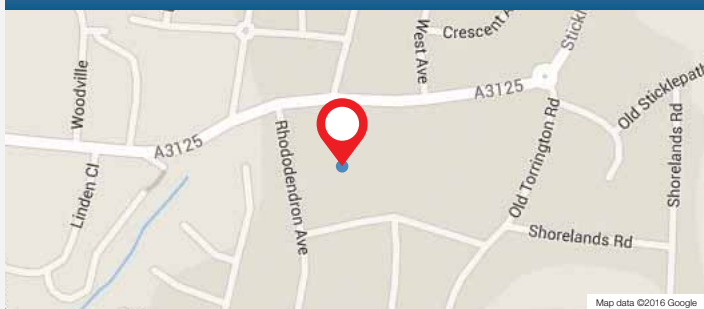


FINISHING & ASSEMBLY



STOCK TO LOGISTICS

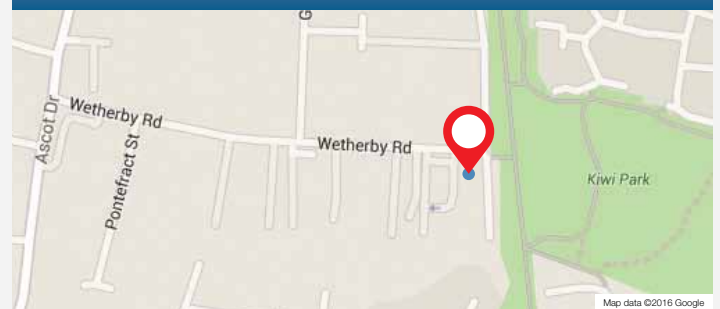
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