

Case Study

Client:	Trend Control Systems
Industry Sector:	Environmental Control Systems
Project Name:	IQ4E
Scope:	From prototype to full scale production

Technical Plastic Moulders
Your trusted plastics partner

Changing suppliers is a big decision. Even more so when you are the UK market leader for building management control systems and are launching your next generation climate control system for use in high-end hotels and commercial office buildings worldwide. Part of the Honeywell Group of companies, **Trend Control Systems** nevertheless took the bold decision to partner with Broanmain Plastics to oversee the design and development of 27 individual mould tools and manage the on-going production of the casing, light pipes, switches and Kanban schedule for its top-range modular IQ4E climate control system.

Peter Light, Supplier Development Engineer at Horsham-based Trend Control Systems describes Broanmain's enthusiasm and 'can do' attitude as one of the factors that impressed him most when visiting the Dorking-based technical moulder. Scoring really well in the highly rigorous selection process, Peter reflects: *"The IQ4 is our premium product and is one of the most important parts of our business. Choosing a flexible supplier and bringing production close to our manufacturing site were both important factors. We needed a company that could manage both the tool design and mould the components."*

"Even though moving to a new supplier that we'd never worked with before is unprecedented, especially when designing a flagship new product, meeting Wilf and the Broanmain team instantly filled us with confidence."

After sitting down with Trend's design and engineering people and doing a detailed SWOT analysis, Peter and the team concurred that reshoring the development of the prototype tools and moulding production to a responsive and reliable local firm made good business sense.

Trend's in-house mechanical designer worked collaboratively with Broanmain to create 27 injection moulding tools. Designed in the UK and made in Hong Kong, Peter project managed the tool creation emphasising that Broanmain's

Managing Director **Wilf Davis** was always on top of the tight schedule, providing weekly updates and photographs to keep the pre-production project on track. He recalls: *"Right at the start of this partnership, Wilf and I agreed to be completely open and transparent. Not only is this more conducive to innovation and problem solving, it helps with scheduling and maintaining our customer backward compatibility commitment."*



Broanmain Plastics designed and developed 27 individual mould tools for Trend Controls modular IQ4E climate control system.



To boost productivity at Trend, Broanmain creates assembly kits, inserting components into reusable tubs.

From prototype to full-scale production

With the tool trials complete, Broanmain commenced producing the 27 components, moulding each part on their fleet of Sumitomo (SHI) Demag Systec machines. As each component making up the IQ4 climate control unit clips together without using screws, moulding precision is paramount, with the smallest part - the light pipes - measuring just 5mm by 1.5mm. *"We worked exceptionally hard to get every part spot on,"* comments Peter.

Printing the terminal information in various formats in three colours - orange, yellow and black - on the injection moulded curved top plate of the climate control unit presented additional process challenges. Yet, Wilf reassured Peter that it was feasible, investing in a high quality pad printing system.

Broanmain undertakes some of the pre-assembly in-house, before distributing the components to Trend where their team fit the electronics and build each unit to each customers' size specification.

One of the key challenges for Trend is each of the 40,000 climate control panels shipped annually is made to order, with just a two-day lead time. Given these tight timescales, and with 12 variations of the climate control unit, Peter and the team rely on a simple yet effective Kanban lean manufacturing technique.

Introduced by Wilf, Broanmain creates assembly kits, inserting components into reusable tubs featuring four dividers. *"When the crates arrive at Trend, our assembly operatives remove their sub-kit. It makes us more productive as we're not wasting time looking for components. It also significantly reduces the amount of packaging we throw away."*

Twice weekly, assembly cases are sent back and forth between the two sites, with Broanmain replenishing stock using the Reorder Point Planning (ROP) methodology. *"Because our units are made to order, we are unable to forecast. It also means our average daily usage fluctuates. Yet, once it reaches a certain point a replenishment order is triggered,"* explains Peter.

Not only does this arrangement negate excess stock inventory for Trend, it also assists Broanmain to batch pad print the outer casing according to the size and variant of the unit. Wilf explains: *"Customising the print late in the process means we don't have to hold stock of all versions and instead can keep a small stock of the base product."* For the smaller components, e.g. light pipes, Broanmain runs a full bag of material and stores stock on-site inserting the required number of components into the kits.

The arrangement runs seamlessly emphasises Peter. *"It runs like a true partnership, aiding all aspects of development and product sourcing,"* he says. *"When a customer specifies a particular controller, they may then order several hundred and this is where the late print customisation and assembly kits helps."*

The two teams are now collaborating on a new IQ4 feature, developing five tools to address customer demands for a manual on/off switch module that slots into an existing controller. *"Printing text onto the curvature of the top plate has given us a few headaches,"* declares Peter. *"Following some trials, we've now invested in a special print plate which Wilf had researched. Again, good testament to the partnership and mutual trust we share."*

Now, rather than going through Wilf, Peter feels totally confident approaching Broanmain's workshop leaders direct. *"Their team has a great work ethic and it helps having such a proactive moulding supplier on our doorstep that can turnaround components with such a short lead time,"* Peter ends.



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Terminal information is printed direct onto the injection moulded curved top plate of the climate control unit using a high quality pad print system.