

Moulding the Future

Edition 9

The Latest News and Information



#wearebusy... happy to hear you are too

To say this has been an unprecedented year is a bit of an understatement. Yet, like you all, the Broanmain team continues to weather the storm remarkably well and have some strong plans for more growth in 2021.

To help accelerate this and our internal transformation strategy, we recently appointed Eve Clennell as People, Culture and Strategy Manager. A senior role, Eve's appointment comes at a pivotal time, when the pandemic and Brexit uncertainty has put employee health and wellbeing, Good Manufacturing Practices (GMP), and workforce safety into even sharper focus.

Eve will manage all of the non-production departments within the business and focus on developing Broanmain's culture of strong teamworking and collaborative spirit.

With such a diverse workforce, largely comprising EU nationals, one of Eve's immediate priorities was examining how team members could visit families over the Christmas period and safely quarantine without compromising your client service on return. Additionally, Eve has already been providing professional consulting support and assistance to team members completing their EU Settlement Scheme applications.

Eve already knows many of the Broanmain team personally in a consulting capacity. As a Fellow of the Chartered Institute of Personnel and Development (FCIPD), she has seen countless reports and indicators that work related stress, depression and anxiety is on the rise.

The team has done some great work in this area already, including nominating two colleagues to complete Mental Health First Aid training so they can recognise and assess stress triggers. Another highlight is the flexible development plan the team created for Tom, an ex-AirForce SNCO who joined earlier this year through specialist recruitment firm CareerForces. Broanmain is also offering all team members access to an external counselling service.

Among the range of support mechanisms Eve plans to use to counterbalance this year of uncertainty include greater clarity about people's roles and progression maps, forums to facilitate cross-team communication and **address unconscious biases.**

We look forward to introducing you to Eve in person when you next visit our Dorking or Faygate facility.

Tooling



Tweaking a tool: Ways to optimise your investment

Updating or repairing an injection mould tool can be complex. Yet, it is something that Broanmain's Tool Manager Kamil Stec does daily to help extend the lifespan and maintain the quality of precision mould tools. Kamil shares several tips to make these modifications more straightforward and addresses several misconceptions.

The cost of creating an injection moulding tool can run into thousands of pounds. One of the key considerations for product engineers has to be the operational lifespan of the tooling. Rather than investing in a full tool replacement, modification options can range from cutting a new hole, to increasing the part size or expanding the wall thickness. The process usually begins with a drawing. However, Kamil says most proficient toolmakers can eyeball a tool and present viable modification options and cost breakdowns.

In the four years Kamil has worked in Broanmain's toolroom, he proudly reports that they've not scrapped a single tool. *"Generally speaking if something breaks within the tool, there is always a way around it. Obviously the more involved the repair is, the more it is likely to cost. Yet, it's incomparable to a full tool build."* The main instance where a new commission might be warranted is when changing the moulding material or when making multiple changes to the tool dimension, which requires adding rather than removing metal.

Expanding part geometries

It's always easier to cut more material, rather than add material in a tool. Removal is often

done in small increments. If the size of the tool cavity allows it, metal can be added. But this can be highly complex and isn't usually advisable for high-speed moulding.

Making a moulded polymer part thicker is relatively straight forward. By making the initially geometries in the tooling thin, the thickness can be expanded by making cuts into the tool. Likewise, it's advisable to make the outside diameter and shape of the part with the tool as small as possible. This then enables the tool to be altered instead of replacing it.

Adding features

Imagine carving into stone. Once the features are etched in, they are virtually impossible to remove. Until the features of the part are fully determined, leave them out. Ribbing, raised text, texture etc. can be added once the tool is near completion. In some instances it is possible to replace the core of the tool. This is more commonplace in today's modern moulding tools, which rather than being a solid hardened steel tool comprises 200+ individual components assembled together.

Also consider future features and the different iterations that might potentially be needed. If these are factored into the development phase of the tool, future modifications are more straightforward.

Kamil highlights that the most common adaptation is changing the size of holes within the tool. *"Because holes are typically formed using easily replaceable core pins, it's never that much of an issue,"* he notes.

Switching materials

Moulding tools are typically designed for processing a particular plastic. That's because each polymer has different shrinkage rates

Tooling



and also has different gating and venting requirements. Occasionally it's possible to mould multiple plastics in the same mould. However, there's always a size difference in the part. This can be particularly troublesome if the component forms part of an assembly where pieces are slotted together with great precision.

Changing the material can also cause other quality issues such as flash and burns in components. Heat transfer also needs to be considered. Using copper alloys for certain sections of the tool can help to defuse the heat a bit better. Generally, a tool can be built using 30+ different materials, tool steels and alloys. Mixing different grades and hardness of tool steels is advisable, especially when there are sliding parts and ejector pins within the mould cavity.

For corrosive or abrasive plastics, like glass filled nylon, consider wear and tear. On top of standard hardened tool steels, Broanmain can offer different treatments and coatings, such as nitriding and hard chroming. These can further improve wear resistance. If the tool hasn't been built using hardened or a wear-resistant material, its usable life will be cut short.

Remember draft angles

Often, drawings or 3-D prototype models don't factor in a draft angle. This can impact the tool design process and ultimately the mould ability of a component and how it's ejected from the tool cavity during production. As well as increasing the number of rejected parts and potentially affecting the finish of the component, not having a draft angle can also damage the mould tool. Rather than having squared walls in the injection moulded part, they need to be slanted at an angle to the ejection and opening of the tool. The general rule of thumb is 1 degree of draft per 1 inch of cavity depth. Special consideration should also be given to the draft angle when using textured finishes.

Tooling for undercuts

An undercut is a feature that is formed perpendicular to the mould tool standard opening direction and prevents easy demoulding. A typical example is an opening in the side of a part. For an open and shut moulding tool, filling the perpendicular opening can be complex and costly. The more openings, the more expensive it can be, as additional tooling actions are often required. Furthermore, parts with internal threads or ridges can add to the tooling complexity and be expensive to address.



One of the most common tool adjustments is changing the size of holes



In four years working in Broanmain's toolroom, Kamil has not scrapped a single tool

Best Bits of 2020

It's been quite the year. But despite all the uncertainty, trauma and heartache, Broanmain continues to support customers with a range of interesting projects and elevate our business profile. Here are a few of our highlights.

January

Jo takes over as Managing Director at Broanmain, with Wilf moving into the role of Chair.

February



Southern Manufacturing 2020, probably the last trade show to throw open its doors in 2020, Broanmain unveiled our new precision moulding facility.

April

Lockdown starts, but here it remained business as normal... as it could be.
At Broanmain Plastics, we continued to assist our OEM customers while ensuring the safety of staff members with flexible working patterns.

May

Specac

Innovative Project



Broanmain teams up with Specac Ltd again, this time to develop their revolutionary new Arrow ATR consumable puck and slide concept. This unique application now allows lab scientists to batch test, save and cross-compare chemical changes in samples and eliminate the risk of cross contamination.

June

fmuk



Safeguarding H&S in Covid world
Clip of this cutting in FMUK.

July

bp&r



Great double page spread in respected British Plastics & Rubber magazine. So proud to see our commentaries getting the coverage it deserves.

August

Broanmain Plastics are proud members of #GTMA, having joined the association this summer. Already the service has proven to be valuable, strengthening our position within the #UK supply chain during these testing times.

September

Homeward Bound

British moulders have been especially swift during the COVID pandemic to adapt to manufacturers' urgent PPE and medical equipment demands. With UK manufacturers assessing their supply chain vulnerabilities, Jo comments on how reshoring production of mass-moulded parts supports British innovation.

November

Eureka!



Our joint innovation with Specac gets kudos in the ultimate engineering magazine. Thanks team for the coverage.

Staff

Directing your enquires to the right expert.

In order to ensure your enquiries to Broanmain are answered most efficiently, please can you update your contact records:



Despatch and delivery enquiries should be directed to monikasiakala@broanmain.co.uk



Accounts questions need to go to accounts@broanmain.co.uk where Tina will be able to help out



New Enquiries, Production and Engineering matters are dealt with by our Operations Manager, Thomas, who can be contacted at thomascatinat@broanmain.co.uk



Please send quality concerns to quality@broanmain.co.uk



Purchase orders and Kanban call offs should be sent to orders@broanmain.co.uk – where they will be handled by one of the orders team.



Eve is handling all HR matters – and co-ordinating the Health and Safety committee – eveclennell@broanmain.co.uk



Kamil Stec handles tooling work and precision manufacturing. He can be reached at kamilstec@broanmain.co.uk



Jo Davis is our Managing Director, and has responsibility for the day to day running of the business – jodavis@broanmain.co.uk



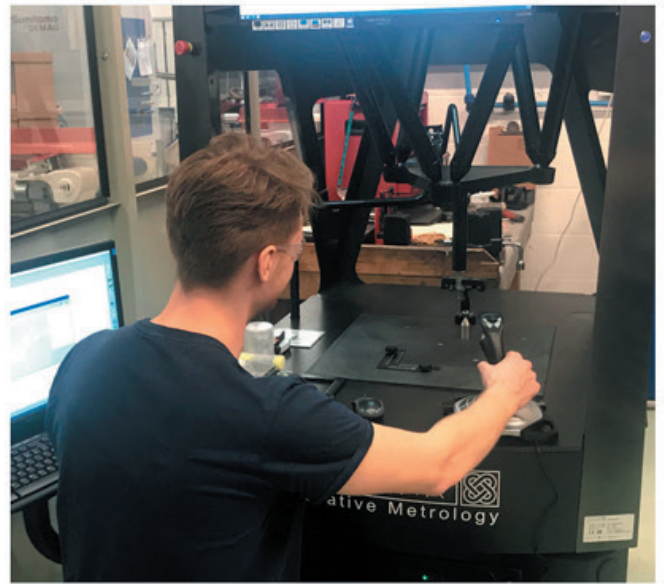
Wilf Davis is our Chairman – wilfdavis@broanmain.co.uk

Company News

As part of our continual investment in our toolroom and expanding services, we recently added a CMM machine and Lathe.

Please contact kamilstec@broanmain.co.uk with any project enquiries. With all of this new kit combined with our tolling expertise, we look forward to supporting your projects in 2021 and beyond.

Have you seen our updated toolroom with all the newest equipment? If not, here's a quick peek behind the scenes with Kamil walking you around the workshop.



Christmas Plans

Broanmain will be closed from 12 noon 22 December 2020 and reopens at 8am on Monday 4 January. This year the team will be donating their secret santa gifts East Surrey Domestic Abuse Service in recognition of the difficult year so many people have experienced.

We are currently making some changes to our quality team. During this interim period the duties

of the department are being covered by the experienced operational team that are already in place at Broanmain. This is being overseen by Jo and Thomas to ensure QC standards are maintained.

Please continue to make contact via quality@broanmain.co.uk with any quality related issues, and if there are issues that need elevating please reach out to **Jo or Thomas**.

Southern Manufacturing

The 2021 show has been pushed back to April 2021 – more news to follow on that soon. We look forward to welcoming new and existing customers to our stand and showcasing our latest innovations. To pre-book and appointment to meet with one of the team, please get in touch.

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