

SPRING 2020

Moulding the Future

Edition 8

The Latest News and Information



CHALLENGING TIMES

As all recipients of this newsletter will have experienced – this has been a difficult Spring season, without the usual joys and piling on a huge load of challenges – and our newsletter has spread into Summer as a result of that.

The Broanmain Team has coped extraordinarily well with the speed at which they had to receive information and adapt to the inevitable changes that have consequently been asked of them. Broanmain has remained open for business throughout the period of lockdown, as suppliers of medical, infrastructure and other essential equipment. Changes to shift patterns, working from home and social distancing were implemented within 48 hours of the Prime Minister's announcement on 23 March.

Ongoing work is in place to ensure the business evolves along with government policy – with 2/3 of the team having been upskilled in completing risk assessments by the end of May.

Nick Russell nick@nickrussellfd.com and Liz Boutcher liz@hr-surgery.co.uk are part of the wider Broanmain team – and have helped to guide us through the financial and HR complexities of this time – so a shout out to them too – thank you.

Broanmain is always proud of its committed and happy team – but never more than now does the business appreciate their flexibility and collaborative response.

Trudec Flooring



Finding social distancing a challenge? Look no further.

Featured in the last edition of Moulding the Future was the PVC flooring range which Broanmain now manufactures.

Trudec Flooring comes into its own when social distancing is required.

For establishments seeking a more permanent solution to stickers to introduce and maintain social distancing, Broanmain Plastics offers an instant, robust, flexible and cost efficient floor tile solution for indoor areas and covered corridors. REACH-compliant, facilities teams can introduce directional messages, two-metre distancing measurements and safety warnings, which can be easily changed as COVID-19 guidelines evolve.



A full fitting service can be arranged.

For a quote, please contact Ben Bayly on benbayly@broanmain.co.uk or call 01306 885888, quoting ref: Spring 2020 newsletter.

The ins and outs of injection moulding

Thomas Catinat, operations manager at Broanmain, shares some of his polymer tips to assist customers innovate, curb costs, speed up time to market, select materials and achieve processing consistency.

Form and function

Pretty much any size, shape, strength and structure can be injection moulded, depending on budget and the size of the injection moulding machine. Ranging from plastic garden chairs, wheelie bins to microscopic components weighing less than 0.1g. The thickness that can be moulded depends upon the grade of the raw plastic material.

If the material doesn't flow fast enough into the mould tool, or if the injection speed is too slow, there's a high risk of the part freezing while the mould is still filling. This can cause a flow mark affecting the visual aesthetics, or worse a short shot resulting in a major product defect.

Cost also needs to be factored in. If the proposed plastic part is too thick, there might be a more financially viable material to use, for example a metal sheet.

Material choice

There are in excess of 85,000 listed plastic materials, and more than 45 polymer families. All offer varying degrees of strength, resistance, elasticity and even special features such as anti-bacterial or UV protection. The choice will depend on the application, for example if it needs to withstand high or extremely cold temperatures.

Generally speaking, polypropylene (PP) is used when replacing metal components with plastic. It's a relatively inexpensive resin, fairly robust, and commonly used in packaging applications, such as snap on lids or bottle caps, or medical tubing.

Acrylonitrile Butadiene Styrene (ABS) is also relatively inexpensive and typically used for most electronic housing, technology and consumer power tools. Standard ABS is usually mixed with the most appropriate additives to make them cleaner, safer, stronger and shinier. Common examples include colour pigments, anti static agents and heat stabilisers.

Mixing of the polymers in pellet or powder form is often performed by a material supplier, which a moulder buys in batches. However, most moulders, Broanmain included, have dosing units on site to create a polymer mix when smaller quantities are required.

Bioplastics

With such a focus on sustainability and reducing plastic consumption, customers invariably ask about the moulding properties of bio-based materials. Although the cost of bio-based materials is gradually coming down, the price currently remains higher than fossil-derived polymers. There still remain lots of developments in this field. And for many right now there are too many unknowns, including questions surrounding the true sustainability of harvested bio-based crops, such as corn.

Currently, most customers still prefer to source a pure polymer and don't accept regrinds, as they are concerned that product performance will be compromised. From a scientific perspective, every time plastic is melted the molecular structure changes and



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degrades. Some call this a 'heat history'. The more this happens, the more weak and brittle the part gets. In time this can affect the characteristics of the end product, potentially compromising safety, hygiene or performance.

If using regrind it's advisable to minimise the blend to 20% or less. Do remember that any subsequent pass through the machines will contain some of the previous regrind blend, so the ratio of regrind to virgin polymer will increase incrementally.

Colour

Although the surface of plastics can be painted, pad printed or treated post moulding, using colour pigment additives ensures that the decorative features run through the entire product and won't wear off. Pigments can also be used to create an opaque or refractive surface.

Process adjustments

Setting the moulding parameters, injection pressures and temperatures is a moulder's sphere of expertise.

Like most things in life, the process is not always perfect straight off. Best case scenario is 80% of the process parameters are solved when designing the part. These settings are then used as the benchmark to make small adjustments when the tooling and parts arrive at the mouldshop.

Adjusting the temperature of the barrel and stroke settings is typically the most complex, as just a minor modification affects the plastic viscosity. If there is texturing on the tool to create a shiny or matt surface, these adjustments could cause the plastic to stick to the tool surface.

Zero defects is the ultimate target. Creating a stable process is the goal. With so many variables, establishing the processing parameters is where an engineer's skill is truly tested.

Validation

Quality Assurance is critical to all sectors, but medical and automotive especially. Performing a validation can be good business practice in all industries. Whether it's mandatory however will depend on the part being manufactured and the sector it's destined for.

Broanmain incorporates testing of parts in our quoted price. To avoid financial surprises always ask.

Other moulding techniques used at Broanmain

Thermoset moulding is often regarded as a bit of a dying art. Broanmain is one of a handful of UK moulders that continues to offer this service. Performed on vertical machines, the plastic material is heated, compressed, cured and cooled in the mould itself, rather than injecting melted plastic into the tool. This technique is often used to produce legacy components or when high chemical or heat resistance is required.

Overmoulding involves adding an additional layer over an already moulded part. Where there are two parts to a component, for example a cable, overmoulding can help to eliminate assembly. It can also be used to add waterproofing and insulation.

Twinshot moulding is a variant of overmoulding and uses two different types of plastic, for example thermoplastics and liquid silicon, or two different colours. These are moulded at the same time, helping to reduce cycle times.

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:



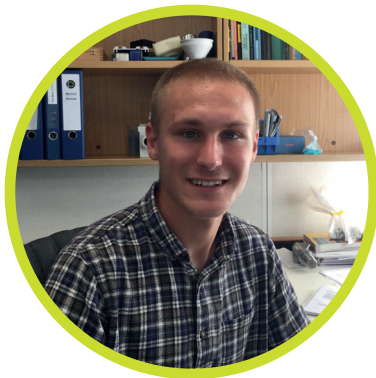
Despatch and delivery enquiries should be directed to monikasiakala@broanmain.co.uk



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 where they will be picked up and handled by either Peter or Andy



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.



Our **SHEQ Manager, Andy Armstrong**, handles items relating to Safety, Health Environment and Quality systems – please use andyarmstrong@broanmain.co.uk to reach him for any non-quality related concern



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

A refocus on the Faygate site has seen further investment in machinery and equipment. A further Sumitomo Demag has been added to the range – this time a 50T – with another 250T to follow in late June. This will provide the business with a seamless moulding department, fully equipped with Sumitomo Demag machinery – allowing flexibility for the workforce to move between sites.



Milkias and Gulcin join the setting team

Milkias has a wealth of experience and knowledge of injection moulding, Gulcin will be following a Sumitomo Demag training programme – appropriately socially distanced of course.

Southern Manufacturing

The sales team saw another successful exhibition at SME in February with a record number of enquiries and leads feeding out of that. With its increased stand size, Broanmain was able to showcase the work it had done with Specac, showing the finished product on the stand and illustrating the development of the product from start to finish – along with promoting the Trudec Tile range. Other development projects have followed on from this. The 2021 show has been pushed back to April 2021 – more news to follow on that in due course.

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