

A COMPLEX MULTI-SERVICE PROJECT FOR A HYDROGEN SPECIALIST CASE STUDY

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PLASTIC INJECTION MOULDING



When a major player in motion control and technology needed complex component production within a strict timeframe, they chose WSM INDUSTRIES to deliver its world-renowned injection mould toolmaking service.

The client had an urgent requirement to produce components for use in hydrogen fuel delivery processes and asked WSM to deliver multiple services from its complete in-house offering, including:

Design for manufacture, a collective process which involves scrutinising and refining the design of tools to make them easier and more cost effective to manufacture.

Mouldflow analysis, a sophisticated software simulation that demonstrates how liquid plastic will fill the mould during injection moulding. This knowledge allows WSM's engineers to optimise gate positions, predict knit lines and anticipate parts of the mould that will be awkward to fill. Genetic algorithms, a method that sees algorithms constantly evolve in order to generate optimal parameters for the injection moulding process. This ultimately helps to deliver an end product that achieves specification in terms of form, performance and durability.

**Production** of the mould tool itself including machining, heat treatment, electro-discharge machining (EDM), polishing, finishing, assembly and inspection.



Faced with a slim eight-week timeframe, the WSM team immediately got to work. The customer's enquiry had been for standard materials and prototype tools, but an initial review of the process revealed the severity of the materials which meant an alternative approach was required.

The complexity of the design led to WSM manufacturing production tools with intricate elements such as:

Shut offs, which are design elements essential for controlling the flow of molten plastic to create parts with perfect form while preventing flash – a thin layer of plastic on the edge of a moulded product.

Slide actions, mechanical features designed to create complex features such as overhangs in moulded parts.

Hot runners, heated components used to transfer molten plastic from the barrel of an injection moulding machine into the mould's cavities.

Working to ISO 9001 quality management standards, WSM completed production within the eight-week timeframe, allowing the client to take their project to the next stage with a product manufactured to their precise specification.



## PLASTIC INJECTION MOULDING

Whether you require small or large components, recycled material, engineered polymers, single-component production or whole-product assembly, we offer the complete solution.

find out more





## WSM INDUSTRIES

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