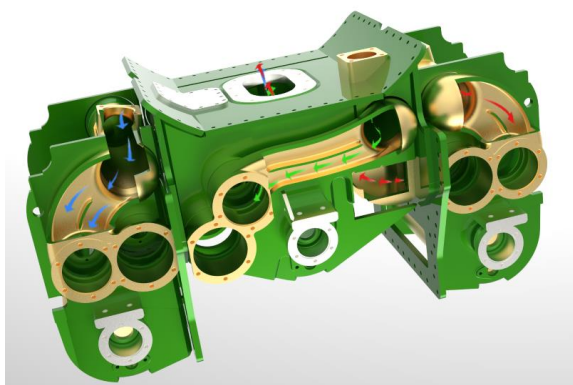


## Case Studies: A1 Steam Cylinder Block Optimisation

A team of enthusiasts are making the design of the world's most powerful steam train a reality. We were approached to help improve overall performance. Built for traction over top speed, the design is expected to haul in excess of 600 tonnes through the steep railways of Scotland.

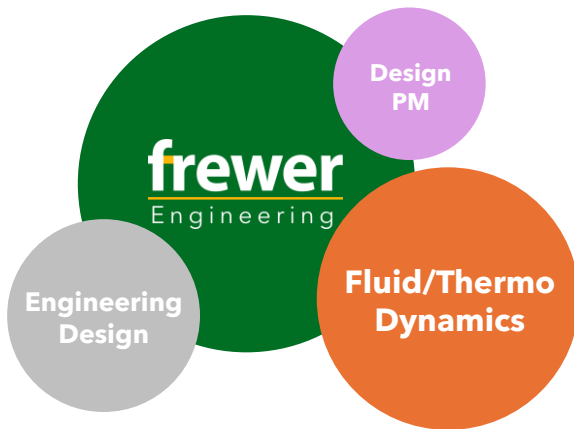
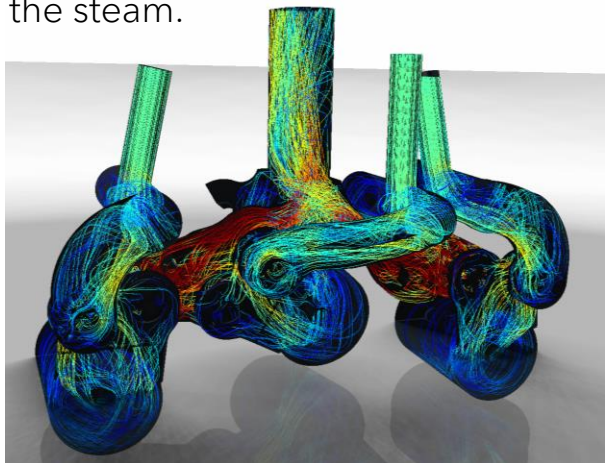


### Cylinder Block Redesign

We used our in-house CAD and geometry clean-up expertise to rapidly develop a CFD model from the customer's own CAD files. This enabled our analysts to rapidly iterate through potential performance improvements associated with the cylinder block design.

### Improving Efficiency & Power

The cylinder block has been refined with overall efficiency and power in mind. Our analysis optimised the flow through the cylinder block passages to ensure they were as unrestricted as possible, to maximise the tractive power that could be extracted from the steam.



### Rapid Turnaround

The customer's timescale for the programme meant that preliminary results were required imminently. We presented feedback to the customer in a series of progress meetings throughout the project, keeping communications flowing so the customer could feed-back based on the results as early as possible.