

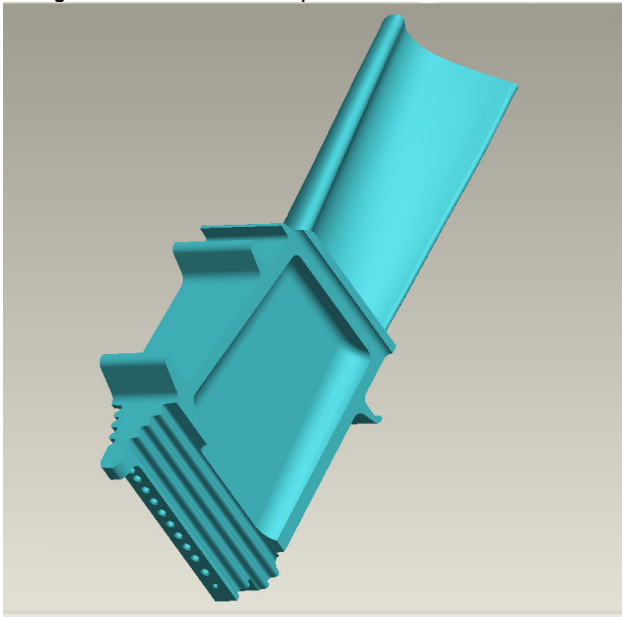
GE. 1st Bucket

The Problem:

SAEBYR's customer had a significant problem with the supply chain for their production of first stage buckets. Whilst their supplier was able to meet the required quality standards for the components, cost was high and delivery schedules were rarely met.

The customer finally took the decision to end their relationship with the supplier, and approached SAEBYR in order to find an alternative source as quickly as possible.

Even though quite a large and heavy part, the bucket in question is not an overly difficult component to machine. The most challenging aspect of the process is the STEM drilling of the internal cooling scheme, which involves drilling from both the airfoil-tip and the blade-root.



The problem was compounded by two factors: 1) the customer did not own the STEM tooling, and was therefore not in a position to place it at another vendor, and 2) due to casting deviations, the customer had agreed to allowances away from 3D CAD model intent.

The Solution:

It was immediately clear that, in order to successfully place the production at a new supplier, it was important to understand the influence of casting variations on the previous suppliers' processes. New STEM tooling would have to be manufactured to these dimensions.

The first step was to place **Request For Quotations** at three possible suppliers, with the understanding that the tooling would be provided and owned, by the customer.

The second step was to 3D scan sample parts, machined by the previous supplier. This was done with tubes extending from the cooling channels. SAEBYR then created a "skinned" model around which the new tooling was designed. The newly scanned 3D information was also passed back to the customer, thus allowing actual data to be integrated into the master 3D model.

Once the new supplier had been approved (and STEM process acids confirmed), the tooling specifications were finalised. SAEBYR put the tool supply out to tender to three reputable tooling manufacturers. In this instance, the supplier guaranteeing the shortest lead-time was selected.

SAEBYR personnel managed the tooling inspection; tooling delivery on site; process trial components; and the **First Article Inspection Report** on behalf of the customer.

The total project duration was 7 weeks.

SAEBYR Precision Technology Ltd is an engineering solution provider specialising in the Gas Turbine Component Industry. SAEBYR covers both the Aero Engine and Power Generation markets. We provide our customers with services, ranging from **Technical Consultation**, through defined **Projects**, to complete **Technical Outsourcing**.

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