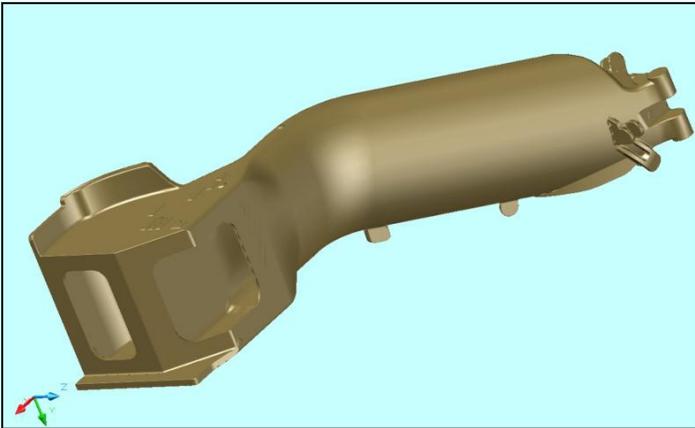


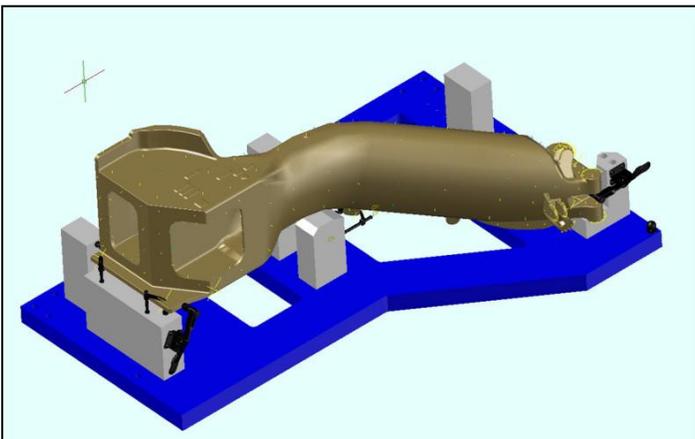
Balancing Stock on Castings: A CheckMate Adaptive Manufacturing Application

When machining a casting it is critical that the stock removal is evenly distributed over the entire casting. This will result in walls of machined features that are of correct thickness and holes being centered on bosses, producing a high quality finished part from the cast blank. On large complex castings as the one shown here, this is a difficult task.

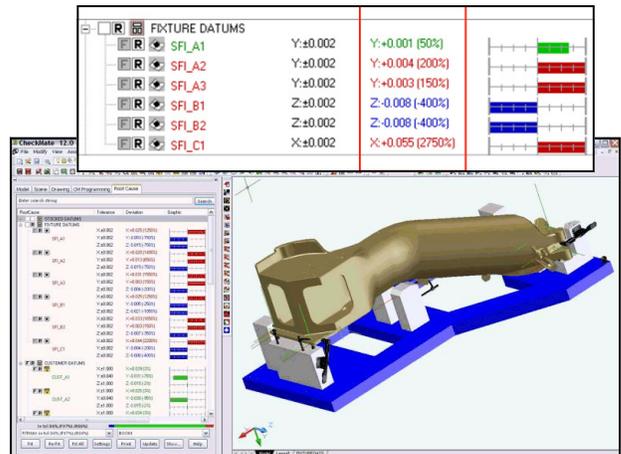


Solidiform Incorporated of Fort Worth, TX uses CheckMate to ensure the highest quality possible on every casting and to eliminate the opportunity for creating scrap due to inaccurate machining setup. Prior to machining, the casting is exhaustively measured for form as well as to verify locations of the final customer datum features and Solidiform’s tooling datums. Checkmate SoftFit Solver is then used to perform fitting operations on the form and final customer datums to establish incremental adjustments required to calibrate the fixture shown in the picture above. Once the fixture is calibrated, the part is mounted and the customer datums which will be used as setup locations for the final machining by the customer are machined into place.

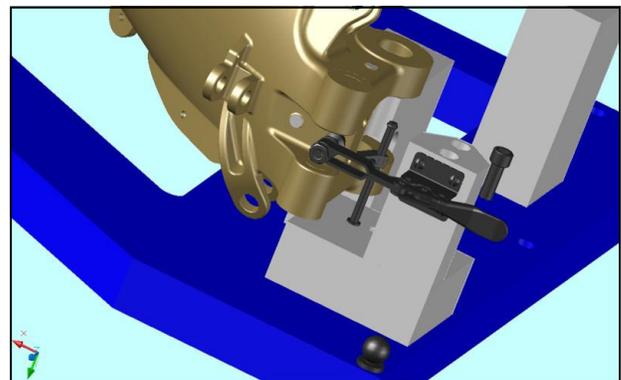
The casting shown here mounted in the machining fixture measures in excess of 32 inches in length and due to the size, complexity and the cost of the prototype tooling it represents significant manufacturing challenges.



In this CheckMate screen shot the corrective action required to adjust the fixture prior to machining is calculated using SoftFIT Solver and clearly presented in the Root Cause Browser.



The fixture adjustments calculated by CheckMate to balance the stock on the casting to optimize the machining process are used to adjust the fixture prior to machining



Since implementing CheckMate to perform this task, Richard Mathis of Solidiform notes, “We don’t know why anyone would do this with conventional methods”.

Solidiform Incorporated is an industry pioneer in the casting prototype business. They have proudly manufactured investment and sand castings for the aerospace industry since 1980, specializing in finding custom solutions to demanding geometries and schedules.

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