

# Dotson Dispatch



**Bergman Mfg.  
converts hitch  
from steel  
weldments to five  
Dotson  
austempered  
ductile iron  
castings**

## Low Tech to High Tech

Dotson product manager Chris Witt has been calling on Bergman Mfg. for many years. Chris had easily seen that their speed hitch would be a perfect conversion from steel to ductile iron. The Bergmans (Barry and son Mike) were not so easily convinced. Yes, if it worked, it would reduce costs. But, they had tooled up a manufacturing operation on the farm and the cost of patterns was a large barrier.

It was last winter when an ice storm and a fire destroyed their manufacturing operations. Now the Bergmans had a decision to make. Replace all the shears and welders or invest in patterns for the conversion to castings.

There was one additional barrier. They needed to be convinced that castings would be as strong as the steel parts. Chris, being from Iowa, knew that the best way to convince the Bergmans would be to do an “Iowa Engineering” demonstration. A long cast austempered ductile iron bar was made and then compared to a 1.25” steel rod.



Mike Bergman testing the ductile casting

The cast iron bar proved to be much stronger than the steel rod. Now the challenge was to design the castings.



The original welded steel hitch

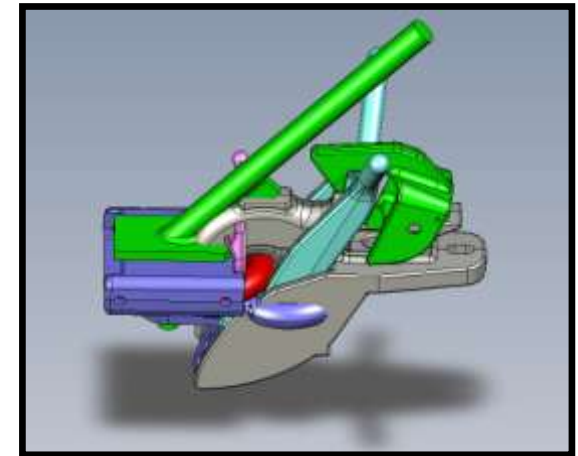
It started with the old hitch. While it looked simple, the combined tolerances and the moving of the parts required a very high tech computer working model to prove the design.

Creating the 3D working model was very complex. Jim Headington, quality/tooling manager at Dotson, coordinated the team effort and commented that this project dealt with a huge number of critical, interacting features.

Barry and Mike Bergman designed their weldments so precisely that each characteristic served a vital function in the operation of the hitch. Al Doucette from Enterprise Pattern captured that knowledge over the course of numerous meetings and transformed it into a scaled 3-D model and computer simulation.



Al Doucette



Computer model of the new hitch

A major plus of having the computer model was that all of the tooling for the core boxes and patterns could also be designed at the same time.



Mike and Barry Bergman with their hitch display

In less than four months after Chris visited the farm for the sledge hammer test, finished castings on all five parts were delivered. A real team success!

  
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