

# HELIUS:MCT

ADVANCED COMPOSITES SIMULATION | FIREHOLE COMPOSITES

## HOW VALUABLE IS YOUR TIME?

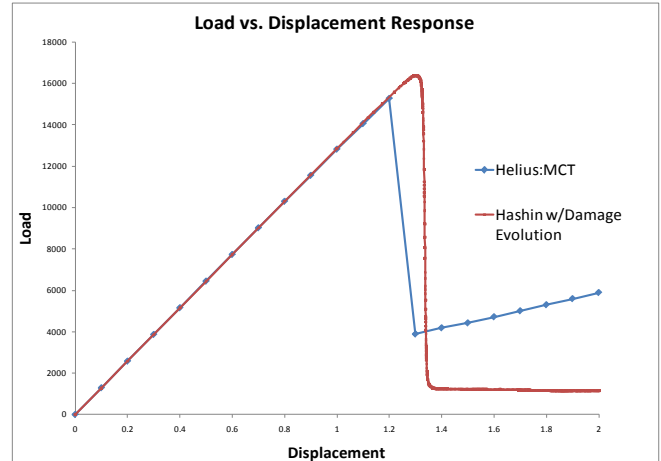
Helius:MCT delivers the accuracy of a constituent-based composite failure method with exceptional efficiency and robustness, allowing you to get the most out of your analysis software investment.

### How does Helius:MCT compare to the state-of-the-art composite analysis method currently available?

In this example, consider a failure analysis of a common, open hole coupon in tension. Here, Helius:MCT is compared with Hashin Damage Evolution, the built-in progressive failure analysis functionality provided currently by Abaqus. The same FEA model and workstation are used for both cases.

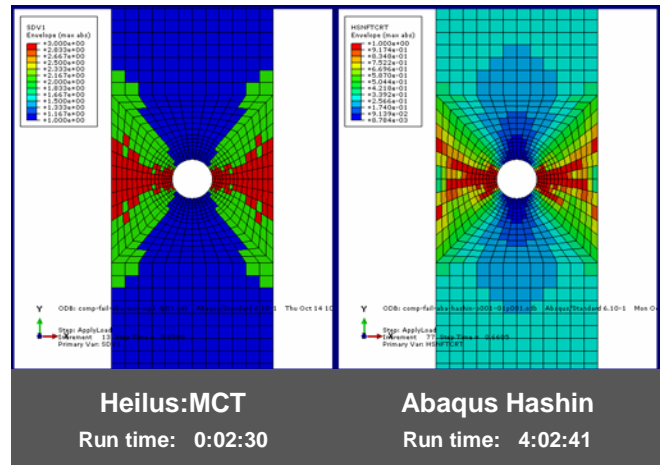
### RESULTS

The load-displacement curve shows that in this simple scenario, Helius:MCT and Abaqus/Hashin methods give nearly the same result, predicting ultimate failure within 7% of each other. Yet Helius:MCT completed the exact same analysis in significantly less time.



### HOW IS THIS POSSIBLE?

The key is Helius:MCT's unique convergence technology, the Intelligent Discrete Softening Method (IDSM). With it, the progressive failure analysis can be completed using substantially fewer increments and without any need to cut back the increment size.



	Run Time	Total Increments	Cut Backs	Smallest Increment Size
Helius:MCT	0:02:30	20	0	0.05
Abaqus	4:02:41	609	135	0.000035

### HOW CAN THIS POSITIVELY IMPACT YOUR DESIGN PROCESS?

Consider now an optimization study that requires 500 simulation jobs. Using Abaqus/Hashin, this study will take 2016 hours or 84 days of continuous run time. Using Helius:MCT, the study can be completed in 17 hrs – less than one day. In more complex scenarios, Helius:MCT will also prove more accurate.

**Helius:MCT can reduce analysis time while providing improved accuracy.**

**INCREASE YOUR  
SIMULATION  
PRODUCTIVITY**