

# Autodesk® Helius PFA Computational efficiency

## How does Helius PFA software compare to competing analysis methods?

In this example, we consider a failure analysis of a common, open-hole coupon in tension. Results are compared to competitive leading solutions using the same finite element analysis (FEA) model and workstation for both cases.

### How valuable is your time?

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

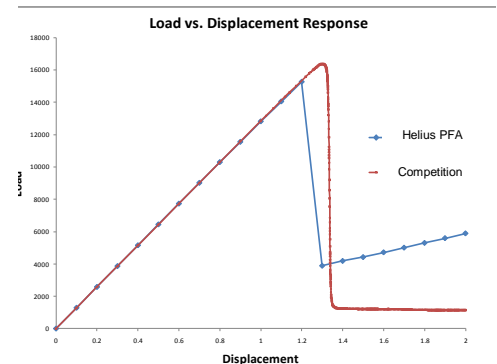
### How can this positively impact your design process?

Consider an optimization study that requires 500 simulation jobs. Using a competitive leading solution, this study would take 2016 hours or 84 days of continuous run-time. Using Autodesk Helius PFA, the study can be completed in 17 hrs – less than one day. In more complex scenarios, Autodesk Helius PFA can also prove to be more accurate.

Autodesk Helius PFA can reduce analysis time while providing improved accuracy.

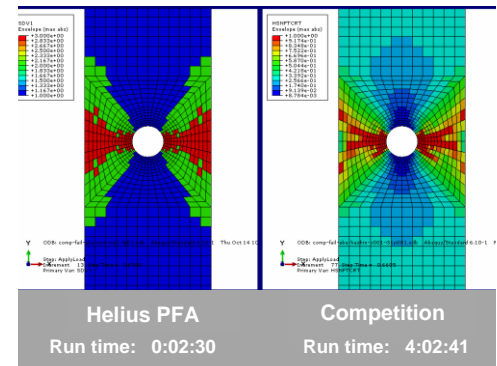
### Example

The load-displacement curve shows that in this simple scenario, Autodesk Helius PFA and competitive methods give nearly the same result, predicting ultimate failure within 7 percent of each other. Yet Helius PFA completed the exact same analysis in significantly less time.



### How is this possible?

The key is Helius PFA'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
<b>Autodesk Helius PFA</b>	0:02:30	20	0	0.05
<b>Competition</b>	4:02:41	609	135	0.000035

\* The performance results and statistical information reported in this paper were derived from tests carried out by Autodesk and conducted over a controlled network in which participants with varying levels of expertise with Autodesk Helius PFA and competitive FEA applications performed selected tasks designed to simulate day-to-day production tasks using each solution. As with all performance tests, results may vary based on machine, operating system, filters, and even source material. While every effort has been made to make the tests as fair and objective as possible, your results may differ. Product information and specifications are subject to change without notice. Autodesk provides this information 'as is,' without warranty of any kind, either express or implied.