

Aerospace and defense

Pagnotta Engineering

CAE software's versatility helps boost business

Product

NX

Business challenges

Address customer demands for immediate analysis support

Ensure accuracy in analysis results

Keys to success

Use Femap software to import, or rapidly create, customers' geometry

Rely on NX Nastran software for reliable results, market-place acceptance and best-in class support

Display results with Femap to make information meaningful

Results

Exceptionally responsive in meeting customers' needs/ deadlines

Track record of growth over 10 years

Impressive list of customers, with each representing repeat business

Pagnotta Engineering relies on the abilities of Femap and NX Nastran to quickly tackle the wide range of analysis projects its customers require

Pagnotta Engineering has grown steadily in its 10-year history, in part through its ability to turn analysis jobs around quickly and with quality results.

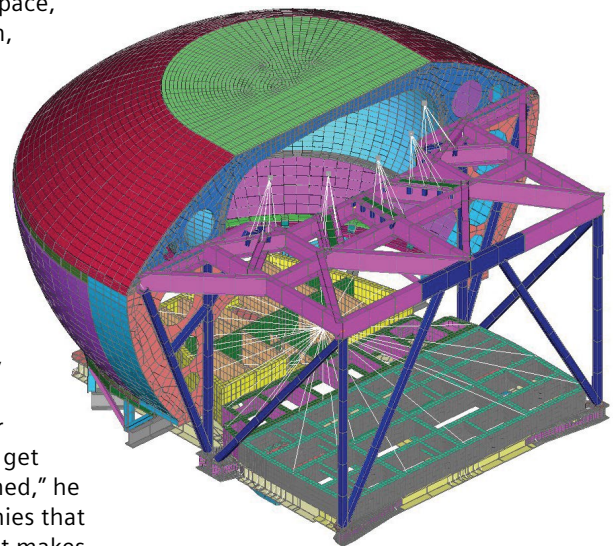
A support business

Pagnotta Engineering, Inc. provides a complete range of mechanical design and analysis services to customers across industries, including aerospace, aircraft simulation, transportation, medical, and consumer products.

Its current customer roster includes Lockheed-Martin, Orbital Sciences Corp., NLX Corp., Northrop Grumman, Eagle-Picher Technologies, NASA Langley Research Center and Binghamton Simulators. According to Mike Pagnotta, president of Pagnotta Engineering, his company usually functions in a support role. "For the big companies that have their own analysts on staff, we usually get called in when they're overwhelmed," he explains. "For the smaller companies that need only a few analyses a year, it makes more sense to have us do the work than to hire someone."

Frequently when Pagnotta Engineering is considered for an analysis job, the customer needs results as soon as possible. "Often it's a situation where something was discovered in testing. When tests hang up everyone is in a panic," Pagnotta says. "They want answers and we've got to be able to deliver them right away." In terms of the analysis software, "We've got to have software that lets people hit the ground running," he says.

Pagnotta Engineering has other requirements for its analysis software as well. For example, it needs a well-known,



Finite element model of flight simulator visual upgrade structural system

“Femap is excellent when modeling from scratch.”

Mike Pagnotta
President
Pagnotta Engineering

well-respected solver so clients have confidence in the analysis results. Also, it needs a preprocessor that can import geometry regardless of which CAD program was used to create it. “The challenge that you face as a small business is to reach as many customers as you can,” Pagnotta explains. “If we had to buy every preprocessor and every solver, we couldn’t afford that.” The preprocessor must also include intuitive modeling functionality because sometimes Pagnotta is asked to create geometry from scratch.

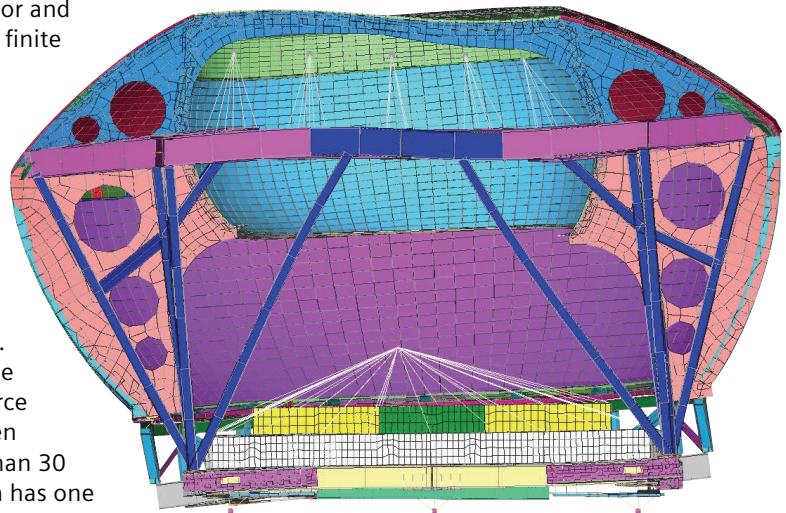
Finally, Pagnotta Engineering needs a versatile postprocessor that makes it possible to present results in the most meaningful way, which might mean extracting certain elements from a model, for example.

A flexible, respectable duo

The analysis software that fills this bill for Pagnotta Engineering is Femap™ software, the world’s leading Windows-native preprocessor and postprocessor for finite element analysis (FEA) and NX™ Nastran®, a premium solver that major manufacturers worldwide rely on for their critical engineering computing needs. Based on the same MSC.Nastran source code that has been in use for more than 30 years, NX Nastran has one crucial distinction for the small and agile Pagnotta

Engineering: it’s supported by Siemens PLM Software. “NX Nastran has the name recognition of Nastran, so our customers have the confidence that we use only the best tools,” says Pagnotta. “But because NX Nastran is sold by Siemens, we get Siemens-quality support, which is essential. Even if you really know the software, there are still times when you need help. We’ve been very pleased with the customer support from Siemens. The response time is very good.”

Typically Pagnotta Engineering begins a job by importing a customer’s CAD geometry into Femap. At times, however, analysts must create it themselves. On one job for NLX Corp., for example, Pagnotta Engineering was asked to perform some analyses in conjunction with an upgrade of an existing flight simulator. Digital geometry wasn’t available so Pagnotta’s team went out to the field and took measurements of the simulator’s motion platform, the cockpit frame and instructor frame. Then analysts quickly created the geometry in Femap. “Femap just gets it done,” Pagnotta says. “While this represented the old-fashioned way of working, compared to importing data, Femap is excellent when modeling from scratch.”



Flight simulator visual structural system: fundamental natural frequency at 7.8 Hz

Solutions/Services

Femap
www.siemens.com/plm/femap
NX Nastran
www.siemens.com/nx

Customer's primary business

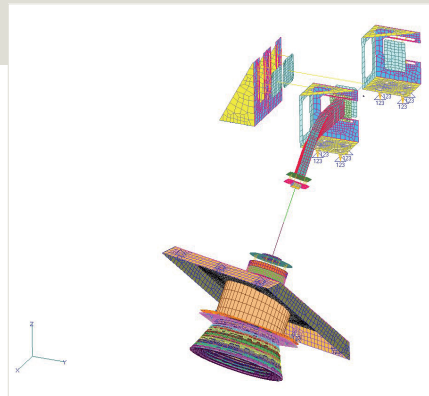
Pagnotta Engineering, Inc. provides mechanical design and analytical technical services to companies in need of responsive quality engineering.
www.pageng.com

Customer location

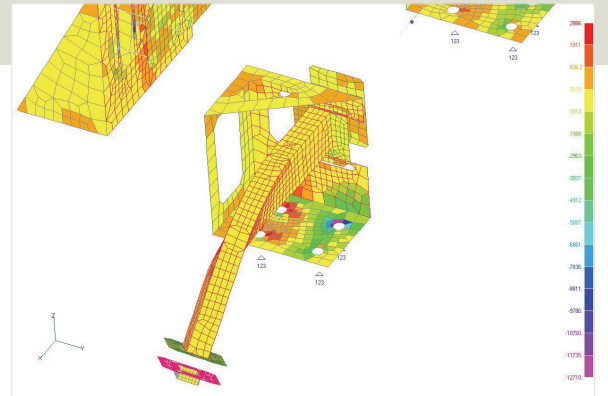
Exton, Pennsylvania
United States

"Femap and NX Nastran are industry recognized products and they send the message that we are a company that cares about its software and about doing quality work."

Mike Pagnotta
President
Pagnotta Engineering



Finite element model of feed horn, triplexer, and support brackets.



Criteria stress plot of support brackets for maximum anticipated static loading.

Responsive quality engineering

On another project, it was the speed of working in Femap that was important. This was a situation where an upcoming design review needed analysis results right away. The project involved a commercial satellite and Pagnotta Engineering was asked to deliver analysis results in less than a week. The customer sent a Pro/Engineer model in STEP format. "We were able to import the geometry into Femap and very quickly produce three different finite element models. Then we ran a number of analyses that gave the customer the answers they needed in time for the design review," Pagnotta notes. "With Femap and NX Nastran, we can provide that kind of turnaround," he says.

The ability to offer quality results – and do so quickly – has enabled Pagnotta Engineering to grow over the years. A small one-person firm 10 years ago, the company now employs eight people and owns six seats of Femap. Pagnotta notes, "That's almost one seat per person, and we have some design engineers too. That's how valuable Femap is to this business." Another testament to the quality of the work done with Femap and NX Nastran is Pagnotta Engineering's incredible record for repeat business. Companies keep coming back for their analysis needs because Pagnotta Engineering provides "responsive quality engineering." And of course, speed. Femap and NX Nastran play key roles in that attractive combination.

"Femap and NX Nastran...send the message that we are a company that cares about its software and about doing quality work."

Mike Pagnotta
President
Pagnotta Engineering

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