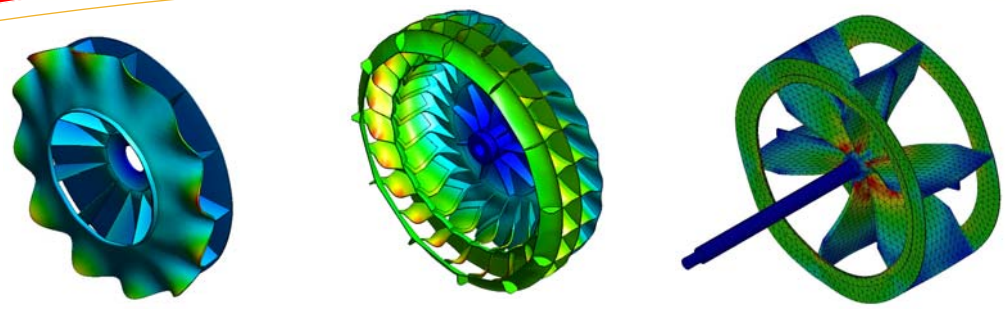
TECHNOS CORPORATION
FAN SERVICES
SAN ANTONIO, TX
Call Our Offices 210/651-9393

TECHNOS Monthly

Fan Engineering, Manufacturing, Repair, and Installation.

TECHNOS: *Your Single Source Supplier!*



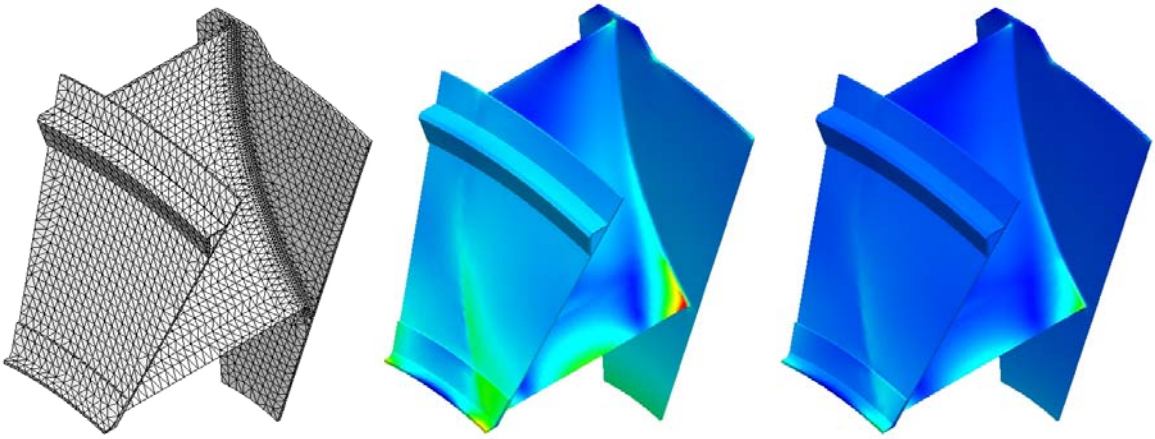
Technos Corporation Engineering Department
Finite Element Analysis (FEA)

Technos can create a 3D model of your fan using SolidWorks Simulation software, and simulate how it will react under various loads. The software uses a technique called Finite Element Analysis (FEA) to perform "studies" that include the model, material, loads, and restraints. FEA can be applied to new product design as well as existing product refinement and failure analysis. Computer simulation is far superior to physical testing due to the high manufacturing cost that would accumulate if each design proposal was actually built and tested.

Technically speaking, FEA is a numerical technique of solving field problems described by a set of partial differential equations. FEA involves a process known as "meshing" that splits the geometry into relatively small and simply-shaped entities, called finite elements. The elements are called "finite" to emphasize the fact that they are not infinitesimally small, but only reasonably small in comparison to the overall model size.

Static studies are the most common analyses performed by Technos. A static study will calculate the stress, strain and displacement in a body under the given loads (centrifugal, thermal, etc.). The results of the static study will reveal the areas that are stressed the most during operation and will allow Technos engineers to suggest changes regarding the design and material selection without having to physically build and test a new fan. The proposed changes can then be applied to a new model and the new study results compared to the original. Depending on the results, either a new design or a new material can be proposed in confidence. Technos can also perform an acoustical analysis that will calculate the natural sound frequencies of the model.

Call Technos at 210-651-9393 if you have additional questions regarding our FEA analyses.



Mesh Design **Original Stress** **Final Stress**

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TECHNOS
HOT TIP #21

Fluid Cooled Bearings

During the colder months of the year it is imperative to check the operating conditions of all fluid cooled bearings. Check for proper flow through the bearings, check fluid levels, check for adequate anti-freeze concentration in the fluid (if applicable), inspect all hoses and hose connections for wear or leaks, ensure sump heaters are functional (if applicable), and correct any problems immediately when discovered.

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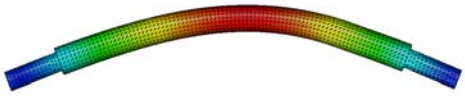

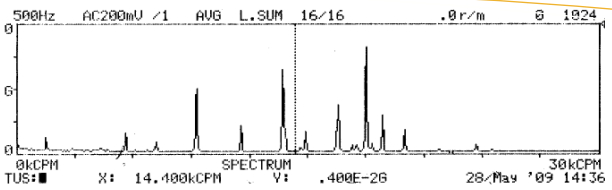

Bump Tests and Shaft Critical Analyses can identify your Fan Problems

The purpose of a 'Bump Test' is to measure the natural frequencies in a fan, and to identify any frequency issues with a fan before it is put in operation. Every fan will have a number of natural resonant frequencies that can be excited during operation. A bump test is used to verify that no natural frequencies are found near the excitation frequencies. When a natural frequency matches an excitation frequency, then high vibrations may occur that can lead to a catastrophic failure or damage the fan components (shaft, bearings, motor, etc.). There are two excitation frequencies that must be accounted for when measuring and comparing natural frequencies. The first consideration is the operating speed, and the second is the Blade Pass Frequency (BPF). The blade pass frequency equals the number of blades multiplied by the operating speed.

Shaft critical is a specific natural frequency of great concern that can't be measured with a normal bump test. It can however be calculated rather easily using Technos' in-house software. The shaft critical is dependent on various factors including shaft design, mass loads, bearing locations, and bearing/pedestal stiffness. Operating a rotating assembly near shaft critical can have detrimental effects. Technos will never design a shaft with a shaft critical below the operating speed.

Contact Technos if you have questions or concerns regarding your equipment.

Technos Corporation Capabilities

In Texas, Technos Corporation Fan Services is located on 10 acres five miles northeast of San Antonio with two large state-of-the-art facilities fully equipped with multiple welding machines, CNC cutting machine, positioners, lathes, press brake, mills, and precision balancing equipment. Our Technos facility in Alabama is located in Bessemer and is equipped to handle your fan manufacturing and repair needs as well.

Technos Corporation Fan Services has the expertise to design, fabricate, and install all types of industrial fans; including wheels, shafts, housings, dampers, expansion joints, and wear-resistant liners specifically designed for your requirements.

Technos Corporation Fan Services field crews are full-time employees certified and trained in all phases of fan repairs and safe installation. We respond to your emergencies and work safely to complete the job. Technos Corporation Fan Services never uses any temporary laborers.

Technos Corporation Fan Services offers the most competitive in-shop and field service rates in this business and we are ready to fulfill all of your industrial fan needs at a moment's notice.

ENGINEERING SUPPORT

Our Engineering Department has the expertise to perform the most thorough analysis using cutting-edge computer technology.

-Natural Frequency Testing
-Finite Element Analysis (FEA)
-Shaft Critical Prediction
-Wear Control Improvements
-Metallurgical Analysis

FIELD SERVICE DEPARTMENT

-Emergency Repairs
-Laser Alignment
-Field Balancing
-Wheel Replacement
-Bearing Repairs
-Epoxy Grouting
-Liner Installation

PRODUCTS AVAILABLE

-Complete Custom Fan Assemblies
-Chrome Carbide Liners
-Dampers
-Expansion Joints
-OEM Projects
-Fan Housings
-Spare Wheels
-Screw Conveyors
-Coal Hoppers
-Shaft Seals
-Separators
-Shafts
-Classifiers
-Ducting

From the **TECHNOS** tailgate: *Poncho Villa's Guacamole*

Thoroughly blend and mash 2 large pitted and peeled avocados, 2 tbsp. lime juice, 1 clove minced garlic, a dash of Tobasco sauce and a pinch of cumin. Then stir in 2 peeled and chopped tomatoes, ½ chopped onion, and 2 seeded and minced green chilies. Sprinkle some minced fresh cilantro on top.

Great for scooping with your favorite tortilla chip!