



Kyntronics SMART Hydraulic Actuator (SHA) for Aircraft Damper Test Machine

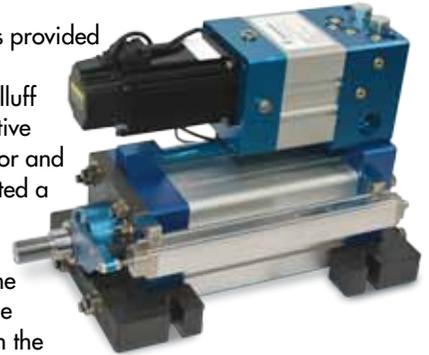
Application:

F-18 Hornet
Tail Hook
Damper Test
Stand

Product:
S-Model
120 Series



The SHA was provided with a high precision, Balluff magnetostrictive position sensor and Kyntronics fitted a customer-supplied load cell to the rod-end of the actuator. Both the position and force sensors coupled with the Kyntronics actuator controller achieved the desired accuracy and control required by this application. In addition, Kyntronics provided actuator mounting brackets for the SHA that allowed for simple installation to the test stand itself.



Challenge:

A US-based Aerospace/Defense Test Equipment Engineering and Manufacturing Co. was awarded a project involving a challenging application to test F-18 Tail Hook Dampers that required applying a precise force over a wide force range (100 lbf - 12,000 lbf). In addition, the application required that the test stand be portable and have a smaller footprint than what was typically used in conventional test equipment of this type.

The Manufacturer investigated using an electro-mechanical actuator solution but found that the accuracy required by the application over such a wide force range was not achievable and the EMA devices were prohibitively expensive.

A traditional hydraulic solution was also considered but it would have incorporated expensive servo valves and required a larger footprint than what the Manufacturer and end customer desired.

Solution:

A Kyntronics SMART Hydraulic Actuator (SHA) model S08C32-07 rated for up to 14,000 lbf (62.3kN) with 6-inch (152 mm) stroke was selected based on the applications' force and position requirements. The SHA supplied was an all-in-one actuator solution with servo motor, drive, and actuator that was factory tuned and drop in ready.

Results:

The Kyntronics SHA combines the power of hydraulics with the precision of servo control resulting in an ideal solution for the F-18 Tail Hook Damper Test Stand.

Feedback from the customer's Project Engineer offered a succinct summary of how the SHA benefitted their project...

"The biggest advantage of Kyntronics' SHA was the very nature of the system's self-contained, modular configuration – delivering all required functionality and low-end force control we need for testing... it saved us many days of assembly / set-up / testing / tuning, and cost as well. Also, this system provides our customer the ability to test their products without using external hydraulic power which makes it very portable and manageable."

— Chant Engineering Co., Inc.

Find out more about how the advantages of Kyntronics SMART Hydraulic Actuators can improve your company's machines and processes.



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