

Eaton® Cylinders Selected To Help Improve Arresting Capabilities of Navy Aircraft Carriers

Customer

Hydro Air LLC

Market Served

Military



Hillenbrand knew that Eaton's Hydro-Line® cylinders would be a good fit for the application.

Background

Global defense company Northrop Grumman Corporation of Los Angeles, California, is the primary contractor for the new Advanced Recovery Control (ARC) system. The system will dramatically improve the vital process of catching aircraft landing on carriers. It will improve performance, safety, and reliability and provide more accurate diagnostics.

Northrop Grumman has contracted NDI Engineering Company of Thorofare, New Jersey, to provide engineering and technical services for the ARC system that has been under development since 2002.

In turn, NDI contacted Eaton distributor Hydro Air LLC of Horsham, Pennsylvania, for cylinder recommendations for the valve action and control segment of the system that includes redundant electroni-

cally controlled actuators that precisely control the arrestment process.

Challenge

Tim Hillenbrand, Hydro Air sales engineer, learned that the flow of hydraulic fluid within the Navy's present-day MK 7 arrestment system is controlled mechanically with the use of chains, cams, and levers, which position a piston within a 7-foot-high, constant run-out valve. NDI representatives explained to him that they came up with a method to position the piston infinitely within the valve, but that the system needed to be equipped with backup fail/safe-mode cylinders in the event that the automatic piston positioning failed.

Hillenbrand knew that Eaton's Hydro-Line® cylinders would be a good fit for the application. However, the cylinder end couplings needed to be

made of stainless steel, not the standard steel construction of those found on Hydro-Line cylinders. Furthermore, the cylinders needed to meet the Navy's special design and performance qualifications.

Solution

Hillenbrand consulted with Gary Stevens, sales manager, Mid-Atlantic—Eaton's Hydraulics Operation, and Amar Majumder, cylinder product development engineer at the Eaton Hydro-Line cylinder production facility in Jackson, Michigan, to determine if the cylinder design requirements could be met. Following project endorsement, custom Series N5 double-rod cylinders with 2½-inch bores and 1-inch strokes were provided to NDI for consideration.

Results

After passing all application and qualification testing, the

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Eaton cylinders were selected for the arrestment system application. Each qualifying Navy aircraft carrier will be equipped with five arrestment systems, each containing two Eaton cylinders plus spares.

The new ARC system will be retrofitted onto all of the Navy's Nimitz-class carriers.

Eaton products will be part of an all-new, digitally controlled arrestment system aboard U.S. Navy aircraft carriers.

