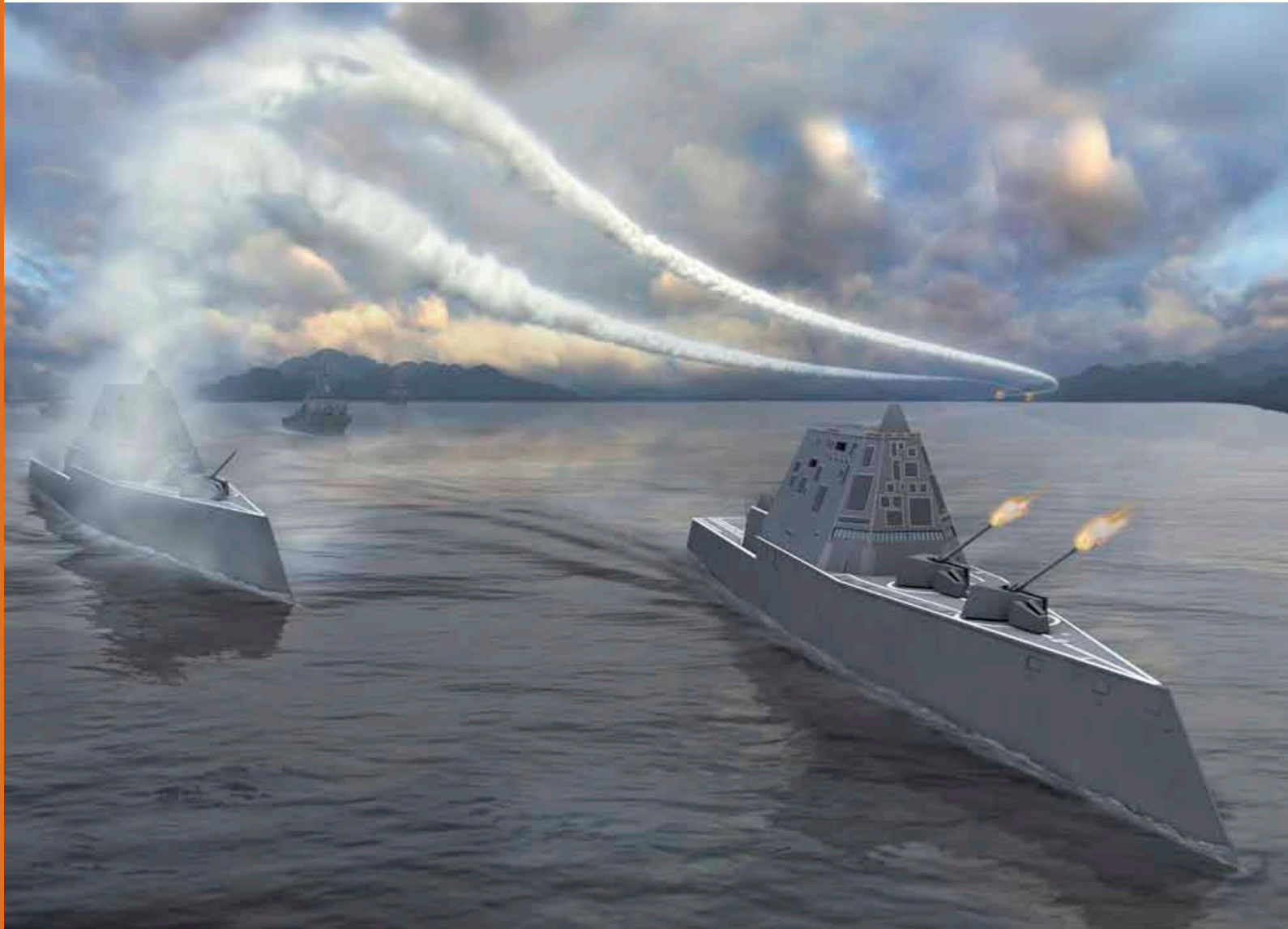


# FARO Laser Tracker Improves Measurements on Naval Destroyer



BAE Systems has been awarded a contract to build the first 155mm Advanced Gun System (AGS) for the first two destroyer ships built in the DDG 1000 class. In order to properly measure the positioning accuracy of the AGS, BAE Systems has chosen to use the FARO Laser Tracker. What would have taken several people and days using traditional methods can now be completed with two people in just hours.



The DDG 1000 class of destroyers is a new class of multi-mission U.S. Navy surface combatants designed to operate as part of a joint maritime fleet, assisting Marine strike forces ashore as well as performing littoral, air and sub-surface warfare. Its design will result in a smaller crew as well as a less expensive ship to operate as compared to other warships. A total of three of these ships are scheduled to be produced. Two Advanced Gun Systems (AGS) are being installed on each ship and will have a range of 63 nautical miles (117km), and the fully automated storage system will have room for up to 600 rounds.



The Land & Armaments division of BAE Systems is a global leader in the design, development, production, and service support of armored combat vehicles, major and minor caliber naval guns and missile launchers, canisters, artillery systems, and intelligent munitions. In 2007, they were awarded a contract to build the first 155mm AGS for the first two ships built in the DDG 1000 class.

### Problem



As a part of this project, BAE Systems needs to measure the positioning accuracy of the AGS. These guns are massive – approximately 24 feet long and 13 feet wide. The guns ride on a bearing, and in order to check them they need to be able to hit a centerline with a measurement device. One option was to use a theodolite. This would be a very time-consuming solution, however, as it would only allow them to measure one point at a time. In these types of projects, keeping costs down and reducing time spent is critical. Using a theodolite is also a more complicated solution, as you need to use earth as level, have proper line of sight, and it's more difficult to shoot down the barrel to the centerline.

### Solution

BAE Systems chose the FARO Laser Tracker to perform the required measurements. Its ability to provide results in 3D rather than 2D was a huge advantage, and is something the Navy also prefers. The Laser Tracker allows them to set all the angles (up and down, side to side) of the AGS within just a couple of thousandths (0.002 degrees). These results would not be possible using a theodolite.



In addition, with the Laser Tracker they are relying on the accuracy of the machine, not on someone's eyesight as would be the case with a theodolite. With an item this large and expensive, the possibility of human error is not something they wanted to risk.

### Return on Investment

The biggest benefit to BAE Systems from implementing this solution is the time savings. "With the FARO Laser Tracker we can collect 4,000 to 5,000 points in half an hour," stated Jamie Larson, Manufacturing Engineer at BAE Systems. "With a theodolite this would take weeks."

Larson also likes the accuracy, repeatability, and flexibility of use with the Laser Tracker. He especially likes that it can be used anywhere, even outside. "What I can do with two people in hours using the Laser Tracker would otherwise take several people days to complete," commented Larson.