

Mobility & Protection Systems News

L&A Business Spotlight — Armament Systems

BAE Systems is the leading source of design, production, and support for armaments that deliver advantage in the real world. Armament Systems supplies a full spectrum of the most advanced weapon delivery systems for shipboard applications and major-caliber armaments for land forces. Headquartered in Minneapolis, Minn., the business is the automated naval gun and artillery franchise holder for the U.S. Army, Navy and Coast Guard.

BAE Systems' five inch 62-Caliber MK 45 Mod 4 Naval Gun System provides reliable, long-range and accurate mission support for U.S. Navy's AEGIS ships and naval forces worldwide. The company also designs and produces the multi-mission MK 41 Vertical Launching Systems (VLS) mechanical structures as well as derivative launchers and missile canister variants.

BAE Systems also supplies the highly accurate 57-mm MK 110 Naval Gun



The 57-mm Mk 110 Naval Gun and the 57-mm Mk 295 ammunition performs superbly in the U.S. Navy qualification testing at the Navy's test range at Dahlgren, Va.

Systems to the U.S. Navy and Coast Guard. The MK110 has been selected for the USN LCS and the USCG's National Security Cutter and the First Response Cutter. In addition, Armament Systems' new Mk 38 Mod 2 Minor Caliber Stabilized Gun System is providing 24/7 ship protection against asymmetric threats.

Today, Armament Systems is leading the development of the U.S. Navy's 155-mm Advanced Gun System and Long Range Land Attack Projectile as well as the missile launching system for the DDG 1000 Land Attack Destroyer.

Armament Systems is in charge of the development of several new Manned Ground Vehicle variants for the U.S. Army's Future Combat Systems (FCS) program. As part of the FCS One Team, the company is leading the development of the Non-Line-Of-Sight-Cannon and Mortar Systems.

The company has also developed the 105mm Variable Volume Chamber Cannon (V2C2) for long-range artillery flexibility and logistic efficiency. BAE Systems' 120 mm Mortar Quick-Stow System is adaptable to a variety of high-mobility platforms, providing agile and responsive fire support that is easy to deploy.

Armament Systems Capabilities

Armament Systems sites nationwide provide a full range of production and support capabilities that apply a broad range of leading-edge and proven processes, materials and technologies.

Engineering

BAE Systems' team of armament engineers and product developers include specialists in hardware, software, applied mechanics/materials, systems integration, and manufacturing support disciplines. The Minneapolis site employs two leading-edge Visual Integration Laborites (VIL) to integrate emerging technologies,

streamline design processes, and quickly produce virtual prototypes. BAE Systems, for example, has developed modeling and simulation techniques that rapidly determine the impact of design changes on key performance parameters such as weapon range and lethality. A wide variety of physics-based models are used to support the design process and the integration of subsystems. These virtual prototypes integrate CAD models (based on detailed design data) with control system software, and then operate within a 3-D visualization environment.

With more than 65 year of automated gun development and integration experience, Armament Systems has taken modeling and simulation to the next level. The virtual prototypes created in BAE Systems laboratories greatly mitigate the risks associated with development projects for the company's military customers, and allow changes and adaptations to be made in record time.

Materials Acquisition

BAE Systems uses an integrated Business System (IBS) to support mate-

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The Non-Line-Of-Sight (NLOS) Cannon fires its first round at an Army testing facility. The successful firing marked the first time a U.S. howitzer fired its very first live-fired round using tactical software. The NLOS Cannon is part of the Future Combat Systems (FCS) program.

rials acquisition and ensure financial, quality, manufacturing, and supplier management processes meet rigorous military requirements. IBS planner allows early integration of master production flow scheduling and space allocation mapping to create "virtual factories" for pre-production analysis.

Welding

Experienced BAE Systems weld technicians use the latest joining techniques and automated systems to produce high-strength weld assemblies ranging from a few pounds to more than 40 tons. Skilled craftsmen employ arc, resistance, spot, gas, and stud welding techniques, plus titanium welding, brazing, soldering, and metalizing processes.

Metallurgy

Specialists at the Louisville facility metallurgy shop perform exacting chemical and mechanical metals analysis to ensure compliance to military specification. Heat treating, plating, and surface application processes improve strength, hardness, and durability for the variety of common and

specialty metals that form our durable and high-tech products for defense.

Machining

Craftsmen at the Minneapolis facility lead Armament Systems manufacturing with large and diverse machining capabilities. Skilled machinists enlist the precision of numerical and computer numerically controlled machines to produce quality, complex, precision work pieces ranging from a few ounces to 25 tons and meet tolerance specifications down to one-millionth of an inch.

Assembly

Skilled teams at both the Louisville and Aberdeen sites are extensively cross-trained to perform mechanical, electrical, and hydraulic assembly tasks from component fabrication to full armament systems integration. The Minneapolis operation rapidly transitions designs into components, subsystems, engineering development model, and functional prototypes to test and mature designs in preparation for full systems integration, production, and delivery.

Armament Systems Facts...

- Headquartered in Minneapolis, Minn.
- Supplier to U.S. Army, Navy and Coast Guard

Developments and Capabilities

- Automated Ammunition Handling
- Weapons systems integration
- Rapid virtual prototyping techniques, allowing real time simulations and a direct interface with external war-gaming environments
- Reliability and Testing of systems on its one-of-a-kind vibration table

Locations

- Minneapolis, Minn.
- Aberdeen, S.D.
- Louisville, Ky.

Product Services

A worldwide BAE Systems network reacts quickly to customer logistic requirements and delivers naval systems supply and support expertise directly to major ship repair sites. Concentrated technical liaison is provided from dedicated BAE Systems engineering offices in unison with Naval Surface Weapon Centers that are keyed to naval gun and launching systems full life-cycle support. ■