Orbital ATK - Aerospace Structures

Overview
Orbital ATK Overview

- Global Aerospace and Defense Systems Company Established by Merger of Orbital and Alliant Techsystems in Early 2015

- Northrop Grumman announced in September 2017 that they have positioned themselves to acquire Orbital ATK and make them a fourth sector of their business. Orbital ATK will remain a merchant supplier for composite components for the aerospace industry

- Leading Developer and Manufacturer of Reliable, Innovative and Affordable Products for Government and Commercial Customers
  - Aerospace Structures, Launch Vehicles and Rocket Propulsion Systems
  - Tactical Missile Products, Armament Systems and Ammunition
  - Satellites, Advanced Systems, Space Components and Technical Services

- More Than 12,500 Employees, Including About 4,000 Engineers and Scientists

- Targeting About $4.6 Billion in Revenue and Up to $6.00 in Earnings per Share in 2017

- Over $14 Billion in Contract Backlog With Good Near-Term Growth Prospects
Three Operating Groups and 12 Product Lanes

Flight Systems
- Space Launch Vehicles
- Rocket Propulsion Systems
- Aerospace Structures

Space Systems
- Satellites Systems
- Advanced Programs
- Spacecraft Components
- Space Technical Services

Defense Systems
- Tactical Missile Systems
- Defense Electronic Systems
- Armament Systems
- Ammunition and Energetics

2017 Corporate Revenue: $4.6B

National Security 49%
Commercial/International 25%
NASA/Civil Government 26%
Flight Systems Group Overview

- Small-Class Launch Vehicles
- Medium-Class Launch Vehicles
- Large-Class Launch Vehicle Propulsion Systems
- Strategic Missile Propulsion Systems
- Missile Defense Interceptors
- Suborbital Targets
- Commercial Aerostructures
- Military Aerostructures

- Annual Sales of About $1.60 Billion
- Workforce of Approximately 4,900 People
- Major Operations in Arizona, Utah, Virginia, Ohio, Alabama and Mississippi
Aerospace Structures Organization

Executive Assistant
Margo Maw

Steve Earl
Vice President and General Manager

Strategic Military Programs
DeVor Taylor

Military Segment
Bert Vanderheiden

Launch Structures
Andy Jackson

Commercial Segment
Simon Mason

Supply Chain & Operations
Mike Henry

Safety and Mission Assurance
Karen Quinn

Engineering
Debbie Lux (A)

Contracts
* Mark Cottle

Finance
* Alan Smith

General Counsel
* Olga Siggins

Business Development
* Mark Messick

Human Resources
* Julie Valois

Communications
* Bryan Warren

Updated: May 2017

* Dual Reporting – Group and Division
(A) Acting
Aerostructures Business Segments

COMMERCIAL
- Rolls-Royce Aft Fan Case, Aft By-Pass Duct
- Airframe Structures
- 767 Composite Door Springs
- A350 Fuselage Stringers
- A350 Fuselage Frames
- 787 Primary Stiffening Structures
- A400M Wing T-Stringers

MILITARY
- F-35 Wing Skins, Fixed Skins, Nacelles
- F-22 Fiber Placed Pivot Shafts
- B-2 Hot Trailing Edge Components
- B-1 Core Components
- C-17 Counter Balance Assembly
- Apertures / Radomes / Antennas
- Survivable Structures
- Performance Verification
- Sensor Technology
- Low Observable Technology

LAUNCH
- Atlas & Delta Launch Structures
- Antares
- Rocket Motor Cases
- Composite Overwrapped Pressure Vessels
Aerospace Structures Facilities

CLEARFIELD, UTAH – 1,416 Employees

**Aircraft Commercial COE**
Floor Space: 615,000 ft² (57,135 m²)
(17% clean room)

**Freeport Composite Center**
Floor Space: 403,000 ft² (37,440 m²)
(12% clean room)

**H-10 Case Manufacturing COE**
Floor Space: 193,000 ft² (17,930 m²)

**Advanced Composite Structures COE**
Floor Space: 120,000 ft² (11,148 m²)
(20% clean room by 2019)

**IUKA, MISSISSIPPI**
124 Employees

**Large Structures COE**
Floor Space: 320,000 ft² (29,729 m²)
(27% clean room)

**DAYTON, OHIO**
114 Employees

**Military Systems COE**
Floor Space: 175,000 ft² (16,258 m²)
(4% clean room)

**G-13 Case Manufacturing**
Floor Space: 120,000 ft² (11,148 m²)

**OTHER SITES - 56 Employees**

**Rancho Bernardo, CA**
22 Employees

**High-Tech Structures (HTS)**
**Magna, UT**
Floor Space: 90,000 ft² (8,361 m²)
(28% clean room)

**Hopkinton, MA**
16 Employees

**Logan, UT**
12 Employees

ASD has 1,710 Employees and Over 2 Million ft² (185,806 m²) of Manufacturing Capacity
Aerospace Structures People

Employee Statistics

• Number of Employees (unofficial): approximately 1,700
• Locations:
  • Clearfield, Utah
  • Dayton, Ohio
  • Hopkinton, Massachusetts
  • Iuka, Mississippi
  • Logan, Utah
  • Rancho Bernardo, California
• 19% Female; 81% Male
• Average Employee Age: 42

- 18-30: 24%
- 31-40: 24%
- 41-50: 17%
- 51-60: 27%
- 61+: 8%

• Average Years of Service: 8

- <1: 20%
- 1-3: 28%
- 3-5: 5%
- 5-10: 13%
- 10+: 33%

• Workforce

- Funct Support: 58%
- Engrg & Science: 19%
- Ops/Program Management: 12%
- Prod/Tech: 11%
## Orbital ATK Contribution to Composite Automation

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<td>1950’s: Orbital ATK’s Allegany Ballistics Laboratory Manufacturers First Filament-Wound Rocket Motor</td>
<td>Out of Autoclave Processing</td>
<td>Invented the Automated Stiffener Forming Machine</td>
<td>High Speed NDI</td>
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<td>Dockable Gantry System (DGS)</td>
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<td>1971: Orbital ATK Introduces S-Glass/Epoxy &amp; Kevlar/Epoxy Materials</td>
<td>Orbital ATK is advancing Out-of-Autoclave capability using its Ultrasonic Tape Lamination (UTL™) and other in-situ consolidation technologies</td>
<td>(8 Patents) Automated Stiffener Forming (ASF) allows high rate production of uniquely designed complex parts, historically built by hand layup</td>
<td>Orbital ATK developed high speed automated Non-Destructive Inspection (NDI) technology to increase throughput, detection fidelity and data evaluation</td>
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<td>Combines both ATL and AFP in a single work cell. Capable of handling very large parts. Technology potential to change how we make large structures</td>
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<td>1978: Introduced Carbon/Epoxy Materials in Filament Winding</td>
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### Why Automation?

**Improved Manufacturing Flow**
- Reduced labor hours
- Higher through-put
- More effective use of staff

**Improved Repeatability**
- Machine optimized performance
- Quality Improvement: accuracy/repeatability
- Reduced product scrap

## ASD Innovation and Automation Drives Our Competitive Advantage