CURTISS WRIGHT CORP
Form 10-K
February 24, 2010

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

x ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2009

or

o TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission File Number 1-134

CURTISS-WRIGHT CORPORATION

(Exact name of Registrant as specified in its charter)

Delaware	13-0612970
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
10 Waterview Blvd. Parsippany, NJ	07054
(Address of principal executive offices)	(Zip Code)

Registrant s telephone number, including area code: (973) 541-3700

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	**Name of each exchange on which registered**
Common stock, par value $1 per share	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes x No o

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes o No x

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes x No o

Indicate by check mark whether the Registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes o No o

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§ 229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant s knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. o

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of large accelerated filer, accelerated filer and smaller reporting company in Rule 12b-2 of the Exchange Act.

Large accelerated filer	x	Accelerated filer	o
Non-accelerated filer	o	Smaller reporting company	o

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).
o Yes x No

The aggregate market value of the voting stock held by non-affiliates of the Registrant as of June 30, 2009 was approximately $1.4 billion.

The number of shares outstanding of each of the Registrant s classes of Common stock as of January 31, 2010:

Class	Number of shares
Common stock, par value $1 per share	45,812,544

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Proxy Statement of the Registrant with respect to the 2010 Annual Meeting of Stockholders to be held on May 7, 2010 are incorporated by reference into Part III of this Form 10-K.

INDEX TO FORM 10-K

PART I

Item 1. Business.

FORWARD-LOOKING STATEMENTS

Except for historical information, this Annual Report on Form 10-K may be deemed to contain forward-looking statements within the meaning of the Private Litigation Reform Act of 1995. Examples of forward-looking statements include, but are not limited to: (a) projections of or statements regarding return on investment, future earnings, interest income, sales, volume, other income, earnings or loss per share, growth prospects, capital structure, and other financial terms, (b) statements of plans and objectives of management, (c) statements of future economic performance, and (d) statements of assumptions, such as economic conditions underlying other statements. Such forward-looking statement can be identified by the use of forward-looking terminology such as anticipates, believes, continue, could, estimate, expects, intend, may outlook, potential, predict, should, will, as well as the negative of any of the foregoing or variations of such terms or comparable terminolog by discussion of strategy. No assurance may be given that the future results described by the forward-looking statements will be achieved. While we believe these forward-looking statements are reasonable, they are only predictions and are subject to known and unknown risks, uncertainties, and other factors, many of which are beyond our control, which could cause actual results, performance or achievement to differ materially from anticipated future results, performance or achievement expressed or implied by such forward-looking statements. Such statements in this Annual Report on Form 10-K include, without limitation, those contained in Item 1. Business, Item 7. Management s Discussion and Analysis of Financial Condition and Results of Operations, Item 8. Financial Statements and Supplementary Data including, without limitation, the Notes To Consolidated Financial Statements, and Item 11. Executive Compensation. Important factors that could cause the actual results, performance or achievement to differ materially from those in these forward-looking statements include, among other items:

- our successful execution of internal performance plans and performance in accordance with estimates to complete;
- performance issues with key suppliers, subcontractors, and business partners;
- the ability to negotiate financing arrangements with lenders;
- legal proceedings;
- changes in the need for additional machinery and equipment and/or in the cost for the expansion of our operations;
- ability of outside third parties to comply with their commitments;
- product demand and market acceptance risks;
- the effect of economic conditions;
- the impact of competitive products and pricing, product development, commercialization, and technological difficulties;
- social and economic conditions and local regulations in the countries in which we conduct our businesses;
- unanticipated environmental remediation expenses or claims;
- capacity and supply constraints or difficulties;
- an inability to perform customer contracts at anticipated cost levels;
- changing priorities or reductions in the U.S. and Foreign Government defense budgets;
- contract continuation and future contract awards;
- other factors that generally affect the business of companies operating in our markets and/or industries; and
- the other factors discussed under the caption Risk Factors in Item 1A below.

Given these risks and uncertainties, you are cautioned not to place undue reliance on such forward-looking statements. These forward-looking statements speak only as of the date they were made, and we assume no obligation to update forward-looking statements to reflect actual results or changes in or additions to the factors affecting such forward-looking statements.

BUSINESS DESCRIPTION

Curtiss-Wright Corporation was incorporated in 1929 under the laws of the State of Delaware. We design and manufacture highly engineered, advanced technologies that perform critical functions in demanding conditions in the defense, energy, commercial aerospace, and general industrial markets, where performance and reliability are essential. Our general industrial markets primarily consist of metallurgical services for high-performance automotive, construction, marine, simulation, and test equipment, as well as motor and machine control systems for commercial HVAC systems.

Our core competence is providing advanced technologies for customers operating in harsh environments. In addition to meeting demanding performance requirements, our technologies are intended to improve worker safety, minimize impact on the environment, and improve operating efficiency. Our products and services include critical-function pumps, valves, motors, generators, and electronics; aircraft flight controls, landing systems, ordnance handling, stabilization and utility actuation systems; as well as metallurgical enhancement of highly stressed components. We compete globally based on technology and pricing; however, significant engineering expertise is a limiting factor to competition, particularly in the U.S. government market. Our business is challenged by price pressure, environmental impact, and geopolitical events, such as the global war on terrorism and diplomatic accords. Our ability to provide high-performance, advanced technologies on a cost-effective basis is fundamental to our strategy for meeting customer demand.

We manage and evaluate our operations based on the products we offer and the different markets we serve. Based on this approach, we operate through three segments: Flow Control, Motion Control, and Metal Treatment. Our principal manufacturing facilities are located in the United States in New York, North Carolina, and Pennsylvania, and internationally in Canada and the United Kingdom.

Our strategy is to maintain a balanced portfolio which generates consistent growth in sales and profitability. As a result of our strategy, we have achieved this balance with revenues generated from defense, energy, commercial aerospace and general industrial markets. In addition, to maintain a diversified business portfolio, we also continue to develop new core competencies, such as electronic technologies. We believe our ability to design and develop future generations of advanced electronics systems is a strategic growth area for the high performance platforms in our served markets. We intend to continue to execute our growth strategy which focuses on diversification in complementary markets that demand high performance and highly engineered products and services.

Flow Control

Our Flow Control segment primarily designs, manufactures, and distributes highly engineered, critical-function products including valves, pumps, motors, generators, instrumentation, and control electronics. These products manage the flow of liquids and gases, generate power, provide electronic operating systems, and monitor critical functions. This segment s primary markets are naval defense, commercial power generation, oil and gas, and general industrial. In the naval defense market, we provide power and propulsion technologies and are a supplier to the U.S. Navy for the nuclear aircraft carrier and submarine programs with power and propulsion technologies, instrumentation and control systems, and shipborne aircraft and helicopter landing systems. Government sales, primarily to the U.S. Navy as a subcontractor, comprised 30%, 26%, and 33% of segment sales in 2009, 2008, and 2007, respectively. The loss of this business could have a material adverse impact on this segment as there were two customers in our Valves division whose revenues exceeded 10% of this segment s 2009 sales. Revenues derived from the sales of valves during 2009, 2008 and 2007 represented 19%, 20%, and 22%, respectively, of the Company s consolidated revenue.

The Flow Control segment consists of business units managed through five operating divisions: Electro-Mechanical Systems, Valve Systems, Control Systems, Commercial Power and Services, and Oil and Gas Systems. The segment has a global customer base with principal manufacturing operations in the United States, Canada, and the United Kingdom.

Our Electro-Mechanical Systems division produces advanced electro-mechanical and pumping solutions for the naval defense, power generation, oil and gas, and other general industrial markets. The division designs and manufactures advanced critical function pumps, motors, generators, ship propulsors, mechanical seals, control rod drive mechanisms, power conditioning electronics, pulse power supplies, integrated motor-controls, composite materials applications, and protection technologies solutions.

This division develops, designs, manufactures, and performs qualification testing of critical-function, electro-mechanical solutions for its primary customer, the U.S. Nuclear Navy, including main coolant pumps, various other critical-function pumps, extremely power-dense compact motors, main and ship service generators, secondary propulsion systems, and design engineering and testing services. The division has served the U.S. Navy for over 60 years and is a sole source provider for various critical function products. The division also overhauls and provides critical spares for units serving the fleet on operational platforms. Current platforms include the Nimitz and Ford class aircraft carriers and Virginia, Los Angeles, Seawolf, and Ohio class submarines.

In addition, the division provides propulsion motors and main generators to the non-nuclear U.S. Navy, including the DDG 1000 destroyer program. We are strengthening our relationship with the U.S. Navy by participating in the design and development of major subsystems for the U.S. Navy s Electro-Mechanical Aircraft Launch System (EMALS), Advanced Arresting Gear (AAG) system for installation on its future aircraft carrier fleet, and the advanced pump and motor designs for the next generation submarine fleet. We expanded our offerings to the military to now include advanced electro-magnetic product development for the U.S. Army as pulsed power technology continues to advance in the military weapons segment.

Electro-Mechanical Systems products are also sold to complementary commercial markets, primarily nuclear power generation and oil and gas. We have been a supplier to the nuclear power market since its inception more than 50 years ago. We provide reactor coolant pumps, pump seals, and control rod drive mechanisms for commercial nuclear power plants. In 2008, we announced our first domestic new construction contract for three Westinghouse AP1000 power plants to be built in the United States. In 2007, we announced our first award for reactor coolant pumps for four new AP1000 nuclear power plants to be built in China. Combined, these awards are a significant milestone for both the nuclear power renaissance and the globalization of nuclear power technology.

In the oil and gas market, we are utilizing our canned motor and pumping system expertise and partnering with industry leaders to develop advanced systems for offshore recovery, production, and transmission. Current programs encompass sub-sea pumping and power-dense motors for compact, integrated compressor systems. This division has also expanded its offerings to include hazardous waste pumps for the Department of Energy (DoE) and in-line pumps for the hydrocarbon processing industry.

In the general industrial market, we design, develop, and manufacture integrated motor-controls and protection technology solutions for original equipment manufacturers (OEMs) and industrial customers. We engineer and manufacture a full range of rugged, reliable, and internationally compliant products that smoothly control the amount of electrical current provided to motors. Custom panel solutions include a variety of low and medium voltage components, such as starters, drives, contactors, breakers, and other related devices. While this is a highly competitive market, our installed base of over 100,000 control units with hundreds of custom designed systems support customers in the industrial heating, ventilation, and air conditioning (HVAC) market, as well as in the municipal services and energy processing markets, including petrochemicals, power generation, mining, and transportation.

Our Valve Systems division produces high-performance specialized valve solutions that control the flow of liquids and gases for vessels, pipelines, and equipment for the defense, power generation, oil and gas processing, and general industrial markets. We design, engineer, and manufacture spring-loaded, pilot-operated pressure-relief valves and solenoid-operated valves, as well as metal-seated industrial gate, butterfly boltless slide, plug, angle, diverter, and ball valves used in standard and advanced applications, including high-cycle, high-pressure, extreme temperature, and corrosive plant environments. Our products are highly engineered to meet stringent performance and reliability requirements. We also provide engineering support, testing, repair, and consulting services globally.

Our valves are utilized in the nuclear propulsion system of every nuclear submarine and aircraft carrier commissioned by the U.S. Navy. Current programs include the Virginia class submarine and Ford class aircraft carriers. In addition, we provide spares and repair work for various submarine classes, such as Los Angeles and Trident, as well as the Nimitz class aircraft carriers.

In addition, the Valve Systems division designs and manufactures electro-mechanical and hydro-mechanical systems for landing helicopters aboard naval vessels. The shipboard helicopter handling systems are used by the U.S. Navy, U.S. Coast Guard, and more than ten other navies around the world. We also design and build shipboard aircraft storage structures, including telescopic hangars and doors. Specialized handling systems are

also designed and manufactured for towing sonar and mine sweep systems for submarines and surface ships. To further complement this portfolio, in 2009 our Valves System Division acquired Nu-Torque, which designs and manufactures electric and hydraulic valve actuation and control devices primarily for Navy ships. In commercial markets, we provide specialized valves to commercial nuclear power plants, oil and gas refineries, production platforms and pipelines, and general processing industries worldwide. In addition, we are integrating our core hardware technology with engineering software to enhance product selection and inventory management. General industrial products include hydraulic power units and components primarily for the automotive and entertainment industries, specialty hydraulic valves, air-driven pumps, gas boosters, and directional control valves used in industrial applications such as car transport carriers. Competition is based upon quality of technology, price, installed base, and delivery times.

Our Controls System division develops, manufactures, tests, and services specialized electronic instrumentation and control equipment, including instrumentation for primary and secondary controls, steam generator control equipment, valve actuators, and valve and heater controls. This division provides custom designed and commercial-off-the-shelf (COTS) electronic circuit boards and systems to the U.S. Navy. They also provide advanced valve controllers and predictive maintenance systems for the oil and gas and general industrial market. There is strong competition in the COTS market, but competition is limited by significant qualification and performance requirements. The division also provides engineering and support services.

Our Power Generation division designs, manufactures, distributes, and qualifies flow control products for nuclear power plants, nuclear equipment manufacturers, hydroelectric energy producers, the DoE, and the Department of Defense (DoD). This division offers a wide range of critical hardware, including fastening systems, specialized containment doors, airlock hatches, electrical units, bolting solutions, nuclear storage solutions, machined products, valves, pumps, and enterprise resource planning, as well as plant process controls, including electrical instrumentation, specialty hardware, and proprietary database solutions aimed at improving safety and plant performance, efficiency, reliability, and reducing costs. In addition, the division provides distribution and servicing of OEM spare parts and valve components, training, on-site services, staff augmentation, and engineering programs relating to nuclear power plants.

We have maintained all of the regulatory certifications required to provide representations and certification and/or qualify value-added nuclear-grade products both domestically and internationally. We compete in this market through offering a an expanded array of nuclear technology, industry-benchmarked QA programs, maintaining a large installed base, strategic alliances, resident expertise, and customer recognition from our long-term service commitment to solving the unique challenges of the nuclear market.

Our Oil and Gas Systems division designs and manufactures valves and vessel products for the oil and gas refining market. Primary products include coke deheading systems, fluidic catalytic cracking unit (FCCU) components, and web-enabled software for monitoring and process control.

We are a provider of turnkey coker systems globally, as well as oil production platforms and storage facilities, liquefied natural gas (LNG) terminals and storage facilities, natural gas pipeline operations, and power generation facilities. Our coke deheading system, which includes top and bottom un-heading valves, isolation valves, cutting tools, and valve automation, process control, and protection systems, enables safer coke drum operation during the refining process. Included in this portfolio of products is the DeltaGuard® coke-drum unheading valve, an advancement in coke-drum unheading technology. Our patented technology is remotely operated, therefore inherently safe, easy to operate, reliable, cost effective, and can be configured for any coke-drum application.

We also offer a delayed coker operations optimization system featuring process control, interlocks, valve control solutions, batch process data acquisition, interactive operator batch sequence procedures, batch scheduler, batch sequence editor, risk management, asset protection, and predictive maintenance capabilities. In addition, we provide inspection, installation, repair and maintenance, and other field services for harsh environment flow control systems. Competition is mitigated by our technical expertise, proven technology, and extraordinary service.

Our FCCU product portfolio includes custom-designed valves, engineered pressure vessels, and complementary components that operate in industrial process applications including fluid, residual, and catalytic cracking units as well as power generation, steel manufacture, and ore reduction. We manufacture, repair, and modify orifice chambers, hydrotreaters, and American Society of Mechanical Engineers (ASME) code pressure vessels. In addition, we provide a wide array of field services, including equipment repair, modification, or replacement; inspection of valves, controls, pipes, and refractory linings; maintenance planning and scheduling for valves or control systems; diagnostic assistance with troubleshooting problems in critical components; and on-site system training. Due to the critical and severe service applications requiring highly engineered solutions, competition is limited to a few major competitors. While we face price competition on most major projects, our large installed base product suite, integrated systems capability, and aftermarket service attract a significant customer base.

In 2009, Oil and Gas Systems acquired EST Group, which provides heat management and cooling systems. Founded in 1968, Expansion Seal Technologies (EST) provides life-cycle management for critical processes in the energy and defense markets. Its more well-known product, the Pop-A-Plug®, is technology that is used in the oil and gas industry. Additionally, EST manufactures heat exchangers, condensers, oil coolers, piping systems, and pressure vessels. EST also provides a comprehensive range of field services for heat management systems.

The following list defines our principle products and the markets served by the Flow Control segment.

Naval Defense

Nuclear propulsion system components

Valves (butterfly, globe, gate, control, safety, relief, solenoid, hydraulic operated gate)
Pumps
Motors and generators
Instrumentation and controls

Instrumentation and control systems

Aircraft carrier launch and retrieval equipment

Advanced electromagnetic systems
Flight critical components (aircraft shuttle components, holdback bars, capacity selector valves)

Submarines

Cable handling systems for towed arrays

Surface ships

Helicopter handling and traverse systems
Tie-down components

Non-nuclear products

Smart leakless valves
Sub-safe ball valves
Jet-fuel pumping valves
Steam generator control equipment
Air driven fluid pumps
Engineering, inspection, and testing services

Ground Defense

Electromagnetic rail gun pulsed-power supply system

Oil & Gas Processing

Critical process valves

DeltaGuard coker unheading valve
Boltless catalyst control slide valves
Butterfly and triple offset butterfly valves
Pilot-operated relief valves

Pressure relief valves
Safety valves
Solenoid, gate, and globe valves
Steam valves

Fluidic catalytic cracking equipment

Air grids and cyclones
Risers, headers, and wye sections

Engineered process vessels

Cat cracking reactors and regenerator heads
Hydrotreators

Advanced valve controls and prognostics technology

Digital valve controller with redundant technology
Signature recognition for fault and leak detection
Integrated valve, automation, safety, and control systems

Web-enabled process control software

Power Generation

Advanced motors and generators

Pumps

Reactor coolant and process

Valves

Solenoid, ball, butterfly, check, pressure relief, safety and pilot-operated relief valves, and gate and globe (motor operated, air operated, pneumatically operated)

Control rod drive mechanisms

Design, fabrication of nuclear facility airlocks, doors, hatches

Instrumentation

Diagnostic and test equipment

Fluid sealing technologies

Actuators

Pneumatic and hydraulic

Plate heat exchangers

Separation technologies

Fasteners

Advanced bolting technologies

Diamond wire concrete cutting

Engineering services

Equipment qualification, commercial grade dedication

Inventory management systems

General Industrial

Valves

Directional control and pneumatic

Power Control Systems

Integrated motor-control systems
Variable frequency drives
Pump control panels
Low voltage solid state starters
Medium voltage controls
Protective technology solutions

Critical machinery fault detection and prognostics systems

The Flow Control segment competes globally on the basis of technical expertise, price, delivery, contractual terms, previous installation history, and quality of our products and services. Delivery speed and the proximity of service centers are important with respect to aftermarket products. Sales to commercial end users are accomplished primarily by direct sales employees and, in certain instances, by manufacturers representatives located in primary market areas, such as nuclear power utilities, principal boiler and reactor builders, processing plants, and architectural engineers. For its military contracts, the segment receives requests for quotes from prime contractors as a result of being an approved supplier for naval nuclear propulsion system pumps and valves. In addition, sales engineers support non-nuclear sales activities. The segment uses the direct distribution basis for military and commercial valves and associated spare parts.

Backlog for this segment at December 31, 2009, was $1,182 million, of which 46% will be shipped after one year, compared with $1,167 million at December 31, 2008. Approximately 40% of this segment s backlog as of December 31, 2009 is comprised of commercial nuclear orders with Westinghouse Electric Company LLC (Westinghouse). Sales to Westinghouse represented approximately 13%, 11%, and 6% of total segment sales in 2009, 2008, and 2007, respectively. Additionally, 38% of this segment s backlog as of December 31, 2009 is comprised of defense orders mainly with the U.S. Navy. Sales to our largest naval defense customer accounted for 11%, 10%, and 12% of this segment s total sales in 2009, 2008, and 2007, respectively, or 6%, 5%, and 6% of our consolidated revenue, respectively. The loss of

these customers would have a material adverse effect on the business of this segment and in total. Raw materials are generally available in adequate quantities, although pricing of raw materials is impacted by commodity prices.

Motion Control

Our Motion Control segment designs, develops, manufactures, and maintains sophisticated, high-performance mechanical actuation and drive systems, mission-critical embedded computing component and control systems, and sensors for the aerospace, defense, and general industrial markets. This segment is managed through three operating divisions: Engineered Systems, Integrated Sensing, and Embedded Computing.

Our Engineered Systems division s product offerings to the commercial and aerospace defense markets consist of electro-mechanical and hydro-mechanical actuation control components and systems that are designed to position aircraft control surfaces or operate flaps, slats, and utility systems such as canopies, cargo doors, weapons bay doors, or other moving devices used on aircraft. Aircraft applications include actuators and electro-mechanical control systems for the Boeing 737, 747, 757, 767, 777, 787 civil air transports, the Lockheed Martin F-16 Falcon fighter jet, the Boeing F/A-18 Hornet fighter jet, the F-22 Raptor fighter jet, the Bell Boeing V-22 Osprey, and the Sikorsky Black Hawk and Seahawk helicopters. The Engineered Systems division is also developing flight control actuators and weapons handling systems for Lockheed Martin s F-35 Lightning II Joint Strike Fighter (F-35 JSF) program. The F-35 JSF is the next-generation fighter aircraft being designed for use by all three branches of the U.S. military as well as by several foreign governments. As a related service within the Engineered Systems division, we also provide commercial airlines, the military, and general aviation customers with component overhaul and repair services in support of our manufactured products. These services include the overhaul and repair of hydraulic, mechanical, and electro-mechanical components and component exchange services for a wide array of aircraft.

Engineered Systems also designs, manufactures, and distributes electro-mechanical and electro-hydraulic actuation components and systems and electronic controls for military tracked and wheeled vehicles within the ground defense market as well as for commercial markets utilizing drive technology. These products consist of turret aiming and stabilization, weapons handling systems, and suspension systems for armored military vehicles. In addition, we provide a range of general industrial products, such as fuel control valves for large commercial transport ships, stabilization systems, and a variety of commercial servo valves.

Engineered Systems products are sold primarily through a domestic sales force and international network of representatives. A direct sales force is utilized with assistance from commissioned agents. Sales are made directly to OEMs, airlines, and government agencies.

Our Engineered Systems products are sold in competition with a number of other suppliers, some of whom have broader product lines and greater financial, technical, and human resources. The competitive environment for these products is focused on a short list of companies, with recent strategic trends at the prime contractor level resulting in a smaller market of vertically integrated suppliers, while prime contractors specialize in integration and final assembly. Price, technical capability, performance, service, and investment are the primary forces of competition, together with an ability to offer solutions to perform control and actuation functions on a limited number of new production programs.

Our Integrated Sensing division develops and manufactures a range of sensors, controllers, and electronic control units for commercial and aerospace defense and general industrial markets. These products include position, pressure, and temperature sensors, solenoids and solenoid valves, cooling fans and motors, smoke detection sensors, torque sensing, ice detection and protection equipment, air data computers, flight data recorders, joysticks, and electronic signal conditioning and control equipment. The division also provides electric motors with controllers, rotary sensors, controllers, and smaller electro-mechanical actuation subsystems for flight, engine, and environmental control for aircraft and space applications. This division s products are sold primarily to prime contractors and system integrators, both directly and through a network of independent sales representatives on a worldwide basis. Position sensors are used on primary flight control systems and engine controls on Airbus and Boeing aircraft, regional and business aircraft, and on many U.S. and European military aircraft. Air data, flight recorder, and ice detection and protection equipment are supplied to many helicopter applications. We also sell our products for use in a wide range of industrial applications such as off-highway vehicles, powered mobility vehicles, process controls, and motorsports.

Competitive discriminators for Integrating Sensing include technical leadership and support, product price and customer service. For that reason Integrated Sensing products are marketed through facilities in the United

Kingdom, Germany, and the United States, and manufacturing facilities have now been established in Mexico and China.

Our Embedded Computing division designs, develops, and manufactures rugged embedded computing board-level modules and integrated subsystems primarily for the aerospace and ground defense markets. Using standard, commercially available electronics technologies, coupled with application domain specific knowledge, we offer COTS hardware and software modules based on open industry standards. Our advanced subsystems are integrated using standard modules and our custom modules based on in-house intellectual property content as well as third-party technology. We also offer a broad array of support services that include life-cycle management, technical support, training, and custom engineering of modules and fully integrated subsystems. We are a single source for high density radar processing, data communications, digital signal processing, video and graphics, recording and network storage, analog acquisition and reconstruction, radar, and integrated subsystems. Our COTS modules and integrated subsystems are designed to perform in harsh conditions where space, weight, and power constraints are critical. Our rugged products perform in extreme temperatures and environments, enduring high shock and vibration, as well as in commercial environments for use in laboratory and benign environment applications.

Embedded Computing s subsystem products are used in a wide variety of mission-critical military applications, including fire control, aiming and stabilization, munitions loading, and environmental processors for military ground vehicles. These products are used on demanding combat platforms such as the Bradley fighting vehicle, the Abrams M1A2/A3 tank, Expeditionary Fighting Vehicle, and the Brigade Combat Team Interim Armored Vehicle, which is part of the U.S. Army s modernization and transformation efforts. This division also provides the mission management, flight control computers, and the sensor management units for advanced aerospace platforms including Global Hawk, the U.S. Air Force s high-altitude and high-endurance unmanned aerial vehicle.

Embedded Computing s modules are used in numerous active programs today, including the Improved Bradley Acquisition System and the Improved Tow Acquisition System. The modules feature the highest performance commercial processors on open standard board architectures. The division has taken a leadership position in the drafting and definition of the newest embedded standards, which are designed to address the more demanding performance and data bandwidth requirements of emerging applications. Embedded Computing supplies technology for some of the most advanced military platforms including the F-22 Raptor, F-35 JSF, and P-8 Poseidon and U.S. Marine Corps Ground/Air Task Orientation Radar (G/ATOR) program.

This division s products are manufactured at its operations located in North America and Europe. Our products are sold primarily to prime contractors and subsystem suppliers located primarily in the United States, United Kingdom, and Canada, both directly and through a network of independent sales representatives. In recent years, competition in the embedded electronic systems market has migrated away from traditional board competitors toward fully integrated subsystem and system providers selling to prime and second-tier defense and aerospace companies. Competition in this market is based on quality of technology, price, and delivery time to market.

In 2009, this division increased its portfolio of high-performance embedded computing products with the acquisition of Skyquest Systems Limited (Skyquest). Skyquest is a supplier of aircraft video displays, recorders, and video/radar converters for surveillance aircraft applications in the aerospace and defense markets. Skyquest s display and recorder technology supports demanding airborne surveillance missions with proven reliability in harsh environments. Skyquest products include, the Video Management System (VMS), which provides fully integrated systems that enable observers and pilots to select, view, and record the images they need with maximum fidelity. The Skyquest VMS enables multiple camera sensor outputs to be viewed simultaneously and supports touch-screen control of moving maps, video recorders, mission computers, and the selection and transmission of video for downlink. Skyquest also develops lightweight, airworthy standard and High Definition (HD) video recorders for airborne surveillance. Skyquest systems have been fielded in a broad range of demanding applications including police, customs, coast guard, search and rescue, and border patrol operations.

The following list defines our principle products and the markets served by the Motion Control segment.

Commercial Aerospace

Commercial Jet Transports, Business/Regional Jets

Secondary flight control actuation systems and electromechanical trim actuators
Aircraft cargo door and utility actuation systems
Fire detection and suppression control systems
Position sensors
Pressure sensors
Solenoids and solenoid valves
Throttle quadrants
Fans and motors

Helicopters

Rotor ice protection systems
Flight data recorders
Air data computers
Logic control modules and utility control electronics
Mission video displays, distribution systems, recorders and associated products

Repair & Overhaul Services

Component overhaul and logistics support services

Aerospace Defense

Transport and fighter aircraft

Weapons bay door actuation systems
Weapons handling systems
Secondary flight control actuation
Rotary actuation for environmental control systems
Video displays, recorders and radar converters
Position sensors
Solenoids and solenoid valves
Throttle quadrants
Fans and motors

Helicopters

Radar warning systems
Acoustic processing systems
Flight data recorders
Air data computers
Position sensors
Logic control modules and utility control electronics
Mission video displays, distribution systems, recorders and associated products

Unmanned aerial vehicles

Integrated mission management and flight control computers
Weapons handling systems
Position sensors

Ground Defense

Tanks and light armored vehicles

Digital electromechanical aiming and stabilization systems
Fire control, sight head, and environmental control processors
Single Board Computers for target acquisition systems
Hydropneumatic suspension systems
Ammunition handling systems
Position sensors

Naval Defense

Marine Propulsion

Marine engine diesel valve injection systems

Other Military & Government

High performance data communication products

Power conversion products

Space programs

Control electronics and sensors

Security systems

Perimeter intrusion detection equipment

FAA

Airport surface detection equipment radar video processing

General Industrial Markets

Automated industrial equipment

Air, sea, and ground simulation
Fractional horse power (HP) specialty motors
Force transducers
Joysticks
Sensors

Sales by our Motion Control segment to its largest customer in 2009, 2008, and 2007 accounted for 11% of Motion Control revenue and 6% of our consolidated revenue for each year. The loss of this customer would have a material adverse effect on Motion Control. Direct and end use sales of this segment to government agencies, primarily the U.S. Government, in 2009, 2008, and 2007, accounted for 70%, 64%, and 60%, respectively, of total Motion Control sales. Although the loss of this business would also have a material adverse affect on Motion Control, no single prime contractor to the U.S. Government to which we are a subcontractor provided greater than 10% of Motion Control revenue during any of the last three years.

Backlog for our Motion Control segment at December 31, 2009, was $443 million, of which 79% is expected to be shipped after one year, compared with $510 million at December 31, 2008. Raw materials are generally available in adequate quantities from a number of suppliers. However, we utilize sole source suppliers in this segment. Thus, the failure and/or inability of a sole source supplier to provide product to Motion Control could have an adverse impact on our financial performance. While alternatives could be identified to replace a sole source supplier, a transition could result in increased costs and manufacturing delays.

Metal Treatment

Our Metal Treatment segment provides various metallurgical processes that are used primarily to improve the service life, strength, and durability of highly stressed, critical-function metal parts. Metal Treatment provides these services to a broad spectrum of customers in commercial and aerospace defense, oil and gas, power generation, and general industrial markets, including automotive/transportation, construction equipment, and metal working.

This segment consists of several business units that are organized by three principal services that the segment offers which include peening, specialty coatings, and heat treating.

Shot peening is a process by which the durability of metal parts is enhanced by the bombardment of the part s surface with spherical media, such as steel shot or ceramic or glass beads, to compress the outer layer of the metal. In addition, shot peen forming enables metal panels to be shaped with aerodynamic curvatures that are assembled as wing skins of commercial and military aircraft.

Laser peening is an advanced metal surface treatment process that utilizes a unique high energy laser developed by the Lawrence Livermore National Laboratory as enhanced by Metal Treatment engineers. The laser peening process is being used in production to extend the life of critical industrial and flight turbine engine components. Future applications include high value, extreme service components in aircraft structures, oil and gas, medical implant, and marine applications. We retain the exclusive worldwide rights to the intellectual property necessary for the use of this laser architecture on laser peening of commercial products. Currently, the patents associated with the laser peening technology are not material to our current operations. However, we believe that this technology has significant potential and, thus, these patents may become material to our future operations.

Specialty coatings primarily consist of the application of solid film lubricant coatings, which are designed to enhance the performance of metal components used in critical applications for a broad range of industries. The coatings are applied by either an air spray or a dipping and spinning process for bulk applications. We have diversified this service into the growing medical market by the addition of a vapor deposition process to apply parylene coatings to medical devices, including rubber/silicone seals and wire forming mandrels used in the manufacture of catheters. The conformal coating provides resistance to solvents, radiation and bacteria and is also biocompatible. Parylene coatings are also uniquely suited for use in niche electronic, oil and gas, and general industrial applications.

Heat treating is a process of exposing metal parts to hot and/or cold temperatures to change the mechanical and metallurgical properties of the metal.

In addition to shot peening, laser peening, heat treating, and specialty coatings, other metal treatment services that are provided on a job shop basis include shot peen forming, wet finishing, nondestructive inspection, anodizing, and reed valve manufacturing.

The following list defines our principle products and the markets served by the Metal Treatment segment.

Commercial Aerospace

Shot peen forming

Wing skins

Shot peening

Aircraft structural components
Landing gear components
Turbine engine rotating components

Laser peening