Launching Innovation
Systems strength. Component solutions.

Parker Aerospace
ENGINEERING YOUR SUCCESS.
COMMERCIAL

MILITARY

ENGINES

BUSINESS AND GENERAL AVIATION

HELICOPTERS

WORLDWIDE CUSTOMER SUPPORT
Advancing the global aerospace fleet to fly higher, faster, longer, and more efficiently.

The world’s leading aircraft manufacturers choose Parker Aerospace as a technology partner, relying on our mastery of flight control, hydraulic, fuel, inerting, fluid conveyance, thermal management, pneumatic, and lubrication systems and components.

As an operating group of Parker Hannifin Corporation, the world leader in motion and control technologies, Parker Aerospace has the engineering muscle and stable foundation to truly move our customers’ programs forward while increasing their productivity and profitability.

Parker Hannifin by the numbers

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial and aerospace markets</td>
<td>1,100+</td>
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<tr>
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<tr>
<td>Competitors with a bigger</td>
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<td>product line</td>
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</table>

Parker Aerospace technology solutions

- Flight control actuation
- Fuel
- Inerting
- Hydraulics
- Fluid conveyance
- Pneumatics
- Lubrication
- Thermal management
COMMERCIAL AIRCRAFT

Systems and components that provide greater reliability, efficiency, and value

Parker equipment supports nearly every commercial aircraft flying, sending them safely and efficiently throughout the world. We work alongside aircraft manufacturers to design in performance, using lighter materials and smart, self-monitoring products.

Unmatched engineering expertise couples with manufacturing excellence to offer systems and components that meet the demands of an increasing digital industry, while providing ultimate dependability over program life.

The breadth of our organization allows us to focus on such functions as quality, program management, lean practices, and supply chain strategies, to ensure the optimum customer experience.

Parker’s global customer support team of aftermarket field engineers makes it a priority that our customers’ aircraft are logging miles, not hangar time.

System and component program pedigree


Airbus A220  
Airbus A350  
Boeing 737 MAX  
Boeing 787  
COMAC C919  
Embraer E170/175/190/195
Joint ventures in China support COMAC programs and regional aftermarket

NEIAS Parker Aero Systems & Equipment is an AS9100- and NADCAP-approved joint venture between Parker Aerospace and AVIC Jincheng Nanjing Engineering Institute of Aircraft Systems (NEIAS) in Nanjing, China. It provides advanced manufacturing and special processing for fuel and hydraulic systems and components for the C919 and future Chinese aircraft.

Parker FACRI Actuation Systems is an AS9100- and NADCAP-approved joint venture between Parker Aerospace and AVIC Flight Automatic Control Research Institute (FACRI) in Xi’an, China. It performs OEM production and support for flight control actuators for the ARJ21, C919, and MA700. The facility also has a world-class FAA 145/CAAC 145-approved maintenance, repair, and overhaul operation to support Parker Aerospace equipment for the Chinese airline fleet, as well as that produced by other manufacturers. It includes an inventory pooling center and a fluid conveyance distribution hub.

Systems integration: integral to system performance

Across aircraft system types – flight control, fuel, inerting, hydraulic, fluid conveyance – Parker’s deep and broad component offering coalesces with two decades of system design knowledge in the area of system integration. Throughout our organization we have developed our own custom test rigs and system simulation laboratories that enable us to predict and optimize system performance. These rigs, representing hundreds of millions of dollars in investment, enable Parker to assume the integration responsibility on behalf of our customer, simulating all possible flight conditions to test every element of a system.
Following the military order for performance and affordability

With a pedigree that began in the 1930s to the most advanced manned and unmanned platforms of today, Parker is a well-established partner with military aviation, realizing that the highest performance standards must be achieved while maintaining a firm grip on costs.

Understanding the unique needs of the warfighter, Parker Aerospace works closely with military aircraft customers to learn program requirements and deliver solutions that meet the needs of our armed services.

**System and component program pedigree**

- **Airbus A400M**
- **Bell Boeing V-22**
- **Boeing** AH-64, C-17, CH-47, F-15, F/A-18 E/F, KC-46A, P-8A, X-45
- **General Atomics Aeronautical Systems** Predator B
- **Korea Aerospace Industries** K-FX, T-50
- **Lockheed Martin** C-130, F-16, F-22, F-35, JASSM, RATTLS
- **Northrop Grumman** BAMS, Global Hawk, X-47A
- **Raytheon** Griffin, Javelin, JSM, Tomahawk
- **Saab** Gripen
- **Sikorsky** CH-53, MH-60/UH-60

*BLACK HAWK® is a registered trademark of Sikorsky Aircraft Corporation.*
KC-46A: mission-safe with Parker technology

Designed to refuel U.S., allied, and coalition military aircraft, the KC-46A Pegasus relies on a broad array of Parker Aerospace equipment to keep it mission-safe.

Parker’s primary flight control actuation products, including rudder, elevator, aileron, flap, and stabilizer, help keep the tanker on target, while our robust fuel and hydraulic components provide the power needed for its long hauls.

The Pratt & Whitney PW4000 engines on the KC-46A are supported by scores of Parker products, including pneumatics, fluid conveyance, pumps, and thrust reverser actuators.

The Pegasus will enable our military fleets to complete their missions. And Parker products will make sure that the Pegasus is ready to do so.

Parker EHAs: a first for fighters

Lockheed Martin’s F-35 is the first production fighter with a system of electrohydraulic actuators (EHAs) powering all primary flight control surfaces. EHAs save system weight, offer enhanced avionics integration, and reduce lifecycle costs.

PI&R: enhancing performance to reduce military life-cycle costs

Parker’s dedicated Customer Support military operation backs our defense customers with product improvements & retrofits (PI&R). By cost-effectively integrating advanced new technology into our fielded products, we’re helping to enhance the performance and extend the life of military fleets. Defense programs benefitting from PI&R include the B-2, C-5, C-130, F-15, F-16, KC-135, UH-60, and CFM56 engine.

As a PI&R effort for aircraft flying our fuel tank inerting and aircraft fire suppression systems, Parker Aerospace is introducing an even more reliable dewar nitrogen storage solution for the C-5. The enhanced equipment will lower operational disruptions for customers, helping reduce costs and increase aircraft mission availability.
Increasing productivity efficiently, flexibly, and cost-effectively

Business aviation allows passengers to reach destinations quickly while using time efficiently. Parker Aerospace has been a key supplier to the business, general aviation, and commercial helicopter market since the 1930s. Our support has ranged from single components, such as general aviation master cylinders, to fully integrated fuel, hydraulic, and flight control systems for the highest-performing business jets.

Today we continue to meet the needs of our customers, working collaboratively to offer innovative new ideas to boost performance coupled with our deep selection of off-the-shelf technologies that help manage cost.

System and component program pedigree

Business jet and general aviation component technologies

Parker Aerospace supports Gulfstream’s G650 business jet with a broad portfolio of systems and components, starting with the aircraft’s fully digital three-axis fly-by-wire primary flight control system and electric backup hydraulic actuators. Hydraulic equipment includes pumps, nose-gear door and retraction actuators, maingear door actuation, entry door actuation, reservoirs, valves, and hoses.

In addition, we supply airframe equipment for fuel quantity indication, lubrication, and fluid conveyance as well as the waste drain valve, ecology bottle, and flame arrestors. The G650’s Rolls-Royce BR725 engines are outfitted with Parker’s fuel atomization nozzles, hoses, quick disconnects, and lubrication equipment.

Cleveland Wheels & Brakes: over 80 years of safe takeoffs and landings

With hundreds of FAA TSO qualifications on single- and twin-engine fixed-wing, light jet, and rotorblade aircraft, Parker’s Cleveland Wheels & Brakes can be found on over 80 percent of the general aviation fleet. The brand is synonymous with better braking, smoother and more reliable landings, convenient worldwide availability, and valuable savings on maintenance, downtime, and labor.

Taking care of business on the G650

Piper Meridian

Over 80 percent of the general aviation fleet depends on Cleveland Wheels & Brakes

Electric motor-driven pumps

Breakaway safety valves

Multi-rotor steel brake assemblies

Remote oil replenishment units

Mechanical input actuators

Remote electronic units
ENGINE MARKET
Higher-powered, lower-emission solutions

Engine makers face ongoing challenges in the areas of noise, fuel burn, and emissions. With Parker Aerospace, aero engine manufacturers have an experienced partner that can help them meet regulatory requirements while delivering the performance and low cost of ownership that their customers demand.

Our expertise touches every corner of the aviation engine market: commercial, regional, business, military, and rotor. We provide advanced systems and component solutions for fuel atomization, fuel manifolds, engine pneumatics, lubrication, engine build-up, heat management, control electronics and more.

Looking ahead, we partner with engine customers to share risk and develop new technologies, which in turn helps them to help their civilian and military customers achieve important program objectives.

System and component program pedigree

CFM International CFM56, LEAP | EuroProp International TP400-D6 | GE CF6, CF34, F101, F110, F404/F414, GEnx, GE9x, GE90, Passport 20, T700 | International Aero Engines V2500 | Pratt & Whitney F119, F135, PW1000, PW2000, PW4000, | Rolls-Royce AE 2100, AE 3007, BR700, Trent 1000, Trent 7000, Trent XWB

- CFM International LEAP
- General Electric T700
- General Electric GEnx
- Pratt & Whitney 1000G
- Pratt & Whitney F135
- Rolls-Royce Trent 7000
- Rolls-Royce Trent XWB
- Rolls-Royce BR725
**Advanced Atomization Technologies: fueling performance and growth**

Fuel atomization nozzle know-how is a key contributor to reducing fuel burn, boosting efficiency, and cutting emissions. Established to support innovative fuel nozzle development and production, Advanced Atomization Technologies (AATECH) is a joint venture between GE Aviation and Parker Aerospace. AATECH designs and produces fuel nozzles for some of the most powerful and efficient gas turbines built by GE Aviation, including the CFM LEAP, GE9X, and GEnx engines. Current and legacy engine programs – such as the GE90, CF6, and CFM56 – are also supported at AATECH.

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**Flexible fuel lines: saving weight, managing vibration**

Aircraft engine fuel manifolds are often designed as a system of rigid tubing and fittings that surround the engine’s combustion section. Parker Aerospace is taking steps to reduce the weight of fuel manifolds by replacing rigid tubing with flexible high-temperature fuel lines. The flexible manifolds manage vibratory loads more efficiently, and can save weight by requiring fewer brackets.

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**Additive manufacturing: increasing value, subtracting development time and cost**

Additive manufacturing is proving to be key to creating prototypes for test during the product development process, as well as for finished, in-service applications. A dedicated corporate innovation center helps direct and unify this quickly evolving process. Parker is combining the unique advantages of additive technologies with its traditional manufacturing prowess to offer its customers the best and most reliable component solutions at a reasonable cost.
FLIGHT CONTROL
ACTUATION SYSTEMS AND COMPONENTS

Parker Aerospace is the number-one stick-to-surface flight control system provider in the world, and a global leader in fly-by-wire flight controls. Our systems pedigree is over three decades long and our overall experience nearly a century deep in both military and civilian applications.

Stick-to-surface fly-by-wire flight control systems
- Airbus A220
- Embraer Legacy 450 and 500
- Bombardier Global 7000 and 8000

Electrohydraulic flight controls: tested, proven, trusted.
Our fly-by-wire primary and secondary flight controls have been in civil and military applications for decades, providing unparalleled performance and reliability.

EHA and EHBA innovation
The product of two-plus decades of research, development, and flight-tested reliability, Parker electrostatic actuators (EHCAs) and electrical backup hydraulic actuators (EHBAs) lower system weight, decrease power consumption, and reduce lifecycle costs.
More-electric EMAs

Parker’s adaptable and scalable electromechanical actuation (EMA) equipment, such as that for Embraer’s Phenom, offer the benefit of more affordable systems that require less lead time. We also provide EMA systems for the Raytheon/Lockheed Martin Javelin missile, Lockheed Martin Polecat, and many other military and civilian platforms.

SILs: helping to get to market faster

Parker’s flight control systems integration laboratories (SILs) allow us to bring subsystems and full stick-to-surface systems to market faster and more cost effectively. SILs allow for complete development and integration, and aid in the certification of modular, fly-by-wire flight control systems.
As the premier global provider of fuel systems and components, Parker Aerospace offers a broad and deep portfolio of solutions for virtually every type of aircraft in the sky. Our customers look to us to provide design, integration, manufacture, certification, and lifetime support of their aircraft, improving their program and business performance.

**Motor-driven pumps drive efficiency**
Our pumps can be designed to work with all types of power. The pump shown is unique, powered by 270 V BLDC. The overarching advantage of our fuel pump product line is its compatibility with constant or variable frequency AC, and DC power.

**Measurable high performers: fuel gauging equipment**
Parker’s fuel measurement and management systems and components are engineered to reduce weight and save fuel while minimizing costs and maximizing efficiency.
Fueling excellence: on-site system testing

Extensive on-site capabilities and a state-of-the-art fuel system testing laboratory duplicate actual operating conditions, giving Parker Aerospace the proven capacity to test complete aircraft fuel systems and components.

Aerial refueling: making the right connection

Military customers have long looked to Parker Aerospace to provide the critical equipment needed for extending the range of their aircraft. Our refueling couplers, nozzles, receptacles, and test kits represent today’s leading edge in aerial refueling design, performance, and durability.
With more than 50 years of experience in the complex science of fuel tank fire suppression, Parker is the world leader in inerting systems used in both military and commercial markets. Our commercial fuel tank inerting equipment is used by more than 85% of the transport aircraft in production today, on 15 major platforms.

**Inerting Subsystems**

Catalytic inerting technology enables simpler and lighter-weight fuel tank inerting systems. Requiring no bleed air or attachment to the aircraft pneumatic system, catalytic inerting can be a significant advantage for aircraft with little or no available bleed air, such as those powered by turboshaft, turboprop, or small turbofan engines.

In the interest of serving the customer through product development and via an exclusive license between Parker Aerospace and PHYRE Technologies, both organizations are collaborating to bring catalytic inerting to the marketplace.
A brief summary of a long inerting history

Fuel tank inerting controllers

Gate valves

Air separation modules

Air separation module pallets

Dual-flow shutoff valves

Inlet isolation valves

Single air separation module pallets

Migration from stored gas to permeable membranes

1960

1980

2000

2015

2020

A-12 OBIGGS system

C-5 LN2 inerting system

KC-135/CT-114 demonstrator

DC-9 FAA type certification

C-17 OBIGGS (stored gas)

F-16 Halon inerting systems

F-117 OBIGGS system demo

737, 747, 757, 767, 777 inerting system

Superjet 100 inerting system

A400M inerting system

A350 XWB inerting system

P-8A inerting system

Airbus A220 inerting system

A320, A330, A340 inerting system

F-22 OBIGGS system

F-35 OBIGGS system

A320/747SP test bed system

ARJ21 inerting system

C919 inerting system

A320neo inerting system

XB-70 LN2 inerting system

A12 OBIGGS system

F-117 OBIGGS system demo

F-117 OBIGGS system demo

A320/747SP test bed system

ARJ21 inerting system

C919 inerting system

A320neo inerting system

Migration from stored gas to permeable membranes
Filtration: adding life to hydraulic systems
Partnering with Parker's Filtration Group, Parker Aerospace offers innovative, custom, onboard filtration solutions that help to ensure safe operation, lower weight, protect flight-critical components, and reduce maintenance costs. Our filtration and fluid condition monitoring systems offer robust protection against contamination, the number-one cause of hydraulic system failure.

Smart and tough: AC electronic controller
Created to power hydraulic motor pumps, the AC electronic controller was designed, developed, and integrated entirely by Parker Aerospace. This unique device, which is DO178 and DO254 compatible in commercial aircraft, features a ruggedized enclosure that is environmentally sealed and explosion proof, while providing for the self-removal of heat.

Proprietary sensors and solid-state switches enable the controller to self-monitor health and report it to the aircraft system operating environment.
Aft strut fairing module for the Boeing 787

We took the lead to work with 787 partners to preassemble 60 major components, plus hundreds of structural elements and fasteners, into a single deliverable unit. The aft strut fairing module is engineered to quickly interface with the wing for simplified installation, while reducing supply chain infrastructure.
Parker Aerospace’s broad fluid conveyance portfolio offers comprehensive solutions built from a proven pedigree and technical depth. From fuel and hydraulic systems, to crashworthy safety systems and engine build-ups, we can supply fluid conveyance for every critical engine and airframe system.

**Fluid conveyance for:**
- Engine systems
- Fuel systems
- Hydraulic systems
- Pneumatic systems
- Landing gear
- Potable water systems
- Lubrication systems

**Water supply subsystems: ducts and tubing**
On countless aircraft you will find Parker’s composite duct and tubing solutions for potable and waste water applications. Our products can be integrated with other Parker equipment to deliver a single, highly functional subsystem.

**Powerful connections: fuel manifolds**
From military to civilian aircraft, Parker Aerospace is at the forefront in fuel conveyance and atomization equipment. Our broad line of conveyance solutions – including tubing, fittings, and flexible hose – combines with our engine manifold design expertise to reduce engine weight, while our fuel nozzle capabilities help to lower CO, CO₂ and NOₓ emissions.
Let it flow: your single source for all things conveyance

Our capability as a fluid conveyance systems integrator makes it simple for manufacturers to make all the right connections in their aircraft. From hydraulics, anti-icing, ducting, and environmental control, to fuel injection manifolds, and fuel lines, Parker's fluid conveyance capability keeps things flowing reliably throughout aircraft of all types.
Engine air systems and actuation

Our pneumatic component and subsystem expertise complements our fuel system and fluid conveyance abilities in the engine environment. Available for virtually any specification or application, our cost-effective equipment is well proven and reliable. Our engine controls include:

- Nacelle and wing anti-ice, regulating, shutoff valves
- Handling-bleed systems
- Transient-bleed valves
- Secondary air system valves
- Solenoid valves
- Fuel, motor, and pneumatic actuation
- Turbine-tip clearance-control valves
- Heat management system valves

Thermal management systems: high heat removal with greater design flexibility

Parker’s thermal management team provides solutions for both heat collection and heat rejection. Designed as stand-alone solutions or integrated as part of larger environmental control systems, our solutions offer significant size, weight, and power advantages.
Our broad portfolio of airframe pneumatic components and subsystems is the ideal place to start for any commercial, military, or regional application. The industry experience and pedigree we offer keep our pneumatic products leading the way while offering low cost of ownership. Products include:

- Anti-ice control and de-icing systems
- Compartment and pre-cooler temperature controls
- Auxiliary power unit load control valves
- Butterfly, coaxial, and check valves
- Bleed air manifold isolation valves
- Air turbine starter control valves
- Temperature-control valves and temperature sensors
- Low-pressure regulators
- Motor-operated shutoff valves
- Pneumatic-operated shutoff valves
- Nacelle cooling/ventilation valves

Parker Aerospace lubrication systems deliver rugged performance and value in a small envelope. From industry-leading lubrication pumps and accessories to oil reservoirs and pump/reservoir systems and subsystems, we support both commercial and military platforms with solutions that save space and reduce weight, while offering greater reliability, easier maintenance, simpler operation, and longer life. Products include:

- Lubrication pumps
- Scavenge pumps
- Air/oil separators
- Oil filtration, conveyance, and bypass/pressure relief valves
- Caps and adapters
- Oil cooling systems
- Oil reservoirs
- Oil level sensors and indicators
- Magnetic debris monitors and drain valves
Customer Support Operations is our worldwide organization dedicated solely to keeping your fleet continuously healthy. We are around the globe and on the clock 24/7 with a full spectrum of support services.

**Customer response center**
As part of our global-reach, local-focus strategy for maintenance, repair, and overhaul, we have elevated our service level to provide a fully staffed service facility available 24/7, worldwide. The goal of our customer response center is to resolve all customer issues at first contact, no matter the location or hour.

**Parker 360**

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**Global Support Services**
- Customer service centers
- Customer response centers
- Joint venture facilities
- Global pooling centers
- Logistics centers
- MRO licensed centers

**Business Support Services**
- Leasing programs
- Flexible warranties
- Asset management
- Life-cycle cost management
- Cost-per-hour programs
- Public-private partnerships

**Maintenance Support Services**
- Repair and overhaul
- Field service engineering
- Depot support
- Maintenance support services
- Reliability & maintainability programs
- Technical training
- Onsite services

**Product Support Services**
- Worldwide inventories
- Kitting solutions
- AOG support
- Online order status
- Asset management

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**Worldwide customer service centers**
- Avon, OH
- Camarillo, CA
- Devens, MA
- Dubai, UAE
- Dublin, GA
- Elyria, OH
- Fort Worth, TX
- Glendale, AZ
- Hauppauge, NY
- Irvine, CA
- Jacksonville
Global pooling centers

Recognizing the critical need for fast, dependable response with spares and product support, Parker Aerospace has established regional pooling centers, strategically located in Xi’an, China; Singapore; Paris, France; and Dubai, UAE.

Joint ventures to support aftermarket needs

ACE Services is a joint venture between Parker Aerospace and SIA Engineering Company, Ltd, and Parker’s center of excellence for the repair and overhaul of aerospace hydraulic components in the Asia Pacific and Middle East regions.

Parker FACRI Actuation Systems is an AS9100- and NADCAP-approved joint venture between Parker Aerospace and AVIC Flight Automatic Control Research Institute (FACRI) in Xi’an, China. The facility has a world-class maintenance, repair, and overhaul operation to support Parker Aerospace equipment for the Chinese airline fleet, as well as that produced by other manufacturers. It includes an inventory pooling center and a fluid conveyance distribution hub.

Taking military expertise on-base with depot partnership

Public-private partnerships (PPP) with military repair depots allow us to work on site with depot personnel to share best practices in the maintenance of Parker equipment, while streamlining processes and adding efficiency where it’s needed most.

Photo courtesy of U.S. Air Force
INNOVATION AND ENGINEERING

Our goal is to engineer the success of every aerospace program we touch. We accomplish that by being an engineering-focused organization, devoting significant resources to research and development. By meeting regularly with key customers to determine their priorities, we are able to couple our R&D efforts with real-world demands, developing practical engineered solutions that move aerospace technology forward.

What’s driving our blue-sky thinking:

Green technology
- Fuel cells and integrated power systems
- More-electric architecture

Smaller and lighter
- Next-generation manufacturing
- Advanced materials
- Electronics packaging

Improved reliability
- Product improvements & retrofits
- Internet of things
- Health monitoring

Enterprise-wide innovation
To accelerate the understanding of potentially valuable and disruptive manufacturing technology throughout the corporation, Parker has constructed its advanced manufacturing learning and development center in its corporate technology ventures facility in Macedonia, Ohio. The center will help Parker stay at the cutting edge of emerging technologies while managing risk, accelerating knowledge, and providing bottom-line benefits to our customers.
Driving advancements in technology
At Parker Aerospace, we are constantly deploying technology advancements across the entire spectrum of current and future airborne platforms. We are integrating technology that enhances performance, reduces weight, and improves quality while remaining affordable and having minimal impact on the environment.

This Parker-built lubrication rig will test the entire lubrication system under actual operating conditions. Profiling the full system allows Parker to optimize its components and customize the system to precisely meet performance requirements.

Engineering as a core competency

- 15,000 combined years of engineering experience
- 43% of salaried workforce are engineers
- 500+ Parker Aerospace patents
- 35% of engineers have advanced degrees
- 100% of worldwide fleet supported by technical field service engineers
- 14 technical fellows and subject matter experts

Corporate synergy: seals, shielding, and filtration solutions
Collaborating with Parker’s Engineered Materials and Filtration Groups provides the world-class sealing, electronic shielding, and filtration technologies that enable us to elevate the performance and reliability of our aerospace systems and components.

Parker-tested and -proven
Extensive on-site test capabilities at each of our manufacturing sites help to ensure reliability at entry into service for every program. Parker Aerospace customers often rely on our test results for aircraft certification, eliminating the need of test equipment investment.

An air separation module endurance test rig at our Fluid Systems Division in Irvine, California.

Automation
Electronics
Robotics
Chemical processing
Automated blaster
Digital x-ray

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Automation
Electronics
Robotics
Chemical processing
Automated blaster
Digital x-ray
STANDARDIZED EXCELLENCE

One of the benefits of a larger organization, with many experienced minds put to bear on complex challenges, is that our solutions are often best-in-class. These best practices are then systematized and employed across the organization, essentially standardizing excellence.

Program management
All Parker Aerospace program managers are required to obtain certification as Project Management Professionals by PMI®, the Project Management Institute. This certification gives our program managers an in-depth understanding of the discipline and the positive affect it has on customer programs. Certification is held by many of our engineers, contract administrators, and functional managers as well.

In 2016, the program management office at Parker Aerospace was recognized as one of the world’s top three by the Project Management Institute. The company puts strong emphasis on the use of standardized, professional program management methodologies through our engineering and production programs. This enables us to manage program costs, schedule, scope, and risks, while aligning with customer and industry standards.

Lean Product Development

Lean practices are integrated in all we do, going beyond manufacturing to lean enterprise systems that have become a part of our culture and an important aspect of program management. This translates to an overriding philosophy of being fastest to market, with the highest quality, the best value, and the shortest value stream. Lean events, held on the factory floor and in administrative offices, reduce inventories, lead times, turnaround and cycle times, and backlogs for increased productivity, faster and better customer service, and improved yield.

<table>
<thead>
<tr>
<th>Safety</th>
<th>Program management</th>
<th>Supply chain strategies</th>
<th>Lean practices</th>
<th>Quality management</th>
<th>Manufacturing excellence</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Zero accidents</td>
<td>• Recognized as a global leader by the Project Management Institute</td>
<td>• Shared best practices</td>
<td>• Consistent methodology</td>
<td>• Six Sigma quality</td>
<td>• Robotics</td>
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<tr>
<td>• Online reporting</td>
<td>• 100% of all program managers are PMP certified</td>
<td>• Common cost objectives</td>
<td>• Inventory management</td>
<td>• Zero defect program</td>
<td>• Automation</td>
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<tr>
<td>system</td>
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<td>• Long-term strategic partnerships</td>
<td>• Waste reduction throughout the value stream</td>
<td>• Standard detection methods</td>
<td>• Advanced materials</td>
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<td>• High-performance</td>
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<td>• Faster throughput</td>
<td>• Reducing variation</td>
<td>• Advanced production methods</td>
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<tr>
<td>teams</td>
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<td></td>
<td></td>
<td>• Measuring success</td>
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</tbody>
</table>

STANDARDIZED EXCELLENCE
Manufacturing operations

At Parker Aerospace, our emphasis on operations flow is unparalleled. It is of critical importance, giving our customers the benefit of the highest productivity, line item yields, and optimized personal service.

Based on a practice of continuous improvement to provide 100 percent on-time delivery, we excel at all aspects of operations.

- Full in-house testing and assembly
- Production and delivery based on lean principles, implemented to build upon our existing operational efficiencies
- Consistent training of high-performance work teams, facilitating greater capacity
- Factory transformations that streamline material flow and expedite production and delivery
- Continued investment in the latest processes, tools, and testing equipment

Our operations teams work as one with our program management teams to deliver quality products that consistently and reliably meet our customers’ schedules.

Safety is our standard

Throughout Parker Hannifin Corporation, worker safety is our top priority, and zero accidents is our goal. We strive to ensure that each of our team members returns home safely at the end of every workday. To that end, Parker Aerospace is implementing the use of Gensuite® safety management processes across all of its facilities to monitor, record, track, and reduce accidents. High-performance teams work diligently to reinforce safety best practices and explore all options to optimize equipment and operations in pursuit of zero accidents.

The road to zero: a journey toward perfect

Our Zero Defects program is designed to reduce manufacturing defects to zero, providing our customers with perfect Six Sigma quality as a standard. Here are some of the steps we’re taking toward perfection:

- Strengthening detection methods for containment
- Detecting sources of variation
- Improving process capability
- Employee and supplier engagement, training, and metrics

Supply chain strategies

The best world-class organizations must rely on supply chain partners that are aligned with the organization’s goals and work toward the benefit of the end customer. Parker Aerospace and its divisions employ a common, systematic approach to building supply chain excellence that results in lower costs, higher quality, and consistently on-time delivery performance.

By using strategic supply chain methods, manufacturing production labor and expense is reduced significantly, while overall costs remain competitive.
On the path to your next innovation
Parker Aerospace offers the unmatched leadership, resources, and expertise to engineer your success.

**United States**

Avon, Ohio | Camarillo, California | Clyde, New York |
Devens, Massachusetts | Dublin, Georgia | Elyria, Ohio |
Everett, Washington | Fort Worth, Texas | Glendale, Arizona |
Hauppauge, New York | Irvine, California | Jacksonville, Florida |
Kalamazoo, Michigan | Mentor, Ohio | Moncks Corner, South Carolina |
Naples, Florida | Ogden, Utah | Portsmouth, New Hampshire |

**International**

Bangalore, India | Bristol, England | Derby, England |
Dubai, UAE | Guaymas, Mexico | Kuala Lumpur, Malaysia |
Monterrey, Mexico | Montreal, Canada | Nanjing, China |
Paris, France | São José dos Campos, Brazil | Shanghai, China |
Singapore | Toulouse, France | Wiesbaden, Germany | Xi’an, China |
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