Parker can engineer your success with off-the-shelf solutions that are cost-effective and efficient. With 100 years of experience, we offer military-grade components that meet demanding specifications without needing to be custom-manufactured. Here is a sampling of solutions that save time and money:

**Aerospace technology**

**IndiLok™ quick-disconnect (QD) couplings**
- Provide reliable performance in cooling, fuel, hydraulic, and pneumatic systems across a wide range of temperatures and pressures

**Medium- and high-pressure PTFE hoses**
- Reliable fuel, oil, and hydraulic fluid conveyance
- Most hose assemblies are available with FAA, TSO, c53a, C75, AS, and ABS approvals

**Electromechanical actuator**
- Safety barrier positioning, platform locking, door and hatch latching
- Stainless steel construction for corrosion resistance
- Improved sealing to prevent environmental moisture contamination
- Mechanical over-ride for emergency operation
- Multiple move profiles
- Absolute positioning
- Dynamic braking

**Naval technology**

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- Multiple move profiles
- Absolute positioning
- Dynamic braking

**Drive control system**
- High-powered variable speed drive for AC motors available as either stand-alone unit or complex multi-axis motor control system
- Power range: 160-600 hp (100-400 kW)
- Modular design, low maintenance
- Dynamic braking

**Cold plates**
- Thermal management
- • Unique macrolaminate construction
- • Transports coolant with complex fluid paths

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**Bootstrap reservoirs**
- Supplies system pressure to the reservoir connection and acts on the small piston
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**Defense vehicle systems**

from Parker Hannifin Corporation

Parker’s industry leading engineers draw on the corporation’s enormous breadth of technologies to create system solutions addressing the most challenging needs and optimizing platforms for weight, cost, power, and reliability. Collaborating with our customers, Parker designs advanced components and technologies more quickly and efficiently compared to other global organizations. At Parker, we engineer your success.

Milton Manufacturing is Parker’s design partner for prototype vehicles. A leading supplier of metal components and critical systems and kits, Milton is a HUBZone, certified, woman-owned small business. www.miltonmfg.com

Creating innovative towing solutions, TeleSwivel® is a service-disabled, veteran-owned small business. www.teleswivel.com

Parker Hannifin Corporation
4000 Parker Boulevard
Cleveland, Ohio 44124-4141
(800) 999-3000
www.parker.com
Vehicle actuation systems

Armored door actuator system
Both passive and active systems ensure a safe egress every time
- All systems are environmentally tested for military applications
- Systems operate on demand in any vehicle orientation
- Damper is a passive safety control with locking mechanism, configurable for speed and loads
- Egress damper system (EDS) provides normal damper plus emergency egress water actuation
- No electrical, pneumatic, or hydraulic hookup for damper and EDS
- Active systems include both pneumatic and electrohydraulic actuator (EHA) options
  - Pneumatic solutions are lightweight options powered by existing vehicle pneumatics
  - EHA solutions are self-contained, have a 24V connection, and combine electronics ease and hydraulics power densities
- System options include backup power and obstacle detection for increased operator safety
- Combat lock solutions available
- Integrated, low-resistance manual release for activation in unpowered state
- Proven technology failed in several military ground vehicles

Armored window actuator system
Normal appearance, remarkable protection
- Single uniform compact design can be integrated into any vehicle door
- Supports armored glass sizes up to 500 pounds
- Manual crank available as stand alone or back-up for power system
- Environmentally sealed, impact-resistant drive train
- Multi-stage telescoping actuator for reduced overall height
- Operates in any position, including completely inverted
- Parallel-mounted, low-maintenance, high-torque brushless DC motor

Automated articulated trailer hitch system
Allows for safe trailer connection without having to leave vehicle
- Operator protection while connecting/deconnecting trailer
- Rapid connection time for improved readiness
- Single operator capability
- Three-axis articulation
- Retrofit kits available

In-hub electric motor
Electric in-hub motor provides independent drive control for traction, turn radius, eliminating traditional chassis configuration
  - Hybrid technology
  - Dramatically increased ground clearance
  - 650 hp in 20-inch package
  - Silent run and silent watch operations
  - Reduced vehicle signature
  - Enhanced damper
  - Increased fusing capability
  - Lower fuel consumption

Power takeoff unit
Transforms drive train mechanical power to hydraulic and/or electrical power
- Used for various vehicle auxiliary systems and powerable equipment
- Alternator-generating drives
- Constant RPM regardless of engine RPM
- Constant high-amperage output

Rear steering
Complete rear steering system
- Lightweight
- Power-units, IFO, or all-wheel drive pumps, capability, with controls to isolate rear-steering circuit
- Subassembly kit means simple, fast installation
- Cylinder/rod lock assembly designed with Global Shield and Intellitec® absolute position feedback

Rotary hydraulic actuators
High driving and holding torque in a compact package
- High-power density unit that fits into tight places
- Added rotation to 360 degrees
- Ideal for severe climates and unforgiving environments
- Torque generating splines are sealed and lubricated with hydraulic fluid inside actuator housing
- Sealed system for exceptional corrosion resistance and virtually maintenance-free operation

Parker Winch system
Winch technology to meet the most demanding requirements
- Multiple lightweight winch options
- Complete system including PTO, pump, valve, electronics, winch, rope, and integration
- World leader in orbit-style, low-speed, high-torque, hydraulic motors
- Lightweight synthetic rope
- Integrated solutions with optimum performance
- Hydraulic options include auto level-wind, full line-pull capability for multiple wraps of drum

Filteration systems
Platoon reverse osmosis water system
- Portable, independent, fresh water filtration
  - Salt-removed water supply, portable and independent
  - Processes to 25 to 30 gallons per hour from 12/24 volt power
  - Industry-leading technology produces more water in a smaller package than competitors
  - Patented energy recovery devices allows for more water with lower power consumption
  - Patent-pending filter design allows for filter changes external to the trailer

Fuel filtration transfer system
Filter fuel reliably for vehicles anywhere in the world
- Lightweight solution fits existing vehicle portable can brackets
- Same flow as traditional fuel pump
- Uses Parker filter for water separation and particulate filtration
- Includes DC pump power options
- Parker E-Z Form suction/outlet hoses
  - Electrical, hydraulic and electric circuit protection
  - Multiple size options available from portable cans to carts and skids
  - Portable can threaded insert for in-fuel water/sediment contamination filtration

On-vehicle engine filtration
Air, oil, and fuel filtration to ensure continuous vehicle operation
- Two-stage diesel fuel filter for maximum water and particulate protection
- Fuel systems with built-in relief, water-in-fuel sensor, diagnostic valves, and cold weather heaters available
- Air pre-filtration and filter systems to extend service intervals and reduce maintenance times
- Oil filtration system for all engines to protect against harmful wear and contaminants

Quick-oil-change systems
Simple and reliable system for improved maintenance
- Change drivetrain fluids without removing chassis armor
- Eliminate hazardous spills, reduce labor hours
- Kits available for existing vehicle
- Time stamping options available for enhanced maintenance records

Sealing systems
Seals
Fuel filtration – Multiport sealing solution with built-in filter screens to prevent foreign particulates from entering key engine components

Picture frame gaskets – Thermo environmental seal providing protection from water ingress and contamination. Door seals can be extruded and fabricated into various custom shapes and cross sections to fit any specific application configuration

Oil pan seals – The Gask-O-Seal® is a metallic, plastic, or composite machined with a machined groove into which a custom-engineered rubber lubricant is chemically and/or mechanically bonded, creating a dependable, sealable surface

Fabric-reinforced bellows – Flame-resistant and high-temperature resistant bellows are flexible enough to allow movement in joints during vehicle travel

Rotary axle seals – Provide sealing and wiper functionality for rotating and swiveling movements under low pressure and high velocity

Turret seals – Precision-formed rubber and combination rubber/fabric sealing products are manufactured using a single step process that molds the entire spiral length of the product at one time

EMI shielding & grounding
Complete EMI seals, gaskets, mesh, paints, additives, grease, adhesives, window coatings, and any other method of providing EMI protection of vehicles and equipment

Vehicle controls
Electronics controls
Hardwired mobile electronic subsystems
- Cooling fan-in-line systems, both hydraulic and electric, for improved vehicle operating ranges
- Color displays for accurate vehicle status information
- Color displays with video capability, for monitoring challenges

Hoses and fittings
Transport fluids and air throughout the vehicle, within integrated conveyance systems
- Lightweight materials provide cost and fuel savings
- Extreme abrasion resistance or flexibility available to solve pumping challenges
- Available in kits and subsystems
- Traction, fuel, air, hydraulic, and electrical systems

Applications: air brakes, central line inflation lines, single constant lines, fire suppression hose, fuel lines, heater hose, transmission hydraulic constant lines, water purification systems

Global Shield™ corrosion resistance
Cylinder coating technology addressing corrosion-resistance requirements of challenging environments
- Significantly improves corrosion resistance of traditional rod coatings
- Treated to over 3,000 hours of salt spray
- Best in class life for toughness, hardness, resistance to water
- Engineered hardness (HRc 54 minimum)
  - For wear resistance
  - Exceptional interfacial adhesion and impact resistance
  - Less downtime with reduced maintenance intervals
  - Environmentally safe (no chromium or hexavalent)

Parker E-Z Form suction/outlet hoses
- 12/24V DC or AC power options
- Lightweight solution fits existing vehicle portable can brackets
- Multiple size options available from portable cans to carts and skids
- Portable can threaded insert for in-fuel water/sediment contamination filtration

Fluid conveyance
- Parker E-Z Form suction/outlet hoses
- Same flow as traditional fuel pump
- Uses Parker filter for water separation and particulate filtration
- Includes DC pump power options
- Parker E-Z Form suction/outlet hoses
  - Electrical, hydraulic and electric circuit protection
  - Multiple size options available from portable cans to carts and skids
  - Portable can threaded insert for in-fuel water/sediment contamination filtration

Winch technology to meet the most demanding requirements
- Multiple lightweight winch options
- Complete system including PTO, pump, valve, electronics, winch, rope, and integration
- World leader in orbit-style, low-speed, high-torque, hydraulic motors
- Lightweight synthetic rope
- Integrated solutions with optimum performance
- Hydraulic options include auto level-wind, full line-pull capability for multiple wraps of drum
Aerospace technology

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Aircraft engine-driven pumps
• Provide primary hydraulic power for many of today’s leading military and commercial aircraft
• Ranging in size from 0.03 to 5.5 in³/rev and capable of operation at system pressures between 1,000 and 8,000 psi
• Unmatched efficiency and reliability
• Superior power-to-weight ratio

Electric motor-driven positive-displacement pumps
• Engine oil cooling systems and military electronics cooling systems applications
• Accepts a variety of dielectric fluids
• Fixed-speed device
• Easily adjustable flow by changing width of the gerotor to meet the specific application
• Modifiable pressure relief valve for safety to control maximum discharge pressure

IndiLok™ quick-disconnect (QD) couplings
• Provide reliable performance in cooling, fuel, hydraulic, and pneumatic systems across a wide range of temperatures and pressures

Medium- and high-pressure PTFE hoses
• Reliable fuel, oil, and hydraulic fluid conveyance
• Most hose assemblies are available with FAA, TSO, c53a, C75, AS, and ABS approvals

Slide-Lok™ couplings
• Quick connect/disconnect action
• Self-sealing action and superior performance during operation and maintenance of fluid systems
• Push-to-connect, pull-to-disconnect style

Hydraulic accumulators
• Piston-type hydraulic accumulators meet stringent weight, envelope, and performance requirements
• Double end-cap accumulators designed in accordance with MS28700 and MS28797

Bootsrap reservoirs
• Supplies system pressure to the reservoir connection and acts on the small piston
• Found in service on the F-22 Raptor, F-16 Fighting Falcon, F/A-18 E/F Hornet, C-17 Globemaster, V-22 Osprey, and 787 Dreamliner

Black Hawk main rotor flight control actuators
• Main rotor pitch and roll control
• Ballistic tolerant
• Jam tolerant with fail-safe operating modes
• Pressure switch for hydraulic system failure detection

Javelin control actuation system
• Missile pitch, roll, and yaw control
• Integrated control electronics
• Independent fin control

Cold plates
Thermal management
• Unique macrolaminate construction
• Transports coolant with complex liquid paths

Advanced liquid-cooled enclosures
Thermal management
• Answer-to-reset (ATR) format
• High power, high density electronic connectors
• Suitable for ruggedized military, aerospace, industrial, and commercial applications

Naval technology

Electromechanical actuator
Safety barrier positioning, platform locking, door and hatch latching
• Stainless steel construction for corrosion resistance
• Improved sealing to prevent environmental moisture contamination
• Mechanical over-ride for emergency operation
• Multiple move profiles
• Absolute positioning
• Adjustable acceleration

Drive control system
High-powered variable speed drive for AC motors available as either stand-alone unit or complex multi-axis motor control system
• Power range: 160-600 hp (100-400 kW)
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