



Industrial Automation Technologies

**Electromechanical Products
and System Solutions**

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Use the CD search codes provided in this catalog to go directly to the section for that product or Series.

www.parker.com/em/ Use the web addresses provided with each product to go directly to that product or Series on the Parker website.



Engineering Expertise



Premier Customer Service



Worldwide Support Network



Parker offers more than 1,400 product lines that control motion in 1,000 industrial, mobile and aerospace markets. We are the only manufacturer to offer our customers a choice of hydraulic, pneumatic, electromechanical and computer motion control solutions. Additionally, we have the largest global distribution network in our field, with more than 7,500 distributors serving more than 422,000 customers.

Parker Automation brings together leading brands in industrial automation, including Acroloop, Bayside, Compumotor, CTC, Custom Servo Motor, Daedal, Hauser, IPS, SSD and Trilogy. These brands are found in packaging equipment, machine tools, printing presses, truck equipment, vehicle assembly plants...anywhere industrial machines depend on motion control.

Parker is the leading global manufacturer of components and systems designed to control motion, flow and pressure in all types of machinery.

Parker Hannifin is a Fortune 300 corporation listed on the New York Stock Exchange as PH.



Today's industrial automation applications demand the best in quality and productivity. Solutions from Parker's Electromechanical Automation Division combine speed, accuracy and high-load capability to give machine builders and OEMs a competitive edge in industrial markets that include:

- Packaging
- Automotive Manufacturing and Assembly
- Printing
- Material Handling
- Military Applications

Parker specializes in motion control engineering, manufacturing, application expertise and unparalleled customer service. Solutions include:

- Small-scale Cartesian systems to large-scale gantry systems
- PLC-based and computer-based control systems
- Rotary servo motors from 1" to 12"
- Roller screw, ball screw and belt driven actuators
- Industrial monitors and PCs

Our industrial systems and solutions are available wherever needed — around the corner or around the world.



Customization and Services

Unlike many other motion technologies, electromechanical applications often require custom solutions. Parker has a Custom Systems Group staffed by experienced engineers and technicians who utilize systematic processes for handling component modifications or complete one-of-a-kind systems.

The System is the Product

Many of the industrial systems shown in this catalog are built specifically to customer request and need. Parker system customers can receive many optional services such as:

- 3-D Custom Assembly Drawings
- Electronics Integration
- Finite Element Analysis
- Life Load Testing
- End Effector Integration
- High-Flex Cabling Systems



An advanced manufacturing and assembly process allows us to build quality and consistency into every element of your motion system. Each mechanical system is fully assembled prior to shipment and each component is properly handled to protect finish and appearance.

24/7 Emergency Breakdown Referrals

The Parker product information center at 800-C-PARKER offers live operators 24/7 to help identify replacement parts or services. The operators at 800-C-PARKER can connect you with on-call representatives for all motion control technologies.

Parker Automation Technology Centers

Parker Automation Technology Centers are a network of premier product and service providers who can serve you locally for your automation needs. Each Automation Technology Center is certified to have completed significant product training and has the ability to provide subsystem solutions with local support.

Industry's Best Lead Times

#1 rated, industry-leading, on-time delivery to customer-requested ship dates.

www.parkermotion.com

The Parker Electromechanical Automation site offers the most extensive online support tools in the industry, including:

- Complete online catalog
- FAQ database with more than 500 answers to common questions
- Interactive product sizing and selection tool
- Comprehensive CAD drawings and 3-D models for electronic and mechanical products
- User guides and detailed product specifications
- Latest software and firmware revisions
- Application case studies
- Custom solutions photo library
- Innovative technology white papers

Speak with a Motion Control Expert

Toll-Free Applications Engineering Assistance

When you have urgent questions, expert answers are only a phone call away. Our team of experienced engineers is ready to take your call. These engineers have practical field experience and can provide you with application and product assistance throughout the stages of your project and for the life of the product. For presale support, including sizing and selecting systems, call 800-245-6903 (724-861-8200 outside the US). For post-sale support with technical questions on programming and troubleshooting, call 800-358-9070 (707-584-7558 outside the US). Our staffing and support tools allow us to resolve most issues and get your project rolling in less than one hour.

Engineering Support Tools to Make Your Job Easier

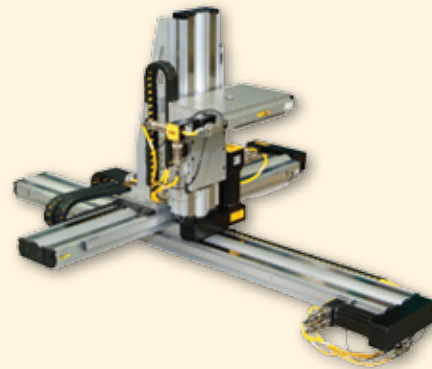
Years of experience have culminated in a vast assortment of engineering support tools that help to simplify sizing, selection, installation, and troubleshooting. There are also tools to help design a system to custom application requirements. A few of these tools include:

- Comprehensive engineering reference, available on CD-ROM or on the web
- Motor sizing and selection software
- Application programming software
- Product installation videos
- CAD files available for most products

Selectable Levels of Integration™ is a philosophy of product development and management that allows the machine builder to select an appropriate system, subsystem, or component to meet a specific need. Parker has solutions for machine builders of all types, from those who want a complete, integrated system to those who want to build their own system from “best of breed” components.

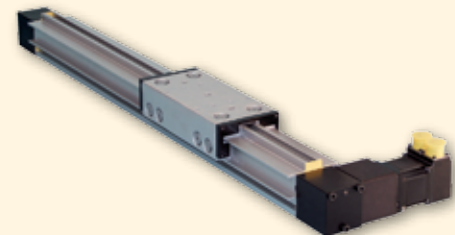
Systems

Machine builders and OEMs often choose to integrate a complete electromechanical system into their machine. They have confidence in knowing that our knowledge, experience, and support will ensure that their goals are met. Minimal design engineering ensures component compatibility from a single source.



Subsystems and Bundled Products

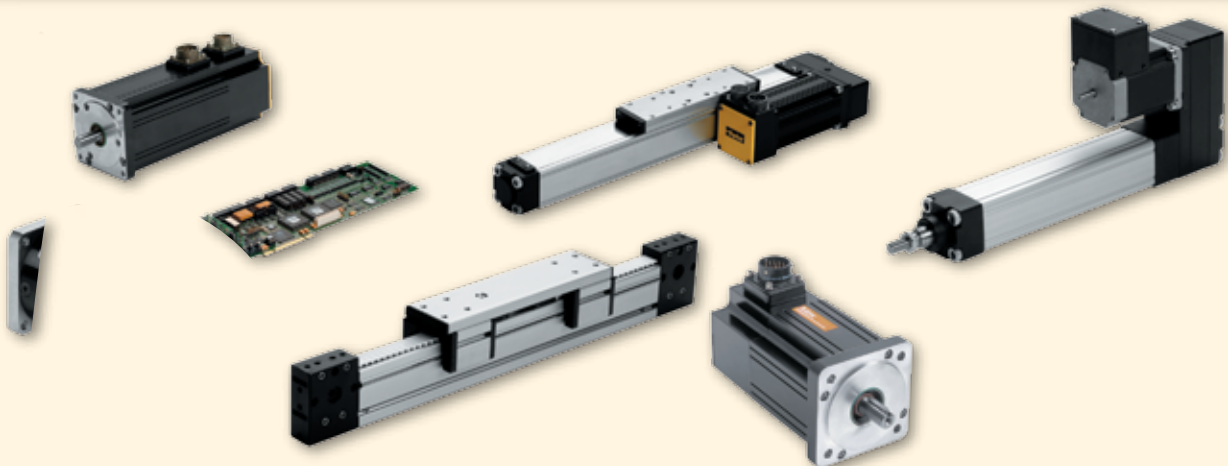
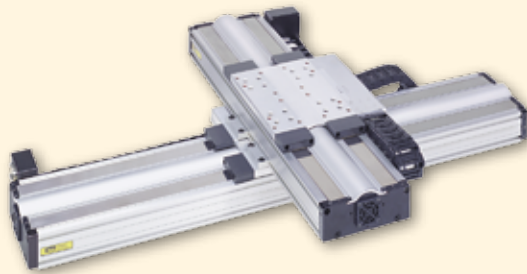
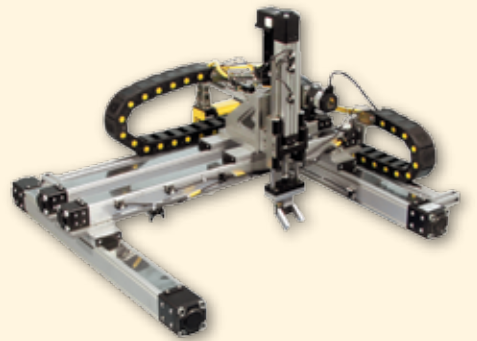
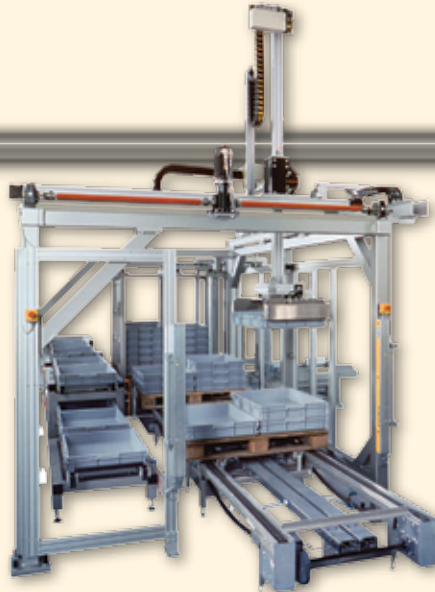
For a cost-effective and efficient solution, Parker offers bundled or kitted systems. We can combine motors, gearheads, and positioning systems to deliver a configured subsystem ready for installation. Parker configuration and setup software accommodates the rest of the product line, making start-up a snap. Combining this with our custom product modification capabilities gives the machine builder an economical custom-fit solution. Result: reduced engineering effort, straightforward integration, and modular compatibility.



Component Products

We offer the broadest range of linear and rotary motion products available for automation systems. If you have the capability and experience to develop your own systems, our innovative, easy-to-use products will help you get the job done. Parker provides short lead times, large selection, and proven reliability.





Parker Electromechanical Automation products are built using industry standard interfaces and market-leading features that combine great value and performance. Whether using one component or an entire system, Parker has the right solution.



HMI (Human-Machine Interface)

Parker offers HMI solutions for any application from simple push button replacement through to sophisticated networking, multimedia and data logging requirements. Parker pre-loads Interact or InteractX™ HMI software on PowerStation industrial computers to provide a ready-to-go HMI solution. This bundled approach reduces development and integration time for your HMI project.



Motion Controllers

Parker motion controllers are powerful standalone multi-axis designs that have the processing power to coordinate multiple axes of motion. Parker controllers have advanced features built in, such as kinematics transformation for the control of robots and other non-linear functions. Each Parker controller comes with free libraries for Visual Basic® and C++®.





Drives

Parker drives are digital designs that deliver a maximum amount of power output and performance in minimal package size. These drives have industry-leading power density and smart digital designs with features to ease integration and start-up.



Motors

Using advanced technologies, Parker rotary motors provide maximum performance and value. Our exposed-lamination designs provide maximum torque per package size, and the motor designs provide cog-free rotary motion for the best low-speed smoothness. Patented linear motor designs provide the greatest winding uniformity and accuracy in the industry, and range from the smallest linear motor on the market to the largest force capacity.



Gearheads

High-precision designs, Parker gearheads have less than three arc-min of backlash. They have an industry-leading two-year warranty.



Positioning Tables

Parker multi-axis positioning tables integrate linear motors or ground ballscrews. The designs combine the low cost of extruded aluminum with machined bases allowing “out of the box” submicron precision. Our positioning tables are modular designs that easily accommodate flexible configurations such as XY and XYZ.



Actuators

Parker actuators are modular single-axis actuators that can be easily configured in multi-axis systems. These actuators are screw- or belt-driven and give the designer a great deal of flexibility to apply the right actuator technology to meet the application needs for accuracy, speed and distance.



End Effectors

With the broadest range of automation products in the industry, Parker provides pneumatic grippers, rotary actuators and vacuum components for a wide range of applications.



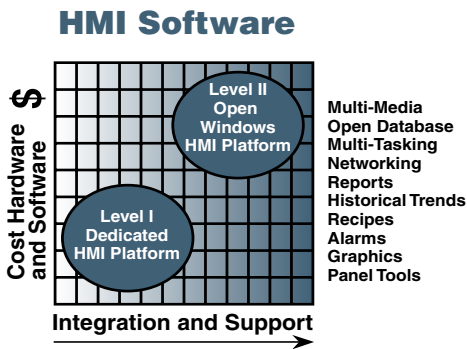
Structural Framing

Parker Industrial Profile Systems provide full engineering, fabrication and assembly for any structural design. We provide the profiles, fasteners and accessories to complete any system. The only limitation is your imagination.



I/O

The Parker I/O system is a modular and flexible remote I/O system designed to work with today’s common fieldbuses. The modular design of the Parker I/O allows the user to choose the number and type of I/O points that best suit each application.



Parker offers the right HMI solution for your application:

Level I*

Dedicated HMI Platform:

Parker's Interact software comes pre-installed on our PA family of PowerStations. Interact is the perfect fit for applications that require features from push button replacement through to historical trending and machine configuration on the plant floor.

Level II*

Open Windows® HMI Platform:

Parker's InteractX software comes pre-installed on both our EPX and HPX families of PowerStations. InteractX enables operator interface functionality for higher-level applications including networking, open database integration and multimedia support options. InteractX is especially suited to applications that require maintaining an audit trail such as 21CFR11, the USA Patriot Act and Sarbanes-Oxley.

** Parker's HMI solutions are scalable: Interact applications can be migrated to InteractX as your needs change, leveraging your engineering investment and saving you money.*

Level I: Interact HMI Software and PA PowerStations

www.parker.com/em/papowerstation
www.parker.com/em/interact



PA PowerStations and Interact provide a powerful, cost-effective solution for Level I applications.

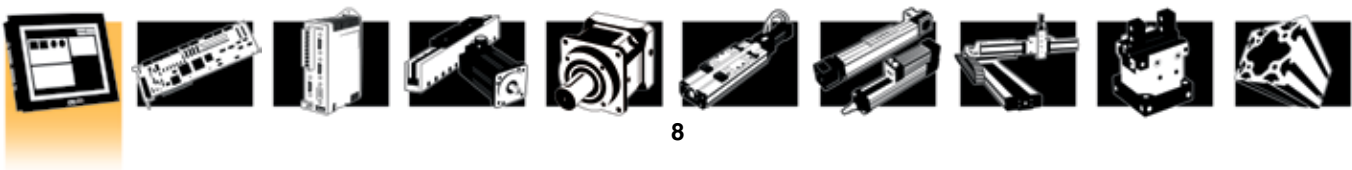
PowerStations are available in the following display sizes: 5", 6", 8", 10" and 15".

Every PowerStation includes:

- Interact runtime software (PTM, GMM, AMM and NET)
- Compact flash storage
- RS-232 (1), RS-232/422/485 (1) serial ports
- 10/100 BaseT Ethernet
- Analog resistive touchscreen
- Type 4/4X bezels
- CE/UL/CUL agency approvals C1D2 (optional)
- 24VDC power

Interact Software:

- Easy-to-use Windows development environment
- Intuitive navigation and online help
- Modular architecture supports scalability with optional modules:
 - Machine configuration
 - Recipe handling
 - Data transfer
 - Historical trending
 - Report generation
 - User program
- Over 60 communications drivers included
- Simultaneous multiple device communication



Level II: InteractX™ HMI Software and EPX/HPX PowerStations

www.parker.com/em/hpx
www.parker.com/em/epx
www.parker.com/em/interactx



EPX PowerStations provide a bundled Level II hardware and software solution at a price point that is competitive with most Level 1 solutions. EPX PowerStations are available in the following display sizes: 8", 10.4" and 15" (special order).

Every EPX PowerStation includes:

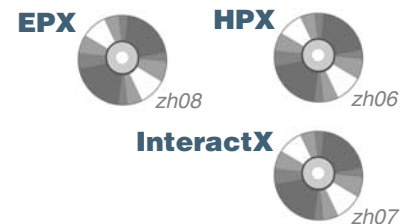
- 650 MHz Celeron ULV CPU
- 512MB DRAM
- Windows XP Professional
- 40GB hard drive (compact flash optional)
- External compact flash slot
- (1) RS-232, (1) RS-232/422/485 serial ports
- 10/100 BaseT Ethernet

HPX PowerStations are fully configurable industrial PCs that are bundled with InteractX HMI runtime software pre-installed. They are available in 10", 15" and 17" display options with CPU options ranging from a Celeron 2.0 GHz to a Pentium 4 2.8GHz.

InteractX is Parker's award winning Windows based Level II HMI software.

Software features include:

- Panel tools
- Industry leading graphics
- Alarming
- OPC Client and Server
- Over 50 communications drivers
- ActiveX support
- Integrated Visual Basic® for applications
- Multi-language support
- "Easy E-Sigs" no scripting required tools for audit trail and 21CFR11 compliance
- Database logging



HPC PowerStations

www.parker.com/em/hpc



Parker's industrial PC products include 10", 15", and 17" panel mount color touchscreen systems and a machine-mount PC only system. The HPC PowerStation line of PC workstations is designed and tested to extremes and delivers more processor, media, and connectivity performance for your money.

- 2.0GHz Celeron or 2.8GHz Pentium 4 CPU
- Up to 2GB DDR SDRAM
- Intel Extreme Graphics
- 80GB EIDE hard drive (160GB HDD or compact flash optional)

- 4 USB 2.0/1.1 ports
- (3) RS-232, (1) RS-232/422/485 serial ports
- 10/100 BaseT Ethernet
- External audio
- Parallel port
- PC-only system:
 - Hardened industrial PC
 - Use with our PHM monitors or any 3rd-party display
 - Keyhole mounting



PHM Industrial Monitors

www.parker.com/em/indmonitors



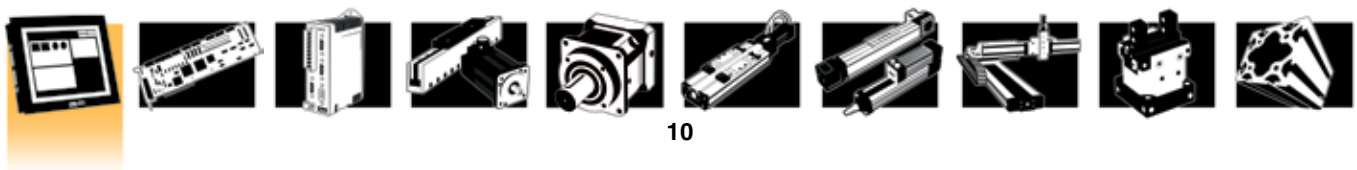
This family of industrially hardened monitors is perfect for harsh environments. They feature a chemical-resistive NEMA 4/4X front bezel and convenient clip mounting, while offering standard VGA and serial connections for video and touchscreen.

- Analog resistive touchscreen
- On-screen display controls
- Auto power sensing and sleep mode

- Stainless steel bezel available on 15" models
- 24VDC power
- CE, UL and CUL agency approvals standard
- Class 1 Div. 2 available

Display sizes:

- 15" XGA (1024 x 768)
- 17" SXGA (1280 x 1024)



www.parker.com/em/acr



The ACR Series of controllers are among the highest-performing controllers on the market. Powerful, yet efficient, project development software makes this family an attractive choice regardless of application complexity.

Connectivity and communication features give the ACR controllers flexibility for use in a wide variety of machine architectures. The ACR family excels as a standalone machine and motion controller, interfacing with a PC or working alongside a PLC. A powerful DSP makes the ACR Series an outstanding multi-tasking servo controller.

Parker System Solutions

The ACR family is the controller of choice when a complete Parker motion system is needed. Seamless communication to drives and HMI combine with motion algorithms tailored to precision mechanics for a complete high-performance system.

Hardware Features

- Up to 16 axes of servo or stepper control
- ± 10 V analog or step-and-direction command output
- 24 VDC optically isolated onboard inputs and outputs
- Absolute encoder support via SSI

Motion Control Features

- Multi-tasking of up to 24 simultaneous programs
- Interpolation of eight axes in any combination
- Linear interpolation of up to eight axes
- Segmented electronic CAM
- Electronic gearing with real-time phase advance
- Programmable limit switch with multiple sources
- Advanced gantry control
- 3-D arcs and tangent axis control
- Hardware and capture registers
- Time-based moves
- S-curve profiling
- Backlash and ballscrew compensation
- High-speed (1 μ s) hardware position capture registers

Communication Features

- Ethernet 10/100 Base-T
- USB 2.0
- CANopen
- ETHERNET Powerlink
- EtherNet/IP™ connectivity
- Visual Basic and Visual C++® libraries
- .NET and ActiveX™ communication controls
- Parker Interact and InteractX compatible via Ethernet

ACR9000



ACR



Series	Bus Type	Number of Axes	Command Output
9000	Ethernet, USB	1 to 8	Servo, Stepper
9030	Ethernet, USB	1 to 16	Servo, Stepper, ETHERNET Powerlink
9040	Ethernet, USB	1 to 16	ETHERNET Powerlink
1505	PCI	1 to 4	Servo, Stepper
8020	PCI	1 to 16	Servo, Stepper



ETHERNET Powerlink (EPL)

www.parker.com/em/epl



ETHERNET Powerlink (EPL) expands the ACR family by enabling real-time motion control via Ethernet. The high-bandwidth digital communications network enhances machine performance and configuration possibilities while reducing set-up time and installation complexity.

ETHERNET Powerlink is a deterministic, real-time Ethernet motion bus solution connecting motion controller to servo drives and I/O points using standard Ethernet hardware. EPL is an open standard communication protocol, developed to achieve the timing and synchronization required in high-performance automation and motion control applications.

Parker's EPL solution includes all the motion and communication features of the ACR family for complete motion and machine control solutions. A full range of servo drives is available with Aries and Compax3 Series drives, supporting a wide variety of motors and feedback devices. All drive and motor configuration, programming and system troubleshooting can be accomplished through the ACR controllers.

EPL Highlights

- Open industry standard communication protocol
- Standard Ethernet hardware
- No proprietary ASICs required
- Based on CANopen device profiles
- Simplified system design
- Reduced installation time
- Enhanced diagnostics

Parker EPL Solutions

- Up to 16 axes with ACR controllers
- Aries and Compax3 servo drives
- Built-in repeating hubs for flexible connection options
- Drive and controller on-board I/O
- Single point of communication for entire motion system
- Auto-tuning and motor configuration via ACR-View

ETHERNET 
POWERLINK
Standardization Group



C3 powerPLmC

www.parker.com/em/c3



C3 powerPLmC integrated, into servo drive



C3 powerPLmC stand alone, without servo drive

The C3 powerPLmC is a powerful machine automation platform that tightly integrates PLC and motion control functionality into one platform.

The C3 powerPLmC uses the internationally recognized IEC61131-3 programming interface to provide powerful I/O logic control as well as PLCopen-based multi-axis motion control functionality. The standard Ethernet interface included with the package, combined with the available OPC server, provides effortless connectivity to higher-level systems as well as Windows-based HMI software packages and supervisory systems.

The C3 powerPLmC gives you a complete machine control solution for today's demanding industrial applications in both standalone and drive-integrated versions.

Motion

- Multi-axis motion based on PLCopen specifications
- CANopen with Sync telegram interface to control servo axes
- HEDA real-time bus for inter-axis coupling
- 32+ axes of centralized motion control

Interface Features

- 10/100 Mbps twisted Ethernet
- CANopen for up to 127 nodes of motion or I/O
- HEDA option
- Profibus DP slave option
- Parker InteractX™ compatible via Ethernet
- OPC Server
- Web Server
- Pier-to-pier data exchange

Control Features

- IEC61131-3 programming with CoDeSys interface
- Supported languages: LD, ST, IL, FBD, SFC, CFC
- Processing time of 100µs for 1000 lines of code (IL)
- 1ms minimum cycle time
- Real-time multi-tasking
- Debugging, single step, watch function
- Simulation, online trace
- Online program changes
- Real-time clock
- Watchdog timer
- 64 MB program memory on stand-alone version
- 4 MB program memory on drive-integrated version

I/O

- PIO via CANopen master interface for digital and analog distributed I/O (controls other CANopen devices)
- Onboard I/O of Compax3 servo drives



Servo Drive Family Attributes

Series	Compax3	Aries	Gemini	AC890 - AC890PX**
Input Power	120/240/480	120/240	120/240	240-460 and 500-690
Shaft Power	up to 100kW	up to 3kW	up to 7.1kW	up to 1100kW
Feedback	Encoder, Resolver, Sincos Endat, Sincos Hiperface, SSI	Encoder, Sincos Endat, Resolver	Encoder, Resolver	Encoder (24V), Resolver, Sincos Endat
Command Input	+/-10V Analog, 5V Step and Direction, Encoder Input	+/-10V Analog, 5V Step and Direction, Encoder Input	+/-10V Analog, 5V Step and Direction, Encoder Input	+/-10V Analog, Encoder Input
Controller Version	T11, T30, T40*	None	GV6, GV6K	Application Block
Fieldbus Communications	Profibus, DeviceNet, CANopen, ETHERNET Powerlink	ETHERNET Powerlink	none	DeviceNet, Controlnet, Profibus, Firewire, Ethernet, CANopen
Inputs/Outputs	8in/4out Expandable	Enable/Reset/Fault	8in/6out Expandable	7in/2out Expandable
Compatible Motor	Brushless Servo	PM Brushless Servo	PM Brushless Servo	Brushless Servo, Asynchronous
Parker Motor Series	MPP, SM, BE	MPP, SM, BE	MPP, SM, BE	MPP, NX

* T11 - Basic indexer; T30 - Fully programmable IEC61131-3; T40 - T30 plus electronic camming, gearing, PLS, etc.

** See AC Drives for detailed information.

Compax3

www.parker.com/em/compax



With its high-performance and modular design, the Compax3 family of industrial servo drives and drive/controllers offers a new level of servo performance and flexibility.

Enhanced by the IEC61131-3 programming environment, the modular structure of the Compax3 family allows options such as intelligent motion controllers, fieldbus interfaces and industry standard motor feedback.

In addition, numerous expansion options can be added to the standard product in order to optimize the capabilities required for today's demanding servo applications.

- Available in both 120/240 VAC and 480 VAC input versions
- Certified safety technology integrated into drive (EN954-1 Category 3)
- Continuous current output from 2.5 A(rms) to 155 A(rms) (up to 75kW of power)

- Fieldbus options: DeviceNet, Profibus, CANopen, ETHERNET Powerlink and RS232
- Supports all five IEC61131-3 programming languages and continuous flow chart with CoDeSys interface
- Resolver, encoder or high-resolution Sin/Cos® Absolute rotary encoder feedback (single- or multi-turn) – also supports Hiperface, Endat 2.1 and SSI feedback devices
- Internal regeneration circuitry; external resistor connections for additional power dissipation
- Easy-to-use wizards-based configuration and programming via C3 ServoManager™ software package
- Full diagnostic, auto tuning and 4-channel oscilloscope tools provided in the standard C3 ServoManager™ software
- CE (EMC and LVD), UL and cUL recognized



Aries Series

www.parker.com/em/aries



The Aries Series of digital servo drives is the easiest-to-use servo drive on the market. There is no setup, as it auto-configures to any Compumotor motor with smart encoder. With Aries, you only pay for what you need, as it is an optimized torque drive for use with a centralized controller and no additional circuitry. Choose the Aries for hassle-free, low-cost multi-axis torque drive applications.

- 120/240 VAC input
- 100, 200, 400, 750, 1300, 2000 and 3000 Watt power levels
- Up to 16 A(rms) continuous, 48 A(rms) peak current
- Auto-configuration
- Torque or velocity control and step/dir control
- Smart encoder, quadrature encoder, or EnDat absolute encoder feedback
- CE (EMC and LVD) and UL compliant



Gemini Series

www.parker.com/em/gemini



The Gemini Series is a family of servo drives and controller drives that covers an extremely wide range of motion control applications. The Gemini is available in three control levels (drive only, basic controller drive, and full-featured controller drive) and five power levels. Choose the Gemini when you need to be flexible or want to mix and match drives but keep the same connectivity and front-end software.

- 120/240 VAC input
- Torque, velocity, or position control
- Five power levels from 2 to 14 A(rms) continuous current



Gemini GV Digital Servo Drive	Gemini GV6 Digital Servo Drive with Basic Controller	Gemini GV6K Digital Servo Drive with Full-Featured Controller
Torque, velocity, step and direction CW/CCW/Encoder tracking mode Wizard-based setup	Basic motion Registration Conditionals Integer variables RS232 and RS485 standard 8 inputs and 6 outputs	Position-based following Multi-tasking Scaling High-level variables 300 k memory RS232, RS485, and Ethernet standard 8 inputs and 6 outputs onboard Up to 256 expansion I/O optional



ZETA

www.parker.com/em/zeta



ZETA microstepping drives are standalone, packaged microstepping drives that incorporate breakthrough techniques known as Active Damping™ (patented) and Electronic Viscosity™ (patent pending). The ZETA family of drives comes in four different power versions: ZETA4, ZETA4-240, ZETA8 and ZETA12. Designed for reliability, the ZETA drive family offers

premier quality and performance while being easy to use and apply. The ZETA drive family meets the need for global solutions:

- CE (LVD), CE (LVD and EMC) or low-noise applications
- UL Recognized
- 120 VAC and 240 VAC versions



ViX Microstepping Controller Drives

www.parker.com/em/vix



The ViX Series is a digital, compact and high-power family of DC-input microstepping drives.

- Wizard-based configuration
- Anti-resonance circuitry suppresses mid-range instability
- Recommended motor inductance range of 0.5 mH to 20 mH
- 24 to 80 VDC bus input voltage
- Integer selectable resolution from 200 to 51,200 steps/rev
- Five digital inputs and three digital outputs
- One analog input
- Controller version provides basic control functionality
- RS485 and CANopen version also available



AC890 System Drives

www.parker.com/em/ac890



Common Bus (CD) Drives



Standalone (SD) Drives

AC890 System Drives are modular AC drive units that can be combined to form a complete multi-section drive system, saving space, reducing wiring, and providing unmatched system performance.

The AC890 can control everything from induction motors to servo motors. The AC890 comes in a wide variety of sizes and ratings and input and output types, making it the right solution for virtually any motion control project.

COMMON BUS Drives (CD) are individual motor output sections that easily connect to a **COMMON BUS Supply (CS)** with a unique and easy-to-install DC bus bar system (SSD Rail).

STANDALONE Drives (SD) are complete AC-input-to-AC motor output controller with power input and output terminals and access to all feedback and networking options.

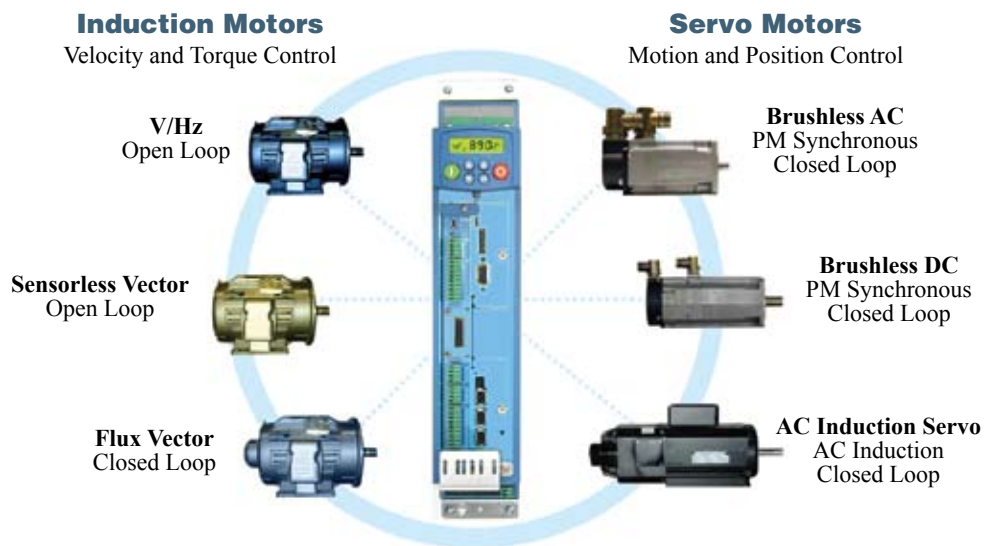
- 5-mode Frequency Converter
 - V/F
 - Sensorless Vector
 - Flux Vector
 - Servo Drive
 - Line Regenerative (AFE)
- Built-in EMC filters
- EN954-1 CAT. 3 Certified optional safe stop
- Power Input: 208-500VAC or 320-705VDC
- IP20, IP52 rating

Inputs/Outputs

- Analog Inputs: 4 total
- Analog Outputs: 2 configurable (0-10V, ±10V)
- Digital Inputs: 7 configurable (24V)
- Digital I/O: 2 configurable (24V)
- Relay Digital Output: 1 configurable (24V)

Communication Options

- Firewire
- DeviceNet
- Profibus
- ControlNet
- CANopen
- Ethernet



AC890PX High Power Modular Drives

www.parker.com/em/ac890px



The BUILDING BLOCK Drive, AC890PX modules plug into a common bus rail system to form a COMPLETE DRIVE – enclosure, disconnect, line reactor and fusing.

Features

- Each bay location holds 1 PowerPak module
- PowerPak modules include Inverter phase assemblies, DC supplies, and capacitor modules
- Bus bars run across the PowerPak module back, with self-aligning, silver-plated pluggable connectors
- Cooling fans draw air in the front and out a top plenum
- Top or bottom power entry/exit
- Integrally mounted in a 79.7" (2024mm) high x 24.4" (620mm) deep x 19.7" (500mm) wide enclosure

Compact Size

- Saves factory floor space
- Only 20" (500mm) wide – Best-in-Class!

Drive Performance

- Overload
 - Standard duty torque ratings: 110% for 60 seconds
 - Heavy duty torque ratings: 150% for 60 seconds
 - Servo torque ratings: Consult factory
- Dynamic braking: Built-in DB switch and DB resistor standard, 100% torque rated (limited duty). Option for external resistor.

Controller performance and communications are as 890 section.



Plug-In Modularity

- Sealed modules are easy to install and service
- PowerPak modules replace in minutes
- Easy-to-handle – under 50 pounds
- Filtered cooling ventilation
- Input fusing
- Harmonic reducing
- Replaceable by local technical staff
- IP52* / NEMA12 - UL (c-UL) North America/Canada (as standard) enclosure is standard

*Available IP54 –consult factory

AC890PX Building Blocks

AC 890 Control Module



Single-Phase Module



Capacitor Module



Converter Module



zd21



650/650V Series V/F and Sensorless Inverter

www.parker.com/em/ac650



The 650 Series inverters provide basic speed control of standard three phase AC motors from 0.3 to 10 HP (0.25 to 7.5 Kw). They are full of useful features including preprogrammed applications – all designed to simplify set-up, installation and operation.

The 650V Series inverters provide simple, no-fuss speed control of standard three-phase AC motors from 0.3 to 150 HP. Sensorless vector provides exceptional dynamic response.

- Pre-loaded macro applications
- Built-in EMC filters
- Extremely simple set-up and programming
- Removable keypad
- Extremely compact
- Motor thermistor input
- Output frequency 0-240Hz

Drive Performance

- Overload 150% for 30 seconds (heavy duty), 110% for 30 seconds (standard duty)
- IP20 rating
- Operation modes: V/F control with linear or quadratic law; sensorless vector control (650V)

Inputs/Outputs

- Analog Inputs: 2 (0-10V, 4-20mA)
- Analog Outputs: 1 (0-10V)
- Digital Inputs: 650: 3 configurable (24V) 650V: 5 configurable (24V)
- Relay Digital Outputs: 1
- Digital Inputs or Outputs: 650: 1 configurable (24V) 650V: 2 configurable (24V)
- Motor Thermistor Input: 1

Pre-loaded Applications

- Basic Speed Control
- Preset Speed
- Increase/Decrease
- PID Control
- Manual/Auto Control



690+ Series Integrator

www.parker.com/em/ac690



The 690+ Series is a single range of AC drives designed to meet the requirements of all variable speed applications from simple single motor speed control through the most sophisticated integrated multi-drive systems.

The heart of the 690+ is a highly advanced 32-bit microprocessor-based motor control model which provides exceptional dynamic performance. Add a host of communications and control options to tailor the drives to meet your exact requirements.

- 4-Mode inverter: V/F, sensorless vector, flux vector, line regenerative
- Set-up, programming and communication protocols in common with 590+ Series integrator

- Function block programming
- Built-in EMC filters
- Torque at zero speed
- 1 to 1600 HP
- Output frequency 0–1000Hz
- IP20 rating (Sizes G/H/J IP00)

Inputs/Outputs

- Analog Inputs: 4 (0-10V, ±10V, 0-20mA, 4-20mA)
- Analog Outputs: 3 (0-10V, ±10V, 0-20mA, 4-20mA)
- Digital Inputs: 7 configurable (24V)
- Relay Digital Outputs: 3
- Motor Thermistor Input: 1



590+ Integrator Series DC Digital Converters

www.parker.com/em/dc590



The Integrator Series is a single family of both AC drives (690+) and DC drives (590+) that provides the benefits of common programming, setup and communications across both technologies.

The 590+ Integrator Series highly advanced DC drive meets the demands of the most complex motor control applications. Extensive application software (including winder control as standard) together with function block programming and configurable I/O creates a total drive system in a single module.

- Common programming, set-up and communication protocols with 690+
- DRV version with built-in contactor and fuses
- Open and closed loop winder/unwinder control as standard
- Ratings up to 2700A and supply voltage up to 690V
- Function block programming
- Built-in field regulator
- The technology box allows 690+ to integrate with different Fieldbus protocols.

- Power supply
 - 110-220V ($\pm 10\%$) 3 phase
 - 220-500V ($\pm 10\%$) 3 phase
 - 500-690V ($\pm 10\%$) 3 phase
- Overload 200% for 10 seconds, 150% for 30 seconds

Inputs/Outputs

- 5 Analog Inputs configurable (12 bit + sign)
- 3 Analog Outputs (10 bit + sign):
 - 1 Armature current Output ($\pm 10V$ or $0-10V$)
 - 2 Configurable
- 9 Digital Inputs (24V, max 15mA):
 - 1 Program Stop
 - 1 Coast Stop
 - 1 External Alarm
 - 1 Start-Run
 - 5 Configurable
- 3 Digital Outputs configurable

Communication Options

- LINK
- DeviceNet
- ControlNet
- ProfiBus
- Ethernet
- ModBus
- ModBus Plus
- CANopen
- EI Bisynch/RS422/RS485



SSD Drives



Complementing our complete range of AC and DC drive products, Parker SSD Drives offers a world-class drive system design service. With over two and a half decades of industry experience in converting, wire and cable, metals, paper, plastics and many more, we have built a considerable reputation for excellence of system design and manufacture.

Our highly experienced team of applications engineers provides design services for custom drive systems used in a wide variety of industries. It produces simple to complex, turn-key drive systems with integrated PLCs and SCADA control.

A standardized, functional design approach makes it possible to construct, test, and document complex systems quickly and economically, yet to a high quality standard. Our UL, CSA and CE certified panel shop builds systems that meet stringent local and world demands and the witness testing program ensures trouble-free installations.



Dynaserv Series

www.parker.com/em/dynaserv



The Dynaserv Series is a direct-drive servo system that eliminates the need for costly mechanical components and the backlash associated with them. The load is mounted directly onto the motor. The unique technology of the motor allows for resolutions of up to 4,096,000 pulses per revolution and torque up to 500 Nm (370 ft-lb). Choose the Dynaserv when you need high accuracy and high torque or would like to eliminate a gearbox or speed reducer.

- Repeatability to ± 1 arc second
- 20 models: 4", 6", 8", or 10" diameters
- Speeds up to 5 rps
- Auto-tuning
- Hole through center for wires or tubing



Series	DR	DM
Motor sizes	4", 6", 8", 10"	4", 6", 10"
Feedback device	Resolver	Encoder
Motor body material	Steel	Aluminum
Compatible drives and command input	Dynaserv G3 $\pm 10V$ analog, step-direction or built-in controller	Dynaserv G3 $\pm 10V$ analog, step-direction or built-in controller
Main attributes	Lowest cost Largest through-hole Most robust	Most accurate Lightest weight



www.parker.com/em/custservo

Parker's standard shaft, feedback, and connection options for brushless servo motors meet the needs of most customers. However, we also engineer custom designs for customers whose applications require unique connectors, mountings, or windings. Purchasing a custom motor from Parker is

cost-effective, in part because we don't require you to order minimum quantities of your design. Plus, we offer short lead times for custom design services. Whether you buy a standard or custom motor, you can count on Parker to provide the best servo motor solution.

Connectorization

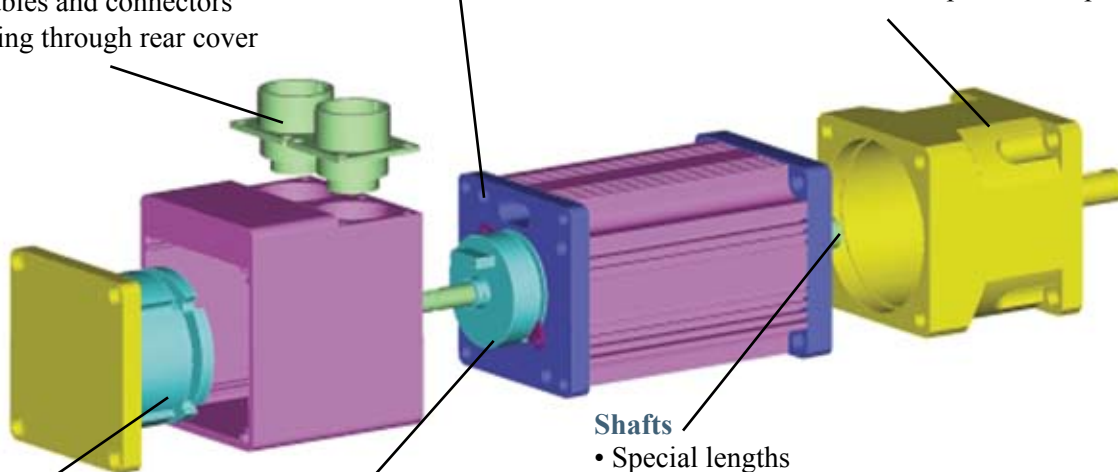
- MS connectors
- Right-angle rotatable
- MS connectors on back cover
- Special cable lengths
- High-flex cables
- Custom cables and connectors
- Cable exiting through rear cover

Flanges

- Tapped mounting holes
- NEMA flanges
- Customer-specified flanges
- Face mount

Gearheads

- Custom ratios
- Customer-specified flanges
- Customer-specified output shaft



Brakes

- Spring released
- Permanent magnet
- 24 and 90 volt brakes

Feedback

- Incremental and smart encoders
- Absolute encoders - single and multi-turn
- Custom feedback devices
- Resolver

Shafts

- Special lengths
- Special flats
- Special keyways
- Special shaft diameters
- Hollow shafts
- Rear shaft extension
- Double flats
- Shaft pinning
- Pressed-on gears
- Center tapped
- Special shaft materials



Rotary Servo Motor Family Attributes

Series	SM	BE	MPP	EX	TMW-TMA
Application requirements	Smooth motion, lower acceleration	Rapid moves, high acceleration	Rapid moves, high acceleration	Rapid moves, high acceleration, explosive environments	Direct drive, low speed, high torque
Frame sizes	NEMA 16, 23	NEMA 16, 23, 34	8 sizes, 40 to 320mm	4 Sizes, 92 to 145mm	3 Sizes, 360 to 762mm
Continuous torque range, Nm (in-lbs)	9.2x10 ⁻² to 1.3 (0.8 to 11.3)	0.2 to 5.2 (1.3 to 46.3)	5.6x10 ⁻² to 451.9 (0.5 to 4,000)	1.75 to 35 (15.5 to 311)	670 to 21000 (5,969 to 187,110)
Speed range	0 to 7,500 rpm	0 to 5,000 rpm	0 to 7,000 rpm	0 to 4,000 rpm	0 to 330 rpm
Feedback	Encoder/Resolver	Encoder/Resolver	Encoder/Resolver/ SinCos - Hyperface/Sincos - Endat	Resolver/ SinCos - Hyperface/Sincos - Endat	Resolver/ SinCos - Hyperface/Sincos - Endat
Drive family	Aries, Compax3	Aries, Compax3	Aries, Compax3, AC890	Compax3, AC890	Compax3H, AC890

SM Series

www.parker.com/em/sm



The SM Series brushless servo motors feature a slotless stator design that eliminates all detent torque in the motor, allowing the motors to provide extremely smooth motion, especially at low speeds. This design is also ideal for applications involving high-inertia loads (such as lead screws and belt drives).

- NEMA 16 and 23 sizes
- Up to 180 oz-in continuous torque
- Brushless construction
- Slotless design
 - Negligible detent torque
 - Reduced torque ripple
 - Higher rotor inertia

- Integrated planetary gearheads available
- TENV housing, IP65 option
- Custom modifications available
- Industry-leading delivery times
- CE compliant



Series SM	160	161	162	230**	231**	232**	233**
Continuous stall torque Nm (oz-in)	9.2x10 ⁻² (13)	0.2 (26)	0.3 (47)	0.2 (36)	0.4 (54)	0.7 (106)	1.1 (156)
Peak torque Nm (oz-in)	0.3 (40)	0.6 (78)	0.1 (141)	0.6 (78)	1.1 (160)	2.2 (316)	3.3 (467)
Rated speed (rpm)	7,500	7,500	7,500	7,500	7,500	7,500	5,800
Rotor inertia kg-m ² (oz-in-s ²)	5.0x10 ⁻⁶ (7.0x10 ⁻⁴)	1.1x10 ⁻⁵ (1.5x10 ⁻³)	1.8x10 ⁻⁶ (2.6x10 ⁻⁴)	2.7x10 ⁻⁵ (3.8x10 ⁻³)	5.2x10 ⁻⁵ (7.4x10 ⁻³)	9.3x10 ⁻⁵ (1.3x10 ⁻²)	1.4x10 ⁻⁴ (1.9x10 ⁻²)

*All specifications represent encoder feedback.

**Resolver version available with higher stall and peak torques.



BE Series

www.parker.com/em/be



The BE Series brushless servo motors produce high continuous stall torque in a cost-reduced package. The increased torque is the result of eight magnetic poles on the rotor instead of the four poles traditionally found on motors in these frame sizes. The cost reduction is achieved from their open-lamination design. Unlike traditional servo motors, the BE Series motors do not have a metal housing. The laminations of the motor stator are shaped into the body of the motor, reducing material costs and motor assembly time.

- NEMA 16, 23, and 34 sizes
- Up to 5.2 Nm (741 oz-in)* continuous torque
- Brushless construction
- Eight-pole open-lamination design
 - Increased torque
 - Lower cost
- Integrated planetary gearheads available
- Custom modifications available
- Industry-leading delivery times
- CE compliant



Series BE	161	162	163	164	230*	231*	232*	233*	341*	342*	343*	344*
Stall torque, Continuous Nm (oz-in)	0.1 (21)	0.3 (37)	0.3 (47)	0.4 (61)	0.4 (53)	0.7 (94)	1.1 (155)	1.5 (207)	1.7 (239)	2.9 (406)	4.0 (566)	4.8 (686)
Peak torque Nm (oz-in)	0.5 (64)	0.8 (111)	1.0 (142)	1.2 (173)	1.1 (160)	2.0 (283)	3.3 (464)	4.4 (622)	5.1 (717)	8.6 (1,217)	12.0 (1,697)	14.5 (2,058)
Rated speed (rpm)	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Rotor inertia kg-m ² (lb-in-sec ²)	1.3x10 ⁻⁶ (1.8x10 ⁻⁴)	2.0x10 ⁻⁶ (2.9x10 ⁻⁴)	2.7x10 ⁻⁶ (3.8x10 ⁻⁴)	3.5x10 ⁻⁶ (5.0x10 ⁻⁴)	5.2x10 ⁻⁶ (7.4x10 ⁻⁴)	9.1x10 ⁻⁶ (1.3x10 ⁻³)	1.7x10 ⁻⁵ (2.4x10 ⁻³)	2.4x10 ⁻⁵ (3.4x10 ⁻³)	3.1x10 ⁻⁵ (4.3x10 ⁻³)	5.0x10 ⁻⁵ (7.0x10 ⁻³)	6.9x10 ⁻⁵ (9.8x10 ⁻³)	8.2x10 ⁻⁵ (1.2x10 ⁻²)

*Resolver version available with slightly higher stall and peak torques.

MPP Series

www.parker.com/em/mpp



The MaxPlusPlus (MPP) family of brushless servo motors is redefining performance, flexibility, and reliability. The industry's highest-performing servo motor uses eight-pole segmented lamination technology, which produces more torque in a shorter package. Use MaxPlusPlus motors for higher-torque applications, customization options, or when high performance is required.

- 92 mm to 270 mm frame size
- Continuous stall torque from 14 in-lb (1.5 Nm) to 1,433 in-lb (162 Nm)

- Peak torque up to 4,537 in-lb.
- Very high torque-to-inertia ratio
- Seven different feedback devices
 - Encoder, serial encoder, resolver, Heidenhain and Stegmann single- and multi-turn absolute encoders
- IP64 standard, IP65 optional
- Right-angle rotatable connectors
- Special shaft, front flange, and feedback devices available
- CE and UL

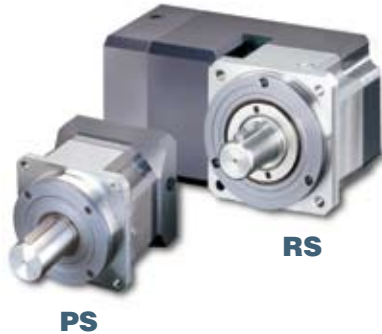


Series MPP	092x	100x	115x	142x	190x	230x	270x
Rated speed (rpm)	3800 to 5000	4000 to 5000	1800 to 4000	2800 to 4000	2000 to 3000	1500 to 2000	800 to 1600
Rated output range (rpm)	0.5 to 1.6	1.5 to 1.9	1.6 to 2.7	3.4 to 7.0	8.3 to 11.8	11.6 to 14.1	12.1 to 20.3
Continuous stall torque range Nm (in-lb)	1.55 (14) to 4.0 (36)	4.6 (41) to 6.3 (56)	5.7 (51) to 9.8 (87)	11.1 (98) to 33.4 (295)	35.5 (315) to 62.4 (552)	80.3 (712) to 106.5 (942)	120.1 (1,063) to 162 (1,433)
Peak torque range Nm (in-lb)	4.93 (50) to 12.8 (113)	14.5 (129) to 20.1 (178)	18.1 (160) to 31.2 (277)	35.1 (311) to 106 (935)	113 (996) to 198 (1,750)	255 (2,252) to 337 (2,984)	380 (3,366) to 512 (4,537)



Stealth Advanced Series Precision Gearheads

www.parker.com/em/pgearheads



Stealth Advanced PS (in-line) and RS (right-angle) gearheads, with patented helical planetary technology, are Parker's highest-performance servo gearheads. A patented HeliCrown helical gear tooth design offers greater tooth contact and face width and produces higher load capacity, smoother tooth engagement, lower backlash, and quieter operation. An advanced internal lubrication system extends seal and gearhead life to deliver the best engineered value for high-performance servo applications.

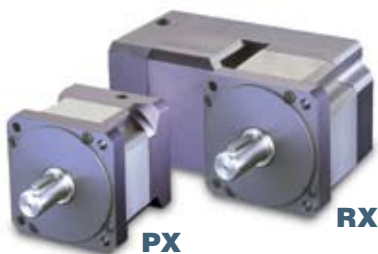
- Strongest – 30% more torque than typical planetaries
- Quietest – less than 68 db noise (PS), 70 db (RS)
- Fastest – up to 6,000 rpm input speeds
- Accurate – less than 3 arc minutes backlash (PS)
- Highest efficiency – over 97% efficiency (PS), 94% (RS)
- Up to eight frame sizes and 12 gear ratios to choose from



Frame Size	Backlash (arc min)				Torque (Nm)								Continuous Max Input Speed (rpm)		Noise (dB)		Efficiency (%)			
	Inline (PS)		Rt angle (RS)		Inline (PS)			Rt Angle (RS)					Inline	Rt angle	Inline	Rt angle	Inline		Rt angle	
	≤10:1	>10:1	≤10:1	>10:1	3-10	15-50	70-100	5	10	15-25	30-100	Inline	Rt angle	Inline	Rt angle	≤10:1	>10:1	≤10:1	>10:1	
60	6	8	14	12	25	34	28	11	21	33	28	6,000	6,000	68	70	97	94	70	70	
90	6	8	12	10	74	107	90	28	55	85	85	5,300	5,300	68	70	97	94	94	94	
115	4	6	12	10	170	226	203	75	147	215	192	4,500	4,500	68	70	97	94	94	94	
142	4	6	10	8	294	396	339	141	271	395	316	3,800	3,800	70	-	97	94	94	94	
180	4	6	10	8	735	1,017	893	316	621	938	836	3,000	3,000	-	-	97	94	94	94	
220	4	6	10	8	1,413	1,808	1,582	678	1,299	1,808	1,469	2,300	2,300	-	-	97	94	94	94	
300	4	6	10	8	3,616	4,520	4,181	2,203	2,712	4,181	4,181	1,900	1,900	-	-	97	94	94	94	

Stealth Series Economy Gearheads

www.parker.com/em/pgearheads



Stealth® PX (in-line) and RX (right-angle) deliver high torque and quiet, smooth operation for less demanding, cost-sensitive servo applications. Stealth® PX and RX models incorporate Parker's helical planetary technology into a lower-cost package to provide an exceptional value for high performance.

- Strong – more torque than standard planetaries
- Accurate – less than 15 arc minutes (10 arc minute option)
- Quiet operation – less than 70 db
- High input speeds – up to 6,000 rpm
- High efficiency – over 90% efficiency.



Frame Size	Backlash (arc min)				Torque (Nm)								Continuous Max Input Speed (rpm)		Noise (dB)		Efficiency (%)			
	Inline (PX)		Rt angle (RX)		Inline (PX)			Rt Angle (RX)					Inline	Rt angle	Inline	Rt angle	Inline		Rt angle	
	≤10:1	>10:1	≤10:1	>10:1	3-5	7-15	15-25	70-100	5	10	15-25	30-100	Inline	Rt angle	In-line	Rt angle	≤10:1	>10:1	≤10:1	>10:1
60	10	12	20	20	18	22	28	23	7	13	20	17	6,000	6,000	70	70	96	93	94	94
90	9	11	18	18	45	57	74	57	17	33	51	51	5,300	5,300	70	70	96	93	94	94
115	8	10	18	16	124	147	171	158	45	88	129	115	4,500	4,500	70	70	96	93	94	94
142	8	10	n/a	n/a	226	231	278	261	n/a	n/a	n/a	n/a	3,800	n/a	70	n/a	96	93	n/a	n/a



PV Series Precision Gearheads

www.parker.com/em/pgearheads



The PV Series gearhead combines power and versatility in an economical package. It comes in a wide range of options including dimensional output face crossovers to the Parker Bayside PX, Alpha LP, Neugart PLE, Stober PE and standard NEMA gearheads.

The PV Series is available in metric and NEMA frame sizes ranging from 40mm, 60mm, 90mm. NEMA

sizes are NEMA 17, NEMA 23 and NEMA 34. Ratios are available in 3:1 and 100:1.

Whether you're an OEM or an end-user searching for competitive alternatives, the PV offers a superior solution.



PV Frame Size	Backlash (arc-min)		Torque (Nm)				Max Input Speed (rpm)	Noise (dB)	Efficiency (%)
	≤10:1	>10:1	3-5	7-10	15-50	70-100			
40	15	18	6.2	5.5	6.7	5.5	8000	60	96
60	12	16	19.6	16.7	22.5	16.7	6000	65	96
90	10	14	58	52	71	52	6000	65	96



Series	I-Force Ironless	RIPPED Ironcore
Continuous force	5.5 to 197.5 lbf (24.5 to 878.6 N)	13 to 501 lbf (56 to 2230 N)
Peak force	45.5 to 883 lbf (202.5 to 3928 N)	43 to 1671 lbf (190 to 7433 N)
Cogging force	Zero	Low
Attractive force	Zero	High
Magnet tracks	Dual	Single
Heat dissipation	Good	Better
Applications	Rapid accelerations, extremely smooth motion	High force, lower cost for long travels

Trilogy I-Force Ironless Linear Motors

www.parker.com/em/ironless



Parker Trilogy's I-Force ironless motors offer high force and rapid accelerations in a compact package. Parker Trilogy's patented I-beam shape, with its overlapping windings, allows for a higher power density in a smaller motor, improved heat removal, and added structural stiffness. A forgiving air gap and no attractive forces allow for easy installation and zero cogging during motion.

- 5 different cross sections (110, 210, 310, 410, and ML50) up to 8 poles
- Compact size with high force density and superior heat removal
- Air and water cooling
- Vacuum rated to 10^{-6} torr
- Ultra high-flex cable standard



Trilogy RIPPED Ironcore Linear Motors

www.parker.com/em/ironcore



Parker Trilogy's RIPPED ironcore linear motors, with their patent-pending anti-cog technology, can produce the large forces needed for many industrial applications – without the roughness associated with traditional ironcore linear motors. The RIPPED family is well suited for a broad range of extremely demanding applications.

- Patent-pending anti-cog technology for extremely smooth motion
- 5 different cross sections
- Single magnet row for high performance at an economical price
- Connector module allows for quick installation and easy cable management
- Ultra high-flex cable standard



Synchronous Water Cooled Spindle Motors

www.parker.com/em/spindle



The HW servomotors are water-cooled brushless synchronous motors delivered as individual components (rotor, stator and resolver) to make a complete spindle unit. These motors are driven by AC890 or Compax3 Series servo drives.

- Permanent magnet cold rotor
- Compact size with low rotor inertia
- Stable balancing
- Speed range to 50000 RPM
- Reduced maintenance
- High torque at zero speed
- Positioning capability



EX Series Explosion Proof Servo Motors

www.parker.com/em/ex



The EX Servo motors are designed to function in Category II, Group II explosive atmospheres in respect to the EN 50014 standard. These servo-motors are certified according to directive ATEX 94/9/CE and are available in a Gas or Gas-Dust version. The motors differ in that the Gas-Dust version is equipped with a special lip seal on the customer end shaft.

- Explosion-proof material “D” according to directive ATEX 94/9/CE
- Extremely compact
- High dynamics
- Integrated resolver does not require an additional encoder
- Bearings greased for life do not require maintenance



Series	EX300	EX400	EX600	EX800
Stall torque (Nm) (lb-in)	1.75 (15.5)	3.5 - 4.8 (31 - 42.6)	7 - 10 (62 - 89)	14 - 35 (124 - 311)
Stall current (Arms)	1.7-3.1	1.7 - 8.2	7.4 - 14.2	13.5 - 40
Rated speed (rpm)	Up to 4000	Up to 4000	Up to 4000	Up to 3600
Inertia (Kgmm ²)	79	290, 430	980, 1470	3200, 6200, 9200



TMW-TMA Series Torque Motors



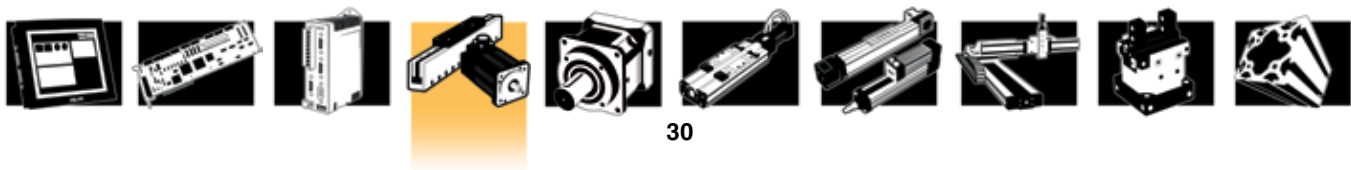
The torque motor is a permanent magnets brushless motor, optimized to operate at low speeds. It is particularly suitable for direct drive applications requiring high torque capabilities at low speeds.

Torque motor can replace favorably asynchronous or direct current motors with gearbox. The obtained system is more compact, less noisy and does not require any maintenance.

- No more gearbox
- No maintenance
- Energy savings
- Silent operation (European directive 2003/20/Ce)

- Better speed regulation
- Increased compactness
- 635 to 22000 Nm
- Cooling
 - TMA Series air cooled by natural convection, without fan (up to 3900Nm)
 - TMW Series water cooled with anticorrosive (heating: 10K)
- IP55 rating
- Feedback
 - Sincos Hiperface
 - Sincos Endat

Series	TMA360	TMW360	TMA533	TMW533	TMA762	TMW762
Stall torque (Nm) (ft-lb)	391 - 1933 (289 - 1430)	670-2670 (496 - 1976)	923-5935 (683 - 4392)	1680 - 8100 (1243 - 5994)	2046 - 15850 (1514 - 11729)	3610 - 21000 (2671 - 15540)
Stall current (Arms)	10-270	14 - 410	21 - 461	30 - 737	42 - 951	61 - 1511
Rated speed (rpm)	Up to 800	Up to 800	Up to 500	Up to 500	Up to 400	Up to 400



Frameless Motors

www.parker.com/em/frameless



The Frameless Kit motors are ideal solutions for machine designs that require high performance in small spaces. The kit motor approach allows for direct integration with a mechanical transmission device, eliminating parts that add size and complexity. The use of frameless motors results in a smaller, more reliable motor package.

- Pre-installed integral commutation board is pre-aligned for easy assembly
- Rare earth magnets provide high flux in a small volume and high resistance to thermal de-magnetizing
- Machined grooves securely lock magnets to rotor and ensure optimized radial location
- Class H insulation for high temperature operation (up to 155°C) meeting UL approved requirements

- High density copper winding for low thermal resistance and consistent performance across all motors
- Minimized end turns to maximize performance and minimize motor size
- Skewed laminations with odd slot counts reduce cogging for precise rotary motion with drastically reduced torque ripple even at low speeds
- Optimized torque-to-size ratio hand inserted to obtain highest slot fill possible maximizing ampere-turns

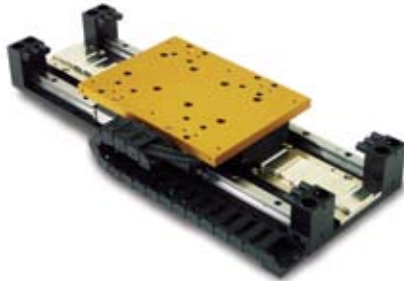


Frame Size	K032	K044	K064	K089	K375	K127	K500	K178	K700	K254
Stack range: mm (in)	6.35 to 50.8 (0.25 to 2.00)					12.7 to 50.8 (0.50 to 2.00)				
Continuous torque: Nm (oz-in)	0.044 to 0.22 (6.3 to 31.1)	0.119 to 0.607 (17 to 86)	0.31 to 2.16 (44.3 to 308)	1.307 to 4.291 (186.7 to 613)	1.715 to 4.935 (245 to 705)	3.94 to 11.75 (563 to 1,678)	3.05 to 9.44 (435 to 1,349)	10.12 to 30.7 (1,445 to 4,386)	5.05 to 17.52 (722 to 2,503)	18.78 to 58.35 (2,683 to 8,336)
Peak torque: Nm (oz-in)	0.095 to 0.654 (13.5 to 93.4)	0.357 to 1.820 (50 to 258)	0.93 to 6.47 (133 to 924)	3.92 to 12.87 (560 to 1,839)	5.14 to 14.82 (734 to 2,117)	11.83 to 35.24 (1,690 to 5,034)	9.14 to 28.32 (1,306 to 4,046)	16.18 to 49.12 (2,312 to 7,017)	8.09 to 28.03 (1,155 to 4,004)	30.04 to 93.37 (4,292 to 13,338)
Km: Nm/W (oz-in/W)	0.009 to 0.044 (1.25 to 6.25)	0.02 to 0.097 (3 to 13.8)	0.048 to 0.244 (6.88 to 34.88)	0.164 to 0.466 (23.36 to 66.56)	0.153 to 0.438 (21.8 to 62.9)	0.29 to 0.864 (41.4 to 123.4)	0.224 to 0.694 (32 to 99.2)	0.627 to 1.904 (89.6 to 272)	0.314 to 1.086 (44.8 to 155.2)	1.043 to 3.234 (149 to 462)



Trilogy Ironless and Ironcore Linear Motor Positioning Tables

www.parker.com/em/lmpositioners



Parker linear positioners utilize our high-performance Trilogy ironless and ironcore linear motors in a pre-engineered, easily integrated, ready-to-run package. The principal design goal for these positioners is to achieve high performance at an economical cost while preserving the design flexibility to accommodate customization. Options include multi-axis configurations, bellows, and a variety of cable management systems.

- Single- or dual-bearing rail positioners to better match the performance and cost requirements for each application
- Magnetic encoders for industrial environments or optical encoders with resolutions down to 0.1 micron
- Multiple carriage options
- Open frame, bellows or covers available
- Zero cogging (ironless) or extremely smooth (ironcore)
- Counterbalance options for vertical applications
- Velocities to 7 m/s



Series	T1S / T1D	T2S / T2D	T3S / T3D	T4S / T4D	TR7	TR9	TR16
Motor	110 ironless	210 ironless	310 ironless	410 ironless	R7 ironcore	R9 ironcore	R16 ironcore
Travel lengths (mm)	100 to 900	60 to 3840	60 to 4390	78 to 3835	105 to 2745	108 to 3708	94 to 3694
Load (kg)	11.3*/13.5**	27.2*/45.3**	72*/108**	90*/181**	200**	300**	450**
Acceleration (G's) ***	5	5	5	5	5	5	5
Velocity (m/s) †	up to 7	up to 7	up to 7	up to 7	up to 7	up to 7	up to 7
Peak force (N)	202.5	494.2	1170.0	3928.1	1761.0	4097.0	7433.0
Continuous force (N)	45.4	110.3	262.0	878.6	462.0	1121.0	2230.0
Resolution (micron)	0.1 to 5.0	0.1 to 5.0	0.1 to 5.0	0.1 to 5.0	0.1 to 5.0	0.1 to 5.0	0.1 to 5.0
Repeatability (micron) ‡	+/- 1	+/- 1	+/- 1	+/- 1	+/- 1	+/- 1	+/- 1

* Single rail load specifications

** Dual rail load specifications

*** Consult factory for higher accelerations

† Peak velocity is encoder dependent

‡ Repeatability is resolution dependent

Recommended loads based on motor size and typical performance. Bearing specifications exceeded listed specifications. Consult factory for higher loads.



400LXR Series Linear Motor Driven Positioning Tables

www.parker.com/em/400lxr



The 400LXR Series linear servo motor tables offer high acceleration, velocity, and precision with quick settling for superior throughput. Optimum performance is achieved by combining slotless linear motor technology with performance-matched feedback and mechanical elements. Offered in three widths and myriad options, the 400LXR Series can solve most high-performance applications.

- 100% certification of precision
- Optional cleanroom preparation
- Easy multi-axis configuration
- Pre-engineered, low-profile, modular cable management
- Proven IP30 strip-seal protection
- Encoder resolutions to 0.1 μm
- Fast settling
- Dowel holes provided for precise payload and multi-axis mounting



Series	404LXR	406LXR	412LXR
Profile (mm), w x h	100 x 60	150 x 70	285 x 105
Travel lengths (mm)	50 to 1,000	50 to 1,950	150 to 3,000
Load (kg)	45	180	950
Acceleration (g)	5	5	5
Velocity (m/sec)	3	3	3
Peak force (N)	180	330	1,000
Continuous force (N)	50	110	355
Resolution (μm)	0.1 to 5	0.1 to 5	0.1 to 5
Repeatability (μm)*	± 1	± 1	± 1

*Resolution dependent

400XR Series Precision Ballscrew Tables

www.parker.com/em/400xr



The 400XR precision table family offers precise linear positioning with excellent straightness and flatness of travel. Superior performance, modularity, and quick delivery make these tables the perfect building blocks for multi-axis positioning systems. An unrivaled array of sizes, features, and options such as cleanroom preparation, linear encoder feedback, and parallel motor mounts distinguishes the 400XR family from all others.

- Precision ground ballscrew drive
- High-strength aluminum body
- Stiff square rail bearings
- Flexible motor mount
- Certified precision
- Proven IP30 rated strip seal
- Dowel holes for precise mounting
- Optional linear feedback, brake, sensor pack, cleanroom prep
- Quick delivery



Series	401XR	402XR	404XR	406XR	412XR
Profile (mm), w x h	41 x 43	58 x 58	95 x 48	150 x 70	285 x 105
Travel lengths (mm)	50 to 300	50 to 600	50 to 600	100 to 2,000	150 to 2,000
Rated load (kg)	50	100	170	630	1470
Acceleration (g)	2	2	2	2	2
Repeatability (μm)	1.3	1.3	1.3	1.3	5



400XE Series Economy Linear Tables

www.parker.com/em/402403xe
www.parker.com/em/404xe



The 402/403XE Series of positioners combines a rugged steel body construction with an integrated precision ball screw and bearing guide. The result is a highly accurate, cost-effective line of positioners ideal for applications in the hard disk, semiconductor, medical, machine building and many other industries.

- Significant force-per-dollar value
- Easily integrated into multi-axis design
- Adjustment-free
- Small package size

Series	402XE	403XE	404XE
Profile (mm), w x h	57 x 36	80 x 45	95 x 48
Travel lengths (mm)	70 to 220	55 to 655	25 to 700
Rated load - short carriage (kg)	NA	NA	61.3
Rated load - long carriage (kg)	90	160	122.6
Acceleration (g)	2	2	2
Velocity (mm/sec)*	180 to 450	400 to 800	260 to 1,500
Repeatability (µm)*	±5	±5	±20 to 30

*Travel and screw dependent

The 404XE positioner combines versatility and rugged construction into a compact platform ideal for 100% duty automation applications. Like its cousin the 404XR, the 404XE offers myriad options and accessories. The XE is also mount compatible with the XR and LXR precision tables, allowing mix and match of technologies as cost and performance mandate.

- Reliable, cost-effective positioner
- Short carriage and parallel motor mounts to minimize length
- High-strength design
- Multi-axis configurations

402/403XE



404XE



HD Series Linear Tables

www.parker.com/em/hd



The HD Series is a robust industrial positioner that is easy to apply, easy to install and easy to maintain. The robust design begins with a deep channel extruded body and carriage that provide exceptional beam strength and carriage stiffness. The linear bearings and ballscrew are precision components selected for their long life at 100% duty operation. The HD Series also includes IP30-rated belt seals that protect the interior components from debris.

- 24/7 operation at 100% duty
- Dowel holes for repeatable mounting
- IP30-rated protective belt seals
- Travels up to 2 meters
- Maintenance-free linear bearings and ballscrew
- Three sizes: 85mm, 125mm, and 185mm



Series	HD085	HD125	HD185	HD015
Profile (mm), w x h	85 x 70	125 x 85	185 x 95	60 x 62
Travel lengths (mm)	100 to 1200	200 to 1500	300 to 2000	100 to 2000
Rated load (kg)	170	630	1470	170
Acceleration (g's)	2	2	2	2
Velocity (mm/sec)*	370 to 1480	370 to 1480	370 to 1480	370 to 1480
Repeatability (µm)	+/- 8	+/- 8	+/- 8	NA



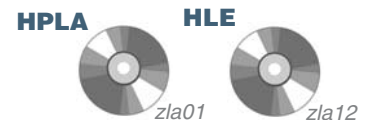
HPLA-HLE Series Belt - Pulley Actuator

www.parker.com/em/hpla
www.parker.com/em/hle



The HPLA and HLE are ideal for guiding, transporting and positioning payloads over large distances at high speeds and accelerations. The polymer wheel bearing is especially suited to cleanroom applications since it requires no lubrication or maintenance. Cleanroom test data is available on request.

- Reliable and proven technology
- 20 m of travel with splice
- 5 m/s maximum velocity
- Ideal for cleanroom wafer handling applications
- Stainless steel option provides moisture and chemical resistance
- Quiet operation
- Low maintenance



Series	HLE60	HPLA80	HLE100	HPLA120	BLMA120
Cross-section (mm)	60 x 60	80 x 80	100 x 100	120 x 120	120 x 120
Drive type	Belt-pulley	Belt-pulley	Belt-pulley	Belt-pulley	Linear motor
Max travel (m)	3	5.6	6.2	9.5	6.3
Max velocity (m/s)	5	5	5	5	7
Rated acceleration (g)*	1	1	1	1	5
Max thrust (N)	688	1,114	1,478	2,234	1,720
Rated load (N)	750	1,300	1,250	2,500	1,500
Repeatability (mm)	±0.2	±0.2	±0.2	±0.2	±0.01
Linear feedback	No	Optional	No	Optional	Standard
Cleanroom option	Yes	Yes	Yes	Yes	Yes
Stainless option	Yes	Yes	Yes	Yes	Yes

*Higher applications possible - application dependent

BLMA Series Balanced Linear Motor Actuator

www.parker.com/em/blma



The innovative BLMA provides linear motor performance in the form of a long travel actuator. Utilizing a patented balanced linear motor design, the BLMA offers the best possible settling time and response of any long travel actuator. A single magnet track keeps cost and weight to a minimum.

- Highest dynamic performance, even at long travels
- High positional stiffness
- Fastest settling time
- Balanced ironcore linear motor
- Internal linear feedback
- 1,720 N of peak force
- 7 m/s max velocity
- High-flex cable management
- Mount compatible with HPLA



HLE - Z150

www.parker.com/em/hlez



The HLE-Z provides high performance positioning over extremely long travels, up to 50 m. The system is based on Parker's HLE150 and is driven by rack and pinion. This system yields the repeatability and dynamics of a short looped belt over very long travels where traditional belt designs will not work. The design also allows for independent, multiple carriages to operate within the same rail.

- Velocities to 5 m/s
- Accelerations to 10 m/s²
- Travels exceeding 50 m
- 1,000 N of thrust
- ±0.05 mm repeatability
- Low maintenance
- Multiple independent carriages possible



HZR

www.parker.com/em/hzr



The HZR Series is a rugged vertical axis unit unique to the high-speed automation industry. It is specifically designed as a vertical axis to meet the mechanical requirements of high throughput lifting and transporting of heavy or bulky loads. Typical applications include material handling and palletizing. The HZR is an integral part of Parker's Large Area Gantry Systems on page 34.

- Available in 3 sizes
- Payloads to 150 Kg
- High accelerations
- Optional fail-safe brake
- Up to 2 m of travel
- HPLA/HLE compatible



Series	HZR50	HZR80	HZR100
Payload (Kg)	45	75	150
Max thrust (N)	1,654	2,822	4,410
Max velocity (m/s)	5	5	5
Rated accel (g's)	0.5	1	1
Max travel (m)	1.5	1.5	2.0
Repeatability (mm)	±0.2	±0.2	±0.2



ERV and ER Series Rodless Actuators

www.parker.com/em/erv
www.parker.com/em/er



Parker's ERV Series rodless actuator is designed in an affordable package that includes an extruded base and an external carriage containing outboard roller bearings for high load capacity.

- High-strength extruded body
- External bearing carriage for high loads
- Economical design for high-load and high-speed applications

The ER Series rodless actuator features an internal bearing carriage and the option of a belt or screw drive.

- Modular design with either belt or screw drive
- Internal bearing carriage with strip seal



Series	ER32	ER50	ER80	ERV5	ERV8
Max load: Roller bearing N (lbf)	222 (50)	445 (100)	667 (150)	1,126 (253)	2,112 (474)
Max load: Square rail N (lbf)	1,112 (250)	2,224 (500)	4,448 (1000)	—	—
Extended carriage N (lbf)	—	—	—	1,915 (430)	3,590 (807)
Max velocity: Belt m/sec (in/.sec)*	3.5 (140)	5.0 (200)	5.0 (200)	5.0 (200)	5.0 (200)
Ball screw m/sec (in/sec)*	0.4 (15.6)	1.5 (60)	1.3 (50)	—	—
Acme screw m/sec (in/sec)*	0.8 (31.2)	0.64 (25)	0.8 (31.2)	—	—
Rated acceleration (g)*	9.8 (386)	9.8 (386)	9.8 (386)	9.8 (386)	9.8 (386)
Max travel m(in)**	1 (39.2)	1.5 (59.0)	1.5 (59.0)	6 (238)	6 (237)
Bi-directional repeatability					
Screw (mm)	±0.025/±0.152 (±0.001/±0.006)			—	
Belt (mm)	±0.102/±0.203 (±0.004/±0.008)			±0.1/±0.2 (±0.004/±0.008)	

*Application dependant, consult catalog for specifications.

**Single piece Extrusion, Longer strokes available with spliced units.

LCB Series Compact Rodless Actuators

www.parker.com/em/lcb



The LCB Series of linear actuators incorporates a low-friction, dry running, sliding bearing carriage that provides long and reliable travel life even at 100% duty cycle. The low mass of the carriage and steel-reinforced timing belt design allows

for very high accelerations and velocity. Combined with Parker motors and controls, the LCB offers a fully programmable, high-performance solution at a great value.



Series	LCB040	LCB060
Max Load, N (lbf)	60 (13)	295 (66)
Max Velocity, m/sec (in/sec)	8.0 (315)	8.0 (315)
Rated acceleration (g's)*	20 (787)	20 (787)
Max travel m (in)*	2.0 (78)	5.5 (216)
Bi-directional repeatability (mm)	±0.2 (±0.008)	

*Application dependant, consult catalog for specifications.



ET Series Electric Cylinders

www.parker.com/em/et



The ET Series electric cylinders are engineered to provide long life and high thrust capacity in a compact cylinder package. Its robust design ensures durability in the most demanding applications.

- Ball or Acme screw drive
- Angular contact thrust bearings for long life

- Stainless steel thrust tube
- Anti-rotate rod guide bearing
- IP65 option available
- Cleanroom preparation available
- 3-D drawings available online



Series	ET32	ET50	ET80	ET100	ET125
Max thrust N (lbf)	600 (135)	3,200 (720)	7,120 (1,600)	23,500 (5,300)	44,500 (10,000)
Max velocity					
Ball screw, m/sec (in/sec)*	1.3 (50)	1.5 (60)	1.3 (50)	1.3 (50)	1.5 (60)
Acme screw, m/sec (in/sec)*	0.8 (31.2)	0.64 (25)	0.8 (31.2)	0.4 (15.6)	—
Rated acceleration (g)*	9.8 (386)	9.8 (386)	9.8 (386)	9.8 (386)	9.8 (386)
Max travel (m)	1000 (39.4)	1500 (59)	1500 (59)	1500 (59)	1500 (59)
Bi-directional repeatability (mm)	±0.025/±0.152 (±0.001/±0.006)				

*Application dependant, consult catalog for specifications



XRS Standard Systems

www.parker.com/em/xrs



Built from Parker's XR and LXR positioners, the XRS Systems are pre-engineered Cartesian systems including all the bracketry, cable management, and motors necessary for an off-the-shelf system solution.

There are more than 120 standard systems available with popular payload and work areas. XRS is the only Cartesian system to mix linear motor and ballscrew technologies, yielding unsurpassed performance.

- Three platforms: small, medium, and large
- XY and XYZ configurations

- Linear motor and ballscrew technologies
- Right- and left-hand versions
- Work areas to 1 m x 1 m
- Payloads: 5, 12, and 25 kg
- Pass-through, high-flex cabling for power, signals, and air
- Dowel holes for repeatable system and payload installation
- 3-D CAD drawings available
- Easily customized for special requirements: travel, payload, idlers, cleanroom, etc.



Gantry Systems

www.parker.com/em/gantry



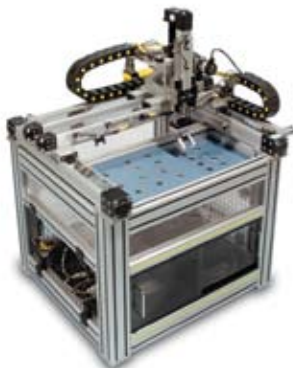
Using the HPLA and BLMA actuators as building blocks, Parker can create gantry-style robots that are more economical than pedestal-style robots. Parker's standard systems accommodate work areas up to 7.9 m x 3.3 m x 1.5 m and payloads up to 100 kg. Larger work areas and payloads are accommodated with custom configurations.

- XY, XZ and XYZ configurations
- Velocity up to 4 m/s
- Sizing and selection tools available for standard systems
- Easy to customize
- Economical for automated storage and retrieval systems
- Cleanroom compatible
- Gantry-style optimizes floor space utilization versus arm robot



Cartesian Systems

www.parker.com/pneu/multiaxis



Using the ET, ER, ERV, LCB and LR actuators as building blocks, Parker can create economical and customized work cell-level robotic solutions that are ideal for pick-and-place and dispensing applications. Beyond the base system, Parker can integrate pneumatic axes, grippers, vacuum cups, custom structures, and guarding. Six basic types are available in XY, XZ and XYZ configurations.

- Standard or custom configurations available
- Payloads up to 75 kg
- Velocity up to 3 m/s
- Economical robotic solution
- Optional hardware
 - Cable management
 - Machine base and guarding
 - Pneumatic actuators
 - Vacuum and generators



Motion System Development



OEMs and manufacturers look to Parker because they know our extensive motion system design experience, systematic project management process, and global infrastructure ensure that their needs are met.

Through years of motion system design and manufacturing, we have developed a collaborative development cycle and systematic six-step project management process that lead the motion industry.

Since our technology enables our customer's technology, we build strategic partnerships and strictly maintain confidentiality with our customers.

Parker's Engineered Solutions incorporate air-bearing, linear motor, and pneumatic technology with composite or conventional materials to create a total solution.



Parker's Six-Step Project Management Process



1. Understand Your Needs
Based on a review of your goals, we help develop a rigorous definition of system requirements.



4. Project Management
A project manager assigned to your project uses a secure, web-based tool to manage progress and keep everyone in the loop.



2. System Analysis
Proprietary software analyzes the proposed system value and optimal component sizing.



5. Acceptance Test Procedure
This mutually agreed upon document outlines the procedures, tools and methods used to verify that all project performances meet desired specifications.



3. Solution Proposal
We document the system requirements, cost effectiveness of options, proposed system design and analysis, price quotation and delivery schedule.



6. After-Sales Support
Includes: an engineer on site during delivery, machine inspection, training, maintenance and 24/7 support.



Pneumatic Grippers

www.parker.com/pneu/pgrippers



With more than 100 types available in more than 1,000 configurations, Parker's complete line of pneumatic grippers can solve any application. Parker offers products designed to handle the lightest loads in cleanroom environments, in addition to products capable of producing grip forces up to 12.5 kN (3,000 lbf) in high-speed and high-load situations.

- Three gripper styles
- High grip force-to-weight ratio keeps other system components smaller

- Hardened steel jaws for rigid mounting
- Precision bearings and hard anodized wear parts ensure long cycle life
- Cleanroom-certified products with purge ports
- Spring assist and spring return options make grippers fail-safe under power failure
- Dust cover and wiper assemblies for harsh environment
- Connectivity to Parker mechanical tables and actuators



	Parallel Type	Three-Jaw Type	Angular Type
Maximum stroke range mm (in)	4 to 150 (0.2 to 6.0)	8 to 35 (0.3 to 1.4)	—
Angular rotation (degrees)	—	—	12°, 30°, 180°
Total grip force range N (lbf) at 7 bar (100 PSI)	28 to 8,088 (6 to 694)	356 to 12,460 (80 to 2,800)	5 to 2,318 (2 to 521)
Pressure range bar (PSI)	0.3 to 7 (5 to 100)	1.5 to 7 (20 to 100)	0.3 to 7 (5 to 100)
Cleanroom capability	Optional	Standard	Optional
Sensors (proximity, reed, Hall effect)			
Non-synchronous motion	Optional	Not available	Not available
Filtration requirement		40 micron (dry air)	

Vacuum Cups

www.parker.com/pneu/vaccup



- Flat and bellows styles
- Sizes up to 200 mm diameter
- Wide variety of cup material and mounting styles



Integrated Vacuum Generators

www.parker.com/pneu/vacgen



- Integrated solenoids and sensors reduce cycle time
- Emergency stop systems
- High vacuum flows



Pressure Sensors

www.parker.com/pneu/sensors



- Vacuum to 8,820 PSI range
- Up to IP67 rating
- PNP/NPN open collector transistor outputs
- 4 to 20 mA, 1-5VDC analog outputs



High-Strength Modular Solutions To Fit Your Needs

www.parker.com/pneu/ips



Structural automation products from Parker Industrial Profile Systems (IPS) offer unique benefits over traditional methods of structural fabrication. All systems and assemblies are pre-engineered to customer requirements, yet offer extreme flexibility as needs change. Profiles and accessories are available in metric or inch designs.

Benefits

- Extremely short turnaround time from design to completion
- No welding, grinding, cleaning, painting, or distortions
- Lower cost through the elimination of costly traditional manufacturing processes
- Flexibility to reconfigure as requirements change

Profiles

Parker Industrial Profile Systems has one of the most comprehensive product offerings in the industry.

- More than 130 individual high-strength aluminum profiles
- Metric and inch profiles and accessories
- Metric sizes range from 20 mm to 160 mm
- Inch sizes range from 1" to 6"
- Extensive range of smooth, grooveless profiles
- Provide attractive and robust structures

Linear Motion

- Roller bearing systems
- Extrusion-based linear actuators
- Delrin and UHMW slide bearings

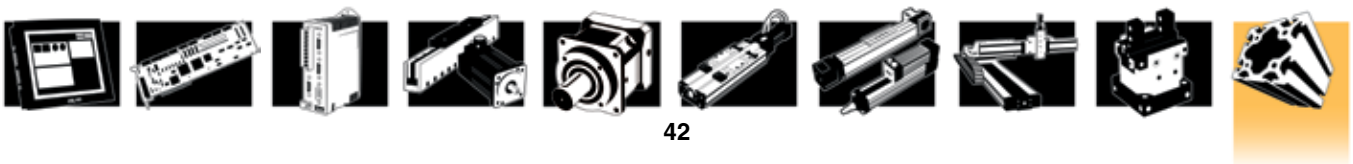
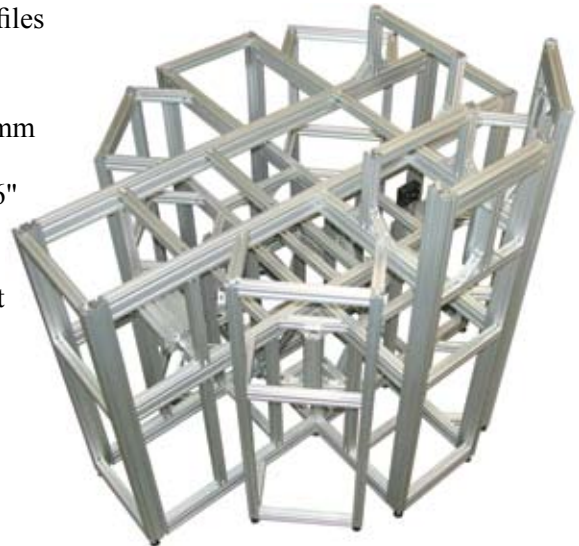


Fasteners and Accessories

- Unique T-slot design for reliable connection and easy modification
- Metric and inch hardware available
- Complete line of accessories

Typical Applications

- Enclosures and guarding
- Machine bases and frames
- Work stations and tables
- Material handling systems



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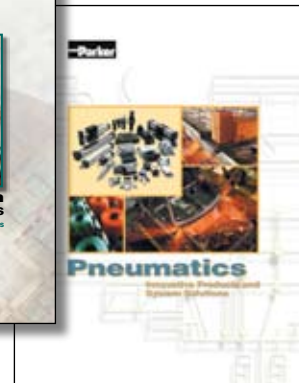
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