Your Technology In Motion!

The Power of Parker

Whether you need a fully-engineered precision motion system or a complete selection of fast, powerful and precise motion components to integrate into your own motion system, our products enable your technology and increase your throughput using precise and coordinated speed.

Parker has produced the most advanced linear motion technology, formed the most experienced motion systems design team and is backed by the financial resources to help drive flat panel processing to capabilities bound only by imagination.

Precision Motion Systems

Delivering exceptional value through our integrated, deadline-driven manufacturing and design competency, our Engineered Solutions Group focuses on full-scale, sophisticated precision systems using leading-edge linear-motion technology.

Experience
• More than 30 years of motion system design experience
• Air-bearing granite systems
• Robust 24/7 design operation
• Leading-edge linear motion technology
• Gen 8/Gen 10 cleanroom with ±1°C control

Capabilities
• Electrical design
• Mechanical design
• Software development
• Complete system integration
• Vertically integrated manufacturing

Process
• Rigorous system definition
• Sophisticated collaboration tools
• Feasibility studies
• Systematic timeline approach

Global Infrastructure
• Strategic partnerships
• Field support

Application Successes Include:
• Array AOI (Automatic Optical Inspection)
• S-beam inspection-photolab
• Black matrix forming
• Ink jet printing
• Ink-curing
• Panel alignment and assembly
• Substrate loading and unloading
• Substrate scribbling and edge grinding
• Large-scale movability
• Polaris attachment
• Chip-on-glass
• Door lifts and load locks
• Material handling

Gen 5 Metrology
• Accuracy ±30µm
• Repeatability ±6µm
• Vacuum 10-3 torr
• XY Open-frame gantry (1900 x 600mm)
• Flatness ±50µm, yaw ±3 arc sec
Parker's Six-Step Project Management Process

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

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

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

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.

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.

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

System Experience in Motion

OEMs and manufacturers look to Parker because they know our extensive motion system design experience, systematic project management process and global infrastructure help them get their higher precision systems to market first.

How do we do it? Throughout our years of motion system design and manufacturing experience, we have perfected a six-step project management process incorporating a collaborative development cycle and deadline-driven manufacturing processes that lead the motion industry.

Since our technology enables our customer’s technology, we build strategic partnerships and strictly maintain confidentiality with our customers.
Your Technology In Motion!
Engineered Solutions to Increase Your Throughput

Components linked by design deliver better systems faster

Advanced Controls
- Advanced motion algorithms

Amplifiers
- Custom drive capabilities

Motors
- Extensive range of high-performance motors
- High force density and zero cogging operation

Linear Motors
- Cleanroom and vacuum preparation available

Mechanics
- Plug-and-play capability
- Best-of-breed products

Solution Highlights:

Sophisticated Control Performance
- The ACR family of controllers' 25µsec servo update rate, matched with all-digital drives, high bandwidth linear and rotary motors, provides an ideal servo solution designed for high performance and demanding coordinated motion applications.

Variety of Precision Positioning Tables
- Whether it is precise packaged linear stages with the extremely-smooth cross-roller-bearing technology, ground ball-screw stages, high-speed belt drives or the high precision and smoothness of our ironless linear motors for your gantry design, we have the product breadth to meet your design requirements.

Dynamic Stiffness for Large-Formats
- Advanced gantry control algorithms and aircore linear motors provide the dynamic coordination, high forces and smooth velocity control required to meet the needs of large-format manufacturing.

Cleanroom and Vacuum Preparation
- Parker's high-precision positioning tables are available for cleanroom and vacuum preparation. Vacuum preparation for 10-8 torr is achieved by incorporating vented hardware, vacuum-compatible lubrication and special cabling. Cleanroom preparation includes special cable management, lubrication and engineered bearing protection systems.

Configuration Flexibility
- Rotary servo motors and Trilogy linear motors combine with packaged and rack-mounted amplifiers for complete high-performance servo solutions. The range of motors and drives allows machine designers to match price and performance for the best fit solution across the various FPD applications.

Solution Highlights:

Advanced motion algorithms

Custom drive capabilities

Extensive range of high-performance motors

High force density and zero cogging operation.

Cleanroom and vacuum preparation available

Now Producing Generation 8 Motion Systems

Solar Panel Scribing
- Linear motor driven XY stages
- Travel 1.5m x 1m
- Accuracy ±12µm (full travel)
- Bidirectional repeatability ±3µm
- Straightness ±10µm
- Flatness ±5µm

Dynamic Stiffness for Large-Formats
- Advanced gantry control algorithms and aircore linear motors provide the dynamic coordination, high forces and smooth velocity control required to meet the needs of large-format manufacturing.

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Solution Highlights:

Sophisticated Control Performance
- The ACR family of controllers’ 25µsec servo update rate, matched with all-digital drives, high bandwidth linear and rotary motors, provides an ideal servo solution designed for high performance and demanding coordinated motion applications.

Variety of Precision Positioning Tables
- Whether it is precise packaged linear stages with the extremely-smooth cross-roller-bearing technology, ground ball-screw stages, high-speed belt drives or the high precision and smoothness of our ironless linear motors for your gantry design, we have the product breadth to meet your design requirements.

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Configuration Flexibility
- Rotary servo motors and Trilogy linear motors combine with packaged and rack-mounted amplifiers for complete high-performance servo solutions. The range of motors and drives allows machine designers to match price and performance for the best fit solution across the various FPD applications.
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• Sophisticated collaboration tools
• Feasibility studies
• Systematic timeline approach

Global Infrastructure
• Strategic partnerships
• Field support

Application Successes Include:
• Array AOI (Automatic Optical Inspection)
• E-beam inspection and repair
• Black matrix forming
• Ink jet printing
• Panel alignment and assembly
• Substrate loading and unloading
• Substrate scissoring and edge grinding
• Liquid crystal injection
• Polarizer attachment
• Chip loading
• Door lift and load locks
• Material handling

Solution Highlights:
Sophisticated Control Performance
With near 20-year servo update rate, the ACR family of controllers provides an ideal servo solution that can be matched with all-digital drives, high-bandwidth linear and rotary motors, for high performance and demanding coordinated motion applications.

Variety of Precision Positioning Tables
Whether it is precise packaged linear stages with the extremely smooth cross-roller-bearing technology, ground ball-screw stages, high-speed belt drives or the high precision and smoothness of our insect linear motors for your gantry design, we have the product breadth to meet your design requirements.

Dynamic Stiffness for Large-Formats
Advanced gantry control algorithms and aircore linear motors provide the dynamic coordination, high forces and smooth velocity control required to meet the needs of large-format manufacturing.

Cleanroom and Vacuum Preparation
Parker’s high-precision positioning tables are available for cleanroom and vacuum preparation. Vacuum preparation for 10-8 torr is achieved by incorporating vented hardware, vacuum-compatible lubrication and special cabling. Cleanroom preparation includes special cable management, lubrication and engineered bearing protection systems.

Configuration Flexibility
Rotary servo motors and Trilogy linear motors combine with packaged and rack-mounted amplifiers for complete high-performance servo solutions. The range of motors and drives allows machine designers to match price and performance for the best fit solution across the various FPD applications.

Gen 5 Metrology
• Accuracy +/−1µm
• Repeatability +/−6µm
• Vertical IRIR
• XY Open-hole gage (4X20 x 60mm)
• Parallelity +/−Oµm, yaw +/−2 arc sec
Gas and Chemical Control for Flat Panel Display Manufacturing

Parker Hannifin’s Veriflo/Partek Division manufactures pressure and flow control products for use in the fabrication of LCDs in the FPD market. Veriflo is a leader in UHP precision valves and regulators for the control and application of gases used in the fabrication of FPDs. Partek products are used in FPD manufacturing where corrosion protection is required or where media purity must be safeguarded. The wetted surfaces of all products are chemically inert, corrosion-resistant PFA or PTFE.

www.parker.com/veriflo

To learn more about Parker’s innovative solutions for flat panel display manufacturing, please visit our FPD landing page at www.parkermotion.com/flatpanel