



# Flat Panel Display & Solar Panel Manufacturing

## Motion Control System Solutions



[www.parkermotion.com/flatpanel](http://www.parkermotion.com/flatpanel)



## 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, has 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  $\pm 1^\circ$  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)
- E-beam inspection and repair
- Black matrix forming
- Ink jet printing
- Ink curing
- Panel alignment and assembly
- Substrate loading and unloading
- Substrate scribing and edge grinding
- Liquid crystal injection
- Polarizer attachment
- Chip-on-glass
- Door lifts and load locks
- Material handling



### Gen 5 Metrology

- Accuracy  $\pm 30\mu\text{m}$
- Repeatability  $\pm 6\mu\text{m}$
- Vacuum  $10^{-3}$  torr
- XY Open-frame gantry (1900 x 600mm)
- Flatness  $\pm 50\mu\text{m}$ , yaw  $\pm 3$  arc sec

## System Experience In Motion

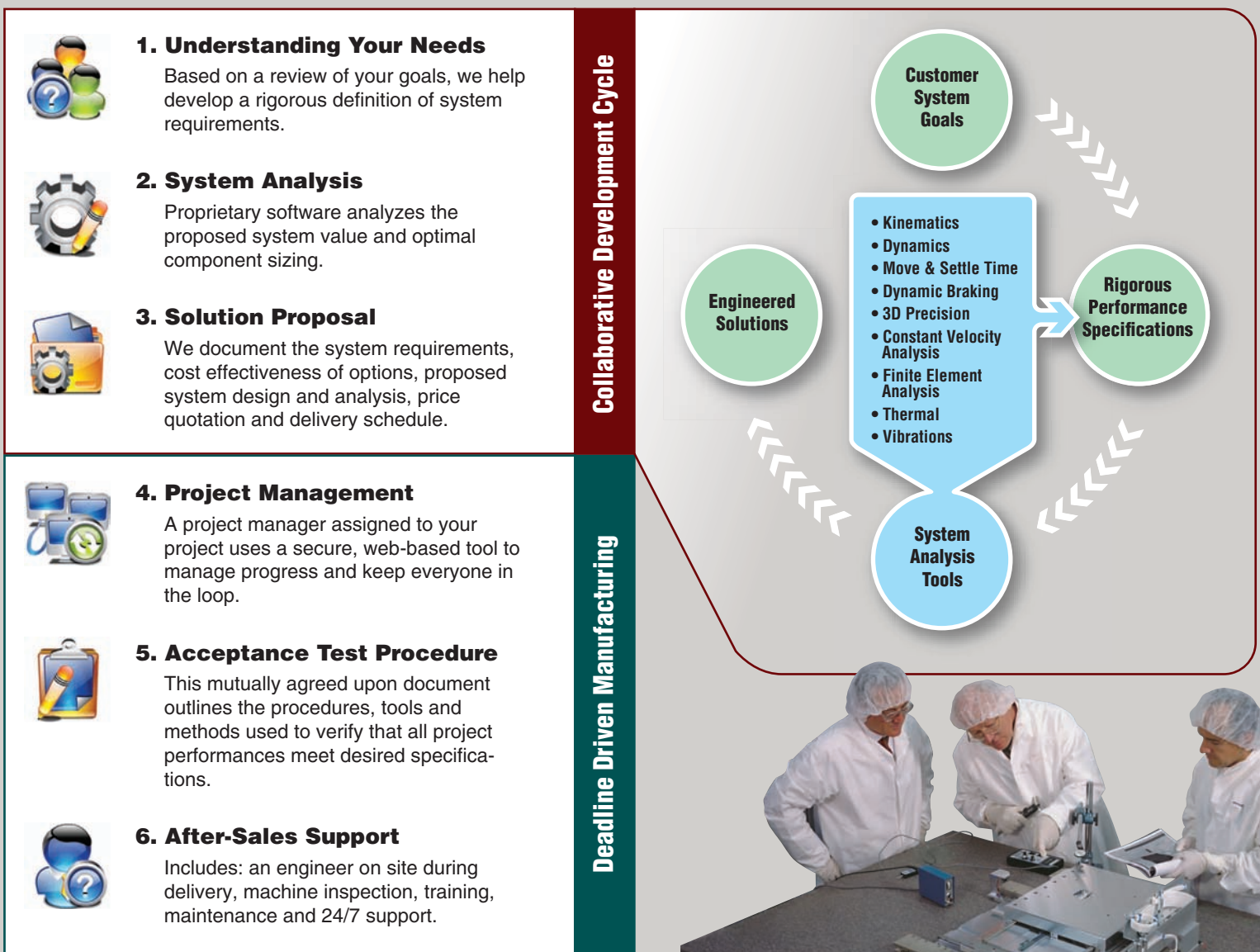
OEMs and manufacturers look to Parker because they know our extensive motion system design experience, systematic project management process and global infrastructure help them get their faster precision systems to market first.

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.

## Parker's Six-Step Project Management Process

Parker recognizes the critical value of bringing your technology to market quickly, and our systematic

approach allows our engineering team to maintain a strict timeline to develop and execute your project.



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**



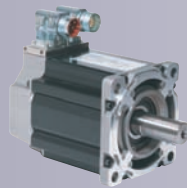
Advanced motion algorithms

**Amplifiers**



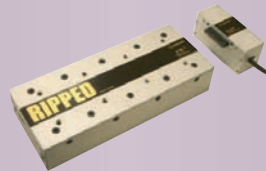
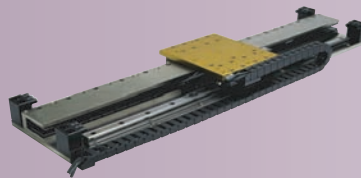
Custom drive capabilities

**Motors**



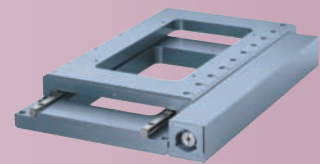
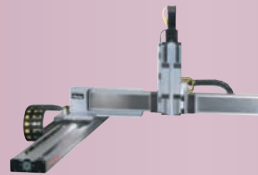
Extensive range of high-performance motors

**Linear Motors**



High force density and zero cogging operation

**Mechanics**



Cleanroom and vacuum preparation available

**Plug-and-play capability**

**Best-of-breed products**

**Now Producing Generation 8 Motion Systems**

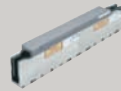


## Solution Highlights:



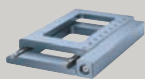
### Sophisticated Control Performance

With their 25 $\mu$ sec 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.



### 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.



### 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.



### Cleanroom and Vacuum Preparation

Parker's high-precision positioning tables are available for cleanroom and vacuum preparation. Vacuum preparation for 10<sup>-8</sup> 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 Trilogly 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.



### Solar Panel Scribing

- Linear motor driven XY stages
- Travel 1.5m x 1m
- Accuracy  $\pm 12\mu\text{m}$  (full travel)
- Bidirectional repeatability  $\pm 3\mu\text{m}$
- Straightness  $\pm 10\mu\text{m}$
- Flatness  $\pm 5\mu\text{m}$

**Visit Us Online**



To learn more about Parker's innovative solutions for flat panel display manufacturing, please visit our FPD landing page at

**[www.parkermotion.com/flatpanel](http://www.parkermotion.com/flatpanel)**

### **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](http://www.parker.com/veriflo)**

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