



Your One-Stop Shop for  
**Automation Products** and **Solutions**

***CAPABILITIES BROCHURE***



**MOTION**  
Automation Intelligence



# Table of Contents

## 04. About Motion Ai

Who We Serve .....	5
Industries Served .....	5

## 06. Why Work with Us?

## 08. Products and Services

Machine and Motion Control .....	8–9
Engineering and Automation Systems .....	10
Applications Engineering .....	11
Machine Vision .....	12–13
Robotics .....	14–15
Drives and Motors .....	16–17
Actuators, Rail, and Gearing .....	18
Networking and IIoT .....	19
IPC and HMI .....	20
Pneumatics .....	21
Industrial Framing .....	22–23
Sensors and Safety .....	24–25
Panel and Electrical .....	26–27
Conveyor Systems .....	28

## 29. Solutions

Automation and Process .....	29
Mechatronics .....	30
Logistics .....	31

## 32. Motion Ai Regional Locations



## About **Motion Ai**

Every time the automation industry evolves, so does Motion Ai. Over the years, we've watched automation technology improve and tailored our solutions to fit the new challenges modern manufacturers face. With locations throughout the United States, hundreds of suppliers who manufacture best-in-class products, and a team of brilliant engineers who understand industrial automation inside and out, we are primed to solve your most deeply challenging machine and motion control issues.

### **Motion Ai Mission**

Motion Ai strives to be the premier industrial automation solutions and turnkey engineered control systems provider in North America by leveraging its extensive applications engineering experience, controls engineering talent, best available product lines, and nationwide services that are robust, cost-effective, elegant, innovative, and reliable.

---



## Who We Serve

As the leading high-tech provider of industrial automation solutions, we customize solutions for clients in any industry. Our engineering expertise and national distribution network allow us to bring personalized, regional service to countless OEMs, integrators, and in-house end-users everywhere.

## We Provide Automation and Motion Control Solutions for Every Industry



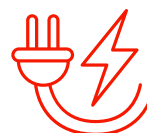
Agriculture



Automotive Manufacturing  
& Testing



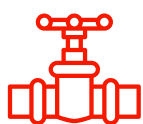
Construction



Electrical Discharge  
Machining (EDM)



Entertainment Testing  
& Simulation



Fluid Pumping



Food & Beverage (Filling,  
Processing, Packaging)



Forestry



General Industrial  
Automation



Machine Tools



Manufacturing



Material Handling



Medical/  
Pharmaceutical



Metal Working



Military/Aerospace



Mining & Minerals



Paper Printing &  
Processing



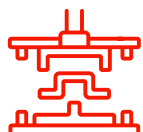
Plastics



Plate Glass



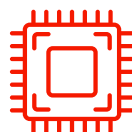
Power Generation (Nuclear,  
Solar, Wind, Turbine)



Pressing & Stamping



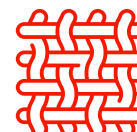
Robotics



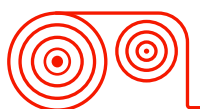
Semiconductors



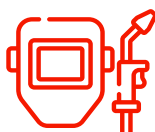
Shape Cutting



Textiles



Web Manufacturing



Welding

# Why Work with **Motion Ai?**

## Automation Opportunities

Demand for higher equipment utilization rates, faster changeovers in manufacturing, skilled labor supply shortages, and reshoring have strengthened U.S. automation investments and growth. We help you seize these opportunities with our custom automation and robotics expertise.



## Comprehensive Strategy

We are often the critical link between suppliers and customers, and our engineering expertise and vast distribution network serve to implement automation solutions for a diverse set of end markets and applications. You benefit from our best-in-class products and services.

## A Methodical Approach

Our principles of engineering product designs, developing proofs of concept, and deploying automation builds yield successful digital transformation in manufacturing environments. We approach each opportunity as consultants and engineer the best solutions based on your unique needs.



## Simplicity for Our Customers

Whether you only need components, require subassemblies of those components, or need in-depth engineered solutions, we provide the ideal solution. Our services, from the simplest to the most complex, are backed by high-level support from our system and engineering teams.

# How We Help You Design the Optimal System

## 1. Conceptualize & Solve

- Goals, Specifications & Budget
- Architecture & Mechanisms
- Calculations, Sizing & Analysis

## 2. Design & Prove

- Mechanical & Electrical Design
- Integrated Software
- Prototyping & Proof of Concept
- Prototype Testing

## 3. Deploy & Fulfill

- Plan Ramp-up & Launch
- Coordinate Build, Logistics & Supply
- Reliable Ongoing Fulfillment
- Assistance & Training

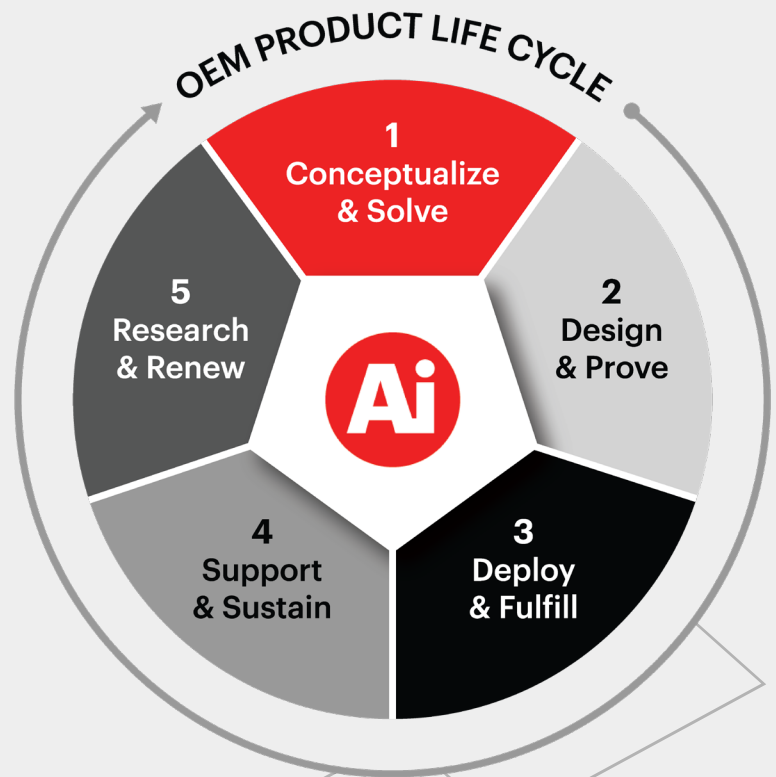
## 4. Support & Sustain

- System Support
- Product Training
- Software Updates

## 5. Research & Renew

- Technology Advancements
- Next-generation Goals
- Performance Enhancements
- Cost Reductions
- Market Opportunities

**↪ CONCEPT, AGAIN!**







# Machine and Motion Control Consulting and Engineering

## The Most Comprehensive Motion Control Consulting and Engineering

From full-scale motion control application design to product sourcing and implementation, we partner with your business to provide you with the products and solutions you need to make your application a success.

We work with your business to deploy motion control systems in the most basic and complex applications you can imagine. We listen to you and understand your application needs, desires, and budgetary constraints, then suggest an appropriate controller and any other products your application requires.

We Help You  
Find the **Right**  
**Products.**

## We Help You Answer the Tough Questions

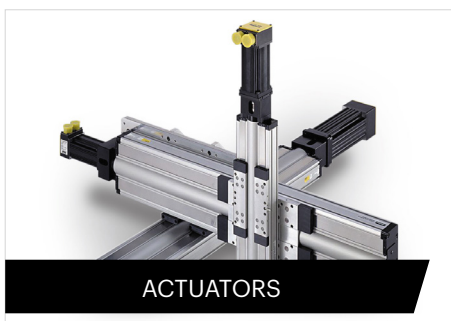
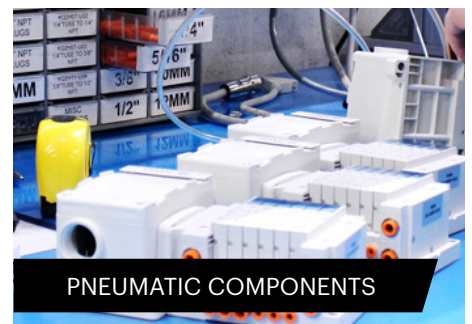
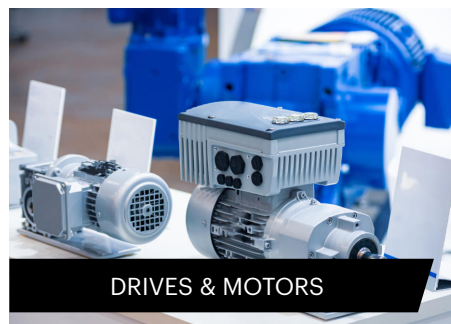
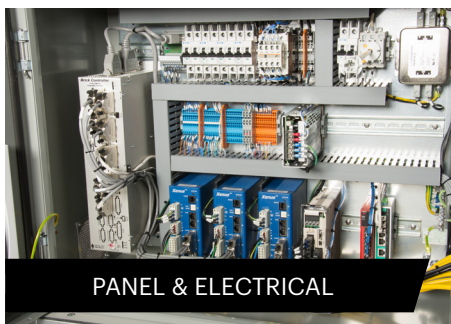
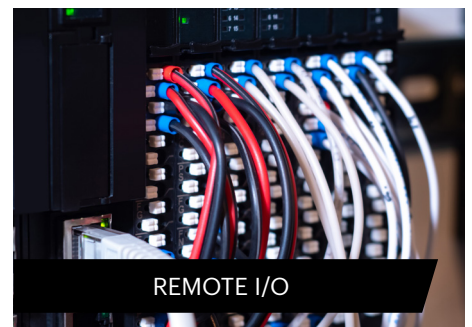
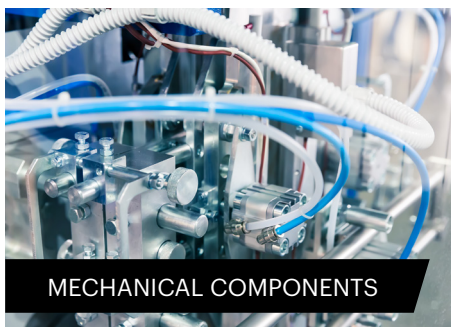
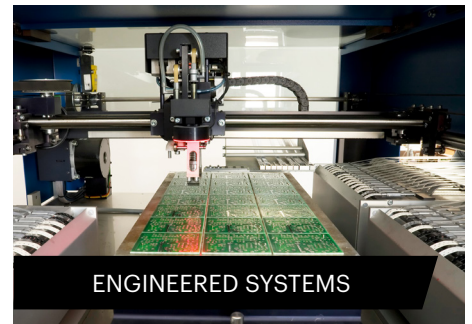
- Should you use PC-based or PLC?
  - What kind of communication interface should you be using to interface with your drives? EtherCAT, Mechatrolink, CANOpen, analog?
  - Do you need an integrated motor/drive?
  - Do you need a controller/amplifier combination?
  - What network interfaces do you need for remote I/O, HMI, and other nodes?
  - Do you need custom kinematics for multiple axis trajectory?
  - How do you account for harsh duty or military requirements?
-

# Machine and **Motion Control**

## **PRODUCTS**

From PC-based to PLC, PAC, and CNC platforms, we help you find the machine & motion controllers and associated electromechanical components and systems to best suit your application needs and budget.

## Leading Machine and Motion Control Products



# Custom Engineering of Automation Systems

## Custom Components and Automation Systems Built to Perfection

Today's increasingly complex automation challenges require custom engineering solutions built specifically to address each unique automation challenge. Our Engineered System Solution Division designs and develops state-of-the-art automation applications built from the ground up with leading automation products. Our turnkey engineering solutions ensure that every part of your application—no matter the size—works exactly the way you need it to.

Our custom engineering solutions include:

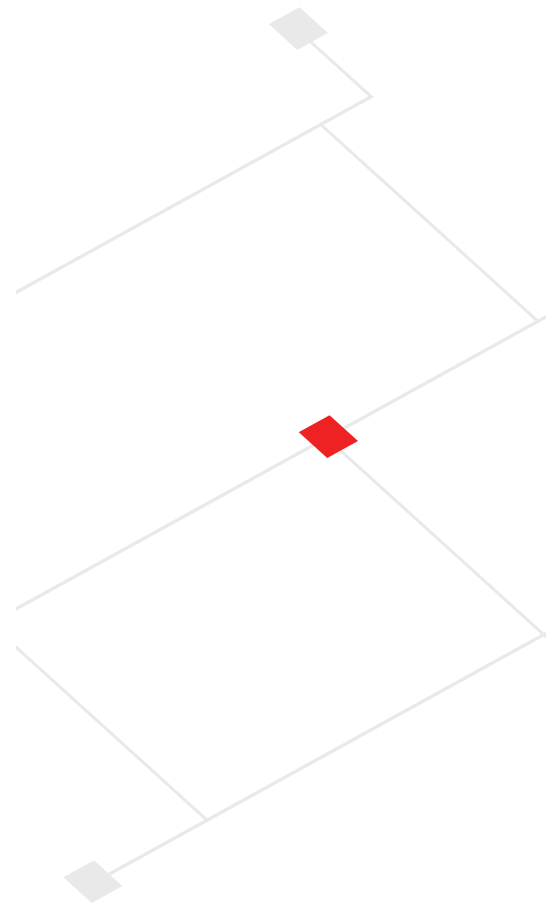
- Control system architecture
- Electromechanical design
- Software development
- PCB design
- SCADA, database
- OEE & productivity solutions
- Industrial networking

## A Full Suite of Engineering Solutions

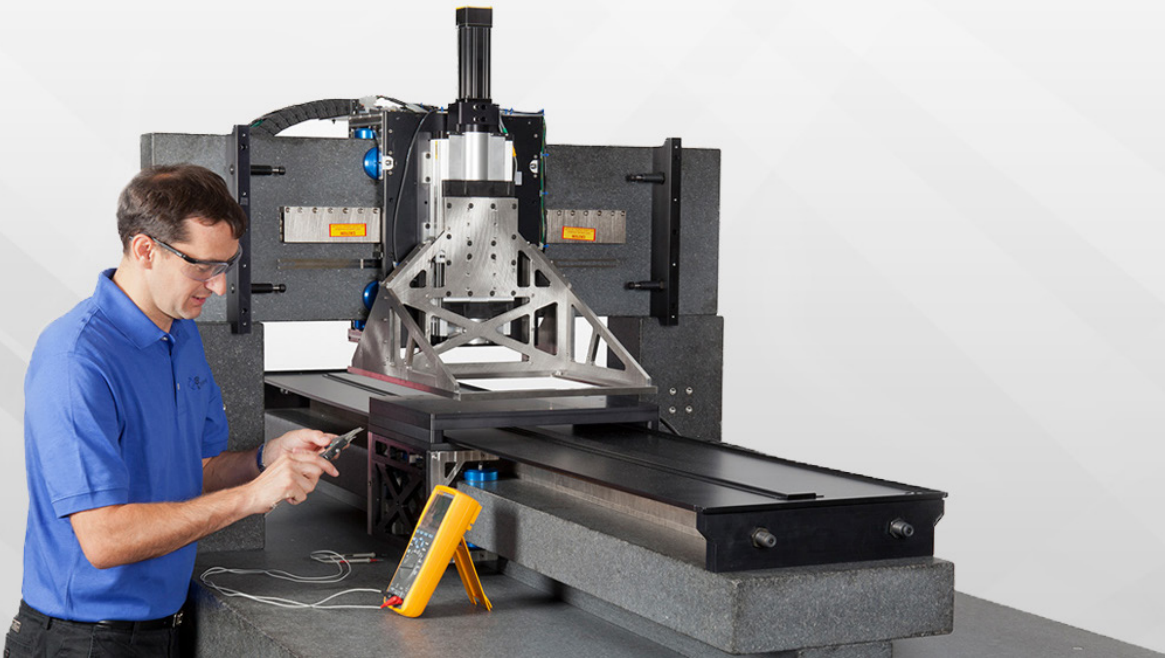
When you work with Motion Ai, you get custom solutions and service from our entire Engineering Division:

- Our senior design engineers provide a single-source solution for designing complete machine engineering systems. They have the expertise, tools, and assembly space in-house to take on the complex requirements of your application.
- Our dedicated project managers provide continuity relative to specification development, budgeting, quoting, and scheduling.
- Our application lab provides modeling and prototyping capabilities during the early conceptual phases of a project.
- Our distribution team helps you obtain the products needed to build your application, leveraging our expansive network of manufacturing partners.

Engineering  
Solutions for  
**Every Business.**



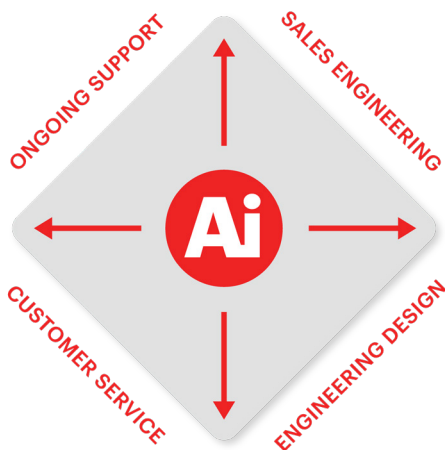




## Applications **Engineering**

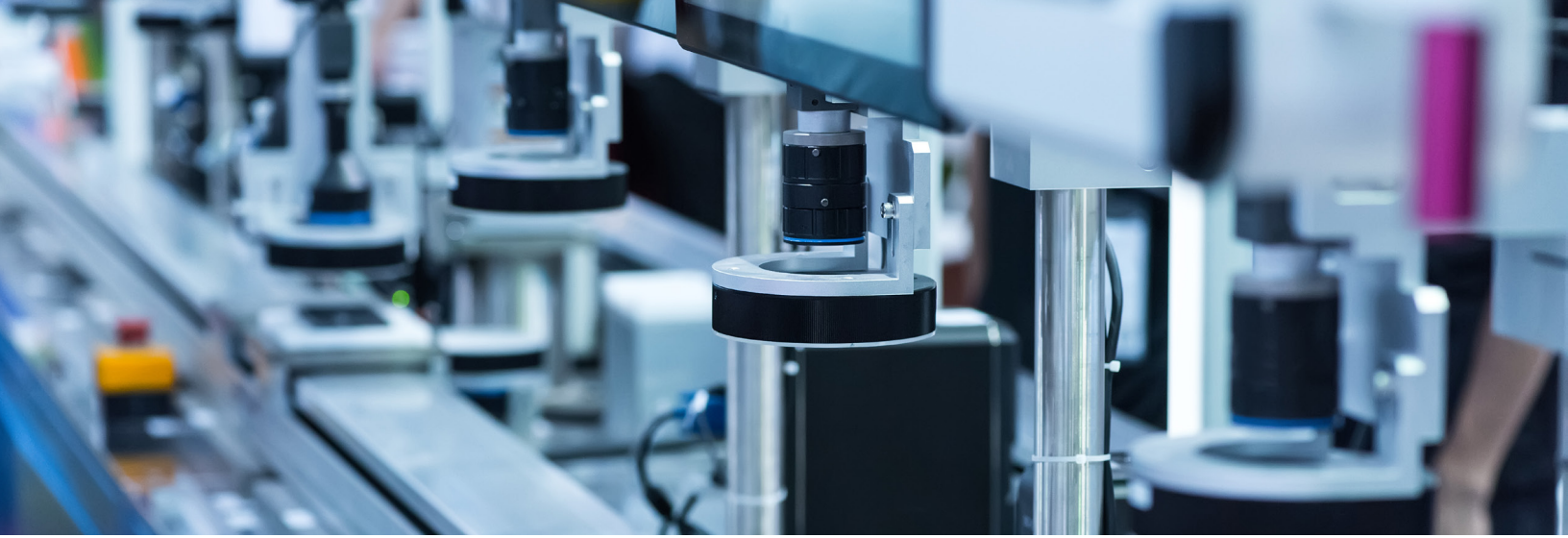
### Custom Engineered Systems That Improve Productivity and Process

Our applications engineering and design expertise helps you complete projects in an efficient and cost-effective manner. Our expertise in the hardware we distribute shortens the design cycle, providing you with an efficient and reliable solution for your engineered system. Our engineers design complete machine solutions, from consultation and specification development to detailed drawings and bills of materials, assembly, installation, training, and service.



### Our Engineered Systems & Applications Engineered Services Include:

- Control system architecture
- Electromechanical design
- Software development
- PCB design
- Industrial networking
- Industrial framing aluminum extrusion systems: design/build
- Pneumatic assemblies and panels
- Custom mechatronic systems: servo, actuator, drive and control
- Robotics: POC, EOAT and collaborative system installations
- Machine vision: POC, system design, programming services
- Conveyor systems: design/build



# **Machine Vision** Systems and Solutions

## **Complete Vision Systems That Reduce Manufacturing Issues**

As an AIA Certified Systems Integrator, our industry acumen is unmatched. We build complete machine vision solutions from the ground up—from inception to completion. We help you design a machine vision system, source the products you need to build it, and implement, test, and maintain the system throughout its lifetime.

That's why we continue to be the largest machine vision inspection provider in North America and a trusted solutions provider for businesses worldwide.

## **Our Machine Vision Solutions**

- Independent evaluation by the Solutions Team prior to quotation
- Customer kickoff meeting with a dedicated project manager and the assigned team
- Design reviews
- FATs and SATs
- FS documents upon project completion
- On-site and remote service available
- System training of customer team members

## **Solving Manufacturing Issues with Machine Vision**

Has your company experienced manufacturing issues that led to costly resorting or recalls? Do your customers have frequent complaints about the quality of products? Do you have the necessary data to determine the root cause of defective products? Are you struggling to detect product issues early in the manufacturing process? Our machine vision division can help you solve these manufacturing problems and:

- Achieve higher read rate performance
- Increase speed and throughput
- Improve accuracy and efficiency
- Lower maintenance costs
- Prevent or correct label and shipping errors

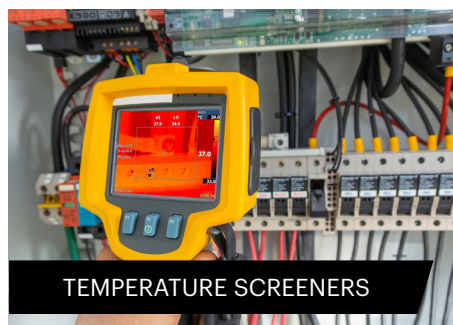
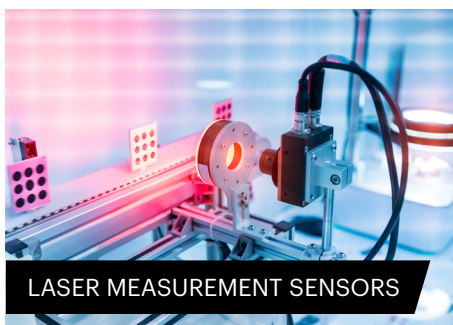
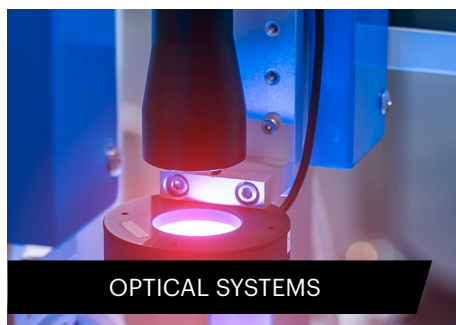
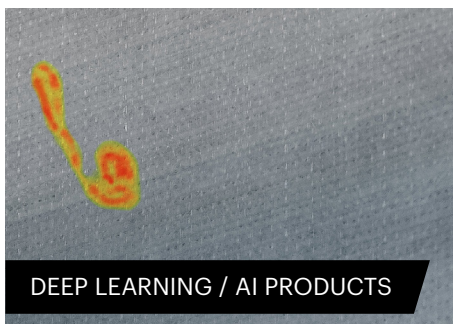
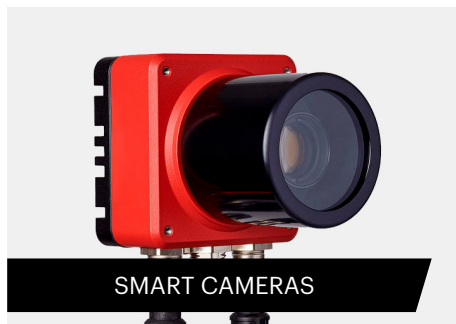


# Machine **Vision**

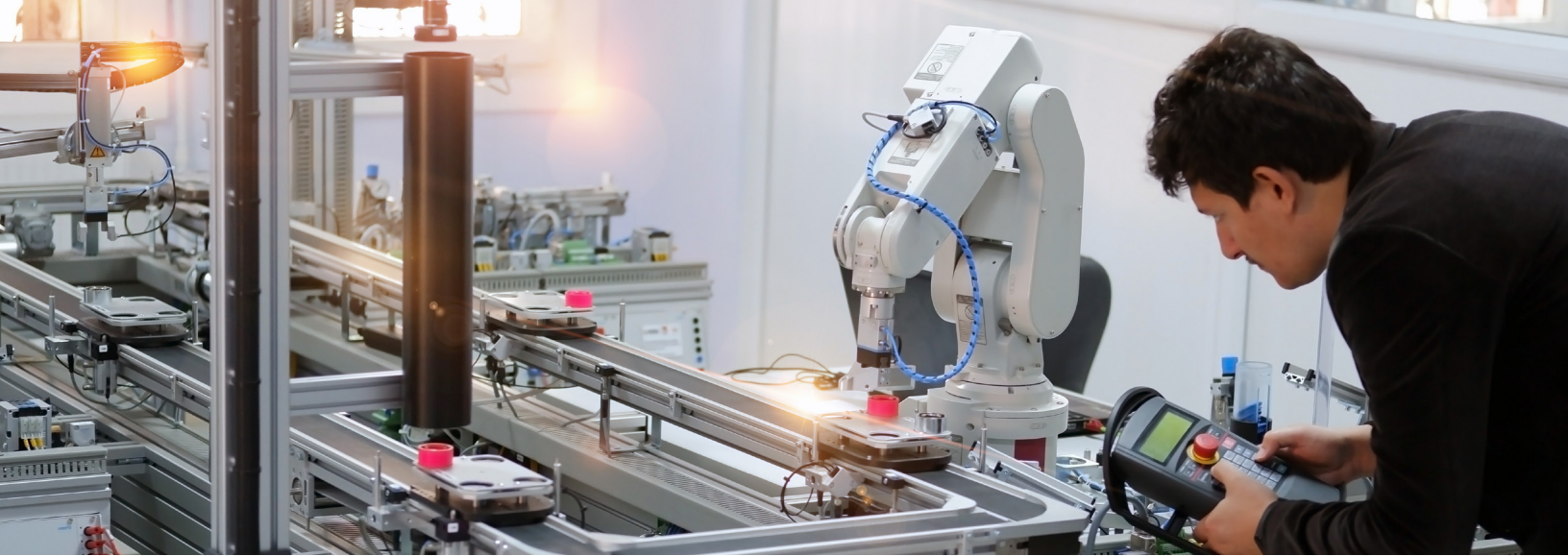
## **PRODUCTS**

Our Engineering Solutions Division and Machine Vision Integrators provide a full catalog of automated vision products for manufacturers in any industry, helping you capture images of products on your manufacturing line for analysis and guidance.

### Leading Machine Vision Products







# Robotics

## Custom Robotics Solutions Boost Efficiency and Speed

We specialize in designing and implementing robotic solutions into automation applications for any industry. Our robotics specialists and engineers work with you to assess your industry-related challenges and develop an efficient and well-budgeted solution.

### Our Robotics Solutions Help You:

- Improve speed to market
- Scale and adapt to changing demands
- Provide consistent quality
- Maintain low price points
- Rapidly increase ROI
- Increase production and handling speed, accuracy, and efficiency
- Operate in conditions that are hazardous for humans
- Lift loads that are too heavy to move efficiently

Our turnkey robotics solutions make automation accessible, affordable, and attainable for any business in any industry.

### We Offer:

- Proof of concept demos
- Turnkey solutions
- Robotics sizing, selection, cycle and reach analysis
- Custom pedestals, benches, bases and carts

Turnkey  
**Robotic  
Solutions.**

# Robotics

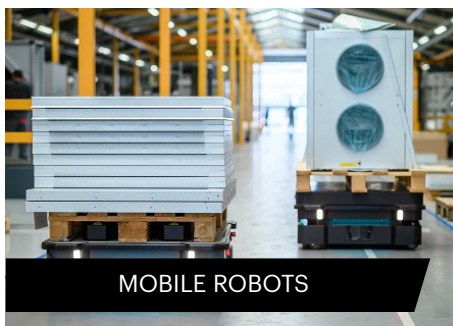
## PRODUCTS

From high-payload and harsh-duty industrial robots to collaborative robots (cobots), we source the top robotics products from leading manufacturers. We have deployed thousands of robotic solutions to automation systems across the country.

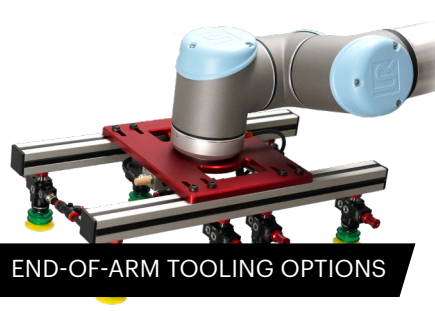
### Leading Robotics Products



COLLABORATIVE ROBOTS



MOBILE ROBOTS



END-OF-ARM TOOLING OPTIONS



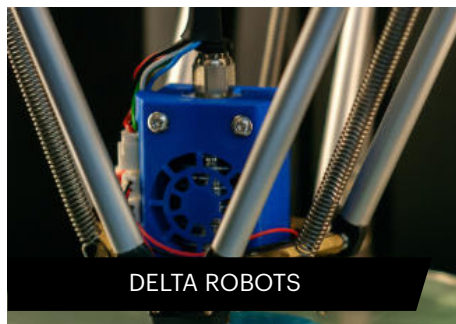
ARTICULATED 5- & 6-AXIS ROBOTS



SCARA 4-AXIS ROBOTS



CARTESIAN: 2- & 3-AXIS ROBOTS



DELTA ROBOTS



FLEXIBLE FEEDERS



SOFTWARE SOLUTIONS

# Drives and Motors

## Commercial Off-the-Shelf (COTS) Standard Products

Most industrial applications use COTS solutions. These products are made for 24/7 demanding industrial use. They include highly supported software and program development tools, high-speed bus architectures for motion control, and high-quality drives and motors. Motion Ai will help with all the challenges to choose what is appropriate for your application from control to mechanical assembly. We'll help you size the appropriate drive and motor for your needs, and our engineering teams can help program and deploy if needed.

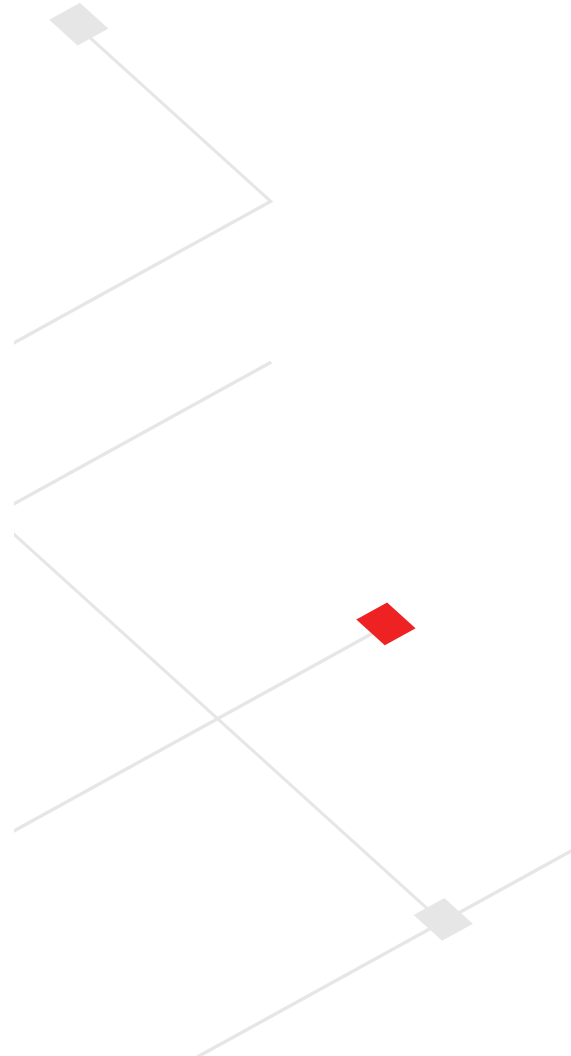
- Motion control platforms
- VFD drives
- Servo drives & motors
- Stepper drives & motors
- Motion bus architectures
- AC/DC motors
- Direct drive motors
- Spindle motors

## Custom Solutions

For military, aerospace, medical, test, semiconductor, and other specialty industries that require custom design or harsh duty, we design and manufacture custom software and hardware solutions. These assemblies may include COTS parts or may be completely custom. These systems can include custom firmware and software, custom hardware, motion controllers, serial- or Ethernet-based communications, drives/amplifiers, motors, and mechatronic assemblies.

- Embedded motion control
- Firmware & software management
- PCB designs
- Hardware solution
- Military spec environment designs
- Harsh-duty enclosures
- Cabling & assembly
- Custom motors

Standard or  
**Custom  
Solutions**



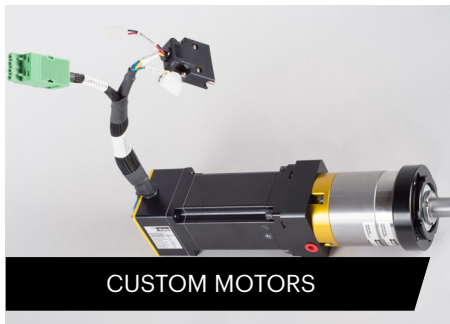
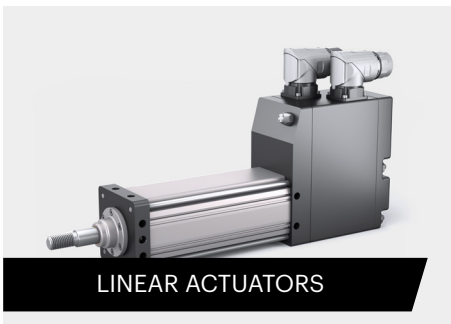


# Drives and Motors

## PRODUCTS

With various sizes, speeds, and forms, the combination of drives and motors creates an endless amount of customization for your application. We help you size and select a motor and drive combination to operate in any environment, for any application. We supply a full catalog of drives and motors and have deployed thousands of products in OEM and end-user applications.

### Leading Drive and Motor Products

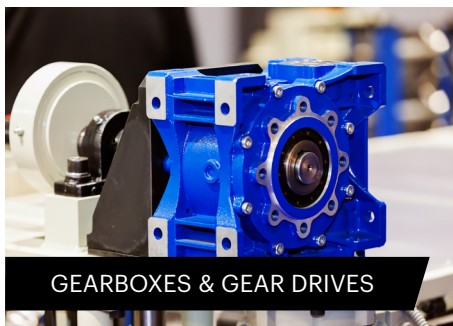


# Actuators, Rail, **and Gearing**

## **PRODUCTS**

Once a motor is connected and power is supplied, it's the mechanical components that allow for the translation of motion—whether fast, slow, precise, rotary, high torque, linear, high force, or anything else—to machine parts. We partner with over 50 suppliers of mechanical components that allow for motion in any application or orientation, no matter your industry or operating environment.

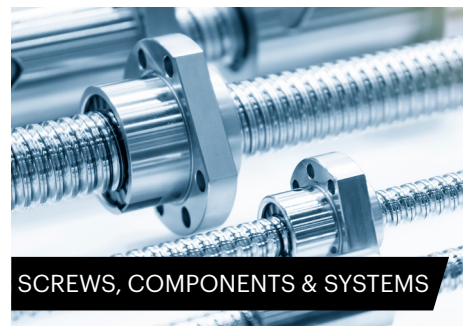
## Leading Mechanical Products



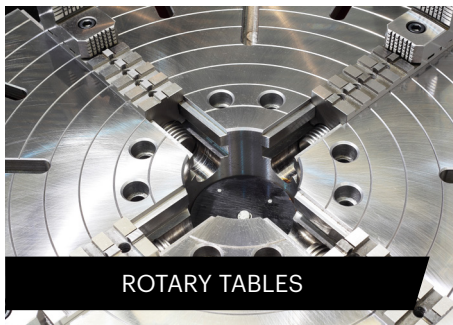
GEARBOXES & GEAR DRIVES



ACTUATORS



SCREWS, COMPONENTS & SYSTEMS



ROTARY TABLES



RACK & PINION



LINEAR BELT ACTUATORS





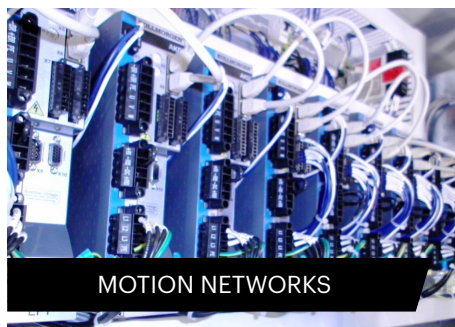


# Networking and IIoT

## PRODUCTS

Modern machines need to communicate with devices and high-level networks. We ensure that your automation components are communicating well with one another, along with your workers, to improve productivity. We design and supply fully integrated networks that are reliable and fast while allowing component distribution that helps limit control panel sizes and installation costs. Real-time I/O (wired and wireless) control networks are at the heart of any new machine design along with high-level network connectivity. We are well versed in all Industry 4.0 technologies, helping with big data, SCADA, and factory-of-the-future discussions.

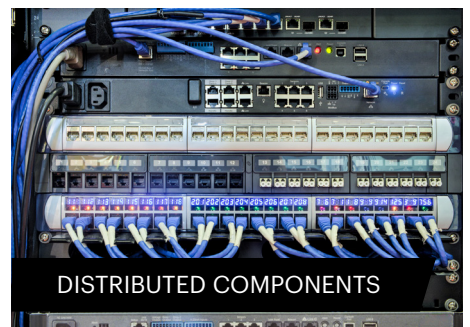
## Leading Networking and IIoT Products



MOTION NETWORKS



DISTRIBUTED I/O



DISTRIBUTED COMPONENTS



INDUSTRIAL NETWORKING





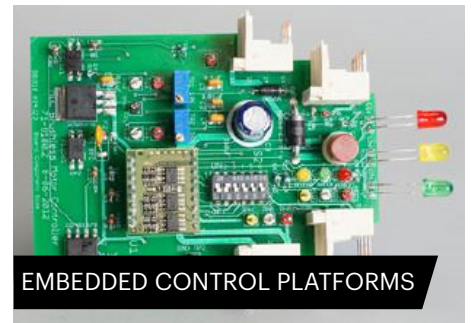
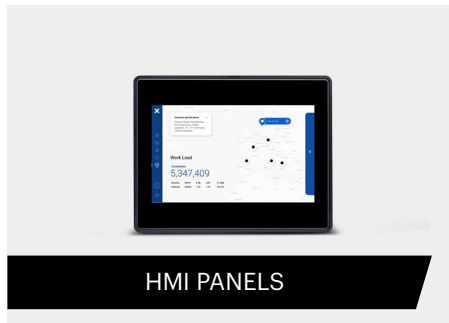
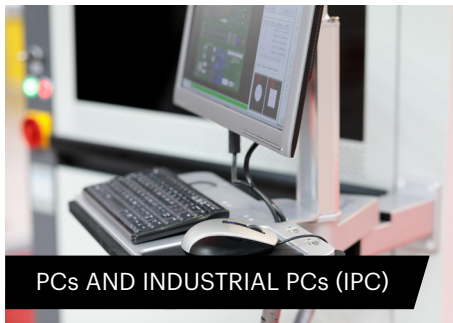
# IPC and HMI

---

## PRODUCTS

Every machine today requires intuitive methods of human interaction and control. IPCs and HMIs take on many form factors and work very reliably in even the harshest conditions. Whether you need an IPC/HMI that can be used in bright sunlight or on mobile equipment, or an IPC/HMI that fits in the palm of your hand, we source the best products to fit your needs.

## Leading IPC and HMI Products

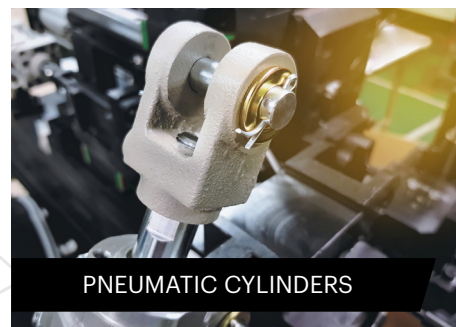
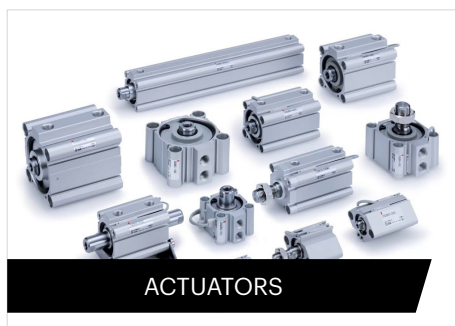


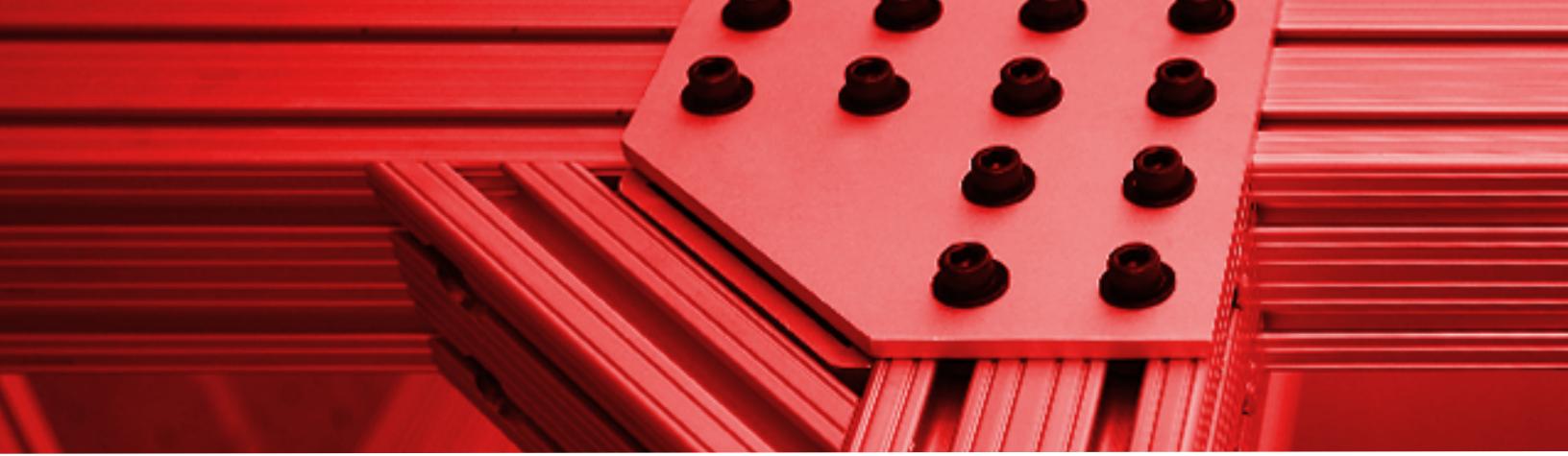
# Pneumatics

## PRODUCTS

We help you choose the right air-based products for your pneumatic motion control and automation systems. With a full catalog of components and assemblies for pneumatic automation (e.g., valve manifolds, FRLs, actuators, and connectors), connections with leading products manufacturers, and a wealth of technical expertise, we can help you with everything from sizing and specification to kit builds.

## Leading Pneumatics Products





# Industrial **Framing**

## Custom Framing Improves Business Operations

Let us leverage the advantages of aluminum t-slot extrusions for your business. Our framing experts work with you to create custom designs that can help your business in multiple ways.

### Our Custom Framing Solutions

- Safely support operations and machinery
- Contain debris, particulates, fumes, blasts, sound, light
- Secure valuables, access, inventory, tools, dangers
- Optimally position tools, sensors, displays, shelving
- Speed up transport, material handling, operations
- Strengthen work benches, racks, carts, tables, steps
- Protect human life, products, tools and assets
- Reduce injuries, disability claims, inefficiencies, costs
- Meet safety regulations and guidelines

Motion Ai designs and builds exclusively with the world's highest-quality aluminum t-slot brands and products.

### We Offer:

- Nationwide CAD design teams and framing manufacturing centers
- Free CAD design for commercial projects
- Fast quotations with product drawings
- Direct communications with t-slot design experts
- Integration with other Motion Ai technologies
- 20+ years of designing industrial framing products

Turnkey  
**Custom**  
**T-Slot Frames**

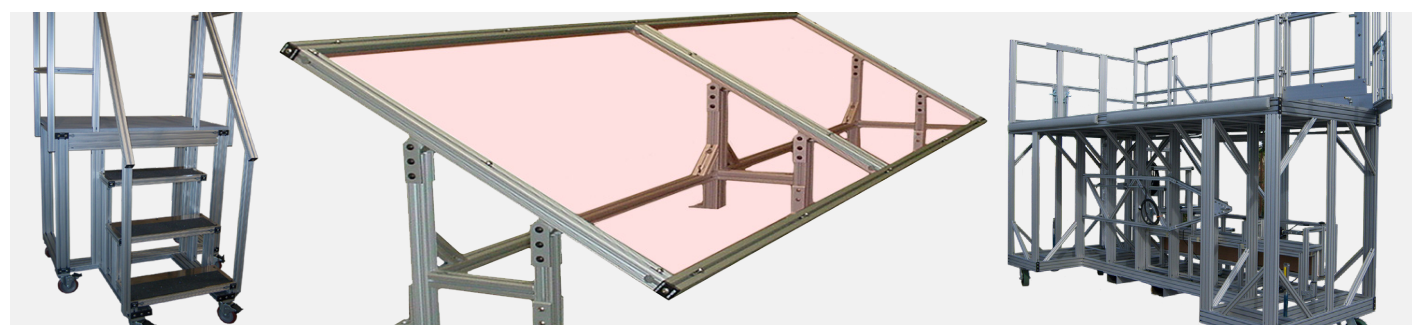
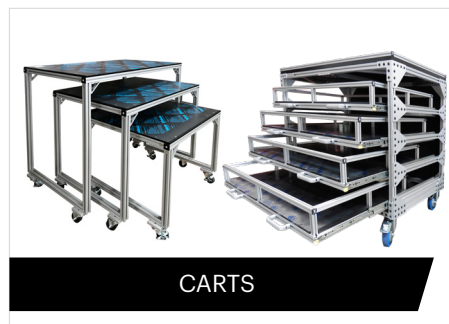


# Industrial Framing

## PRODUCTS

Aluminum extrusions offer many advantages over traditional welded steel or wood framing. We have designed thousands of industrial frames that have expanded the capabilities of manufacturers, R&D laboratories, large distribution centers and technology integrators over the last 20 years, and we can help yours.

## Industrial Framing Products





# Sensors and Safety Solutions

## Increasing Safety and Productivity in Your Facility

Protecting your employees shouldn't be an afterthought, and neither should the safety and sensing equipment you employ. We provide complete motion control application design and deployment solutions and help outline the highest quality safety and sensing systems that keep your employees safe.

We understand the rules and regulations of OSHA, ISO, IEC, EN and other national and international organizations. Our engineers can conduct full risk assessments on your motion control application, helping you with everything from product selection to circuit design, hardware and software installation, and more.

## Our Safety and Sensing Solutions Help You:

- Keep your employees safe from harm
- Keep production lines open and increase productivity
- Save on costs resulting from safety incidents, regulatory fines, legal fees, OSHA inspections, etc.
- Reduce liability and insurance costs
- Maintain compliance with OSHA and other industry safety standards
- Create a more streamlined process for maintenance and production changeovers

Our safety consultation services work in conjunction with our leading automation safety products and suppliers. There are different tiers offered, from a simple overview to a comprehensive observation, recommendation, and then validation. No matter what type of motion control application you are working with, our experts can help you improve the safety measures surrounding it.

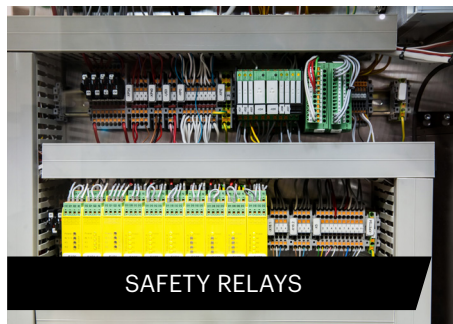
We Conduct  
Full **Risk**  
**Assessments.**

# Sensors and Safety

## PRODUCTS

Our motion control safety experts help you design and deploy safety systems for any application. It all begins with choosing components that are reliable, meet global industry standards and regulations, can be easily integrated and programmed, and maximize safety in your facility. We partner with leading safety and sensing product manufacturers to bring you a full catalog of products that fit your safety requirements.

## Leading Safety and Sensing Products





# Panel Assembly and Building

## Keep Your Manufacturing on Track

Industrial control panels have intricate designs that make them complicated to build and deploy, even if you have all the components at your disposal. We simplify the process. Our engineers assemble electronic and pneumatic control panels at various locations across the country, sending them right to your location for quick installation. We manage the component inventory and the finished panel stock, build the panel, then ship it right to your door. It's that simple. If you need a custom-built panel, we'll create a custom product that fits your application.

## Our Control Panel Engineers Specialize in:

- Electrical and Pneumatic Panel Builds
- DIN Rail Assemblies
- Component Mounting and Wiring
- Enclosure Modification and Customization
- Manifold Assembly and Testing

We simplify the supply chain leading up to your machine build, reduce the risk of supply chain surprises and functionality issues, and take care of the labor involved in assembly.

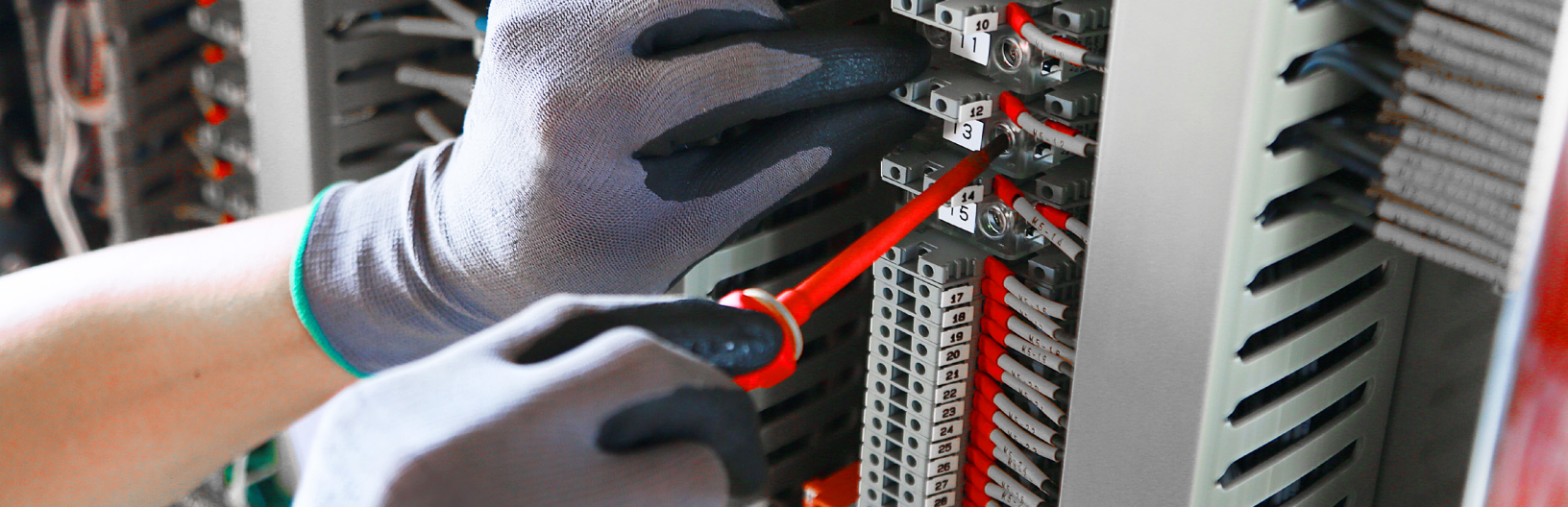
All you have to do is place the order and we'll take care of the rest.

## Our Certifications

- UL1203 Control Panels for Hazardous Locations
- UL698A Intrinsically Safe Control Panels
- UL508A Control Panels
- UL845 Motor Control Centers
- UL845 Restricted Type 4X
- UL891 Switchboards
- UL231 Power Distribution Units
- UL67 Panel Boards
- UL (UR)/CSA Certification for Wiring Harnesses
- IPC/WHMA-A-620A Cable Process Excellence

10 Panel  
Assembly & Build  
Certifications.





## Panel and **Electrical**

### **PRODUCTS**

Complex industrial panels contain everything from DIN rail assemblies to pneumatic manifolds with valves (pre-tested), electrical control components, human machine interfaces, programmable logic controllers, and FRL assemblies, among many other components. We work directly with your engineering teams to design a control panel, source the best products from leading manufacturers, and build and deploy the panel to your automation system.

### Leading Panel and Electrical Products



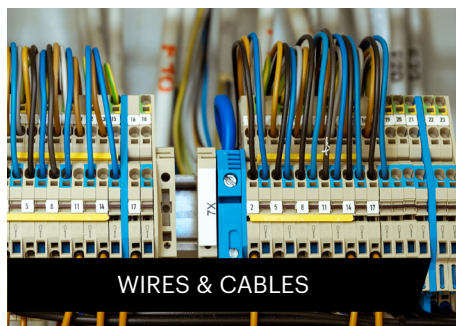
PANEL & ELECTRICAL



CONTROL PRODUCTS



WIRE MANAGEMENT

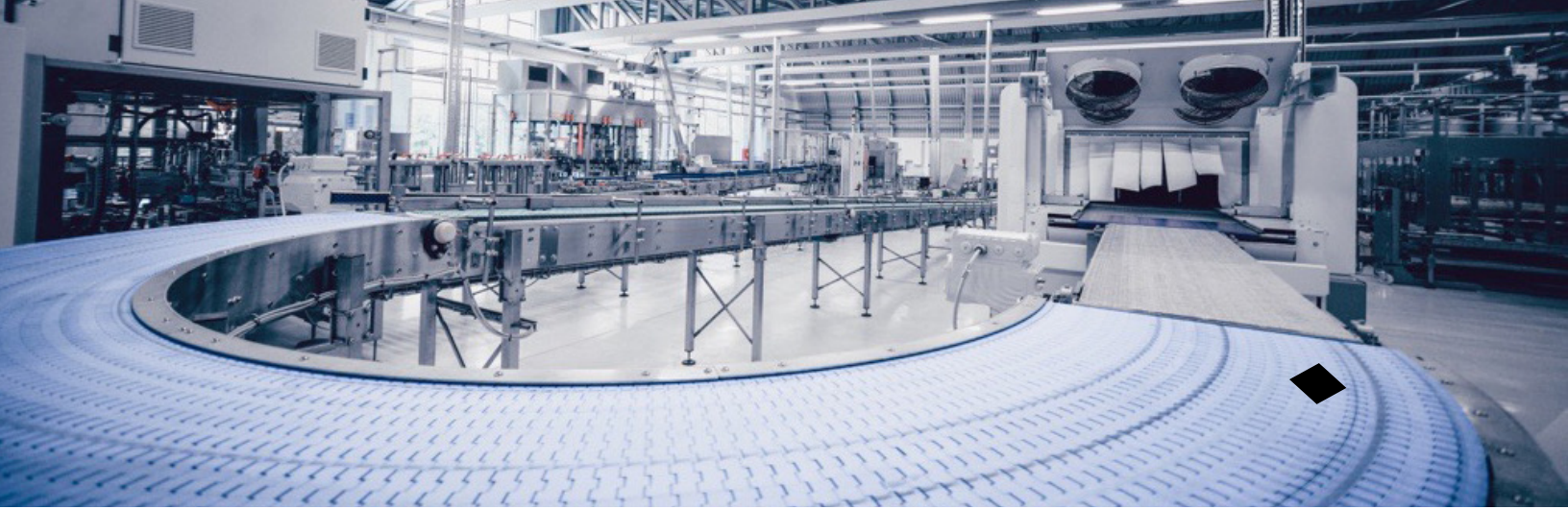


WIRES & CABLES



POWER DISTRIBUTION



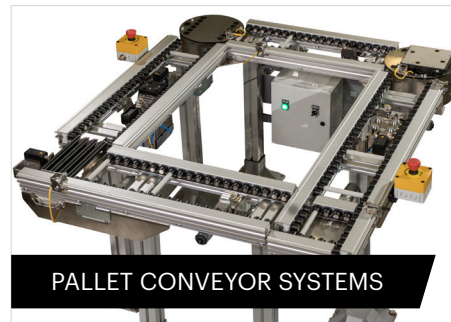


# Conveyor **Systems**

## **PRODUCTS**

Choosing the right conveyor solution can be the difference between an efficient system and one that holds up packaging and production in your facility. Conveyor solutions are not all about speed; there are often other considerations to be made. Sanitation, rotation, indexing and positions, merges, inclines, sorting, rejecting, and so much more go into creating the right conveyor system. We help you design an efficient and reliable conveyor system and source the right products to build it.

## Leading Conveyor Systems and Products





# Automation and **Process Solutions**

## Improve the Flow, Efficiency, and Effectiveness of Your Automation Process

In order to improve the flow of products and bring efficiency to a process, automation systems require constant analysis and development. Our Engineering System Solution Division deploys new automation systems and upgrades existing processes, analyzing every aspect of your business to make improvements across the board.

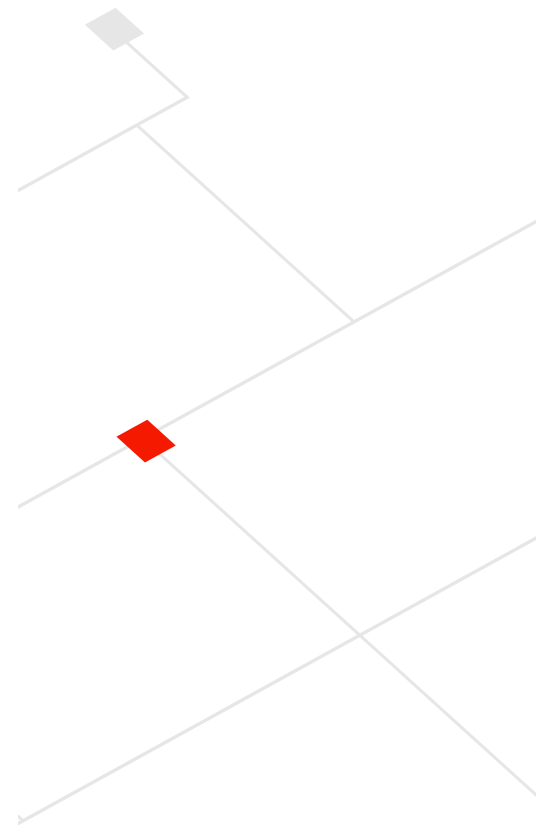
A full team of automation engineers focus on your needs, helping you design an automation application and choose the right products to make it as effective as possible.

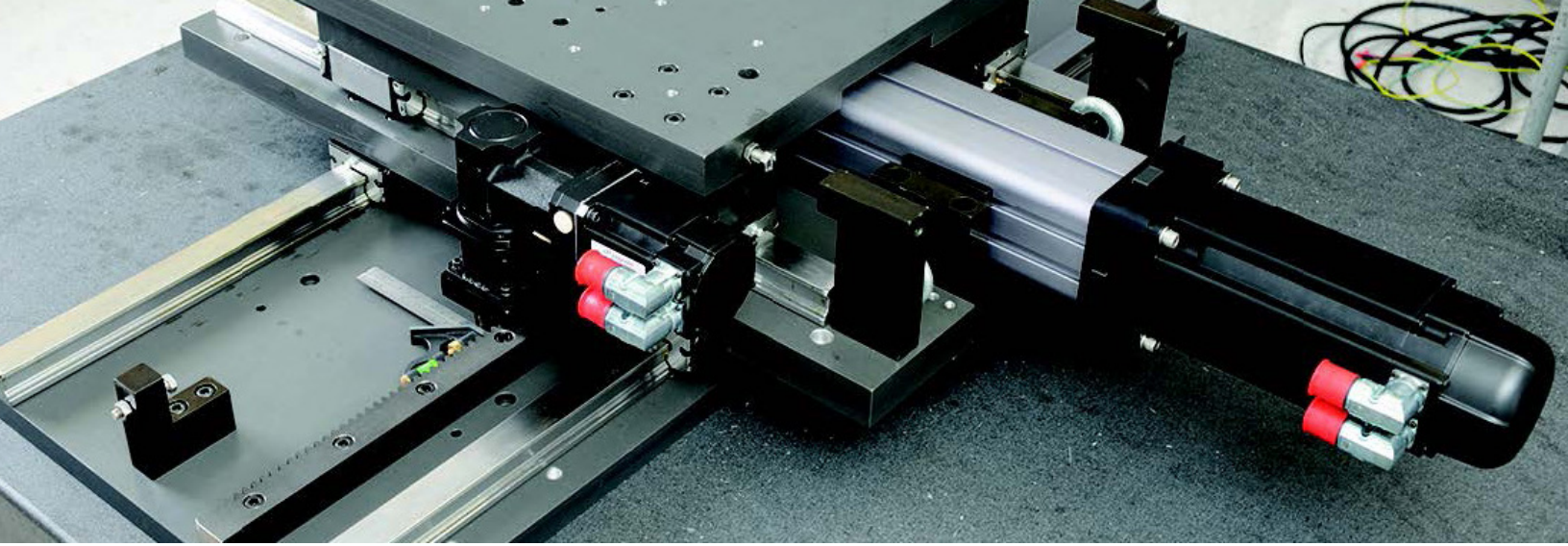
## Our Automation and Process Solutions Include:

- Motion controllers
- Automation software and programming languages
- Robotic components
- Actuators
- Sensors & vision equipment
- Human machine interfaces
- Sensors & safety
- Much more

Our process engineers take a deep dive into your manufacturing process, helping you make improvements that increase output while keeping costs in check. **They can help you:**

- Collect and analyze data on existing automation systems and processes
- Document and investigate problems and inefficiencies in processes
- Identify areas of improvement and provide solutions to existing issues
- Create new processes that increase efficiency and reduce costs
- Comply with standards and regulations within your industry
- Develop new best practices and new operating procedures for your business





# Mechatronics **Solutions**

## Solutions That Scale Your Business

Our mechatronics specialists are well versed in all areas of automation and motion control, including mechanics, electronics, computing, assembly, and so much more. We not only supply a full catalog of motion control components, but we also help you design, build, and deploy a custom mechatronics solution from the ground up.

## Our Mechatronics Solutions Help You:

- Scale your automation applications quickly
- Enhance functionality of automated processes
- Lower costs for materials and labor
- Increase production and efficiency
- Reduce troubleshooting of manual processes
- Increase manufacturing flexibility, efficiency, and speed
- Maximize uptime

From concept to deployment, we provide a complete turnkey solution for your business, starting with choosing the right products for your application. Our large network of automation component manufacturers gives you access to a wide range of products that includes:

- Motion controllers
- Drives & motors
- Robotics
- Mechanical components
- Pneumatic control devices
- Safety & sensing equipment
- Everything you need for your motion control applications

We Help  
Design, Build,  
**and Deploy.**

# Logistics **Solutions**

## Automation for Supply Chain Efficiency

Modern consumer habits are pushing e-commerce sales higher than ever, and this trend shows no indications of slowing down. Both manufacturers and distributors are feeling the strain of the ever-increasing flow of goods around the world. To keep up with consumer demand and remain competitive in their respective industries, businesses must streamline their supply chain procedures as much as possible.

Our logistics and automation specialists provide full-scale solutions for every link in your supply chain. From manufacturers to warehouses, fulfillment and distribution centers, and any other entity, we help automate any process, anywhere.

## Our Wide-Ranging Logistics Automation Capabilities Include:

- Motion control
- Material handling
- Data tracking & inspection
- Palletizing & depalletizing
- Vision-based picking
- Collaborative robotics integration
- Sorting
- Singulation
- Automated storage & retrieval systems

## Increase the Entire Efficiency of Your Supply Chain with Our Solutions

- Reduce the time and cost associated with manual processes
- Decrease errors and mitigate their related costs
- Prevent bottlenecks
- Improve productivity
- Provide data and analytics in real time
- Help deliver better customer service
- Increase industry competitiveness
- Increase market share

## Our **Full Catalog** of Automation Products Includes:

- + Motion controllers
- + Drives and motors
- + Robotics
- + Mechanical components
- + Pneumatic control devices
- + Safety and sensing equipment





## Regional Locations and Divisions

Our regional divisions are strategically located throughout the United States, giving customers access to a full catalog of motion control products and solutions no matter where they are.

Contact us when you are ready to  
**CONCEPTUALIZE | DESIGN | ENGINEER | PURCHASE**

Call toll free **800-AUTOMATE** or visit **[ai.motion.com](http://ai.motion.com)**

