+VANTAGE
Metrology & Assembly Solutions

CUSTOM AUTOMATION FOR ASSEMBLY, INSPECTION AND FINAL TEST

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WHO WE ARE & WHAT WE DO

HOW IT ALL STARTED

+Vantage was established in 2003 to provide measurement and inspection capabilities to the automotive industry. Since then we've expanded exponentially into assembly, automation, and intelligent manufacturing systems. The industries we serve are varied and numerous, from biotech and pharmaceutical to automotive and aerospace.

PROJECTS & CAPABILITIES

Our projects range in size, scaling from turnkey integrated production systems to stand alone, semi automatic and manual stations for a variety of processes & inspections. We integrate a wide variety of technologies, making us your one-stop-solution provider in automated assembly, inspection, and test systems. We are continually investing in & investigating new technologies to provide our customers with the newest & most robust solutions to their technical requirements.

INSPECTION & TESTING

- Dimensional Measurement
- Non / Contact Vision Inspection Systems
- Virtual Condition & Attribute Inspection
- Tool Compensation Gage Systems
- Leak Test Systems
- Eddy Current & Resonance Test systems

ASSEMBLY & PART MARKING

- Torquing
- Pressing
- Riveting
- Gluing & RTV Application
- Manual assembly
- Laser & Part Marking Systems

TURN KEY INTEGRATION OF CONNECTED SYSTEMS

- Robotic Part Handling
- Automatic Transfer Systems
- Bulk part handling
- Automatic calibration & system verification
- Data Collection & SPC

1,500
Machines Built

250
Years Combined Experience

50K
Square Foot Build Facility

WHY WORK WITH US?

SINGLE-SOURCE SUPPLIER

We are a single-source supplier for every system we produce, design, and build in-house at our 50,000 square-foot manufacturing facility. +Vantage is also proud to be ISO Certified.

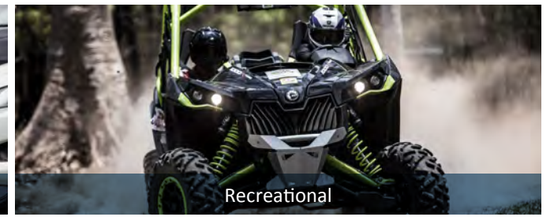
PROJECT MANAGEMENT

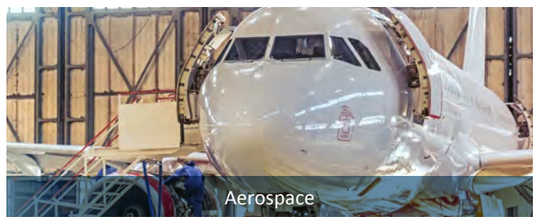
The +Vantage philosophy does not simply extend to our engineering, system integration, and support services, but project management as well. Our certified project managers can assist you with ensuring timely equipment deliveries when you need them most.

SERVICE & SUPPORT

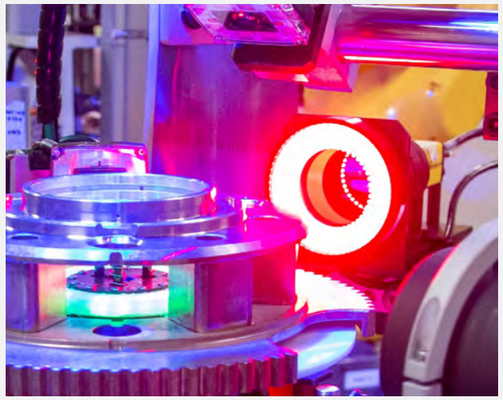
Together, we've installed over a dozen systems in as many countries, and we stand by our product. Our 24/7 support line means technical support is just a phone call away, and with offices in the United States, Mexico, and China, our field service representatives can be on-site when need be.

INDUSTRIES WE SERVE:





AUTOMATED END-OF-LINE FINAL TEST & INSPECTION CELLS

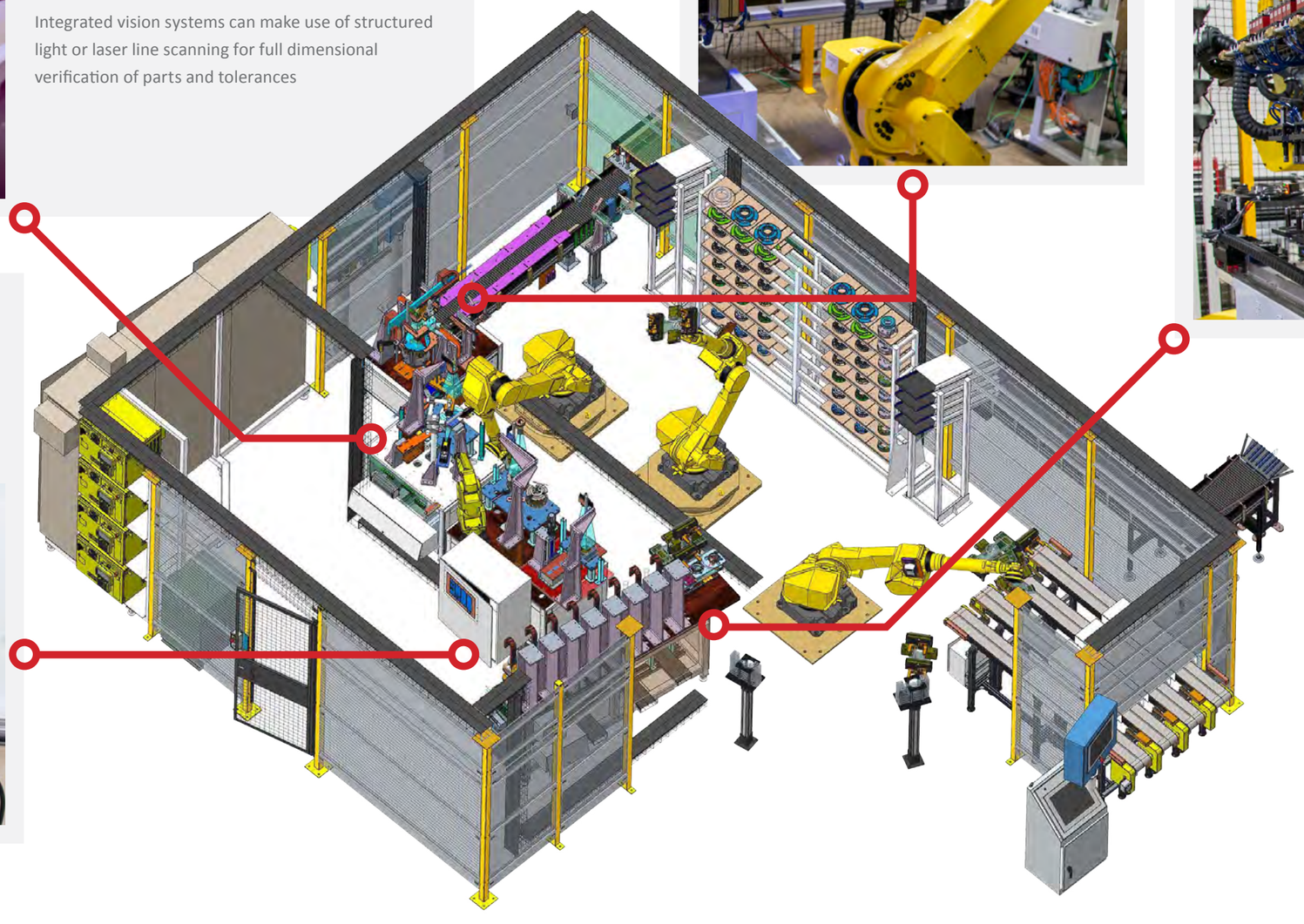


NON-CONTACT DIMENSIONAL MEASUREMENT

Integrated vision systems can make use of structured light or laser line scanning for full dimensional verification of parts and tolerances

EDDY CURRENT AND RESONANCE TESTING

Custom integrated testing systems for inspecting part condition, cracks and voids, and thicknesses.

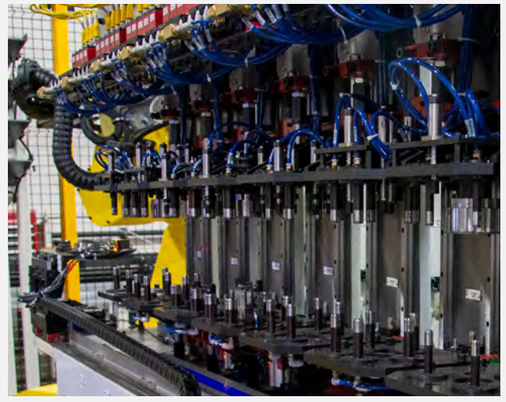


PART IDENTIFY AND ORIENTATION

Robotic systems for visual identification of components, either visually or through part marking, and correct orientation in 3D space for pick-and-place operations.

AIR GAGES

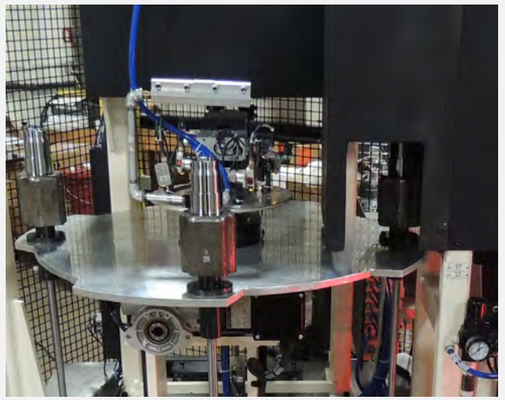
In-Line integrated air gauges for inspecting tight tolerance dimensions.



CONNECTED CNC MANUFACTURING CELLS

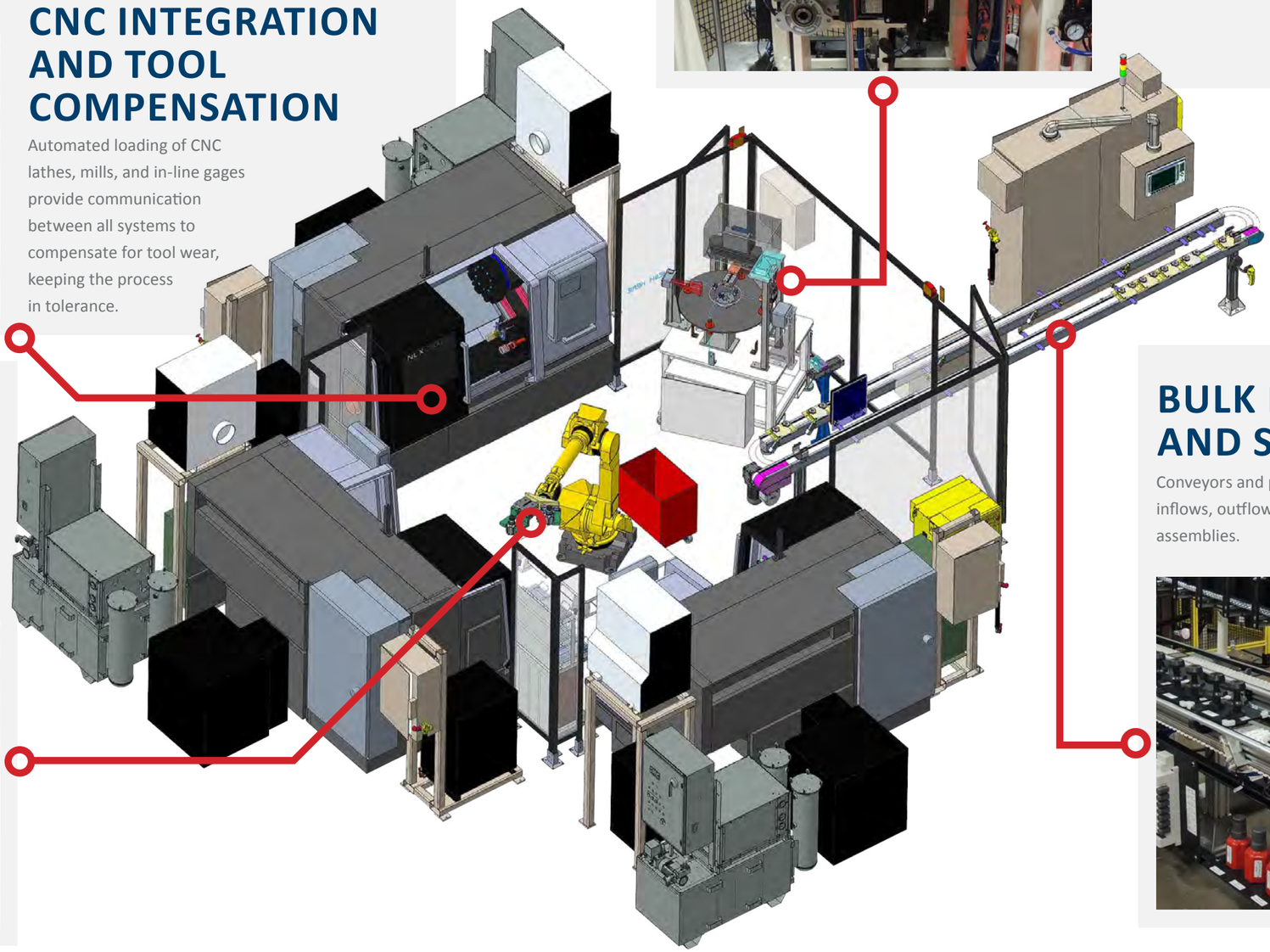
CNC INTEGRATION AND TOOL COMPENSATION

Automated loading of CNC lathes, mills, and in-line gages provide communication between all systems to compensate for tool wear, keeping the process in tolerance.



IN-LINE GAGE AND PART MARKING

Laser part marking adds traceability to your manufacturing process, with an integrated vision system for dimensional checks.



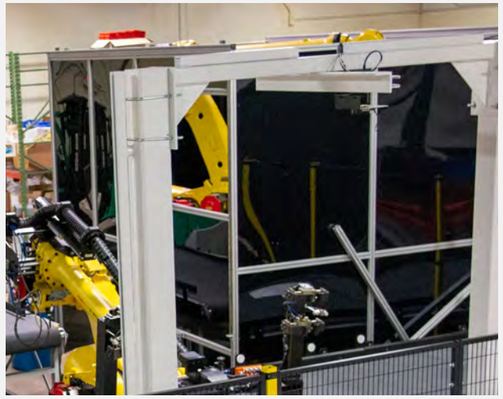
AUTOMATED PART TENDING

Integrated communication between CNC, gage station, and robotic system allows for automatic movement of parts between stations.

BULK PART INTAKE AND SORT

Conveyors and part buffering systems to handle inflows, outflows, and sorting or production parts and assemblies.

TURNKEY ASSEMBLY & INSPECTION CELLS

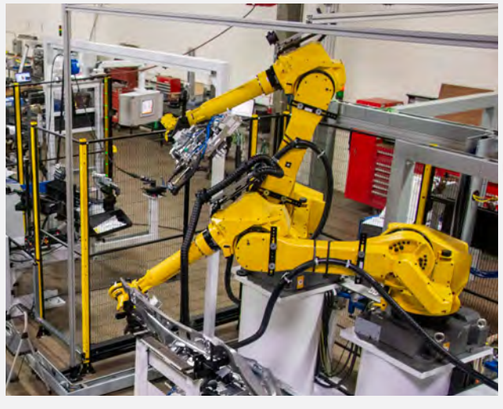


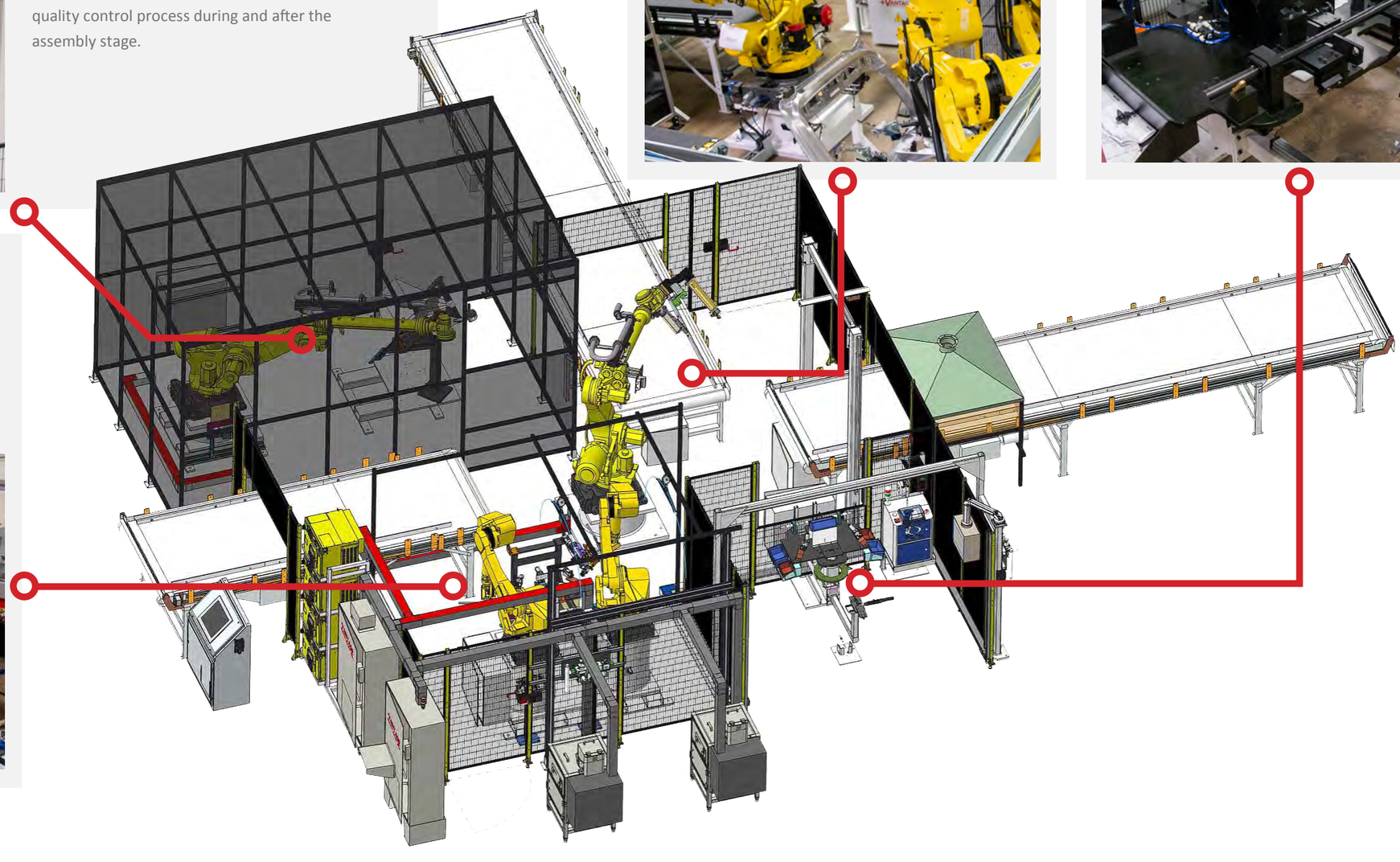
POROSITY & DEFECT VISION INSPECTION

Fully automated vision checks maintain the quality control process during and after the assembly stage.

ROBOT AUTOMATED ASSEMBLY

Fully automated systems for pressing, torquing, riveting, and joining components together, all while tracking variations.





ROBOTIC PART TENDING

Pick-and-place & part handling robots reduce manual handling from the process.

MANUAL ASSEMBLY

For manual construction, inserting, and assembly of components.

INSPECTION & TESTING

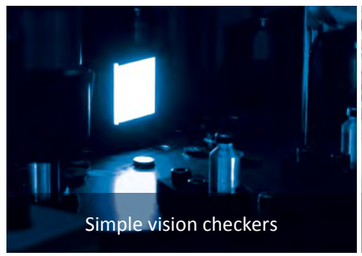
End-of-line inspection and testing is crucial to your quality assurance (QA) process. This can take the form of dimensional measurement and a variety of non-destructive inspection (NDI) systems for ensuring part quality and that tolerances meet your standards. End-of-line testing also means data collection and tracking, keeping each part's journey through its manufacturing cycle as an unbroken digital chain.

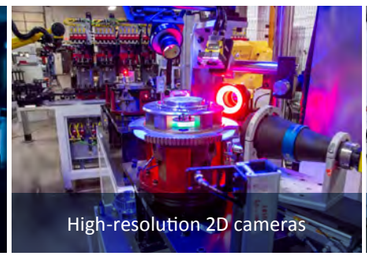
DIMENSIONAL MEASUREMENT

In-line systems feature Linear Variable Differential Transformer (LVDT) contact sensors for dimensional measurement of machined, ground and casted parts. Dimensional measurement can be valuable for inner diameter (ID), outer diameter (OD), length, taper, and the full slew of GD&T relevant values to ensure you stay within tolerance.

NON-CONTACT VISION INSPECTION SYSTEMS

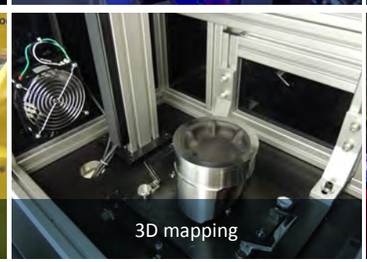
Vision systems use multiple cameras to evaluate a final product for visual defects and fidelity to a baseline configuration. + Vantage offers:


Simple vision checkers


High-resolution 2D cameras

High-resolution line scan cameras

Integrated vision systems, telecentric systems


3D mapping


3D camera inspection solutions

We use a wide variety of camera manufacturers for vision system testing, with additional options for fully automatic or operator-loaded stations.

EDDY CURRENT AND RESONANCE TESTING

Eddy current and resonance testing offer powerful NDI capabilities for part inspection. Eddy current testing uses electromagnetic induction to inspect metal components for cracking, non-conductive coating thickness, material conductivity, and heat treatment.

Resonance testing utilizes the known resonance frequency of a given object to check for structural defects. By passing vibrational frequencies through your component at resonance, any deviation in response will alert you to the presence of defects.

PART IDENTIFICATION AND ORIENTATION

Part identification and orientation systems intake components into the end-of-line testing station, using vision systems to identify parts and robotic pick-and-place machines orienting components for the next stage of inspection. Timing intervals are fully adjustable and provide efficiency to the process by automating a step normally assigned to an operator. Part identification systems feed into real-time SPC data collection, ensuring your part traceability records are continuously updated.

VISION CONDITION AND ATTRIBUTE INSPECTION

Visual systems provide inspection and verification of process critical features for go/no go stages, applicable to non-cleanup verification, size verification and feature presence.

LEAK TEST SYSTEMS

Non-destructive leak test systems ensure your structures are free of cracks and deficiencies through vacuum decay and pressure decay methods. +Vantage integrates a variety of leak testers to ensure we meet your exact specification. Through custom designed fixtures using standard replaceable seals wherever possible, we provide an easy to maintain leak test solution. Our systems feature sealing forces with either Hydraulic or Pneumatic sealing forces based on the integrity and design of the part.

> "Before bringing on Vantage as a partner, we had multiple quality concerns with defects and dimensional quality of our parts. Vantage provided multiple technologies to verify the quality condition of our parts, combined with statistical process verification to ensure their technologies were verifying our quality properly. This resolved our quality concerns and now we are able to quarantine our rejected components with confidence"
>
> - Tier One Automotive Manufacturer

ASSEMBLY AND PART MARKING

+Vantage provides all the tools, equipment, systems, and support you need to fully automate your assembly and part marking process; from the introduction of the sub-components to a completed assembly with a serial part code marked, we have you covered from start to finish in your new assembly & part marking line. We offer fully automated solutions for bulk part handling, pressing, torquing, and joining operations, as well as robotic part tending and assembly vision stations. All of these systems work hand in hand, communicating for maximum safety and repeatability.

TORQUING

Torquing systems include in-line blow fed and track fed torque systems. Torque and angle monitoring comes as part of the process control, with fully customizable torque sequences and post torque inspection available. Torque systems are ideal for joining sub assemblies, and integrate seamlessly with your assembly line.

RIVETING

Riveting systems are ideal for in-line automotive facilities, and can provide structural component riveting, thin wall and threaded insert rivets. These systems can be fully robotic, and come in blow fed varieties.

PART MARKING

Part marking is an integral step in the manufacturing process, empowering you with the ability to remove traveling paperwork from the equation and directly etching crucial information; be it part numbers, serial numbers, Q/R codes, or other identifiers right onto your parts, in a fashion which never risks fading or deterioration. +Vantage has the experience to provide traceability to your parts by laser marking, label applicating, dot peening, or inkjet marking.

PRESSING

Pressing systems are available as either blow fed or track fed press systems, and offer the capability to monitor force and distance. These systems can also be produced in servo, hydraulic, air-over-oil, or pneumatic varieties, and provide force curve outputs for monitoring purposes.

GLUING AND RTV APPLICATIONS

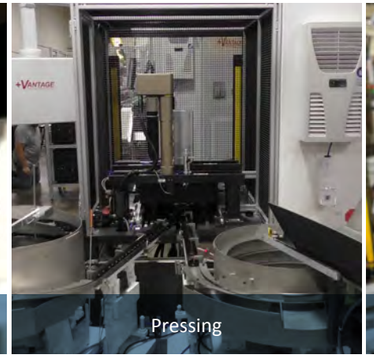
For glue and Room Temperature Vulcanizing (RTV) sealant, +Vantage offers fully robotic and servo driven solutions, both with full monitoring systems as well as post sealant 3D inspection stations. We also offer the capability to inspect the Inner Diameter (ID) of a bore after adhesive application.

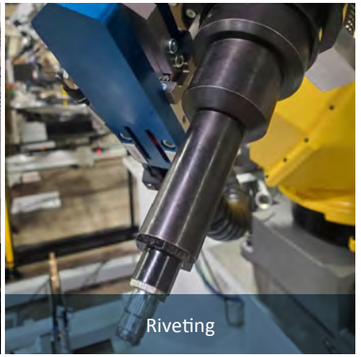
MANUAL ASSEMBLY

+Vantage offers a wide array of manual assembly systems utilizing our assembly technologies. We provide guided sequences to guide the operator through the assembly process, prompting every step of the way on the HMI. With preventative sensors and data recording, we can ensure the operator performs the required assembly tasks every cycle to remove the variation from the manual operation.

+VANTAGE HAS AN IN-HOUSE SAFETY OFFICER SPECIFICALLY FOR LASER MAKING AND PROVIDES ALL OUR LASER PART MARKING SYSTEMS WITH AN FDA ACCESSION REPORT FOR FULL REGULATORY COMPLIANCE.


Torquing


Pressing


Riveting


Gluing and RTV Application


Laser and Part Marking Systems


Manual Assembly

TURNKEY INTEGRATION OF CONNECTED SYSTEMS

With broad capabilities & experiences in inspection, assembly and test systems, +Vantage provides turnkey systems connecting multiple stations and technologies into a single, connected Industry 4.0 solution. Through integrating automatic part handling, part tracking, and connected systems, +Vantage is the one-stop-shop for implementing a new fully automatic smart production system to keep you covered on your way to lights out manufacturing.

ROBOTIC & AUTOMATIC TRANSFER SYSTEMS

Automated part tending brings together all the pieces of automation, safely and autonomously moving parts between stations. +Vantage's part tending and transfer systems include pick-and-place transfer systems, gantries, robots, indexers and custom fit automated solutions. The systems come with custom end-of-arm tooling (EAOT), designed to your specific product and needs and are scalable to part size and type.

BULK INTAKE AND SORTING

We're experienced in providing conveyors & bulk handling systems for every size part, whether it is a bowl feeder or a palletized conveyor. We can provide the equipment to fulfill the needs of the inflows and outflows of the production line.

CNC INTEGRATION AND TOOL COMPENSATION

Automating your CNC machining can save immense amounts of time, removing the need for an operator to attend to the machine after every cycle, and part-to-part tool compensation means you don't need to worry about manual offsets. +Vantage has years of experience using robotics to fully automate the CNC process, integrating with your Factory Information System (FIS) to retain part traceability. Safety always comes first for us, and therefore, safety interlocks are integrated into the system.

AUTOMATIC CALIBRATION AND SYSTEM VERIFICATION

Fully integrated systems are designed for automatic calibration, providing you with real time assurance that your system is functioning properly, and giving you a complete overview of system health, all without requiring down time or manual calibration by an operator.

DATA COLLECTION & SPC

Here at +Vantage, we understand how powerful data is to driving a more efficient manufacturing process, and all of our systems are designed towards helping you achieve that goal. Our systems are designed for real time collection of Statistical Process Control (SPC) data, with a fully integrated suite designed for data collection and gage control, all of which feeds into your Factory Information System, and is ANSI/ISO standard compliance.

CONNECTED MACHINE INTERFACES

All of our machines are designed to function in unison, and their interfaces support this endeavor. Each of our systems in an integrated production line provides information on the parts it works with, empowering you with a complete picture of system health and functionality.

95%
system uptime guaranteed

1500
machines built worldwide

TAKING A PROJECT FROM START TO FINISH

PROJECT MANAGEMENT

Receiving machines on your production floor are key to success when it comes to launching a new program and getting a product delivered into the hands of your customer on time. We understand this at +Vantage and offer a full suite of project management services to keep you informed on our project status and heading towards success. Our certified Project Management Services encompass weekly meetings, Gantt charts, action item decks, and the full array of support to coordinate your know-how into a finished, and timely deliverable. We track every step of the way to keep you informed from the initial mechanical design phase, to programming, debug, and run-off. You will have weekly updates and tracking to ensure progress and timing milestones.

SUPPORT SERVICES

At +Vantage, we understand the worries that come with finding a new partner for your process and business, and we're here to assure you that our involvement doesn't end the moment you sign for your equipment.

Our engineers and field services representatives are with you every step of the way as you install our machines, troubleshoot any unexpected behavior, and get your process humming. Our service engineers can be onsite for routine maintenance, and we're happy to tailor service contracts to meet your needs, including onsite training. We offer 24/7, around the clock phone support, with remote login capability to troubleshoot where possible.

Service Offices In:

US **Canada** **Mexico** **China**

CONTACT US

If you're looking to start up a brand new automated assembly line, want to retrofit an old one, or simply want to inquire about the breadth of our experience and expertise, please contact us.

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